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INTERVENTO

**FONDO COMPLEMENTARE AL PIANO NAZIONALE DI RIPRESA E RESILIENZA  
PROGRAMMA "SICURO, VERDE E SOCIALE: RIQUALIFICAZIONE DELL'EDILIZIA RESIDENZIALE PUBBLICA"**

**PROGETTO DI MANUTENZIONE STRAORDINARIA PER IL RESTAURO E RISANAMENTO  
CONSERVATIVO DI DUE CASAMENTI A CORTE SITI IN  
COMUNE DI BOLOGNA LOCALITA' CIRENAICA.  
VIA LIBIA CIV. 29÷51 PER COMPLESSIVI 70 ALLOGGI  
DI ERP CON RELATIVE PERTINENZE E PARTI COMUNI**

LOTTO **3053/PN\_2**

**PROGETTO ESECUTIVO**

TAV.  TAB_09		OGGETTO  TABULATI DI CALCOLO CIVICO 39 STATO DI FATTO			DATA  Settembre 2022	
SCALA					N. DISEGNO	
VERSIONE	DESCRIZIONE	DATA	REDATTO	VERIFICATO		APPROVATO
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01						
02						
03						

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TABULATI DI CALCOLO – VERIFICHE  
CIVICO 39  
STATO DI FATTO





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# 1 Risultati numerici

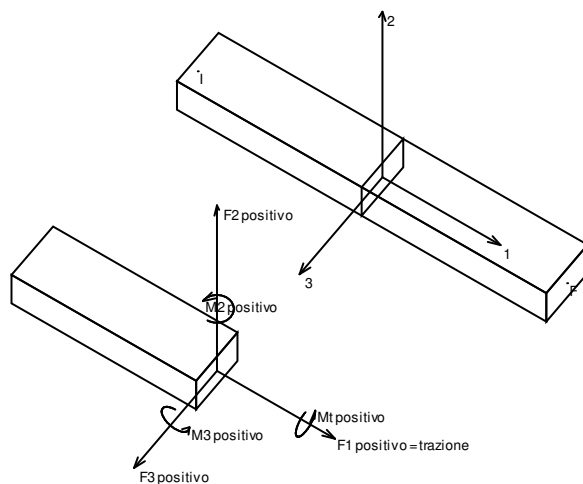
## 1.1 Sollecitazioni

### 1.1.1 Sollecitazioni aste

#### 1.1.1.1 Convenzioni di segno aste

Le abbreviazioni relative alle sollecitazioni sugli elementi aste sono da intendersi:

- $F1$  (N): sforzo normale nell'asta;
- $F2$ : sforzo di taglio agente nella direzione dell'asse locale 2;
- $F3$ : sforzo di taglio agente nella direzione dell'asse locale 3;
- $M1$  (Mt): momento attorno all'asse locale 1; equivale al momento torcente;
- $M2$ : momento attorno all'asse locale 2;
- $M3$ : momento attorno all'asse locale 3.



La convenzione sui segni per i parametri di sollecitazione delle aste è la seguente:

presa un'asta con nodo iniziale  $i$  e nodo finale  $f$ , asse 1 che va da  $i$  a  $f$ , assi 2 e 3 presi secondo quanto indicato nei paragrafi successivi relativi al sistema locale delle aste sezionando l'asta in un punto e considerando la sezione sinistra del punto in cui si è effettuato il taglio (sezione da cui esce il versore asse 1) i parametri di sollecitazione sono positivi se hanno verso e direzione concordi con il sistema di riferimento locale dell'asta 1, 2, 3 (per i momenti si adotta la regola della mano destra).

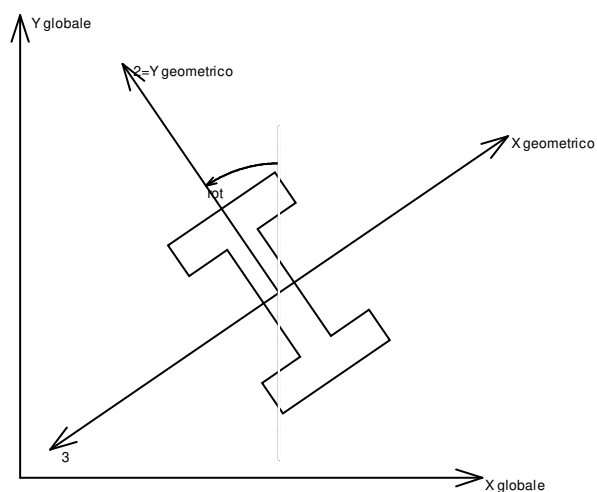
Il sistema è definito diversamente per tre categorie di aste, a seconda che siano originate da:

- aste verticali ad esempio pilastri e colonne;
- aste non verticali non di c.a., ad esempio travi di acciaio o legno;
- aste non verticali in c.a.: travi in c.a. di piano, falda o a quota generica.

Nel seguito si indica con 1, 2 e 3 il sistema locale dell'asta che non sempre coincide con gli assi principali della sezione. Si ricorda che per assi principali si intendono gli assi rispetto a cui si ha il raggio di inerzia minimo e massimo. Gli assi 1, 2 e 3 rispettano la regola della mano destra.

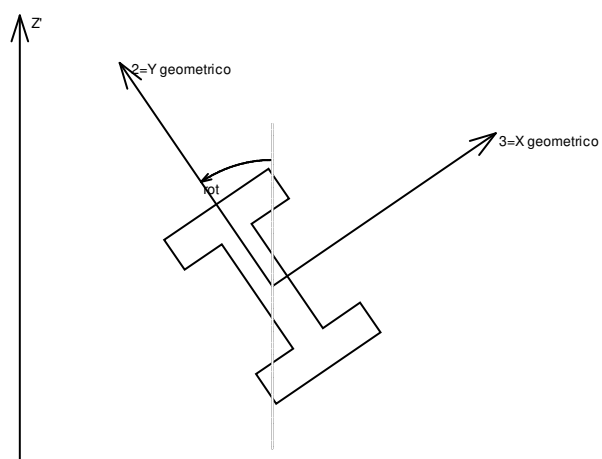


### Sistema locale aste verticali



Nella figura si considera l'asse 1 uscente dal foglio (l'osservatore guarda in direzione opposta a quella dell'asse 1).

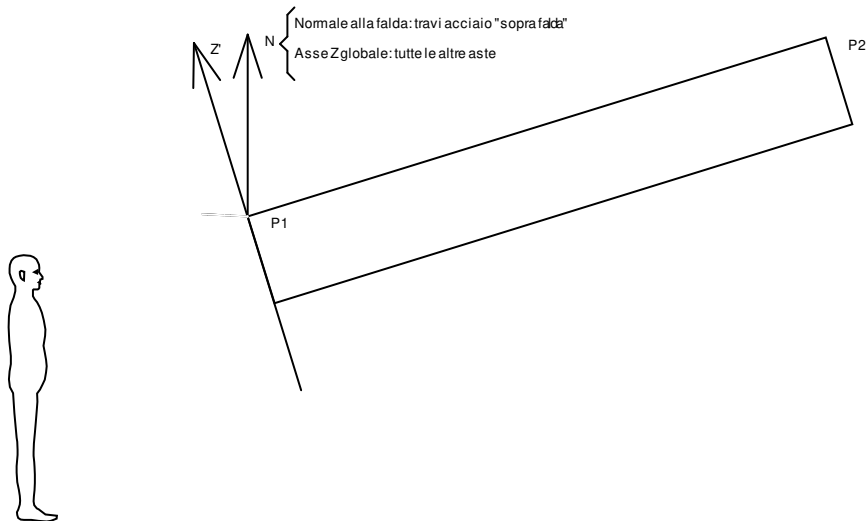
### Sistema locale aste non verticali



Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1).

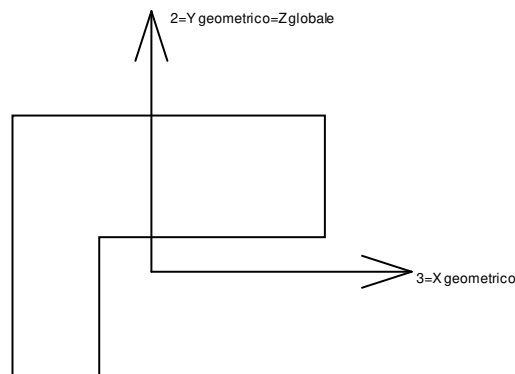
L'asse Z' è illustrato nella figura seguente dove:

- P1 è il punto di inserimento iniziale dell'asta;
- P2 è il punto di inserimento finale dell'asta;
- N è la normale al piano o falda di inserimento;



$Z'$  è quindi l'intersezione tra il piano passante per  $P1, P2$  contenente  $N$  e il piano della sezione iniziale dell'asta.

**Sistema locale aste derivanti da travi in c.a.**



Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1). L'asse 2 è sempre verticale e quindi coincidente con l'asse  $Z$  globale nonché con l'asse  $y$  geometrico. L'asse 3 coincide con l'asse  $x$  geometrico. Si sottolinea il fatto che gli assi 2 e 3 non corrispondono agli assi principali della sezione.

#### 1.1.1.2 Sollecitazioni estreme aste

**Asta:** elemento asta a cui si riferiscono le sollecitazioni.

**Ind.:** indice dell'asta.

**Cont.:** contesto a cui si riferisce la sollecitazione

**N.br.:** nome breve della condizione o combinazione di carico.

**Pos.:** numero della sezione all'interno dell'asta (tra 1 e 31, dove 1 corrisponde alla sezione al nodo iniziale, 16 è la sezione in mezzera, 31 corrisponde alla sezione al nodo finale).

**Posizione:** posizione a cui si riferisce la sollecitazione dell'asta.

**X:** componente  $X$  della posizione a cui si riferisce la sollecitazione dell'asta. [m]

**Y:** componente  $Y$  della posizione a cui si riferisce la sollecitazione dell'asta. [m]

**Z:** componente  $Z$  della posizione a cui si riferisce la sollecitazione dell'asta. [m]

**Soll.traslazionale:** componente traslazionale della sollecitazione dell'asta.

**F1:** componente  $F1$  della sollecitazione dell'asta. [kN]

**F2:** componente  $F2$  della sollecitazione dell'asta. [kN]

**F3:** componente  $F3$  della sollecitazione dell'asta. [kN]

**Soll.rotazionale:** componente rotazionale della sollecitazione dell'asta.

**M1:** componente  $M1$  della sollecitazione dell'asta. [kN\*m]

**M2:** componente  $M2$  della sollecitazione dell'asta. [kN\*m]

**M3:** componente  $M3$  della sollecitazione dell'asta. [kN\*m]

#### Sollecitazioni con sforzo normale (N) minimo

Vengono mostrate le sole 5 aste più sollecitate.



Asta	Cont.	Pos.	Posizione			Soll.traslazionale			Soll.rotazionale		
Ind.	N.br.		X	Y	Z	F1	F2	F3	M1	M2	M3
118	SLU 79	31	-22.32	-1.07	16.35	-61.97	1.11	4.91	-0.1942	5.6287	15.116
120	SLU 80	31	-23.19	-1.91	15.89	-58.22	9	-0.61	1.1583	0.9633	5.7266
119	SLU 80	31	-22.51	-1.26	16.25	-57.74	6.59	-2	2.1715	2.0758	14.3361
121	SLU 80	31	-23.86	-2.57	15.53	-57.02	9.22	-0.43	0.6173	0.2802	-3.5216
107	SLU 79	1	-23.18	4.32	15.87	-55.45	-12.71	2.09	-0.0035	2.8226	11.9059

#### Sollecitazioni con sforzo normale (N) massimo

Vengono mostrate le sole 5 aste più sollecitate.

Asta	Cont.	Pos.	Posizione			Soll.traslazionale			Soll.rotazionale		
Ind.	N.br.		X	Y	Z	F1	F2	F3	M1	M2	M3
177	SLV 7	31	-6.29	-0.97	16.16	33.18	-0.29	-0.32	-0.0053	-0.3968	0.4514
206	SLV 11	31	-18.45	-0.97	16.17	31.84	-0.45	0.2	0.0054	0.2952	0.6507
101	SLV 9	1	-19.12	6.14	15.28	30.91	-0.36	2.35	0.666	-0.7771	-6.8112
128	SLV Y	1	-11.02	-3.49	15	30.66	-0.27	0.08	-0.0028	-0.12	-0.3727
66	SLV Y	1	-0.88	-2.59	15.45	29.75	-0.37	1.65	0.083	-0.7086	0.9316

#### Sollecitazioni con momento M2 minimo

Vengono mostrate le sole 5 aste più sollecitate.

Asta	Cont.	Pos.	Posizione			Soll.traslazionale			Soll.rotazionale		
Ind.	N.br.		X	Y	Z	F1	F2	F3	M1	M2	M3
113	SLU 29	31	-20.24	0.96	17.45	-33.35	-0.86	-0.63	-10.469	-10.6697	-22.6291
95	SLU 71	31	-16.42	3.31	16.51	-23.63	-5.51	-1.21	-1.2277	-7.5998	41.526
96	SLU 71	1	-16.42	3.31	16.51	-23.44	1.73	0.87	-1.0512	-7.4807	41.2246
97	SLU 71	1	-16.86	3.77	16.31	-24.92	7.96	1.17	-4.3925	-6.8012	35.7935
344	SLV 11	31	-17.1	-0.97	16.17	9.11	4.82	-7.45	-0.1427	-6.6171	-2.0061

#### Sollecitazioni con momento M2 massimo

Vengono mostrate le sole 5 aste più sollecitate.

Asta	Cont.	Pos.	Posizione			Soll.traslazionale			Soll.rotazionale		
Ind.	N.br.		X	Y	Z	F1	F2	F3	M1	M2	M3
57	SLU 71	1	-4.75	1.05	17.48	0.16	15.28	-12.04	12.399	12.2067	-13.4672
84	SLU 79	31	-8.31	3.35	16.49	-38.3	-6.79	1.17	0.9981	6.8116	41.8843
85	SLU 79	1	-8.31	3.35	16.49	-38.9	0.59	-0.51	0.8606	6.7526	41.6001
344	SLV 5	31	-17.1	-0.97	16.17	-11.38	-2.11	8.6	0.0592	6.2655	2.6301
20	SLV 5	1	-17.1	1.05	17.11	-3.19	-0.07	2.21	-0.5567	6.1135	-0.0265

#### Sollecitazioni con momento M3 minimo

Vengono mostrate le sole 5 aste più sollecitate.

Asta	Cont.	Pos.	Posizione			Soll.traslazionale			Soll.rotazionale		
Ind.	N.br.		X	Y	Z	F1	F2	F3	M1	M2	M3
112	SLU 79	31	-20.15	1.05	17.5	-32.02	34.96	-1.29	1.8234	-6.3951	-33.0824
90	SLU 80	31	-5.21	6.6	15.08	-40.6	12.85	-1.23	-3.3699	-3.1544	-32.1247
101	SLU 80	31	-19.56	6.6	15.08	-25.19	13.63	1.46	2.6758	2.3798	-29.7843
114	SLU 72	1	-20.24	0.96	17.45	-30.91	-33.95	-2.61	-1.5411	-2.5405	-29.3179
67	SLU 80	1	-4.75	1.05	17.48	-23.39	-29.5	0.9	-1.7135	-5.8163	-26.1285

#### Sollecitazioni con momento M3 massimo

Vengono mostrate le sole 5 aste più sollecitate.

Asta	Cont.	Pos.	Posizione			Soll.traslazionale			Soll.rotazionale		
Ind.	N.br.		X	Y	Z	F1	F2	F3	M1	M2	M3
84	SLU 71	31	-8.31	3.35	16.49	-38.2	-6.79	1.16	1.0017	6.8034	41.9262
85	SLU 71	1	-8.31	3.35	16.49	-38.81	0.59	-0.51	0.8631	6.7454	41.6405
95	SLU 71	31	-16.42	3.31	16.51	-23.63	-5.51	-1.21	-1.2277	-7.5998	41.526
96	SLU 71	1	-16.42	3.31	16.51	-23.44	1.73	0.87	-1.0512	-7.4807	41.2246
86	SLU 71	1	-7.92	3.77	16.31	-40.93	8.63	-1.4	4.3298	5.4971	37.7613

### 1.1.2 Sollecitazioni gusci

#### 1.1.2.1 Convenzioni di segno gusci

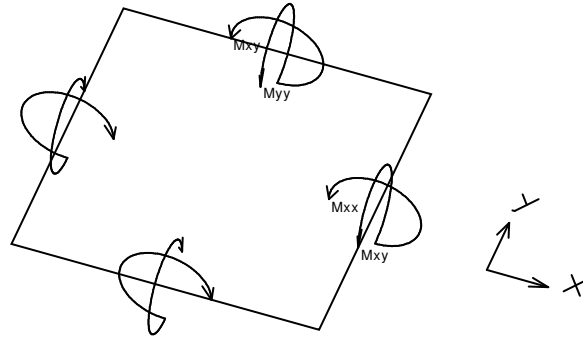
Sono individuate distinte convenzioni di segno in relazione al tipo di elemento strutturale a cui il guscio si riferisce:

- convenzione per gusci non verticali, originati ad esempio da piastre e platee;
- convenzione per gusci verticali, originati ad esempio da pareti e muri.

#### Convenzione di segno per gusci non verticali

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: origine appartenente al piano dell'elemento, asse x e y contenuti nel piano dell'elemento e terzo asse (z) ortogonale al piano dell'elemento a formare una terna destrorsa. In particolare l'asse x ha proiezione in pianta parallela ed equiversa all'asse globale X. Nel caso di piastre orizzontali (caso più comune) gli assi x, y e z locali all'elemento sono paralleli ed equiversi agli assi X, Y e Z globali. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione.

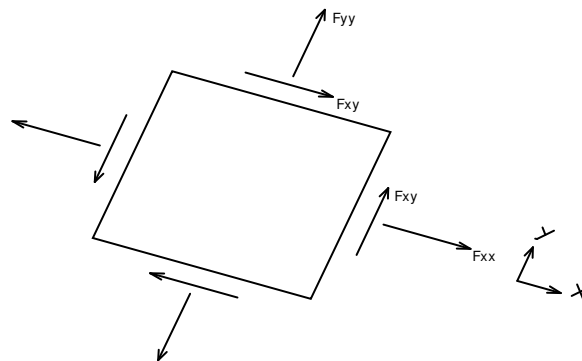
In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $M_{xx}$ ,  $M_{yy}$ ,  $M_{xy}$ .



Si definiscono:

- $M_{xx}$ : momento flettente [Forza\*Lunghezza/Lunghezza] agente sul bordo di normale x (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{yy}$ : momento flettente [Forza\*Lunghezza/Lunghezza] agente sul bordo di normale y (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{xy}$ : momento torcente [Forza\*Lunghezza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $F_{xx}$ ,  $F_{yy}$ ,  $F_{xy}$ .



Si definiscono:

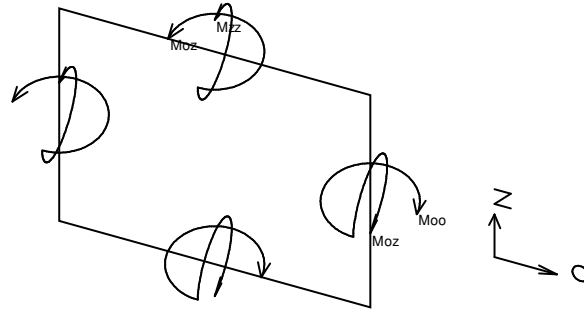
- $F_{xx}$ : sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale x (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{yy}$ : sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale all'asse y (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{xy}$ : sforzo di taglio [Forza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Vengono riportati inoltre i tagli fuori dal piano dell'elemento guscio:

- $V_x$ : taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse x;
- $V_y$ : taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse y.

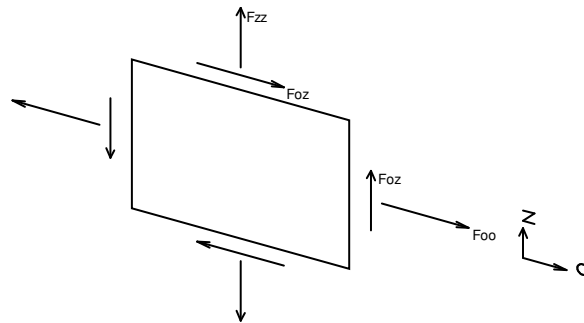
#### Convenzione di segno per gusci verticali

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: origine appartenente al piano dell'elemento, asse O (ascisse) e z (ordinate) contenuti nel piano dell'elemento e terzo asse ortogonale al piano dell'elemento a formare una terna destrorsa. In particolare l'asse O è orizzontale e l'asse z parallelo ed equiverso con l'asse Z globale. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione. In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $M_{xx}$ ,  $M_{yy}$ ,  $M_{xy}$ ,  $F_{xx}$ ,  $F_{yy}$ ,  $F_{xy}$ .



- Moo: momento flettente distribuito  $[Forza * Lunghezza / Lunghezza]$  applicato al bordo di normale parallela all'asse O (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- Mzz: momento flettente distribuito  $[Forza * Lunghezza / Lunghezza]$  applicato al bordo di normale parallela all'asse z (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- Moz: momento 'torcente' distribuito  $[Forza * Lunghezza / Lunghezza]$  applicato sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell con indicato il sistema di riferimento i parametri di sollecitazione Foo, Fzz, Foz sono rispettivamente:



- Fzz: sforzo tensionale distribuito  $[Forza / Lunghezza]$  applicato al bordo di normale parallela all'asse z (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- Foo: sforzo tensionale distribuito  $[Forza / Lunghezza]$  applicato al bordo di normale parallela all'asse O (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- Foz: sforzo tagliante distribuito  $[Forza / Lunghezza]$  applicato sui bordi (verso positivo indicato dalla freccia in figura).

Vengono riportati inoltre i tagli fuori dal piano dell'elemento guscio:

- Vo: taglio fuori piano applicato al bordo di normale parallela all'asse O;
- Vz: taglio fuori piano applicato al bordo di normale parallela all'asse z.

#### 1.1.2.2 Sollecitazioni estreme gusci

**Shell:** elemento guscio a cui si riferiscono le sollecitazioni.

**Ind:** indice del guscio.

**Cont.:** contesto a cui si riferiscono le sollecitazioni.

**N.br.:** nome breve della condizione o combinazione di carico.

**Nodo:** nodo su cui si basa il guscio a cui si riferisce la sollecitazione.

**Ind:** indice del nodo.

**Sollecitazione:** valori della sollecitazione.

**M11:** componente M11 della sollecitazione del guscio nel nodo indicato.  $[kN * m / m]$

**M12:** componente M12 della sollecitazione del guscio nel nodo indicato.  $[kN * m / m]$

**M22:** componente M22 della sollecitazione del guscio nel nodo indicato.  $[kN * m / m]$

**F11:** componente F11 della sollecitazione del guscio nel nodo indicato.  $[kN / m]$

**F12:** componente F12 della sollecitazione del guscio nel nodo indicato.  $[kN / m]$

**F22:** componente F22 della sollecitazione del guscio nel nodo indicato.  $[kN / m]$

**V13:** componente V13 della sollecitazione del guscio nel nodo indicato.  $[kN / m]$

**V23:** componente V23 della sollecitazione del guscio nel nodo indicato.  $[kN / m]$

#### Sollecitazioni con momento M11 minimo

Vengono mostrati i soli 5 gusci più sollecitati.



Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
9165	SLV 5	10504	-25.38	-4	10.39	-94	-98	-269	140	41
721	SLV 11	3144	-21.29	-0.64	-15.71	158	226	-540	-84	35
53	SLV 5	2780	-21.22	-0.56	-9.72	451	231	-382	-98	26
725	SLV 7	3144	-20.08	0.69	-14.52	119	-211	-512	79	34
60	SLV 5	2779	-18.48	-0.93	-8.97	251	194	-62	-91	25

#### Sollecitazioni con momento M11 massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
9165	SLV 11	10504	28.49	4.74	-9.9	212	-37	-179	-157	-46
17118	SLV 9	2806	20.17	0.53	9.41	341	224	-334	83	-28
17125	SLV 9	2807	18.48	1.07	8.01	202	203	-54	82	-22
9689	SLV 7	3063	16.79	2.1	4.71	721	310	-513	87	-11
17132	SLV 9	2808	16.47	0.93	5.94	93	188	-83	76	-15

#### Sollecitazioni con momento M22 minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
721	SLU 83	3144	-17.75	-0.99	-16.4	50	217	-645	-67	37
15158	SLV 1	17579	-3.41	2.49	-16.18	112	35	-26	-16	51
725	SLU 83	3144	-16.44	1.08	-16.07	49	-203	-644	60	36
15268	SLV 5	17596	-2.76	3.25	-15.03	41	-51	198	-14	39
9524	SLV 9	17597	-2.96	-2.96	-14.17	-72	43	200	14	36

#### Sollecitazioni con momento M22 massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
10121	SLU 80	18305	8.09	3.91	41.7	-53	-32	8	-28	-175
10118	SLU 80	18305	2.33	-8.52	29.48	-8	-12	-102	25	-70
10131	SLU 80	18299	10.11	1.84	28.98	-23	-23	-124	-62	-78
10130	SLU 80	18299	9.1	-1.2	28.72	-93	79	42	22	-79
10122	SLU 80	18307	0.49	3.96	22.77	-42	-12	-20	-5	-64

#### Sollecitazioni con sforzo F11 minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
9779	SLU 80	18265	-3.14	0.41	-3.46	-2500	-1098	-1633	10	-32
9780	SLU 79	18273	-0.07	-0.59	3.19	-1666	-510	-956	-22	-14
5129	SLU 71	17086	-0.7	0.78	-4.07	-1032	-274	-1265	-538	4
5108	SLU 71	17614	-2.16	-1.3	-3.04	-899	-1115	-2589	39	33
15919	SLV 5	6428	-0.42	0.51	0.43	-851	-310	-278	6	2

#### Sollecitazioni con sforzo F11 massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
9779	SLU 72	18323	3.91	-0.15	6.54	2482	341	-158	10	-32
9780	SLU 30	18324	-2.78	-1.56	3.75	1596	897	1590	-21	-14
1370	SLU 83	3113	0	0.01	-0.01	1110	719	467	0	0
5108	SLU 71	17087	8.68	-0.56	3.63	1071	862	1299	-491	97
5106	SLU 80	17612	0.43	-0.84	0.07	885	-302	461	33	-8

#### Sollecitazioni con sforzo F22 minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
5108	SLU 71	17614	-2.16	-1.3	-3.04	-899	-1115	-2589	39	33
15944	SLV 9	3385	0.12	-0.64	0.42	121	-37	-1720	2	-2
9780	SLU 72	18323	6	-0.94	7.31	580	-794	-1645	-23	-14
9779	SLU 72	18265	-3.15	0.41	-3.45	-2487	-1092	-1639	10	-32
5129	SLU 80	17087	7.51	0.86	-1.77	-1012	-249	-1596	-550	-4

#### Sollecitazioni con sforzo F22 massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	M11	M12	M22	F11	F12	F22	V13	V23
9780	SLU 79	18324	-2.89	-1.6	3.78	1566	907	1626	-22	-14
5108	SLU 29	17086	1.2	0.46	3.56	876	1264	1349	-439	85
15944	SLV Y	2702	0.4	0.3	-0.57	238	158	1308	6	1
12921	SLU 79	17032	0.82	-0.89	0.66	645	768	1286	0	14
15918	SLV Y	2701	-0.34	-0.22	0.56	270	23	1268	-1	1

#### 1.1.2.3 Sollecitazioni estreme gusci non verticali

**Shell:** elemento guscio a cui si riferiscono le sollecitazioni.

**Ind:** indice del guscio.

**Cont.:** contesto a cui si riferiscono le sollecitazioni.

**N.br.:** nome breve della condizione o combinazione di carico.

**Nodo:** nodo su cui si basa il guscio a cui si riferisce la sollecitazione.

**Ind:** indice del nodo.





**Sollecitazione:** valori della sollecitazione.

**Mxx:** componente Mxx della sollecitazione del guscio nel nodo indicato. [kN\*m/m]

**Mxy:** componente Mxy della sollecitazione del guscio nel nodo indicato. [kN\*m/m]

**Myy:** componente Myy della sollecitazione del guscio nel nodo indicato. [kN\*m/m]

**Fxx:** componente Fxx della sollecitazione del guscio nel nodo indicato. [kN/m]

**Fxy:** componente Fxy della sollecitazione del guscio nel nodo indicato. [kN/m]

**Fyy:** componente Fyy della sollecitazione del guscio nel nodo indicato. [kN/m]

**Vx:** componente Vo della sollecitazione del guscio nel nodo indicato. [kN/m]

**Vy:** componente Vz della sollecitazione del guscio nel nodo indicato. [kN/m]

#### Sollecitazioni con momento Mxx minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
8674	SLV 15	2878	-5.4	-0.92	0.98	-206	4	16	-19	-6
8308	SLV 1	2906	-5.37	-0.25	-2.63	83	84	83	12	7
8307	SLV 1	2906	-5.24	0.25	-2.87	101	-9	100	13	-6
8673	SLV 15	2878	-4.85	0.82	-1.99	-214	-10	18	-12	10
9853	SLV 7	17478	-4.51	0.14	-3.74	-25	-13	-29	-14	-15

#### Sollecitazioni con momento Mxx massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
17311	SLV 15	2881	4.94	0.04	3.67	-99	-47	-18	-20	1
9853	SLV 9	17478	4.18	-0.14	3.33	5	7	-14	13	13
16164	SLV 7	10212	3.74	-0.05	0.94	2	-34	-98	-9	-1
16807	SLV 9	10212	3.63	-0.08	0.91	-5	-4	-20	-7	-1
9463	SLV 11	10213	3.52	-0.03	0.89	-15	16	-32	6	0

#### Sollecitazioni con momento Myy minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
9853	SLV 7	17478	-4.51	0.14	-3.74	-25	-13	-29	-14	-15
9866	SLV 7	17466	-3.12	0.11	-3.62	-11	2	-4	-9	-13
8308	SLV 3	2906	-4.94	-0.36	-3.55	102	53	106	13	9
9854	SLV 7	17478	-2.97	0.14	-3.53	-25	-12	-29	10	-12
9867	SLV 7	17466	-2.56	0.17	-3.51	-11	-7	-4	-5	-10

#### Sollecitazioni con momento Myy massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
17311	SLV 13	2881	4.82	-0.15	3.7	-65	-39	-38	-19	1
9853	SLV 9	17478	4.18	-0.14	3.33	5	7	-14	13	13
9854	SLV 9	17478	2.62	-0.14	3.11	6	9	-13	-9	11
17088	SLU 84	746	0.69	0	3.11	4	-35	-189	-3	-14
23	SLU 84	750	0.72	0.04	3.01	0	34	-198	3	-13

#### Sollecitazioni con sforzo Fxx minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
8674	SLV 11	2882	-1.93	-0.87	0.13	-464	71	-57	-1	-6
10249	SLV 5	2693	-0.61	-0.18	-0.45	-404	-103	-64	-2	2
10239	SLV 5	3428	0.54	-0.16	0.43	-376	-84	-18	-3	-1
10209	SLV 9	2692	-0.74	-0.1	-0.4	-373	-101	-45	-3	2
10199	SLV 9	3427	0.58	-0.13	0.26	-350	-107	-42	-4	1

#### Sollecitazioni con sforzo Fxx massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
10249	SLV Y	2693	0.35	0.08	0.37	159	51	23	1	-1
10209	SLV Y	2692	0.22	0.04	0.08	157	54	21	1	-1
10239	SLV Y	3428	-0.28	0.05	-0.12	149	53	10	2	1
10199	SLV Y	3427	-0.22	0.07	-0.15	147	59	21	1	-1
8760	SLV Y	3213	-0.21	0.02	0.08	140	-78	39	1	0

#### Sollecitazioni con sforzo Fyy minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
8318	SLV 5	2708	-0.42	-0.44	-0.57	-238	215	-466	0	1
8295	SLV 3	3078	-0.47	0.43	-0.98	-242	-175	-430	0	1
25	SLV 13	67	-0.06	0.06	-0.25	-67	-20	-396	1	1
17090	SLV 1	68	-0.05	-0.08	-0.22	-62	16	-365	-1	1
23	SLV 13	937	-0.32	-0.2	-0.3	-7	85	-348	3	1

#### Sollecitazioni con sforzo Fyy massimo

Vengono mostrati i soli 5 gusci più sollecitati.



Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Mxx	Mxy	Myy	Fxx	Fxy	Fyy	Vx	Vy
25	SLV X	391	-0.07	0.22	-0.81	28	-64	250	0	-6
8318	SLV Y	3292	0.55	0.29	0.39	44	-96	192	1	-1
8295	SLV X	3078	0.34	-0.24	0.83	127	56	185	0	-2
17090	SLV 3	387	0.05	-0.37	0.48	44	80	155	0	0
23	SLV X	391	0.07	-0.13	0.72	-3	35	130	1	2

#### 1.1.2.4 Sollecitazioni estreme gusci verticali

**Shell:** elemento guscio a cui si riferiscono le sollecitazioni.

**Ind:** indice del guscio.

**Cont.:** contesto a cui si riferiscono le sollecitazioni.

**N.br.:** nome breve della condizione o combinazione di carico.

**Nodo:** nodo su cui si basa il guscio a cui si riferisce la sollecitazione.

**Ind:** indice del nodo.

**Sollecitazione:** valori della sollecitazione.

**Moo:** componente Moo della sollecitazione del guscio nel nodo indicato. [kN\*m/m]

**Moz:** componente Moz della sollecitazione del guscio nel nodo indicato. [kN\*m/m]

**Mzz:** componente Mzz della sollecitazione del guscio nel nodo indicato. [kN\*m/m]

**Foo:** componente Foo della sollecitazione del guscio nel nodo indicato. [kN/m]

**Foz:** componente Foz della sollecitazione del guscio nel nodo indicato. [kN/m]

**Fzz:** componente Fzz della sollecitazione del guscio nel nodo indicato. [kN/m]

**Vo:** componente Vo della sollecitazione del guscio nel nodo indicato. [kN/m]

**Vz:** componente Vz della sollecitazione del guscio nel nodo indicato. [kN/m]

#### Sollecitazioni con momento Moo minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
9165	SLV 5	10504	-25.38	-4	10.39	-94	-98	-269	140	41
721	SLV 11	3144	-21.29	-0.64	-15.71	158	226	-540	-84	35
725	SLV 7	3144	-20.08	0.69	-14.52	119	-211	-512	79	34
9689	SLV 7	3063	-16.79	2.1	-4.71	721	-310	-513	87	11
17125	SLV 9	2808	-16.6	0.88	5.1	48	204	-103	81	13

#### Sollecitazioni con momento Moo massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
9165	SLV 11	10504	28.49	4.74	-9.9	212	-37	-179	-157	-46
53	SLV 5	2780	21.22	-0.56	9.72	451	-231	-382	-98	-26
17118	SLV 9	2806	20.17	0.53	9.41	341	224	-334	83	-28
17125	SLV 9	2807	18.48	1.07	8.01	202	203	-54	82	-22
60	SLV 5	2779	18.48	-0.93	8.97	251	-194	-62	-91	-25

#### Sollecitazioni con momento Mzz minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
10121	SLU 80	18305	-8.09	3.91	-41.7	-53	32	8	-28	175
10118	SLU 80	18305	-2.33	-8.52	-29.48	-8	12	-102	25	70
10131	SLU 80	18299	-10.11	1.84	-28.98	-23	23	-124	-62	78
10130	SLU 80	18299	-9.1	-1.2	-28.72	-93	-79	42	22	79
10122	SLU 80	18307	-0.49	3.96	-22.77	-42	12	-20	-5	64

#### Sollecitazioni con momento Mzz massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
12969	SLU 71	17634	2.4	3.49	17.28	-17	1	-26	-12	-57
12967	SLU 72	17636	0.88	4.21	15.21	-12	-4	-19	-9	-47
12966	SLU 71	17636	-0.7	-1.15	15.05	-11	4	-17	2	-46
15268	SLV 5	17596	2.76	3.25	15.03	41	51	198	-14	-39
15158	SLV 15	17579	-0.07	-1.79	14.41	94	89	87	4	-44

#### Sollecitazioni con sforzo Foo minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
9779	SLU 80	18265	3.14	0.41	3.46	-2500	1098	-1633	10	32
9780	SLU 79	18273	0.07	-0.59	-3.19	-1666	510	-956	-22	14
5129	SLU 71	17086	-0.7	0.78	-4.07	-1032	-274	-1265	-538	4
5108	SLU 71	17614	-2.16	-1.3	-3.04	-899	-1115	-2589	39	33
15919	SLV 5	6428	-0.42	0.51	0.43	-851	-310	-278	6	2

#### Sollecitazioni con sforzo Foo massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
9779	SLU 72	18323	-3.91	-0.15	-6.54	2482	-341	-158	10	32
9780	SLU 30	18324	2.78	-1.56	-3.75	1596	-897	1590	-21	14
1370	SLU 83	3113	0	0.01	-0.01	1110	719	467	0	0



Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
5108	SLU 71	17087	8.68	-0.56	3.63	1071	862	1299	-491	97
5106	SLU 80	17612	0.43	-0.84	0.07	885	-302	461	33	-8

#### Sollecitazioni con sforzo Fzz minimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
5108	SLU 71	17614	-2.16	-1.3	-3.04	-899	-1115	-2589	39	33
15944	SLV 9	3385	0.12	-0.64	0.42	121	-37	-1720	2	-2
9780	SLU 72	18323	-6	-0.94	-7.31	580	794	-1645	-23	14
9779	SLU 72	18265	3.15	0.41	3.45	-2487	1092	-1639	10	32
5129	SLU 80	17087	7.51	0.86	-1.77	-1012	-249	-1596	-550	-4

#### Sollecitazioni con sforzo Fzz massimo

Vengono mostrati i soli 5 gusci più sollecitati.

Shell	Cont.	Nodo	Sollecitazione							
Ind	N.br.	Ind	Moo	Moz	Mzz	Foo	Foz	Fzz	Vo	Vz
9780	SLU 79	18324	2.89	-1.6	-3.78	1566	-907	1626	-22	14
5108	SLU 29	17086	1.2	0.46	3.56	876	1264	1349	-439	85
15944	SLV Y	2702	0.4	0.3	-0.57	238	158	1308	6	1
12921	SLU 79	17032	0.82	-0.89	0.66	645	768	1286	0	14
15918	SLV Y	2701	-0.34	-0.22	0.56	270	23	1268	-1	1

### 1.1.3 Sollecitazioni gusci armati

#### 1.1.3.1 Convenzioni di segno gusci

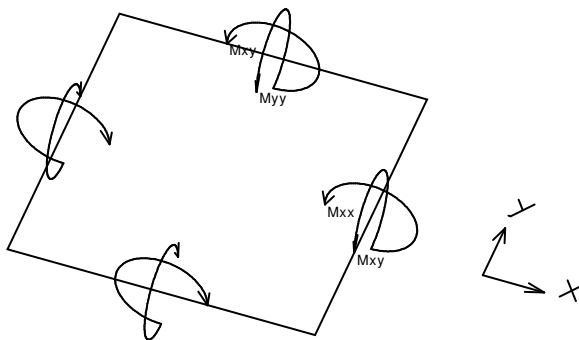
Sono individuate distinte convenzioni di segno in relazione al tipo di elemento strutturale a cui il guscio si riferisce:

- convenzione per gusci non verticali, originati ad esempio da piastre e platee;
- convenzione per gusci verticali, originati ad esempio da pareti e muri.

#### Convenzione di segno per gusci non verticali

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: origine appartenente al piano dell'elemento, asse x e y contenuti nel piano dell'elemento e terzo asse (z) ortogonale al piano dell'elemento a formare una terna destrorsa. In particolare l'asse x ha proiezione in pianta parallela ed equivale all'asse globale X. Nel caso di piastre orizzontali (caso più comune) gli assi x, y e z locali all'elemento sono paralleli ed equivale agli assi X, Y e Z globali. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione.

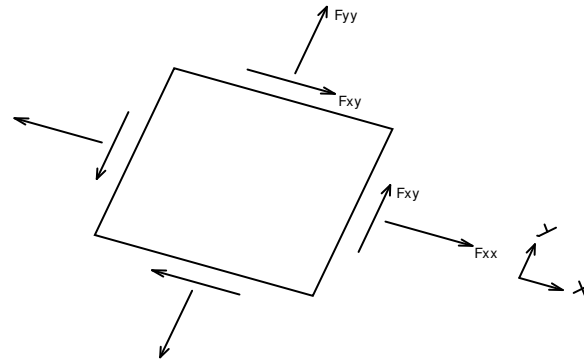
In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $M_{xx}$ ,  $M_{yy}$ ,  $M_{xy}$ .



Si definiscono:

- $M_{xx}$ : momento flettente [Forza\*Lunghezza/Lunghezza] agente sul bordo di normale x (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{yy}$ : momento flettente [Forza\*Lunghezza/Lunghezza] agente sul bordo di normale y (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{xy}$ : momento torcente [Forza\*Lunghezza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $F_{xx}$ ,  $F_{yy}$ ,  $F_{xy}$ .



Si definiscono:

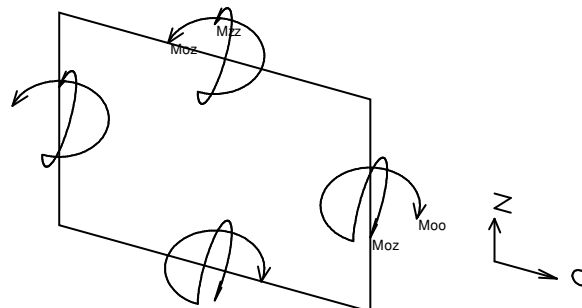
- $F_{xx}$ : sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale  $x$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{yy}$ : sforzo estensionale [Forza/Lunghezza] agente sul bordo di normale all'asse  $y$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{xy}$ : sforzo di taglio [Forza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Vengono riportati inoltre i tagli fuori dal piano dell'elemento guscio:

- $V_x$ : taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse  $x$ ;
- $V_y$ : taglio fuori piano [Forza/Lunghezza] applicato al bordo di normale parallela all'asse  $y$ .

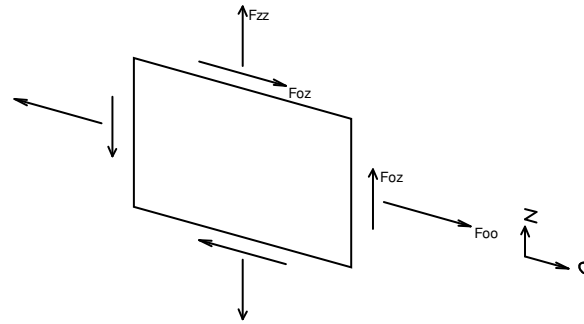
#### Convenzione di segno per gusci verticali

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: origine appartenente al piano dell'elemento, asse  $O$  (ascisse) e  $z$  (ordinate) contenuti nel piano dell'elemento e terzo asse ortogonale al piano dell'elemento a formare una terna destrorsa. In particolare l'asse  $O$  è orizzontale e l'asse  $z$  parallelo ed equiverso con l'asse  $Z$  globale. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione. In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $M_{oo}$ ,  $M_{zz}$ ,  $M_{oz}$ .



- $M_{oo}$ : momento flettente distribuito [Forza\*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse  $O$  (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{zz}$ : momento flettente distribuito [Forza\*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse  $z$  (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{oz}$ : momento 'torcente' distribuito [Forza\*Lunghezza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell con indicato il sistema di riferimento i parametri di sollecitazione  $F_{oo}$ ,  $F_{zz}$ ,  $F_{oz}$  sono rispettivamente:



- $F_{zz}$ : sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse  $z$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{oo}$ : sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse  $O$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{oz}$ : sforzo tagliante distribuito [Forza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura).

Vengono riportati inoltre i tagli fuori dal piano dell'elemento guscio:

- $V_o$ : taglio fuori piano applicato al bordo di normale parallela all'asse  $O$ ;
- $V_z$ : taglio fuori piano applicato al bordo di normale parallela all'asse  $z$ .

### 1.1.4 Sollecitazioni gusci muratura

#### 1.1.4.1 Convenzioni di segno gusci muratura

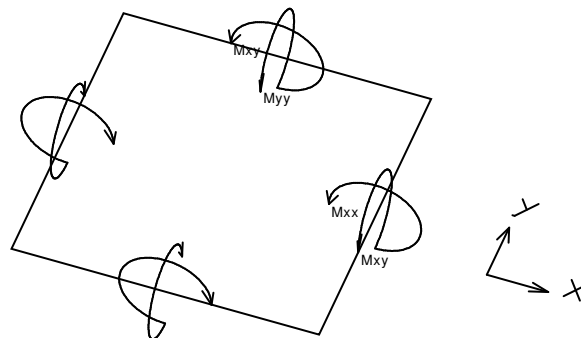
Sono individuate distinte convenzioni di segno in relazione al tipo di elemento strutturale a cui il guscio muratura si riferisce:

- convenzione per gusci non verticali, originati ad esempio da piastre e platee;
- convenzione per gusci verticali, originati ad esempio da pareti e muri.

#### Convenzione di segno per gusci non verticali

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: origine appartenente al piano dell'elemento, asse  $x$  e  $y$  contenuti nel piano dell'elemento e terzo asse ( $z$ ) ortogonale al piano dell'elemento a formare una terna destrorsa. In particolare l'asse  $x$  ha proiezione in pianta parallela ed equivale all'asse globale  $X$ . Nel caso di piastre orizzontali (caso più comune) gli assi  $x$ ,  $y$  e  $z$  locali all'elemento sono paralleli ed equivale agli assi  $X$ ,  $Y$  e  $Z$  globali. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione.

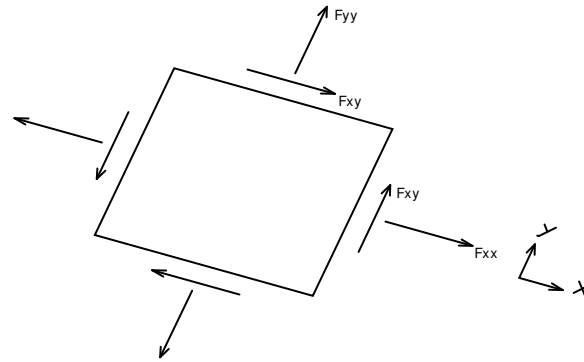
In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $M_{xx}$ ,  $M_{yy}$ ,  $M_{xy}$ .



Si definiscono:

- $M_{xx}$ : momento flettente [Forza\*Lunghezza/Lunghezza] agente sul bordo di normale  $x$  (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{yy}$ : momento flettente [Forza\*Lunghezza/Lunghezza] agente sul bordo di normale  $y$  (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{xy}$ : momento torcente [Forza\*Lunghezza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $F_{xx}$ ,  $F_{yy}$ ,  $F_{xy}$ .

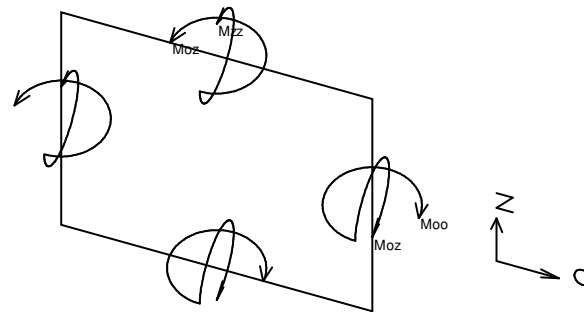


Si definiscono:

- $F_{xx}$ : sforzo tensionale [Forza/Lunghezza] agente sul bordo di normale  $x$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{yy}$ : sforzo tensionale [Forza/Lunghezza] agente sul bordo di normale all'asse  $y$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{xy}$ : sforzo tagliente [Forza/Lunghezza] agente sui bordi (verso positivo indicato dalla freccia in figura).

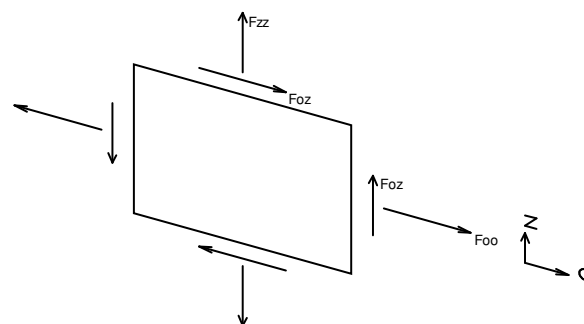
### Convenzione di segno per gusci verticali

Il sistema di riferimento nel quale sono espressi i parametri di sollecitazione è così definito: origine appartenente al piano dell'elemento, asse  $O$  (ascisse) e  $z$  (ordinate) contenuti nel piano dell'elemento e terzo asse ortogonale al piano dell'elemento a formare una terna destrorsa. In particolare l'asse  $O$  è orizzontale e l'asse  $z$  parallelo ed equiverso con l'asse  $Z$  globale. Si sottolinea che non ha alcun interesse collocare esattamente nel piano dell'elemento la posizione dell'origine in quanto i parametri di sollecitazione sono invarianti rispetto a tale posizione. In figura è mostrato un elemento infinitesimo di shell orizzontale con indicato il sistema di riferimento e i parametri di sollecitazione  $M_{oo}$ ,  $M_{zz}$ ,  $M_{oz}$ .



- $M_{oo}$ : momento flettente distribuito [Forza\*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse  $O$  (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{zz}$ : momento flettente distribuito [Forza\*Lunghezza/Lunghezza] applicato al bordo di normale parallela all'asse  $z$  (verso positivo indicato dalla freccia in figura che tende le fibre inferiori);
- $M_{oz}$ : momento 'torcente' distribuito [Forza\*Lunghezza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura).

Per quanto riguarda le sollecitazioni estensionali si faccia riferimento alla figura seguente dove per lo stesso elemento infinitesimo di shell con indicato il sistema di riferimento i parametri di sollecitazione  $F_{oo}$ ,  $F_{zz}$ ,  $F_{oz}$  sono rispettivamente:



- $F_{zz}$ : sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse  $z$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);



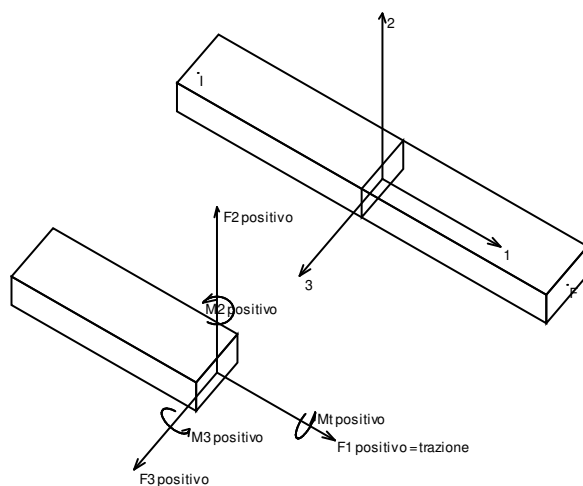
- $F_{oo}$ : sforzo tensionale distribuito [Forza/Lunghezza] applicato al bordo di normale parallela all'asse  $O$  (verso positivo indicato dalla freccia in figura che mette in trazione l'elemento);
- $F_{oz}$ : sforzo tagliante distribuito [Forza/Lunghezza] applicato sui bordi (verso positivo indicato dalla freccia in figura).

## 1.1.5 Sollecitazioni aste in muratura

### 1.1.5.1 Convenzioni di segno aste

Le abbreviazioni relative alle sollecitazioni sugli elementi aste sono da intendersi:

- $F_1$  (N): sforzo normale nell'asta;
- $F_2$ : sforzo di taglio agente nella direzione dell'asse locale 2;
- $F_3$ : sforzo di taglio agente nella direzione dell'asse locale 3;
- $M_1$  (Mt): momento attorno all'asse locale 1; equivale al momento torcente;
- $M_2$ : momento attorno all'asse locale 2;
- $M_3$ : momento attorno all'asse locale 3.



La convenzione sui segni per i parametri di sollecitazione delle aste è la seguente:

presa un'asta con nodo iniziale  $i$  e nodo finale  $f$ , asse 1 che va da  $i$  a  $f$ , assi 2 e 3 presi secondo quanto indicato nei paragrafi successivi relativi al sistema locale delle aste sezionando l'asta in un punto e considerando la sezione sinistra del punto in cui si è effettuato il taglio (sezione da cui esce il versore asse 1) i parametri di sollecitazione sono positivi se hanno verso e direzione concordi con il sistema di riferimento locale dell'asta 1, 2, 3 (per i momenti si adotta la regola della mano destra).

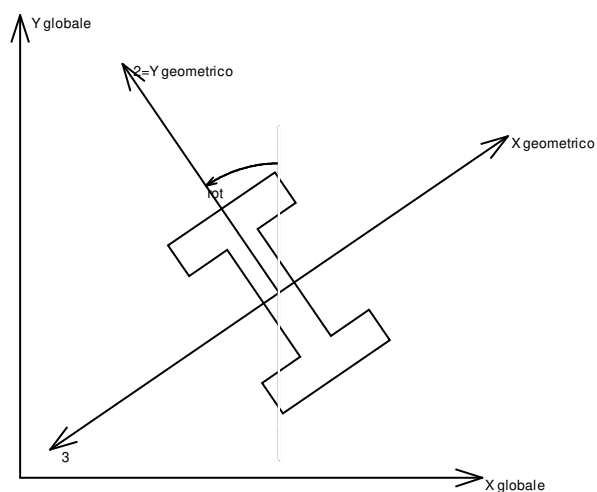
Il sistema è definito diversamente per tre categorie di aste, a seconda che siano originate da:

- aste verticali ad esempio pilastri e colonne;
- aste non verticali non di c.a., ad esempio travi di acciaio o legno;
- aste non verticali in c.a.: travi in c.a. di piano, falda o a quota generica.

Nel seguito si indica con 1, 2 e 3 il sistema locale dell'asta che non sempre coincide con gli assi principali della sezione. Si ricorda che per assi principali si intendono gli assi rispetto a cui si ha il raggio di inerzia minimo e massimo. Gli assi 1, 2 e 3 rispettano la regola della mano destra.

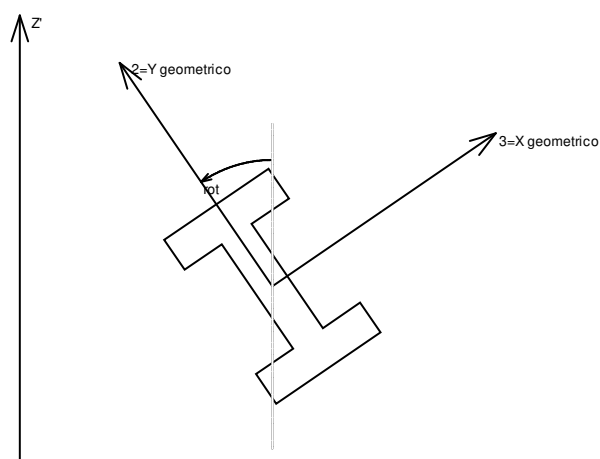


## Sistema locale aste verticali



Nella figura si considera l'asse 1 uscente dal foglio (l'osservatore guarda in direzione opposta a quella dell'asse 1).

## Sistema locale aste non verticali

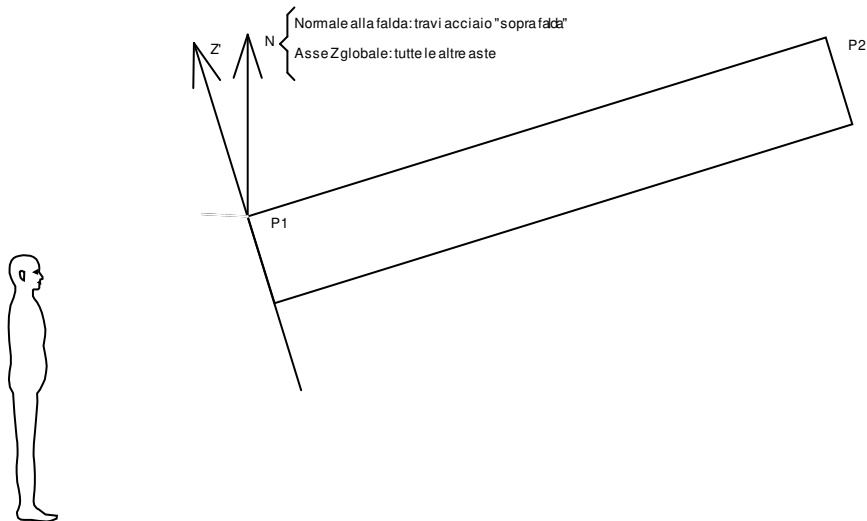


Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1).

L'asse Z' è illustrato nella figura seguente dove:

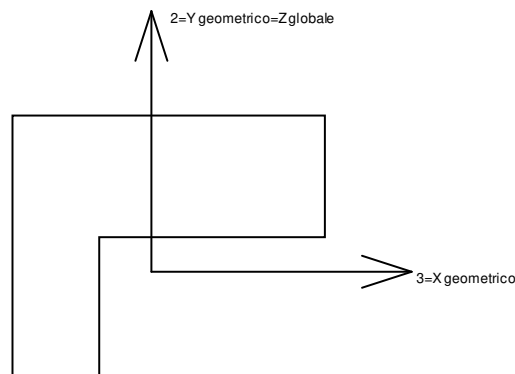
- P1 è il punto di inserimento iniziale dell'asta;
- P2 è il punto di inserimento finale dell'asta;
- N è la normale al piano o falda di inserimento;





$Z'$  è quindi l'intersezione tra il piano passante per  $P1, P2$  contenente  $N$  e il piano della sezione iniziale dell'asta.

**Sistema locale aste derivanti da travi in c.a.**



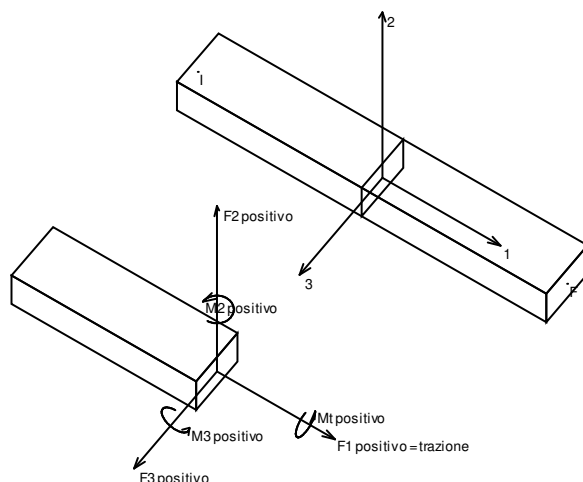
Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1). L'asse 2 è sempre verticale e quindi coincidente con l'asse  $Z$  globale nonché con l'asse  $y$  geometrico. L'asse 3 coincide con l'asse  $x$  geometrico. Si sottolinea il fatto che gli assi 2 e 3 non corrispondono agli assi principali della sezione.

## 1.1.6 Sollecitazioni aste in muratura FRCM

### 1.1.6.1 Convenzioni di segno aste

Le abbreviazioni relative alle sollecitazioni sugli elementi aste sono da intendersi:

- $F1 (N)$ : sforzo normale nell'asta;
- $F2$ : sforzo di taglio agente nella direzione dell'asse locale 2;
- $F3$ : sforzo di taglio agente nella direzione dell'asse locale 3;
- $M1 (Mt)$ : momento attorno all'asse locale 1; equivale al momento torcente;
- $M2$ : momento attorno all'asse locale 2;
- $M3$ : momento attorno all'asse locale 3.



La convenzione sui segni per i parametri di sollecitazione delle aste è la seguente:

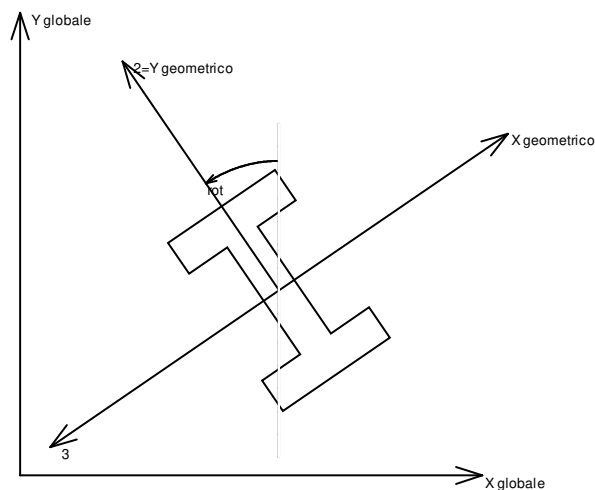
presa un'asta con nodo iniziale  $i$  e nodo finale  $f$ , asse 1 che va da  $i$  a  $f$ , assi 2 e 3 presi secondo quanto indicato nei paragrafi successivi relativi al sistema locale delle aste sezionando l'asta in un punto e considerando la sezione sinistra del punto in cui si è effettuato il taglio (sezione da cui esce il versore asse 1) i parametri di sollecitazione sono positivi se hanno verso e direzione concordi con il sistema di riferimento locale dell'asta 1, 2, 3 (per i momenti si adotta la regola della mano destra).

Il sistema è definito diversamente per tre categorie di aste, a seconda che siano originate da:

- aste verticali ad esempio pilastri e colonne;
- aste non verticali non di c.a., ad esempio travi di acciaio o legno;
- aste non verticali in c.a.: travi in c.a. di piano, falda o a quota generica.

Nel seguito si indica con 1, 2 e 3 il sistema locale dell'asta che non sempre coincide con gli assi principali della sezione. Si ricorda che per assi principali si intendono gli assi rispetto a cui si ha il raggio di inerzia minimo e massimo. Gli assi 1, 2 e 3 rispettano la regola della mano destra.

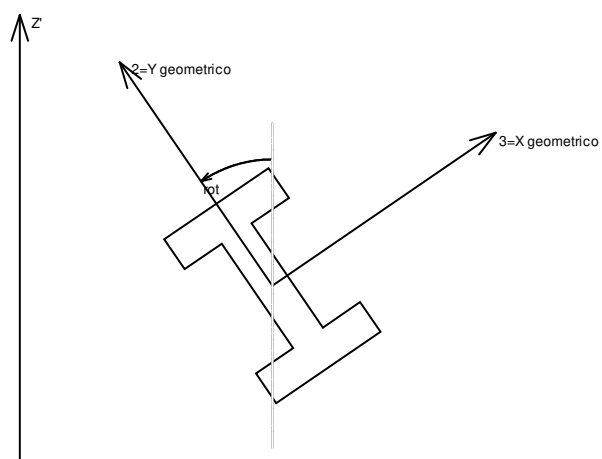
#### Sistema locale aste verticali



Nella figura si considera l'asse 1 uscente dal foglio (l'osservatore guarda in direzione opposta a quella dell'asse 1).



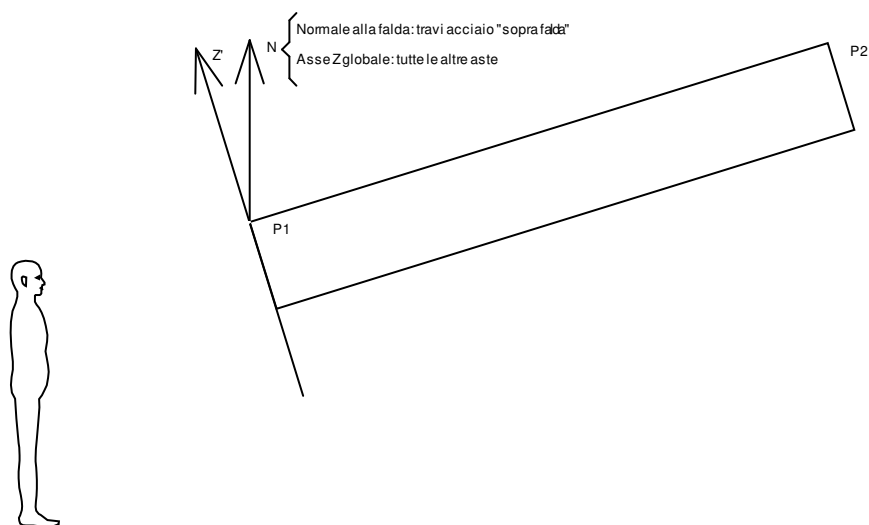
## Sistema locale aste non verticali



Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1).

L'asse  $Z'$  è illustrato nella figura seguente dove:

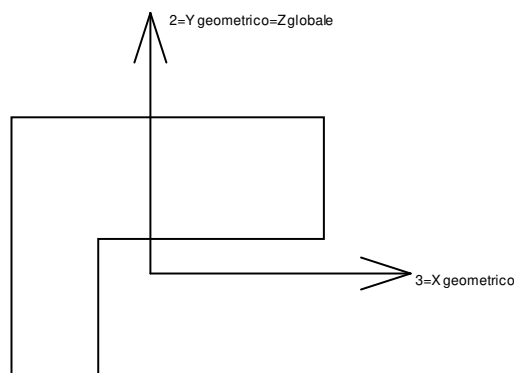
- P1 è il punto di inserimento iniziale dell'asta;
- P2 è il punto di inserimento finale dell'asta;
- N è la normale al piano o falda di inserimento;



$Z'$  è quindi l'intersezione tra il piano passante per P1, P2 contenente N e il piano della sezione iniziale dell'asta.



## Sistema locale aste derivanti da travi in c.a.



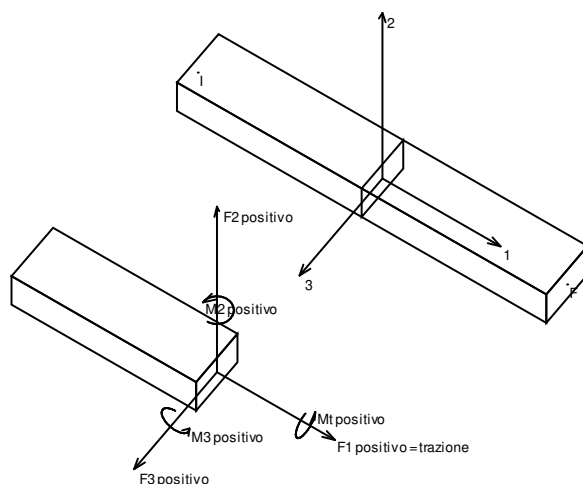
Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1). L'asse 2 è sempre verticale e quindi coincidente con l'asse Z globale nonché con l'asse y geometrico. L'asse 3 coincide con l'asse x geometrico. Si sottolinea il fatto che gli assi 2 e 3 non corrispondono agli assi principali della sezione.

### 1.1.7 Sollecitazioni aste in muratura armata

#### 1.1.7.1 Convenzioni di segno aste

Le abbreviazioni relative alle sollecitazioni sugli elementi aste sono da intendersi:

- F1 (N): sforzo normale nell'asta;
- F2: sforzo di taglio agente nella direzione dell'asse locale 2;
- F3: sforzo di taglio agente nella direzione dell'asse locale 3;
- M1 (Mt): momento attorno all'asse locale 1; equivale al momento torcente;
- M2: momento attorno all'asse locale 2;
- M3: momento attorno all'asse locale 3.



La convenzione sui segni per i parametri di sollecitazione delle aste è la seguente:

presa un'asta con nodo iniziale i e nodo finale f, asse 1 che va da i a f, assi 2 e 3 presi secondo quanto indicato nei paragrafi successivi relativi al sistema locale delle aste sezionando l'asta in un punto e considerando la sezione sinistra del punto in cui si è effettuato il taglio (sezione da cui esce il versore asse 1) i parametri di sollecitazione sono positivi se hanno verso e direzione concordi con il sistema di riferimento locale dell'asta 1, 2, 3 (per i momenti si adotta la regola della mano destra).

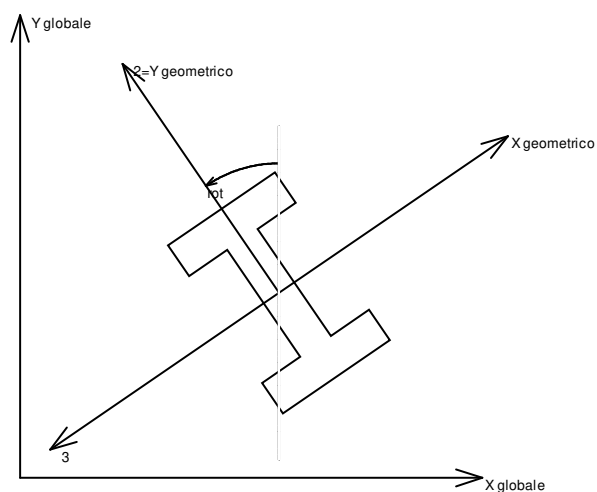
Il sistema è definito diversamente per tre categorie di aste, a seconda che siano originate da:

- aste verticali ad esempio pilastri e colonne;
- aste non verticali non di c.a., ad esempio travi di acciaio o legno;
- aste non verticali in c.a.: travi in c.a. di piano, falda o a quota generica.

Nel seguito si indica con 1, 2 e 3 il sistema locale dell'asta che non sempre coincide con gli assi principali della sezione. Si ricorda che per assi principali si intendono gli assi rispetto a cui si ha il raggio di inerzia minimo e massimo. Gli assi 1, 2 e 3 rispettano la regola della mano destra.

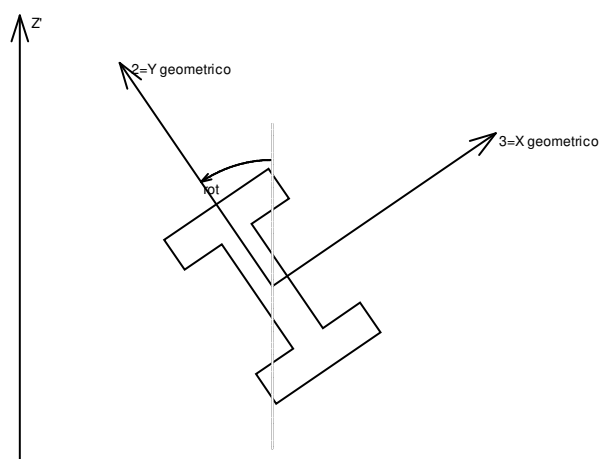


## Sistema locale aste verticali



Nella figura si considera l'asse 1 uscente dal foglio (l'osservatore guarda in direzione opposta a quella dell'asse 1).

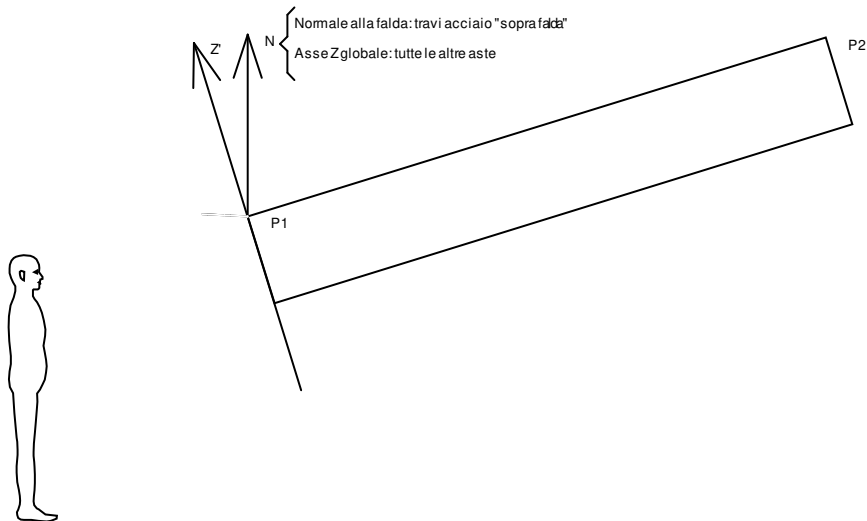
## Sistema locale aste non verticali



Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1).

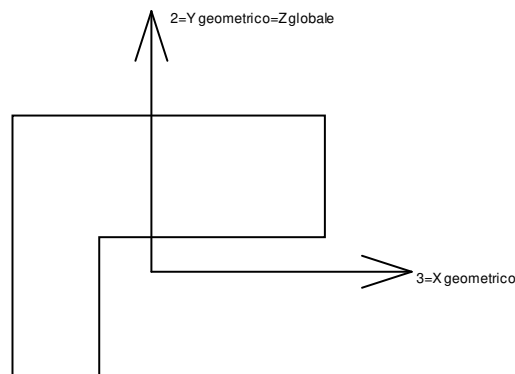
L'asse Z' è illustrato nella figura seguente dove:

- P1 è il punto di inserimento iniziale dell'asta;
- P2 è il punto di inserimento finale dell'asta;
- N è la normale al piano o falda di inserimento;



$Z'$  è quindi l'intersezione tra il piano passante per  $P1$ ,  $P2$  contenente  $N$  e il piano della sezione iniziale dell'asta.

**Sistema locale aste derivanti da travi in c.a.**



Nella figura si considera l'asse 1 entrante nel foglio (l'osservatore guarda in direzione coincidente a quella dell'asse 1). L'asse 2 è sempre verticale e quindi coincidente con l'asse  $Z$  globale nonché con l'asse  $y$  geometrico. L'asse 3 coincide con l'asse  $x$  geometrico. Si sottolinea il fatto che gli assi 2 e 3 non corrispondono agli assi principali della sezione.

## 1.2 Reazioni nodali

### 1.2.1 Reazioni nodali estreme

**Nodo:** Nodo sollecitato dalla reazione vincolare.

**Ind.:** indice del nodo.

**Cont.:** Contesto a cui si riferisce la reazione vincolare.

**N.br.:** nome breve della condizione o combinazione di carico.

**Reazione a traslazione:** reazione vincolare traslazionale del nodo.

**x:** componente  $X$  della reazione vincolare del nodo. [kN]

**y:** componente  $Y$  della reazione vincolare del nodo. [kN]

**z:** componente  $Z$  della reazione vincolare del nodo. [kN]

**Reazione a rotazione:** reazione vincolare rotazionale del nodo.

**x:** componente  $X$  della reazione a rotazione del nodo. [kN\*m]

**y:** componente  $Y$  della reazione a rotazione del nodo. [kN\*m]

**z:** componente  $Z$  della reazione a rotazione del nodo. [kN\*m]

#### Reazioni Fx minime

Vengono mostrati i soli 5 nodi più sollecitati.



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
219	SLV 15	-56.5	0.01	98.33	0.0825	-2.5646	-0.0001
218	SLV 15	-54.5	0.01	83.83	0.1724	-2.3864	0.0003
217	SLV 15	-52.94	-0.21	76.29	0.2785	-2.3187	0.0007
216	SLV 15	-52.12	-0.32	70.4	0.3848	-2.2855	0.0012
215	SLV 15	-51.54	-0.43	65.46	0.2861	-2.2666	0.0019

#### Reazioni Fx massime

Vengono mostrati i soli 5 nodi più sollecitati.

Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
181	SLV 3	56.87	0.07	93.89	0.0789	2.5942	-0.0005
182	SLV 3	56.68	-0.13	86.17	0.1734	2.5905	0.0006
180	SLV 3	55.26	0.15	110.09	0.0195	2.6752	0.0007
183	SLV 3	54.29	-0.27	75.28	0.247	2.4362	0.001
184	SLV 3	49.06	-0.32	64.25	0.2759	2.1512	0.0014

#### Reazioni Fy minime

Vengono mostrati i soli 5 nodi più sollecitati.

Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
264	SLV 7	-0.62	-39.02	37.65	1.7044	-0.3117	0.002
315	SLV 11	0.05	-38.9	60.24	2.0863	-0.0162	0.0002
258	SLV 7	-0.4	-38.42	36.11	1.6377	-0.3135	0.0023
270	SLV 7	-0.57	-37.67	42.66	1.61	-0.2731	0.0014
252	SLV 7	-0.33	-37.24	37.11	1.6457	-0.3102	0.0025

#### Reazioni Fy massime

Vengono mostrati i soli 5 nodi più sollecitati.

Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
126	SLV 5	-0.68	38.78	42.87	-1.703	-0.6091	-0.0032
112	SLV 5	-0.67	38.7	43.02	-1.6909	-0.3693	-0.002
119	SLV 5	-0.69	38.4	42.04	-1.6176	-0.3843	-0.0026
133	SLV 5	-0.67	37.48	44.81	-1.6045	-0.591	-0.0036
32	SLV 5	-0.05	37.16	64.93	-1.7725	-0.0209	-0.0001

#### Reazioni Fz minime

Vengono mostrati i soli 5 nodi più sollecitati.

Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
6438	SLV Y	0	0	-192.59	-0.7469	0.9901	0
6688	SLV X	0	0	-176.52	0.9737	0.58	0
2764	SLV X	0	0	-153.17	6.2426	-1.7119	0
3078	SLV X	0	0	-150.09	5.9594	2.4092	0
198	SLV X	-31.68	0.11	-88.7	-0.0863	-1.9059	-0.0001

#### Reazioni Fz massime

Vengono mostrati i soli 5 nodi più sollecitati.

Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
6438	SLV 5	0	0	619.12	2.9842	-3.1528	0
6688	SLV 3	0	0	537.19	-2.8805	-2.6628	0
2764	SLV 1	0	0	368.22	-16.3873	3.6199	0
3078	SLV 3	0	0	331.74	-11.4253	-5.4716	0
220	SLV 13	-38.72	9.18	208.11	-0.4191	-1.4989	-0.0005

## 1.2.2 Reazioni nodali in combinazioni di carico

**Nodo:** Nodo sollecitato dalla reazione vincolare.

**Ind.:** indice del nodo.

**Cont.:** Contesto a cui si riferisce la reazione vincolare.

**N.br.:** nome breve della condizione o combinazione di carico.

**Reazione a traslazione:** reazione vincolare traslazionale del nodo.

**x:** componente X della reazione vincolare del nodo. [kN]

**y:** componente Y della reazione vincolare del nodo. [kN]

**z:** componente Z della reazione vincolare del nodo. [kN]

**Reazione a rotazione:** reazione vincolare rotazionale del nodo.

**x:** componente X della reazione a rotazione del nodo. [kN\*m]

**y:** componente Y della reazione a rotazione del nodo. [kN\*m]

**z:** componente Z della reazione a rotazione del nodo. [kN\*m]

Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
2	SLU 1	3.94	2.74	19.6	2.6441	0.1134	-0.8976
2	SLU 2	3.91	1.95	16.53	2.5173	0.1155	-0.8897
2	SLU 3	3.97	2.71	19.45	2.6399	0.115	-0.9047
2	SLU 4	3.95	2.24	17.61	2.5638	0.1162	-0.9
2	SLU 5	3.94	1.9	16.29	2.5053	0.117	-0.8954
2	SLU 6	4	2.66	19.22	2.6279	0.1166	-0.9104
2	SLU 7	3.98	2.19	17.38	2.5518	0.1178	-0.9057
2	SLU 8	3.99	2.64	19.13	2.6201	0.1165	-0.9091
2	SLU 9	3.97	2.17	17.29	2.5441	0.1178	-0.9043
2	SLU 10	4.13	2.11	16.99	2.6008	0.1236	-0.9414



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
2	SLU 11	4.2	2.86	19.92	2.7233	0.1231	-0.9563
2	SLU 12	4.18	2.39	18.07	2.6472	0.1244	-0.9516
2	SLU 13	4.16	2.06	16.76	2.5888	0.1252	-0.9471
2	SLU 14	4.22	2.81	19.68	2.7113	0.1247	-0.9621
2	SLU 15	4.2	2.34	17.84	2.6353	0.1259	-0.9573
2	SLU 16	4.22	2.79	19.6	2.7036	0.1247	-0.9607
2	SLU 17	4.2	2.32	17.76	2.6275	0.1259	-0.9559
2	SLU 18	4.26	2.96	20.26	2.7633	0.125	-0.9714
2	SLU 19	4.24	2.49	18.42	2.6873	0.1263	-0.9666
2	SLU 20	4.29	2.91	20.03	2.7514	0.1266	-0.9771
2	SLU 21	4.27	2.44	18.19	2.6753	0.1278	-0.9724
2	SLU 22	4.06	2.83	19.74	2.6809	0.1178	-0.925
2	SLU 23	4.03	2.04	16.66	2.5541	0.1199	-0.9171
2	SLU 24	4.09	2.8	19.59	2.6767	0.1194	-0.9321
2	SLU 25	4.07	2.33	17.75	2.6006	0.1207	-0.9273
2	SLU 26	4.05	1.99	16.43	2.5421	0.1215	-0.9228
2	SLU 27	4.12	2.75	19.36	2.6647	0.121	-0.9378
2	SLU 28	4.1	2.28	17.51	2.5886	0.1222	-0.933
2	SLU 29	4.11	2.73	19.27	2.6569	0.121	-0.9364
2	SLU 30	4.09	2.25	17.43	2.5809	0.1222	-0.9317
2	SLU 31	4.25	2.2	17.13	2.6376	0.128	-0.9687
2	SLU 32	4.32	2.95	20.06	2.7601	0.1276	-0.9837
2	SLU 33	4.3	2.48	18.21	2.6841	0.1288	-0.979
2	SLU 34	4.28	2.15	16.9	2.6256	0.1296	-0.9744
2	SLU 35	4.34	2.9	19.82	2.7481	0.1291	-0.9894
2	SLU 36	4.32	2.43	17.98	2.6721	0.1304	-0.9847
2	SLU 37	4.34	2.88	19.74	2.7404	0.1291	-0.9881
2	SLU 38	4.32	2.41	17.9	2.6643	0.1303	-0.9833
2	SLU 39	4.38	3.05	20.4	2.8001	0.1294	-0.9988
2	SLU 40	4.36	2.58	18.56	2.7241	0.1307	-0.994
2	SLU 41	4.41	3	20.17	2.7882	0.131	-1.0045
2	SLU 42	4.39	2.53	18.33	2.7121	0.1323	-0.9997
2	SLU 43	5.09	3.53	25.43	3.4247	0.1459	-1.1575
2	SLU 44	5.05	2.74	22.36	3.2979	0.148	-1.1496
2	SLU 45	5.12	3.5	25.28	3.4205	0.1475	-1.1646
2	SLU 46	5.1	3.03	23.44	3.3444	0.1487	-1.1599
2	SLU 47	5.08	2.69	22.12	3.286	0.1495	-1.1553
2	SLU 48	5.14	3.45	25.05	3.4085	0.1491	-1.1703
2	SLU 49	5.12	2.98	23.21	3.3324	0.1503	-1.1656
2	SLU 50	5.14	3.43	24.96	3.4008	0.149	-1.169
2	SLU 51	5.12	2.96	23.12	3.3247	0.1503	-1.1642
2	SLU 52	5.28	2.9	22.82	3.3814	0.1561	-1.2013
2	SLU 53	5.34	3.65	25.75	3.5039	0.1556	-1.2162
2	SLU 54	5.32	3.18	23.9	3.4279	0.1569	-1.2115
2	SLU 55	5.3	2.85	22.59	3.3694	0.1577	-1.207
2	SLU 56	5.37	3.6	25.52	3.4919	0.1572	-1.222
2	SLU 57	5.35	3.13	23.67	3.4159	0.1584	-1.2172
2	SLU 58	5.36	3.58	25.43	3.4842	0.1571	-1.2206
2	SLU 59	5.34	3.11	23.59	3.4081	0.1584	-1.2159
2	SLU 60	5.41	3.75	26.09	3.544	0.1575	-1.2313
2	SLU 61	5.39	3.28	24.25	3.4679	0.1588	-1.2265
2	SLU 62	5.43	3.7	25.86	3.532	0.1591	-1.237
2	SLU 63	5.41	3.23	24.02	3.4559	0.1603	-1.2323
2	SLU 64	5.2	3.62	25.57	3.4615	0.1503	-1.1849
2	SLU 65	5.17	2.83	22.5	3.3347	0.1524	-1.177
2	SLU 66	5.24	3.59	25.42	3.4573	0.1519	-1.192
2	SLU 67	5.22	3.12	23.58	3.3812	0.1532	-1.1872
2	SLU 68	5.2	2.78	22.26	3.3228	0.154	-1.1827
2	SLU 69	5.26	3.54	25.19	3.4453	0.1535	-1.1977
2	SLU 70	5.24	3.07	23.35	3.3692	0.1547	-1.193
2	SLU 71	5.26	3.52	25.1	3.4376	0.1534	-1.1963
2	SLU 72	5.23	3.05	23.26	3.3615	0.1547	-1.1916
2	SLU 73	5.39	2.99	22.96	3.4182	0.1605	-1.2286
2	SLU 74	5.46	3.74	25.89	3.5407	0.1601	-1.2436
2	SLU 75	5.44	3.27	24.04	3.4647	0.1613	-1.2389
2	SLU 76	5.42	2.94	22.73	3.4062	0.1621	-1.2343
2	SLU 77	5.48	3.69	25.66	3.5288	0.1616	-1.2493
2	SLU 78	5.46	3.22	23.81	3.4527	0.1629	-1.2446
2	SLU 79	5.48	3.67	25.57	3.521	0.1616	-1.248
2	SLU 80	5.46	3.2	23.73	3.4449	0.1628	-1.2432
2	SLU 81	5.52	3.84	26.23	3.5808	0.1619	-1.2587
2	SLU 82	5.5	3.37	24.39	3.5047	0.1632	-1.2539
2	SLU 83	5.55	3.79	26	3.5688	0.1635	-1.2644
2	SLU 84	5.53	3.32	24.16	3.4927	0.1648	-1.2596
2	SLE RA 1	3.98	2.76	19.64	2.6546	0.1146	-0.9054
2	SLE RA 2	3.95	2.24	17.59	2.5701	0.116	-0.9002
2	SLE RA 3	4	2.74	19.54	2.6518	0.1157	-0.9102
2	SLE RA 4	3.98	2.43	18.31	2.6011	0.1166	-0.907
2	SLE RA 5	3.97	2.21	17.43	2.5621	0.1171	-0.904
2	SLE RA 6	4.02	2.71	19.38	2.6438	0.1168	-0.914
2	SLE RA 7	4	2.4	18.16	2.5931	0.1176	-0.9108
2	SLE RA 8	4.01	2.69	19.33	2.6386	0.1167	-0.9131
2	SLE RA 9	4	2.38	18.1	2.5879	0.1176	-0.9099
2	SLE RA 10	4.1	2.34	17.9	2.6257	0.1215	-0.9346
2	SLE RA 11	4.15	2.85	19.85	2.7074	0.1211	-0.9446
2	SLE RA 12	4.13	2.53	18.62	2.6567	0.122	-0.9414
2	SLE RA 13	4.12	2.31	17.75	2.6177	0.1225	-0.9384
2	SLE RA 14	4.16	2.81	19.69	2.6994	0.1222	-0.9484
2	SLE RA 15	4.15	2.5	18.47	2.6487	0.123	-0.9452





Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
2	SLE RA 16	4.16	2.8	19.64	2.6943	0.1222	-0.9475
2	SLE RA 17	4.15	2.49	18.41	2.6436	0.123	-0.9443
2	SLE RA 18	4.19	2.91	20.08	2.7341	0.1224	-0.9546
2	SLE RA 19	4.18	2.6	18.85	2.6834	0.1232	-0.9515
2	SLE RA 20	4.21	2.88	19.93	2.7261	0.1234	-0.9584
2	SLE RA 21	4.19	2.56	18.7	2.6754	0.1243	-0.9553
2	SLE FR 1	3.98	2.76	19.64	2.6546	0.1146	-0.9054
2	SLE FR 2	3.97	2.66	19.23	2.6377	0.1149	-0.9044
2	SLE FR 3	3.98	2.75	19.57	2.6514	0.1151	-0.907
2	SLE FR 4	4.04	2.7	19.36	2.6616	0.1172	-0.9191
2	SLE FR 5	4.05	2.79	19.71	2.6753	0.1174	-0.9217
2	SLE FR 6	4.08	2.84	19.86	2.6944	0.1185	-0.93
2	SLE QP 1	3.98	2.76	19.64	2.6546	0.1146	-0.9054
2	SLE QP 2	4.04	2.81	19.77	2.6785	0.117	-0.9202
2	SLD 1	6.67	4.87	33.32	4.2215	0.2063	-1.5098
2	SLD 2	6.67	4.87	33.32	4.2215	0.2063	-1.5098
2	SLD 3	6.07	2.79	25.09	3.7483	0.1895	-1.3804
2	SLD 4	6.07	2.79	25.09	3.7483	0.1895	-1.3804
2	SLD 5	5.74	6.58	36.31	3.859	0.1693	-1.2934
2	SLD 6	5.74	6.58	36.31	3.859	0.1693	-1.2934
2	SLD 7	3.74	-0.35	8.89	2.2818	0.1133	-0.8619
2	SLD 8	3.74	-0.35	8.89	2.2818	0.1133	-0.8619
2	SLD 9	4.34	5.97	30.65	3.0752	0.1207	-0.9785
2	SLD 10	4.34	5.97	30.65	3.0752	0.1207	-0.9785
2	SLD 11	2.35	-0.97	3.23	1.4979	0.0647	-0.547
2	SLD 12	2.35	-0.97	3.23	1.4979	0.0647	-0.547
2	SLD 13	2.01	2.82	14.45	1.6086	0.0444	-0.46
2	SLD 14	2.01	2.82	14.45	1.6086	0.0444	-0.46
2	SLD 15	1.41	0.74	6.22	1.1355	0.0276	-0.3306
2	SLD 16	1.41	0.74	6.22	1.1355	0.0276	-0.3306
2	SLV 1	10.11	7.63	51.2	6.2511	0.3233	-2.2837
2	SLV 2	10.11	7.63	51.2	6.2511	0.3233	-2.2837
2	SLV 3	8.73	2.67	31.56	5.1251	0.2846	-1.9811
2	SLV 4	8.73	2.67	31.56	5.1251	0.2846	-1.9811
2	SLV 5	7.97	11.79	58.99	5.4579	0.2376	-1.7882
2	SLV 6	7.97	11.79	58.99	5.4579	0.2376	-1.7882
2	SLV 7	3.34	-4.77	-6.49	1.7048	0.1085	-0.7795
2	SLV 8	3.34	-4.77	-6.49	1.7048	0.1085	-0.7795
2	SLV 9	4.74	10.38	46.03	3.6521	0.1254	-1.0609
2	SLV 10	4.74	10.38	46.03	3.6521	0.1254	-1.0609
2	SLV 11	0.11	-6.17	-19.45	-0.1009	-0.0037	-0.0522
2	SLV 12	0.11	-6.17	-19.45	-0.1009	-0.0037	-0.0522
2	SLV 13	-0.64	2.95	7.98	0.2318	-0.0507	0.1407
2	SLV 14	-0.64	2.95	7.98	0.2318	-0.0507	0.1407
2	SLV 15	-2.03	-2.02	-11.66	-0.8941	-0.0894	0.4433
2	SLV 16	-2.03	-2.02	-11.66	-0.8941	-0.0894	0.4433
4	SLU 1	4.09	-0.02	20.05	0.0205	0.1849	0.0001
4	SLU 2	4.3	-0.03	18.96	0.0228	0.1921	0.0001
4	SLU 3	4.19	-0.02	19.99	0.0208	0.1888	0.0001
4	SLU 4	4.32	-0.03	19.34	0.0222	0.1931	0.0001
4	SLU 5	4.41	-0.03	18.84	0.023	0.1961	0.0001
4	SLU 6	4.29	-0.02	19.87	0.021	0.1928	0.0001
4	SLU 7	4.42	-0.03	19.22	0.0224	0.1971	0.0001
4	SLU 8	4.3	-0.02	19.81	0.0209	0.1929	0.0001
4	SLU 9	4.42	-0.03	19.15	0.0223	0.1973	0.0001
4	SLU 10	4.7	-0.03	19.57	0.0252	0.2086	0.0001
4	SLU 11	4.59	-0.02	20.6	0.0232	0.2052	0.0001
4	SLU 12	4.71	-0.03	19.95	0.0246	0.2096	0.0001
4	SLU 13	4.8	-0.03	19.45	0.0254	0.2126	0.0001
4	SLU 14	4.69	-0.02	20.48	0.0234	0.2093	0.0001
4	SLU 15	4.82	-0.03	19.83	0.0248	0.2136	0.0001
4	SLU 16	4.69	-0.02	20.42	0.0234	0.2094	0.0001
4	SLU 17	4.82	-0.03	19.77	0.0248	0.2138	0.0001
4	SLU 18	4.66	-0.03	20.92	0.0239	0.2084	0.0001
4	SLU 19	4.79	-0.03	20.27	0.0253	0.2127	0.0001
4	SLU 20	4.76	-0.03	20.8	0.0242	0.2124	0.0001
4	SLU 21	4.89	-0.03	20.15	0.0256	0.2168	0.0001
4	SLU 22	4.32	-0.02	20.33	0.022	0.1941	0.0001
4	SLU 23	4.53	-0.03	19.24	0.0243	0.2014	0.0001
4	SLU 24	4.42	-0.02	20.27	0.0223	0.198	0.0001
4	SLU 25	4.54	-0.03	19.62	0.0237	0.2024	0.0001
4	SLU 26	4.63	-0.03	19.12	0.0245	0.2054	0.0001
4	SLU 27	4.52	-0.02	20.15	0.0225	0.2021	0.0001
4	SLU 28	4.64	-0.03	19.5	0.0239	0.2064	0.0001
4	SLU 29	4.52	-0.02	20.09	0.0225	0.2022	0.0001
4	SLU 30	4.65	-0.03	19.43	0.0239	0.2066	0.0001
4	SLU 31	4.92	-0.03	19.85	0.0267	0.2178	0.0001
4	SLU 32	4.81	-0.03	20.88	0.0247	0.2145	0.0001
4	SLU 33	4.94	-0.03	20.23	0.0261	0.2189	0.0001
4	SLU 34	5.03	-0.03	19.73	0.027	0.2219	0.0001
4	SLU 35	4.92	-0.03	20.76	0.0249	0.2186	0.0001
4	SLU 36	5.04	-0.03	20.11	0.0263	0.2229	0.0001
4	SLU 37	4.92	-0.03	20.7	0.0249	0.2187	0.0001
4	SLU 38	5.05	-0.03	20.04	0.0263	0.223	0.0001
4	SLU 39	4.89	-0.03	21.2	0.0254	0.2177	0.0001
4	SLU 40	5.01	-0.03	20.55	0.0268	0.222	0.0001
4	SLU 41	4.99	-0.03	21.08	0.0257	0.2217	0.0001
4	SLU 42	5.11	-0.03	20.43	0.0271	0.2261	0.0001
4	SLU 43	5.25	-0.03	25.97	0.0261	0.2371	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
4	SLU 44	5.45	-0.04	24.88	0.0284	0.2444	0.0001
4	SLU 45	5.34	-0.03	25.91	0.0264	0.241	0.0001
4	SLU 46	5.47	-0.03	25.26	0.0278	0.2454	0.0001
4	SLU 47	5.56	-0.04	24.76	0.0286	0.2484	0.0001
4	SLU 48	5.45	-0.03	25.79	0.0266	0.2451	0.0001
4	SLU 49	5.57	-0.03	25.14	0.028	0.2494	0.0001
4	SLU 50	5.45	-0.03	25.73	0.0266	0.2452	0.0001
4	SLU 51	5.57	-0.03	25.07	0.028	0.2496	0.0001
4	SLU 52	5.85	-0.04	25.49	0.0308	0.2608	0.0001
4	SLU 53	5.74	-0.03	26.52	0.0288	0.2575	0.0001
4	SLU 54	5.86	-0.04	25.87	0.0302	0.2619	0.0001
4	SLU 55	5.95	-0.04	25.37	0.0311	0.2649	0.0001
4	SLU 56	5.84	-0.03	26.4	0.029	0.2616	0.0001
4	SLU 57	5.97	-0.04	25.75	0.0304	0.2659	0.0001
4	SLU 58	5.85	-0.03	26.34	0.029	0.2617	0.0001
4	SLU 59	5.97	-0.04	25.69	0.0304	0.266	0.0001
4	SLU 60	5.81	-0.03	26.84	0.0295	0.2607	0.0001
4	SLU 61	5.94	-0.04	26.19	0.0309	0.265	0.0001
4	SLU 62	5.91	-0.03	26.72	0.0298	0.2647	0.0001
4	SLU 63	6.04	-0.04	26.07	0.0312	0.2691	0.0001
4	SLU 64	5.47	-0.03	26.24	0.0276	0.2464	0.0001
4	SLU 65	5.68	-0.04	25.16	0.0299	0.2536	0.0001
4	SLU 66	5.57	-0.03	26.19	0.0279	0.2503	0.0001
4	SLU 67	5.69	-0.04	25.54	0.0293	0.2547	0.0001
4	SLU 68	5.78	-0.04	25.04	0.0302	0.2577	0.0001
4	SLU 69	5.67	-0.03	26.07	0.0281	0.2544	0.0001
4	SLU 70	5.8	-0.04	25.42	0.0295	0.2587	0.0001
4	SLU 71	5.68	-0.03	26	0.0281	0.2545	0.0001
4	SLU 72	5.8	-0.04	25.35	0.0295	0.2588	0.0001
4	SLU 73	6.08	-0.04	25.77	0.0323	0.2701	0.0001
4	SLU 74	5.97	-0.03	26.8	0.0303	0.2668	0.0001
4	SLU 75	6.09	-0.04	26.15	0.0317	0.2711	0.0001
4	SLU 76	6.18	-0.04	25.65	0.0326	0.2742	0.0001
4	SLU 77	6.07	-0.03	26.68	0.0306	0.2708	0.0001
4	SLU 78	6.19	-0.04	26.03	0.032	0.2752	0.0001
4	SLU 79	6.07	-0.03	26.62	0.0305	0.271	0.0001
4	SLU 80	6.2	-0.04	25.96	0.0319	0.2753	0.0001
4	SLU 81	6.04	-0.03	27.12	0.031	0.2699	0.0001
4	SLU 82	6.16	-0.04	26.46	0.0324	0.2743	0.0001
4	SLU 83	6.14	-0.03	27	0.0313	0.274	0.0001
4	SLU 84	6.26	-0.04	26.34	0.0327	0.2783	0.0001
4	SLE RA 1	4.16	-0.02	20.13	0.0209	0.1875	0.0001
4	SLE RA 2	4.3	-0.03	19.4	0.0224	0.1923	0.0001
4	SLE RA 3	4.22	-0.02	20.09	0.0211	0.1901	0.0001
4	SLE RA 4	4.31	-0.03	19.66	0.022	0.193	0.0001
4	SLE RA 5	4.37	-0.03	19.32	0.0226	0.195	0.0001
4	SLE RA 6	4.29	-0.02	20.01	0.0213	0.1928	0.0001
4	SLE RA 7	4.38	-0.03	19.58	0.0222	0.1957	0.0001
4	SLE RA 8	4.3	-0.02	19.97	0.0212	0.1929	0.0001
4	SLE RA 9	4.38	-0.03	19.53	0.0221	0.1958	0.0001
4	SLE RA 10	4.56	-0.03	19.81	0.0241	0.2033	0.0001
4	SLE RA 11	4.49	-0.02	20.5	0.0227	0.2011	0.0001
4	SLE RA 12	4.57	-0.03	20.06	0.0236	0.204	0.0001
4	SLE RA 13	4.63	-0.03	19.73	0.0242	0.206	0.0001
4	SLE RA 14	4.56	-0.02	20.42	0.0229	0.2038	0.0001
4	SLE RA 15	4.64	-0.03	19.98	0.0238	0.2067	0.0001
4	SLE RA 16	4.56	-0.02	20.37	0.0228	0.2039	0.0001
4	SLE RA 17	4.64	-0.03	19.94	0.0238	0.2068	0.0001
4	SLE RA 18	4.54	-0.02	20.71	0.0232	0.2032	0.0001
4	SLE RA 19	4.62	-0.03	20.27	0.0241	0.2061	0.0001
4	SLE RA 20	4.6	-0.02	20.63	0.0234	0.2059	0.0001
4	SLE RA 21	4.69	-0.03	20.19	0.0243	0.2088	0.0001
4	SLE FR 1	4.16	-0.02	20.13	0.0209	0.1875	0.0001
4	SLE FR 2	4.19	-0.02	19.98	0.0212	0.1885	0.0001
4	SLE FR 3	4.19	-0.02	20.1	0.021	0.1886	0.0001
4	SLE FR 4	4.3	-0.02	20.16	0.0219	0.1932	0.0001
4	SLE FR 5	4.3	-0.02	20.27	0.0216	0.1933	0.0001
4	SLE FR 6	4.35	-0.02	20.42	0.022	0.1953	0.0001
4	SLE QP 1	4.16	-0.02	20.13	0.0209	0.1875	0.0001
4	SLE QP 2	4.27	-0.02	20.3	0.0216	0.1922	0.0001
4	SLD 1	7.39	-0.06	29.49	0.047	0.3464	0.0002
4	SLD 2	7.39	-0.06	29.49	0.047	0.3464	0.0002
4	SLD 3	6.8	-0.02	25.83	0.0283	0.3179	0.0001
4	SLD 4	6.8	-0.02	25.83	0.0283	0.3179	0.0001
4	SLD 5	6.1	-0.09	28.61	0.0575	0.2816	0.0002
4	SLD 6	6.1	-0.09	28.61	0.0575	0.2816	0.0002
4	SLD 7	4.13	0.03	16.41	-0.0047	0.1867	-0.0001
4	SLD 8	4.13	0.03	16.41	-0.0047	0.1867	-0.0001
4	SLD 9	4.41	-0.08	24.19	0.0479	0.1977	0.0002
4	SLD 10	4.41	-0.08	24.19	0.0479	0.1977	0.0002
4	SLD 11	2.44	0.04	12	-0.0144	0.1028	-0.0001
4	SLD 12	2.44	0.04	12	-0.0144	0.1028	-0.0001
4	SLD 13	1.75	-0.03	14.77	0.0149	0.0665	0
4	SLD 14	1.75	-0.03	14.77	0.0149	0.0665	0
4	SLD 15	1.15	0.01	11.12	-0.0038	0.0381	-0.0001
4	SLD 16	1.15	0.01	11.12	-0.0038	0.0381	-0.0001
4	SLV 1	11.51	-0.1	41.64	0.0799	0.5488	0.0003
4	SLV 2	11.51	-0.1	41.64	0.0799	0.5488	0.0003
4	SLV 3	10.12	-0.02	32.91	0.0376	0.4827	0.0001



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
4	SLV 4	10.12	-0.02	32.91	0.0376	0.4827	0.0001
4	SLV 5	8.54	-0.17	39.96	0.1033	0.3995	0.0004
4	SLV 6	8.54	-0.17	39.96	0.1033	0.3995	0.0004
4	SLV 7	3.93	0.1	10.83	-0.0378	0.1791	-0.0002
4	SLV 8	3.93	0.1	10.83	-0.0378	0.1791	-0.0002
4	SLV 9	4.62	-0.15	29.77	0.0809	0.2053	0.0003
4	SLV 10	4.62	-0.15	29.77	0.0809	0.2053	0.0003
4	SLV 11	0	0.13	0.65	-0.0601	-0.015	-0.0003
4	SLV 12	0	0.13	0.65	-0.0601	-0.015	-0.0003
4	SLV 13	-1.58	-0.03	7.7	0.0055	-0.0983	0
4	SLV 14	-1.58	-0.03	7.7	0.0055	-0.0983	0
4	SLV 15	-2.96	0.06	-1.04	-0.0368	-0.1644	-0.0002
4	SLV 16	-2.96	0.06	-1.04	-0.0368	-0.1644	-0.0002
5	SLU 1	3.85	-0.07	20.2	0.0461	0.1637	-0.0001
5	SLU 2	4.07	-0.07	19.45	0.0458	0.1717	-0.0001
5	SLU 3	3.99	-0.07	20.23	0.0466	0.1694	-0.0001
5	SLU 4	4.12	-0.07	19.78	0.0465	0.1742	-0.0001
5	SLU 5	4.22	-0.07	19.42	0.0461	0.1778	-0.0001
5	SLU 6	4.14	-0.07	20.2	0.047	0.1756	-0.0001
5	SLU 7	4.28	-0.07	19.75	0.0468	0.1804	-0.0001
5	SLU 8	4.16	-0.07	20.14	0.0468	0.176	-0.0001
5	SLU 9	4.29	-0.07	19.69	0.0466	0.1808	-0.0001
5	SLU 10	4.58	-0.08	20.27	0.0508	0.1925	-0.0002
5	SLU 11	4.5	-0.08	21.05	0.0516	0.1903	-0.0002
5	SLU 12	4.63	-0.08	20.6	0.0515	0.1951	-0.0002
5	SLU 13	4.73	-0.08	20.24	0.0512	0.1987	-0.0002
5	SLU 14	4.65	-0.08	21.02	0.052	0.1964	-0.0002
5	SLU 15	4.79	-0.08	20.57	0.0518	0.2012	-0.0002
5	SLU 16	4.66	-0.08	20.97	0.0518	0.1969	-0.0002
5	SLU 17	4.8	-0.08	20.52	0.0516	0.2017	-0.0002
5	SLU 18	4.57	-0.08	21.38	0.0533	0.1935	-0.0002
5	SLU 19	4.71	-0.08	20.92	0.0531	0.1983	-0.0002
5	SLU 20	4.73	-0.08	21.35	0.0536	0.1997	-0.0002
5	SLU 21	4.86	-0.08	20.9	0.0534	0.2044	-0.0002
5	SLU 22	4.14	-0.07	20.62	0.0491	0.1756	-0.0002
5	SLU 23	4.36	-0.08	19.87	0.0488	0.1835	-0.0002
5	SLU 24	4.28	-0.07	20.64	0.0496	0.1813	-0.0002
5	SLU 25	4.42	-0.08	20.19	0.0494	0.1861	-0.0002
5	SLU 26	4.52	-0.07	19.84	0.0491	0.1897	-0.0002
5	SLU 27	4.44	-0.07	20.62	0.0499	0.1874	-0.0002
5	SLU 28	4.57	-0.08	20.17	0.0498	0.1922	-0.0002
5	SLU 29	4.45	-0.07	20.56	0.0498	0.1879	-0.0002
5	SLU 30	4.58	-0.07	20.11	0.0496	0.1927	-0.0002
5	SLU 31	4.87	-0.08	20.69	0.0538	0.2044	-0.0002
5	SLU 32	4.79	-0.08	21.47	0.0546	0.2022	-0.0002
5	SLU 33	4.93	-0.08	21.02	0.0544	0.207	-0.0002
5	SLU 34	5.03	-0.08	20.66	0.0541	0.2106	-0.0002
5	SLU 35	4.95	-0.08	21.44	0.055	0.2083	-0.0002
5	SLU 36	5.08	-0.08	20.99	0.0548	0.2131	-0.0002
5	SLU 37	4.96	-0.08	21.39	0.0548	0.2087	-0.0002
5	SLU 38	5.09	-0.08	20.94	0.0546	0.2135	-0.0002
5	SLU 39	4.87	-0.08	21.79	0.0563	0.2054	-0.0002
5	SLU 40	5	-0.08	21.34	0.0561	0.2102	-0.0002
5	SLU 41	5.02	-0.08	21.77	0.0566	0.2115	-0.0002
5	SLU 42	5.15	-0.08	21.32	0.0564	0.2163	-0.0002
5	SLU 43	4.9	-0.09	26.12	0.0589	0.2087	-0.0002
5	SLU 44	5.12	-0.09	25.37	0.0586	0.2167	-0.0002
5	SLU 45	5.04	-0.09	26.14	0.0595	0.2144	-0.0002
5	SLU 46	5.18	-0.09	25.69	0.0593	0.2192	-0.0002
5	SLU 47	5.28	-0.09	25.34	0.059	0.2228	-0.0002
5	SLU 48	5.2	-0.09	26.11	0.0598	0.2206	-0.0002
5	SLU 49	5.33	-0.09	25.66	0.0596	0.2254	-0.0002
5	SLU 50	5.21	-0.09	26.06	0.0596	0.221	-0.0002
5	SLU 51	5.34	-0.09	25.61	0.0594	0.2258	-0.0002
5	SLU 52	5.63	-0.1	26.19	0.0636	0.2376	-0.0002
5	SLU 53	5.55	-0.1	26.97	0.0645	0.2353	-0.0002
5	SLU 54	5.69	-0.1	26.52	0.0643	0.2401	-0.0002
5	SLU 55	5.79	-0.1	26.16	0.064	0.2437	-0.0002
5	SLU 56	5.71	-0.1	26.94	0.0648	0.2415	-0.0002
5	SLU 57	5.84	-0.1	26.49	0.0646	0.2463	-0.0002
5	SLU 58	5.72	-0.1	26.88	0.0646	0.2419	-0.0002
5	SLU 59	5.85	-0.1	26.43	0.0644	0.2467	-0.0002
5	SLU 60	5.63	-0.1	27.29	0.0661	0.2385	-0.0002
5	SLU 61	5.76	-0.1	26.84	0.0659	0.2433	-0.0002
5	SLU 62	5.78	-0.1	27.26	0.0664	0.2447	-0.0002
5	SLU 63	5.92	-0.1	26.81	0.0662	0.2495	-0.0002
5	SLU 64	5.19	-0.09	26.53	0.0619	0.2206	-0.0002
5	SLU 65	5.42	-0.1	25.78	0.0616	0.2286	-0.0002
5	SLU 66	5.34	-0.1	26.56	0.0624	0.2263	-0.0002
5	SLU 67	5.47	-0.1	26.11	0.0623	0.2311	-0.0002
5	SLU 68	5.57	-0.1	25.76	0.0619	0.2347	-0.0002
5	SLU 69	5.49	-0.1	26.53	0.0628	0.2325	-0.0002
5	SLU 70	5.62	-0.1	26.08	0.0626	0.2373	-0.0002
5	SLU 71	5.5	-0.09	26.48	0.0626	0.2329	-0.0002
5	SLU 72	5.64	-0.09	26.03	0.0624	0.2377	-0.0002
5	SLU 73	5.92	-0.1	26.61	0.0666	0.2494	-0.0002
5	SLU 74	5.84	-0.1	27.38	0.0674	0.2472	-0.0002
5	SLU 75	5.98	-0.1	26.93	0.0673	0.252	-0.0002
5	SLU 76	6.08	-0.1	26.58	0.067	0.2556	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
5	SLU 77	6	-0.1	27.36	0.0678	0.2533	-0.0002
5	SLU 78	6.13	-0.1	26.91	0.0676	0.2581	-0.0002
5	SLU 79	6.01	-0.1	27.3	0.0676	0.2538	-0.0002
5	SLU 80	6.14	-0.1	26.85	0.0674	0.2586	-0.0002
5	SLU 81	5.92	-0.1	27.71	0.0691	0.2504	-0.0002
5	SLU 82	6.05	-0.1	27.26	0.0689	0.2552	-0.0002
5	SLU 83	6.07	-0.1	27.68	0.0694	0.2566	-0.0002
5	SLU 84	6.21	-0.1	27.23	0.0692	0.2614	-0.0002
5	SLE RA 1	3.93	-0.07	20.32	0.047	0.1671	-0.0001
5	SLE RA 2	4.08	-0.07	19.82	0.0468	0.1724	-0.0001
5	SLE RA 3	4.03	-0.07	20.34	0.0473	0.1709	-0.0001
5	SLE RA 4	4.11	-0.07	20.04	0.0472	0.1741	-0.0001
5	SLE RA 5	4.18	-0.07	19.8	0.047	0.1765	-0.0001
5	SLE RA 6	4.13	-0.07	20.32	0.0475	0.175	-0.0001
5	SLE RA 7	4.22	-0.07	20.02	0.0474	0.1782	-0.0001
5	SLE RA 8	4.14	-0.07	20.28	0.0474	0.1753	-0.0001
5	SLE RA 9	4.23	-0.07	19.98	0.0473	0.1785	-0.0001
5	SLE RA 10	4.42	-0.08	20.37	0.0501	0.1863	-0.0002
5	SLE RA 11	4.36	-0.08	20.89	0.0507	0.1848	-0.0002
5	SLE RA 12	4.45	-0.08	20.59	0.0505	0.188	-0.0002
5	SLE RA 13	4.52	-0.08	20.35	0.0503	0.1904	-0.0002
5	SLE RA 14	4.47	-0.08	20.87	0.0509	0.1889	-0.0002
5	SLE RA 15	4.56	-0.08	20.57	0.0508	0.1921	-0.0002
5	SLE RA 16	4.48	-0.08	20.83	0.0508	0.1892	-0.0002
5	SLE RA 17	4.56	-0.08	20.53	0.0506	0.1924	-0.0002
5	SLE RA 18	4.41	-0.08	21.1	0.0517	0.1869	-0.0002
5	SLE RA 19	4.5	-0.08	20.8	0.0516	0.1901	-0.0002
5	SLE RA 20	4.52	-0.08	21.08	0.052	0.1911	-0.0002
5	SLE RA 21	4.61	-0.08	20.78	0.0518	0.1942	-0.0002
5	SLE FR 1	3.93	-0.07	20.32	0.047	0.1671	-0.0001
5	SLE FR 2	3.96	-0.07	20.22	0.0469	0.1681	-0.0001
5	SLE FR 3	3.97	-0.07	20.31	0.0471	0.1687	-0.0001
5	SLE FR 4	4.1	-0.07	20.45	0.0484	0.1741	-0.0001
5	SLE FR 5	4.12	-0.07	20.55	0.0485	0.1747	-0.0001
5	SLE FR 6	4.17	-0.08	20.71	0.0494	0.177	-0.0002
5	SLE QP 1	3.93	-0.07	20.32	0.047	0.1671	-0.0001
5	SLE QP 2	4.08	-0.07	20.55	0.0484	0.173	-0.0001
5	SLD 1	7.55	-0.12	27.5	0.098	0.3321	-0.0003
5	SLD 2	7.55	-0.12	27.5	0.098	0.3321	-0.0003
5	SLD 3	6.79	-0.08	24.39	0.0697	0.3003	-0.0002
5	SLD 4	6.79	-0.08	24.39	0.0697	0.3003	-0.0002
5	SLD 5	6.26	-0.14	27.35	0.1062	0.269	-0.0003
5	SLD 6	6.26	-0.14	27.35	0.1062	0.269	-0.0003
5	SLD 7	3.74	-0.02	16.99	0.0119	0.163	0
5	SLD 8	3.74	-0.02	16.99	0.0119	0.163	0
5	SLD 9	4.41	-0.13	24.11	0.0849	0.1831	-0.0002
5	SLD 10	4.41	-0.13	24.11	0.0849	0.1831	-0.0002
5	SLD 11	1.89	-0.01	13.76	-0.0094	0.0771	0
5	SLD 12	1.89	-0.01	13.76	-0.0094	0.0771	0
5	SLD 13	1.36	-0.07	16.72	0.0271	0.0458	-0.0001
5	SLD 14	1.36	-0.07	16.72	0.0271	0.0458	-0.0001
5	SLD 15	0.6	-0.03	13.61	-0.0012	0.0139	0
5	SLD 16	0.6	-0.03	13.61	-0.0012	0.0139	0
5	SLV 1	12.13	-0.17	36.76	0.163	0.5413	-0.0005
5	SLV 2	12.13	-0.17	36.76	0.163	0.5413	-0.0005
5	SLV 3	10.36	-0.09	29.38	0.0986	0.4673	-0.0003
5	SLV 4	10.36	-0.09	29.38	0.0986	0.4673	-0.0003
5	SLV 5	9.16	-0.23	36.62	0.1805	0.3957	-0.0005
5	SLV 6	9.16	-0.23	36.62	0.1805	0.3957	-0.0005
5	SLV 7	3.29	0.05	12	-0.0342	0.1491	0.0001
5	SLV 8	3.29	0.05	12	-0.0342	0.1491	0.0001
5	SLV 9	4.86	-0.2	29.11	0.1311	0.197	-0.0004
5	SLV 10	4.86	-0.2	29.11	0.1311	0.197	-0.0004
5	SLV 11	-1.01	0.08	4.49	-0.0837	-0.0496	0.0002
5	SLV 12	-1.01	0.08	4.49	-0.0837	-0.0496	0.0002
5	SLV 13	-2.21	-0.06	11.73	-0.0018	-0.1212	0
5	SLV 14	-2.21	-0.06	11.73	-0.0018	-0.1212	0
5	SLV 15	-3.97	0.03	4.34	-0.0662	-0.1952	0.0002
5	SLV 16	-3.97	0.03	4.34	-0.0662	-0.1952	0.0002
6	SLU 1	3.84	-0.11	21.53	0.0644	0.1558	-0.0002
6	SLU 2	4.01	-0.11	21.03	0.0618	0.1622	-0.0002
6	SLU 3	4.02	-0.11	21.69	0.0652	0.1627	-0.0002
6	SLU 4	4.12	-0.11	21.38	0.0636	0.1666	-0.0002
6	SLU 5	4.2	-0.11	21.14	0.0624	0.1698	-0.0002
6	SLU 6	4.21	-0.11	21.8	0.0657	0.1703	-0.0002
6	SLU 7	4.31	-0.11	21.49	0.0642	0.1742	-0.0002
6	SLU 8	4.23	-0.11	21.76	0.0655	0.1709	-0.0002
6	SLU 9	4.33	-0.11	21.45	0.064	0.1748	-0.0002
6	SLU 10	4.62	-0.12	22.22	0.069	0.186	-0.0002
6	SLU 11	4.63	-0.12	22.88	0.0724	0.1865	-0.0002
6	SLU 12	4.73	-0.12	22.58	0.0708	0.1904	-0.0002
6	SLU 13	4.81	-0.12	22.34	0.0696	0.1936	-0.0002
6	SLU 14	4.82	-0.12	23	0.0729	0.1941	-0.0002
6	SLU 15	4.92	-0.12	22.69	0.0714	0.198	-0.0002
6	SLU 16	4.84	-0.12	22.95	0.0727	0.1947	-0.0002
6	SLU 17	4.94	-0.12	22.65	0.0712	0.1986	-0.0002
6	SLU 18	4.71	-0.12	23.25	0.0747	0.1898	-0.0002
6	SLU 19	4.81	-0.12	22.94	0.0731	0.1937	-0.0002
6	SLU 20	4.9	-0.12	23.36	0.0752	0.1974	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
6	SLU 21	5	-0.12	23.05	0.0737	0.2012	-0.0002
6	SLU 22	4.18	-0.11	22.18	0.0686	0.1693	-0.0002
6	SLU 23	4.35	-0.11	21.67	0.066	0.1757	-0.0002
6	SLU 24	4.36	-0.12	22.34	0.0693	0.1763	-0.0002
6	SLU 25	4.47	-0.11	22.03	0.0678	0.1801	-0.0002
6	SLU 26	4.55	-0.11	21.79	0.0665	0.1833	-0.0002
6	SLU 27	4.56	-0.12	22.45	0.0699	0.1838	-0.0002
6	SLU 28	4.66	-0.11	22.14	0.0684	0.1877	-0.0002
6	SLU 29	4.57	-0.12	22.41	0.0697	0.1844	-0.0002
6	SLU 30	4.68	-0.11	22.1	0.0681	0.1883	-0.0002
6	SLU 31	4.96	-0.12	22.87	0.0732	0.1995	-0.0002
6	SLU 32	4.97	-0.13	23.53	0.0765	0.2001	-0.0002
6	SLU 33	5.08	-0.12	23.23	0.075	0.2039	-0.0002
6	SLU 34	5.16	-0.12	22.98	0.0737	0.2071	-0.0002
6	SLU 35	5.17	-0.13	23.65	0.0771	0.2076	-0.0002
6	SLU 36	5.27	-0.12	23.34	0.0756	0.2115	-0.0002
6	SLU 37	5.18	-0.13	23.6	0.0769	0.2082	-0.0002
6	SLU 38	5.29	-0.12	23.3	0.0753	0.2121	-0.0002
6	SLU 39	5.06	-0.13	23.89	0.0788	0.2033	-0.0002
6	SLU 40	5.16	-0.13	23.59	0.0773	0.2072	-0.0002
6	SLU 41	5.25	-0.13	24.01	0.0794	0.2109	-0.0002
6	SLU 42	5.35	-0.13	23.7	0.0779	0.2147	-0.0002
6	SLU 43	4.87	-0.14	27.77	0.0823	0.1979	-0.0002
6	SLU 44	5.04	-0.14	27.26	0.0797	0.2043	-0.0002
6	SLU 45	5.05	-0.14	27.92	0.0831	0.2048	-0.0002
6	SLU 46	5.15	-0.14	27.62	0.0815	0.2087	-0.0002
6	SLU 47	5.23	-0.14	27.37	0.0803	0.2119	-0.0002
6	SLU 48	5.24	-0.14	28.03	0.0836	0.2124	-0.0002
6	SLU 49	5.34	-0.14	27.73	0.0821	0.2163	-0.0002
6	SLU 50	5.26	-0.14	27.99	0.0834	0.213	-0.0002
6	SLU 51	5.36	-0.14	27.69	0.0818	0.2169	-0.0002
6	SLU 52	5.65	-0.15	28.46	0.0869	0.2281	-0.0003
6	SLU 53	5.66	-0.15	29.12	0.0903	0.2286	-0.0003
6	SLU 54	5.76	-0.15	28.82	0.0887	0.2325	-0.0003
6	SLU 55	5.84	-0.15	28.57	0.0875	0.2357	-0.0003
6	SLU 56	5.85	-0.15	29.23	0.0908	0.2362	-0.0003
6	SLU 57	5.95	-0.15	28.93	0.0893	0.2401	-0.0003
6	SLU 58	5.87	-0.15	29.19	0.0906	0.2368	-0.0003
6	SLU 59	5.97	-0.15	28.89	0.089	0.2407	-0.0003
6	SLU 60	5.74	-0.15	29.48	0.0925	0.2319	-0.0003
6	SLU 61	5.84	-0.15	29.18	0.091	0.2358	-0.0003
6	SLU 62	5.93	-0.15	29.59	0.0931	0.2395	-0.0003
6	SLU 63	6.04	-0.15	29.29	0.0916	0.2433	-0.0003
6	SLU 64	5.22	-0.15	28.42	0.0864	0.2114	-0.0003
6	SLU 65	5.39	-0.14	27.91	0.0839	0.2178	-0.0002
6	SLU 66	5.4	-0.15	28.57	0.0872	0.2184	-0.0003
6	SLU 67	5.5	-0.14	28.27	0.0857	0.2222	-0.0003
6	SLU 68	5.58	-0.14	28.02	0.0844	0.2254	-0.0002
6	SLU 69	5.59	-0.15	28.68	0.0878	0.2259	-0.0003
6	SLU 70	5.69	-0.14	28.38	0.0863	0.2298	-0.0003
6	SLU 71	5.61	-0.15	28.64	0.0876	0.2265	-0.0003
6	SLU 72	5.71	-0.14	28.34	0.086	0.2304	-0.0003
6	SLU 73	6	-0.15	29.11	0.0911	0.2416	-0.0003
6	SLU 74	6.01	-0.16	29.77	0.0944	0.2422	-0.0003
6	SLU 75	6.11	-0.15	29.47	0.0929	0.246	-0.0003
6	SLU 76	6.19	-0.15	29.22	0.0916	0.2492	-0.0003
6	SLU 77	6.2	-0.16	29.88	0.095	0.2497	-0.0003
6	SLU 78	6.3	-0.15	29.58	0.0934	0.2536	-0.0003
6	SLU 79	6.22	-0.16	29.84	0.0948	0.2503	-0.0003
6	SLU 80	6.32	-0.15	29.54	0.0932	0.2542	-0.0003
6	SLU 81	6.09	-0.16	30.13	0.0967	0.2454	-0.0003
6	SLU 82	6.19	-0.16	29.83	0.0952	0.2493	-0.0003
6	SLU 83	6.28	-0.16	30.24	0.0973	0.253	-0.0003
6	SLU 84	6.38	-0.16	29.94	0.0957	0.2568	-0.0003
6	SLE RA 1	3.94	-0.11	21.72	0.0656	0.1597	-0.0002
6	SLE RA 2	4.05	-0.11	21.38	0.0639	0.1639	-0.0002
6	SLE RA 3	4.06	-0.11	21.82	0.0661	0.1643	-0.0002
6	SLE RA 4	4.12	-0.11	21.62	0.0651	0.1669	-0.0002
6	SLE RA 5	4.18	-0.11	21.45	0.0642	0.169	-0.0002
6	SLE RA 6	4.18	-0.11	21.9	0.0665	0.1693	-0.0002
6	SLE RA 7	4.25	-0.11	21.69	0.0654	0.1719	-0.0002
6	SLE RA 8	4.2	-0.11	21.87	0.0663	0.1697	-0.0002
6	SLE RA 9	4.26	-0.11	21.66	0.0653	0.1723	-0.0002
6	SLE RA 10	4.46	-0.11	22.18	0.0687	0.1798	-0.0002
6	SLE RA 11	4.46	-0.12	22.62	0.0709	0.1802	-0.0002
6	SLE RA 12	4.53	-0.12	22.42	0.0699	0.1827	-0.0002
6	SLE RA 13	4.59	-0.12	22.25	0.069	0.1848	-0.0002
6	SLE RA 14	4.59	-0.12	22.69	0.0713	0.1852	-0.0002
6	SLE RA 15	4.66	-0.12	22.49	0.0702	0.1878	-0.0002
6	SLE RA 16	4.6	-0.12	22.67	0.0711	0.1856	-0.0002
6	SLE RA 17	4.67	-0.12	22.46	0.0701	0.1882	-0.0002
6	SLE RA 18	4.52	-0.12	22.86	0.0724	0.1823	-0.0002
6	SLE RA 19	4.58	-0.12	22.66	0.0714	0.1849	-0.0002
6	SLE RA 20	4.65	-0.12	22.93	0.0728	0.1874	-0.0002
6	SLE RA 21	4.71	-0.12	22.73	0.0718	0.1899	-0.0002
6	SLE FR 1	3.94	-0.11	21.72	0.0656	0.1597	-0.0002
6	SLE FR 2	3.96	-0.11	21.65	0.0652	0.1605	-0.0002
6	SLE FR 3	3.99	-0.11	21.75	0.0657	0.1617	-0.0002
6	SLE FR 4	4.13	-0.11	21.99	0.0673	0.1673	-0.0002



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
6	SLE FR 5	4.16	-0.11	22.09	0.0678	0.1685	-0.0002
6	SLE FR 6	4.23	-0.12	22.29	0.069	0.171	-0.0002
6	SLE QP 1	3.94	-0.11	21.72	0.0656	0.1597	-0.0002
6	SLE QP 2	4.11	-0.11	22.06	0.0676	0.1665	-0.0002
6	SLD 1	7.73	-0.21	28.57	0.1432	0.3265	-0.0004
6	SLD 2	7.73	-0.21	28.57	0.1432	0.3265	-0.0004
6	SLD 3	6.75	-0.16	25.42	0.1062	0.287	-0.0003
6	SLD 4	6.75	-0.16	25.42	0.1062	0.287	-0.0003
6	SLD 5	6.67	-0.22	28.81	0.1464	0.2743	-0.0004
6	SLD 6	6.67	-0.22	28.81	0.1464	0.2743	-0.0004
6	SLD 7	3.43	-0.05	18.28	0.0231	0.1428	-0.0001
6	SLD 8	3.43	-0.05	18.28	0.0231	0.1428	-0.0001
6	SLD 9	4.79	-0.18	25.84	0.1122	0.1901	-0.0003
6	SLD 10	4.79	-0.18	25.84	0.1122	0.1901	-0.0003
6	SLD 11	1.55	-0.01	15.32	-0.0112	0.0586	0
6	SLD 12	1.55	-0.01	15.32	-0.0112	0.0586	0
6	SLD 13	1.47	-0.07	18.71	0.029	0.0459	-0.0001
6	SLD 14	1.47	-0.07	18.71	0.029	0.0459	-0.0001
6	SLD 15	0.49	-0.02	15.55	-0.008	0.0064	0
6	SLD 16	0.49	-0.02	15.55	-0.008	0.0064	0
6	SLV 1	12.49	-0.33	37.31	0.2427	0.5371	-0.0007
6	SLV 2	12.49	-0.33	37.31	0.2427	0.5371	-0.0007
6	SLV 3	10.24	-0.21	29.86	0.1582	0.4455	-0.0005
6	SLV 4	10.24	-0.21	29.86	0.1582	0.4455	-0.0005
6	SLV 5	10.05	-0.35	37.94	0.2484	0.4164	-0.0007
6	SLV 6	10.05	-0.35	37.94	0.2484	0.4164	-0.0007
6	SLV 7	2.53	0.03	13.09	-0.0334	0.1114	0
6	SLV 8	2.53	0.03	13.09	-0.0334	0.1114	0
6	SLV 9	5.69	-0.26	31.03	0.1687	0.2215	-0.0004
6	SLV 10	5.69	-0.26	31.03	0.1687	0.2215	-0.0004
6	SLV 11	-1.83	0.12	6.18	-0.1131	-0.0835	0.0003
6	SLV 12	-1.83	0.12	6.18	-0.1131	-0.0835	0.0003
6	SLV 13	-2.02	-0.01	14.27	-0.0229	-0.1126	0.0001
6	SLV 14	-2.02	-0.01	14.27	-0.0229	-0.1126	0.0001
6	SLV 15	-4.27	0.1	6.81	-0.1075	-0.2042	0.0003
6	SLV 16	-4.27	0.1	6.81	-0.1075	-0.2042	0.0003
7	SLU 1	4.44	-0.13	23.49	0.0724	0.1844	-0.0002
7	SLU 2	4.55	-0.12	23.12	0.0681	0.1884	-0.0002
7	SLU 3	4.66	-0.13	23.79	0.0734	0.193	-0.0002
7	SLU 4	4.72	-0.12	23.58	0.0708	0.1955	-0.0002
7	SLU 5	4.78	-0.12	23.4	0.0689	0.1977	-0.0002
7	SLU 6	4.89	-0.13	24.08	0.0743	0.2024	-0.0002
7	SLU 7	4.96	-0.12	23.86	0.0717	0.2048	-0.0002
7	SLU 8	4.91	-0.13	24.05	0.074	0.2031	-0.0002
7	SLU 9	4.97	-0.12	23.83	0.0715	0.2055	-0.0002
7	SLU 10	5.31	-0.13	24.81	0.0766	0.2191	-0.0002
7	SLU 11	5.42	-0.14	25.48	0.082	0.2237	-0.0002
7	SLU 12	5.48	-0.14	25.26	0.0794	0.2261	-0.0002
7	SLU 13	5.54	-0.13	25.09	0.0775	0.2284	-0.0002
7	SLU 14	5.65	-0.14	25.76	0.0828	0.233	-0.0002
7	SLU 15	5.72	-0.14	25.54	0.0802	0.2355	-0.0002
7	SLU 16	5.67	-0.14	25.74	0.0826	0.2337	-0.0002
7	SLU 17	5.73	-0.14	25.52	0.08	0.2361	-0.0002
7	SLU 18	5.52	-0.14	25.9	0.0846	0.2282	-0.0002
7	SLU 19	5.59	-0.14	25.68	0.082	0.2306	-0.0002
7	SLU 20	5.76	-0.15	26.18	0.0854	0.2375	-0.0003
7	SLU 21	5.82	-0.14	25.96	0.0828	0.2399	-0.0002
7	SLU 22	4.87	-0.13	24.43	0.0772	0.2016	-0.0002
7	SLU 23	4.98	-0.13	24.06	0.0729	0.2057	-0.0002
7	SLU 24	5.09	-0.13	24.74	0.0783	0.2103	-0.0002
7	SLU 25	5.15	-0.13	24.52	0.0757	0.2127	-0.0002
7	SLU 26	5.21	-0.13	24.35	0.0738	0.215	-0.0002
7	SLU 27	5.32	-0.14	25.02	0.0791	0.2196	-0.0002
7	SLU 28	5.39	-0.13	24.8	0.0766	0.2221	-0.0002
7	SLU 29	5.34	-0.14	24.99	0.0789	0.2203	-0.0002
7	SLU 30	5.4	-0.13	24.77	0.0763	0.2227	-0.0002
7	SLU 31	5.74	-0.14	25.75	0.0815	0.2363	-0.0002
7	SLU 32	5.85	-0.15	26.42	0.0869	0.241	-0.0003
7	SLU 33	5.91	-0.14	26.21	0.0843	0.2434	-0.0002
7	SLU 34	5.97	-0.14	26.03	0.0823	0.2457	-0.0002
7	SLU 35	6.08	-0.15	26.71	0.0877	0.2503	-0.0003
7	SLU 36	6.15	-0.14	26.49	0.0851	0.2527	-0.0003
7	SLU 37	6.1	-0.15	26.68	0.0875	0.251	-0.0003
7	SLU 38	6.16	-0.14	26.46	0.0849	0.2534	-0.0003
7	SLU 39	5.95	-0.15	26.84	0.0895	0.2454	-0.0003
7	SLU 40	6.02	-0.15	26.62	0.0869	0.2479	-0.0003
7	SLU 41	6.19	-0.15	27.12	0.0903	0.2548	-0.0003
7	SLU 42	6.25	-0.15	26.9	0.0877	0.2572	-0.0003
7	SLU 43	5.62	-0.16	30.21	0.0924	0.2338	-0.0003
7	SLU 44	5.73	-0.15	29.85	0.0881	0.2378	-0.0003
7	SLU 45	5.84	-0.16	30.52	0.0935	0.2424	-0.0003
7	SLU 46	5.91	-0.16	30.3	0.0909	0.2448	-0.0003
7	SLU 47	5.97	-0.16	30.13	0.0889	0.2471	-0.0003
7	SLU 48	6.08	-0.16	30.8	0.0943	0.2518	-0.0003
7	SLU 49	6.14	-0.16	30.58	0.0917	0.2542	-0.0003
7	SLU 50	6.09	-0.16	30.77	0.0941	0.2524	-0.0003
7	SLU 51	6.16	-0.16	30.55	0.0915	0.2549	-0.0003
7	SLU 52	6.49	-0.17	31.53	0.0967	0.2684	-0.0003
7	SLU 53	6.6	-0.18	32.2	0.102	0.2731	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
7	SLU 54	6.66	-0.17	31.99	0.0994	0.2755	-0.0003
7	SLU 55	6.73	-0.17	31.81	0.0975	0.2778	-0.0003
7	SLU 56	6.84	-0.18	32.49	0.1029	0.2824	-0.0003
7	SLU 57	6.9	-0.17	32.27	0.1003	0.2848	-0.0003
7	SLU 58	6.85	-0.18	32.46	0.1026	0.2831	-0.0003
7	SLU 59	6.92	-0.17	32.24	0.1001	0.2855	-0.0003
7	SLU 60	6.71	-0.18	32.62	0.1046	0.2775	-0.0003
7	SLU 61	6.77	-0.18	32.4	0.102	0.28	-0.0003
7	SLU 62	6.94	-0.18	32.9	0.1055	0.2869	-0.0003
7	SLU 63	7.01	-0.18	32.68	0.1029	0.2893	-0.0003
7	SLU 64	6.05	-0.17	31.15	0.0973	0.251	-0.0003
7	SLU 65	6.16	-0.16	30.79	0.093	0.2551	-0.0003
7	SLU 66	6.27	-0.17	31.46	0.0983	0.2597	-0.0003
7	SLU 67	6.34	-0.17	31.24	0.0958	0.2621	-0.0003
7	SLU 68	6.4	-0.16	31.07	0.0938	0.2644	-0.0003
7	SLU 69	6.51	-0.17	31.74	0.0992	0.269	-0.0003
7	SLU 70	6.57	-0.17	31.52	0.0966	0.2715	-0.0003
7	SLU 71	6.52	-0.17	31.71	0.099	0.2697	-0.0003
7	SLU 72	6.59	-0.17	31.5	0.0964	0.2721	-0.0003
7	SLU 73	6.92	-0.17	32.47	0.1015	0.2857	-0.0003
7	SLU 74	7.03	-0.18	33.15	0.1069	0.2903	-0.0003
7	SLU 75	7.09	-0.18	32.93	0.1043	0.2928	-0.0003
7	SLU 76	7.16	-0.18	32.76	0.1024	0.2951	-0.0003
7	SLU 77	7.27	-0.18	33.43	0.1077	0.2997	-0.0003
7	SLU 78	7.33	-0.18	33.21	0.1052	0.3021	-0.0003
7	SLU 79	7.28	-0.18	33.4	0.1075	0.3004	-0.0003
7	SLU 80	7.35	-0.18	33.18	0.1049	0.3028	-0.0003
7	SLU 81	7.14	-0.19	33.56	0.1095	0.2948	-0.0003
7	SLU 82	7.2	-0.18	33.34	0.1069	0.2972	-0.0003
7	SLU 83	7.37	-0.19	33.84	0.1104	0.3042	-0.0003
7	SLU 84	7.44	-0.18	33.63	0.1078	0.3066	-0.0003
7	SLE RA 1	4.56	-0.13	23.76	0.0738	0.1893	-0.0002
7	SLE RA 2	4.63	-0.12	23.51	0.0709	0.192	-0.0002
7	SLE RA 3	4.71	-0.13	23.96	0.0745	0.1951	-0.0002
7	SLE RA 4	4.75	-0.13	23.82	0.0727	0.1967	-0.0002
7	SLE RA 5	4.79	-0.12	23.7	0.0714	0.1982	-0.0002
7	SLE RA 6	4.86	-0.13	24.15	0.075	0.2013	-0.0002
7	SLE RA 7	4.91	-0.13	24	0.0733	0.2029	-0.0002
7	SLE RA 8	4.88	-0.13	24.13	0.0749	0.2018	-0.0002
7	SLE RA 9	4.92	-0.13	23.99	0.0732	0.2034	-0.0002
7	SLE RA 10	5.14	-0.13	24.64	0.0766	0.2124	-0.0002
7	SLE RA 11	5.21	-0.14	25.09	0.0802	0.2155	-0.0002
7	SLE RA 12	5.26	-0.14	24.94	0.0784	0.2171	-0.0002
7	SLE RA 13	5.3	-0.13	24.83	0.0772	0.2187	-0.0002
7	SLE RA 14	5.37	-0.14	25.27	0.0807	0.2217	-0.0002
7	SLE RA 15	5.41	-0.14	25.13	0.079	0.2234	-0.0002
7	SLE RA 16	5.38	-0.14	25.26	0.0806	0.2222	-0.0002
7	SLE RA 17	5.42	-0.14	25.11	0.0789	0.2238	-0.0002
7	SLE RA 18	5.28	-0.14	25.36	0.0819	0.2185	-0.0002
7	SLE RA 19	5.33	-0.14	25.22	0.0802	0.2201	-0.0002
7	SLE RA 20	5.44	-0.14	25.55	0.0825	0.2247	-0.0002
7	SLE RA 21	5.48	-0.14	25.4	0.0807	0.2263	-0.0002
7	SLE FR 1	4.56	-0.13	23.76	0.0738	0.1893	-0.0002
7	SLE FR 2	4.58	-0.13	23.71	0.0732	0.1898	-0.0002
7	SLE FR 3	4.62	-0.13	23.83	0.074	0.1918	-0.0002
7	SLE FR 4	4.79	-0.13	24.19	0.0756	0.1986	-0.0002
7	SLE FR 5	4.84	-0.13	24.31	0.0764	0.2005	-0.0002
7	SLE FR 6	4.92	-0.13	24.56	0.0778	0.2039	-0.0002
7	SLE QP 1	4.56	-0.13	23.76	0.0738	0.1893	-0.0002
7	SLE QP 2	4.78	-0.13	24.24	0.0762	0.1981	-0.0002
7	SLD 1	8.56	-0.26	31.14	0.17	0.3647	-0.0005
7	SLD 2	8.56	-0.26	31.14	0.17	0.3647	-0.0005
7	SLD 3	7.29	-0.21	27.47	0.1287	0.3125	-0.0004
7	SLD 4	7.29	-0.21	27.47	0.1287	0.3125	-0.0004
7	SLD 5	7.85	-0.26	31.88	0.1669	0.3272	-0.0004
7	SLD 6	7.85	-0.26	31.88	0.1669	0.3272	-0.0004
7	SLD 7	3.6	-0.07	19.64	0.0294	0.1532	-0.0001
7	SLD 8	3.6	-0.07	19.64	0.0294	0.1532	-0.0001
7	SLD 9	5.96	-0.2	28.84	0.123	0.2429	-0.0003
7	SLD 10	5.96	-0.2	28.84	0.123	0.2429	-0.0003
7	SLD 11	1.71	-0.01	16.6	-0.0145	0.0689	0
7	SLD 12	1.71	-0.01	16.6	-0.0145	0.0689	0
7	SLD 13	2.27	-0.06	21.01	0.0237	0.0836	-0.0001
7	SLD 14	2.27	-0.06	21.01	0.0237	0.0836	-0.0001
7	SLD 15	0.99	0	17.34	-0.0176	0.0314	0
7	SLD 16	0.99	0	17.34	-0.0176	0.0314	0
7	SLV 1	13.56	-0.43	40.42	0.2938	0.5843	-0.0008
7	SLV 2	13.56	-0.43	40.42	0.2938	0.5843	-0.0008
7	SLV 3	10.61	-0.3	31.8	0.1993	0.4632	-0.0006
7	SLV 4	10.61	-0.3	31.8	0.1993	0.4632	-0.0006
7	SLV 5	11.9	-0.42	42.17	0.2848	0.4975	-0.0007
7	SLV 6	11.9	-0.42	42.17	0.2848	0.4975	-0.0007
7	SLV 7	2.05	0.01	13.43	-0.0302	0.094	0
7	SLV 8	2.05	0.01	13.43	-0.0302	0.094	0
7	SLV 9	7.51	-0.28	35.04	0.1826	0.3021	-0.0004
7	SLV 10	7.51	-0.28	35.04	0.1826	0.3021	-0.0004
7	SLV 11	-2.34	0.16	6.31	-0.1324	-0.1014	0.0003
7	SLV 12	-2.34	0.16	6.31	-0.1324	-0.1014	0.0003
7	SLV 13	-1.05	0.04	16.68	-0.0469	-0.0671	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
7	SLV 14	-1.05	0.04	16.68	-0.0469	-0.0671	0.0001
7	SLV 15	-4.01	0.17	8.06	-0.1414	-0.1881	0.0003
7	SLV 16	-4.01	0.17	8.06	-0.1414	-0.1881	0.0003
8	SLU 1	5.04	-0.12	26.36	0.0676	0.1998	-0.0002
8	SLU 2	5.1	-0.11	26.07	0.0623	0.2022	-0.0002
8	SLU 3	5.29	-0.12	26.85	0.0687	0.2095	-0.0002
8	SLU 4	5.32	-0.11	26.68	0.0655	0.2109	-0.0002
8	SLU 5	5.37	-0.11	26.55	0.0632	0.2126	-0.0002
8	SLU 6	5.55	-0.12	27.33	0.0697	0.2198	-0.0002
8	SLU 7	5.59	-0.12	27.16	0.0665	0.2213	-0.0002
8	SLU 8	5.57	-0.12	27.32	0.0695	0.2206	-0.0002
8	SLU 9	5.61	-0.12	27.15	0.0663	0.2221	-0.0002
8	SLU 10	5.98	-0.12	28.38	0.0708	0.2367	-0.0002
8	SLU 11	6.17	-0.13	29.17	0.0773	0.2439	-0.0002
8	SLU 12	6.21	-0.13	28.99	0.0741	0.2454	-0.0002
8	SLU 13	6.25	-0.12	28.87	0.0718	0.2471	-0.0002
8	SLU 14	6.43	-0.14	29.65	0.0782	0.2543	-0.0002
8	SLU 15	6.47	-0.13	29.48	0.075	0.2558	-0.0002
8	SLU 16	6.45	-0.13	29.64	0.078	0.2551	-0.0002
8	SLU 17	6.49	-0.13	29.46	0.0748	0.2565	-0.0002
8	SLU 18	6.3	-0.14	29.66	0.0798	0.2491	-0.0002
8	SLU 19	6.34	-0.13	29.49	0.0766	0.2505	-0.0002
8	SLU 20	6.57	-0.14	30.15	0.0807	0.2595	-0.0002
8	SLU 21	6.6	-0.13	29.97	0.0775	0.2609	-0.0002
8	SLU 22	5.54	-0.13	27.67	0.0724	0.219	-0.0002
8	SLU 23	5.6	-0.12	27.38	0.0671	0.2215	-0.0002
8	SLU 24	5.78	-0.13	28.16	0.0735	0.2287	-0.0002
8	SLU 25	5.82	-0.12	27.99	0.0703	0.2302	-0.0002
8	SLU 26	5.86	-0.12	27.86	0.068	0.2319	-0.0002
8	SLU 27	6.05	-0.13	28.64	0.0745	0.2391	-0.0002
8	SLU 28	6.08	-0.12	28.47	0.0713	0.2406	-0.0002
8	SLU 29	6.06	-0.13	28.63	0.0743	0.2398	-0.0002
8	SLU 30	6.1	-0.12	28.46	0.0711	0.2413	-0.0002
8	SLU 31	6.48	-0.13	29.69	0.0756	0.256	-0.0002
8	SLU 32	6.67	-0.14	30.47	0.0821	0.2632	-0.0002
8	SLU 33	6.7	-0.14	30.3	0.0789	0.2647	-0.0002
8	SLU 34	6.74	-0.13	30.17	0.0766	0.2664	-0.0002
8	SLU 35	6.93	-0.14	30.96	0.083	0.2736	-0.0002
8	SLU 36	6.97	-0.14	30.78	0.0798	0.2751	-0.0002
8	SLU 37	6.95	-0.14	30.95	0.0828	0.2743	-0.0002
8	SLU 38	6.98	-0.14	30.77	0.0796	0.2758	-0.0002
8	SLU 39	6.8	-0.15	30.97	0.0846	0.2683	-0.0003
8	SLU 40	6.83	-0.14	30.8	0.0814	0.2698	-0.0002
8	SLU 41	7.06	-0.15	31.46	0.0855	0.2787	-0.0003
8	SLU 42	7.1	-0.14	31.28	0.0823	0.2802	-0.0002
8	SLU 43	6.38	-0.15	33.81	0.0863	0.2531	-0.0003
8	SLU 44	6.44	-0.14	33.53	0.0809	0.2556	-0.0002
8	SLU 45	6.63	-0.15	34.31	0.0874	0.2628	-0.0003
8	SLU 46	6.67	-0.15	34.14	0.0842	0.2643	-0.0002
8	SLU 47	6.71	-0.14	34.01	0.0819	0.266	-0.0002
8	SLU 48	6.89	-0.15	34.79	0.0883	0.2732	-0.0003
8	SLU 49	6.93	-0.15	34.62	0.0851	0.2747	-0.0003
8	SLU 50	6.91	-0.15	34.78	0.0882	0.2739	-0.0003
8	SLU 51	6.95	-0.15	34.61	0.085	0.2754	-0.0003
8	SLU 52	7.33	-0.16	35.84	0.0895	0.2901	-0.0003
8	SLU 53	7.51	-0.17	36.62	0.0959	0.2973	-0.0003
8	SLU 54	7.55	-0.16	36.45	0.0927	0.2988	-0.0003
8	SLU 55	7.59	-0.16	36.32	0.0904	0.3005	-0.0003
8	SLU 56	7.78	-0.17	37.11	0.0968	0.3077	-0.0003
8	SLU 57	7.81	-0.16	36.93	0.0936	0.3091	-0.0003
8	SLU 58	7.8	-0.17	37.1	0.0967	0.3084	-0.0003
8	SLU 59	7.83	-0.16	36.92	0.0935	0.3099	-0.0003
8	SLU 60	7.65	-0.17	37.12	0.0984	0.3024	-0.0003
8	SLU 61	7.68	-0.17	36.95	0.0952	0.3039	-0.0003
8	SLU 62	7.91	-0.17	37.6	0.0994	0.3128	-0.0003
8	SLU 63	7.95	-0.17	37.43	0.0962	0.3143	-0.0003
8	SLU 64	6.88	-0.16	35.12	0.0911	0.2724	-0.0003
8	SLU 65	6.94	-0.15	34.83	0.0857	0.2748	-0.0003
8	SLU 66	7.12	-0.16	35.62	0.0922	0.282	-0.0003
8	SLU 67	7.16	-0.16	35.44	0.089	0.2835	-0.0003
8	SLU 68	7.2	-0.15	35.32	0.0867	0.2852	-0.0003
8	SLU 69	7.39	-0.16	36.1	0.0931	0.2924	-0.0003
8	SLU 70	7.42	-0.16	35.93	0.0899	0.2939	-0.0003
8	SLU 71	7.41	-0.16	36.09	0.093	0.2932	-0.0003
8	SLU 72	7.44	-0.16	35.92	0.0898	0.2946	-0.0003
8	SLU 73	7.82	-0.16	37.15	0.0943	0.3093	-0.0003
8	SLU 74	8.01	-0.17	37.93	0.1007	0.3165	-0.0003
8	SLU 75	8.04	-0.17	37.76	0.0975	0.318	-0.0003
8	SLU 76	8.09	-0.17	37.63	0.0952	0.3197	-0.0003
8	SLU 77	8.27	-0.18	38.42	0.1016	0.3269	-0.0003
8	SLU 78	8.31	-0.17	38.24	0.0984	0.3284	-0.0003
8	SLU 79	8.29	-0.18	38.4	0.1015	0.3277	-0.0003
8	SLU 80	8.33	-0.17	38.23	0.0983	0.3291	-0.0003
8	SLU 81	8.14	-0.18	38.43	0.1032	0.3217	-0.0003
8	SLU 82	8.18	-0.17	38.26	0.1	0.3231	-0.0003
8	SLU 83	8.4	-0.18	38.91	0.1042	0.332	-0.0003
8	SLU 84	8.44	-0.17	38.74	0.101	0.3335	-0.0003
8	SLE RA 1	5.18	-0.12	26.73	0.069	0.2053	-0.0002
8	SLE RA 2	5.22	-0.11	26.54	0.0654	0.2069	-0.0002





Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
8	SLE RA 3	5.35	-0.12	27.06	0.0697	0.2117	-0.0002
8	SLE RA 4	5.37	-0.12	26.94	0.0676	0.2127	-0.0002
8	SLE RA 5	5.4	-0.12	26.86	0.0661	0.2139	-0.0002
8	SLE RA 6	5.52	-0.12	27.38	0.0704	0.2187	-0.0002
8	SLE RA 7	5.55	-0.12	27.27	0.0682	0.2196	-0.0002
8	SLE RA 8	5.53	-0.12	27.37	0.0703	0.2191	-0.0002
8	SLE RA 9	5.56	-0.12	27.26	0.0681	0.2201	-0.0002
8	SLE RA 10	5.81	-0.12	28.08	0.0711	0.2299	-0.0002
8	SLE RA 11	5.94	-0.13	28.6	0.0754	0.2347	-0.0002
8	SLE RA 12	5.96	-0.13	28.49	0.0733	0.2357	-0.0002
8	SLE RA 13	5.99	-0.12	28.4	0.0718	0.2369	-0.0002
8	SLE RA 14	6.11	-0.13	28.93	0.076	0.2417	-0.0002
8	SLE RA 15	6.14	-0.13	28.81	0.0739	0.2426	-0.0002
8	SLE RA 16	6.12	-0.13	28.92	0.0759	0.2421	-0.0002
8	SLE RA 17	6.15	-0.13	28.8	0.0738	0.2431	-0.0002
8	SLE RA 18	6.02	-0.13	28.93	0.0771	0.2381	-0.0002
8	SLE RA 19	6.05	-0.13	28.82	0.075	0.2391	-0.0002
8	SLE RA 20	6.2	-0.13	29.26	0.0777	0.2451	-0.0002
8	SLE RA 21	6.22	-0.13	29.14	0.0756	0.2461	-0.0002
8	SLE FR 1	5.18	-0.12	26.73	0.069	0.2053	-0.0002
8	SLE FR 2	5.19	-0.12	26.69	0.0683	0.2056	-0.0002
8	SLE FR 3	5.25	-0.12	26.86	0.0692	0.2081	-0.0002
8	SLE FR 4	5.44	-0.12	27.35	0.0707	0.2155	-0.0002
8	SLE FR 5	5.51	-0.12	27.52	0.0717	0.2179	-0.0002
8	SLE FR 6	5.6	-0.13	27.83	0.0731	0.2217	-0.0002
8	SLE QP 1	5.18	-0.12	26.73	0.069	0.2053	-0.0002
8	SLE QP 2	5.43	-0.12	27.39	0.0714	0.2151	-0.0002
8	SLD 1	9.29	-0.26	35.37	0.1687	0.3853	-0.0004
8	SLD 2	9.29	-0.26	35.37	0.1687	0.3853	-0.0004
8	SLD 3	7.76	-0.21	30.79	0.1292	0.325	-0.0004
8	SLD 4	7.76	-0.21	30.79	0.1292	0.325	-0.0004
8	SLD 5	8.91	-0.24	36.73	0.1606	0.3576	-0.0004
8	SLD 6	8.91	-0.24	36.73	0.1606	0.3576	-0.0004
8	SLD 7	3.82	-0.07	21.47	0.0287	0.1567	-0.0001
8	SLD 8	3.82	-0.07	21.47	0.0287	0.1567	-0.0001
8	SLD 9	7.05	-0.18	33.31	0.1141	0.2736	-0.0003
8	SLD 10	7.05	-0.18	33.31	0.1141	0.2736	-0.0003
8	SLD 11	1.96	0	18.06	-0.0178	0.0727	0
8	SLD 12	1.96	0	18.06	-0.0178	0.0727	0
8	SLD 13	3.11	-0.04	23.99	0.0137	0.1053	-0.0001
8	SLD 14	3.11	-0.04	23.99	0.0137	0.1053	-0.0001
8	SLD 15	1.58	0.01	19.41	-0.0259	0.045	0
8	SLD 16	1.58	0.01	19.41	-0.0259	0.045	0
8	SLV 1	14.39	-0.45	46.08	0.2975	0.61	-0.0008
8	SLV 2	14.39	-0.45	46.08	0.2975	0.61	-0.0008
8	SLV 3	10.84	-0.33	35.37	0.2067	0.47	-0.0006
8	SLV 4	10.84	-0.33	35.37	0.2067	0.47	-0.0006
8	SLV 5	13.5	-0.4	49.25	0.277	0.5459	-0.0006
8	SLV 6	13.5	-0.4	49.25	0.277	0.5459	-0.0006
8	SLV 7	1.68	0	13.53	-0.0257	0.0793	-0.0001
8	SLV 8	1.68	0	13.53	-0.0257	0.0793	-0.0001
8	SLV 9	9.19	-0.24	41.26	0.1685	0.351	-0.0004
8	SLV 10	9.19	-0.24	41.26	0.1685	0.351	-0.0004
8	SLV 11	-2.63	0.15	5.53	-0.1341	-0.1156	0.0002
8	SLV 12	-2.63	0.15	5.53	-0.1341	-0.1156	0.0002
8	SLV 13	0.03	0.08	19.42	-0.0639	-0.0397	0.0002
8	SLV 14	0.03	0.08	19.42	-0.0639	-0.0397	0.0002
8	SLV 15	-3.52	0.2	8.7	-0.1547	-0.1797	0.0003
8	SLV 16	-3.52	0.2	8.7	-0.1547	-0.1797	0.0003
9	SLU 1	5.41	-0.08	30.08	0.0491	0.2194	-0.0001
9	SLU 2	5.43	-0.07	29.82	0.0437	0.2203	-0.0001
9	SLU 3	5.66	-0.08	30.79	0.0499	0.2295	-0.0001
9	SLU 4	5.68	-0.08	30.63	0.0466	0.2301	-0.0001
9	SLU 5	5.7	-0.07	30.53	0.0443	0.231	-0.0001
9	SLU 6	5.94	-0.08	31.49	0.0506	0.2403	-0.0001
9	SLU 7	5.95	-0.08	31.34	0.0473	0.2408	-0.0001
9	SLU 8	5.95	-0.08	31.5	0.0504	0.2409	-0.0001
9	SLU 9	5.97	-0.08	31.34	0.0472	0.2415	-0.0001
9	SLU 10	6.39	-0.08	32.89	0.0502	0.2589	-0.0001
9	SLU 11	6.63	-0.09	33.86	0.0564	0.2681	-0.0001
9	SLU 12	6.64	-0.09	33.7	0.0531	0.2687	-0.0001
9	SLU 13	6.67	-0.08	33.6	0.0509	0.2697	-0.0001
9	SLU 14	6.9	-0.09	34.56	0.0571	0.2789	-0.0001
9	SLU 15	6.91	-0.09	34.41	0.0538	0.2795	-0.0001
9	SLU 16	6.92	-0.09	34.56	0.057	0.2795	-0.0001
9	SLU 17	6.93	-0.09	34.41	0.0537	0.2801	-0.0001
9	SLU 18	6.78	-0.1	34.47	0.0584	0.2745	-0.0001
9	SLU 19	6.8	-0.09	34.31	0.0552	0.2751	-0.0001
9	SLU 20	7.06	-0.1	35.17	0.0591	0.2853	-0.0001
9	SLU 21	7.07	-0.09	35.02	0.0558	0.2858	-0.0001
9	SLU 22	5.94	-0.09	31.83	0.0527	0.2406	-0.0001
9	SLU 23	5.96	-0.08	31.56	0.0473	0.2415	-0.0001
9	SLU 24	6.2	-0.09	32.53	0.0535	0.2507	-0.0001
9	SLU 25	6.21	-0.08	32.37	0.0503	0.2513	-0.0001
9	SLU 26	6.24	-0.08	32.27	0.048	0.2522	-0.0001
9	SLU 27	6.47	-0.09	33.24	0.0542	0.2615	-0.0001
9	SLU 28	6.48	-0.08	33.08	0.0509	0.262	-0.0001
9	SLU 29	6.48	-0.09	33.24	0.0541	0.2621	-0.0001
9	SLU 30	6.5	-0.08	33.08	0.0508	0.2627	-0.0001



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
9	SLU 31	6.93	-0.09	34.63	0.0538	0.2801	-0.0001
9	SLU 32	7.16	-0.1	35.6	0.06	0.2893	-0.0001
9	SLU 33	7.17	-0.09	35.44	0.0568	0.2899	-0.0001
9	SLU 34	7.2	-0.09	35.34	0.0545	0.2908	-0.0001
9	SLU 35	7.43	-0.1	36.31	0.0607	0.3001	-0.0001
9	SLU 36	7.45	-0.09	36.15	0.0574	0.3007	-0.0001
9	SLU 37	7.45	-0.1	36.31	0.0606	0.3007	-0.0001
9	SLU 38	7.46	-0.09	36.15	0.0573	0.3013	-0.0001
9	SLU 39	7.32	-0.1	36.21	0.062	0.2957	-0.0001
9	SLU 40	7.33	-0.1	36.05	0.0588	0.2963	-0.0001
9	SLU 41	7.59	-0.1	36.92	0.0627	0.3065	-0.0001
9	SLU 42	7.6	-0.1	36.76	0.0595	0.307	-0.0001
9	SLU 43	6.85	-0.1	38.51	0.0626	0.2779	-0.0001
9	SLU 44	6.87	-0.09	38.25	0.0572	0.2788	-0.0001
9	SLU 45	7.1	-0.1	39.22	0.0634	0.2881	-0.0001
9	SLU 46	7.12	-0.1	39.06	0.0601	0.2886	-0.0001
9	SLU 47	7.14	-0.1	38.96	0.0578	0.2896	-0.0001
9	SLU 48	7.38	-0.11	39.92	0.064	0.2989	-0.0001
9	SLU 49	7.39	-0.1	39.76	0.0608	0.2994	-0.0001
9	SLU 50	7.39	-0.11	39.92	0.0639	0.2995	-0.0001
9	SLU 51	7.41	-0.1	39.77	0.0607	0.3	-0.0001
9	SLU 52	7.83	-0.1	41.32	0.0637	0.3174	-0.0001
9	SLU 53	8.07	-0.11	42.28	0.0699	0.3267	-0.0002
9	SLU 54	8.08	-0.11	42.13	0.0666	0.3272	-0.0001
9	SLU 55	8.11	-0.11	42.02	0.0643	0.3282	-0.0001
9	SLU 56	8.34	-0.12	42.99	0.0706	0.3375	-0.0002
9	SLU 57	8.35	-0.11	42.83	0.0673	0.338	-0.0001
9	SLU 58	8.36	-0.12	42.99	0.0704	0.3381	-0.0002
9	SLU 59	8.37	-0.11	42.83	0.0672	0.3386	-0.0001
9	SLU 60	8.22	-0.12	42.89	0.0719	0.3331	-0.0002
9	SLU 61	8.24	-0.11	42.74	0.0686	0.3336	-0.0001
9	SLU 62	8.5	-0.12	43.6	0.0726	0.3439	-0.0002
9	SLU 63	8.51	-0.11	43.44	0.0693	0.3444	-0.0001
9	SLU 64	7.38	-0.11	40.25	0.0662	0.2991	-0.0001
9	SLU 65	7.4	-0.1	39.99	0.0608	0.3	-0.0001
9	SLU 66	7.64	-0.11	40.96	0.067	0.3093	-0.0001
9	SLU 67	7.65	-0.1	40.8	0.0637	0.3098	-0.0001
9	SLU 68	7.67	-0.1	40.7	0.0615	0.3108	-0.0001
9	SLU 69	7.91	-0.11	41.67	0.0677	0.3201	-0.0001
9	SLU 70	7.92	-0.11	41.51	0.0644	0.3206	-0.0001
9	SLU 71	7.92	-0.11	41.67	0.0676	0.3207	-0.0001
9	SLU 72	7.94	-0.11	41.51	0.0643	0.3212	-0.0001
9	SLU 73	8.37	-0.11	43.06	0.0673	0.3386	-0.0001
9	SLU 74	8.6	-0.12	44.03	0.0735	0.3479	-0.0002
9	SLU 75	8.61	-0.12	43.87	0.0703	0.3484	-0.0002
9	SLU 76	8.64	-0.11	43.77	0.068	0.3494	-0.0001
9	SLU 77	8.87	-0.12	44.73	0.0742	0.3587	-0.0002
9	SLU 78	8.89	-0.12	44.58	0.0709	0.3592	-0.0002
9	SLU 79	8.89	-0.12	44.73	0.0741	0.3593	-0.0002
9	SLU 80	8.9	-0.12	44.58	0.0708	0.3598	-0.0002
9	SLU 81	8.76	-0.12	44.64	0.0755	0.3543	-0.0002
9	SLU 82	8.77	-0.12	44.48	0.0723	0.3548	-0.0002
9	SLU 83	9.03	-0.13	45.34	0.0762	0.3651	-0.0002
9	SLU 84	9.04	-0.12	45.19	0.0729	0.3656	-0.0002
9	SLE RA 1	5.56	-0.08	30.58	0.0501	0.2254	-0.0001
9	SLE RA 2	5.57	-0.08	30.41	0.0465	0.226	-0.0001
9	SLE RA 3	5.73	-0.08	31.05	0.0507	0.2322	-0.0001
9	SLE RA 4	5.74	-0.08	30.95	0.0485	0.2326	-0.0001
9	SLE RA 5	5.76	-0.08	30.88	0.047	0.2332	-0.0001
9	SLE RA 6	5.91	-0.08	31.52	0.0511	0.2394	-0.0001
9	SLE RA 7	5.92	-0.08	31.42	0.0489	0.2397	-0.0001
9	SLE RA 8	5.92	-0.08	31.52	0.051	0.2398	-0.0001
9	SLE RA 9	5.93	-0.08	31.42	0.0489	0.2402	-0.0001
9	SLE RA 10	6.22	-0.08	32.45	0.0509	0.2518	-0.0001
9	SLE RA 11	6.37	-0.09	33.1	0.055	0.2579	-0.0001
9	SLE RA 12	6.38	-0.09	32.99	0.0528	0.2583	-0.0001
9	SLE RA 13	6.4	-0.08	32.92	0.0513	0.259	-0.0001
9	SLE RA 14	6.55	-0.09	33.57	0.0555	0.2651	-0.0001
9	SLE RA 15	6.56	-0.09	33.46	0.0533	0.2655	-0.0001
9	SLE RA 16	6.57	-0.09	33.57	0.0554	0.2655	-0.0001
9	SLE RA 17	6.58	-0.09	33.46	0.0532	0.2659	-0.0001
9	SLE RA 18	6.48	-0.09	33.5	0.0563	0.2622	-0.0001
9	SLE RA 19	6.49	-0.09	33.4	0.0542	0.2626	-0.0001
9	SLE RA 20	6.66	-0.09	33.97	0.0568	0.2694	-0.0001
9	SLE RA 21	6.67	-0.09	33.87	0.0546	0.2697	-0.0001
9	SLE FR 1	5.56	-0.08	30.58	0.0501	0.2254	-0.0001
9	SLE FR 2	5.56	-0.08	30.55	0.0494	0.2256	-0.0001
9	SLE FR 3	5.63	-0.08	30.77	0.0503	0.2283	-0.0001
9	SLE FR 4	5.84	-0.08	31.42	0.0513	0.2366	-0.0001
9	SLE FR 5	5.91	-0.09	31.65	0.0522	0.2393	-0.0001
9	SLE FR 6	6.02	-0.09	32.04	0.0532	0.2438	-0.0001
9	SLE QP 1	5.56	-0.08	30.58	0.0501	0.2254	-0.0001
9	SLE QP 2	5.83	-0.09	31.46	0.052	0.2365	-0.0001
9	SLD 1	9.53	-0.2	40.98	0.1358	0.3966	-0.0002
9	SLD 2	9.53	-0.2	40.98	0.1358	0.3966	-0.0002
9	SLD 3	7.84	-0.16	35.18	0.1029	0.3282	-0.0002
9	SLD 4	7.84	-0.16	35.18	0.1029	0.3282	-0.0002
9	SLD 5	9.51	-0.18	43.11	0.1271	0.3881	-0.0002
9	SLD 6	9.51	-0.18	43.11	0.1271	0.3881	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
9	SLD 7	3.86	-0.05	23.78	0.0174	0.1604	-0.0001
9	SLD 8	3.86	-0.05	23.78	0.0174	0.1604	-0.0001
9	SLD 9	7.8	-0.12	39.14	0.0866	0.3126	-0.0002
9	SLD 10	7.8	-0.12	39.14	0.0866	0.3126	-0.0002
9	SLD 11	2.15	0.01	19.8	-0.023	0.0848	0
9	SLD 12	2.15	0.01	19.8	-0.023	0.0848	0
9	SLD 13	3.83	-0.01	27.74	0.0011	0.1447	0
9	SLD 14	3.83	-0.01	27.74	0.0011	0.1447	0
9	SLD 15	2.14	0.03	21.94	-0.0318	0.0764	0
9	SLD 16	2.14	0.03	21.94	-0.0318	0.0764	0
9	SLV 1	14.43	-0.35	53.74	0.2471	0.6081	-0.0004
9	SLV 2	14.43	-0.35	53.74	0.2471	0.6081	-0.0004
9	SLV 3	10.49	-0.26	40.17	0.1714	0.4494	-0.0003
9	SLV 4	10.49	-0.26	40.17	0.1714	0.4494	-0.0003
9	SLV 5	14.39	-0.3	58.72	0.2252	0.5887	-0.0004
9	SLV 6	14.39	-0.3	58.72	0.2252	0.5887	-0.0004
9	SLV 7	1.26	0	13.49	-0.0269	0.0597	0
9	SLV 8	1.26	0	13.49	-0.0269	0.0597	0
9	SLV 9	10.41	-0.17	49.42	0.1309	0.4133	-0.0002
9	SLV 10	10.41	-0.17	49.42	0.1309	0.4133	-0.0002
9	SLV 11	-2.72	0.13	4.2	-0.1212	-0.1157	0.0001
9	SLV 12	-2.72	0.13	4.2	-0.1212	-0.1157	0.0001
9	SLV 13	1.18	0.09	22.75	-0.0674	0.0235	0.0001
9	SLV 14	1.18	0.09	22.75	-0.0674	0.0235	0.0001
9	SLV 15	-2.76	0.18	9.18	-0.1431	-0.1352	0.0002
9	SLV 16	-2.76	0.18	9.18	-0.1431	-0.1352	0.0002
10	SLU 1	4.92	-0.01	34.3	0.0171	0.1894	0
10	SLU 2	4.92	0	34.03	0.0127	0.19	0
10	SLU 3	5.15	-0.01	35.22	0.0171	0.1987	0
10	SLU 4	5.16	0	35.06	0.0144	0.199	0
10	SLU 5	5.17	0	34.96	0.0126	0.1998	0
10	SLU 6	5.4	-0.01	36.16	0.017	0.2085	0
10	SLU 7	5.41	0	36	0.0143	0.2088	0
10	SLU 8	5.42	-0.01	36.17	0.0169	0.2091	0
10	SLU 9	5.42	0	36.01	0.0143	0.2094	0
10	SLU 10	5.85	0	37.93	0.0149	0.2253	0
10	SLU 11	6.08	-0.01	39.13	0.0193	0.2341	0
10	SLU 12	6.08	0	38.96	0.0167	0.2344	0
10	SLU 13	6.1	0	38.87	0.0148	0.2352	0
10	SLU 14	6.33	-0.01	40.06	0.0192	0.2439	0
10	SLU 15	6.33	0	39.9	0.0166	0.2442	0
10	SLU 16	6.34	-0.01	40.08	0.0191	0.2445	0
10	SLU 17	6.35	0	39.91	0.0165	0.2448	0
10	SLU 18	6.24	-0.01	39.88	0.0203	0.24	0
10	SLU 19	6.24	0	39.71	0.0177	0.2403	0
10	SLU 20	6.49	-0.01	40.81	0.0202	0.2498	0
10	SLU 21	6.49	0	40.65	0.0176	0.2501	0
10	SLU 22	5.41	-0.01	36.51	0.0183	0.2084	0
10	SLU 23	5.42	0	36.24	0.0139	0.2089	0
10	SLU 24	5.65	-0.01	37.44	0.0183	0.2176	0
10	SLU 25	5.65	0	37.28	0.0156	0.2179	0
10	SLU 26	5.67	0	37.18	0.0138	0.2187	0
10	SLU 27	5.9	-0.01	38.37	0.0182	0.2274	0
10	SLU 28	5.91	0	38.21	0.0155	0.2277	0
10	SLU 29	5.92	-0.01	38.39	0.0181	0.228	0
10	SLU 30	5.92	0	38.23	0.0155	0.2283	0
10	SLU 31	6.34	0	40.15	0.0161	0.2442	0
10	SLU 32	6.58	-0.01	41.34	0.0205	0.253	0
10	SLU 33	6.58	0	41.18	0.0179	0.2533	0
10	SLU 34	6.6	0	41.08	0.016	0.2541	0
10	SLU 35	6.83	-0.01	42.28	0.0204	0.2628	0
10	SLU 36	6.83	0	42.12	0.0178	0.2631	0
10	SLU 37	6.84	-0.01	42.29	0.0203	0.2634	0
10	SLU 38	6.84	0	42.13	0.0177	0.2637	0
10	SLU 39	6.73	-0.01	42.09	0.0215	0.2589	0
10	SLU 40	6.74	0	41.93	0.0189	0.2592	0
10	SLU 41	6.99	-0.01	43.03	0.0214	0.2687	0
10	SLU 42	6.99	0	42.87	0.0188	0.269	0
10	SLU 43	6.22	-0.01	43.83	0.0218	0.2398	0
10	SLU 44	6.23	0	43.56	0.0174	0.2403	0
10	SLU 45	6.46	-0.01	44.75	0.0218	0.249	0
10	SLU 46	6.46	0	44.59	0.0192	0.2493	0
10	SLU 47	6.48	0	44.49	0.0173	0.2501	0
10	SLU 48	6.71	-0.01	45.69	0.0217	0.2588	0
10	SLU 49	6.71	0	45.53	0.0191	0.2592	0
10	SLU 50	6.72	-0.01	45.7	0.0216	0.2594	0
10	SLU 51	6.73	0	45.54	0.019	0.2598	0
10	SLU 52	7.15	0	47.46	0.0197	0.2757	0
10	SLU 53	7.38	-0.01	48.66	0.024	0.2844	0
10	SLU 54	7.39	0	48.49	0.0214	0.2847	0
10	SLU 55	7.4	0	48.4	0.0196	0.2855	0
10	SLU 56	7.63	-0.01	49.59	0.0239	0.2942	0
10	SLU 57	7.64	0	49.43	0.0213	0.2945	0
10	SLU 58	7.65	-0.01	49.61	0.0239	0.2948	0
10	SLU 59	7.65	0	49.44	0.0212	0.2951	0
10	SLU 60	7.54	-0.01	49.4	0.025	0.2903	0
10	SLU 61	7.55	-0.01	49.24	0.0224	0.2906	0
10	SLU 62	7.79	-0.01	50.34	0.0249	0.3002	0
10	SLU 63	7.8	0	50.18	0.0223	0.3005	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
10	SLU 64	6.72	-0.01	46.04	0.023	0.2587	0
10	SLU 65	6.72	0	45.77	0.0186	0.2592	0
10	SLU 66	6.95	-0.01	46.97	0.023	0.2679	0
10	SLU 67	6.96	0	46.81	0.0204	0.2682	0
10	SLU 68	6.97	0	46.71	0.0185	0.269	0
10	SLU 69	7.21	-0.01	47.9	0.0229	0.2778	0
10	SLU 70	7.21	0	47.74	0.0203	0.2781	0
10	SLU 71	7.22	-0.01	47.92	0.0228	0.2784	0
10	SLU 72	7.22	0	47.76	0.0202	0.2787	0
10	SLU 73	7.65	0	49.68	0.0209	0.2946	0
10	SLU 74	7.88	-0.01	50.87	0.0252	0.3033	0
10	SLU 75	7.88	-0.01	50.71	0.0226	0.3036	0
10	SLU 76	7.9	0	50.61	0.0208	0.3044	0
10	SLU 77	8.13	-0.01	51.81	0.0251	0.3131	0
10	SLU 78	8.13	0	51.65	0.0225	0.3134	0
10	SLU 79	8.15	-0.01	51.82	0.0251	0.3137	0
10	SLU 80	8.15	0	51.66	0.0224	0.314	0
10	SLU 81	8.04	-0.01	51.62	0.0262	0.3092	0
10	SLU 82	8.04	-0.01	51.46	0.0236	0.3096	0
10	SLU 83	8.29	-0.01	52.56	0.0261	0.3191	0
10	SLU 84	8.29	-0.01	52.4	0.0235	0.3194	0
10	SLE RA 1	5.06	-0.01	34.93	0.0175	0.1948	0
10	SLE RA 2	5.06	0	34.75	0.0145	0.1952	0
10	SLE RA 3	5.22	-0.01	35.55	0.0174	0.201	0
10	SLE RA 4	5.22	0	35.44	0.0157	0.2012	0
10	SLE RA 5	5.23	0	35.38	0.0145	0.2017	0
10	SLE RA 6	5.38	-0.01	36.17	0.0174	0.2075	0
10	SLE RA 7	5.39	0	36.06	0.0156	0.2078	0
10	SLE RA 8	5.39	-0.01	36.18	0.0173	0.2079	0
10	SLE RA 9	5.4	0	36.07	0.0156	0.2082	0
10	SLE RA 10	5.68	0	37.35	0.016	0.2188	0
10	SLE RA 11	5.83	-0.01	38.15	0.0189	0.2246	0
10	SLE RA 12	5.84	0	38.04	0.0172	0.2248	0
10	SLE RA 13	5.85	0	37.98	0.0159	0.2253	0
10	SLE RA 14	6	-0.01	38.77	0.0189	0.2311	0
10	SLE RA 15	6	0	38.67	0.0171	0.2313	0
10	SLE RA 16	6.01	-0.01	38.78	0.0188	0.2315	0
10	SLE RA 17	6.01	0	38.67	0.017	0.2317	0
10	SLE RA 18	5.94	-0.01	38.65	0.0196	0.2285	0
10	SLE RA 19	5.94	-0.01	38.54	0.0178	0.2287	0
10	SLE RA 20	6.11	-0.01	39.27	0.0195	0.2351	0
10	SLE RA 21	6.11	0	39.17	0.0178	0.2353	0
10	SLE FR 1	5.06	-0.01	34.93	0.0175	0.1948	0
10	SLE FR 2	5.06	-0.01	34.89	0.0169	0.1949	0
10	SLE FR 3	5.12	-0.01	35.18	0.0174	0.1975	0
10	SLE FR 4	5.32	-0.01	36.01	0.0175	0.205	0
10	SLE FR 5	5.39	-0.01	36.3	0.0181	0.2076	0
10	SLE FR 6	5.5	-0.01	36.79	0.0185	0.2117	0
10	SLE QP 1	5.06	-0.01	34.93	0.0175	0.1948	0
10	SLE QP 2	5.32	-0.01	36.05	0.0181	0.205	0
10	SLD 1	8.83	-0.05	47.4	0.0504	0.3634	-0.0001
10	SLD 2	8.83	-0.05	47.4	0.0504	0.3634	-0.0001
10	SLD 3	7.18	-0.07	40.14	0.0748	0.3007	0
10	SLD 4	7.18	-0.07	40.14	0.0748	0.3007	0
10	SLD 5	8.87	0.02	50.46	-0.0093	0.3475	-0.0002
10	SLD 6	8.87	0.02	50.46	-0.0093	0.3475	-0.0002
10	SLD 7	3.38	-0.06	26.26	0.0721	0.1387	0.0001
10	SLD 8	3.38	-0.06	26.26	0.0721	0.1387	0.0001
10	SLD 9	7.27	0.04	45.83	-0.0359	0.2712	-0.0001
10	SLD 10	7.27	0.04	45.83	-0.0359	0.2712	-0.0001
10	SLD 11	1.77	-0.03	21.63	0.0454	0.0624	0.0001
10	SLD 12	1.77	-0.03	21.63	0.0454	0.0624	0.0001
10	SLD 13	3.46	0.05	31.95	-0.0386	0.1092	0
10	SLD 14	3.46	0.05	31.95	-0.0386	0.1092	0
10	SLD 15	1.82	0.03	24.69	-0.0142	0.0465	0
10	SLD 16	1.82	0.03	24.69	-0.0142	0.0465	0
10	SLV 1	13.46	-0.1	62.55	0.094	0.5721	-0.0002
10	SLV 2	13.46	-0.1	62.55	0.094	0.5721	-0.0002
10	SLV 3	9.63	-0.15	45.59	0.1501	0.4267	0
10	SLV 4	9.63	-0.15	45.59	0.1501	0.4267	0
10	SLV 5	13.57	0.05	69.73	-0.0441	0.5356	-0.0003
10	SLV 6	13.57	0.05	69.73	-0.0441	0.5356	-0.0003
10	SLV 7	0.81	-0.13	13.18	0.1427	0.051	0.0002
10	SLV 8	0.81	-0.13	13.18	0.1427	0.051	0.0002
10	SLV 9	9.83	0.12	58.91	-0.1065	0.3589	-0.0003
10	SLV 10	9.83	0.12	58.91	-0.1065	0.3589	-0.0003
10	SLV 11	-2.92	-0.06	2.37	0.0803	-0.1257	0.0003
10	SLV 12	-2.92	-0.06	2.37	0.0803	-0.1257	0.0003
10	SLV 13	1.01	0.13	26.5	-0.1139	-0.0168	0
10	SLV 14	1.01	0.13	26.5	-0.1139	-0.0168	0
10	SLV 15	-2.82	0.08	9.54	-0.0578	-0.1621	0.0001
10	SLV 16	-2.82	0.08	9.54	-0.0578	-0.1621	0.0001
11	SLU 1	3.88	0.15	39.39	-0.0246	0.1406	0.0005
11	SLU 2	3.88	0.15	39.06	-0.0267	0.1407	0.0005
11	SLU 3	4.08	0.16	40.56	-0.0259	0.1478	0.0005
11	SLU 4	4.08	0.16	40.37	-0.0271	0.1478	0.0005
11	SLU 5	4.08	0.16	40.25	-0.028	0.1482	0.0005
11	SLU 6	4.29	0.16	41.75	-0.0271	0.1553	0.0006
11	SLU 7	4.28	0.16	41.56	-0.0284	0.1553	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
11	SLU 8	4.3	0.16	41.77	-0.0272	0.1557	0.0006
11	SLU 9	4.29	0.16	41.58	-0.0284	0.1557	0.0005
11	SLU 10	4.7	0.18	44	-0.0309	0.171	0.0006
11	SLU 11	4.91	0.18	45.5	-0.0301	0.178	0.0006
11	SLU 12	4.9	0.18	45.31	-0.0314	0.1781	0.0006
11	SLU 13	4.91	0.18	45.2	-0.0322	0.1785	0.0006
11	SLU 14	5.11	0.18	46.69	-0.0314	0.1855	0.0006
11	SLU 15	5.11	0.19	46.5	-0.0326	0.1856	0.0006
11	SLU 16	5.12	0.18	46.71	-0.0314	0.1859	0.0006
11	SLU 17	5.12	0.19	46.52	-0.0326	0.186	0.0006
11	SLU 18	5.06	0.18	46.45	-0.0307	0.1838	0.0006
11	SLU 19	5.06	0.19	46.25	-0.0319	0.1839	0.0006
11	SLU 20	5.27	0.19	47.64	-0.0319	0.1914	0.0007
11	SLU 21	5.27	0.19	47.44	-0.0332	0.1914	0.0007
11	SLU 22	4.31	0.16	42.18	-0.0271	0.1559	0.0006
11	SLU 23	4.3	0.17	41.85	-0.0292	0.156	0.0006
11	SLU 24	4.5	0.17	43.35	-0.0284	0.163	0.0006
11	SLU 25	4.5	0.17	43.16	-0.0296	0.1631	0.0006
11	SLU 26	4.51	0.17	43.05	-0.0304	0.1635	0.0006
11	SLU 27	4.71	0.17	44.54	-0.0296	0.1705	0.0006
11	SLU 28	4.71	0.18	44.35	-0.0309	0.1706	0.0006
11	SLU 29	4.72	0.17	44.56	-0.0296	0.1709	0.0006
11	SLU 30	4.72	0.18	44.37	-0.0309	0.1709	0.0006
11	SLU 31	5.13	0.19	46.8	-0.0334	0.1862	0.0006
11	SLU 32	5.33	0.19	48.29	-0.0326	0.1933	0.0007
11	SLU 33	5.33	0.19	48.1	-0.0338	0.1933	0.0007
11	SLU 34	5.33	0.2	47.99	-0.0347	0.1937	0.0007
11	SLU 35	5.54	0.2	49.49	-0.0338	0.2008	0.0007
11	SLU 36	5.53	0.2	49.29	-0.0351	0.2008	0.0007
11	SLU 37	5.55	0.2	49.5	-0.0338	0.2012	0.0007
11	SLU 38	5.54	0.2	49.31	-0.0351	0.2012	0.0007
11	SLU 39	5.49	0.2	49.24	-0.0331	0.1991	0.0007
11	SLU 40	5.48	0.2	49.04	-0.0344	0.1991	0.0007
11	SLU 41	5.69	0.2	50.43	-0.0344	0.2066	0.0007
11	SLU 42	5.69	0.2	50.23	-0.0356	0.2066	0.0007
11	SLU 43	4.9	0.19	50.25	-0.0312	0.1776	0.0007
11	SLU 44	4.9	0.19	49.92	-0.0333	0.1777	0.0006
11	SLU 45	5.1	0.2	51.42	-0.0324	0.1847	0.0007
11	SLU 46	5.1	0.2	51.23	-0.0337	0.1848	0.0007
11	SLU 47	5.1	0.2	51.11	-0.0345	0.1852	0.0007
11	SLU 48	5.31	0.2	52.61	-0.0337	0.1922	0.0007
11	SLU 49	5.3	0.2	52.42	-0.0349	0.1923	0.0007
11	SLU 50	5.32	0.2	52.63	-0.0337	0.1926	0.0007
11	SLU 51	5.31	0.2	52.43	-0.0349	0.1927	0.0007
11	SLU 52	5.72	0.22	54.86	-0.0375	0.2079	0.0007
11	SLU 53	5.93	0.22	56.36	-0.0367	0.215	0.0008
11	SLU 54	5.92	0.22	56.17	-0.0379	0.215	0.0008
11	SLU 55	5.93	0.22	56.05	-0.0387	0.2154	0.0008
11	SLU 56	6.13	0.23	57.55	-0.0379	0.2225	0.0008
11	SLU 57	6.13	0.23	57.36	-0.0392	0.2225	0.0008
11	SLU 58	6.14	0.22	57.57	-0.0379	0.2229	0.0008
11	SLU 59	6.14	0.23	57.38	-0.0392	0.2229	0.0008
11	SLU 60	6.08	0.22	57.31	-0.0372	0.2208	0.0008
11	SLU 61	6.08	0.23	57.11	-0.0385	0.2209	0.0008
11	SLU 62	6.29	0.23	58.5	-0.0385	0.2283	0.0008
11	SLU 63	6.29	0.23	58.3	-0.0397	0.2284	0.0008
11	SLU 64	5.33	0.2	53.04	-0.0336	0.1928	0.0007
11	SLU 65	5.32	0.21	52.71	-0.0357	0.1929	0.0007
11	SLU 66	5.52	0.21	54.21	-0.0349	0.2	0.0007
11	SLU 67	5.52	0.21	54.02	-0.0361	0.2	0.0007
11	SLU 68	5.53	0.21	53.9	-0.037	0.2004	0.0007
11	SLU 69	5.73	0.22	55.4	-0.0362	0.2075	0.0007
11	SLU 70	5.73	0.22	55.21	-0.0374	0.2075	0.0007
11	SLU 71	5.74	0.21	55.42	-0.0362	0.2079	0.0007
11	SLU 72	5.74	0.22	55.23	-0.0374	0.2079	0.0007
11	SLU 73	6.15	0.23	57.65	-0.0399	0.2232	0.0008
11	SLU 74	6.35	0.23	59.15	-0.0391	0.2302	0.0008
11	SLU 75	6.35	0.24	58.96	-0.0404	0.2303	0.0008
11	SLU 76	6.35	0.24	58.85	-0.0412	0.2307	0.0008
11	SLU 77	6.56	0.24	60.34	-0.0404	0.2377	0.0008
11	SLU 78	6.55	0.24	60.15	-0.0416	0.2378	0.0008
11	SLU 79	6.57	0.24	60.36	-0.0404	0.2381	0.0008
11	SLU 80	6.56	0.24	60.17	-0.0416	0.2382	0.0008
11	SLU 81	6.51	0.24	60.1	-0.0397	0.2361	0.0008
11	SLU 82	6.5	0.24	59.9	-0.0409	0.2361	0.0008
11	SLU 83	6.71	0.24	61.29	-0.0409	0.2436	0.0008
11	SLU 84	6.71	0.25	61.09	-0.0422	0.2436	0.0008
11	SLE RA 1	4.01	0.15	40.19	-0.0253	0.145	0.0005
11	SLE RA 2	4	0.16	39.97	-0.0267	0.145	0.0005
11	SLE RA 3	4.14	0.16	40.97	-0.0262	0.1497	0.0005
11	SLE RA 4	4.13	0.16	40.84	-0.027	0.1498	0.0005
11	SLE RA 5	4.14	0.16	40.76	-0.0276	0.15	0.0005
11	SLE RA 6	4.27	0.16	41.76	-0.027	0.1548	0.0006
11	SLE RA 7	4.27	0.16	41.63	-0.0278	0.1548	0.0006
11	SLE RA 8	4.28	0.16	41.77	-0.027	0.155	0.0006
11	SLE RA 9	4.28	0.16	41.64	-0.0279	0.155	0.0006
11	SLE RA 10	4.55	0.17	43.26	-0.0295	0.1652	0.0006
11	SLE RA 11	4.69	0.17	44.26	-0.029	0.1699	0.0006
11	SLE RA 12	4.68	0.17	44.13	-0.0298	0.1699	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
11	SLE RA 13	4.69	0.18	44.06	-0.0304	0.1702	0.0006
11	SLE RA 14	4.82	0.18	45.06	-0.0298	0.1749	0.0006
11	SLE RA 15	4.82	0.18	44.93	-0.0307	0.175	0.0006
11	SLE RA 16	4.83	0.18	45.07	-0.0298	0.1752	0.0006
11	SLE RA 17	4.83	0.18	44.94	-0.0307	0.1752	0.0006
11	SLE RA 18	4.79	0.18	44.89	-0.0294	0.1738	0.0006
11	SLE RA 19	4.79	0.18	44.76	-0.0302	0.1738	0.0006
11	SLE RA 20	4.93	0.18	45.69	-0.0302	0.1788	0.0006
11	SLE RA 21	4.93	0.18	45.56	-0.031	0.1788	0.0006
11	SLE FR 1	4.01	0.15	40.19	-0.0253	0.145	0.0005
11	SLE FR 2	4	0.15	40.14	-0.0256	0.145	0.0005
11	SLE FR 3	4.06	0.16	40.5	-0.0257	0.147	0.0005
11	SLE FR 4	4.24	0.16	41.55	-0.0268	0.1536	0.0006
11	SLE FR 5	4.3	0.16	41.91	-0.0269	0.1556	0.0006
11	SLE FR 6	4.4	0.17	42.54	-0.0273	0.1594	0.0006
11	SLE QP 1	4.01	0.15	40.19	-0.0253	0.145	0.0005
11	SLE QP 2	4.24	0.16	41.6	-0.0265	0.1536	0.0006
11	SLD 1	7.46	0.14	37.15	-0.0195	0.2921	0.0005
11	SLD 2	7.46	0.14	37.15	-0.0195	0.2921	0.0005
11	SLD 3	5.94	0.1	27.89	0.001	0.2376	0.0003
11	SLD 4	5.94	0.1	27.89	0.001	0.2376	0.0003
11	SLD 5	7.51	0.21	54.29	-0.0555	0.2778	0.0008
11	SLD 6	7.51	0.21	54.29	-0.0555	0.2778	0.0008
11	SLD 7	2.45	0.09	23.46	0.0127	0.0962	0.0002
11	SLD 8	2.45	0.09	23.46	0.0127	0.0962	0.0002
11	SLD 9	6.03	0.24	59.74	-0.0658	0.2111	0.0009
11	SLD 10	6.03	0.24	59.74	-0.0658	0.2111	0.0009
11	SLD 11	0.97	0.11	28.9	0.0024	0.0295	0.0003
11	SLD 12	0.97	0.11	28.9	0.0024	0.0295	0.0003
11	SLD 13	2.54	0.22	55.3	-0.0541	0.0696	0.0008
11	SLD 14	2.54	0.22	55.3	-0.0541	0.0696	0.0008
11	SLD 15	1.03	0.18	46.05	-0.0336	0.0151	0.0007
11	SLD 16	1.03	0.18	46.05	-0.0336	0.0151	0.0007
11	SLV 1	11.67	0.12	31.27	-0.0094	0.4732	0.0003
11	SLV 2	11.67	0.12	31.27	-0.0094	0.4732	0.0003
11	SLV 3	8.16	0.03	9.69	0.0372	0.3472	-0.0001
11	SLV 4	8.16	0.03	9.69	0.0372	0.3472	-0.0001
11	SLV 5	11.79	0.28	71.22	-0.0921	0.4405	0.001
11	SLV 6	11.79	0.28	71.22	-0.0921	0.4405	0.001
11	SLV 7	0.1	-0.01	-0.69	0.0633	0.0207	-0.0002
11	SLV 8	0.1	-0.01	-0.69	0.0633	0.0207	-0.0002
11	SLV 9	8.39	0.33	83.89	-0.1164	0.2865	0.0013
11	SLV 10	8.39	0.33	83.89	-0.1164	0.2865	0.0013
11	SLV 11	-3.31	0.04	11.98	0.0391	-0.1332	0.0001
11	SLV 12	-3.31	0.04	11.98	0.0391	-0.1332	0.0001
11	SLV 13	0.32	0.29	73.5	-0.0903	-0.04	0.0012
11	SLV 14	0.32	0.29	73.5	-0.0903	-0.04	0.0012
11	SLV 15	-3.19	0.2	51.93	-0.0436	-0.1659	0.0008
11	SLV 16	-3.19	0.2	51.93	-0.0436	-0.1659	0.0008
12	SLU 1	-0.31	9.45	63.95	-0.3133	0.0057	0.0001
12	SLU 2	-0.25	9.32	63.41	-0.3069	0.008	0.0001
12	SLU 3	-0.27	9.79	65.99	-0.3254	0.0082	0.0001
12	SLU 4	-0.23	9.71	65.66	-0.3216	0.0096	0.0001
12	SLU 5	-0.2	9.64	65.45	-0.3184	0.011	0.0001
12	SLU 6	-0.21	10.11	68.03	-0.3369	0.0112	0.0001
12	SLU 7	-0.18	10.03	67.7	-0.3331	0.0126	0.0001
12	SLU 8	-0.2	10.09	68.03	-0.3363	0.0117	0.0001
12	SLU 9	-0.17	10.01	67.71	-0.3325	0.0131	0.0001
12	SLU 10	-0.08	10.93	72.27	-0.3635	0.0175	0.0001
12	SLU 11	-0.09	11.39	74.84	-0.382	0.0177	0.0001
12	SLU 12	-0.06	11.31	74.51	-0.3782	0.0191	0.0001
12	SLU 13	-0.02	11.25	74.31	-0.375	0.0205	0.0001
12	SLU 14	-0.04	11.71	76.88	-0.3935	0.0207	0.0001
12	SLU 15	0	11.63	76.55	-0.3897	0.0221	0.0001
12	SLU 16	-0.02	11.7	76.89	-0.3929	0.0212	0.0001
12	SLU 17	0.01	11.62	76.56	-0.3891	0.0226	0.0001
12	SLU 18	-0.06	11.75	76.61	-0.3941	0.0193	0.0001
12	SLU 19	-0.02	11.67	76.28	-0.3903	0.0207	0.0001
12	SLU 20	0	12.07	78.65	-0.4056	0.0223	0.0001
12	SLU 21	0.03	11.99	78.32	-0.4018	0.0237	0.0001
12	SLU 22	-0.28	10.38	68.94	-0.3461	0.0085	0.0001
12	SLU 23	-0.22	10.25	68.39	-0.3397	0.0108	0.0001
12	SLU 24	-0.23	10.72	70.97	-0.3581	0.011	0.0001
12	SLU 25	-0.2	10.64	70.64	-0.3543	0.0124	0.0001
12	SLU 26	-0.16	10.57	70.43	-0.3512	0.0138	0.0001
12	SLU 27	-0.18	11.04	73.01	-0.3697	0.014	0.0001
12	SLU 28	-0.14	10.96	72.68	-0.3658	0.0154	0.0001
12	SLU 29	-0.17	11.02	73.01	-0.3691	0.0145	0.0001
12	SLU 30	-0.13	10.94	72.69	-0.3652	0.0159	0.0001
12	SLU 31	-0.04	11.85	77.25	-0.3963	0.0203	0.0001
12	SLU 32	-0.05	12.32	79.82	-0.4147	0.0205	0.0001
12	SLU 33	-0.02	12.24	79.5	-0.4109	0.0219	0.0001
12	SLU 34	0.01	12.17	79.29	-0.4078	0.0233	0.0001
12	SLU 35	0	12.64	81.86	-0.4263	0.0235	0.0001
12	SLU 36	0.03	12.56	81.53	-0.4224	0.0249	0.0001
12	SLU 37	0.01	12.62	81.87	-0.4257	0.024	0.0001
12	SLU 38	0.04	12.55	81.54	-0.4219	0.0254	0.0001
12	SLU 39	-0.02	12.67	81.59	-0.4269	0.0221	0.0001
12	SLU 40	0.01	12.59	81.26	-0.4231	0.0235	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
12	SLU 41	0.03	12.99	83.63	-0.4384	0.0251	0.0001
12	SLU 42	0.07	12.91	83.3	-0.4346	0.0265	0.0001
12	SLU 43	-0.42	11.97	81.43	-0.396	0.0065	0.0001
12	SLU 44	-0.36	11.84	80.89	-0.3897	0.0088	0.0001
12	SLU 45	-0.37	12.31	83.46	-0.4081	0.009	0.0001
12	SLU 46	-0.34	12.23	83.14	-0.4043	0.0103	0.0001
12	SLU 47	-0.31	12.16	82.93	-0.4012	0.0118	0.0001
12	SLU 48	-0.32	12.63	85.5	-0.4196	0.0119	0.0001
12	SLU 49	-0.29	12.55	85.18	-0.4158	0.0133	0.0001
12	SLU 50	-0.31	12.61	85.51	-0.419	0.0124	0.0001
12	SLU 51	-0.27	12.53	85.19	-0.4152	0.0138	0.0001
12	SLU 52	-0.18	13.44	89.74	-0.4463	0.0183	0.0001
12	SLU 53	-0.19	13.91	92.32	-0.4647	0.0185	0.0001
12	SLU 54	-0.16	13.83	91.99	-0.4609	0.0198	0.0001
12	SLU 55	-0.13	13.76	91.78	-0.4578	0.0213	0.0001
12	SLU 56	-0.14	14.23	94.36	-0.4762	0.0214	0.0001
12	SLU 57	-0.11	14.15	94.03	-0.4724	0.0228	0.0001
12	SLU 58	-0.13	14.22	94.37	-0.4756	0.022	0.0001
12	SLU 59	-0.1	14.14	94.04	-0.4718	0.0233	0.0001
12	SLU 60	-0.16	14.26	94.09	-0.4769	0.0201	0.0001
12	SLU 61	-0.13	14.18	93.76	-0.4731	0.0214	0.0001
12	SLU 62	-0.11	14.58	96.12	-0.4884	0.023	0.0001
12	SLU 63	-0.07	14.5	95.8	-0.4846	0.0244	0.0001
12	SLU 64	-0.38	12.9	86.41	-0.4288	0.0093	0.0001
12	SLU 65	-0.32	12.77	85.87	-0.4224	0.0116	0.0001
12	SLU 66	-0.34	13.23	88.45	-0.4409	0.0118	0.0001
12	SLU 67	-0.3	13.15	88.12	-0.4371	0.0131	0.0001
12	SLU 68	-0.27	13.09	87.91	-0.4339	0.0146	0.0001
12	SLU 69	-0.28	13.55	90.48	-0.4524	0.0148	0.0001
12	SLU 70	-0.25	13.47	90.16	-0.4486	0.0161	0.0001
12	SLU 71	-0.27	13.54	90.49	-0.4518	0.0153	0.0001
12	SLU 72	-0.24	13.46	90.17	-0.448	0.0166	0.0001
12	SLU 73	-0.15	14.37	94.73	-0.479	0.0211	0.0001
12	SLU 74	-0.16	14.84	97.3	-0.4975	0.0213	0.0001
12	SLU 75	-0.13	14.76	96.97	-0.4937	0.0227	0.0001
12	SLU 76	-0.09	14.69	96.76	-0.4905	0.0241	0.0001
12	SLU 77	-0.11	15.16	99.34	-0.509	0.0243	0.0001
12	SLU 78	-0.07	15.08	99.01	-0.5052	0.0256	0.0001
12	SLU 79	-0.09	15.14	99.35	-0.5084	0.0248	0.0001
12	SLU 80	-0.06	15.06	99.02	-0.5046	0.0261	0.0001
12	SLU 81	-0.13	15.19	99.07	-0.5097	0.0229	0.0001
12	SLU 82	-0.09	15.11	98.74	-0.5058	0.0243	0.0001
12	SLU 83	-0.07	15.51	101.11	-0.5212	0.0259	0.0001
12	SLU 84	-0.04	15.43	100.78	-0.5174	0.0272	0.0001
12	SLE RA 1	-0.3	9.72	65.38	-0.3226	0.0065	0.0001
12	SLE RA 2	-0.26	9.63	65.01	-0.3184	0.0081	0.0001
12	SLE RA 3	-0.27	9.94	66.73	-0.3307	0.0082	0.0001
12	SLE RA 4	-0.25	9.89	66.51	-0.3282	0.0091	0.0001
12	SLE RA 5	-0.23	9.84	66.37	-0.3261	0.01	0.0001
12	SLE RA 6	-0.24	10.16	68.09	-0.3384	0.0102	0.0001
12	SLE RA 7	-0.21	10.1	67.87	-0.3358	0.0111	0.0001
12	SLE RA 8	-0.23	10.14	68.1	-0.338	0.0105	0.0001
12	SLE RA 9	-0.21	10.09	67.88	-0.3354	0.0114	0.0001
12	SLE RA 10	-0.14	10.7	70.92	-0.3561	0.0144	0.0001
12	SLE RA 11	-0.15	11.01	72.64	-0.3684	0.0145	0.0001
12	SLE RA 12	-0.13	10.96	72.42	-0.3659	0.0154	0.0001
12	SLE RA 13	-0.11	10.91	72.28	-0.3638	0.0164	0.0001
12	SLE RA 14	-0.12	11.22	74	-0.3761	0.0165	0.0001
12	SLE RA 15	-0.09	11.17	73.78	-0.3736	0.0174	0.0001
12	SLE RA 16	-0.11	11.21	74	-0.3757	0.0168	0.0001
12	SLE RA 17	-0.09	11.16	73.78	-0.3732	0.0178	0.0001
12	SLE RA 18	-0.13	11.25	73.81	-0.3766	0.0156	0.0001
12	SLE RA 19	-0.11	11.19	73.59	-0.374	0.0165	0.0001
12	SLE RA 20	-0.09	11.46	75.17	-0.3842	0.0176	0.0001
12	SLE RA 21	-0.07	11.41	74.95	-0.3817	0.0185	0.0001
12	SLE FR 1	-0.3	9.72	65.38	-0.3226	0.0065	0.0001
12	SLE FR 2	-0.29	9.7	65.31	-0.3218	0.0068	0.0001
12	SLE FR 3	-0.29	9.8	65.92	-0.3257	0.0073	0.0001
12	SLE FR 4	-0.24	10.16	67.84	-0.338	0.0096	0.0001
12	SLE FR 5	-0.24	10.26	68.45	-0.3419	0.01	0.0001
12	SLE FR 6	-0.22	10.48	69.6	-0.3496	0.0111	0.0001
12	SLE QP 1	-0.3	9.72	65.38	-0.3226	0.0065	0.0001
12	SLE QP 2	-0.25	10.18	67.91	-0.3388	0.0093	0.0001
12	SLD 1	3.26	9.2	61.09	-0.3106	0.1689	-0.0002
12	SLD 2	3.26	9.2	61.09	-0.3106	0.1689	-0.0002
12	SLD 3	2.98	5.89	44.79	-0.1741	0.1544	-0.0003
12	SLD 4	2.98	5.89	44.79	-0.1741	0.1544	-0.0003
12	SLD 5	1.22	14.89	90.58	-0.5374	0.0791	0.0001
12	SLD 6	1.22	14.89	90.58	-0.5374	0.0791	0.0001
12	SLD 7	0.3	3.88	36.26	-0.0824	0.0309	-0.0001
12	SLD 8	0.3	3.88	36.26	-0.0824	0.0309	-0.0001
12	SLD 9	-0.8	16.47	99.56	-0.5953	-0.0124	0.0002
12	SLD 10	-0.8	16.47	99.56	-0.5953	-0.0124	0.0002
12	SLD 11	-1.72	5.46	45.24	-0.1402	-0.0606	0.0001
12	SLD 12	-1.72	5.46	45.24	-0.1402	-0.0606	0.0001
12	SLD 13	-3.48	14.46	91.03	-0.5035	-0.1359	0.0004
12	SLD 14	-3.48	14.46	91.03	-0.5035	-0.1359	0.0004
12	SLD 15	-3.76	11.16	74.73	-0.367	-0.1503	0.0003
12	SLD 16	-3.76	11.16	74.73	-0.367	-0.1503	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
12	SLV 1	7.79	7.91	52.14	-0.2736	0.3751	-0.0005
12	SLV 2	7.79	7.91	52.14	-0.2736	0.3751	-0.0005
12	SLV 3	7.15	0.27	14.22	0.0417	0.342	-0.0007
12	SLV 4	7.15	0.27	14.22	0.0417	0.342	-0.0007
12	SLV 5	3.13	21.1	120.7	-0.7974	0.1692	0.0001
12	SLV 6	3.13	21.1	120.7	-0.7974	0.1692	0.0001
12	SLV 7	1	-4.4	-5.72	0.2535	0.0589	-0.0003
12	SLV 8	1	-4.4	-5.72	0.2535	0.0589	-0.0003
12	SLV 9	-1.5	24.75	141.53	-0.9311	-0.0404	0.0005
12	SLV 10	-1.5	24.75	141.53	-0.9311	-0.0404	0.0005
12	SLV 11	-3.63	-0.74	15.12	0.1198	-0.1507	0.0001
12	SLV 12	-3.63	-0.74	15.12	0.1198	-0.1507	0.0001
12	SLV 13	-7.65	20.09	121.6	-0.7193	-0.3235	0.0008
12	SLV 14	-7.65	20.09	121.6	-0.7193	-0.3235	0.0008
12	SLV 15	-8.29	12.44	83.67	-0.404	-0.3565	0.0007
12	SLV 16	-8.29	12.44	83.67	-0.404	-0.3565	0.0007
13	SLU 1	-4.11	0.12	39.31	-0.0268	-0.1322	-0.0006
13	SLU 2	-4	0.12	39.05	-0.0222	-0.1283	-0.0006
13	SLU 3	-4.21	0.13	40.56	-0.0278	-0.1349	-0.0006
13	SLU 4	-4.14	0.12	40.41	-0.025	-0.1325	-0.0006
13	SLU 5	-4.08	0.12	40.33	-0.0231	-0.1304	-0.0006
13	SLU 6	-4.29	0.13	41.84	-0.0287	-0.137	-0.0006
13	SLU 7	-4.22	0.13	41.69	-0.0259	-0.1347	-0.0006
13	SLU 8	-4.27	0.13	41.88	-0.0286	-0.1365	-0.0006
13	SLU 9	-4.2	0.13	41.72	-0.0258	-0.1341	-0.0006
13	SLU 10	-4.43	0.14	44.37	-0.0281	-0.1407	-0.0007
13	SLU 11	-4.64	0.15	45.88	-0.0337	-0.1473	-0.0007
13	SLU 12	-4.57	0.14	45.73	-0.031	-0.1449	-0.0007
13	SLU 13	-4.51	0.14	45.66	-0.029	-0.1429	-0.0007
13	SLU 14	-4.71	0.15	47.17	-0.0346	-0.1494	-0.0008
13	SLU 15	-4.65	0.15	47.01	-0.0319	-0.1471	-0.0008
13	SLU 16	-4.7	0.15	47.2	-0.0346	-0.1489	-0.0008
13	SLU 17	-4.63	0.15	47.04	-0.0318	-0.1466	-0.0008
13	SLU 18	-4.73	0.15	46.91	-0.0353	-0.1499	-0.0008
13	SLU 19	-4.66	0.15	46.76	-0.0325	-0.1476	-0.0008
13	SLU 20	-4.81	0.16	48.19	-0.0362	-0.1521	-0.0008
13	SLU 21	-4.74	0.15	48.04	-0.0334	-0.1497	-0.0008
13	SLU 22	-4.43	0.13	42.21	-0.0302	-0.1422	-0.0007
13	SLU 23	-4.32	0.13	41.95	-0.0255	-0.1383	-0.0007
13	SLU 24	-4.53	0.14	43.46	-0.0312	-0.1449	-0.0007
13	SLU 25	-4.46	0.14	43.31	-0.0284	-0.1425	-0.0007
13	SLU 26	-4.4	0.13	43.23	-0.0264	-0.1404	-0.0007
13	SLU 27	-4.61	0.14	44.74	-0.0321	-0.147	-0.0007
13	SLU 28	-4.54	0.14	44.59	-0.0293	-0.1447	-0.0007
13	SLU 29	-4.59	0.14	44.78	-0.032	-0.1465	-0.0007
13	SLU 30	-4.53	0.14	44.62	-0.0292	-0.1441	-0.0007
13	SLU 31	-4.75	0.15	47.27	-0.0315	-0.1507	-0.0008
13	SLU 32	-4.96	0.16	48.78	-0.0371	-0.1573	-0.0008
13	SLU 33	-4.89	0.16	48.63	-0.0343	-0.155	-0.0008
13	SLU 34	-4.83	0.15	48.56	-0.0324	-0.1529	-0.0008
13	SLU 35	-5.04	0.16	50.07	-0.038	-0.1594	-0.0008
13	SLU 36	-4.97	0.16	49.91	-0.0352	-0.1571	-0.0008
13	SLU 37	-5.02	0.16	50.1	-0.0379	-0.1589	-0.0008
13	SLU 38	-4.95	0.16	49.94	-0.0351	-0.1566	-0.0008
13	SLU 39	-5.05	0.16	49.81	-0.0387	-0.1599	-0.0008
13	SLU 40	-4.98	0.16	49.66	-0.0359	-0.1576	-0.0008
13	SLU 41	-5.13	0.17	51.09	-0.0396	-0.1621	-0.0009
13	SLU 42	-5.06	0.17	50.94	-0.0368	-0.1598	-0.0008
13	SLU 43	-5.24	0.15	50.11	-0.0337	-0.1684	-0.0008
13	SLU 44	-5.13	0.15	49.85	-0.0291	-0.1645	-0.0008
13	SLU 45	-5.33	0.16	51.36	-0.0347	-0.1711	-0.0008
13	SLU 46	-5.26	0.15	51.21	-0.0319	-0.1687	-0.0008
13	SLU 47	-5.2	0.15	51.13	-0.03	-0.1666	-0.0008
13	SLU 48	-5.41	0.16	52.64	-0.0356	-0.1732	-0.0008
13	SLU 49	-5.34	0.16	52.49	-0.0328	-0.1709	-0.0008
13	SLU 50	-5.4	0.16	52.68	-0.0355	-0.1727	-0.0008
13	SLU 51	-5.33	0.16	52.52	-0.0327	-0.1704	-0.0008
13	SLU 52	-5.55	0.17	55.17	-0.035	-0.1769	-0.0009
13	SLU 53	-5.76	0.18	56.68	-0.0406	-0.1835	-0.0009
13	SLU 54	-5.69	0.18	56.53	-0.0378	-0.1812	-0.0009
13	SLU 55	-5.63	0.17	56.45	-0.0359	-0.1791	-0.0009
13	SLU 56	-5.84	0.18	57.96	-0.0415	-0.1857	-0.0009
13	SLU 57	-5.77	0.18	57.81	-0.0387	-0.1833	-0.0009
13	SLU 58	-5.82	0.18	58	-0.0415	-0.1851	-0.0009
13	SLU 59	-5.76	0.18	57.84	-0.0387	-0.1828	-0.0009
13	SLU 60	-5.85	0.18	57.71	-0.0422	-0.1862	-0.0009
13	SLU 61	-5.78	0.18	57.56	-0.0394	-0.1838	-0.0009
13	SLU 62	-5.93	0.19	58.99	-0.0431	-0.1883	-0.0009
13	SLU 63	-5.86	0.18	58.84	-0.0403	-0.186	-0.0009
13	SLU 64	-5.56	0.17	53.01	-0.0371	-0.1784	-0.0008
13	SLU 65	-5.45	0.16	52.75	-0.0324	-0.1745	-0.0008
13	SLU 66	-5.65	0.17	54.26	-0.0381	-0.1811	-0.0009
13	SLU 67	-5.58	0.17	54.1	-0.0353	-0.1787	-0.0008
13	SLU 68	-5.53	0.17	54.03	-0.0333	-0.1767	-0.0008
13	SLU 69	-5.73	0.17	55.54	-0.039	-0.1832	-0.0009
13	SLU 70	-5.66	0.17	55.39	-0.0362	-0.1809	-0.0009
13	SLU 71	-5.72	0.17	55.57	-0.0389	-0.1827	-0.0009
13	SLU 72	-5.65	0.17	55.42	-0.0361	-0.1804	-0.0009
13	SLU 73	-5.88	0.18	58.07	-0.0384	-0.1869	-0.0009





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
13	SLU 74	-6.08	0.19	59.58	-0.044	-0.1935	-0.001
13	SLU 75	-6.01	0.19	59.43	-0.0412	-0.1912	-0.001
13	SLU 76	-5.95	0.19	59.35	-0.0393	-0.1891	-0.001
13	SLU 77	-6.16	0.2	60.86	-0.0449	-0.1957	-0.001
13	SLU 78	-6.09	0.19	60.71	-0.0421	-0.1933	-0.001
13	SLU 79	-6.15	0.19	60.9	-0.0448	-0.1951	-0.001
13	SLU 80	-6.08	0.19	60.74	-0.042	-0.1928	-0.001
13	SLU 81	-6.17	0.2	60.61	-0.0456	-0.1962	-0.001
13	SLU 82	-6.1	0.19	60.46	-0.0428	-0.1938	-0.001
13	SLU 83	-6.25	0.2	61.89	-0.0465	-0.1983	-0.001
13	SLU 84	-6.18	0.2	61.74	-0.0437	-0.196	-0.001
13	SLE RA 1	-4.21	0.13	40.14	-0.0278	-0.135	-0.0006
13	SLE RA 2	-4.13	0.12	39.97	-0.0247	-0.1324	-0.0006
13	SLE RA 3	-4.27	0.13	40.97	-0.0284	-0.1368	-0.0006
13	SLE RA 4	-4.22	0.13	40.87	-0.0266	-0.1353	-0.0006
13	SLE RA 5	-4.18	0.12	40.82	-0.0253	-0.1339	-0.0006
13	SLE RA 6	-4.32	0.13	41.83	-0.029	-0.1383	-0.0007
13	SLE RA 7	-4.28	0.13	41.72	-0.0272	-0.1367	-0.0006
13	SLE RA 8	-4.31	0.13	41.85	-0.029	-0.1379	-0.0007
13	SLE RA 9	-4.27	0.13	41.75	-0.0271	-0.1363	-0.0006
13	SLE RA 10	-4.42	0.14	43.51	-0.0286	-0.1407	-0.0007
13	SLE RA 11	-4.55	0.14	44.52	-0.0324	-0.1451	-0.0007
13	SLE RA 12	-4.51	0.14	44.42	-0.0305	-0.1435	-0.0007
13	SLE RA 13	-4.47	0.14	44.37	-0.0292	-0.1422	-0.0007
13	SLE RA 14	-4.61	0.14	45.38	-0.033	-0.1465	-0.0007
13	SLE RA 15	-4.56	0.14	45.27	-0.0311	-0.145	-0.0007
13	SLE RA 16	-4.6	0.14	45.4	-0.0329	-0.1462	-0.0007
13	SLE RA 17	-4.55	0.14	45.29	-0.0311	-0.1446	-0.0007
13	SLE RA 18	-4.61	0.15	45.21	-0.0334	-0.1469	-0.0007
13	SLE RA 19	-4.57	0.14	45.1	-0.0316	-0.1453	-0.0007
13	SLE RA 20	-4.67	0.15	46.06	-0.034	-0.1483	-0.0007
13	SLE RA 21	-4.62	0.15	45.96	-0.0322	-0.1468	-0.0007
13	SLE FR 1	-4.21	0.13	40.14	-0.0278	-0.135	-0.0006
13	SLE FR 2	-4.19	0.12	40.1	-0.0272	-0.1345	-0.0006
13	SLE FR 3	-4.23	0.13	40.48	-0.028	-0.1356	-0.0006
13	SLE FR 4	-4.31	0.13	41.62	-0.0289	-0.1381	-0.0007
13	SLE FR 5	-4.35	0.13	42	-0.0297	-0.1392	-0.0007
13	SLE FR 6	-4.41	0.14	42.67	-0.0306	-0.141	-0.0007
13	SLE QP 1	-4.21	0.13	40.14	-0.0278	-0.135	-0.0006
13	SLE QP 2	-4.33	0.13	41.66	-0.0295	-0.1386	-0.0007
13	SLD 1	-0.35	0.23	38.15	-0.0623	0.0257	-0.0011
13	SLD 2	-0.35	0.23	38.15	-0.0623	0.0257	-0.0011
13	SLD 3	0.93	0.19	28.72	-0.0448	0.0666	-0.0009
13	SLD 4	0.93	0.19	28.72	-0.0448	0.0666	-0.0009
13	SLD 5	-5.08	0.22	54.9	-0.0659	-0.1514	-0.001
13	SLD 6	-5.08	0.22	54.9	-0.0659	-0.1514	-0.001
13	SLD 7	-0.81	0.1	23.48	-0.0075	-0.0149	-0.0005
13	SLD 8	-0.81	0.1	23.48	-0.0075	-0.0149	-0.0005
13	SLD 9	-7.85	0.17	59.84	-0.0514	-0.2623	-0.0008
13	SLD 10	-7.85	0.17	59.84	-0.0514	-0.2623	-0.0008
13	SLD 11	-3.58	0.05	28.42	0.0069	-0.1257	-0.0003
13	SLD 12	-3.58	0.05	28.42	0.0069	-0.1257	-0.0003
13	SLD 13	-9.59	0.07	54.6	-0.0141	-0.3438	-0.0004
13	SLD 14	-9.59	0.07	54.6	-0.0141	-0.3438	-0.0004
13	SLD 15	-8.31	0.03	45.17	0.0034	-0.3028	-0.0002
13	SLD 16	-8.31	0.03	45.17	0.0034	-0.3028	-0.0002
13	SLV 1	4.75	0.37	33.57	-0.1068	0.2364	-0.0016
13	SLV 2	4.75	0.37	33.57	-0.1068	0.2364	-0.0016
13	SLV 3	7.75	0.28	11.61	-0.0646	0.3326	-0.0013
13	SLV 4	7.75	0.28	11.61	-0.0646	0.3326	-0.0013
13	SLV 5	-6.16	0.33	72.54	-0.1166	-0.1719	-0.0015
13	SLV 6	-6.16	0.33	72.54	-0.1166	-0.1719	-0.0015
13	SLV 7	3.85	0.04	-0.66	0.0239	0.1486	-0.0003
13	SLV 8	3.85	0.04	-0.66	0.0239	0.1486	-0.0003
13	SLV 9	-12.51	0.22	83.98	-0.0828	-0.4257	-0.001
13	SLV 10	-12.51	0.22	83.98	-0.0828	-0.4257	-0.001
13	SLV 11	-2.5	-0.07	10.78	0.0576	-0.1053	0.0002
13	SLV 12	-2.5	-0.07	10.78	0.0576	-0.1053	0.0002
13	SLV 13	-16.41	-0.02	71.71	0.0057	-0.6097	0
13	SLV 14	-16.41	-0.02	71.71	0.0057	-0.6097	0
13	SLV 15	-13.41	-0.1	49.75	0.0478	-0.5136	0.0003
13	SLV 16	-13.41	-0.1	49.75	0.0478	-0.5136	0.0003
14	SLU 1	-3.38	-0.05	32.5	0.0115	-0.1041	0.0001
14	SLU 2	-3.3	-0.06	32.36	0.0196	-0.101	0.0002
14	SLU 3	-3.42	-0.05	33.55	0.012	-0.1045	0.0001
14	SLU 4	-3.37	-0.06	33.47	0.0169	-0.1026	0.0002
14	SLU 5	-3.32	-0.06	33.46	0.0203	-0.1006	0.0002
14	SLU 6	-3.44	-0.06	34.65	0.0127	-0.1041	0.0001
14	SLU 7	-3.39	-0.06	34.57	0.0176	-0.1022	0.0002
14	SLU 8	-3.42	-0.06	34.7	0.0128	-0.1033	0.0001
14	SLU 9	-3.37	-0.06	34.62	0.0177	-0.1014	0.0002
14	SLU 10	-3.63	-0.07	36.8	0.0187	-0.1091	0.0002
14	SLU 11	-3.75	-0.06	37.99	0.0111	-0.1127	0.0001
14	SLU 12	-3.7	-0.06	37.91	0.0159	-0.1108	0.0002
14	SLU 13	-3.65	-0.07	37.9	0.0193	-0.1087	0.0002
14	SLU 14	-3.77	-0.06	39.09	0.0117	-0.1123	0.0002
14	SLU 15	-3.72	-0.07	39.01	0.0166	-0.1104	0.0002
14	SLU 16	-3.75	-0.06	39.14	0.0118	-0.1115	0.0002
14	SLU 17	-3.7	-0.07	39.06	0.0167	-0.1096	0.0002



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
14	SLU 18	-3.85	-0.06	38.84	0.0101	-0.1158	0.0001
14	SLU 19	-3.8	-0.06	38.76	0.015	-0.1139	0.0002
14	SLU 20	-3.88	-0.06	39.94	0.0108	-0.1154	0.0002
14	SLU 21	-3.82	-0.07	39.86	0.0156	-0.1135	0.0002
14	SLU 22	-3.63	-0.05	34.82	0.0112	-0.1112	0.0001
14	SLU 23	-3.54	-0.06	34.69	0.0193	-0.108	0.0002
14	SLU 24	-3.67	-0.06	35.88	0.0117	-0.1116	0.0001
14	SLU 25	-3.62	-0.06	35.8	0.0166	-0.1097	0.0002
14	SLU 26	-3.56	-0.07	35.79	0.0199	-0.1076	0.0002
14	SLU 27	-3.69	-0.06	36.98	0.0123	-0.1112	0.0002
14	SLU 28	-3.64	-0.07	36.9	0.0172	-0.1093	0.0002
14	SLU 29	-3.67	-0.06	37.02	0.0124	-0.1104	0.0002
14	SLU 30	-3.62	-0.07	36.94	0.0173	-0.1085	0.0002
14	SLU 31	-3.87	-0.07	39.13	0.0183	-0.1162	0.0002
14	SLU 32	-4	-0.06	40.32	0.0107	-0.1197	0.0002
14	SLU 33	-3.95	-0.07	40.24	0.0156	-0.1178	0.0002
14	SLU 34	-3.89	-0.07	40.23	0.019	-0.1158	0.0002
14	SLU 35	-4.02	-0.06	41.42	0.0113	-0.1193	0.0002
14	SLU 36	-3.97	-0.07	41.34	0.0162	-0.1174	0.0002
14	SLU 37	-4	-0.06	41.46	0.0115	-0.1185	0.0002
14	SLU 38	-3.95	-0.07	41.38	0.0163	-0.1166	0.0002
14	SLU 39	-4.1	-0.06	41.17	0.0098	-0.1228	0.0002
14	SLU 40	-4.05	-0.07	41.09	0.0146	-0.1209	0.0002
14	SLU 41	-4.12	-0.06	42.27	0.0104	-0.1224	0.0002
14	SLU 42	-4.07	-0.07	42.19	0.0153	-0.1205	0.0002
14	SLU 43	-4.31	-0.07	41.45	0.0151	-0.1329	0.0002
14	SLU 44	-4.23	-0.08	41.32	0.0232	-0.1298	0.0002
14	SLU 45	-4.35	-0.07	42.5	0.0156	-0.1333	0.0002
14	SLU 46	-4.3	-0.07	42.42	0.0205	-0.1314	0.0002
14	SLU 47	-4.25	-0.08	42.41	0.0239	-0.1294	0.0002
14	SLU 48	-4.37	-0.07	43.6	0.0163	-0.1329	0.0002
14	SLU 49	-4.32	-0.08	43.52	0.0211	-0.131	0.0002
14	SLU 50	-4.36	-0.07	43.65	0.0164	-0.1321	0.0002
14	SLU 51	-4.3	-0.08	43.57	0.0213	-0.1302	0.0002
14	SLU 52	-4.56	-0.08	45.76	0.0222	-0.1379	0.0002
14	SLU 53	-4.68	-0.07	46.94	0.0146	-0.1415	0.0002
14	SLU 54	-4.63	-0.08	46.86	0.0195	-0.1396	0.0002
14	SLU 55	-4.58	-0.08	46.85	0.0229	-0.1375	0.0002
14	SLU 56	-4.7	-0.08	48.04	0.0153	-0.1411	0.0002
14	SLU 57	-4.65	-0.08	47.96	0.0202	-0.1392	0.0002
14	SLU 58	-4.69	-0.08	48.09	0.0154	-0.1403	0.0002
14	SLU 59	-4.63	-0.08	48.01	0.0203	-0.1384	0.0002
14	SLU 60	-4.79	-0.07	47.79	0.0137	-0.1446	0.0002
14	SLU 61	-4.73	-0.08	47.71	0.0186	-0.1427	0.0002
14	SLU 62	-4.81	-0.08	48.89	0.0143	-0.1442	0.0002
14	SLU 63	-4.75	-0.08	48.81	0.0192	-0.1423	0.0002
14	SLU 64	-4.56	-0.07	43.78	0.0147	-0.14	0.0002
14	SLU 65	-4.47	-0.08	43.64	0.0229	-0.1368	0.0002
14	SLU 66	-4.6	-0.07	44.83	0.0153	-0.1404	0.0002
14	SLU 67	-4.55	-0.08	44.75	0.0201	-0.1385	0.0002
14	SLU 68	-4.49	-0.08	44.74	0.0235	-0.1364	0.0002
14	SLU 69	-4.62	-0.07	45.93	0.0159	-0.14	0.0002
14	SLU 70	-4.57	-0.08	45.85	0.0208	-0.1381	0.0002
14	SLU 71	-4.6	-0.07	45.97	0.016	-0.1392	0.0002
14	SLU 72	-4.55	-0.08	45.89	0.0209	-0.1373	0.0002
14	SLU 73	-4.8	-0.08	48.08	0.0219	-0.145	0.0002
14	SLU 74	-4.93	-0.08	49.27	0.0143	-0.1485	0.0002
14	SLU 75	-4.88	-0.08	49.19	0.0192	-0.1467	0.0002
14	SLU 76	-4.82	-0.09	49.18	0.0225	-0.1446	0.0002
14	SLU 77	-4.95	-0.08	50.37	0.0149	-0.1481	0.0002
14	SLU 78	-4.9	-0.08	50.29	0.0198	-0.1463	0.0002
14	SLU 79	-4.93	-0.08	50.41	0.015	-0.1473	0.0002
14	SLU 80	-4.88	-0.08	50.33	0.0199	-0.1455	0.0002
14	SLU 81	-5.03	-0.07	50.12	0.0133	-0.1516	0.0002
14	SLU 82	-4.98	-0.08	50.04	0.0182	-0.1498	0.0002
14	SLU 83	-5.05	-0.08	51.22	0.014	-0.1512	0.0002
14	SLU 84	-5	-0.08	51.14	0.0189	-0.1494	0.0002
14	SLE RA 1	-3.45	-0.05	33.16	0.0114	-0.1061	0.0001
14	SLE RA 2	-3.4	-0.06	33.07	0.0168	-0.104	0.0002
14	SLE RA 3	-3.48	-0.05	33.86	0.0118	-0.1064	0.0001
14	SLE RA 4	-3.45	-0.06	33.81	0.015	-0.1051	0.0001
14	SLE RA 5	-3.41	-0.06	33.81	0.0173	-0.1038	0.0002
14	SLE RA 6	-3.49	-0.06	34.6	0.0122	-0.1061	0.0001
14	SLE RA 7	-3.46	-0.06	34.54	0.0154	-0.1049	0.0002
14	SLE RA 8	-3.48	-0.06	34.63	0.0123	-0.1056	0.0001
14	SLE RA 9	-3.45	-0.06	34.57	0.0155	-0.1043	0.0002
14	SLE RA 10	-3.62	-0.06	36.03	0.0162	-0.1095	0.0002
14	SLE RA 11	-3.7	-0.06	36.83	0.0111	-0.1118	0.0001
14	SLE RA 12	-3.66	-0.06	36.77	0.0144	-0.1106	0.0002
14	SLE RA 13	-3.63	-0.06	36.77	0.0166	-0.1092	0.0002
14	SLE RA 14	-3.71	-0.06	37.56	0.0115	-0.1116	0.0001
14	SLE RA 15	-3.68	-0.06	37.5	0.0148	-0.1103	0.0002
14	SLE RA 16	-3.7	-0.06	37.59	0.0116	-0.111	0.0001
14	SLE RA 17	-3.67	-0.06	37.53	0.0149	-0.1098	0.0002
14	SLE RA 18	-3.77	-0.06	37.39	0.0105	-0.1139	0.0001
14	SLE RA 19	-3.73	-0.06	37.34	0.0137	-0.1126	0.0002
14	SLE RA 20	-3.78	-0.06	38.12	0.0109	-0.1136	0.0001
14	SLE RA 21	-3.75	-0.06	38.07	0.0142	-0.1124	0.0002
14	SLE FR 1	-3.45	-0.05	33.16	0.0114	-0.1061	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
14	SLE FR 2	-3.44	-0.05	33.14	0.0125	-0.1057	0.0001
14	SLE FR 3	-3.46	-0.05	33.46	0.0116	-0.106	0.0001
14	SLE FR 4	-3.54	-0.05	34.41	0.0122	-0.108	0.0001
14	SLE FR 5	-3.55	-0.05	34.72	0.0113	-0.1084	0.0001
14	SLE FR 6	-3.61	-0.05	35.28	0.011	-0.11	0.0001
14	SLE QP 1	-3.45	-0.05	33.16	0.0114	-0.1061	0.0001
14	SLE QP 2	-3.55	-0.05	34.43	0.0111	-0.1085	0.0001
14	SLD 1	1.06	-0.01	32.81	0.0017	0.0858	-0.0002
14	SLD 2	1.06	-0.01	32.81	0.0017	0.0858	-0.0002
14	SLD 3	2.1	0.02	25.57	-0.0195	0.1193	-0.0005
14	SLD 4	2.1	0.02	25.57	-0.0195	0.1193	-0.0005
14	SLD 5	-3.74	-0.09	44.92	0.0404	-0.1009	0.0004
14	SLD 6	-3.74	-0.09	44.92	0.0404	-0.1009	0.0004
14	SLD 7	-0.28	0.02	20.8	-0.0302	0.0106	-0.0004
14	SLD 8	-0.28	0.02	20.8	-0.0302	0.0106	-0.0004
14	SLD 9	-6.82	-0.13	48.07	0.0525	-0.2275	0.0007
14	SLD 10	-6.82	-0.13	48.07	0.0525	-0.2275	0.0007
14	SLD 11	-3.35	-0.01	23.94	-0.0181	-0.116	-0.0002
14	SLD 12	-3.35	-0.01	23.94	-0.0181	-0.116	-0.0002
14	SLD 13	-9.2	-0.13	43.29	0.0418	-0.3362	0.0007
14	SLD 14	-9.2	-0.13	43.29	0.0418	-0.3362	0.0007
14	SLD 15	-8.16	-0.1	36.05	0.0206	-0.3027	0.0005
14	SLD 16	-8.16	-0.1	36.05	0.0206	-0.3027	0.0005
14	SLV 1	6.96	0.05	30.73	-0.0099	0.3346	-0.0006
14	SLV 2	6.96	0.05	30.73	-0.0099	0.3346	-0.0006
14	SLV 3	9.41	0.13	13.86	-0.0618	0.4136	-0.0012
14	SLV 4	9.41	0.13	13.86	-0.0618	0.4136	-0.0012
14	SLV 5	-4.11	-0.15	58.9	0.0835	-0.0953	0.0008
14	SLV 6	-4.11	-0.15	58.9	0.0835	-0.0953	0.0008
14	SLV 7	4.05	0.13	2.68	-0.0894	0.1679	-0.0012
14	SLV 8	4.05	0.13	2.68	-0.0894	0.1679	-0.0012
14	SLV 9	-11.15	-0.23	66.19	0.1117	-0.3848	0.0015
14	SLV 10	-11.15	-0.23	66.19	0.1117	-0.3848	0.0015
14	SLV 11	-2.99	0.04	9.96	-0.0612	-0.1217	-0.0006
14	SLV 12	-2.99	0.04	9.96	-0.0612	-0.1217	-0.0006
14	SLV 13	-16.51	-0.24	55	0.084	-0.6305	0.0015
14	SLV 14	-16.51	-0.24	55	0.084	-0.6305	0.0015
14	SLV 15	-14.06	-0.15	38.14	0.0322	-0.5516	0.0009
14	SLV 16	-14.06	-0.15	38.14	0.0322	-0.5516	0.0009
15	SLU 1	-1.92	-0.11	28.96	0.0321	-0.0867	0.0003
15	SLU 2	-1.86	-0.13	28.87	0.0427	-0.0842	0.0003
15	SLU 3	-1.88	-0.12	29.97	0.0335	-0.0856	0.0003
15	SLU 4	-1.84	-0.13	29.91	0.0399	-0.0841	0.0003
15	SLU 5	-1.8	-0.13	29.94	0.0443	-0.0822	0.0003
15	SLU 6	-1.81	-0.12	31.04	0.0351	-0.0836	0.0003
15	SLU 7	-1.78	-0.13	30.99	0.0414	-0.0821	0.0003
15	SLU 8	-1.78	-0.12	31.1	0.0352	-0.0826	0.0003
15	SLU 9	-1.75	-0.13	31.05	0.0416	-0.0811	0.0003
15	SLU 10	-2.06	-0.14	32.91	0.0442	-0.0943	0.0003
15	SLU 11	-2.07	-0.13	34	0.0349	-0.0957	0.0003
15	SLU 12	-2.04	-0.14	33.95	0.0413	-0.0942	0.0003
15	SLU 13	-1.99	-0.14	33.98	0.0457	-0.0923	0.0003
15	SLU 14	-2.01	-0.13	35.07	0.0365	-0.0937	0.0003
15	SLU 15	-1.97	-0.14	35.02	0.0429	-0.0922	0.0003
15	SLU 16	-1.98	-0.13	35.14	0.0367	-0.0927	0.0003
15	SLU 17	-1.95	-0.14	35.08	0.043	-0.0912	0.0003
15	SLU 18	-2.2	-0.13	34.72	0.0342	-0.1011	0.0003
15	SLU 19	-2.17	-0.14	34.67	0.0405	-0.0996	0.0003
15	SLU 20	-2.13	-0.13	35.79	0.0357	-0.0991	0.0003
15	SLU 21	-2.1	-0.14	35.74	0.0421	-0.0976	0.0003
15	SLU 22	-2.04	-0.12	31.02	0.0333	-0.0925	0.0003
15	SLU 23	-1.98	-0.13	30.93	0.0439	-0.09	0.0003
15	SLU 24	-2	-0.12	32.03	0.0346	-0.0914	0.0003
15	SLU 25	-1.97	-0.13	31.97	0.041	-0.0899	0.0003
15	SLU 26	-1.92	-0.14	32	0.0454	-0.088	0.0003
15	SLU 27	-1.93	-0.13	33.1	0.0362	-0.0894	0.0003
15	SLU 28	-1.9	-0.14	33.05	0.0426	-0.0879	0.0003
15	SLU 29	-1.91	-0.13	33.16	0.0364	-0.0885	0.0003
15	SLU 30	-1.87	-0.14	33.11	0.0427	-0.087	0.0003
15	SLU 31	-2.18	-0.14	34.97	0.0453	-0.1001	0.0003
15	SLU 32	-2.19	-0.13	36.06	0.0361	-0.1015	0.0003
15	SLU 33	-2.16	-0.14	36.01	0.0424	-0.1	0.0003
15	SLU 34	-2.11	-0.15	36.04	0.0469	-0.0981	0.0003
15	SLU 35	-2.13	-0.14	37.13	0.0377	-0.0995	0.0003
15	SLU 36	-2.1	-0.15	37.08	0.044	-0.098	0.0003
15	SLU 37	-2.1	-0.14	37.19	0.0378	-0.0986	0.0003
15	SLU 38	-2.07	-0.15	37.14	0.0442	-0.0971	0.0003
15	SLU 39	-2.32	-0.13	36.78	0.0353	-0.1069	0.0003
15	SLU 40	-2.29	-0.14	36.73	0.0417	-0.1054	0.0003
15	SLU 41	-2.25	-0.14	37.85	0.0369	-0.1049	0.0003
15	SLU 42	-2.22	-0.15	37.8	0.0432	-0.1034	0.0003
15	SLU 43	-2.45	-0.14	36.94	0.0414	-0.1107	0.0003
15	SLU 44	-2.4	-0.16	36.85	0.052	-0.1082	0.0004
15	SLU 45	-2.41	-0.15	37.95	0.0427	-0.1096	0.0003
15	SLU 46	-2.38	-0.16	37.9	0.0491	-0.1081	0.0004
15	SLU 47	-2.33	-0.16	37.93	0.0535	-0.1062	0.0004
15	SLU 48	-2.34	-0.15	39.02	0.0443	-0.1076	0.0004
15	SLU 49	-2.31	-0.16	38.97	0.0507	-0.1061	0.0004
15	SLU 50	-2.32	-0.15	39.08	0.0445	-0.1066	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
15	SLU 51	-2.29	-0.16	39.03	0.0508	-0.1051	0.0004
15	SLU 52	-2.59	-0.17	40.89	0.0534	-0.1183	0.0004
15	SLU 53	-2.61	-0.16	41.98	0.0442	-0.1197	0.0004
15	SLU 54	-2.57	-0.17	41.93	0.0505	-0.1182	0.0004
15	SLU 55	-2.53	-0.17	41.96	0.055	-0.1163	0.0004
15	SLU 56	-2.54	-0.16	43.05	0.0457	-0.1177	0.0004
15	SLU 57	-2.51	-0.17	43	0.0521	-0.1162	0.0004
15	SLU 58	-2.51	-0.16	43.12	0.0459	-0.1167	0.0004
15	SLU 59	-2.48	-0.17	43.07	0.0523	-0.1152	0.0004
15	SLU 60	-2.73	-0.16	42.7	0.0434	-0.1251	0.0004
15	SLU 61	-2.7	-0.17	42.65	0.0498	-0.1236	0.0004
15	SLU 62	-2.66	-0.16	43.77	0.045	-0.1231	0.0004
15	SLU 63	-2.63	-0.17	43.72	0.0513	-0.1216	0.0004
15	SLU 64	-2.57	-0.15	39	0.0425	-0.1165	0.0003
15	SLU 65	-2.52	-0.16	38.91	0.0531	-0.114	0.0004
15	SLU 66	-2.53	-0.15	40.01	0.0439	-0.1154	0.0004
15	SLU 67	-2.5	-0.16	39.96	0.0502	-0.1139	0.0004
15	SLU 68	-2.45	-0.17	39.99	0.0547	-0.112	0.0004
15	SLU 69	-2.46	-0.16	41.08	0.0455	-0.1134	0.0004
15	SLU 70	-2.43	-0.17	41.03	0.0518	-0.1119	0.0004
15	SLU 71	-2.44	-0.16	41.14	0.0456	-0.1125	0.0004
15	SLU 72	-2.41	-0.17	41.09	0.052	-0.111	0.0004
15	SLU 73	-2.71	-0.18	42.95	0.0545	-0.1241	0.0004
15	SLU 74	-2.73	-0.17	44.04	0.0453	-0.1255	0.0004
15	SLU 75	-2.7	-0.17	43.99	0.0517	-0.124	0.0004
15	SLU 76	-2.65	-0.18	44.02	0.0561	-0.1221	0.0004
15	SLU 77	-2.66	-0.17	45.11	0.0469	-0.1235	0.0004
15	SLU 78	-2.63	-0.18	45.06	0.0532	-0.122	0.0004
15	SLU 79	-2.64	-0.17	45.18	0.0471	-0.1226	0.0004
15	SLU 80	-2.6	-0.18	45.12	0.0534	-0.1211	0.0004
15	SLU 81	-2.85	-0.17	44.76	0.0446	-0.1309	0.0004
15	SLU 82	-2.82	-0.17	44.71	0.0509	-0.1294	0.0004
15	SLU 83	-2.79	-0.17	45.83	0.0461	-0.1289	0.0004
15	SLU 84	-2.75	-0.18	45.78	0.0525	-0.1274	0.0004
15	SLE RA 1	-1.95	-0.11	29.55	0.0325	-0.0883	0.0003
15	SLE RA 2	-1.92	-0.12	29.49	0.0395	-0.0867	0.0003
15	SLE RA 3	-1.92	-0.12	30.22	0.0334	-0.0876	0.0003
15	SLE RA 4	-1.9	-0.12	30.18	0.0376	-0.0866	0.0003
15	SLE RA 5	-1.87	-0.13	30.2	0.0405	-0.0853	0.0003
15	SLE RA 6	-1.88	-0.12	30.93	0.0344	-0.0863	0.0003
15	SLE RA 7	-1.86	-0.13	30.9	0.0386	-0.0853	0.0003
15	SLE RA 8	-1.86	-0.12	30.98	0.0345	-0.0856	0.0003
15	SLE RA 9	-1.84	-0.13	30.94	0.0388	-0.0846	0.0003
15	SLE RA 10	-2.05	-0.13	32.18	0.0405	-0.0934	0.0003
15	SLE RA 11	-2.06	-0.12	32.91	0.0343	-0.0944	0.0003
15	SLE RA 12	-2.03	-0.13	32.87	0.0386	-0.0934	0.0003
15	SLE RA 13	-2	-0.13	32.89	0.0415	-0.0921	0.0003
15	SLE RA 14	-2.01	-0.13	33.62	0.0354	-0.093	0.0003
15	SLE RA 15	-1.99	-0.13	33.59	0.0396	-0.092	0.0003
15	SLE RA 16	-1.99	-0.13	33.66	0.0355	-0.0924	0.0003
15	SLE RA 17	-1.97	-0.13	33.63	0.0397	-0.0914	0.0003
15	SLE RA 18	-2.14	-0.12	33.39	0.0338	-0.0979	0.0003
15	SLE RA 19	-2.12	-0.13	33.35	0.0381	-0.097	0.0003
15	SLE RA 20	-2.09	-0.13	34.1	0.0349	-0.0966	0.0003
15	SLE RA 21	-2.07	-0.13	34.07	0.0391	-0.0956	0.0003
15	SLE FR 1	-1.95	-0.11	29.55	0.0325	-0.0883	0.0003
15	SLE FR 2	-1.94	-0.12	29.54	0.0339	-0.088	0.0003
15	SLE FR 3	-1.93	-0.11	29.83	0.0329	-0.0878	0.0003
15	SLE FR 4	-2	-0.12	30.69	0.0343	-0.0909	0.0003
15	SLE FR 5	-1.99	-0.12	30.99	0.0333	-0.0907	0.0003
15	SLE FR 6	-2.04	-0.12	31.47	0.0331	-0.0931	0.0003
15	SLE QP 1	-1.95	-0.11	29.55	0.0325	-0.0883	0.0003
15	SLE QP 2	-2.01	-0.12	30.7	0.0329	-0.0912	0.0003
15	SLD 1	3	-0.12	31.23	0.039	0.1167	0.0002
15	SLD 2	3	-0.12	31.23	0.039	0.1167	0.0002
15	SLD 3	3.69	-0.08	25.01	0.013	0.1464	0
15	SLD 4	3.69	-0.08	25.01	0.013	0.1464	0
15	SLD 5	-1.54	-0.19	40.29	0.0743	-0.0739	0.0005
15	SLD 6	-1.54	-0.19	40.29	0.0743	-0.0739	0.0005
15	SLD 7	0.74	-0.03	19.56	-0.0127	0.0251	0
15	SLD 8	0.74	-0.03	19.56	-0.0127	0.0251	0
15	SLD 9	-4.75	-0.2	41.84	0.0784	-0.2076	0.0006
15	SLD 10	-4.75	-0.2	41.84	0.0784	-0.2076	0.0006
15	SLD 11	-2.47	-0.04	21.1	-0.0086	-0.1085	0.0001
15	SLD 12	-2.47	-0.04	21.1	-0.0086	-0.1085	0.0001
15	SLD 13	-7.7	-0.16	36.39	0.0528	-0.3288	0.0005
15	SLD 14	-7.7	-0.16	36.39	0.0528	-0.3288	0.0005
15	SLD 15	-7.02	-0.11	30.17	0.0267	-0.2991	0.0004
15	SLD 16	-7.02	-0.11	30.17	0.0267	-0.2991	0.0004
15	SLV 1	9.42	-0.13	31.96	0.0487	0.3831	0
15	SLV 2	9.42	-0.13	31.96	0.0487	0.3831	0
15	SLV 3	11.04	-0.02	17.47	-0.015	0.4534	-0.0003
15	SLV 4	11.04	-0.02	17.47	-0.015	0.4534	-0.0003
15	SLV 5	-1.03	-0.29	53.05	0.1342	-0.0555	0.0007
15	SLV 6	-1.03	-0.29	53.05	0.1342	-0.0555	0.0007
15	SLV 7	4.36	0.08	4.76	-0.0781	0.1787	-0.0004
15	SLV 8	4.36	0.08	4.76	-0.0781	0.1787	-0.0004
15	SLV 9	-8.38	-0.32	56.64	0.1438	-0.3612	0.001
15	SLV 10	-8.38	-0.32	56.64	0.1438	-0.3612	0.001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
15	SLV 11	-2.98	0.06	8.35	-0.0685	-0.127	-0.0002
15	SLV 12	-2.98	0.06	8.35	-0.0685	-0.127	-0.0002
15	SLV 13	-15.06	-0.21	43.93	0.0807	-0.6358	0.0009
15	SLV 14	-15.06	-0.21	43.93	0.0807	-0.6358	0.0009
15	SLV 15	-13.44	-0.1	29.44	0.017	-0.5656	0.0005
15	SLV 16	-13.44	-0.1	29.44	0.017	-0.5656	0.0005
16	SLU 1	0.63	-0.11	28.62	0.0331	0.0304	0.0003
16	SLU 2	0.63	-0.13	28.51	0.0439	0.0306	0.0003
16	SLU 3	0.78	-0.12	29.73	0.0345	0.0368	0.0003
16	SLU 4	0.79	-0.13	29.66	0.041	0.0369	0.0003
16	SLU 5	0.82	-0.14	29.71	0.0455	0.0382	0.0003
16	SLU 6	0.98	-0.13	30.93	0.0361	0.0445	0.0003
16	SLU 7	0.98	-0.14	30.87	0.0426	0.0446	0.0003
16	SLU 8	1.01	-0.13	31.02	0.0363	0.0457	0.0003
16	SLU 9	1.01	-0.14	30.96	0.0428	0.0459	0.0003
16	SLU 10	0.72	-0.14	32.52	0.0455	0.0357	0.0003
16	SLU 11	0.87	-0.13	33.74	0.0361	0.042	0.0003
16	SLU 12	0.88	-0.14	33.67	0.0426	0.0421	0.0004
16	SLU 13	0.91	-0.15	33.72	0.0471	0.0434	0.0004
16	SLU 14	1.06	-0.14	34.94	0.0377	0.0497	0.0003
16	SLU 15	1.07	-0.15	34.87	0.0442	0.0498	0.0004
16	SLU 16	1.1	-0.14	35.03	0.0379	0.0509	0.0003
16	SLU 17	1.1	-0.15	34.97	0.0444	0.051	0.0004
16	SLU 18	0.75	-0.13	34.34	0.0354	0.0378	0.0003
16	SLU 19	0.75	-0.14	34.28	0.0419	0.0379	0.0004
16	SLU 20	0.94	-0.14	35.55	0.037	0.0455	0.0004
16	SLU 21	0.95	-0.15	35.48	0.0435	0.0456	0.0004
16	SLU 22	0.72	-0.12	30.68	0.0342	0.0348	0.0003
16	SLU 23	0.72	-0.14	30.57	0.0451	0.035	0.0003
16	SLU 24	0.88	-0.13	31.79	0.0357	0.0412	0.0003
16	SLU 25	0.88	-0.14	31.73	0.0421	0.0413	0.0003
16	SLU 26	0.92	-0.14	31.77	0.0467	0.0426	0.0003
16	SLU 27	1.07	-0.13	32.99	0.0373	0.0489	0.0003
16	SLU 28	1.07	-0.14	32.93	0.0438	0.049	0.0003
16	SLU 29	1.1	-0.13	33.08	0.0375	0.0502	0.0003
16	SLU 30	1.11	-0.14	33.02	0.044	0.0503	0.0003
16	SLU 31	0.81	-0.15	34.58	0.0467	0.0401	0.0004
16	SLU 32	0.97	-0.14	35.8	0.0373	0.0464	0.0004
16	SLU 33	0.97	-0.15	35.73	0.0438	0.0465	0.0004
16	SLU 34	1	-0.15	35.78	0.0483	0.0478	0.0004
16	SLU 35	1.16	-0.14	37	0.0389	0.0541	0.0004
16	SLU 36	1.16	-0.15	36.94	0.0454	0.0542	0.0004
16	SLU 37	1.19	-0.15	37.09	0.0391	0.0553	0.0004
16	SLU 38	1.19	-0.15	37.03	0.0456	0.0555	0.0004
16	SLU 39	0.85	-0.14	36.4	0.0366	0.0422	0.0004
16	SLU 40	0.85	-0.15	36.34	0.043	0.0423	0.0004
16	SLU 41	1.04	-0.14	37.61	0.0382	0.0499	0.0004
16	SLU 42	1.04	-0.15	37.54	0.0447	0.05	0.0004
16	SLU 43	0.78	-0.15	36.5	0.0426	0.038	0.0004
16	SLU 44	0.78	-0.16	36.39	0.0534	0.0382	0.0004
16	SLU 45	0.94	-0.15	37.61	0.044	0.0444	0.0004
16	SLU 46	0.94	-0.16	37.54	0.0505	0.0445	0.0004
16	SLU 47	0.98	-0.17	37.59	0.055	0.0458	0.0004
16	SLU 48	1.13	-0.16	38.81	0.0456	0.0521	0.0004
16	SLU 49	1.13	-0.17	38.75	0.0521	0.0522	0.0004
16	SLU 50	1.16	-0.16	38.9	0.0458	0.0533	0.0004
16	SLU 51	1.17	-0.17	38.84	0.0523	0.0535	0.0004
16	SLU 52	0.87	-0.17	40.4	0.055	0.0433	0.0004
16	SLU 53	1.03	-0.16	41.62	0.0456	0.0496	0.0004
16	SLU 54	1.03	-0.17	41.55	0.0521	0.0497	0.0004
16	SLU 55	1.06	-0.18	41.6	0.0566	0.051	0.0004
16	SLU 56	1.22	-0.17	42.82	0.0472	0.0573	0.0004
16	SLU 57	1.22	-0.18	42.75	0.0537	0.0574	0.0004
16	SLU 58	1.25	-0.17	42.91	0.0475	0.0585	0.0004
16	SLU 59	1.25	-0.18	42.85	0.0539	0.0586	0.0004
16	SLU 60	0.91	-0.16	42.22	0.0449	0.0454	0.0004
16	SLU 61	0.91	-0.17	42.16	0.0514	0.0455	0.0004
16	SLU 62	1.1	-0.17	43.42	0.0465	0.0531	0.0004
16	SLU 63	1.1	-0.18	43.36	0.053	0.0532	0.0004
16	SLU 64	0.88	-0.15	38.56	0.0437	0.0424	0.0004
16	SLU 65	0.88	-0.17	38.45	0.0546	0.0426	0.0004
16	SLU 66	1.03	-0.16	39.67	0.0452	0.0488	0.0004
16	SLU 67	1.04	-0.17	39.6	0.0517	0.0489	0.0004
16	SLU 68	1.07	-0.17	39.65	0.0562	0.0503	0.0004
16	SLU 69	1.23	-0.17	40.87	0.0468	0.0565	0.0004
16	SLU 70	1.23	-0.17	40.81	0.0533	0.0566	0.0004
16	SLU 71	1.26	-0.17	40.96	0.047	0.0578	0.0004
16	SLU 72	1.26	-0.17	40.9	0.0535	0.0579	0.0004
16	SLU 73	0.97	-0.18	42.46	0.0562	0.0478	0.0004
16	SLU 74	1.12	-0.17	43.68	0.0468	0.054	0.0004
16	SLU 75	1.13	-0.18	43.61	0.0533	0.0541	0.0005
16	SLU 76	1.16	-0.19	43.66	0.0578	0.0554	0.0005
16	SLU 77	1.32	-0.18	44.88	0.0484	0.0617	0.0004
16	SLU 78	1.32	-0.19	44.81	0.0549	0.0618	0.0005
16	SLU 79	1.35	-0.18	44.97	0.0486	0.0629	0.0004
16	SLU 80	1.35	-0.19	44.91	0.0551	0.0631	0.0005
16	SLU 81	1	-0.17	44.28	0.0461	0.0498	0.0004
16	SLU 82	1	-0.18	44.22	0.0526	0.0499	0.0005
16	SLU 83	1.19	-0.18	45.49	0.0477	0.0575	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
16	SLU 84	1.2	-0.19	45.42	0.0542	0.0576	0.0005
16	SLE RA 1	0.65	-0.12	29.21	0.0334	0.0316	0.0003
16	SLE RA 2	0.66	-0.13	29.14	0.0406	0.0318	0.0003
16	SLE RA 3	0.76	-0.12	29.95	0.0343	0.0359	0.0003
16	SLE RA 4	0.76	-0.13	29.9	0.0387	0.036	0.0003
16	SLE RA 5	0.78	-0.13	29.94	0.0417	0.0369	0.0003
16	SLE RA 6	0.89	-0.12	30.75	0.0354	0.041	0.0003
16	SLE RA 7	0.89	-0.13	30.71	0.0398	0.0411	0.0003
16	SLE RA 8	0.91	-0.12	30.81	0.0356	0.0419	0.0003
16	SLE RA 9	0.91	-0.13	30.77	0.0399	0.042	0.0003
16	SLE RA 10	0.71	-0.13	31.81	0.0417	0.0352	0.0003
16	SLE RA 11	0.82	-0.13	32.62	0.0354	0.0394	0.0003
16	SLE RA 12	0.82	-0.13	32.58	0.0398	0.0394	0.0003
16	SLE RA 13	0.84	-0.14	32.61	0.0428	0.0403	0.0003
16	SLE RA 14	0.95	-0.13	33.42	0.0365	0.0445	0.0003
16	SLE RA 15	0.95	-0.14	33.38	0.0408	0.0446	0.0003
16	SLE RA 16	0.97	-0.13	33.48	0.0366	0.0453	0.0003
16	SLE RA 17	0.97	-0.14	33.44	0.041	0.0454	0.0003
16	SLE RA 18	0.74	-0.13	33.02	0.0349	0.0366	0.0003
16	SLE RA 19	0.74	-0.13	32.98	0.0393	0.0366	0.0003
16	SLE RA 20	0.87	-0.13	33.83	0.036	0.0417	0.0003
16	SLE RA 21	0.87	-0.14	33.78	0.0404	0.0418	0.0003
16	SLE FR 1	0.65	-0.12	29.21	0.0334	0.0316	0.0003
16	SLE FR 2	0.65	-0.12	29.19	0.0348	0.0317	0.0003
16	SLE FR 3	0.7	-0.12	29.53	0.0338	0.0337	0.0003
16	SLE FR 4	0.68	-0.12	30.34	0.0353	0.0331	0.0003
16	SLE FR 5	0.73	-0.12	30.67	0.0343	0.0352	0.0003
16	SLE FR 6	0.7	-0.12	31.12	0.0342	0.0341	0.0003
16	SLE QP 1	0.65	-0.12	29.21	0.0334	0.0316	0.0003
16	SLE QP 2	0.68	-0.12	30.35	0.0339	0.0331	0.0003
16	SLD 1	6.12	-0.18	34.72	0.0636	0.2581	0.0003
16	SLD 2	6.12	-0.18	34.72	0.0636	0.2581	0.0003
16	SLD 3	5.64	-0.14	28.54	0.0389	0.2377	0.0002
16	SLD 4	5.64	-0.14	28.54	0.0389	0.2377	0.0002
16	SLD 5	3.05	-0.2	41.03	0.0803	0.1316	0.0005
16	SLD 6	3.05	-0.2	41.03	0.0803	0.1316	0.0005
16	SLD 7	1.43	-0.06	20.44	-0.0021	0.0636	0.0001
16	SLD 8	1.43	-0.06	20.44	-0.0021	0.0636	0.0001
16	SLD 9	-0.07	-0.18	40.26	0.0698	0.0027	0.0005
16	SLD 10	-0.07	-0.18	40.26	0.0698	0.0027	0.0005
16	SLD 11	-1.7	-0.04	19.68	-0.0126	-0.0653	0.0001
16	SLD 12	-1.7	-0.04	19.68	-0.0126	-0.0653	0.0001
16	SLD 13	-4.28	-0.1	32.16	0.0288	-0.1715	0.0004
16	SLD 14	-4.28	-0.1	32.16	0.0288	-0.1715	0.0004
16	SLD 15	-4.77	-0.06	25.99	0.0041	-0.1919	0.0003
16	SLD 16	-4.77	-0.06	25.99	0.0041	-0.1919	0.0003
16	SLV 1	13.13	-0.27	40.43	0.1048	0.5476	0.0003
16	SLV 2	13.13	-0.27	40.43	0.1048	0.5476	0.0003
16	SLV 3	12	-0.17	26.07	0.0444	0.5007	0
16	SLV 4	12	-0.17	26.07	0.0444	0.5007	0
16	SLV 5	6.12	-0.32	55.16	0.1468	0.2585	0.0007
16	SLV 6	6.12	-0.32	55.16	0.1468	0.2585	0.0007
16	SLV 7	2.37	0.02	7.28	-0.0547	0.1023	-0.0002
16	SLV 8	2.37	0.02	7.28	-0.0547	0.1023	-0.0002
16	SLV 9	-1.01	-0.26	53.42	0.1224	-0.0361	0.0008
16	SLV 10	-1.01	-0.26	53.42	0.1224	-0.0361	0.0008
16	SLV 11	-4.76	0.08	5.55	-0.0791	-0.1923	-0.0001
16	SLV 12	-4.76	0.08	5.55	-0.0791	-0.1923	-0.0001
16	SLV 13	-10.65	-0.07	34.64	0.0234	-0.4345	0.0006
16	SLV 14	-10.65	-0.07	34.64	0.0234	-0.4345	0.0006
16	SLV 15	-11.77	0.03	20.28	-0.0371	-0.4813	0.0003
16	SLV 16	-11.77	0.03	20.28	-0.0371	-0.4813	0.0003
17	SLU 1	2.18	-0.06	31.51	0.014	0.0624	0.0002
17	SLU 2	2.14	-0.07	31.31	0.0227	0.0618	0.0002
17	SLU 3	2.4	-0.06	32.87	0.0144	0.07	0.0002
17	SLU 4	2.38	-0.07	32.75	0.0196	0.0697	0.0002
17	SLU 5	2.4	-0.07	32.8	0.0232	0.0707	0.0002
17	SLU 6	2.66	-0.07	34.37	0.015	0.0789	0.0002
17	SLU 7	2.64	-0.07	34.24	0.0202	0.0785	0.0002
17	SLU 8	2.69	-0.07	34.49	0.0151	0.0801	0.0002
17	SLU 9	2.67	-0.07	34.37	0.0203	0.0798	0.0002
17	SLU 10	2.34	-0.08	35.65	0.0223	0.066	0.0002
17	SLU 11	2.6	-0.07	37.22	0.014	0.0742	0.0003
17	SLU 12	2.58	-0.08	37.09	0.0192	0.0738	0.0003
17	SLU 13	2.6	-0.08	37.14	0.0228	0.0748	0.0003
17	SLU 14	2.86	-0.07	38.71	0.0146	0.083	0.0003
17	SLU 15	2.84	-0.08	38.58	0.0198	0.0827	0.0003
17	SLU 16	2.89	-0.07	38.84	0.0147	0.0843	0.0003
17	SLU 17	2.87	-0.08	38.71	0.0199	0.0839	0.0003
17	SLU 18	2.47	-0.07	37.71	0.0134	0.0684	0.0003
17	SLU 19	2.44	-0.07	37.59	0.0187	0.068	0.0003
17	SLU 20	2.72	-0.07	39.2	0.014	0.0772	0.0003
17	SLU 21	2.7	-0.08	39.08	0.0192	0.0769	0.0003
17	SLU 22	2.4	-0.06	33.85	0.0137	0.0689	0.0002
17	SLU 23	2.36	-0.07	33.64	0.0224	0.0684	0.0002
17	SLU 24	2.62	-0.07	35.21	0.0141	0.0765	0.0002
17	SLU 25	2.6	-0.07	35.09	0.0193	0.0762	0.0002
17	SLU 26	2.62	-0.08	35.13	0.0229	0.0772	0.0002
17	SLU 27	2.88	-0.07	36.7	0.0146	0.0854	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
17	SLU 28	2.86	-0.08	36.58	0.0199	0.085	0.0002
17	SLU 29	2.91	-0.07	36.83	0.0148	0.0866	0.0002
17	SLU 30	2.89	-0.08	36.7	0.02	0.0863	0.0002
17	SLU 31	2.56	-0.08	37.98	0.022	0.0725	0.0003
17	SLU 32	2.82	-0.07	39.55	0.0137	0.0807	0.0003
17	SLU 33	2.8	-0.08	39.43	0.0189	0.0803	0.0003
17	SLU 34	2.82	-0.08	39.47	0.0225	0.0813	0.0003
17	SLU 35	3.08	-0.08	41.04	0.0142	0.0895	0.0003
17	SLU 36	3.06	-0.08	40.92	0.0195	0.0892	0.0003
17	SLU 37	3.11	-0.08	41.17	0.0144	0.0908	0.0003
17	SLU 38	3.09	-0.08	41.05	0.0196	0.0904	0.0003
17	SLU 39	2.69	-0.07	40.05	0.0131	0.0749	0.0003
17	SLU 40	2.66	-0.08	39.92	0.0183	0.0745	0.0003
17	SLU 41	2.94	-0.07	41.54	0.0137	0.0837	0.0003
17	SLU 42	2.92	-0.08	41.42	0.0189	0.0834	0.0003
17	SLU 43	2.76	-0.08	40.17	0.0183	0.0789	0.0003
17	SLU 44	2.72	-0.09	39.96	0.027	0.0783	0.0003
17	SLU 45	2.98	-0.08	41.53	0.0187	0.0865	0.0003
17	SLU 46	2.96	-0.09	41.41	0.024	0.0862	0.0003
17	SLU 47	2.98	-0.09	41.45	0.0276	0.0872	0.0003
17	SLU 48	3.24	-0.08	43.02	0.0193	0.0954	0.0003
17	SLU 49	3.22	-0.09	42.9	0.0245	0.095	0.0003
17	SLU 50	3.27	-0.08	43.15	0.0194	0.0966	0.0003
17	SLU 51	3.25	-0.09	43.03	0.0246	0.0962	0.0003
17	SLU 52	2.92	-0.09	44.3	0.0266	0.0825	0.0003
17	SLU 53	3.18	-0.09	45.87	0.0183	0.0907	0.0003
17	SLU 54	3.16	-0.09	45.75	0.0236	0.0903	0.0003
17	SLU 55	3.18	-0.1	45.79	0.0272	0.0913	0.0003
17	SLU 56	3.44	-0.09	47.36	0.0189	0.0995	0.0003
17	SLU 57	3.42	-0.1	47.24	0.0241	0.0992	0.0003
17	SLU 58	3.47	-0.09	47.49	0.019	0.1008	0.0003
17	SLU 59	3.45	-0.1	47.37	0.0242	0.1004	0.0003
17	SLU 60	3.04	-0.09	46.37	0.0178	0.0849	0.0003
17	SLU 61	3.02	-0.09	46.25	0.023	0.0845	0.0003
17	SLU 62	3.3	-0.09	47.86	0.0183	0.0937	0.0003
17	SLU 63	3.28	-0.1	47.74	0.0235	0.0933	0.0003
17	SLU 64	2.98	-0.08	42.5	0.018	0.0854	0.0003
17	SLU 65	2.94	-0.09	42.3	0.0267	0.0849	0.0003
17	SLU 66	3.2	-0.08	43.86	0.0184	0.093	0.0003
17	SLU 67	3.18	-0.09	43.74	0.0236	0.0927	0.0003
17	SLU 68	3.2	-0.09	43.79	0.0272	0.0937	0.0003
17	SLU 69	3.46	-0.09	45.35	0.019	0.1019	0.0003
17	SLU 70	3.44	-0.09	45.23	0.0242	0.1015	0.0003
17	SLU 71	3.49	-0.09	45.48	0.0191	0.1031	0.0003
17	SLU 72	3.47	-0.09	45.36	0.0243	0.1028	0.0003
17	SLU 73	3.14	-0.1	46.64	0.0263	0.089	0.0003
17	SLU 74	3.4	-0.09	48.2	0.018	0.0972	0.0003
17	SLU 75	3.38	-0.1	48.08	0.0232	0.0968	0.0003
17	SLU 76	3.4	-0.1	48.13	0.0268	0.0978	0.0003
17	SLU 77	3.66	-0.09	49.69	0.0186	0.106	0.0003
17	SLU 78	3.64	-0.1	49.57	0.0238	0.1057	0.0003
17	SLU 79	3.69	-0.09	49.82	0.0187	0.1073	0.0003
17	SLU 80	3.67	-0.1	49.7	0.0239	0.1069	0.0003
17	SLU 81	3.26	-0.09	48.7	0.0174	0.0914	0.0003
17	SLU 82	3.24	-0.09	48.58	0.0227	0.091	0.0003
17	SLU 83	3.52	-0.09	50.19	0.018	0.1002	0.0003
17	SLU 84	3.5	-0.1	50.07	0.0232	0.0999	0.0003
17	SLE RA 1	2.24	-0.06	32.18	0.0139	0.0643	0.0002
17	SLE RA 2	2.22	-0.07	32.04	0.0197	0.0639	0.0002
17	SLE RA 3	2.39	-0.06	33.09	0.0142	0.0693	0.0002
17	SLE RA 4	2.38	-0.07	33.01	0.0177	0.0691	0.0002
17	SLE RA 5	2.39	-0.07	33.04	0.0201	0.0698	0.0002
17	SLE RA 6	2.56	-0.07	34.08	0.0146	0.0752	0.0002
17	SLE RA 7	2.55	-0.07	34	0.018	0.075	0.0002
17	SLE RA 8	2.58	-0.07	34.17	0.0146	0.0761	0.0002
17	SLE RA 9	2.57	-0.07	34.09	0.0181	0.0758	0.0002
17	SLE RA 10	2.35	-0.07	34.94	0.0195	0.0667	0.0002
17	SLE RA 11	2.52	-0.07	35.98	0.0139	0.0721	0.0002
17	SLE RA 12	2.51	-0.07	35.9	0.0174	0.0719	0.0002
17	SLE RA 13	2.52	-0.07	35.93	0.0198	0.0726	0.0002
17	SLE RA 14	2.7	-0.07	36.98	0.0143	0.078	0.0002
17	SLE RA 15	2.68	-0.07	36.89	0.0178	0.0778	0.0002
17	SLE RA 16	2.72	-0.07	37.06	0.0144	0.0788	0.0002
17	SLE RA 17	2.7	-0.07	36.98	0.0179	0.0786	0.0002
17	SLE RA 18	2.43	-0.07	36.31	0.0135	0.0682	0.0003
17	SLE RA 19	2.42	-0.07	36.23	0.017	0.068	0.0003
17	SLE RA 20	2.6	-0.07	37.31	0.0139	0.0741	0.0003
17	SLE RA 21	2.59	-0.07	37.23	0.0174	0.0739	0.0003
17	SLE FR 1	2.24	-0.06	32.18	0.0139	0.0643	0.0002
17	SLE FR 2	2.24	-0.06	32.15	0.0151	0.0642	0.0002
17	SLE FR 3	2.31	-0.06	32.58	0.0141	0.0666	0.0002
17	SLE FR 4	2.29	-0.06	33.39	0.015	0.0654	0.0002
17	SLE FR 5	2.37	-0.06	33.82	0.014	0.0678	0.0002
17	SLE FR 6	2.34	-0.06	34.25	0.0137	0.0663	0.0002
17	SLE QP 1	2.24	-0.06	32.18	0.0139	0.0643	0.0002
17	SLE QP 2	2.3	-0.06	33.42	0.0138	0.0655	0.0002
17	SLD 1	7.53	-0.15	40.16	0.0507	0.2817	0.0001
17	SLD 2	7.53	-0.15	40.16	0.0507	0.2817	0.0001
17	SLD 3	6.72	-0.12	33.04	0.0322	0.2565	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
17	SLD 4	6.72	-0.12	33.04	0.0322	0.2565	-0.0002
17	SLD 5	5.1	-0.13	46.25	0.0528	0.1686	0.0006
17	SLD 6	5.1	-0.13	46.25	0.0528	0.1686	0.0006
17	SLD 7	2.39	-0.04	22.49	-0.0086	0.0846	-0.0003
17	SLD 8	2.39	-0.04	22.49	-0.0086	0.0846	-0.0003
17	SLD 9	2.2	-0.09	44.34	0.0362	0.0464	0.0007
17	SLD 10	2.2	-0.09	44.34	0.0362	0.0464	0.0007
17	SLD 11	-0.51	0.01	20.59	-0.0252	-0.0376	-0.0002
17	SLD 12	-0.51	0.01	20.59	-0.0252	-0.0376	-0.0002
17	SLD 13	-2.12	0	33.8	-0.0046	-0.1256	0.0006
17	SLD 14	-2.12	0	33.8	-0.0046	-0.1256	0.0006
17	SLD 15	-2.94	0.02	26.67	-0.0231	-0.1508	0.0003
17	SLD 16	-2.94	0.02	26.67	-0.0231	-0.1508	0.0003
17	SLV 1	14.27	-0.27	48.98	0.1012	0.5599	0
17	SLV 2	14.27	-0.27	48.98	0.1012	0.5599	0
17	SLV 3	12.4	-0.2	32.42	0.0559	0.5021	-0.0007
17	SLV 4	12.4	-0.2	32.42	0.0559	0.5021	-0.0007
17	SLV 5	8.72	-0.22	63.21	0.1087	0.3014	0.0011
17	SLV 6	8.72	-0.22	63.21	0.1087	0.3014	0.0011
17	SLV 7	2.5	0	8	-0.0423	0.1089	-0.001
17	SLV 8	2.5	0	8	-0.0423	0.1089	-0.001
17	SLV 9	2.1	-0.12	58.84	0.0699	0.0221	0.0014
17	SLV 10	2.1	-0.12	58.84	0.0699	0.0221	0.0014
17	SLV 11	-4.12	0.1	3.63	-0.0811	-0.1704	-0.0006
17	SLV 12	-4.12	0.1	3.63	-0.0811	-0.1704	-0.0006
17	SLV 13	-7.81	0.07	34.42	-0.0283	-0.3711	0.0011
17	SLV 14	-7.81	0.07	34.42	-0.0283	-0.3711	0.0011
17	SLV 15	-9.67	0.14	17.85	-0.0736	-0.4289	0.0005
17	SLV 16	-9.67	0.14	17.85	-0.0736	-0.4289	0.0005
18	SLU 1	2.76	0.11	37.44	-0.0232	0.0668	0.0005
18	SLU 2	2.69	0.1	37.04	-0.0179	0.0656	0.0005
18	SLU 3	2.99	0.11	39.22	-0.025	0.0736	0.0006
18	SLU 4	2.95	0.11	38.99	-0.0218	0.0729	0.0006
18	SLU 5	2.96	0.11	39	-0.0197	0.0732	0.0006
18	SLU 6	3.25	0.12	41.18	-0.0268	0.0812	0.0006
18	SLU 7	3.22	0.12	40.94	-0.0236	0.0805	0.0006
18	SLU 8	3.28	0.12	41.35	-0.0269	0.082	0.0006
18	SLU 9	3.24	0.12	41.11	-0.0237	0.0813	0.0006
18	SLU 10	2.91	0.12	42.06	-0.0226	0.0684	0.0006
18	SLU 11	3.21	0.13	44.24	-0.0297	0.0764	0.0007
18	SLU 12	3.17	0.13	44	-0.0265	0.0757	0.0007
18	SLU 13	3.18	0.12	44.01	-0.0244	0.0761	0.0007
18	SLU 14	3.47	0.14	46.19	-0.0315	0.084	0.0007
18	SLU 15	3.44	0.13	45.96	-0.0283	0.0833	0.0007
18	SLU 16	3.5	0.14	46.37	-0.0316	0.0848	0.0007
18	SLU 17	3.46	0.13	46.13	-0.0284	0.0841	0.0007
18	SLU 18	3.07	0.13	44.61	-0.0299	0.0708	0.0007
18	SLU 19	3.03	0.13	44.37	-0.0267	0.0701	0.0007
18	SLU 20	3.33	0.14	46.56	-0.0318	0.0784	0.0007
18	SLU 21	3.3	0.13	46.32	-0.0286	0.0777	0.0007
18	SLU 22	3.03	0.12	40.34	-0.0266	0.0739	0.0006
18	SLU 23	2.97	0.11	39.94	-0.0213	0.0727	0.0006
18	SLU 24	3.27	0.13	42.12	-0.0284	0.0807	0.0006
18	SLU 25	3.23	0.12	41.88	-0.0252	0.08	0.0006
18	SLU 26	3.23	0.12	41.9	-0.0232	0.0803	0.0006
18	SLU 27	3.53	0.13	44.08	-0.0303	0.0883	0.0006
18	SLU 28	3.49	0.13	43.84	-0.0271	0.0876	0.0006
18	SLU 29	3.56	0.13	44.25	-0.0303	0.0891	0.0007
18	SLU 30	3.52	0.13	44.01	-0.0271	0.0884	0.0006
18	SLU 31	3.19	0.13	44.96	-0.026	0.0755	0.0007
18	SLU 32	3.49	0.14	47.14	-0.0331	0.0835	0.0007
18	SLU 33	3.45	0.14	46.9	-0.0299	0.0828	0.0007
18	SLU 34	3.45	0.14	46.91	-0.0279	0.0831	0.0007
18	SLU 35	3.75	0.15	49.09	-0.035	0.0911	0.0007
18	SLU 36	3.71	0.15	48.86	-0.0318	0.0904	0.0007
18	SLU 37	3.78	0.15	49.27	-0.035	0.0919	0.0007
18	SLU 38	3.74	0.15	49.03	-0.0319	0.0912	0.0007
18	SLU 39	3.35	0.14	47.51	-0.0333	0.0779	0.0007
18	SLU 40	3.31	0.14	47.27	-0.0301	0.0772	0.0007
18	SLU 41	3.61	0.15	49.46	-0.0352	0.0855	0.0008
18	SLU 42	3.57	0.15	49.22	-0.032	0.0848	0.0007
18	SLU 43	3.49	0.13	47.68	-0.0289	0.0844	0.0007
18	SLU 44	3.43	0.13	47.28	-0.0236	0.0832	0.0007
18	SLU 45	3.73	0.14	49.46	-0.0307	0.0912	0.0007
18	SLU 46	3.69	0.14	49.22	-0.0276	0.0905	0.0007
18	SLU 47	3.69	0.13	49.24	-0.0255	0.0909	0.0007
18	SLU 48	3.99	0.15	51.42	-0.0326	0.0988	0.0007
18	SLU 49	3.95	0.14	51.18	-0.0294	0.0981	0.0007
18	SLU 50	4.01	0.15	51.59	-0.0327	0.0996	0.0007
18	SLU 51	3.98	0.14	51.35	-0.0295	0.0989	0.0007
18	SLU 52	3.65	0.15	52.3	-0.0283	0.0861	0.0008
18	SLU 53	3.95	0.16	54.48	-0.0354	0.094	0.0008
18	SLU 54	3.91	0.15	54.24	-0.0323	0.0933	0.0008
18	SLU 55	3.91	0.15	54.25	-0.0302	0.0937	0.0008
18	SLU 56	4.21	0.17	56.43	-0.0373	0.1016	0.0008
18	SLU 57	4.17	0.16	56.19	-0.0341	0.1009	0.0008
18	SLU 58	4.23	0.17	56.6	-0.0374	0.1024	0.0008
18	SLU 59	4.2	0.16	56.37	-0.0342	0.1018	0.0008
18	SLU 60	3.81	0.16	54.85	-0.0357	0.0884	0.0008





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
18	SLU 61	3.77	0.16	54.61	-0.0325	0.0877	0.0008
18	SLU 62	4.07	0.17	56.8	-0.0375	0.096	0.0008
18	SLU 63	4.03	0.16	56.56	-0.0343	0.0953	0.0008
18	SLU 64	3.77	0.15	50.58	-0.0324	0.0915	0.0007
18	SLU 65	3.7	0.14	50.18	-0.0271	0.0903	0.0007
18	SLU 66	4	0.15	52.36	-0.0342	0.0983	0.0008
18	SLU 67	3.96	0.15	52.12	-0.031	0.0976	0.0008
18	SLU 68	3.96	0.15	52.14	-0.0289	0.0979	0.0008
18	SLU 69	4.26	0.16	54.32	-0.036	0.1059	0.0008
18	SLU 70	4.22	0.16	54.08	-0.0329	0.1052	0.0008
18	SLU 71	4.29	0.16	54.49	-0.0361	0.1067	0.0008
18	SLU 72	4.25	0.16	54.25	-0.0329	0.106	0.0008
18	SLU 73	3.92	0.16	55.2	-0.0318	0.0931	0.0008
18	SLU 74	4.22	0.17	57.38	-0.0389	0.1011	0.0009
18	SLU 75	4.18	0.17	57.14	-0.0357	0.1004	0.0009
18	SLU 76	4.18	0.16	57.15	-0.0336	0.1008	0.0008
18	SLU 77	4.48	0.18	59.33	-0.0407	0.1087	0.0009
18	SLU 78	4.44	0.17	59.09	-0.0376	0.108	0.0009
18	SLU 79	4.51	0.18	59.5	-0.0408	0.1095	0.0009
18	SLU 80	4.47	0.17	59.27	-0.0376	0.1088	0.0009
18	SLU 81	4.08	0.17	57.75	-0.0391	0.0955	0.0009
18	SLU 82	4.04	0.17	57.51	-0.0359	0.0948	0.0009
18	SLU 83	4.34	0.18	59.7	-0.041	0.1031	0.0009
18	SLU 84	4.3	0.17	59.46	-0.0378	0.1024	0.0009
18	SLE RA 1	2.84	0.11	38.27	-0.0241	0.0688	0.0006
18	SLE RA 2	2.79	0.11	38	-0.0206	0.068	0.0005
18	SLE RA 3	2.99	0.11	39.46	-0.0253	0.0733	0.0006
18	SLE RA 4	2.97	0.11	39.3	-0.0232	0.0729	0.0006
18	SLE RA 5	2.97	0.11	39.31	-0.0219	0.0731	0.0006
18	SLE RA 6	3.17	0.12	40.76	-0.0266	0.0784	0.0006
18	SLE RA 7	3.14	0.12	40.6	-0.0245	0.078	0.0006
18	SLE RA 8	3.19	0.12	40.88	-0.0266	0.079	0.0006
18	SLE RA 9	3.16	0.12	40.72	-0.0245	0.0785	0.0006
18	SLE RA 10	2.94	0.12	41.35	-0.0238	0.0699	0.0006
18	SLE RA 11	3.14	0.13	42.8	-0.0285	0.0752	0.0006
18	SLE RA 12	3.11	0.12	42.64	-0.0264	0.0748	0.0006
18	SLE RA 13	3.12	0.12	42.65	-0.025	0.075	0.0006
18	SLE RA 14	3.31	0.13	44.11	-0.0297	0.0803	0.0007
18	SLE RA 15	3.29	0.13	43.95	-0.0276	0.0798	0.0007
18	SLE RA 16	3.33	0.13	44.22	-0.0298	0.0808	0.0007
18	SLE RA 17	3.31	0.13	44.06	-0.0276	0.0804	0.0007
18	SLE RA 18	3.05	0.13	43.05	-0.0286	0.0715	0.0006
18	SLE RA 19	3.02	0.12	42.89	-0.0265	0.071	0.0006
18	SLE RA 20	3.22	0.13	44.35	-0.0299	0.0766	0.0007
18	SLE RA 21	3.2	0.13	44.19	-0.0278	0.0761	0.0007
18	SLE FR 1	2.84	0.11	38.27	-0.0241	0.0688	0.0006
18	SLE FR 2	2.83	0.11	38.22	-0.0234	0.0687	0.0006
18	SLE FR 3	2.91	0.11	38.79	-0.0246	0.0708	0.0006
18	SLE FR 4	2.89	0.11	39.65	-0.0248	0.0695	0.0006
18	SLE FR 5	2.97	0.12	40.22	-0.026	0.0717	0.0006
18	SLE FR 6	2.94	0.12	40.66	-0.0264	0.0702	0.0006
18	SLE QP 1	2.84	0.11	38.27	-0.0241	0.0688	0.0006
18	SLE QP 2	2.9	0.12	39.7	-0.0255	0.0696	0.0006
18	SLD 1	7.64	0.06	49.92	-0.0098	0.2537	0.0004
18	SLD 2	7.64	0.06	49.92	-0.0098	0.2537	0.0004
18	SLD 3	6.55	0.03	40.6	0.0073	0.2236	0.0003
18	SLD 4	6.55	0.03	40.6	0.0073	0.2236	0.0003
18	SLD 5	5.98	0.16	56.89	-0.0467	0.1704	0.0008
18	SLD 6	5.98	0.16	56.89	-0.0467	0.1704	0.0008
18	SLD 7	2.34	0.03	25.85	0.0103	0.0703	0.0002
18	SLD 8	2.34	0.03	25.85	0.0103	0.0703	0.0002
18	SLD 9	3.46	0.2	53.56	-0.0613	0.069	0.0009
18	SLD 10	3.46	0.2	53.56	-0.0613	0.069	0.0009
18	SLD 11	-0.18	0.07	22.52	-0.0043	-0.0311	0.0004
18	SLD 12	-0.18	0.07	22.52	-0.0043	-0.0311	0.0004
18	SLD 13	-0.75	0.21	38.8	-0.0583	-0.0844	0.0009
18	SLD 14	-0.75	0.21	38.8	-0.0583	-0.0844	0.0009
18	SLD 15	-1.84	0.17	29.49	-0.0412	-0.1144	0.0007
18	SLD 16	-1.84	0.17	29.49	-0.0412	-0.1144	0.0007
18	SLV 1	13.74	-0.01	63.31	0.011	0.4906	0.0003
18	SLV 2	13.74	-0.01	63.31	0.011	0.4906	0.0003
18	SLV 3	11.24	-0.1	41.71	0.0517	0.4219	-0.0002
18	SLV 4	11.24	-0.1	41.71	0.0517	0.4219	-0.0002
18	SLV 5	9.95	0.22	79.55	-0.0763	0.3001	0.0011
18	SLV 6	9.95	0.22	79.55	-0.0763	0.3001	0.0011
18	SLV 7	1.61	-0.08	7.55	0.0594	0.0711	-0.0003
18	SLV 8	1.61	-0.08	7.55	0.0594	0.0711	-0.0003
18	SLV 9	4.19	0.32	71.86	-0.1104	0.0681	0.0014
18	SLV 10	4.19	0.32	71.86	-0.1104	0.0681	0.0014
18	SLV 11	-4.15	0.01	-0.14	0.0253	-0.1608	0
18	SLV 12	-4.15	0.01	-0.14	0.0253	-0.1608	0
18	SLV 13	-5.44	0.33	37.69	-0.1027	-0.2827	0.0013
18	SLV 14	-5.44	0.33	37.69	-0.1027	-0.2827	0.0013
18	SLV 15	-7.94	0.24	16.09	-0.0619	-0.3513	0.0009
18	SLV 16	-7.94	0.24	16.09	-0.0619	-0.3513	0.0009
19	SLU 1	-0.43	8.86	60.12	-0.2895	-0.032	0.0001
19	SLU 2	-0.42	8.65	59.26	-0.2802	-0.0311	0.0001
19	SLU 3	-0.44	9.43	63.19	-0.3108	-0.033	0.0001
19	SLU 4	-0.43	9.3	62.67	-0.3052	-0.0325	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
19	SLU 5	-0.42	9.25	62.59	-0.3027	-0.0321	0.0001
19	SLU 6	-0.44	10.03	66.52	-0.3333	-0.034	0.0001
19	SLU 7	-0.44	9.91	66	-0.3277	-0.0334	0.0001
19	SLU 8	-0.44	10.07	66.79	-0.3345	-0.0339	0.0001
19	SLU 9	-0.44	9.94	66.27	-0.3289	-0.0334	0.0001
19	SLU 10	-0.69	9.97	67.22	-0.3248	-0.0434	0.0002
19	SLU 11	-0.71	10.75	71.15	-0.3555	-0.0453	0.0002
19	SLU 12	-0.71	10.63	70.63	-0.3499	-0.0448	0.0002
19	SLU 13	-0.7	10.57	70.55	-0.3473	-0.0444	0.0002
19	SLU 14	-0.72	11.36	74.48	-0.378	-0.0463	0.0002
19	SLU 15	-0.71	11.23	73.96	-0.3724	-0.0458	0.0002
19	SLU 16	-0.72	11.39	74.75	-0.3792	-0.0463	0.0002
19	SLU 17	-0.71	11.26	74.23	-0.3736	-0.0457	0.0002
19	SLU 18	-0.82	10.75	71.5	-0.3533	-0.0496	0.0002
19	SLU 19	-0.81	10.62	70.98	-0.3477	-0.0491	0.0002
19	SLU 20	-0.83	11.35	74.83	-0.3758	-0.0506	0.0002
19	SLU 21	-0.82	11.23	74.31	-0.3702	-0.05	0.0002
19	SLU 22	-0.5	9.82	65.1	-0.3237	-0.0358	0.0001
19	SLU 23	-0.49	9.61	64.23	-0.3143	-0.035	0.0001
19	SLU 24	-0.51	10.39	68.16	-0.345	-0.0369	0.0001
19	SLU 25	-0.5	10.26	67.64	-0.3394	-0.0364	0.0001
19	SLU 26	-0.49	10.21	67.57	-0.3368	-0.036	0.0001
19	SLU 27	-0.51	10.99	71.49	-0.3675	-0.0379	0.0001
19	SLU 28	-0.51	10.87	70.97	-0.3619	-0.0373	0.0001
19	SLU 29	-0.51	11.02	71.76	-0.3687	-0.0378	0.0001
19	SLU 30	-0.51	10.9	71.24	-0.3631	-0.0373	0.0001
19	SLU 31	-0.76	10.93	72.2	-0.359	-0.0473	0.0002
19	SLU 32	-0.78	11.71	76.12	-0.3897	-0.0492	0.0002
19	SLU 33	-0.78	11.58	75.6	-0.384	-0.0487	0.0002
19	SLU 34	-0.77	11.53	75.53	-0.3815	-0.0483	0.0002
19	SLU 35	-0.79	12.31	79.45	-0.4122	-0.0502	0.0002
19	SLU 36	-0.78	12.19	78.94	-0.4065	-0.0497	0.0002
19	SLU 37	-0.79	12.35	79.72	-0.4134	-0.0502	0.0002
19	SLU 38	-0.78	12.22	79.2	-0.4077	-0.0496	0.0002
19	SLU 39	-0.89	11.71	76.47	-0.3875	-0.0535	0.0002
19	SLU 40	-0.88	11.58	75.95	-0.3819	-0.053	0.0002
19	SLU 41	-0.9	12.31	79.8	-0.41	-0.0545	0.0002
19	SLU 42	-0.89	12.18	79.28	-0.4044	-0.0539	0.0002
19	SLU 43	-0.53	11.19	76.46	-0.3647	-0.0402	0.0002
19	SLU 44	-0.52	10.98	75.59	-0.3553	-0.0393	0.0002
19	SLU 45	-0.54	11.76	79.52	-0.386	-0.0412	0.0002
19	SLU 46	-0.54	11.63	79	-0.3804	-0.0407	0.0002
19	SLU 47	-0.53	11.58	78.92	-0.3778	-0.0403	0.0002
19	SLU 48	-0.55	12.36	82.85	-0.4085	-0.0422	0.0002
19	SLU 49	-0.54	12.24	82.33	-0.4029	-0.0417	0.0002
19	SLU 50	-0.55	12.4	83.12	-0.4097	-0.0422	0.0002
19	SLU 51	-0.54	12.27	82.6	-0.4041	-0.0416	0.0002
19	SLU 52	-0.8	12.3	83.55	-0.4	-0.0517	0.0002
19	SLU 53	-0.82	13.08	87.48	-0.4306	-0.0536	0.0002
19	SLU 54	-0.81	12.96	86.96	-0.425	-0.0531	0.0002
19	SLU 55	-0.8	12.9	86.89	-0.4225	-0.0527	0.0002
19	SLU 56	-0.82	13.69	90.81	-0.4531	-0.0546	0.0002
19	SLU 57	-0.82	13.56	90.3	-0.4475	-0.054	0.0002
19	SLU 58	-0.82	13.72	91.08	-0.4543	-0.0545	0.0002
19	SLU 59	-0.82	13.59	90.56	-0.4487	-0.054	0.0002
19	SLU 60	-0.92	13.08	87.83	-0.4285	-0.0578	0.0002
19	SLU 61	-0.92	12.95	87.31	-0.4229	-0.0573	0.0002
19	SLU 62	-0.93	13.68	91.16	-0.451	-0.0588	0.0002
19	SLU 63	-0.93	13.56	90.64	-0.4454	-0.0583	0.0002
19	SLU 64	-0.6	12.15	81.43	-0.3988	-0.0441	0.0002
19	SLU 65	-0.59	11.94	80.56	-0.3895	-0.0432	0.0002
19	SLU 66	-0.61	12.72	84.49	-0.4201	-0.0451	0.0002
19	SLU 67	-0.61	12.59	83.97	-0.4145	-0.0446	0.0002
19	SLU 68	-0.6	12.54	83.9	-0.412	-0.0442	0.0002
19	SLU 69	-0.62	13.32	87.82	-0.4426	-0.0461	0.0002
19	SLU 70	-0.61	13.19	87.31	-0.437	-0.0456	0.0002
19	SLU 71	-0.62	13.35	88.09	-0.4438	-0.0461	0.0002
19	SLU 72	-0.61	13.23	87.57	-0.4382	-0.0455	0.0002
19	SLU 73	-0.87	13.26	88.53	-0.4341	-0.0556	0.0002
19	SLU 74	-0.89	14.04	92.45	-0.4648	-0.0575	0.0002
19	SLU 75	-0.88	13.91	91.94	-0.4592	-0.057	0.0002
19	SLU 76	-0.87	13.86	91.86	-0.4566	-0.0566	0.0002
19	SLU 77	-0.89	14.64	95.79	-0.4873	-0.0585	0.0002
19	SLU 78	-0.89	14.52	95.27	-0.4817	-0.0579	0.0002
19	SLU 79	-0.89	14.68	96.05	-0.4885	-0.0584	0.0002
19	SLU 80	-0.88	14.55	95.54	-0.4829	-0.0579	0.0002
19	SLU 81	-0.99	14.04	92.8	-0.4626	-0.0617	0.0002
19	SLU 82	-0.99	13.91	92.28	-0.457	-0.0612	0.0002
19	SLU 83	-1	14.64	96.13	-0.4851	-0.0627	0.0002
19	SLU 84	-1	14.51	95.62	-0.4795	-0.0622	0.0002
19	SLE RA 1	-0.45	9.13	61.54	-0.2993	-0.0331	0.0001
19	SLE RA 2	-0.44	8.99	60.97	-0.293	-0.0325	0.0001
19	SLE RA 3	-0.45	9.51	63.59	-0.3135	-0.0338	0.0001
19	SLE RA 4	-0.45	9.43	63.24	-0.3097	-0.0334	0.0001
19	SLE RA 5	-0.45	9.4	63.19	-0.308	-0.0331	0.0001
19	SLE RA 6	-0.46	9.92	65.81	-0.3285	-0.0344	0.0001
19	SLE RA 7	-0.45	9.83	65.46	-0.3247	-0.0341	0.0001
19	SLE RA 8	-0.46	9.94	65.99	-0.3293	-0.0344	0.0001
19	SLE RA 9	-0.45	9.85	65.64	-0.3255	-0.034	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
19	SLE RA 10	-0.62	9.87	66.28	-0.3228	-0.0407	0.0002
19	SLE RA 11	-0.64	10.4	68.89	-0.3433	-0.042	0.0002
19	SLE RA 12	-0.63	10.31	68.55	-0.3395	-0.0416	0.0002
19	SLE RA 13	-0.63	10.28	68.5	-0.3378	-0.0414	0.0002
19	SLE RA 14	-0.64	10.8	71.12	-0.3583	-0.0426	0.0002
19	SLE RA 15	-0.64	10.71	70.77	-0.3545	-0.0423	0.0002
19	SLE RA 16	-0.64	10.82	71.3	-0.3591	-0.0426	0.0002
19	SLE RA 17	-0.64	10.74	70.95	-0.3553	-0.0423	0.0002
19	SLE RA 18	-0.71	10.39	69.13	-0.3418	-0.0448	0.0002
19	SLE RA 19	-0.71	10.31	68.78	-0.3381	-0.0445	0.0002
19	SLE RA 20	-0.71	10.8	71.35	-0.3568	-0.0455	0.0002
19	SLE RA 21	-0.71	10.71	71	-0.3531	-0.0451	0.0002
19	SLE FR 1	-0.45	9.13	61.54	-0.2993	-0.0331	0.0001
19	SLE FR 2	-0.45	9.11	61.43	-0.298	-0.033	0.0001
19	SLE FR 3	-0.45	9.29	62.43	-0.3053	-0.0333	0.0001
19	SLE FR 4	-0.53	9.48	63.7	-0.3108	-0.0365	0.0001
19	SLE FR 5	-0.53	9.67	64.71	-0.318	-0.0369	0.0002
19	SLE FR 6	-0.58	9.76	65.34	-0.3205	-0.0389	0.0002
19	SLE QP 1	-0.45	9.13	61.54	-0.2993	-0.0331	0.0001
19	SLE QP 2	-0.53	9.51	63.82	-0.312	-0.0366	0.0002
19	SLD 1	2.72	13.18	82.61	-0.4544	0.1107	-0.0001
19	SLD 2	2.72	13.18	82.61	-0.4544	0.1107	-0.0001
19	SLD 3	3.07	9.63	66.26	-0.3066	0.1289	-0.0002
19	SLD 4	3.07	9.63	66.26	-0.3066	0.1289	-0.0002
19	SLD 5	-0.08	16	94.24	-0.5789	-0.02	0.0002
19	SLD 6	-0.08	16	94.24	-0.5789	-0.02	0.0002
19	SLD 7	1.08	4.16	39.76	-0.0862	0.0406	-0.0001
19	SLD 8	1.08	4.16	39.76	-0.0862	0.0406	-0.0001
19	SLD 9	-2.13	14.86	87.87	-0.5378	-0.1138	0.0004
19	SLD 10	-2.13	14.86	87.87	-0.5378	-0.1138	0.0004
19	SLD 11	-0.97	3.03	33.39	-0.0451	-0.0532	0.0001
19	SLD 12	-0.97	3.03	33.39	-0.0451	-0.0532	0.0001
19	SLD 13	-4.12	9.39	61.37	-0.3175	-0.2021	0.0005
19	SLD 14	-4.12	9.39	61.37	-0.3175	-0.2021	0.0005
19	SLD 15	-3.77	5.84	45.03	-0.1696	-0.1839	0.0004
19	SLD 16	-3.77	5.84	45.03	-0.1696	-0.1839	0.0004
19	SLV 1	6.9	17.97	107.3	-0.6398	0.3007	-0.0004
19	SLV 2	6.9	17.97	107.3	-0.6398	0.3007	-0.0004
19	SLV 3	7.72	9.81	69.46	-0.3004	0.3434	-0.0006
19	SLV 4	7.72	9.81	69.46	-0.3004	0.3434	-0.0006
19	SLV 5	0.46	24.43	134.25	-0.925	-0.0003	0.0002
19	SLV 6	0.46	24.43	134.25	-0.925	-0.0003	0.0002
19	SLV 7	3.19	-2.78	8.12	0.2061	0.1423	-0.0003
19	SLV 8	3.19	-2.78	8.12	0.2061	0.1423	-0.0003
19	SLV 9	-4.25	21.81	119.51	-0.8302	-0.2155	0.0006
19	SLV 10	-4.25	21.81	119.51	-0.8302	-0.2155	0.0006
19	SLV 11	-1.51	-5.41	-6.61	0.3009	-0.0729	0.0001
19	SLV 12	-1.51	-5.41	-6.61	0.3009	-0.0729	0.0001
19	SLV 13	-8.78	9.22	58.18	-0.3237	-0.4166	0.0009
19	SLV 14	-8.78	9.22	58.18	-0.3237	-0.4166	0.0009
19	SLV 15	-7.96	1.05	20.34	0.0157	-0.3739	0.0007
19	SLV 16	-7.96	1.05	20.34	0.0157	-0.3739	0.0007
20	SLU 1	-4.27	0.15	36.9	-0.0245	-0.1663	-0.0008
20	SLU 2	-4.18	0.15	36.39	-0.0265	-0.1627	-0.0008
20	SLU 3	-4.56	0.16	38.62	-0.0268	-0.1768	-0.0009
20	SLU 4	-4.5	0.16	38.32	-0.0281	-0.1747	-0.0009
20	SLU 5	-4.49	0.16	38.28	-0.0291	-0.1742	-0.0009
20	SLU 6	-4.87	0.17	40.51	-0.0294	-0.1883	-0.0009
20	SLU 7	-4.81	0.17	40.21	-0.0307	-0.1862	-0.0009
20	SLU 8	-4.89	0.17	40.68	-0.0297	-0.1893	-0.0009
20	SLU 9	-4.84	0.17	40.37	-0.0309	-0.1872	-0.0009
20	SLU 10	-5.02	0.17	40.88	-0.0296	-0.1951	-0.0009
20	SLU 11	-5.39	0.17	43.11	-0.03	-0.2093	-0.001
20	SLU 12	-5.34	0.18	42.81	-0.0312	-0.2071	-0.001
20	SLU 13	-5.33	0.18	42.77	-0.0322	-0.2066	-0.001
20	SLU 14	-5.7	0.18	45	-0.0326	-0.2208	-0.001
20	SLU 15	-5.65	0.19	44.7	-0.0338	-0.2186	-0.001
20	SLU 16	-5.73	0.19	45.17	-0.0328	-0.2217	-0.001
20	SLU 17	-5.67	0.19	44.86	-0.034	-0.2196	-0.001
20	SLU 18	-5.47	0.17	43.31	-0.0289	-0.2126	-0.001
20	SLU 19	-5.42	0.18	43.01	-0.0301	-0.2105	-0.001
20	SLU 20	-5.78	0.18	45.2	-0.0315	-0.2241	-0.001
20	SLU 21	-5.72	0.19	44.9	-0.0327	-0.222	-0.001
20	SLU 22	-4.74	0.16	39.64	-0.0273	-0.1838	-0.0009
20	SLU 23	-4.65	0.16	39.13	-0.0293	-0.1803	-0.0009
20	SLU 24	-5.02	0.17	41.36	-0.0296	-0.1944	-0.001
20	SLU 25	-4.97	0.17	41.06	-0.0309	-0.1922	-0.001
20	SLU 26	-4.96	0.17	41.02	-0.0319	-0.1918	-0.001
20	SLU 27	-5.33	0.18	43.25	-0.0322	-0.2059	-0.001
20	SLU 28	-5.28	0.18	42.95	-0.0335	-0.2038	-0.001
20	SLU 29	-5.36	0.18	43.42	-0.0325	-0.2069	-0.001
20	SLU 30	-5.31	0.18	43.11	-0.0337	-0.2047	-0.001
20	SLU 31	-5.49	0.18	43.62	-0.0324	-0.2127	-0.001
20	SLU 32	-5.86	0.19	45.85	-0.0328	-0.2268	-0.0011
20	SLU 33	-5.81	0.19	45.55	-0.034	-0.2247	-0.0011
20	SLU 34	-5.8	0.19	45.51	-0.035	-0.2242	-0.0011
20	SLU 35	-6.17	0.2	47.74	-0.0354	-0.2384	-0.0011
20	SLU 36	-6.12	0.2	47.44	-0.0366	-0.2362	-0.0011
20	SLU 37	-6.2	0.2	47.91	-0.0356	-0.2393	-0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
20	SLU 38	-6.14	0.2	47.6	-0.0368	-0.2372	-0.0011
20	SLU 39	-5.94	0.19	46.05	-0.0317	-0.2302	-0.0011
20	SLU 40	-5.88	0.19	45.75	-0.0329	-0.228	-0.0011
20	SLU 41	-6.25	0.2	47.94	-0.0343	-0.2417	-0.0011
20	SLU 42	-6.19	0.2	47.64	-0.0355	-0.2396	-0.0011
20	SLU 43	-5.39	0.18	47.03	-0.0308	-0.2101	-0.001
20	SLU 44	-5.3	0.19	46.52	-0.0329	-0.2065	-0.001
20	SLU 45	-5.68	0.19	48.75	-0.0332	-0.2207	-0.0011
20	SLU 46	-5.62	0.2	48.45	-0.0344	-0.2185	-0.0011
20	SLU 47	-5.61	0.2	48.41	-0.0355	-0.218	-0.0011
20	SLU 48	-5.99	0.2	50.64	-0.0358	-0.2322	-0.0011
20	SLU 49	-5.93	0.21	50.34	-0.037	-0.23	-0.0011
20	SLU 50	-6.01	0.2	50.81	-0.036	-0.2332	-0.0011
20	SLU 51	-5.96	0.21	50.5	-0.0373	-0.231	-0.0011
20	SLU 52	-6.14	0.21	51.01	-0.036	-0.239	-0.0011
20	SLU 53	-6.52	0.21	53.24	-0.0364	-0.2531	-0.0012
20	SLU 54	-6.46	0.22	52.94	-0.0376	-0.251	-0.0012
20	SLU 55	-6.45	0.22	52.9	-0.0386	-0.2505	-0.0012
20	SLU 56	-6.83	0.22	55.13	-0.039	-0.2646	-0.0013
20	SLU 57	-6.77	0.23	54.83	-0.0402	-0.2625	-0.0013
20	SLU 58	-6.85	0.22	55.3	-0.0392	-0.2656	-0.0013
20	SLU 59	-6.8	0.23	55	-0.0404	-0.2635	-0.0013
20	SLU 60	-6.59	0.21	53.44	-0.0353	-0.2565	-0.0012
20	SLU 61	-6.54	0.21	53.14	-0.0365	-0.2543	-0.0012
20	SLU 62	-6.9	0.22	55.33	-0.0379	-0.268	-0.0013
20	SLU 63	-6.85	0.22	55.03	-0.0391	-0.2658	-0.0013
20	SLU 64	-5.86	0.2	49.77	-0.0336	-0.2277	-0.0011
20	SLU 65	-5.77	0.2	49.26	-0.0357	-0.2241	-0.0011
20	SLU 66	-6.15	0.21	51.49	-0.036	-0.2382	-0.0012
20	SLU 67	-6.09	0.21	51.19	-0.0372	-0.2361	-0.0012
20	SLU 68	-6.08	0.21	51.15	-0.0383	-0.2356	-0.0012
20	SLU 69	-6.46	0.22	53.38	-0.0386	-0.2498	-0.0012
20	SLU 70	-6.4	0.22	53.08	-0.0398	-0.2476	-0.0012
20	SLU 71	-6.48	0.22	53.55	-0.0388	-0.2507	-0.0012
20	SLU 72	-6.43	0.22	53.24	-0.0401	-0.2486	-0.0012
20	SLU 73	-6.61	0.22	53.75	-0.0388	-0.2565	-0.0012
20	SLU 74	-6.98	0.23	55.98	-0.0392	-0.2707	-0.0013
20	SLU 75	-6.93	0.23	55.68	-0.0404	-0.2685	-0.0013
20	SLU 76	-6.92	0.23	55.64	-0.0414	-0.2681	-0.0013
20	SLU 77	-7.29	0.24	57.87	-0.0418	-0.2822	-0.0013
20	SLU 78	-7.24	0.24	57.57	-0.043	-0.2801	-0.0013
20	SLU 79	-7.32	0.24	58.04	-0.042	-0.2832	-0.0013
20	SLU 80	-7.26	0.24	57.73	-0.0432	-0.281	-0.0013
20	SLU 81	-7.06	0.23	56.18	-0.0381	-0.274	-0.0013
20	SLU 82	-7	0.23	55.88	-0.0393	-0.2719	-0.0013
20	SLU 83	-7.37	0.24	58.07	-0.0407	-0.2856	-0.0013
20	SLU 84	-7.31	0.24	57.77	-0.0419	-0.2834	-0.0013
20	SLE RA 1	-4.41	0.15	37.68	-0.0253	-0.1713	-0.0008
20	SLE RA 2	-4.35	0.15	37.34	-0.0266	-0.1689	-0.0008
20	SLE RA 3	-4.6	0.16	38.83	-0.0269	-0.1783	-0.0009
20	SLE RA 4	-4.56	0.16	38.63	-0.0277	-0.1769	-0.0009
20	SLE RA 5	-4.55	0.16	38.6	-0.0283	-0.1766	-0.0009
20	SLE RA 6	-4.8	0.16	40.09	-0.0286	-0.186	-0.0009
20	SLE RA 7	-4.77	0.16	39.89	-0.0294	-0.1846	-0.0009
20	SLE RA 8	-4.82	0.16	40.2	-0.0287	-0.1866	-0.0009
20	SLE RA 9	-4.78	0.16	40	-0.0295	-0.1852	-0.0009
20	SLE RA 10	-4.9	0.17	40.34	-0.0287	-0.1905	-0.0009
20	SLE RA 11	-5.15	0.17	41.82	-0.0289	-0.2	-0.001
20	SLE RA 12	-5.12	0.17	41.62	-0.0297	-0.1985	-0.001
20	SLE RA 13	-5.11	0.17	41.6	-0.0304	-0.1982	-0.001
20	SLE RA 14	-5.36	0.18	43.08	-0.0307	-0.2076	-0.001
20	SLE RA 15	-5.32	0.18	42.88	-0.0315	-0.2062	-0.001
20	SLE RA 16	-5.38	0.18	43.2	-0.0308	-0.2083	-0.001
20	SLE RA 17	-5.34	0.18	42.99	-0.0316	-0.2068	-0.001
20	SLE RA 18	-5.2	0.17	41.96	-0.0282	-0.2022	-0.0009
20	SLE RA 19	-5.17	0.17	41.75	-0.0291	-0.2007	-0.0009
20	SLE RA 20	-5.41	0.18	43.22	-0.03	-0.2099	-0.001
20	SLE RA 21	-5.37	0.18	43.01	-0.0308	-0.2084	-0.001
20	SLE FR 1	-4.41	0.15	37.68	-0.0253	-0.1713	-0.0008
20	SLE FR 2	-4.39	0.15	37.61	-0.0255	-0.1708	-0.0008
20	SLE FR 3	-4.49	0.15	38.18	-0.026	-0.1743	-0.0009
20	SLE FR 4	-4.63	0.16	38.9	-0.0264	-0.1801	-0.0009
20	SLE FR 5	-4.73	0.16	39.47	-0.0269	-0.1836	-0.0009
20	SLE FR 6	-4.81	0.16	39.82	-0.0268	-0.1867	-0.0009
20	SLE QP 1	-4.41	0.15	37.68	-0.0253	-0.1713	-0.0008
20	SLE QP 2	-4.65	0.16	38.96	-0.0262	-0.1805	-0.0009
20	SLD 1	-2.62	0.21	50.02	-0.0535	-0.0857	-0.0012
20	SLD 2	-2.62	0.21	50.02	-0.0535	-0.0857	-0.0012
20	SLD 3	-0.92	0.17	40.97	-0.0314	-0.0213	-0.0009
20	SLD 4	-0.92	0.17	40.97	-0.0314	-0.0213	-0.0009
20	SLD 5	-6.62	0.23	56	-0.0679	-0.2497	-0.0014
20	SLD 6	-6.62	0.23	56	-0.0679	-0.2497	-0.0014
20	SLD 7	-0.95	0.1	25.84	0.0058	-0.0351	-0.0005
20	SLD 8	-0.95	0.1	25.84	0.0058	-0.0351	-0.0005
20	SLD 9	-8.35	0.21	52.08	-0.0581	-0.326	-0.0013
20	SLD 10	-8.35	0.21	52.08	-0.0581	-0.326	-0.0013
20	SLD 11	-2.67	0.08	21.93	0.0156	-0.1114	-0.0004
20	SLD 12	-2.67	0.08	21.93	0.0156	-0.1114	-0.0004
20	SLD 13	-8.37	0.14	36.96	-0.0209	-0.3398	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
20	SLD 14	-8.37	0.14	36.96	-0.0209	-0.3398	-0.0008
20	SLD 15	-6.67	0.1	27.91	0.0012	-0.2754	-0.0005
20	SLD 16	-6.67	0.1	27.91	0.0012	-0.2754	-0.0005
20	SLV 1	0.03	0.28	64.63	-0.0895	0.0382	-0.0016
20	SLV 2	0.03	0.28	64.63	-0.0895	0.0382	-0.0016
20	SLV 3	3.97	0.18	43.63	-0.0393	0.1877	-0.001
20	SLV 4	3.97	0.18	43.63	-0.0393	0.1877	-0.001
20	SLV 5	-9.23	0.33	78.52	-0.1214	-0.3415	-0.0021
20	SLV 6	-9.23	0.33	78.52	-0.1214	-0.3415	-0.0021
20	SLV 7	3.92	0.02	8.51	0.0461	0.1565	0
20	SLV 8	3.92	0.02	8.51	0.0461	0.1565	0
20	SLV 9	-13.22	0.29	69.42	-0.0984	-0.5176	-0.0018
20	SLV 10	-13.22	0.29	69.42	-0.0984	-0.5176	-0.0018
20	SLV 11	-0.06	-0.02	-0.59	0.069	-0.0196	0.0003
20	SLV 12	-0.06	-0.02	-0.59	0.069	-0.0196	0.0003
20	SLV 13	-13.26	0.13	34.3	-0.013	-0.5488	-0.0007
20	SLV 14	-13.26	0.13	34.3	-0.013	-0.5488	-0.0007
20	SLV 15	-9.32	0.03	13.29	0.0372	-0.3993	-0.0001
20	SLV 16	-9.32	0.03	13.29	0.0372	-0.3993	-0.0001
21	SLU 1	-4.87	0	32.13	0.0141	-0.1855	0
21	SLU 2	-4.81	0.01	31.68	0.0096	-0.183	-0.0001
21	SLU 3	-5.19	0	33.46	0.0135	-0.1976	0
21	SLU 4	-5.16	0.01	33.19	0.0108	-0.1961	-0.0001
21	SLU 5	-5.16	0.01	33.15	0.0089	-0.1964	-0.0001
21	SLU 6	-5.55	0	34.92	0.0128	-0.211	0
21	SLU 7	-5.51	0.01	34.66	0.0101	-0.2095	-0.0001
21	SLU 8	-5.58	0	35.06	0.0127	-0.2122	0
21	SLU 9	-5.55	0.01	34.79	0.01	-0.2107	-0.0001
21	SLU 10	-5.71	0.01	35.22	0.0121	-0.2173	-0.0001
21	SLU 11	-6.1	0	37	0.016	-0.2319	0
21	SLU 12	-6.06	0	36.73	0.0133	-0.2304	-0.0001
21	SLU 13	-6.07	0.01	36.69	0.0114	-0.2307	-0.0001
21	SLU 14	-6.46	0	38.46	0.0153	-0.2453	0
21	SLU 15	-6.42	0.01	38.2	0.0126	-0.2438	-0.0001
21	SLU 16	-6.49	0	38.6	0.0151	-0.2465	0
21	SLU 17	-6.45	0.01	38.33	0.0125	-0.245	-0.0001
21	SLU 18	-6.16	0	37.19	0.0176	-0.2345	0
21	SLU 19	-6.12	0	36.92	0.0149	-0.233	0
21	SLU 20	-6.52	0	38.65	0.0169	-0.2479	0
21	SLU 21	-6.48	0	38.38	0.0142	-0.2464	-0.0001
21	SLU 22	-5.38	0	34.27	0.0149	-0.2048	0
21	SLU 23	-5.32	0.01	33.82	0.0105	-0.2023	-0.0001
21	SLU 24	-5.71	0	35.6	0.0144	-0.2169	0
21	SLU 25	-5.67	0.01	35.33	0.0117	-0.2154	-0.0001
21	SLU 26	-5.68	0.01	35.28	0.0098	-0.2157	-0.0001
21	SLU 27	-6.06	0	37.06	0.0137	-0.2302	0
21	SLU 28	-6.03	0.01	36.79	0.011	-0.2288	-0.0001
21	SLU 29	-6.1	0	37.19	0.0135	-0.2315	0
21	SLU 30	-6.06	0.01	36.93	0.0108	-0.23	-0.0001
21	SLU 31	-6.23	0.01	37.36	0.0129	-0.2366	-0.0001
21	SLU 32	-6.61	0	39.14	0.0168	-0.2512	0
21	SLU 33	-6.58	0.01	38.87	0.0142	-0.2497	-0.0001
21	SLU 34	-6.58	0.01	38.82	0.0122	-0.25	-0.0001
21	SLU 35	-6.97	0	40.6	0.0161	-0.2646	0
21	SLU 36	-6.93	0.01	40.33	0.0135	-0.2631	-0.0001
21	SLU 37	-7	0	40.73	0.016	-0.2658	0
21	SLU 38	-6.97	0.01	40.47	0.0133	-0.2643	-0.0001
21	SLU 39	-6.68	0	39.32	0.0185	-0.2538	0
21	SLU 40	-6.64	0	39.06	0.0158	-0.2523	0
21	SLU 41	-7.03	0	40.79	0.0178	-0.2672	0
21	SLU 42	-7	0	40.52	0.0151	-0.2657	-0.0001
21	SLU 43	-6.15	0	41.04	0.018	-0.2345	0
21	SLU 44	-6.09	0.01	40.59	0.0135	-0.2321	-0.0001
21	SLU 45	-6.48	0	42.37	0.0174	-0.2466	0
21	SLU 46	-6.44	0.01	42.1	0.0147	-0.2452	-0.0001
21	SLU 47	-6.45	0.01	42.05	0.0128	-0.2454	-0.0001
21	SLU 48	-6.83	0	43.83	0.0167	-0.26	0
21	SLU 49	-6.8	0.01	43.56	0.014	-0.2585	-0.0001
21	SLU 50	-6.87	0	43.96	0.0166	-0.2612	0
21	SLU 51	-6.83	0.01	43.69	0.0139	-0.2598	-0.0001
21	SLU 52	-7	0.01	44.13	0.016	-0.2664	-0.0001
21	SLU 53	-7.38	0	45.91	0.0199	-0.281	0
21	SLU 54	-7.35	0	45.64	0.0172	-0.2795	-0.0001
21	SLU 55	-7.35	0.01	45.59	0.0153	-0.2797	-0.0001
21	SLU 56	-7.74	0	47.37	0.0192	-0.2943	0
21	SLU 57	-7.7	0.01	47.1	0.0165	-0.2928	-0.0001
21	SLU 58	-7.77	0	47.5	0.0191	-0.2956	0
21	SLU 59	-7.74	0.01	47.23	0.0164	-0.2941	-0.0001
21	SLU 60	-7.45	0	46.09	0.0215	-0.2836	0
21	SLU 61	-7.41	0	45.83	0.0188	-0.2821	0
21	SLU 62	-7.8	0	47.56	0.0208	-0.2969	0
21	SLU 63	-7.77	0	47.29	0.0181	-0.2954	-0.0001
21	SLU 64	-6.67	0	43.17	0.0189	-0.2538	0
21	SLU 65	-6.6	0.01	42.73	0.0144	-0.2513	-0.0001
21	SLU 66	-6.99	0	44.51	0.0183	-0.2659	0
21	SLU 67	-6.95	0.01	44.24	0.0156	-0.2644	-0.0001
21	SLU 68	-6.96	0.01	44.19	0.0137	-0.2647	-0.0001
21	SLU 69	-7.35	0	45.97	0.0176	-0.2793	0
21	SLU 70	-7.31	0.01	45.7	0.0149	-0.2778	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
21	SLU 71	-7.38	0	46.1	0.0175	-0.2805	0
21	SLU 72	-7.35	0.01	45.83	0.0148	-0.279	-0.0001
21	SLU 73	-7.51	0.01	46.27	0.0169	-0.2857	-0.0001
21	SLU 74	-7.9	0	48.05	0.0208	-0.3002	0
21	SLU 75	-7.86	0	47.78	0.0181	-0.2988	-0.0001
21	SLU 76	-7.87	0.01	47.73	0.0162	-0.299	-0.0001
21	SLU 77	-8.25	0	49.51	0.0201	-0.3136	0
21	SLU 78	-8.22	0.01	49.24	0.0174	-0.3121	-0.0001
21	SLU 79	-8.29	0	49.64	0.0199	-0.3148	0
21	SLU 80	-8.25	0.01	49.37	0.0172	-0.3134	-0.0001
21	SLU 81	-7.96	0	48.23	0.0224	-0.3028	0
21	SLU 82	-7.92	0	47.96	0.0197	-0.3014	-0.0001
21	SLU 83	-8.32	0	49.69	0.0217	-0.3162	0
21	SLU 84	-8.28	0	49.43	0.019	-0.3147	-0.0001
21	SLE RA 1	-5.01	0	32.74	0.0143	-0.191	0
21	SLE RA 2	-4.97	0.01	32.44	0.0113	-0.1894	-0.0001
21	SLE RA 3	-5.23	0	33.63	0.0139	-0.1991	0
21	SLE RA 4	-5.21	0	33.45	0.0122	-0.1981	0
21	SLE RA 5	-5.21	0.01	33.42	0.0109	-0.1983	-0.0001
21	SLE RA 6	-5.47	0	34.6	0.0135	-0.208	0
21	SLE RA 7	-5.45	0.01	34.43	0.0117	-0.207	-0.0001
21	SLE RA 8	-5.49	0	34.69	0.0134	-0.2088	0
21	SLE RA 9	-5.47	0.01	34.51	0.0116	-0.2078	-0.0001
21	SLE RA 10	-5.58	0	34.8	0.013	-0.2122	-0.0001
21	SLE RA 11	-5.83	0	35.99	0.0156	-0.222	0
21	SLE RA 12	-5.81	0	35.81	0.0138	-0.221	0
21	SLE RA 13	-5.82	0.01	35.78	0.0125	-0.2211	-0.0001
21	SLE RA 14	-6.07	0	36.96	0.0151	-0.2309	0
21	SLE RA 15	-6.05	0	36.79	0.0133	-0.2299	-0.0001
21	SLE RA 16	-6.1	0	37.05	0.015	-0.2317	0
21	SLE RA 17	-6.07	0	36.87	0.0132	-0.2307	-0.0001
21	SLE RA 18	-5.88	0	36.11	0.0167	-0.2237	0
21	SLE RA 19	-5.85	0	35.93	0.0149	-0.2227	0
21	SLE RA 20	-6.12	0	37.09	0.0162	-0.2326	0
21	SLE RA 21	-6.09	0	36.91	0.0144	-0.2316	0
21	SLE FR 1	-5.01	0	32.74	0.0143	-0.191	0
21	SLE FR 2	-5.01	0	32.68	0.0137	-0.1907	0
21	SLE FR 3	-5.11	0	33.13	0.0141	-0.1946	0
21	SLE FR 4	-5.26	0	33.69	0.0144	-0.2005	0
21	SLE FR 5	-5.37	0	34.14	0.0148	-0.2044	0
21	SLE FR 6	-5.45	0	34.43	0.0155	-0.2073	0
21	SLE QP 1	-5.01	0	32.74	0.0143	-0.191	0
21	SLE QP 2	-5.27	0	33.75	0.015	-0.2008	0
21	SLD 1	-3.06	0.06	31.57	-0.0357	-0.0895	-0.0003
21	SLD 2	-3.06	0.06	31.57	-0.0357	-0.0895	-0.0003
21	SLD 3	-1.34	0.03	24.56	-0.0098	-0.0243	-0.0002
21	SLD 4	-1.34	0.03	24.56	-0.0098	-0.0243	-0.0002
21	SLD 5	-7.23	0.05	43.74	-0.0394	-0.2664	-0.0003
21	SLD 6	-7.23	0.05	43.74	-0.0394	-0.2664	-0.0003
21	SLD 7	-1.47	-0.03	20.35	0.0468	-0.0489	0.0001
21	SLD 8	-1.47	-0.03	20.35	0.0468	-0.0489	0.0001
21	SLD 9	-9.07	0.02	47.16	-0.0168	-0.3527	-0.0001
21	SLD 10	-9.07	0.02	47.16	-0.0168	-0.3527	-0.0001
21	SLD 11	-3.32	-0.05	23.76	0.0695	-0.1353	0.0002
21	SLD 12	-3.32	-0.05	23.76	0.0695	-0.1353	0.0002
21	SLD 13	-9.21	-0.04	42.95	0.0399	-0.3774	0.0002
21	SLD 14	-9.21	-0.04	42.95	0.0399	-0.3774	0.0002
21	SLD 15	-7.48	-0.06	35.93	0.0657	-0.3121	0.0003
21	SLD 16	-7.48	-0.06	35.93	0.0657	-0.3121	0.0003
21	SLV 1	-0.16	0.14	28.66	-0.1029	0.0562	-0.0007
21	SLV 2	-0.16	0.14	28.66	-0.1029	0.0562	-0.0007
21	SLV 3	3.85	0.08	12.33	-0.0438	0.2079	-0.0005
21	SLV 4	3.85	0.08	12.33	-0.0438	0.2079	-0.0005
21	SLV 5	-9.82	0.12	57	-0.1099	-0.3538	-0.0007
21	SLV 6	-9.82	0.12	57	-0.1099	-0.3538	-0.0007
21	SLV 7	3.55	-0.06	2.55	0.0869	0.1519	0.0003
21	SLV 8	3.55	-0.06	2.55	0.0869	0.1519	0.0003
21	SLV 9	-14.09	0.06	64.96	-0.0569	-0.5535	-0.0003
21	SLV 10	-14.09	0.06	64.96	-0.0569	-0.5535	-0.0003
21	SLV 11	-0.72	-0.13	10.5	0.1399	-0.0478	0.0006
21	SLV 12	-0.72	-0.13	10.5	0.1399	-0.0478	0.0006
21	SLV 13	-14.4	-0.09	55.18	0.0739	-0.6095	0.0004
21	SLV 14	-14.4	-0.09	55.18	0.0739	-0.6095	0.0004
21	SLV 15	-10.38	-0.14	38.84	0.1329	-0.4578	0.0007
21	SLV 16	-10.38	-0.14	38.84	0.1329	-0.4578	0.0007
22	SLU 1	-5.11	-0.07	28.4	0.0435	-0.2137	0.0005
22	SLU 2	-5.1	-0.06	27.94	0.0383	-0.2126	0.0004
22	SLU 3	-5.46	-0.07	29.42	0.0442	-0.2276	0.0005
22	SLU 4	-5.45	-0.06	29.14	0.041	-0.227	0.0004
22	SLU 5	-5.48	-0.06	29.05	0.0388	-0.228	0.0004
22	SLU 6	-5.84	-0.07	30.53	0.0447	-0.243	0.0005
22	SLU 7	-5.83	-0.07	30.25	0.0416	-0.2423	0.0004
22	SLU 8	-5.88	-0.07	30.62	0.0447	-0.2445	0.0005
22	SLU 9	-5.87	-0.07	30.34	0.0415	-0.2438	0.0004
22	SLU 10	-6.03	-0.07	30.69	0.0444	-0.2505	0.0005
22	SLU 11	-6.39	-0.08	32.16	0.0503	-0.2655	0.0006
22	SLU 12	-6.38	-0.07	31.89	0.0471	-0.2648	0.0005
22	SLU 13	-6.41	-0.07	31.8	0.045	-0.2659	0.0005
22	SLU 14	-6.77	-0.08	33.27	0.0509	-0.2809	0.0006



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
22	SLU 15	-6.76	-0.08	32.99	0.0477	-0.2802	0.0005
22	SLU 16	-6.81	-0.08	33.37	0.0508	-0.2824	0.0006
22	SLU 17	-6.8	-0.08	33.09	0.0476	-0.2817	0.0005
22	SLU 18	-6.44	-0.08	32.33	0.0523	-0.2679	0.0006
22	SLU 19	-6.43	-0.08	32.05	0.0491	-0.2672	0.0005
22	SLU 20	-6.82	-0.08	33.44	0.0528	-0.2832	0.0006
22	SLU 21	-6.81	-0.08	33.16	0.0497	-0.2826	0.0005
22	SLU 22	-5.65	-0.07	30.06	0.0468	-0.2355	0.0005
22	SLU 23	-5.64	-0.06	29.6	0.0415	-0.2344	0.0004
22	SLU 24	-6	-0.08	31.07	0.0474	-0.2494	0.0005
22	SLU 25	-5.99	-0.07	30.8	0.0443	-0.2488	0.0005
22	SLU 26	-6.02	-0.07	30.71	0.0421	-0.2498	0.0004
22	SLU 27	-6.38	-0.08	32.18	0.048	-0.2648	0.0005
22	SLU 28	-6.37	-0.07	31.9	0.0449	-0.2641	0.0005
22	SLU 29	-6.42	-0.08	32.28	0.0479	-0.2663	0.0005
22	SLU 30	-6.41	-0.07	32	0.0448	-0.2656	0.0005
22	SLU 31	-6.56	-0.07	32.34	0.0477	-0.2723	0.0005
22	SLU 32	-6.93	-0.08	33.82	0.0536	-0.2873	0.0006
22	SLU 33	-6.92	-0.08	33.54	0.0504	-0.2866	0.0005
22	SLU 34	-6.95	-0.08	33.45	0.0482	-0.2877	0.0005
22	SLU 35	-7.31	-0.09	34.93	0.0541	-0.3027	0.0006
22	SLU 36	-7.3	-0.08	34.65	0.051	-0.302	0.0005
22	SLU 37	-7.35	-0.09	35.02	0.0541	-0.3042	0.0006
22	SLU 38	-7.34	-0.08	34.75	0.0509	-0.3035	0.0005
22	SLU 39	-6.98	-0.09	33.98	0.0555	-0.2897	0.0006
22	SLU 40	-6.97	-0.08	33.71	0.0524	-0.289	0.0006
22	SLU 41	-7.36	-0.09	35.09	0.0561	-0.305	0.0006
22	SLU 42	-7.35	-0.08	34.82	0.053	-0.3044	0.0006
22	SLU 43	-6.46	-0.09	36.35	0.0554	-0.2704	0.0006
22	SLU 44	-6.45	-0.08	35.89	0.0502	-0.2693	0.0005
22	SLU 45	-6.81	-0.09	37.37	0.0561	-0.2843	0.0006
22	SLU 46	-6.8	-0.08	37.09	0.0529	-0.2836	0.0006
22	SLU 47	-6.83	-0.08	37	0.0508	-0.2847	0.0005
22	SLU 48	-7.19	-0.09	38.48	0.0567	-0.2996	0.0006
22	SLU 49	-7.18	-0.09	38.2	0.0535	-0.299	0.0006
22	SLU 50	-7.23	-0.09	38.57	0.0566	-0.3011	0.0006
22	SLU 51	-7.22	-0.09	38.3	0.0534	-0.3005	0.0006
22	SLU 52	-7.38	-0.09	38.64	0.0563	-0.3072	0.0006
22	SLU 53	-7.74	-0.1	40.11	0.0622	-0.3221	0.0007
22	SLU 54	-7.73	-0.09	39.84	0.0591	-0.3215	0.0006
22	SLU 55	-7.76	-0.09	39.75	0.0569	-0.3225	0.0006
22	SLU 56	-8.12	-0.1	41.22	0.0628	-0.3375	0.0007
22	SLU 57	-8.11	-0.09	40.95	0.0597	-0.3369	0.0006
22	SLU 58	-8.16	-0.1	41.32	0.0627	-0.339	0.0007
22	SLU 59	-8.15	-0.09	41.04	0.0596	-0.3384	0.0006
22	SLU 60	-7.79	-0.1	40.28	0.0642	-0.3245	0.0007
22	SLU 61	-7.78	-0.1	40	0.061	-0.3238	0.0007
22	SLU 62	-8.17	-0.1	41.39	0.0648	-0.3399	0.0007
22	SLU 63	-8.16	-0.1	41.11	0.0616	-0.3392	0.0007
22	SLU 64	-7	-0.09	38.01	0.0587	-0.2922	0.0006
22	SLU 65	-6.98	-0.08	37.55	0.0535	-0.2911	0.0006
22	SLU 66	-7.35	-0.09	39.03	0.0594	-0.3061	0.0007
22	SLU 67	-7.34	-0.09	38.75	0.0562	-0.3054	0.0006
22	SLU 68	-7.37	-0.09	38.66	0.054	-0.3065	0.0006
22	SLU 69	-7.73	-0.1	40.13	0.0599	-0.3214	0.0007
22	SLU 70	-7.72	-0.09	39.86	0.0568	-0.3208	0.0006
22	SLU 71	-7.77	-0.1	40.23	0.0599	-0.3229	0.0007
22	SLU 72	-7.76	-0.09	39.95	0.0567	-0.3223	0.0006
22	SLU 73	-7.91	-0.09	40.3	0.0596	-0.329	0.0006
22	SLU 74	-8.28	-0.1	41.77	0.0655	-0.3439	0.0007
22	SLU 75	-8.27	-0.1	41.49	0.0623	-0.3433	0.0007
22	SLU 76	-8.3	-0.09	41.41	0.0602	-0.3443	0.0006
22	SLU 77	-8.66	-0.1	42.88	0.0661	-0.3593	0.0007
22	SLU 78	-8.65	-0.1	42.6	0.0629	-0.3587	0.0007
22	SLU 79	-8.7	-0.1	42.98	0.066	-0.3608	0.0007
22	SLU 80	-8.69	-0.1	42.7	0.0628	-0.3602	0.0007
22	SLU 81	-8.33	-0.11	41.94	0.0675	-0.3463	0.0007
22	SLU 82	-8.32	-0.1	41.66	0.0643	-0.3456	0.0007
22	SLU 83	-8.71	-0.11	43.04	0.068	-0.3617	0.0007
22	SLU 84	-8.7	-0.1	42.77	0.0649	-0.361	0.0007
22	SLE RA 1	-5.27	-0.07	28.88	0.0444	-0.22	0.0005
22	SLE RA 2	-5.26	-0.06	28.57	0.0409	-0.2192	0.0004
22	SLE RA 3	-5.5	-0.07	29.55	0.0449	-0.2292	0.0005
22	SLE RA 4	-5.49	-0.07	29.37	0.0428	-0.2288	0.0005
22	SLE RA 5	-5.51	-0.07	29.31	0.0413	-0.2295	0.0004
22	SLE RA 6	-5.75	-0.07	30.29	0.0453	-0.2395	0.0005
22	SLE RA 7	-5.75	-0.07	30.11	0.0432	-0.239	0.0005
22	SLE RA 8	-5.78	-0.07	30.35	0.0452	-0.2405	0.0005
22	SLE RA 9	-5.77	-0.07	30.17	0.0431	-0.24	0.0005
22	SLE RA 10	-5.88	-0.07	30.4	0.045	-0.2445	0.0005
22	SLE RA 11	-6.12	-0.08	31.38	0.049	-0.2545	0.0005
22	SLE RA 12	-6.11	-0.07	31.2	0.0469	-0.254	0.0005
22	SLE RA 13	-6.13	-0.07	31.14	0.0454	-0.2547	0.0005
22	SLE RA 14	-6.37	-0.08	32.12	0.0494	-0.2647	0.0005
22	SLE RA 15	-6.37	-0.07	31.94	0.0473	-0.2643	0.0005
22	SLE RA 16	-6.4	-0.08	32.19	0.0493	-0.2657	0.0005
22	SLE RA 17	-6.39	-0.07	32	0.0472	-0.2653	0.0005
22	SLE RA 18	-6.15	-0.08	31.49	0.0503	-0.256	0.0006
22	SLE RA 19	-6.15	-0.08	31.31	0.0482	-0.2556	0.0005



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
22	SLE RA 20	-6.41	-0.08	32.23	0.0507	-0.2663	0.0006
22	SLE RA 21	-6.4	-0.08	32.05	0.0486	-0.2659	0.0005
22	SLE FR 1	-5.27	-0.07	28.88	0.0444	-0.22	0.0005
22	SLE FR 2	-5.26	-0.07	28.81	0.0437	-0.2198	0.0005
22	SLE FR 3	-5.37	-0.07	29.17	0.0446	-0.2241	0.0005
22	SLE FR 4	-5.53	-0.07	29.6	0.0455	-0.2306	0.0005
22	SLE FR 5	-5.63	-0.07	29.96	0.0463	-0.2349	0.0005
22	SLE FR 6	-5.71	-0.08	30.18	0.0474	-0.238	0.0005
22	SLE QP 1	-5.27	-0.07	28.88	0.0444	-0.22	0.0005
22	SLE QP 2	-5.53	-0.07	29.66	0.0462	-0.2308	0.0005
22	SLD 1	-3.25	-0.02	27.44	0.0101	-0.1278	0.0001
22	SLD 2	-3.25	-0.02	27.44	0.0101	-0.1278	0.0001
22	SLD 3	-1.54	0.02	21.78	-0.0246	-0.0565	-0.0002
22	SLD 4	-1.54	0.02	21.78	-0.0246	-0.0565	-0.0002
22	SLD 5	-7.45	-0.12	37.57	0.0879	-0.3082	0.0008
22	SLD 6	-7.45	-0.12	37.57	0.0879	-0.3082	0.0008
22	SLD 7	-1.74	0.02	18.72	-0.0276	-0.0702	-0.0001
22	SLD 8	-1.74	0.02	18.72	-0.0276	-0.0702	-0.0001
22	SLD 9	-9.33	-0.16	40.61	0.12	-0.3913	0.0011
22	SLD 10	-9.33	-0.16	40.61	0.12	-0.3913	0.0011
22	SLD 11	-3.62	-0.03	21.75	0.0044	-0.1534	0.0002
22	SLD 12	-3.62	-0.03	21.75	0.0044	-0.1534	0.0002
22	SLD 13	-9.53	-0.17	37.54	0.117	-0.4051	0.0012
22	SLD 14	-9.53	-0.17	37.54	0.117	-0.4051	0.0012
22	SLD 15	-7.81	-0.13	31.88	0.0823	-0.3337	0.0009
22	SLD 16	-7.81	-0.13	31.88	0.0823	-0.3337	0.0009
22	SLV 1	-0.25	0.06	24.45	-0.039	0.0074	-0.0004
22	SLV 2	-0.25	0.06	24.45	-0.039	0.0074	-0.0004
22	SLV 3	3.73	0.15	11.25	-0.1181	0.1733	-0.001
22	SLV 4	3.73	0.15	11.25	-0.1181	0.1733	-0.001
22	SLV 5	-9.99	-0.17	48.12	0.1406	-0.4109	0.0012
22	SLV 6	-9.99	-0.17	48.12	0.1406	-0.4109	0.0012
22	SLV 7	3.29	0.13	4.12	-0.1231	0.142	-0.0009
22	SLV 8	3.29	0.13	4.12	-0.1231	0.142	-0.0009
22	SLV 9	-14.35	-0.28	55.2	0.2155	-0.6036	0.002
22	SLV 10	-14.35	-0.28	55.2	0.2155	-0.6036	0.002
22	SLV 11	-1.08	0.03	11.2	-0.0483	-0.0507	-0.0002
22	SLV 12	-1.08	0.03	11.2	-0.0483	-0.0507	-0.0002
22	SLV 13	-14.8	-0.3	48.07	0.2105	-0.6349	0.0021
22	SLV 14	-14.8	-0.3	48.07	0.2105	-0.6349	0.0021
22	SLV 15	-10.81	-0.2	34.87	0.1314	-0.469	0.0014
22	SLV 16	-10.81	-0.2	34.87	0.1314	-0.469	0.0014
23	SLU 1	-4.43	-0.1	25.38	0.0603	-0.1766	0.0008
23	SLU 2	-4.49	-0.1	24.83	0.0556	-0.1785	0.0008
23	SLU 3	-4.74	-0.11	26.1	0.0616	-0.1887	0.0008
23	SLU 4	-4.78	-0.1	25.77	0.0587	-0.1899	0.0008
23	SLU 5	-4.83	-0.1	25.62	0.0568	-0.192	0.0008
23	SLU 6	-5.09	-0.11	26.89	0.0628	-0.2021	0.0009
23	SLU 7	-5.12	-0.1	26.56	0.0599	-0.2033	0.0008
23	SLU 8	-5.12	-0.11	26.95	0.0627	-0.2035	0.0009
23	SLU 9	-5.16	-0.1	26.62	0.0599	-0.2046	0.0008
23	SLU 10	-5.3	-0.11	26.87	0.0633	-0.2103	0.0009
23	SLU 11	-5.56	-0.12	28.14	0.0693	-0.2205	0.0009
23	SLU 12	-5.59	-0.11	27.82	0.0664	-0.2216	0.0009
23	SLU 13	-5.65	-0.11	27.66	0.0645	-0.2238	0.0009
23	SLU 14	-5.9	-0.12	28.93	0.0705	-0.2339	0.001
23	SLU 15	-5.94	-0.12	28.6	0.0676	-0.2351	0.0009
23	SLU 16	-5.94	-0.12	29	0.0704	-0.2353	0.001
23	SLU 17	-5.98	-0.12	28.67	0.0676	-0.2364	0.0009
23	SLU 18	-5.6	-0.12	28.29	0.0713	-0.222	0.001
23	SLU 19	-5.63	-0.12	27.96	0.0685	-0.2232	0.0009
23	SLU 20	-5.94	-0.12	29.08	0.0725	-0.2354	0.001
23	SLU 21	-5.98	-0.12	28.75	0.0697	-0.2366	0.0009
23	SLU 22	-4.91	-0.11	26.6	0.0647	-0.1954	0.0009
23	SLU 23	-4.97	-0.1	26.06	0.06	-0.1973	0.0008
23	SLU 24	-5.22	-0.11	27.33	0.066	-0.2074	0.0009
23	SLU 25	-5.26	-0.11	27	0.0631	-0.2086	0.0009
23	SLU 26	-5.32	-0.1	26.84	0.0612	-0.2107	0.0008
23	SLU 27	-5.57	-0.11	28.12	0.0672	-0.2209	0.0009
23	SLU 28	-5.61	-0.11	27.79	0.0643	-0.222	0.0009
23	SLU 29	-5.61	-0.11	28.18	0.0671	-0.2222	0.0009
23	SLU 30	-5.64	-0.11	27.85	0.0643	-0.2234	0.0009
23	SLU 31	-5.79	-0.11	28.1	0.0677	-0.2291	0.0009
23	SLU 32	-6.04	-0.12	29.37	0.0737	-0.2392	0.001
23	SLU 33	-6.08	-0.12	29.04	0.0708	-0.2404	0.001
23	SLU 34	-6.14	-0.12	28.89	0.0689	-0.2425	0.0009
23	SLU 35	-6.39	-0.13	30.16	0.0749	-0.2526	0.001
23	SLU 36	-6.42	-0.12	29.83	0.072	-0.2538	0.001
23	SLU 37	-6.42	-0.13	30.22	0.0748	-0.254	0.001
23	SLU 38	-6.46	-0.12	29.89	0.072	-0.2552	0.001
23	SLU 39	-6.08	-0.13	29.52	0.0757	-0.2408	0.001
23	SLU 40	-6.11	-0.12	29.19	0.0729	-0.2419	0.001
23	SLU 41	-6.43	-0.13	30.31	0.0769	-0.2542	0.001
23	SLU 42	-6.46	-0.12	29.98	0.0741	-0.2553	0.001
23	SLU 43	-5.59	-0.13	32.57	0.0769	-0.2232	0.0011
23	SLU 44	-5.65	-0.12	32.02	0.0722	-0.2251	0.001
23	SLU 45	-5.9	-0.13	33.3	0.0782	-0.2353	0.0011
23	SLU 46	-5.94	-0.13	32.97	0.0753	-0.2364	0.001
23	SLU 47	-6	-0.13	32.81	0.0734	-0.2385	0.001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
23	SLU 48	-6.25	-0.14	34.08	0.0794	-0.2487	0.0011
23	SLU 49	-6.29	-0.13	33.75	0.0765	-0.2498	0.0011
23	SLU 50	-6.28	-0.14	34.15	0.0793	-0.25	0.0011
23	SLU 51	-6.32	-0.13	33.82	0.0765	-0.2512	0.0011
23	SLU 52	-6.47	-0.14	34.06	0.0799	-0.2569	0.0011
23	SLU 53	-6.72	-0.15	35.34	0.0859	-0.267	0.0012
23	SLU 54	-6.76	-0.14	35.01	0.083	-0.2682	0.0011
23	SLU 55	-6.81	-0.14	34.85	0.0811	-0.2703	0.0011
23	SLU 56	-7.07	-0.15	36.12	0.0871	-0.2805	0.0012
23	SLU 57	-7.1	-0.14	35.8	0.0842	-0.2816	0.0012
23	SLU 58	-7.1	-0.15	36.19	0.087	-0.2818	0.0012
23	SLU 59	-7.14	-0.14	35.86	0.0842	-0.283	0.0012
23	SLU 60	-6.76	-0.15	35.49	0.0879	-0.2686	0.0012
23	SLU 61	-6.79	-0.14	35.16	0.0851	-0.2697	0.0012
23	SLU 62	-7.11	-0.15	36.27	0.0891	-0.282	0.0012
23	SLU 63	-7.14	-0.15	35.94	0.0863	-0.2832	0.0012
23	SLU 64	-6.07	-0.14	33.8	0.0813	-0.2419	0.0011
23	SLU 65	-6.13	-0.13	33.25	0.0766	-0.2438	0.0011
23	SLU 66	-6.39	-0.14	34.52	0.0826	-0.254	0.0011
23	SLU 67	-6.42	-0.14	34.19	0.0797	-0.2552	0.0011
23	SLU 68	-6.48	-0.13	34.04	0.0778	-0.2573	0.0011
23	SLU 69	-6.73	-0.14	35.31	0.0838	-0.2674	0.0011
23	SLU 70	-6.77	-0.14	34.98	0.0809	-0.2686	0.0011
23	SLU 71	-6.77	-0.14	35.37	0.0837	-0.2688	0.0011
23	SLU 72	-6.8	-0.14	35.04	0.0809	-0.2699	0.0011
23	SLU 73	-6.95	-0.14	35.29	0.0843	-0.2756	0.0011
23	SLU 74	-7.2	-0.15	36.56	0.0903	-0.2858	0.0012
23	SLU 75	-7.24	-0.15	36.23	0.0874	-0.2869	0.0012
23	SLU 76	-7.3	-0.15	36.08	0.0855	-0.2891	0.0012
23	SLU 77	-7.55	-0.16	37.35	0.0915	-0.2992	0.0012
23	SLU 78	-7.59	-0.15	37.02	0.0886	-0.3004	0.0012
23	SLU 79	-7.59	-0.16	37.41	0.0914	-0.3006	0.0012
23	SLU 80	-7.62	-0.15	37.09	0.0886	-0.3017	0.0012
23	SLU 81	-7.24	-0.16	36.71	0.0923	-0.2873	0.0013
23	SLU 82	-7.28	-0.15	36.38	0.0895	-0.2885	0.0012
23	SLU 83	-7.59	-0.16	37.5	0.0935	-0.3007	0.0013
23	SLU 84	-7.62	-0.15	37.17	0.0907	-0.3019	0.0012
23	SLE RA 1	-4.57	-0.11	25.73	0.0616	-0.182	0.0008
23	SLE RA 2	-4.6	-0.1	25.36	0.0584	-0.1833	0.0008
23	SLE RA 3	-4.77	-0.11	26.21	0.0624	-0.19	0.0009
23	SLE RA 4	-4.8	-0.1	25.99	0.0605	-0.1908	0.0008
23	SLE RA 5	-4.84	-0.1	25.89	0.0592	-0.1922	0.0008
23	SLE RA 6	-5.01	-0.11	26.74	0.0632	-0.199	0.0009
23	SLE RA 7	-5.03	-0.11	26.52	0.0613	-0.1998	0.0008
23	SLE RA 8	-5.03	-0.11	26.78	0.0632	-0.1999	0.0009
23	SLE RA 9	-5.05	-0.11	26.56	0.0613	-0.2007	0.0008
23	SLE RA 10	-5.15	-0.11	26.72	0.0636	-0.2044	0.0009
23	SLE RA 11	-5.32	-0.11	27.57	0.0675	-0.2112	0.0009
23	SLE RA 12	-5.34	-0.11	27.35	0.0657	-0.212	0.0009
23	SLE RA 13	-5.38	-0.11	27.25	0.0644	-0.2134	0.0009
23	SLE RA 14	-5.55	-0.12	28.1	0.0683	-0.2202	0.0009
23	SLE RA 15	-5.57	-0.11	27.88	0.0665	-0.2209	0.0009
23	SLE RA 16	-5.57	-0.12	28.14	0.0683	-0.2211	0.0009
23	SLE RA 17	-5.6	-0.11	27.92	0.0664	-0.2218	0.0009
23	SLE RA 18	-5.34	-0.12	27.67	0.0689	-0.2122	0.0009
23	SLE RA 19	-5.37	-0.11	27.45	0.067	-0.213	0.0009
23	SLE RA 20	-5.58	-0.12	28.2	0.0697	-0.2212	0.0009
23	SLE RA 21	-5.6	-0.12	27.98	0.0678	-0.222	0.0009
23	SLE FR 1	-4.57	-0.11	25.73	0.0616	-0.182	0.0008
23	SLE FR 2	-4.57	-0.1	25.65	0.0609	-0.1822	0.0008
23	SLE FR 3	-4.66	-0.11	25.94	0.0619	-0.1856	0.0008
23	SLE FR 4	-4.81	-0.11	26.24	0.0631	-0.1913	0.0009
23	SLE FR 5	-4.89	-0.11	26.52	0.0641	-0.1946	0.0009
23	SLE FR 6	-4.95	-0.11	26.7	0.0652	-0.1971	0.0009
23	SLE QP 1	-4.57	-0.11	25.73	0.0616	-0.182	0.0008
23	SLE QP 2	-4.8	-0.11	26.31	0.0638	-0.1911	0.0009
23	SLD 1	-2.27	-0.05	24.03	0.0267	-0.0697	0.0004
23	SLD 2	-2.27	-0.05	24.03	0.0267	-0.0697	0.0004
23	SLD 3	-0.83	0	19.38	-0.0148	-0.0129	0
23	SLD 4	-0.83	0	19.38	-0.0148	-0.0129	0
23	SLD 5	-6.22	-0.18	32.68	0.1155	-0.2407	0.0014
23	SLD 6	-6.22	-0.18	32.68	0.1155	-0.2407	0.0014
23	SLD 7	-1.43	0.01	17.18	-0.0227	-0.0516	-0.0001
23	SLD 8	-1.43	0.01	17.18	-0.0227	-0.0516	-0.0001
23	SLD 9	-8.17	-0.23	35.44	0.1502	-0.3305	0.0018
23	SLD 10	-8.17	-0.23	35.44	0.1502	-0.3305	0.0018
23	SLD 11	-3.38	-0.04	19.94	0.012	-0.1414	0.0003
23	SLD 12	-3.38	-0.04	19.94	0.012	-0.1414	0.0003
23	SLD 13	-8.77	-0.22	33.24	0.1423	-0.3692	0.0018
23	SLD 14	-8.77	-0.22	33.24	0.1423	-0.3692	0.0018
23	SLD 15	-7.33	-0.16	28.59	0.1008	-0.3124	0.0013
23	SLD 16	-7.33	-0.16	28.59	0.1008	-0.3124	0.0013
23	SLV 1	1.07	0.02	20.98	-0.0237	0.0898	-0.0002
23	SLV 2	1.07	0.02	20.98	-0.0237	0.0898	-0.0002
23	SLV 3	4.41	0.15	10.09	-0.1182	0.2216	-0.0012
23	SLV 4	4.41	0.15	10.09	-0.1182	0.2216	-0.0012
23	SLV 5	-8.1	-0.26	41.24	0.1809	-0.3067	0.0021
23	SLV 6	-8.1	-0.26	41.24	0.1809	-0.3067	0.0021
23	SLV 7	3.02	0.16	4.92	-0.1342	0.1326	-0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
23	SLV 8	3.02	0.16	4.92	-0.1342	0.1326	-0.0013
23	SLV 9	-12.62	-0.38	47.7	0.2617	-0.5147	0.003
23	SLV 10	-12.62	-0.38	47.7	0.2617	-0.5147	0.003
23	SLV 11	-1.5	0.04	11.38	-0.0533	-0.0754	-0.0003
23	SLV 12	-1.5	0.04	11.38	-0.0533	-0.0754	-0.0003
23	SLV 13	-14.01	-0.36	42.54	0.2458	-0.6037	0.0029
23	SLV 14	-14.01	-0.36	42.54	0.2458	-0.6037	0.0029
23	SLV 15	-10.67	-0.24	31.64	0.1512	-0.4719	0.0019
23	SLV 16	-10.67	-0.24	31.64	0.1512	-0.4719	0.0019
24	SLU 1	-3.67	-0.11	23.42	0.0641	-0.158	0.0009
24	SLU 2	-3.82	-0.11	22.69	0.0608	-0.1633	0.0009
24	SLU 3	-3.93	-0.11	23.91	0.0655	-0.1686	0.0009
24	SLU 4	-4.02	-0.11	23.47	0.0635	-0.1718	0.0009
24	SLU 5	-4.11	-0.11	23.21	0.0621	-0.1751	0.0009
24	SLU 6	-4.22	-0.11	24.43	0.0668	-0.1804	0.0009
24	SLU 7	-4.31	-0.11	23.99	0.0648	-0.1836	0.0009
24	SLU 8	-4.25	-0.11	24.46	0.0667	-0.1816	0.0009
24	SLU 9	-4.35	-0.11	24.02	0.0647	-0.1848	0.0009
24	SLU 10	-4.5	-0.12	24.16	0.0683	-0.1912	0.001
24	SLU 11	-4.61	-0.12	25.38	0.073	-0.1965	0.001
24	SLU 12	-4.7	-0.12	24.94	0.071	-0.1997	0.001
24	SLU 13	-4.79	-0.12	24.68	0.0696	-0.203	0.001
24	SLU 14	-4.9	-0.13	25.9	0.0743	-0.2083	0.001
24	SLU 15	-5	-0.12	25.46	0.0723	-0.2115	0.001
24	SLU 16	-4.94	-0.13	25.93	0.0742	-0.2095	0.001
24	SLU 17	-5.03	-0.12	25.49	0.0722	-0.2127	0.001
24	SLU 18	-4.64	-0.13	25.52	0.0749	-0.1978	0.001
24	SLU 19	-4.73	-0.12	25.08	0.0729	-0.201	0.001
24	SLU 20	-4.93	-0.13	26.04	0.0761	-0.2096	0.001
24	SLU 21	-5.02	-0.13	25.6	0.0741	-0.2128	0.001
24	SLU 22	-4.07	-0.12	24.29	0.0686	-0.1746	0.001
24	SLU 23	-4.23	-0.11	23.56	0.0652	-0.1799	0.0009
24	SLU 24	-4.34	-0.12	24.78	0.0699	-0.1852	0.001
24	SLU 25	-4.43	-0.12	24.34	0.0679	-0.1884	0.0009
24	SLU 26	-4.52	-0.11	24.08	0.0665	-0.1917	0.0009
24	SLU 27	-4.63	-0.12	25.3	0.0712	-0.1971	0.001
24	SLU 28	-4.72	-0.12	24.86	0.0692	-0.2002	0.001
24	SLU 29	-4.66	-0.12	25.33	0.0711	-0.1983	0.001
24	SLU 30	-4.75	-0.12	24.9	0.0691	-0.2015	0.001
24	SLU 31	-4.91	-0.12	25.04	0.0728	-0.2078	0.001
24	SLU 32	-5.02	-0.13	26.25	0.0774	-0.2131	0.0011
24	SLU 33	-5.11	-0.13	25.82	0.0754	-0.2163	0.001
24	SLU 34	-5.2	-0.13	25.56	0.074	-0.2196	0.001
24	SLU 35	-5.31	-0.13	26.77	0.0787	-0.2249	0.0011
24	SLU 36	-5.4	-0.13	26.34	0.0767	-0.2281	0.0011
24	SLU 37	-5.34	-0.13	26.81	0.0786	-0.2261	0.0011
24	SLU 38	-5.44	-0.13	26.37	0.0766	-0.2293	0.0011
24	SLU 39	-5.05	-0.13	26.4	0.0793	-0.2144	0.0011
24	SLU 40	-5.14	-0.13	25.96	0.0773	-0.2176	0.0011
24	SLU 41	-5.34	-0.13	26.92	0.0806	-0.2262	0.0011
24	SLU 42	-5.43	-0.13	26.48	0.0786	-0.2294	0.0011
24	SLU 43	-4.62	-0.14	30.14	0.0818	-0.1997	0.0012
24	SLU 44	-4.78	-0.14	29.41	0.0785	-0.205	0.0011
24	SLU 45	-4.89	-0.14	30.63	0.0832	-0.2103	0.0012
24	SLU 46	-4.98	-0.14	30.19	0.0812	-0.2135	0.0011
24	SLU 47	-5.07	-0.14	29.93	0.0798	-0.2168	0.0011
24	SLU 48	-5.18	-0.15	31.15	0.0845	-0.2221	0.0012
24	SLU 49	-5.27	-0.14	30.71	0.0825	-0.2253	0.0012
24	SLU 50	-5.21	-0.15	31.18	0.0844	-0.2233	0.0012
24	SLU 51	-5.3	-0.14	30.75	0.0824	-0.2265	0.0012
24	SLU 52	-5.46	-0.15	30.89	0.086	-0.2329	0.0012
24	SLU 53	-5.57	-0.15	32.1	0.0907	-0.2382	0.0013
24	SLU 54	-5.66	-0.15	31.66	0.0887	-0.2414	0.0012
24	SLU 55	-5.75	-0.15	31.41	0.0873	-0.2447	0.0012
24	SLU 56	-5.86	-0.16	32.62	0.092	-0.25	0.0013
24	SLU 57	-5.96	-0.15	32.18	0.09	-0.2532	0.0013
24	SLU 58	-5.89	-0.16	32.66	0.0919	-0.2512	0.0013
24	SLU 59	-5.99	-0.15	32.22	0.0899	-0.2544	0.0013
24	SLU 60	-5.6	-0.16	32.25	0.0926	-0.2395	0.0013
24	SLU 61	-5.69	-0.15	31.81	0.0906	-0.2427	0.0013
24	SLU 62	-5.89	-0.16	32.77	0.0939	-0.2513	0.0013
24	SLU 63	-5.98	-0.16	32.33	0.0919	-0.2545	0.0013
24	SLU 64	-5.03	-0.15	31.02	0.0863	-0.2163	0.0012
24	SLU 65	-5.19	-0.14	30.29	0.083	-0.2216	0.0012
24	SLU 66	-5.3	-0.15	31.51	0.0876	-0.2269	0.0012
24	SLU 67	-5.39	-0.15	31.07	0.0856	-0.2301	0.0012
24	SLU 68	-5.48	-0.15	30.81	0.0842	-0.2334	0.0012
24	SLU 69	-5.59	-0.15	32.03	0.0889	-0.2387	0.0012
24	SLU 70	-5.68	-0.15	31.59	0.0869	-0.2419	0.0012
24	SLU 71	-5.62	-0.15	32.06	0.0888	-0.2399	0.0012
24	SLU 72	-5.71	-0.15	31.62	0.0868	-0.2431	0.0012
24	SLU 73	-5.87	-0.15	31.76	0.0905	-0.2495	0.0013
24	SLU 74	-5.98	-0.16	32.98	0.0951	-0.2548	0.0013
24	SLU 75	-6.07	-0.16	32.54	0.0931	-0.258	0.0013
24	SLU 76	-6.16	-0.16	32.28	0.0917	-0.2613	0.0013
24	SLU 77	-6.27	-0.16	33.5	0.0964	-0.2666	0.0013
24	SLU 78	-6.36	-0.16	33.06	0.0944	-0.2698	0.0013
24	SLU 79	-6.3	-0.16	33.53	0.0964	-0.2678	0.0013
24	SLU 80	-6.39	-0.16	33.09	0.0944	-0.271	0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
24	SLU 81	-6.01	-0.16	33.12	0.097	-0.2561	0.0013
24	SLU 82	-6.1	-0.16	32.68	0.095	-0.2593	0.0013
24	SLU 83	-6.3	-0.17	33.64	0.0983	-0.2679	0.0014
24	SLU 84	-6.39	-0.16	33.2	0.0963	-0.2711	0.0013
24	SLE RA 1	-3.78	-0.11	23.67	0.0654	-0.1627	0.0009
24	SLE RA 2	-3.88	-0.11	23.18	0.0632	-0.1663	0.0009
24	SLE RA 3	-3.96	-0.11	23.99	0.0663	-0.1698	0.0009
24	SLE RA 4	-4.02	-0.11	23.7	0.065	-0.1719	0.0009
24	SLE RA 5	-4.08	-0.11	23.53	0.064	-0.1742	0.0009
24	SLE RA 6	-4.15	-0.12	24.34	0.0671	-0.1777	0.0009
24	SLE RA 7	-4.21	-0.11	24.05	0.0658	-0.1798	0.0009
24	SLE RA 8	-4.17	-0.12	24.36	0.0671	-0.1785	0.0009
24	SLE RA 9	-4.24	-0.11	24.07	0.0658	-0.1806	0.0009
24	SLE RA 10	-4.34	-0.12	24.16	0.0682	-0.1848	0.0009
24	SLE RA 11	-4.41	-0.12	24.98	0.0713	-0.1884	0.001
24	SLE RA 12	-4.47	-0.12	24.68	0.07	-0.1905	0.001
24	SLE RA 13	-4.53	-0.12	24.51	0.069	-0.1927	0.001
24	SLE RA 14	-4.61	-0.12	25.32	0.0722	-0.1963	0.001
24	SLE RA 15	-4.67	-0.12	25.03	0.0708	-0.1984	0.001
24	SLE RA 16	-4.63	-0.12	25.34	0.0721	-0.1971	0.001
24	SLE RA 17	-4.69	-0.12	25.05	0.0708	-0.1992	0.001
24	SLE RA 18	-4.43	-0.12	25.07	0.0726	-0.1893	0.001
24	SLE RA 19	-4.49	-0.12	24.78	0.0712	-0.1914	0.001
24	SLE RA 20	-4.63	-0.12	25.42	0.0734	-0.1971	0.001
24	SLE RA 21	-4.69	-0.12	25.13	0.0721	-0.1993	0.001
24	SLE FR 1	-3.78	-0.11	23.67	0.0654	-0.1627	0.0009
24	SLE FR 2	-3.8	-0.11	23.57	0.065	-0.1634	0.0009
24	SLE FR 3	-3.86	-0.11	23.81	0.0657	-0.1659	0.0009
24	SLE FR 4	-4	-0.12	23.99	0.0671	-0.1714	0.0009
24	SLE FR 5	-4.06	-0.12	24.23	0.0679	-0.1738	0.0009
24	SLE FR 6	-4.11	-0.12	24.37	0.069	-0.176	0.001
24	SLE QP 1	-3.78	-0.11	23.67	0.0654	-0.1627	0.0009
24	SLE QP 2	-3.98	-0.12	24.09	0.0675	-0.1707	0.0009
24	SLD 1	-1.43	-0.08	21.59	0.0384	-0.0543	0.0006
24	SLD 2	-1.43	-0.08	21.59	0.0384	-0.0543	0.0006
24	SLD 3	-0.29	-0.02	17.48	-0.0042	-0.0057	0.0001
24	SLD 4	-0.29	-0.02	17.48	-0.0042	-0.0057	0.0001
24	SLD 5	-4.93	-0.19	29.57	0.1235	-0.2096	0.0016
24	SLD 6	-4.93	-0.19	29.57	0.1235	-0.2096	0.0016
24	SLD 7	-1.15	0	15.88	-0.0187	-0.0474	0
24	SLD 8	-1.15	0	15.88	-0.0187	-0.0474	0
24	SLD 9	-6.8	-0.23	32.3	0.1538	-0.294	0.0019
24	SLD 10	-6.8	-0.23	32.3	0.1538	-0.294	0.0019
24	SLD 11	-3.02	-0.04	18.61	0.0116	-0.1318	0.0003
24	SLD 12	-3.02	-0.04	18.61	0.0116	-0.1318	0.0003
24	SLD 13	-7.66	-0.21	30.7	0.1393	-0.3357	0.0017
24	SLD 14	-7.66	-0.21	30.7	0.1393	-0.3357	0.0017
24	SLD 15	-6.52	-0.15	26.59	0.0967	-0.287	0.0013
24	SLD 16	-6.52	-0.15	26.59	0.0967	-0.287	0.0013
24	SLV 1	1.92	-0.03	18.29	-0.0013	0.0984	0.0002
24	SLV 2	1.92	-0.03	18.29	-0.0013	0.0984	0.0002
24	SLV 3	4.56	0.1	8.59	-0.0985	0.2114	-0.0009
24	SLV 4	4.56	0.1	8.59	-0.0985	0.2114	-0.0009
24	SLV 5	-6.21	-0.3	37.06	0.1943	-0.2614	0.0024
24	SLV 6	-6.21	-0.3	37.06	0.1943	-0.2614	0.0024
24	SLV 7	2.58	0.15	4.73	-0.1297	0.1153	-0.0013
24	SLV 8	2.58	0.15	4.73	-0.1297	0.1153	-0.0013
24	SLV 9	-10.54	-0.39	43.45	0.2647	-0.4567	0.0032
24	SLV 10	-10.54	-0.39	43.45	0.2647	-0.4567	0.0032
24	SLV 11	-1.75	0.06	11.12	-0.0592	-0.08	-0.0005
24	SLV 12	-1.75	0.06	11.12	-0.0592	-0.08	-0.0005
24	SLV 13	-12.51	-0.34	39.59	0.2336	-0.5527	0.0028
24	SLV 14	-12.51	-0.34	39.59	0.2336	-0.5527	0.0028
24	SLV 15	-9.87	-0.2	29.89	0.1364	-0.4397	0.0017
24	SLV 16	-9.87	-0.2	29.89	0.1364	-0.4397	0.0017
25	SLU 1	-2.94	-0.09	22.54	0.0556	-0.1235	0.0007
25	SLU 2	-3.19	-0.09	21.51	0.0542	-0.1323	0.0007
25	SLU 3	-3.14	-0.1	22.84	0.0567	-0.1313	0.0007
25	SLU 4	-3.29	-0.1	22.22	0.0559	-0.1366	0.0007
25	SLU 5	-3.42	-0.1	21.82	0.0552	-0.141	0.0007
25	SLU 6	-3.37	-0.1	23.15	0.0578	-0.1401	0.0008
25	SLU 7	-3.52	-0.1	22.53	0.0569	-0.1454	0.0007
25	SLU 8	-3.39	-0.1	23.16	0.0577	-0.141	0.0007
25	SLU 9	-3.55	-0.1	22.54	0.0568	-0.1463	0.0007
25	SLU 10	-3.71	-0.1	22.56	0.0602	-0.1525	0.0008
25	SLU 11	-3.66	-0.1	23.89	0.0628	-0.1516	0.0008
25	SLU 12	-3.81	-0.1	23.27	0.0619	-0.1568	0.0008
25	SLU 13	-3.94	-0.1	22.86	0.0613	-0.1612	0.0008
25	SLU 14	-3.89	-0.11	24.2	0.0638	-0.1603	0.0008
25	SLU 15	-4.04	-0.1	23.58	0.0629	-0.1656	0.0008
25	SLU 16	-3.91	-0.11	24.21	0.0638	-0.1612	0.0008
25	SLU 17	-4.07	-0.1	23.58	0.0629	-0.1665	0.0008
25	SLU 18	-3.68	-0.11	24.04	0.0643	-0.1524	0.0008
25	SLU 19	-3.83	-0.11	23.42	0.0634	-0.1576	0.0008
25	SLU 20	-3.91	-0.11	24.35	0.0653	-0.1611	0.0008
25	SLU 21	-4.06	-0.11	23.73	0.0644	-0.1664	0.0008
25	SLU 22	-3.26	-0.1	23.15	0.0593	-0.1358	0.0008
25	SLU 23	-3.51	-0.1	22.12	0.0579	-0.1446	0.0008
25	SLU 24	-3.46	-0.1	23.45	0.0604	-0.1436	0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
25	SLU 25	-3.61	-0.1	22.83	0.0595	-0.1489	0.0008
25	SLU 26	-3.74	-0.1	22.43	0.0589	-0.1533	0.0008
25	SLU 27	-3.69	-0.1	23.76	0.0615	-0.1524	0.0008
25	SLU 28	-3.84	-0.1	23.14	0.0606	-0.1577	0.0008
25	SLU 29	-3.71	-0.1	23.77	0.0614	-0.1533	0.0008
25	SLU 30	-3.86	-0.1	23.15	0.0605	-0.1586	0.0008
25	SLU 31	-4.03	-0.11	23.16	0.0639	-0.1648	0.0008
25	SLU 32	-3.98	-0.11	24.5	0.0665	-0.1639	0.0008
25	SLU 33	-4.13	-0.11	23.88	0.0656	-0.1691	0.0008
25	SLU 34	-4.26	-0.11	23.47	0.065	-0.1736	0.0008
25	SLU 35	-4.21	-0.11	24.81	0.0675	-0.1726	0.0009
25	SLU 36	-4.36	-0.11	24.19	0.0666	-0.1779	0.0008
25	SLU 37	-4.23	-0.11	24.81	0.0674	-0.1735	0.0009
25	SLU 38	-4.38	-0.11	24.19	0.0666	-0.1788	0.0008
25	SLU 39	-4	-0.11	24.65	0.068	-0.1647	0.0009
25	SLU 40	-4.15	-0.11	24.03	0.0671	-0.17	0.0008
25	SLU 41	-4.23	-0.11	24.95	0.069	-0.1735	0.0009
25	SLU 42	-4.38	-0.11	24.33	0.0681	-0.1787	0.0009
25	SLU 43	-3.71	-0.12	29.1	0.0711	-0.1563	0.0009
25	SLU 44	-3.96	-0.12	28.06	0.0696	-0.1651	0.0009
25	SLU 45	-3.92	-0.12	29.4	0.0722	-0.1641	0.0009
25	SLU 46	-4.07	-0.12	28.78	0.0713	-0.1694	0.0009
25	SLU 47	-4.19	-0.12	28.37	0.0706	-0.1738	0.0009
25	SLU 48	-4.14	-0.12	29.71	0.0732	-0.1729	0.001
25	SLU 49	-4.29	-0.12	29.09	0.0723	-0.1782	0.0009
25	SLU 50	-4.17	-0.12	29.71	0.0731	-0.1738	0.001
25	SLU 51	-4.32	-0.12	29.09	0.0722	-0.1791	0.0009
25	SLU 52	-4.48	-0.13	29.11	0.0757	-0.1853	0.001
25	SLU 53	-4.44	-0.13	30.44	0.0782	-0.1844	0.001
25	SLU 54	-4.59	-0.13	29.82	0.0773	-0.1896	0.001
25	SLU 55	-4.71	-0.13	29.42	0.0767	-0.1941	0.001
25	SLU 56	-4.66	-0.13	30.75	0.0792	-0.1931	0.001
25	SLU 57	-4.81	-0.13	30.13	0.0784	-0.1984	0.001
25	SLU 58	-4.69	-0.13	30.76	0.0792	-0.194	0.001
25	SLU 59	-4.84	-0.13	30.14	0.0783	-0.1993	0.001
25	SLU 60	-4.45	-0.13	30.59	0.0797	-0.1852	0.001
25	SLU 61	-4.61	-0.13	29.97	0.0788	-0.1905	0.001
25	SLU 62	-4.68	-0.13	30.9	0.0807	-0.1939	0.001
25	SLU 63	-4.83	-0.13	30.28	0.0799	-0.1992	0.001
25	SLU 64	-4.03	-0.13	29.71	0.0747	-0.1686	0.001
25	SLU 65	-4.28	-0.13	28.67	0.0733	-0.1774	0.001
25	SLU 66	-4.23	-0.13	30.01	0.0758	-0.1765	0.001
25	SLU 67	-4.38	-0.13	29.39	0.075	-0.1817	0.001
25	SLU 68	-4.51	-0.13	28.98	0.0743	-0.1862	0.001
25	SLU 69	-4.46	-0.13	30.31	0.0769	-0.1852	0.001
25	SLU 70	-4.61	-0.13	29.69	0.076	-0.1905	0.001
25	SLU 71	-4.49	-0.13	30.32	0.0768	-0.1861	0.001
25	SLU 72	-4.64	-0.13	29.7	0.0759	-0.1914	0.001
25	SLU 73	-4.8	-0.13	29.72	0.0794	-0.1976	0.001
25	SLU 74	-4.75	-0.14	31.05	0.0819	-0.1967	0.001
25	SLU 75	-4.9	-0.14	30.43	0.081	-0.202	0.001
25	SLU 76	-5.03	-0.13	30.03	0.0804	-0.2064	0.001
25	SLU 77	-4.98	-0.14	31.36	0.0829	-0.2055	0.0011
25	SLU 78	-5.13	-0.14	30.74	0.0821	-0.2107	0.0011
25	SLU 79	-5.01	-0.14	31.37	0.0829	-0.2064	0.0011
25	SLU 80	-5.16	-0.14	30.75	0.082	-0.2116	0.0011
25	SLU 81	-4.77	-0.14	31.2	0.0834	-0.1975	0.0011
25	SLU 82	-4.92	-0.14	30.58	0.0825	-0.2028	0.0011
25	SLU 83	-5	-0.14	31.51	0.0844	-0.2063	0.0011
25	SLU 84	-5.15	-0.14	30.89	0.0836	-0.2115	0.0011
25	SLE RA 1	-3.03	-0.1	22.72	0.0567	-0.127	0.0007
25	SLE RA 2	-3.2	-0.1	22.03	0.0557	-0.1329	0.0007
25	SLE RA 3	-3.17	-0.1	22.92	0.0574	-0.1322	0.0007
25	SLE RA 4	-3.27	-0.1	22.5	0.0568	-0.1357	0.0007
25	SLE RA 5	-3.35	-0.1	22.23	0.0564	-0.1387	0.0007
25	SLE RA 6	-3.32	-0.1	23.12	0.0581	-0.1381	0.0008
25	SLE RA 7	-3.42	-0.1	22.71	0.0575	-0.1416	0.0007
25	SLE RA 8	-3.33	-0.1	23.13	0.0581	-0.1387	0.0008
25	SLE RA 9	-3.43	-0.1	22.71	0.0575	-0.1422	0.0007
25	SLE RA 10	-3.54	-0.1	22.73	0.0598	-0.1463	0.0008
25	SLE RA 11	-3.51	-0.1	23.61	0.0615	-0.1457	0.0008
25	SLE RA 12	-3.61	-0.1	23.2	0.0609	-0.1492	0.0008
25	SLE RA 13	-3.7	-0.1	22.93	0.0604	-0.1522	0.0008
25	SLE RA 14	-3.66	-0.1	23.82	0.0621	-0.1516	0.0008
25	SLE RA 15	-3.76	-0.1	23.41	0.0616	-0.1551	0.0008
25	SLE RA 16	-3.68	-0.1	23.83	0.0621	-0.1522	0.0008
25	SLE RA 17	-3.78	-0.1	23.41	0.0615	-0.1557	0.0008
25	SLE RA 18	-3.53	-0.1	23.71	0.0625	-0.1463	0.0008
25	SLE RA 19	-3.63	-0.1	23.3	0.0619	-0.1498	0.0008
25	SLE RA 20	-3.68	-0.1	23.92	0.0631	-0.1521	0.0008
25	SLE RA 21	-3.78	-0.1	23.51	0.0626	-0.1556	0.0008
25	SLE FR 1	-3.03	-0.1	22.72	0.0567	-0.127	0.0007
25	SLE FR 2	-3.06	-0.1	22.58	0.0565	-0.1282	0.0007
25	SLE FR 3	-3.09	-0.1	22.8	0.057	-0.1293	0.0007
25	SLE FR 4	-3.21	-0.1	22.88	0.0582	-0.134	0.0008
25	SLE FR 5	-3.24	-0.1	23.1	0.0587	-0.1351	0.0008
25	SLE FR 6	-3.28	-0.1	23.22	0.0596	-0.1366	0.0008
25	SLE QP 1	-3.03	-0.1	22.72	0.0567	-0.127	0.0007
25	SLE QP 2	-3.18	-0.1	23.02	0.0584	-0.1328	0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
25	SLD 1	-0.64	-0.09	20	0.0419	-0.0124	0.0006
25	SLD 2	-0.64	-0.09	20	0.0419	-0.0124	0.0006
25	SLD 3	0.18	-0.04	15.86	0.0047	0.0204	0.0002
25	SLD 4	0.18	-0.04	15.86	0.0047	0.0204	0.0002
25	SLD 5	-3.66	-0.17	28.38	0.11	-0.1465	0.0013
25	SLD 6	-3.66	-0.17	28.38	0.11	-0.1465	0.0013
25	SLD 7	-0.93	-0.01	14.6	-0.0142	-0.037	0
25	SLD 8	-0.93	-0.01	14.6	-0.0142	-0.037	0
25	SLD 9	-5.43	-0.19	31.43	0.1311	-0.2285	0.0015
25	SLD 10	-5.43	-0.19	31.43	0.1311	-0.2285	0.0015
25	SLD 11	-2.7	-0.03	17.65	0.0068	-0.1191	0.0002
25	SLD 12	-2.7	-0.03	17.65	0.0068	-0.1191	0.0002
25	SLD 13	-6.54	-0.16	30.17	0.1122	-0.286	0.0013
25	SLD 14	-6.54	-0.16	30.17	0.1122	-0.286	0.0013
25	SLD 15	-5.72	-0.11	26.03	0.0749	-0.2532	0.0009
25	SLD 16	-5.72	-0.11	26.03	0.0749	-0.2532	0.0009
25	SLV 1	2.69	-0.08	16.11	0.0191	0.1451	0.0005
25	SLV 2	2.69	-0.08	16.11	0.0191	0.1451	0.0005
25	SLV 3	4.63	0.03	6.23	-0.0657	0.2223	-0.0004
25	SLV 4	4.63	0.03	6.23	-0.0657	0.2223	-0.0004
25	SLV 5	-4.35	-0.27	35.93	0.1753	-0.1665	0.002
25	SLV 6	-4.35	-0.27	35.93	0.1753	-0.1665	0.002
25	SLV 7	2.1	0.11	3	-0.1075	0.0908	-0.0009
25	SLV 8	2.1	0.11	3	-0.1075	0.0908	-0.0009
25	SLV 9	-8.46	-0.31	43.03	0.2243	-0.3563	0.0025
25	SLV 10	-8.46	-0.31	43.03	0.2243	-0.3563	0.0025
25	SLV 11	-2	0.07	10.1	-0.0584	-0.0991	-0.0005
25	SLV 12	-2	0.07	10.1	-0.0584	-0.0991	-0.0005
25	SLV 13	-10.98	-0.23	39.8	0.1825	-0.4878	0.0019
25	SLV 14	-10.98	-0.23	39.8	0.1825	-0.4878	0.0019
25	SLV 15	-9.05	-0.12	29.92	0.0977	-0.4106	0.001
25	SLV 16	-9.05	-0.12	29.92	0.0977	-0.4106	0.001
26	SLU 1	-2.93	-0.05	22.46	0.0352	-0.1315	0.0003
26	SLU 2	-3.25	-0.05	20.96	0.0358	-0.1427	0.0003
26	SLU 3	-3.09	-0.05	22.61	0.0359	-0.1379	0.0003
26	SLU 4	-3.28	-0.05	21.72	0.0362	-0.1446	0.0003
26	SLU 5	-3.43	-0.05	21.11	0.0364	-0.1499	0.0003
26	SLU 6	-3.26	-0.05	22.76	0.0365	-0.145	0.0003
26	SLU 7	-3.46	-0.05	21.86	0.0369	-0.1518	0.0003
26	SLU 8	-3.28	-0.05	22.74	0.0365	-0.1458	0.0003
26	SLU 9	-3.48	-0.05	21.85	0.0368	-0.1525	0.0003
26	SLU 10	-3.66	-0.05	21.71	0.0395	-0.1598	0.0003
26	SLU 11	-3.5	-0.05	23.36	0.0396	-0.155	0.0003
26	SLU 12	-3.69	-0.05	22.46	0.04	-0.1617	0.0003
26	SLU 13	-3.84	-0.05	21.85	0.0401	-0.1669	0.0003
26	SLU 14	-3.67	-0.05	23.5	0.0403	-0.1621	0.0003
26	SLU 15	-3.87	-0.05	22.61	0.0406	-0.1689	0.0003
26	SLU 16	-3.69	-0.05	23.49	0.0402	-0.1628	0.0003
26	SLU 17	-3.89	-0.05	22.59	0.0405	-0.1696	0.0003
26	SLU 18	-3.51	-0.05	23.52	0.0405	-0.1559	0.0003
26	SLU 19	-3.71	-0.05	22.62	0.0409	-0.1626	0.0003
26	SLU 20	-3.69	-0.05	23.66	0.0412	-0.163	0.0003
26	SLU 21	-3.89	-0.05	22.77	0.0415	-0.1698	0.0003
26	SLU 22	-3.18	-0.05	22.87	0.0375	-0.142	0.0003
26	SLU 23	-3.51	-0.05	21.38	0.0381	-0.1532	0.0003
26	SLU 24	-3.34	-0.05	23.03	0.0382	-0.1484	0.0003
26	SLU 25	-3.53	-0.05	22.13	0.0386	-0.1551	0.0003
26	SLU 26	-3.68	-0.05	21.52	0.0387	-0.1603	0.0003
26	SLU 27	-3.52	-0.05	23.17	0.0388	-0.1555	0.0003
26	SLU 28	-3.71	-0.05	22.27	0.0392	-0.1623	0.0003
26	SLU 29	-3.53	-0.05	23.16	0.0388	-0.1562	0.0003
26	SLU 30	-3.73	-0.05	22.26	0.0391	-0.163	0.0003
26	SLU 31	-3.91	-0.06	22.12	0.0418	-0.1703	0.0003
26	SLU 32	-3.75	-0.05	23.77	0.0419	-0.1655	0.0003
26	SLU 33	-3.94	-0.06	22.87	0.0423	-0.1722	0.0003
26	SLU 34	-4.09	-0.06	22.26	0.0424	-0.1774	0.0003
26	SLU 35	-3.93	-0.05	23.91	0.0426	-0.1726	0.0003
26	SLU 36	-4.12	-0.06	23.02	0.0429	-0.1794	0.0003
26	SLU 37	-3.94	-0.05	23.9	0.0425	-0.1733	0.0003
26	SLU 38	-4.14	-0.06	23	0.0428	-0.1801	0.0003
26	SLU 39	-3.76	-0.05	23.93	0.0429	-0.1664	0.0003
26	SLU 40	-3.96	-0.06	23.04	0.0432	-0.1731	0.0003
26	SLU 41	-3.94	-0.06	24.07	0.0435	-0.1735	0.0003
26	SLU 42	-4.14	-0.06	23.18	0.0438	-0.1803	0.0003
26	SLU 43	-3.72	-0.06	29.05	0.045	-0.1673	0.0004
26	SLU 44	-4.05	-0.07	27.56	0.0456	-0.1786	0.0004
26	SLU 45	-3.88	-0.06	29.21	0.0457	-0.1737	0.0004
26	SLU 46	-4.07	-0.06	28.31	0.046	-0.1805	0.0004
26	SLU 47	-4.22	-0.07	27.7	0.0462	-0.1857	0.0004
26	SLU 48	-4.06	-0.06	29.35	0.0463	-0.1809	0.0004
26	SLU 49	-4.25	-0.06	28.46	0.0467	-0.1876	0.0004
26	SLU 50	-4.07	-0.06	29.34	0.0463	-0.1816	0.0004
26	SLU 51	-4.27	-0.06	28.44	0.0466	-0.1883	0.0004
26	SLU 52	-4.45	-0.07	28.3	0.0493	-0.1956	0.0004
26	SLU 53	-4.29	-0.07	29.95	0.0494	-0.1908	0.0004
26	SLU 54	-4.48	-0.07	29.06	0.0497	-0.1976	0.0004
26	SLU 55	-4.63	-0.07	28.45	0.0499	-0.2028	0.0004
26	SLU 56	-4.46	-0.07	30.1	0.05	-0.198	0.0004
26	SLU 57	-4.66	-0.07	29.2	0.0504	-0.2047	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
26	SLU 58	-4.48	-0.07	30.08	0.05	-0.1987	0.0004
26	SLU 59	-4.68	-0.07	29.19	0.0503	-0.2054	0.0004
26	SLU 60	-4.3	-0.07	30.11	0.0503	-0.1917	0.0004
26	SLU 61	-4.5	-0.07	29.22	0.0507	-0.1985	0.0004
26	SLU 62	-4.48	-0.07	30.26	0.051	-0.1989	0.0004
26	SLU 63	-4.68	-0.07	29.36	0.0513	-0.2056	0.0004
26	SLU 64	-3.97	-0.06	29.46	0.0473	-0.1778	0.0004
26	SLU 65	-4.3	-0.07	27.97	0.0479	-0.189	0.0004
26	SLU 66	-4.13	-0.06	29.62	0.048	-0.1842	0.0004
26	SLU 67	-4.33	-0.07	28.73	0.0483	-0.191	0.0004
26	SLU 68	-4.47	-0.07	28.11	0.0485	-0.1962	0.0004
26	SLU 69	-4.31	-0.07	29.76	0.0486	-0.1914	0.0004
26	SLU 70	-4.5	-0.07	28.87	0.049	-0.1981	0.0004
26	SLU 71	-4.33	-0.07	29.75	0.0486	-0.1921	0.0004
26	SLU 72	-4.52	-0.07	28.86	0.0489	-0.1988	0.0004
26	SLU 73	-4.71	-0.07	28.72	0.0516	-0.2061	0.0004
26	SLU 74	-4.54	-0.07	30.37	0.0517	-0.2013	0.0004
26	SLU 75	-4.73	-0.07	29.47	0.052	-0.2081	0.0004
26	SLU 76	-4.88	-0.07	28.86	0.0522	-0.2133	0.0004
26	SLU 77	-4.72	-0.07	30.51	0.0523	-0.2085	0.0004
26	SLU 78	-4.91	-0.07	29.61	0.0527	-0.2152	0.0004
26	SLU 79	-4.74	-0.07	30.49	0.0523	-0.2092	0.0004
26	SLU 80	-4.93	-0.07	29.6	0.0526	-0.2159	0.0004
26	SLU 81	-4.56	-0.07	30.53	0.0526	-0.2022	0.0004
26	SLU 82	-4.75	-0.07	29.63	0.053	-0.209	0.0004
26	SLU 83	-4.73	-0.07	30.67	0.0533	-0.2094	0.0004
26	SLU 84	-4.93	-0.07	29.77	0.0536	-0.2161	0.0004
26	SLE RA 1	-3	-0.05	22.57	0.0359	-0.1345	0.0003
26	SLE RA 2	-3.22	-0.05	21.58	0.0363	-0.142	0.0003
26	SLE RA 3	-3.11	-0.05	22.68	0.0363	-0.1387	0.0003
26	SLE RA 4	-3.24	-0.05	22.08	0.0366	-0.1432	0.0003
26	SLE RA 5	-3.34	-0.05	21.67	0.0367	-0.1467	0.0003
26	SLE RA 6	-3.22	-0.05	22.77	0.0368	-0.1435	0.0003
26	SLE RA 7	-3.35	-0.05	22.18	0.037	-0.148	0.0003
26	SLE RA 8	-3.24	-0.05	22.77	0.0367	-0.144	0.0003
26	SLE RA 9	-3.37	-0.05	22.17	0.037	-0.1485	0.0003
26	SLE RA 10	-3.49	-0.05	22.07	0.0387	-0.1534	0.0003
26	SLE RA 11	-3.38	-0.05	23.17	0.0388	-0.1501	0.0003
26	SLE RA 12	-3.51	-0.05	22.58	0.039	-0.1546	0.0003
26	SLE RA 13	-3.61	-0.05	22.17	0.0392	-0.1581	0.0003
26	SLE RA 14	-3.5	-0.05	23.27	0.0392	-0.1549	0.0003
26	SLE RA 15	-3.63	-0.05	22.67	0.0395	-0.1594	0.0003
26	SLE RA 16	-3.51	-0.05	23.26	0.0392	-0.1554	0.0003
26	SLE RA 17	-3.64	-0.05	22.66	0.0394	-0.1599	0.0003
26	SLE RA 18	-3.39	-0.05	23.28	0.0394	-0.1507	0.0003
26	SLE RA 19	-3.52	-0.05	22.69	0.0397	-0.1552	0.0003
26	SLE RA 20	-3.51	-0.05	23.38	0.0399	-0.1555	0.0003
26	SLE RA 21	-3.64	-0.05	22.78	0.0401	-0.16	0.0003
26	SLE FR 1	-3	-0.05	22.57	0.0359	-0.1345	0.0003
26	SLE FR 2	-3.04	-0.05	22.37	0.036	-0.136	0.0003
26	SLE FR 3	-3.05	-0.05	22.61	0.0361	-0.1364	0.0003
26	SLE FR 4	-3.16	-0.05	22.59	0.037	-0.1408	0.0003
26	SLE FR 5	-3.16	-0.05	22.82	0.0371	-0.1413	0.0003
26	SLE FR 6	-3.19	-0.05	22.93	0.0377	-0.1426	0.0003
26	SLE QP 1	-3	-0.05	22.57	0.0359	-0.1345	0.0003
26	SLE QP 2	-3.12	-0.05	22.79	0.037	-0.1393	0.0003
26	SLD 1	-0.7	-0.08	18.94	0.0323	-0.0222	0.0005
26	SLD 2	-0.7	-0.08	18.94	0.0323	-0.0222	0.0005
26	SLD 3	0.02	-0.05	14.14	0.0052	0.0076	0.0003
26	SLD 4	0.02	-0.05	14.14	0.0052	0.0076	0.0003
26	SLD 5	-3.47	-0.11	28.9	0.0766	-0.1494	0.0007
26	SLD 6	-3.47	-0.11	28.9	0.0766	-0.1494	0.0007
26	SLD 7	-1.09	0	12.92	-0.0136	-0.0501	-0.0001
26	SLD 8	-1.09	0	12.92	-0.0136	-0.0501	-0.0001
26	SLD 9	-5.14	-0.1	32.65	0.0876	-0.2286	0.0007
26	SLD 10	-5.14	-0.1	32.65	0.0876	-0.2286	0.0007
26	SLD 11	-2.76	0.01	16.67	-0.0027	-0.1293	-0.0001
26	SLD 12	-2.76	0.01	16.67	-0.0027	-0.1293	-0.0001
26	SLD 13	-6.25	-0.05	31.43	0.0687	-0.2863	0.0003
26	SLD 14	-6.25	-0.05	31.43	0.0687	-0.2863	0.0003
26	SLD 15	-5.54	-0.02	26.64	0.0416	-0.2565	0.0001
26	SLD 16	-5.54	-0.02	26.64	0.0416	-0.2565	0.0001
26	SLV 1	2.46	-0.12	14.08	0.0254	0.1306	0.0008
26	SLV 2	2.46	-0.12	14.08	0.0254	0.1306	0.0008
26	SLV 3	4.19	-0.05	2.52	-0.0361	0.2017	0.0002
26	SLV 4	4.19	-0.05	2.52	-0.0361	0.2017	0.0002
26	SLV 5	-4.07	-0.18	37.7	0.1268	-0.1661	0.0013
26	SLV 6	-4.07	-0.18	37.7	0.1268	-0.1661	0.0013
26	SLV 7	1.71	0.06	-0.82	-0.0782	0.0708	-0.0005
26	SLV 8	1.71	0.06	-0.82	-0.0782	0.0708	-0.0005
26	SLV 9	-7.94	-0.16	46.4	0.1522	-0.3494	0.0011
26	SLV 10	-7.94	-0.16	46.4	0.1522	-0.3494	0.0011
26	SLV 11	-2.16	0.08	7.87	-0.0529	-0.1125	-0.0007
26	SLV 12	-2.16	0.08	7.87	-0.0529	-0.1125	-0.0007
26	SLV 13	-10.42	-0.05	43.05	0.11	-0.4804	0.0003
26	SLV 14	-10.42	-0.05	43.05	0.11	-0.4804	0.0003
26	SLV 15	-8.69	0.02	31.5	0.0485	-0.4093	-0.0002
26	SLV 16	-8.69	0.02	31.5	0.0485	-0.4093	-0.0002
27	SLU 1	-3.27	0.03	23.88	0.0095	-0.161	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
27	SLU 2	-3.61	0.02	21.65	0.0121	-0.1699	0.0001
27	SLU 3	-3.38	0.03	23.95	0.0098	-0.1654	0.0001
27	SLU 4	-3.59	0.02	22.61	0.0113	-0.1707	0.0001
27	SLU 5	-3.74	0.02	21.67	0.0123	-0.1748	0.0001
27	SLU 6	-3.51	0.03	23.98	0.01	-0.1703	0.0001
27	SLU 7	-3.71	0.02	22.64	0.0116	-0.1756	0.0001
27	SLU 8	-3.52	0.03	23.94	0.0101	-0.1707	0.0001
27	SLU 9	-3.73	0.02	22.6	0.0116	-0.1761	0.0001
27	SLU 10	-3.89	0.02	22.29	0.0133	-0.1822	0.0001
27	SLU 11	-3.66	0.03	24.59	0.011	-0.1777	0.0001
27	SLU 12	-3.86	0.03	23.25	0.0125	-0.183	0.0001
27	SLU 13	-4.02	0.02	22.32	0.0135	-0.1871	0.0001
27	SLU 14	-3.78	0.03	24.62	0.0113	-0.1826	0.0001
27	SLU 15	-3.99	0.03	23.28	0.0128	-0.1879	0.0001
27	SLU 16	-3.8	0.03	24.58	0.0113	-0.183	0.0001
27	SLU 17	-4	0.03	23.24	0.0128	-0.1884	0.0001
27	SLU 18	-3.66	0.03	24.8	0.0113	-0.1786	0.0001
27	SLU 19	-3.87	0.03	23.46	0.0128	-0.1839	0.0001
27	SLU 20	-3.79	0.03	24.83	0.0115	-0.1834	0.0001
27	SLU 21	-4	0.03	23.49	0.0131	-0.1888	0.0001
27	SLU 22	-3.43	0.03	24.23	0.0103	-0.1684	0.0001
27	SLU 23	-3.78	0.02	21.99	0.0128	-0.1773	0.0001
27	SLU 24	-3.54	0.03	24.3	0.0106	-0.1728	0.0001
27	SLU 25	-3.75	0.03	22.95	0.0121	-0.1781	0.0001
27	SLU 26	-3.9	0.02	22.02	0.0131	-0.1821	0.0001
27	SLU 27	-3.67	0.03	24.33	0.0108	-0.1776	0.0001
27	SLU 28	-3.88	0.03	22.98	0.0123	-0.183	0.0001
27	SLU 29	-3.69	0.03	24.29	0.0108	-0.1781	0.0001
27	SLU 30	-3.89	0.03	22.95	0.0124	-0.1834	0.0001
27	SLU 31	-4.06	0.02	22.63	0.0141	-0.1896	0.0001
27	SLU 32	-3.82	0.03	24.94	0.0118	-0.1851	0.0001
27	SLU 33	-4.03	0.03	23.59	0.0133	-0.1904	0.0001
27	SLU 34	-4.18	0.03	22.66	0.0143	-0.1944	0.0001
27	SLU 35	-3.95	0.03	24.97	0.012	-0.1899	0.0001
27	SLU 36	-4.16	0.03	23.62	0.0136	-0.1953	0.0001
27	SLU 37	-3.96	0.03	24.93	0.012	-0.1904	0.0001
27	SLU 38	-4.17	0.03	23.59	0.0136	-0.1957	0.0001
27	SLU 39	-3.83	0.03	25.15	0.012	-0.1859	0.0001
27	SLU 40	-4.04	0.03	23.8	0.0136	-0.1913	0.0001
27	SLU 41	-3.96	0.03	25.18	0.0123	-0.1908	0.0001
27	SLU 42	-4.16	0.03	23.83	0.0138	-0.1961	0.0001
27	SLU 43	-4.19	0.04	30.93	0.0121	-0.2067	0.0002
27	SLU 44	-4.54	0.03	28.69	0.0146	-0.2157	0.0002
27	SLU 45	-4.3	0.04	31	0.0124	-0.2112	0.0002
27	SLU 46	-4.51	0.03	29.65	0.0139	-0.2165	0.0002
27	SLU 47	-4.66	0.03	28.72	0.0149	-0.2205	0.0002
27	SLU 48	-4.43	0.04	31.03	0.0126	-0.216	0.0002
27	SLU 49	-4.64	0.03	29.68	0.0142	-0.2214	0.0002
27	SLU 50	-4.44	0.04	30.99	0.0126	-0.2165	0.0002
27	SLU 51	-4.65	0.03	29.65	0.0142	-0.2218	0.0002
27	SLU 52	-4.81	0.03	29.33	0.0159	-0.228	0.0002
27	SLU 53	-4.58	0.04	31.64	0.0136	-0.2235	0.0002
27	SLU 54	-4.79	0.03	30.29	0.0151	-0.2288	0.0002
27	SLU 55	-4.94	0.03	29.36	0.0161	-0.2328	0.0002
27	SLU 56	-4.71	0.04	31.67	0.0139	-0.2283	0.0002
27	SLU 57	-4.91	0.03	30.32	0.0154	-0.2337	0.0002
27	SLU 58	-4.72	0.04	31.63	0.0139	-0.2288	0.0002
27	SLU 59	-4.93	0.03	30.29	0.0154	-0.2341	0.0002
27	SLU 60	-4.59	0.04	31.85	0.0138	-0.2243	0.0002
27	SLU 61	-4.8	0.04	30.5	0.0154	-0.2297	0.0002
27	SLU 62	-4.71	0.04	31.88	0.0141	-0.2292	0.0002
27	SLU 63	-4.92	0.04	30.53	0.0156	-0.2345	0.0002
27	SLU 64	-4.36	0.04	31.28	0.0129	-0.2141	0.0002
27	SLU 65	-4.7	0.03	29.04	0.0154	-0.223	0.0002
27	SLU 66	-4.47	0.04	31.34	0.0131	-0.2185	0.0002
27	SLU 67	-4.68	0.03	30	0.0147	-0.2239	0.0002
27	SLU 68	-4.83	0.03	29.07	0.0157	-0.2279	0.0002
27	SLU 69	-4.59	0.04	31.37	0.0134	-0.2234	0.0002
27	SLU 70	-4.8	0.03	30.03	0.0149	-0.2288	0.0002
27	SLU 71	-4.61	0.04	31.34	0.0134	-0.2238	0.0002
27	SLU 72	-4.82	0.03	29.99	0.0149	-0.2292	0.0002
27	SLU 73	-4.98	0.03	29.68	0.0166	-0.2353	0.0002
27	SLU 74	-4.75	0.04	31.98	0.0144	-0.2308	0.0002
27	SLU 75	-4.95	0.04	30.64	0.0159	-0.2362	0.0002
27	SLU 76	-5.11	0.03	29.71	0.0169	-0.2402	0.0002
27	SLU 77	-4.87	0.04	32.01	0.0146	-0.2357	0.0002
27	SLU 78	-5.08	0.04	30.67	0.0162	-0.2411	0.0002
27	SLU 79	-4.89	0.04	31.98	0.0146	-0.2361	0.0002
27	SLU 80	-5.09	0.04	30.63	0.0162	-0.2415	0.0002
27	SLU 81	-4.75	0.04	32.19	0.0146	-0.2317	0.0002
27	SLU 82	-4.96	0.04	30.85	0.0161	-0.2371	0.0002
27	SLU 83	-4.88	0.04	32.22	0.0149	-0.2366	0.0002
27	SLU 84	-5.09	0.04	30.88	0.0164	-0.2419	0.0002
27	SLE RA 1	-3.31	0.03	23.98	0.0097	-0.1631	0.0001
27	SLE RA 2	-3.54	0.02	22.49	0.0114	-0.169	0.0001
27	SLE RA 3	-3.39	0.03	24.03	0.0099	-0.166	0.0001
27	SLE RA 4	-3.53	0.03	23.13	0.0109	-0.1696	0.0001
27	SLE RA 5	-3.63	0.02	22.51	0.0116	-0.1723	0.0001
27	SLE RA 6	-3.47	0.03	24.05	0.0101	-0.1693	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
27	SLE RA 7	-3.61	0.03	23.15	0.0111	-0.1728	0.0001
27	SLE RA 8	-3.48	0.03	24.02	0.0101	-0.1696	0.0001
27	SLE RA 9	-3.62	0.03	23.13	0.0111	-0.1731	0.0001
27	SLE RA 10	-3.73	0.03	22.92	0.0122	-0.1772	0.0001
27	SLE RA 11	-3.57	0.03	24.45	0.0107	-0.1742	0.0001
27	SLE RA 12	-3.71	0.03	23.56	0.0117	-0.1778	0.0001
27	SLE RA 13	-3.81	0.03	22.94	0.0124	-0.1805	0.0001
27	SLE RA 14	-3.66	0.03	24.47	0.0109	-0.1775	0.0001
27	SLE RA 15	-3.8	0.03	23.58	0.0119	-0.181	0.0001
27	SLE RA 16	-3.67	0.03	24.45	0.0109	-0.1778	0.0001
27	SLE RA 17	-3.81	0.03	23.55	0.0119	-0.1813	0.0001
27	SLE RA 18	-3.58	0.03	24.59	0.0109	-0.1748	0.0001
27	SLE RA 19	-3.72	0.03	23.7	0.0119	-0.1784	0.0001
27	SLE RA 20	-3.66	0.03	24.61	0.0111	-0.178	0.0001
27	SLE RA 21	-3.8	0.03	23.72	0.0121	-0.1816	0.0001
27	SLE FR 1	-3.31	0.03	23.98	0.0097	-0.1631	0.0001
27	SLE FR 2	-3.36	0.03	23.68	0.0101	-0.1643	0.0001
27	SLE FR 3	-3.35	0.03	23.99	0.0098	-0.1644	0.0001
27	SLE FR 4	-3.44	0.03	23.87	0.0104	-0.1678	0.0001
27	SLE FR 5	-3.43	0.03	24.17	0.0102	-0.1679	0.0001
27	SLE FR 6	-3.45	0.03	24.29	0.0103	-0.1689	0.0001
27	SLE QP 1	-3.31	0.03	23.98	0.0097	-0.1631	0.0001
27	SLE QP 2	-3.39	0.03	24.17	0.0101	-0.1666	0.0001
27	SLD 1	-1.11	0.01	18.72	0.0264	-0.0444	0.0001
27	SLD 2	-1.11	0.01	18.72	0.0264	-0.0444	0.0001
27	SLD 3	-0.4	-0.01	12.16	0.0098	-0.0202	0
27	SLD 4	-0.4	-0.01	12.16	0.0098	-0.0202	0
27	SLD 5	-3.79	0.06	32.49	0.0403	-0.1667	0.0002
27	SLD 6	-3.79	0.06	32.49	0.0403	-0.1667	0.0002
27	SLD 7	-1.41	-0.01	10.61	-0.0153	-0.086	0
27	SLD 8	-1.41	-0.01	10.61	-0.0153	-0.086	0
27	SLD 9	-5.38	0.07	37.72	0.0355	-0.2472	0.0003
27	SLD 10	-5.38	0.07	37.72	0.0355	-0.2472	0.0003
27	SLD 11	-2.99	0	15.84	-0.0202	-0.1665	0.0001
27	SLD 12	-2.99	0	15.84	-0.0202	-0.1665	0.0001
27	SLD 13	-6.39	0.07	36.17	0.0104	-0.313	0.0003
27	SLD 14	-6.39	0.07	36.17	0.0104	-0.313	0.0003
27	SLD 15	-5.68	0.05	29.61	-0.0063	-0.2888	0.0002
27	SLD 16	-5.68	0.05	29.61	-0.0063	-0.2888	0.0002
27	SLV 1	1.85	-0.01	11.95	0.0476	0.1149	0
27	SLV 2	1.85	-0.01	11.95	0.0476	0.1149	0
27	SLV 3	3.6	-0.06	-3.91	0.0097	0.1729	-0.0002
27	SLV 4	3.6	-0.06	-3.91	0.0097	0.1729	-0.0002
27	SLV 5	-4.48	0.09	44.56	0.0788	-0.1701	0.0003
27	SLV 6	-4.48	0.09	44.56	0.0788	-0.1701	0.0003
27	SLV 7	1.36	-0.07	-8.31	-0.0475	0.0232	-0.0002
27	SLV 8	1.36	-0.07	-8.31	-0.0475	0.0232	-0.0002
27	SLV 9	-8.15	0.13	56.64	0.0676	-0.3564	0.0004
27	SLV 10	-8.15	0.13	56.64	0.0676	-0.3564	0.0004
27	SLV 11	-2.31	-0.03	3.78	-0.0586	-0.1631	0
27	SLV 12	-2.31	-0.03	3.78	-0.0586	-0.1631	0
27	SLV 13	-10.39	0.12	52.24	0.0104	-0.5061	0.0004
27	SLV 14	-10.39	0.12	52.24	0.0104	-0.5061	0.0004
27	SLV 15	-8.64	0.07	36.38	-0.0274	-0.4481	0.0003
27	SLV 16	-8.64	0.07	36.38	-0.0274	-0.4481	0.0003
28	SLU 1	-4.15	2.54	30.07	0.1299	-0.1159	-0.0002
28	SLU 2	-4.03	1.85	26.94	0.1533	-0.1181	0.0001
28	SLU 3	-4.2	2.54	30.17	0.1333	-0.1181	-0.0002
28	SLU 4	-4.13	2.13	28.29	0.1474	-0.1194	0
28	SLU 5	-4.09	1.84	26.96	0.1562	-0.1204	0.0002
28	SLU 6	-4.25	2.52	30.18	0.1362	-0.1204	-0.0001
28	SLU 7	-4.18	2.11	28.31	0.1502	-0.1217	0
28	SLU 8	-4.25	2.51	30.11	0.1356	-0.1206	-0.0001
28	SLU 9	-4.18	2.1	28.23	0.1497	-0.1219	0.0001
28	SLU 10	-4.22	2.03	28.09	0.1665	-0.1246	0.0001
28	SLU 11	-4.38	2.72	31.31	0.1464	-0.1247	-0.0002
28	SLU 12	-4.31	2.3	29.43	0.1605	-0.126	0
28	SLU 13	-4.27	2.02	28.11	0.1694	-0.127	0.0001
28	SLU 14	-4.43	2.7	31.33	0.1493	-0.127	-0.0002
28	SLU 15	-4.37	2.29	29.45	0.1634	-0.1283	0
28	SLU 16	-4.43	2.69	31.26	0.1488	-0.1272	-0.0002
28	SLU 17	-4.37	2.28	29.38	0.1628	-0.1285	0
28	SLU 18	-4.41	2.79	31.71	0.1486	-0.1254	-0.0002
28	SLU 19	-4.34	2.38	29.83	0.1627	-0.1266	0
28	SLU 20	-4.46	2.78	31.73	0.1515	-0.1277	-0.0002
28	SLU 21	-4.39	2.37	29.85	0.1656	-0.129	0
28	SLU 22	-4.25	2.67	30.8	0.1401	-0.1198	-0.0002
28	SLU 23	-4.14	1.98	27.67	0.1636	-0.1219	0.0001
28	SLU 24	-4.3	2.66	30.89	0.1435	-0.1219	-0.0002
28	SLU 25	-4.23	2.25	29.01	0.1576	-0.1232	0
28	SLU 26	-4.19	1.96	27.69	0.1664	-0.1242	0.0001
28	SLU 27	-4.35	2.65	30.91	0.1464	-0.1243	-0.0002
28	SLU 28	-4.29	2.24	29.03	0.1605	-0.1255	0
28	SLU 29	-4.35	2.64	30.84	0.1459	-0.1244	-0.0002
28	SLU 30	-4.29	2.22	28.96	0.1599	-0.1257	0
28	SLU 31	-4.32	2.16	28.82	0.1767	-0.1285	0.0001
28	SLU 32	-4.49	2.84	32.04	0.1566	-0.1285	-0.0002
28	SLU 33	-4.42	2.43	30.16	0.1707	-0.1298	0
28	SLU 34	-4.37	2.14	28.83	0.1796	-0.1308	0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
28	SLU 35	-4.54	2.83	32.06	0.1595	-0.1308	-0.0002
28	SLU 36	-4.47	2.41	30.18	0.1736	-0.1321	0
28	SLU 37	-4.54	2.81	31.98	0.159	-0.131	-0.0002
28	SLU 38	-4.47	2.4	30.1	0.1731	-0.1323	0
28	SLU 39	-4.51	2.92	32.44	0.1589	-0.1292	-0.0003
28	SLU 40	-4.45	2.51	30.56	0.1729	-0.1304	-0.0001
28	SLU 41	-4.57	2.9	32.46	0.1617	-0.1315	-0.0002
28	SLU 42	-4.5	2.49	30.58	0.1758	-0.1328	-0.0001
28	SLU 43	-5.35	3.26	38.85	0.1654	-0.1494	-0.0002
28	SLU 44	-5.24	2.57	35.72	0.1888	-0.1515	0.0001
28	SLU 45	-5.41	3.26	38.94	0.1688	-0.1516	-0.0002
28	SLU 46	-5.34	2.85	37.06	0.1828	-0.1528	0
28	SLU 47	-5.29	2.56	35.74	0.1917	-0.1539	0.0001
28	SLU 48	-5.46	3.24	38.96	0.1716	-0.1539	-0.0002
28	SLU 49	-5.39	2.83	37.08	0.1857	-0.1552	0
28	SLU 50	-5.46	3.23	38.88	0.1711	-0.1541	-0.0002
28	SLU 51	-5.39	2.82	37.01	0.1852	-0.1553	0
28	SLU 52	-5.43	2.75	36.86	0.2019	-0.1581	0.0001
28	SLU 53	-5.59	3.43	40.08	0.1819	-0.1582	-0.0002
28	SLU 54	-5.52	3.02	38.21	0.196	-0.1594	0
28	SLU 55	-5.48	2.74	36.88	0.2048	-0.1604	0.0001
28	SLU 56	-5.64	3.42	40.1	0.1848	-0.1605	-0.0002
28	SLU 57	-5.57	3.01	38.22	0.1988	-0.1618	0
28	SLU 58	-5.64	3.41	40.03	0.1842	-0.1607	-0.0002
28	SLU 59	-5.57	2.99	38.15	0.1983	-0.1619	0
28	SLU 60	-5.62	3.51	40.48	0.1841	-0.1588	-0.0003
28	SLU 61	-5.55	3.1	38.61	0.1982	-0.1601	-0.0001
28	SLU 62	-5.67	3.5	40.5	0.187	-0.1612	-0.0002
28	SLU 63	-5.6	3.09	38.62	0.2011	-0.1624	-0.0001
28	SLU 64	-5.46	3.39	39.57	0.1756	-0.1532	-0.0002
28	SLU 65	-5.35	2.7	36.44	0.199	-0.1553	0.0001
28	SLU 66	-5.51	3.38	39.67	0.179	-0.1554	-0.0002
28	SLU 67	-5.44	2.97	37.79	0.193	-0.1567	0
28	SLU 68	-5.4	2.68	36.46	0.2019	-0.1577	0.0001
28	SLU 69	-5.56	3.37	39.68	0.1818	-0.1577	-0.0002
28	SLU 70	-5.49	2.96	37.8	0.1959	-0.159	0
28	SLU 71	-5.56	3.35	39.61	0.1813	-0.1579	-0.0002
28	SLU 72	-5.5	2.94	37.73	0.1954	-0.1592	0
28	SLU 73	-5.53	2.88	37.59	0.2122	-0.1619	0
28	SLU 74	-5.69	3.56	40.81	0.1921	-0.162	-0.0003
28	SLU 75	-5.63	3.15	38.93	0.2062	-0.1633	-0.0001
28	SLU 76	-5.58	2.86	37.61	0.215	-0.1643	0
28	SLU 77	-5.75	3.54	40.83	0.195	-0.1643	-0.0003
28	SLU 78	-5.68	3.13	38.95	0.2091	-0.1656	-0.0001
28	SLU 79	-5.75	3.53	40.76	0.1945	-0.1645	-0.0002
28	SLU 80	-5.68	3.12	38.88	0.2085	-0.1658	-0.0001
28	SLU 81	-5.72	3.64	41.21	0.1943	-0.1627	-0.0003
28	SLU 82	-5.65	3.23	39.33	0.2084	-0.1639	-0.0001
28	SLU 83	-5.77	3.62	41.23	0.1972	-0.165	-0.0003
28	SLU 84	-5.71	3.21	39.35	0.2113	-0.1662	-0.0001
28	SLE RA 1	-4.18	2.58	30.28	0.1328	-0.117	-0.0002
28	SLE RA 2	-4.1	2.12	28.19	0.1484	-0.1184	0
28	SLE RA 3	-4.21	2.57	30.34	0.1351	-0.1185	-0.0002
28	SLE RA 4	-4.17	2.3	29.09	0.1445	-0.1193	0
28	SLE RA 5	-4.14	2.11	28.21	0.1504	-0.12	0
28	SLE RA 6	-4.24	2.56	30.35	0.137	-0.12	-0.0002
28	SLE RA 7	-4.2	2.29	29.1	0.1464	-0.1209	0
28	SLE RA 8	-4.25	2.56	30.31	0.1366	-0.1201	-0.0002
28	SLE RA 9	-4.2	2.28	29.05	0.146	-0.121	0
28	SLE RA 10	-4.22	2.24	28.96	0.1572	-0.1228	0
28	SLE RA 11	-4.33	2.69	31.11	0.1438	-0.1229	-0.0002
28	SLE RA 12	-4.29	2.42	29.85	0.1532	-0.1237	-0.0001
28	SLE RA 13	-4.26	2.23	28.97	0.1591	-0.1244	0
28	SLE RA 14	-4.37	2.68	31.12	0.1457	-0.1244	-0.0002
28	SLE RA 15	-4.32	2.41	29.87	0.1551	-0.1253	-0.0001
28	SLE RA 16	-4.37	2.67	31.07	0.1454	-0.1245	-0.0002
28	SLE RA 17	-4.32	2.4	29.82	0.1548	-0.1254	-0.0001
28	SLE RA 18	-4.35	2.75	31.37	0.1453	-0.1233	-0.0002
28	SLE RA 19	-4.31	2.47	30.12	0.1547	-0.1242	-0.0001
28	SLE RA 20	-4.39	2.74	31.39	0.1472	-0.1249	-0.0002
28	SLE RA 21	-4.34	2.46	30.13	0.1566	-0.1257	-0.0001
28	SLE FR 1	-4.18	2.58	30.28	0.1328	-0.117	-0.0002
28	SLE FR 2	-4.16	2.49	29.86	0.1359	-0.1173	-0.0001
28	SLE FR 3	-4.19	2.57	30.29	0.1336	-0.1177	-0.0002
28	SLE FR 4	-4.21	2.54	30.19	0.1397	-0.1192	-0.0001
28	SLE FR 5	-4.24	2.62	30.61	0.1373	-0.1195	-0.0002
28	SLE FR 6	-4.26	2.66	30.83	0.1391	-0.1202	-0.0002
28	SLE QP 1	-4.18	2.58	30.28	0.1328	-0.117	-0.0002
28	SLE QP 2	-4.23	2.63	30.61	0.1366	-0.1189	-0.0002
28	SLD 1	-2.16	2.57	23.02	0.1099	-0.0436	-0.0012
28	SLD 2	-2.16	2.57	23.02	0.1099	-0.0436	-0.0012
28	SLD 3	-1.47	0.44	13.38	0.0381	-0.0282	-0.0003
28	SLD 4	-1.47	0.44	13.38	0.0381	-0.0282	-0.0003
28	SLD 5	-4.65	5.84	42.95	0.2373	-0.1196	-0.0018
28	SLD 6	-4.65	5.84	42.95	0.2373	-0.1196	-0.0018
28	SLD 7	-2.35	-1.25	10.83	-0.0017	-0.0684	0.0011
28	SLD 8	-2.35	-1.25	10.83	-0.0017	-0.0684	0.0011
28	SLD 9	-6.1	6.51	50.39	0.2749	-0.1695	-0.0015
28	SLD 10	-6.1	6.51	50.39	0.2749	-0.1695	-0.0015



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
28	SLD 11	-3.8	-0.58	18.27	0.0358	-0.1182	0.0014
28	SLD 12	-3.8	-0.58	18.27	0.0358	-0.1182	0.0014
28	SLD 13	-6.99	4.81	47.84	0.235	-0.2096	-0.0001
28	SLD 14	-6.99	4.81	47.84	0.235	-0.2096	-0.0001
28	SLD 15	-6.3	2.69	38.2	0.1633	-0.1943	0.0008
28	SLD 16	-6.3	2.69	38.2	0.1633	-0.1943	0.0008
28	SLV 1	0.53	2.55	13.61	0.0748	0.0547	-0.0026
28	SLV 2	0.53	2.55	13.61	0.0748	0.0547	-0.0026
28	SLV 3	2.17	-2.5	-9.59	-0.0937	0.091	-0.0005
28	SLV 4	2.17	-2.5	-9.59	-0.0937	0.091	-0.0005
28	SLV 5	-5.28	10.26	60.69	0.3735	-0.1219	-0.0041
28	SLV 6	-5.28	10.26	60.69	0.3735	-0.1219	-0.0041
28	SLV 7	0.17	-6.57	-16.63	-0.188	-0.0009	0.0029
28	SLV 8	0.17	-6.57	-16.63	-0.188	-0.0009	0.0029
28	SLV 9	-8.63	11.82	77.85	0.4611	-0.237	-0.0033
28	SLV 10	-8.63	11.82	77.85	0.4611	-0.237	-0.0033
28	SLV 11	-3.18	-5	0.53	-0.1004	-0.1159	0.0037
28	SLV 12	-3.18	-5	0.53	-0.1004	-0.1159	0.0037
28	SLV 13	-10.62	7.75	70.81	0.3668	-0.3288	0.0001
28	SLV 14	-10.62	7.75	70.81	0.3668	-0.3288	0.0001
28	SLV 15	-8.99	2.71	47.61	0.1984	-0.2925	0.0022
28	SLV 16	-8.99	2.71	47.61	0.1984	-0.2925	0.0022
29	SLU 1	0.06	2.35	15.44	-0.0634	0.0055	0.0002
29	SLU 2	0.06	1.73	12.66	-0.0198	0.006	0.0002
29	SLU 3	0.06	2.35	15.3	-0.0622	0.0056	0.0002
29	SLU 4	0.06	1.98	13.63	-0.036	0.0059	0.0002
29	SLU 5	0.06	1.7	12.42	-0.0175	0.0061	0.0002
29	SLU 6	0.06	2.32	15.07	-0.0598	0.0056	0.0002
29	SLU 7	0.06	1.95	13.4	-0.0337	0.006	0.0002
29	SLU 8	0.06	2.29	14.97	-0.0587	0.0056	0.0002
29	SLU 9	0.06	1.92	13.3	-0.0326	0.006	0.0002
29	SLU 10	0.06	2.12	13.27	-0.0291	0.0063	0.0002
29	SLU 11	0.07	2.73	15.92	-0.0715	0.0059	0.0002
29	SLU 12	0.07	2.36	14.25	-0.0453	0.0062	0.0002
29	SLU 13	0.06	2.08	13.03	-0.0268	0.0064	0.0002
29	SLU 14	0.07	2.7	15.68	-0.0691	0.006	0.0002
29	SLU 15	0.07	2.33	14.01	-0.0429	0.0063	0.0002
29	SLU 16	0.07	2.67	15.58	-0.068	0.006	0.0002
29	SLU 17	0.07	2.3	13.91	-0.0419	0.0063	0.0002
29	SLU 18	0.07	2.9	16.32	-0.0767	0.0059	0.0002
29	SLU 19	0.07	2.53	14.65	-0.0505	0.0063	0.0002
29	SLU 20	0.07	2.87	16.08	-0.0743	0.006	0.0002
29	SLU 21	0.07	2.49	14.41	-0.0482	0.0063	0.0002
29	SLU 22	0.06	2.63	15.78	-0.0697	0.0057	0.0002
29	SLU 23	0.06	2.01	12.99	-0.0261	0.0062	0.0002
29	SLU 24	0.07	2.63	15.64	-0.0684	0.0057	0.0002
29	SLU 25	0.06	2.26	13.97	-0.0423	0.006	0.0002
29	SLU 26	0.06	1.98	12.76	-0.0237	0.0063	0.0002
29	SLU 27	0.07	2.6	15.4	-0.0661	0.0058	0.0002
29	SLU 28	0.06	2.23	13.73	-0.0399	0.0061	0.0002
29	SLU 29	0.07	2.57	15.3	-0.065	0.0058	0.0002
29	SLU 30	0.06	2.2	13.63	-0.0388	0.0061	0.0002
29	SLU 31	0.07	2.39	13.61	-0.0354	0.0065	0.0002
29	SLU 32	0.07	3.01	16.25	-0.0777	0.006	0.0002
29	SLU 33	0.07	2.64	14.58	-0.0516	0.0064	0.0002
29	SLU 34	0.07	2.36	13.37	-0.033	0.0066	0.0002
29	SLU 35	0.07	2.98	16.02	-0.0754	0.0061	0.0002
29	SLU 36	0.07	2.61	14.35	-0.0492	0.0064	0.0002
29	SLU 37	0.07	2.95	15.92	-0.0743	0.0061	0.0002
29	SLU 38	0.07	2.58	14.25	-0.0481	0.0064	0.0002
29	SLU 39	0.07	3.18	16.65	-0.083	0.0061	0.0003
29	SLU 40	0.07	2.8	14.98	-0.0568	0.0064	0.0002
29	SLU 41	0.07	3.14	16.42	-0.0806	0.0062	0.0003
29	SLU 42	0.07	2.77	14.75	-0.0544	0.0065	0.0003
29	SLU 43	0.08	2.96	19.96	-0.0803	0.0071	0.0003
29	SLU 44	0.08	2.34	17.17	-0.0367	0.0076	0.0003
29	SLU 45	0.08	2.96	19.82	-0.0791	0.0072	0.0003
29	SLU 46	0.08	2.59	18.15	-0.0529	0.0075	0.0003
29	SLU 47	0.08	2.31	16.94	-0.0344	0.0077	0.0003
29	SLU 48	0.08	2.93	19.58	-0.0767	0.0072	0.0003
29	SLU 49	0.08	2.56	17.91	-0.0505	0.0075	0.0003
29	SLU 50	0.08	2.9	19.48	-0.0756	0.0072	0.0003
29	SLU 51	0.08	2.53	17.81	-0.0494	0.0076	0.0003
29	SLU 52	0.08	2.73	17.79	-0.046	0.0079	0.0003
29	SLU 53	0.09	3.34	20.43	-0.0883	0.0075	0.0003
29	SLU 54	0.08	2.97	18.76	-0.0622	0.0078	0.0003
29	SLU 55	0.08	2.69	17.55	-0.0437	0.008	0.0003
29	SLU 56	0.09	3.31	20.2	-0.086	0.0075	0.0003
29	SLU 57	0.08	2.94	18.53	-0.0598	0.0079	0.0003
29	SLU 58	0.09	3.28	20.1	-0.0849	0.0076	0.0003
29	SLU 59	0.08	2.91	18.43	-0.0587	0.0079	0.0003
29	SLU 60	0.09	3.51	20.83	-0.0936	0.0075	0.0003
29	SLU 61	0.09	3.14	19.16	-0.0674	0.0079	0.0003
29	SLU 62	0.09	3.48	20.6	-0.0912	0.0076	0.0003
29	SLU 63	0.09	3.1	18.93	-0.0651	0.0079	0.0003
29	SLU 64	0.08	3.24	20.3	-0.0866	0.0073	0.0003
29	SLU 65	0.08	2.62	17.51	-0.043	0.0078	0.0003
29	SLU 66	0.08	3.24	20.16	-0.0853	0.0073	0.0003
29	SLU 67	0.08	2.87	18.49	-0.0592	0.0076	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
29	SLU 68	0.08	2.59	17.27	-0.0406	0.0079	0.0003
29	SLU 69	0.08	3.21	19.92	-0.083	0.0074	0.0003
29	SLU 70	0.08	2.84	18.25	-0.0568	0.0077	0.0003
29	SLU 71	0.08	3.18	19.82	-0.0819	0.0074	0.0003
29	SLU 72	0.08	2.81	18.15	-0.0557	0.0077	0.0003
29	SLU 73	0.08	3	18.12	-0.0523	0.0081	0.0003
29	SLU 74	0.09	3.62	20.77	-0.0946	0.0076	0.0003
29	SLU 75	0.09	3.25	19.1	-0.0684	0.008	0.0003
29	SLU 76	0.09	2.97	17.89	-0.0499	0.0082	0.0003
29	SLU 77	0.09	3.59	20.53	-0.0922	0.0077	0.0003
29	SLU 78	0.09	3.22	18.86	-0.0661	0.008	0.0003
29	SLU 79	0.09	3.56	20.43	-0.0912	0.0077	0.0003
29	SLU 80	0.09	3.19	18.76	-0.065	0.008	0.0003
29	SLU 81	0.09	3.79	21.17	-0.0998	0.0077	0.0003
29	SLU 82	0.09	3.41	19.5	-0.0737	0.008	0.0003
29	SLU 83	0.09	3.75	20.93	-0.0975	0.0078	0.0003
29	SLU 84	0.09	3.38	19.26	-0.0713	0.0081	0.0003
29	SLE RA 1	0.06	2.43	15.54	-0.0652	0.0055	0.0002
29	SLE RA 2	0.06	2.02	13.68	-0.0362	0.0059	0.0002
29	SLE RA 3	0.06	2.43	15.45	-0.0644	0.0056	0.0002
29	SLE RA 4	0.06	2.18	14.33	-0.0469	0.0058	0.0002
29	SLE RA 5	0.06	2	13.52	-0.0346	0.0059	0.0002
29	SLE RA 6	0.06	2.41	15.29	-0.0628	0.0056	0.0002
29	SLE RA 7	0.06	2.16	14.17	-0.0454	0.0058	0.0002
29	SLE RA 8	0.06	2.39	15.22	-0.0621	0.0056	0.0002
29	SLE RA 9	0.06	2.14	14.11	-0.0446	0.0059	0.0002
29	SLE RA 10	0.06	2.27	14.09	-0.0423	0.0061	0.0002
29	SLE RA 11	0.07	2.69	15.86	-0.0706	0.0058	0.0002
29	SLE RA 12	0.07	2.44	14.74	-0.0531	0.006	0.0002
29	SLE RA 13	0.06	2.25	13.93	-0.0408	0.0062	0.0002
29	SLE RA 14	0.07	2.67	15.7	-0.069	0.0058	0.0002
29	SLE RA 15	0.07	2.42	14.58	-0.0516	0.0061	0.0002
29	SLE RA 16	0.07	2.64	15.63	-0.0683	0.0059	0.0002
29	SLE RA 17	0.07	2.4	14.52	-0.0508	0.0061	0.0002
29	SLE RA 18	0.07	2.8	16.12	-0.0741	0.0058	0.0002
29	SLE RA 19	0.07	2.55	15.01	-0.0566	0.0061	0.0002
29	SLE RA 20	0.07	2.77	15.96	-0.0725	0.0059	0.0002
29	SLE RA 21	0.07	2.53	14.85	-0.0551	0.0061	0.0002
29	SLE FR 1	0.06	2.43	15.54	-0.0652	0.0055	0.0002
29	SLE FR 2	0.06	2.35	15.17	-0.0594	0.0056	0.0002
29	SLE FR 3	0.06	2.42	15.48	-0.0646	0.0056	0.0002
29	SLE FR 4	0.06	2.46	15.34	-0.0621	0.0057	0.0002
29	SLE FR 5	0.06	2.53	15.65	-0.0672	0.0057	0.0002
29	SLE FR 6	0.07	2.61	15.83	-0.0696	0.0057	0.0002
29	SLE QP 1	0.06	2.43	15.54	-0.0652	0.0055	0.0002
29	SLE QP 2	0.06	2.54	15.71	-0.0679	0.0056	0.0002
29	SLD 1	0.1	2.87	24.14	-0.0892	0.0134	0.0004
29	SLD 2	0.1	2.87	24.14	-0.0892	0.0134	0.0004
29	SLD 3	0.09	0.93	16.88	0.0271	0.0115	0.0003
29	SLD 4	0.09	0.93	16.88	0.0271	0.0115	0.0003
29	SLD 5	0.09	5.59	29.26	-0.2508	0.0108	0.0003
29	SLD 6	0.09	5.59	29.26	-0.2508	0.0108	0.0003
29	SLD 7	0.06	-0.89	5.04	0.1371	0.0045	0.0002
29	SLD 8	0.06	-0.89	5.04	0.1371	0.0045	0.0002
29	SLD 9	0.07	5.97	26.39	-0.2729	0.0068	0.0002
29	SLD 10	0.07	5.97	26.39	-0.2729	0.0068	0.0002
29	SLD 11	0.04	-0.5	2.16	0.115	0.0004	0.0002
29	SLD 12	0.04	-0.5	2.16	0.115	0.0004	0.0002
29	SLD 13	0.04	4.16	14.55	-0.1629	-0.0002	0.0001
29	SLD 14	0.04	4.16	14.55	-0.1629	-0.0002	0.0001
29	SLD 15	0.03	2.21	7.28	-0.0465	-0.0021	0.0001
29	SLD 16	0.03	2.21	7.28	-0.0465	-0.0021	0.0001
29	SLV 1	0.15	3.33	35.42	-0.1191	0.0235	0.0005
29	SLV 2	0.15	3.33	35.42	-0.1191	0.0235	0.0005
29	SLV 3	0.13	-1.3	17.96	0.158	0.019	0.0005
29	SLV 4	0.13	-1.3	17.96	0.158	0.019	0.0005
29	SLV 5	0.13	9.79	48.12	-0.5034	0.0178	0.0004
29	SLV 6	0.13	9.79	48.12	-0.5034	0.0178	0.0004
29	SLV 7	0.04	-5.62	-10.11	0.42	0.0028	0.0002
29	SLV 8	0.04	-5.62	-10.11	0.42	0.0028	0.0002
29	SLV 9	0.08	10.71	41.53	-0.5558	0.0085	0.0003
29	SLV 10	0.08	10.71	41.53	-0.5558	0.0085	0.0003
29	SLV 11	0	-4.71	-16.69	0.3676	-0.0065	0
29	SLV 12	0	-4.71	-16.69	0.3676	-0.0065	0
29	SLV 13	0	6.38	13.47	-0.2937	-0.0077	0
29	SLV 14	0	6.38	13.47	-0.2937	-0.0077	0
29	SLV 15	-0.02	1.75	-4	-0.0167	-0.0122	-0.0001
29	SLV 16	-0.02	1.75	-4	-0.0167	-0.0122	-0.0001
30	SLU 1	0.04	1.91	20.07	-0.0771	0.0066	0.0001
30	SLU 2	0.04	1.22	18.93	-0.0401	0.0078	0.0001
30	SLU 3	0.04	1.92	20.07	-0.077	0.0067	0.0001
30	SLU 4	0.04	1.5	19.38	-0.0548	0.0074	0.0001
30	SLU 5	0.04	1.2	18.77	-0.0387	0.0078	0.0001
30	SLU 6	0.04	1.89	19.92	-0.0756	0.0067	0.0001
30	SLU 7	0.04	1.48	19.23	-0.0534	0.0074	0.0001
30	SLU 8	0.04	1.86	19.77	-0.0744	0.0067	0.0001
30	SLU 9	0.04	1.44	19.08	-0.0522	0.0074	0.0001
30	SLU 10	0.04	1.64	20.64	-0.0545	0.0085	0.0001
30	SLU 11	0.04	2.34	21.79	-0.0913	0.0074	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
30	SLU 12	0.04	1.92	21.1	-0.0691	0.0081	0.0001
30	SLU 13	0.04	1.62	20.49	-0.0531	0.0085	0.0001
30	SLU 14	0.04	2.31	21.63	-0.09	0.0074	0.0001
30	SLU 15	0.04	1.9	20.95	-0.0678	0.0081	0.0001
30	SLU 16	0.04	2.28	21.48	-0.0888	0.0074	0.0001
30	SLU 17	0.04	1.87	20.8	-0.0666	0.0081	0.0001
30	SLU 18	0.04	2.51	22.52	-0.0976	0.0076	0.0001
30	SLU 19	0.04	2.1	21.84	-0.0754	0.0083	0.0001
30	SLU 20	0.04	2.49	22.37	-0.0963	0.0077	0.0001
30	SLU 21	0.04	2.07	21.69	-0.0741	0.0084	0.0001
30	SLU 22	0.04	2.23	21.3	-0.0875	0.0071	0.0001
30	SLU 23	0.04	1.54	20.15	-0.0505	0.0082	0.0001
30	SLU 24	0.04	2.23	21.29	-0.0874	0.0071	0.0001
30	SLU 25	0.04	1.82	20.61	-0.0652	0.0078	0.0001
30	SLU 26	0.04	1.51	20	-0.0492	0.0083	0.0001
30	SLU 27	0.04	2.2	21.14	-0.0861	0.0071	0.0001
30	SLU 28	0.04	1.79	20.46	-0.0639	0.0078	0.0001
30	SLU 29	0.04	2.17	20.99	-0.0848	0.0071	0.0001
30	SLU 30	0.04	1.76	20.31	-0.0626	0.0078	0.0001
30	SLU 31	0.04	1.96	21.87	-0.0649	0.009	0.0001
30	SLU 32	0.04	2.65	23.01	-0.1018	0.0078	0.0001
30	SLU 33	0.04	2.24	22.33	-0.0796	0.0085	0.0001
30	SLU 34	0.04	1.93	21.72	-0.0636	0.009	0.0001
30	SLU 35	0.04	2.62	22.86	-0.1004	0.0079	0.0001
30	SLU 36	0.04	2.21	22.17	-0.0783	0.0086	0.0001
30	SLU 37	0.04	2.59	22.71	-0.0992	0.0079	0.0001
30	SLU 38	0.04	2.18	22.02	-0.077	0.0086	0.0001
30	SLU 39	0.04	2.83	23.75	-0.1081	0.0081	0.0002
30	SLU 40	0.04	2.41	23.06	-0.0859	0.0088	0.0001
30	SLU 41	0.04	2.8	23.6	-0.1067	0.0081	0.0002
30	SLU 42	0.04	2.39	22.91	-0.0845	0.0088	0.0002
30	SLU 43	0.05	2.38	25.67	-0.0966	0.0085	0.0002
30	SLU 44	0.05	1.69	24.53	-0.0596	0.0096	0.0002
30	SLU 45	0.05	2.38	25.67	-0.0965	0.0085	0.0002
30	SLU 46	0.05	1.97	24.98	-0.0743	0.0092	0.0002
30	SLU 47	0.05	1.66	24.38	-0.0583	0.0097	0.0002
30	SLU 48	0.05	2.36	25.52	-0.0951	0.0085	0.0002
30	SLU 49	0.05	1.94	24.83	-0.073	0.0092	0.0002
30	SLU 50	0.05	2.32	25.37	-0.0939	0.0085	0.0002
30	SLU 51	0.05	1.91	24.68	-0.0717	0.0092	0.0002
30	SLU 52	0.05	2.11	26.25	-0.074	0.0103	0.0002
30	SLU 53	0.05	2.8	27.39	-0.1109	0.0092	0.0002
30	SLU 54	0.05	2.39	26.7	-0.0887	0.0099	0.0002
30	SLU 55	0.05	2.08	26.09	-0.0727	0.0104	0.0002
30	SLU 56	0.05	2.78	27.24	-0.1095	0.0092	0.0002
30	SLU 57	0.05	2.36	26.55	-0.0873	0.0099	0.0002
30	SLU 58	0.05	2.75	27.08	-0.1083	0.0092	0.0002
30	SLU 59	0.05	2.33	26.4	-0.0861	0.0099	0.0002
30	SLU 60	0.05	2.98	28.13	-0.1172	0.0095	0.0002
30	SLU 61	0.05	2.57	27.44	-0.095	0.0102	0.0002
30	SLU 62	0.05	2.95	27.97	-0.1158	0.0095	0.0002
30	SLU 63	0.05	2.54	27.29	-0.0936	0.0102	0.0002
30	SLU 64	0.05	2.69	26.9	-0.1071	0.0089	0.0002
30	SLU 65	0.05	2	25.75	-0.0701	0.0101	0.0002
30	SLU 66	0.05	2.7	26.9	-0.107	0.0089	0.0002
30	SLU 67	0.05	2.28	26.21	-0.0848	0.0096	0.0002
30	SLU 68	0.05	1.98	25.6	-0.0687	0.0101	0.0002
30	SLU 69	0.05	2.67	26.74	-0.1056	0.009	0.0002
30	SLU 70	0.05	2.26	26.06	-0.0834	0.0097	0.0002
30	SLU 71	0.05	2.64	26.59	-0.1044	0.009	0.0002
30	SLU 72	0.05	2.22	25.91	-0.0822	0.0097	0.0002
30	SLU 73	0.05	2.42	27.47	-0.0845	0.0108	0.0002
30	SLU 74	0.05	3.12	28.61	-0.1213	0.0097	0.0002
30	SLU 75	0.05	2.7	27.93	-0.0991	0.0104	0.0002
30	SLU 76	0.05	2.4	27.32	-0.0831	0.0108	0.0002
30	SLU 77	0.05	3.09	28.46	-0.12	0.0097	0.0002
30	SLU 78	0.05	2.68	27.77	-0.0978	0.0104	0.0002
30	SLU 79	0.05	3.06	28.31	-0.1188	0.0097	0.0002
30	SLU 80	0.05	2.65	27.62	-0.0966	0.0104	0.0002
30	SLU 81	0.05	3.29	29.35	-0.1276	0.0099	0.0002
30	SLU 82	0.05	2.88	28.66	-0.1054	0.0106	0.0002
30	SLU 83	0.05	3.27	29.2	-0.1263	0.01	0.0002
30	SLU 84	0.05	2.85	28.51	-0.1041	0.0107	0.0002
30	SLE RA 1	0.04	2	20.42	-0.0801	0.0068	0.0001
30	SLE RA 2	0.04	1.54	19.66	-0.0554	0.0075	0.0001
30	SLE RA 3	0.04	2	20.42	-0.08	0.0068	0.0001
30	SLE RA 4	0.04	1.73	19.96	-0.0652	0.0072	0.0001
30	SLE RA 5	0.04	1.52	19.56	-0.0545	0.0076	0.0001
30	SLE RA 6	0.04	1.99	20.32	-0.0791	0.0068	0.0001
30	SLE RA 7	0.04	1.71	19.86	-0.0643	0.0073	0.0001
30	SLE RA 8	0.04	1.97	20.22	-0.0783	0.0068	0.0001
30	SLE RA 9	0.04	1.69	19.76	-0.0635	0.0073	0.0001
30	SLE RA 10	0.04	1.82	20.8	-0.065	0.008	0.0001
30	SLE RA 11	0.04	2.29	21.56	-0.0896	0.0073	0.0001
30	SLE RA 12	0.04	2.01	21.11	-0.0748	0.0077	0.0001
30	SLE RA 13	0.04	1.8	20.7	-0.0641	0.008	0.0001
30	SLE RA 14	0.04	2.27	21.46	-0.0887	0.0073	0.0001
30	SLE RA 15	0.04	1.99	21.01	-0.0739	0.0077	0.0001
30	SLE RA 16	0.04	2.25	21.36	-0.0879	0.0073	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
30	SLE RA 17	0.04	1.97	20.91	-0.0731	0.0077	0.0001
30	SLE RA 18	0.04	2.4	22.06	-0.0938	0.0074	0.0001
30	SLE RA 19	0.04	2.13	21.6	-0.079	0.0079	0.0001
30	SLE RA 20	0.04	2.38	21.96	-0.0929	0.0075	0.0001
30	SLE RA 21	0.04	2.11	21.5	-0.0781	0.0079	0.0001
30	SLE FR 1	0.04	2	20.42	-0.0801	0.0068	0.0001
30	SLE FR 2	0.04	1.91	20.27	-0.0751	0.0069	0.0001
30	SLE FR 3	0.04	1.99	20.38	-0.0797	0.0068	0.0001
30	SLE FR 4	0.04	2.03	20.76	-0.0793	0.0071	0.0001
30	SLE FR 5	0.04	2.11	20.87	-0.0838	0.007	0.0001
30	SLE FR 6	0.04	2.2	21.24	-0.0869	0.0071	0.0001
30	SLE QP 1	0.04	2	20.42	-0.0801	0.0068	0.0001
30	SLE QP 2	0.04	2.12	20.91	-0.0842	0.007	0.0001
30	SLD 1	0.07	2.36	25.56	-0.1053	0.0202	0.0002
30	SLD 2	0.07	2.36	25.56	-0.1053	0.0202	0.0002
30	SLD 3	0.05	0.09	21.04	0.0098	0.011	0.0002
30	SLD 4	0.05	0.09	21.04	0.0098	0.011	0.0002
30	SLD 5	0.09	5.63	29.16	-0.2652	0.0249	0.0003
30	SLD 6	0.09	5.63	29.16	-0.2652	0.0249	0.0003
30	SLD 7	0	-1.93	14.09	0.1187	-0.0058	0
30	SLD 8	0	-1.93	14.09	0.1187	-0.0058	0
30	SLD 9	0.08	6.17	27.73	-0.2871	0.0197	0.0002
30	SLD 10	0.08	6.17	27.73	-0.2871	0.0197	0.0002
30	SLD 11	-0.02	-1.39	12.66	0.0969	-0.0109	0
30	SLD 12	-0.02	-1.39	12.66	0.0969	-0.0109	0
30	SLD 13	0.03	4.15	20.79	-0.1782	0.0029	0.0001
30	SLD 14	0.03	4.15	20.79	-0.1782	0.0029	0.0001
30	SLD 15	0	1.88	16.27	-0.063	-0.0062	0
30	SLD 16	0	1.88	16.27	-0.063	-0.0062	0
30	SLV 1	0.12	2.7	31.98	-0.1345	0.0377	0.0004
30	SLV 2	0.12	2.7	31.98	-0.1345	0.0377	0.0004
30	SLV 3	0.06	-2.67	20.97	0.1377	0.0159	0.0003
30	SLV 4	0.06	-2.67	20.97	0.1377	0.0159	0.0003
30	SLV 5	0.16	10.43	40.92	-0.5121	0.0494	0.0004
30	SLV 6	0.16	10.43	40.92	-0.5121	0.0494	0.0004
30	SLV 7	-0.06	-7.45	4.24	0.3952	-0.0236	-0.0001
30	SLV 8	-0.06	-7.45	4.24	0.3952	-0.0236	-0.0001
30	SLV 9	0.13	11.7	37.58	-0.5635	0.0375	0.0003
30	SLV 10	0.13	11.7	37.58	-0.5635	0.0375	0.0003
30	SLV 11	-0.09	-6.19	0.91	0.3437	-0.0355	-0.0002
30	SLV 12	-0.09	-6.19	0.91	0.3437	-0.0355	-0.0002
30	SLV 13	0.02	6.91	20.85	-0.306	-0.0019	0
30	SLV 14	0.02	6.91	20.85	-0.306	-0.0019	0
30	SLV 15	-0.05	1.55	9.85	-0.0338	-0.0238	-0.0001
30	SLV 16	-0.05	1.55	9.85	-0.0338	-0.0238	-0.0001
31	SLU 1	0	13.16	35.14	-0.6162	-0.0004	0
31	SLU 2	0.01	12.95	35.1	-0.6055	0.0004	0
31	SLU 3	0	13.64	36.13	-0.6395	-0.0003	0
31	SLU 4	0.01	13.52	36.11	-0.6331	0.0002	0
31	SLU 5	0.01	13.4	36.04	-0.6278	0.0005	0
31	SLU 6	0	14.09	37.07	-0.6618	-0.0002	0
31	SLU 7	0.01	13.97	37.05	-0.6554	0.0002	0
31	SLU 8	0	14.06	37.02	-0.6607	-0.0002	0
31	SLU 9	0.01	13.94	36.99	-0.6543	0.0002	0
31	SLU 10	0.01	15.37	40.28	-0.7158	0.0003	0
31	SLU 11	0	16.06	41.31	-0.7498	-0.0004	0
31	SLU 12	0.01	15.93	41.28	-0.7434	0.0001	0
31	SLU 13	0.01	15.82	41.22	-0.738	0.0004	0
31	SLU 14	0	16.51	42.24	-0.772	-0.0003	0
31	SLU 15	0.01	16.39	42.22	-0.7656	0.0001	0
31	SLU 16	0	16.48	42.19	-0.7709	-0.0003	0
31	SLU 17	0.01	16.36	42.17	-0.7645	0.0002	0
31	SLU 18	0	16.61	42.53	-0.7737	-0.0005	0
31	SLU 19	0.01	16.49	42.51	-0.7673	0	0
31	SLU 20	0	17.06	43.47	-0.7959	-0.0004	0
31	SLU 21	0.01	16.94	43.45	-0.7895	0.0001	0
31	SLU 22	0	14.57	38.09	-0.6806	-0.0005	0
31	SLU 23	0.01	14.36	38.05	-0.67	0.0003	0
31	SLU 24	0	15.06	39.08	-0.704	-0.0004	0
31	SLU 25	0.01	14.93	39.06	-0.6976	0	0
31	SLU 26	0.01	14.82	38.99	-0.6922	0.0003	0
31	SLU 27	0	15.51	40.02	-0.7262	-0.0004	0
31	SLU 28	0.01	15.39	39.99	-0.7198	0.0001	0
31	SLU 29	0	15.48	39.97	-0.7251	-0.0004	0
31	SLU 30	0.01	15.35	39.94	-0.7187	0.0001	0
31	SLU 31	0.01	16.78	43.23	-0.7802	0.0002	0
31	SLU 32	0	17.47	44.26	-0.8142	-0.0005	0
31	SLU 33	0.01	17.35	44.23	-0.8078	-0.0001	0
31	SLU 34	0.01	17.23	44.16	-0.8025	0.0003	0
31	SLU 35	0	17.93	45.19	-0.8365	-0.0005	0
31	SLU 36	0.01	17.8	45.17	-0.8301	0	0
31	SLU 37	0	17.89	45.14	-0.8354	-0.0004	0
31	SLU 38	0.01	17.77	45.12	-0.829	0	0
31	SLU 39	0	18.02	45.48	-0.8381	-0.0006	0
31	SLU 40	0.01	17.9	45.46	-0.8317	-0.0002	0
31	SLU 41	0	18.48	46.42	-0.8604	-0.0005	0
31	SLU 42	0.01	18.35	46.4	-0.854	-0.0001	0
31	SLU 43	0	16.62	44.67	-0.7789	-0.0004	0
31	SLU 44	0.01	16.41	44.63	-0.7682	0.0003	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
31	SLU 45	0	17.1	45.66	-0.8023	-0.0004	0
31	SLU 46	0.01	16.98	45.64	-0.7959	0.0001	0
31	SLU 47	0.01	16.86	45.57	-0.7905	0.0004	0
31	SLU 48	0	17.56	46.6	-0.8245	-0.0003	0
31	SLU 49	0.01	17.43	46.58	-0.8181	0.0002	0
31	SLU 50	0	17.52	46.55	-0.8234	-0.0003	0
31	SLU 51	0.01	17.4	46.52	-0.817	0.0002	0
31	SLU 52	0.01	18.83	49.81	-0.8785	0.0003	0
31	SLU 53	0	19.52	50.84	-0.9125	-0.0005	0
31	SLU 54	0.01	19.4	50.81	-0.9061	0	0
31	SLU 55	0.01	19.28	50.75	-0.9008	0.0003	0
31	SLU 56	0	19.97	51.78	-0.9348	-0.0004	0
31	SLU 57	0.01	19.85	51.75	-0.9284	0.0001	0
31	SLU 58	0	19.94	51.72	-0.9337	-0.0004	0
31	SLU 59	0.01	19.82	51.7	-0.9273	0.0001	0
31	SLU 60	0	20.07	52.06	-0.9364	-0.0005	0
31	SLU 61	0.01	19.95	52.04	-0.93	-0.0001	0
31	SLU 62	0.01	20.52	53	-0.9587	-0.0005	0
31	SLU 63	0.01	20.4	52.98	-0.9523	0	0
31	SLU 64	0	18.03	47.62	-0.8434	-0.0006	0
31	SLU 65	0.01	17.83	47.58	-0.8327	0.0002	0
31	SLU 66	0	18.52	48.61	-0.8667	-0.0005	0
31	SLU 67	0.01	18.39	48.59	-0.8603	0	0
31	SLU 68	0.01	18.28	48.52	-0.855	0.0003	0
31	SLU 69	0.01	18.97	49.55	-0.889	-0.0004	0
31	SLU 70	0.01	18.85	49.53	-0.8826	0	0
31	SLU 71	0.01	18.94	49.5	-0.8879	-0.0004	0
31	SLU 72	0.01	18.81	49.47	-0.8815	0	0
31	SLU 73	0.01	20.24	52.76	-0.943	0.0001	0
31	SLU 74	0.01	20.94	53.79	-0.977	-0.0006	0
31	SLU 75	0.01	20.81	53.76	-0.9706	-0.0001	0
31	SLU 76	0.01	20.7	53.7	-0.9652	0.0002	0
31	SLU 77	0.01	21.39	54.72	-0.9992	-0.0005	0
31	SLU 78	0.01	21.26	54.7	-0.9928	0	0
31	SLU 79	0.01	21.36	54.67	-0.9982	-0.0005	0
31	SLU 80	0.01	21.23	54.65	-0.9917	0	0
31	SLU 81	0.01	21.49	55.01	-1.0009	-0.0007	0
31	SLU 82	0.01	21.36	54.99	-0.9945	-0.0002	0
31	SLU 83	0.01	21.94	55.95	-1.0232	-0.0006	0
31	SLU 84	0.01	21.81	55.93	-1.0167	-0.0001	0
31	SLE RA 1	0	13.56	35.98	-0.6346	-0.0004	0
31	SLE RA 2	0.01	13.42	35.96	-0.6275	0.0001	0
31	SLE RA 3	0	13.88	36.64	-0.6501	-0.0004	0
31	SLE RA 4	0	13.8	36.63	-0.6459	-0.0001	0
31	SLE RA 5	0.01	13.72	36.58	-0.6423	0.0002	0
31	SLE RA 6	0	14.19	37.27	-0.665	-0.0003	0
31	SLE RA 7	0.01	14.1	37.25	-0.6607	0	0
31	SLE RA 8	0	14.16	37.23	-0.6643	-0.0003	0
31	SLE RA 9	0	14.08	37.22	-0.66	0	0
31	SLE RA 10	0.01	15.03	39.41	-0.701	0.0001	0
31	SLE RA 11	0	15.5	40.09	-0.7237	-0.0004	0
31	SLE RA 12	0.01	15.41	40.08	-0.7194	-0.0001	0
31	SLE RA 13	0.01	15.34	40.03	-0.7158	0.0001	0
31	SLE RA 14	0	15.8	40.72	-0.7385	-0.0004	0
31	SLE RA 15	0.01	15.71	40.7	-0.7342	-0.0001	0
31	SLE RA 16	0	15.78	40.68	-0.7378	-0.0004	0
31	SLE RA 17	0.01	15.69	40.67	-0.7335	-0.0001	0
31	SLE RA 18	0	15.86	40.91	-0.7396	-0.0005	0
31	SLE RA 19	0.01	15.78	40.9	-0.7353	-0.0002	0
31	SLE RA 20	0	16.16	41.54	-0.7544	-0.0004	0
31	SLE RA 21	0.01	16.08	41.52	-0.7502	-0.0001	0
31	SLE FR 1	0	13.56	35.98	-0.6346	-0.0004	0
31	SLE FR 2	0	13.53	35.98	-0.6332	-0.0003	0
31	SLE FR 3	0	13.68	36.23	-0.6405	-0.0004	0
31	SLE FR 4	0	14.22	37.46	-0.6647	-0.0003	0
31	SLE FR 5	0	14.37	37.71	-0.672	-0.0004	0
31	SLE FR 6	0	14.71	38.45	-0.6871	-0.0004	0
31	SLE QP 1	0	13.56	35.98	-0.6346	-0.0004	0
31	SLE QP 2	0	14.25	37.46	-0.6661	-0.0004	0
31	SLD 1	-0.01	12.88	33.08	-0.6033	-0.0057	0
31	SLD 2	-0.01	12.88	33.08	-0.6033	-0.0057	0
31	SLD 3	-0.01	7.74	26.44	-0.3575	-0.0026	-0.0001
31	SLD 4	-0.01	7.74	26.44	-0.3575	-0.0026	-0.0001
31	SLD 5	0.01	21.64	46.21	-1.02	-0.0066	0
31	SLD 6	0.01	21.64	46.21	-1.02	-0.0066	0
31	SLD 7	-0.01	4.5	24.09	-0.2007	0.0035	-0.0001
31	SLD 8	-0.01	4.5	24.09	-0.2007	0.0035	-0.0001
31	SLD 9	0.02	24	50.83	-1.1315	-0.0044	0
31	SLD 10	0.02	24	50.83	-1.1315	-0.0044	0
31	SLD 11	-0.01	6.86	28.71	-0.3121	0.0058	0
31	SLD 12	-0.01	6.86	28.71	-0.3121	0.0058	0
31	SLD 13	0.02	20.76	48.48	-0.9747	0.0018	0
31	SLD 14	0.02	20.76	48.48	-0.9747	0.0018	0
31	SLD 15	0.01	15.62	41.85	-0.7289	0.0048	0
31	SLD 16	0.01	15.62	41.85	-0.7289	0.0048	0
31	SLV 1	-0.02	11.09	27.37	-0.5213	-0.0132	-0.0001
31	SLV 2	-0.02	11.09	27.37	-0.5213	-0.0132	-0.0001
31	SLV 3	-0.04	-0.79	11.88	0.0469	-0.0058	-0.0001
31	SLV 4	-0.04	-0.79	11.88	0.0469	-0.0058	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
31	SLV 5	0.02	31.32	57.93	-1.4844	-0.0155	0.0001
31	SLV 6	0.02	31.32	57.93	-1.4844	-0.0155	0.0001
31	SLV 7	-0.04	-8.28	6.29	0.4096	0.0092	-0.0001
31	SLV 8	-0.04	-8.28	6.29	0.4096	0.0092	-0.0001
31	SLV 9	0.04	36.78	68.64	-1.7418	-0.01	0.0001
31	SLV 10	0.04	36.78	68.64	-1.7418	-0.01	0.0001
31	SLV 11	-0.02	-2.82	16.99	0.1522	0.0146	-0.0001
31	SLV 12	-0.02	-2.82	16.99	0.1522	0.0146	-0.0001
31	SLV 13	0.05	29.29	63.05	-1.3791	0.0049	0.0001
31	SLV 14	0.05	29.29	63.05	-1.3791	0.0049	0.0001
31	SLV 15	0.03	17.41	47.55	-0.8109	0.0123	0
31	SLV 16	0.03	17.41	47.55	-0.8109	0.0123	0
32	SLU 1	-0.01	12.52	32.8	-0.5989	-0.0021	0
32	SLU 2	-0.01	12.18	32.55	-0.5824	-0.0029	0
32	SLU 3	-0.01	13.38	34.3	-0.6401	-0.0022	0
32	SLU 4	-0.01	13.18	34.15	-0.6303	-0.0028	0
32	SLU 5	-0.01	13.08	34.13	-0.626	-0.0031	0
32	SLU 6	-0.01	14.29	35.88	-0.6836	-0.0024	0
32	SLU 7	-0.01	14.08	35.73	-0.6738	-0.0029	0
32	SLU 8	-0.01	14.33	35.96	-0.6859	-0.0024	0
32	SLU 9	-0.01	14.12	35.81	-0.6761	-0.0029	0
32	SLU 10	-0.01	14.15	37.09	-0.6751	-0.003	0
32	SLU 11	-0.01	15.36	38.84	-0.7328	-0.0023	0
32	SLU 12	-0.01	15.15	38.69	-0.7229	-0.0028	0
32	SLU 13	-0.01	15.06	38.67	-0.7186	-0.0031	0
32	SLU 14	-0.01	16.26	40.42	-0.7763	-0.0024	0
32	SLU 15	-0.01	16.05	40.27	-0.7664	-0.003	0
32	SLU 16	-0.01	16.3	40.5	-0.7786	-0.0024	0
32	SLU 17	-0.01	16.09	40.35	-0.7687	-0.003	0
32	SLU 18	-0.01	15.34	39.29	-0.7313	-0.0021	0
32	SLU 19	-0.01	15.13	39.14	-0.7214	-0.0027	0
32	SLU 20	-0.01	16.24	40.87	-0.7748	-0.0023	0
32	SLU 21	-0.01	16.04	40.72	-0.7649	-0.0028	0
32	SLU 22	-0.01	14.02	35.7	-0.6684	-0.0022	0
32	SLU 23	-0.01	13.68	35.44	-0.6519	-0.0031	0
32	SLU 24	-0.01	14.88	37.2	-0.7096	-0.0024	0
32	SLU 25	-0.01	14.68	37.04	-0.6998	-0.0029	0
32	SLU 26	-0.01	14.58	37.02	-0.6955	-0.0032	0
32	SLU 27	-0.01	15.78	38.78	-0.7532	-0.0025	0
32	SLU 28	-0.01	15.58	38.62	-0.7433	-0.0031	0
32	SLU 29	-0.01	15.82	38.86	-0.7554	-0.0026	0
32	SLU 30	-0.01	15.62	38.7	-0.7456	-0.0031	0
32	SLU 31	-0.01	15.65	39.99	-0.7446	-0.0031	0
32	SLU 32	-0.01	16.85	41.74	-0.8023	-0.0024	0
32	SLU 33	-0.01	16.65	41.59	-0.7924	-0.0029	0
32	SLU 34	-0.01	16.55	41.57	-0.7881	-0.0033	0
32	SLU 35	-0.01	17.76	43.32	-0.8458	-0.0026	0
32	SLU 36	-0.01	17.55	43.17	-0.8359	-0.0031	0
32	SLU 37	-0.01	17.79	43.4	-0.8481	-0.0026	0
32	SLU 38	-0.01	17.59	43.25	-0.8382	-0.0031	0
32	SLU 39	-0.01	16.84	42.19	-0.8008	-0.0023	0
32	SLU 40	-0.01	16.63	42.04	-0.7909	-0.0028	0
32	SLU 41	-0.01	17.74	43.77	-0.8443	-0.0024	0
32	SLU 42	-0.01	17.53	43.62	-0.8344	-0.003	0
32	SLU 43	-0.01	15.76	41.65	-0.7547	-0.0027	0
32	SLU 44	-0.01	15.43	41.39	-0.7383	-0.0035	0
32	SLU 45	-0.01	16.63	43.15	-0.796	-0.0028	0
32	SLU 46	-0.01	16.42	42.99	-0.7861	-0.0033	0
32	SLU 47	-0.01	16.33	42.97	-0.7818	-0.0037	0
32	SLU 48	-0.01	17.53	44.73	-0.8395	-0.003	0
32	SLU 49	-0.01	17.33	44.57	-0.8296	-0.0035	0
32	SLU 50	-0.01	17.57	44.81	-0.8418	-0.003	0
32	SLU 51	-0.01	17.36	44.65	-0.8319	-0.0035	0
32	SLU 52	-0.01	17.4	45.94	-0.8309	-0.0036	0
32	SLU 53	-0.01	18.6	47.69	-0.8886	-0.0029	0
32	SLU 54	-0.01	18.4	47.54	-0.8787	-0.0034	0
32	SLU 55	-0.01	18.3	47.52	-0.8744	-0.0037	0
32	SLU 56	-0.01	19.5	49.27	-0.9321	-0.003	0
32	SLU 57	-0.01	19.3	49.12	-0.9223	-0.0035	0
32	SLU 58	-0.01	19.54	49.35	-0.9344	-0.003	0
32	SLU 59	-0.01	19.34	49.2	-0.9246	-0.0035	0
32	SLU 60	-0.01	18.58	48.14	-0.8871	-0.0027	0
32	SLU 61	-0.01	18.38	47.99	-0.8772	-0.0032	0
32	SLU 62	-0.01	19.48	49.72	-0.9306	-0.0029	0
32	SLU 63	-0.01	19.28	49.57	-0.9207	-0.0034	0
32	SLU 64	-0.01	17.26	44.55	-0.8242	-0.0028	0
32	SLU 65	-0.01	16.92	44.29	-0.8078	-0.0037	0
32	SLU 66	-0.01	18.13	46.04	-0.8655	-0.003	0
32	SLU 67	-0.01	17.92	45.89	-0.8556	-0.0035	0
32	SLU 68	-0.01	17.83	45.87	-0.8513	-0.0038	0
32	SLU 69	-0.01	19.03	47.62	-0.909	-0.0031	0
32	SLU 70	-0.01	18.82	47.47	-0.8991	-0.0036	0
32	SLU 71	-0.01	19.07	47.7	-0.9113	-0.0031	0
32	SLU 72	-0.01	18.86	47.55	-0.9014	-0.0036	0
32	SLU 73	-0.01	18.89	48.84	-0.9004	-0.0037	0
32	SLU 74	-0.01	20.1	50.59	-0.9581	-0.003	0
32	SLU 75	-0.01	19.89	50.44	-0.9483	-0.0035	0
32	SLU 76	-0.01	19.8	50.42	-0.944	-0.0039	0
32	SLU 77	-0.01	21	52.17	-1.0017	-0.0032	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
32	SLU 78	-0.01	20.8	52.02	-0.9918	-0.0037	0
32	SLU 79	-0.01	21.04	52.25	-1.0039	-0.0032	0
32	SLU 80	-0.01	20.83	52.1	-0.9941	-0.0037	0
32	SLU 81	-0.01	20.08	51.04	-0.9566	-0.0029	0
32	SLU 82	-0.01	19.88	50.89	-0.9467	-0.0034	0
32	SLU 83	-0.01	20.98	52.62	-1.0001	-0.003	0
32	SLU 84	-0.01	20.78	52.46	-0.9903	-0.0035	0
32	SLE RA 1	-0.01	12.95	33.63	-0.6188	-0.0021	0
32	SLE RA 2	-0.01	12.72	33.46	-0.6078	-0.0027	0
32	SLE RA 3	-0.01	13.52	34.63	-0.6462	-0.0022	0
32	SLE RA 4	-0.01	13.39	34.53	-0.6397	-0.0026	0
32	SLE RA 5	-0.01	13.32	34.51	-0.6368	-0.0028	0
32	SLE RA 6	-0.01	14.13	35.68	-0.6753	-0.0023	0
32	SLE RA 7	-0.01	13.99	35.58	-0.6687	-0.0027	0
32	SLE RA 8	-0.01	14.15	35.74	-0.6768	-0.0023	0
32	SLE RA 9	-0.01	14.02	35.63	-0.6702	-0.0027	0
32	SLE RA 10	-0.01	14.04	36.49	-0.6696	-0.0027	0
32	SLE RA 11	-0.01	14.84	37.66	-0.708	-0.0023	0
32	SLE RA 12	-0.01	14.7	37.56	-0.7014	-0.0026	0
32	SLE RA 13	-0.01	14.64	37.54	-0.6986	-0.0028	0
32	SLE RA 14	-0.01	15.44	38.71	-0.737	-0.0024	0
32	SLE RA 15	-0.01	15.3	38.61	-0.7304	-0.0027	0
32	SLE RA 16	-0.01	15.47	38.76	-0.7386	-0.0024	0
32	SLE RA 17	-0.01	15.33	38.66	-0.732	-0.0027	0
32	SLE RA 18	-0.01	14.83	37.96	-0.707	-0.0022	0
32	SLE RA 19	-0.01	14.69	37.86	-0.7004	-0.0025	0
32	SLE RA 20	-0.01	15.43	39.01	-0.736	-0.0023	0
32	SLE RA 21	-0.01	15.29	38.91	-0.7294	-0.0026	0
32	SLE FR 1	-0.01	12.95	33.63	-0.6188	-0.0021	0
32	SLE FR 2	-0.01	12.9	33.6	-0.6166	-0.0022	0
32	SLE FR 3	-0.01	13.19	34.05	-0.6304	-0.0022	0
32	SLE FR 4	-0.01	13.47	34.89	-0.643	-0.0023	0
32	SLE FR 5	-0.01	13.75	35.35	-0.6568	-0.0022	0
32	SLE FR 6	-0.01	13.89	35.79	-0.6629	-0.0021	0
32	SLE QP 1	-0.01	12.95	33.63	-0.6188	-0.0021	0
32	SLE QP 2	-0.01	13.51	34.93	-0.6452	-0.0021	0
32	SLD 1	-0.03	19.2	44.12	-0.9161	-0.0101	0
32	SLD 2	-0.03	19.2	44.12	-0.9161	-0.0101	0
32	SLD 3	-0.02	13.54	37.42	-0.6464	-0.0065	0
32	SLD 4	-0.02	13.54	37.42	-0.6464	-0.0065	0
32	SLD 5	-0.02	23.8	47.84	-1.1355	-0.0099	0
32	SLD 6	-0.02	23.8	47.84	-1.1355	-0.0099	0
32	SLD 7	0	4.94	25.52	-0.2366	0.0019	0
32	SLD 8	0	4.94	25.52	-0.2366	0.0019	0
32	SLD 9	-0.01	22.09	44.34	-1.0539	-0.0062	0
32	SLD 10	-0.01	22.09	44.34	-1.0539	-0.0062	0
32	SLD 11	0.01	3.22	22.01	-0.155	0.0056	0.0001
32	SLD 12	0.01	3.22	22.01	-0.155	0.0056	0.0001
32	SLD 13	0	13.48	32.43	-0.6441	0.0022	0.0001
32	SLD 14	0	13.48	32.43	-0.6441	0.0022	0.0001
32	SLD 15	0.01	7.82	25.73	-0.3744	0.0058	0.0001
32	SLD 16	0.01	7.82	25.73	-0.3744	0.0058	0.0001
32	SLV 1	-0.05	26.6	56.24	-1.2686	-0.0213	-0.0001
32	SLV 2	-0.05	26.6	56.24	-1.2686	-0.0213	-0.0001
32	SLV 3	-0.03	13.61	40.67	-0.6487	-0.0127	-0.0001
32	SLV 4	-0.03	13.61	40.67	-0.6487	-0.0127	-0.0001
32	SLV 5	-0.05	37.16	64.93	-1.7725	-0.0209	-0.0001
32	SLV 6	-0.05	37.16	64.93	-1.7725	-0.0209	-0.0001
32	SLV 7	0.01	-6.18	13.04	0.2939	0.0077	0.0001
32	SLV 8	0.01	-6.18	13.04	0.2939	0.0077	0.0001
32	SLV 9	-0.02	33.2	56.81	-1.5844	-0.012	0
32	SLV 10	-0.02	33.2	56.81	-1.5844	-0.012	0
32	SLV 11	0.03	-10.13	4.93	0.482	0.0167	0.0002
32	SLV 12	0.03	-10.13	4.93	0.482	0.0167	0.0002
32	SLV 13	0.02	13.42	29.19	-0.6418	0.0085	0.0001
32	SLV 14	0.02	13.42	29.19	-0.6418	0.0085	0.0001
32	SLV 15	0.04	0.42	13.62	-0.0219	0.0171	0.0002
32	SLV 16	0.04	0.42	13.62	-0.0219	0.0171	0.0002
33	SLU 1	-0.06	6.52	30.01	-0.6295	-0.0159	-0.0006
33	SLU 2	-0.05	5.64	28.65	-0.5748	-0.016	-0.0006
33	SLU 3	-0.06	6.63	30.24	-0.6394	-0.0161	-0.0006
33	SLU 4	-0.06	6.1	29.42	-0.6066	-0.0161	-0.0006
33	SLU 5	-0.05	5.7	28.76	-0.5812	-0.0162	-0.0006
33	SLU 6	-0.06	6.69	30.36	-0.6457	-0.0162	-0.0006
33	SLU 7	-0.06	6.16	29.54	-0.613	-0.0163	-0.0006
33	SLU 8	-0.06	6.65	30.24	-0.6422	-0.0162	-0.0006
33	SLU 9	-0.06	6.12	29.42	-0.6094	-0.0163	-0.0006
33	SLU 10	-0.06	6.51	30.7	-0.6414	-0.0171	-0.0006
33	SLU 11	-0.06	7.5	32.3	-0.706	-0.0171	-0.0006
33	SLU 12	-0.06	6.97	31.48	-0.6732	-0.0172	-0.0006
33	SLU 13	-0.06	6.58	30.82	-0.6478	-0.0172	-0.0006
33	SLU 14	-0.06	7.57	32.41	-0.7123	-0.0173	-0.0007
33	SLU 15	-0.06	7.04	31.59	-0.6796	-0.0174	-0.0007
33	SLU 16	-0.06	7.52	32.3	-0.7088	-0.0173	-0.0006
33	SLU 17	-0.06	6.99	31.48	-0.676	-0.0174	-0.0006
33	SLU 18	-0.06	7.77	32.95	-0.7246	-0.0174	-0.0007
33	SLU 19	-0.06	7.24	32.13	-0.6918	-0.0175	-0.0007
33	SLU 20	-0.06	7.83	33.06	-0.731	-0.0176	-0.0007
33	SLU 21	-0.06	7.3	32.24	-0.6982	-0.0177	-0.0007





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
33	SLU 22	-0.06	7.18	31.55	-0.6794	-0.0165	-0.0006
33	SLU 23	-0.06	6.31	30.19	-0.6248	-0.0166	-0.0006
33	SLU 24	-0.06	7.29	31.78	-0.6893	-0.0167	-0.0006
33	SLU 25	-0.06	6.77	30.96	-0.6565	-0.0167	-0.0006
33	SLU 26	-0.06	6.37	30.3	-0.6312	-0.0168	-0.0006
33	SLU 27	-0.06	7.36	31.9	-0.6957	-0.0168	-0.0006
33	SLU 28	-0.06	6.83	31.08	-0.6629	-0.0169	-0.0006
33	SLU 29	-0.06	7.31	31.78	-0.6922	-0.0168	-0.0006
33	SLU 30	-0.06	6.79	30.96	-0.6594	-0.0169	-0.0006
33	SLU 31	-0.06	7.18	32.24	-0.6914	-0.0177	-0.0007
33	SLU 32	-0.06	8.17	33.84	-0.7559	-0.0177	-0.0007
33	SLU 33	-0.06	7.64	33.02	-0.7231	-0.0178	-0.0007
33	SLU 34	-0.06	7.24	32.36	-0.6978	-0.0179	-0.0007
33	SLU 35	-0.06	8.23	33.95	-0.7623	-0.0179	-0.0007
33	SLU 36	-0.06	7.7	33.13	-0.7295	-0.018	-0.0007
33	SLU 37	-0.06	8.19	33.84	-0.7588	-0.0179	-0.0007
33	SLU 38	-0.06	7.66	33.02	-0.726	-0.018	-0.0007
33	SLU 39	-0.06	8.43	34.49	-0.7746	-0.0181	-0.0007
33	SLU 40	-0.06	7.9	33.67	-0.7418	-0.0181	-0.0007
33	SLU 41	-0.06	8.5	34.6	-0.781	-0.0182	-0.0007
33	SLU 42	-0.06	7.97	33.78	-0.7482	-0.0183	-0.0007
33	SLU 43	-0.07	8.24	38.49	-0.8012	-0.0205	-0.0007
33	SLU 44	-0.07	7.36	37.12	-0.7465	-0.0206	-0.0007
33	SLU 45	-0.07	8.35	38.72	-0.8111	-0.0206	-0.0007
33	SLU 46	-0.07	7.83	37.9	-0.7783	-0.0207	-0.0007
33	SLU 47	-0.07	7.43	37.24	-0.7529	-0.0207	-0.0007
33	SLU 48	-0.07	8.42	38.83	-0.8174	-0.0208	-0.0007
33	SLU 49	-0.07	7.89	38.01	-0.7847	-0.0208	-0.0007
33	SLU 50	-0.07	8.37	38.72	-0.8139	-0.0208	-0.0007
33	SLU 51	-0.07	7.84	37.9	-0.7811	-0.0208	-0.0007
33	SLU 52	-0.07	8.24	39.18	-0.8131	-0.0216	-0.0008
33	SLU 53	-0.08	9.23	40.77	-0.8777	-0.0217	-0.0008
33	SLU 54	-0.08	8.7	39.95	-0.8449	-0.0218	-0.0008
33	SLU 55	-0.07	8.3	39.29	-0.8195	-0.0218	-0.0008
33	SLU 56	-0.08	9.29	40.89	-0.884	-0.0219	-0.0008
33	SLU 57	-0.08	8.76	40.07	-0.8513	-0.0219	-0.0008
33	SLU 58	-0.08	9.25	40.77	-0.8805	-0.0219	-0.0008
33	SLU 59	-0.08	8.72	39.95	-0.8478	-0.0219	-0.0008
33	SLU 60	-0.08	9.49	41.42	-0.8963	-0.022	-0.0008
33	SLU 61	-0.08	8.96	40.6	-0.8635	-0.0221	-0.0008
33	SLU 62	-0.08	9.56	41.54	-0.9027	-0.0222	-0.0008
33	SLU 63	-0.08	9.03	40.72	-0.8699	-0.0222	-0.0008
33	SLU 64	-0.07	8.91	40.03	-0.8511	-0.0211	-0.0008
33	SLU 65	-0.07	8.03	38.66	-0.7965	-0.0212	-0.0008
33	SLU 66	-0.08	9.02	40.26	-0.861	-0.0212	-0.0008
33	SLU 67	-0.07	8.49	39.44	-0.8282	-0.0213	-0.0008
33	SLU 68	-0.07	8.1	38.78	-0.8029	-0.0213	-0.0008
33	SLU 69	-0.08	9.09	40.37	-0.8674	-0.0214	-0.0008
33	SLU 70	-0.07	8.56	39.55	-0.8346	-0.0214	-0.0008
33	SLU 71	-0.08	9.04	40.26	-0.8639	-0.0214	-0.0008
33	SLU 72	-0.07	8.51	39.44	-0.8311	-0.0215	-0.0008
33	SLU 73	-0.08	8.91	40.72	-0.8631	-0.0223	-0.0008
33	SLU 74	-0.08	9.89	42.31	-0.9276	-0.0223	-0.0008
33	SLU 75	-0.08	9.37	41.49	-0.8949	-0.0224	-0.0008
33	SLU 76	-0.08	8.97	40.83	-0.8695	-0.0224	-0.0008
33	SLU 77	-0.08	9.96	42.43	-0.934	-0.0225	-0.0009
33	SLU 78	-0.08	9.43	41.61	-0.9012	-0.0225	-0.0009
33	SLU 79	-0.08	9.91	42.31	-0.9305	-0.0225	-0.0009
33	SLU 80	-0.08	9.39	41.49	-0.8977	-0.0225	-0.0009
33	SLU 81	-0.08	10.16	42.96	-0.9463	-0.0226	-0.0009
33	SLU 82	-0.08	9.63	42.15	-0.9135	-0.0227	-0.0009
33	SLU 83	-0.08	10.22	43.08	-0.9527	-0.0228	-0.0009
33	SLU 84	-0.08	9.7	42.26	-0.9199	-0.0228	-0.0009
33	SLE RA 1	-0.06	6.71	30.45	-0.6437	-0.0161	-0.0006
33	SLE RA 2	-0.06	6.12	29.54	-0.6073	-0.0161	-0.0006
33	SLE RA 3	-0.06	6.78	30.61	-0.6503	-0.0162	-0.0006
33	SLE RA 4	-0.06	6.43	30.06	-0.6285	-0.0162	-0.0006
33	SLE RA 5	-0.06	6.16	29.62	-0.6116	-0.0163	-0.0006
33	SLE RA 6	-0.06	6.82	30.68	-0.6546	-0.0163	-0.0006
33	SLE RA 7	-0.06	6.47	30.14	-0.6327	-0.0163	-0.0006
33	SLE RA 8	-0.06	6.79	30.61	-0.6522	-0.0163	-0.0006
33	SLE RA 9	-0.06	6.44	30.06	-0.6304	-0.0163	-0.0006
33	SLE RA 10	-0.06	6.7	30.91	-0.6517	-0.0169	-0.0006
33	SLE RA 11	-0.06	7.36	31.98	-0.6947	-0.0169	-0.0006
33	SLE RA 12	-0.06	7.01	31.43	-0.6729	-0.0169	-0.0006
33	SLE RA 13	-0.06	6.75	30.99	-0.656	-0.017	-0.0006
33	SLE RA 14	-0.06	7.41	32.05	-0.699	-0.017	-0.0006
33	SLE RA 15	-0.06	7.05	31.51	-0.6771	-0.017	-0.0006
33	SLE RA 16	-0.06	7.38	31.97	-0.6966	-0.017	-0.0006
33	SLE RA 17	-0.06	7.02	31.43	-0.6748	-0.0171	-0.0006
33	SLE RA 18	-0.06	7.54	32.41	-0.7072	-0.0171	-0.0006
33	SLE RA 19	-0.06	7.19	31.86	-0.6853	-0.0171	-0.0006
33	SLE RA 20	-0.06	7.58	32.49	-0.7114	-0.0172	-0.0006
33	SLE RA 21	-0.06	7.23	31.94	-0.6896	-0.0173	-0.0006
33	SLE FR 1	-0.06	6.71	30.45	-0.6437	-0.0161	-0.0006
33	SLE FR 2	-0.06	6.59	30.27	-0.6364	-0.0161	-0.0006
33	SLE FR 3	-0.06	6.73	30.48	-0.6454	-0.0161	-0.0006
33	SLE FR 4	-0.06	6.84	30.86	-0.6555	-0.0164	-0.0006
33	SLE FR 5	-0.06	6.97	31.07	-0.6645	-0.0164	-0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
33	SLE FR 6	-0.06	7.12	31.43	-0.6754	-0.0166	-0.0006
33	SLE QP 1	-0.06	6.71	30.45	-0.6437	-0.0161	-0.0006
33	SLE QP 2	-0.06	6.96	31.04	-0.6628	-0.0164	-0.0006
33	SLD 1	-0.05	7.6	27.3	-0.6498	-0.01	-0.0005
33	SLD 2	-0.05	7.6	27.3	-0.6498	-0.01	-0.0005
33	SLD 3	-0.02	4.12	21.14	-0.4205	0.0004	-0.0005
33	SLD 4	-0.02	4.12	21.14	-0.4205	0.0004	-0.0005
33	SLD 5	-0.1	12.42	39.26	-1.0066	-0.0301	-0.0007
33	SLD 6	-0.1	12.42	39.26	-1.0066	-0.0301	-0.0007
33	SLD 7	-0.01	0.84	18.73	-0.2424	0.0043	-0.0005
33	SLD 8	-0.01	0.84	18.73	-0.2424	0.0043	-0.0005
33	SLD 9	-0.11	13.08	43.35	-1.0831	-0.037	-0.0007
33	SLD 10	-0.11	13.08	43.35	-1.0831	-0.037	-0.0007
33	SLD 11	-0.02	1.5	22.82	-0.319	-0.0027	-0.0005
33	SLD 12	-0.02	1.5	22.82	-0.319	-0.0027	-0.0005
33	SLD 13	-0.09	9.79	40.94	-0.905	-0.0331	-0.0007
33	SLD 14	-0.09	9.79	40.94	-0.905	-0.0331	-0.0007
33	SLD 15	-0.07	6.32	34.78	-0.6758	-0.0228	-0.0007
33	SLD 16	-0.07	6.32	34.78	-0.6758	-0.0228	-0.0007
33	SLV 1	-0.04	8.47	22.65	-0.6395	-0.0023	-0.0005
33	SLV 2	-0.04	8.47	22.65	-0.6395	-0.0023	-0.0005
33	SLV 3	0.02	0.19	7.75	-0.0856	0.0224	-0.0003
33	SLV 4	0.02	0.19	7.75	-0.0856	0.0224	-0.0003
33	SLV 5	-0.15	19.97	51.12	-1.4958	-0.0496	-0.0008
33	SLV 6	-0.15	19.97	51.12	-1.4958	-0.0496	-0.0008
33	SLV 7	0.07	-7.63	1.46	0.3504	0.0328	-0.0003
33	SLV 8	0.07	-7.63	1.46	0.3504	0.0328	-0.0003
33	SLV 9	-0.18	21.55	60.62	-1.6759	-0.0655	-0.0009
33	SLV 10	-0.18	21.55	60.62	-1.6759	-0.0655	-0.0009
33	SLV 11	0.04	-6.06	10.96	0.1702	0.0169	-0.0004
33	SLV 12	0.04	-6.06	10.96	0.1702	0.0169	-0.0004
33	SLV 13	-0.14	13.72	54.32	-1.2399	-0.0552	-0.0009
33	SLV 14	-0.14	13.72	54.32	-1.2399	-0.0552	-0.0009
33	SLV 15	-0.07	5.44	39.42	-0.686	-0.0305	-0.0007
33	SLV 16	-0.07	5.44	39.42	-0.686	-0.0305	-0.0007
34	SLU 1	0.01	0.38	25.47	0.046	0.0018	0.0001
34	SLU 2	0.01	-0.33	25.61	0.092	0.0041	0.0001
34	SLU 3	0.01	0.37	25.59	0.0478	0.0018	0.0001
34	SLU 4	0.01	-0.06	25.67	0.0755	0.0032	0.0001
34	SLU 5	0.01	-0.36	25.52	0.0942	0.0042	0.0001
34	SLU 6	0.01	0.34	25.5	0.0499	0.0019	0.0001
34	SLU 7	0.01	-0.08	25.58	0.0776	0.0033	0.0001
34	SLU 8	0.01	0.32	25.29	0.0502	0.0019	0.0001
34	SLU 9	0.01	-0.1	25.37	0.0779	0.0033	0.0001
34	SLU 10	0.02	-0.08	28.52	0.0915	0.0045	0.0001
34	SLU 11	0.01	0.62	28.5	0.0473	0.0022	0.0001
34	SLU 12	0.01	0.19	28.58	0.0749	0.0036	0.0001
34	SLU 13	0.02	-0.11	28.43	0.0936	0.0046	0.0001
34	SLU 14	0.01	0.59	28.41	0.0494	0.0023	0.0001
34	SLU 15	0.01	0.17	28.49	0.077	0.0037	0.0001
34	SLU 16	0.01	0.57	28.2	0.0497	0.0023	0.0001
34	SLU 17	0.01	0.15	28.28	0.0773	0.0037	0.0001
34	SLU 18	0.01	0.74	29.62	0.0452	0.0024	0.0001
34	SLU 19	0.01	0.31	29.71	0.0728	0.0038	0.0001
34	SLU 20	0.01	0.71	29.54	0.0473	0.0025	0.0001
34	SLU 21	0.01	0.28	29.62	0.075	0.0039	0.0001
34	SLU 22	0.01	0.56	27.63	0.0463	0.0021	0.0001
34	SLU 23	0.02	-0.15	27.77	0.0924	0.0045	0.0001
34	SLU 24	0.01	0.55	27.76	0.0482	0.0021	0.0001
34	SLU 25	0.01	0.13	27.84	0.0758	0.0035	0.0001
34	SLU 26	0.02	-0.18	27.69	0.0945	0.0045	0.0001
34	SLU 27	0.01	0.52	27.67	0.0503	0.0022	0.0001
34	SLU 28	0.01	0.1	27.75	0.078	0.0036	0.0001
34	SLU 29	0.01	0.5	27.46	0.0506	0.0022	0.0001
34	SLU 30	0.01	0.08	27.54	0.0782	0.0036	0.0001
34	SLU 31	0.02	0.1	30.69	0.0919	0.0049	0.0001
34	SLU 32	0.01	0.8	30.67	0.0476	0.0026	0.0001
34	SLU 33	0.01	0.38	30.75	0.0753	0.004	0.0001
34	SLU 34	0.02	0.08	30.6	0.094	0.0049	0.0001
34	SLU 35	0.01	0.77	30.58	0.0498	0.0026	0.0001
34	SLU 36	0.01	0.35	30.66	0.0774	0.004	0.0001
34	SLU 37	0.01	0.76	30.37	0.0501	0.0027	0.0001
34	SLU 38	0.01	0.33	30.45	0.0777	0.0041	0.0001
34	SLU 39	0.01	0.92	31.79	0.0456	0.0027	0.0001
34	SLU 40	0.02	0.49	31.88	0.0732	0.0041	0.0001
34	SLU 41	0.01	0.89	31.71	0.0477	0.0028	0.0001
34	SLU 42	0.02	0.47	31.79	0.0753	0.0042	0.0001
34	SLU 43	0.01	0.43	32.36	0.0596	0.0022	0.0001
34	SLU 44	0.02	-0.28	32.5	0.1057	0.0046	0.0001
34	SLU 45	0.01	0.42	32.48	0.0615	0.0022	0.0001
34	SLU 46	0.01	-0.01	32.57	0.0891	0.0036	0.0001
34	SLU 47	0.02	-0.31	32.41	0.1078	0.0046	0.0001
34	SLU 48	0.01	0.39	32.39	0.0636	0.0023	0.0001
34	SLU 49	0.01	-0.03	32.48	0.0912	0.0037	0.0001
34	SLU 50	0.01	0.37	32.18	0.0639	0.0023	0.0001
34	SLU 51	0.01	-0.05	32.27	0.0915	0.0037	0.0001
34	SLU 52	0.02	-0.03	35.41	0.1052	0.005	0.0001
34	SLU 53	0.01	0.67	35.39	0.0609	0.0027	0.0001
34	SLU 54	0.02	0.24	35.48	0.0886	0.0041	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
34	SLU 55	0.02	-0.06	35.32	0.1073	0.005	0.0001
34	SLU 56	0.01	0.64	35.31	0.0631	0.0027	0.0001
34	SLU 57	0.02	0.22	35.39	0.0907	0.0041	0.0001
34	SLU 58	0.01	0.62	35.1	0.0633	0.0028	0.0001
34	SLU 59	0.02	0.2	35.18	0.091	0.0042	0.0001
34	SLU 60	0.01	0.79	36.52	0.0589	0.0028	0.0001
34	SLU 61	0.02	0.36	36.6	0.0865	0.0042	0.0001
34	SLU 62	0.01	0.76	36.43	0.061	0.0029	0.0001
34	SLU 63	0.02	0.33	36.52	0.0886	0.0043	0.0001
34	SLU 64	0.01	0.61	34.53	0.06	0.0026	0.0001
34	SLU 65	0.02	-0.1	34.67	0.1061	0.0049	0.0001
34	SLU 66	0.01	0.6	34.65	0.0618	0.0026	0.0001
34	SLU 67	0.01	0.18	34.74	0.0895	0.004	0.0001
34	SLU 68	0.02	-0.13	34.58	0.1082	0.0049	0.0001
34	SLU 69	0.01	0.57	34.56	0.064	0.0026	0.0001
34	SLU 70	0.01	0.15	34.65	0.0916	0.004	0.0001
34	SLU 71	0.01	0.55	34.35	0.0643	0.0027	0.0001
34	SLU 72	0.01	0.13	34.44	0.0919	0.0041	0.0001
34	SLU 73	0.02	0.15	37.58	0.1055	0.0053	0.0001
34	SLU 74	0.01	0.85	37.56	0.0613	0.003	0.0001
34	SLU 75	0.02	0.43	37.65	0.089	0.0044	0.0001
34	SLU 76	0.02	0.13	37.49	0.1077	0.0054	0.0001
34	SLU 77	0.01	0.82	37.47	0.0634	0.0031	0.0001
34	SLU 78	0.02	0.4	37.56	0.0911	0.0044	0.0001
34	SLU 79	0.01	0.81	37.26	0.0637	0.0031	0.0001
34	SLU 80	0.02	0.38	37.35	0.0914	0.0045	0.0001
34	SLU 81	0.01	0.97	38.69	0.0592	0.0032	0.0001
34	SLU 82	0.02	0.54	38.77	0.0869	0.0046	0.0001
34	SLU 83	0.01	0.94	38.6	0.0614	0.0032	0.0001
34	SLU 84	0.02	0.52	38.68	0.089	0.0046	0.0001
34	SLE RA 1	0.01	0.43	26.09	0.0461	0.0019	0.0001
34	SLE RA 2	0.01	-0.04	26.18	0.0768	0.0034	0.0001
34	SLE RA 3	0.01	0.42	26.17	0.0473	0.0019	0.0001
34	SLE RA 4	0.01	0.14	26.22	0.0657	0.0028	0.0001
34	SLE RA 5	0.01	-0.06	26.12	0.0782	0.0035	0.0001
34	SLE RA 6	0.01	0.4	26.11	0.0487	0.0019	0.0001
34	SLE RA 7	0.01	0.12	26.16	0.0672	0.0029	0.0001
34	SLE RA 8	0.01	0.39	25.97	0.0489	0.002	0.0001
34	SLE RA 9	0.01	0.11	26.02	0.0673	0.0029	0.0001
34	SLE RA 10	0.01	0.12	28.12	0.0764	0.0037	0.0001
34	SLE RA 11	0.01	0.59	28.11	0.0469	0.0022	0.0001
34	SLE RA 12	0.01	0.31	28.16	0.0654	0.0031	0.0001
34	SLE RA 13	0.01	0.11	28.06	0.0779	0.0038	0.0001
34	SLE RA 14	0.01	0.57	28.05	0.0484	0.0022	0.0001
34	SLE RA 15	0.01	0.29	28.1	0.0668	0.0032	0.0001
34	SLE RA 16	0.01	0.56	27.91	0.0486	0.0023	0.0001
34	SLE RA 17	0.01	0.28	27.96	0.067	0.0032	0.0001
34	SLE RA 18	0.01	0.67	28.86	0.0456	0.0023	0.0001
34	SLE RA 19	0.01	0.39	28.91	0.064	0.0032	0.0001
34	SLE RA 20	0.01	0.65	28.8	0.047	0.0023	0.0001
34	SLE RA 21	0.01	0.37	28.85	0.0654	0.0033	0.0001
34	SLE FR 1	0.01	0.43	26.09	0.0461	0.0019	0.0001
34	SLE FR 2	0.01	0.33	26.1	0.0522	0.0022	0.0001
34	SLE FR 3	0.01	0.42	26.06	0.0466	0.0019	0.0001
34	SLE FR 4	0.01	0.41	26.94	0.0521	0.0023	0.0001
34	SLE FR 5	0.01	0.49	26.89	0.0465	0.002	0.0001
34	SLE FR 6	0.01	0.55	27.47	0.0458	0.0021	0.0001
34	SLE QP 1	0.01	0.43	26.09	0.0461	0.0019	0.0001
34	SLE QP 2	0.01	0.5	26.92	0.0459	0.002	0.0001
34	SLD 1	0.04	0.66	25.68	0.0309	0.0221	0.0001
34	SLD 2	0.04	0.66	25.68	0.0309	0.0221	0.0001
34	SLD 3	0.01	-1.5	22.58	0.1501	0.0086	0.0001
34	SLD 4	0.01	-1.5	22.58	0.1501	0.0086	0.0001
34	SLD 5	0.08	3.82	31.25	-0.1395	0.0285	0.0002
34	SLD 6	0.08	3.82	31.25	-0.1395	0.0285	0.0002
34	SLD 7	-0.05	-3.38	20.91	0.2581	-0.0164	0
34	SLD 8	-0.05	-3.38	20.91	0.2581	-0.0164	0
34	SLD 9	0.07	4.38	32.92	-0.1663	0.0205	0.0001
34	SLD 10	0.07	4.38	32.92	-0.1663	0.0205	0.0001
34	SLD 11	-0.06	-2.82	22.58	0.2314	-0.0244	0
34	SLD 12	-0.06	-2.82	22.58	0.2314	-0.0244	0
34	SLD 13	0.01	2.51	31.25	-0.0583	-0.0045	0
34	SLD 14	0.01	2.51	31.25	-0.0583	-0.0045	0
34	SLD 15	-0.03	0.35	28.15	0.061	-0.018	0
34	SLD 16	-0.03	0.35	28.15	0.061	-0.018	0
34	SLV 1	0.09	0.86	24.28	0.0108	0.0487	0.0002
34	SLV 2	0.09	0.86	24.28	0.0108	0.0487	0.0002
34	SLV 3	0	-4.22	16.59	0.2922	0.0165	0.0001
34	SLV 4	0	-4.22	16.59	0.2922	0.0165	0.0001
34	SLV 5	0.17	8.32	37.78	-0.3913	0.0648	0.0003
34	SLV 6	0.17	8.32	37.78	-0.3913	0.0648	0.0003
34	SLV 7	-0.13	-8.63	12.17	0.5465	-0.0425	-0.0001
34	SLV 8	-0.13	-8.63	12.17	0.5465	-0.0425	-0.0001
34	SLV 9	0.15	9.63	41.67	-0.4546	0.0465	0.0002
34	SLV 10	0.15	9.63	41.67	-0.4546	0.0465	0.0002
34	SLV 11	-0.15	-7.32	16.05	0.4831	-0.0608	-0.0002
34	SLV 12	-0.15	-7.32	16.05	0.4831	-0.0608	-0.0002
34	SLV 13	0.02	5.23	37.24	-0.2003	-0.0124	0
34	SLV 14	0.02	5.23	37.24	-0.2003	-0.0124	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
34	SLV 15	-0.07	0.14	29.56	0.081	-0.0446	-0.0001
34	SLV 16	-0.07	0.14	29.56	0.081	-0.0446	-0.0001
35	SLU 1	0.01	9.6	40.84	-0.3429	-0.0021	-0.0001
35	SLU 2	0.01	9.42	41.06	-0.333	-0.0012	-0.0001
35	SLU 3	0.01	9.97	41.86	-0.3578	-0.0021	-0.0001
35	SLU 4	0.01	9.86	42	-0.3518	-0.0015	-0.0001
35	SLU 5	0.01	9.76	41.96	-0.3468	-0.0011	-0.0001
35	SLU 6	0.01	10.31	42.77	-0.3715	-0.002	-0.0001
35	SLU 7	0.01	10.2	42.9	-0.3656	-0.0014	-0.0001
35	SLU 8	0.01	10.27	42.64	-0.3704	-0.0019	-0.0001
35	SLU 9	0.01	10.16	42.78	-0.3645	-0.0014	-0.0001
35	SLU 10	0.01	11.34	47.46	-0.4032	-0.0016	-0.0001
35	SLU 11	0.01	11.89	48.27	-0.4279	-0.0025	-0.0002
35	SLU 12	0.01	11.79	48.4	-0.422	-0.0019	-0.0002
35	SLU 13	0.02	11.68	48.37	-0.417	-0.0015	-0.0001
35	SLU 14	0.01	12.23	49.17	-0.4417	-0.0024	-0.0002
35	SLU 15	0.01	12.12	49.31	-0.4358	-0.0018	-0.0002
35	SLU 16	0.01	12.19	49.05	-0.4406	-0.0023	-0.0002
35	SLU 17	0.01	12.09	49.18	-0.4347	-0.0018	-0.0002
35	SLU 18	0.01	12.35	49.99	-0.4432	-0.0027	-0.0002
35	SLU 19	0.01	12.24	50.12	-0.4372	-0.0021	-0.0002
35	SLU 20	0.01	12.68	50.89	-0.4569	-0.0026	-0.0002
35	SLU 21	0.01	12.57	51.02	-0.451	-0.002	-0.0002
35	SLU 22	0.01	10.76	44.54	-0.3851	-0.0025	-0.0001
35	SLU 23	0.01	10.58	44.76	-0.3752	-0.0016	-0.0001
35	SLU 24	0.01	11.13	45.57	-0.4	-0.0024	-0.0001
35	SLU 25	0.01	11.03	45.7	-0.394	-0.0019	-0.0001
35	SLU 26	0.01	10.92	45.66	-0.389	-0.0015	-0.0001
35	SLU 27	0.01	11.47	46.47	-0.4137	-0.0024	-0.0001
35	SLU 28	0.01	11.36	46.6	-0.4078	-0.0018	-0.0001
35	SLU 29	0.01	11.43	46.35	-0.4126	-0.0023	-0.0001
35	SLU 30	0.01	11.33	46.48	-0.4067	-0.0018	-0.0001
35	SLU 31	0.02	12.51	51.16	-0.4454	-0.002	-0.0002
35	SLU 32	0.01	13.06	51.97	-0.4701	-0.0028	-0.0002
35	SLU 33	0.01	12.95	52.1	-0.4642	-0.0023	-0.0002
35	SLU 34	0.02	12.84	52.07	-0.4592	-0.0019	-0.0002
35	SLU 35	0.01	13.39	52.88	-0.4839	-0.0028	-0.0002
35	SLU 36	0.01	13.28	53.01	-0.478	-0.0022	-0.0002
35	SLU 37	0.01	13.36	52.75	-0.4828	-0.0027	-0.0002
35	SLU 38	0.01	13.25	52.89	-0.4769	-0.0022	-0.0002
35	SLU 39	0.01	13.51	53.69	-0.4854	-0.0031	-0.0002
35	SLU 40	0.02	13.4	53.82	-0.4795	-0.0025	-0.0002
35	SLU 41	0.01	13.85	54.6	-0.4991	-0.003	-0.0002
35	SLU 42	0.02	13.74	54.73	-0.4932	-0.0024	-0.0002
35	SLU 43	0.01	12.08	51.82	-0.4313	-0.0026	-0.0002
35	SLU 44	0.02	11.9	52.04	-0.4214	-0.0017	-0.0001
35	SLU 45	0.01	12.45	52.84	-0.4462	-0.0026	-0.0002
35	SLU 46	0.01	12.35	52.98	-0.4402	-0.002	-0.0002
35	SLU 47	0.02	12.24	52.94	-0.4352	-0.0016	-0.0001
35	SLU 48	0.01	12.79	53.75	-0.4599	-0.0025	-0.0002
35	SLU 49	0.01	12.68	53.88	-0.454	-0.0019	-0.0002
35	SLU 50	0.01	12.75	53.63	-0.4588	-0.0024	-0.0002
35	SLU 51	0.01	12.64	53.76	-0.4529	-0.0019	-0.0002
35	SLU 52	0.02	13.83	58.44	-0.4916	-0.0021	-0.0002
35	SLU 53	0.01	14.38	59.25	-0.5163	-0.003	-0.0002
35	SLU 54	0.02	14.27	59.38	-0.5104	-0.0024	-0.0002
35	SLU 55	0.02	14.16	59.35	-0.5054	-0.002	-0.0002
35	SLU 56	0.01	14.71	60.16	-0.5301	-0.0029	-0.0002
35	SLU 57	0.02	14.6	60.29	-0.5242	-0.0023	-0.0002
35	SLU 58	0.01	14.67	60.03	-0.529	-0.0028	-0.0002
35	SLU 59	0.02	14.57	60.16	-0.5231	-0.0023	-0.0002
35	SLU 60	0.01	14.83	60.97	-0.5316	-0.0032	-0.0002
35	SLU 61	0.02	14.72	61.1	-0.5256	-0.0026	-0.0002
35	SLU 62	0.01	15.16	61.87	-0.5453	-0.0031	-0.0002
35	SLU 63	0.02	15.06	62.01	-0.5394	-0.0025	-0.0002
35	SLU 64	0.01	13.25	55.52	-0.4735	-0.003	-0.0002
35	SLU 65	0.02	13.07	55.74	-0.4636	-0.0021	-0.0002
35	SLU 66	0.01	13.62	56.55	-0.4884	-0.0029	-0.0002
35	SLU 67	0.02	13.51	56.68	-0.4824	-0.0024	-0.0002
35	SLU 68	0.02	13.4	56.64	-0.4774	-0.002	-0.0002
35	SLU 69	0.01	13.95	57.45	-0.5021	-0.0029	-0.0002
35	SLU 70	0.02	13.84	57.58	-0.4962	-0.0023	-0.0002
35	SLU 71	0.01	13.92	57.33	-0.501	-0.0028	-0.0002
35	SLU 72	0.02	13.81	57.46	-0.4951	-0.0023	-0.0002
35	SLU 73	0.02	14.99	62.15	-0.5338	-0.0025	-0.0002
35	SLU 74	0.02	15.54	62.95	-0.5586	-0.0033	-0.0002
35	SLU 75	0.02	15.43	63.09	-0.5526	-0.0028	-0.0002
35	SLU 76	0.02	15.32	63.05	-0.5476	-0.0024	-0.0002
35	SLU 77	0.02	15.87	63.86	-0.5723	-0.0033	-0.0002
35	SLU 78	0.02	15.77	63.99	-0.5664	-0.0027	-0.0002
35	SLU 79	0.02	15.84	63.74	-0.5712	-0.0032	-0.0002
35	SLU 80	0.02	15.73	63.87	-0.5653	-0.0027	-0.0002
35	SLU 81	0.02	15.99	64.67	-0.5738	-0.0036	-0.0002
35	SLU 82	0.02	15.88	64.8	-0.5679	-0.003	-0.0002
35	SLU 83	0.02	16.33	65.58	-0.5875	-0.0035	-0.0002
35	SLU 84	0.02	16.22	65.71	-0.5816	-0.0029	-0.0002
35	SLE RA 1	0.01	9.93	41.89	-0.355	-0.0022	-0.0001
35	SLE RA 2	0.01	9.81	42.04	-0.3484	-0.0016	-0.0001
35	SLE RA 3	0.01	10.18	42.58	-0.3649	-0.0022	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
35	SLE RA 4	0.01	10.11	42.67	-0.3609	-0.0018	-0.0001
35	SLE RA 5	0.01	10.04	42.64	-0.3576	-0.0016	-0.0001
35	SLE RA 6	0.01	10.4	43.18	-0.374	-0.0021	-0.0001
35	SLE RA 7	0.01	10.33	43.27	-0.3701	-0.0018	-0.0001
35	SLE RA 8	0.01	10.38	43.1	-0.3733	-0.0021	-0.0001
35	SLE RA 9	0.01	10.31	43.19	-0.3694	-0.0017	-0.0001
35	SLE RA 10	0.01	11.1	46.31	-0.3952	-0.0019	-0.0001
35	SLE RA 11	0.01	11.46	46.85	-0.4117	-0.0024	-0.0002
35	SLE RA 12	0.01	11.39	46.94	-0.4077	-0.0021	-0.0001
35	SLE RA 13	0.01	11.32	46.91	-0.4043	-0.0018	-0.0001
35	SLE RA 14	0.01	11.69	47.45	-0.4208	-0.0024	-0.0002
35	SLE RA 15	0.01	11.61	47.54	-0.4169	-0.002	-0.0001
35	SLE RA 16	0.01	11.66	47.37	-0.4201	-0.0024	-0.0002
35	SLE RA 17	0.01	11.59	47.46	-0.4161	-0.002	-0.0001
35	SLE RA 18	0.01	11.76	48	-0.4218	-0.0026	-0.0002
35	SLE RA 19	0.01	11.69	48.08	-0.4179	-0.0022	-0.0002
35	SLE RA 20	0.01	11.99	48.6	-0.431	-0.0025	-0.0002
35	SLE RA 21	0.01	11.92	48.69	-0.427	-0.0022	-0.0002
35	SLE FR 1	0.01	9.93	41.89	-0.355	-0.0022	-0.0001
35	SLE FR 2	0.01	9.91	41.92	-0.3537	-0.0021	-0.0001
35	SLE FR 3	0.01	10.02	42.13	-0.3586	-0.0022	-0.0001
35	SLE FR 4	0.01	10.46	43.75	-0.3737	-0.0022	-0.0001
35	SLE FR 5	0.01	10.57	43.97	-0.3787	-0.0023	-0.0001
35	SLE FR 6	0.01	10.85	44.94	-0.3884	-0.0024	-0.0001
35	SLE QP 1	0.01	9.93	41.89	-0.355	-0.0022	-0.0001
35	SLE QP 2	0.01	10.48	43.72	-0.375	-0.0023	-0.0001
35	SLD 1	-0.01	9.4	37.93	-0.3467	-0.0108	-0.0002
35	SLD 2	-0.01	9.4	37.93	-0.3467	-0.0108	-0.0002
35	SLD 3	-0.02	4.73	32.17	-0.1412	-0.0049	-0.0002
35	SLD 4	-0.02	4.73	32.17	-0.1412	-0.0049	-0.0002
35	SLD 5	0.03	17.25	50.71	-0.6782	-0.0138	-0.0002
35	SLD 6	0.03	17.25	50.71	-0.6782	-0.0138	-0.0002
35	SLD 7	-0.02	1.67	31.53	0.0068	0.0058	-0.0001
35	SLD 8	-0.02	1.67	31.53	0.0068	0.0058	-0.0001
35	SLD 9	0.04	19.3	55.92	-0.7568	-0.0105	-0.0002
35	SLD 10	0.04	19.3	55.92	-0.7568	-0.0105	-0.0002
35	SLD 11	-0.01	3.72	36.74	-0.0719	0.0091	0
35	SLD 12	-0.01	3.72	36.74	-0.0719	0.0091	0
35	SLD 13	0.04	16.24	55.28	-0.6089	0.0002	-0.0001
35	SLD 14	0.04	16.24	55.28	-0.6089	0.0002	-0.0001
35	SLD 15	0.03	11.56	49.52	-0.4034	0.0061	0
35	SLD 16	0.03	11.56	49.52	-0.4034	0.0061	0
35	SLV 1	-0.03	8	30.42	-0.3096	-0.0232	-0.0004
35	SLV 2	-0.03	8	30.42	-0.3096	-0.0232	-0.0004
35	SLV 3	-0.07	-2.78	16.94	0.1639	-0.009	-0.0003
35	SLV 4	-0.07	-2.78	16.94	0.1639	-0.009	-0.0003
35	SLV 5	0.06	26.09	60.17	-1.0735	-0.0301	-0.0004
35	SLV 6	0.06	26.09	60.17	-1.0735	-0.0301	-0.0004
35	SLV 7	-0.07	-9.84	15.25	0.5048	0.0172	0
35	SLV 8	-0.07	-9.84	15.25	0.5048	0.0172	0
35	SLV 9	0.09	30.81	72.2	-1.2548	-0.0218	-0.0002
35	SLV 10	0.09	30.81	72.2	-1.2548	-0.0218	-0.0002
35	SLV 11	-0.04	-5.12	27.27	0.3235	0.0255	0.0001
35	SLV 12	-0.04	-5.12	27.27	0.3235	0.0255	0.0001
35	SLV 13	0.09	23.74	70.51	-0.914	0.0044	0
35	SLV 14	0.09	23.74	70.51	-0.914	0.0044	0
35	SLV 15	0.05	12.96	57.03	-0.4405	0.0186	0.0001
35	SLV 16	0.05	12.96	57.03	-0.4405	0.0186	0.0001
36	SLU 1	-0.02	9.17	37.94	-0.3117	-0.0026	0.0001
36	SLU 2	-0.03	8.88	37.86	-0.2973	-0.0037	0.0001
36	SLU 3	-0.02	9.88	39.51	-0.3399	-0.0028	0.0001
36	SLU 4	-0.03	9.7	39.46	-0.3313	-0.0035	0.0001
36	SLU 5	-0.03	9.61	39.45	-0.3267	-0.0039	0.0001
36	SLU 6	-0.03	10.61	41.1	-0.3693	-0.003	0.0001
36	SLU 7	-0.03	10.43	41.05	-0.3606	-0.0037	0.0001
36	SLU 8	-0.03	10.63	41.12	-0.3705	-0.003	0.0001
36	SLU 9	-0.03	10.45	41.08	-0.3618	-0.0037	0.0001
36	SLU 10	-0.03	10.44	43.38	-0.351	-0.0035	0.0001
36	SLU 11	-0.03	11.45	45.03	-0.3935	-0.0026	0.0001
36	SLU 12	-0.03	11.27	44.98	-0.3849	-0.0033	0.0001
36	SLU 13	-0.03	11.17	44.97	-0.3803	-0.0037	0.0001
36	SLU 14	-0.03	12.18	46.62	-0.4229	-0.0028	0.0001
36	SLU 15	-0.03	12	46.57	-0.4143	-0.0035	0.0001
36	SLU 16	-0.03	12.2	46.64	-0.4241	-0.0028	0.0001
36	SLU 17	-0.03	12.02	46.59	-0.4155	-0.0035	0.0001
36	SLU 18	-0.03	11.41	45.82	-0.3884	-0.0023	0.0001
36	SLU 19	-0.03	11.23	45.77	-0.3797	-0.003	0.0001
36	SLU 20	-0.03	12.14	47.41	-0.4177	-0.0025	0.0001
36	SLU 21	-0.03	11.96	47.37	-0.4091	-0.0032	0.0001
36	SLU 22	-0.03	10.44	41.54	-0.3567	-0.0028	0.0001
36	SLU 23	-0.03	10.14	41.46	-0.3423	-0.0039	0.0001
36	SLU 24	-0.03	11.14	43.11	-0.3849	-0.003	0.0001
36	SLU 25	-0.03	10.97	43.07	-0.3762	-0.0037	0.0001
36	SLU 26	-0.03	10.87	43.05	-0.3717	-0.0041	0.0001
36	SLU 27	-0.03	11.87	44.71	-0.4142	-0.0032	0.0001
36	SLU 28	-0.03	11.69	44.66	-0.4056	-0.0039	0.0001
36	SLU 29	-0.03	11.89	44.73	-0.4154	-0.0032	0.0001
36	SLU 30	-0.03	11.72	44.68	-0.4068	-0.0039	0.0001
36	SLU 31	-0.03	11.71	46.98	-0.396	-0.0037	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
36	SLU 32	-0.03	12.71	48.63	-0.4385	-0.0028	0.0001
36	SLU 33	-0.03	12.53	48.58	-0.4299	-0.0035	0.0001
36	SLU 34	-0.03	12.44	48.57	-0.4253	-0.0039	0.0001
36	SLU 35	-0.03	13.44	50.23	-0.4679	-0.003	0.0001
36	SLU 36	-0.03	13.26	50.18	-0.4593	-0.0037	0.0001
36	SLU 37	-0.03	13.46	50.25	-0.4691	-0.003	0.0001
36	SLU 38	-0.03	13.28	50.2	-0.4604	-0.0037	0.0001
36	SLU 39	-0.03	12.67	49.43	-0.4333	-0.0025	0.0001
36	SLU 40	-0.03	12.5	49.38	-0.4247	-0.0032	0.0001
36	SLU 41	-0.03	13.4	51.02	-0.4627	-0.0027	0.0001
36	SLU 42	-0.03	13.23	50.97	-0.4541	-0.0034	0.0001
36	SLU 43	-0.03	11.49	48.08	-0.3898	-0.0033	0.0001
36	SLU 44	-0.03	11.19	48	-0.3754	-0.0044	0.0001
36	SLU 45	-0.03	12.2	49.66	-0.418	-0.0035	0.0001
36	SLU 46	-0.03	12.02	49.61	-0.4094	-0.0042	0.0001
36	SLU 47	-0.03	11.92	49.6	-0.4048	-0.0046	0.0001
36	SLU 48	-0.03	12.93	51.25	-0.4474	-0.0037	0.0001
36	SLU 49	-0.03	12.75	51.2	-0.4387	-0.0044	0.0001
36	SLU 50	-0.03	12.95	51.27	-0.4485	-0.0037	0.0001
36	SLU 51	-0.03	12.77	51.22	-0.4399	-0.0044	0.0001
36	SLU 52	-0.04	12.76	53.52	-0.4291	-0.0042	0.0001
36	SLU 53	-0.03	13.76	55.17	-0.4716	-0.0033	0.0001
36	SLU 54	-0.03	13.59	55.13	-0.463	-0.004	0.0001
36	SLU 55	-0.04	13.49	55.11	-0.4584	-0.0044	0.0001
36	SLU 56	-0.03	14.49	56.77	-0.501	-0.0035	0.0002
36	SLU 57	-0.04	14.32	56.72	-0.4924	-0.0042	0.0001
36	SLU 58	-0.03	14.51	56.79	-0.5022	-0.0035	0.0002
36	SLU 59	-0.04	14.34	56.74	-0.4936	-0.0042	0.0001
36	SLU 60	-0.03	13.73	55.97	-0.4664	-0.003	0.0002
36	SLU 61	-0.03	13.55	55.92	-0.4578	-0.0037	0.0001
36	SLU 62	-0.03	14.46	57.56	-0.4958	-0.0032	0.0002
36	SLU 63	-0.04	14.28	57.51	-0.4872	-0.0039	0.0001
36	SLU 64	-0.03	12.75	51.69	-0.4348	-0.0035	0.0001
36	SLU 65	-0.04	12.46	51.61	-0.4204	-0.0046	0.0001
36	SLU 66	-0.03	13.46	53.26	-0.463	-0.0037	0.0001
36	SLU 67	-0.04	13.28	53.21	-0.4543	-0.0044	0.0001
36	SLU 68	-0.04	13.19	53.2	-0.4498	-0.0048	0.0001
36	SLU 69	-0.03	14.19	54.85	-0.4923	-0.0039	0.0001
36	SLU 70	-0.04	14.01	54.8	-0.4837	-0.0046	0.0001
36	SLU 71	-0.03	14.21	54.87	-0.4935	-0.0039	0.0001
36	SLU 72	-0.04	14.03	54.83	-0.4849	-0.0046	0.0001
36	SLU 73	-0.04	14.03	57.13	-0.474	-0.0044	0.0001
36	SLU 74	-0.04	15.03	58.78	-0.5166	-0.0035	0.0002
36	SLU 75	-0.04	14.85	58.73	-0.508	-0.0042	0.0002
36	SLU 76	-0.04	14.75	58.72	-0.5034	-0.0046	0.0001
36	SLU 77	-0.04	15.76	60.37	-0.546	-0.0037	0.0002
36	SLU 78	-0.04	15.58	60.32	-0.5374	-0.0044	0.0002
36	SLU 79	-0.04	15.78	60.39	-0.5472	-0.0037	0.0002
36	SLU 80	-0.04	15.6	60.34	-0.5385	-0.0044	0.0002
36	SLU 81	-0.04	14.99	59.57	-0.5114	-0.0032	0.0002
36	SLU 82	-0.04	14.82	59.52	-0.5028	-0.0039	0.0002
36	SLU 83	-0.04	15.72	61.16	-0.5408	-0.0034	0.0002
36	SLU 84	-0.04	15.54	61.12	-0.5322	-0.0041	0.0002
36	SLE RA 1	-0.02	9.53	38.97	-0.3246	-0.0026	0.0001
36	SLE RA 2	-0.03	9.34	38.91	-0.315	-0.0034	0.0001
36	SLE RA 3	-0.02	10	40.02	-0.3434	-0.0028	0.0001
36	SLE RA 4	-0.03	9.89	39.98	-0.3376	-0.0032	0.0001
36	SLE RA 5	-0.03	9.82	39.98	-0.3346	-0.0035	0.0001
36	SLE RA 6	-0.03	10.49	41.08	-0.3629	-0.0029	0.0001
36	SLE RA 7	-0.03	10.37	41.05	-0.3572	-0.0034	0.0001
36	SLE RA 8	-0.03	10.5	41.09	-0.3637	-0.0029	0.0001
36	SLE RA 9	-0.03	10.39	41.06	-0.358	-0.0034	0.0001
36	SLE RA 10	-0.03	10.38	42.59	-0.3507	-0.0032	0.0001
36	SLE RA 11	-0.03	11.05	43.69	-0.3791	-0.0027	0.0001
36	SLE RA 12	-0.03	10.93	43.66	-0.3734	-0.0031	0.0001
36	SLE RA 13	-0.03	10.87	43.65	-0.3703	-0.0034	0.0001
36	SLE RA 14	-0.03	11.53	44.76	-0.3987	-0.0028	0.0001
36	SLE RA 15	-0.03	11.42	44.72	-0.3929	-0.0033	0.0001
36	SLE RA 16	-0.03	11.55	44.77	-0.3995	-0.0028	0.0001
36	SLE RA 17	-0.03	11.43	44.74	-0.3937	-0.0032	0.0001
36	SLE RA 18	-0.03	11.03	44.22	-0.3757	-0.0025	0.0001
36	SLE RA 19	-0.03	10.91	44.19	-0.3699	-0.0029	0.0001
36	SLE RA 20	-0.03	11.51	45.29	-0.3952	-0.0026	0.0001
36	SLE RA 21	-0.03	11.39	45.25	-0.3895	-0.003	0.0001
36	SLE FR 1	-0.02	9.53	38.97	-0.3246	-0.0026	0.0001
36	SLE FR 2	-0.02	9.49	38.96	-0.3226	-0.0028	0.0001
36	SLE FR 3	-0.02	9.73	39.39	-0.3324	-0.0027	0.0001
36	SLE FR 4	-0.03	9.94	40.53	-0.338	-0.0027	0.0001
36	SLE FR 5	-0.02	10.17	40.97	-0.3477	-0.0026	0.0001
36	SLE FR 6	-0.03	10.28	41.6	-0.3501	-0.0025	0.0001
36	SLE QP 1	-0.02	9.53	38.97	-0.3246	-0.0026	0.0001
36	SLE QP 2	-0.02	9.98	40.55	-0.3399	-0.0026	0.0001
36	SLD 1	-0.08	15.01	50.47	-0.5424	-0.0184	0
36	SLD 2	-0.08	15.01	50.47	-0.5424	-0.0184	0
36	SLD 3	-0.06	9.76	44.47	-0.3147	-0.0114	0
36	SLD 4	-0.06	9.76	44.47	-0.3147	-0.0114	0
36	SLD 5	-0.07	19.45	52.62	-0.7459	-0.018	0.0002
36	SLD 6	-0.07	19.45	52.62	-0.7459	-0.018	0.0002
36	SLD 7	-0.01	1.96	32.63	0.013	0.0054	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
36	SLD 8	-0.01	1.96	32.63	0.013	0.0054	0
36	SLD 9	-0.04	18	48.46	-0.6927	-0.0106	0.0002
36	SLD 10	-0.04	18	48.46	-0.6927	-0.0106	0.0002
36	SLD 11	0.02	0.51	28.47	0.0662	0.0128	0.0001
36	SLD 12	0.02	0.51	28.47	0.0662	0.0128	0.0001
36	SLD 13	0.01	10.2	36.62	-0.3651	0.0062	0.0002
36	SLD 14	0.01	10.2	36.62	-0.3651	0.0062	0.0002
36	SLD 15	0.03	4.95	30.62	-0.1374	0.0133	0.0002
36	SLD 16	0.03	4.95	30.62	-0.1374	0.0133	0.0002
36	SLV 1	-0.15	21.51	63.54	-0.8043	-0.041	-0.0001
36	SLV 2	-0.15	21.51	63.54	-0.8043	-0.041	-0.0001
36	SLV 3	-0.1	9.48	49.56	-0.2824	-0.0242	-0.0002
36	SLV 4	-0.1	9.48	49.56	-0.2824	-0.0242	-0.0002
36	SLV 5	-0.13	31.69	68.65	-1.2707	-0.0397	0.0002
36	SLV 6	-0.13	31.69	68.65	-1.2707	-0.0397	0.0002
36	SLV 7	0.02	-8.42	22.04	0.4689	0.0165	-0.0001
36	SLV 8	0.02	-8.42	22.04	0.4689	0.0165	-0.0001
36	SLV 9	-0.07	28.38	59.05	-1.1486	-0.0217	0.0004
36	SLV 10	-0.07	28.38	59.05	-1.1486	-0.0217	0.0004
36	SLV 11	0.08	-11.73	12.44	0.5909	0.0345	0
36	SLV 12	0.08	-11.73	12.44	0.5909	0.0345	0
36	SLV 13	0.05	10.48	31.53	-0.3974	0.019	0.0004
36	SLV 14	0.05	10.48	31.53	-0.3974	0.019	0.0004
36	SLV 15	0.1	-1.55	17.55	0.1245	0.0359	0.0003
36	SLV 16	0.1	-1.55	17.55	0.1245	0.0359	0.0003
37	SLU 1	-0.07	-2.38	33.66	0.4857	-0.0199	0.0002
37	SLU 2	-0.08	-3.14	34.05	0.5229	-0.0219	0.0002
37	SLU 3	-0.07	-2.41	34.12	0.4947	-0.0201	0.0002
37	SLU 4	-0.08	-2.87	34.36	0.5171	-0.0213	0.0002
37	SLU 5	-0.08	-3.17	34.34	0.5298	-0.0221	0.0002
37	SLU 6	-0.08	-2.44	34.41	0.5017	-0.0204	0.0002
37	SLU 7	-0.08	-2.9	34.65	0.524	-0.0216	0.0002
37	SLU 8	-0.07	-2.44	34.25	0.4996	-0.0203	0.0002
37	SLU 9	-0.08	-2.9	34.48	0.5219	-0.0215	0.0002
37	SLU 10	-0.09	-3.1	37.53	0.5657	-0.0243	0.0002
37	SLU 11	-0.09	-2.37	37.6	0.5375	-0.0226	0.0002
37	SLU 12	-0.09	-2.82	37.83	0.5598	-0.0238	0.0002
37	SLU 13	-0.09	-3.13	37.82	0.5726	-0.0245	0.0002
37	SLU 14	-0.09	-2.4	37.89	0.5445	-0.0228	0.0002
37	SLU 15	-0.09	-2.86	38.12	0.5668	-0.024	0.0002
37	SLU 16	-0.09	-2.4	37.72	0.5423	-0.0227	0.0002
37	SLU 17	-0.09	-2.86	37.96	0.5647	-0.0239	0.0002
37	SLU 18	-0.09	-2.32	38.63	0.5468	-0.0233	0.0002
37	SLU 19	-0.09	-2.78	38.86	0.5691	-0.0245	0.0002
37	SLU 20	-0.09	-2.35	38.92	0.5537	-0.0236	0.0002
37	SLU 21	-0.09	-2.81	39.15	0.5761	-0.0247	0.0002
37	SLU 22	-0.08	-2.35	36.4	0.5188	-0.0216	0.0002
37	SLU 23	-0.09	-3.11	36.79	0.556	-0.0236	0.0002
37	SLU 24	-0.08	-2.38	36.86	0.5279	-0.0219	0.0002
37	SLU 25	-0.09	-2.83	37.1	0.5502	-0.0231	0.0002
37	SLU 26	-0.09	-3.14	37.08	0.563	-0.0238	0.0002
37	SLU 27	-0.08	-2.41	37.15	0.5348	-0.0221	0.0002
37	SLU 28	-0.09	-2.87	37.39	0.5571	-0.0233	0.0002
37	SLU 29	-0.08	-2.41	36.98	0.5327	-0.0221	0.0002
37	SLU 30	-0.09	-2.87	37.22	0.555	-0.0232	0.0002
37	SLU 31	-0.1	-3.07	40.27	0.5988	-0.026	0.0002
37	SLU 32	-0.09	-2.34	40.34	0.5706	-0.0243	0.0002
37	SLU 33	-0.1	-2.79	40.57	0.593	-0.0255	0.0002
37	SLU 34	-0.1	-3.1	40.56	0.6057	-0.0262	0.0002
37	SLU 35	-0.09	-2.37	40.63	0.5776	-0.0245	0.0002
37	SLU 36	-0.1	-2.82	40.86	0.5999	-0.0257	0.0002
37	SLU 37	-0.09	-2.37	40.46	0.5755	-0.0245	0.0002
37	SLU 38	-0.1	-2.82	40.69	0.5978	-0.0257	0.0002
37	SLU 39	-0.1	-2.29	41.37	0.5799	-0.0251	0.0002
37	SLU 40	-0.1	-2.75	41.6	0.6022	-0.0263	0.0002
37	SLU 41	-0.1	-2.32	41.66	0.5869	-0.0253	0.0002
37	SLU 42	-0.1	-2.78	41.89	0.6092	-0.0265	0.0002
37	SLU 43	-0.09	-3.11	42.82	0.62	-0.0252	0.0002
37	SLU 44	-0.1	-3.87	43.21	0.6572	-0.0272	0.0002
37	SLU 45	-0.09	-3.14	43.28	0.6291	-0.0255	0.0002
37	SLU 46	-0.1	-3.59	43.52	0.6514	-0.0267	0.0002
37	SLU 47	-0.1	-3.9	43.5	0.6642	-0.0275	0.0002
37	SLU 48	-0.09	-3.17	43.57	0.636	-0.0257	0.0002
37	SLU 49	-0.1	-3.62	43.81	0.6583	-0.0269	0.0002
37	SLU 50	-0.09	-3.17	43.41	0.6339	-0.0257	0.0002
37	SLU 51	-0.1	-3.62	43.64	0.6562	-0.0269	0.0002
37	SLU 52	-0.11	-3.83	46.69	0.7	-0.0297	0.0002
37	SLU 53	-0.1	-3.09	46.76	0.6719	-0.0279	0.0002
37	SLU 54	-0.11	-3.55	46.99	0.6942	-0.0291	0.0002
37	SLU 55	-0.11	-3.86	46.98	0.7069	-0.0299	0.0002
37	SLU 56	-0.11	-3.12	47.05	0.6788	-0.0281	0.0002
37	SLU 57	-0.11	-3.58	47.28	0.7011	-0.0293	0.0002
37	SLU 58	-0.1	-3.13	46.88	0.6767	-0.0281	0.0002
37	SLU 59	-0.11	-3.58	47.12	0.699	-0.0293	0.0002
37	SLU 60	-0.11	-3.05	47.79	0.6811	-0.0287	0.0002
37	SLU 61	-0.11	-3.5	48.02	0.7035	-0.0299	0.0002
37	SLU 62	-0.11	-3.08	48.08	0.6881	-0.0289	0.0002
37	SLU 63	-0.11	-3.53	48.31	0.7104	-0.0301	0.0002
37	SLU 64	-0.1	-3.07	45.56	0.6532	-0.027	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
37	SLU 65	-0.11	-3.84	45.95	0.6904	-0.029	0.0002
37	SLU 66	-0.1	-3.1	46.02	0.6622	-0.0272	0.0002
37	SLU 67	-0.11	-3.56	46.26	0.6845	-0.0284	0.0002
37	SLU 68	-0.11	-3.87	46.24	0.6973	-0.0292	0.0002
37	SLU 69	-0.1	-3.13	46.31	0.6691	-0.0275	0.0002
37	SLU 70	-0.11	-3.59	46.55	0.6915	-0.0287	0.0002
37	SLU 71	-0.1	-3.14	46.14	0.667	-0.0274	0.0002
37	SLU 72	-0.11	-3.59	46.38	0.6894	-0.0286	0.0002
37	SLU 73	-0.12	-3.79	49.43	0.7331	-0.0314	0.0003
37	SLU 74	-0.11	-3.06	49.5	0.705	-0.0297	0.0003
37	SLU 75	-0.12	-3.52	49.73	0.7273	-0.0309	0.0003
37	SLU 76	-0.12	-3.82	49.72	0.7401	-0.0316	0.0003
37	SLU 77	-0.11	-3.09	49.79	0.7119	-0.0299	0.0003
37	SLU 78	-0.12	-3.55	50.02	0.7343	-0.0311	0.0003
37	SLU 79	-0.11	-3.09	49.62	0.7098	-0.0298	0.0003
37	SLU 80	-0.12	-3.55	49.85	0.7321	-0.031	0.0003
37	SLU 81	-0.12	-3.01	50.53	0.7143	-0.0304	0.0003
37	SLU 82	-0.12	-3.47	50.76	0.7366	-0.0316	0.0003
37	SLU 83	-0.12	-3.04	50.82	0.7212	-0.0307	0.0003
37	SLU 84	-0.12	-3.5	51.05	0.7435	-0.0319	0.0003
37	SLE RA 1	-0.08	-2.37	34.45	0.4951	-0.0204	0.0002
37	SLE RA 2	-0.08	-2.88	34.71	0.5199	-0.0217	0.0002
37	SLE RA 3	-0.08	-2.39	34.75	0.5012	-0.0206	0.0002
37	SLE RA 4	-0.08	-2.7	34.91	0.5161	-0.0213	0.0002
37	SLE RA 5	-0.08	-2.9	34.9	0.5246	-0.0218	0.0002
37	SLE RA 6	-0.08	-2.41	34.95	0.5058	-0.0207	0.0002
37	SLE RA 7	-0.08	-2.72	35.1	0.5207	-0.0215	0.0002
37	SLE RA 8	-0.08	-2.41	34.83	0.5044	-0.0207	0.0002
37	SLE RA 9	-0.08	-2.72	34.99	0.5193	-0.0215	0.0002
37	SLE RA 10	-0.09	-2.85	37.02	0.5485	-0.0233	0.0002
37	SLE RA 11	-0.08	-2.36	37.07	0.5297	-0.0222	0.0002
37	SLE RA 12	-0.09	-2.67	37.23	0.5446	-0.023	0.0002
37	SLE RA 13	-0.09	-2.87	37.22	0.5531	-0.0235	0.0002
37	SLE RA 14	-0.08	-2.38	37.26	0.5343	-0.0223	0.0002
37	SLE RA 15	-0.09	-2.69	37.42	0.5492	-0.0231	0.0002
37	SLE RA 16	-0.08	-2.38	37.15	0.5329	-0.0223	0.0002
37	SLE RA 17	-0.09	-2.69	37.31	0.5478	-0.0231	0.0002
37	SLE RA 18	-0.09	-2.33	37.76	0.5359	-0.0227	0.0002
37	SLE RA 19	-0.09	-2.64	37.91	0.5508	-0.0235	0.0002
37	SLE RA 20	-0.09	-2.35	37.95	0.5405	-0.0228	0.0002
37	SLE RA 21	-0.09	-2.66	38.11	0.5554	-0.0236	0.0002
37	SLE FR 1	-0.08	-2.37	34.45	0.4951	-0.0204	0.0002
37	SLE FR 2	-0.08	-2.47	34.5	0.5001	-0.0206	0.0002
37	SLE FR 3	-0.08	-2.38	34.52	0.497	-0.0204	0.0002
37	SLE FR 4	-0.08	-2.46	35.49	0.5123	-0.0213	0.0002
37	SLE FR 5	-0.08	-2.37	35.52	0.5092	-0.0211	0.0002
37	SLE FR 6	-0.08	-2.35	36.1	0.5155	-0.0215	0.0002
37	SLE QP 1	-0.08	-2.37	34.45	0.4951	-0.0204	0.0002
37	SLE QP 2	-0.08	-2.36	35.44	0.5074	-0.0211	0.0002
37	SLD 1	-0.12	0.66	32.84	0.4272	-0.0153	0.0003
37	SLD 2	-0.12	0.66	32.84	0.4272	-0.0153	0.0003
37	SLD 3	-0.07	-2.05	29.15	0.2923	0.0008	0.0002
37	SLD 4	-0.07	-2.05	29.15	0.2923	0.0008	0.0002
37	SLD 5	-0.16	2.66	40.27	0.688	-0.0437	0.0004
37	SLD 6	-0.16	2.66	40.27	0.688	-0.0437	0.0004
37	SLD 7	-0.01	-6.37	27.95	0.2382	0.0099	0
37	SLD 8	-0.01	-6.37	27.95	0.2382	0.0099	0
37	SLD 9	-0.15	1.65	42.93	0.7766	-0.052	0.0004
37	SLD 10	-0.15	1.65	42.93	0.7766	-0.052	0.0004
37	SLD 11	0	-7.38	30.61	0.3268	0.0016	-0.0001
37	SLD 12	0	-7.38	30.61	0.3268	0.0016	-0.0001
37	SLD 13	-0.08	-2.67	41.73	0.7225	-0.0429	0.0001
37	SLD 14	-0.08	-2.67	41.73	0.7225	-0.0429	0.0001
37	SLD 15	-0.04	-5.38	38.04	0.5875	-0.0268	0
37	SLD 16	-0.04	-5.38	38.04	0.5875	-0.0268	0
37	SLV 1	-0.18	4.73	29.51	0.3219	-0.0087	0.0005
37	SLV 2	-0.18	4.73	29.51	0.3219	-0.0087	0.0005
37	SLV 3	-0.07	-1.61	20.59	0.0016	0.03	0.0002
37	SLV 4	-0.07	-1.61	20.59	0.0016	0.03	0.0002
37	SLV 5	-0.27	9.39	47.19	0.9376	-0.076	0.0007
37	SLV 6	-0.27	9.39	47.19	0.9376	-0.076	0.0007
37	SLV 7	0.09	-11.75	17.46	-0.1302	0.0529	-0.0003
37	SLV 8	0.09	-11.75	17.46	-0.1302	0.0529	-0.0003
37	SLV 9	-0.25	7.03	53.42	1.1449	-0.0951	0.0006
37	SLV 10	-0.25	7.03	53.42	1.1449	-0.0951	0.0006
37	SLV 11	0.12	-14.11	23.69	0.0772	0.0339	-0.0004
37	SLV 12	0.12	-14.11	23.69	0.0772	0.0339	-0.0004
37	SLV 13	-0.09	-3.11	50.29	1.0131	-0.0721	0.0001
37	SLV 14	-0.09	-3.11	50.29	1.0131	-0.0721	0.0001
37	SLV 15	0.02	-9.45	41.37	0.6928	-0.0334	-0.0002
37	SLV 16	0.02	-9.45	41.37	0.6928	-0.0334	-0.0002
38	SLU 1	-0.01	-1.29	31.46	0.0673	-0.0035	0
38	SLU 2	0	-1.96	33.08	0.1015	-0.0004	0
38	SLU 3	-0.01	-1.31	31.71	0.0682	-0.0034	0
38	SLU 4	-0.01	-1.71	32.68	0.0888	-0.0016	0
38	SLU 5	0	-1.98	33.06	0.1023	-0.0002	0
38	SLU 6	-0.01	-1.33	31.69	0.069	-0.0033	0
38	SLU 7	-0.01	-1.73	32.66	0.0896	-0.0014	0
38	SLU 8	-0.01	-1.33	31.41	0.0689	-0.0031	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
38	SLU 9	-0.01	-1.73	32.39	0.0895	-0.0013	0
38	SLU 10	0	-1.94	37.25	0.1051	-0.0004	0
38	SLU 11	-0.02	-1.29	35.88	0.0718	-0.0035	0
38	SLU 12	-0.01	-1.7	36.85	0.0924	-0.0016	0
38	SLU 13	0	-1.97	37.22	0.106	-0.0002	0
38	SLU 14	-0.01	-1.32	35.85	0.0727	-0.0033	0
38	SLU 15	-0.01	-1.72	36.82	0.0932	-0.0014	0
38	SLU 16	-0.01	-1.32	35.58	0.0726	-0.0032	0
38	SLU 17	-0.01	-1.72	36.55	0.0931	-0.0013	0
38	SLU 18	-0.02	-1.27	37.41	0.0724	-0.0036	0
38	SLU 19	-0.01	-1.67	38.38	0.093	-0.0017	0
38	SLU 20	-0.01	-1.29	37.39	0.0733	-0.0034	0
38	SLU 21	-0.01	-1.69	38.36	0.0938	-0.0015	0
38	SLU 22	-0.01	-1.28	34.62	0.0702	-0.0035	0
38	SLU 23	0	-1.95	36.24	0.1045	-0.0003	0
38	SLU 24	-0.01	-1.3	34.87	0.0712	-0.0034	0
38	SLU 25	-0.01	-1.7	35.84	0.0917	-0.0015	0
38	SLU 26	0	-1.97	36.22	0.1053	-0.0001	0
38	SLU 27	-0.01	-1.32	34.84	0.072	-0.0032	0
38	SLU 28	-0.01	-1.73	35.82	0.0925	-0.0013	0
38	SLU 29	-0.01	-1.33	34.57	0.0719	-0.0031	0
38	SLU 30	-0.01	-1.73	35.54	0.0924	-0.0012	0
38	SLU 31	0	-1.94	40.4	0.1081	-0.0004	0
38	SLU 32	-0.01	-1.29	39.03	0.0748	-0.0035	0
38	SLU 33	-0.01	-1.69	40	0.0953	-0.0016	0
38	SLU 34	0	-1.96	40.38	0.1089	-0.0002	0
38	SLU 35	-0.01	-1.31	39.01	0.0756	-0.0033	0
38	SLU 36	-0.01	-1.71	39.98	0.0962	-0.0014	0
38	SLU 37	-0.01	-1.31	38.74	0.0755	-0.0032	0
38	SLU 38	-0.01	-1.71	39.71	0.0961	-0.0013	0
38	SLU 39	-0.01	-1.26	40.57	0.0754	-0.0036	0
38	SLU 40	-0.01	-1.66	41.54	0.0959	-0.0017	0
38	SLU 41	-0.01	-1.28	40.55	0.0762	-0.0034	0
38	SLU 42	-0.01	-1.68	41.52	0.0968	-0.0015	0
38	SLU 43	-0.02	-1.68	39.82	0.0864	-0.0046	0
38	SLU 44	-0.01	-2.35	41.44	0.1207	-0.0014	0
38	SLU 45	-0.02	-1.7	40.07	0.0874	-0.0045	0
38	SLU 46	-0.01	-2.1	41.04	0.1079	-0.0026	0
38	SLU 47	-0.01	-2.37	41.41	0.1215	-0.0013	0
38	SLU 48	-0.02	-1.72	40.04	0.0882	-0.0043	0
38	SLU 49	-0.01	-2.12	41.01	0.1087	-0.0024	0
38	SLU 50	-0.02	-1.72	39.77	0.0881	-0.0042	0
38	SLU 51	-0.01	-2.12	40.74	0.1086	-0.0023	0
38	SLU 52	-0.01	-2.33	45.6	0.1243	-0.0015	0
38	SLU 53	-0.02	-1.68	44.23	0.091	-0.0046	0
38	SLU 54	-0.01	-2.08	45.2	0.1115	-0.0027	0
38	SLU 55	-0.01	-2.35	45.58	0.1251	-0.0013	0
38	SLU 56	-0.02	-1.7	44.21	0.0918	-0.0044	0
38	SLU 57	-0.01	-2.11	45.18	0.1124	-0.0025	0
38	SLU 58	-0.02	-1.71	43.93	0.0917	-0.0043	0
38	SLU 59	-0.01	-2.11	44.91	0.1123	-0.0024	0
38	SLU 60	-0.02	-1.66	45.77	0.0916	-0.0047	0
38	SLU 61	-0.01	-2.06	46.74	0.1121	-0.0028	0
38	SLU 62	-0.02	-1.68	45.74	0.0924	-0.0045	0
38	SLU 63	-0.01	-2.08	46.72	0.113	-0.0026	0
38	SLU 64	-0.02	-1.67	42.98	0.0894	-0.0045	0
38	SLU 65	-0.01	-2.34	44.6	0.1236	-0.0014	0
38	SLU 66	-0.02	-1.69	43.23	0.0903	-0.0045	0
38	SLU 67	-0.01	-2.09	44.2	0.1109	-0.0026	0
38	SLU 68	-0.01	-2.36	44.57	0.1244	-0.0012	0
38	SLU 69	-0.02	-1.71	43.2	0.0912	-0.0043	0
38	SLU 70	-0.01	-2.11	44.17	0.1117	-0.0024	0
38	SLU 71	-0.02	-1.71	42.93	0.091	-0.0042	0
38	SLU 72	-0.01	-2.12	43.9	0.1116	-0.0023	0
38	SLU 73	-0.01	-2.32	48.76	0.1272	-0.0015	0
38	SLU 74	-0.02	-1.68	47.39	0.094	-0.0045	0
38	SLU 75	-0.01	-2.08	48.36	0.1145	-0.0026	0
38	SLU 76	-0.01	-2.35	48.74	0.1281	-0.0013	0
38	SLU 77	-0.02	-1.7	47.36	0.0948	-0.0043	0
38	SLU 78	-0.01	-2.1	48.34	0.1153	-0.0025	0
38	SLU 79	-0.02	-1.7	47.09	0.0947	-0.0042	0
38	SLU 80	-0.01	-2.1	48.06	0.1152	-0.0023	0
38	SLU 81	-0.02	-1.65	48.93	0.0946	-0.0046	0
38	SLU 82	-0.01	-2.05	49.9	0.1151	-0.0027	0
38	SLU 83	-0.02	-1.67	48.9	0.0954	-0.0044	0
38	SLU 84	-0.01	-2.07	49.87	0.1159	-0.0026	0
38	SLE RA 1	-0.01	-1.29	32.37	0.0681	-0.0035	0
38	SLE RA 2	-0.01	-1.73	33.44	0.0909	-0.0014	0
38	SLE RA 3	-0.01	-1.3	32.53	0.0687	-0.0035	0
38	SLE RA 4	-0.01	-1.57	33.18	0.0824	-0.0022	0
38	SLE RA 5	-0.01	-1.75	33.43	0.0915	-0.0013	0
38	SLE RA 6	-0.01	-1.31	32.51	0.0693	-0.0033	0
38	SLE RA 7	-0.01	-1.58	33.16	0.083	-0.0021	0
38	SLE RA 8	-0.01	-1.32	32.33	0.0692	-0.0033	0
38	SLE RA 9	-0.01	-1.58	32.98	0.0829	-0.002	0
38	SLE RA 10	-0.01	-1.72	36.22	0.0933	-0.0014	0
38	SLE RA 11	-0.01	-1.29	35.31	0.0712	-0.0035	0
38	SLE RA 12	-0.01	-1.56	35.95	0.0849	-0.0022	0
38	SLE RA 13	-0.01	-1.74	36.2	0.0939	-0.0013	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
38	SLE RA 14	-0.01	-1.3	35.29	0.0717	-0.0034	0
38	SLE RA 15	-0.01	-1.57	35.94	0.0854	-0.0021	0
38	SLE RA 16	-0.01	-1.31	35.11	0.0716	-0.0033	0
38	SLE RA 17	-0.01	-1.57	35.76	0.0853	-0.002	0
38	SLE RA 18	-0.01	-1.27	36.33	0.0716	-0.0036	0
38	SLE RA 19	-0.01	-1.54	36.98	0.0853	-0.0023	0
38	SLE RA 20	-0.01	-1.29	36.32	0.0721	-0.0034	0
38	SLE RA 21	-0.01	-1.55	36.96	0.0858	-0.0022	0
38	SLE FR 1	-0.01	-1.29	32.37	0.0681	-0.0035	0
38	SLE FR 2	-0.01	-1.37	32.58	0.0727	-0.0031	0
38	SLE FR 3	-0.01	-1.29	32.36	0.0683	-0.0035	0
38	SLE FR 4	-0.01	-1.37	33.77	0.0737	-0.0031	0
38	SLE FR 5	-0.01	-1.29	33.55	0.0694	-0.0035	0
38	SLE FR 6	-0.01	-1.28	34.35	0.0698	-0.0035	0
38	SLE QP 1	-0.01	-1.29	32.37	0.0681	-0.0035	0
38	SLE QP 2	-0.01	-1.28	33.56	0.0691	-0.0035	0
38	SLD 1	0.06	-1.15	29.48	-0.0181	0.0239	0
38	SLD 2	0.06	-1.15	29.48	-0.0181	0.0239	0
38	SLD 3	0.01	-3.16	26.86	0.079	0.0098	0
38	SLD 4	0.01	-3.16	26.86	0.079	0.0098	0
38	SLD 5	0.08	1.8	36.29	-0.1043	0.0261	0.0001
38	SLD 6	0.08	1.8	36.29	-0.1043	0.0261	0.0001
38	SLD 7	-0.08	-4.89	27.59	0.2193	-0.0209	0
38	SLD 8	-0.08	-4.89	27.59	0.2193	-0.0209	0
38	SLD 9	0.05	2.33	39.52	-0.0811	0.0139	0.0001
38	SLD 10	0.05	2.33	39.52	-0.0811	0.0139	0.0001
38	SLD 11	-0.11	-4.36	30.82	0.2425	-0.0331	0
38	SLD 12	-0.11	-4.36	30.82	0.2425	-0.0331	0
38	SLD 13	-0.04	0.6	40.25	0.0593	-0.0168	0.0001
38	SLD 14	-0.04	0.6	40.25	0.0593	-0.0168	0.0001
38	SLD 15	-0.09	-1.41	37.64	0.1563	-0.0309	0
38	SLD 16	-0.09	-1.41	37.64	0.1563	-0.0309	0
38	SLV 1	0.15	-0.99	24.41	-0.135	0.0602	0
38	SLV 2	0.15	-0.99	24.41	-0.135	0.0602	0
38	SLV 3	0.04	-5.69	17.98	0.0923	0.0263	-0.0001
38	SLV 4	0.04	-5.69	17.98	0.0923	0.0263	-0.0001
38	SLV 5	0.2	5.93	40.57	-0.337	0.0669	0.0001
38	SLV 6	0.2	5.93	40.57	-0.337	0.0669	0.0001
38	SLV 7	-0.16	-9.73	19.12	0.421	-0.0459	-0.0001
38	SLV 8	-0.16	-9.73	19.12	0.421	-0.0459	-0.0001
38	SLV 9	0.14	7.16	47.99	-0.2827	0.0389	0.0002
38	SLV 10	0.14	7.16	47.99	-0.2827	0.0389	0.0002
38	SLV 11	-0.23	-8.49	26.54	0.4753	-0.074	-0.0001
38	SLV 12	-0.23	-8.49	26.54	0.4753	-0.074	-0.0001
38	SLV 13	-0.07	3.13	49.13	0.0459	-0.0333	0.0001
38	SLV 14	-0.07	3.13	49.13	0.0459	-0.0333	0.0001
38	SLV 15	-0.18	-1.57	42.7	0.2733	-0.0672	0.0001
38	SLV 16	-0.18	-1.57	42.7	0.2733	-0.0672	0.0001
39	SLU 1	-0.03	8.7	47.53	-0.3711	-0.0088	0.0002
39	SLU 2	-0.02	8.56	48.14	-0.3627	-0.0084	0.0003
39	SLU 3	-0.03	9.03	48.57	-0.3865	-0.0088	0.0003
39	SLU 4	-0.03	8.95	48.94	-0.3815	-0.0086	0.0003
39	SLU 5	-0.03	8.85	48.97	-0.3769	-0.0084	0.0003
39	SLU 6	-0.03	9.33	49.4	-0.4008	-0.0088	0.0003
39	SLU 7	-0.03	9.25	49.77	-0.3957	-0.0086	0.0003
39	SLU 8	-0.03	9.29	49.19	-0.3996	-0.0087	0.0003
39	SLU 9	-0.03	9.21	49.55	-0.3945	-0.0085	0.0003
39	SLU 10	-0.03	10.32	56.05	-0.4361	-0.0099	0.0003
39	SLU 11	-0.03	10.8	56.48	-0.4599	-0.0103	0.0003
39	SLU 12	-0.03	10.72	56.85	-0.4549	-0.0101	0.0003
39	SLU 13	-0.03	10.62	56.88	-0.4503	-0.0099	0.0003
39	SLU 14	-0.03	11.1	57.31	-0.4742	-0.0103	0.0003
39	SLU 15	-0.03	11.01	57.68	-0.4691	-0.0101	0.0003
39	SLU 16	-0.03	11.06	57.09	-0.473	-0.0102	0.0003
39	SLU 17	-0.03	10.97	57.46	-0.4679	-0.01	0.0003
39	SLU 18	-0.03	11.22	58.83	-0.476	-0.0109	0.0003
39	SLU 19	-0.03	11.14	59.19	-0.4709	-0.0107	0.0003
39	SLU 20	-0.04	11.52	59.66	-0.4902	-0.0109	0.0003
39	SLU 21	-0.03	11.43	60.02	-0.4851	-0.0107	0.0003
39	SLU 22	-0.03	9.84	52.26	-0.4176	-0.0099	0.0003
39	SLU 23	-0.03	9.69	52.87	-0.4091	-0.0095	0.0003
39	SLU 24	-0.03	10.17	53.3	-0.433	-0.0099	0.0003
39	SLU 25	-0.03	10.09	53.67	-0.4279	-0.0097	0.0003
39	SLU 26	-0.03	9.99	53.7	-0.4234	-0.0095	0.0003
39	SLU 27	-0.03	10.47	54.13	-0.4472	-0.0099	0.0003
39	SLU 28	-0.03	10.38	54.49	-0.4421	-0.0097	0.0003
39	SLU 29	-0.03	10.43	53.91	-0.446	-0.0099	0.0003
39	SLU 30	-0.03	10.34	54.28	-0.441	-0.0096	0.0003
39	SLU 31	-0.03	11.46	60.78	-0.4825	-0.011	0.0003
39	SLU 32	-0.04	11.94	61.21	-0.5064	-0.0114	0.0003
39	SLU 33	-0.03	11.85	61.58	-0.5013	-0.0112	0.0003
39	SLU 34	-0.03	11.76	61.6	-0.4968	-0.011	0.0003
39	SLU 35	-0.04	12.23	62.04	-0.5206	-0.0114	0.0003
39	SLU 36	-0.03	12.15	62.4	-0.5155	-0.0112	0.0003
39	SLU 37	-0.04	12.2	61.82	-0.5194	-0.0113	0.0003
39	SLU 38	-0.03	12.11	62.19	-0.5144	-0.0111	0.0003
39	SLU 39	-0.04	12.36	63.56	-0.5225	-0.012	0.0004
39	SLU 40	-0.03	12.27	63.92	-0.5174	-0.0118	0.0004
39	SLU 41	-0.04	12.66	64.38	-0.5367	-0.012	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
39	SLU 42	-0.03	12.57	64.75	-0.5316	-0.0118	0.0004
39	SLU 43	-0.04	10.92	60.17	-0.4665	-0.011	0.0003
39	SLU 44	-0.03	10.78	60.78	-0.4581	-0.0107	0.0003
39	SLU 45	-0.04	11.26	61.21	-0.4819	-0.0111	0.0003
39	SLU 46	-0.04	11.17	61.58	-0.4769	-0.0109	0.0003
39	SLU 47	-0.03	11.07	61.61	-0.4723	-0.0106	0.0003
39	SLU 48	-0.04	11.55	62.04	-0.4962	-0.0111	0.0003
39	SLU 49	-0.04	11.47	62.41	-0.4911	-0.0109	0.0003
39	SLU 50	-0.04	11.51	61.83	-0.495	-0.011	0.0003
39	SLU 51	-0.04	11.43	62.19	-0.4899	-0.0108	0.0003
39	SLU 52	-0.04	12.54	68.69	-0.5315	-0.0121	0.0004
39	SLU 53	-0.04	13.02	69.12	-0.5553	-0.0125	0.0004
39	SLU 54	-0.04	12.94	69.49	-0.5503	-0.0123	0.0004
39	SLU 55	-0.04	12.84	69.52	-0.5457	-0.0121	0.0004
39	SLU 56	-0.04	13.32	69.95	-0.5696	-0.0125	0.0004
39	SLU 57	-0.04	13.23	70.31	-0.5645	-0.0123	0.0004
39	SLU 58	-0.04	13.28	69.73	-0.5684	-0.0125	0.0004
39	SLU 59	-0.04	13.19	70.1	-0.5633	-0.0123	0.0004
39	SLU 60	-0.04	13.44	71.47	-0.5714	-0.0131	0.0004
39	SLU 61	-0.04	13.36	71.83	-0.5663	-0.0129	0.0004
39	SLU 62	-0.04	13.74	72.29	-0.5856	-0.0131	0.0004
39	SLU 63	-0.04	13.65	72.66	-0.5805	-0.0129	0.0004
39	SLU 64	-0.04	12.06	64.9	-0.513	-0.0121	0.0003
39	SLU 65	-0.03	11.91	65.51	-0.5045	-0.0118	0.0003
39	SLU 66	-0.04	12.39	65.94	-0.5284	-0.0122	0.0003
39	SLU 67	-0.04	12.31	66.31	-0.5233	-0.012	0.0003
39	SLU 68	-0.04	12.21	66.33	-0.5188	-0.0118	0.0004
39	SLU 69	-0.04	12.69	66.77	-0.5426	-0.0122	0.0003
39	SLU 70	-0.04	12.6	67.13	-0.5376	-0.012	0.0004
39	SLU 71	-0.04	12.65	66.55	-0.5414	-0.0121	0.0003
39	SLU 72	-0.04	12.56	66.92	-0.5364	-0.0119	0.0004
39	SLU 73	-0.04	13.68	73.42	-0.5779	-0.0132	0.0004
39	SLU 74	-0.04	14.16	73.85	-0.6018	-0.0136	0.0004
39	SLU 75	-0.04	14.07	74.21	-0.5967	-0.0134	0.0004
39	SLU 76	-0.04	13.98	74.24	-0.5922	-0.0132	0.0004
39	SLU 77	-0.04	14.45	74.68	-0.616	-0.0136	0.0004
39	SLU 78	-0.04	14.37	75.04	-0.6109	-0.0134	0.0004
39	SLU 79	-0.04	14.42	74.46	-0.6148	-0.0136	0.0004
39	SLU 80	-0.04	14.33	74.83	-0.6098	-0.0134	0.0004
39	SLU 81	-0.04	14.58	76.19	-0.6179	-0.0142	0.0004
39	SLU 82	-0.04	14.49	76.56	-0.6128	-0.014	0.0004
39	SLU 83	-0.05	14.88	77.02	-0.6321	-0.0142	0.0004
39	SLU 84	-0.04	14.79	77.39	-0.627	-0.014	0.0004
39	SLE RA 1	-0.03	9.03	48.88	-0.3844	-0.0091	0.0003
39	SLE RA 2	-0.03	8.93	49.29	-0.3788	-0.0088	0.0003
39	SLE RA 3	-0.03	9.25	49.58	-0.3947	-0.0091	0.0003
39	SLE RA 4	-0.03	9.19	49.82	-0.3913	-0.009	0.0003
39	SLE RA 5	-0.03	9.13	49.84	-0.3882	-0.0088	0.0003
39	SLE RA 6	-0.03	9.45	50.13	-0.4042	-0.0091	0.0003
39	SLE RA 7	-0.03	9.39	50.37	-0.4008	-0.009	0.0003
39	SLE RA 8	-0.03	9.42	49.99	-0.4034	-0.0091	0.0003
39	SLE RA 9	-0.03	9.36	50.23	-0.4	-0.0089	0.0003
39	SLE RA 10	-0.03	10.11	54.56	-0.4277	-0.0098	0.0003
39	SLE RA 11	-0.03	10.43	54.85	-0.4436	-0.0101	0.0003
39	SLE RA 12	-0.03	10.37	55.09	-0.4402	-0.01	0.0003
39	SLE RA 13	-0.03	10.3	55.11	-0.4372	-0.0098	0.0003
39	SLE RA 14	-0.03	10.62	55.4	-0.4531	-0.0101	0.0003
39	SLE RA 15	-0.03	10.57	55.64	-0.4497	-0.01	0.0003
39	SLE RA 16	-0.03	10.6	55.26	-0.4523	-0.0101	0.0003
39	SLE RA 17	-0.03	10.54	55.5	-0.4489	-0.0099	0.0003
39	SLE RA 18	-0.03	10.71	56.41	-0.4543	-0.0105	0.0003
39	SLE RA 19	-0.03	10.65	56.66	-0.4509	-0.0103	0.0003
39	SLE RA 20	-0.03	10.9	56.97	-0.4638	-0.0105	0.0003
39	SLE RA 21	-0.03	10.85	57.21	-0.4604	-0.0103	0.0003
39	SLE FR 1	-0.03	9.03	48.88	-0.3844	-0.0091	0.0003
39	SLE FR 2	-0.03	9.01	48.96	-0.3833	-0.009	0.0003
39	SLE FR 3	-0.03	9.1	49.1	-0.3882	-0.0091	0.0003
39	SLE FR 4	-0.03	9.51	51.22	-0.4043	-0.0094	0.0003
39	SLE FR 5	-0.03	9.61	51.36	-0.4092	-0.0095	0.0003
39	SLE FR 6	-0.03	9.87	52.65	-0.4194	-0.0098	0.0003
39	SLE QP 1	-0.03	9.03	48.88	-0.3844	-0.0091	0.0003
39	SLE QP 2	-0.03	9.53	51.14	-0.4054	-0.0095	0.0003
39	SLD 1	-0.09	8.19	42.63	-0.3594	-0.0173	0.0002
39	SLD 2	-0.09	8.19	42.63	-0.3594	-0.0173	0.0002
39	SLD 3	-0.06	3.62	37.63	-0.1518	-0.0116	0.0001
39	SLD 4	-0.06	3.62	37.63	-0.1518	-0.0116	0.0001
39	SLD 5	-0.08	16.06	56.17	-0.7065	-0.0205	0.0004
39	SLD 6	-0.08	16.06	56.17	-0.7065	-0.0205	0.0004
39	SLD 7	0	0.83	39.5	-0.0145	-0.0014	0.0001
39	SLD 8	0	0.83	39.5	-0.0145	-0.0014	0.0001
39	SLD 9	-0.06	18.23	62.78	-0.7963	-0.0175	0.0005
39	SLD 10	-0.06	18.23	62.78	-0.7963	-0.0175	0.0005
39	SLD 11	0.02	3	46.11	-0.1043	0.0015	0.0002
39	SLD 12	0.02	3	46.11	-0.1043	0.0015	0.0002
39	SLD 13	0	15.44	64.66	-0.6589	-0.0074	0.0005
39	SLD 14	0	15.44	64.66	-0.6589	-0.0074	0.0005
39	SLD 15	0.03	10.87	59.66	-0.4513	-0.0017	0.0004
39	SLD 16	0.03	10.87	59.66	-0.4513	-0.0017	0.0004
39	SLV 1	-0.16	6.46	31.66	-0.2999	-0.0287	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
39	SLV 2	-0.16	6.46	31.66	-0.2999	-0.0287	0
39	SLV 3	-0.1	-4.07	19.91	0.1787	-0.0151	-0.0002
39	SLV 4	-0.1	-4.07	19.91	0.1787	-0.0151	-0.0002
39	SLV 5	-0.16	24.58	63.11	-1.0995	-0.0359	0.0005
39	SLV 6	-0.16	24.58	63.11	-1.0995	-0.0359	0.0005
39	SLV 7	0.04	-10.52	23.96	0.4956	0.0095	-0.0002
39	SLV 8	0.04	-10.52	23.96	0.4956	0.0095	-0.0002
39	SLV 9	-0.1	29.58	78.33	-1.3064	-0.0285	0.0008
39	SLV 10	-0.1	29.58	78.33	-1.3064	-0.0285	0.0008
39	SLV 11	0.1	-5.52	39.17	0.2888	0.017	0
39	SLV 12	0.1	-5.52	39.17	0.2888	0.017	0
39	SLV 13	0.04	23.13	82.37	-0.9894	-0.0039	0.0008
39	SLV 14	0.04	23.13	82.37	-0.9894	-0.0039	0.0008
39	SLV 15	0.1	12.6	70.63	-0.5109	0.0097	0.0005
39	SLV 16	0.1	12.6	70.63	-0.5109	0.0097	0.0005
40	SLU 1	0.01	9.06	44.56	-0.4136	0.0041	-0.0004
40	SLU 2	0.01	8.81	44.79	-0.4013	0.0035	-0.0004
40	SLU 3	0.01	9.74	46.24	-0.4453	0.0041	-0.0004
40	SLU 4	0.01	9.6	46.37	-0.438	0.0038	-0.0004
40	SLU 5	0.01	9.51	46.4	-0.4341	0.0035	-0.0004
40	SLU 6	0.01	10.44	47.85	-0.478	0.0041	-0.0004
40	SLU 7	0.01	10.3	47.99	-0.4707	0.0037	-0.0004
40	SLU 8	0.02	10.45	47.79	-0.479	0.0041	-0.0004
40	SLU 9	0.01	10.31	47.93	-0.4717	0.0037	-0.0004
40	SLU 10	0.01	10.46	51.67	-0.474	0.0048	-0.0004
40	SLU 11	0.02	11.39	53.12	-0.518	0.0053	-0.0004
40	SLU 12	0.02	11.24	53.25	-0.5107	0.005	-0.0004
40	SLU 13	0.01	11.15	53.28	-0.5068	0.0048	-0.0004
40	SLU 14	0.02	12.08	54.74	-0.5507	0.0053	-0.0004
40	SLU 15	0.02	11.94	54.87	-0.5434	0.005	-0.0004
40	SLU 16	0.02	12.1	54.68	-0.5517	0.0053	-0.0004
40	SLU 17	0.02	11.95	54.81	-0.5444	0.005	-0.0004
40	SLU 18	0.02	11.4	54.4	-0.5174	0.0059	-0.0004
40	SLU 19	0.02	11.26	54.53	-0.5101	0.0055	-0.0004
40	SLU 20	0.02	12.1	56.01	-0.5502	0.0059	-0.0004
40	SLU 21	0.02	11.96	56.15	-0.5428	0.0055	-0.0004
40	SLU 22	0.01	10.39	49.21	-0.4719	0.0046	-0.0004
40	SLU 23	0.01	10.15	49.43	-0.4596	0.0041	-0.0004
40	SLU 24	0.01	11.08	50.88	-0.5036	0.0046	-0.0004
40	SLU 25	0.01	10.93	51.01	-0.4963	0.0043	-0.0004
40	SLU 26	0.01	10.84	51.04	-0.4924	0.0041	-0.0004
40	SLU 27	0.01	11.77	52.5	-0.5363	0.0046	-0.0004
40	SLU 28	0.01	11.63	52.63	-0.529	0.0043	-0.0004
40	SLU 29	0.01	11.79	52.44	-0.5373	0.0046	-0.0004
40	SLU 30	0.01	11.64	52.57	-0.53	0.0043	-0.0004
40	SLU 31	0.01	11.79	56.31	-0.5323	0.0053	-0.0005
40	SLU 32	0.02	12.72	57.76	-0.5763	0.0059	-0.0004
40	SLU 33	0.02	12.57	57.9	-0.569	0.0055	-0.0005
40	SLU 34	0.01	12.49	57.93	-0.5651	0.0053	-0.0005
40	SLU 35	0.02	13.42	59.38	-0.609	0.0059	-0.0005
40	SLU 36	0.02	13.27	59.51	-0.6017	0.0055	-0.0005
40	SLU 37	0.02	13.43	59.32	-0.61	0.0059	-0.0005
40	SLU 38	0.02	13.28	59.46	-0.6027	0.0055	-0.0005
40	SLU 39	0.02	12.74	59.04	-0.5757	0.0064	-0.0005
40	SLU 40	0.02	12.59	59.17	-0.5684	0.0061	-0.0005
40	SLU 41	0.02	13.43	60.66	-0.6085	0.0064	-0.0005
40	SLU 42	0.02	13.29	60.79	-0.6011	0.0061	-0.0005
40	SLU 43	0.02	11.32	56.34	-0.5177	0.0052	-0.0004
40	SLU 44	0.01	11.08	56.56	-0.5054	0.0046	-0.0005
40	SLU 45	0.02	12	58.01	-0.5494	0.0051	-0.0005
40	SLU 46	0.02	11.86	58.15	-0.542	0.0048	-0.0005
40	SLU 47	0.01	11.77	58.18	-0.5381	0.0046	-0.0005
40	SLU 48	0.02	12.7	59.63	-0.5821	0.0051	-0.0005
40	SLU 49	0.02	12.56	59.76	-0.5748	0.0048	-0.0005
40	SLU 50	0.02	12.71	59.57	-0.5831	0.0051	-0.0005
40	SLU 51	0.02	12.57	59.71	-0.5758	0.0048	-0.0005
40	SLU 52	0.02	12.72	63.45	-0.5781	0.0058	-0.0005
40	SLU 53	0.02	13.65	64.9	-0.6221	0.0064	-0.0005
40	SLU 54	0.02	13.5	65.03	-0.6147	0.0061	-0.0005
40	SLU 55	0.02	13.41	65.06	-0.6108	0.0058	-0.0005
40	SLU 56	0.02	14.34	66.51	-0.6548	0.0064	-0.0005
40	SLU 57	0.02	14.2	66.65	-0.6475	0.006	-0.0005
40	SLU 58	0.02	14.36	66.46	-0.6558	0.0064	-0.0005
40	SLU 59	0.02	14.21	66.59	-0.6485	0.006	-0.0005
40	SLU 60	0.02	13.66	66.17	-0.6215	0.0069	-0.0005
40	SLU 61	0.02	13.52	66.31	-0.6142	0.0066	-0.0005
40	SLU 62	0.02	14.36	67.79	-0.6542	0.0069	-0.0005
40	SLU 63	0.02	14.22	67.92	-0.6469	0.0066	-0.0005
40	SLU 64	0.02	12.65	60.98	-0.576	0.0057	-0.0005
40	SLU 65	0.01	12.41	61.21	-0.5637	0.0051	-0.0005
40	SLU 66	0.02	13.34	62.66	-0.6077	0.0057	-0.0005
40	SLU 67	0.02	13.19	62.79	-0.6003	0.0053	-0.0005
40	SLU 68	0.01	13.1	62.82	-0.5964	0.0051	-0.0005
40	SLU 69	0.02	14.03	64.27	-0.6404	0.0057	-0.0005
40	SLU 70	0.02	13.89	64.41	-0.6331	0.0053	-0.0005
40	SLU 71	0.02	14.05	64.22	-0.6414	0.0057	-0.0005
40	SLU 72	0.02	13.9	64.35	-0.6341	0.0053	-0.0005
40	SLU 73	0.02	14.05	68.09	-0.6364	0.0064	-0.0005
40	SLU 74	0.02	14.98	69.54	-0.6804	0.0069	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
40	SLU 75	0.02	14.83	69.67	-0.673	0.0066	-0.0006
40	SLU 76	0.02	14.75	69.71	-0.6691	0.0064	-0.0006
40	SLU 77	0.02	15.68	71.16	-0.7131	0.0069	-0.0006
40	SLU 78	0.02	15.53	71.29	-0.7058	0.0066	-0.0006
40	SLU 79	0.02	15.69	71.1	-0.7141	0.0069	-0.0006
40	SLU 80	0.02	15.54	71.23	-0.7068	0.0066	-0.0006
40	SLU 81	0.02	15	70.82	-0.6798	0.0075	-0.0005
40	SLU 82	0.02	14.85	70.95	-0.6725	0.0071	-0.0006
40	SLU 83	0.02	15.69	72.43	-0.7125	0.0075	-0.0006
40	SLU 84	0.02	15.55	72.57	-0.7052	0.0071	-0.0006
40	SLE RA 1	0.01	9.44	45.89	-0.4302	0.0043	-0.0004
40	SLE RA 2	0.01	9.28	46.04	-0.4221	0.0039	-0.0004
40	SLE RA 3	0.01	9.9	47.01	-0.4514	0.0042	-0.0004
40	SLE RA 4	0.01	9.8	47.09	-0.4465	0.004	-0.0004
40	SLE RA 5	0.01	9.74	47.12	-0.4439	0.0039	-0.0004
40	SLE RA 6	0.01	10.36	48.08	-0.4732	0.0042	-0.0004
40	SLE RA 7	0.01	10.26	48.17	-0.4683	0.004	-0.0004
40	SLE RA 8	0.01	10.37	48.04	-0.4739	0.0042	-0.0004
40	SLE RA 9	0.01	10.27	48.13	-0.469	0.004	-0.0004
40	SLE RA 10	0.01	10.37	50.63	-0.4705	0.0047	-0.0004
40	SLE RA 11	0.02	10.99	51.59	-0.4999	0.0051	-0.0004
40	SLE RA 12	0.01	10.89	51.68	-0.495	0.0049	-0.0004
40	SLE RA 13	0.01	10.84	51.7	-0.4924	0.0047	-0.0004
40	SLE RA 14	0.02	11.46	52.67	-0.5217	0.0051	-0.0004
40	SLE RA 15	0.02	11.36	52.76	-0.5168	0.0048	-0.0004
40	SLE RA 16	0.02	11.46	52.63	-0.5223	0.0051	-0.0004
40	SLE RA 17	0.02	11.37	52.72	-0.5174	0.0048	-0.0004
40	SLE RA 18	0.02	11	52.45	-0.4995	0.0054	-0.0004
40	SLE RA 19	0.02	10.91	52.53	-0.4946	0.0052	-0.0004
40	SLE RA 20	0.02	11.47	53.52	-0.5213	0.0054	-0.0004
40	SLE RA 21	0.02	11.37	53.61	-0.5164	0.0052	-0.0004
40	SLE FR 1	0.01	9.44	45.89	-0.4302	0.0043	-0.0004
40	SLE FR 2	0.01	9.41	45.92	-0.4286	0.0042	-0.0004
40	SLE FR 3	0.01	9.62	46.32	-0.439	0.0043	-0.0004
40	SLE FR 4	0.01	9.88	47.89	-0.4494	0.0045	-0.0004
40	SLE FR 5	0.01	10.09	48.29	-0.4597	0.0046	-0.0004
40	SLE FR 6	0.02	10.22	49.17	-0.4648	0.0049	-0.0004
40	SLE QP 1	0.01	9.44	45.89	-0.4302	0.0043	-0.0004
40	SLE QP 2	0.01	9.91	47.86	-0.451	0.0046	-0.0004
40	SLD 1	-0.03	15.13	59.9	-0.6839	-0.0038	-0.0007
40	SLD 2	-0.03	15.13	59.9	-0.6839	-0.0038	-0.0007
40	SLD 3	-0.06	9.9	54.3	-0.4447	-0.0104	-0.0006
40	SLD 4	-0.06	9.9	54.3	-0.4447	-0.0104	-0.0006
40	SLD 5	0.04	19.39	59.96	-0.8837	0.0121	-0.0007
40	SLD 6	0.04	19.39	59.96	-0.8837	0.0121	-0.0007
40	SLD 7	-0.05	1.99	41.3	-0.0863	-0.0099	-0.0003
40	SLD 8	-0.05	1.99	41.3	-0.0863	-0.0099	-0.0003
40	SLD 9	0.08	17.83	54.41	-0.8157	0.0192	-0.0005
40	SLD 10	0.08	17.83	54.41	-0.8157	0.0192	-0.0005
40	SLD 11	-0.01	0.42	35.76	-0.0183	-0.0029	-0.0001
40	SLD 12	-0.01	0.42	35.76	-0.0183	-0.0029	-0.0001
40	SLD 13	0.09	9.91	41.42	-0.4573	0.0196	-0.0002
40	SLD 14	0.09	9.91	41.42	-0.4573	0.0196	-0.0002
40	SLD 15	0.06	4.69	35.82	-0.2181	0.013	0
40	SLD 16	0.06	4.69	35.82	-0.2181	0.013	0
40	SLV 1	-0.1	21.85	75.66	-0.9843	-0.0159	-0.0012
40	SLV 2	-0.1	21.85	75.66	-0.9843	-0.0159	-0.0012
40	SLV 3	-0.17	9.87	62.58	-0.4355	-0.0317	-0.0009
40	SLV 4	-0.17	9.87	62.58	-0.4355	-0.0317	-0.0009
40	SLV 5	0.07	31.66	76.02	-1.4434	0.0225	-0.001
40	SLV 6	0.07	31.66	76.02	-1.4434	0.0225	-0.001
40	SLV 7	-0.14	-8.27	32.45	0.3861	-0.0303	-0.0001
40	SLV 8	-0.14	-8.27	32.45	0.3861	-0.0303	-0.0001
40	SLV 9	0.17	28.09	63.27	-1.2881	0.0395	-0.0006
40	SLV 10	0.17	28.09	63.27	-1.2881	0.0395	-0.0006
40	SLV 11	-0.05	-11.84	19.69	0.5414	-0.0132	0.0003
40	SLV 12	-0.05	-11.84	19.69	0.5414	-0.0132	0.0003
40	SLV 13	0.2	9.95	33.13	-0.4665	0.041	0.0002
40	SLV 14	0.2	9.95	33.13	-0.4665	0.041	0.0002
40	SLV 15	0.13	-2.03	20.06	0.0823	0.0251	0.0004
40	SLV 16	0.13	-2.03	20.06	0.0823	0.0251	0.0004
41	SLU 1	0.37	1.14	37.74	-0.3641	0.0671	-0.0232
41	SLU 2	0.35	0.18	39.77	-0.3068	0.0648	-0.0226
41	SLU 3	0.38	1.17	38.44	-0.3706	0.0684	-0.0236
41	SLU 4	0.37	0.59	39.65	-0.3362	0.067	-0.0232
41	SLU 5	0.35	0.19	40.24	-0.3109	0.0655	-0.0228
41	SLU 6	0.38	1.18	38.9	-0.3747	0.0691	-0.0238
41	SLU 7	0.37	0.61	40.12	-0.3403	0.0677	-0.0235
41	SLU 8	0.38	1.16	38.68	-0.3724	0.0685	-0.0237
41	SLU 9	0.37	0.59	39.89	-0.338	0.0671	-0.0233
41	SLU 10	0.41	0.49	44.71	-0.3478	0.0743	-0.026
41	SLU 11	0.44	1.48	43.37	-0.4116	0.0779	-0.027
41	SLU 12	0.42	0.91	44.59	-0.3772	0.0765	-0.0266
41	SLU 13	0.41	0.5	45.17	-0.3519	0.075	-0.0262
41	SLU 14	0.44	1.49	43.84	-0.4157	0.0786	-0.0272
41	SLU 15	0.43	0.92	45.05	-0.3813	0.0772	-0.0269
41	SLU 16	0.44	1.47	43.61	-0.4134	0.078	-0.0271
41	SLU 17	0.42	0.9	44.83	-0.379	0.0766	-0.0267
41	SLU 18	0.45	1.58	44.79	-0.4227	0.0807	-0.028



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
41	SLU 19	0.44	1.01	46.01	-0.3883	0.0793	-0.0277
41	SLU 20	0.46	1.6	45.26	-0.4268	0.0814	-0.0283
41	SLU 21	0.44	1.02	46.48	-0.3924	0.08	-0.0279
41	SLU 22	0.42	1.36	41.7	-0.3942	0.0748	-0.0258
41	SLU 23	0.39	0.4	43.73	-0.3369	0.0725	-0.0253
41	SLU 24	0.42	1.39	42.39	-0.4007	0.0761	-0.0263
41	SLU 25	0.41	0.82	43.61	-0.3663	0.0747	-0.0259
41	SLU 26	0.4	0.42	44.2	-0.341	0.0732	-0.0255
41	SLU 27	0.43	1.41	42.86	-0.4048	0.0768	-0.0265
41	SLU 28	0.41	0.83	44.08	-0.3704	0.0754	-0.0262
41	SLU 29	0.43	1.39	42.64	-0.4024	0.0762	-0.0264
41	SLU 30	0.41	0.81	43.85	-0.3681	0.0748	-0.026
41	SLU 31	0.45	0.72	48.67	-0.3779	0.082	-0.0287
41	SLU 32	0.48	1.71	47.33	-0.4417	0.0856	-0.0297
41	SLU 33	0.46	1.13	48.55	-0.4073	0.0842	-0.0293
41	SLU 34	0.45	0.73	49.13	-0.382	0.0827	-0.0289
41	SLU 35	0.48	1.72	47.8	-0.4458	0.0863	-0.0299
41	SLU 36	0.47	1.14	49.01	-0.4114	0.0849	-0.0296
41	SLU 37	0.48	1.7	47.57	-0.4434	0.0857	-0.0298
41	SLU 38	0.47	1.12	48.79	-0.409	0.0843	-0.0294
41	SLU 39	0.49	1.81	48.75	-0.4528	0.0884	-0.0307
41	SLU 40	0.48	1.23	49.97	-0.4184	0.087	-0.0304
41	SLU 41	0.5	1.82	49.22	-0.4569	0.0891	-0.031
41	SLU 42	0.48	1.24	50.44	-0.4225	0.0877	-0.0306
41	SLU 43	0.47	1.4	47.71	-0.4631	0.0846	-0.0292
41	SLU 44	0.45	0.44	49.74	-0.4057	0.0823	-0.0286
41	SLU 45	0.48	1.43	48.4	-0.4695	0.0859	-0.0296
41	SLU 46	0.46	0.86	49.62	-0.4351	0.0845	-0.0293
41	SLU 47	0.45	0.46	50.2	-0.4099	0.083	-0.0289
41	SLU 48	0.48	1.45	48.87	-0.4736	0.0866	-0.0299
41	SLU 49	0.47	0.87	50.08	-0.4392	0.0852	-0.0295
41	SLU 50	0.48	1.43	48.64	-0.4713	0.086	-0.0297
41	SLU 51	0.47	0.85	49.86	-0.4369	0.0846	-0.0294
41	SLU 52	0.5	0.76	54.67	-0.4467	0.0918	-0.032
41	SLU 53	0.53	1.75	53.34	-0.5105	0.0954	-0.033
41	SLU 54	0.52	1.17	54.55	-0.4761	0.094	-0.0327
41	SLU 55	0.51	0.77	55.14	-0.4508	0.0925	-0.0323
41	SLU 56	0.54	1.76	53.8	-0.5146	0.0961	-0.0333
41	SLU 57	0.52	1.18	55.02	-0.4802	0.0947	-0.0329
41	SLU 58	0.53	1.74	53.58	-0.5123	0.0955	-0.0331
41	SLU 59	0.52	1.16	54.79	-0.4779	0.0941	-0.0328
41	SLU 60	0.55	1.85	54.76	-0.5216	0.0982	-0.034
41	SLU 61	0.53	1.27	55.98	-0.4872	0.0968	-0.0337
41	SLU 62	0.55	1.86	55.23	-0.5257	0.0989	-0.0343
41	SLU 63	0.54	1.28	56.44	-0.4913	0.0975	-0.034
41	SLU 64	0.51	1.63	51.67	-0.4931	0.0923	-0.0319
41	SLU 65	0.49	0.67	53.7	-0.4358	0.09	-0.0313
41	SLU 66	0.52	1.66	52.36	-0.4996	0.0936	-0.0323
41	SLU 67	0.51	1.08	53.58	-0.4652	0.0922	-0.032
41	SLU 68	0.5	0.68	54.16	-0.4399	0.0907	-0.0316
41	SLU 69	0.53	1.67	52.83	-0.5037	0.0943	-0.0326
41	SLU 70	0.51	1.09	54.04	-0.4693	0.0929	-0.0322
41	SLU 71	0.52	1.65	52.6	-0.5014	0.0937	-0.0324
41	SLU 72	0.51	1.08	53.82	-0.467	0.0923	-0.032
41	SLU 73	0.55	0.98	58.63	-0.4768	0.0995	-0.0347
41	SLU 74	0.58	1.97	57.3	-0.5406	0.1031	-0.0357
41	SLU 75	0.56	1.39	58.51	-0.5062	0.1017	-0.0354
41	SLU 76	0.55	0.99	59.1	-0.4809	0.1002	-0.035
41	SLU 77	0.58	1.98	57.76	-0.5447	0.1038	-0.036
41	SLU 78	0.57	1.41	58.98	-0.5103	0.1024	-0.0356
41	SLU 79	0.58	1.96	57.54	-0.5424	0.1032	-0.0358
41	SLU 80	0.56	1.39	58.75	-0.508	0.1018	-0.0354
41	SLU 81	0.59	2.07	58.72	-0.5517	0.1059	-0.0367
41	SLU 82	0.58	1.5	59.94	-0.5173	0.1045	-0.0364
41	SLU 83	0.6	2.09	59.19	-0.5558	0.1066	-0.037
41	SLU 84	0.58	1.51	60.4	-0.5214	0.1052	-0.0366
41	SLE RA 1	0.39	1.2	38.88	-0.3727	0.0693	-0.0239
41	SLE RA 2	0.37	0.56	40.23	-0.3345	0.0678	-0.0235
41	SLE RA 3	0.39	1.22	39.34	-0.377	0.0702	-0.0242
41	SLE RA 4	0.38	0.84	40.15	-0.3541	0.0692	-0.024
41	SLE RA 5	0.37	0.57	40.54	-0.3373	0.0682	-0.0237
41	SLE RA 6	0.39	1.23	39.65	-0.3798	0.0706	-0.0244
41	SLE RA 7	0.38	0.85	40.46	-0.3568	0.0697	-0.0242
41	SLE RA 8	0.39	1.22	39.5	-0.3782	0.0703	-0.0243
41	SLE RA 9	0.38	0.83	40.31	-0.3553	0.0693	-0.024
41	SLE RA 10	0.41	0.77	43.52	-0.3618	0.0741	-0.0258
41	SLE RA 11	0.43	1.43	42.63	-0.4044	0.0765	-0.0265
41	SLE RA 12	0.42	1.05	43.44	-0.3814	0.0756	-0.0262
41	SLE RA 13	0.41	0.78	43.83	-0.3646	0.0746	-0.026
41	SLE RA 14	0.43	1.44	42.94	-0.4071	0.077	-0.0266
41	SLE RA 15	0.42	1.06	43.75	-0.3842	0.076	-0.0264
41	SLE RA 16	0.43	1.43	42.79	-0.4055	0.0766	-0.0265
41	SLE RA 17	0.42	1.04	43.6	-0.3826	0.0757	-0.0263
41	SLE RA 18	0.44	1.5	43.58	-0.4118	0.0784	-0.0272
41	SLE RA 19	0.43	1.12	44.39	-0.3888	0.0774	-0.0269
41	SLE RA 20	0.44	1.51	43.89	-0.4145	0.0788	-0.0273
41	SLE RA 21	0.43	1.12	44.7	-0.3916	0.0779	-0.0271
41	SLE FR 1	0.39	1.2	38.88	-0.3727	0.0693	-0.0239
41	SLE FR 2	0.38	1.08	39.15	-0.3651	0.069	-0.0239



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
41	SLE FR 3	0.39	1.21	39	-0.3738	0.0695	-0.024
41	SLE FR 4	0.4	1.16	40.56	-0.3768	0.0717	-0.0248
41	SLE FR 5	0.4	1.3	40.41	-0.3855	0.0722	-0.025
41	SLE FR 6	0.41	1.35	41.23	-0.3922	0.0739	-0.0255
41	SLE QP 1	0.39	1.2	38.88	-0.3727	0.0693	-0.0239
41	SLE QP 2	0.4	1.29	40.29	-0.3844	0.072	-0.0249
41	SLD 1	0.61	3.79	49.59	-0.3877	0.1206	-0.0342
41	SLD 2	0.61	3.79	49.59	-0.3877	0.1206	-0.0342
41	SLD 3	0.5	0.73	47.03	-0.1887	0.1035	-0.0284
41	SLD 4	0.5	0.73	47.03	-0.1887	0.1035	-0.0284
41	SLD 5	0.63	6.68	46.97	-0.6871	0.1125	-0.0365
41	SLD 6	0.63	6.68	46.97	-0.6871	0.1125	-0.0365
41	SLD 7	0.27	-3.52	38.42	-0.024	0.0556	-0.0172
41	SLD 8	0.27	-3.52	38.42	-0.024	0.0556	-0.0172
41	SLD 9	0.54	6.1	42.15	-0.7449	0.0885	-0.0326
41	SLD 10	0.54	6.1	42.15	-0.7449	0.0885	-0.0326
41	SLD 11	0.18	-4.1	33.61	-0.0817	0.0316	-0.0133
41	SLD 12	0.18	-4.1	33.61	-0.0817	0.0316	-0.0133
41	SLD 13	0.3	1.86	33.54	-0.5802	0.0406	-0.0214
41	SLD 14	0.3	1.86	33.54	-0.5802	0.0406	-0.0214
41	SLD 15	0.2	-1.2	30.98	-0.3812	0.0235	-0.0156
41	SLD 16	0.2	-1.2	30.98	-0.3812	0.0235	-0.0156
41	SLV 1	0.87	7.21	61.78	-0.3961	0.1831	-0.0463
41	SLV 2	0.87	7.21	61.78	-0.3961	0.1831	-0.0463
41	SLV 3	0.63	0	55.64	0.0811	0.1441	-0.0329
41	SLV 4	0.63	0	55.64	0.0811	0.1441	-0.0329
41	SLV 5	0.92	14.01	56.05	-1.1117	0.1647	-0.0517
41	SLV 6	0.92	14.01	56.05	-1.1117	0.1647	-0.0517
41	SLV 7	0.1	-10.04	35.58	0.479	0.0344	-0.0069
41	SLV 8	0.1	-10.04	35.58	0.479	0.0344	-0.0069
41	SLV 9	0.71	12.62	44.99	-1.2478	0.1097	-0.0429
41	SLV 10	0.71	12.62	44.99	-1.2478	0.1097	-0.0429
41	SLV 11	-0.11	-11.42	24.52	0.3428	-0.0206	0.0019
41	SLV 12	-0.11	-11.42	24.52	0.3428	-0.0206	0.0019
41	SLV 13	0.18	2.59	24.93	-0.85	0	-0.0169
41	SLV 14	0.18	2.59	24.93	-0.85	0	-0.0169
41	SLV 15	-0.07	-4.63	18.79	-0.3728	-0.039	-0.0035
41	SLV 16	-0.07	-4.63	18.79	-0.3728	-0.039	-0.0035
42	SLU 1	-0.05	-0.13	0.26	0.0144	-0.0128	0.0028
42	SLU 2	-0.05	-0.14	0.24	0.0146	-0.0132	0.0029
42	SLU 3	-0.05	-0.18	0.12	0.0158	-0.0129	0.0028
42	SLU 4	-0.05	-0.18	0.11	0.0159	-0.0132	0.0029
42	SLU 5	-0.05	-0.16	0.18	0.0152	-0.0133	0.0029
42	SLU 6	-0.05	-0.2	0.06	0.0164	-0.0129	0.0028
42	SLU 7	-0.06	-0.2	0.05	0.0165	-0.0132	0.0029
42	SLU 8	-0.05	-0.17	0.14	0.0156	-0.0128	0.0028
42	SLU 9	-0.05	-0.17	0.13	0.0157	-0.0131	0.0029
42	SLU 10	-0.09	0.3	2.35	0.0092	-0.0255	0.0055
42	SLU 11	-0.09	0.26	2.24	0.0104	-0.0251	0.0054
42	SLU 12	-0.09	0.26	2.22	0.0106	-0.0254	0.0055
42	SLU 13	-0.09	0.28	2.29	0.0099	-0.0255	0.0055
42	SLU 14	-0.09	0.25	2.18	0.011	-0.0252	0.0054
42	SLU 15	-0.09	0.24	2.16	0.0112	-0.0255	0.0055
42	SLU 16	-0.09	0.27	2.26	0.0102	-0.0251	0.0054
42	SLU 17	-0.09	0.27	2.24	0.0104	-0.0254	0.0055
42	SLU 18	-0.11	0.5	3.28	0.0067	-0.0303	0.0065
42	SLU 19	-0.11	0.49	3.27	0.0069	-0.0306	0.0066
42	SLU 20	-0.11	0.48	3.22	0.0073	-0.0303	0.0065
42	SLU 21	-0.11	0.47	3.21	0.0075	-0.0306	0.0066
42	SLU 22	-0.06	-0.27	-0.07	0.0199	-0.0154	0.0033
42	SLU 23	-0.06	-0.27	-0.09	0.0201	-0.0159	0.0034
42	SLU 24	-0.06	-0.31	-0.21	0.0213	-0.0155	0.0034
42	SLU 25	-0.06	-0.31	-0.22	0.0214	-0.0158	0.0034
42	SLU 26	-0.06	-0.29	-0.15	0.0207	-0.0159	0.0035
42	SLU 27	-0.06	-0.33	-0.27	0.0219	-0.0155	0.0034
42	SLU 28	-0.06	-0.33	-0.28	0.022	-0.0158	0.0034
42	SLU 29	-0.06	-0.3	-0.19	0.0211	-0.0154	0.0034
42	SLU 30	-0.06	-0.31	-0.2	0.0212	-0.0157	0.0034
42	SLU 31	-0.1	0.17	2.03	0.0148	-0.0281	0.006
42	SLU 32	-0.1	0.13	1.91	0.016	-0.0278	0.006
42	SLU 33	-0.1	0.13	1.9	0.0161	-0.0281	0.006
42	SLU 34	-0.1	0.15	1.97	0.0154	-0.0282	0.0061
42	SLU 35	-0.1	0.11	1.85	0.0166	-0.0278	0.006
42	SLU 36	-0.1	0.11	1.84	0.0167	-0.0281	0.006
42	SLU 37	-0.1	0.14	1.93	0.0158	-0.0277	0.006
42	SLU 38	-0.1	0.13	1.92	0.0159	-0.028	0.006
42	SLU 39	-0.11	0.36	2.96	0.0123	-0.0329	0.0071
42	SLU 40	-0.12	0.36	2.94	0.0124	-0.0332	0.0071
42	SLU 41	-0.12	0.35	2.9	0.0129	-0.0329	0.0071
42	SLU 42	-0.12	0.34	2.88	0.013	-0.0332	0.0071
42	SLU 43	-0.06	-0.13	0.45	0.0168	-0.0157	0.0034
42	SLU 44	-0.07	-0.13	0.43	0.017	-0.0162	0.0035
42	SLU 45	-0.07	-0.17	0.31	0.0182	-0.0158	0.0035
42	SLU 46	-0.07	-0.17	0.3	0.0183	-0.0161	0.0035
42	SLU 47	-0.07	-0.15	0.37	0.0176	-0.0162	0.0035
42	SLU 48	-0.07	-0.19	0.25	0.0188	-0.0158	0.0035
42	SLU 49	-0.07	-0.19	0.24	0.0189	-0.0161	0.0035
42	SLU 50	-0.07	-0.16	0.33	0.018	-0.0157	0.0034
42	SLU 51	-0.07	-0.17	0.32	0.0181	-0.016	0.0035



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
42	SLU 52	-0.1	0.31	2.54	0.0117	-0.0284	0.0061
42	SLU 53	-0.1	0.27	2.43	0.0128	-0.0281	0.0061
42	SLU 54	-0.1	0.27	2.41	0.013	-0.0284	0.0061
42	SLU 55	-0.1	0.29	2.48	0.0123	-0.0285	0.0061
42	SLU 56	-0.1	0.25	2.37	0.0134	-0.0281	0.0061
42	SLU 57	-0.1	0.25	2.36	0.0136	-0.0284	0.0061
42	SLU 58	-0.1	0.28	2.45	0.0126	-0.028	0.006
42	SLU 59	-0.1	0.27	2.43	0.0128	-0.0283	0.0061
42	SLU 60	-0.12	0.5	3.47	0.0091	-0.0332	0.0071
42	SLU 61	-0.12	0.5	3.46	0.0093	-0.0335	0.0072
42	SLU 62	-0.12	0.48	3.41	0.0097	-0.0332	0.0071
42	SLU 63	-0.12	0.48	3.4	0.0099	-0.0335	0.0072
42	SLU 64	-0.07	-0.26	0.12	0.0223	-0.0183	0.004
42	SLU 65	-0.08	-0.27	0.1	0.0225	-0.0188	0.0041
42	SLU 66	-0.08	-0.3	-0.02	0.0237	-0.0184	0.004
42	SLU 67	-0.08	-0.31	-0.03	0.0238	-0.0187	0.0041
42	SLU 68	-0.08	-0.29	0.04	0.0231	-0.0188	0.0041
42	SLU 69	-0.08	-0.32	-0.08	0.0243	-0.0185	0.004
42	SLU 70	-0.08	-0.33	-0.09	0.0244	-0.0187	0.0041
42	SLU 71	-0.08	-0.3	0	0.0235	-0.0184	0.004
42	SLU 72	-0.08	-0.3	-0.01	0.0236	-0.0186	0.0041
42	SLU 73	-0.11	0.17	2.22	0.0172	-0.0311	0.0067
42	SLU 74	-0.11	0.14	2.1	0.0184	-0.0307	0.0066
42	SLU 75	-0.11	0.13	2.09	0.0185	-0.031	0.0067
42	SLU 76	-0.11	0.16	2.16	0.0178	-0.0311	0.0067
42	SLU 77	-0.11	0.12	2.04	0.019	-0.0307	0.0066
42	SLU 78	-0.11	0.11	2.03	0.0191	-0.031	0.0067
42	SLU 79	-0.11	0.14	2.12	0.0182	-0.0306	0.0066
42	SLU 80	-0.11	0.14	2.11	0.0183	-0.0309	0.0067
42	SLU 81	-0.13	0.37	3.15	0.0147	-0.0358	0.0077
42	SLU 82	-0.13	0.37	3.13	0.0148	-0.0361	0.0078
42	SLU 83	-0.13	0.35	3.09	0.0153	-0.0359	0.0077
42	SLU 84	-0.13	0.35	3.07	0.0154	-0.0362	0.0078
42	SLE RA 1	-0.05	-0.17	0.17	0.0159	-0.0135	0.0029
42	SLE RA 2	-0.06	-0.18	0.15	0.0161	-0.0138	0.003
42	SLE RA 3	-0.06	-0.2	0.07	0.0169	-0.0136	0.003
42	SLE RA 4	-0.06	-0.2	0.06	0.017	-0.0138	0.003
42	SLE RA 5	-0.06	-0.19	0.11	0.0165	-0.0138	0.003
42	SLE RA 6	-0.06	-0.21	0.03	0.0173	-0.0136	0.003
42	SLE RA 7	-0.06	-0.22	0.02	0.0174	-0.0138	0.003
42	SLE RA 8	-0.06	-0.2	0.09	0.0167	-0.0135	0.003
42	SLE RA 9	-0.06	-0.2	0.08	0.0168	-0.0137	0.003
42	SLE RA 10	-0.08	0.12	1.56	0.0125	-0.022	0.0047
42	SLE RA 11	-0.08	0.09	1.48	0.0133	-0.0218	0.0047
42	SLE RA 12	-0.08	0.09	1.48	0.0134	-0.022	0.0047
42	SLE RA 13	-0.08	0.11	1.52	0.0129	-0.022	0.0048
42	SLE RA 14	-0.08	0.08	1.44	0.0137	-0.0218	0.0047
42	SLE RA 15	-0.08	0.08	1.44	0.0138	-0.022	0.0047
42	SLE RA 16	-0.08	0.1	1.5	0.0132	-0.0217	0.0047
42	SLE RA 17	-0.08	0.1	1.49	0.0133	-0.0219	0.0047
42	SLE RA 18	-0.09	0.25	2.18	0.0109	-0.0252	0.0054
42	SLE RA 19	-0.09	0.25	2.17	0.0109	-0.0254	0.0055
42	SLE RA 20	-0.09	0.24	2.14	0.0113	-0.0252	0.0054
42	SLE RA 21	-0.09	0.23	2.13	0.0113	-0.0254	0.0055
42	SLE FR 1	-0.05	-0.17	0.17	0.0159	-0.0135	0.0029
42	SLE FR 2	-0.06	-0.17	0.16	0.016	-0.0136	0.003
42	SLE FR 3	-0.06	-0.18	0.15	0.0161	-0.0135	0.0029
42	SLE FR 4	-0.07	-0.05	0.77	0.0144	-0.0171	0.0037
42	SLE FR 5	-0.07	-0.05	0.75	0.0146	-0.017	0.0037
42	SLE FR 6	-0.07	0.04	1.17	0.0134	-0.0193	0.0042
42	SLE QP 1	-0.05	-0.17	0.17	0.0159	-0.0135	0.0029
42	SLE QP 2	-0.07	-0.04	0.77	0.0144	-0.017	0.0037
42	SLD 1	-0.29	0.66	2.96	-0.0085	-0.0527	0.0119
42	SLD 2	-0.29	0.66	2.96	-0.0085	-0.0527	0.0119
42	SLD 3	-0.26	-0.14	0.5	0.0173	-0.049	0.0111
42	SLD 4	-0.26	-0.14	0.5	0.0173	-0.049	0.0111
42	SLD 5	-0.17	1.38	5.16	-0.0315	-0.0333	0.0074
42	SLD 6	-0.17	1.38	5.16	-0.0315	-0.0333	0.0074
42	SLD 7	-0.09	-1.28	-3.05	0.0543	-0.021	0.0046
42	SLD 8	-0.09	-1.28	-3.05	0.0543	-0.021	0.0046
42	SLD 9	-0.04	1.19	4.59	-0.0255	-0.013	0.0028
42	SLD 10	-0.04	1.19	4.59	-0.0255	-0.013	0.0028
42	SLD 11	0.03	-1.47	-3.62	0.0603	-0.0007	-0.0001
42	SLD 12	0.03	-1.47	-3.62	0.0603	-0.0007	-0.0001
42	SLD 13	0.13	0.05	1.04	0.0115	0.015	-0.0037
42	SLD 14	0.13	0.05	1.04	0.0115	0.015	-0.0037
42	SLD 15	0.16	-0.75	-1.42	0.0373	0.0187	-0.0046
42	SLD 16	0.16	-0.75	-1.42	0.0373	0.0187	-0.0046
42	SLV 1	-0.6	1.59	5.85	-0.0387	-0.1034	0.0237
42	SLV 2	-0.6	1.59	5.85	-0.0387	-0.1034	0.0237
42	SLV 3	-0.55	-0.27	0.11	0.0213	-0.0946	0.0216
42	SLV 4	-0.55	-0.27	0.11	0.0213	-0.0946	0.0216
42	SLV 5	-0.31	3.26	11	-0.0925	-0.0562	0.0127
42	SLV 6	-0.31	3.26	11	-0.0925	-0.0562	0.0127
42	SLV 7	-0.13	-2.93	-8.13	0.1075	-0.027	0.006
42	SLV 8	-0.13	-2.93	-8.13	0.1075	-0.027	0.006
42	SLV 9	0	2.84	9.67	-0.0787	-0.0071	0.0014
42	SLV 10	0	2.84	9.67	-0.0787	-0.0071	0.0014
42	SLV 11	0.18	-3.35	-9.45	0.1214	0.0222	-0.0054





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
42	SLV 12	0.18	-3.35	-9.45	0.1214	0.0222	-0.0054
42	SLV 13	0.42	0.18	1.43	0.0075	0.0606	-0.0143
42	SLV 14	0.42	0.18	1.43	0.0075	0.0606	-0.0143
42	SLV 15	0.47	-1.68	-4.31	0.0675	0.0693	-0.0163
42	SLV 16	0.47	-1.68	-4.31	0.0675	0.0693	-0.0163
44	SLU 1	3.91	6.41	33.69	-0.2026	0.0806	0.0007
44	SLU 2	2.94	7.16	32.75	-0.2428	0.0307	0.0014
44	SLU 3	4.07	6.66	34.99	-0.2109	0.0849	0.0007
44	SLU 4	3.49	7.11	34.43	-0.235	0.0549	0.0011
44	SLU 5	3.1	7.36	33.85	-0.2492	0.0352	0.0014
44	SLU 6	4.23	6.86	36.1	-0.2173	0.0894	0.0007
44	SLU 7	3.65	7.32	35.54	-0.2414	0.0594	0.0011
44	SLU 8	4.22	6.81	35.91	-0.2155	0.0896	0.0007
44	SLU 9	3.64	7.26	35.34	-0.2396	0.0597	0.0011
44	SLU 10	3.55	7.8	36.67	-0.2624	0.0462	0.0014
44	SLU 11	4.69	7.3	38.91	-0.2305	0.1004	0.0007
44	SLU 12	4.1	7.75	38.35	-0.2546	0.0704	0.0011
44	SLU 13	3.71	8	37.77	-0.2689	0.0507	0.0014
44	SLU 14	4.84	7.5	40.02	-0.2369	0.1049	0.0007
44	SLU 15	4.26	7.95	39.45	-0.261	0.0749	0.0011
44	SLU 16	4.84	7.45	39.82	-0.2351	0.1051	0.0007
44	SLU 17	4.25	7.9	39.26	-0.2592	0.0752	0.0011
44	SLU 18	4.78	7.32	39.29	-0.2306	0.1027	0.0006
44	SLU 19	4.2	7.77	38.72	-0.2547	0.0728	0.0011
44	SLU 20	4.94	7.52	40.4	-0.2371	0.1072	0.0007
44	SLU 21	4.36	7.97	39.83	-0.2612	0.0773	0.0011
44	SLU 22	4.48	7.1	37.67	-0.2244	0.0946	0.0007
44	SLU 23	3.51	7.86	36.72	-0.2646	0.0447	0.0014
44	SLU 24	4.64	7.36	38.97	-0.2327	0.0988	0.0007
44	SLU 25	4.06	7.81	38.41	-0.2568	0.0689	0.0011
44	SLU 26	3.67	8.06	37.83	-0.2711	0.0492	0.0014
44	SLU 27	4.8	7.56	40.08	-0.2392	0.1033	0.0007
44	SLU 28	4.22	8.01	39.51	-0.2633	0.0734	0.0011
44	SLU 29	4.79	7.5	39.88	-0.2374	0.1036	0.0007
44	SLU 30	4.21	7.96	39.32	-0.2615	0.0736	0.0011
44	SLU 31	4.12	8.49	40.64	-0.2842	0.0602	0.0014
44	SLU 32	5.26	7.99	42.89	-0.2523	0.1143	0.0007
44	SLU 33	4.68	8.45	42.32	-0.2764	0.0844	0.0011
44	SLU 34	4.28	8.7	41.75	-0.2907	0.0647	0.0014
44	SLU 35	5.41	8.19	44	-0.2588	0.1188	0.0007
44	SLU 36	4.83	8.65	43.43	-0.2829	0.0889	0.0011
44	SLU 37	5.41	8.14	43.8	-0.257	0.1191	0.0007
44	SLU 38	4.82	8.6	43.24	-0.2811	0.0892	0.0011
44	SLU 39	5.35	8.01	43.27	-0.2524	0.1167	0.0007
44	SLU 40	4.77	8.46	42.7	-0.2765	0.0868	0.0011
44	SLU 41	5.51	8.21	44.37	-0.2589	0.1212	0.0007
44	SLU 42	4.93	8.67	43.81	-0.283	0.0913	0.0011
44	SLU 43	4.89	8.09	42.43	-0.2559	0.1	0.0009
44	SLU 44	3.92	8.84	41.49	-0.2961	0.0501	0.0016
44	SLU 45	5.05	8.34	43.73	-0.2642	0.1042	0.0009
44	SLU 46	4.47	8.8	43.17	-0.2883	0.0743	0.0013
44	SLU 47	4.07	9.05	42.6	-0.3025	0.0546	0.0016
44	SLU 48	5.21	8.54	44.84	-0.2706	0.1087	0.0009
44	SLU 49	4.63	9	44.28	-0.2947	0.0788	0.0013
44	SLU 50	5.2	8.49	44.65	-0.2688	0.109	0.0009
44	SLU 51	4.62	8.95	44.08	-0.2929	0.079	0.0013
44	SLU 52	4.53	9.48	45.41	-0.3157	0.0656	0.0016
44	SLU 53	5.66	8.98	47.65	-0.2838	0.1197	0.0009
44	SLU 54	5.08	9.43	47.09	-0.3079	0.0898	0.0013
44	SLU 55	4.69	9.68	46.52	-0.3222	0.0701	0.0016
44	SLU 56	5.82	9.18	48.76	-0.2902	0.1242	0.0009
44	SLU 57	5.24	9.64	48.2	-0.3143	0.0943	0.0013
44	SLU 58	5.81	9.13	48.57	-0.2884	0.1245	0.0009
44	SLU 59	5.23	9.58	48	-0.3125	0.0946	0.0013
44	SLU 60	5.76	9	48.03	-0.2839	0.1221	0.0008
44	SLU 61	5.18	9.45	47.46	-0.308	0.0922	0.0013
44	SLU 62	5.92	9.2	49.14	-0.2904	0.1266	0.0008
44	SLU 63	5.34	9.65	48.57	-0.3145	0.0967	0.0013
44	SLU 64	5.46	8.78	46.41	-0.2777	0.1139	0.0009
44	SLU 65	4.49	9.54	45.47	-0.3179	0.0641	0.0016
44	SLU 66	5.62	9.04	47.71	-0.286	0.1182	0.0009
44	SLU 67	5.04	9.49	47.15	-0.3101	0.0883	0.0013
44	SLU 68	4.64	9.74	46.58	-0.3244	0.0686	0.0016
44	SLU 69	5.78	9.24	48.82	-0.2924	0.1227	0.0009
44	SLU 70	5.2	9.69	48.26	-0.3166	0.0928	0.0013
44	SLU 71	5.77	9.19	48.63	-0.2907	0.123	0.0009
44	SLU 72	5.19	9.64	48.06	-0.3148	0.093	0.0013
44	SLU 73	5.1	10.18	49.39	-0.3375	0.0796	0.0016
44	SLU 74	6.23	9.68	51.63	-0.3056	0.1337	0.0009
44	SLU 75	5.65	10.13	51.07	-0.3297	0.1038	0.0013
44	SLU 76	5.26	10.38	50.5	-0.344	0.0841	0.0016
44	SLU 77	6.39	9.88	52.74	-0.3121	0.1382	0.0009
44	SLU 78	5.81	10.33	52.18	-0.3362	0.1083	0.0013
44	SLU 79	6.38	9.82	52.55	-0.3103	0.1385	0.0009
44	SLU 80	5.8	10.28	51.98	-0.3344	0.1085	0.0013
44	SLU 81	6.33	9.69	52.01	-0.3057	0.1361	0.0009
44	SLU 82	5.75	10.15	51.44	-0.3298	0.1062	0.0013
44	SLU 83	6.49	9.9	53.12	-0.3122	0.1406	0.0009
44	SLU 84	5.91	10.35	52.55	-0.3363	0.1107	0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
44	SLE RA 1	4.07	6.6	34.83	-0.2088	0.0846	0.0007
44	SLE RA 2	3.42	7.11	34.2	-0.2356	0.0513	0.0011
44	SLE RA 3	4.18	6.77	35.69	-0.2143	0.0874	0.0007
44	SLE RA 4	3.79	7.08	35.32	-0.2304	0.0675	0.001
44	SLE RA 5	3.53	7.24	34.94	-0.2399	0.0543	0.0012
44	SLE RA 6	4.29	6.91	36.43	-0.2187	0.0904	0.0007
44	SLE RA 7	3.9	7.21	36.06	-0.2347	0.0705	0.001
44	SLE RA 8	4.28	6.87	36.3	-0.2175	0.0906	0.0007
44	SLE RA 9	3.89	7.18	35.93	-0.2335	0.0706	0.001
44	SLE RA 10	3.83	7.53	36.81	-0.2487	0.0617	0.0011
44	SLE RA 11	4.59	7.2	38.31	-0.2274	0.0978	0.0007
44	SLE RA 12	4.2	7.5	37.93	-0.2435	0.0778	0.001
44	SLE RA 13	3.94	7.67	37.55	-0.253	0.0647	0.0011
44	SLE RA 14	4.7	7.33	39.05	-0.2317	0.1008	0.0007
44	SLE RA 15	4.31	7.64	38.67	-0.2478	0.0808	0.001
44	SLE RA 16	4.69	7.3	38.92	-0.2305	0.1009	0.0007
44	SLE RA 17	4.3	7.6	38.54	-0.2466	0.081	0.001
44	SLE RA 18	4.66	7.21	38.56	-0.2275	0.0993	0.0007
44	SLE RA 19	4.27	7.51	38.18	-0.2436	0.0794	0.0009
44	SLE RA 20	4.76	7.35	39.3	-0.2318	0.1024	0.0007
44	SLE RA 21	4.37	7.65	38.92	-0.2479	0.0824	0.0009
44	SLE FR 1	4.07	6.6	34.83	-0.2088	0.0846	0.0007
44	SLE FR 2	3.94	6.71	34.7	-0.2142	0.0779	0.0008
44	SLE FR 3	4.11	6.66	35.12	-0.2106	0.0858	0.0007
44	SLE FR 4	4.12	6.89	35.82	-0.2198	0.0824	0.0008
44	SLE FR 5	4.29	6.84	36.24	-0.2162	0.0902	0.0007
44	SLE FR 6	4.36	6.91	36.69	-0.2182	0.092	0.0007
44	SLE QP 1	4.07	6.6	34.83	-0.2088	0.0846	0.0007
44	SLE QP 2	4.25	6.79	35.94	-0.2144	0.089	0.0007
44	SLD 1	10.96	10.28	63.29	-0.3495	0.3147	-0.0011
44	SLD 2	10.96	10.28	63.29	-0.3495	0.3147	-0.0011
44	SLD 3	10.06	6.25	50.69	-0.1906	0.355	-0.0026
44	SLD 4	10.06	6.25	50.69	-0.1906	0.355	-0.0026
44	SLD 5	7.63	13.94	63.27	-0.496	0.0956	0.0024
44	SLD 6	7.63	13.94	63.27	-0.496	0.0956	0.0024
44	SLD 7	4.63	0.52	21.24	0.0337	0.2299	-0.0025
44	SLD 8	4.63	0.52	21.24	0.0337	0.2299	-0.0025
44	SLD 9	3.87	13.06	50.65	-0.4626	-0.0519	0.0039
44	SLD 10	3.87	13.06	50.65	-0.4626	-0.0519	0.0039
44	SLD 11	0.87	-0.37	8.62	0.0671	0.0824	-0.001
44	SLD 12	0.87	-0.37	8.62	0.0671	0.0824	-0.001
44	SLD 13	-1.57	7.32	21.2	-0.2383	-0.1769	0.0039
44	SLD 14	-1.57	7.32	21.2	-0.2383	-0.1769	0.0039
44	SLD 15	-2.47	3.29	8.6	-0.0793	-0.1366	0.0025
44	SLD 16	-2.47	3.29	8.6	-0.0793	-0.1366	0.0025
44	SLV 1	19.68	14.8	98.4	-0.5261	0.6023	-0.0034
44	SLV 2	19.68	14.8	98.4	-0.5261	0.6023	-0.0034
44	SLV 3	17.49	5.54	69.32	-0.1606	0.7021	-0.0068
44	SLV 4	17.49	5.54	69.32	-0.1606	0.7021	-0.0068
44	SLV 5	12.2	23.24	98.79	-0.8623	0.0916	0.0046
44	SLV 6	12.2	23.24	98.79	-0.8623	0.0916	0.0046
44	SLV 7	4.89	-7.63	1.85	0.3561	0.4244	-0.0067
44	SLV 8	4.89	-7.63	1.85	0.3561	0.4244	-0.0067
44	SLV 9	3.6	21.2	70.04	-0.7849	-0.2463	0.0081
44	SLV 10	3.6	21.2	70.04	-0.7849	-0.2463	0.0081
44	SLV 11	-3.71	-9.66	-26.9	0.4334	0.0864	-0.0032
44	SLV 12	-3.71	-9.66	-26.9	0.4334	0.0864	-0.0032
44	SLV 13	-8.99	8.03	2.57	-0.2683	-0.5241	0.0082
44	SLV 14	-8.99	8.03	2.57	-0.2683	-0.5241	0.0082
44	SLV 15	-11.19	-1.23	-26.51	0.0972	-0.4243	0.0048
44	SLV 16	-11.19	-1.23	-26.51	0.0972	-0.4243	0.0048
45	SLU 1	3.93	0.08	22.38	-0.0233	0.2666	-0.0003
45	SLU 2	2.27	0.09	21.55	-0.0587	0.2012	-0.0003
45	SLU 3	4.11	0.08	23.11	-0.0243	0.2786	-0.0003
45	SLU 4	3.11	0.09	22.61	-0.0455	0.2393	-0.0004
45	SLU 5	2.45	0.09	22.16	-0.0595	0.2125	-0.0004
45	SLU 6	4.29	0.09	23.72	-0.0251	0.2899	-0.0004
45	SLU 7	3.29	0.09	23.22	-0.0463	0.2506	-0.0004
45	SLU 8	4.29	0.09	23.6	-0.025	0.2892	-0.0004
45	SLU 9	3.29	0.09	23.1	-0.0462	0.2499	-0.0004
45	SLU 10	3.06	0.1	24.17	-0.0619	0.2476	-0.0004
45	SLU 11	4.9	0.09	25.73	-0.0275	0.325	-0.0004
45	SLU 12	3.9	0.1	25.23	-0.0487	0.2858	-0.0004
45	SLU 13	3.24	0.1	24.78	-0.0627	0.2589	-0.0004
45	SLU 14	5.08	0.1	26.34	-0.0283	0.3363	-0.0004
45	SLU 15	4.08	0.1	25.84	-0.0495	0.2971	-0.0004
45	SLU 16	5.08	0.1	26.22	-0.0282	0.3356	-0.0004
45	SLU 17	4.08	0.1	25.72	-0.0494	0.2964	-0.0004
45	SLU 18	5.06	0.09	26.12	-0.0279	0.333	-0.0004
45	SLU 19	4.06	0.1	25.63	-0.0491	0.2937	-0.0004
45	SLU 20	5.24	0.1	26.73	-0.0287	0.3442	-0.0004
45	SLU 21	4.24	0.1	26.23	-0.0499	0.305	-0.0004
45	SLU 22	4.62	0.09	24.93	-0.0265	0.3095	-0.0004
45	SLU 23	2.97	0.1	24.1	-0.0619	0.2441	-0.0004
45	SLU 24	4.8	0.09	25.66	-0.0275	0.3215	-0.0004
45	SLU 25	3.81	0.1	25.16	-0.0487	0.2822	-0.0004
45	SLU 26	3.15	0.1	24.7	-0.0627	0.2553	-0.0004
45	SLU 27	4.98	0.1	26.26	-0.0283	0.3327	-0.0004
45	SLU 28	3.99	0.1	25.76	-0.0495	0.2935	-0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
45	SLU 29	4.98	0.1	26.14	-0.0282	0.332	-0.0004
45	SLU 30	3.99	0.1	25.64	-0.0494	0.2928	-0.0004
45	SLU 31	3.76	0.11	26.72	-0.0651	0.2905	-0.0004
45	SLU 32	5.59	0.1	28.27	-0.0307	0.3679	-0.0004
45	SLU 33	4.6	0.11	27.78	-0.0519	0.3287	-0.0004
45	SLU 34	3.94	0.11	27.32	-0.0659	0.3018	-0.0004
45	SLU 35	5.77	0.11	28.88	-0.0315	0.3792	-0.0004
45	SLU 36	4.78	0.11	28.38	-0.0527	0.34	-0.0005
45	SLU 37	5.78	0.11	28.76	-0.0314	0.3785	-0.0004
45	SLU 38	4.78	0.11	28.26	-0.0526	0.3393	-0.0005
45	SLU 39	5.75	0.11	28.67	-0.0311	0.3759	-0.0004
45	SLU 40	4.76	0.11	28.17	-0.0523	0.3366	-0.0004
45	SLU 41	5.93	0.11	29.28	-0.0319	0.3871	-0.0004
45	SLU 42	4.94	0.11	28.78	-0.0531	0.3479	-0.0005
45	SLU 43	4.87	0.1	28.23	-0.0292	0.3319	-0.0004
45	SLU 44	3.21	0.11	27.39	-0.0646	0.2664	-0.0004
45	SLU 45	5.05	0.11	28.95	-0.0302	0.3439	-0.0004
45	SLU 46	4.05	0.11	28.45	-0.0514	0.3046	-0.0004
45	SLU 47	3.39	0.11	28	-0.0654	0.2777	-0.0004
45	SLU 48	5.23	0.11	29.56	-0.031	0.3551	-0.0004
45	SLU 49	4.23	0.11	29.06	-0.0522	0.3159	-0.0005
45	SLU 50	5.23	0.11	29.44	-0.0309	0.3544	-0.0004
45	SLU 51	4.23	0.11	28.94	-0.0521	0.3152	-0.0004
45	SLU 52	4	0.12	30.01	-0.0678	0.3129	-0.0005
45	SLU 53	5.84	0.11	31.57	-0.0334	0.3903	-0.0005
45	SLU 54	4.84	0.12	31.07	-0.0546	0.3511	-0.0005
45	SLU 55	4.18	0.12	30.62	-0.0686	0.3242	-0.0005
45	SLU 56	6.02	0.12	32.18	-0.0342	0.4016	-0.0005
45	SLU 57	5.02	0.12	31.68	-0.0554	0.3623	-0.0005
45	SLU 58	6.02	0.12	32.06	-0.0341	0.4009	-0.0005
45	SLU 59	5.03	0.12	31.56	-0.0553	0.3616	-0.0005
45	SLU 60	6	0.12	31.97	-0.0338	0.3982	-0.0005
45	SLU 61	5	0.12	31.47	-0.055	0.359	-0.0005
45	SLU 62	6.18	0.12	32.57	-0.0346	0.4095	-0.0005
45	SLU 63	5.18	0.12	32.08	-0.0558	0.3703	-0.0005
45	SLU 64	5.57	0.11	30.77	-0.0324	0.3748	-0.0005
45	SLU 65	3.91	0.12	29.94	-0.0678	0.3093	-0.0005
45	SLU 66	5.74	0.12	31.5	-0.0334	0.3867	-0.0005
45	SLU 67	4.75	0.12	31	-0.0546	0.3475	-0.0005
45	SLU 68	4.09	0.12	30.55	-0.0686	0.3206	-0.0005
45	SLU 69	5.92	0.12	32.11	-0.0342	0.398	-0.0005
45	SLU 70	4.93	0.12	31.61	-0.0554	0.3588	-0.0005
45	SLU 71	5.93	0.12	31.99	-0.0341	0.3973	-0.0005
45	SLU 72	4.93	0.12	31.49	-0.0553	0.3581	-0.0005
45	SLU 73	4.7	0.13	32.56	-0.071	0.3558	-0.0005
45	SLU 74	6.53	0.13	34.12	-0.0366	0.4332	-0.0005
45	SLU 75	5.54	0.13	33.62	-0.0578	0.3939	-0.0005
45	SLU 76	4.88	0.13	33.17	-0.0718	0.3671	-0.0005
45	SLU 77	6.71	0.13	34.72	-0.0374	0.4445	-0.0005
45	SLU 78	5.72	0.13	34.23	-0.0586	0.4052	-0.0005
45	SLU 79	6.72	0.13	34.61	-0.0373	0.4438	-0.0005
45	SLU 80	5.72	0.13	34.11	-0.0585	0.4045	-0.0005
45	SLU 81	6.69	0.13	34.51	-0.037	0.4411	-0.0005
45	SLU 82	5.7	0.13	34.01	-0.0582	0.4019	-0.0005
45	SLU 83	6.87	0.13	35.12	-0.0378	0.4524	-0.0005
45	SLU 84	5.88	0.13	34.62	-0.059	0.4132	-0.0005
45	SLE RA 1	4.13	0.08	23.11	-0.0243	0.2788	-0.0003
45	SLE RA 2	3.02	0.09	22.56	-0.0478	0.2352	-0.0004
45	SLE RA 3	4.25	0.09	23.59	-0.0249	0.2868	-0.0004
45	SLE RA 4	3.58	0.09	23.26	-0.039	0.2607	-0.0004
45	SLE RA 5	3.14	0.09	22.96	-0.0484	0.2428	-0.0004
45	SLE RA 6	4.37	0.09	24	-0.0254	0.2944	-0.0004
45	SLE RA 7	3.7	0.09	23.67	-0.0396	0.2682	-0.0004
45	SLE RA 8	4.37	0.09	23.92	-0.0253	0.2939	-0.0004
45	SLE RA 9	3.7	0.09	23.59	-0.0395	0.2677	-0.0004
45	SLE RA 10	3.55	0.1	24.3	-0.0499	0.2662	-0.0004
45	SLE RA 11	4.77	0.09	25.34	-0.027	0.3178	-0.0004
45	SLE RA 12	4.11	0.1	25.01	-0.0412	0.2916	-0.0004
45	SLE RA 13	3.67	0.1	24.71	-0.0505	0.2737	-0.0004
45	SLE RA 14	4.89	0.09	25.75	-0.0276	0.3253	-0.0004
45	SLE RA 15	4.23	0.1	25.41	-0.0417	0.2992	-0.0004
45	SLE RA 16	4.9	0.09	25.67	-0.0275	0.3249	-0.0004
45	SLE RA 17	4.23	0.1	25.33	-0.0416	0.2987	-0.0004
45	SLE RA 18	4.88	0.09	25.6	-0.0273	0.3231	-0.0004
45	SLE RA 19	4.22	0.1	25.27	-0.0414	0.2969	-0.0004
45	SLE RA 20	5	0.09	26.01	-0.0278	0.3306	-0.0004
45	SLE RA 21	4.34	0.1	25.68	-0.042	0.3044	-0.0004
45	SLE FR 1	4.13	0.08	23.11	-0.0243	0.2788	-0.0003
45	SLE FR 2	3.91	0.09	23	-0.029	0.2701	-0.0003
45	SLE FR 3	4.18	0.08	23.27	-0.0245	0.2819	-0.0003
45	SLE FR 4	4.13	0.09	23.75	-0.0299	0.2834	-0.0004
45	SLE FR 5	4.4	0.09	24.02	-0.0254	0.2951	-0.0004
45	SLE FR 6	4.5	0.09	24.36	-0.0258	0.301	-0.0004
45	SLE QP 1	4.13	0.08	23.11	-0.0243	0.2788	-0.0003
45	SLE QP 2	4.35	0.09	23.86	-0.0252	0.2921	-0.0004
45	SLD 1	13.32	0.16	37.96	-0.0719	0.7314	-0.0006
45	SLD 2	13.32	0.16	37.96	-0.0719	0.7314	-0.0006
45	SLD 3	14.73	0.12	31.04	-0.0255	0.7886	-0.0005
45	SLD 4	14.73	0.12	31.04	-0.0255	0.7886	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
45	SLD 5	4.9	0.16	38.59	-0.1096	0.3371	-0.0006
45	SLD 6	4.9	0.16	38.59	-0.1096	0.3371	-0.0006
45	SLD 7	9.61	0.05	15.51	0.0452	0.5279	-0.0002
45	SLD 8	9.61	0.05	15.51	0.0452	0.5279	-0.0002
45	SLD 9	-0.9	0.12	32.21	-0.0955	0.0563	-0.0005
45	SLD 10	-0.9	0.12	32.21	-0.0955	0.0563	-0.0005
45	SLD 11	3.8	0.02	9.12	0.0593	0.2472	-0.0001
45	SLD 12	3.8	0.02	9.12	0.0593	0.2472	-0.0001
45	SLD 13	-6.03	0.05	16.68	-0.0249	-0.2044	-0.0002
45	SLD 14	-6.03	0.05	16.68	-0.0249	-0.2044	-0.0002
45	SLD 15	-4.61	0.02	9.76	0.0216	-0.1471	-0.0002
45	SLD 16	-4.61	0.02	9.76	0.0216	-0.1471	-0.0002
45	SLV 1	24.82	0.25	56.05	-0.1401	1.2929	-0.0008
45	SLV 2	24.82	0.25	56.05	-0.1401	1.2929	-0.0008
45	SLV 3	28.21	0.18	40.1	-0.0252	1.4327	-0.0006
45	SLV 4	28.21	0.18	40.1	-0.0252	1.4327	-0.0006
45	SLV 5	5.34	0.25	57.7	-0.234	0.3804	-0.0008
45	SLV 6	5.34	0.25	57.7	-0.234	0.3804	-0.0008
45	SLV 7	16.67	0	4.54	0.1492	0.8462	-0.0001
45	SLV 8	16.67	0	4.54	0.1492	0.8462	-0.0001
45	SLV 9	-7.96	0.17	43.17	-0.1995	-0.262	-0.0006
45	SLV 10	-7.96	0.17	43.17	-0.1995	-0.262	-0.0006
45	SLV 11	3.37	-0.07	-9.98	0.1837	0.2038	0.0001
45	SLV 12	3.37	-0.07	-9.98	0.1837	0.2038	0.0001
45	SLV 13	-19.51	0	7.62	-0.0252	-0.8484	-0.0001
45	SLV 14	-19.51	0	7.62	-0.0252	-0.8484	-0.0001
45	SLV 15	-16.11	-0.08	-8.33	0.0898	-0.7087	0.0001
45	SLV 16	-16.11	-0.08	-8.33	0.0898	-0.7087	0.0001
46	SLU 1	3.05	0	17.97	-0.0088	0.0889	0
46	SLU 2	1.41	0.04	17.21	-0.0803	0.0134	-0.0001
46	SLU 3	3.23	0	18.39	-0.0092	0.0958	0
46	SLU 4	2.25	0.02	17.93	-0.0521	0.0504	-0.0001
46	SLU 5	1.6	0.04	17.55	-0.0808	0.021	-0.0001
46	SLU 6	3.42	0	18.72	-0.0097	0.1034	0
46	SLU 7	2.44	0.02	18.27	-0.0526	0.0581	-0.0001
46	SLU 8	3.43	0	18.63	-0.0097	0.1042	0
46	SLU 9	2.45	0.02	18.18	-0.0526	0.0589	-0.0001
46	SLU 10	2.07	0.04	19.38	-0.0826	0.035	-0.0001
46	SLU 11	3.89	0	20.55	-0.0115	0.1174	0
46	SLU 12	2.91	0.02	20.1	-0.0544	0.0721	-0.0001
46	SLU 13	2.26	0.04	19.71	-0.083	0.0427	-0.0001
46	SLU 14	4.08	0.01	20.89	-0.0119	0.1251	-0.0001
46	SLU 15	3.1	0.02	20.43	-0.0548	0.0798	-0.0001
46	SLU 16	4.09	0.01	20.8	-0.012	0.1259	-0.0001
46	SLU 17	3.11	0.02	20.35	-0.0549	0.0806	-0.0001
46	SLU 18	3.99	0	21.06	-0.012	0.1199	-0.0001
46	SLU 19	3.01	0.02	20.61	-0.0549	0.0745	-0.0001
46	SLU 20	4.18	0.01	21.39	-0.0125	0.1275	-0.0001
46	SLU 21	3.2	0.02	20.94	-0.0554	0.0822	-0.0001
46	SLU 22	3.64	0	19.93	-0.0108	0.1084	0
46	SLU 23	2	0.04	19.17	-0.0823	0.0329	-0.0001
46	SLU 24	3.82	0	20.35	-0.0112	0.1153	-0.0001
46	SLU 25	2.84	0.02	19.89	-0.0541	0.0699	-0.0001
46	SLU 26	2.19	0.04	19.51	-0.0828	0.0405	-0.0001
46	SLU 27	4.01	0.01	20.68	-0.0117	0.1229	-0.0001
46	SLU 28	3.03	0.02	20.23	-0.0546	0.0776	-0.0001
46	SLU 29	4.02	0.01	20.59	-0.0117	0.1237	-0.0001
46	SLU 30	3.04	0.02	20.14	-0.0546	0.0784	-0.0001
46	SLU 31	2.66	0.04	21.34	-0.0846	0.0545	-0.0001
46	SLU 32	4.48	0.01	22.51	-0.0135	0.1369	-0.0001
46	SLU 33	3.5	0.03	22.06	-0.0564	0.0916	-0.0001
46	SLU 34	2.85	0.04	21.67	-0.085	0.0622	-0.0001
46	SLU 35	4.67	0.01	22.84	-0.0139	0.1446	-0.0001
46	SLU 36	3.69	0.03	22.39	-0.0568	0.0993	-0.0001
46	SLU 37	4.68	0.01	22.76	-0.014	0.1454	-0.0001
46	SLU 38	3.69	0.03	22.31	-0.0569	0.1001	-0.0001
46	SLU 39	4.58	0.01	23.02	-0.014	0.1393	-0.0001
46	SLU 40	3.6	0.03	22.57	-0.0569	0.094	-0.0001
46	SLU 41	4.77	0.01	23.35	-0.0145	0.147	-0.0001
46	SLU 42	3.79	0.03	22.9	-0.0574	0.1017	-0.0001
46	SLU 43	3.76	0	22.69	-0.0108	0.1089	0
46	SLU 44	2.13	0.04	21.93	-0.0823	0.0333	-0.0001
46	SLU 45	3.94	0	23.11	-0.0112	0.1158	0
46	SLU 46	2.96	0.02	22.65	-0.0541	0.0704	-0.0001
46	SLU 47	2.32	0.04	22.27	-0.0828	0.041	-0.0001
46	SLU 48	4.13	0	23.44	-0.0117	0.1234	-0.0001
46	SLU 49	3.15	0.02	22.99	-0.0546	0.0781	-0.0001
46	SLU 50	4.14	0	23.35	-0.0117	0.1242	-0.0001
46	SLU 51	3.16	0.02	22.9	-0.0546	0.0789	-0.0001
46	SLU 52	2.79	0.04	24.1	-0.0845	0.055	-0.0001
46	SLU 53	4.6	0.01	25.27	-0.0135	0.1374	-0.0001
46	SLU 54	3.62	0.02	24.82	-0.0564	0.0921	-0.0001
46	SLU 55	2.97	0.04	24.43	-0.085	0.0627	-0.0001
46	SLU 56	4.79	0.01	25.6	-0.0139	0.1451	-0.0001
46	SLU 57	3.81	0.03	25.15	-0.0568	0.0998	-0.0001
46	SLU 58	4.8	0.01	25.52	-0.014	0.1459	-0.0001
46	SLU 59	3.82	0.03	25.07	-0.0569	0.1005	-0.0001
46	SLU 60	4.71	0.01	25.78	-0.014	0.1398	-0.0001
46	SLU 61	3.72	0.02	25.33	-0.0569	0.0945	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
46	SLU 62	4.9	0.01	26.11	-0.0145	0.1475	-0.0001
46	SLU 63	3.91	0.03	25.66	-0.0574	0.1022	-0.0001
46	SLU 64	4.35	0	24.65	-0.0128	0.1284	-0.0001
46	SLU 65	2.72	0.04	23.89	-0.0843	0.0528	-0.0001
46	SLU 66	4.53	0.01	25.06	-0.0132	0.1353	-0.0001
46	SLU 67	3.55	0.02	24.61	-0.0561	0.0899	-0.0001
46	SLU 68	2.9	0.04	24.22	-0.0847	0.0605	-0.0001
46	SLU 69	4.72	0.01	25.4	-0.0137	0.1429	-0.0001
46	SLU 70	3.74	0.03	24.95	-0.0566	0.0976	-0.0001
46	SLU 71	4.73	0.01	25.31	-0.0137	0.1437	-0.0001
46	SLU 72	3.75	0.03	24.86	-0.0566	0.0984	-0.0001
46	SLU 73	3.38	0.04	26.06	-0.0865	0.0745	-0.0001
46	SLU 74	5.19	0.01	27.23	-0.0154	0.1569	-0.0001
46	SLU 75	4.21	0.03	26.78	-0.0583	0.1116	-0.0001
46	SLU 76	3.56	0.04	26.39	-0.087	0.0822	-0.0001
46	SLU 77	5.38	0.01	27.56	-0.0159	0.1646	-0.0001
46	SLU 78	4.4	0.03	27.11	-0.0588	0.1193	-0.0001
46	SLU 79	5.39	0.01	27.48	-0.0159	0.1654	-0.0001
46	SLU 80	4.41	0.03	27.03	-0.0588	0.12	-0.0001
46	SLU 81	5.3	0.01	27.74	-0.016	0.1593	-0.0001
46	SLU 82	4.31	0.03	27.29	-0.0589	0.114	-0.0001
46	SLU 83	5.48	0.01	28.07	-0.0164	0.167	-0.0001
46	SLU 84	4.5	0.03	27.62	-0.0593	0.1217	-0.0001
46	SLE RA 1	3.22	0	18.53	-0.0094	0.0945	0
46	SLE RA 2	2.13	0.03	18.03	-0.0571	0.0441	-0.0001
46	SLE RA 3	3.34	0	18.81	-0.0097	0.0991	0
46	SLE RA 4	2.68	0.02	18.51	-0.0383	0.0688	0
46	SLE RA 5	2.25	0.03	18.25	-0.0574	0.0492	-0.0001
46	SLE RA 6	3.46	0	19.03	-0.01	0.1042	0
46	SLE RA 7	2.81	0.02	18.73	-0.0386	0.0739	-0.0001
46	SLE RA 8	3.47	0	18.97	-0.01	0.1047	0
46	SLE RA 9	2.82	0.02	18.67	-0.0386	0.0745	-0.0001
46	SLE RA 10	2.57	0.03	19.47	-0.0586	0.0586	-0.0001
46	SLE RA 11	3.78	0	20.25	-0.0112	0.1135	0
46	SLE RA 12	3.12	0.02	19.95	-0.0398	0.0833	-0.0001
46	SLE RA 13	2.69	0.03	19.69	-0.0589	0.0637	-0.0001
46	SLE RA 14	3.9	0	20.47	-0.0115	0.1186	-0.0001
46	SLE RA 15	3.25	0.02	20.17	-0.0401	0.0884	-0.0001
46	SLE RA 16	3.91	0	20.42	-0.0115	0.1191	-0.0001
46	SLE RA 17	3.26	0.02	20.11	-0.0401	0.0889	-0.0001
46	SLE RA 18	3.85	0	20.59	-0.0115	0.1151	0
46	SLE RA 19	3.19	0.02	20.29	-0.0401	0.0849	-0.0001
46	SLE RA 20	3.97	0	20.81	-0.0118	0.1202	-0.0001
46	SLE RA 21	3.32	0.02	20.51	-0.0404	0.09	-0.0001
46	SLE FR 1	3.22	0	18.53	-0.0094	0.0945	0
46	SLE FR 2	3	0.01	18.43	-0.0189	0.0844	0
46	SLE FR 3	3.27	0	18.62	-0.0095	0.0965	0
46	SLE FR 4	3.19	0.01	19.05	-0.0196	0.0906	0
46	SLE FR 5	3.46	0	19.24	-0.0102	0.1027	0
46	SLE FR 6	3.53	0	19.56	-0.0105	0.1048	0
46	SLE QP 1	3.22	0	18.53	-0.0094	0.0945	0
46	SLE QP 2	3.41	0	19.15	-0.01	0.1007	0
46	SLD 1	13.33	-0.04	25.63	-0.0207	0.536	-0.0002
46	SLD 2	13.33	-0.04	25.63	-0.0207	0.536	-0.0002
46	SLD 3	14.54	-0.09	21.74	0.0751	0.5925	-0.0003
46	SLD 4	14.54	-0.09	21.74	0.0751	0.5925	-0.0003
46	SLD 5	4.55	0.06	26.98	-0.1585	0.1456	0
46	SLD 6	4.55	0.06	26.98	-0.1585	0.1456	0
46	SLD 7	8.58	-0.1	14.03	0.1608	0.3339	-0.0002
46	SLD 8	8.58	-0.1	14.03	0.1608	0.3339	-0.0002
46	SLD 9	-1.77	0.1	24.26	-0.1809	-0.1326	0.0001
46	SLD 10	-1.77	0.1	24.26	-0.1809	-0.1326	0.0001
46	SLD 11	2.27	-0.05	11.31	0.1385	0.0558	-0.0001
46	SLD 12	2.27	-0.05	11.31	0.1385	0.0558	-0.0001
46	SLD 13	-7.72	0.1	16.55	-0.0951	-0.3912	0.0002
46	SLD 14	-7.72	0.1	16.55	-0.0951	-0.3912	0.0002
46	SLD 15	-6.51	0.05	12.67	0.0007	-0.3347	0.0001
46	SLD 16	-6.51	0.05	12.67	0.0007	-0.3347	0.0001
46	SLV 1	26.05	-0.11	33.91	-0.0383	1.0938	-0.0005
46	SLV 2	26.05	-0.11	33.91	-0.0383	1.0938	-0.0005
46	SLV 3	28.99	-0.23	25.01	0.2014	1.2319	-0.0006
46	SLV 4	28.99	-0.23	25.01	0.2014	1.2319	-0.0006
46	SLV 5	5.74	0.15	37.07	-0.3821	0.1891	0.0001
46	SLV 6	5.74	0.15	37.07	-0.3821	0.1891	0.0001
46	SLV 7	15.55	-0.25	7.42	0.417	0.6495	-0.0004
46	SLV 8	15.55	-0.25	7.42	0.417	0.6495	-0.0004
46	SLV 9	-8.73	0.25	30.88	-0.4371	-0.4482	0.0004
46	SLV 10	-8.73	0.25	30.88	-0.4371	-0.4482	0.0004
46	SLV 11	1.08	-0.14	1.23	0.362	0.0122	-0.0001
46	SLV 12	1.08	-0.14	1.23	0.362	0.0122	-0.0001
46	SLV 13	-22.18	0.24	13.28	-0.2215	-1.0306	0.0005
46	SLV 14	-22.18	0.24	13.28	-0.2215	-1.0306	0.0005
46	SLV 15	-19.23	0.12	4.39	0.0182	-0.8925	0.0004
46	SLV 16	-19.23	0.12	4.39	0.0182	-0.8925	0.0004
47	SLU 1	4.03	-0.04	16.46	0.0043	0.2271	0.0001
47	SLU 2	2.74	0.03	15.76	-0.106	0.1763	-0.0001
47	SLU 3	4.27	-0.04	16.73	0.0043	0.2399	0.0001
47	SLU 4	3.5	0	16.31	-0.0619	0.2094	0
47	SLU 5	2.98	0.03	15.96	-0.1062	0.1886	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
47	SLU 6	4.51	-0.04	16.92	0.0042	0.2523	0.0001
47	SLU 7	3.74	0	16.5	-0.062	0.2218	0
47	SLU 8	4.51	-0.04	16.85	0.0039	0.2518	0.0001
47	SLU 9	3.74	0	16.43	-0.0622	0.2213	0
47	SLU 10	3.5	0.03	17.84	-0.1074	0.2162	-0.0001
47	SLU 11	5.03	-0.04	18.8	0.003	0.2798	0.0002
47	SLU 12	4.26	0	18.39	-0.0632	0.2493	0
47	SLU 13	3.75	0.03	18.04	-0.1075	0.2285	-0.0001
47	SLU 14	5.28	-0.04	19	0.0028	0.2921	0.0002
47	SLU 15	4.51	0	18.58	-0.0633	0.2617	0
47	SLU 16	5.28	-0.04	18.93	0.0026	0.2916	0.0002
47	SLU 17	4.51	0	18.51	-0.0636	0.2612	0
47	SLU 18	5.12	-0.04	19.43	0.0024	0.2841	0.0002
47	SLU 19	4.34	0	19.01	-0.0638	0.2536	0
47	SLU 20	5.36	-0.05	19.62	0.0022	0.2964	0.0002
47	SLU 21	4.59	0	19.2	-0.064	0.2659	0
47	SLU 22	4.75	-0.04	18.23	0.0034	0.2654	0.0002
47	SLU 23	3.46	0.03	17.53	-0.1069	0.2146	-0.0001
47	SLU 24	4.99	-0.04	18.49	0.0035	0.2782	0.0002
47	SLU 25	4.22	0	18.07	-0.0627	0.2477	0
47	SLU 26	3.7	0.03	17.73	-0.1071	0.2269	-0.0001
47	SLU 27	5.23	-0.05	18.69	0.0033	0.2905	0.0002
47	SLU 28	4.46	0	18.27	-0.0629	0.2601	0
47	SLU 29	5.23	-0.04	18.62	0.0031	0.29	0.0002
47	SLU 30	4.46	0	18.2	-0.0631	0.2596	0
47	SLU 31	4.22	0.02	19.61	-0.1082	0.2545	-0.0001
47	SLU 32	5.75	-0.05	20.57	0.0021	0.3181	0.0002
47	SLU 33	4.98	-0.01	20.15	-0.064	0.2876	0
47	SLU 34	4.47	0.02	19.8	-0.1084	0.2668	-0.0001
47	SLU 35	6	-0.05	20.76	0.002	0.3304	0.0002
47	SLU 36	5.23	-0.01	20.35	-0.0642	0.2999	0
47	SLU 37	6	-0.05	20.69	0.0018	0.3299	0.0002
47	SLU 38	5.23	0	20.28	-0.0644	0.2994	0
47	SLU 39	5.84	-0.05	21.19	0.0015	0.3224	0.0002
47	SLU 40	5.07	-0.01	20.78	-0.0647	0.2919	0
47	SLU 41	6.08	-0.05	21.39	0.0013	0.3347	0.0002
47	SLU 42	5.31	-0.01	20.97	-0.0648	0.3042	0
47	SLU 43	4.99	-0.05	20.79	0.0058	0.2821	0.0002
47	SLU 44	3.7	0.02	20.1	-0.1045	0.2313	0
47	SLU 45	5.23	-0.05	21.06	0.0059	0.2949	0.0002
47	SLU 46	4.46	-0.01	20.64	-0.0603	0.2645	0.0001
47	SLU 47	3.94	0.02	20.29	-0.1046	0.2436	0
47	SLU 48	5.47	-0.05	21.25	0.0057	0.3073	0.0002
47	SLU 49	4.7	-0.01	20.84	-0.0604	0.2768	0.0001
47	SLU 50	5.47	-0.05	21.18	0.0055	0.3068	0.0002
47	SLU 51	4.7	-0.01	20.77	-0.0607	0.2763	0
47	SLU 52	4.46	0.02	22.17	-0.1058	0.2712	0
47	SLU 53	5.99	-0.06	23.14	0.0046	0.3348	0.0002
47	SLU 54	5.22	-0.01	22.72	-0.0616	0.3043	0.0001
47	SLU 55	4.71	0.02	22.37	-0.106	0.2835	0
47	SLU 56	6.24	-0.06	23.33	0.0044	0.3471	0.0002
47	SLU 57	5.47	-0.01	22.91	-0.0618	0.3167	0.0001
47	SLU 58	6.24	-0.05	23.26	0.0042	0.3466	0.0002
47	SLU 59	5.47	-0.01	22.84	-0.062	0.3162	0.0001
47	SLU 60	6.08	-0.06	23.76	0.0039	0.3391	0.0002
47	SLU 61	5.31	-0.01	23.34	-0.0622	0.3086	0.0001
47	SLU 62	6.32	-0.06	23.95	0.0038	0.3514	0.0002
47	SLU 63	5.55	-0.01	23.54	-0.0624	0.3209	0.0001
47	SLU 64	5.71	-0.05	22.56	0.005	0.3204	0.0002
47	SLU 65	4.42	0.02	21.86	-0.1053	0.2696	0
47	SLU 66	5.95	-0.06	22.83	0.005	0.3332	0.0002
47	SLU 67	5.18	-0.01	22.41	-0.0611	0.3027	0.0001
47	SLU 68	4.66	0.02	22.06	-0.1055	0.2819	0
47	SLU 69	6.2	-0.06	23.02	0.0049	0.3456	0.0002
47	SLU 70	5.42	-0.01	22.6	-0.0613	0.3151	0.0001
47	SLU 71	6.19	-0.06	22.95	0.0047	0.3451	0.0002
47	SLU 72	5.42	-0.01	22.53	-0.0615	0.3146	0.0001
47	SLU 73	5.18	0.01	23.94	-0.1067	0.3095	0
47	SLU 74	6.71	-0.06	24.9	0.0037	0.3731	0.0002
47	SLU 75	5.94	-0.02	24.48	-0.0625	0.3426	0.0001
47	SLU 76	5.43	0.01	24.13	-0.1068	0.3218	0
47	SLU 77	6.96	-0.06	25.1	0.0036	0.3854	0.0002
47	SLU 78	6.19	-0.02	24.68	-0.0626	0.3549	0.0001
47	SLU 79	6.96	-0.06	25.03	0.0033	0.3849	0.0002
47	SLU 80	6.19	-0.02	24.61	-0.0629	0.3544	0.0001
47	SLU 81	6.8	-0.06	25.53	0.0031	0.3774	0.0002
47	SLU 82	6.03	-0.02	25.11	-0.0631	0.3469	0.0001
47	SLU 83	7.04	-0.06	25.72	0.0029	0.3897	0.0002
47	SLU 84	6.27	-0.02	25.3	-0.0633	0.3592	0.0001
47	SLE RA 1	4.23	-0.04	16.96	0.004	0.238	0.0001
47	SLE RA 2	3.37	0.01	16.5	-0.0695	0.2042	0
47	SLE RA 3	4.39	-0.04	17.14	0.0041	0.2466	0.0001
47	SLE RA 4	3.88	-0.01	16.86	-0.0401	0.2263	0.0001
47	SLE RA 5	3.54	0.01	16.63	-0.0696	0.2124	0
47	SLE RA 6	4.56	-0.04	17.27	0.004	0.2548	0.0001
47	SLE RA 7	4.04	-0.01	16.99	-0.0402	0.2345	0.0001
47	SLE RA 8	4.56	-0.04	17.23	0.0038	0.2545	0.0001
47	SLE RA 9	4.04	-0.01	16.95	-0.0403	0.2342	0.0001
47	SLE RA 10	3.88	0	17.89	-0.0704	0.2308	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
47	SLE RA 11	4.9	-0.04	18.53	0.0032	0.2732	0.0002
47	SLE RA 12	4.39	-0.02	18.25	-0.0409	0.2529	0.0001
47	SLE RA 13	4.05	0	18.02	-0.0705	0.239	0
47	SLE RA 14	5.07	-0.04	18.66	0.0031	0.2814	0.0002
47	SLE RA 15	4.55	-0.02	18.38	-0.0411	0.2611	0.0001
47	SLE RA 16	5.07	-0.04	18.61	0.0029	0.2811	0.0002
47	SLE RA 17	4.55	-0.02	18.33	-0.0412	0.2607	0.0001
47	SLE RA 18	4.96	-0.04	18.94	0.0027	0.276	0.0002
47	SLE RA 19	4.44	-0.02	18.66	-0.0414	0.2557	0.0001
47	SLE RA 20	5.12	-0.04	19.07	0.0026	0.2842	0.0002
47	SLE RA 21	4.61	-0.02	18.79	-0.0415	0.2639	0.0001
47	SLE FR 1	4.23	-0.04	16.96	0.004	0.238	0.0001
47	SLE FR 2	4.06	-0.03	16.87	-0.0107	0.2313	0.0001
47	SLE FR 3	4.3	-0.04	17.02	0.004	0.2413	0.0001
47	SLE FR 4	4.28	-0.03	17.47	-0.0111	0.2427	0.0001
47	SLE FR 5	4.51	-0.04	17.61	0.0036	0.2527	0.0001
47	SLE FR 6	4.59	-0.04	17.95	0.0034	0.257	0.0002
47	SLE QP 1	4.23	-0.04	16.96	0.004	0.238	0.0001
47	SLE QP 2	4.45	-0.04	17.56	0.0036	0.2494	0.0001
47	SLD 1	15.52	-0.05	20.52	-0.0306	0.7927	-0.0003
47	SLD 2	15.52	-0.05	20.52	-0.0306	0.7927	-0.0003
47	SLD 3	16.56	-0.16	17.79	0.1214	0.7428	0
47	SLD 4	16.56	-0.16	17.79	0.1214	0.7428	0
47	SLD 5	6.2	0.12	22.59	-0.2371	0.4882	-0.0005
47	SLD 6	6.2	0.12	22.59	-0.2371	0.4882	-0.0005
47	SLD 7	9.65	-0.24	13.48	0.2695	0.3217	0.0006
47	SLD 8	9.65	-0.24	13.48	0.2695	0.3217	0.0006
47	SLD 9	-0.75	0.16	21.64	-0.2622	0.1772	-0.0003
47	SLD 10	-0.75	0.16	21.64	-0.2622	0.1772	-0.0003
47	SLD 11	2.7	-0.2	12.52	0.2444	0.0107	0.0008
47	SLD 12	2.7	-0.2	12.52	0.2444	0.0107	0.0008
47	SLD 13	-7.66	0.08	17.33	-0.1142	-0.2439	0.0003
47	SLD 14	-7.66	0.08	17.33	-0.1142	-0.2439	0.0003
47	SLD 15	-6.62	-0.03	14.6	0.0378	-0.2939	0.0006
47	SLD 16	-6.62	-0.03	14.6	0.0378	-0.2939	0.0006
47	SLV 1	29.73	-0.06	24.35	-0.0828	1.4955	-0.001
47	SLV 2	29.73	-0.06	24.35	-0.0828	1.4955	-0.001
47	SLV 3	32.24	-0.34	18.07	0.2979	1.3754	-0.0001
47	SLV 4	32.24	-0.34	18.07	0.2979	1.3754	-0.0001
47	SLV 5	8.23	0.37	29.13	-0.5997	0.8054	-0.0015
47	SLV 6	8.23	0.37	29.13	-0.5997	0.8054	-0.0015
47	SLV 7	16.59	-0.54	8.18	0.6693	0.405	0.0014
47	SLV 8	16.59	-0.54	8.18	0.6693	0.405	0.0014
47	SLV 9	-7.69	0.46	26.94	-0.6621	0.0938	-0.0011
47	SLV 10	-7.69	0.46	26.94	-0.6621	0.0938	-0.0011
47	SLV 11	0.67	-0.45	5.99	0.607	-0.3066	0.0018
47	SLV 12	0.67	-0.45	5.99	0.607	-0.3066	0.0018
47	SLV 13	-23.34	0.25	17.05	-0.2907	-0.8765	0.0004
47	SLV 14	-23.34	0.25	17.05	-0.2907	-0.8765	0.0004
47	SLV 15	-20.83	-0.02	10.76	0.09	-0.9966	0.0013
47	SLV 16	-20.83	-0.02	10.76	0.09	-0.9966	0.0013
48	SLU 1	3.03	-0.06	15.75	0.0132	0.0903	0.0003
48	SLU 2	1.96	0.05	15.18	-0.1332	0.0397	-0.0001
48	SLU 3	3.27	-0.06	15.92	0.0136	0.0995	0.0003
48	SLU 4	2.63	0	15.58	-0.0742	0.0691	0.0001
48	SLU 5	2.21	0.05	15.3	-0.1332	0.0495	-0.0001
48	SLU 6	3.52	-0.06	16.03	0.0136	0.1094	0.0003
48	SLU 7	2.88	0	15.7	-0.0742	0.079	0.0001
48	SLU 8	3.53	-0.06	15.97	0.0133	0.11	0.0003
48	SLU 9	2.89	0	15.63	-0.0746	0.0796	0
48	SLU 10	2.54	0.04	17.24	-0.134	0.0586	-0.0001
48	SLU 11	3.85	-0.07	17.98	0.0128	0.1184	0.0004
48	SLU 12	3.21	0	17.65	-0.075	0.088	0.0001
48	SLU 13	2.78	0.04	17.36	-0.134	0.0684	-0.0001
48	SLU 14	4.1	-0.07	18.1	0.0129	0.1283	0.0004
48	SLU 15	3.46	0	17.76	-0.075	0.0979	0.0001
48	SLU 16	4.11	-0.07	18.03	0.0125	0.1289	0.0004
48	SLU 17	3.46	0	17.69	-0.0754	0.0985	0.0001
48	SLU 18	3.86	-0.07	18.69	0.0121	0.1173	0.0004
48	SLU 19	3.21	0	18.35	-0.0758	0.087	0.0001
48	SLU 20	4.11	-0.07	18.8	0.0121	0.1272	0.0004
48	SLU 21	3.46	0	18.47	-0.0757	0.0968	0.0001
48	SLU 22	3.61	-0.07	17.42	0.013	0.1094	0.0004
48	SLU 23	2.53	0.04	16.86	-0.1334	0.0587	-0.0001
48	SLU 24	3.85	-0.07	17.6	0.0134	0.1186	0.0004
48	SLU 25	3.2	0	17.26	-0.0744	0.0882	0.0001
48	SLU 26	2.78	0.04	16.97	-0.1333	0.0686	-0.0001
48	SLU 27	4.1	-0.07	17.71	0.0135	0.1284	0.0004
48	SLU 28	3.45	0	17.37	-0.0744	0.098	0.0001
48	SLU 29	4.1	-0.07	17.65	0.0131	0.1291	0.0004
48	SLU 30	3.46	0	17.31	-0.0747	0.0987	0.0001
48	SLU 31	3.11	0.04	18.92	-0.1342	0.0777	-0.0001
48	SLU 32	4.43	-0.07	19.66	0.0126	0.1375	0.0004
48	SLU 33	3.78	-0.01	19.32	-0.0752	0.1071	0.0001
48	SLU 34	3.36	0.04	19.03	-0.1341	0.0875	-0.0001
48	SLU 35	4.68	-0.07	19.77	0.0127	0.1474	0.0004
48	SLU 36	4.03	-0.01	19.43	-0.0752	0.117	0.0001
48	SLU 37	4.68	-0.07	19.71	0.0123	0.148	0.0004
48	SLU 38	4.04	-0.01	19.37	-0.0755	0.1176	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
48	SLU 39	4.43	-0.07	20.37	0.0119	0.1364	0.0004
48	SLU 40	3.79	-0.01	20.03	-0.0759	0.106	0.0001
48	SLU 41	4.68	-0.07	20.48	0.0119	0.1463	0.0004
48	SLU 42	4.04	-0.01	20.14	-0.0759	0.1159	0.0001
48	SLU 43	3.74	-0.08	19.9	0.0172	0.1109	0.0004
48	SLU 44	2.67	0.03	19.33	-0.1292	0.0602	-0.0001
48	SLU 45	3.99	-0.08	20.07	0.0176	0.1201	0.0004
48	SLU 46	3.34	-0.01	19.73	-0.0702	0.0897	0.0001
48	SLU 47	2.92	0.03	19.44	-0.1291	0.0701	-0.0001
48	SLU 48	4.24	-0.08	20.18	0.0177	0.1299	0.0004
48	SLU 49	3.59	-0.01	19.85	-0.0702	0.0995	0.0001
48	SLU 50	4.24	-0.08	20.12	0.0173	0.1306	0.0004
48	SLU 51	3.6	-0.01	19.78	-0.0705	0.1002	0.0001
48	SLU 52	3.25	0.03	21.39	-0.13	0.0791	0
48	SLU 53	4.57	-0.08	22.13	0.0168	0.139	0.0005
48	SLU 54	3.92	-0.02	21.79	-0.071	0.1086	0.0002
48	SLU 55	3.5	0.03	21.51	-0.1299	0.089	0
48	SLU 56	4.82	-0.08	22.25	0.0169	0.1488	0.0005
48	SLU 57	4.17	-0.02	21.91	-0.071	0.1184	0.0002
48	SLU 58	4.82	-0.08	22.18	0.0165	0.1495	0.0005
48	SLU 59	4.18	-0.02	21.84	-0.0713	0.1191	0.0002
48	SLU 60	4.57	-0.08	22.84	0.0161	0.1379	0.0005
48	SLU 61	3.93	-0.02	22.5	-0.0717	0.1075	0.0002
48	SLU 62	4.82	-0.08	22.95	0.0162	0.1477	0.0005
48	SLU 63	4.18	-0.02	22.62	-0.0717	0.1174	0.0002
48	SLU 64	4.32	-0.08	21.57	0.0171	0.1299	0.0004
48	SLU 65	3.24	0.03	21.01	-0.1294	0.0793	0
48	SLU 66	4.56	-0.08	21.75	0.0175	0.1391	0.0005
48	SLU 67	3.92	-0.02	21.41	-0.0704	0.1088	0.0002
48	SLU 68	3.49	0.03	21.12	-0.1293	0.0891	0
48	SLU 69	4.81	-0.08	21.86	0.0175	0.149	0.0005
48	SLU 70	4.16	-0.02	21.52	-0.0704	0.1186	0.0002
48	SLU 71	4.82	-0.08	21.8	0.0171	0.1496	0.0005
48	SLU 72	4.17	-0.02	21.46	-0.0707	0.1192	0.0002
48	SLU 73	3.82	0.02	23.07	-0.1301	0.0982	0
48	SLU 74	5.14	-0.09	23.81	0.0167	0.1581	0.0005
48	SLU 75	4.49	-0.02	23.47	-0.0712	0.1277	0.0002
48	SLU 76	4.07	0.02	23.18	-0.1301	0.1081	0
48	SLU 77	5.39	-0.09	23.92	0.0167	0.1679	0.0005
48	SLU 78	4.74	-0.02	23.58	-0.0711	0.1375	0.0002
48	SLU 79	5.4	-0.09	23.86	0.0163	0.1686	0.0005
48	SLU 80	4.75	-0.02	23.52	-0.0715	0.1382	0.0002
48	SLU 81	5.15	-0.09	24.52	0.0159	0.157	0.0005
48	SLU 82	4.5	-0.02	24.18	-0.0719	0.1266	0.0002
48	SLU 83	5.4	-0.09	24.63	0.016	0.1668	0.0005
48	SLU 84	4.75	-0.03	24.29	-0.0719	0.1364	0.0002
48	SLE RA 1	3.2	-0.06	16.23	0.0132	0.0958	0.0003
48	SLE RA 2	2.48	0.01	15.85	-0.0845	0.062	0
48	SLE RA 3	3.36	-0.06	16.34	0.0134	0.1019	0.0003
48	SLE RA 4	2.93	-0.02	16.12	-0.0451	0.0816	0.0002
48	SLE RA 5	2.64	0.01	15.92	-0.0844	0.0686	0
48	SLE RA 6	3.52	-0.06	16.42	0.0135	0.1085	0.0003
48	SLE RA 7	3.09	-0.02	16.19	-0.0451	0.0882	0.0002
48	SLE RA 8	3.53	-0.06	16.38	0.0132	0.1089	0.0003
48	SLE RA 9	3.1	-0.02	16.15	-0.0454	0.0886	0.0002
48	SLE RA 10	2.86	0.01	17.22	-0.085	0.0746	0
48	SLE RA 11	3.74	-0.07	17.72	0.0129	0.1145	0.0004
48	SLE RA 12	3.31	-0.02	17.49	-0.0457	0.0943	0.0002
48	SLE RA 13	3.03	0.01	17.3	-0.085	0.0812	0
48	SLE RA 14	3.91	-0.07	17.79	0.0129	0.1211	0.0004
48	SLE RA 15	3.48	-0.02	17.57	-0.0456	0.1008	0.0002
48	SLE RA 16	3.91	-0.07	17.75	0.0127	0.1215	0.0004
48	SLE RA 17	3.48	-0.02	17.52	-0.0459	0.1012	0.0002
48	SLE RA 18	3.75	-0.07	18.19	0.0124	0.1138	0.0004
48	SLE RA 19	3.32	-0.02	17.96	-0.0462	0.0935	0.0002
48	SLE RA 20	3.91	-0.07	18.26	0.0124	0.1203	0.0004
48	SLE RA 21	3.48	-0.02	18.04	-0.0461	0.1001	0.0002
48	SLE FR 1	3.2	-0.06	16.23	0.0132	0.0958	0.0003
48	SLE FR 2	3.05	-0.05	16.15	-0.0064	0.089	0.0003
48	SLE FR 3	3.26	-0.06	16.26	0.0132	0.0984	0.0003
48	SLE FR 4	3.22	-0.05	16.74	-0.0066	0.0944	0.0003
48	SLE FR 5	3.43	-0.06	16.85	0.0129	0.1038	0.0003
48	SLE FR 6	3.47	-0.06	17.21	0.0128	0.1048	0.0004
48	SLE QP 1	3.2	-0.06	16.23	0.0132	0.0958	0.0003
48	SLE QP 2	3.36	-0.06	16.82	0.0129	0.1012	0.0003
48	SLD 1	15.34	-0.03	19.05	-0.0485	0.6115	0.0003
48	SLD 2	15.34	-0.03	19.05	-0.0485	0.6115	0.0003
48	SLD 3	16.32	-0.2	16.56	0.1571	0.6557	0.001
48	SLD 4	16.32	-0.2	16.56	0.1571	0.6557	0.001
48	SLD 5	5.48	0.2	21.28	-0.3172	0.1873	-0.0008
48	SLD 6	5.48	0.2	21.28	-0.3172	0.1873	-0.0008
48	SLD 7	8.73	-0.36	12.95	0.368	0.3345	0.0017
48	SLD 8	8.73	-0.36	12.95	0.368	0.3345	0.0017
48	SLD 9	-2	0.23	20.68	-0.3421	-0.1322	-0.001
48	SLD 10	-2	0.23	20.68	-0.3421	-0.1322	-0.001
48	SLD 11	1.24	-0.33	12.35	0.3431	0.0151	0.0015
48	SLD 12	1.24	-0.33	12.35	0.3431	0.0151	0.0015
48	SLD 13	-9.6	0.07	17.07	-0.1312	-0.4534	-0.0003
48	SLD 14	-9.6	0.07	17.07	-0.1312	-0.4534	-0.0003





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
48	SLD 15	-8.62	-0.1	14.58	0.0743	-0.4092	0.0004
48	SLD 16	-8.62	-0.1	14.58	0.0743	-0.4092	0.0004
48	SLV 1	30.74	0.02	22.13	-0.1406	1.2669	0.0001
48	SLV 2	30.74	0.02	22.13	-0.1406	1.2669	0.0001
48	SLV 3	33.08	-0.4	16.2	0.3744	1.374	0.002
48	SLV 4	33.08	-0.4	16.2	0.3744	1.374	0.002
48	SLV 5	8.02	0.6	27.39	-0.8141	0.2885	-0.0026
48	SLV 6	8.02	0.6	27.39	-0.8141	0.2885	-0.0026
48	SLV 7	15.83	-0.81	7.65	0.9024	0.6454	0.0037
48	SLV 8	15.83	-0.81	7.65	0.9024	0.6454	0.0037
48	SLV 9	-9.11	0.68	25.98	-0.8765	-0.443	-0.003
48	SLV 10	-9.11	0.68	25.98	-0.8765	-0.443	-0.003
48	SLV 11	-1.3	-0.73	6.24	0.84	-0.0862	0.0033
48	SLV 12	-1.3	-0.73	6.24	0.84	-0.0862	0.0033
48	SLV 13	-26.36	0.28	17.43	-0.3485	-1.1716	-0.0013
48	SLV 14	-26.36	0.28	17.43	-0.3485	-1.1716	-0.0013
48	SLV 15	-24.02	-0.14	11.5	0.1665	-1.0646	0.0006
48	SLV 16	-24.02	-0.14	11.5	0.1665	-1.0646	0.0006
49	SLU 1	3.91	-0.07	15.52	0.02	0.2044	0.0004
49	SLU 2	3.17	0.07	15.1	-0.1557	0.1755	-0.0003
49	SLU 3	4.21	-0.07	15.65	0.0206	0.2191	0.0004
49	SLU 4	3.77	0.01	15.4	-0.0849	0.2017	0
49	SLU 5	3.48	0.07	15.17	-0.1556	0.1898	-0.0003
49	SLU 6	4.51	-0.07	15.73	0.0207	0.2334	0.0004
49	SLU 7	4.07	0.01	15.47	-0.0847	0.2161	0
49	SLU 8	4.51	-0.07	15.67	0.0203	0.2331	0.0004
49	SLU 9	4.07	0.01	15.41	-0.0852	0.2157	0
49	SLU 10	3.84	0.06	17.18	-0.156	0.209	-0.0002
49	SLU 11	4.88	-0.07	17.73	0.0203	0.2526	0.0005
49	SLU 12	4.44	0.01	17.48	-0.0851	0.2353	0.0001
49	SLU 13	4.14	0.06	17.25	-0.1559	0.2233	-0.0002
49	SLU 14	5.18	-0.08	17.81	0.0205	0.267	0.0005
49	SLU 15	4.74	0.01	17.55	-0.085	0.2496	0.0001
49	SLU 16	5.18	-0.07	17.75	0.02	0.2666	0.0005
49	SLU 17	4.74	0.01	17.49	-0.0855	0.2492	0.0001
49	SLU 18	4.86	-0.07	18.49	0.0196	0.2523	0.0005
49	SLU 19	4.42	0.01	18.24	-0.0858	0.2349	0.0001
49	SLU 20	5.16	-0.08	18.57	0.0197	0.2666	0.0005
49	SLU 21	4.72	0.01	18.31	-0.0857	0.2493	0.0001
49	SLU 22	4.59	-0.07	17.17	0.0204	0.239	0.0005
49	SLU 23	3.86	0.06	16.75	-0.1554	0.2101	-0.0002
49	SLU 24	4.9	-0.08	17.3	0.0209	0.2537	0.0005
49	SLU 25	4.46	0.01	17.05	-0.0845	0.2363	0.0001
49	SLU 26	4.16	0.06	16.82	-0.1553	0.2244	-0.0002
49	SLU 27	5.2	-0.08	17.38	0.0211	0.268	0.0005
49	SLU 28	4.76	0.01	17.12	-0.0844	0.2507	0.0001
49	SLU 29	5.2	-0.07	17.32	0.0206	0.2677	0.0005
49	SLU 30	4.76	0.01	17.06	-0.0848	0.2503	0.0001
49	SLU 31	4.53	0.06	18.83	-0.1557	0.2436	-0.0002
49	SLU 32	5.56	-0.08	19.38	0.0207	0.2872	0.0005
49	SLU 33	5.12	0	19.13	-0.0848	0.2699	0.0001
49	SLU 34	4.83	0.06	18.9	-0.1555	0.2579	-0.0002
49	SLU 35	5.87	-0.08	19.46	0.0208	0.3016	0.0005
49	SLU 36	5.43	0	19.21	-0.0846	0.2842	0.0001
49	SLU 37	5.87	-0.08	19.4	0.0204	0.3012	0.0005
49	SLU 38	5.43	0	19.15	-0.0851	0.2838	0.0001
49	SLU 39	5.55	-0.08	20.14	0.02	0.2869	0.0005
49	SLU 40	5.11	0	19.89	-0.0855	0.2695	0.0001
49	SLU 41	5.85	-0.08	20.22	0.0201	0.3012	0.0005
49	SLU 42	5.41	0	19.96	-0.0853	0.2839	0.0001
49	SLU 43	4.84	-0.09	19.61	0.0259	0.2539	0.0005
49	SLU 44	4.11	0.05	19.18	-0.1499	0.2249	-0.0002
49	SLU 45	5.15	-0.09	19.74	0.0265	0.2686	0.0005
49	SLU 46	4.71	0	19.49	-0.079	0.2512	0.0001
49	SLU 47	4.41	0.05	19.26	-0.1497	0.2393	-0.0002
49	SLU 48	5.45	-0.09	19.81	0.0266	0.2829	0.0005
49	SLU 49	5.01	-0.01	19.56	-0.0788	0.2655	0.0001
49	SLU 50	5.45	-0.09	19.76	0.0261	0.2825	0.0005
49	SLU 51	5.01	0	19.5	-0.0793	0.2652	0.0001
49	SLU 52	4.78	0.05	21.27	-0.1501	0.2585	-0.0001
49	SLU 53	5.81	-0.09	21.82	0.0262	0.3021	0.0006
49	SLU 54	5.37	-0.01	21.57	-0.0792	0.2847	0.0002
49	SLU 55	5.08	0.05	21.34	-0.15	0.2728	-0.0001
49	SLU 56	6.12	-0.09	21.9	0.0263	0.3164	0.0006
49	SLU 57	5.68	-0.01	21.64	-0.0791	0.2991	0.0002
49	SLU 58	6.12	-0.09	21.84	0.0259	0.3161	0.0006
49	SLU 59	5.68	-0.01	21.58	-0.0796	0.2987	0.0002
49	SLU 60	5.8	-0.09	22.58	0.0255	0.3018	0.0006
49	SLU 61	5.36	-0.01	22.33	-0.08	0.2844	0.0002
49	SLU 62	6.1	-0.09	22.66	0.0256	0.3161	0.0006
49	SLU 63	5.66	-0.01	22.4	-0.0798	0.2987	0.0002
49	SLU 64	5.53	-0.09	21.26	0.0262	0.2884	0.0006
49	SLU 65	4.8	0.05	20.84	-0.1495	0.2595	-0.0001
49	SLU 66	5.83	-0.09	21.39	0.0268	0.3031	0.0006
49	SLU 67	5.39	-0.01	21.14	-0.0786	0.2858	0.0002
49	SLU 68	5.1	0.04	20.91	-0.1494	0.2739	-0.0001
49	SLU 69	6.14	-0.09	21.47	0.027	0.3175	0.0006
49	SLU 70	5.7	-0.01	21.21	-0.0785	0.3001	0.0002
49	SLU 71	6.14	-0.09	21.41	0.0265	0.3171	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
49	SLU 72	5.7	-0.01	21.15	-0.0789	0.2998	0.0002
49	SLU 73	5.46	0.04	22.92	-0.1498	0.293	-0.0001
49	SLU 74	6.5	-0.1	23.47	0.0266	0.3367	0.0006
49	SLU 75	6.06	-0.02	23.22	-0.0789	0.3193	0.0002
49	SLU 76	5.77	0.04	22.99	-0.1496	0.3074	-0.0001
49	SLU 77	6.8	-0.1	23.55	0.0267	0.351	0.0006
49	SLU 78	6.36	-0.02	23.29	-0.0788	0.3337	0.0002
49	SLU 79	6.8	-0.1	23.49	0.0262	0.3507	0.0006
49	SLU 80	6.36	-0.02	23.23	-0.0792	0.3333	0.0002
49	SLU 81	6.48	-0.1	24.23	0.0258	0.3363	0.0006
49	SLU 82	6.04	-0.02	23.98	-0.0796	0.319	0.0002
49	SLU 83	6.78	-0.1	24.31	0.026	0.3507	0.0006
49	SLU 84	6.34	-0.02	24.05	-0.0795	0.3333	0.0002
49	SLE RA 1	4.1	-0.07	15.99	0.0201	0.2143	0.0004
49	SLE RA 2	3.61	0.02	15.71	-0.0971	0.195	0
49	SLE RA 3	4.31	-0.07	16.08	0.0205	0.2241	0.0004
49	SLE RA 4	4.01	-0.02	15.91	-0.0498	0.2125	0.0002
49	SLE RA 5	3.82	0.02	15.76	-0.097	0.2046	0
49	SLE RA 6	4.51	-0.07	16.13	0.0206	0.2336	0.0004
49	SLE RA 7	4.21	-0.02	15.96	-0.0497	0.2221	0.0002
49	SLE RA 8	4.51	-0.07	16.09	0.0203	0.2334	0.0004
49	SLE RA 9	4.21	-0.02	15.92	-0.05	0.2218	0.0002
49	SLE RA 10	4.06	0.02	17.1	-0.0972	0.2173	0
49	SLE RA 11	4.75	-0.07	17.47	0.0203	0.2464	0.0005
49	SLE RA 12	4.46	-0.02	17.3	-0.05	0.2349	0.0002
49	SLE RA 13	4.26	0.02	17.15	-0.0972	0.2269	0
49	SLE RA 14	4.95	-0.07	17.52	0.0204	0.256	0.0005
49	SLE RA 15	4.66	-0.02	17.35	-0.0499	0.2444	0.0002
49	SLE RA 16	4.95	-0.07	17.48	0.0201	0.2558	0.0005
49	SLE RA 17	4.66	-0.02	17.31	-0.0502	0.2442	0.0002
49	SLE RA 18	4.74	-0.07	17.97	0.0198	0.2462	0.0005
49	SLE RA 19	4.44	-0.02	17.8	-0.0505	0.2346	0.0002
49	SLE RA 20	4.94	-0.07	18.02	0.0199	0.2558	0.0005
49	SLE RA 21	4.65	-0.02	17.85	-0.0504	0.2442	0.0002
49	SLE FR 1	4.1	-0.07	15.99	0.0201	0.2143	0.0004
49	SLE FR 2	4.01	-0.05	15.93	-0.0033	0.2104	0.0003
49	SLE FR 3	4.18	-0.07	16.01	0.0201	0.2181	0.0004
49	SLE FR 4	4.2	-0.05	16.53	-0.0034	0.22	0.0004
49	SLE FR 5	4.37	-0.07	16.6	0.0201	0.2277	0.0004
49	SLE FR 6	4.42	-0.07	16.98	0.02	0.2302	0.0004
49	SLE QP 1	4.1	-0.07	15.99	0.0201	0.2143	0.0004
49	SLE QP 2	4.29	-0.07	16.58	0.02	0.2239	0.0004
49	SLD 1	18.59	0	16.87	-0.0656	0.8554	0.0001
49	SLD 2	18.59	0	16.87	-0.0656	0.8554	0.0001
49	SLD 3	17.56	-0.22	14.16	0.1847	0.8055	0.0013
49	SLD 4	17.56	-0.22	14.16	0.1847	0.8055	0.0013
49	SLD 5	10.15	0.27	20.78	-0.3854	0.489	-0.0013
49	SLD 6	10.15	0.27	20.78	-0.3854	0.489	-0.0013
49	SLD 7	6.71	-0.44	11.75	0.4491	0.3227	0.0024
49	SLD 8	6.71	-0.44	11.75	0.4491	0.3227	0.0024
49	SLD 9	1.88	0.3	21.42	-0.4091	0.125	-0.0015
49	SLD 10	1.88	0.3	21.42	-0.4091	0.125	-0.0015
49	SLD 11	-1.56	-0.42	12.39	0.4254	-0.0413	0.0022
49	SLD 12	-1.56	-0.42	12.39	0.4254	-0.0413	0.0022
49	SLD 13	-8.97	0.08	19.01	-0.1447	-0.3578	-0.0004
49	SLD 14	-8.97	0.08	19.01	-0.1447	-0.3578	-0.0004
49	SLD 15	-10.01	-0.14	16.3	0.1057	-0.4076	0.0007
49	SLD 16	-10.01	-0.14	16.3	0.1057	-0.4076	0.0007
49	SLV 1	37.05	0.09	17.35	-0.1935	1.6699	-0.0003
49	SLV 2	37.05	0.09	17.35	-0.1935	1.6699	-0.0003
49	SLV 3	34.62	-0.44	10.76	0.4335	1.553	0.0025
49	SLV 4	34.62	-0.44	10.76	0.4335	1.553	0.0025
49	SLV 5	17.8	0.79	26.8	-0.9951	0.8349	-0.004
49	SLV 6	17.8	0.79	26.8	-0.9951	0.8349	-0.004
49	SLV 7	9.71	-1	4.85	1.0952	0.4454	0.0052
49	SLV 8	9.71	-1	4.85	1.0952	0.4454	0.0052
49	SLV 9	-1.12	0.86	28.32	-1.0551	0.0024	-0.0044
49	SLV 10	-1.12	0.86	28.32	-1.0551	0.0024	-0.0044
49	SLV 11	-9.22	-0.93	6.37	1.0352	-0.3872	0.0049
49	SLV 12	-9.22	-0.93	6.37	1.0352	-0.3872	0.0049
49	SLV 13	-26.03	0.3	22.41	-0.3935	-1.1053	-0.0016
49	SLV 14	-26.03	0.3	22.41	-0.3935	-1.1053	-0.0016
49	SLV 15	-28.46	-0.23	15.82	0.2336	-1.2222	0.0012
49	SLV 16	-28.46	-0.23	15.82	0.2336	-1.2222	0.0012
50	SLU 1	3.43	-0.08	15.97	0.0293	0.1178	0.0004
50	SLU 2	2.87	0.08	15.63	-0.1665	0.0903	-0.0003
50	SLU 3	3.73	-0.08	16.1	0.0301	0.1297	0.0004
50	SLU 4	3.39	0.02	15.9	-0.0874	0.1132	0
50	SLU 5	3.17	0.08	15.7	-0.1663	0.1025	-0.0003
50	SLU 6	4.03	-0.08	16.17	0.0303	0.1418	0.0004
50	SLU 7	3.7	0.01	15.97	-0.0872	0.1253	0
50	SLU 8	4.03	-0.08	16.11	0.0297	0.1421	0.0004
50	SLU 9	3.7	0.02	15.91	-0.0878	0.1256	0
50	SLU 10	3.44	0.07	17.81	-0.1656	0.111	-0.0003
50	SLU 11	4.3	-0.08	18.29	0.031	0.1503	0.0005
50	SLU 12	3.97	0.01	18.08	-0.0865	0.1338	0
50	SLU 13	3.75	0.07	17.88	-0.1654	0.1231	-0.0003
50	SLU 14	4.61	-0.09	18.36	0.0312	0.1625	0.0005
50	SLU 15	4.27	0.01	18.15	-0.0863	0.146	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
50	SLU 16	4.61	-0.08	18.3	0.0306	0.1628	0.0005
50	SLU 17	4.27	0.01	18.09	-0.0869	0.1463	0
50	SLU 18	4.25	-0.09	19.09	0.0306	0.1473	0.0005
50	SLU 19	3.91	0.01	18.89	-0.0869	0.1308	0
50	SLU 20	4.55	-0.09	19.16	0.0308	0.1595	0.0005
50	SLU 21	4.22	0.01	18.96	-0.0867	0.143	0
50	SLU 22	4.04	-0.08	17.69	0.0307	0.14	0.0004
50	SLU 23	3.48	0.07	17.35	-0.1651	0.1125	-0.0003
50	SLU 24	4.34	-0.08	17.82	0.0315	0.1519	0.0005
50	SLU 25	4	0.01	17.62	-0.086	0.1354	0
50	SLU 26	3.78	0.07	17.42	-0.1649	0.1247	-0.0003
50	SLU 27	4.64	-0.09	17.9	0.0317	0.164	0.0005
50	SLU 28	4.31	0.01	17.69	-0.0858	0.1475	0
50	SLU 29	4.64	-0.08	17.83	0.0311	0.1643	0.0005
50	SLU 30	4.31	0.01	17.63	-0.0864	0.1478	0
50	SLU 31	4.05	0.07	19.54	-0.1642	0.1332	-0.0003
50	SLU 32	4.92	-0.09	20.01	0.0324	0.1725	0.0005
50	SLU 33	4.58	0	19.81	-0.0851	0.156	0
50	SLU 34	4.36	0.06	19.61	-0.164	0.1453	-0.0003
50	SLU 35	5.22	-0.09	20.08	0.0326	0.1847	0.0005
50	SLU 36	4.88	0	19.88	-0.0849	0.1682	0
50	SLU 37	5.22	-0.09	20.02	0.032	0.1849	0.0005
50	SLU 38	4.88	0	19.81	-0.0855	0.1685	0
50	SLU 39	4.86	-0.09	20.81	0.032	0.1695	0.0005
50	SLU 40	4.52	0	20.61	-0.0855	0.153	0
50	SLU 41	5.16	-0.09	20.88	0.0322	0.1817	0.0005
50	SLU 42	4.83	0	20.68	-0.0853	0.1652	0
50	SLU 43	4.24	-0.1	20.17	0.0376	0.1455	0.0005
50	SLU 44	3.68	0.06	19.83	-0.1582	0.1181	-0.0002
50	SLU 45	4.55	-0.1	20.3	0.0384	0.1574	0.0005
50	SLU 46	4.21	0	20.1	-0.0791	0.1409	0.0001
50	SLU 47	3.99	0.06	19.9	-0.158	0.1302	-0.0002
50	SLU 48	4.85	-0.1	20.37	0.0386	0.1695	0.0005
50	SLU 49	4.51	-0.01	20.17	-0.0789	0.1531	0.0001
50	SLU 50	4.85	-0.1	20.31	0.038	0.1698	0.0005
50	SLU 51	4.52	0	20.11	-0.0795	0.1533	0.0001
50	SLU 52	4.26	0.05	22.01	-0.1573	0.1387	-0.0002
50	SLU 53	5.12	-0.1	22.49	0.0393	0.178	0.0006
50	SLU 54	4.79	-0.01	22.28	-0.0782	0.1616	0.0001
50	SLU 55	4.56	0.05	22.08	-0.1571	0.1509	-0.0002
50	SLU 56	5.43	-0.11	22.56	0.0395	0.1902	0.0006
50	SLU 57	5.09	-0.01	22.35	-0.078	0.1737	0.0001
50	SLU 58	5.43	-0.1	22.5	0.0389	0.1905	0.0006
50	SLU 59	5.09	-0.01	22.29	-0.0786	0.174	0.0001
50	SLU 60	5.07	-0.11	23.29	0.0389	0.175	0.0006
50	SLU 61	4.73	-0.01	23.09	-0.0786	0.1586	0.0001
50	SLU 62	5.37	-0.11	23.36	0.0391	0.1872	0.0006
50	SLU 63	5.03	-0.01	23.16	-0.0784	0.1707	0.0001
50	SLU 64	4.85	-0.1	21.89	0.039	0.1677	0.0006
50	SLU 65	4.3	0.05	21.55	-0.1568	0.1403	-0.0002
50	SLU 66	5.16	-0.1	22.02	0.0398	0.1796	0.0006
50	SLU 67	4.82	-0.01	21.82	-0.0777	0.1631	0.0001
50	SLU 68	4.6	0.05	21.62	-0.1566	0.1524	-0.0002
50	SLU 69	5.46	-0.11	22.1	0.04	0.1917	0.0006
50	SLU 70	5.13	-0.01	21.89	-0.0775	0.1753	0.0001
50	SLU 71	5.46	-0.1	22.03	0.0394	0.192	0.0006
50	SLU 72	5.13	-0.01	21.83	-0.0781	0.1755	0.0001
50	SLU 73	4.87	0.05	23.74	-0.1559	0.1609	-0.0002
50	SLU 74	5.73	-0.11	24.21	0.0407	0.2002	0.0006
50	SLU 75	5.4	-0.02	24.01	-0.0768	0.1838	0.0001
50	SLU 76	5.18	0.04	23.81	-0.1557	0.1731	-0.0002
50	SLU 77	6.04	-0.11	24.28	0.0409	0.2124	0.0006
50	SLU 78	5.7	-0.02	24.08	-0.0766	0.1959	0.0002
50	SLU 79	6.04	-0.11	24.22	0.0403	0.2127	0.0006
50	SLU 80	5.7	-0.02	24.01	-0.0772	0.1962	0.0001
50	SLU 81	5.68	-0.11	25.01	0.0403	0.1972	0.0006
50	SLU 82	5.34	-0.02	24.81	-0.0772	0.1808	0.0002
50	SLU 83	5.98	-0.11	25.08	0.0405	0.2094	0.0006
50	SLU 84	5.65	-0.02	24.88	-0.077	0.1929	0.0002
50	SLE RA 1	3.6	-0.08	16.46	0.0297	0.1242	0.0004
50	SLE RA 2	3.23	0.03	16.23	-0.1008	0.1058	-0.0001
50	SLE RA 3	3.8	-0.08	16.55	0.0302	0.1321	0.0004
50	SLE RA 4	3.58	-0.02	16.41	-0.0481	0.1211	0.0001
50	SLE RA 5	3.43	0.03	16.28	-0.1007	0.1139	-0.0001
50	SLE RA 6	4	-0.08	16.6	0.0303	0.1401	0.0004
50	SLE RA 7	3.78	-0.02	16.46	-0.048	0.1292	0.0001
50	SLE RA 8	4	-0.08	16.55	0.03	0.1403	0.0004
50	SLE RA 9	3.78	-0.02	16.42	-0.0484	0.1294	0.0001
50	SLE RA 10	3.61	0.02	17.69	-0.1002	0.1196	-0.0001
50	SLE RA 11	4.19	-0.08	18.01	0.0308	0.1458	0.0004
50	SLE RA 12	3.96	-0.02	17.87	-0.0475	0.1348	0.0001
50	SLE RA 13	3.81	0.02	17.74	-0.1001	0.1277	-0.0001
50	SLE RA 14	4.39	-0.08	18.05	0.031	0.1539	0.0005
50	SLE RA 15	4.16	-0.02	17.92	-0.0474	0.1429	0.0001
50	SLE RA 16	4.39	-0.08	18.01	0.0306	0.1541	0.0004
50	SLE RA 17	4.17	-0.02	17.88	-0.0478	0.1431	0.0001
50	SLE RA 18	4.15	-0.08	18.54	0.0306	0.1438	0.0005
50	SLE RA 19	3.93	-0.02	18.41	-0.0478	0.1328	0.0001
50	SLE RA 20	4.35	-0.08	18.59	0.0307	0.1519	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
50	SLE RA 21	4.13	-0.02	18.45	-0.0476	0.1409	0.0002
50	SLE FR 1	3.6	-0.08	16.46	0.0297	0.1242	0.0004
50	SLE FR 2	3.53	-0.06	16.41	0.0036	0.1205	0.0003
50	SLE FR 3	3.68	-0.08	16.48	0.0297	0.1274	0.0004
50	SLE FR 4	3.69	-0.06	17.04	0.0038	0.1264	0.0003
50	SLE FR 5	3.85	-0.08	17.1	0.03	0.1333	0.0004
50	SLE FR 6	3.87	-0.08	17.5	0.0301	0.134	0.0004
50	SLE QP 1	3.6	-0.08	16.46	0.0297	0.1242	0.0004
50	SLE QP 2	3.76	-0.08	17.08	0.03	0.1301	0.0004
50	SLD 1	18.65	0.01	19.12	-0.0731	0.7583	0
50	SLD 2	18.65	0.01	19.12	-0.0731	0.7583	0
50	SLD 3	17.62	-0.24	16.16	0.2101	0.7157	0.0012
50	SLD 4	17.62	-0.24	16.16	0.2101	0.7157	0.0012
50	SLD 5	9.79	0.32	22.19	-0.4304	0.3832	-0.0015
50	SLD 6	9.79	0.32	22.19	-0.4304	0.3832	-0.0015
50	SLD 7	6.36	-0.5	12.31	0.5135	0.2411	0.0025
50	SLD 8	6.36	-0.5	12.31	0.5135	0.2411	0.0025
50	SLD 9	1.17	0.34	21.85	-0.4536	0.019	-0.0016
50	SLD 10	1.17	0.34	21.85	-0.4536	0.019	-0.0016
50	SLD 11	-2.26	-0.48	11.98	0.4903	-0.1231	0.0024
50	SLD 12	-2.26	-0.48	11.98	0.4903	-0.1231	0.0024
50	SLD 13	-10.09	0.08	18.01	-0.1502	-0.4556	-0.0004
50	SLD 14	-10.09	0.08	18.01	-0.1502	-0.4556	-0.0004
50	SLD 15	-11.12	-0.17	15.05	0.133	-0.4982	0.0008
50	SLD 16	-11.12	-0.17	15.05	0.133	-0.4982	0.0008
50	SLV 1	37.85	0.14	22.08	-0.2271	1.5695	-0.0006
50	SLV 2	37.85	0.14	22.08	-0.2271	1.5695	-0.0006
50	SLV 3	35.45	-0.48	14.81	0.4819	1.4693	0.0024
50	SLV 4	35.45	-0.48	14.81	0.4819	1.4693	0.0024
50	SLV 5	17.63	0.92	29.61	-1.1225	0.7139	-0.0045
50	SLV 6	17.63	0.92	29.61	-1.1225	0.7139	-0.0045
50	SLV 7	9.63	-1.13	5.38	1.2409	0.3798	0.0056
50	SLV 8	9.63	-1.13	5.38	1.2409	0.3798	0.0056
50	SLV 9	-2.1	0.98	28.79	-1.181	-0.1197	-0.0048
50	SLV 10	-2.1	0.98	28.79	-1.181	-0.1197	-0.0048
50	SLV 11	-10.1	-1.08	4.56	1.1824	-0.4538	0.0053
50	SLV 12	-10.1	-1.08	4.56	1.1824	-0.4538	0.0053
50	SLV 13	-27.92	0.32	19.36	-0.422	-1.2092	-0.0016
50	SLV 14	-27.92	0.32	19.36	-0.422	-1.2092	-0.0016
50	SLV 15	-30.32	-0.3	12.09	0.287	-1.3094	0.0015
50	SLV 16	-30.32	-0.3	12.09	0.287	-1.3094	0.0015
51	SLU 1	4.1	-0.1	16.9	0.0451	0.1919	0.0003
51	SLU 2	3.81	0.06	16.5	-0.1604	0.183	-0.0002
51	SLU 3	4.44	-0.1	17.06	0.0462	0.2073	0.0003
51	SLU 4	4.27	0	16.82	-0.0771	0.202	0
51	SLU 5	4.14	0.06	16.59	-0.1601	0.1981	-0.0002
51	SLU 6	4.77	-0.1	17.14	0.0465	0.2224	0.0003
51	SLU 7	4.6	-0.01	16.91	-0.0768	0.2171	0
51	SLU 8	4.77	-0.1	17.07	0.0457	0.2221	0.0003
51	SLU 9	4.59	0	16.84	-0.0776	0.2168	0
51	SLU 10	4.47	0.05	18.86	-0.1571	0.2128	-0.0002
51	SLU 11	5.1	-0.11	19.41	0.0495	0.2371	0.0004
51	SLU 12	4.92	-0.01	19.18	-0.0738	0.2317	0.0001
51	SLU 13	4.8	0.05	18.95	-0.1568	0.2279	-0.0002
51	SLU 14	5.43	-0.11	19.5	0.0498	0.2522	0.0004
51	SLU 15	5.25	-0.02	19.27	-0.0735	0.2469	0.0001
51	SLU 16	5.42	-0.11	19.43	0.049	0.2519	0.0004
51	SLU 17	5.25	-0.01	19.19	-0.0743	0.2465	0.0001
51	SLU 18	5.04	-0.11	20.27	0.0498	0.2345	0.0004
51	SLU 19	4.86	-0.02	20.03	-0.0735	0.2291	0.0001
51	SLU 20	5.37	-0.11	20.35	0.0501	0.2496	0.0004
51	SLU 21	5.2	-0.02	20.12	-0.0732	0.2442	0.0001
51	SLU 22	4.8	-0.11	18.76	0.0485	0.2238	0.0004
51	SLU 23	4.51	0.05	18.37	-0.157	0.2149	-0.0002
51	SLU 24	5.14	-0.11	18.92	0.0496	0.2392	0.0004
51	SLU 25	4.96	-0.01	18.68	-0.0737	0.2339	0.0001
51	SLU 26	4.84	0.05	18.45	-0.1567	0.23	-0.0002
51	SLU 27	5.47	-0.11	19.01	0.0499	0.2543	0.0004
51	SLU 28	5.29	-0.02	18.77	-0.0734	0.249	0.0001
51	SLU 29	5.46	-0.11	18.94	0.0491	0.254	0.0004
51	SLU 30	5.29	-0.01	18.7	-0.0742	0.2487	0.0001
51	SLU 31	5.16	0.04	20.72	-0.1537	0.2447	-0.0001
51	SLU 32	5.79	-0.12	21.28	0.0529	0.269	0.0004
51	SLU 33	5.62	-0.02	21.04	-0.0704	0.2637	0.0001
51	SLU 34	5.49	0.04	20.81	-0.1534	0.2598	-0.0001
51	SLU 35	6.12	-0.12	21.37	0.0532	0.2841	0.0004
51	SLU 36	5.95	-0.03	21.13	-0.0701	0.2788	0.0001
51	SLU 37	6.12	-0.12	21.29	0.0524	0.2838	0.0004
51	SLU 38	5.94	-0.02	21.06	-0.0709	0.2785	0.0001
51	SLU 39	5.73	-0.12	22.13	0.0532	0.2664	0.0004
51	SLU 40	5.56	-0.03	21.89	-0.0701	0.261	0.0001
51	SLU 41	6.07	-0.12	22.22	0.0535	0.2815	0.0004
51	SLU 42	5.89	-0.03	21.98	-0.0698	0.2761	0.0001
51	SLU 43	5.1	-0.13	21.33	0.0575	0.2385	0.0004
51	SLU 44	4.8	0.04	20.93	-0.148	0.2296	-0.0001
51	SLU 45	5.43	-0.13	21.49	0.0586	0.2539	0.0004
51	SLU 46	5.26	-0.03	21.25	-0.0647	0.2486	0.0001
51	SLU 47	5.14	0.04	21.02	-0.1477	0.2447	-0.0001
51	SLU 48	5.77	-0.13	21.57	0.0589	0.269	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
51	SLU 49	5.59	-0.03	21.34	-0.0644	0.2637	0.0001
51	SLU 50	5.76	-0.13	21.5	0.0581	0.2687	0.0004
51	SLU 51	5.58	-0.03	21.27	-0.0652	0.2634	0.0001
51	SLU 52	5.46	0.03	23.29	-0.1447	0.2594	-0.0001
51	SLU 53	6.09	-0.14	23.84	0.0619	0.2837	0.0005
51	SLU 54	5.91	-0.04	23.61	-0.0614	0.2784	0.0001
51	SLU 55	5.79	0.03	23.38	-0.1444	0.2745	-0.0001
51	SLU 56	6.42	-0.14	23.93	0.0622	0.2988	0.0005
51	SLU 57	6.24	-0.04	23.7	-0.0611	0.2935	0.0001
51	SLU 58	6.42	-0.14	23.86	0.0614	0.2985	0.0005
51	SLU 59	6.24	-0.04	23.62	-0.0619	0.2932	0.0001
51	SLU 60	6.03	-0.14	24.7	0.0622	0.2811	0.0005
51	SLU 61	5.86	-0.04	24.46	-0.0611	0.2757	0.0001
51	SLU 62	6.36	-0.14	24.78	0.0625	0.2962	0.0005
51	SLU 63	6.19	-0.04	24.55	-0.0608	0.2908	0.0001
51	SLU 64	5.79	-0.14	23.19	0.0609	0.2704	0.0004
51	SLU 65	5.5	0.03	22.8	-0.1446	0.2615	-0.0001
51	SLU 66	6.13	-0.14	23.35	0.062	0.2858	0.0005
51	SLU 67	5.95	-0.04	23.11	-0.0613	0.2805	0.0001
51	SLU 68	5.83	0.03	22.88	-0.1443	0.2766	-0.0001
51	SLU 69	6.46	-0.14	23.44	0.0623	0.3009	0.0005
51	SLU 70	6.29	-0.04	23.2	-0.061	0.2956	0.0001
51	SLU 71	6.46	-0.14	23.37	0.0615	0.3006	0.0005
51	SLU 72	6.28	-0.04	23.13	-0.0618	0.2953	0.0001
51	SLU 73	6.15	0.02	25.15	-0.1413	0.2913	0
51	SLU 74	6.78	-0.15	25.71	0.0653	0.3156	0.0005
51	SLU 75	6.61	-0.05	25.47	-0.058	0.3103	0.0002
51	SLU 76	6.49	0.02	25.24	-0.141	0.3064	0
51	SLU 77	7.12	-0.15	25.8	0.0656	0.3307	0.0005
51	SLU 78	6.94	-0.05	25.56	-0.0577	0.3254	0.0002
51	SLU 79	7.11	-0.15	25.72	0.0648	0.3304	0.0005
51	SLU 80	6.93	-0.05	25.49	-0.0585	0.3251	0.0002
51	SLU 81	6.73	-0.15	26.56	0.0656	0.313	0.0005
51	SLU 82	6.55	-0.05	26.32	-0.0577	0.3076	0.0002
51	SLU 83	7.06	-0.15	26.65	0.0659	0.3281	0.0005
51	SLU 84	6.88	-0.05	26.41	-0.0574	0.3227	0.0002
51	SLE RA 1	4.3	-0.1	17.43	0.0461	0.201	0.0003
51	SLE RA 2	4.11	0.01	17.17	-0.0909	0.1951	0
51	SLE RA 3	4.53	-0.1	17.54	0.0468	0.2113	0.0003
51	SLE RA 4	4.41	-0.04	17.38	-0.0354	0.2077	0.0001
51	SLE RA 5	4.33	0.01	17.23	-0.0907	0.2051	0
51	SLE RA 6	4.75	-0.1	17.59	0.047	0.2213	0.0003
51	SLE RA 7	4.63	-0.04	17.44	-0.0352	0.2178	0.0001
51	SLE RA 8	4.75	-0.1	17.55	0.0465	0.2211	0.0003
51	SLE RA 9	4.63	-0.04	17.39	-0.0357	0.2176	0.0001
51	SLE RA 10	4.54	0	18.74	-0.0887	0.2149	0
51	SLE RA 11	4.96	-0.11	19.11	0.049	0.2311	0.0004
51	SLE RA 12	4.85	-0.05	18.95	-0.0332	0.2276	0.0002
51	SLE RA 13	4.77	0	18.8	-0.0885	0.225	0
51	SLE RA 14	5.19	-0.11	19.17	0.0492	0.2412	0.0004
51	SLE RA 15	5.07	-0.05	19.01	-0.033	0.2376	0.0002
51	SLE RA 16	5.18	-0.11	19.12	0.0487	0.241	0.0004
51	SLE RA 17	5.06	-0.05	18.96	-0.0335	0.2374	0.0002
51	SLE RA 18	4.93	-0.11	19.68	0.0492	0.2294	0.0004
51	SLE RA 19	4.81	-0.05	19.52	-0.033	0.2258	0.0002
51	SLE RA 20	5.15	-0.11	19.73	0.0494	0.2395	0.0004
51	SLE RA 21	5.03	-0.05	19.58	-0.0328	0.2359	0.0002
51	SLE FR 1	4.3	-0.1	17.43	0.0461	0.201	0.0003
51	SLE FR 2	4.26	-0.08	17.38	0.0187	0.1998	0.0003
51	SLE FR 3	4.39	-0.1	17.45	0.0462	0.205	0.0003
51	SLE FR 4	4.45	-0.08	18.05	0.0197	0.2083	0.0003
51	SLE FR 5	4.58	-0.1	18.13	0.0471	0.2135	0.0003
51	SLE FR 6	4.61	-0.11	18.55	0.0477	0.2152	0.0004
51	SLE QP 1	4.3	-0.1	17.43	0.0461	0.201	0.0003
51	SLE QP 2	4.49	-0.1	18.1	0.0471	0.2095	0.0003
51	SLD 1	19.99	-0.01	20.99	-0.0648	0.8839	0
51	SLD 2	19.99	-0.01	20.99	-0.0648	0.8839	0
51	SLD 3	18.86	-0.27	17.95	0.2378	0.8325	0.0009
51	SLD 4	18.86	-0.27	17.95	0.2378	0.8325	0.0009
51	SLD 5	10.86	0.33	23.59	-0.4455	0.4899	-0.0011
51	SLD 6	10.86	0.33	23.59	-0.4455	0.4899	-0.0011
51	SLD 7	7.08	-0.56	13.44	0.5633	0.3184	0.0018
51	SLD 8	7.08	-0.56	13.44	0.5633	0.3184	0.0018
51	SLD 9	1.9	0.35	22.77	-0.4692	0.1007	-0.0011
51	SLD 10	1.9	0.35	22.77	-0.4692	0.1007	-0.0011
51	SLD 11	-1.88	-0.54	12.62	0.5396	-0.0708	0.0017
51	SLD 12	-1.88	-0.54	12.62	0.5396	-0.0708	0.0017
51	SLD 13	-9.88	0.06	18.26	-0.1437	-0.4134	-0.0002
51	SLD 14	-9.88	0.06	18.26	-0.1437	-0.4134	-0.0002
51	SLD 15	-11.01	-0.2	15.22	0.1589	-0.4649	0.0007
51	SLD 16	-11.01	-0.2	15.22	0.1589	-0.4649	0.0007
51	SLV 1	39.97	0.14	24.98	-0.233	1.7525	-0.0004
51	SLV 2	39.97	0.14	24.98	-0.233	1.7525	-0.0004
51	SLV 3	37.35	-0.52	17.49	0.5245	1.6342	0.0017
51	SLV 4	37.35	-0.52	17.49	0.5245	1.6342	0.0017
51	SLV 5	19.11	0.98	31.52	-1.1858	0.8519	-0.0031
51	SLV 6	19.11	0.98	31.52	-1.1858	0.8519	-0.0031
51	SLV 7	10.37	-1.24	6.57	1.3391	0.4574	0.004
51	SLV 8	10.37	-1.24	6.57	1.3391	0.4574	0.004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
51	SLV 9	-1.39	1.03	29.64	-1.245	-0.0384	-0.0033
51	SLV 10	-1.39	1.03	29.64	-1.245	-0.0384	-0.0033
51	SLV 11	-10.13	-1.19	4.69	1.2799	-0.4329	0.0038
51	SLV 12	-10.13	-1.19	4.69	1.2799	-0.4329	0.0038
51	SLV 13	-28.37	0.31	18.71	-0.4303	-1.2152	-0.001
51	SLV 14	-28.37	0.31	18.71	-0.4303	-1.2152	-0.001
51	SLV 15	-30.99	-0.35	11.23	0.3271	-1.3335	0.0011
51	SLV 16	-30.99	-0.35	11.23	0.3271	-1.3335	0.0011
52	SLU 1	3.81	-0.14	18.49	0.0681	0.1407	0.0001
52	SLU 2	3.7	0.02	17.9	-0.1366	0.1345	-0.0001
52	SLU 3	4.13	-0.14	18.69	0.0696	0.1534	0.0001
52	SLU 4	4.06	-0.05	18.33	-0.0532	0.1497	0
52	SLU 5	4.01	0.02	18.01	-0.1361	0.1472	-0.0001
52	SLU 6	4.44	-0.14	18.8	0.0701	0.1661	0.0001
52	SLU 7	4.37	-0.05	18.44	-0.0528	0.1624	0
52	SLU 8	4.44	-0.14	18.71	0.069	0.1661	0.0001
52	SLU 9	4.37	-0.05	18.36	-0.0538	0.1624	0
52	SLU 10	4.31	0	20.53	-0.1297	0.1574	-0.0001
52	SLU 11	4.74	-0.16	21.32	0.0765	0.1763	0.0002
52	SLU 12	4.67	-0.06	20.97	-0.0463	0.1726	0
52	SLU 13	4.62	0	20.64	-0.1293	0.1701	-0.0001
52	SLU 14	5.05	-0.16	21.43	0.0769	0.189	0.0002
52	SLU 15	4.98	-0.07	21.08	-0.0459	0.1853	0
52	SLU 16	5.04	-0.16	21.35	0.0758	0.189	0.0002
52	SLU 17	4.98	-0.06	20.99	-0.047	0.1853	0
52	SLU 18	4.68	-0.16	22.25	0.0779	0.1734	0.0002
52	SLU 19	4.61	-0.07	21.9	-0.0449	0.1697	0
52	SLU 20	4.99	-0.16	22.36	0.0784	0.1861	0.0002
52	SLU 21	4.92	-0.07	22.01	-0.0444	0.1824	0
52	SLU 22	4.45	-0.16	20.59	0.0746	0.165	0.0002
52	SLU 23	4.34	0	20	-0.1301	0.1588	-0.0001
52	SLU 24	4.77	-0.16	20.79	0.0761	0.1777	0.0002
52	SLU 25	4.7	-0.06	20.43	-0.0467	0.174	0
52	SLU 26	4.65	0	20.11	-0.1297	0.1715	-0.0001
52	SLU 27	5.08	-0.16	20.9	0.0765	0.1904	0.0002
52	SLU 28	5.01	-0.06	20.54	-0.0463	0.1867	0
52	SLU 29	5.07	-0.16	20.81	0.0754	0.1904	0.0002
52	SLU 30	5.01	-0.06	20.45	-0.0474	0.1866	0
52	SLU 31	4.95	-0.01	22.63	-0.1232	0.1817	-0.0001
52	SLU 32	5.37	-0.18	23.42	0.083	0.2006	0.0002
52	SLU 33	5.31	-0.08	23.07	-0.0398	0.1969	0
52	SLU 34	5.26	-0.01	22.74	-0.1228	0.1944	-0.0001
52	SLU 35	5.68	-0.18	23.53	0.0834	0.2133	0.0002
52	SLU 36	5.62	-0.08	23.18	-0.0394	0.2096	0
52	SLU 37	5.68	-0.17	23.44	0.0823	0.2133	0.0002
52	SLU 38	5.61	-0.08	23.09	-0.0405	0.2095	0
52	SLU 39	5.32	-0.18	24.35	0.0844	0.1977	0.0002
52	SLU 40	5.25	-0.08	24	-0.0384	0.194	0
52	SLU 41	5.63	-0.18	24.46	0.0849	0.2104	0.0002
52	SLU 42	5.56	-0.09	24.11	-0.038	0.2067	0
52	SLU 43	4.74	-0.18	23.32	0.0863	0.1746	0.0002
52	SLU 44	4.63	-0.02	22.73	-0.1184	0.1684	0
52	SLU 45	5.05	-0.18	23.52	0.0878	0.1873	0.0002
52	SLU 46	4.99	-0.08	23.16	-0.035	0.1836	0
52	SLU 47	4.94	-0.02	22.84	-0.1179	0.1811	0
52	SLU 48	5.37	-0.18	23.63	0.0883	0.2	0.0002
52	SLU 49	5.3	-0.09	23.27	-0.0345	0.1963	0
52	SLU 50	5.36	-0.18	23.54	0.0872	0.2	0.0002
52	SLU 51	5.29	-0.08	23.18	-0.0356	0.1963	0
52	SLU 52	5.23	-0.03	25.36	-0.1115	0.1913	0
52	SLU 53	5.66	-0.2	26.15	0.0947	0.2102	0.0002
52	SLU 54	5.59	-0.1	25.8	-0.0281	0.2065	0.0001
52	SLU 55	5.54	-0.04	25.47	-0.111	0.204	0
52	SLU 56	5.97	-0.2	26.26	0.0952	0.2229	0.0002
52	SLU 57	5.91	-0.1	25.91	-0.0277	0.2192	0.0001
52	SLU 58	5.97	-0.2	26.17	0.0941	0.2229	0.0002
52	SLU 59	5.9	-0.1	25.82	-0.0287	0.2192	0.0001
52	SLU 60	5.6	-0.2	27.08	0.0962	0.2073	0.0002
52	SLU 61	5.54	-0.11	26.73	-0.0266	0.2036	0.0001
52	SLU 62	5.92	-0.2	27.19	0.0966	0.22	0.0002
52	SLU 63	5.85	-0.11	26.84	-0.0262	0.2163	0.0001
52	SLU 64	5.38	-0.19	25.42	0.0928	0.1989	0.0002
52	SLU 65	5.26	-0.03	24.82	-0.1119	0.1927	0
52	SLU 66	5.69	-0.2	25.61	0.0943	0.2116	0.0002
52	SLU 67	5.63	-0.1	25.26	-0.0285	0.2079	0.0001
52	SLU 68	5.58	-0.03	24.93	-0.1115	0.2053	0
52	SLU 69	6	-0.2	25.72	0.0947	0.2243	0.0002
52	SLU 70	5.94	-0.1	25.37	-0.0281	0.2205	0.0001
52	SLU 71	6	-0.19	25.64	0.0936	0.2243	0.0002
52	SLU 72	5.93	-0.1	25.28	-0.0292	0.2205	0.0001
52	SLU 73	5.87	-0.05	27.46	-0.105	0.2156	0
52	SLU 74	6.3	-0.21	28.25	0.1012	0.2345	0.0002
52	SLU 75	6.23	-0.12	27.89	-0.0216	0.2308	0.0001
52	SLU 76	6.18	-0.05	27.57	-0.1046	0.2283	0
52	SLU 77	6.61	-0.21	28.36	0.1016	0.2472	0.0002
52	SLU 78	6.54	-0.12	28	-0.0212	0.2435	0.0001
52	SLU 79	6.6	-0.21	28.27	0.1005	0.2472	0.0002
52	SLU 80	6.54	-0.12	27.92	-0.0223	0.2434	0.0001
52	SLU 81	6.24	-0.22	29.18	0.1026	0.2316	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
52	SLU 82	6.18	-0.12	28.83	-0.0202	0.2279	0.0001
52	SLU 83	6.55	-0.22	29.29	0.1031	0.2443	0.0002
52	SLU 84	6.49	-0.12	28.94	-0.0197	0.2406	0.0001
52	SLE RA 1	4	-0.14	19.09	0.07	0.1476	0.0001
52	SLE RA 2	3.92	-0.04	18.7	-0.0665	0.1435	0
52	SLE RA 3	4.21	-0.15	19.22	0.071	0.1561	0.0001
52	SLE RA 4	4.16	-0.08	18.99	-0.0109	0.1536	0.0001
52	SLE RA 5	4.13	-0.04	18.77	-0.0662	0.152	0
52	SLE RA 6	4.41	-0.15	19.29	0.0713	0.1646	0.0001
52	SLE RA 7	4.37	-0.08	19.06	-0.0106	0.1621	0.0001
52	SLE RA 8	4.41	-0.15	19.24	0.0705	0.1646	0.0001
52	SLE RA 9	4.37	-0.08	19	-0.0113	0.1621	0.0001
52	SLE RA 10	4.33	-0.05	20.45	-0.0619	0.1588	0
52	SLE RA 11	4.61	-0.16	20.98	0.0756	0.1714	0.0002
52	SLE RA 12	4.57	-0.09	20.74	-0.0063	0.1689	0.0001
52	SLE RA 13	4.53	-0.05	20.53	-0.0616	0.1672	0
52	SLE RA 14	4.82	-0.16	21.05	0.0758	0.1799	0.0002
52	SLE RA 15	4.77	-0.09	20.82	-0.006	0.1774	0.0001
52	SLE RA 16	4.81	-0.16	20.99	0.0751	0.1798	0.0002
52	SLE RA 17	4.77	-0.09	20.76	-0.0068	0.1774	0.0001
52	SLE RA 18	4.57	-0.16	21.6	0.0765	0.1695	0.0002
52	SLE RA 19	4.53	-0.1	21.36	-0.0054	0.167	0.0001
52	SLE RA 20	4.78	-0.16	21.67	0.0768	0.1779	0.0002
52	SLE RA 21	4.74	-0.1	21.44	-0.0051	0.1754	0.0001
52	SLE FR 1	4	-0.14	19.09	0.07	0.1476	0.0001
52	SLE FR 2	3.98	-0.12	19.01	0.0427	0.1468	0.0001
52	SLE FR 3	4.08	-0.14	19.12	0.0701	0.151	0.0001
52	SLE FR 4	4.15	-0.13	19.76	0.0446	0.1534	0.0001
52	SLE FR 5	4.25	-0.15	19.87	0.072	0.1576	0.0001
52	SLE FR 6	4.28	-0.15	20.34	0.0732	0.1586	0.0001
52	SLE QP 1	4	-0.14	19.09	0.07	0.1476	0.0001
52	SLE QP 2	4.17	-0.15	19.84	0.0719	0.1542	0.0001
52	SLD 1	19.29	-0.05	23.99	-0.0405	0.7967	-0.0001
52	SLD 2	19.29	-0.05	23.99	-0.0405	0.7967	-0.0001
52	SLD 3	18.19	-0.32	21.03	0.2675	0.7522	0.0003
52	SLD 4	18.19	-0.32	21.03	0.2675	0.7522	0.0003
52	SLD 5	10.39	0.29	25.58	-0.429	0.4143	-0.0005
52	SLD 6	10.39	0.29	25.58	-0.429	0.4143	-0.0005
52	SLD 7	6.69	-0.62	15.71	0.5978	0.2662	0.0007
52	SLD 8	6.69	-0.62	15.71	0.5978	0.2662	0.0007
52	SLD 9	1.64	0.32	23.98	-0.454	0.0422	-0.0004
52	SLD 10	1.64	0.32	23.98	-0.454	0.0422	-0.0004
52	SLD 11	-2.05	-0.59	14.11	0.5729	-0.106	0.0008
52	SLD 12	-2.05	-0.59	14.11	0.5729	-0.106	0.0008
52	SLD 13	-9.85	0.03	18.66	-0.1237	-0.4438	0
52	SLD 14	-9.85	0.03	18.66	-0.1237	-0.4438	0
52	SLD 15	-10.96	-0.25	15.7	0.1844	-0.4883	0.0004
52	SLD 16	-10.96	-0.25	15.7	0.1844	-0.4883	0.0004
52	SLV 1	38.78	0.1	29.56	-0.2108	1.6246	-0.0005
52	SLV 2	38.78	0.1	29.56	-0.2108	1.6246	-0.0005
52	SLV 3	36.24	-0.58	22.31	0.5598	1.5229	0.0004
52	SLV 4	36.24	-0.58	22.31	0.5598	1.5229	0.0004
52	SLV 5	18.4	0.96	33.76	-1.1815	0.7495	-0.0014
52	SLV 6	18.4	0.96	33.76	-1.1815	0.7495	-0.0014
52	SLV 7	9.94	-1.31	9.58	1.3869	0.4106	0.0016
52	SLV 8	9.94	-1.31	9.58	1.3869	0.4106	0.0016
52	SLV 9	-1.6	1.02	30.11	-1.2431	-0.1022	-0.0013
52	SLV 10	-1.6	1.02	30.11	-1.2431	-0.1022	-0.0013
52	SLV 11	-10.07	-1.26	5.92	1.3254	-0.4411	0.0017
52	SLV 12	-10.07	-1.26	5.92	1.3254	-0.4411	0.0017
52	SLV 13	-27.91	0.29	17.38	-0.4159	-1.2145	-0.0001
52	SLV 14	-27.91	0.29	17.38	-0.4159	-1.2145	-0.0001
52	SLV 15	-30.45	-0.39	10.12	0.3546	-1.3162	0.0008
52	SLV 16	-30.45	-0.39	10.12	0.3546	-1.3162	0.0008
53	SLU 1	3.91	-0.19	20.3	0.0947	0.1719	0
53	SLU 2	4.16	-0.04	19.45	-0.0989	0.1871	-0.0001
53	SLU 3	4.23	-0.19	20.53	0.0967	0.1864	0
53	SLU 4	4.38	-0.11	20.02	-0.0194	0.1955	-0.0001
53	SLU 5	4.47	-0.05	19.57	-0.0983	0.2013	-0.0001
53	SLU 6	4.54	-0.2	20.65	0.0973	0.2006	0
53	SLU 7	4.69	-0.11	20.14	-0.0188	0.2097	-0.0001
53	SLU 8	4.54	-0.19	20.54	0.0959	0.2004	0
53	SLU 9	4.69	-0.11	20.03	-0.0203	0.2095	-0.0001
53	SLU 10	4.75	-0.07	22.4	-0.0877	0.2123	-0.0001
53	SLU 11	4.82	-0.22	23.47	0.1079	0.2116	0
53	SLU 12	4.97	-0.13	22.96	-0.0083	0.2207	-0.0001
53	SLU 13	5.07	-0.07	22.52	-0.0872	0.2266	-0.0001
53	SLU 14	5.13	-0.22	23.59	0.1085	0.2259	-0.0001
53	SLU 15	5.28	-0.13	23.08	-0.0077	0.235	-0.0001
53	SLU 16	5.13	-0.22	23.48	0.107	0.2257	-0.0001
53	SLU 17	5.28	-0.13	22.98	-0.0091	0.2348	-0.0001
53	SLU 18	4.76	-0.23	24.51	0.1106	0.208	0
53	SLU 19	4.91	-0.14	24	-0.0055	0.2171	-0.0001
53	SLU 20	5.07	-0.23	24.63	0.1112	0.2222	-0.0001
53	SLU 21	5.22	-0.14	24.12	-0.0049	0.2313	-0.0001
53	SLU 22	4.54	-0.21	22.65	0.1048	0.1992	0
53	SLU 23	4.79	-0.07	21.8	-0.0888	0.2143	-0.0001
53	SLU 24	4.85	-0.22	22.88	0.1069	0.2136	0
53	SLU 25	5	-0.13	22.37	-0.0093	0.2227	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
53	SLU 26	5.1	-0.07	21.92	-0.0882	0.2286	-0.0001
53	SLU 27	5.16	-0.22	23	0.1074	0.2279	-0.0001
53	SLU 28	5.31	-0.13	22.49	-0.0087	0.237	-0.0001
53	SLU 29	5.16	-0.22	22.89	0.106	0.2277	-0.0001
53	SLU 30	5.31	-0.13	22.38	-0.0101	0.2368	-0.0001
53	SLU 31	5.38	-0.09	24.74	-0.0776	0.2396	-0.0001
53	SLU 32	5.44	-0.24	25.82	0.118	0.2389	-0.0001
53	SLU 33	5.59	-0.15	25.31	0.0018	0.2479	-0.0001
53	SLU 34	5.69	-0.09	24.86	-0.077	0.2538	-0.0001
53	SLU 35	5.75	-0.24	25.94	0.1186	0.2531	-0.0001
53	SLU 36	5.9	-0.16	25.43	0.0024	0.2622	-0.0001
53	SLU 37	5.75	-0.24	25.83	0.1171	0.2529	-0.0001
53	SLU 38	5.9	-0.15	25.32	0.001	0.262	-0.0001
53	SLU 39	5.38	-0.25	26.86	0.1207	0.2352	-0.0001
53	SLU 40	5.53	-0.16	26.35	0.0046	0.2443	-0.0001
53	SLU 41	5.69	-0.25	26.97	0.1213	0.2495	-0.0001
53	SLU 42	5.84	-0.16	26.46	0.0052	0.2586	-0.0001
53	SLU 43	4.88	-0.24	25.59	0.1197	0.2142	-0.0001
53	SLU 44	5.13	-0.09	24.74	-0.0739	0.2293	-0.0001
53	SLU 45	5.19	-0.24	25.82	0.1217	0.2286	-0.0001
53	SLU 46	5.34	-0.16	25.31	0.0055	0.2377	-0.0001
53	SLU 47	5.44	-0.1	24.86	-0.0733	0.2436	-0.0001
53	SLU 48	5.5	-0.25	25.94	0.1223	0.2429	-0.0001
53	SLU 49	5.65	-0.16	25.43	0.0061	0.252	-0.0001
53	SLU 50	5.5	-0.24	25.83	0.1208	0.2427	-0.0001
53	SLU 51	5.65	-0.16	25.32	0.0047	0.2518	-0.0001
53	SLU 52	5.72	-0.12	27.68	-0.0628	0.2546	-0.0001
53	SLU 53	5.78	-0.27	28.76	0.1328	0.2539	-0.0001
53	SLU 54	5.93	-0.18	28.25	0.0167	0.263	-0.0001
53	SLU 55	6.03	-0.12	27.8	-0.0622	0.2688	-0.0001
53	SLU 56	6.09	-0.27	28.88	0.1334	0.2681	-0.0001
53	SLU 57	6.24	-0.18	28.37	0.0173	0.2772	-0.0001
53	SLU 58	6.09	-0.27	28.77	0.132	0.2679	-0.0001
53	SLU 59	6.24	-0.18	28.26	0.0158	0.277	-0.0001
53	SLU 60	5.72	-0.27	29.79	0.1356	0.2502	-0.0001
53	SLU 61	5.87	-0.19	29.28	0.0194	0.2593	-0.0001
53	SLU 62	6.03	-0.28	29.91	0.1362	0.2645	-0.0001
53	SLU 63	6.18	-0.19	29.4	0.02	0.2736	-0.0001
53	SLU 64	5.5	-0.26	27.94	0.1298	0.2414	-0.0001
53	SLU 65	5.75	-0.12	27.09	-0.0638	0.2566	-0.0001
53	SLU 66	5.81	-0.27	28.17	0.1318	0.2559	-0.0001
53	SLU 67	5.96	-0.18	27.66	0.0156	0.2649	-0.0001
53	SLU 68	6.06	-0.12	27.21	-0.0632	0.2708	-0.0001
53	SLU 69	6.12	-0.27	28.29	0.1324	0.2701	-0.0001
53	SLU 70	6.27	-0.18	27.78	0.0162	0.2792	-0.0001
53	SLU 71	6.12	-0.26	28.18	0.131	0.2699	-0.0001
53	SLU 72	6.27	-0.18	27.67	0.0148	0.279	-0.0001
53	SLU 73	6.34	-0.14	30.03	-0.0527	0.2818	-0.0001
53	SLU 74	6.4	-0.29	31.11	0.1429	0.2811	-0.0001
53	SLU 75	6.55	-0.2	30.6	0.0268	0.2902	-0.0001
53	SLU 76	6.65	-0.14	30.15	-0.0521	0.296	-0.0001
53	SLU 77	6.71	-0.29	31.23	0.1435	0.2953	-0.0001
53	SLU 78	6.86	-0.2	30.72	0.0274	0.3044	-0.0001
53	SLU 79	6.71	-0.29	31.12	0.1421	0.2951	-0.0001
53	SLU 80	6.86	-0.2	30.61	0.0259	0.3042	-0.0001
53	SLU 81	6.34	-0.3	32.14	0.1457	0.2775	-0.0001
53	SLU 82	6.49	-0.21	31.63	0.0295	0.2866	-0.0001
53	SLU 83	6.65	-0.3	32.26	0.1463	0.2917	-0.0001
53	SLU 84	6.8	-0.21	31.75	0.0301	0.3008	-0.0001
53	SLE RA 1	4.09	-0.2	20.98	0.0976	0.1797	0
53	SLE RA 2	4.26	-0.1	20.41	-0.0315	0.1898	-0.0001
53	SLE RA 3	4.3	-0.2	21.13	0.099	0.1893	0
53	SLE RA 4	4.4	-0.14	20.79	0.0215	0.1954	-0.0001
53	SLE RA 5	4.47	-0.1	20.49	-0.0311	0.1993	-0.0001
53	SLE RA 6	4.51	-0.2	21.21	0.0993	0.1988	0
53	SLE RA 7	4.61	-0.14	20.87	0.0219	0.2049	-0.0001
53	SLE RA 8	4.51	-0.2	21.13	0.0984	0.1987	0
53	SLE RA 9	4.61	-0.14	20.79	0.021	0.2048	-0.0001
53	SLE RA 10	4.65	-0.12	22.37	-0.024	0.2066	-0.0001
53	SLE RA 11	4.7	-0.22	23.09	0.1064	0.2062	0
53	SLE RA 12	4.8	-0.16	22.75	0.0289	0.2122	-0.0001
53	SLE RA 13	4.86	-0.12	22.45	-0.0236	0.2161	-0.0001
53	SLE RA 14	4.9	-0.22	23.17	0.1068	0.2157	0
53	SLE RA 15	5	-0.16	22.83	0.0293	0.2217	-0.0001
53	SLE RA 16	4.9	-0.21	23.1	0.1058	0.2155	0
53	SLE RA 17	5	-0.16	22.76	0.0284	0.2216	-0.0001
53	SLE RA 18	4.65	-0.22	23.78	0.1082	0.2038	0
53	SLE RA 19	4.75	-0.16	23.44	0.0308	0.2098	-0.0001
53	SLE RA 20	4.86	-0.22	23.86	0.1086	0.2133	0
53	SLE RA 21	4.96	-0.16	23.52	0.0312	0.2193	-0.0001
53	SLE FR 1	4.09	-0.2	20.98	0.0976	0.1797	0
53	SLE FR 2	4.13	-0.18	20.86	0.0718	0.1817	-0.0001
53	SLE FR 3	4.17	-0.2	21.01	0.0978	0.1835	0
53	SLE FR 4	4.29	-0.18	21.7	0.075	0.1889	-0.0001
53	SLE FR 5	4.34	-0.2	21.85	0.1009	0.1907	0
53	SLE FR 6	4.37	-0.21	22.38	0.1029	0.1917	0
53	SLE QP 1	4.09	-0.2	20.98	0.0976	0.1797	0
53	SLE QP 2	4.26	-0.2	21.82	0.1008	0.1869	0
53	SLE D 1	19.1	-0.11	26.64	-0.0051	0.8422	-0.0002





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
53	SLD 2	19.1	-0.11	26.64	-0.0051	0.8422	-0.0002
53	SLD 3	17.95	-0.38	23.87	0.2936	0.7914	-0.0001
53	SLD 4	17.95	-0.38	23.87	0.2936	0.7914	-0.0001
53	SLD 5	10.46	0.23	27.46	-0.3839	0.4606	-0.0002
53	SLD 6	10.46	0.23	27.46	-0.3839	0.4606	-0.0002
53	SLD 7	6.62	-0.66	18.23	0.6115	0.2912	0.0001
53	SLD 8	6.62	-0.66	18.23	0.6115	0.2912	0.0001
53	SLD 9	1.9	0.25	25.4	-0.41	0.0826	-0.0002
53	SLD 10	1.9	0.25	25.4	-0.41	0.0826	-0.0002
53	SLD 11	-1.94	-0.63	16.17	0.5855	-0.0867	0.0001
53	SLD 12	-1.94	-0.63	16.17	0.5855	-0.0867	0.0001
53	SLD 13	-9.43	-0.03	19.76	-0.092	-0.4176	0
53	SLD 14	-9.43	-0.03	19.76	-0.092	-0.4176	0
53	SLD 15	-10.58	-0.29	16.99	0.2066	-0.4684	0.0001
53	SLD 16	-10.58	-0.29	16.99	0.2066	-0.4684	0.0001
53	SLV 1	38.21	0.02	33.04	-0.1664	1.6856	-0.0003
53	SLV 2	38.21	0.02	33.04	-0.1664	1.6856	-0.0003
53	SLV 3	35.59	-0.64	26.32	0.5801	1.5704	-0.0001
53	SLV 4	35.59	-0.64	26.32	0.5801	1.5704	-0.0001
53	SLV 5	18.41	0.87	35.38	-1.1116	0.8112	-0.0005
53	SLV 6	18.41	0.87	35.38	-1.1116	0.8112	-0.0005
53	SLV 7	9.7	-1.34	12.97	1.3768	0.4272	0.0003
53	SLV 8	9.7	-1.34	12.97	1.3768	0.4272	0.0003
53	SLV 9	-1.17	0.93	30.66	-1.1753	-0.0534	-0.0004
53	SLV 10	-1.17	0.93	30.66	-1.1753	-0.0534	-0.0004
53	SLV 11	-9.89	-1.28	8.25	1.3132	-0.4374	0.0004
53	SLV 12	-9.89	-1.28	8.25	1.3132	-0.4374	0.0004
53	SLV 13	-27.07	0.23	17.31	-0.3786	-1.1965	0
53	SLV 14	-27.07	0.23	17.31	-0.3786	-1.1965	0
53	SLV 15	-29.68	-0.43	10.59	0.368	-1.3117	0.0002
53	SLV 16	-29.68	-0.43	10.59	0.368	-1.3117	0.0002
54	SLU 1	3.41	-0.24	22.35	0.1186	0.1318	-0.0002
54	SLU 2	3.97	-0.11	21.29	-0.0544	0.1544	-0.0002
54	SLU 3	3.69	-0.24	22.6	0.1211	0.1436	-0.0002
54	SLU 4	4.03	-0.17	21.96	0.0173	0.1571	-0.0002
54	SLU 5	4.25	-0.11	21.41	-0.0536	0.166	-0.0002
54	SLU 6	3.97	-0.24	22.71	0.1218	0.1553	-0.0002
54	SLU 7	4.31	-0.17	22.08	0.018	0.1688	-0.0002
54	SLU 8	3.97	-0.24	22.57	0.1201	0.1552	-0.0002
54	SLU 9	4.3	-0.17	21.94	0.0163	0.1687	-0.0002
54	SLU 10	4.46	-0.15	24.57	-0.0393	0.1739	-0.0002
54	SLU 11	4.19	-0.27	25.87	0.1362	0.1632	-0.0002
54	SLU 12	4.52	-0.2	25.24	0.0323	0.1767	-0.0002
54	SLU 13	4.74	-0.15	24.68	-0.0386	0.1856	-0.0002
54	SLU 14	4.47	-0.28	25.98	0.1369	0.1749	-0.0002
54	SLU 15	4.8	-0.2	25.35	0.0331	0.1884	-0.0002
54	SLU 16	4.46	-0.27	25.84	0.1352	0.1748	-0.0002
54	SLU 17	4.8	-0.2	25.21	0.0314	0.1883	-0.0002
54	SLU 18	4.12	-0.28	27.02	0.1401	0.1598	-0.0002
54	SLU 19	4.45	-0.21	26.39	0.0363	0.1733	-0.0002
54	SLU 20	4.4	-0.28	27.14	0.1409	0.1715	-0.0002
54	SLU 21	4.73	-0.21	26.5	0.0371	0.185	-0.0002
54	SLU 22	3.93	-0.27	24.96	0.1321	0.1524	-0.0002
54	SLU 23	4.49	-0.14	23.9	-0.0409	0.175	-0.0002
54	SLU 24	4.21	-0.27	25.21	0.1346	0.1642	-0.0002
54	SLU 25	4.55	-0.2	24.57	0.0308	0.1777	-0.0002
54	SLU 26	4.77	-0.14	24.01	-0.0402	0.1867	-0.0002
54	SLU 27	4.49	-0.27	25.32	0.1353	0.1759	-0.0002
54	SLU 28	4.83	-0.2	24.68	0.0315	0.1894	-0.0002
54	SLU 29	4.48	-0.27	25.18	0.1336	0.1758	-0.0002
54	SLU 30	4.82	-0.19	24.55	0.0298	0.1893	-0.0002
54	SLU 31	4.98	-0.17	27.17	-0.0259	0.1945	-0.0002
54	SLU 32	4.71	-0.3	28.48	0.1496	0.1838	-0.0002
54	SLU 33	5.04	-0.23	27.84	0.0458	0.1973	-0.0002
54	SLU 34	5.26	-0.18	27.29	-0.0251	0.2062	-0.0002
54	SLU 35	4.99	-0.3	28.59	0.1504	0.1955	-0.0002
54	SLU 36	5.32	-0.23	27.96	0.0466	0.209	-0.0002
54	SLU 37	4.98	-0.3	28.45	0.1486	0.1954	-0.0002
54	SLU 38	5.32	-0.23	27.82	0.0448	0.2089	-0.0002
54	SLU 39	4.64	-0.31	29.63	0.1536	0.1804	-0.0002
54	SLU 40	4.97	-0.24	29	0.0498	0.1939	-0.0002
54	SLU 41	4.91	-0.31	29.74	0.1543	0.1921	-0.0002
54	SLU 42	5.25	-0.24	29.11	0.0505	0.2056	-0.0002
54	SLU 43	4.25	-0.3	28.16	0.1496	0.1643	-0.0002
54	SLU 44	4.81	-0.17	27.11	-0.0234	0.1868	-0.0002
54	SLU 45	4.54	-0.3	28.41	0.1521	0.1761	-0.0002
54	SLU 46	4.87	-0.23	27.78	0.0483	0.1896	-0.0002
54	SLU 47	5.09	-0.18	27.22	-0.0227	0.1985	-0.0002
54	SLU 48	4.81	-0.3	28.52	0.1528	0.1878	-0.0002
54	SLU 49	5.15	-0.23	27.89	0.049	0.2013	-0.0002
54	SLU 50	4.81	-0.3	28.38	0.1511	0.1877	-0.0002
54	SLU 51	5.15	-0.23	27.75	0.0473	0.2012	-0.0002
54	SLU 52	5.31	-0.21	30.38	-0.0084	0.2064	-0.0003
54	SLU 53	5.03	-0.33	31.68	0.1671	0.1957	-0.0002
54	SLU 54	5.37	-0.26	31.05	0.0633	0.2092	-0.0003
54	SLU 55	5.59	-0.21	30.49	-0.0076	0.2181	-0.0003
54	SLU 56	5.31	-0.34	31.79	0.1679	0.2074	-0.0003
54	SLU 57	5.65	-0.26	31.16	0.0641	0.2209	-0.0003
54	SLU 58	5.31	-0.33	31.65	0.1661	0.2073	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
54	SLU 59	5.64	-0.26	31.02	0.0623	0.2208	-0.0003
54	SLU 60	4.96	-0.34	32.84	0.1711	0.1923	-0.0003
54	SLU 61	5.3	-0.27	32.2	0.0673	0.2058	-0.0003
54	SLU 62	5.24	-0.35	32.95	0.1719	0.204	-0.0003
54	SLU 63	5.58	-0.27	32.31	0.068	0.2175	-0.0003
54	SLU 64	4.77	-0.33	30.77	0.1631	0.1849	-0.0002
54	SLU 65	5.33	-0.2	29.71	-0.0099	0.2074	-0.0003
54	SLU 66	5.05	-0.33	31.02	0.1655	0.1967	-0.0002
54	SLU 67	5.39	-0.26	30.38	0.0617	0.2102	-0.0003
54	SLU 68	5.61	-0.2	29.83	-0.0092	0.2191	-0.0003
54	SLU 69	5.33	-0.33	31.13	0.1663	0.2084	-0.0002
54	SLU 70	5.67	-0.26	30.5	0.0625	0.2219	-0.0003
54	SLU 71	5.33	-0.33	30.99	0.1645	0.2083	-0.0002
54	SLU 72	5.66	-0.26	30.36	0.0607	0.2218	-0.0003
54	SLU 73	5.83	-0.24	32.99	0.0051	0.227	-0.0003
54	SLU 74	5.55	-0.36	34.29	0.1806	0.2163	-0.0003
54	SLU 75	5.89	-0.29	33.66	0.0768	0.2298	-0.0003
54	SLU 76	6.11	-0.24	33.1	0.0059	0.2387	-0.0003
54	SLU 77	5.83	-0.37	34.4	0.1813	0.228	-0.0003
54	SLU 78	6.17	-0.29	33.77	0.0775	0.2415	-0.0003
54	SLU 79	5.82	-0.36	34.26	0.1796	0.2279	-0.0003
54	SLU 80	6.16	-0.29	33.63	0.0758	0.2414	-0.0003
54	SLU 81	5.48	-0.37	35.44	0.1846	0.2129	-0.0003
54	SLU 82	5.82	-0.3	34.81	0.0808	0.2264	-0.0003
54	SLU 83	5.76	-0.37	35.56	0.1853	0.2246	-0.0003
54	SLU 84	6.09	-0.3	34.92	0.0815	0.2381	-0.0003
54	SLE RA 1	3.56	-0.24	23.1	0.1225	0.1377	-0.0002
54	SLE RA 2	3.93	-0.16	22.39	0.0071	0.1527	-0.0002
54	SLE RA 3	3.75	-0.25	23.26	0.1241	0.1456	-0.0002
54	SLE RA 4	3.97	-0.2	22.84	0.0549	0.1546	-0.0002
54	SLE RA 5	4.12	-0.16	22.47	0.0076	0.1605	-0.0002
54	SLE RA 6	3.93	-0.25	23.34	0.1246	0.1534	-0.0002
54	SLE RA 7	4.16	-0.2	22.91	0.0554	0.1624	-0.0002
54	SLE RA 8	3.93	-0.25	23.25	0.1235	0.1533	-0.0002
54	SLE RA 9	4.15	-0.2	22.82	0.0543	0.1623	-0.0002
54	SLE RA 10	4.26	-0.18	24.57	0.0172	0.1658	-0.0002
54	SLE RA 11	4.08	-0.27	25.44	0.1342	0.1586	-0.0002
54	SLE RA 12	4.3	-0.22	25.02	0.065	0.1676	-0.0002
54	SLE RA 13	4.45	-0.19	24.65	0.0177	0.1736	-0.0002
54	SLE RA 14	4.26	-0.27	25.52	0.1347	0.1664	-0.0002
54	SLE RA 15	4.49	-0.22	25.09	0.0655	0.1754	-0.0002
54	SLE RA 16	4.26	-0.27	25.43	0.1335	0.1664	-0.0002
54	SLE RA 17	4.48	-0.22	25	0.0643	0.1754	-0.0002
54	SLE RA 18	4.03	-0.28	26.21	0.1368	0.1563	-0.0002
54	SLE RA 19	4.25	-0.23	25.79	0.0676	0.1654	-0.0002
54	SLE RA 20	4.21	-0.28	26.29	0.1373	0.1641	-0.0002
54	SLE RA 21	4.44	-0.23	25.86	0.0681	0.1732	-0.0002
54	SLE FR 1	3.56	-0.24	23.1	0.1225	0.1377	-0.0002
54	SLE FR 2	3.63	-0.23	22.96	0.0994	0.1407	-0.0002
54	SLE FR 3	3.63	-0.25	23.13	0.1227	0.1408	-0.0002
54	SLE FR 4	3.77	-0.24	23.89	0.1037	0.1463	-0.0002
54	SLE FR 5	3.77	-0.25	24.06	0.127	0.1464	-0.0002
54	SLE FR 6	3.79	-0.26	24.65	0.1296	0.147	-0.0002
54	SLE QP 1	3.56	-0.24	23.1	0.1225	0.1377	-0.0002
54	SLE QP 2	3.7	-0.25	24.03	0.1268	0.1433	-0.0002
54	SLD 1	17.83	-0.18	28.81	0.0336	0.7558	-0.0003
54	SLD 2	17.83	-0.18	28.81	0.0336	0.7558	-0.0003
54	SLD 3	16.71	-0.42	26.2	0.3077	0.7091	-0.0002
54	SLD 4	16.71	-0.42	26.2	0.3077	0.7091	-0.0002
54	SLD 5	9.64	0.14	29.42	-0.3169	0.3978	-0.0003
54	SLD 6	9.64	0.14	29.42	-0.3169	0.3978	-0.0003
54	SLD 7	5.9	-0.67	20.73	0.5968	0.2423	-0.0002
54	SLD 8	5.9	-0.67	20.73	0.5968	0.2423	-0.0002
54	SLD 9	1.5	0.16	27.34	-0.3432	0.0443	-0.0002
54	SLD 10	1.5	0.16	27.34	-0.3432	0.0443	-0.0002
54	SLD 11	-2.25	-0.65	18.64	0.5705	-0.1112	-0.0001
54	SLD 12	-2.25	-0.65	18.64	0.5705	-0.1112	-0.0001
54	SLD 13	-9.31	-0.09	21.86	-0.0541	-0.4225	-0.0001
54	SLD 14	-9.31	-0.09	21.86	-0.0541	-0.4225	-0.0001
54	SLD 15	-10.44	-0.33	19.25	0.22	-0.4691	-0.0001
54	SLD 16	-10.44	-0.33	19.25	0.22	-0.4691	-0.0001
54	SLV 1	36.03	-0.06	35.12	-0.1095	1.5447	-0.0004
54	SLV 2	36.03	-0.06	35.12	-0.1095	1.5447	-0.0004
54	SLV 3	33.48	-0.67	28.88	0.5753	1.4388	-0.0003
54	SLV 4	33.48	-0.67	28.88	0.5753	1.4388	-0.0003
54	SLV 5	17.26	0.72	36.82	-0.9827	0.7242	-0.0004
54	SLV 6	17.26	0.72	36.82	-0.9827	0.7242	-0.0004
54	SLV 7	8.77	-1.29	16.02	1.2999	0.3715	-0.0001
54	SLV 8	8.77	-1.29	16.02	1.2999	0.3715	-0.0001
54	SLV 9	-1.38	0.79	32.04	-1.0464	-0.0848	-0.0003
54	SLV 10	-1.38	0.79	32.04	-1.0464	-0.0848	-0.0003
54	SLV 11	-9.86	-1.23	11.24	1.2363	-0.4376	0
54	SLV 12	-9.86	-1.23	11.24	1.2363	-0.4376	0
54	SLV 13	-26.09	0.16	19.19	-0.3217	-1.1522	-0.0001
54	SLV 14	-26.09	0.16	19.19	-0.3217	-1.1522	-0.0001
54	SLV 15	-28.64	-0.45	12.95	0.3631	-1.258	0
54	SLV 16	-28.64	-0.45	12.95	0.3631	-1.258	0
55	SLU 1	2.99	-0.26	24.3	0.1325	0.1237	-0.0002
55	SLU 2	3.99	-0.17	23.18	-0.0119	0.1693	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
55	SLU 3	3.27	-0.27	24.55	0.1352	0.1362	-0.0002
55	SLU 4	3.86	-0.21	23.88	0.0486	0.1636	-0.0002
55	SLU 5	4.26	-0.17	23.26	-0.011	0.182	-0.0002
55	SLU 6	3.54	-0.27	24.63	0.136	0.149	-0.0002
55	SLU 7	4.14	-0.22	23.96	0.0494	0.1763	-0.0002
55	SLU 8	3.54	-0.27	24.46	0.1342	0.1492	-0.0002
55	SLU 9	4.14	-0.21	23.79	0.0476	0.1765	-0.0002
55	SLU 10	4.38	-0.21	26.75	0.0056	0.1851	-0.0003
55	SLU 11	3.66	-0.31	28.11	0.1527	0.152	-0.0003
55	SLU 12	4.26	-0.25	27.44	0.0661	0.1794	-0.0003
55	SLU 13	4.66	-0.21	26.83	0.0065	0.1978	-0.0003
55	SLU 14	3.94	-0.31	28.19	0.1536	0.1648	-0.0003
55	SLU 15	4.53	-0.25	27.52	0.067	0.1921	-0.0003
55	SLU 16	3.94	-0.3	28.03	0.1517	0.165	-0.0003
55	SLU 17	4.53	-0.25	27.36	0.0651	0.1923	-0.0003
55	SLU 18	3.56	-0.32	29.4	0.1575	0.1463	-0.0003
55	SLU 19	4.15	-0.26	28.72	0.0709	0.1736	-0.0003
55	SLU 20	3.83	-0.32	29.48	0.1584	0.159	-0.0003
55	SLU 21	4.43	-0.26	28.8	0.0717	0.1864	-0.0003
55	SLU 22	3.42	-0.3	27.13	0.148	0.1416	-0.0003
55	SLU 23	4.41	-0.2	26.01	0.0037	0.1872	-0.0003
55	SLU 24	3.69	-0.3	27.38	0.1508	0.1541	-0.0003
55	SLU 25	4.29	-0.25	26.71	0.0641	0.1815	-0.0003
55	SLU 26	4.69	-0.21	26.09	0.0045	0.1999	-0.0003
55	SLU 27	3.97	-0.3	27.46	0.1516	0.1669	-0.0003
55	SLU 28	4.56	-0.25	26.79	0.065	0.1942	-0.0003
55	SLU 29	3.97	-0.3	27.29	0.1497	0.1671	-0.0003
55	SLU 30	4.56	-0.24	26.62	0.0631	0.1944	-0.0003
55	SLU 31	4.81	-0.24	29.58	0.0212	0.203	-0.0003
55	SLU 32	4.09	-0.34	30.94	0.1683	0.17	-0.0003
55	SLU 33	4.69	-0.28	30.27	0.0817	0.1973	-0.0003
55	SLU 34	5.08	-0.24	29.66	0.0221	0.2157	-0.0003
55	SLU 35	4.36	-0.34	31.02	0.1691	0.1827	-0.0003
55	SLU 36	4.96	-0.28	30.35	0.0825	0.21	-0.0003
55	SLU 37	4.36	-0.34	30.86	0.1673	0.1829	-0.0003
55	SLU 38	4.96	-0.28	30.19	0.0806	0.2103	-0.0003
55	SLU 39	3.99	-0.35	32.23	0.1731	0.1642	-0.0003
55	SLU 40	4.58	-0.29	31.55	0.0865	0.1916	-0.0003
55	SLU 41	4.26	-0.35	32.31	0.1739	0.177	-0.0003
55	SLU 42	4.85	-0.3	31.63	0.0873	0.2043	-0.0003
55	SLU 43	3.75	-0.33	30.62	0.1669	0.1547	-0.0003
55	SLU 44	4.74	-0.24	29.5	0.0225	0.2002	-0.0003
55	SLU 45	4.02	-0.34	30.87	0.1696	0.1672	-0.0003
55	SLU 46	4.61	-0.28	30.2	0.083	0.1945	-0.0003
55	SLU 47	5.01	-0.24	29.58	0.0234	0.213	-0.0003
55	SLU 48	4.29	-0.34	30.95	0.1704	0.1799	-0.0003
55	SLU 49	4.89	-0.28	30.28	0.0838	0.2073	-0.0003
55	SLU 50	4.29	-0.34	30.78	0.1686	0.1801	-0.0003
55	SLU 51	4.89	-0.28	30.11	0.082	0.2075	-0.0003
55	SLU 52	5.13	-0.28	33.07	0.04	0.216	-0.0003
55	SLU 53	4.41	-0.37	34.43	0.1871	0.183	-0.0003
55	SLU 54	5.01	-0.32	33.76	0.1005	0.2103	-0.0003
55	SLU 55	5.41	-0.28	33.15	0.0409	0.2288	-0.0003
55	SLU 56	4.69	-0.38	34.51	0.188	0.1957	-0.0003
55	SLU 57	5.28	-0.32	33.84	0.1014	0.2231	-0.0003
55	SLU 58	4.69	-0.37	34.35	0.1861	0.196	-0.0003
55	SLU 59	5.28	-0.32	33.68	0.0995	0.2233	-0.0003
55	SLU 60	4.31	-0.38	35.72	0.1919	0.1773	-0.0003
55	SLU 61	4.91	-0.33	35.04	0.1053	0.2046	-0.0003
55	SLU 62	4.58	-0.39	35.8	0.1928	0.19	-0.0003
55	SLU 63	5.18	-0.33	35.12	0.1061	0.2173	-0.0003
55	SLU 64	4.17	-0.36	33.45	0.1824	0.1726	-0.0003
55	SLU 65	5.17	-0.27	32.33	0.0381	0.2182	-0.0003
55	SLU 66	4.45	-0.37	33.7	0.1852	0.1851	-0.0003
55	SLU 67	5.04	-0.31	33.03	0.0985	0.2124	-0.0003
55	SLU 68	5.44	-0.27	32.41	0.0389	0.2309	-0.0003
55	SLU 69	4.72	-0.37	33.78	0.186	0.1978	-0.0003
55	SLU 70	5.31	-0.32	33.11	0.0994	0.2252	-0.0003
55	SLU 71	4.72	-0.37	33.61	0.1841	0.1981	-0.0003
55	SLU 72	5.31	-0.31	32.94	0.0975	0.2254	-0.0003
55	SLU 73	5.56	-0.31	35.9	0.0556	0.234	-0.0004
55	SLU 74	4.84	-0.41	37.27	0.2027	0.2009	-0.0004
55	SLU 75	5.44	-0.35	36.59	0.1161	0.2283	-0.0004
55	SLU 76	5.83	-0.31	35.98	0.0565	0.2467	-0.0004
55	SLU 77	5.11	-0.41	37.34	0.2035	0.2137	-0.0004
55	SLU 78	5.71	-0.35	36.67	0.1169	0.241	-0.0004
55	SLU 79	5.11	-0.4	37.18	0.2017	0.2139	-0.0003
55	SLU 80	5.71	-0.35	36.51	0.115	0.2412	-0.0004
55	SLU 81	4.74	-0.42	38.55	0.2075	0.1952	-0.0004
55	SLU 82	5.33	-0.36	37.88	0.1209	0.2225	-0.0004
55	SLU 83	5.01	-0.42	38.63	0.2083	0.2079	-0.0004
55	SLU 84	5.61	-0.36	37.95	0.1217	0.2353	-0.0004
55	SLE RA 1	3.12	-0.27	25.11	0.1369	0.1288	-0.0002
55	SLE RA 2	3.78	-0.21	24.37	0.0407	0.1592	-0.0002
55	SLE RA 3	3.3	-0.28	25.28	0.1387	0.1372	-0.0002
55	SLE RA 4	3.7	-0.24	24.83	0.081	0.1554	-0.0002
55	SLE RA 5	3.96	-0.21	24.42	0.0412	0.1677	-0.0002
55	SLE RA 6	3.48	-0.28	25.33	0.1393	0.1457	-0.0002
55	SLE RA 7	3.88	-0.24	24.88	0.0816	0.1639	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
55	SLE RA 8	3.48	-0.28	25.22	0.138	0.1458	-0.0002
55	SLE RA 9	3.88	-0.24	24.77	0.0803	0.164	-0.0002
55	SLE RA 10	4.04	-0.24	26.74	0.0524	0.1697	-0.0003
55	SLE RA 11	3.56	-0.3	27.65	0.1504	0.1477	-0.0003
55	SLE RA 12	3.96	-0.26	27.2	0.0927	0.1659	-0.0003
55	SLE RA 13	4.22	-0.24	26.8	0.0529	0.1782	-0.0003
55	SLE RA 14	3.74	-0.3	27.71	0.151	0.1562	-0.0003
55	SLE RA 15	4.14	-0.27	27.26	0.0932	0.1744	-0.0003
55	SLE RA 16	3.74	-0.3	27.59	0.1497	0.1563	-0.0003
55	SLE RA 17	4.14	-0.26	27.15	0.092	0.1746	-0.0003
55	SLE RA 18	3.49	-0.31	28.51	0.1536	0.1439	-0.0003
55	SLE RA 19	3.89	-0.27	28.06	0.0959	0.1621	-0.0003
55	SLE RA 20	3.67	-0.31	28.56	0.1542	0.1524	-0.0003
55	SLE RA 21	4.07	-0.27	28.11	0.0964	0.1706	-0.0003
55	SLE FR 1	3.12	-0.27	25.11	0.1369	0.1288	-0.0002
55	SLE FR 2	3.25	-0.26	24.96	0.1177	0.1349	-0.0002
55	SLE FR 3	3.19	-0.27	25.13	0.1371	0.1322	-0.0002
55	SLE FR 4	3.36	-0.27	25.98	0.1227	0.1394	-0.0002
55	SLE FR 5	3.3	-0.28	26.15	0.1421	0.1367	-0.0002
55	SLE FR 6	3.3	-0.29	26.81	0.1453	0.1363	-0.0002
55	SLE QP 1	3.12	-0.27	25.11	0.1369	0.1288	-0.0002
55	SLE QP 2	3.23	-0.28	26.13	0.1419	0.1333	-0.0002
55	SLD 1	17.18	-0.43	30.26	0.0663	0.7558	-0.0003
55	SLD 2	17.18	-0.43	30.26	0.0663	0.7558	-0.0003
55	SLD 3	16	-0.23	27.68	0.3017	0.7045	-0.0003
55	SLD 4	16	-0.23	27.68	0.3017	0.7045	-0.0003
55	SLD 5	9.2	-0.63	31.29	-0.2378	0.3979	-0.0003
55	SLD 6	9.2	-0.63	31.29	-0.2378	0.3979	-0.0003
55	SLD 7	5.27	0.04	22.68	0.5469	0.2269	-0.0002
55	SLD 8	5.27	0.04	22.68	0.5469	0.2269	-0.0002
55	SLD 9	1.19	-0.61	29.59	-0.2631	0.0398	-0.0003
55	SLD 10	1.19	-0.61	29.59	-0.2631	0.0398	-0.0003
55	SLD 11	-2.75	0.07	20.97	0.5217	-0.1312	-0.0002
55	SLD 12	-2.75	0.07	20.97	0.5217	-0.1312	-0.0002
55	SLD 13	-9.54	-0.34	24.58	-0.0179	-0.4378	-0.0002
55	SLD 14	-9.54	-0.34	24.58	-0.0179	-0.4378	-0.0002
55	SLD 15	-10.72	-0.14	22	0.2175	-0.4891	-0.0002
55	SLD 16	-10.72	-0.14	22	0.2175	-0.4891	-0.0002
55	SLV 1	35.15	-0.64	35.69	-0.0506	1.5576	-0.0004
55	SLV 2	35.15	-0.64	35.69	-0.0506	1.5576	-0.0004
55	SLV 3	32.45	-0.14	29.62	0.5371	1.4404	-0.0003
55	SLV 4	32.45	-0.14	29.62	0.5371	1.4404	-0.0003
55	SLV 5	16.89	-1.15	38.21	-0.8073	0.7384	-0.0005
55	SLV 6	16.89	-1.15	38.21	-0.8073	0.7384	-0.0005
55	SLV 7	7.91	0.52	17.97	1.1519	0.3477	-0.0001
55	SLV 8	7.91	0.52	17.97	1.1519	0.3477	-0.0001
55	SLV 9	-1.46	-1.09	34.29	-0.8681	-0.081	-0.0004
55	SLV 10	-1.46	-1.09	34.29	-0.8681	-0.081	-0.0004
55	SLV 11	-10.43	0.58	14.06	1.0911	-0.4717	0
55	SLV 12	-10.43	0.58	14.06	1.0911	-0.4717	0
55	SLV 13	-26	-0.43	22.64	-0.2533	-1.1738	-0.0001
55	SLV 14	-26	-0.43	22.64	-0.2533	-1.1738	-0.0001
55	SLV 15	-28.69	0.07	16.57	0.3344	-1.291	0
55	SLV 16	-28.69	0.07	16.57	0.3344	-1.291	0
56	SLU 1	2.38	-0.26	26.31	0.1294	0.0939	-0.0002
56	SLU 2	3.67	-0.2	25.35	0.0193	0.1473	-0.0002
56	SLU 3	2.63	-0.26	26.54	0.1321	0.1046	-0.0002
56	SLU 4	3.4	-0.23	25.96	0.0661	0.1366	-0.0002
56	SLU 5	3.92	-0.2	25.38	0.0202	0.1582	-0.0002
56	SLU 6	2.88	-0.26	26.58	0.133	0.1154	-0.0002
56	SLU 7	3.65	-0.23	26	0.067	0.1474	-0.0002
56	SLU 8	2.88	-0.26	26.37	0.1312	0.1156	-0.0002
56	SLU 9	3.66	-0.23	25.8	0.0652	0.1477	-0.0002
56	SLU 10	3.96	-0.24	29.19	0.0368	0.159	-0.0003
56	SLU 11	2.91	-0.3	30.39	0.1496	0.1162	-0.0002
56	SLU 12	3.69	-0.27	29.81	0.0836	0.1482	-0.0002
56	SLU 13	4.21	-0.24	29.22	0.0377	0.1698	-0.0003
56	SLU 14	3.17	-0.3	30.42	0.1505	0.1271	-0.0002
56	SLU 15	3.94	-0.27	29.84	0.0845	0.1591	-0.0003
56	SLU 16	3.17	-0.3	30.22	0.1487	0.1273	-0.0002
56	SLU 17	3.95	-0.26	29.64	0.0827	0.1593	-0.0002
56	SLU 18	2.79	-0.31	31.8	0.1544	0.1106	-0.0002
56	SLU 19	3.56	-0.28	31.22	0.0884	0.1426	-0.0003
56	SLU 20	3.04	-0.31	31.83	0.1553	0.1214	-0.0002
56	SLU 21	3.82	-0.28	31.25	0.0893	0.1535	-0.0003
56	SLU 22	2.7	-0.29	29.34	0.1449	0.107	-0.0002
56	SLU 23	3.99	-0.23	28.38	0.0348	0.1604	-0.0003
56	SLU 24	2.94	-0.29	29.58	0.1476	0.1176	-0.0002
56	SLU 25	3.72	-0.26	29	0.0816	0.1497	-0.0002
56	SLU 26	4.24	-0.24	28.41	0.0357	0.1712	-0.0003
56	SLU 27	3.2	-0.3	29.61	0.1485	0.1285	-0.0002
56	SLU 28	3.97	-0.26	29.03	0.0825	0.1605	-0.0002
56	SLU 29	3.2	-0.29	29.41	0.1467	0.1287	-0.0002
56	SLU 30	3.98	-0.26	28.83	0.0807	0.1607	-0.0002
56	SLU 31	4.28	-0.27	32.22	0.0523	0.172	-0.0003
56	SLU 32	3.23	-0.33	33.42	0.1651	0.1293	-0.0002
56	SLU 33	4.01	-0.3	32.84	0.0991	0.1613	-0.0003
56	SLU 34	4.53	-0.27	32.26	0.0532	0.1829	-0.0003
56	SLU 35	3.48	-0.33	33.45	0.166	0.1401	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
56	SLU 36	4.26	-0.3	32.87	0.1	0.1722	-0.0003
56	SLU 37	3.49	-0.33	33.25	0.1642	0.1404	-0.0002
56	SLU 38	4.26	-0.3	32.67	0.0982	0.1724	-0.0003
56	SLU 39	3.11	-0.34	34.83	0.1699	0.1236	-0.0002
56	SLU 40	3.88	-0.31	34.26	0.1039	0.1557	-0.0003
56	SLU 41	3.36	-0.34	34.87	0.1708	0.1345	-0.0002
56	SLU 42	4.14	-0.31	34.29	0.1048	0.1665	-0.0003
56	SLU 43	2.98	-0.32	33.16	0.1629	0.1176	-0.0002
56	SLU 44	4.28	-0.27	32.2	0.0528	0.171	-0.0003
56	SLU 45	3.23	-0.33	33.4	0.1656	0.1283	-0.0002
56	SLU 46	4.01	-0.3	32.82	0.0996	0.1603	-0.0003
56	SLU 47	4.53	-0.27	32.23	0.0537	0.1819	-0.0003
56	SLU 48	3.48	-0.33	33.43	0.1665	0.1391	-0.0002
56	SLU 49	4.26	-0.3	32.85	0.1005	0.1711	-0.0003
56	SLU 50	3.49	-0.33	33.23	0.1647	0.1393	-0.0002
56	SLU 51	4.26	-0.29	32.65	0.0987	0.1714	-0.0003
56	SLU 52	4.56	-0.3	36.04	0.0703	0.1827	-0.0003
56	SLU 53	3.52	-0.36	37.24	0.1831	0.1399	-0.0003
56	SLU 54	4.29	-0.33	36.66	0.1171	0.1719	-0.0003
56	SLU 55	4.82	-0.31	36.07	0.0712	0.1935	-0.0003
56	SLU 56	3.77	-0.37	37.27	0.184	0.1508	-0.0003
56	SLU 57	4.55	-0.33	36.69	0.118	0.1828	-0.0003
56	SLU 58	3.77	-0.36	37.07	0.1822	0.151	-0.0003
56	SLU 59	4.55	-0.33	36.49	0.1162	0.183	-0.0003
56	SLU 60	3.39	-0.37	38.65	0.1879	0.1343	-0.0003
56	SLU 61	4.17	-0.34	38.07	0.1219	0.1663	-0.0003
56	SLU 62	3.64	-0.38	38.69	0.1888	0.1451	-0.0003
56	SLU 63	4.42	-0.34	38.11	0.1228	0.1772	-0.0003
56	SLU 64	3.3	-0.35	36.2	0.1784	0.1307	-0.0002
56	SLU 65	4.59	-0.3	35.23	0.0683	0.1841	-0.0003
56	SLU 66	3.55	-0.36	36.43	0.1811	0.1413	-0.0003
56	SLU 67	4.32	-0.33	35.85	0.1151	0.1734	-0.0003
56	SLU 68	4.85	-0.3	35.27	0.0692	0.1949	-0.0003
56	SLU 69	3.8	-0.36	36.46	0.182	0.1522	-0.0003
56	SLU 70	4.58	-0.33	35.88	0.116	0.1842	-0.0003
56	SLU 71	3.8	-0.36	36.26	0.1802	0.1524	-0.0003
56	SLU 72	4.58	-0.33	35.68	0.1142	0.1844	-0.0003
56	SLU 73	4.88	-0.34	39.08	0.0858	0.1957	-0.0003
56	SLU 74	3.84	-0.4	40.27	0.1986	0.153	-0.0003
56	SLU 75	4.61	-0.36	39.69	0.1326	0.185	-0.0003
56	SLU 76	5.13	-0.34	39.11	0.0867	0.2066	-0.0003
56	SLU 77	4.09	-0.4	40.31	0.1995	0.1638	-0.0003
56	SLU 78	4.86	-0.37	39.73	0.1335	0.1959	-0.0003
56	SLU 79	4.09	-0.39	40.1	0.1977	0.1641	-0.0003
56	SLU 80	4.87	-0.36	39.53	0.1317	0.1961	-0.0003
56	SLU 81	3.71	-0.41	41.69	0.2034	0.1473	-0.0003
56	SLU 82	4.49	-0.37	41.11	0.1374	0.1794	-0.0003
56	SLU 83	3.96	-0.41	41.72	0.2043	0.1582	-0.0003
56	SLU 84	4.74	-0.38	41.14	0.1383	0.1902	-0.0003
56	SLE RA 1	2.47	-0.27	27.18	0.1338	0.0977	-0.0002
56	SLE RA 2	3.33	-0.23	26.53	0.0604	0.1333	-0.0002
56	SLE RA 3	2.63	-0.27	27.33	0.1356	0.1047	-0.0002
56	SLE RA 4	3.15	-0.25	26.95	0.0916	0.1261	-0.0002
56	SLE RA 5	3.5	-0.23	26.56	0.061	0.1405	-0.0002
56	SLE RA 6	2.8	-0.27	27.35	0.1362	0.112	-0.0002
56	SLE RA 7	3.32	-0.25	26.97	0.0922	0.1333	-0.0002
56	SLE RA 8	2.8	-0.27	27.22	0.135	0.1121	-0.0002
56	SLE RA 9	3.32	-0.25	26.83	0.091	0.1335	-0.0002
56	SLE RA 10	3.52	-0.25	29.1	0.0721	0.141	-0.0002
56	SLE RA 11	2.83	-0.29	29.89	0.1473	0.1125	-0.0002
56	SLE RA 12	3.34	-0.27	29.51	0.1033	0.1339	-0.0002
56	SLE RA 13	3.69	-0.25	29.12	0.0727	0.1483	-0.0002
56	SLE RA 14	2.99	-0.29	29.92	0.1479	0.1198	-0.0002
56	SLE RA 15	3.51	-0.27	29.53	0.1039	0.1411	-0.0002
56	SLE RA 16	3	-0.29	29.78	0.1467	0.1199	-0.0002
56	SLE RA 17	3.51	-0.27	29.4	0.1027	0.1413	-0.0002
56	SLE RA 18	2.74	-0.3	30.84	0.1505	0.1088	-0.0002
56	SLE RA 19	3.26	-0.28	30.45	0.1065	0.1301	-0.0002
56	SLE RA 20	2.91	-0.3	30.86	0.1511	0.116	-0.0002
56	SLE RA 21	3.43	-0.28	30.47	0.1071	0.1374	-0.0002
56	SLE FR 1	2.47	-0.27	27.18	0.1338	0.0977	-0.0002
56	SLE FR 2	2.64	-0.26	27.05	0.1192	0.1048	-0.0002
56	SLE FR 3	2.54	-0.27	27.19	0.1341	0.1006	-0.0002
56	SLE FR 4	2.72	-0.27	28.15	0.1242	0.1081	-0.0002
56	SLE FR 5	2.62	-0.28	28.28	0.1391	0.1039	-0.0002
56	SLE FR 6	2.61	-0.28	29.01	0.1422	0.1032	-0.0002
56	SLE QP 1	2.47	-0.27	27.18	0.1338	0.0977	-0.0002
56	SLE QP 2	2.55	-0.28	28.27	0.1388	0.101	-0.0002
56	SLD 1	16.38	-0.39	31.63	0.0846	0.7103	-0.0003
56	SLD 2	16.38	-0.39	31.63	0.0846	0.7103	-0.0003
56	SLD 3	15.11	-0.25	28.84	0.27	0.6552	-0.0002
56	SLD 4	15.11	-0.25	28.84	0.27	0.6552	-0.0002
56	SLD 5	8.62	-0.53	33.53	-0.1587	0.3674	-0.0003
56	SLD 6	8.62	-0.53	33.53	-0.1587	0.3674	-0.0003
56	SLD 7	4.4	-0.05	24.2	0.4594	0.1837	-0.0001
56	SLD 8	4.4	-0.05	24.2	0.4594	0.1837	-0.0001
56	SLD 9	0.7	-0.5	32.35	-0.1818	0.0183	-0.0003
56	SLD 10	0.7	-0.5	32.35	-0.1818	0.0183	-0.0003
56	SLD 11	-3.52	-0.02	23.02	0.4364	-0.1654	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
56	SLD 12	-3.52	-0.02	23.02	0.4364	-0.1654	-0.0001
56	SLD 13	-10.01	-0.31	27.71	0.0076	-0.4532	-0.0002
56	SLD 14	-10.01	-0.31	27.71	0.0076	-0.4532	-0.0002
56	SLD 15	-11.28	-0.16	24.92	0.1931	-0.5083	-0.0001
56	SLD 16	-11.28	-0.16	24.92	0.1931	-0.5083	-0.0001
56	SLV 1	34.22	-0.55	36.09	-0.0002	1.4971	-0.0004
56	SLV 2	34.22	-0.55	36.09	-0.0002	1.4971	-0.0004
56	SLV 3	31.29	-0.2	29.6	0.4624	1.3685	-0.0003
56	SLV 4	31.29	-0.2	29.6	0.4624	1.3685	-0.0003
56	SLV 5	16.49	-0.9	40.45	-0.6045	0.7148	-0.0005
56	SLV 6	16.49	-0.9	40.45	-0.6045	0.7148	-0.0005
56	SLV 7	6.73	0.29	18.84	0.9375	0.2862	0
56	SLV 8	6.73	0.29	18.84	0.9375	0.2862	0
56	SLV 9	-1.63	-0.84	37.71	-0.6598	-0.0842	-0.0004
56	SLV 10	-1.63	-0.84	37.71	-0.6598	-0.0842	-0.0004
56	SLV 11	-11.39	0.35	16.1	0.8822	-0.5128	0.0001
56	SLV 12	-11.39	0.35	16.1	0.8822	-0.5128	0.0001
56	SLV 13	-26.19	-0.36	26.95	-0.1847	-1.1665	-0.0001
56	SLV 14	-26.19	-0.36	26.95	-0.1847	-1.1665	-0.0001
56	SLV 15	-29.12	0	20.46	0.2779	-1.2951	0
56	SLV 16	-29.12	0	20.46	0.2779	-1.2951	0
57	SLU 1	1.53	-0.2	28.14	0.1056	0.0559	-0.0001
57	SLU 2	3.11	-0.19	27.55	0.0315	0.1247	-0.0002
57	SLU 3	1.77	-0.21	28.35	0.108	0.0671	-0.0001
57	SLU 4	2.71	-0.2	27.99	0.0635	0.1083	-0.0001
57	SLU 5	3.36	-0.19	27.52	0.0324	0.137	-0.0002
57	SLU 6	2.02	-0.21	28.32	0.1089	0.0793	-0.0001
57	SLU 7	2.97	-0.2	27.96	0.0644	0.1206	-0.0001
57	SLU 8	2.04	-0.2	28.08	0.1075	0.0804	-0.0001
57	SLU 9	2.99	-0.2	27.73	0.063	0.1217	-0.0001
57	SLU 10	3.25	-0.22	31.63	0.0459	0.129	-0.0002
57	SLU 11	1.91	-0.23	32.43	0.1224	0.0714	-0.0001
57	SLU 12	2.85	-0.23	32.07	0.0779	0.1126	-0.0001
57	SLU 13	3.5	-0.22	31.6	0.0469	0.1413	-0.0002
57	SLU 14	2.16	-0.24	32.4	0.1233	0.0836	-0.0001
57	SLU 15	3.11	-0.23	32.04	0.0789	0.1249	-0.0001
57	SLU 16	2.18	-0.23	32.16	0.1219	0.0847	-0.0001
57	SLU 17	3.13	-0.22	31.81	0.0774	0.126	-0.0001
57	SLU 18	1.73	-0.24	33.97	0.1263	0.0621	-0.0001
57	SLU 19	2.67	-0.23	33.61	0.0818	0.1034	-0.0001
57	SLU 20	1.98	-0.24	33.94	0.1272	0.0743	-0.0001
57	SLU 21	2.93	-0.24	33.58	0.0827	0.1156	-0.0001
57	SLU 22	1.71	-0.23	31.34	0.1185	0.063	-0.0001
57	SLU 23	3.29	-0.21	30.74	0.0443	0.1317	-0.0002
57	SLU 24	1.95	-0.23	31.54	0.1208	0.0741	-0.0001
57	SLU 25	2.9	-0.22	31.19	0.0763	0.1154	-0.0001
57	SLU 26	3.55	-0.21	30.71	0.0452	0.144	-0.0002
57	SLU 27	2.21	-0.23	31.51	0.1217	0.0863	-0.0001
57	SLU 28	3.16	-0.22	31.16	0.0773	0.1276	-0.0001
57	SLU 29	2.23	-0.23	31.28	0.1203	0.0875	-0.0001
57	SLU 30	3.18	-0.22	30.92	0.0758	0.1287	-0.0001
57	SLU 31	3.43	-0.24	34.82	0.0588	0.1361	-0.0002
57	SLU 32	2.09	-0.26	35.62	0.1353	0.0784	-0.0001
57	SLU 33	3.04	-0.25	35.27	0.0908	0.1197	-0.0002
57	SLU 34	3.69	-0.24	34.79	0.0597	0.1483	-0.0002
57	SLU 35	2.35	-0.26	35.59	0.1362	0.0907	-0.0001
57	SLU 36	3.3	-0.25	35.24	0.0917	0.1319	-0.0002
57	SLU 37	2.37	-0.26	35.36	0.1347	0.0918	-0.0001
57	SLU 38	3.32	-0.25	35	0.0903	0.1331	-0.0002
57	SLU 39	1.91	-0.27	37.16	0.1391	0.0691	-0.0001
57	SLU 40	2.86	-0.26	36.81	0.0946	0.1104	-0.0002
57	SLU 41	2.17	-0.27	37.13	0.14	0.0814	-0.0001
57	SLU 42	3.12	-0.26	36.78	0.0955	0.1227	-0.0002
57	SLU 43	1.92	-0.25	35.49	0.1329	0.0703	-0.0001
57	SLU 44	3.5	-0.24	34.9	0.0588	0.1391	-0.0002
57	SLU 45	2.16	-0.26	35.7	0.1353	0.0814	-0.0001
57	SLU 46	3.11	-0.25	35.34	0.0908	0.1227	-0.0002
57	SLU 47	3.76	-0.24	34.87	0.0597	0.1513	-0.0002
57	SLU 48	2.42	-0.26	35.67	0.1362	0.0937	-0.0001
57	SLU 49	3.37	-0.25	35.31	0.0917	0.1349	-0.0002
57	SLU 50	2.44	-0.26	35.43	0.1348	0.0948	-0.0001
57	SLU 51	3.38	-0.25	35.08	0.0903	0.1361	-0.0002
57	SLU 52	3.64	-0.27	38.98	0.0732	0.1434	-0.0002
57	SLU 53	2.3	-0.29	39.78	0.1497	0.0857	-0.0001
57	SLU 54	3.25	-0.28	39.42	0.1052	0.127	-0.0002
57	SLU 55	3.9	-0.27	38.95	0.0741	0.1556	-0.0002
57	SLU 56	2.56	-0.29	39.75	0.1506	0.098	-0.0001
57	SLU 57	3.51	-0.28	39.39	0.1062	0.1393	-0.0002
57	SLU 58	2.58	-0.28	39.51	0.1492	0.0991	-0.0001
57	SLU 59	3.52	-0.28	39.15	0.1047	0.1404	-0.0002
57	SLU 60	2.12	-0.29	41.32	0.1535	0.0765	-0.0001
57	SLU 61	3.07	-0.29	40.96	0.1091	0.1177	-0.0002
57	SLU 62	2.38	-0.3	41.29	0.1545	0.0887	-0.0001
57	SLU 63	3.33	-0.29	40.93	0.11	0.13	-0.0002
57	SLU 64	2.11	-0.28	38.69	0.1458	0.0773	-0.0001
57	SLU 65	3.69	-0.26	38.09	0.0716	0.1461	-0.0002
57	SLU 66	2.35	-0.28	38.89	0.1481	0.0885	-0.0001
57	SLU 67	3.29	-0.27	38.53	0.1036	0.1297	-0.0002
57	SLU 68	3.94	-0.27	38.06	0.0725	0.1584	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
57	SLU 69	2.6	-0.28	38.86	0.149	0.1007	-0.0001
57	SLU 70	3.55	-0.28	38.51	0.1046	0.142	-0.0002
57	SLU 71	2.62	-0.28	38.63	0.1476	0.1018	-0.0001
57	SLU 72	3.57	-0.27	38.27	0.1031	0.1431	-0.0002
57	SLU 73	3.83	-0.29	42.17	0.086	0.1504	-0.0002
57	SLU 74	2.49	-0.31	42.97	0.1625	0.0928	-0.0001
57	SLU 75	3.43	-0.3	42.61	0.1181	0.134	-0.0002
57	SLU 76	4.08	-0.29	42.14	0.087	0.1627	-0.0002
57	SLU 77	2.74	-0.31	42.94	0.1635	0.105	-0.0001
57	SLU 78	3.69	-0.3	42.58	0.119	0.1463	-0.0002
57	SLU 79	2.76	-0.31	42.71	0.162	0.1062	-0.0001
57	SLU 80	3.71	-0.3	42.35	0.1176	0.1474	-0.0002
57	SLU 81	2.31	-0.32	44.51	0.1664	0.0835	-0.0001
57	SLU 82	3.25	-0.31	44.16	0.1219	0.1248	-0.0002
57	SLU 83	2.56	-0.32	44.48	0.1673	0.0958	-0.0001
57	SLU 84	3.51	-0.31	44.13	0.1228	0.137	-0.0002
57	SLE RA 1	1.58	-0.21	29.06	0.1093	0.0579	-0.0001
57	SLE RA 2	2.63	-0.2	28.66	0.0599	0.1038	-0.0001
57	SLE RA 3	1.74	-0.21	29.19	0.1109	0.0654	-0.0001
57	SLE RA 4	2.37	-0.21	28.96	0.0812	0.0929	-0.0001
57	SLE RA 5	2.8	-0.2	28.64	0.0605	0.112	-0.0001
57	SLE RA 6	1.91	-0.21	29.17	0.1115	0.0735	-0.0001
57	SLE RA 7	2.54	-0.21	28.94	0.0818	0.101	-0.0001
57	SLE RA 8	1.92	-0.21	29.02	0.1105	0.0743	-0.0001
57	SLE RA 9	2.55	-0.21	28.78	0.0809	0.1018	-0.0001
57	SLE RA 10	2.73	-0.22	31.38	0.0695	0.1067	-0.0001
57	SLE RA 11	1.83	-0.23	31.91	0.1205	0.0682	-0.0001
57	SLE RA 12	2.46	-0.22	31.67	0.0908	0.0957	-0.0001
57	SLE RA 13	2.9	-0.22	31.36	0.0701	0.1148	-0.0001
57	SLE RA 14	2	-0.23	31.89	0.1211	0.0764	-0.0001
57	SLE RA 15	2.64	-0.23	31.66	0.0915	0.1039	-0.0001
57	SLE RA 16	2.02	-0.23	31.74	0.1202	0.0772	-0.0001
57	SLE RA 17	2.65	-0.22	31.5	0.0905	0.1047	-0.0001
57	SLE RA 18	1.71	-0.24	32.94	0.123	0.062	-0.0001
57	SLE RA 19	2.34	-0.23	32.7	0.0934	0.0896	-0.0001
57	SLE RA 20	1.88	-0.24	32.92	0.1237	0.0702	-0.0001
57	SLE RA 21	2.52	-0.23	32.68	0.094	0.0977	-0.0001
57	SLE FR 1	1.58	-0.21	29.06	0.1093	0.0579	-0.0001
57	SLE FR 2	1.79	-0.21	28.98	0.0994	0.0671	-0.0001
57	SLE FR 3	1.65	-0.21	29.05	0.1095	0.0612	-0.0001
57	SLE FR 4	1.83	-0.21	30.14	0.1035	0.0683	-0.0001
57	SLE FR 5	1.69	-0.22	30.21	0.1137	0.0624	-0.0001
57	SLE FR 6	1.65	-0.22	31	0.1162	0.06	-0.0001
57	SLE QP 1	1.58	-0.21	29.06	0.1093	0.0579	-0.0001
57	SLE QP 2	1.62	-0.22	30.22	0.1134	0.0592	-0.0001
57	SLD 1	15.76	-0.21	30.34	0.082	0.6941	-0.0002
57	SLD 2	15.76	-0.21	30.34	0.082	0.6941	-0.0002
57	SLD 3	14.41	-0.14	27.13	0.2113	0.6368	-0.0001
57	SLD 4	14.41	-0.14	27.13	0.2113	0.6368	-0.0001
57	SLD 5	7.91	-0.33	35.12	-0.0921	0.3365	-0.0003
57	SLD 6	7.91	-0.33	35.12	-0.0921	0.3365	-0.0003
57	SLD 7	3.41	-0.08	24.43	0.3389	0.1456	0.0001
57	SLD 8	3.41	-0.08	24.43	0.3389	0.1456	0.0001
57	SLD 9	-0.17	-0.35	36.01	-0.112	-0.0273	-0.0003
57	SLD 10	-0.17	-0.35	36.01	-0.112	-0.0273	-0.0003
57	SLD 11	-4.67	-0.1	25.32	0.3189	-0.2181	0.0002
57	SLD 12	-4.67	-0.1	25.32	0.3189	-0.2181	0.0002
57	SLD 13	-11.17	-0.29	33.31	0.0155	-0.5185	-0.0001
57	SLD 14	-11.17	-0.29	33.31	0.0155	-0.5185	-0.0001
57	SLD 15	-12.52	-0.22	30.1	0.1448	-0.5757	0
57	SLD 16	-12.52	-0.22	30.1	0.1448	-0.5757	0
57	SLV 1	34.02	-0.21	30.35	0.0317	1.5138	-0.0004
57	SLV 2	34.02	-0.21	30.35	0.0317	1.5138	-0.0004
57	SLV 3	30.85	-0.03	22.96	0.3539	1.3794	0
57	SLV 4	30.85	-0.03	22.96	0.3539	1.3794	0
57	SLV 5	16.14	-0.49	41.46	-0.3999	0.6993	-0.0007
57	SLV 6	16.14	-0.49	41.46	-0.3999	0.6993	-0.0007
57	SLV 7	5.58	0.12	16.84	0.6744	0.2515	0.0004
57	SLV 8	5.58	0.12	16.84	0.6744	0.2515	0.0004
57	SLV 9	-2.35	-0.55	43.6	-0.4475	-0.1331	-0.0006
57	SLV 10	-2.35	-0.55	43.6	-0.4475	-0.1331	-0.0006
57	SLV 11	-12.9	0.06	18.98	0.6267	-0.581	0.0005
57	SLV 12	-12.9	0.06	18.98	0.6267	-0.581	0.0005
57	SLV 13	-27.61	-0.4	37.48	-0.1271	-1.2611	-0.0001
57	SLV 14	-27.61	-0.4	37.48	-0.1271	-1.2611	-0.0001
57	SLV 15	-30.78	-0.22	30.1	0.1952	-1.3954	0.0002
57	SLV 16	-30.78	-0.22	30.1	0.1952	-1.3954	0.0002
58	SLU 1	0.67	-0.09	29.76	0.0635	0.0227	0.0001
58	SLU 2	2.4	-0.11	29.79	0.0212	0.0924	-0.0001
58	SLU 3	0.89	-0.09	29.93	0.0653	0.0325	0.0001
58	SLU 4	1.93	-0.11	29.94	0.0399	0.0743	0
58	SLU 5	2.65	-0.11	29.68	0.0221	0.1035	-0.0001
58	SLU 6	1.14	-0.1	29.82	0.0662	0.0435	0.0001
58	SLU 7	2.18	-0.11	29.84	0.0408	0.0853	0
58	SLU 8	1.17	-0.09	29.55	0.0655	0.0448	0.0001
58	SLU 9	2.21	-0.11	29.57	0.04	0.0866	0
58	SLU 10	2.42	-0.12	34.06	0.0299	0.0931	-0.0001
58	SLU 11	0.91	-0.11	34.2	0.074	0.0331	0.0001
58	SLU 12	1.95	-0.12	34.21	0.0486	0.0749	0



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
58	SLU 13	2.67	-0.12	33.95	0.0308	0.1041	-0.0001
58	SLU 14	1.16	-0.11	34.09	0.0749	0.0441	0.0001
58	SLU 15	2.2	-0.12	34.11	0.0495	0.0859	0
58	SLU 16	1.19	-0.11	33.82	0.0742	0.0454	0.0001
58	SLU 17	2.23	-0.12	33.83	0.0487	0.0873	0
58	SLU 18	0.7	-0.11	35.86	0.076	0.0236	0.0001
58	SLU 19	1.73	-0.12	35.88	0.0505	0.0655	0
58	SLU 20	0.95	-0.11	35.76	0.0769	0.0347	0.0001
58	SLU 21	1.98	-0.12	35.77	0.0515	0.0765	0
58	SLU 22	0.74	-0.1	33.07	0.0714	0.0256	0.0001
58	SLU 23	2.46	-0.12	33.1	0.0291	0.0952	-0.0001
58	SLU 24	0.96	-0.11	33.24	0.0732	0.0353	0.0001
58	SLU 25	1.99	-0.12	33.25	0.0478	0.0771	0
58	SLU 26	2.71	-0.12	32.99	0.03	0.1063	-0.0001
58	SLU 27	1.21	-0.11	33.13	0.0741	0.0463	0.0001
58	SLU 28	2.24	-0.12	33.15	0.0487	0.0881	0
58	SLU 29	1.24	-0.11	32.86	0.0733	0.0476	0.0001
58	SLU 30	2.27	-0.12	32.87	0.0479	0.0894	0
58	SLU 31	2.48	-0.13	37.37	0.0378	0.0959	-0.0001
58	SLU 32	0.98	-0.12	37.51	0.0819	0.0359	0.0001
58	SLU 33	2.01	-0.13	37.52	0.0565	0.0777	0
58	SLU 34	2.73	-0.14	37.26	0.0387	0.1069	-0.0001
58	SLU 35	1.23	-0.12	37.4	0.0828	0.047	0.0001
58	SLU 36	2.26	-0.13	37.41	0.0574	0.0888	0
58	SLU 37	1.26	-0.12	37.13	0.082	0.0483	0.0001
58	SLU 38	2.29	-0.13	37.14	0.0566	0.0901	0
58	SLU 39	0.76	-0.12	39.17	0.0838	0.0265	0.0001
58	SLU 40	1.8	-0.13	39.18	0.0584	0.0683	0
58	SLU 41	1.02	-0.12	39.06	0.0848	0.0375	0.0001
58	SLU 42	2.05	-0.13	39.08	0.0594	0.0793	0
58	SLU 43	0.85	-0.12	37.56	0.0799	0.0286	0.0001
58	SLU 44	2.57	-0.13	37.58	0.0375	0.0983	-0.0001
58	SLU 45	1.07	-0.12	37.72	0.0816	0.0383	0.0001
58	SLU 46	2.11	-0.13	37.74	0.0562	0.0801	0
58	SLU 47	2.82	-0.14	37.48	0.0385	0.1093	-0.0001
58	SLU 48	1.32	-0.12	37.62	0.0826	0.0494	0.0001
58	SLU 49	2.36	-0.13	37.63	0.0572	0.0912	0
58	SLU 50	1.35	-0.12	37.35	0.0818	0.0507	0.0001
58	SLU 51	2.39	-0.13	37.36	0.0564	0.0925	0
58	SLU 52	2.59	-0.15	41.85	0.0462	0.0989	0
58	SLU 53	1.09	-0.13	41.99	0.0903	0.039	0.0001
58	SLU 54	2.13	-0.14	42.01	0.0649	0.0808	0
58	SLU 55	2.84	-0.15	41.74	0.0472	0.1099	0
58	SLU 56	1.34	-0.13	41.89	0.0913	0.05	0.0001
58	SLU 57	2.38	-0.14	41.9	0.0659	0.0918	0
58	SLU 58	1.37	-0.13	41.61	0.0905	0.0513	0.0001
58	SLU 59	2.41	-0.14	41.63	0.0651	0.0931	0
58	SLU 60	0.88	-0.13	43.66	0.0923	0.0295	0.0001
58	SLU 61	1.91	-0.14	43.67	0.0669	0.0713	0
58	SLU 62	1.13	-0.13	43.55	0.0933	0.0405	0.0001
58	SLU 63	2.16	-0.15	43.56	0.0679	0.0823	0
58	SLU 64	0.91	-0.13	40.87	0.0878	0.0314	0.0001
58	SLU 65	2.64	-0.15	40.89	0.0454	0.1011	0
58	SLU 66	1.14	-0.13	41.03	0.0895	0.0411	0.0001
58	SLU 67	2.17	-0.14	41.05	0.0641	0.083	0
58	SLU 68	2.89	-0.15	40.78	0.0464	0.1121	0
58	SLU 69	1.39	-0.13	40.93	0.0905	0.0522	0.0001
58	SLU 70	2.42	-0.14	40.94	0.0651	0.094	0
58	SLU 71	1.42	-0.13	40.65	0.0897	0.0535	0.0001
58	SLU 72	2.45	-0.14	40.67	0.0643	0.0953	0
58	SLU 73	2.66	-0.16	45.16	0.0541	0.1017	0
58	SLU 74	1.16	-0.14	45.3	0.0982	0.0418	0.0001
58	SLU 75	2.19	-0.15	45.32	0.0728	0.0836	0
58	SLU 76	2.91	-0.16	45.05	0.0551	0.1128	0
58	SLU 77	1.41	-0.14	45.19	0.0992	0.0528	0.0001
58	SLU 78	2.44	-0.15	45.21	0.0738	0.0946	0
58	SLU 79	1.44	-0.14	44.92	0.0984	0.0541	0.0001
58	SLU 80	2.47	-0.15	44.94	0.073	0.0959	0
58	SLU 81	0.94	-0.14	46.96	0.1002	0.0323	0.0001
58	SLU 82	1.98	-0.16	46.98	0.0748	0.0741	0
58	SLU 83	1.19	-0.15	46.86	0.1012	0.0434	0.0001
58	SLU 84	2.23	-0.16	46.87	0.0757	0.0852	0
58	SLE RA 1	0.69	-0.1	30.71	0.0658	0.0235	0.0001
58	SLE RA 2	1.84	-0.11	30.72	0.0375	0.07	0
58	SLE RA 3	0.84	-0.1	30.82	0.067	0.03	0.0001
58	SLE RA 4	1.53	-0.1	30.83	0.05	0.0579	0
58	SLE RA 5	2.01	-0.11	30.65	0.0382	0.0774	0
58	SLE RA 6	1	-0.1	30.75	0.0676	0.0374	0.0001
58	SLE RA 7	1.69	-0.11	30.76	0.0507	0.0653	0
58	SLE RA 8	1.02	-0.1	30.57	0.0671	0.0383	0.0001
58	SLE RA 9	1.71	-0.1	30.58	0.0501	0.0661	0
58	SLE RA 10	1.85	-0.12	33.57	0.0433	0.0704	0
58	SLE RA 11	0.85	-0.11	33.66	0.0728	0.0305	0.0001
58	SLE RA 12	1.54	-0.11	33.67	0.0558	0.0583	0
58	SLE RA 13	2.02	-0.12	33.5	0.044	0.0778	0
58	SLE RA 14	1.02	-0.11	33.59	0.0734	0.0378	0.0001
58	SLE RA 15	1.71	-0.11	33.6	0.0565	0.0657	0
58	SLE RA 16	1.04	-0.11	33.41	0.0729	0.0387	0.0001
58	SLE RA 17	1.73	-0.11	33.42	0.0559	0.0666	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
58	SLE RA 18	0.71	-0.11	34.77	0.0741	0.0241	0.0001
58	SLE RA 19	1.4	-0.11	34.78	0.0571	0.052	0
58	SLE RA 20	0.88	-0.11	34.7	0.0747	0.0315	0.0001
58	SLE RA 21	1.57	-0.12	34.71	0.0578	0.0594	0
58	SLE FR 1	0.69	-0.1	30.71	0.0658	0.0235	0.0001
58	SLE FR 2	0.92	-0.1	30.71	0.0601	0.0328	0.0001
58	SLE FR 3	0.76	-0.1	30.68	0.066	0.0265	0.0001
58	SLE FR 4	0.92	-0.1	31.93	0.0626	0.033	0.0001
58	SLE FR 5	0.76	-0.1	31.9	0.0685	0.0267	0.0001
58	SLE FR 6	0.7	-0.1	32.74	0.0699	0.0238	0.0001
58	SLE QP 1	0.69	-0.1	30.71	0.0658	0.0235	0.0001
58	SLE QP 2	0.69	-0.1	31.93	0.0683	0.0237	0.0001
58	SLD 1	15.15	-0.07	31.77	0.0565	0.6629	-0.0001
58	SLD 2	15.15	-0.07	31.77	0.0565	0.6629	-0.0001
58	SLD 3	13.65	-0.06	27.96	0.132	0.5978	0.0001
58	SLD 4	13.65	-0.06	27.96	0.132	0.5978	0.0001
58	SLD 5	7.3	-0.11	37.66	-0.0497	0.3142	-0.0003
58	SLD 6	7.3	-0.11	37.66	-0.0497	0.3142	-0.0003
58	SLD 7	2.32	-0.07	24.96	0.2019	0.0973	0.0004
58	SLD 8	2.32	-0.07	24.96	0.2019	0.0973	0.0004
58	SLD 9	-0.93	-0.13	38.9	-0.0654	-0.0498	-0.0003
58	SLD 10	-0.93	-0.13	38.9	-0.0654	-0.0498	-0.0003
58	SLD 11	-5.91	-0.09	26.2	0.1863	-0.2667	0.0004
58	SLD 12	-5.91	-0.09	26.2	0.1863	-0.2667	0.0004
58	SLD 13	-12.26	-0.14	35.9	0.0045	-0.5504	0
58	SLD 14	-12.26	-0.14	35.9	0.0045	-0.5504	0
58	SLD 15	-13.76	-0.13	32.09	0.08	-0.6154	0.0002
58	SLD 16	-13.76	-0.13	32.09	0.08	-0.6154	0.0002
58	SLV 1	33.85	-0.03	31.41	0.0363	1.4905	-0.0003
58	SLV 2	33.85	-0.03	31.41	0.0363	1.4905	-0.0003
58	SLV 3	30.28	0	22.65	0.2243	1.3341	0.0002
58	SLV 4	30.28	0	22.65	0.2243	1.3341	0.0002
58	SLV 5	16.05	-0.12	45.05	-0.2266	0.7009	-0.0008
58	SLV 6	16.05	-0.12	45.05	-0.2266	0.7009	-0.0008
58	SLV 7	4.16	-0.02	15.86	0.4003	0.1797	0.0009
58	SLV 8	4.16	-0.02	15.86	0.4003	0.1797	0.0009
58	SLV 9	-2.77	-0.17	47.99	-0.2638	-0.1322	-0.0007
58	SLV 10	-2.77	-0.17	47.99	-0.2638	-0.1322	-0.0007
58	SLV 11	-14.66	-0.08	18.8	0.3631	-0.6535	0.0009
58	SLV 12	-14.66	-0.08	18.8	0.3631	-0.6535	0.0009
58	SLV 13	-28.89	-0.2	41.21	-0.0878	-1.2867	-0.0001
58	SLV 14	-28.89	-0.2	41.21	-0.0878	-1.2867	-0.0001
58	SLV 15	-32.46	-0.17	32.45	0.1003	-1.443	0.0004
58	SLV 16	-32.46	-0.17	32.45	0.1003	-1.443	0.0004
59	SLU 1	-0.25	0.04	31.19	0.0188	-0.0179	0.0002
59	SLU 2	1.62	0.03	32.32	-0.0024	0.0596	0.0002
59	SLU 3	-0.03	0.04	31.28	0.0201	-0.0072	0.0002
59	SLU 4	1.09	0.03	31.96	0.0074	0.0393	0.0002
59	SLU 5	1.89	0.03	32.1	-0.0012	0.073	0.0002
59	SLU 6	0.24	0.04	31.05	0.0213	0.0062	0.0002
59	SLU 7	1.36	0.03	31.73	0.0086	0.0527	0.0002
59	SLU 8	0.29	0.03	30.74	0.0212	0.0088	0.0002
59	SLU 9	1.41	0.03	31.42	0.0085	0.0553	0.0002
59	SLU 10	1.51	0.03	36.73	0.0004	0.0537	0.0003
59	SLU 11	-0.14	0.04	35.68	0.0229	-0.0131	0.0002
59	SLU 12	0.98	0.04	36.36	0.0102	0.0334	0.0002
59	SLU 13	1.78	0.03	36.5	0.0015	0.0671	0.0003
59	SLU 14	0.13	0.04	35.46	0.0241	0.0003	0.0002
59	SLU 15	1.25	0.03	36.14	0.0113	0.0468	0.0002
59	SLU 16	0.18	0.04	35.15	0.024	0.0029	0.0002
59	SLU 17	1.3	0.03	35.83	0.0112	0.0494	0.0002
59	SLU 18	-0.41	0.05	37.48	0.0228	-0.0264	0.0002
59	SLU 19	0.71	0.04	38.16	0.01	0.0202	0.0003
59	SLU 20	-0.14	0.05	37.26	0.024	-0.013	0.0002
59	SLU 21	0.98	0.04	37.94	0.0112	0.0335	0.0002
59	SLU 22	-0.31	0.04	34.55	0.0217	-0.0208	0.0002
59	SLU 23	1.56	0.03	35.68	0.0005	0.0567	0.0003
59	SLU 24	-0.09	0.04	34.64	0.023	-0.0101	0.0002
59	SLU 25	1.03	0.04	35.31	0.0102	0.0364	0.0002
59	SLU 26	1.83	0.03	35.46	0.0016	0.0701	0.0002
59	SLU 27	0.18	0.04	34.41	0.0242	0.0033	0.0002
59	SLU 28	1.3	0.03	35.09	0.0114	0.0498	0.0002
59	SLU 29	0.23	0.04	34.1	0.0241	0.0059	0.0002
59	SLU 30	1.35	0.03	34.78	0.0113	0.0524	0.0002
59	SLU 31	1.45	0.04	40.09	0.0032	0.0508	0.0003
59	SLU 32	-0.2	0.05	39.04	0.0258	-0.016	0.0002
59	SLU 33	0.92	0.04	39.72	0.013	0.0305	0.0002
59	SLU 34	1.72	0.03	39.86	0.0044	0.0642	0.0003
59	SLU 35	0.07	0.04	38.81	0.0269	-0.0026	0.0002
59	SLU 36	1.19	0.04	39.49	0.0142	0.0439	0.0002
59	SLU 37	0.12	0.04	38.5	0.0268	0	0.0002
59	SLU 38	1.24	0.04	39.18	0.0141	0.0465	0.0002
59	SLU 39	-0.47	0.05	40.84	0.0256	-0.0293	0.0002
59	SLU 40	0.65	0.04	41.52	0.0129	0.0173	0.0003
59	SLU 41	-0.2	0.05	40.62	0.0268	-0.0159	0.0002
59	SLU 42	0.92	0.04	41.3	0.0141	0.0306	0.0003
59	SLU 43	-0.31	0.05	39.4	0.0235	-0.0223	0.0002
59	SLU 44	1.56	0.04	40.53	0.0023	0.0552	0.0003
59	SLU 45	-0.09	0.05	39.48	0.0248	-0.0116	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
59	SLU 46	1.03	0.04	40.16	0.0121	0.035	0.0003
59	SLU 47	1.83	0.04	40.31	0.0035	0.0686	0.0003
59	SLU 48	0.18	0.05	39.26	0.026	0.0018	0.0002
59	SLU 49	1.3	0.04	39.94	0.0133	0.0483	0.0003
59	SLU 50	0.23	0.05	38.95	0.0259	0.0044	0.0002
59	SLU 51	1.35	0.04	39.63	0.0131	0.0509	0.0002
59	SLU 52	1.45	0.04	44.94	0.005	0.0493	0.0003
59	SLU 53	-0.2	0.06	43.89	0.0276	-0.0175	0.0002
59	SLU 54	0.92	0.05	44.57	0.0148	0.0291	0.0003
59	SLU 55	1.72	0.04	44.71	0.0062	0.0627	0.0003
59	SLU 56	0.07	0.05	43.66	0.0288	-0.0041	0.0002
59	SLU 57	1.19	0.04	44.34	0.016	0.0424	0.0003
59	SLU 58	0.12	0.05	43.35	0.0286	-0.0015	0.0002
59	SLU 59	1.24	0.04	44.03	0.0159	0.045	0.0003
59	SLU 60	-0.46	0.06	45.69	0.0275	-0.0307	0.0003
59	SLU 61	0.66	0.05	46.37	0.0147	0.0158	0.0003
59	SLU 62	-0.19	0.06	45.47	0.0286	-0.0174	0.0003
59	SLU 63	0.93	0.05	46.15	0.0159	0.0291	0.0003
59	SLU 64	-0.36	0.06	42.76	0.0264	-0.0252	0.0002
59	SLU 65	1.5	0.04	43.89	0.0051	0.0523	0.0003
59	SLU 66	-0.15	0.05	42.84	0.0277	-0.0145	0.0002
59	SLU 67	0.97	0.05	43.52	0.0149	0.032	0.0003
59	SLU 68	1.77	0.04	43.66	0.0063	0.0657	0.0003
59	SLU 69	0.12	0.05	42.62	0.0289	-0.0011	0.0002
59	SLU 70	1.24	0.04	43.3	0.0161	0.0454	0.0003
59	SLU 71	0.17	0.05	42.31	0.0287	0.0015	0.0002
59	SLU 72	1.29	0.04	42.99	0.016	0.048	0.0003
59	SLU 73	1.39	0.05	48.29	0.0079	0.0464	0.0003
59	SLU 74	-0.26	0.06	47.25	0.0304	-0.0204	0.0003
59	SLU 75	0.86	0.05	47.93	0.0177	0.0262	0.0003
59	SLU 76	1.66	0.05	48.07	0.0091	0.0598	0.0003
59	SLU 77	0.01	0.06	47.02	0.0316	-0.007	0.0003
59	SLU 78	1.13	0.05	47.7	0.0189	0.0395	0.0003
59	SLU 79	0.06	0.05	46.71	0.0315	-0.0044	0.0003
59	SLU 80	1.18	0.05	47.39	0.0188	0.0421	0.0003
59	SLU 81	-0.52	0.06	49.05	0.0303	-0.0337	0.0003
59	SLU 82	0.6	0.06	49.73	0.0176	0.0129	0.0003
59	SLU 83	-0.25	0.06	48.82	0.0315	-0.0203	0.0003
59	SLU 84	0.87	0.05	49.5	0.0188	0.0262	0.0003
59	SLE RA 1	-0.27	0.04	32.15	0.0197	-0.0188	0.0002
59	SLE RA 2	0.98	0.03	32.91	0.0055	0.0329	0.0002
59	SLE RA 3	-0.12	0.04	32.21	0.0205	-0.0116	0.0002
59	SLE RA 4	0.63	0.04	32.66	0.012	0.0194	0.0002
59	SLE RA 5	1.16	0.03	32.76	0.0063	0.0418	0.0002
59	SLE RA 6	0.06	0.04	32.06	0.0213	-0.0027	0.0002
59	SLE RA 7	0.8	0.03	32.51	0.0128	0.0283	0.0002
59	SLE RA 8	0.09	0.04	31.85	0.0212	-0.001	0.0002
59	SLE RA 9	0.84	0.03	32.3	0.0127	0.0301	0.0002
59	SLE RA 10	0.9	0.04	35.84	0.0073	0.029	0.0002
59	SLE RA 11	-0.2	0.04	35.14	0.0224	-0.0155	0.0002
59	SLE RA 12	0.55	0.04	35.6	0.0139	0.0155	0.0002
59	SLE RA 13	1.08	0.04	35.69	0.0081	0.0379	0.0002
59	SLE RA 14	-0.02	0.04	34.99	0.0232	-0.0066	0.0002
59	SLE RA 15	0.73	0.04	35.45	0.0147	0.0244	0.0002
59	SLE RA 16	0.02	0.04	34.79	0.0231	-0.0049	0.0002
59	SLE RA 17	0.76	0.04	35.24	0.0146	0.0261	0.0002
59	SLE RA 18	-0.37	0.05	36.35	0.0223	-0.0244	0.0002
59	SLE RA 19	0.38	0.04	36.8	0.0138	0.0066	0.0002
59	SLE RA 20	-0.19	0.04	36.2	0.0231	-0.0155	0.0002
59	SLE RA 21	0.55	0.04	36.65	0.0146	0.0155	0.0002
59	SLE FR 1	-0.27	0.04	32.15	0.0197	-0.0188	0.0002
59	SLE FR 2	-0.02	0.04	32.3	0.0168	-0.0084	0.0002
59	SLE FR 3	-0.2	0.04	32.09	0.02	-0.0152	0.0002
59	SLE FR 4	-0.05	0.04	33.56	0.0176	-0.0101	0.0002
59	SLE FR 5	-0.23	0.04	33.35	0.0208	-0.0169	0.0002
59	SLE FR 6	-0.32	0.04	34.25	0.021	-0.0216	0.0002
59	SLE QP 1	-0.27	0.04	32.15	0.0197	-0.0188	0.0002
59	SLE QP 2	-0.3	0.04	33.41	0.0204	-0.0205	0.0002
59	SLD 1	14.72	0.03	32.69	0.0183	0.6548	0.0001
59	SLD 2	14.72	0.03	32.69	0.0183	0.6548	0.0001
59	SLD 3	13.14	0	27.73	0.0548	0.593	0
59	SLD 4	13.14	0	27.73	0.0548	0.593	0
59	SLD 5	6.61	0.09	40.73	-0.0356	0.2758	0.0003
59	SLD 6	6.61	0.09	40.73	-0.0356	0.2758	0.0003
59	SLD 7	1.33	-0.03	24.17	0.0861	0.0698	0
59	SLD 8	1.33	-0.03	24.17	0.0861	0.0698	0
59	SLD 9	-1.92	0.11	42.65	-0.0453	-0.1107	0.0004
59	SLD 10	-1.92	0.11	42.65	-0.0453	-0.1107	0.0004
59	SLD 11	-7.21	-0.01	26.1	0.0764	-0.3168	0.0001
59	SLD 12	-7.21	-0.01	26.1	0.0764	-0.3168	0.0001
59	SLD 13	-13.73	0.09	39.1	-0.014	-0.6339	0.0004
59	SLD 14	-13.73	0.09	39.1	-0.014	-0.6339	0.0004
59	SLD 15	-15.32	0.05	34.13	0.0225	-0.6957	0.0003
59	SLD 16	-15.32	0.05	34.13	0.0225	-0.6957	0.0003
59	SLV 1	34.17	0.02	31.61	0.014	1.528	0
59	SLV 2	34.17	0.02	31.61	0.014	1.528	0
59	SLV 3	30.36	-0.07	20.19	0.1043	1.3798	-0.0002
59	SLV 4	30.36	-0.07	20.19	0.1043	1.3798	-0.0002
59	SLV 5	15.82	0.16	50.19	-0.1185	0.6689	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
59	SLV 6	15.82	0.16	50.19	-0.1185	0.6689	0.0005
59	SLV 7	3.12	-0.12	12.12	0.1825	0.1748	-0.0003
59	SLV 8	3.12	-0.12	12.12	0.1825	0.1748	-0.0003
59	SLV 9	-3.72	0.21	54.7	-0.1417	-0.2157	0.0007
59	SLV 10	-3.72	0.21	54.7	-0.1417	-0.2157	0.0007
59	SLV 11	-16.41	-0.08	16.63	0.1593	-0.7098	-0.0001
59	SLV 12	-16.41	-0.08	16.63	0.1593	-0.7098	-0.0001
59	SLV 13	-30.96	0.15	46.64	-0.0634	-1.4207	0.0006
59	SLV 14	-30.96	0.15	46.64	-0.0634	-1.4207	0.0006
59	SLV 15	-34.77	0.07	35.22	0.0269	-1.5689	0.0003
59	SLV 16	-34.77	0.07	35.22	0.0269	-1.5689	0.0003
60	SLU 1	-0.67	1.49	42.37	0.0578	-0.0509	0
60	SLU 2	0.67	2.74	46.01	0.0073	0.0033	-0.0001
60	SLU 3	-0.41	1.34	42.31	0.0668	-0.04	0
60	SLU 4	0.39	2.09	44.5	0.0365	-0.0075	-0.0001
60	SLU 5	1	2.54	45.49	0.0168	0.0174	-0.0001
60	SLU 6	-0.08	1.14	41.79	0.0762	-0.0259	-0.0001
60	SLU 7	0.72	1.89	43.97	0.046	0.0066	-0.0001
60	SLU 8	-0.01	1.1	41.33	0.0767	-0.0227	-0.0001
60	SLU 9	0.79	1.85	43.51	0.0464	0.0098	-0.0001
60	SLU 10	0.59	2.85	51.85	0.0206	-0.003	-0.0001
60	SLU 11	-0.49	1.44	48.16	0.0801	-0.0463	0
60	SLU 12	0.31	2.19	50.34	0.0498	-0.0137	-0.0001
60	SLU 13	0.92	2.65	51.33	0.03	0.0112	-0.0001
60	SLU 14	-0.16	1.24	47.63	0.0895	-0.0322	-0.0001
60	SLU 15	0.64	1.99	49.81	0.0592	0.0004	-0.0001
60	SLU 16	-0.09	1.2	47.17	0.09	-0.029	-0.0001
60	SLU 17	0.71	1.95	49.35	0.0597	0.0036	-0.0001
60	SLU 18	-0.79	1.64	50.72	0.0768	-0.0599	0
60	SLU 19	0.02	2.39	52.9	0.0465	-0.0273	-0.0001
60	SLU 20	-0.46	1.44	50.2	0.0862	-0.0458	0
60	SLU 21	0.35	2.19	52.38	0.0559	-0.0132	-0.0001
60	SLU 22	-0.71	1.5	46.73	0.0727	-0.0548	0
60	SLU 23	0.63	2.75	50.36	0.0222	-0.0006	-0.0001
60	SLU 24	-0.45	1.34	46.67	0.0817	-0.0439	0
60	SLU 25	0.35	2.09	48.85	0.0514	-0.0114	-0.0001
60	SLU 26	0.96	2.55	49.84	0.0317	0.0135	-0.0001
60	SLU 27	-0.12	1.14	46.14	0.0911	-0.0298	-0.0001
60	SLU 28	0.68	1.89	48.32	0.0609	0.0027	-0.0001
60	SLU 29	-0.05	1.1	45.68	0.0916	-0.0266	-0.0001
60	SLU 30	0.75	1.85	47.86	0.0613	0.0059	-0.0001
60	SLU 31	0.55	2.85	56.2	0.0355	-0.0068	-0.0001
60	SLU 32	-0.53	1.44	52.51	0.095	-0.0502	0
60	SLU 33	0.27	2.19	54.69	0.0647	-0.0176	-0.0001
60	SLU 34	0.88	2.65	55.68	0.045	0.0073	-0.0001
60	SLU 35	-0.2	1.24	51.98	0.1044	-0.0361	-0.0001
60	SLU 36	0.6	1.99	54.17	0.0741	-0.0035	-0.0001
60	SLU 37	-0.13	1.2	51.52	0.1049	-0.0329	-0.0001
60	SLU 38	0.67	1.95	53.7	0.0746	-0.0003	-0.0001
60	SLU 39	-0.83	1.64	55.07	0.0917	-0.0637	0
60	SLU 40	-0.02	2.39	57.25	0.0614	-0.0312	-0.0001
60	SLU 41	-0.5	1.44	54.55	0.1011	-0.0496	0
60	SLU 42	0.31	2.19	56.73	0.0708	-0.0171	-0.0001
60	SLU 43	-0.86	1.94	53.6	0.07	-0.0649	0
60	SLU 44	0.48	3.19	57.23	0.0196	-0.0107	-0.0001
60	SLU 45	-0.6	1.79	53.53	0.079	-0.054	0
60	SLU 46	0.21	2.54	55.72	0.0487	-0.0215	-0.0001
60	SLU 47	0.81	2.99	56.71	0.029	0.0034	-0.0001
60	SLU 48	-0.27	1.59	53.01	0.0885	-0.0399	-0.0001
60	SLU 49	0.54	2.34	55.19	0.0582	-0.0074	-0.0001
60	SLU 50	-0.2	1.54	52.55	0.0889	-0.0367	-0.0001
60	SLU 51	0.61	2.29	54.73	0.0586	-0.0041	-0.0001
60	SLU 52	0.4	3.29	63.07	0.0328	-0.0169	-0.0001
60	SLU 53	-0.68	1.89	59.38	0.0923	-0.0602	0
60	SLU 54	0.12	2.64	61.56	0.062	-0.0277	-0.0001
60	SLU 55	0.73	3.09	62.55	0.0423	-0.0028	-0.0001
60	SLU 56	-0.35	1.69	58.85	0.1017	-0.0461	-0.0001
60	SLU 57	0.46	2.44	61.03	0.0715	-0.0136	-0.0001
60	SLU 58	-0.28	1.65	58.39	0.1022	-0.0429	-0.0001
60	SLU 59	0.53	2.4	60.57	0.0719	-0.0104	-0.0001
60	SLU 60	-0.97	2.09	61.94	0.089	-0.0738	0
60	SLU 61	-0.17	2.84	64.12	0.0587	-0.0413	-0.0001
60	SLU 62	-0.64	1.89	61.42	0.0984	-0.0597	0
60	SLU 63	0.16	2.64	63.6	0.0682	-0.0272	-0.0001
60	SLU 64	-0.9	1.94	57.95	0.0849	-0.0688	0
60	SLU 65	0.44	3.19	61.58	0.0345	-0.0145	-0.0001
60	SLU 66	-0.64	1.79	57.89	0.0939	-0.0579	0
60	SLU 67	0.17	2.54	60.07	0.0636	-0.0253	-0.0001
60	SLU 68	0.77	2.99	61.06	0.0439	-0.0004	-0.0001
60	SLU 69	-0.31	1.59	57.36	0.1034	-0.0438	-0.0001
60	SLU 70	0.5	2.34	59.54	0.0731	-0.0112	-0.0001
60	SLU 71	-0.24	1.55	56.9	0.1038	-0.0406	-0.0001
60	SLU 72	0.57	2.3	59.08	0.0735	-0.008	-0.0001
60	SLU 73	0.36	3.29	67.42	0.0477	-0.0208	-0.0001
60	SLU 74	-0.72	1.89	63.73	0.1072	-0.0641	0
60	SLU 75	0.08	2.64	65.91	0.0769	-0.0316	-0.0001
60	SLU 76	0.69	3.1	66.9	0.0572	-0.0067	-0.0002
60	SLU 77	-0.39	1.69	63.2	0.1166	-0.05	-0.0001
60	SLU 78	0.42	2.44	65.39	0.0864	-0.0175	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
60	SLU 79	-0.32	1.65	62.74	0.1171	-0.0468	-0.0001
60	SLU 80	0.49	2.4	64.92	0.0868	-0.0143	-0.0001
60	SLU 81	-1.01	2.09	66.29	0.1039	-0.0777	0
60	SLU 82	-0.21	2.84	68.47	0.0736	-0.0452	-0.0001
60	SLU 83	-0.68	1.89	65.77	0.1133	-0.0636	0
60	SLU 84	0.12	2.64	67.95	0.0831	-0.0311	-0.0001
60	SLE RA 1	-0.68	1.49	43.62	0.0621	-0.0521	0
60	SLE RA 2	0.21	2.33	46.04	0.0284	-0.0159	-0.0001
60	SLE RA 3	-0.51	1.39	43.58	0.0681	-0.0448	0
60	SLE RA 4	0.03	1.89	45.03	0.0479	-0.0231	-0.0001
60	SLE RA 5	0.43	2.19	45.69	0.0347	-0.0065	-0.0001
60	SLE RA 6	-0.29	1.26	43.23	0.0744	-0.0354	0
60	SLE RA 7	0.25	1.76	44.68	0.0542	-0.0137	-0.0001
60	SLE RA 8	-0.24	1.23	42.92	0.0747	-0.0332	0
60	SLE RA 9	0.29	1.73	44.38	0.0545	-0.0116	-0.0001
60	SLE RA 10	0.16	2.4	49.94	0.0373	-0.0201	-0.0001
60	SLE RA 11	-0.56	1.46	47.47	0.0769	-0.0489	0
60	SLE RA 12	-0.03	1.96	48.93	0.0567	-0.0273	-0.0001
60	SLE RA 13	0.38	2.26	49.59	0.0436	-0.0107	-0.0001
60	SLE RA 14	-0.34	1.33	47.12	0.0832	-0.0395	0
60	SLE RA 15	0.19	1.83	48.58	0.063	-0.0179	-0.0001
60	SLE RA 16	-0.3	1.3	46.82	0.0835	-0.0374	0
60	SLE RA 17	0.24	1.8	48.27	0.0633	-0.0157	-0.0001
60	SLE RA 18	-0.76	1.59	49.18	0.0747	-0.058	0
60	SLE RA 19	-0.22	2.09	50.64	0.0545	-0.0363	-0.0001
60	SLE RA 20	-0.54	1.46	48.83	0.081	-0.0486	0
60	SLE RA 21	0	1.96	50.29	0.0608	-0.0269	-0.0001
60	SLE FR 1	-0.68	1.49	43.62	0.0621	-0.0521	0
60	SLE FR 2	-0.5	1.66	44.1	0.0553	-0.0448	0
60	SLE FR 3	-0.59	1.44	43.48	0.0646	-0.0483	0
60	SLE FR 4	-0.53	1.69	45.77	0.0591	-0.0466	0
60	SLE FR 5	-0.62	1.47	45.15	0.0684	-0.0501	0
60	SLE FR 6	-0.72	1.54	46.4	0.0684	-0.055	0
60	SLE QP 1	-0.68	1.49	43.62	0.0621	-0.0521	0
60	SLE QP 2	-0.71	1.52	45.29	0.0659	-0.0538	0
60	SLD 1	13.87	1.73	43.83	0.0552	0.6021	-0.0011
60	SLD 2	13.87	1.73	43.83	0.0552	0.6021	-0.0011
60	SLD 3	12.71	-0.95	34.81	0.1726	0.5467	-0.001
60	SLD 4	12.71	-0.95	34.81	0.1726	0.5467	-0.001
60	SLD 5	5.43	5.65	58.54	-0.1153	0.227	-0.0005
60	SLD 6	5.43	5.65	58.54	-0.1153	0.227	-0.0005
60	SLD 7	1.56	-3.28	28.46	0.2758	0.0422	-0.0002
60	SLD 8	1.56	-3.28	28.46	0.2758	0.0422	-0.0002
60	SLD 9	-2.97	6.33	62.12	-0.1441	-0.1499	0.0001
60	SLD 10	-2.97	6.33	62.12	-0.1441	-0.1499	0.0001
60	SLD 11	-6.84	-2.6	32.04	0.247	-0.3347	0.0004
60	SLD 12	-6.84	-2.6	32.04	0.247	-0.3347	0.0004
60	SLD 13	-14.12	4	55.76	-0.0409	-0.6543	0.0009
60	SLD 14	-14.12	4	55.76	-0.0409	-0.6543	0.0009
60	SLD 15	-15.28	1.32	46.74	0.0765	-0.7098	0.001
60	SLD 16	-15.28	1.32	46.74	0.0765	-0.7098	0.001
60	SLV 1	32.75	1.93	41.74	0.0439	1.452	-0.0024
60	SLV 2	32.75	1.93	41.74	0.0439	1.452	-0.0024
60	SLV 3	29.9	-4.31	20.91	0.3174	1.3154	-0.0022
60	SLV 4	29.9	-4.31	20.91	0.3174	1.3154	-0.0022
60	SLV 5	13.66	11.1	75.8	-0.3555	0.605	-0.0011
60	SLV 6	13.66	11.1	75.8	-0.3555	0.605	-0.0011
60	SLV 7	4.15	-9.69	6.39	0.5561	0.1498	-0.0003
60	SLV 8	4.15	-9.69	6.39	0.5561	0.1498	-0.0003
60	SLV 9	-5.56	12.73	84.18	-0.4244	-0.2575	0.0003
60	SLV 10	-5.56	12.73	84.18	-0.4244	-0.2575	0.0003
60	SLV 11	-15.07	-8.06	14.77	0.4872	-0.7127	0.0011
60	SLV 12	-15.07	-8.06	14.77	0.4872	-0.7127	0.0011
60	SLV 13	-31.31	7.36	69.66	-0.1857	-1.4231	0.0022
60	SLV 14	-31.31	7.36	69.66	-0.1857	-1.4231	0.0022
60	SLV 15	-34.16	1.12	48.84	0.0878	-1.5596	0.0024
60	SLV 16	-34.16	1.12	48.84	0.0878	-1.5596	0.0024
61	SLU 1	-0.23	0.05	33.08	-0.0078	0.0028	-0.0002
61	SLU 2	0.73	0.04	35.15	-0.0049	0.0534	-0.0002
61	SLU 3	0.1	0.05	33.21	-0.0073	0.0178	-0.0002
61	SLU 4	0.67	0.04	34.45	-0.0055	0.0481	-0.0002
61	SLU 5	1.14	0.03	34.96	-0.0041	0.0721	-0.0002
61	SLU 6	0.51	0.05	33.03	-0.0065	0.0365	-0.0002
61	SLU 7	1.08	0.04	34.27	-0.0047	0.0669	-0.0002
61	SLU 8	0.59	0.05	32.7	-0.0063	0.0403	-0.0002
61	SLU 9	1.17	0.04	33.94	-0.0045	0.0706	-0.0002
61	SLU 10	0.8	0.04	39.92	-0.0053	0.0569	-0.0003
61	SLU 11	0.17	0.05	37.99	-0.0076	0.0213	-0.0003
61	SLU 12	0.74	0.04	39.23	-0.0059	0.0517	-0.0003
61	SLU 13	1.21	0.04	39.73	-0.0045	0.0757	-0.0003
61	SLU 14	0.58	0.05	37.8	-0.0069	0.0401	-0.0003
61	SLU 15	1.15	0.04	39.04	-0.0051	0.0704	-0.0003
61	SLU 16	0.66	0.05	37.47	-0.0066	0.0439	-0.0003
61	SLU 17	1.23	0.04	38.72	-0.0049	0.0742	-0.0003
61	SLU 18	-0.13	0.06	39.9	-0.0083	0.0079	-0.0003
61	SLU 19	0.44	0.05	41.14	-0.0066	0.0382	-0.0003
61	SLU 20	0.28	0.05	39.71	-0.0076	0.0266	-0.0003
61	SLU 21	0.85	0.05	40.95	-0.0058	0.057	-0.0003
61	SLU 22	-0.14	0.05	36.67	-0.0078	0.0074	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
61	SLU 23	0.82	0.04	38.74	-0.0048	0.0579	-0.0003
61	SLU 24	0.19	0.05	36.81	-0.0072	0.0224	-0.0003
61	SLU 25	0.76	0.04	38.05	-0.0054	0.0527	-0.0003
61	SLU 26	1.22	0.04	38.55	-0.0041	0.0767	-0.0003
61	SLU 27	0.59	0.05	36.62	-0.0064	0.0411	-0.0003
61	SLU 28	1.17	0.04	37.86	-0.0047	0.0715	-0.0003
61	SLU 29	0.68	0.05	36.3	-0.0062	0.0449	-0.0002
61	SLU 30	1.25	0.04	37.54	-0.0045	0.0752	-0.0002
61	SLU 31	0.88	0.04	43.51	-0.0052	0.0615	-0.0003
61	SLU 32	0.25	0.06	41.58	-0.0076	0.0259	-0.0003
61	SLU 33	0.83	0.05	42.82	-0.0058	0.0563	-0.0003
61	SLU 34	1.29	0.04	43.32	-0.0044	0.0803	-0.0003
61	SLU 35	0.66	0.05	41.39	-0.0068	0.0447	-0.0003
61	SLU 36	1.24	0.05	42.63	-0.005	0.075	-0.0003
61	SLU 37	0.75	0.05	41.07	-0.0066	0.0484	-0.0003
61	SLU 38	1.32	0.04	42.31	-0.0048	0.0788	-0.0003
61	SLU 39	-0.04	0.06	43.49	-0.0083	0.0125	-0.0003
61	SLU 40	0.53	0.05	44.73	-0.0065	0.0428	-0.0003
61	SLU 41	0.37	0.06	43.3	-0.0075	0.0312	-0.0003
61	SLU 42	0.94	0.05	44.54	-0.0057	0.0616	-0.0003
61	SLU 43	-0.32	0.06	41.77	-0.0102	0.0021	-0.0003
61	SLU 44	0.63	0.05	43.84	-0.0073	0.0526	-0.0003
61	SLU 45	0	0.06	41.91	-0.0097	0.017	-0.0003
61	SLU 46	0.57	0.05	43.15	-0.0079	0.0474	-0.0003
61	SLU 47	1.04	0.05	43.65	-0.0065	0.0714	-0.0003
61	SLU 48	0.41	0.06	41.72	-0.0089	0.0358	-0.0003
61	SLU 49	0.98	0.05	42.96	-0.0071	0.0661	-0.0003
61	SLU 50	0.5	0.06	41.4	-0.0087	0.0396	-0.0003
61	SLU 51	1.07	0.05	42.64	-0.0069	0.0699	-0.0003
61	SLU 52	0.7	0.05	48.61	-0.0076	0.0562	-0.0003
61	SLU 53	0.07	0.07	46.68	-0.01	0.0206	-0.0003
61	SLU 54	0.64	0.06	47.92	-0.0082	0.0509	-0.0003
61	SLU 55	1.11	0.05	48.42	-0.0069	0.0749	-0.0003
61	SLU 56	0.48	0.06	46.49	-0.0092	0.0393	-0.0003
61	SLU 57	1.05	0.06	47.73	-0.0075	0.0697	-0.0003
61	SLU 58	0.56	0.06	46.17	-0.009	0.0431	-0.0003
61	SLU 59	1.14	0.06	47.41	-0.0073	0.0735	-0.0003
61	SLU 60	-0.22	0.07	48.59	-0.0107	0.0071	-0.0004
61	SLU 61	0.35	0.06	49.83	-0.009	0.0375	-0.0004
61	SLU 62	0.18	0.07	48.4	-0.0099	0.0259	-0.0004
61	SLU 63	0.76	0.06	49.64	-0.0082	0.0562	-0.0003
61	SLU 64	-0.24	0.07	45.36	-0.0101	0.0066	-0.0003
61	SLU 65	0.72	0.05	47.43	-0.0072	0.0572	-0.0003
61	SLU 66	0.09	0.07	45.5	-0.0096	0.0216	-0.0003
61	SLU 67	0.66	0.06	46.74	-0.0078	0.052	-0.0003
61	SLU 68	1.13	0.05	47.24	-0.0064	0.076	-0.0003
61	SLU 69	0.5	0.06	45.31	-0.0088	0.0404	-0.0003
61	SLU 70	1.07	0.05	46.55	-0.007	0.0707	-0.0003
61	SLU 71	0.58	0.06	44.99	-0.0086	0.0441	-0.0003
61	SLU 72	1.15	0.05	46.23	-0.0068	0.0745	-0.0003
61	SLU 73	0.79	0.06	52.2	-0.0076	0.0608	-0.0004
61	SLU 74	0.16	0.07	50.27	-0.0099	0.0252	-0.0004
61	SLU 75	0.73	0.06	51.51	-0.0082	0.0555	-0.0004
61	SLU 76	1.2	0.06	52.02	-0.0068	0.0795	-0.0004
61	SLU 77	0.57	0.07	50.08	-0.0092	0.0439	-0.0004
61	SLU 78	1.14	0.06	51.32	-0.0074	0.0743	-0.0004
61	SLU 79	0.65	0.07	49.76	-0.0089	0.0477	-0.0003
61	SLU 80	1.22	0.06	51	-0.0072	0.078	-0.0003
61	SLU 81	-0.14	0.07	52.18	-0.0106	0.0117	-0.0004
61	SLU 82	0.43	0.06	53.42	-0.0089	0.0421	-0.0004
61	SLU 83	0.27	0.07	51.99	-0.0099	0.0305	-0.0004
61	SLU 84	0.84	0.06	53.23	-0.0081	0.0608	-0.0004
61	SLE RA 1	-0.2	0.05	34.11	-0.0078	0.0041	-0.0003
61	SLE RA 2	0.44	0.04	35.48	-0.0059	0.0378	-0.0003
61	SLE RA 3	0.02	0.05	34.2	-0.0074	0.0141	-0.0003
61	SLE RA 4	0.4	0.04	35.02	-0.0063	0.0343	-0.0003
61	SLE RA 5	0.71	0.04	35.36	-0.0053	0.0503	-0.0002
61	SLE RA 6	0.29	0.05	34.07	-0.0069	0.0266	-0.0002
61	SLE RA 7	0.67	0.04	34.9	-0.0058	0.0468	-0.0002
61	SLE RA 8	0.35	0.05	33.86	-0.0068	0.0291	-0.0002
61	SLE RA 9	0.73	0.04	34.68	-0.0056	0.0493	-0.0002
61	SLE RA 10	0.48	0.04	38.67	-0.0061	0.0402	-0.0003
61	SLE RA 11	0.06	0.05	37.38	-0.0077	0.0165	-0.0003
61	SLE RA 12	0.44	0.05	38.2	-0.0065	0.0367	-0.0003
61	SLE RA 13	0.75	0.04	38.54	-0.0056	0.0527	-0.0003
61	SLE RA 14	0.33	0.05	37.25	-0.0072	0.029	-0.0003
61	SLE RA 15	0.72	0.05	38.08	-0.006	0.0492	-0.0003
61	SLE RA 16	0.39	0.05	37.04	-0.007	0.0315	-0.0003
61	SLE RA 17	0.77	0.05	37.86	-0.0058	0.0517	-0.0003
61	SLE RA 18	-0.14	0.05	38.65	-0.0082	0.0075	-0.0003
61	SLE RA 19	0.25	0.05	39.48	-0.007	0.0277	-0.0003
61	SLE RA 20	0.14	0.05	38.52	-0.0076	0.02	-0.0003
61	SLE RA 21	0.52	0.05	39.35	-0.0065	0.0402	-0.0003
61	SLE FR 1	-0.2	0.05	34.11	-0.0078	0.0041	-0.0003
61	SLE FR 2	-0.07	0.05	34.38	-0.0074	0.0108	-0.0003
61	SLE FR 3	-0.09	0.05	34.06	-0.0076	0.0091	-0.0003
61	SLE FR 4	-0.05	0.05	35.75	-0.0075	0.0119	-0.0003
61	SLE FR 5	-0.07	0.05	35.42	-0.0077	0.0101	-0.0003
61	SLE FR 6	-0.17	0.05	36.38	-0.008	0.0058	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
61	SLE QP 1	-0.2	0.05	34.11	-0.0078	0.0041	-0.0003
61	SLE QP 2	-0.18	0.05	35.47	-0.0079	-0.0051	-0.0003
61	SLD 1	12.61	0.04	32.96	-0.0066	0.603	-0.0002
61	SLD 2	12.61	0.04	32.96	-0.0066	0.603	-0.0002
61	SLD 3	14	-0.01	28.85	0.0099	0.6604	-0.0001
61	SLD 4	14	-0.01	28.85	0.0099	0.6604	-0.0001
61	SLD 5	1.55	0.13	40.95	-0.0325	0.0973	-0.0005
61	SLD 6	1.55	0.13	40.95	-0.0325	0.0973	-0.0005
61	SLD 7	6.18	-0.05	27.25	0.0224	0.2889	0
61	SLD 8	6.18	-0.05	27.25	0.0224	0.2889	0
61	SLD 9	-6.54	0.15	43.69	-0.0383	-0.2786	-0.0005
61	SLD 10	-6.54	0.15	43.69	-0.0383	-0.2786	-0.0005
61	SLD 11	-1.91	-0.03	29.99	0.0167	-0.0871	-0.0001
61	SLD 12	-1.91	-0.03	29.99	0.0167	-0.0871	-0.0001
61	SLD 13	-14.36	0.12	42.09	-0.0257	-0.6502	-0.0005
61	SLD 14	-14.36	0.12	42.09	-0.0257	-0.6502	-0.0005
61	SLD 15	-12.97	0.06	37.98	-0.0092	-0.5927	-0.0003
61	SLD 16	-12.97	0.06	37.98	-0.0092	-0.5927	-0.0003
61	SLV 1	29	0.02	29.64	-0.0051	1.3694	-0.0001
61	SLV 2	29	0.02	29.64	-0.0051	1.3694	-0.0001
61	SLV 3	32.32	-0.11	20.18	0.034	1.5076	0.0002
61	SLV 4	32.32	-0.11	20.18	0.034	1.5076	0.0002
61	SLV 5	3.55	0.24	48.08	-0.0663	0.2048	-0.0008
61	SLV 6	3.55	0.24	48.08	-0.0663	0.2048	-0.0008
61	SLV 7	14.6	-0.19	16.53	0.0639	0.6655	0.0004
61	SLV 8	14.6	-0.19	16.53	0.0639	0.6655	0.0004
61	SLV 9	-14.96	0.3	54.41	-0.0798	-0.6552	-0.0009
61	SLV 10	-14.96	0.3	54.41	-0.0798	-0.6552	-0.0009
61	SLV 11	-3.91	-0.14	22.86	0.0505	-0.1946	0.0002
61	SLV 12	-3.91	-0.14	22.86	0.0505	-0.1946	0.0002
61	SLV 13	-32.68	0.21	50.76	-0.0499	-1.4974	-0.0007
61	SLV 14	-32.68	0.21	50.76	-0.0499	-1.4974	-0.0007
61	SLV 15	-29.37	0.08	41.3	-0.0108	-1.3592	-0.0004
61	SLV 16	-29.37	0.08	41.3	-0.0108	-1.3592	-0.0004
62	SLU 1	-0.27	0.01	36.75	-0.0006	-0.0837	0
62	SLU 2	0.72	-0.01	38.86	0.0074	-0.0492	0.0002
62	SLU 3	0.02	0.01	37.01	-0.0004	-0.073	0
62	SLU 4	0.61	0	38.28	0.0043	-0.0523	0.0001
62	SLU 5	1.09	-0.01	38.78	0.0076	-0.0345	0.0002
62	SLU 6	0.39	0.01	36.94	-0.0002	-0.0584	0
62	SLU 7	0.98	0	38.21	0.0045	-0.0377	0.0001
62	SLU 8	0.47	0.01	36.6	-0.0002	-0.0544	0
62	SLU 9	1.06	0	37.87	0.0046	-0.0337	0.0001
62	SLU 10	0.84	-0.01	44.35	0.0079	-0.0549	0.0002
62	SLU 11	0.14	0.01	42.5	0.0001	-0.0787	0
62	SLU 12	0.73	0	43.77	0.0049	-0.058	0.0001
62	SLU 13	1.21	-0.01	44.27	0.0081	-0.0402	0.0002
62	SLU 14	0.51	0.01	42.43	0.0003	-0.0641	0
62	SLU 15	1.1	0	43.7	0.0051	-0.0434	0.0001
62	SLU 16	0.59	0.01	42.09	0.0004	-0.0601	0
62	SLU 17	1.18	0	43.36	0.0051	-0.0394	0.0001
62	SLU 18	-0.1	0.01	44.59	0.0002	-0.0918	0
62	SLU 19	0.5	0	45.86	0.005	-0.0711	0.0001
62	SLU 20	0.27	0.01	44.52	0.0004	-0.0772	0
62	SLU 21	0.86	0	45.78	0.0052	-0.0565	0.0001
62	SLU 22	-0.16	0.01	40.91	0	-0.088	0
62	SLU 23	0.83	-0.01	43.02	0.008	-0.0535	0.0002
62	SLU 24	0.13	0.01	41.17	0.0002	-0.0773	0
62	SLU 25	0.72	0	42.44	0.005	-0.0566	0.0001
62	SLU 26	1.19	-0.01	42.94	0.0082	-0.0388	0.0002
62	SLU 27	0.49	0.01	41.1	0.0004	-0.0627	0
62	SLU 28	1.09	0	42.37	0.0052	-0.042	0.0001
62	SLU 29	0.57	0.01	40.76	0.0004	-0.0587	0
62	SLU 30	1.17	0	42.03	0.0052	-0.038	0.0001
62	SLU 31	0.95	-0.01	48.51	0.0086	-0.0591	0.0002
62	SLU 32	0.25	0.01	46.66	0.0007	-0.083	0
62	SLU 33	0.84	0	47.93	0.0055	-0.0623	0.0001
62	SLU 34	1.31	-0.01	48.43	0.0088	-0.0445	0.0002
62	SLU 35	0.62	0.01	46.59	0.0009	-0.0684	0
62	SLU 36	1.21	0	47.85	0.0057	-0.0477	0.0001
62	SLU 37	0.7	0.01	46.25	0.001	-0.0644	0
62	SLU 38	1.29	0	47.52	0.0058	-0.0437	0.0001
62	SLU 39	0.01	0.01	48.75	0.0008	-0.0961	0
62	SLU 40	0.6	0	50.02	0.0056	-0.0754	0.0001
62	SLU 41	0.38	0.01	48.68	0.001	-0.0814	0
62	SLU 42	0.97	0	49.94	0.0058	-0.0607	0.0001
62	SLU 43	-0.39	0.02	46.35	-0.001	-0.1073	0
62	SLU 44	0.6	-0.01	48.46	0.007	-0.0728	0.0002
62	SLU 45	-0.1	0.02	46.61	-0.0008	-0.0967	0
62	SLU 46	0.49	0	47.88	0.004	-0.076	0.0001
62	SLU 47	0.97	-0.01	48.38	0.0072	-0.0582	0.0002
62	SLU 48	0.27	0.02	46.54	-0.0006	-0.082	0
62	SLU 49	0.86	0	47.8	0.0042	-0.0613	0.0001
62	SLU 50	0.35	0.02	46.2	-0.0006	-0.078	0
62	SLU 51	0.94	0	47.47	0.0042	-0.0573	0.0001
62	SLU 52	0.72	-0.01	53.95	0.0076	-0.0785	0.0002
62	SLU 53	0.02	0.02	52.1	-0.0003	-0.1024	0
62	SLU 54	0.61	0	53.37	0.0045	-0.0817	0.0001
62	SLU 55	1.09	-0.01	53.87	0.0077	-0.0639	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
62	SLU 56	0.39	0.02	52.03	-0.0001	-0.0877	0
62	SLU 57	0.98	0	53.29	0.0047	-0.067	0.0001
62	SLU 58	0.47	0.02	51.69	0	-0.0837	0
62	SLU 59	1.06	0	52.96	0.0048	-0.063	0.0001
62	SLU 60	-0.21	0.02	54.19	-0.0002	-0.1154	0
62	SLU 61	0.38	0	55.46	0.0046	-0.0947	0.0001
62	SLU 62	0.15	0.02	54.12	0	-0.1008	0
62	SLU 63	0.75	0	55.38	0.0048	-0.0801	0.0001
62	SLU 64	-0.28	0.02	50.51	-0.0003	-0.1116	0
62	SLU 65	0.71	-0.01	52.62	0.0076	-0.0771	0.0002
62	SLU 66	0.01	0.02	50.77	-0.0002	-0.1009	0
62	SLU 67	0.6	0	52.04	0.0046	-0.0802	0.0001
62	SLU 68	1.08	-0.01	52.54	0.0078	-0.0625	0.0002
62	SLU 69	0.38	0.02	50.7	0	-0.0863	0
62	SLU 70	0.97	0	51.96	0.0048	-0.0656	0.0001
62	SLU 71	0.46	0.02	50.36	0	-0.0823	0
62	SLU 72	1.05	0	51.63	0.0048	-0.0616	0.0001
62	SLU 73	0.83	-0.01	58.11	0.0082	-0.0828	0.0002
62	SLU 74	0.13	0.02	56.26	0.0003	-0.1066	0
62	SLU 75	0.72	0	57.53	0.0051	-0.0859	0.0001
62	SLU 76	1.2	-0.01	58.03	0.0084	-0.0681	0.0002
62	SLU 77	0.5	0.02	56.19	0.0005	-0.092	0
62	SLU 78	1.09	0	57.45	0.0053	-0.0713	0.0001
62	SLU 79	0.58	0.02	55.85	0.0006	-0.088	0
62	SLU 80	1.17	0	57.12	0.0054	-0.0673	0.0001
62	SLU 81	-0.11	0.02	58.35	0.0004	-0.1197	0
62	SLU 82	0.49	0	59.62	0.0052	-0.099	0.0001
62	SLU 83	0.26	0.02	58.28	0.0006	-0.1051	0
62	SLU 84	0.85	0	59.54	0.0054	-0.0844	0.0001
62	SLE RA 1	-0.24	0.01	37.94	-0.0004	-0.0849	0
62	SLE RA 2	0.42	0	39.34	0.0049	-0.0619	0.0001
62	SLE RA 3	-0.05	0.01	38.12	-0.0003	-0.0778	0
62	SLE RA 4	0.35	0	38.96	0.0029	-0.064	0.0001
62	SLE RA 5	0.67	0	39.29	0.005	-0.0521	0.0001
62	SLE RA 6	0.2	0.01	38.07	-0.0002	-0.068	0
62	SLE RA 7	0.59	0	38.91	0.003	-0.0542	0.0001
62	SLE RA 8	0.25	0.01	37.84	-0.0001	-0.0654	0
62	SLE RA 9	0.65	0	38.68	0.003	-0.0516	0.0001
62	SLE RA 10	0.5	0	43	0.0053	-0.0657	0.0001
62	SLE RA 11	0.03	0.01	41.77	0.0001	-0.0816	0
62	SLE RA 12	0.43	0	42.62	0.0032	-0.0678	0.0001
62	SLE RA 13	0.75	0	42.95	0.0054	-0.0559	0.0001
62	SLE RA 14	0.28	0.01	41.73	0.0002	-0.0718	0
62	SLE RA 15	0.67	0	42.57	0.0034	-0.058	0.0001
62	SLE RA 16	0.33	0.01	41.5	0.0002	-0.0692	0
62	SLE RA 17	0.73	0	42.34	0.0034	-0.0554	0.0001
62	SLE RA 18	-0.12	0.01	43.17	0.0001	-0.0903	0
62	SLE RA 19	0.27	0	44.01	0.0033	-0.0765	0.0001
62	SLE RA 20	0.12	0.01	43.12	0.0002	-0.0806	0
62	SLE RA 21	0.52	0	43.96	0.0034	-0.0668	0.0001
62	SLE FR 1	-0.24	0.01	37.94	-0.0004	-0.0849	0
62	SLE FR 2	-0.11	0.01	38.22	0.0007	-0.0803	0
62	SLE FR 3	-0.14	0.01	37.92	-0.0003	-0.081	0
62	SLE FR 4	-0.07	0.01	39.79	0.0008	-0.0819	0
62	SLE FR 5	-0.11	0.01	39.49	-0.0002	-0.0826	0
62	SLE FR 6	-0.18	0.01	40.55	-0.0001	-0.0876	0
62	SLE QP 1	-0.24	0.01	37.94	-0.0004	-0.0849	0
62	SLE QP 2	-0.2	0.01	39.51	-0.0002	-0.0865	0
62	SLD 1	11.54	0.01	34.53	-0.0189	0.4453	0
62	SLD 2	11.54	0.01	34.53	-0.0189	0.4453	0
62	SLD 3	12.94	0.07	31.88	0.0001	0.5046	-0.0003
62	SLD 4	12.94	0.07	31.88	0.0001	0.5046	-0.0003
62	SLD 5	1.19	-0.07	42.04	-0.0346	-0.0169	0.0004
62	SLD 6	1.19	-0.07	42.04	-0.0346	-0.0169	0.0004
62	SLD 7	5.87	0.12	33.19	0.0286	0.1807	-0.0005
62	SLD 8	5.87	0.12	33.19	0.0286	0.1807	-0.0005
62	SLD 9	-6.27	-0.09	45.83	-0.0291	-0.3538	0.0005
62	SLD 10	-6.27	-0.09	45.83	-0.0291	-0.3538	0.0005
62	SLD 11	-1.6	0.1	36.97	0.0341	-0.1562	-0.0004
62	SLD 12	-1.6	0.1	36.97	0.0341	-0.1562	-0.0004
62	SLD 13	-13.35	-0.04	47.14	-0.0005	-0.6776	0.0003
62	SLD 14	-13.35	-0.04	47.14	-0.0005	-0.6776	0.0003
62	SLD 15	-11.95	0.01	44.48	0.0184	-0.6184	0
62	SLD 16	-11.95	0.01	44.48	0.0184	-0.6184	0
62	SLV 1	26.58	0.01	28.14	-0.0449	1.126	-0.0001
62	SLV 2	26.58	0.01	28.14	-0.0449	1.126	-0.0001
62	SLV 3	29.96	0.15	21.97	0.0012	1.2701	-0.0007
62	SLV 4	29.96	0.15	21.97	0.0012	1.2701	-0.0007
62	SLV 5	2.71	-0.2	45.45	-0.0834	0.0588	0.0009
62	SLV 6	2.71	-0.2	45.45	-0.0834	0.0588	0.0009
62	SLV 7	13.96	0.27	24.89	0.07	0.5389	-0.0012
62	SLV 8	13.96	0.27	24.89	0.07	0.5389	-0.0012
62	SLV 9	-14.37	-0.24	54.12	-0.0705	-0.712	0.0012
62	SLV 10	-14.37	-0.24	54.12	-0.0705	-0.712	0.0012
62	SLV 11	-3.12	0.23	33.56	0.083	-0.2318	-0.0009
62	SLV 12	-3.12	0.23	33.56	0.083	-0.2318	-0.0009
62	SLV 13	-30.36	-0.12	57.04	-0.0017	-1.4431	0.0007
62	SLV 14	-30.36	-0.12	57.04	-0.0017	-1.4431	0.0007
62	SLV 15	-26.99	0.02	50.87	0.0444	-1.2991	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
62	SLV 16	-26.99	0.02	50.87	0.0444	-1.2991	0.0001
63	SLU 1	0.73	-0.04	42.87	0.0116	0.0536	0.0001
63	SLU 2	1.94	-0.06	45.77	0.0185	0.1127	0.0002
63	SLU 3	1.02	-0.04	43.24	0.0117	0.0683	0.0001
63	SLU 4	1.75	-0.05	44.98	0.0158	0.1038	0.0002
63	SLU 5	2.3	-0.06	45.74	0.0185	0.1306	0.0002
63	SLU 6	1.37	-0.04	43.21	0.0117	0.0862	0.0001
63	SLU 7	2.1	-0.05	44.95	0.0158	0.1217	0.0002
63	SLU 8	1.44	-0.04	42.82	0.0116	0.0894	0.0001
63	SLU 9	2.17	-0.05	44.56	0.0157	0.1249	0.0002
63	SLU 10	2.22	-0.06	52.34	0.0204	0.1271	0.0003
63	SLU 11	1.29	-0.05	49.82	0.0136	0.0827	0.0001
63	SLU 12	2.02	-0.06	51.55	0.0177	0.1181	0.0002
63	SLU 13	2.57	-0.06	52.31	0.0204	0.145	0.0003
63	SLU 14	1.65	-0.05	49.79	0.0136	0.1006	0.0001
63	SLU 15	2.37	-0.06	51.52	0.0177	0.136	0.0002
63	SLU 16	1.71	-0.05	49.4	0.0135	0.1037	0.0001
63	SLU 17	2.44	-0.06	51.13	0.0176	0.1392	0.0002
63	SLU 18	1.12	-0.05	52.27	0.0143	0.0741	0.0001
63	SLU 19	1.85	-0.06	54	0.0184	0.1096	0.0002
63	SLU 20	1.48	-0.05	52.24	0.0143	0.092	0.0001
63	SLU 21	2.2	-0.06	53.98	0.0184	0.1275	0.0002
63	SLU 22	0.96	-0.05	47.88	0.0132	0.0663	0.0001
63	SLU 23	2.18	-0.06	50.77	0.0201	0.1254	0.0003
63	SLU 24	1.25	-0.05	48.25	0.0132	0.081	0.0001
63	SLU 25	1.98	-0.06	49.98	0.0174	0.1165	0.0002
63	SLU 26	2.53	-0.06	50.75	0.02	0.1433	0.0003
63	SLU 27	1.61	-0.05	48.22	0.0132	0.0989	0.0001
63	SLU 28	2.34	-0.05	49.96	0.0174	0.1344	0.0002
63	SLU 29	1.68	-0.05	47.83	0.0132	0.1021	0.0001
63	SLU 30	2.4	-0.05	49.57	0.0173	0.1375	0.0002
63	SLU 31	2.45	-0.07	57.35	0.0219	0.1398	0.0003
63	SLU 32	1.53	-0.05	54.82	0.0151	0.0954	0.0001
63	SLU 33	2.26	-0.06	56.56	0.0193	0.1308	0.0002
63	SLU 34	2.81	-0.07	57.32	0.0219	0.1577	0.0003
63	SLU 35	1.88	-0.05	54.8	0.0151	0.1132	0.0001
63	SLU 36	2.61	-0.06	56.53	0.0193	0.1487	0.0002
63	SLU 37	1.95	-0.05	54.41	0.015	0.1164	0.0001
63	SLU 38	2.68	-0.06	56.14	0.0192	0.1519	0.0002
63	SLU 39	1.36	-0.06	57.27	0.0158	0.0868	0.0001
63	SLU 40	2.08	-0.06	59.01	0.02	0.1223	0.0002
63	SLU 41	1.71	-0.05	57.25	0.0158	0.1047	0.0001
63	SLU 42	2.44	-0.06	58.98	0.02	0.1402	0.0002
63	SLU 43	0.87	-0.05	54.02	0.0145	0.0654	0.0001
63	SLU 44	2.08	-0.07	56.91	0.0214	0.1245	0.0003
63	SLU 45	1.15	-0.05	54.39	0.0146	0.0801	0.0001
63	SLU 46	1.88	-0.06	56.12	0.0187	0.1155	0.0002
63	SLU 47	2.44	-0.07	56.88	0.0214	0.1424	0.0003
63	SLU 48	1.51	-0.05	54.36	0.0146	0.0979	0.0001
63	SLU 49	2.24	-0.06	56.09	0.0187	0.1334	0.0002
63	SLU 50	1.58	-0.05	53.97	0.0145	0.1011	0.0001
63	SLU 51	2.3	-0.06	55.7	0.0187	0.1366	0.0002
63	SLU 52	2.35	-0.07	63.48	0.0233	0.1388	0.0003
63	SLU 53	1.43	-0.06	60.96	0.0165	0.0944	0.0001
63	SLU 54	2.16	-0.07	62.7	0.0206	0.1299	0.0002
63	SLU 55	2.71	-0.07	63.46	0.0233	0.1567	0.0003
63	SLU 56	1.78	-0.06	60.93	0.0165	0.1123	0.0001
63	SLU 57	2.51	-0.07	62.67	0.0206	0.1478	0.0002
63	SLU 58	1.85	-0.06	60.54	0.0164	0.1155	0.0001
63	SLU 59	2.58	-0.07	62.28	0.0205	0.1509	0.0002
63	SLU 60	1.26	-0.06	63.41	0.0172	0.0859	0.0001
63	SLU 61	1.99	-0.07	65.15	0.0213	0.1213	0.0002
63	SLU 62	1.61	-0.06	63.39	0.0172	0.1037	0.0001
63	SLU 63	2.34	-0.07	65.12	0.0213	0.1392	0.0002
63	SLU 64	1.1	-0.06	59.03	0.0161	0.0781	0.0001
63	SLU 65	2.32	-0.07	61.92	0.023	0.1372	0.0003
63	SLU 66	1.39	-0.06	59.39	0.0162	0.0928	0.0001
63	SLU 67	2.12	-0.07	61.13	0.0203	0.1282	0.0002
63	SLU 68	2.67	-0.07	61.89	0.023	0.155	0.0003
63	SLU 69	1.75	-0.06	59.37	0.0162	0.1106	0.0001
63	SLU 70	2.47	-0.07	61.1	0.0203	0.1461	0.0002
63	SLU 71	1.81	-0.06	58.97	0.0161	0.1138	0.0001
63	SLU 72	2.54	-0.07	60.71	0.0202	0.1493	0.0002
63	SLU 73	2.59	-0.08	68.49	0.0249	0.1515	0.0003
63	SLU 74	1.66	-0.06	65.97	0.0181	0.1071	0.0001
63	SLU 75	2.39	-0.07	67.7	0.0222	0.1426	0.0002
63	SLU 76	2.95	-0.08	68.47	0.0249	0.1694	0.0003
63	SLU 77	2.02	-0.06	65.94	0.0181	0.125	0.0001
63	SLU 78	2.75	-0.07	67.68	0.0222	0.1604	0.0002
63	SLU 79	2.09	-0.06	65.55	0.018	0.1282	0.0001
63	SLU 80	2.82	-0.07	67.28	0.0221	0.1636	0.0002
63	SLU 81	1.49	-0.07	68.42	0.0188	0.0985	0.0001
63	SLU 82	2.22	-0.08	70.15	0.0229	0.134	0.0002
63	SLU 83	1.85	-0.07	68.39	0.0188	0.1164	0.0001
63	SLU 84	2.58	-0.07	70.13	0.0229	0.1519	0.0002
63	SLE RA 1	0.8	-0.04	44.3	0.012	0.0573	0.0001
63	SLE RA 2	1.61	-0.05	46.23	0.0166	0.0967	0.0002
63	SLE RA 3	0.99	-0.04	44.55	0.0121	0.0671	0.0001
63	SLE RA 4	1.47	-0.05	45.71	0.0149	0.0907	0.0002





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
63	SLE RA 5	1.84	-0.05	46.21	0.0166	0.1086	0.0002
63	SLE RA 6	1.23	-0.04	44.53	0.0121	0.079	0.0001
63	SLE RA 7	1.71	-0.05	45.69	0.0149	0.1026	0.0002
63	SLE RA 8	1.27	-0.04	44.27	0.012	0.0811	0.0001
63	SLE RA 9	1.76	-0.05	45.43	0.0148	0.1047	0.0002
63	SLE RA 10	1.79	-0.06	50.62	0.0179	0.1062	0.0002
63	SLE RA 11	1.17	-0.05	48.93	0.0133	0.0766	0.0001
63	SLE RA 12	1.66	-0.05	50.09	0.0161	0.1003	0.0002
63	SLE RA 13	2.02	-0.06	50.6	0.0179	0.1181	0.0002
63	SLE RA 14	1.41	-0.05	48.92	0.0133	0.0885	0.0001
63	SLE RA 15	1.89	-0.05	50.07	0.0161	0.1122	0.0002
63	SLE RA 16	1.45	-0.05	48.65	0.0133	0.0907	0.0001
63	SLE RA 17	1.94	-0.05	49.81	0.016	0.1143	0.0002
63	SLE RA 18	1.06	-0.05	50.57	0.0138	0.0709	0.0001
63	SLE RA 19	1.54	-0.06	51.72	0.0166	0.0946	0.0002
63	SLE RA 20	1.29	-0.05	50.55	0.0138	0.0828	0.0001
63	SLE RA 21	1.78	-0.05	51.71	0.0166	0.1065	0.0002
63	SLE FR 1	0.8	-0.04	44.3	0.012	0.0573	0.0001
63	SLE FR 2	0.96	-0.05	44.69	0.013	0.0651	0.0001
63	SLE FR 3	0.89	-0.04	44.3	0.012	0.062	0.0001
63	SLE FR 4	1.04	-0.05	46.57	0.0135	0.0692	0.0001
63	SLE FR 5	0.97	-0.05	46.18	0.0126	0.0661	0.0001
63	SLE FR 6	0.93	-0.05	47.44	0.0129	0.0641	0.0001
63	SLE QP 1	0.8	-0.04	44.3	0.012	0.0573	0.0001
63	SLE QP 2	0.87	-0.05	46.18	0.0126	0.0614	0.0001
63	SLD 1	11.42	-0.05	37.36	0.014	0.5921	0.0001
63	SLD 2	11.42	-0.05	37.36	0.014	0.5921	0.0001
63	SLD 3	12.79	-0.01	35.02	-0.0003	0.6502	-0.0001
63	SLD 4	12.79	-0.01	35.02	-0.0003	0.6502	-0.0001
63	SLD 5	1.96	-0.11	47.09	0.0347	0.1325	0.0004
63	SLD 6	1.96	-0.11	47.09	0.0347	0.1325	0.0004
63	SLD 7	6.53	0.02	39.28	-0.013	0.3261	-0.0003
63	SLD 8	6.53	0.02	39.28	-0.013	0.3261	-0.0003
63	SLD 9	-4.78	-0.12	53.09	0.0382	-0.2034	0.0005
63	SLD 10	-4.78	-0.12	53.09	0.0382	-0.2034	0.0005
63	SLD 11	-0.21	0.02	45.27	-0.0096	-0.0098	-0.0002
63	SLD 12	-0.21	0.02	45.27	-0.0096	-0.0098	-0.0002
63	SLD 13	-11.04	-0.08	57.35	0.0255	-0.5275	0.0003
63	SLD 14	-11.04	-0.08	57.35	0.0255	-0.5275	0.0003
63	SLD 15	-9.67	-0.04	55	0.0111	-0.4694	0.0001
63	SLD 16	-9.67	-0.04	55	0.0111	-0.4694	0.0001
63	SLV 1	24.91	-0.06	26.12	0.0161	1.2717	0.0001
63	SLV 2	24.91	-0.06	26.12	0.0161	1.2717	0.0001
63	SLV 3	28.22	0.03	20.53	-0.0178	1.4126	-0.0004
63	SLV 4	28.22	0.03	20.53	-0.0178	1.4126	-0.0004
63	SLV 5	3.06	-0.19	48.64	0.0652	0.2107	0.0009
63	SLV 6	3.06	-0.19	48.64	0.0652	0.2107	0.0009
63	SLV 7	14.1	0.12	30.02	-0.0481	0.6805	-0.0009
63	SLV 8	14.1	0.12	30.02	-0.0481	0.6805	-0.0009
63	SLV 9	-12.35	-0.21	62.35	0.0732	-0.5578	0.0011
63	SLV 10	-12.35	-0.21	62.35	0.0732	-0.5578	0.0011
63	SLV 11	-1.31	0.1	43.73	-0.04	-0.088	-0.0007
63	SLV 12	-1.31	0.1	43.73	-0.04	-0.088	-0.0007
63	SLV 13	-26.47	-0.12	71.83	0.043	-1.2899	0.0006
63	SLV 14	-26.47	-0.12	71.83	0.043	-1.2899	0.0006
63	SLV 15	-23.16	-0.03	66.25	0.009	-1.149	0.0001
63	SLV 16	-23.16	-0.03	66.25	0.009	-1.149	0.0001
64	SLU 1	-4.31	-5.68	83.27	-4.2266	-0.3492	-0.0064
64	SLU 2	-3.65	-6.51	89.59	-4.5652	-0.3332	-0.0048
64	SLU 3	-4.14	-5.75	83.89	-4.266	-0.3432	-0.0063
64	SLU 4	-3.74	-6.25	87.69	-4.4692	-0.3336	-0.0053
64	SLU 5	-3.38	-6.54	89.4	-4.5676	-0.321	-0.0046
64	SLU 6	-3.86	-5.78	83.7	-4.2684	-0.3311	-0.0061
64	SLU 7	-3.47	-6.27	87.5	-4.4715	-0.3215	-0.0051
64	SLU 8	-3.76	-5.73	82.89	-4.2314	-0.3249	-0.006
64	SLU 9	-3.37	-6.23	86.68	-4.4346	-0.3153	-0.005
64	SLU 10	-4.14	-7.22	102.22	-5.1537	-0.3792	-0.0054
64	SLU 11	-4.62	-6.46	96.51	-4.8545	-0.3893	-0.007
64	SLU 12	-4.23	-6.96	100.31	-5.0576	-0.3797	-0.006
64	SLU 13	-3.86	-7.24	102.03	-5.1561	-0.3671	-0.0052
64	SLU 14	-4.35	-6.48	96.32	-4.8569	-0.3772	-0.0067
64	SLU 15	-3.95	-6.98	100.12	-5.06	-0.3675	-0.0058
64	SLU 16	-4.25	-6.44	95.51	-4.8199	-0.371	-0.0066
64	SLU 17	-3.85	-6.94	99.31	-5.0231	-0.3614	-0.0056
64	SLU 18	-5.01	-6.7	101.3	-5.0673	-0.415	-0.0074
64	SLU 19	-4.61	-7.19	105.1	-5.2705	-0.4054	-0.0064
64	SLU 20	-4.73	-6.72	101.11	-5.0697	-0.4029	-0.0071
64	SLU 21	-4.33	-7.22	104.91	-5.2729	-0.3933	-0.0061
64	SLU 22	-4.67	-6.23	92.93	-4.6763	-0.385	-0.0069
64	SLU 23	-4.01	-7.06	99.25	-5.0149	-0.369	-0.0052
64	SLU 24	-4.5	-6.3	93.55	-4.7157	-0.3791	-0.0068
64	SLU 25	-4.1	-6.79	97.34	-4.9188	-0.3694	-0.0058
64	SLU 26	-3.74	-7.08	99.06	-5.0173	-0.3568	-0.005
64	SLU 27	-4.22	-6.32	93.36	-4.7181	-0.3669	-0.0065
64	SLU 28	-3.83	-6.82	97.15	-4.9212	-0.3573	-0.0056
64	SLU 29	-4.13	-6.28	92.55	-4.6811	-0.3607	-0.0064
64	SLU 30	-3.73	-6.78	96.34	-4.8843	-0.3511	-0.0054
64	SLU 31	-4.5	-7.77	111.87	-5.6034	-0.4151	-0.0059
64	SLU 32	-4.98	-7.01	106.17	-5.3041	-0.4251	-0.0074



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
64	SLU 33	-4.59	-7.5	109.97	-5.5073	-0.4155	-0.0064
64	SLU 34	-4.22	-7.79	111.68	-5.6058	-0.4029	-0.0057
64	SLU 35	-4.71	-7.03	105.98	-5.3065	-0.413	-0.0072
64	SLU 36	-4.31	-7.53	109.78	-5.5097	-0.4034	-0.0062
64	SLU 37	-4.61	-6.99	105.17	-5.2696	-0.4068	-0.0071
64	SLU 38	-4.21	-7.48	108.96	-5.4727	-0.3972	-0.0061
64	SLU 39	-5.37	-7.24	110.96	-5.517	-0.4508	-0.0078
64	SLU 40	-4.97	-7.74	114.75	-5.7202	-0.4412	-0.0068
64	SLU 41	-5.09	-7.27	110.77	-5.5194	-0.4387	-0.0076
64	SLU 42	-4.7	-7.76	114.56	-5.7226	-0.4291	-0.0066
64	SLU 43	-5.48	-7.2	104.94	-5.3404	-0.4417	-0.0082
64	SLU 44	-4.82	-8.03	111.26	-5.6791	-0.4257	-0.0066
64	SLU 45	-5.31	-7.27	105.56	-5.3798	-0.4357	-0.0081
64	SLU 46	-4.91	-7.77	109.35	-5.583	-0.4261	-0.0071
64	SLU 47	-4.55	-8.05	111.07	-5.6814	-0.4135	-0.0063
64	SLU 48	-5.03	-7.29	105.37	-5.3822	-0.4236	-0.0079
64	SLU 49	-4.64	-7.79	109.16	-5.5854	-0.414	-0.0069
64	SLU 50	-4.94	-7.25	104.56	-5.3452	-0.4174	-0.0077
64	SLU 51	-4.54	-7.75	108.35	-5.5484	-0.4078	-0.0068
64	SLU 52	-5.31	-8.74	123.88	-6.2675	-0.4717	-0.0072
64	SLU 53	-5.79	-7.98	118.18	-5.9683	-0.4818	-0.0087
64	SLU 54	-5.4	-8.47	121.98	-6.1715	-0.4722	-0.0078
64	SLU 55	-5.03	-8.76	123.69	-6.2699	-0.4596	-0.007
64	SLU 56	-5.52	-8	117.99	-5.9707	-0.4697	-0.0085
64	SLU 57	-5.12	-8.5	121.79	-6.1738	-0.46	-0.0075
64	SLU 58	-5.42	-7.96	117.18	-5.9337	-0.4635	-0.0084
64	SLU 59	-5.02	-8.46	120.97	-6.1369	-0.4539	-0.0074
64	SLU 60	-6.18	-8.21	122.97	-6.1811	-0.5075	-0.0091
64	SLU 61	-5.78	-8.71	126.76	-6.3843	-0.4979	-0.0081
64	SLU 62	-5.9	-8.24	122.78	-6.1835	-0.4954	-0.0089
64	SLU 63	-5.51	-8.73	126.57	-6.3867	-0.4857	-0.0079
64	SLU 64	-5.84	-7.75	114.6	-5.7901	-0.4775	-0.0087
64	SLU 65	-5.18	-8.58	120.92	-6.1287	-0.4615	-0.007
64	SLU 66	-5.67	-7.82	115.22	-5.8295	-0.4715	-0.0085
64	SLU 67	-5.27	-8.31	119.01	-6.0326	-0.4619	-0.0076
64	SLU 68	-4.91	-8.6	120.73	-6.1311	-0.4493	-0.0068
64	SLU 69	-5.4	-7.84	115.03	-5.8319	-0.4594	-0.0083
64	SLU 70	-5	-8.34	118.82	-6.035	-0.4498	-0.0073
64	SLU 71	-5.3	-7.8	114.22	-5.7949	-0.4532	-0.0082
64	SLU 72	-4.9	-8.29	118.01	-5.9981	-0.4436	-0.0072
64	SLU 73	-5.67	-9.28	133.54	-6.7172	-0.5075	-0.0077
64	SLU 74	-6.15	-8.52	127.84	-6.418	-0.5176	-0.0092
64	SLU 75	-5.76	-9.02	131.64	-6.6211	-0.508	-0.0082
64	SLU 76	-5.39	-9.31	133.35	-6.7196	-0.4954	-0.0074
64	SLU 77	-5.88	-8.55	127.65	-6.4204	-0.5055	-0.009
64	SLU 78	-5.48	-9.04	131.45	-6.6235	-0.4958	-0.008
64	SLU 79	-5.78	-8.51	126.84	-6.3834	-0.4993	-0.0088
64	SLU 80	-5.38	-9	130.63	-6.5866	-0.4897	-0.0079
64	SLU 81	-6.54	-8.76	132.63	-6.6308	-0.5433	-0.0096
64	SLU 82	-6.14	-9.26	136.42	-6.834	-0.5337	-0.0086
64	SLU 83	-6.26	-8.78	132.44	-6.6332	-0.5312	-0.0093
64	SLU 84	-5.87	-9.28	136.23	-6.8364	-0.5216	-0.0084
64	SLE RA 1	-4.42	-5.84	86.03	-4.3551	-0.3594	-0.0066
64	SLE RA 2	-3.98	-6.39	90.24	-4.5808	-0.3488	-0.0055
64	SLE RA 3	-4.3	-5.89	86.44	-4.3813	-0.3555	-0.0065
64	SLE RA 4	-4.04	-6.22	88.97	-4.5168	-0.3491	-0.0058
64	SLE RA 5	-3.79	-6.41	90.12	-4.5824	-0.3407	-0.0053
64	SLE RA 6	-4.12	-5.9	86.32	-4.3829	-0.3474	-0.0063
64	SLE RA 7	-3.85	-6.23	88.85	-4.5184	-0.341	-0.0057
64	SLE RA 8	-4.05	-5.87	85.78	-4.3583	-0.3433	-0.0062
64	SLE RA 9	-3.79	-6.2	88.3	-4.4937	-0.3368	-0.0056
64	SLE RA 10	-4.3	-6.86	98.66	-4.9732	-0.3795	-0.0059
64	SLE RA 11	-4.62	-6.36	94.86	-4.7737	-0.3862	-0.0069
64	SLE RA 12	-4.36	-6.69	97.39	-4.9091	-0.3798	-0.0063
64	SLE RA 13	-4.12	-6.88	98.53	-4.9748	-0.3714	-0.0057
64	SLE RA 14	-4.44	-6.37	94.73	-4.7753	-0.3781	-0.0068
64	SLE RA 15	-4.18	-6.7	97.26	-4.9107	-0.3717	-0.0061
64	SLE RA 16	-4.37	-6.35	94.19	-4.7506	-0.374	-0.0067
64	SLE RA 17	-4.11	-6.68	96.72	-4.8861	-0.3676	-0.006
64	SLE RA 18	-4.88	-6.51	98.05	-4.9156	-0.4033	-0.0072
64	SLE RA 19	-4.61	-6.85	100.58	-5.051	-0.3969	-0.0065
64	SLE RA 20	-4.69	-6.53	97.92	-4.9172	-0.3952	-0.007
64	SLE RA 21	-4.43	-6.86	100.45	-5.0526	-0.3888	-0.0064
64	SLE FR 1	-4.42	-5.84	86.03	-4.3551	-0.3594	-0.0066
64	SLE FR 2	-4.33	-5.95	86.87	-4.4003	-0.3573	-0.0063
64	SLE FR 3	-4.34	-5.85	85.98	-4.3557	-0.3562	-0.0065
64	SLE FR 4	-4.47	-6.15	90.48	-4.5684	-0.3705	-0.0065
64	SLE FR 5	-4.48	-6.05	89.58	-4.5239	-0.3694	-0.0067
64	SLE FR 6	-4.65	-6.18	92.04	-4.6353	-0.3814	-0.0069
64	SLE QP 1	-4.42	-5.84	86.03	-4.3551	-0.3594	-0.0066
64	SLE QP 2	-4.56	-6.04	89.64	-4.5232	-0.3726	-0.0067
64	SLD 1	5.48	-5.83	62.47	-3.8664	0.172	0.0052
64	SLD 2	5.48	-5.83	62.47	-3.8664	0.172	0.0052
64	SLD 3	6.72	-4.13	56.61	-3.4104	0.2404	0.01
64	SLD 4	6.72	-4.13	56.61	-3.4104	0.2404	0.01
64	SLD 5	-3.41	-8.56	90.37	-5.0177	-0.3131	-0.0104
64	SLD 6	-3.41	-8.56	90.37	-5.0177	-0.3131	-0.0104
64	SLD 7	0.7	-2.89	70.84	-3.4978	-0.0848	0.0055
64	SLD 8	0.7	-2.89	70.84	-3.4978	-0.0848	0.0055



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
64	SLD 9	-9.81	-9.2	108.43	-5.5487	-0.6604	-0.019
64	SLD 10	-9.81	-9.2	108.43	-5.5487	-0.6604	-0.019
64	SLD 11	-5.7	-3.53	88.9	-4.0287	-0.4321	-0.0031
64	SLD 12	-5.7	-3.53	88.9	-4.0287	-0.4321	-0.0031
64	SLD 13	-15.83	-7.96	122.66	-5.6361	-0.9857	-0.0235
64	SLD 14	-15.83	-7.96	122.66	-5.6361	-0.9857	-0.0235
64	SLD 15	-14.6	-6.26	116.8	-5.1801	-0.9172	-0.0187
64	SLD 16	-14.6	-6.26	116.8	-5.1801	-0.9172	-0.0187
64	SLV 1	18.32	-5.57	27.84	-3.0412	0.8682	0.0204
64	SLV 2	18.32	-5.57	27.84	-3.0412	0.8682	0.0204
64	SLV 3	21.32	-1.58	13.85	-1.9537	1.0349	0.0319
64	SLV 4	21.32	-1.58	13.85	-1.9537	1.0349	0.0319
64	SLV 5	-2.24	-11.95	92.32	-5.7279	-0.2533	-0.0161
64	SLV 6	-2.24	-11.95	92.32	-5.7279	-0.2533	-0.0161
64	SLV 7	7.75	1.34	45.68	-2.1031	0.3025	0.0224
64	SLV 8	7.75	1.34	45.68	-2.1031	0.3025	0.0224
64	SLV 9	-16.86	-13.43	133.59	-6.9434	-1.0478	-0.0359
64	SLV 10	-16.86	-13.43	133.59	-6.9434	-1.0478	-0.0359
64	SLV 11	-6.87	-0.13	86.95	-3.3186	-0.492	0.0026
64	SLV 12	-6.87	-0.13	86.95	-3.3186	-0.492	0.0026
64	SLV 13	-30.43	-10.5	165.42	-7.0928	-1.7801	-0.0454
64	SLV 14	-30.43	-10.5	165.42	-7.0928	-1.7801	-0.0454
64	SLV 15	-27.43	-6.51	151.43	-6.0053	-1.6134	-0.0339
64	SLV 16	-27.43	-6.51	151.43	-6.0053	-1.6134	-0.0339
65	SLU 1	-8.4	-0.01	47.06	0.0099	-0.1823	0.0009
65	SLU 2	-8.43	0	50.04	0.01	-0.1707	0.0008
65	SLU 3	-8.31	-0.01	47.21	0.0103	-0.1766	0.001
65	SLU 4	-8.33	-0.01	49	0.0103	-0.1696	0.0009
65	SLU 5	-8.21	0	49.66	0.0103	-0.1612	0.0009
65	SLU 6	-8.09	-0.01	46.82	0.0107	-0.167	0.001
65	SLU 7	-8.11	-0.01	48.61	0.0107	-0.16	0.001
65	SLU 8	-7.96	-0.01	46.29	0.0106	-0.1632	0.001
65	SLU 9	-7.98	-0.01	48.08	0.0107	-0.1562	0.001
65	SLU 10	-9.66	0	57.37	0.0109	-0.1959	0.0009
65	SLU 11	-9.54	-0.01	54.54	0.0112	-0.2017	0.001
65	SLU 12	-9.55	-0.01	56.33	0.0112	-0.1947	0.001
65	SLU 13	-9.44	0	56.98	0.0112	-0.1863	0.0009
65	SLU 14	-9.32	-0.01	54.15	0.0116	-0.1921	0.0011
65	SLU 15	-9.34	-0.01	55.94	0.0116	-0.1851	0.001
65	SLU 16	-9.19	-0.01	53.61	0.0115	-0.1883	0.0011
65	SLU 17	-9.21	-0.01	55.4	0.0116	-0.1813	0.001
65	SLU 18	-10.15	-0.01	57.53	0.0112	-0.2182	0.001
65	SLU 19	-10.17	-0.01	59.32	0.0112	-0.2113	0.0009
65	SLU 20	-9.93	-0.01	57.14	0.0115	-0.2086	0.0011
65	SLU 21	-9.95	-0.01	58.93	0.0116	-0.2017	0.001
65	SLU 22	-9.33	-0.01	52.68	0.0104	-0.2009	0.0009
65	SLU 23	-9.36	0	55.66	0.0105	-0.1893	0.0008
65	SLU 24	-9.24	-0.01	52.83	0.0109	-0.1951	0.001
65	SLU 25	-9.26	-0.01	54.61	0.0109	-0.1881	0.0009
65	SLU 26	-9.14	0	55.27	0.0109	-0.1797	0.0009
65	SLU 27	-9.02	-0.01	52.44	0.0112	-0.1855	0.0011
65	SLU 28	-9.04	-0.01	54.23	0.0113	-0.1785	0.001
65	SLU 29	-8.89	-0.01	51.9	0.0112	-0.1817	0.0011
65	SLU 30	-8.91	-0.01	53.69	0.0113	-0.1747	0.001
65	SLU 31	-10.59	0	62.99	0.0114	-0.2144	0.0009
65	SLU 32	-10.46	-0.01	60.15	0.0118	-0.2202	0.0011
65	SLU 33	-10.48	-0.01	61.94	0.0118	-0.2132	0.001
65	SLU 34	-10.37	0	62.6	0.0118	-0.2048	0.001
65	SLU 35	-10.24	-0.01	59.77	0.0121	-0.2106	0.0011
65	SLU 36	-10.26	-0.01	61.56	0.0122	-0.2037	0.0011
65	SLU 37	-10.12	-0.01	59.23	0.0121	-0.2068	0.0011
65	SLU 38	-10.14	-0.01	61.02	0.0122	-0.1999	0.0011
65	SLU 39	-11.08	-0.01	63.14	0.0117	-0.2367	0.001
65	SLU 40	-11.1	-0.01	64.93	0.0118	-0.2298	0.001
65	SLU 41	-10.86	-0.01	62.76	0.0121	-0.2272	0.0011
65	SLU 42	-10.88	-0.01	64.55	0.0122	-0.2202	0.001
65	SLU 43	-10.6	-0.02	59.25	0.0126	-0.2307	0.0012
65	SLU 44	-10.64	-0.01	62.24	0.0127	-0.2191	0.0011
65	SLU 45	-10.51	-0.02	59.4	0.013	-0.2249	0.0012
65	SLU 46	-10.53	-0.01	61.19	0.0131	-0.218	0.0012
65	SLU 47	-10.42	-0.01	61.85	0.0131	-0.2095	0.0011
65	SLU 48	-10.29	-0.02	59.01	0.0134	-0.2153	0.0013
65	SLU 49	-10.31	-0.01	60.8	0.0135	-0.2084	0.0012
65	SLU 50	-10.17	-0.02	58.48	0.0134	-0.2115	0.0013
65	SLU 51	-10.19	-0.01	60.27	0.0134	-0.2046	0.0012
65	SLU 52	-11.86	-0.01	69.56	0.0136	-0.2442	0.0011
65	SLU 53	-11.74	-0.02	66.73	0.0139	-0.25	0.0013
65	SLU 54	-11.76	-0.01	68.52	0.014	-0.2431	0.0012
65	SLU 55	-11.64	-0.01	69.18	0.014	-0.2346	0.0012
65	SLU 56	-11.52	-0.02	66.34	0.0143	-0.2404	0.0014
65	SLU 57	-11.54	-0.01	68.13	0.0144	-0.2335	0.0013
65	SLU 58	-11.39	-0.02	65.81	0.0143	-0.2366	0.0014
65	SLU 59	-11.41	-0.01	67.6	0.0143	-0.2297	0.0013
65	SLU 60	-12.36	-0.01	69.72	0.0139	-0.2666	0.0013
65	SLU 61	-12.37	-0.01	71.51	0.014	-0.2596	0.0012
65	SLU 62	-12.14	-0.02	69.33	0.0143	-0.257	0.0013
65	SLU 63	-12.16	-0.01	71.12	0.0143	-0.25	0.0013
65	SLU 64	-11.53	-0.01	64.87	0.0132	-0.2492	0.0012
65	SLU 65	-11.56	-0.01	67.85	0.0133	-0.2376	0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
65	SLU 66	-11.44	-0.02	65.02	0.0136	-0.2434	0.0013
65	SLU 67	-11.46	-0.01	66.81	0.0137	-0.2365	0.0012
65	SLU 68	-11.34	-0.01	67.46	0.0137	-0.228	0.0012
65	SLU 69	-11.22	-0.02	64.63	0.014	-0.2339	0.0013
65	SLU 70	-11.24	-0.01	66.42	0.0141	-0.2269	0.0013
65	SLU 71	-11.09	-0.02	64.1	0.014	-0.2301	0.0013
65	SLU 72	-11.11	-0.01	65.88	0.014	-0.2231	0.0013
65	SLU 73	-12.79	-0.01	75.18	0.0142	-0.2627	0.0012
65	SLU 74	-12.67	-0.02	72.35	0.0145	-0.2685	0.0013
65	SLU 75	-12.68	-0.01	74.14	0.0146	-0.2616	0.0013
65	SLU 76	-12.57	-0.01	74.79	0.0146	-0.2532	0.0012
65	SLU 77	-12.45	-0.02	71.96	0.0149	-0.259	0.0014
65	SLU 78	-12.47	-0.01	73.75	0.015	-0.252	0.0013
65	SLU 79	-12.32	-0.02	71.42	0.0149	-0.2552	0.0014
65	SLU 80	-12.34	-0.01	73.21	0.0149	-0.2482	0.0013
65	SLU 81	-13.28	-0.01	75.34	0.0145	-0.2851	0.0013
65	SLU 82	-13.3	-0.01	77.13	0.0145	-0.2781	0.0012
65	SLU 83	-13.06	-0.01	74.95	0.0149	-0.2755	0.0014
65	SLU 84	-13.08	-0.01	76.74	0.0149	-0.2686	0.0013
65	SLE RA 1	-8.67	-0.01	48.66	0.01	-0.1876	0.0009
65	SLE RA 2	-8.69	-0.01	50.65	0.0101	-0.1799	0.0009
65	SLE RA 3	-8.61	-0.01	48.76	0.0103	-0.1838	0.001
65	SLE RA 4	-8.62	-0.01	49.96	0.0103	-0.1791	0.0009
65	SLE RA 5	-8.54	-0.01	50.4	0.0103	-0.1735	0.0009
65	SLE RA 6	-8.46	-0.01	48.51	0.0106	-0.1774	0.001
65	SLE RA 7	-8.47	-0.01	49.7	0.0106	-0.1728	0.001
65	SLE RA 8	-8.38	-0.01	48.15	0.0105	-0.1749	0.001
65	SLE RA 9	-8.39	-0.01	49.34	0.0106	-0.1702	0.001
65	SLE RA 10	-9.5	-0.01	55.54	0.0107	-0.1966	0.0009
65	SLE RA 11	-9.42	-0.01	53.65	0.0109	-0.2005	0.001
65	SLE RA 12	-9.44	-0.01	54.84	0.0109	-0.1959	0.001
65	SLE RA 13	-9.36	-0.01	55.28	0.0109	-0.1903	0.0009
65	SLE RA 14	-9.28	-0.01	53.39	0.0112	-0.1941	0.001
65	SLE RA 15	-9.29	-0.01	54.58	0.0112	-0.1895	0.001
65	SLE RA 16	-9.19	-0.01	53.03	0.0111	-0.1916	0.001
65	SLE RA 17	-9.2	-0.01	54.23	0.0112	-0.187	0.001
65	SLE RA 18	-9.83	-0.01	55.64	0.0109	-0.2116	0.001
65	SLE RA 19	-9.85	-0.01	56.84	0.0109	-0.2069	0.0009
65	SLE RA 20	-9.69	-0.01	55.39	0.0111	-0.2052	0.001
65	SLE RA 21	-9.7	-0.01	56.58	0.0112	-0.2005	0.001
65	SLE FR 1	-8.67	-0.01	48.66	0.01	-0.1876	0.0009
65	SLE FR 2	-8.67	-0.01	49.06	0.01	-0.1861	0.0009
65	SLE FR 3	-8.61	-0.01	48.56	0.0101	-0.1851	0.0009
65	SLE FR 4	-9.02	-0.01	51.16	0.0103	-0.1933	0.0009
65	SLE FR 5	-8.96	-0.01	50.66	0.0104	-0.1923	0.001
65	SLE FR 6	-9.25	-0.01	52.15	0.0105	-0.1996	0.001
65	SLE QP 1	-8.67	-0.01	48.66	0.01	-0.1876	0.0009
65	SLE QP 2	-9.02	-0.01	50.76	0.0103	-0.1948	0.0009
65	SLD 1	0.68	-0.01	22.96	0.0131	0.1681	0.0012
65	SLD 2	0.68	-0.01	22.96	0.0131	0.1681	0.0012
65	SLD 3	1.54	-0.07	19.96	0.0268	0.198	0.0033
65	SLD 4	1.54	-0.07	19.96	0.0268	0.198	0.0033
65	SLD 5	-7.41	0.08	46.98	-0.0097	-0.1312	-0.0022
65	SLD 6	-7.41	0.08	46.98	-0.0097	-0.1312	-0.0022
65	SLD 7	-4.54	-0.12	36.95	0.036	-0.0317	0.0048
65	SLD 8	-4.54	-0.12	36.95	0.036	-0.0317	0.0048
65	SLD 9	-13.49	0.09	64.56	-0.0154	-0.3579	-0.0029
65	SLD 10	-13.49	0.09	64.56	-0.0154	-0.3579	-0.0029
65	SLD 11	-10.62	-0.1	54.53	0.0302	-0.2584	0.004
65	SLD 12	-10.62	-0.1	54.53	0.0302	-0.2584	0.004
65	SLD 13	-19.58	0.05	81.56	-0.0062	-0.5876	-0.0014
65	SLD 14	-19.58	0.05	81.56	-0.0062	-0.5876	-0.0014
65	SLD 15	-18.72	-0.01	78.55	0.0075	-0.5577	0.0007
65	SLD 16	-18.72	-0.01	78.55	0.0075	-0.5577	0.0007
65	SLV 1	13.12	-0.01	-12.67	0.0161	0.6336	0.0014
65	SLV 2	13.12	-0.01	-12.67	0.0161	0.6336	0.0014
65	SLV 3	15.17	-0.15	-19.78	0.0493	0.7049	0.0065
65	SLV 4	15.17	-0.15	-19.78	0.0493	0.7049	0.0065
65	SLV 5	-5.48	0.2	42.51	-0.0384	-0.0544	-0.0066
65	SLV 6	-5.48	0.2	42.51	-0.0384	-0.0544	-0.0066
65	SLV 7	1.34	-0.26	18.82	0.0724	0.1832	0.0102
65	SLV 8	1.34	-0.26	18.82	0.0724	0.1832	0.0102
65	SLV 9	-19.38	0.24	82.7	-0.0518	-0.5728	-0.0084
65	SLV 10	-19.38	0.24	82.7	-0.0518	-0.5728	-0.0084
65	SLV 11	-12.56	-0.22	59.01	0.0589	-0.3352	0.0084
65	SLV 12	-12.56	-0.22	59.01	0.0589	-0.3352	0.0084
65	SLV 13	-33.2	0.13	121.29	-0.0287	-1.0945	-0.0046
65	SLV 14	-33.2	0.13	121.29	-0.0287	-1.0945	-0.0046
65	SLV 15	-31.15	-0.01	114.18	0.0045	-1.0232	0.0005
65	SLV 16	-31.15	-0.01	114.18	0.0045	-1.0232	0.0005
66	SLU 1	-1.85	0.06	22.93	0.034	-0.3186	0.017
66	SLU 2	-2.33	0.07	21.78	0.033	-0.3427	0.0182
66	SLU 3	-1.74	0.05	23.9	0.0359	-0.318	0.0169
66	SLU 4	-2.02	0.06	23.21	0.0353	-0.3325	0.0176
66	SLU 5	-2.17	0.06	22.76	0.035	-0.3388	0.0179
66	SLU 6	-1.57	0.04	24.88	0.0379	-0.3142	0.0166
66	SLU 7	-1.86	0.05	24.19	0.0373	-0.3286	0.0173
66	SLU 8	-1.53	0.04	24.9	0.0381	-0.311	0.0164
66	SLU 9	-1.81	0.05	24.2	0.0375	-0.3254	0.0171



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
66	SLU 10	-2.84	0.1	25.78	0.0373	-0.4152	0.0222
66	SLU 11	-2.24	0.08	27.9	0.0402	-0.3906	0.0209
66	SLU 12	-2.53	0.08	27.21	0.0396	-0.405	0.0216
66	SLU 13	-2.67	0.09	26.76	0.0393	-0.4114	0.0219
66	SLU 14	-2.08	0.07	28.89	0.0422	-0.3868	0.0206
66	SLU 15	-2.36	0.07	28.19	0.0416	-0.4012	0.0213
66	SLU 16	-2.03	0.06	28.9	0.0424	-0.3835	0.0204
66	SLU 17	-2.32	0.07	28.21	0.0418	-0.3979	0.0211
66	SLU 18	-2.57	0.09	28.65	0.0401	-0.4223	0.0227
66	SLU 19	-2.86	0.1	27.96	0.0395	-0.4367	0.0234
66	SLU 20	-2.41	0.08	29.63	0.0422	-0.4184	0.0224
66	SLU 21	-2.7	0.09	28.94	0.0416	-0.4329	0.0231
66	SLU 22	-2.49	0.09	24.17	0.0334	-0.3731	0.0204
66	SLU 23	-2.97	0.11	23.02	0.0324	-0.3972	0.0216
66	SLU 24	-2.37	0.08	25.14	0.0353	-0.3725	0.0203
66	SLU 25	-2.66	0.09	24.45	0.0347	-0.387	0.021
66	SLU 26	-2.81	0.1	24	0.0345	-0.3933	0.0213
66	SLU 27	-2.21	0.08	26.12	0.0373	-0.3687	0.02
66	SLU 28	-2.5	0.08	25.43	0.0367	-0.3831	0.0207
66	SLU 29	-2.17	0.07	26.14	0.0375	-0.3655	0.0198
66	SLU 30	-2.45	0.08	25.44	0.0369	-0.3799	0.0205
66	SLU 31	-3.47	0.13	27.02	0.0367	-0.4697	0.0256
66	SLU 32	-2.88	0.11	29.14	0.0396	-0.4451	0.0243
66	SLU 33	-3.16	0.12	28.45	0.039	-0.4595	0.025
66	SLU 34	-3.31	0.12	28	0.0387	-0.4659	0.0253
66	SLU 35	-2.71	0.1	30.12	0.0416	-0.4413	0.024
66	SLU 36	-3	0.11	29.43	0.041	-0.4557	0.0247
66	SLU 37	-2.67	0.1	30.14	0.0418	-0.438	0.0238
66	SLU 38	-2.96	0.1	29.45	0.0412	-0.4524	0.0245
66	SLU 39	-3.21	0.13	29.89	0.0395	-0.4768	0.0262
66	SLU 40	-3.5	0.13	29.2	0.0389	-0.4912	0.0269
66	SLU 41	-3.05	0.12	30.87	0.0416	-0.4729	0.0259
66	SLU 42	-3.34	0.12	30.18	0.041	-0.4874	0.0266
66	SLU 43	-2.19	0.07	29.39	0.0444	-0.3955	0.0209
66	SLU 44	-2.67	0.08	28.23	0.0434	-0.4196	0.0221
66	SLU 45	-2.07	0.06	30.35	0.0463	-0.395	0.0208
66	SLU 46	-2.36	0.07	29.66	0.0457	-0.4094	0.0215
66	SLU 47	-2.51	0.07	29.21	0.0454	-0.4157	0.0218
66	SLU 48	-1.91	0.05	31.34	0.0483	-0.3911	0.0205
66	SLU 49	-2.2	0.06	30.64	0.0477	-0.4056	0.0212
66	SLU 50	-1.86	0.05	31.35	0.0485	-0.3879	0.0203
66	SLU 51	-2.15	0.06	30.66	0.0479	-0.4023	0.021
66	SLU 52	-3.17	0.1	32.24	0.0477	-0.4921	0.0261
66	SLU 53	-2.58	0.08	34.36	0.0506	-0.4675	0.0248
66	SLU 54	-2.86	0.09	33.67	0.05	-0.4819	0.0255
66	SLU 55	-3.01	0.09	33.22	0.0497	-0.4883	0.0258
66	SLU 56	-2.41	0.07	35.34	0.0526	-0.4637	0.0245
66	SLU 57	-2.7	0.08	34.65	0.052	-0.4781	0.0252
66	SLU 58	-2.37	0.07	35.36	0.0528	-0.4604	0.0243
66	SLU 59	-2.66	0.08	34.66	0.0522	-0.4748	0.025
66	SLU 60	-2.91	0.1	35.11	0.0505	-0.4992	0.0266
66	SLU 61	-3.2	0.11	34.41	0.0499	-0.5136	0.0274
66	SLU 62	-2.75	0.09	36.09	0.0526	-0.4953	0.0263
66	SLU 63	-3.04	0.1	35.4	0.052	-0.5098	0.0271
66	SLU 64	-2.83	0.1	30.63	0.0438	-0.45	0.0244
66	SLU 65	-3.31	0.11	29.47	0.0428	-0.4741	0.0256
66	SLU 66	-2.71	0.09	31.59	0.0457	-0.4494	0.0242
66	SLU 67	-3	0.1	30.9	0.0451	-0.4639	0.0249
66	SLU 68	-3.14	0.1	30.45	0.0449	-0.4702	0.0252
66	SLU 69	-2.55	0.08	32.58	0.0477	-0.4456	0.0239
66	SLU 70	-2.83	0.09	31.88	0.0471	-0.46	0.0246
66	SLU 71	-2.5	0.08	32.59	0.0479	-0.4424	0.0237
66	SLU 72	-2.79	0.09	31.9	0.0473	-0.4568	0.0245
66	SLU 73	-3.81	0.14	33.48	0.0471	-0.5466	0.0296
66	SLU 74	-3.22	0.11	35.6	0.05	-0.522	0.0282
66	SLU 75	-3.5	0.12	34.91	0.0494	-0.5364	0.029
66	SLU 76	-3.65	0.13	34.46	0.0491	-0.5428	0.0293
66	SLU 77	-3.05	0.11	36.58	0.052	-0.5182	0.0279
66	SLU 78	-3.34	0.11	35.89	0.0514	-0.5326	0.0286
66	SLU 79	-3.01	0.1	36.59	0.0522	-0.5149	0.0277
66	SLU 80	-3.29	0.11	35.9	0.0516	-0.5293	0.0285
66	SLU 81	-3.55	0.13	36.35	0.05	-0.5537	0.0301
66	SLU 82	-3.84	0.14	35.65	0.0493	-0.5681	0.0308
66	SLU 83	-3.39	0.12	37.33	0.052	-0.5498	0.0298
66	SLU 84	-3.67	0.13	36.64	0.0514	-0.5643	0.0305
66	SLE RA 1	-2.04	0.07	23.29	0.0338	-0.3342	0.018
66	SLE RA 2	-2.35	0.08	22.52	0.0332	-0.3502	0.0188
66	SLE RA 3	-1.96	0.06	23.93	0.0351	-0.3338	0.0179
66	SLE RA 4	-2.15	0.07	23.47	0.0347	-0.3434	0.0184
66	SLE RA 5	-2.25	0.07	23.17	0.0345	-0.3477	0.0186
66	SLE RA 6	-1.85	0.06	24.59	0.0365	-0.3313	0.0177
66	SLE RA 7	-2.04	0.06	24.12	0.036	-0.3409	0.0182
66	SLE RA 8	-1.82	0.06	24.6	0.0366	-0.3291	0.0176
66	SLE RA 9	-2.01	0.06	24.13	0.0362	-0.3387	0.018
66	SLE RA 10	-2.69	0.09	25.19	0.036	-0.3986	0.0215
66	SLE RA 11	-2.29	0.08	26.6	0.038	-0.3822	0.0206
66	SLE RA 12	-2.48	0.09	26.14	0.0375	-0.3918	0.021
66	SLE RA 13	-2.58	0.09	25.84	0.0374	-0.396	0.0212
66	SLE RA 14	-2.18	0.07	27.26	0.0393	-0.3796	0.0204



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
66	SLE RA 15	-2.38	0.08	26.79	0.0389	-0.3892	0.0208
66	SLE RA 16	-2.15	0.07	27.27	0.0394	-0.3775	0.0202
66	SLE RA 17	-2.35	0.08	26.8	0.039	-0.3871	0.0207
66	SLE RA 18	-2.52	0.09	27.1	0.0379	-0.4033	0.0218
66	SLE RA 19	-2.71	0.1	26.64	0.0375	-0.4129	0.0223
66	SLE RA 20	-2.41	0.08	27.75	0.0393	-0.4007	0.0216
66	SLE RA 21	-2.6	0.09	27.29	0.0389	-0.4104	0.0221
66	SLE FR 1	-2.04	0.07	23.29	0.0338	-0.3342	0.018
66	SLE FR 2	-2.1	0.07	23.13	0.0337	-0.3374	0.0181
66	SLE FR 3	-1.99	0.07	23.55	0.0344	-0.3332	0.0179
66	SLE FR 4	-2.24	0.08	24.28	0.0349	-0.3581	0.0193
66	SLE FR 5	-2.14	0.07	24.69	0.0356	-0.3539	0.019
66	SLE FR 6	-2.28	0.08	25.19	0.0359	-0.3687	0.0199
66	SLE QP 1	-2.04	0.07	23.29	0.0338	-0.3342	0.018
66	SLE QP 2	-2.18	0.08	24.43	0.0351	-0.3549	0.0191
66	SLD 1	3.3	-0.1	40.21	0.0632	-0.089	0.0068
66	SLD 2	3.3	-0.1	40.21	0.0632	-0.089	0.0068
66	SLD 3	2.99	-0.22	37.93	0.0853	-0.0637	0.002
66	SLD 4	2.99	-0.22	37.93	0.0853	-0.0637	0.002
66	SLD 5	-0.07	0.2	32.62	0.01	-0.3136	0.0226
66	SLD 6	-0.07	0.2	32.62	0.01	-0.3136	0.0226
66	SLD 7	-1.1	-0.19	25.03	0.0836	-0.2291	0.0068
66	SLD 8	-1.1	-0.19	25.03	0.0836	-0.2291	0.0068
66	SLD 9	-3.26	0.34	23.83	-0.0135	-0.4807	0.0314
66	SLD 10	-3.26	0.34	23.83	-0.0135	-0.4807	0.0314
66	SLD 11	-4.29	-0.04	16.24	0.0601	-0.3963	0.0157
66	SLD 12	-4.29	-0.04	16.24	0.0601	-0.3963	0.0157
66	SLD 13	-7.35	0.37	10.93	-0.0152	-0.6461	0.0362
66	SLD 14	-7.35	0.37	10.93	-0.0152	-0.6461	0.0362
66	SLD 15	-7.66	0.25	8.65	0.0069	-0.6208	0.0315
66	SLD 16	-7.66	0.25	8.65	0.0069	-0.6208	0.0315
66	SLV 1	10.38	-0.34	60.61	0.1011	0.2532	-0.0092
66	SLV 2	10.38	-0.34	60.61	0.1011	0.2532	-0.0092
66	SLV 3	9.66	-0.61	55.32	0.154	0.313	-0.0205
66	SLV 4	9.66	-0.61	55.32	0.154	0.313	-0.0205
66	SLV 5	2.68	0.36	43.3	-0.0253	-0.2633	0.0277
66	SLV 6	2.68	0.36	43.3	-0.0253	-0.2633	0.0277
66	SLV 7	0.28	-0.54	25.68	0.1509	-0.0638	-0.0098
66	SLV 8	0.28	-0.54	25.68	0.1509	-0.0638	-0.0098
66	SLV 9	-4.64	0.69	23.18	-0.0808	-0.6461	0.0481
66	SLV 10	-4.64	0.69	23.18	-0.0808	-0.6461	0.0481
66	SLV 11	-7.04	-0.21	5.56	0.0954	-0.4466	0.0106
66	SLV 12	-7.04	-0.21	5.56	0.0954	-0.4466	0.0106
66	SLV 13	-14.02	0.76	-6.46	-0.0838	-1.0229	0.0587
66	SLV 14	-14.02	0.76	-6.46	-0.0838	-1.0229	0.0587
66	SLV 15	-14.74	0.49	-11.75	-0.031	-0.963	0.0475
66	SLV 16	-14.74	0.49	-11.75	-0.031	-0.963	0.0475
67	SLU 1	-8.53	3.24	94.31	-0.5686	-0.2611	-0.0754
67	SLU 2	-8.86	2.91	95.56	-0.5508	-0.2864	-0.0783
67	SLU 3	-8.65	3.49	96.31	-0.5921	-0.2601	-0.0763
67	SLU 4	-8.84	3.29	97.06	-0.5814	-0.2753	-0.0781
67	SLU 5	-8.92	3.14	97.08	-0.5727	-0.2824	-0.0787
67	SLU 6	-8.71	3.73	97.83	-0.6141	-0.2561	-0.0767
67	SLU 7	-8.9	3.53	98.58	-0.6034	-0.2713	-0.0785
67	SLU 8	-8.65	3.71	97.35	-0.6126	-0.253	-0.0762
67	SLU 9	-8.85	3.51	98.11	-0.6018	-0.2682	-0.078
67	SLU 10	-10.27	3.68	111.9	-0.6563	-0.3136	-0.0902
67	SLU 11	-10.06	4.26	112.64	-0.6977	-0.2873	-0.0882
67	SLU 12	-10.26	4.06	113.39	-0.687	-0.3025	-0.09
67	SLU 13	-10.33	3.91	113.42	-0.6783	-0.3096	-0.0907
67	SLU 14	-10.12	4.5	114.16	-0.7196	-0.2833	-0.0887
67	SLU 15	-10.32	4.3	114.92	-0.7089	-0.2985	-0.0904
67	SLU 16	-10.07	4.48	113.69	-0.7181	-0.2802	-0.0882
67	SLU 17	-10.26	4.28	114.44	-0.7074	-0.2954	-0.0899
67	SLU 18	-10.55	4.34	117.64	-0.7194	-0.2999	-0.0924
67	SLU 19	-10.75	4.14	118.39	-0.7087	-0.3151	-0.0942
67	SLU 20	-10.61	4.58	119.16	-0.7414	-0.2959	-0.0928
67	SLU 21	-10.81	4.38	119.92	-0.7307	-0.3111	-0.0946
67	SLU 22	-9.61	3.72	104.01	-0.629	-0.3019	-0.085
67	SLU 23	-9.93	3.38	105.26	-0.6111	-0.3272	-0.088
67	SLU 24	-9.72	3.97	106.01	-0.6525	-0.3009	-0.086
67	SLU 25	-9.92	3.77	106.76	-0.6418	-0.3161	-0.0877
67	SLU 26	-9.99	3.62	106.79	-0.6331	-0.3232	-0.0884
67	SLU 27	-9.78	4.21	107.53	-0.6744	-0.2969	-0.0864
67	SLU 28	-9.98	4.01	108.28	-0.6637	-0.3121	-0.0882
67	SLU 29	-9.73	4.19	107.05	-0.6729	-0.2939	-0.0859
67	SLU 30	-9.92	3.99	107.81	-0.6622	-0.309	-0.0876
67	SLU 31	-11.35	4.15	121.6	-0.7167	-0.3544	-0.0999
67	SLU 32	-11.14	4.74	122.34	-0.758	-0.3281	-0.0979
67	SLU 33	-11.33	4.54	123.1	-0.7473	-0.3433	-0.0997
67	SLU 34	-11.41	4.39	123.12	-0.7386	-0.3504	-0.1003
67	SLU 35	-11.2	4.98	123.87	-0.78	-0.3241	-0.0983
67	SLU 36	-11.39	4.78	124.62	-0.7693	-0.3393	-0.1001
67	SLU 37	-11.14	4.96	123.39	-0.7785	-0.3211	-0.0978
67	SLU 38	-11.34	4.76	124.14	-0.7677	-0.3362	-0.0996
67	SLU 39	-11.63	4.82	127.34	-0.7798	-0.3408	-0.102
67	SLU 40	-11.83	4.62	128.1	-0.7691	-0.3559	-0.1038
67	SLU 41	-11.69	5.05	128.87	-0.8017	-0.3367	-0.1025
67	SLU 42	-11.89	4.85	129.62	-0.791	-0.3519	-0.1042



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
67	SLU 43	-10.72	4.05	119.27	-0.7185	-0.3254	-0.0947
67	SLU 44	-11.05	3.72	120.53	-0.7007	-0.3507	-0.0976
67	SLU 45	-10.84	4.3	121.27	-0.742	-0.3244	-0.0956
67	SLU 46	-11.03	4.1	122.02	-0.7313	-0.3396	-0.0974
67	SLU 47	-11.11	3.95	122.05	-0.7226	-0.3467	-0.098
67	SLU 48	-10.9	4.54	122.79	-0.764	-0.3204	-0.0961
67	SLU 49	-11.09	4.34	123.55	-0.7533	-0.3356	-0.0978
67	SLU 50	-10.84	4.52	122.32	-0.7625	-0.3174	-0.0955
67	SLU 51	-11.04	4.32	123.07	-0.7517	-0.3326	-0.0973
67	SLU 52	-12.46	4.48	136.86	-0.8062	-0.3779	-0.1095
67	SLU 53	-12.25	5.07	137.61	-0.8476	-0.3516	-0.1075
67	SLU 54	-12.45	4.87	138.36	-0.8369	-0.3668	-0.1093
67	SLU 55	-12.52	4.72	138.38	-0.8282	-0.3739	-0.11
67	SLU 56	-12.31	5.31	139.13	-0.8695	-0.3476	-0.108
67	SLU 57	-12.51	5.11	139.88	-0.8588	-0.3628	-0.1097
67	SLU 58	-12.26	5.29	138.65	-0.868	-0.3446	-0.1075
67	SLU 59	-12.45	5.09	139.41	-0.8573	-0.3598	-0.1092
67	SLU 60	-12.74	5.15	142.61	-0.8693	-0.3643	-0.1117
67	SLU 61	-12.94	4.95	143.36	-0.8586	-0.3795	-0.1135
67	SLU 62	-12.8	5.38	144.13	-0.8913	-0.3603	-0.1121
67	SLU 63	-13	5.18	144.88	-0.8806	-0.3754	-0.1139
67	SLU 64	-11.8	4.53	128.97	-0.7789	-0.3662	-0.1043
67	SLU 65	-12.12	4.19	130.23	-0.761	-0.3915	-0.1073
67	SLU 66	-11.91	4.78	130.97	-0.8024	-0.3652	-0.1053
67	SLU 67	-12.11	4.58	131.73	-0.7917	-0.3804	-0.107
67	SLU 68	-12.18	4.43	131.75	-0.783	-0.3875	-0.1077
67	SLU 69	-11.97	5.01	132.5	-0.8243	-0.3612	-0.1057
67	SLU 70	-12.17	4.82	133.25	-0.8136	-0.3764	-0.1075
67	SLU 71	-11.92	5	132.02	-0.8228	-0.3582	-0.1052
67	SLU 72	-12.11	4.8	132.77	-0.8121	-0.3734	-0.1069
67	SLU 73	-13.54	4.96	146.56	-0.8666	-0.4187	-0.1192
67	SLU 74	-13.33	5.55	147.31	-0.9079	-0.3924	-0.1172
67	SLU 75	-13.52	5.35	148.06	-0.8972	-0.4076	-0.119
67	SLU 76	-13.6	5.2	148.09	-0.8885	-0.4147	-0.1196
67	SLU 77	-13.39	5.78	148.83	-0.9299	-0.3884	-0.1176
67	SLU 78	-13.58	5.58	149.58	-0.9192	-0.4036	-0.1194
67	SLU 79	-13.33	5.77	148.35	-0.9284	-0.3854	-0.1171
67	SLU 80	-13.53	5.57	149.11	-0.9176	-0.4006	-0.1189
67	SLU 81	-13.82	5.62	152.31	-0.9297	-0.4051	-0.1213
67	SLU 82	-14.02	5.42	153.06	-0.919	-0.4203	-0.1231
67	SLU 83	-13.88	5.86	153.83	-0.9516	-0.4011	-0.1218
67	SLU 84	-14.08	5.66	154.58	-0.9409	-0.4162	-0.1235
67	SLE RA 1	-8.84	3.38	97.08	-0.5859	-0.2727	-0.0781
67	SLE RA 2	-9.06	3.15	97.92	-0.574	-0.2896	-0.0801
67	SLE RA 3	-8.92	3.54	98.41	-0.6015	-0.2721	-0.0788
67	SLE RA 4	-9.05	3.41	98.91	-0.5944	-0.2822	-0.0799
67	SLE RA 5	-9.1	3.31	98.93	-0.5886	-0.2869	-0.0804
67	SLE RA 6	-8.96	3.7	99.43	-0.6162	-0.2694	-0.079
67	SLE RA 7	-9.09	3.57	99.93	-0.609	-0.2795	-0.0802
67	SLE RA 8	-8.92	3.69	99.11	-0.6152	-0.2674	-0.0787
67	SLE RA 9	-9.05	3.56	99.61	-0.608	-0.2775	-0.0799
67	SLE RA 10	-10	3.67	108.8	-0.6443	-0.3077	-0.088
67	SLE RA 11	-9.86	4.06	109.3	-0.6719	-0.2902	-0.0867
67	SLE RA 12	-9.99	3.92	109.8	-0.6648	-0.3003	-0.0879
67	SLE RA 13	-10.04	3.83	109.82	-0.659	-0.3051	-0.0883
67	SLE RA 14	-9.9	4.21	110.32	-0.6865	-0.2875	-0.087
67	SLE RA 15	-10.03	4.08	110.82	-0.6794	-0.2977	-0.0882
67	SLE RA 16	-9.86	4.2	110	-0.6855	-0.2855	-0.0866
67	SLE RA 17	-9.99	4.07	110.5	-0.6784	-0.2956	-0.0878
67	SLE RA 18	-10.19	4.11	112.63	-0.6864	-0.2986	-0.0895
67	SLE RA 19	-10.32	3.98	113.14	-0.6793	-0.3088	-0.0907
67	SLE RA 20	-10.23	4.27	113.65	-0.701	-0.296	-0.0898
67	SLE RA 21	-10.36	4.13	114.15	-0.6939	-0.3061	-0.0909
67	SLE FR 1	-8.84	3.38	97.08	-0.5859	-0.2727	-0.0781
67	SLE FR 2	-8.88	3.33	97.25	-0.5835	-0.2761	-0.0785
67	SLE FR 3	-8.85	3.44	97.48	-0.5917	-0.2717	-0.0782
67	SLE FR 4	-9.29	3.55	101.91	-0.6136	-0.2839	-0.0819
67	SLE FR 5	-9.26	3.66	102.15	-0.6219	-0.2794	-0.0816
67	SLE FR 6	-9.51	3.74	104.86	-0.6361	-0.2857	-0.0838
67	SLE QP 1	-8.84	3.38	97.08	-0.5859	-0.2727	-0.0781
67	SLE QP 2	-9.24	3.6	101.74	-0.616	-0.2805	-0.0815
67	SLD 1	-6.32	4.13	88.13	-0.6373	-0.0177	-0.0522
67	SLD 2	-6.32	4.13	88.13	-0.6373	-0.0177	-0.0522
67	SLD 3	-5.79	-0.01	80.57	-0.3926	0.002	-0.0449
67	SLD 4	-5.79	-0.01	80.57	-0.3926	0.002	-0.0449
67	SLD 5	-9.17	10.03	109.13	-0.9935	-0.2314	-0.0839
67	SLD 6	-9.17	10.03	109.13	-0.9935	-0.2314	-0.0839
67	SLD 7	-7.4	-3.76	83.93	-0.1779	-0.166	-0.0594
67	SLD 8	-7.4	-3.76	83.93	-0.1779	-0.166	-0.0594
67	SLD 9	-11.09	10.95	119.56	-1.0542	-0.395	-0.1037
67	SLD 10	-11.09	10.95	119.56	-1.0542	-0.395	-0.1037
67	SLD 11	-9.32	-2.84	94.36	-0.2385	-0.3296	-0.0791
67	SLD 12	-9.32	-2.84	94.36	-0.2385	-0.3296	-0.0791
67	SLD 13	-12.7	7.2	122.92	-0.8395	-0.563	-0.1182
67	SLD 14	-12.7	7.2	122.92	-0.8395	-0.563	-0.1182
67	SLD 15	-12.17	3.07	115.36	-0.5948	-0.5434	-0.1108
67	SLD 16	-12.17	3.07	115.36	-0.5948	-0.5434	-0.1108
67	SLV 1	-2.55	4.8	70.55	-0.6639	0.3208	-0.0146
67	SLV 2	-2.55	4.8	70.55	-0.6639	0.3208	-0.0146



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
67	SLV 3	-1.3	-4.7	52.77	-0.0993	0.3669	0.0028
67	SLV 4	-1.3	-4.7	52.77	-0.0993	0.3669	0.0028
67	SLV 5	-9.13	18.38	119.35	-1.4867	-0.1702	-0.0877
67	SLV 6	-9.13	18.38	119.35	-1.4867	-0.1702	-0.0877
67	SLV 7	-4.96	-13.31	60.09	0.3953	-0.0163	-0.0299
67	SLV 8	-4.96	-13.31	60.09	0.3953	-0.0163	-0.0299
67	SLV 9	-13.52	20.5	143.4	-1.6274	-0.5448	-0.1331
67	SLV 10	-13.52	20.5	143.4	-1.6274	-0.5448	-0.1331
67	SLV 11	-9.36	-11.18	84.14	0.2547	-0.3909	-0.0753
67	SLV 12	-9.36	-11.18	84.14	0.2547	-0.3909	-0.0753
67	SLV 13	-17.19	11.9	150.71	-1.1328	-0.928	-0.1658
67	SLV 14	-17.19	11.9	150.71	-1.1328	-0.928	-0.1658
67	SLV 15	-15.94	2.39	132.94	-0.5681	-0.8818	-0.1485
67	SLV 16	-15.94	2.39	132.94	-0.5681	-0.8818	-0.1485
68	SLU 1	7.9	2.3	85.77	-0.5275	0.2412	0.0734
68	SLU 2	8.13	1.91	86.2	-0.5055	0.26	0.0759
68	SLU 3	8.12	2.78	88.84	-0.5658	0.2446	0.0754
68	SLU 4	8.26	2.54	89.1	-0.5526	0.2559	0.0769
68	SLU 5	8.32	2.41	89.06	-0.5446	0.2618	0.0777
68	SLU 6	8.31	3.27	91.71	-0.6049	0.2464	0.0772
68	SLU 7	8.45	3.04	91.97	-0.5917	0.2577	0.0787
68	SLU 8	8.28	3.3	91.51	-0.6057	0.2449	0.0769
68	SLU 9	8.42	3.06	91.76	-0.5925	0.2561	0.0784
68	SLU 10	9.55	2.46	99.85	-0.5947	0.3136	0.0894
68	SLU 11	9.54	3.33	102.49	-0.655	0.2982	0.089
68	SLU 12	9.68	3.09	102.75	-0.6418	0.3095	0.0905
68	SLU 13	9.74	2.96	102.72	-0.6338	0.3154	0.0912
68	SLU 14	9.73	3.82	105.36	-0.6941	0.3	0.0907
68	SLU 15	9.87	3.59	105.62	-0.6809	0.3113	0.0922
68	SLU 16	9.7	3.85	105.16	-0.6949	0.2984	0.0904
68	SLU 17	9.84	3.61	105.41	-0.6816	0.3097	0.0919
68	SLU 18	9.93	3.09	105.27	-0.6549	0.3178	0.0927
68	SLU 19	10.07	2.86	105.53	-0.6417	0.329	0.0942
68	SLU 20	10.12	3.59	108.14	-0.694	0.3196	0.0945
68	SLU 21	10.26	3.35	108.4	-0.6808	0.3309	0.096
68	SLU 22	8.9	2.85	94.98	-0.5932	0.2796	0.0831
68	SLU 23	9.13	2.46	95.4	-0.5712	0.2983	0.0856
68	SLU 24	9.12	3.32	98.05	-0.6315	0.2829	0.0851
68	SLU 25	9.26	3.09	98.31	-0.6183	0.2942	0.0866
68	SLU 26	9.33	2.96	98.27	-0.6102	0.3001	0.0874
68	SLU 27	9.31	3.82	100.92	-0.6706	0.2848	0.0869
68	SLU 28	9.45	3.58	101.17	-0.6573	0.296	0.0884
68	SLU 29	9.28	3.84	100.72	-0.6713	0.2832	0.0866
68	SLU 30	9.42	3.61	100.97	-0.6581	0.2944	0.0881
68	SLU 31	10.56	3.01	109.06	-0.6603	0.3519	0.0991
68	SLU 32	10.54	3.87	111.7	-0.7206	0.3365	0.0987
68	SLU 33	10.68	3.64	111.96	-0.7074	0.3478	0.1002
68	SLU 34	10.75	3.5	111.93	-0.6994	0.3537	0.1009
68	SLU 35	10.73	4.37	114.57	-0.7597	0.3383	0.1004
68	SLU 36	10.87	4.13	114.83	-0.7465	0.3496	0.1019
68	SLU 37	10.71	4.39	114.37	-0.7605	0.3368	0.1001
68	SLU 38	10.85	4.16	114.62	-0.7473	0.348	0.1017
68	SLU 39	10.93	3.63	114.48	-0.7206	0.3561	0.1024
68	SLU 40	11.07	3.4	114.74	-0.7074	0.3674	0.1039
68	SLU 41	11.13	4.13	117.35	-0.7596	0.3579	0.1042
68	SLU 42	11.26	3.9	117.61	-0.7464	0.3692	0.1057
68	SLU 43	9.92	2.81	108.34	-0.6633	0.3005	0.0921
68	SLU 44	10.15	2.42	108.77	-0.6413	0.3192	0.0946
68	SLU 45	10.14	3.28	111.42	-0.7016	0.3038	0.0941
68	SLU 46	10.28	3.05	111.67	-0.6884	0.3151	0.0956
68	SLU 47	10.35	2.92	111.64	-0.6804	0.321	0.0963
68	SLU 48	10.33	3.78	114.28	-0.7407	0.3057	0.0959
68	SLU 49	10.47	3.54	114.54	-0.7274	0.3169	0.0974
68	SLU 50	10.31	3.8	114.08	-0.7414	0.3041	0.0956
68	SLU 51	10.45	3.57	114.34	-0.7282	0.3153	0.0971
68	SLU 52	11.58	2.97	122.42	-0.7304	0.3728	0.1081
68	SLU 53	11.56	3.83	125.07	-0.7907	0.3574	0.1076
68	SLU 54	11.7	3.6	125.32	-0.7775	0.3687	0.1091
68	SLU 55	11.77	3.47	125.29	-0.7695	0.3746	0.1099
68	SLU 56	11.76	4.33	127.94	-0.8298	0.3592	0.1094
68	SLU 57	11.9	4.09	128.19	-0.8166	0.3705	0.1109
68	SLU 58	11.73	4.35	127.73	-0.8306	0.3577	0.1091
68	SLU 59	11.87	4.12	127.99	-0.8174	0.3689	0.1106
68	SLU 60	11.95	3.59	127.85	-0.7907	0.377	0.1114
68	SLU 61	12.09	3.36	128.1	-0.7775	0.3883	0.1129
68	SLU 62	12.15	4.09	130.72	-0.8297	0.3788	0.1132
68	SLU 63	12.29	3.86	130.97	-0.8165	0.3901	0.1147
68	SLU 64	10.93	3.35	117.55	-0.7289	0.3388	0.1018
68	SLU 65	11.16	2.96	117.98	-0.7069	0.3576	0.1043
68	SLU 66	11.15	3.83	120.63	-0.7672	0.3422	0.1038
68	SLU 67	11.28	3.59	120.88	-0.754	0.3534	0.1053
68	SLU 68	11.35	3.46	120.85	-0.746	0.3594	0.106
68	SLU 69	11.34	4.32	123.49	-0.8063	0.344	0.1056
68	SLU 70	11.48	4.09	123.75	-0.7931	0.3552	0.1071
68	SLU 71	11.31	4.35	123.29	-0.8071	0.3424	0.1053
68	SLU 72	11.45	4.11	123.54	-0.7939	0.3537	0.1068
68	SLU 73	12.58	3.51	131.63	-0.7961	0.4111	0.1178
68	SLU 74	12.57	4.38	134.28	-0.8564	0.3958	0.1173
68	SLU 75	12.71	4.14	134.53	-0.8432	0.407	0.1189





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
68	SLU 76	12.77	4.01	134.5	-0.8352	0.413	0.1196
68	SLU 77	12.76	4.87	137.15	-0.8955	0.3976	0.1191
68	SLU 78	12.9	4.64	137.4	-0.8823	0.4088	0.1206
68	SLU 79	12.73	4.9	136.94	-0.8963	0.396	0.1188
68	SLU 80	12.87	4.66	137.2	-0.8831	0.4073	0.1203
68	SLU 81	12.96	4.14	137.06	-0.8563	0.4153	0.1211
68	SLU 82	13.1	3.9	137.31	-0.8431	0.4266	0.1226
68	SLU 83	13.15	4.63	139.92	-0.8954	0.4172	0.1229
68	SLU 84	13.29	4.4	140.18	-0.8822	0.4284	0.1244
68	SLE RA 1	8.18	2.46	88.4	-0.5463	0.2522	0.0762
68	SLE RA 2	8.34	2.2	88.68	-0.5316	0.2647	0.0778
68	SLE RA 3	8.33	2.77	90.45	-0.5718	0.2544	0.0775
68	SLE RA 4	8.42	2.62	90.62	-0.563	0.2619	0.0785
68	SLE RA 5	8.47	2.53	90.6	-0.5577	0.2659	0.079
68	SLE RA 6	8.46	3.11	92.36	-0.5979	0.2556	0.0787
68	SLE RA 7	8.55	2.95	92.53	-0.5891	0.2632	0.0797
68	SLE RA 8	8.44	3.12	92.23	-0.5984	0.2546	0.0785
68	SLE RA 9	8.53	2.97	92.4	-0.5896	0.2621	0.0795
68	SLE RA 10	9.29	2.57	97.79	-0.5911	0.3004	0.0869
68	SLE RA 11	9.28	3.14	99.55	-0.6313	0.2902	0.0865
68	SLE RA 12	9.37	2.99	99.72	-0.6225	0.2977	0.0875
68	SLE RA 13	9.42	2.9	99.7	-0.6171	0.3016	0.088
68	SLE RA 14	9.41	3.47	101.46	-0.6573	0.2914	0.0877
68	SLE RA 15	9.5	3.32	101.63	-0.6485	0.2989	0.0887
68	SLE RA 16	9.39	3.49	101.33	-0.6578	0.2903	0.0875
68	SLE RA 17	9.48	3.33	101.5	-0.649	0.2978	0.0885
68	SLE RA 18	9.54	2.98	101.4	-0.6312	0.3032	0.0891
68	SLE RA 19	9.63	2.83	101.57	-0.6224	0.3107	0.0901
68	SLE RA 20	9.67	3.31	103.32	-0.6573	0.3044	0.0902
68	SLE RA 21	9.76	3.16	103.49	-0.6485	0.3119	0.0912
68	SLE FR 1	8.18	2.46	88.4	-0.5463	0.2522	0.0762
68	SLE FR 2	8.21	2.41	88.46	-0.5434	0.2547	0.0765
68	SLE FR 3	8.23	2.59	89.17	-0.5567	0.2527	0.0766
68	SLE FR 4	8.62	2.56	92.36	-0.5688	0.27	0.0804
68	SLE FR 5	8.64	2.75	93.07	-0.5822	0.268	0.0805
68	SLE FR 6	8.86	2.72	94.9	-0.5888	0.2777	0.0826
68	SLE QP 1	8.18	2.46	88.4	-0.5463	0.2522	0.0762
68	SLE QP 2	8.59	2.62	92.3	-0.5718	0.2675	0.08
68	SLD 1	11.38	6.33	110.47	-0.6075	0.4934	0.1131
68	SLD 2	11.38	6.33	110.47	-0.6075	0.4934	0.1131
68	SLD 3	10.73	1.61	101.88	-0.3507	0.4756	0.106
68	SLD 4	10.73	1.61	101.88	-0.3507	0.4756	0.106
68	SLD 5	10.41	10.9	110.77	-0.9719	0.3623	0.1007
68	SLD 6	10.41	10.9	110.77	-0.9719	0.3623	0.1007
68	SLD 7	8.25	-4.85	82.15	-0.116	0.3029	0.077
68	SLD 8	8.25	-4.85	82.15	-0.116	0.3029	0.077
68	SLD 9	8.93	10.09	102.45	-1.0275	0.2321	0.083
68	SLD 10	8.93	10.09	102.45	-1.0275	0.2321	0.083
68	SLD 11	6.77	-5.67	73.83	-0.1716	0.1727	0.0593
68	SLD 12	6.77	-5.67	73.83	-0.1716	0.1727	0.0593
68	SLD 13	6.45	3.63	82.72	-0.7928	0.0594	0.0541
68	SLD 14	6.45	3.63	82.72	-0.7928	0.0594	0.0541
68	SLD 15	5.8	-1.1	74.14	-0.5361	0.0416	0.047
68	SLD 16	5.8	-1.1	74.14	-0.5361	0.0416	0.047
68	SLV 1	15	11.13	134.38	-0.6522	0.7847	0.1558
68	SLV 2	15	11.13	134.38	-0.6522	0.7847	0.1558
68	SLV 3	13.48	0.3	114.29	-0.0625	0.7425	0.1392
68	SLV 4	13.48	0.3	114.29	-0.0625	0.7425	0.1392
68	SLV 5	12.82	21.59	135.4	-1.4903	0.4867	0.1279
68	SLV 6	12.82	21.59	135.4	-1.4903	0.4867	0.1279
68	SLV 7	7.75	-14.5	68.43	0.4754	0.346	0.0726
68	SLV 8	7.75	-14.5	68.43	0.4754	0.346	0.0726
68	SLV 9	9.43	19.73	116.18	-1.6189	0.189	0.0874
68	SLV 10	9.43	19.73	116.18	-1.6189	0.189	0.0874
68	SLV 11	4.36	-16.35	49.21	0.3468	0.0483	0.0322
68	SLV 12	4.36	-16.35	49.21	0.3468	0.0483	0.0322
68	SLV 13	3.7	4.93	70.32	-1.081	-0.2075	0.0209
68	SLV 14	3.7	4.93	70.32	-1.081	-0.2075	0.0209
68	SLV 15	2.18	-5.89	50.22	-0.4913	-0.2497	0.0043
68	SLV 16	2.18	-5.89	50.22	-0.4913	-0.2497	0.0043
69	SLU 1	1.11	-0.03	23.73	0.0497	0.2348	-0.0141
69	SLU 2	1.55	-0.02	22.62	0.0493	0.2555	-0.0152
69	SLU 3	1.02	-0.04	24.9	0.0519	0.2373	-0.0141
69	SLU 4	1.28	-0.04	24.24	0.0517	0.2497	-0.0148
69	SLU 5	1.44	-0.03	23.82	0.0515	0.2564	-0.0152
69	SLU 6	0.91	-0.05	26.1	0.0541	0.2383	-0.0141
69	SLU 7	1.17	-0.05	25.43	0.0539	0.2507	-0.0148
69	SLU 8	0.88	-0.05	26.11	0.054	0.2368	-0.014
69	SLU 9	1.15	-0.05	25.45	0.0538	0.2491	-0.0147
69	SLU 10	1.93	-0.01	25.79	0.0536	0.2997	-0.0185
69	SLU 11	1.4	-0.03	28.07	0.0562	0.2816	-0.0174
69	SLU 12	1.67	-0.02	27.4	0.056	0.2939	-0.0181
69	SLU 13	1.82	-0.02	26.98	0.0558	0.3007	-0.0184
69	SLU 14	1.29	-0.03	29.26	0.0584	0.2825	-0.0173
69	SLU 15	1.55	-0.03	28.6	0.0582	0.2949	-0.018
69	SLU 16	1.26	-0.04	29.27	0.0583	0.281	-0.0172
69	SLU 17	1.53	-0.03	28.61	0.0581	0.2934	-0.0179
69	SLU 18	1.66	-0.01	28.24	0.0558	0.298	-0.0187
69	SLU 19	1.92	0	27.58	0.0556	0.3104	-0.0194



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
69	SLU 20	1.54	-0.02	29.43	0.058	0.299	-0.0187
69	SLU 21	1.81	-0.01	28.77	0.0578	0.3114	-0.0194
69	SLU 22	1.56	-0.02	25.4	0.0519	0.2749	-0.0168
69	SLU 23	2	-0.01	24.3	0.0516	0.2955	-0.018
69	SLU 24	1.47	-0.03	26.58	0.0542	0.2774	-0.0169
69	SLU 25	1.74	-0.02	25.92	0.054	0.2898	-0.0176
69	SLU 26	1.89	-0.02	25.49	0.0538	0.2965	-0.018
69	SLU 27	1.36	-0.04	27.77	0.0564	0.2784	-0.0168
69	SLU 28	1.62	-0.03	27.11	0.0561	0.2907	-0.0175
69	SLU 29	1.33	-0.04	27.78	0.0563	0.2768	-0.0168
69	SLU 30	1.6	-0.03	27.12	0.0561	0.2892	-0.0175
69	SLU 31	2.38	0.01	27.46	0.0559	0.3398	-0.0212
69	SLU 32	1.86	-0.01	29.74	0.0585	0.3216	-0.0201
69	SLU 33	2.12	0	29.08	0.0583	0.334	-0.0208
69	SLU 34	2.27	0	28.65	0.0581	0.3407	-0.0212
69	SLU 35	1.74	-0.02	30.93	0.0607	0.3226	-0.0201
69	SLU 36	2	-0.01	30.27	0.0605	0.335	-0.0208
69	SLU 37	1.72	-0.02	30.94	0.0606	0.3211	-0.02
69	SLU 38	1.98	-0.01	30.28	0.0604	0.3334	-0.0207
69	SLU 39	2.11	0.01	29.92	0.0581	0.3381	-0.0215
69	SLU 40	2.37	0.01	29.26	0.0579	0.3505	-0.0222
69	SLU 41	1.99	0	31.11	0.0603	0.3391	-0.0214
69	SLU 42	2.26	0	30.45	0.06	0.3514	-0.0221
69	SLU 43	1.29	-0.05	30.27	0.0638	0.2915	-0.0174
69	SLU 44	1.73	-0.04	29.17	0.0635	0.3122	-0.0185
69	SLU 45	1.2	-0.06	31.45	0.0661	0.294	-0.0174
69	SLU 46	1.46	-0.05	30.79	0.0659	0.3064	-0.0181
69	SLU 47	1.61	-0.05	30.36	0.0656	0.3131	-0.0185
69	SLU 48	1.09	-0.07	32.64	0.0682	0.295	-0.0174
69	SLU 49	1.35	-0.06	31.98	0.068	0.3074	-0.018
69	SLU 50	1.06	-0.07	32.65	0.0682	0.2935	-0.0173
69	SLU 51	1.32	-0.06	31.99	0.0679	0.3059	-0.018
69	SLU 52	2.11	-0.02	32.33	0.0678	0.3564	-0.0218
69	SLU 53	1.58	-0.04	34.61	0.0704	0.3383	-0.0206
69	SLU 54	1.85	-0.04	33.95	0.0702	0.3507	-0.0213
69	SLU 55	2	-0.03	33.52	0.0699	0.3574	-0.0217
69	SLU 56	1.47	-0.05	35.8	0.0725	0.3392	-0.0206
69	SLU 57	1.73	-0.04	35.14	0.0723	0.3516	-0.0213
69	SLU 58	1.44	-0.05	35.82	0.0725	0.3377	-0.0205
69	SLU 59	1.71	-0.04	35.15	0.0723	0.3501	-0.0212
69	SLU 60	1.84	-0.03	34.79	0.07	0.3547	-0.022
69	SLU 61	2.1	-0.02	34.13	0.0698	0.3671	-0.0227
69	SLU 62	1.72	-0.03	35.98	0.0721	0.3557	-0.022
69	SLU 63	1.98	-0.03	35.32	0.0719	0.3681	-0.0226
69	SLU 64	1.74	-0.03	31.94	0.066	0.3316	-0.0201
69	SLU 65	2.18	-0.02	30.84	0.0657	0.3522	-0.0213
69	SLU 66	1.65	-0.04	33.12	0.0683	0.3341	-0.0202
69	SLU 67	1.92	-0.04	32.46	0.0681	0.3465	-0.0209
69	SLU 68	2.07	-0.03	32.03	0.0679	0.3532	-0.0212
69	SLU 69	1.54	-0.05	34.31	0.0705	0.3351	-0.0201
69	SLU 70	1.8	-0.05	33.65	0.0703	0.3474	-0.0208
69	SLU 71	1.51	-0.05	34.33	0.0704	0.3335	-0.02
69	SLU 72	1.78	-0.05	33.67	0.0702	0.3459	-0.0207
69	SLU 73	2.56	-0.01	34	0.07	0.3965	-0.0245
69	SLU 74	2.03	-0.03	36.28	0.0726	0.3783	-0.0234
69	SLU 75	2.3	-0.02	35.62	0.0724	0.3907	-0.0241
69	SLU 76	2.45	-0.02	35.2	0.0722	0.3974	-0.0245
69	SLU 77	1.92	-0.03	37.47	0.0748	0.3793	-0.0234
69	SLU 78	2.18	-0.03	36.81	0.0746	0.3917	-0.0241
69	SLU 79	1.89	-0.04	37.49	0.0747	0.3778	-0.0233
69	SLU 80	2.16	-0.03	36.83	0.0745	0.3902	-0.024
69	SLU 81	2.29	-0.01	36.46	0.0722	0.3948	-0.0248
69	SLU 82	2.55	0	35.8	0.072	0.4072	-0.0255
69	SLU 83	2.17	-0.02	37.65	0.0744	0.3958	-0.0247
69	SLU 84	2.44	-0.01	36.99	0.0742	0.4082	-0.0254
69	SLE RA 1	1.24	-0.03	24.2	0.0503	0.2463	-0.0149
69	SLE RA 2	1.53	-0.02	23.47	0.0501	0.26	-0.0156
69	SLE RA 3	1.18	-0.04	24.99	0.0518	0.2479	-0.0149
69	SLE RA 4	1.36	-0.03	24.55	0.0517	0.2562	-0.0154
69	SLE RA 5	1.46	-0.03	24.26	0.0515	0.2607	-0.0156
69	SLE RA 6	1.1	-0.04	25.78	0.0533	0.2486	-0.0149
69	SLE RA 7	1.28	-0.04	25.34	0.0531	0.2568	-0.0153
69	SLE RA 8	1.09	-0.04	25.79	0.0532	0.2476	-0.0148
69	SLE RA 9	1.26	-0.04	25.35	0.0531	0.2558	-0.0153
69	SLE RA 10	1.79	-0.01	25.58	0.053	0.2895	-0.0178
69	SLE RA 11	1.44	-0.02	27.1	0.0547	0.2774	-0.0171
69	SLE RA 12	1.61	-0.02	26.66	0.0546	0.2857	-0.0175
69	SLE RA 13	1.71	-0.02	26.37	0.0544	0.2902	-0.0178
69	SLE RA 14	1.36	-0.03	27.89	0.0561	0.2781	-0.017
69	SLE RA 15	1.53	-0.03	27.45	0.056	0.2863	-0.0175
69	SLE RA 16	1.34	-0.03	27.9	0.0561	0.2771	-0.017
69	SLE RA 17	1.52	-0.03	27.46	0.056	0.2853	-0.0174
69	SLE RA 18	1.6	-0.01	27.21	0.0544	0.2884	-0.018
69	SLE RA 19	1.78	-0.01	26.77	0.0543	0.2967	-0.0184
69	SLE RA 20	1.53	-0.02	28.01	0.0559	0.2891	-0.0179
69	SLE RA 21	1.7	-0.02	27.57	0.0557	0.2973	-0.0184
69	SLE FR 1	1.24	-0.03	24.2	0.0503	0.2463	-0.0149
69	SLE FR 2	1.3	-0.03	24.06	0.0503	0.249	-0.015
69	SLE FR 3	1.21	-0.03	24.52	0.0509	0.2465	-0.0149



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
69	SLE FR 4	1.41	-0.02	24.96	0.0515	0.2617	-0.016
69	SLE FR 5	1.32	-0.03	25.42	0.0521	0.2592	-0.0158
69	SLE FR 6	1.42	-0.02	25.71	0.0524	0.2673	-0.0164
69	SLE QP 1	1.24	-0.03	24.2	0.0503	0.2463	-0.0149
69	SLE QP 2	1.35	-0.03	25.11	0.0515	0.2589	-0.0158
69	SLD 1	5.62	0.21	14.13	0.0134	0.5019	-0.0338
69	SLD 2	5.62	0.21	14.13	0.0134	0.5019	-0.0338
69	SLD 3	6.02	0.35	11.44	-0.0133	0.4692	-0.0277
69	SLD 4	6.02	0.35	11.44	-0.0133	0.4692	-0.0277
69	SLD 5	2.03	-0.17	25.9	0.0805	0.3813	-0.0305
69	SLD 6	2.03	-0.17	25.9	0.0805	0.3813	-0.0305
69	SLD 7	3.36	0.3	16.92	-0.0083	0.2725	-0.0101
69	SLD 8	3.36	0.3	16.92	-0.0083	0.2725	-0.0101
69	SLD 9	-0.66	-0.35	33.29	0.1114	0.2453	-0.0215
69	SLD 10	-0.66	-0.35	33.29	0.1114	0.2453	-0.0215
69	SLD 11	0.67	0.12	24.32	0.0226	0.1365	-0.0011
69	SLD 12	0.67	0.12	24.32	0.0226	0.1365	-0.0011
69	SLD 13	-3.32	-0.4	38.77	0.1164	0.0486	-0.0039
69	SLD 14	-3.32	-0.4	38.77	0.1164	0.0486	-0.0039
69	SLD 15	-2.93	-0.26	36.08	0.0897	0.016	0.0022
69	SLD 16	-2.93	-0.26	36.08	0.0897	0.016	0.0022
69	SLV 1	11.11	0.53	0.02	-0.0406	0.8161	-0.0581
69	SLV 2	11.11	0.53	0.02	-0.0406	0.8161	-0.0581
69	SLV 3	12.06	0.88	-6.29	-0.1047	0.7388	-0.0435
69	SLV 4	12.06	0.88	-6.29	-0.1047	0.7388	-0.0435
69	SLV 5	2.83	-0.38	27.15	0.1211	0.5433	-0.0506
69	SLV 6	2.83	-0.38	27.15	0.1211	0.5433	-0.0506
69	SLV 7	6.01	0.76	6.12	-0.0925	0.2857	-0.002
69	SLV 8	6.01	0.76	6.12	-0.0925	0.2857	-0.002
69	SLV 9	-3.31	-0.81	44.1	0.1956	0.2322	-0.0296
69	SLV 10	-3.31	-0.81	44.1	0.1956	0.2322	-0.0296
69	SLV 11	-0.13	0.33	23.06	-0.018	-0.0255	0.019
69	SLV 12	-0.13	0.33	23.06	-0.018	-0.0255	0.019
69	SLV 13	-9.36	-0.93	56.5	0.2078	-0.221	0.0119
69	SLV 14	-9.36	-0.93	56.5	0.2078	-0.221	0.0119
69	SLV 15	-8.41	-0.58	50.19	0.1437	-0.2983	0.0265
69	SLV 16	-8.41	-0.58	50.19	0.1437	-0.2983	0.0265
70	SLU 1	7.12	-0.02	38.9	0.0128	0.1648	-0.0012
70	SLU 2	7.22	-0.01	41.53	0.0125	0.159	-0.001
70	SLU 3	7.2	-0.02	39.64	0.0134	0.1653	-0.0013
70	SLU 4	7.26	-0.02	41.22	0.0132	0.1619	-0.0012
70	SLU 5	7.23	-0.01	41.97	0.013	0.1576	-0.0011
70	SLU 6	7.22	-0.02	40.09	0.0138	0.1639	-0.0013
70	SLU 7	7.28	-0.02	41.66	0.0137	0.1605	-0.0012
70	SLU 8	7.15	-0.02	39.79	0.0138	0.162	-0.0013
70	SLU 9	7.21	-0.02	41.37	0.0136	0.1585	-0.0012
70	SLU 10	8.23	-0.01	47.49	0.0144	0.1805	-0.0012
70	SLU 11	8.21	-0.02	45.6	0.0153	0.1867	-0.0015
70	SLU 12	8.27	-0.02	47.17	0.0151	0.1833	-0.0014
70	SLU 13	8.24	-0.02	47.93	0.0149	0.179	-0.0013
70	SLU 14	8.23	-0.03	46.04	0.0157	0.1853	-0.0015
70	SLU 15	8.28	-0.02	47.62	0.0156	0.1819	-0.0014
70	SLU 16	8.16	-0.03	45.75	0.0157	0.1834	-0.0015
70	SLU 17	8.22	-0.02	47.32	0.0155	0.1799	-0.0014
70	SLU 18	8.56	-0.02	47.41	0.0155	0.1954	-0.0015
70	SLU 19	8.62	-0.02	48.99	0.0154	0.1919	-0.0014
70	SLU 20	8.58	-0.03	47.85	0.016	0.194	-0.0015
70	SLU 21	8.64	-0.02	49.43	0.0158	0.1905	-0.0014
70	SLU 22	7.99	-0.02	43.81	0.0143	0.1843	-0.0013
70	SLU 23	8.09	-0.01	46.44	0.014	0.1785	-0.0012
70	SLU 24	8.07	-0.02	44.55	0.0148	0.1848	-0.0014
70	SLU 25	8.13	-0.02	46.13	0.0147	0.1814	-0.0013
70	SLU 26	8.1	-0.01	46.88	0.0145	0.1771	-0.0012
70	SLU 27	8.08	-0.03	45	0.0153	0.1834	-0.0015
70	SLU 28	8.14	-0.02	46.57	0.0152	0.18	-0.0014
70	SLU 29	8.01	-0.02	44.7	0.0152	0.1814	-0.0015
70	SLU 30	8.07	-0.02	46.28	0.0151	0.178	-0.0014
70	SLU 31	9.1	-0.02	52.4	0.0159	0.2	-0.0014
70	SLU 32	9.08	-0.03	50.51	0.0167	0.2062	-0.0016
70	SLU 33	9.14	-0.02	52.08	0.0166	0.2028	-0.0015
70	SLU 34	9.11	-0.02	52.84	0.0164	0.1985	-0.0014
70	SLU 35	9.09	-0.03	50.95	0.0172	0.2048	-0.0017
70	SLU 36	9.15	-0.02	52.53	0.0171	0.2014	-0.0016
70	SLU 37	9.02	-0.03	50.65	0.0171	0.2029	-0.0016
70	SLU 38	9.08	-0.02	52.23	0.017	0.1994	-0.0015
70	SLU 39	9.43	-0.03	52.32	0.017	0.2149	-0.0016
70	SLU 40	9.49	-0.02	53.9	0.0168	0.2114	-0.0015
70	SLU 41	9.44	-0.03	52.76	0.0175	0.2135	-0.0017
70	SLU 42	9.5	-0.02	54.34	0.0173	0.21	-0.0016
70	SLU 43	8.96	-0.03	48.89	0.0162	0.2075	-0.0015
70	SLU 44	9.06	-0.02	51.52	0.0159	0.2018	-0.0013
70	SLU 45	9.05	-0.03	49.63	0.0167	0.2081	-0.0016
70	SLU 46	9.1	-0.02	51.21	0.0166	0.2046	-0.0015
70	SLU 47	9.08	-0.02	51.96	0.0164	0.2004	-0.0014
70	SLU 48	9.06	-0.03	50.07	0.0172	0.2067	-0.0017
70	SLU 49	9.12	-0.02	51.65	0.017	0.2032	-0.0015
70	SLU 50	8.99	-0.03	49.78	0.0171	0.2047	-0.0016
70	SLU 51	9.05	-0.02	51.35	0.0169	0.2013	-0.0015
70	SLU 52	10.07	-0.02	57.47	0.0178	0.2232	-0.0015



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
70	SLU 53	10.05	-0.03	55.59	0.0186	0.2295	-0.0018
70	SLU 54	10.11	-0.02	57.16	0.0185	0.2261	-0.0017
70	SLU 55	10.08	-0.02	57.92	0.0183	0.2218	-0.0016
70	SLU 56	10.07	-0.03	56.03	0.0191	0.2281	-0.0018
70	SLU 57	10.13	-0.03	57.61	0.0189	0.2246	-0.0017
70	SLU 58	10	-0.03	55.73	0.019	0.2261	-0.0018
70	SLU 59	10.06	-0.03	57.31	0.0188	0.2227	-0.0017
70	SLU 60	10.41	-0.03	57.4	0.0189	0.2381	-0.0018
70	SLU 61	10.47	-0.02	58.98	0.0187	0.2347	-0.0017
70	SLU 62	10.42	-0.03	57.84	0.0193	0.2367	-0.0018
70	SLU 63	10.48	-0.03	59.42	0.0192	0.2333	-0.0017
70	SLU 64	9.83	-0.03	53.8	0.0176	0.227	-0.0017
70	SLU 65	9.93	-0.02	56.43	0.0174	0.2213	-0.0015
70	SLU 66	9.91	-0.03	54.54	0.0182	0.2276	-0.0017
70	SLU 67	9.97	-0.02	56.12	0.018	0.2241	-0.0016
70	SLU 68	9.94	-0.02	56.87	0.0178	0.2199	-0.0015
70	SLU 69	9.92	-0.03	54.98	0.0187	0.2262	-0.0018
70	SLU 70	9.98	-0.03	56.56	0.0185	0.2227	-0.0017
70	SLU 71	9.85	-0.03	54.69	0.0186	0.2242	-0.0018
70	SLU 72	9.91	-0.03	56.26	0.0184	0.2208	-0.0017
70	SLU 73	10.94	-0.02	62.38	0.0193	0.2427	-0.0017
70	SLU 74	10.92	-0.03	60.5	0.0201	0.249	-0.0019
70	SLU 75	10.98	-0.03	62.07	0.0199	0.2455	-0.0018
70	SLU 76	10.95	-0.02	62.83	0.0197	0.2413	-0.0017
70	SLU 77	10.93	-0.03	60.94	0.0206	0.2476	-0.002
70	SLU 78	10.99	-0.03	62.52	0.0204	0.2441	-0.0019
70	SLU 79	10.86	-0.03	60.64	0.0205	0.2456	-0.002
70	SLU 80	10.92	-0.03	62.22	0.0203	0.2422	-0.0019
70	SLU 81	11.27	-0.03	62.31	0.0203	0.2576	-0.0019
70	SLU 82	11.33	-0.03	63.88	0.0202	0.2542	-0.0018
70	SLU 83	11.28	-0.03	62.75	0.0208	0.2562	-0.002
70	SLU 84	11.34	-0.03	64.33	0.0206	0.2528	-0.0019
70	SLE RA 1	7.37	-0.02	40.31	0.0132	0.1704	-0.0012
70	SLE RA 2	7.44	-0.02	42.06	0.0131	0.1665	-0.0011
70	SLE RA 3	7.42	-0.02	40.8	0.0136	0.1707	-0.0013
70	SLE RA 4	7.46	-0.02	41.85	0.0135	0.1684	-0.0012
70	SLE RA 5	7.44	-0.02	42.35	0.0134	0.1656	-0.0012
70	SLE RA 6	7.43	-0.02	41.09	0.0139	0.1698	-0.0013
70	SLE RA 7	7.47	-0.02	42.15	0.0138	0.1675	-0.0013
70	SLE RA 8	7.39	-0.02	40.9	0.0139	0.1685	-0.0013
70	SLE RA 9	7.43	-0.02	41.95	0.0138	0.1662	-0.0013
70	SLE RA 10	8.11	-0.02	46.03	0.0143	0.1808	-0.0013
70	SLE RA 11	8.1	-0.02	44.77	0.0149	0.185	-0.0014
70	SLE RA 12	8.14	-0.02	45.82	0.0148	0.1827	-0.0013
70	SLE RA 13	8.12	-0.02	46.32	0.0146	0.1799	-0.0013
70	SLE RA 14	8.1	-0.02	45.06	0.0152	0.1841	-0.0015
70	SLE RA 15	8.14	-0.02	46.12	0.0151	0.1818	-0.0014
70	SLE RA 16	8.06	-0.02	44.87	0.0151	0.1827	-0.0014
70	SLE RA 17	8.1	-0.02	45.92	0.015	0.1805	-0.0014
70	SLE RA 18	8.33	-0.02	45.98	0.015	0.1907	-0.0014
70	SLE RA 19	8.37	-0.02	47.03	0.0149	0.1885	-0.0014
70	SLE RA 20	8.34	-0.02	46.27	0.0154	0.1898	-0.0015
70	SLE RA 21	8.38	-0.02	47.32	0.0153	0.1875	-0.0014
70	SLE FR 1	7.37	-0.02	40.31	0.0132	0.1704	-0.0012
70	SLE FR 2	7.38	-0.02	40.66	0.0132	0.1696	-0.0012
70	SLE FR 3	7.37	-0.02	40.42	0.0134	0.17	-0.0013
70	SLE FR 4	7.67	-0.02	42.36	0.0137	0.1757	-0.0013
70	SLE FR 5	7.66	-0.02	42.13	0.0139	0.1761	-0.0013
70	SLE FR 6	7.85	-0.02	43.14	0.0141	0.1806	-0.0013
70	SLE QP 1	7.37	-0.02	40.31	0.0132	0.1704	-0.0012
70	SLE QP 2	7.66	-0.02	42.01	0.0138	0.1765	-0.0013
70	SLD 1	17.53	0.07	70.65	-0.0108	0.5292	0.002
70	SLD 2	17.53	0.07	70.65	-0.0108	0.5292	0.002
70	SLD 3	16.6	-0.01	67.47	0.0075	0.4992	-0.0006
70	SLD 4	16.6	-0.01	67.47	0.0075	0.4992	-0.0006
70	SLD 5	12.04	0.12	55.41	-0.0213	0.3278	0.0037
70	SLD 6	12.04	0.12	55.41	-0.0213	0.3278	0.0037
70	SLD 7	8.92	-0.13	44.84	0.0396	0.2278	-0.0051
70	SLD 8	8.92	-0.13	44.84	0.0396	0.2278	-0.0051
70	SLD 9	6.39	0.09	39.18	-0.0121	0.1251	0.0025
70	SLD 10	6.39	0.09	39.18	-0.0121	0.1251	0.0025
70	SLD 11	3.28	-0.16	28.61	0.0489	0.0252	-0.0063
70	SLD 12	3.28	-0.16	28.61	0.0489	0.0252	-0.0063
70	SLD 13	-1.28	-0.04	16.54	0.02	-0.1463	-0.002
70	SLD 14	-1.28	-0.04	16.54	0.02	-0.1463	-0.002
70	SLD 15	-2.22	-0.11	13.37	0.0383	-0.1763	-0.0046
70	SLD 16	-2.22	-0.11	13.37	0.0383	-0.1763	-0.0046
70	SLV 1	30.29	0.19	107.64	-0.0443	0.9844	0.0066
70	SLV 2	30.29	0.19	107.64	-0.0443	0.9844	0.0066
70	SLV 3	28.03	0.01	100.01	0.0001	0.9122	0.0003
70	SLV 4	28.03	0.01	100.01	0.0001	0.9122	0.0003
70	SLV 5	17.88	0.32	73.27	-0.0711	0.5284	0.0107
70	SLV 6	17.88	0.32	73.27	-0.0711	0.5284	0.0107
70	SLV 7	10.34	-0.29	47.83	0.0771	0.2876	-0.0104
70	SLV 8	10.34	-0.29	47.83	0.0771	0.2876	-0.0104
70	SLV 9	4.98	0.24	36.18	-0.0496	0.0653	0.0078
70	SLV 10	4.98	0.24	36.18	-0.0496	0.0653	0.0078
70	SLV 11	-2.56	-0.36	10.74	0.0987	-0.1755	-0.0133
70	SLV 12	-2.56	-0.36	10.74	0.0987	-0.1755	-0.0133



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
70	SLV 13	-12.71	-0.06	-16	0.0274	-0.5593	-0.0029
70	SLV 14	-12.71	-0.06	-16	0.0274	-0.5593	-0.0029
70	SLV 15	-14.97	-0.24	-23.63	0.0719	-0.6315	-0.0092
70	SLV 16	-14.97	-0.24	-23.63	0.0719	-0.6315	-0.0092
71	SLU 1	3.84	-7.29	77.41	0.3735	0.0496	-0.051
71	SLU 2	3.25	-8.1	83.85	0.403	0.0095	-0.0564
71	SLU 3	3.8	-7.43	79	0.3811	0.0456	-0.052
71	SLU 4	3.45	-7.92	82.86	0.3988	0.0215	-0.0553
71	SLU 5	3.16	-8.21	84.91	0.4087	0.0035	-0.0572
71	SLU 6	3.71	-7.54	80.06	0.3868	0.0396	-0.0528
71	SLU 7	3.36	-8.03	83.93	0.4045	0.0155	-0.0561
71	SLU 8	3.65	-7.5	79.54	0.3849	0.0376	-0.0526
71	SLU 9	3.3	-7.99	83.4	0.4026	0.0135	-0.0558
71	SLU 10	3.7	-8.99	95.4	0.4447	0.0152	-0.0625
71	SLU 11	4.25	-8.32	90.55	0.4228	0.0513	-0.0582
71	SLU 12	3.9	-8.81	94.41	0.4405	0.0272	-0.0614
71	SLU 13	3.6	-9.1	96.46	0.4504	0.0091	-0.0633
71	SLU 14	4.15	-8.43	91.61	0.4285	0.0453	-0.059
71	SLU 15	3.8	-8.92	95.48	0.4462	0.0212	-0.0622
71	SLU 16	4.1	-8.39	91.08	0.4266	0.0433	-0.0587
71	SLU 17	3.75	-8.88	94.95	0.4443	0.0192	-0.0619
71	SLU 18	4.47	-8.55	93.91	0.4331	0.0577	-0.0598
71	SLU 19	4.12	-9.04	97.77	0.4508	0.0337	-0.063
71	SLU 20	4.38	-8.66	94.97	0.4388	0.0517	-0.0606
71	SLU 21	4.03	-9.15	98.83	0.4565	0.0276	-0.0638
71	SLU 22	4.25	-8	86.8	0.4065	0.0571	-0.0559
71	SLU 23	3.67	-8.82	93.24	0.436	0.0169	-0.0613
71	SLU 24	4.22	-8.15	88.39	0.4141	0.0531	-0.057
71	SLU 25	3.87	-8.64	92.25	0.4318	0.029	-0.0602
71	SLU 26	3.57	-8.93	94.3	0.4417	0.0109	-0.0621
71	SLU 27	4.12	-8.26	89.45	0.4198	0.047	-0.0577
71	SLU 28	3.77	-8.75	93.32	0.4375	0.023	-0.061
71	SLU 29	4.07	-8.22	88.92	0.4179	0.045	-0.0575
71	SLU 30	3.72	-8.71	92.79	0.4356	0.0209	-0.0607
71	SLU 31	4.11	-9.7	104.79	0.4777	0.0226	-0.0674
71	SLU 32	4.66	-9.03	99.94	0.4558	0.0587	-0.0631
71	SLU 33	4.31	-9.52	103.8	0.4735	0.0346	-0.0663
71	SLU 34	4.02	-9.81	105.85	0.4834	0.0166	-0.0682
71	SLU 35	4.57	-9.14	101	0.4615	0.0527	-0.0639
71	SLU 36	4.22	-9.63	104.86	0.4792	0.0286	-0.0671
71	SLU 37	4.51	-9.1	100.47	0.4596	0.0507	-0.0636
71	SLU 38	4.16	-9.59	104.34	0.4773	0.0266	-0.0668
71	SLU 39	4.89	-9.26	103.29	0.466	0.0652	-0.0647
71	SLU 40	4.54	-9.75	107.16	0.4838	0.0411	-0.0679
71	SLU 41	4.79	-9.37	104.36	0.4718	0.0592	-0.0655
71	SLU 42	4.44	-9.86	108.22	0.4895	0.0351	-0.0687
71	SLU 43	4.85	-9.23	97.41	0.4742	0.062	-0.0646
71	SLU 44	4.26	-10.05	103.85	0.5037	0.0218	-0.07
71	SLU 45	4.81	-9.38	99	0.4819	0.058	-0.0657
71	SLU 46	4.46	-9.87	102.87	0.4996	0.0339	-0.0689
71	SLU 47	4.17	-10.15	104.92	0.5094	0.0158	-0.0708
71	SLU 48	4.72	-9.48	100.07	0.4876	0.052	-0.0664
71	SLU 49	4.37	-9.97	103.93	0.5053	0.0279	-0.0697
71	SLU 50	4.66	-9.45	99.54	0.4856	0.05	-0.0662
71	SLU 51	4.31	-9.94	103.4	0.5033	0.0259	-0.0694
71	SLU 52	4.7	-10.93	115.4	0.5454	0.0275	-0.0761
71	SLU 53	5.26	-10.26	110.55	0.5236	0.0637	-0.0718
71	SLU 54	4.9	-10.75	114.42	0.5413	0.0396	-0.075
71	SLU 55	4.61	-11.04	116.46	0.5511	0.0215	-0.0769
71	SLU 56	5.16	-10.37	111.61	0.5293	0.0576	-0.0726
71	SLU 57	4.81	-10.86	115.48	0.547	0.0335	-0.0758
71	SLU 58	5.11	-10.33	111.09	0.5273	0.0556	-0.0723
71	SLU 59	4.75	-10.82	114.95	0.545	0.0315	-0.0755
71	SLU 60	5.48	-10.49	113.91	0.5338	0.0701	-0.0734
71	SLU 61	5.13	-10.98	117.77	0.5515	0.046	-0.0766
71	SLU 62	5.39	-10.6	114.97	0.5395	0.0641	-0.0742
71	SLU 63	5.04	-11.09	118.84	0.5572	0.04	-0.0774
71	SLU 64	5.26	-9.94	106.8	0.5072	0.0694	-0.0695
71	SLU 65	4.67	-10.76	113.24	0.5367	0.0293	-0.0749
71	SLU 66	5.23	-10.09	108.39	0.5148	0.0654	-0.0706
71	SLU 67	4.87	-10.58	112.26	0.5326	0.0413	-0.0738
71	SLU 68	4.58	-10.87	114.3	0.5424	0.0232	-0.0757
71	SLU 69	5.13	-10.2	109.46	0.5206	0.0594	-0.0714
71	SLU 70	4.78	-10.69	113.32	0.5383	0.0353	-0.0746
71	SLU 71	5.08	-10.16	108.93	0.5186	0.0574	-0.0711
71	SLU 72	4.72	-10.65	112.79	0.5363	0.0333	-0.0743
71	SLU 73	5.12	-11.64	124.79	0.5784	0.0349	-0.081
71	SLU 74	5.67	-10.97	119.94	0.5565	0.0711	-0.0767
71	SLU 75	5.32	-11.46	123.8	0.5743	0.047	-0.0799
71	SLU 76	5.03	-11.75	125.85	0.5841	0.0289	-0.0818
71	SLU 77	5.58	-11.08	121	0.5623	0.0651	-0.0775
71	SLU 78	5.23	-11.57	124.87	0.58	0.041	-0.0807
71	SLU 79	5.52	-11.04	120.48	0.5603	0.0631	-0.0772
71	SLU 80	5.17	-11.53	124.34	0.578	0.039	-0.0805
71	SLU 81	5.9	-11.2	123.3	0.5668	0.0775	-0.0783
71	SLU 82	5.54	-11.69	127.16	0.5845	0.0534	-0.0815
71	SLU 83	5.8	-11.31	124.36	0.5725	0.0715	-0.0791
71	SLU 84	5.45	-11.8	128.23	0.5902	0.0474	-0.0823
71	SLE RA 1	3.95	-7.49	80.09	0.3829	0.0518	-0.0524



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
71	SLE RA 2	3.56	-8.04	84.38	0.4026	0.025	-0.056
71	SLE RA 3	3.93	-7.59	81.15	0.388	0.0491	-0.0531
71	SLE RA 4	3.7	-7.92	83.73	0.3998	0.033	-0.0553
71	SLE RA 5	3.5	-8.11	85.09	0.4064	0.021	-0.0565
71	SLE RA 6	3.87	-7.66	81.86	0.3918	0.0451	-0.0536
71	SLE RA 7	3.64	-7.99	84.44	0.4036	0.029	-0.0558
71	SLE RA 8	3.83	-7.64	81.51	0.3905	0.0437	-0.0534
71	SLE RA 9	3.6	-7.96	84.09	0.4023	0.0277	-0.0556
71	SLE RA 10	3.86	-8.62	92.08	0.4304	0.0288	-0.0601
71	SLE RA 11	4.23	-8.18	88.85	0.4158	0.0529	-0.0572
71	SLE RA 12	3.99	-8.51	91.43	0.4276	0.0368	-0.0593
71	SLE RA 13	3.8	-8.7	92.79	0.4342	0.0248	-0.0606
71	SLE RA 14	4.17	-8.25	89.56	0.4196	0.0489	-0.0577
71	SLE RA 15	3.93	-8.58	92.14	0.4314	0.0328	-0.0599
71	SLE RA 16	4.13	-8.22	89.21	0.4183	0.0475	-0.0575
71	SLE RA 17	3.89	-8.55	91.78	0.4301	0.0315	-0.0597
71	SLE RA 18	4.38	-8.33	91.09	0.4226	0.0572	-0.0582
71	SLE RA 19	4.14	-8.66	93.66	0.4344	0.0411	-0.0604
71	SLE RA 20	4.32	-8.41	91.8	0.4264	0.0532	-0.0588
71	SLE RA 21	4.08	-8.73	94.37	0.4382	0.0371	-0.0609
71	SLE FR 1	3.95	-7.49	80.09	0.3829	0.0518	-0.0524
71	SLE FR 2	3.88	-7.6	80.95	0.3868	0.0464	-0.0531
71	SLE FR 3	3.93	-7.52	80.37	0.3844	0.0502	-0.0526
71	SLE FR 4	4	-7.85	84.25	0.3988	0.048	-0.0549
71	SLE FR 5	4.06	-7.77	83.67	0.3963	0.0518	-0.0544
71	SLE FR 6	4.17	-7.91	85.59	0.4028	0.0545	-0.0553
71	SLE QP 1	3.95	-7.49	80.09	0.3829	0.0518	-0.0524
71	SLE QP 2	4.08	-7.74	83.39	0.3948	0.0534	-0.0542
71	SLD 1	15.31	-10.28	116.72	0.3423	0.6298	-0.0492
71	SLD 2	15.31	-10.28	116.72	0.3423	0.6298	-0.0492
71	SLD 3	13.95	-8.67	109.99	0.2682	0.5574	-0.0387
71	SLD 4	13.95	-8.67	109.99	0.2682	0.5574	-0.0387
71	SLD 5	9.52	-10.94	103.6	0.4915	0.3362	-0.0685
71	SLD 6	9.52	-10.94	103.6	0.4915	0.3362	-0.0685
71	SLD 7	4.97	-5.58	81.16	0.2444	0.0947	-0.0337
71	SLD 8	4.97	-5.58	81.16	0.2444	0.0947	-0.0337
71	SLD 9	3.19	-9.9	85.62	0.5453	0.012	-0.0746
71	SLD 10	3.19	-9.9	85.62	0.5453	0.012	-0.0746
71	SLD 11	-1.35	-4.54	63.18	0.2981	-0.2294	-0.0398
71	SLD 12	-1.35	-4.54	63.18	0.2981	-0.2294	-0.0398
71	SLD 13	-5.78	-6.81	56.79	0.5215	-0.4506	-0.0696
71	SLD 14	-5.78	-6.81	56.79	0.5215	-0.4506	-0.0696
71	SLD 15	-7.15	-5.21	50.06	0.4473	-0.5231	-0.0591
71	SLD 16	-7.15	-5.21	50.06	0.4473	-0.5231	-0.0591
71	SLV 1	29.82	-13.67	160.04	0.274	1.3749	-0.0427
71	SLV 2	29.82	-13.67	160.04	0.274	1.3749	-0.0427
71	SLV 3	26.53	-9.87	143.76	0.0976	1.2007	-0.018
71	SLV 4	26.53	-9.87	143.76	0.0976	1.2007	-0.018
71	SLV 5	16.79	-15.28	131.07	0.6261	0.714	-0.0882
71	SLV 6	16.79	-15.28	131.07	0.6261	0.714	-0.0882
71	SLV 7	5.83	-2.62	76.82	0.0381	0.1334	-0.0058
71	SLV 8	5.83	-2.62	76.82	0.0381	0.1334	-0.0058
71	SLV 9	2.33	-12.87	89.96	0.7515	-0.0267	-0.1025
71	SLV 10	2.33	-12.87	89.96	0.7515	-0.0267	-0.1025
71	SLV 11	-8.63	-0.21	35.71	0.1635	-0.6072	-0.0201
71	SLV 12	-8.63	-0.21	35.71	0.1635	-0.6072	-0.0201
71	SLV 13	-18.37	-5.62	23.02	0.6921	-1.094	-0.0903
71	SLV 14	-18.37	-5.62	23.02	0.6921	-1.094	-0.0903
71	SLV 15	-21.66	-1.82	6.74	0.5157	-1.2681	-0.0656
71	SLV 16	-21.66	-1.82	6.74	0.5157	-1.2681	-0.0656
72	SLU 1	-0.23	-0.07	39	0.0074	-0.0095	-0.0001
72	SLU 2	-1.33	-0.08	42	0.0138	-0.0586	-0.0002
72	SLU 3	-0.38	-0.07	39.78	0.0074	-0.0165	-0.0001
72	SLU 4	-1.04	-0.08	41.59	0.0113	-0.046	-0.0002
72	SLU 5	-1.52	-0.08	42.52	0.0139	-0.0673	-0.0002
72	SLU 6	-0.57	-0.07	40.3	0.0075	-0.0252	-0.0001
72	SLU 7	-1.23	-0.08	42.1	0.0113	-0.0547	-0.0002
72	SLU 8	-0.6	-0.07	40.03	0.0075	-0.0269	-0.0001
72	SLU 9	-1.27	-0.08	41.83	0.0114	-0.0564	-0.0002
72	SLU 10	-1.52	-0.09	47.81	0.0148	-0.0675	-0.0002
72	SLU 11	-0.57	-0.08	45.59	0.0084	-0.0254	-0.0001
72	SLU 12	-1.23	-0.09	47.4	0.0123	-0.0548	-0.0002
72	SLU 13	-1.71	-0.09	48.33	0.0149	-0.0762	-0.0002
72	SLU 14	-0.76	-0.08	46.11	0.0085	-0.0341	-0.0001
72	SLU 15	-1.42	-0.09	47.91	0.0123	-0.0635	-0.0001
72	SLU 16	-0.8	-0.08	45.84	0.0085	-0.0357	-0.0001
72	SLU 17	-1.46	-0.08	47.64	0.0124	-0.0652	-0.0001
72	SLU 18	-0.5	-0.08	47.29	0.0088	-0.0222	-0.0001
72	SLU 19	-1.16	-0.09	49.1	0.0126	-0.0517	-0.0002
72	SLU 20	-0.69	-0.08	47.81	0.0089	-0.0309	-0.0001
72	SLU 21	-1.35	-0.09	49.61	0.0127	-0.0603	-0.0001
72	SLU 22	-0.31	-0.07	43.68	0.0082	-0.0133	-0.0001
72	SLU 23	-1.42	-0.09	46.69	0.0146	-0.0624	-0.0002
72	SLU 24	-0.47	-0.08	44.47	0.0083	-0.0203	-0.0001
72	SLU 25	-1.13	-0.08	46.28	0.0121	-0.0498	-0.0001
72	SLU 26	-1.61	-0.09	47.21	0.0147	-0.0711	-0.0002
72	SLU 27	-0.65	-0.08	44.99	0.0083	-0.029	-0.0001
72	SLU 28	-1.32	-0.08	46.79	0.0122	-0.0585	-0.0001
72	SLU 29	-0.69	-0.07	44.72	0.0083	-0.0307	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
72	SLU 30	-1.35	-0.08	46.52	0.0122	-0.0601	-0.0001
72	SLU 31	-1.61	-0.1	52.5	0.0156	-0.0713	-0.0002
72	SLU 32	-0.66	-0.08	50.28	0.0093	-0.0292	-0.0001
72	SLU 33	-1.32	-0.09	52.09	0.0131	-0.0586	-0.0001
72	SLU 34	-1.8	-0.1	53.01	0.0157	-0.08	-0.0002
72	SLU 35	-0.85	-0.08	50.8	0.0093	-0.0378	-0.0001
72	SLU 36	-1.51	-0.09	52.6	0.0132	-0.0673	-0.0001
72	SLU 37	-0.88	-0.08	50.52	0.0093	-0.0395	-0.0001
72	SLU 38	-1.55	-0.09	52.33	0.0132	-0.069	-0.0001
72	SLU 39	-0.59	-0.09	51.98	0.0096	-0.026	-0.0001
72	SLU 40	-1.25	-0.1	53.79	0.0135	-0.0554	-0.0001
72	SLU 41	-0.78	-0.09	52.5	0.0097	-0.0347	-0.0001
72	SLU 42	-1.44	-0.1	54.3	0.0135	-0.0641	-0.0001
72	SLU 43	-0.26	-0.09	49.09	0.0093	-0.0111	-0.0001
72	SLU 44	-1.37	-0.1	52.09	0.0157	-0.0602	-0.0002
72	SLU 45	-0.42	-0.09	49.88	0.0093	-0.0181	-0.0001
72	SLU 46	-1.08	-0.1	51.68	0.0132	-0.0476	-0.0002
72	SLU 47	-1.56	-0.1	52.61	0.0158	-0.0689	-0.0002
72	SLU 48	-0.6	-0.09	50.39	0.0094	-0.0268	-0.0001
72	SLU 49	-1.27	-0.1	52.2	0.0133	-0.0562	-0.0002
72	SLU 50	-0.64	-0.09	50.12	0.0094	-0.0285	-0.0001
72	SLU 51	-1.3	-0.1	51.92	0.0133	-0.0579	-0.0002
72	SLU 52	-1.56	-0.11	57.9	0.0167	-0.0691	-0.0002
72	SLU 53	-0.61	-0.09	55.69	0.0103	-0.0269	-0.0001
72	SLU 54	-1.27	-0.1	57.49	0.0142	-0.0564	-0.0002
72	SLU 55	-1.75	-0.11	58.42	0.0168	-0.0777	-0.0002
72	SLU 56	-0.8	-0.09	56.2	0.0104	-0.0356	-0.0001
72	SLU 57	-1.46	-0.1	58	0.0143	-0.0651	-0.0002
72	SLU 58	-0.83	-0.09	55.93	0.0104	-0.0373	-0.0001
72	SLU 59	-1.5	-0.1	57.73	0.0143	-0.0668	-0.0002
72	SLU 60	-0.54	-0.1	57.39	0.0107	-0.0238	-0.0001
72	SLU 61	-1.2	-0.11	59.19	0.0146	-0.0532	-0.0002
72	SLU 62	-0.73	-0.1	57.9	0.0108	-0.0324	-0.0001
72	SLU 63	-1.39	-0.11	59.71	0.0146	-0.0619	-0.0002
72	SLU 64	-0.35	-0.09	53.78	0.0101	-0.0149	-0.0001
72	SLU 65	-1.46	-0.11	56.78	0.0165	-0.064	-0.0002
72	SLU 66	-0.5	-0.09	54.56	0.0102	-0.0219	-0.0001
72	SLU 67	-1.17	-0.1	56.37	0.014	-0.0513	-0.0002
72	SLU 68	-1.64	-0.11	57.3	0.0166	-0.0727	-0.0002
72	SLU 69	-0.69	-0.09	55.08	0.0102	-0.0306	-0.0001
72	SLU 70	-1.35	-0.1	56.88	0.0141	-0.06	-0.0002
72	SLU 71	-0.73	-0.09	54.81	0.0103	-0.0322	-0.0001
72	SLU 72	-1.39	-0.1	56.61	0.0141	-0.0617	-0.0002
72	SLU 73	-1.65	-0.12	62.59	0.0175	-0.0729	-0.0002
72	SLU 74	-0.7	-0.1	60.37	0.0112	-0.0307	-0.0001
72	SLU 75	-1.36	-0.11	62.18	0.015	-0.0602	-0.0002
72	SLU 76	-1.84	-0.12	63.11	0.0176	-0.0815	-0.0002
72	SLU 77	-0.88	-0.1	60.89	0.0112	-0.0394	-0.0001
72	SLU 78	-1.55	-0.11	62.69	0.0151	-0.0689	-0.0002
72	SLU 79	-0.92	-0.1	60.62	0.0113	-0.0411	-0.0001
72	SLU 80	-1.58	-0.11	62.42	0.0151	-0.0706	-0.0002
72	SLU 81	-0.63	-0.1	62.07	0.0115	-0.0275	-0.0001
72	SLU 82	-1.29	-0.11	63.88	0.0154	-0.057	-0.0002
72	SLU 83	-0.82	-0.1	62.59	0.0116	-0.0362	-0.0001
72	SLU 84	-1.48	-0.11	64.39	0.0155	-0.0657	-0.0002
72	SLE RA 1	-0.25	-0.07	40.34	0.0076	-0.0106	-0.0001
72	SLE RA 2	-0.99	-0.08	42.34	0.0119	-0.0434	-0.0002
72	SLE RA 3	-0.35	-0.07	40.86	0.0076	-0.0153	-0.0001
72	SLE RA 4	-0.79	-0.08	42.06	0.0102	-0.0349	-0.0001
72	SLE RA 5	-1.11	-0.08	42.68	0.0119	-0.0491	-0.0002
72	SLE RA 6	-0.48	-0.07	41.21	0.0077	-0.0211	-0.0001
72	SLE RA 7	-0.92	-0.08	42.41	0.0103	-0.0407	-0.0001
72	SLE RA 8	-0.5	-0.07	41.02	0.0077	-0.0222	-0.0001
72	SLE RA 9	-0.94	-0.08	42.23	0.0103	-0.0418	-0.0001
72	SLE RA 10	-1.12	-0.09	46.21	0.0125	-0.0493	-0.0002
72	SLE RA 11	-0.48	-0.08	44.73	0.0083	-0.0212	-0.0001
72	SLE RA 12	-0.92	-0.08	45.94	0.0109	-0.0408	-0.0001
72	SLE RA 13	-1.24	-0.09	46.56	0.0126	-0.055	-0.0002
72	SLE RA 14	-0.61	-0.08	45.08	0.0084	-0.027	-0.0001
72	SLE RA 15	-1.05	-0.08	46.28	0.0109	-0.0466	-0.0001
72	SLE RA 16	-0.63	-0.08	44.9	0.0084	-0.0281	-0.0001
72	SLE RA 17	-1.07	-0.08	46.1	0.0109	-0.0477	-0.0001
72	SLE RA 18	-0.43	-0.08	45.87	0.0086	-0.0191	-0.0001
72	SLE RA 19	-0.88	-0.08	47.07	0.0111	-0.0387	-0.0001
72	SLE RA 20	-0.56	-0.08	46.21	0.0086	-0.0248	-0.0001
72	SLE RA 21	-1	-0.08	47.41	0.0112	-0.0445	-0.0001
72	SLE FR 1	-0.25	-0.07	40.34	0.0076	-0.0106	-0.0001
72	SLE FR 2	-0.4	-0.07	40.74	0.0085	-0.0172	-0.0001
72	SLE FR 3	-0.3	-0.07	40.47	0.0076	-0.0129	-0.0001
72	SLE FR 4	-0.45	-0.07	42.4	0.0087	-0.0197	-0.0001
72	SLE FR 5	-0.36	-0.07	42.13	0.0079	-0.0155	-0.0001
72	SLE FR 6	-0.34	-0.07	43.1	0.0081	-0.0148	-0.0001
72	SLE QP 1	-0.25	-0.07	40.34	0.0076	-0.0106	-0.0001
72	SLE QP 2	-0.31	-0.07	42	0.0079	-0.0132	-0.0001
72	SLD 1	11.43	-0.12	52.27	0.0234	0.5544	-0.0001
72	SLD 2	11.43	-0.12	52.27	0.0234	0.5544	-0.0001
72	SLD 3	9.65	-0.07	49.18	0.0089	0.4797	0.0002
72	SLD 4	9.65	-0.07	49.18	0.0089	0.4797	0.0002
72	SLD 5	5.92	-0.15	49.77	0.0345	0.2703	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
72	SLD 6	5.92	-0.15	49.77	0.0345	0.2703	-0.0005
72	SLD 7	-0.03	-0.01	39.47	-0.0138	0.0215	0.0004
72	SLD 8	-0.03	-0.01	39.47	-0.0138	0.0215	0.0004
72	SLD 9	-0.59	-0.14	44.52	0.0296	-0.0478	-0.0006
72	SLD 10	-0.59	-0.14	44.52	0.0296	-0.0478	-0.0006
72	SLD 11	-6.54	0.01	34.22	-0.0188	-0.2966	0.0003
72	SLD 12	-6.54	0.01	34.22	-0.0188	-0.2966	0.0003
72	SLD 13	-10.26	-0.07	34.81	0.0068	-0.506	-0.0004
72	SLD 14	-10.26	-0.07	34.81	0.0068	-0.506	-0.0004
72	SLD 15	-12.05	-0.03	31.72	-0.0077	-0.5807	-0.0001
72	SLD 16	-12.05	-0.03	31.72	-0.0077	-0.5807	-0.0001
72	SLV 1	26.59	-0.18	65.68	0.0448	1.2866	-0.0001
72	SLV 2	26.59	-0.18	65.68	0.0448	1.2866	-0.0001
72	SLV 3	22.37	-0.07	58.25	0.01	1.1101	0.0006
72	SLV 4	22.37	-0.07	58.25	0.01	1.1101	0.0006
72	SLV 5	14.16	-0.26	60.36	0.0717	0.6446	-0.0011
72	SLV 6	14.16	-0.26	60.36	0.0717	0.6446	-0.0011
72	SLV 7	0.1	0.09	35.62	-0.0443	0.056	0.0011
72	SLV 8	0.1	0.09	35.62	-0.0443	0.056	0.0011
72	SLV 9	-0.71	-0.23	48.37	0.0601	-0.0823	-0.0013
72	SLV 10	-0.71	-0.23	48.37	0.0601	-0.0823	-0.0013
72	SLV 11	-14.77	0.12	23.63	-0.056	-0.6709	0.0009
72	SLV 12	-14.77	0.12	23.63	-0.056	-0.6709	0.0009
72	SLV 13	-22.98	-0.07	25.74	0.0058	-1.1364	-0.0007
72	SLV 14	-22.98	-0.07	25.74	0.0058	-1.1364	-0.0007
72	SLV 15	-27.2	0.03	18.31	-0.029	-1.313	-0.0001
72	SLV 16	-27.2	0.03	18.31	-0.029	-1.313	-0.0001
73	SLU 1	0.67	0.05	35.61	-0.0144	0.0638	0.0001
73	SLU 2	-0.26	0.02	38.03	-0.0068	0.0261	-0.0001
73	SLU 3	0.53	0.05	36.26	-0.0146	0.0591	0.0001
73	SLU 4	-0.03	0.03	37.71	-0.0101	0.0365	0
73	SLU 5	-0.45	0.02	38.41	-0.0068	0.0194	-0.0001
73	SLU 6	0.34	0.05	36.63	-0.0147	0.0524	0.0001
73	SLU 7	-0.22	0.03	38.09	-0.0101	0.0298	0
73	SLU 8	0.29	0.05	36.36	-0.0144	0.0503	0.0001
73	SLU 9	-0.26	0.03	37.82	-0.0099	0.0278	0
73	SLU 10	-0.3	0.03	43.18	-0.0086	0.0315	-0.0001
73	SLU 11	0.49	0.05	41.41	-0.0165	0.0644	0.0001
73	SLU 12	-0.06	0.04	42.86	-0.0119	0.0419	0
73	SLU 13	-0.48	0.03	43.56	-0.0087	0.0248	-0.0001
73	SLU 14	0.31	0.06	41.79	-0.0165	0.0577	0.0001
73	SLU 15	-0.25	0.04	43.24	-0.012	0.0352	0
73	SLU 16	0.26	0.06	41.52	-0.0163	0.0557	0.0001
73	SLU 17	-0.29	0.04	42.97	-0.0117	0.0331	0
73	SLU 18	0.62	0.06	42.97	-0.017	0.0714	0.0001
73	SLU 19	0.06	0.04	44.42	-0.0124	0.0488	0
73	SLU 20	0.44	0.06	43.35	-0.017	0.0647	0.0001
73	SLU 21	-0.12	0.04	44.8	-0.0125	0.0421	0
73	SLU 22	0.71	0.05	39.77	-0.0159	0.0709	0.0001
73	SLU 23	-0.22	0.03	42.19	-0.0083	0.0333	-0.0001
73	SLU 24	0.57	0.05	40.42	-0.0162	0.0663	0.0001
73	SLU 25	0.01	0.04	41.87	-0.0116	0.0437	0
73	SLU 26	-0.41	0.03	42.56	-0.0084	0.0266	-0.0001
73	SLU 27	0.38	0.05	40.79	-0.0162	0.0596	0.0001
73	SLU 28	-0.17	0.04	42.24	-0.0117	0.037	0
73	SLU 29	0.34	0.05	40.52	-0.016	0.0575	0.0001
73	SLU 30	-0.22	0.04	41.97	-0.0114	0.035	0
73	SLU 31	-0.25	0.03	47.34	-0.0102	0.0387	0
73	SLU 32	0.54	0.06	45.57	-0.018	0.0716	0.0001
73	SLU 33	-0.02	0.05	47.02	-0.0135	0.0491	0
73	SLU 34	-0.44	0.03	47.72	-0.0102	0.032	0
73	SLU 35	0.35	0.06	45.95	-0.018	0.0649	0.0001
73	SLU 36	-0.21	0.05	47.4	-0.0135	0.0423	0
73	SLU 37	0.31	0.06	45.68	-0.0178	0.0629	0.0001
73	SLU 38	-0.25	0.05	47.13	-0.0133	0.0403	0
73	SLU 39	0.66	0.06	47.13	-0.0185	0.0786	0.0001
73	SLU 40	0.11	0.05	48.58	-0.014	0.056	0
73	SLU 41	0.48	0.06	47.51	-0.0185	0.0719	0.0001
73	SLU 42	-0.08	0.05	48.96	-0.014	0.0493	0
73	SLU 43	0.85	0.06	44.87	-0.0181	0.0804	0.0001
73	SLU 44	-0.08	0.03	47.28	-0.0106	0.0428	-0.0001
73	SLU 45	0.71	0.06	45.51	-0.0184	0.0758	0.0001
73	SLU 46	0.15	0.04	46.96	-0.0139	0.0532	0
73	SLU 47	-0.27	0.03	47.66	-0.0106	0.0361	0
73	SLU 48	0.53	0.06	45.89	-0.0185	0.069	0.0001
73	SLU 49	-0.03	0.05	47.34	-0.0139	0.0465	0
73	SLU 50	0.48	0.06	45.62	-0.0182	0.067	0.0001
73	SLU 51	-0.08	0.05	47.07	-0.0137	0.0444	0
73	SLU 52	-0.11	0.04	52.44	-0.0124	0.0482	0
73	SLU 53	0.68	0.07	50.67	-0.0203	0.0811	0.0001
73	SLU 54	0.12	0.05	52.12	-0.0157	0.0585	0
73	SLU 55	-0.3	0.04	52.81	-0.0125	0.0415	0
73	SLU 56	0.49	0.07	51.04	-0.0203	0.0744	0.0001
73	SLU 57	-0.06	0.05	52.5	-0.0158	0.0518	0
73	SLU 58	0.45	0.07	50.77	-0.02	0.0724	0.0001
73	SLU 59	-0.11	0.05	52.23	-0.0155	0.0498	0
73	SLU 60	0.81	0.07	52.23	-0.0208	0.0881	0.0001
73	SLU 61	0.25	0.05	53.68	-0.0162	0.0655	0
73	SLU 62	0.62	0.07	52.6	-0.0208	0.0814	0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
73	SLU 63	0.06	0.05	54.06	-0.0163	0.0588	0
73	SLU 64	0.89	0.06	49.02	-0.0197	0.0876	0.0001
73	SLU 65	-0.04	0.04	51.44	-0.0121	0.05	0
73	SLU 66	0.75	0.07	49.67	-0.02	0.0829	0.0001
73	SLU 67	0.2	0.05	51.12	-0.0154	0.0604	0
73	SLU 68	-0.22	0.04	51.82	-0.0122	0.0433	0
73	SLU 69	0.57	0.07	50.05	-0.02	0.0762	0.0001
73	SLU 70	0.01	0.05	51.5	-0.0155	0.0537	0
73	SLU 71	0.52	0.07	49.78	-0.0197	0.0742	0.0001
73	SLU 72	-0.04	0.05	51.23	-0.0152	0.0516	0
73	SLU 73	-0.07	0.05	56.6	-0.0139	0.0553	0
73	SLU 74	0.72	0.07	54.82	-0.0218	0.0883	0.0002
73	SLU 75	0.16	0.06	56.28	-0.0173	0.0657	0
73	SLU 76	-0.25	0.05	56.97	-0.014	0.0486	0
73	SLU 77	0.54	0.07	55.2	-0.0218	0.0816	0.0002
73	SLU 78	-0.02	0.06	56.65	-0.0173	0.059	0
73	SLU 79	0.49	0.07	54.93	-0.0216	0.0795	0.0002
73	SLU 80	-0.07	0.06	56.38	-0.017	0.057	0
73	SLU 81	0.85	0.07	56.39	-0.0223	0.0953	0.0002
73	SLU 82	0.29	0.06	57.84	-0.0178	0.0727	0
73	SLU 83	0.66	0.07	56.76	-0.0223	0.0885	0.0002
73	SLU 84	0.11	0.06	58.21	-0.0178	0.066	0.0001
73	SLE RA 1	0.68	0.05	36.8	-0.0148	0.0658	0.0001
73	SLE RA 2	0.06	0.03	38.41	-0.0098	0.0407	0
73	SLE RA 3	0.58	0.05	37.23	-0.015	0.0627	0.0001
73	SLE RA 4	0.21	0.04	38.2	-0.012	0.0477	0
73	SLE RA 5	-0.07	0.03	38.66	-0.0098	0.0363	0
73	SLE RA 6	0.46	0.05	37.48	-0.015	0.0582	0.0001
73	SLE RA 7	0.09	0.04	38.45	-0.012	0.0432	0
73	SLE RA 8	0.43	0.05	37.3	-0.0148	0.0569	0.0001
73	SLE RA 9	0.06	0.04	38.27	-0.0118	0.0418	0
73	SLE RA 10	0.04	0.04	41.84	-0.011	0.0443	0
73	SLE RA 11	0.56	0.05	40.66	-0.0162	0.0663	0.0001
73	SLE RA 12	0.19	0.04	41.63	-0.0132	0.0512	0
73	SLE RA 13	-0.09	0.04	42.1	-0.011	0.0398	0
73	SLE RA 14	0.44	0.05	40.92	-0.0162	0.0618	0.0001
73	SLE RA 15	0.07	0.04	41.88	-0.0132	0.0467	0
73	SLE RA 16	0.41	0.05	40.74	-0.0161	0.0604	0.0001
73	SLE RA 17	0.04	0.04	41.7	-0.013	0.0454	0
73	SLE RA 18	0.65	0.05	41.7	-0.0165	0.0709	0.0001
73	SLE RA 19	0.28	0.04	42.67	-0.0135	0.0559	0
73	SLE RA 20	0.52	0.05	41.96	-0.0166	0.0664	0.0001
73	SLE RA 21	0.15	0.04	42.92	-0.0135	0.0514	0
73	SLE FR 1	0.68	0.05	36.8	-0.0148	0.0658	0.0001
73	SLE FR 2	0.55	0.04	37.12	-0.0138	0.0608	0.0001
73	SLE FR 3	0.63	0.05	36.9	-0.0148	0.064	0.0001
73	SLE FR 4	0.55	0.05	38.59	-0.0143	0.0623	0.0001
73	SLE FR 5	0.62	0.05	38.37	-0.0153	0.0656	0.0001
73	SLE FR 6	0.66	0.05	39.25	-0.0157	0.0684	0.0001
73	SLE QP 1	0.68	0.05	36.8	-0.0148	0.0658	0.0001
73	SLE QP 2	0.67	0.05	38.27	-0.0153	0.0673	0.0001
73	SLD 1	13.77	0.03	45.35	-0.0111	0.06584	-0.0002
73	SLD 2	13.77	0.03	45.35	-0.0111	0.06584	-0.0002
73	SLD 3	12.01	-0.03	41.84	0.0099	0.05889	0.0001
73	SLD 4	12.01	-0.03	41.84	0.0099	0.05889	0.0001
73	SLD 5	7.27	0.14	45.72	-0.0459	0.3501	-0.0003
73	SLD 6	7.27	0.14	45.72	-0.0459	0.3501	-0.0003
73	SLD 7	1.4	-0.07	34.01	0.024	0.1184	0.0005
73	SLD 8	1.4	-0.07	34.01	0.024	0.1184	0.0005
73	SLD 9	-0.07	0.17	42.53	-0.0547	0.0163	-0.0002
73	SLD 10	-0.07	0.17	42.53	-0.0547	0.0163	-0.0002
73	SLD 11	-5.93	-0.04	30.81	0.0152	-0.2154	0.0006
73	SLD 12	-5.93	-0.04	30.81	0.0152	-0.2154	0.0006
73	SLD 13	-10.67	0.13	34.7	-0.0405	-0.4542	0.0002
73	SLD 14	-10.67	0.13	34.7	-0.0405	-0.4542	0.0002
73	SLD 15	-12.43	0.07	31.18	-0.0195	-0.5237	0.0004
73	SLD 16	-12.43	0.07	31.18	-0.0195	-0.5237	0.0004
73	SLV 1	30.67	0.02	54.58	-0.0066	1.4211	-0.0006
73	SLV 2	30.67	0.02	54.58	-0.0066	1.4211	-0.0006
73	SLV 3	26.52	-0.14	46.37	0.0449	1.2558	0
73	SLV 4	26.52	-0.14	46.37	0.0449	1.2558	0
73	SLV 5	15.96	0.28	55.61	-0.0907	0.7243	-0.001
73	SLV 6	15.96	0.28	55.61	-0.0907	0.7243	-0.001
73	SLV 7	2.13	-0.24	28.25	0.0808	0.1731	0.001
73	SLV 8	2.13	-0.24	28.25	0.0808	0.1731	0.001
73	SLV 9	-0.79	0.34	48.29	-0.1114	-0.0384	-0.0008
73	SLV 10	-0.79	0.34	48.29	-0.1114	-0.0384	-0.0008
73	SLV 11	-14.62	-0.18	20.93	0.0601	-0.5896	0.0012
73	SLV 12	-14.62	-0.18	20.93	0.0601	-0.5896	0.0012
73	SLV 13	-25.18	0.24	30.17	-0.0755	-1.1211	0.0002
73	SLV 14	-25.18	0.24	30.17	-0.0755	-1.1211	0.0002
73	SLV 15	-29.33	0.08	21.96	-0.0241	-1.2865	0.0008
73	SLV 16	-29.33	0.08	21.96	-0.0241	-1.2865	0.0008
74	SLU 1	0.77	0.12	34.97	-0.0281	0.0111	0.0004
74	SLU 2	-0.07	0.11	37.63	-0.0263	-0.0331	0.0004
74	SLU 3	0.62	0.12	35.5	-0.0283	0.004	0.0004
74	SLU 4	0.12	0.12	37.1	-0.0272	-0.0225	0.0004
74	SLU 5	-0.27	0.11	37.86	-0.026	-0.042	0.0004
74	SLU 6	0.42	0.12	35.73	-0.028	-0.0049	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
74	SLU 7	-0.08	0.12	37.33	-0.0269	-0.0314	0.0004
74	SLU 8	0.37	0.12	35.43	-0.0275	-0.0066	0.0004
74	SLU 9	-0.13	0.12	37.03	-0.0264	-0.0332	0.0004
74	SLU 10	-0.05	0.13	42.54	-0.03	-0.0359	0.0005
74	SLU 11	0.64	0.14	40.41	-0.032	0.0012	0.0005
74	SLU 12	0.13	0.13	42.01	-0.0309	-0.0253	0.0005
74	SLU 13	-0.25	0.13	42.77	-0.0297	-0.0448	0.0005
74	SLU 14	0.44	0.14	40.65	-0.0317	-0.0077	0.0005
74	SLU 15	-0.07	0.13	42.24	-0.0306	-0.0342	0.0005
74	SLU 16	0.39	0.14	40.34	-0.0312	-0.0094	0.0005
74	SLU 17	-0.12	0.13	41.94	-0.0301	-0.036	0.0005
74	SLU 18	0.79	0.15	41.98	-0.0334	0.0071	0.0005
74	SLU 19	0.29	0.14	43.58	-0.0323	-0.0194	0.0005
74	SLU 20	0.59	0.15	42.22	-0.0331	-0.0018	0.0005
74	SLU 21	0.09	0.14	43.81	-0.032	-0.0283	0.0005
74	SLU 22	0.85	0.14	38.95	-0.0312	0.0118	0.0005
74	SLU 23	0.01	0.13	41.61	-0.0293	-0.0325	0.0005
74	SLU 24	0.7	0.14	39.48	-0.0313	0.0047	0.0005
74	SLU 25	0.19	0.13	41.08	-0.0302	-0.0219	0.0005
74	SLU 26	-0.19	0.13	41.84	-0.029	-0.0414	0.0005
74	SLU 27	0.5	0.14	39.71	-0.031	-0.0042	0.0005
74	SLU 28	-0.01	0.13	41.31	-0.0299	-0.0308	0.0005
74	SLU 29	0.45	0.14	39.41	-0.0306	-0.006	0.0005
74	SLU 30	-0.05	0.13	41.01	-0.0295	-0.0326	0.0005
74	SLU 31	0.02	0.14	46.52	-0.033	-0.0353	0.0006
74	SLU 32	0.71	0.15	44.39	-0.035	0.0018	0.0005
74	SLU 33	0.21	0.15	45.99	-0.0339	-0.0247	0.0005
74	SLU 34	-0.18	0.14	46.75	-0.0327	-0.0442	0.0005
74	SLU 35	0.51	0.15	44.62	-0.0347	-0.007	0.0005
74	SLU 36	0.01	0.15	46.22	-0.0336	-0.0336	0.0005
74	SLU 37	0.47	0.15	44.32	-0.0342	-0.0088	0.0005
74	SLU 38	-0.04	0.15	45.92	-0.0331	-0.0354	0.0005
74	SLU 39	0.87	0.16	45.96	-0.0364	0.0078	0.0006
74	SLU 40	0.37	0.15	47.56	-0.0353	-0.0188	0.0006
74	SLU 41	0.67	0.16	46.2	-0.0361	-0.0011	0.0006
74	SLU 42	0.17	0.15	47.79	-0.035	-0.0277	0.0006
74	SLU 43	0.98	0.15	44.09	-0.0355	0.0143	0.0005
74	SLU 44	0.14	0.14	46.76	-0.0337	-0.03	0.0006
74	SLU 45	0.83	0.16	44.63	-0.0357	0.0072	0.0005
74	SLU 46	0.32	0.15	46.22	-0.0346	-0.0194	0.0005
74	SLU 47	-0.06	0.14	46.99	-0.0334	-0.0389	0.0005
74	SLU 48	0.63	0.16	44.86	-0.0354	-0.0017	0.0005
74	SLU 49	0.12	0.15	46.46	-0.0343	-0.0283	0.0005
74	SLU 50	0.58	0.15	44.56	-0.0349	-0.0035	0.0005
74	SLU 51	0.08	0.15	46.16	-0.0338	-0.0301	0.0005
74	SLU 52	0.15	0.16	51.67	-0.0374	-0.0328	0.0006
74	SLU 53	0.84	0.17	49.54	-0.0394	0.0043	0.0006
74	SLU 54	0.34	0.17	51.14	-0.0383	-0.0222	0.0006
74	SLU 55	-0.05	0.16	51.9	-0.0371	-0.0417	0.0006
74	SLU 56	0.64	0.17	49.77	-0.0391	-0.0045	0.0006
74	SLU 57	0.14	0.17	51.37	-0.038	-0.0311	0.0006
74	SLU 58	0.6	0.17	49.47	-0.0386	-0.0063	0.0006
74	SLU 59	0.09	0.16	51.07	-0.0375	-0.0329	0.0006
74	SLU 60	1	0.18	51.11	-0.0408	0.0103	0.0006
74	SLU 61	0.5	0.17	52.71	-0.0397	-0.0163	0.0006
74	SLU 62	0.8	0.18	51.34	-0.0405	0.0014	0.0006
74	SLU 63	0.3	0.17	52.94	-0.0394	-0.0252	0.0006
74	SLU 64	1.06	0.17	48.07	-0.0386	0.0149	0.0006
74	SLU 65	0.22	0.16	50.73	-0.0367	-0.0294	0.0006
74	SLU 66	0.9	0.17	48.61	-0.0387	0.0078	0.0006
74	SLU 67	0.4	0.16	50.2	-0.0376	-0.0188	0.0006
74	SLU 68	0.02	0.16	50.97	-0.0364	-0.0383	0.0006
74	SLU 69	0.7	0.17	48.84	-0.0384	-0.0011	0.0006
74	SLU 70	0.2	0.16	50.44	-0.0373	-0.0277	0.0006
74	SLU 71	0.66	0.17	48.54	-0.038	-0.0029	0.0006
74	SLU 72	0.15	0.16	50.13	-0.0369	-0.0294	0.0006
74	SLU 73	0.23	0.17	55.65	-0.0404	-0.0322	0.0007
74	SLU 74	0.92	0.19	53.52	-0.0424	0.005	0.0006
74	SLU 75	0.41	0.18	55.12	-0.0413	-0.0216	0.0007
74	SLU 76	0.03	0.17	55.88	-0.0401	-0.0411	0.0007
74	SLU 77	0.72	0.19	53.75	-0.0421	-0.0039	0.0006
74	SLU 78	0.21	0.18	55.35	-0.041	-0.0305	0.0007
74	SLU 79	0.67	0.18	53.45	-0.0416	-0.0057	0.0006
74	SLU 80	0.17	0.18	55.05	-0.0405	-0.0322	0.0006
74	SLU 81	1.08	0.19	55.09	-0.0438	0.0109	0.0007
74	SLU 82	0.57	0.19	56.69	-0.0427	-0.0157	0.0007
74	SLU 83	0.88	0.19	55.32	-0.0435	0.002	0.0007
74	SLU 84	0.37	0.19	56.92	-0.0424	-0.0246	0.0007
74	SLE RA 1	0.8	0.13	36.1	-0.029	0.0113	0.0004
74	SLE RA 2	0.23	0.12	37.88	-0.0278	-0.0182	0.0005
74	SLE RA 3	0.69	0.13	36.46	-0.0291	0.0066	0.0004
74	SLE RA 4	0.36	0.12	37.53	-0.0284	-0.0111	0.0004
74	SLE RA 5	0.1	0.12	38.03	-0.0276	-0.0241	0.0004
74	SLE RA 6	0.56	0.13	36.62	-0.0289	0.0007	0.0004
74	SLE RA 7	0.22	0.12	37.68	-0.0282	-0.0171	0.0004
74	SLE RA 8	0.53	0.13	36.41	-0.0286	-0.0005	0.0004
74	SLE RA 9	0.19	0.12	37.48	-0.0279	-0.0182	0.0004
74	SLE RA 10	0.24	0.13	41.15	-0.0302	-0.0201	0.0005
74	SLE RA 11	0.7	0.14	39.73	-0.0316	0.0047	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
74	SLE RA 12	0.37	0.13	40.8	-0.0308	-0.013	0.0005
74	SLE RA 13	0.11	0.13	41.31	-0.03	-0.026	0.0005
74	SLE RA 14	0.57	0.14	39.89	-0.0314	-0.0012	0.0005
74	SLE RA 15	0.23	0.13	40.95	-0.0306	-0.0189	0.0005
74	SLE RA 16	0.54	0.14	39.69	-0.031	-0.0024	0.0005
74	SLE RA 17	0.2	0.13	40.75	-0.0303	-0.0201	0.0005
74	SLE RA 18	0.81	0.14	40.78	-0.0325	0.0086	0.0005
74	SLE RA 19	0.47	0.14	41.85	-0.0318	-0.0091	0.0005
74	SLE RA 20	0.68	0.14	40.94	-0.0323	0.0027	0.0005
74	SLE RA 21	0.34	0.14	42	-0.0316	-0.015	0.0005
74	SLE FR 1	0.8	0.13	36.1	-0.029	0.0113	0.0004
74	SLE FR 2	0.68	0.13	36.46	-0.0288	0.0054	0.0004
74	SLE FR 3	0.74	0.13	36.17	-0.0289	0.009	0.0004
74	SLE FR 4	0.69	0.13	37.86	-0.0298	0.0046	0.0005
74	SLE FR 5	0.75	0.13	37.57	-0.03	0.0082	0.0005
74	SLE FR 6	0.8	0.13	38.44	-0.0307	0.01	0.0005
74	SLE QP 1	0.8	0.13	36.1	-0.029	0.0113	0.0004
74	SLE QP 2	0.8	0.13	37.51	-0.03	0.0105	0.0005
74	SLD 1	14.72	0.21	43.95	-0.0521	0.6464	0.0005
74	SLD 2	14.72	0.21	43.95	-0.0521	0.6464	0.0005
74	SLD 3	12.97	0.15	38.86	-0.033	0.575	0.0003
74	SLD 4	12.97	0.15	38.86	-0.033	0.575	0.0003
74	SLD 5	7.63	0.25	47.16	-0.0657	0.3096	0.0007
74	SLD 6	7.63	0.25	47.16	-0.0657	0.3096	0.0007
74	SLD 7	1.8	0.04	30.19	-0.0019	0.0715	0.0001
74	SLD 8	1.8	0.04	30.19	-0.0019	0.0715	0.0001
74	SLD 9	-0.2	0.22	44.82	-0.0582	-0.0505	0.0008
74	SLD 10	-0.2	0.22	44.82	-0.0582	-0.0505	0.0008
74	SLD 11	-6.03	0.01	27.86	0.0056	-0.2886	0.0002
74	SLD 12	-6.03	0.01	27.86	0.0056	-0.2886	0.0002
74	SLD 13	-11.37	0.12	36.16	-0.0271	-0.5539	0.0006
74	SLD 14	-11.37	0.12	36.16	-0.0271	-0.5539	0.0006
74	SLD 15	-13.12	0.05	31.07	-0.008	-0.6254	0.0004
74	SLD 16	-13.12	0.05	31.07	-0.008	-0.6254	0.0004
74	SLV 1	32.65	0.32	52.38	-0.0825	1.4662	0.0005
74	SLV 2	32.65	0.32	52.38	-0.0825	1.4662	0.0005
74	SLV 3	28.55	0.16	40.64	-0.0365	1.2976	0
74	SLV 4	28.55	0.16	40.64	-0.0365	1.2976	0
74	SLV 5	16.57	0.42	59.77	-0.1154	0.7029	0.0011
74	SLV 6	16.57	0.42	59.77	-0.1154	0.7029	0.0011
74	SLV 7	2.91	-0.09	20.64	0.0376	0.1409	-0.0003
74	SLV 8	2.91	-0.09	20.64	0.0376	0.1409	-0.0003
74	SLV 9	-1.31	0.36	54.37	-0.0977	-0.1199	0.0012
74	SLV 10	-1.31	0.36	54.37	-0.0977	-0.1199	0.0012
74	SLV 11	-14.97	-0.16	15.24	0.0553	-0.6819	-0.0002
74	SLV 12	-14.97	-0.16	15.24	0.0553	-0.6819	-0.0002
74	SLV 13	-26.95	0.1	34.37	-0.0235	-1.2765	0.0009
74	SLV 14	-26.95	0.1	34.37	-0.0235	-1.2765	0.0009
74	SLV 15	-31.05	-0.05	22.63	0.0224	-1.4451	0.0004
74	SLV 16	-31.05	-0.05	22.63	0.0224	-1.4451	0.0004
75	SLU 1	-0.02	5.03	52.24	-0.1059	0.0255	0.0002
75	SLU 2	-1.46	6.62	57.37	-0.1712	-0.0337	0.0003
75	SLU 3	-0.14	5	52.87	-0.1016	0.021	0.0002
75	SLU 4	-1.01	5.96	55.95	-0.1409	-0.0145	0.0002
75	SLU 5	-1.6	6.51	57.47	-0.1643	-0.0391	0.0003
75	SLU 6	-0.28	4.89	52.98	-0.0947	0.0155	0.0002
75	SLU 7	-1.15	5.85	56.06	-0.1339	-0.02	0.0003
75	SLU 8	-0.29	4.8	52.46	-0.0919	0.0146	0.0002
75	SLU 9	-1.16	5.76	55.53	-0.1311	-0.0209	0.0003
75	SLU 10	-1.47	7.29	64.54	-0.1843	-0.0294	0.0003
75	SLU 11	-0.14	5.67	60.05	-0.1147	0.0253	0.0002
75	SLU 12	-1.01	6.63	63.13	-0.1539	-0.0102	0.0003
75	SLU 13	-1.61	7.17	64.65	-0.1773	-0.0348	0.0003
75	SLU 14	-0.28	5.56	60.16	-0.1077	0.0198	0.0002
75	SLU 15	-1.15	6.51	63.23	-0.1469	-0.0157	0.0003
75	SLU 16	-0.3	5.47	59.63	-0.105	0.0189	0.0002
75	SLU 17	-1.17	6.42	62.71	-0.1442	-0.0166	0.0003
75	SLU 18	-0.02	5.98	62.49	-0.1245	0.0316	0.0002
75	SLU 19	-0.89	6.94	65.57	-0.1637	-0.0039	0.0003
75	SLU 20	-0.16	5.87	62.6	-0.1175	0.0262	0.0002
75	SLU 21	-1.03	6.82	65.68	-0.1567	-0.0093	0.0003
75	SLU 22	0.03	5.57	58.11	-0.1151	0.031	0.0002
75	SLU 23	-1.42	7.16	63.24	-0.1804	-0.0282	0.0003
75	SLU 24	-0.09	5.54	58.75	-0.1109	0.0265	0.0002
75	SLU 25	-0.96	6.5	61.82	-0.1501	-0.009	0.0003
75	SLU 26	-1.56	7.05	63.34	-0.1735	-0.0336	0.0003
75	SLU 27	-0.23	5.43	58.85	-0.1039	0.021	0.0002
75	SLU 28	-1.1	6.38	61.93	-0.1431	-0.0145	0.0003
75	SLU 29	-0.25	5.34	58.33	-0.1011	0.0201	0.0002
75	SLU 30	-1.12	6.3	61.4	-0.1403	-0.0154	0.0003
75	SLU 31	-1.42	7.82	70.41	-0.1935	-0.0239	0.0003
75	SLU 32	-0.1	6.21	65.92	-0.1239	0.0308	0.0002
75	SLU 33	-0.97	7.16	69	-0.1631	-0.0048	0.0003
75	SLU 34	-1.56	7.71	70.52	-0.1865	-0.0293	0.0003
75	SLU 35	-0.24	6.09	66.03	-0.1169	0.0253	0.0002
75	SLU 36	-1.1	7.05	69.1	-0.1561	-0.0102	0.0003
75	SLU 37	-0.25	6.01	65.51	-0.1142	0.0244	0.0002
75	SLU 38	-1.12	6.96	68.58	-0.1534	-0.0111	0.0003
75	SLU 39	0.02	6.52	68.37	-0.1337	0.0371	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
75	SLU 40	-0.84	7.47	71.44	-0.1729	0.0016	0.0003
75	SLU 41	-0.12	6.4	68.47	-0.1267	0.0317	0.0002
75	SLU 42	-0.98	7.36	71.55	-0.166	-0.0038	0.0003
75	SLU 43	-0.04	6.36	65.9	-0.1345	0.0313	0.0002
75	SLU 44	-1.48	7.95	71.02	-0.1998	-0.0279	0.0003
75	SLU 45	-0.16	6.33	66.53	-0.1302	0.0267	0.0002
75	SLU 46	-1.03	7.29	69.61	-0.1695	-0.0088	0.0003
75	SLU 47	-1.62	7.83	71.13	-0.1929	-0.0333	0.0003
75	SLU 48	-0.3	6.22	66.64	-0.1233	0.0213	0.0002
75	SLU 49	-1.17	7.17	69.72	-0.1625	-0.0142	0.0003
75	SLU 50	-0.31	6.13	66.12	-0.1205	0.0204	0.0002
75	SLU 51	-1.18	7.09	69.19	-0.1597	-0.0151	0.0003
75	SLU 52	-1.49	8.61	78.2	-0.2129	-0.0236	0.0003
75	SLU 53	-0.16	7	73.71	-0.1433	0.031	0.0002
75	SLU 54	-1.03	7.95	76.78	-0.1825	-0.0045	0.0003
75	SLU 55	-1.63	8.5	78.31	-0.2059	-0.0291	0.0004
75	SLU 56	-0.3	6.88	73.82	-0.1363	0.0256	0.0003
75	SLU 57	-1.17	7.84	76.89	-0.1755	-0.0099	0.0003
75	SLU 58	-0.32	6.8	73.29	-0.1336	0.0247	0.0003
75	SLU 59	-1.19	7.75	76.37	-0.1728	-0.0108	0.0003
75	SLU 60	-0.04	7.31	76.15	-0.1531	0.0374	0.0002
75	SLU 61	-0.91	8.26	79.23	-0.1923	0.0019	0.0003
75	SLU 62	-0.18	7.19	76.26	-0.1461	0.032	0.0003
75	SLU 63	-1.05	8.15	79.33	-0.1854	-0.0035	0.0003
75	SLU 64	0.01	6.89	71.77	-0.1437	0.0368	0.0002
75	SLU 65	-1.44	8.48	76.9	-0.209	-0.0224	0.0003
75	SLU 66	-0.11	6.87	72.41	-0.1395	0.0322	0.0002
75	SLU 67	-0.98	7.82	75.48	-0.1787	-0.0033	0.0003
75	SLU 68	-1.58	8.37	77	-0.2021	-0.0279	0.0004
75	SLU 69	-0.25	6.75	72.51	-0.1325	0.0268	0.0003
75	SLU 70	-1.12	7.71	75.59	-0.1717	-0.0087	0.0003
75	SLU 71	-0.27	6.67	71.99	-0.1297	0.0258	0.0003
75	SLU 72	-1.14	7.62	75.06	-0.1689	-0.0097	0.0003
75	SLU 73	-1.44	9.15	84.07	-0.2221	-0.0181	0.0004
75	SLU 74	-0.12	7.53	79.58	-0.1525	0.0365	0.0003
75	SLU 75	-0.99	8.49	82.66	-0.1917	0.001	0.0003
75	SLU 76	-1.58	9.04	84.18	-0.2151	-0.0236	0.0004
75	SLU 77	-0.26	7.42	79.69	-0.1455	0.0311	0.0003
75	SLU 78	-1.12	8.37	82.76	-0.1847	-0.0044	0.0003
75	SLU 79	-0.27	7.33	79.16	-0.1428	0.0301	0.0003
75	SLU 80	-1.14	8.29	82.24	-0.182	-0.0054	0.0003
75	SLU 81	0	7.84	82.03	-0.1623	0.0429	0.0003
75	SLU 82	-0.87	8.8	85.1	-0.2015	0.0074	0.0003
75	SLU 83	-0.14	7.73	82.13	-0.1553	0.0374	0.0003
75	SLU 84	-1	8.68	85.21	-0.1946	0.0019	0.0003
75	SLE RA 1	0	5.18	53.92	-0.1085	0.0271	0.0002
75	SLE RA 2	-0.97	6.25	57.34	-0.1521	-0.0124	0.0002
75	SLE RA 3	-0.08	5.17	54.34	-0.1057	0.0241	0.0002
75	SLE RA 4	-0.66	5.8	56.39	-0.1318	0.0004	0.0002
75	SLE RA 5	-1.06	6.17	57.41	-0.1474	-0.016	0.0003
75	SLE RA 6	-0.18	5.09	54.41	-0.101	0.0204	0.0002
75	SLE RA 7	-0.76	5.73	56.46	-0.1272	-0.0033	0.0002
75	SLE RA 8	-0.19	5.03	54.06	-0.0992	0.0198	0.0002
75	SLE RA 9	-0.77	5.67	56.11	-0.1253	-0.0039	0.0002
75	SLE RA 10	-0.97	6.69	62.12	-0.1608	-0.0095	0.0003
75	SLE RA 11	-0.09	5.61	59.13	-0.1144	0.0269	0.0002
75	SLE RA 12	-0.67	6.25	61.18	-0.1405	0.0032	0.0002
75	SLE RA 13	-1.06	6.61	62.19	-0.1561	-0.0131	0.0003
75	SLE RA 14	-0.18	5.53	59.2	-0.1097	0.0233	0.0002
75	SLE RA 15	-0.76	6.17	61.25	-0.1359	-0.0004	0.0002
75	SLE RA 16	-0.19	5.48	58.85	-0.1079	0.0227	0.0002
75	SLE RA 17	-0.77	6.11	60.9	-0.134	-0.001	0.0002
75	SLE RA 18	-0.01	5.82	60.75	-0.1209	0.0312	0.0002
75	SLE RA 19	-0.59	6.45	62.8	-0.1471	0.0075	0.0002
75	SLE RA 20	-0.1	5.74	60.83	-0.1163	0.0275	0.0002
75	SLE RA 21	-0.68	6.38	62.88	-0.1424	0.0039	0.0002
75	SLE FR 1	0	5.18	53.92	-0.1085	0.0271	0.0002
75	SLE FR 2	-0.2	5.4	54.6	-0.1172	0.0192	0.0002
75	SLE FR 3	-0.04	5.15	53.95	-0.1066	0.0256	0.0002
75	SLE FR 4	-0.2	5.59	56.65	-0.1209	0.0204	0.0002
75	SLE FR 5	-0.04	5.34	56	-0.1104	0.0268	0.0002
75	SLE FR 6	0	5.5	57.34	-0.1147	0.0291	0.0002
75	SLE QP 1	0	5.18	53.92	-0.1085	0.0271	0.0002
75	SLE QP 2	0	5.37	55.97	-0.1122	0.0283	0.0002
75	SLD 1	13.29	7.98	66.87	-0.2253	0.6222	-0.0007
75	SLD 2	13.29	7.98	66.87	-0.2253	0.6222	-0.0007
75	SLD 3	14.57	5.14	56.08	-0.1031	0.6799	-0.0008
75	SLD 4	14.57	5.14	56.08	-0.1031	0.6799	-0.0008
75	SLD 5	2.03	10.45	75.62	-0.3314	0.119	0.0001
75	SLD 6	2.03	10.45	75.62	-0.3314	0.119	0.0001
75	SLD 7	6.32	1.01	39.63	0.0758	0.3112	-0.0003
75	SLD 8	6.32	1.01	39.63	0.0758	0.3112	-0.0003
75	SLD 9	-6.33	9.74	72.31	-0.3002	-0.2546	0.0007
75	SLD 10	-6.33	9.74	72.31	-0.3002	-0.2546	0.0007
75	SLD 11	-2.04	0.29	36.33	0.1069	-0.0624	0.0003
75	SLD 12	-2.04	0.29	36.33	0.1069	-0.0624	0.0003
75	SLD 13	-14.58	5.61	55.86	-0.1213	-0.6233	0.0012
75	SLD 14	-14.58	5.61	55.86	-0.1213	-0.6233	0.0012
75	SLD 15	-13.3	2.77	45.07	0.0008	-0.5656	0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
75	SLD 16	-13.3	2.77	45.07	0.0008	-0.5656	0.0011
75	SLV 1	30.29	11.53	81.36	-0.3798	1.3817	-0.0018
75	SLV 2	30.29	11.53	81.36	-0.3798	1.3817	-0.0018
75	SLV 3	33.43	4.98	56.52	-0.0973	1.5228	-0.0022
75	SLV 4	33.43	4.98	56.52	-0.0973	1.5228	-0.0022
75	SLV 5	4.32	17.15	101.26	-0.6209	0.2203	0
75	SLV 6	4.32	17.15	101.26	-0.6209	0.2203	0
75	SLV 7	14.8	-4.68	18.46	0.3206	0.6907	-0.001
75	SLV 8	14.8	-4.68	18.46	0.3206	0.6907	-0.001
75	SLV 9	-14.8	15.43	93.48	-0.5451	-0.6341	0.0013
75	SLV 10	-14.8	15.43	93.48	-0.5451	-0.6341	0.0013
75	SLV 11	-4.32	-6.41	10.68	0.3964	-0.1637	0.0003
75	SLV 12	-4.32	-6.41	10.68	0.3964	-0.1637	0.0003
75	SLV 13	-33.44	5.77	55.42	-0.1271	-1.4662	0.0025
75	SLV 14	-33.44	5.77	55.42	-0.1271	-1.4662	0.0025
75	SLV 15	-30.3	-0.78	30.59	0.1553	-1.3251	0.0022
75	SLV 16	-30.3	-0.78	30.59	0.1553	-1.3251	0.0022
76	SLU 1	-1.97	0.04	36.99	0.0197	-0.0799	-0.0003
76	SLU 2	-4.12	0.02	38.95	-0.0058	-0.1652	-0.0004
76	SLU 3	-2.1	0.03	37.49	0.0212	-0.0858	-0.0003
76	SLU 4	-3.39	0.03	38.67	0.0058	-0.137	-0.0004
76	SLU 5	-4.23	0.02	39.12	-0.0044	-0.1704	-0.0004
76	SLU 6	-2.2	0.03	37.66	0.0226	-0.0911	-0.0003
76	SLU 7	-3.49	0.02	38.83	0.0072	-0.1423	-0.0004
76	SLU 8	-2.18	0.03	37.33	0.0225	-0.0905	-0.0003
76	SLU 9	-3.47	0.02	38.5	0.0072	-0.1416	-0.0004
76	SLU 10	-4.35	0.03	44.08	-0.0031	-0.1755	-0.0005
76	SLU 11	-2.33	0.04	42.63	0.0239	-0.0961	-0.0004
76	SLU 12	-3.62	0.03	43.8	0.0086	-0.1473	-0.0004
76	SLU 13	-4.46	0.03	44.25	-0.0017	-0.1808	-0.0005
76	SLU 14	-2.43	0.04	42.8	0.0253	-0.1014	-0.0004
76	SLU 15	-3.72	0.03	43.97	0.01	-0.1526	-0.0004
76	SLU 16	-2.41	0.04	42.46	0.0252	-0.1008	-0.0004
76	SLU 17	-3.7	0.03	43.64	0.0099	-0.152	-0.0004
76	SLU 18	-2.3	0.04	44.33	0.0237	-0.0946	-0.0004
76	SLU 19	-3.59	0.03	45.5	0.0083	-0.1458	-0.0005
76	SLU 20	-2.4	0.04	44.5	0.025	-0.0999	-0.0004
76	SLU 21	-3.69	0.03	45.67	0.0097	-0.1511	-0.0005
76	SLU 22	-2.13	0.04	41.2	0.0227	-0.0869	-0.0004
76	SLU 23	-4.28	0.03	43.15	-0.0029	-0.1721	-0.0005
76	SLU 24	-2.25	0.04	41.7	0.0241	-0.0928	-0.0004
76	SLU 25	-3.54	0.03	42.87	0.0088	-0.1439	-0.0004
76	SLU 26	-4.38	0.02	43.32	-0.0015	-0.1774	-0.0005
76	SLU 27	-2.36	0.04	41.86	0.0255	-0.0981	-0.0004
76	SLU 28	-3.65	0.03	43.04	0.0102	-0.1492	-0.0004
76	SLU 29	-2.33	0.04	41.53	0.0254	-0.0975	-0.0004
76	SLU 30	-3.62	0.03	42.7	0.0101	-0.1486	-0.0004
76	SLU 31	-4.51	0.03	48.28	-0.0001	-0.1824	-0.0005
76	SLU 32	-2.48	0.04	46.83	0.0269	-0.1031	-0.0004
76	SLU 33	-3.77	0.03	48	0.0116	-0.1542	-0.0005
76	SLU 34	-4.61	0.03	48.45	0.0013	-0.1877	-0.0005
76	SLU 35	-2.59	0.04	47	0.0283	-0.1084	-0.0004
76	SLU 36	-3.88	0.03	48.17	0.0129	-0.1595	-0.0005
76	SLU 37	-2.56	0.04	46.67	0.0282	-0.1078	-0.0004
76	SLU 38	-3.85	0.03	47.84	0.0129	-0.1589	-0.0005
76	SLU 39	-2.46	0.05	48.53	0.0266	-0.1016	-0.0004
76	SLU 40	-3.75	0.04	49.7	0.0113	-0.1527	-0.0005
76	SLU 41	-2.56	0.04	48.7	0.028	-0.1069	-0.0004
76	SLU 42	-3.85	0.04	49.87	0.0127	-0.158	-0.0005
76	SLU 43	-2.51	0.05	46.65	0.0246	-0.1015	-0.0004
76	SLU 44	-4.66	0.03	48.61	-0.0009	-0.1867	-0.0005
76	SLU 45	-2.64	0.04	47.15	0.0261	-0.1074	-0.0004
76	SLU 46	-3.93	0.04	48.32	0.0108	-0.1585	-0.0005
76	SLU 47	-4.77	0.03	48.77	0.0005	-0.192	-0.0005
76	SLU 48	-2.74	0.04	47.32	0.0275	-0.1127	-0.0004
76	SLU 49	-4.03	0.03	48.49	0.0121	-0.1638	-0.0005
76	SLU 50	-2.72	0.04	46.99	0.0274	-0.1121	-0.0004
76	SLU 51	-4.01	0.03	48.16	0.0121	-0.1632	-0.0005
76	SLU 52	-4.89	0.04	53.74	0.0018	-0.197	-0.0006
76	SLU 53	-2.87	0.05	52.29	0.0288	-0.1177	-0.0005
76	SLU 54	-4.16	0.04	53.46	0.0135	-0.1689	-0.0005
76	SLU 55	-4.99	0.04	53.91	0.0032	-0.2023	-0.0006
76	SLU 56	-2.97	0.05	52.45	0.0302	-0.123	-0.0005
76	SLU 57	-4.26	0.04	53.63	0.0149	-0.1741	-0.0005
76	SLU 58	-2.95	0.05	52.12	0.0301	-0.1224	-0.0005
76	SLU 59	-4.24	0.04	53.29	0.0148	-0.1735	-0.0005
76	SLU 60	-2.84	0.05	53.99	0.0286	-0.1162	-0.0005
76	SLU 61	-4.13	0.04	55.16	0.0132	-0.1674	-0.0005
76	SLU 62	-2.94	0.05	54.15	0.0299	-0.1215	-0.0005
76	SLU 63	-4.23	0.04	55.33	0.0146	-0.1727	-0.0005
76	SLU 64	-2.67	0.05	50.85	0.0276	-0.1084	-0.0005
76	SLU 65	-4.82	0.04	52.81	0.002	-0.1937	-0.0006
76	SLU 66	-2.79	0.05	51.35	0.029	-0.1144	-0.0005
76	SLU 67	-4.08	0.04	52.53	0.0137	-0.1655	-0.0005
76	SLU 68	-4.92	0.03	52.98	0.0034	-0.199	-0.0006
76	SLU 69	-2.89	0.05	51.52	0.0304	-0.1196	-0.0005
76	SLU 70	-4.19	0.04	52.69	0.0151	-0.1708	-0.0005
76	SLU 71	-2.87	0.04	51.19	0.0303	-0.119	-0.0005
76	SLU 72	-4.16	0.04	52.36	0.015	-0.1702	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
76	SLU 73	-5.05	0.04	57.94	0.0048	-0.204	-0.0006
76	SLU 74	-3.02	0.05	56.49	0.0318	-0.1247	-0.0005
76	SLU 75	-4.31	0.04	57.66	0.0165	-0.1758	-0.0006
76	SLU 76	-5.15	0.04	58.11	0.0062	-0.2093	-0.0006
76	SLU 77	-3.12	0.05	56.65	0.0332	-0.13	-0.0005
76	SLU 78	-4.41	0.04	57.83	0.0178	-0.1811	-0.0006
76	SLU 79	-3.1	0.05	56.32	0.0331	-0.1293	-0.0005
76	SLU 80	-4.39	0.04	57.5	0.0178	-0.1805	-0.0006
76	SLU 81	-3	0.06	58.19	0.0315	-0.1232	-0.0005
76	SLU 82	-4.29	0.05	59.36	0.0162	-0.1743	-0.0006
76	SLU 83	-3.1	0.05	58.36	0.0329	-0.1285	-0.0005
76	SLU 84	-4.39	0.05	59.53	0.0176	-0.1796	-0.0006
76	SLE RA 1	-2.02	0.04	38.2	0.0206	-0.0819	-0.0003
76	SLE RA 2	-3.45	0.03	39.5	0.0035	-0.1387	-0.0004
76	SLE RA 3	-2.1	0.04	38.53	0.0215	-0.0858	-0.0004
76	SLE RA 4	-2.96	0.03	39.31	0.0113	-0.1199	-0.0004
76	SLE RA 5	-3.52	0.03	39.61	0.0045	-0.1423	-0.0004
76	SLE RA 6	-2.17	0.03	38.64	0.0224	-0.0894	-0.0003
76	SLE RA 7	-3.03	0.03	39.42	0.0122	-0.1235	-0.0004
76	SLE RA 8	-2.15	0.03	38.42	0.0224	-0.0889	-0.0003
76	SLE RA 9	-3.02	0.03	39.2	0.0122	-0.123	-0.0004
76	SLE RA 10	-3.61	0.03	42.92	0.0054	-0.1456	-0.0004
76	SLE RA 11	-2.25	0.04	41.95	0.0234	-0.0927	-0.0004
76	SLE RA 12	-3.11	0.03	42.73	0.0132	-0.1268	-0.0004
76	SLE RA 13	-3.67	0.03	43.03	0.0063	-0.1491	-0.0004
76	SLE RA 14	-2.32	0.04	42.06	0.0243	-0.0962	-0.0004
76	SLE RA 15	-3.18	0.03	42.84	0.0141	-0.1303	-0.0004
76	SLE RA 16	-2.31	0.04	41.84	0.0242	-0.0958	-0.0004
76	SLE RA 17	-3.17	0.03	42.62	0.014	-0.1299	-0.0004
76	SLE RA 18	-2.24	0.04	43.08	0.0232	-0.0917	-0.0004
76	SLE RA 19	-3.1	0.04	43.87	0.013	-0.1258	-0.0004
76	SLE RA 20	-2.31	0.04	43.2	0.0241	-0.0952	-0.0004
76	SLE RA 21	-3.17	0.03	43.98	0.0139	-0.1293	-0.0004
76	SLE FR 1	-2.02	0.04	38.2	0.0206	-0.0819	-0.0003
76	SLE FR 2	-2.31	0.04	38.46	0.0172	-0.0932	-0.0004
76	SLE FR 3	-2.05	0.04	38.24	0.0209	-0.0833	-0.0003
76	SLE FR 4	-2.37	0.04	39.92	0.0179	-0.0962	-0.0004
76	SLE FR 5	-2.11	0.04	39.71	0.0217	-0.0862	-0.0004
76	SLE FR 6	-2.13	0.04	40.64	0.0219	-0.0868	-0.0004
76	SLE QP 1	-2.02	0.04	38.2	0.0206	-0.0819	-0.0003
76	SLE QP 2	-2.08	0.04	39.66	0.0213	-0.0848	-0.0004
76	SLD 1	11.61	0.1	45.67	-0.0226	0.5235	-0.0006
76	SLD 2	11.61	0.1	45.67	-0.0226	0.5235	-0.0006
76	SLD 3	13.22	0.05	39.32	0.0175	0.5874	-0.0004
76	SLD 4	13.22	0.05	39.32	0.0175	0.5874	-0.0004
76	SLD 5	-0.42	0.13	51.1	-0.0526	0.0008	-0.0006
76	SLD 6	-0.42	0.13	51.1	-0.0526	0.0008	-0.0006
76	SLD 7	4.95	-0.03	29.93	0.081	0.2138	-0.0002
76	SLD 8	4.95	-0.03	29.93	0.081	0.2138	-0.0002
76	SLD 9	-9.12	0.1	49.4	-0.0383	-0.3834	-0.0005
76	SLD 10	-9.12	0.1	49.4	-0.0383	-0.3834	-0.0005
76	SLD 11	-3.75	-0.05	28.23	0.0953	-0.1704	-0.0001
76	SLD 12	-3.75	-0.05	28.23	0.0953	-0.1704	-0.0001
76	SLD 13	-17.38	0.03	40	0.0252	-0.7571	-0.0003
76	SLD 14	-17.38	0.03	40	0.0252	-0.7571	-0.0003
76	SLD 15	-15.77	-0.02	33.65	0.0653	-0.6932	-0.0002
76	SLD 16	-15.77	-0.02	33.65	0.0653	-0.6932	-0.0002
76	SLV 1	29.13	0.18	53.67	-0.0848	1.3022	-0.0008
76	SLV 2	29.13	0.18	53.67	-0.0848	1.3022	-0.0008
76	SLV 3	33.06	0.07	39.05	0.0149	1.4585	-0.0006
76	SLV 4	33.06	0.07	39.05	0.0149	1.4585	-0.0006
76	SLV 5	1.32	0.25	66.03	-0.1618	0.0941	-0.0009
76	SLV 6	1.32	0.25	66.03	-0.1618	0.0941	-0.0009
76	SLV 7	14.42	-0.12	17.32	0.1707	0.6153	0
76	SLV 8	14.42	-0.12	17.32	0.1707	0.6153	0
76	SLV 9	-18.59	0.2	62.01	-0.128	-0.785	-0.0007
76	SLV 10	-18.59	0.2	62.01	-0.128	-0.785	-0.0007
76	SLV 11	-5.49	-0.17	13.3	0.2045	-0.2638	0.0002
76	SLV 12	-5.49	-0.17	13.3	0.2045	-0.2638	0.0002
76	SLV 13	-37.23	0.01	40.27	0.0278	-1.6282	-0.0002
76	SLV 14	-37.23	0.01	40.27	0.0278	-1.6282	-0.0002
76	SLV 15	-33.3	-0.1	25.66	0.1275	-1.4718	0.0001
76	SLV 16	-33.3	-0.1	25.66	0.1275	-1.4718	0.0001
77	SLU 1	-2.54	-0.14	34.1	0.0799	-0.0837	-0.0003
77	SLU 2	-4.54	-0.16	34.68	0.0289	-0.1637	-0.0002
77	SLU 3	-2.67	-0.15	34.6	0.0827	-0.0888	-0.0003
77	SLU 4	-3.87	-0.16	34.95	0.0521	-0.1368	-0.0002
77	SLU 5	-4.63	-0.16	34.9	0.0308	-0.1676	-0.0002
77	SLU 6	-2.77	-0.15	34.82	0.0846	-0.0927	-0.0003
77	SLU 7	-3.96	-0.16	35.17	0.054	-0.1407	-0.0003
77	SLU 8	-2.73	-0.15	34.54	0.0838	-0.0916	-0.0003
77	SLU 9	-3.93	-0.16	34.89	0.0531	-0.1396	-0.0003
77	SLU 10	-4.82	-0.18	39.48	0.0396	-0.1717	-0.0002
77	SLU 11	-2.95	-0.16	39.4	0.0935	-0.0968	-0.0004
77	SLU 12	-4.15	-0.18	39.75	0.0629	-0.1448	-0.0003
77	SLU 13	-4.91	-0.18	39.7	0.0416	-0.1757	-0.0002
77	SLU 14	-3.05	-0.17	39.61	0.0954	-0.1008	-0.0004
77	SLU 15	-4.25	-0.18	39.96	0.0648	-0.1488	-0.0003
77	SLU 16	-3.02	-0.17	39.34	0.0945	-0.0997	-0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
77	SLU 17	-4.21	-0.18	39.69	0.0639	-0.1477	-0.0003
77	SLU 18	-2.94	-0.17	40.95	0.0953	-0.0952	-0.0004
77	SLU 19	-4.14	-0.18	41.3	0.0647	-0.1432	-0.0003
77	SLU 20	-3.04	-0.17	41.17	0.0972	-0.0992	-0.0004
77	SLU 21	-4.24	-0.18	41.52	0.0666	-0.1471	-0.0003
77	SLU 22	-2.76	-0.16	38.04	0.0901	-0.0902	-0.0004
77	SLU 23	-4.76	-0.18	38.62	0.0391	-0.1702	-0.0002
77	SLU 24	-2.89	-0.16	38.54	0.0929	-0.0953	-0.0004
77	SLU 25	-4.09	-0.17	38.89	0.0623	-0.1433	-0.0003
77	SLU 26	-4.86	-0.18	38.84	0.041	-0.1742	-0.0002
77	SLU 27	-2.99	-0.17	38.76	0.0949	-0.0993	-0.0004
77	SLU 28	-4.19	-0.18	39.11	0.0642	-0.1473	-0.0003
77	SLU 29	-2.96	-0.17	38.48	0.094	-0.0982	-0.0004
77	SLU 30	-4.16	-0.18	38.83	0.0634	-0.1461	-0.0003
77	SLU 31	-5.04	-0.2	43.42	0.0499	-0.1783	-0.0003
77	SLU 32	-3.18	-0.18	43.34	0.1037	-0.1034	-0.0004
77	SLU 33	-4.37	-0.19	43.69	0.0731	-0.1514	-0.0003
77	SLU 34	-5.14	-0.2	43.64	0.0518	-0.1822	-0.0003
77	SLU 35	-3.27	-0.19	43.55	0.1056	-0.1073	-0.0004
77	SLU 36	-4.47	-0.2	43.9	0.075	-0.1553	-0.0003
77	SLU 37	-3.24	-0.18	43.28	0.1048	-0.1062	-0.0004
77	SLU 38	-4.44	-0.2	43.63	0.0741	-0.1542	-0.0003
77	SLU 39	-3.17	-0.19	44.89	0.1055	-0.1017	-0.0004
77	SLU 40	-4.36	-0.2	45.24	0.0749	-0.1497	-0.0003
77	SLU 41	-3.26	-0.19	45.11	0.1075	-0.1057	-0.0004
77	SLU 42	-4.46	-0.2	45.46	0.0768	-0.1537	-0.0004
77	SLU 43	-3.22	-0.18	42.98	0.1004	-0.1066	-0.0004
77	SLU 44	-5.22	-0.19	43.56	0.0493	-0.1865	-0.0003
77	SLU 45	-3.35	-0.18	43.48	0.1032	-0.1117	-0.0004
77	SLU 46	-4.55	-0.19	43.83	0.0726	-0.1596	-0.0003
77	SLU 47	-5.32	-0.2	43.78	0.0513	-0.1905	-0.0003
77	SLU 48	-3.45	-0.18	43.7	0.1051	-0.1156	-0.0004
77	SLU 49	-4.65	-0.19	44.05	0.0745	-0.1636	-0.0003
77	SLU 50	-3.42	-0.18	43.42	0.1042	-0.1145	-0.0004
77	SLU 51	-4.62	-0.19	43.77	0.0736	-0.1625	-0.0003
77	SLU 52	-5.5	-0.21	48.36	0.0601	-0.1946	-0.0003
77	SLU 53	-3.63	-0.2	48.28	0.114	-0.1197	-0.0005
77	SLU 54	-4.83	-0.21	48.62	0.0833	-0.1677	-0.0004
77	SLU 55	-5.6	-0.22	48.58	0.062	-0.1986	-0.0003
77	SLU 56	-3.73	-0.2	48.49	0.1159	-0.1237	-0.0005
77	SLU 57	-4.93	-0.21	48.84	0.0853	-0.1717	-0.0004
77	SLU 58	-3.7	-0.2	48.22	0.115	-0.1225	-0.0005
77	SLU 59	-4.9	-0.21	48.57	0.0844	-0.1705	-0.0004
77	SLU 60	-3.62	-0.2	49.83	0.1158	-0.1181	-0.0005
77	SLU 61	-4.82	-0.22	50.18	0.0851	-0.1661	-0.0004
77	SLU 62	-3.72	-0.21	50.05	0.1177	-0.122	-0.0005
77	SLU 63	-4.92	-0.22	50.4	0.0871	-0.17	-0.0004
77	SLU 64	-3.45	-0.19	46.92	0.1106	-0.1131	-0.0005
77	SLU 65	-5.44	-0.21	47.5	0.0596	-0.1931	-0.0003
77	SLU 66	-3.58	-0.2	47.42	0.1134	-0.1182	-0.0005
77	SLU 67	-4.78	-0.21	47.77	0.0828	-0.1662	-0.0004
77	SLU 68	-5.54	-0.22	47.72	0.0615	-0.197	-0.0003
77	SLU 69	-3.68	-0.2	47.64	0.1153	-0.1222	-0.0005
77	SLU 70	-4.87	-0.21	47.99	0.0847	-0.1701	-0.0004
77	SLU 71	-3.64	-0.2	47.36	0.1145	-0.121	-0.0005
77	SLU 72	-4.84	-0.21	47.71	0.0838	-0.169	-0.0004
77	SLU 73	-5.73	-0.23	52.3	0.0703	-0.2011	-0.0003
77	SLU 74	-3.86	-0.22	52.22	0.1242	-0.1263	-0.0005
77	SLU 75	-5.06	-0.23	52.56	0.0936	-0.1742	-0.0004
77	SLU 76	-5.82	-0.24	52.52	0.0723	-0.2051	-0.0004
77	SLU 77	-3.96	-0.22	52.43	0.1261	-0.1302	-0.0005
77	SLU 78	-5.16	-0.23	52.78	0.0955	-0.1782	-0.0004
77	SLU 79	-3.93	-0.22	52.16	0.1252	-0.1291	-0.0005
77	SLU 80	-5.12	-0.23	52.51	0.0946	-0.1771	-0.0004
77	SLU 81	-3.85	-0.22	53.77	0.126	-0.1246	-0.0005
77	SLU 82	-5.05	-0.23	54.12	0.0954	-0.1726	-0.0004
77	SLU 83	-3.95	-0.23	53.99	0.1279	-0.1286	-0.0005
77	SLU 84	-5.15	-0.24	54.34	0.0973	-0.1766	-0.0004
77	SLE RA 1	-2.6	-0.15	35.23	0.0828	-0.0856	-0.0003
77	SLE RA 2	-3.93	-0.16	35.61	0.0488	-0.1389	-0.0002
77	SLE RA 3	-2.69	-0.15	35.56	0.0847	-0.089	-0.0003
77	SLE RA 4	-3.49	-0.16	35.79	0.0643	-0.121	-0.0003
77	SLE RA 5	-4	-0.16	35.76	0.0501	-0.1415	-0.0002
77	SLE RA 6	-2.75	-0.15	35.7	0.086	-0.0916	-0.0004
77	SLE RA 7	-3.55	-0.16	35.94	0.0656	-0.1236	-0.0003
77	SLE RA 8	-2.73	-0.15	35.52	0.0854	-0.0909	-0.0003
77	SLE RA 9	-3.53	-0.16	35.75	0.065	-0.1228	-0.0003
77	SLE RA 10	-4.12	-0.17	38.81	0.056	-0.1443	-0.0003
77	SLE RA 11	-2.88	-0.16	38.76	0.0919	-0.0943	-0.0004
77	SLE RA 12	-3.68	-0.17	38.99	0.0715	-0.1263	-0.0003
77	SLE RA 13	-4.19	-0.17	38.96	0.0573	-0.1469	-0.0003
77	SLE RA 14	-2.94	-0.16	38.9	0.0932	-0.097	-0.0004
77	SLE RA 15	-3.74	-0.17	39.14	0.0728	-0.129	-0.0003
77	SLE RA 16	-2.92	-0.16	38.72	0.0926	-0.0962	-0.0004
77	SLE RA 17	-3.72	-0.17	38.95	0.0722	-0.1282	-0.0003
77	SLE RA 18	-2.87	-0.16	39.8	0.0931	-0.0932	-0.0004
77	SLE RA 19	-3.67	-0.17	40.03	0.0727	-0.1252	-0.0003
77	SLE RA 20	-2.94	-0.17	39.94	0.0944	-0.0959	-0.0004
77	SLE RA 21	-3.73	-0.17	40.17	0.074	-0.1279	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
77	SLE FR 1	-2.6	-0.15	35.23	0.0828	-0.0856	-0.0003
77	SLE FR 2	-2.87	-0.15	35.3	0.076	-0.0962	-0.0003
77	SLE FR 3	-2.63	-0.15	35.28	0.0834	-0.0866	-0.0003
77	SLE FR 4	-2.95	-0.15	36.67	0.0791	-0.0985	-0.0003
77	SLE FR 5	-2.71	-0.15	36.66	0.0864	-0.0889	-0.0004
77	SLE FR 6	-2.74	-0.16	37.51	0.088	-0.0894	-0.0004
77	SLE QP 1	-2.6	-0.15	35.23	0.0828	-0.0856	-0.0003
77	SLE QP 2	-2.68	-0.15	36.6	0.0859	-0.0879	-0.0003
77	SLD 1	10.5	-0.11	40.88	-0.002	0.4858	-0.0004
77	SLD 2	10.5	-0.11	40.88	-0.002	0.4858	-0.0004
77	SLD 3	12.05	-0.09	35.9	0.0889	0.5501	-0.0007
77	SLD 4	12.05	-0.09	35.9	0.0889	0.5501	-0.0007
77	SLD 5	-1.08	-0.16	45.44	-0.0784	-0.0133	0.0001
77	SLD 6	-1.08	-0.16	45.44	-0.0784	-0.0133	0.0001
77	SLD 7	4.09	-0.12	28.84	0.2247	0.2011	-0.0009
77	SLD 8	4.09	-0.12	28.84	0.2247	0.2011	-0.0009
77	SLD 9	-9.45	-0.19	44.36	-0.0529	-0.3768	0.0002
77	SLD 10	-9.45	-0.19	44.36	-0.0529	-0.3768	0.0002
77	SLD 11	-4.29	-0.15	27.76	0.2502	-0.1624	-0.0008
77	SLD 12	-4.29	-0.15	27.76	0.2502	-0.1624	-0.0008
77	SLD 13	-17.41	-0.21	37.29	0.0829	-0.7259	0
77	SLD 14	-17.41	-0.21	37.29	0.0829	-0.7259	0
77	SLD 15	-15.86	-0.2	32.31	0.1738	-0.6615	-0.0003
77	SLD 16	-15.86	-0.2	32.31	0.1738	-0.6615	-0.0003
77	SLV 1	27.39	-0.05	46.64	-0.1273	1.2208	-0.0004
77	SLV 2	27.39	-0.05	46.64	-0.1273	1.2208	-0.0004
77	SLV 3	31.13	-0.01	35.17	0.1004	1.3764	-0.0011
77	SLV 4	31.13	-0.01	35.17	0.1004	1.3764	-0.0011
77	SLV 5	0.67	-0.17	57.01	-0.3234	0.0688	0.0007
77	SLV 6	0.67	-0.17	57.01	-0.3234	0.0688	0.0007
77	SLV 7	13.13	-0.06	18.77	0.4356	0.5873	-0.0017
77	SLV 8	13.13	-0.06	18.77	0.4356	0.5873	-0.0017
77	SLV 9	-18.49	-0.24	54.42	-0.2638	-0.7631	0.001
77	SLV 10	-18.49	-0.24	54.42	-0.2638	-0.7631	0.001
77	SLV 11	-6.04	-0.14	16.19	0.4953	-0.2446	-0.0014
77	SLV 12	-6.04	-0.14	16.19	0.4953	-0.2446	-0.0014
77	SLV 13	-36.49	-0.29	38.02	0.0714	-1.5522	0.0004
77	SLV 14	-36.49	-0.29	38.02	0.0714	-1.5522	0.0004
77	SLV 15	-32.76	-0.26	26.55	0.2992	-1.3966	-0.0003
77	SLV 16	-32.76	-0.26	26.55	0.2992	-1.3966	-0.0003
78	SLU 1	-3.56	-0.25	31.8	0.1263	-0.1523	-0.0008
78	SLU 2	-5.33	-0.22	31.65	0.0371	-0.2257	-0.0006
78	SLU 3	-3.71	-0.25	32.28	0.1302	-0.1593	-0.0008
78	SLU 4	-4.78	-0.24	32.19	0.0767	-0.2033	-0.0007
78	SLU 5	-5.45	-0.23	31.88	0.0396	-0.231	-0.0006
78	SLU 6	-3.83	-0.26	32.52	0.1327	-0.1646	-0.0008
78	SLU 7	-4.89	-0.24	32.42	0.0792	-0.2086	-0.0007
78	SLU 8	-3.79	-0.26	32.27	0.1313	-0.1629	-0.0008
78	SLU 9	-4.85	-0.24	32.18	0.0778	-0.207	-0.0007
78	SLU 10	-5.79	-0.26	36.18	0.0539	-0.2463	-0.0007
78	SLU 11	-4.17	-0.29	36.81	0.147	-0.1798	-0.0009
78	SLU 12	-5.23	-0.27	36.72	0.0935	-0.2238	-0.0008
78	SLU 13	-5.9	-0.26	36.42	0.0564	-0.2515	-0.0007
78	SLU 14	-4.28	-0.29	37.05	0.1495	-0.1851	-0.0009
78	SLU 15	-5.35	-0.28	36.96	0.096	-0.2291	-0.0008
78	SLU 16	-4.24	-0.29	36.81	0.148	-0.1834	-0.0009
78	SLU 17	-5.3	-0.28	36.71	0.0945	-0.2275	-0.0008
78	SLU 18	-4.21	-0.29	38.28	0.1503	-0.1816	-0.001
78	SLU 19	-5.27	-0.28	38.18	0.0968	-0.2257	-0.0008
78	SLU 20	-4.32	-0.3	38.51	0.1528	-0.1869	-0.001
78	SLU 21	-5.39	-0.29	38.42	0.0993	-0.231	-0.0008
78	SLU 22	-3.94	-0.28	35.53	0.1421	-0.1694	-0.0009
78	SLU 23	-5.72	-0.25	35.37	0.0529	-0.2428	-0.0007
78	SLU 24	-4.1	-0.29	36.01	0.146	-0.1764	-0.0009
78	SLU 25	-5.16	-0.27	35.91	0.0925	-0.2204	-0.0008
78	SLU 26	-5.83	-0.26	35.61	0.0554	-0.2481	-0.0007
78	SLU 27	-4.21	-0.29	36.24	0.1485	-0.1817	-0.0009
78	SLU 28	-5.27	-0.28	36.15	0.095	-0.2257	-0.0008
78	SLU 29	-4.17	-0.29	36	0.1471	-0.18	-0.0009
78	SLU 30	-5.23	-0.27	35.91	0.0936	-0.2241	-0.0008
78	SLU 31	-6.17	-0.29	39.91	0.0697	-0.2634	-0.0008
78	SLU 32	-4.55	-0.32	40.54	0.1628	-0.1969	-0.001
78	SLU 33	-5.62	-0.31	40.45	0.1093	-0.2409	-0.0009
78	SLU 34	-6.28	-0.29	40.14	0.0722	-0.2687	-0.0008
78	SLU 35	-4.66	-0.32	40.78	0.1653	-0.2022	-0.0011
78	SLU 36	-5.73	-0.31	40.68	0.1118	-0.2462	-0.0009
78	SLU 37	-4.62	-0.32	40.54	0.1638	-0.2005	-0.001
78	SLU 38	-5.69	-0.31	40.44	0.1103	-0.2446	-0.0009
78	SLU 39	-4.59	-0.33	42	0.1661	-0.1987	-0.0011
78	SLU 40	-5.66	-0.31	41.91	0.1126	-0.2428	-0.0009
78	SLU 41	-4.7	-0.33	42.24	0.1686	-0.204	-0.0011
78	SLU 42	-5.77	-0.32	42.15	0.1151	-0.2481	-0.0009
78	SLU 43	-4.5	-0.31	40.06	0.1587	-0.1921	-0.001
78	SLU 44	-6.27	-0.29	39.91	0.0696	-0.2656	-0.0008
78	SLU 45	-4.65	-0.32	40.54	0.1627	-0.1991	-0.001
78	SLU 46	-5.72	-0.3	40.45	0.1092	-0.2431	-0.0009
78	SLU 47	-6.38	-0.29	40.14	0.0721	-0.2709	-0.0008
78	SLU 48	-4.76	-0.32	40.78	0.1652	-0.2044	-0.001
78	SLU 49	-5.83	-0.31	40.68	0.1117	-0.2484	-0.0009





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
78	SLU 50	-4.72	-0.32	40.54	0.1637	-0.2027	-0.001
78	SLU 51	-5.79	-0.3	40.44	0.1102	-0.2468	-0.0009
78	SLU 52	-6.72	-0.32	44.44	0.0864	-0.2861	-0.0009
78	SLU 53	-5.11	-0.35	45.07	0.1795	-0.2196	-0.0011
78	SLU 54	-6.17	-0.34	44.98	0.126	-0.2637	-0.001
78	SLU 55	-6.84	-0.32	44.68	0.0889	-0.2914	-0.0009
78	SLU 56	-5.22	-0.35	45.31	0.182	-0.2249	-0.0012
78	SLU 57	-6.28	-0.34	45.22	0.1285	-0.269	-0.001
78	SLU 58	-5.18	-0.35	45.07	0.1805	-0.2232	-0.0011
78	SLU 59	-6.24	-0.34	44.98	0.127	-0.2673	-0.001
78	SLU 60	-5.15	-0.36	46.54	0.1827	-0.2215	-0.0012
78	SLU 61	-6.21	-0.34	46.45	0.1292	-0.2655	-0.001
78	SLU 62	-5.26	-0.36	46.78	0.1852	-0.2268	-0.0012
78	SLU 63	-6.32	-0.35	46.68	0.1317	-0.2708	-0.001
78	SLU 64	-4.88	-0.34	43.79	0.1745	-0.2093	-0.0011
78	SLU 65	-6.65	-0.32	43.63	0.0854	-0.2827	-0.0009
78	SLU 66	-5.03	-0.35	44.27	0.1785	-0.2162	-0.0011
78	SLU 67	-6.1	-0.33	44.18	0.125	-0.2603	-0.001
78	SLU 68	-6.77	-0.32	43.87	0.0879	-0.288	-0.0009
78	SLU 69	-5.15	-0.35	44.51	0.181	-0.2215	-0.0011
78	SLU 70	-6.21	-0.34	44.41	0.1275	-0.2655	-0.001
78	SLU 71	-5.1	-0.35	44.26	0.1795	-0.2198	-0.0011
78	SLU 72	-6.17	-0.34	44.17	0.126	-0.2639	-0.001
78	SLU 73	-7.11	-0.35	48.17	0.1022	-0.3032	-0.001
78	SLU 74	-5.49	-0.38	48.8	0.1953	-0.2367	-0.0012
78	SLU 75	-6.55	-0.37	48.71	0.1418	-0.2808	-0.0011
78	SLU 76	-7.22	-0.36	48.41	0.1047	-0.3085	-0.001
78	SLU 77	-5.6	-0.39	49.04	0.1978	-0.242	-0.0013
78	SLU 78	-6.67	-0.37	48.95	0.1443	-0.2861	-0.0011
78	SLU 79	-5.56	-0.38	48.8	0.1963	-0.2404	-0.0012
78	SLU 80	-6.62	-0.37	48.7	0.1428	-0.2844	-0.0011
78	SLU 81	-5.53	-0.39	50.27	0.1985	-0.2386	-0.0013
78	SLU 82	-6.59	-0.38	50.17	0.145	-0.2826	-0.0011
78	SLU 83	-5.64	-0.39	50.5	0.201	-0.2439	-0.0013
78	SLU 84	-6.71	-0.38	50.41	0.1475	-0.2879	-0.0011
78	SLE RA 1	-3.67	-0.26	32.87	0.1308	-0.1572	-0.0008
78	SLE RA 2	-4.85	-0.24	32.76	0.0713	-0.2062	-0.0007
78	SLE RA 3	-3.77	-0.26	33.18	0.1334	-0.1618	-0.0008
78	SLE RA 4	-4.48	-0.25	33.12	0.0978	-0.1912	-0.0008
78	SLE RA 5	-4.93	-0.24	32.92	0.073	-0.2097	-0.0007
78	SLE RA 6	-3.85	-0.26	33.34	0.1351	-0.1654	-0.0009
78	SLE RA 7	-4.56	-0.25	33.28	0.0994	-0.1947	-0.0008
78	SLE RA 8	-3.82	-0.26	33.18	0.1341	-0.1643	-0.0008
78	SLE RA 9	-4.53	-0.25	33.12	0.0984	-0.1936	-0.0008
78	SLE RA 10	-5.15	-0.26	35.78	0.0825	-0.2198	-0.0008
78	SLE RA 11	-4.07	-0.28	36.21	0.1446	-0.1755	-0.0009
78	SLE RA 12	-4.78	-0.27	36.14	0.109	-0.2049	-0.0008
78	SLE RA 13	-5.23	-0.27	35.94	0.0842	-0.2234	-0.0008
78	SLE RA 14	-4.15	-0.29	36.36	0.1463	-0.179	-0.0009
78	SLE RA 15	-4.86	-0.28	36.3	0.1106	-0.2084	-0.0008
78	SLE RA 16	-4.12	-0.28	36.2	0.1453	-0.1779	-0.0009
78	SLE RA 17	-4.83	-0.27	36.14	0.1096	-0.2073	-0.0008
78	SLE RA 18	-4.1	-0.29	37.18	0.1468	-0.1768	-0.0009
78	SLE RA 19	-4.81	-0.28	37.12	0.1111	-0.2061	-0.0008
78	SLE RA 20	-4.18	-0.29	37.34	0.1484	-0.1803	-0.0009
78	SLE RA 21	-4.89	-0.28	37.28	0.1128	-0.2096	-0.0009
78	SLE FR 1	-3.67	-0.26	32.87	0.1308	-0.1572	-0.0008
78	SLE FR 2	-3.9	-0.25	32.84	0.1189	-0.167	-0.0008
78	SLE FR 3	-3.7	-0.26	32.93	0.1315	-0.1586	-0.0008
78	SLE FR 4	-4.03	-0.26	34.14	0.1237	-0.1729	-0.0008
78	SLE FR 5	-3.83	-0.27	34.22	0.1363	-0.1645	-0.0009
78	SLE FR 6	-3.88	-0.27	35.02	0.1388	-0.167	-0.0009
78	SLE QP 1	-3.67	-0.26	32.87	0.1308	-0.1572	-0.0008
78	SLE QP 2	-3.8	-0.27	34.16	0.1356	-0.1631	-0.0009
78	SLD 1	9.13	-0.25	34.38	-0.0041	0.4048	-0.0014
78	SLD 2	9.13	-0.25	34.38	-0.0041	0.4048	-0.0014
78	SLD 3	10.62	-0.15	30.2	0.1555	0.4667	-0.0008
78	SLD 4	10.62	-0.15	30.2	0.1555	0.4667	-0.0008
78	SLD 5	-2.18	-0.41	40.56	-0.1484	-0.0866	-0.0018
78	SLD 6	-2.18	-0.41	40.56	-0.1484	-0.0866	-0.0018
78	SLD 7	2.79	-0.08	26.64	0.3836	0.1198	-0.0001
78	SLD 8	2.79	-0.08	26.64	0.3836	0.1198	-0.0001
78	SLD 9	-10.39	-0.45	41.68	-0.1124	-0.4459	-0.0017
78	SLD 10	-10.39	-0.45	41.68	-0.1124	-0.4459	-0.0017
78	SLD 11	-5.42	-0.12	27.76	0.4195	-0.2395	0.0001
78	SLD 12	-5.42	-0.12	27.76	0.4195	-0.2395	0.0001
78	SLD 13	-18.22	-0.38	38.12	0.1157	-0.7928	-0.0009
78	SLD 14	-18.22	-0.38	38.12	0.1157	-0.7928	-0.0009
78	SLD 15	-16.73	-0.28	33.94	0.2753	-0.7309	-0.0003
78	SLD 16	-16.73	-0.28	33.94	0.2753	-0.7309	-0.0003
78	SLV 1	25.74	-0.24	34.54	-0.2045	1.1335	-0.0021
78	SLV 2	25.74	-0.24	34.54	-0.2045	1.1335	-0.0021
78	SLV 3	29.28	0.01	24.92	0.1951	1.2813	-0.0008
78	SLV 4	29.28	0.01	24.92	0.1951	1.2813	-0.0008
78	SLV 5	-0.32	-0.63	48.86	-0.5725	0.0018	-0.0032
78	SLV 6	-0.32	-0.63	48.86	-0.5725	0.0018	-0.0032
78	SLV 7	11.5	0.19	16.8	0.7595	0.4943	0.0012
78	SLV 8	11.5	0.19	16.8	0.7595	0.4943	0.0012
78	SLV 9	-19.1	-0.72	51.52	-0.4884	-0.8205	-0.0029



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
78	SLV 10	-19.1	-0.72	51.52	-0.4884	-0.8205	-0.0029
78	SLV 11	-7.28	0.1	19.46	0.8437	-0.3279	0.0015
78	SLV 12	-7.28	0.1	19.46	0.8437	-0.3279	0.0015
78	SLV 13	-36.88	-0.54	43.4	0.076	-1.6074	-0.0009
78	SLV 14	-36.88	-0.54	43.4	0.076	-1.6074	-0.0009
78	SLV 15	-33.33	-0.29	33.78	0.4757	-1.4597	0.0004
78	SLV 16	-33.33	-0.29	33.78	0.4757	-1.4597	0.0004
79	SLU 1	-3.88	-0.29	29.52	0.1499	-0.1442	-0.0012
79	SLU 2	-5.32	-0.22	28.93	0.0191	-0.2048	-0.0008
79	SLU 3	-4.04	-0.3	29.97	0.1545	-0.1504	-0.0013
79	SLU 4	-4.9	-0.26	29.62	0.076	-0.1868	-0.001
79	SLU 5	-5.44	-0.23	29.18	0.0219	-0.2092	-0.0008
79	SLU 6	-4.15	-0.31	30.21	0.1573	-0.1549	-0.0013
79	SLU 7	-5.02	-0.26	29.86	0.0788	-0.1913	-0.001
79	SLU 8	-4.11	-0.3	30.01	0.1555	-0.1531	-0.0013
79	SLU 9	-4.97	-0.26	29.65	0.077	-0.1895	-0.001
79	SLU 10	-5.84	-0.26	33.18	0.0386	-0.2228	-0.001
79	SLU 11	-4.55	-0.34	34.22	0.174	-0.1685	-0.0014
79	SLU 12	-5.42	-0.3	33.87	0.0955	-0.2049	-0.0012
79	SLU 13	-5.95	-0.27	33.43	0.0414	-0.2273	-0.001
79	SLU 14	-4.66	-0.35	34.47	0.1768	-0.173	-0.0015
79	SLU 15	-5.53	-0.3	34.11	0.0983	-0.2093	-0.0012
79	SLU 16	-4.62	-0.34	34.26	0.175	-0.1712	-0.0014
79	SLU 17	-5.48	-0.3	33.9	0.0965	-0.2076	-0.0012
79	SLU 18	-4.61	-0.35	35.59	0.1778	-0.17	-0.0015
79	SLU 19	-5.48	-0.31	35.24	0.0993	-0.2064	-0.0012
79	SLU 20	-4.73	-0.36	35.84	0.1806	-0.1745	-0.0015
79	SLU 21	-5.59	-0.31	35.48	0.1021	-0.2108	-0.0012
79	SLU 22	-4.33	-0.33	33.02	0.1683	-0.1601	-0.0014
79	SLU 23	-5.77	-0.26	32.43	0.0375	-0.2207	-0.001
79	SLU 24	-4.48	-0.34	33.47	0.1729	-0.1664	-0.0014
79	SLU 25	-5.35	-0.3	33.12	0.0944	-0.2028	-0.0012
79	SLU 26	-5.88	-0.26	32.68	0.0403	-0.2252	-0.001
79	SLU 27	-4.6	-0.34	33.71	0.1757	-0.1709	-0.0015
79	SLU 28	-5.46	-0.3	33.36	0.0972	-0.2072	-0.0012
79	SLU 29	-4.55	-0.34	33.51	0.1739	-0.1691	-0.0014
79	SLU 30	-5.41	-0.3	33.15	0.0954	-0.2055	-0.0012
79	SLU 31	-6.28	-0.3	36.68	0.0571	-0.2388	-0.0011
79	SLU 32	-5	-0.38	37.72	0.1924	-0.1845	-0.0016
79	SLU 33	-5.86	-0.34	37.37	0.114	-0.2209	-0.0013
79	SLU 34	-6.39	-0.3	36.93	0.0599	-0.2433	-0.0012
79	SLU 35	-5.11	-0.38	37.97	0.1952	-0.189	-0.0016
79	SLU 36	-5.97	-0.34	37.61	0.1168	-0.2253	-0.0014
79	SLU 37	-5.06	-0.38	37.76	0.1934	-0.1872	-0.0016
79	SLU 38	-5.93	-0.34	37.41	0.115	-0.2235	-0.0014
79	SLU 39	-5.06	-0.39	39.09	0.1962	-0.186	-0.0016
79	SLU 40	-5.92	-0.35	38.74	0.1177	-0.2223	-0.0014
79	SLU 41	-5.17	-0.39	39.34	0.199	-0.1905	-0.0017
79	SLU 42	-6.03	-0.35	38.98	0.1205	-0.2268	-0.0014
79	SLU 43	-4.89	-0.37	37.18	0.1885	-0.1819	-0.0016
79	SLU 44	-6.34	-0.3	36.59	0.0577	-0.2425	-0.0011
79	SLU 45	-5.05	-0.38	37.63	0.1931	-0.1882	-0.0016
79	SLU 46	-5.92	-0.33	37.28	0.1146	-0.2246	-0.0013
79	SLU 47	-6.45	-0.3	36.83	0.0605	-0.247	-0.0012
79	SLU 48	-5.16	-0.38	37.87	0.1959	-0.1927	-0.0016
79	SLU 49	-6.03	-0.34	37.52	0.1174	-0.229	-0.0014
79	SLU 50	-5.12	-0.38	37.66	0.1941	-0.1909	-0.0016
79	SLU 51	-5.98	-0.34	37.31	0.1156	-0.2272	-0.0013
79	SLU 52	-6.85	-0.34	40.84	0.0772	-0.2606	-0.0013
79	SLU 53	-5.56	-0.42	41.88	0.2126	-0.2063	-0.0018
79	SLU 54	-6.43	-0.37	41.53	0.1342	-0.2426	-0.0015
79	SLU 55	-6.96	-0.34	41.08	0.08	-0.2651	-0.0013
79	SLU 56	-5.68	-0.42	42.12	0.2154	-0.2107	-0.0018
79	SLU 57	-6.54	-0.38	41.77	0.137	-0.2471	-0.0015
79	SLU 58	-5.63	-0.42	41.91	0.2136	-0.209	-0.0018
79	SLU 59	-6.5	-0.38	41.56	0.1352	-0.2453	-0.0015
79	SLU 60	-5.63	-0.43	43.25	0.2164	-0.2078	-0.0018
79	SLU 61	-6.49	-0.38	42.9	0.1379	-0.2441	-0.0015
79	SLU 62	-5.74	-0.43	43.49	0.2192	-0.2122	-0.0018
79	SLU 63	-6.6	-0.39	43.14	0.1407	-0.2486	-0.0016
79	SLU 64	-5.34	-0.41	40.68	0.2069	-0.1979	-0.0017
79	SLU 65	-6.78	-0.34	40.09	0.0762	-0.2585	-0.0013
79	SLU 66	-5.5	-0.41	41.13	0.2115	-0.2042	-0.0017
79	SLU 67	-6.36	-0.37	40.78	0.1331	-0.2405	-0.0015
79	SLU 68	-6.89	-0.34	40.33	0.079	-0.263	-0.0013
79	SLU 69	-5.61	-0.42	41.37	0.2143	-0.2087	-0.0018
79	SLU 70	-6.47	-0.38	41.02	0.1359	-0.245	-0.0015
79	SLU 71	-5.56	-0.42	41.16	0.2125	-0.2069	-0.0018
79	SLU 72	-6.43	-0.37	40.81	0.1341	-0.2432	-0.0015
79	SLU 73	-7.29	-0.37	44.34	0.0957	-0.2766	-0.0015
79	SLU 74	-6.01	-0.45	45.38	0.2311	-0.2223	-0.0019
79	SLU 75	-6.87	-0.41	45.03	0.1526	-0.2586	-0.0017
79	SLU 76	-7.4	-0.38	44.58	0.0985	-0.2811	-0.0015
79	SLU 77	-6.12	-0.46	45.62	0.2339	-0.2267	-0.0019
79	SLU 78	-6.99	-0.42	45.27	0.1554	-0.2631	-0.0017
79	SLU 79	-6.07	-0.46	45.41	0.2321	-0.2249	-0.0019
79	SLU 80	-6.94	-0.41	45.06	0.1536	-0.2613	-0.0017
79	SLU 81	-6.07	-0.46	46.75	0.2348	-0.2237	-0.0019
79	SLU 82	-6.93	-0.42	46.4	0.1564	-0.2601	-0.0017



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
79	SLU 83	-6.18	-0.47	46.99	0.2376	-0.2282	-0.002
79	SLU 84	-7.05	-0.43	46.64	0.1592	-0.2646	-0.0017
79	SLE RA 1	-4.01	-0.3	30.52	0.1551	-0.1487	-0.0013
79	SLE RA 2	-4.97	-0.26	30.13	0.0679	-0.1891	-0.001
79	SLE RA 3	-4.11	-0.31	30.82	0.1582	-0.1529	-0.0013
79	SLE RA 4	-4.69	-0.28	30.59	0.1059	-0.1771	-0.0011
79	SLE RA 5	-5.04	-0.26	30.29	0.0698	-0.1921	-0.001
79	SLE RA 6	-4.19	-0.31	30.98	0.1601	-0.1559	-0.0013
79	SLE RA 7	-4.77	-0.28	30.75	0.1077	-0.1801	-0.0012
79	SLE RA 8	-4.16	-0.31	30.84	0.1589	-0.1547	-0.0013
79	SLE RA 9	-4.73	-0.28	30.61	0.1065	-0.1789	-0.0011
79	SLE RA 10	-5.31	-0.28	32.96	0.081	-0.2012	-0.0011
79	SLE RA 11	-4.46	-0.34	33.66	0.1712	-0.165	-0.0014
79	SLE RA 12	-5.03	-0.31	33.42	0.1189	-0.1892	-0.0013
79	SLE RA 13	-5.39	-0.29	33.13	0.0828	-0.2042	-0.0011
79	SLE RA 14	-4.53	-0.34	33.82	0.1731	-0.1679	-0.0014
79	SLE RA 15	-5.11	-0.31	33.58	0.1208	-0.1922	-0.0013
79	SLE RA 16	-4.5	-0.34	33.68	0.1719	-0.1667	-0.0014
79	SLE RA 17	-5.08	-0.31	33.44	0.1196	-0.191	-0.0013
79	SLE RA 18	-4.5	-0.34	34.57	0.1737	-0.1659	-0.0014
79	SLE RA 19	-5.07	-0.31	34.33	0.1214	-0.1902	-0.0013
79	SLE RA 20	-4.57	-0.35	34.73	0.1756	-0.1689	-0.0015
79	SLE RA 21	-5.15	-0.32	34.5	0.1233	-0.1932	-0.0013
79	SLE FR 1	-4.01	-0.3	30.52	0.1551	-0.1487	-0.0013
79	SLE FR 2	-4.2	-0.29	30.44	0.1377	-0.1568	-0.0012
79	SLE FR 3	-4.04	-0.31	30.59	0.1559	-0.1499	-0.0013
79	SLE FR 4	-4.35	-0.31	31.66	0.1433	-0.162	-0.0013
79	SLE FR 5	-4.18	-0.32	31.8	0.1614	-0.1551	-0.0013
79	SLE FR 6	-4.25	-0.32	32.54	0.1644	-0.1573	-0.0014
79	SLE QP 1	-4.01	-0.3	30.52	0.1551	-0.1487	-0.0013
79	SLE QP 2	-4.15	-0.32	31.74	0.1607	-0.1539	-0.0013
79	SLD 1	8.6	-0.33	30.7	-0.0297	0.4014	-0.0014
79	SLD 2	8.6	-0.33	30.7	-0.0297	0.4014	-0.0014
79	SLD 3	10.05	-0.14	27.13	0.2	0.4624	-0.0005
79	SLD 4	10.05	-0.14	27.13	0.2	0.4624	-0.0005
79	SLD 5	-2.53	-0.6	36.84	-0.2448	-0.08	-0.0028
79	SLD 6	-2.53	-0.6	36.84	-0.2448	-0.08	-0.0028
79	SLD 7	2.31	0.02	24.94	0.5209	0.1237	0.0004
79	SLD 8	2.31	0.02	24.94	0.5209	0.1237	0.0004
79	SLD 9	-10.62	-0.65	38.53	-0.1995	-0.4314	-0.0031
79	SLD 10	-10.62	-0.65	38.53	-0.1995	-0.4314	-0.0031
79	SLD 11	-5.78	-0.03	26.63	0.5662	-0.2278	0.0002
79	SLD 12	-5.78	-0.03	26.63	0.5662	-0.2278	0.0002
79	SLD 13	-18.36	-0.49	36.34	0.1214	-0.7702	-0.0022
79	SLD 14	-18.36	-0.49	36.34	0.1214	-0.7702	-0.0022
79	SLD 15	-16.91	-0.3	32.77	0.3511	-0.7091	-0.0012
79	SLD 16	-16.91	-0.3	32.77	0.3511	-0.7091	-0.0012
79	SLV 1	24.99	-0.36	29.32	-0.3043	1.1147	-0.0017
79	SLV 2	24.99	-0.36	29.32	-0.3043	1.1147	-0.0017
79	SLV 3	28.41	0.1	21.08	0.2709	1.2588	0.0008
79	SLV 4	28.41	0.1	21.08	0.2709	1.2588	0.0008
79	SLV 5	-0.59	-1.04	43.51	-0.8511	0.0081	-0.0051
79	SLV 6	-0.59	-1.04	43.51	-0.8511	0.0081	-0.0051
79	SLV 7	10.8	0.52	16.04	1.0661	0.4885	0.003
79	SLV 8	10.8	0.52	16.04	1.0661	0.4885	0.003
79	SLV 9	-19.11	-1.15	47.43	-0.7447	-0.7962	-0.0056
79	SLV 10	-19.11	-1.15	47.43	-0.7447	-0.7962	-0.0056
79	SLV 11	-7.72	0.41	19.96	1.1725	-0.3159	0.0025
79	SLV 12	-7.72	0.41	19.96	1.1725	-0.3159	0.0025
79	SLV 13	-36.72	-0.73	42.39	0.0505	-1.5666	-0.0034
79	SLV 14	-36.72	-0.73	42.39	0.0505	-1.5666	-0.0034
79	SLV 15	-33.3	-0.27	34.15	0.6257	-1.4225	-0.001
79	SLV 16	-33.3	-0.27	34.15	0.6257	-1.4225	-0.001
80	SLU 1	-4.39	-0.29	27.41	0.152	-0.1891	-0.0016
80	SLU 2	-5.39	-0.18	26.69	-0.0165	-0.2314	-0.0009
80	SLU 3	-4.56	-0.3	27.83	0.1567	-0.1967	-0.0016
80	SLU 4	-5.16	-0.23	27.4	0.0556	-0.2221	-0.0012
80	SLU 5	-5.51	-0.19	26.93	-0.0137	-0.2371	-0.0009
80	SLU 6	-4.68	-0.31	28.08	0.1596	-0.2023	-0.0017
80	SLU 7	-5.28	-0.24	27.64	0.0584	-0.2277	-0.0012
80	SLU 8	-4.63	-0.3	27.9	0.1577	-0.2003	-0.0016
80	SLU 9	-5.23	-0.24	27.46	0.0566	-0.2257	-0.0012
80	SLU 10	-6.03	-0.22	30.65	0.0027	-0.26	-0.0011
80	SLU 11	-5.2	-0.34	31.8	0.176	-0.2253	-0.0018
80	SLU 12	-5.8	-0.27	31.36	0.0748	-0.2507	-0.0014
80	SLU 13	-6.15	-0.22	30.89	0.0055	-0.2656	-0.0011
80	SLU 14	-5.32	-0.34	32.04	0.1788	-0.2309	-0.0019
80	SLU 15	-5.92	-0.28	31.61	0.0776	-0.2563	-0.0014
80	SLU 16	-5.28	-0.34	31.86	0.1769	-0.2289	-0.0018
80	SLU 17	-5.88	-0.27	31.43	0.0758	-0.2543	-0.0014
80	SLU 18	-5.3	-0.35	33.07	0.1795	-0.23	-0.0019
80	SLU 19	-5.9	-0.28	32.64	0.0783	-0.2553	-0.0015
80	SLU 20	-5.43	-0.35	33.32	0.1823	-0.2356	-0.0019
80	SLU 21	-6.03	-0.29	32.88	0.0812	-0.2609	-0.0015
80	SLU 22	-4.94	-0.33	30.68	0.1704	-0.2137	-0.0018
80	SLU 23	-5.94	-0.22	29.96	0.0018	-0.256	-0.0011
80	SLU 24	-5.11	-0.34	31.1	0.1751	-0.2213	-0.0018
80	SLU 25	-5.71	-0.27	30.67	0.0739	-0.2466	-0.0014
80	SLU 26	-6.06	-0.22	30.2	0.0046	-0.2616	-0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
80	SLU 27	-5.24	-0.34	31.35	0.1779	-0.2269	-0.0019
80	SLU 28	-5.84	-0.28	30.91	0.0767	-0.2523	-0.0014
80	SLU 29	-5.19	-0.34	31.17	0.176	-0.2249	-0.0018
80	SLU 30	-5.79	-0.27	30.73	0.0749	-0.2503	-0.0014
80	SLU 31	-6.58	-0.26	33.92	0.021	-0.2846	-0.0013
80	SLU 32	-5.76	-0.38	35.07	0.1943	-0.2498	-0.002
80	SLU 33	-6.35	-0.31	34.64	0.0931	-0.2752	-0.0016
80	SLU 34	-6.71	-0.26	34.16	0.0238	-0.2902	-0.0013
80	SLU 35	-5.88	-0.38	35.31	0.1971	-0.2554	-0.0021
80	SLU 36	-6.48	-0.31	34.88	0.096	-0.2808	-0.0016
80	SLU 37	-5.83	-0.38	35.13	0.1952	-0.2535	-0.002
80	SLU 38	-6.43	-0.31	34.7	0.0941	-0.2789	-0.0016
80	SLU 39	-5.86	-0.38	36.34	0.1978	-0.2545	-0.0021
80	SLU 40	-6.46	-0.32	35.91	0.0967	-0.2799	-0.0017
80	SLU 41	-5.98	-0.39	36.59	0.2007	-0.2601	-0.0021
80	SLU 42	-6.58	-0.32	36.15	0.0995	-0.2855	-0.0017
80	SLU 43	-5.51	-0.37	34.51	0.1914	-0.2375	-0.002
80	SLU 44	-6.51	-0.26	33.79	0.0228	-0.2798	-0.0013
80	SLU 45	-5.68	-0.38	34.93	0.1961	-0.245	-0.002
80	SLU 46	-6.28	-0.31	34.5	0.0949	-0.2704	-0.0016
80	SLU 47	-6.64	-0.26	34.03	0.0256	-0.2854	-0.0013
80	SLU 48	-5.81	-0.38	35.18	0.1989	-0.2506	-0.0021
80	SLU 49	-6.41	-0.31	34.74	0.0977	-0.276	-0.0016
80	SLU 50	-5.76	-0.38	35	0.197	-0.2487	-0.002
80	SLU 51	-6.36	-0.31	34.56	0.0959	-0.2741	-0.0016
80	SLU 52	-7.15	-0.29	37.75	0.042	-0.3083	-0.0015
80	SLU 53	-6.33	-0.41	38.9	0.2153	-0.2736	-0.0022
80	SLU 54	-6.93	-0.35	38.47	0.1141	-0.299	-0.0018
80	SLU 55	-7.28	-0.3	38	0.0448	-0.3139	-0.0015
80	SLU 56	-6.45	-0.42	39.14	0.2181	-0.2792	-0.0023
80	SLU 57	-7.05	-0.35	38.71	0.117	-0.3046	-0.0018
80	SLU 58	-6.4	-0.42	38.96	0.2163	-0.2772	-0.0022
80	SLU 59	-7	-0.35	38.53	0.1151	-0.3026	-0.0018
80	SLU 60	-6.43	-0.42	40.18	0.2188	-0.2783	-0.0023
80	SLU 61	-7.03	-0.36	39.74	0.1177	-0.3037	-0.0019
80	SLU 62	-6.55	-0.43	40.42	0.2217	-0.2839	-0.0023
80	SLU 63	-7.15	-0.36	39.98	0.1205	-0.3093	-0.0019
80	SLU 64	-6.07	-0.4	37.78	0.2097	-0.262	-0.0022
80	SLU 65	-7.07	-0.29	37.06	0.0411	-0.3043	-0.0015
80	SLU 66	-6.24	-0.41	38.21	0.2144	-0.2696	-0.0022
80	SLU 67	-6.84	-0.35	37.77	0.1132	-0.295	-0.0018
80	SLU 68	-7.19	-0.3	37.3	0.0439	-0.3099	-0.0015
80	SLU 69	-6.36	-0.42	38.45	0.2172	-0.2752	-0.0023
80	SLU 70	-6.96	-0.35	38.01	0.1161	-0.3006	-0.0018
80	SLU 71	-6.32	-0.41	38.27	0.2154	-0.2732	-0.0022
80	SLU 72	-6.91	-0.35	37.83	0.1142	-0.2986	-0.0018
80	SLU 73	-7.71	-0.33	41.02	0.0603	-0.3329	-0.0017
80	SLU 74	-6.88	-0.45	42.17	0.2336	-0.2981	-0.0024
80	SLU 75	-7.48	-0.38	41.74	0.1325	-0.3235	-0.002
80	SLU 76	-7.83	-0.34	41.27	0.0632	-0.3385	-0.0017
80	SLU 77	-7	-0.46	42.41	0.2364	-0.3038	-0.0025
80	SLU 78	-7.6	-0.39	41.98	0.1353	-0.3291	-0.002
80	SLU 79	-6.96	-0.45	42.23	0.2346	-0.3018	-0.0024
80	SLU 80	-7.56	-0.39	41.8	0.1334	-0.3272	-0.002
80	SLU 81	-6.99	-0.46	43.45	0.2371	-0.3028	-0.0025
80	SLU 82	-7.58	-0.39	43.01	0.136	-0.3282	-0.0021
80	SLU 83	-7.11	-0.46	43.69	0.24	-0.3084	-0.0025
80	SLU 84	-7.71	-0.4	43.26	0.1388	-0.3338	-0.0021
80	SLE RA 1	-4.55	-0.3	28.34	0.1573	-0.1961	-0.0016
80	SLE RA 2	-5.21	-0.23	27.86	0.0449	-0.2244	-0.0012
80	SLE RA 3	-4.66	-0.31	28.63	0.1604	-0.2012	-0.0017
80	SLE RA 4	-5.06	-0.26	28.34	0.093	-0.2181	-0.0014
80	SLE RA 5	-5.29	-0.23	28.02	0.0468	-0.2281	-0.0012
80	SLE RA 6	-4.74	-0.31	28.79	0.1623	-0.2049	-0.0017
80	SLE RA 7	-5.14	-0.27	28.5	0.0949	-0.2219	-0.0014
80	SLE RA 8	-4.71	-0.31	28.67	0.161	-0.2036	-0.0017
80	SLE RA 9	-5.11	-0.26	28.38	0.0936	-0.2205	-0.0014
80	SLE RA 10	-5.64	-0.25	30.5	0.0577	-0.2434	-0.0013
80	SLE RA 11	-5.09	-0.33	31.27	0.1732	-0.2202	-0.0018
80	SLE RA 12	-5.49	-0.29	30.98	0.1058	-0.2372	-0.0015
80	SLE RA 13	-5.72	-0.26	30.67	0.0596	-0.2471	-0.0013
80	SLE RA 14	-5.17	-0.34	31.43	0.1751	-0.224	-0.0018
80	SLE RA 15	-5.57	-0.29	31.14	0.1077	-0.2409	-0.0015
80	SLE RA 16	-5.14	-0.34	31.31	0.1739	-0.2227	-0.0018
80	SLE RA 17	-5.54	-0.29	31.02	0.1064	-0.2396	-0.0015
80	SLE RA 18	-5.16	-0.34	32.12	0.1756	-0.2234	-0.0018
80	SLE RA 19	-5.56	-0.3	31.83	0.1081	-0.2403	-0.0016
80	SLE RA 20	-5.24	-0.34	32.28	0.1775	-0.2271	-0.0019
80	SLE RA 21	-5.64	-0.3	31.99	0.11	-0.244	-0.0016
80	SLE FR 1	-4.55	-0.3	28.34	0.1573	-0.1961	-0.0016
80	SLE FR 2	-4.68	-0.29	28.25	0.1348	-0.2018	-0.0015
80	SLE FR 3	-4.58	-0.3	28.41	0.158	-0.1976	-0.0016
80	SLE FR 4	-4.86	-0.3	29.38	0.1403	-0.21	-0.0016
80	SLE FR 5	-4.76	-0.32	29.54	0.1635	-0.2058	-0.0017
80	SLE FR 6	-4.85	-0.32	30.23	0.1664	-0.2098	-0.0017
80	SLE QP 1	-4.55	-0.3	28.34	0.1573	-0.1961	-0.0016
80	SLE QP 2	-4.73	-0.31	29.48	0.1628	-0.2043	-0.0017
80	SLD 1	8.13	-0.35	27.2	-0.0712	0.3552	-0.0019
80	SLD 2	8.13	-0.35	27.2	-0.0712	0.3552	-0.0019



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
80	SLD 3	9.52	-0.09	23.97	0.2193	0.4125	-0.0004
80	SLD 4	9.52	-0.09	23.97	0.2193	0.4125	-0.0004
80	SLD 5	-2.98	-0.72	33.69	-0.348	-0.1234	-0.0041
80	SLD 6	-2.98	-0.72	33.69	-0.348	-0.1234	-0.0041
80	SLD 7	1.66	0.14	22.93	0.6203	0.0677	0.0011
80	SLD 8	1.66	0.14	22.93	0.6203	0.0677	0.0011
80	SLD 9	-11.11	-0.77	36.02	-0.2948	-0.4763	-0.0045
80	SLD 10	-11.11	-0.77	36.02	-0.2948	-0.4763	-0.0045
80	SLD 11	-6.48	0.09	25.26	0.6736	-0.2852	0.0007
80	SLD 12	-6.48	0.09	25.26	0.6736	-0.2852	0.0007
80	SLD 13	-18.98	-0.54	34.98	0.1063	-0.8211	-0.003
80	SLD 14	-18.98	-0.54	34.98	0.1063	-0.8211	-0.003
80	SLD 15	-17.59	-0.28	31.75	0.3968	-0.7638	-0.0015
80	SLD 16	-17.59	-0.28	31.75	0.3968	-0.7638	-0.0015
80	SLV 1	24.66	-0.42	24.29	-0.4101	1.0745	-0.0024
80	SLV 2	24.66	-0.42	24.29	-0.4101	1.0745	-0.0024
80	SLV 3	27.91	0.23	16.77	0.3173	1.2087	0.0015
80	SLV 4	27.91	0.23	16.77	0.3173	1.2087	0.0015
80	SLV 5	-0.85	-1.32	39.34	-1.1123	-0.0241	-0.0078
80	SLV 6	-0.85	-1.32	39.34	-1.1123	-0.0241	-0.0078
80	SLV 7	10	0.82	14.25	1.3123	0.423	0.0052
80	SLV 8	10	0.82	14.25	1.3123	0.423	0.0052
80	SLV 9	-19.46	-1.45	44.71	-0.9868	-0.8316	-0.0086
80	SLV 10	-19.46	-1.45	44.71	-0.9868	-0.8316	-0.0086
80	SLV 11	-8.61	0.69	19.62	1.4378	-0.3845	0.0044
80	SLV 12	-8.61	0.69	19.62	1.4378	-0.3845	0.0044
80	SLV 13	-37.37	-0.85	42.19	0.0083	-1.6173	-0.0049
80	SLV 14	-37.37	-0.85	42.19	0.0083	-1.6173	-0.0049
80	SLV 15	-34.12	-0.21	34.66	0.7357	-1.4831	-0.001
80	SLV 16	-34.12	-0.21	34.66	0.7357	-1.4831	-0.001
81	SLU 1	-4.23	-0.26	25.47	0.1393	-0.163	-0.0017
81	SLU 2	-4.78	-0.12	24.86	-0.0588	-0.1884	-0.0007
81	SLU 3	-4.39	-0.27	25.86	0.1437	-0.1696	-0.0018
81	SLU 4	-4.72	-0.18	25.5	0.0249	-0.1849	-0.0012
81	SLU 5	-4.89	-0.12	25.1	-0.0561	-0.1932	-0.0007
81	SLU 6	-4.51	-0.27	26.1	0.1464	-0.1745	-0.0018
81	SLU 7	-4.84	-0.19	25.74	0.0275	-0.1897	-0.0012
81	SLU 8	-4.47	-0.27	25.94	0.1447	-0.1727	-0.0018
81	SLU 9	-4.79	-0.18	25.58	0.0258	-0.1879	-0.0012
81	SLU 10	-5.42	-0.15	28.53	-0.042	-0.2123	-0.0009
81	SLU 11	-5.04	-0.3	29.53	0.1605	-0.1936	-0.002
81	SLU 12	-5.36	-0.22	29.17	0.0417	-0.2088	-0.0014
81	SLU 13	-5.54	-0.16	28.77	-0.0393	-0.2172	-0.001
81	SLU 14	-5.16	-0.31	29.77	0.1632	-0.1984	-0.002
81	SLU 15	-5.48	-0.22	29.41	0.0444	-0.2137	-0.0014
81	SLU 16	-5.11	-0.3	29.61	0.1615	-0.1966	-0.002
81	SLU 17	-5.44	-0.22	29.25	0.0426	-0.2118	-0.0014
81	SLU 18	-5.15	-0.31	30.71	0.1633	-0.1971	-0.0021
81	SLU 19	-5.48	-0.22	30.34	0.0445	-0.2124	-0.0014
81	SLU 20	-5.27	-0.31	30.95	0.166	-0.202	-0.0021
81	SLU 21	-5.6	-0.23	30.58	0.0471	-0.2172	-0.0015
81	SLU 22	-4.79	-0.29	28.5	0.1556	-0.1842	-0.002
81	SLU 23	-5.34	-0.15	27.9	-0.0425	-0.2096	-0.0009
81	SLU 24	-4.95	-0.3	28.9	0.1601	-0.1909	-0.002
81	SLU 25	-5.28	-0.21	28.54	0.0412	-0.2061	-0.0014
81	SLU 26	-5.46	-0.15	28.13	-0.0398	-0.2145	-0.001
81	SLU 27	-5.07	-0.3	29.14	0.1627	-0.1957	-0.002
81	SLU 28	-5.4	-0.22	28.77	0.0439	-0.211	-0.0014
81	SLU 29	-5.03	-0.3	28.98	0.161	-0.1939	-0.002
81	SLU 30	-5.36	-0.22	28.62	0.0421	-0.2091	-0.0014
81	SLU 31	-5.98	-0.18	31.57	-0.0256	-0.2335	-0.0012
81	SLU 32	-5.6	-0.33	32.57	0.1769	-0.2148	-0.0022
81	SLU 33	-5.93	-0.25	32.21	0.058	-0.23	-0.0016
81	SLU 34	-6.1	-0.19	31.8	-0.023	-0.2384	-0.0012
81	SLU 35	-5.72	-0.34	32.81	0.1795	-0.2196	-0.0023
81	SLU 36	-6.04	-0.25	32.44	0.0607	-0.2349	-0.0016
81	SLU 37	-5.67	-0.33	32.65	0.1778	-0.2178	-0.0022
81	SLU 38	-6	-0.25	32.29	0.0589	-0.233	-0.0016
81	SLU 39	-5.71	-0.34	33.75	0.1797	-0.2183	-0.0023
81	SLU 40	-6.04	-0.25	33.38	0.0608	-0.2336	-0.0017
81	SLU 41	-5.83	-0.34	33.98	0.1823	-0.2232	-0.0023
81	SLU 42	-6.16	-0.26	33.62	0.0635	-0.2384	-0.0017
81	SLU 43	-5.3	-0.33	32.07	0.1755	-0.2046	-0.0022
81	SLU 44	-5.85	-0.18	31.46	-0.0226	-0.23	-0.0012
81	SLU 45	-5.47	-0.33	32.46	0.1799	-0.2113	-0.0022
81	SLU 46	-5.8	-0.25	32.1	0.0611	-0.2265	-0.0016
81	SLU 47	-5.97	-0.19	31.7	-0.0199	-0.2349	-0.0012
81	SLU 48	-5.59	-0.34	32.7	0.1826	-0.2161	-0.0023
81	SLU 49	-5.92	-0.25	32.34	0.0637	-0.2314	-0.0017
81	SLU 50	-5.54	-0.34	32.54	0.1808	-0.2143	-0.0022
81	SLU 51	-5.87	-0.25	32.18	0.062	-0.2295	-0.0016
81	SLU 52	-6.5	-0.22	35.13	-0.0058	-0.2539	-0.0014
81	SLU 53	-6.11	-0.37	36.13	0.1967	-0.2352	-0.0025
81	SLU 54	-6.44	-0.28	35.77	0.0779	-0.2504	-0.0018
81	SLU 55	-6.61	-0.22	35.37	-0.0031	-0.2588	-0.0014
81	SLU 56	-6.23	-0.37	36.37	0.1994	-0.24	-0.0025
81	SLU 57	-6.56	-0.29	36.01	0.0805	-0.2553	-0.0019
81	SLU 58	-6.19	-0.37	36.21	0.1977	-0.2382	-0.0025
81	SLU 59	-6.51	-0.28	35.85	0.0788	-0.2534	-0.0019



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
81	SLU 60	-6.22	-0.37	37.31	0.1995	-0.2387	-0.0025
81	SLU 61	-6.55	-0.29	36.94	0.0807	-0.254	-0.0019
81	SLU 62	-6.34	-0.38	37.55	0.2022	-0.2436	-0.0025
81	SLU 63	-6.67	-0.29	37.18	0.0833	-0.2588	-0.0019
81	SLU 64	-5.87	-0.36	35.1	0.1918	-0.2258	-0.0024
81	SLU 65	-6.41	-0.22	34.5	-0.0063	-0.2512	-0.0014
81	SLU 66	-6.03	-0.37	35.5	0.1963	-0.2325	-0.0025
81	SLU 67	-6.36	-0.28	35.14	0.0774	-0.2477	-0.0018
81	SLU 68	-6.53	-0.22	34.73	-0.0036	-0.2561	-0.0014
81	SLU 69	-6.15	-0.37	35.74	0.1989	-0.2373	-0.0025
81	SLU 70	-6.48	-0.29	35.37	0.0801	-0.2526	-0.0019
81	SLU 71	-6.1	-0.37	35.58	0.1972	-0.2355	-0.0025
81	SLU 72	-6.43	-0.28	35.21	0.0783	-0.2507	-0.0018
81	SLU 73	-7.06	-0.25	38.16	0.0106	-0.2751	-0.0016
81	SLU 74	-6.67	-0.4	39.17	0.2131	-0.2564	-0.0027
81	SLU 75	-7	-0.31	38.81	0.0942	-0.2716	-0.0021
81	SLU 76	-7.18	-0.25	38.4	0.0132	-0.28	-0.0016
81	SLU 77	-6.79	-0.4	39.41	0.2157	-0.2612	-0.0027
81	SLU 78	-7.12	-0.32	39.04	0.0969	-0.2765	-0.0021
81	SLU 79	-6.75	-0.4	39.25	0.214	-0.2594	-0.0027
81	SLU 80	-7.08	-0.32	38.88	0.0951	-0.2747	-0.0021
81	SLU 81	-6.79	-0.41	40.34	0.2158	-0.26	-0.0027
81	SLU 82	-7.11	-0.32	39.98	0.097	-0.2752	-0.0021
81	SLU 83	-6.9	-0.41	40.58	0.2185	-0.2648	-0.0027
81	SLU 84	-7.23	-0.33	40.22	0.0997	-0.2801	-0.0021
81	SLE RA 1	-4.39	-0.27	26.33	0.144	-0.169	-0.0018
81	SLE RA 2	-4.75	-0.17	25.93	0.0119	-0.186	-0.0011
81	SLE RA 3	-4.5	-0.27	26.6	0.1469	-0.1735	-0.0018
81	SLE RA 4	-4.72	-0.22	26.36	0.0677	-0.1837	-0.0014
81	SLE RA 5	-4.83	-0.18	26.09	0.0137	-0.1892	-0.0011
81	SLE RA 6	-4.58	-0.28	26.76	0.1487	-0.1767	-0.0019
81	SLE RA 7	-4.8	-0.22	26.52	0.0695	-0.1869	-0.0014
81	SLE RA 8	-4.55	-0.28	26.65	0.1475	-0.1755	-0.0018
81	SLE RA 9	-4.77	-0.22	26.41	0.0683	-0.1857	-0.0014
81	SLE RA 10	-5.18	-0.2	28.38	0.0231	-0.2019	-0.0013
81	SLE RA 11	-4.93	-0.3	29.05	0.1581	-0.1894	-0.002
81	SLE RA 12	-5.15	-0.24	28.8	0.0789	-0.1996	-0.0016
81	SLE RA 13	-5.26	-0.2	28.53	0.0249	-0.2052	-0.0013
81	SLE RA 14	-5.01	-0.3	29.2	0.1599	-0.1926	-0.002
81	SLE RA 15	-5.23	-0.24	28.96	0.0807	-0.2028	-0.0016
81	SLE RA 16	-4.98	-0.3	29.1	0.1587	-0.1914	-0.002
81	SLE RA 17	-5.2	-0.24	28.86	0.0795	-0.2016	-0.0016
81	SLE RA 18	-5	-0.3	29.83	0.16	-0.1918	-0.002
81	SLE RA 19	-5.22	-0.24	29.59	0.0807	-0.202	-0.0016
81	SLE RA 20	-5.08	-0.3	29.99	0.1618	-0.195	-0.002
81	SLE RA 21	-5.3	-0.25	29.75	0.0825	-0.2052	-0.0016
81	SLE FR 1	-4.39	-0.27	26.33	0.144	-0.169	-0.0018
81	SLE FR 2	-4.46	-0.25	26.25	0.1176	-0.1724	-0.0017
81	SLE FR 3	-4.42	-0.27	26.4	0.1447	-0.1703	-0.0018
81	SLE FR 4	-4.65	-0.26	27.3	0.1224	-0.1793	-0.0017
81	SLE FR 5	-4.6	-0.28	27.45	0.1495	-0.1772	-0.0019
81	SLE FR 6	-4.7	-0.28	28.08	0.152	-0.1804	-0.0019
81	SLE QP 1	-4.39	-0.27	26.33	0.144	-0.169	-0.0018
81	SLE QP 2	-4.57	-0.28	27.38	0.1488	-0.1759	-0.0019
81	SLD 1	8.66	-0.33	24.48	-0.1182	0.4027	-0.0022
81	SLD 2	8.66	-0.33	24.48	-0.1182	0.4027	-0.0022
81	SLD 3	10.04	-0.02	21.28	0.2176	0.4613	0
81	SLD 4	10.04	-0.02	21.28	0.2176	0.4613	0
81	SLD 5	-2.7	-0.76	31.36	-0.4405	-0.0912	-0.0053
81	SLD 6	-2.7	-0.76	31.36	-0.4405	-0.0912	-0.0053
81	SLD 7	1.91	0.27	20.7	0.6786	0.1042	0.002
81	SLD 8	1.91	0.27	20.7	0.6786	0.1042	0.002
81	SLD 9	-11.05	-0.82	34.07	-0.381	-0.4559	-0.0057
81	SLD 10	-11.05	-0.82	34.07	-0.381	-0.4559	-0.0057
81	SLD 11	-6.44	0.2	23.4	0.7381	-0.2605	0.0015
81	SLD 12	-6.44	0.2	23.4	0.7381	-0.2605	0.0015
81	SLD 13	-19.18	-0.54	33.49	0.08	-0.813	-0.0037
81	SLD 14	-19.18	-0.54	33.49	0.08	-0.813	-0.0037
81	SLD 15	-17.8	-0.23	30.29	0.4157	-0.7544	-0.0015
81	SLD 16	-17.8	-0.23	30.29	0.4157	-0.7544	-0.0015
81	SLV 1	25.66	-0.42	20.85	-0.506	1.1464	-0.0028
81	SLV 2	25.66	-0.42	20.85	-0.506	1.1464	-0.0028
81	SLV 3	28.89	0.35	13.26	0.3346	1.2833	0.0026
81	SLV 4	28.89	0.35	13.26	0.3346	1.2833	0.0026
81	SLV 5	-0.4	-1.48	36.94	-1.3226	0.0131	-0.0103
81	SLV 6	-0.4	-1.48	36.94	-1.3226	0.0131	-0.0103
81	SLV 7	10.37	1.07	11.63	1.4794	0.4696	0.0077
81	SLV 8	10.37	1.07	11.63	1.4794	0.4696	0.0077
81	SLV 9	-19.51	-1.63	43.13	-1.1819	-0.8213	-0.0114
81	SLV 10	-19.51	-1.63	43.13	-1.1819	-0.8213	-0.0114
81	SLV 11	-8.74	0.92	17.83	1.6201	-0.3648	0.0066
81	SLV 12	-8.74	0.92	17.83	1.6201	-0.3648	0.0066
81	SLV 13	-38.04	-0.91	41.51	-0.0371	-1.6351	-0.0063
81	SLV 14	-38.04	-0.91	41.51	-0.0371	-1.6351	-0.0063
81	SLV 15	-34.81	-0.14	33.92	0.8035	-1.4981	-0.0009
81	SLV 16	-34.81	-0.14	33.92	0.8035	-1.4981	-0.0009
82	SLU 1	-4.15	-0.22	23.92	0.1208	-0.1825	-0.0017
82	SLU 2	-4.24	-0.05	23.61	-0.0958	-0.188	-0.0004
82	SLU 3	-4.31	-0.22	24.3	0.1249	-0.1896	-0.0018



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
82	SLU 4	-4.37	-0.13	24.11	-0.0051	-0.1929	-0.001
82	SLU 5	-4.36	-0.06	23.84	-0.0934	-0.1933	-0.0005
82	SLU 6	-4.43	-0.23	24.54	0.1273	-0.1949	-0.0018
82	SLU 7	-4.48	-0.13	24.35	-0.0027	-0.1982	-0.001
82	SLU 8	-4.39	-0.22	24.39	0.1258	-0.1932	-0.0018
82	SLU 9	-4.44	-0.13	24.2	-0.0042	-0.1964	-0.001
82	SLU 10	-4.94	-0.08	27.01	-0.0822	-0.219	-0.0006
82	SLU 11	-5	-0.25	27.71	0.1385	-0.2207	-0.002
82	SLU 12	-5.06	-0.15	27.52	0.0085	-0.2239	-0.0012
82	SLU 13	-5.05	-0.08	27.25	-0.0797	-0.2244	-0.0007
82	SLU 14	-5.12	-0.25	27.94	0.141	-0.226	-0.002
82	SLU 15	-5.18	-0.16	27.75	0.011	-0.2292	-0.0012
82	SLU 16	-5.08	-0.25	27.8	0.1394	-0.2242	-0.002
82	SLU 17	-5.14	-0.15	27.61	0.0094	-0.2275	-0.0012
82	SLU 18	-5.14	-0.25	28.79	0.1403	-0.2269	-0.002
82	SLU 19	-5.2	-0.16	28.6	0.0103	-0.2302	-0.0012
82	SLU 20	-5.26	-0.26	29.02	0.1428	-0.2322	-0.002
82	SLU 21	-5.31	-0.16	28.83	0.0128	-0.2355	-0.0013
82	SLU 22	-4.75	-0.24	26.76	0.1345	-0.209	-0.0019
82	SLU 23	-4.84	-0.08	26.44	-0.0821	-0.2145	-0.0006
82	SLU 24	-4.9	-0.25	27.14	0.1385	-0.2161	-0.002
82	SLU 25	-4.96	-0.15	26.95	0.0085	-0.2194	-0.0012
82	SLU 26	-4.95	-0.08	26.68	-0.0797	-0.2198	-0.0007
82	SLU 27	-5.02	-0.25	27.37	0.141	-0.2214	-0.002
82	SLU 28	-5.08	-0.16	27.18	0.011	-0.2247	-0.0012
82	SLU 29	-4.98	-0.25	27.23	0.1394	-0.2197	-0.002
82	SLU 30	-5.04	-0.15	27.04	0.0094	-0.2229	-0.0012
82	SLU 31	-5.53	-0.11	29.84	-0.0685	-0.2455	-0.0008
82	SLU 32	-5.6	-0.28	30.54	0.1522	-0.2472	-0.0022
82	SLU 33	-5.65	-0.18	30.35	0.0222	-0.2504	-0.0014
82	SLU 34	-5.65	-0.11	30.08	-0.066	-0.2509	-0.0009
82	SLU 35	-5.71	-0.28	30.77	0.1546	-0.2525	-0.0022
82	SLU 36	-5.77	-0.18	30.58	0.0246	-0.2557	-0.0014
82	SLU 37	-5.67	-0.28	30.63	0.1531	-0.2507	-0.0022
82	SLU 38	-5.73	-0.18	30.44	0.0231	-0.254	-0.0014
82	SLU 39	-5.73	-0.28	31.62	0.154	-0.2534	-0.0022
82	SLU 40	-5.79	-0.18	31.43	0.024	-0.2567	-0.0015
82	SLU 41	-5.85	-0.28	31.85	0.1565	-0.2587	-0.0023
82	SLU 42	-5.91	-0.19	31.66	0.0265	-0.262	-0.0015
82	SLU 43	-5.2	-0.27	30.13	0.1524	-0.2282	-0.0022
82	SLU 44	-5.29	-0.11	29.81	-0.0643	-0.2336	-0.0009
82	SLU 45	-5.35	-0.28	30.51	0.1564	-0.2353	-0.0022
82	SLU 46	-5.41	-0.18	30.32	0.0264	-0.2385	-0.0014
82	SLU 47	-5.4	-0.11	30.05	-0.0618	-0.239	-0.0009
82	SLU 48	-5.47	-0.28	30.74	0.1589	-0.2406	-0.0022
82	SLU 49	-5.53	-0.19	30.55	0.0289	-0.2438	-0.0015
82	SLU 50	-5.43	-0.28	30.6	0.1573	-0.2388	-0.0022
82	SLU 51	-5.49	-0.18	30.41	0.0273	-0.2421	-0.0015
82	SLU 52	-5.98	-0.14	33.22	-0.0506	-0.2647	-0.0011
82	SLU 53	-6.05	-0.3	33.91	0.1701	-0.2663	-0.0024
82	SLU 54	-6.1	-0.21	33.72	0.0401	-0.2696	-0.0017
82	SLU 55	-6.1	-0.14	33.45	-0.0482	-0.27	-0.0011
82	SLU 56	-6.16	-0.31	34.15	0.1725	-0.2717	-0.0025
82	SLU 57	-6.22	-0.21	33.96	0.0425	-0.2749	-0.0017
82	SLU 58	-6.12	-0.31	34	0.171	-0.2699	-0.0024
82	SLU 59	-6.18	-0.21	33.81	0.041	-0.2732	-0.0017
82	SLU 60	-6.18	-0.31	34.99	0.1719	-0.2726	-0.0025
82	SLU 61	-6.24	-0.21	34.8	0.0419	-0.2759	-0.0017
82	SLU 62	-6.3	-0.31	35.23	0.1744	-0.2779	-0.0025
82	SLU 63	-6.36	-0.22	35.04	0.0444	-0.2812	-0.0017
82	SLU 64	-5.79	-0.3	32.96	0.1661	-0.2547	-0.0024
82	SLU 65	-5.88	-0.14	32.65	-0.0506	-0.2601	-0.0011
82	SLU 66	-5.95	-0.3	33.34	0.1701	-0.2618	-0.0024
82	SLU 67	-6	-0.21	33.15	0.0401	-0.265	-0.0016
82	SLU 68	-6	-0.14	32.88	-0.0481	-0.2655	-0.0011
82	SLU 69	-6.06	-0.31	33.58	0.1726	-0.2671	-0.0025
82	SLU 70	-6.12	-0.21	33.39	0.0426	-0.2703	-0.0017
82	SLU 71	-6.02	-0.31	33.43	0.171	-0.2653	-0.0024
82	SLU 72	-6.08	-0.21	33.24	0.041	-0.2686	-0.0017
82	SLU 73	-6.57	-0.16	36.05	-0.0369	-0.2912	-0.0013
82	SLU 74	-6.64	-0.33	36.74	0.1838	-0.2928	-0.0026
82	SLU 75	-6.69	-0.23	36.55	0.0537	-0.2961	-0.0019
82	SLU 76	-6.69	-0.17	36.28	-0.0345	-0.2965	-0.0013
82	SLU 77	-6.76	-0.34	36.98	0.1862	-0.2982	-0.0027
82	SLU 78	-6.81	-0.24	36.79	0.0562	-0.3014	-0.0019
82	SLU 79	-6.72	-0.33	36.84	0.1847	-0.2964	-0.0026
82	SLU 80	-6.77	-0.24	36.65	0.0546	-0.2997	-0.0019
82	SLU 81	-6.78	-0.34	37.82	0.1856	-0.2991	-0.0027
82	SLU 82	-6.83	-0.24	37.63	0.0556	-0.3024	-0.0019
82	SLU 83	-6.89	-0.34	38.06	0.188	-0.3044	-0.0027
82	SLU 84	-6.95	-0.24	37.87	0.058	-0.3077	-0.0019
82	SLE RA 1	-4.32	-0.22	24.73	0.1248	-0.1901	-0.0018
82	SLE RA 2	-4.38	-0.12	24.52	-0.0197	-0.1937	-0.0009
82	SLE RA 3	-4.43	-0.23	24.98	0.1274	-0.1948	-0.0018
82	SLE RA 4	-4.46	-0.16	24.86	0.0408	-0.197	-0.0013
82	SLE RA 5	-4.46	-0.12	24.68	-0.0181	-0.1973	-0.0009
82	SLE RA 6	-4.51	-0.23	25.14	0.1291	-0.1984	-0.0018
82	SLE RA 7	-4.54	-0.17	25.02	0.0424	-0.2005	-0.0013
82	SLE RA 8	-4.48	-0.23	25.05	0.128	-0.1972	-0.0018



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
82	SLE RA 9	-4.52	-0.16	24.92	0.0414	-0.1994	-0.0013
82	SLE RA 10	-4.84	-0.13	26.79	-0.0106	-0.2144	-0.0011
82	SLE RA 11	-4.89	-0.25	27.25	0.1365	-0.2155	-0.002
82	SLE RA 12	-4.93	-0.18	27.13	0.0499	-0.2177	-0.0014
82	SLE RA 13	-4.92	-0.14	26.95	-0.009	-0.218	-0.0011
82	SLE RA 14	-4.97	-0.25	27.41	0.1382	-0.2191	-0.002
82	SLE RA 15	-5	-0.18	27.28	0.0515	-0.2212	-0.0015
82	SLE RA 16	-4.94	-0.25	27.32	0.1371	-0.2179	-0.002
82	SLE RA 17	-4.98	-0.18	27.19	0.0505	-0.2201	-0.0014
82	SLE RA 18	-4.98	-0.25	27.97	0.1378	-0.2197	-0.002
82	SLE RA 19	-5.02	-0.18	27.85	0.0511	-0.2219	-0.0015
82	SLE RA 20	-5.06	-0.25	28.13	0.1394	-0.2232	-0.002
82	SLE RA 21	-5.1	-0.19	28	0.0527	-0.2254	-0.0015
82	SLE FR 1	-4.32	-0.22	24.73	0.1248	-0.1901	-0.0018
82	SLE FR 2	-4.33	-0.2	24.69	0.0959	-0.1908	-0.0016
82	SLE FR 3	-4.35	-0.22	24.8	0.1254	-0.1915	-0.0018
82	SLE FR 4	-4.53	-0.21	25.66	0.0998	-0.1997	-0.0017
82	SLE FR 5	-4.55	-0.23	25.77	0.1293	-0.2004	-0.0018
82	SLE FR 6	-4.65	-0.24	26.35	0.1313	-0.2049	-0.0019
82	SLE QP 1	-4.32	-0.22	24.73	0.1248	-0.1901	-0.0018
82	SLE QP 2	-4.52	-0.23	25.71	0.1287	-0.199	-0.0018
82	SLD 1	8.98	-0.29	22.88	-0.1588	0.3799	-0.0022
82	SLD 2	8.98	-0.29	22.88	-0.1588	0.3799	-0.0022
82	SLD 3	10.31	0.05	19.49	0.2032	0.4339	0.0004
82	SLD 4	10.31	0.05	19.49	0.2032	0.4339	0.0004
82	SLD 5	-2.49	-0.75	29.99	-0.5065	-0.1071	-0.006
82	SLD 6	-2.49	-0.75	29.99	-0.5065	-0.1071	-0.006
82	SLD 7	1.95	0.36	18.71	0.6999	0.0726	0.0028
82	SLD 8	1.95	0.36	18.71	0.6999	0.0726	0.0028
82	SLD 9	-10.99	-0.82	32.7	-0.4426	-0.4706	-0.0065
82	SLD 10	-10.99	-0.82	32.7	-0.4426	-0.4706	-0.0065
82	SLD 11	-6.55	0.29	21.42	0.7638	-0.2909	0.0023
82	SLD 12	-6.55	0.29	21.42	0.7638	-0.2909	0.0023
82	SLD 13	-19.35	-0.51	31.92	0.0542	-0.8318	-0.0041
82	SLD 14	-19.35	-0.51	31.92	0.0542	-0.8318	-0.0041
82	SLD 15	-18.02	-0.18	28.53	0.4161	-0.7779	-0.0014
82	SLD 16	-18.02	-0.18	28.53	0.4161	-0.7779	-0.0014
82	SLV 1	26.32	-0.38	19.42	-0.5772	1.1242	-0.003
82	SLV 2	26.32	-0.38	19.42	-0.5772	1.1242	-0.003
82	SLV 3	29.44	0.45	11.27	0.329	1.2502	0.0036
82	SLV 4	29.44	0.45	11.27	0.329	1.2502	0.0036
82	SLV 5	0	-1.53	36.18	-1.4575	0.0068	-0.0121
82	SLV 6	0	-1.53	36.18	-1.4575	0.0068	-0.0121
82	SLV 7	10.4	1.23	9.01	1.5632	0.427	0.0097
82	SLV 8	10.4	1.23	9.01	1.5632	0.427	0.0097
82	SLV 9	-19.44	-1.69	42.4	-1.3059	-0.8249	-0.0134
82	SLV 10	-19.44	-1.69	42.4	-1.3059	-0.8249	-0.0134
82	SLV 11	-9.04	1.07	15.23	1.7148	-0.4048	0.0085
82	SLV 12	-9.04	1.07	15.23	1.7148	-0.4048	0.0085
82	SLV 13	-38.48	-0.91	40.14	-0.0717	-1.6482	-0.0073
82	SLV 14	-38.48	-0.91	40.14	-0.0717	-1.6482	-0.0073
82	SLV 15	-35.36	-0.08	31.99	0.8345	-1.5222	-0.0007
82	SLV 16	-35.36	-0.08	31.99	0.8345	-1.5222	-0.0007
83	SLU 1	-3.23	-0.18	23.05	0.1057	-0.1266	-0.0017
83	SLU 2	-2.95	-0.01	23.09	-0.1171	-0.1174	-0.0002
83	SLU 3	-3.36	-0.19	23.43	0.1094	-0.132	-0.0017
83	SLU 4	-3.19	-0.09	23.45	-0.0243	-0.1265	-0.0009
83	SLU 5	-3.05	-0.01	23.33	-0.1148	-0.1215	-0.0002
83	SLU 6	-3.46	-0.19	23.66	0.1118	-0.1361	-0.0018
83	SLU 7	-3.29	-0.09	23.69	-0.0219	-0.1306	-0.0009
83	SLU 8	-3.43	-0.19	23.53	0.1104	-0.1349	-0.0017
83	SLU 9	-3.26	-0.09	23.55	-0.0233	-0.1293	-0.0009
83	SLU 10	-3.52	-0.03	26.3	-0.106	-0.1388	-0.0004
83	SLU 11	-3.93	-0.21	26.64	0.1205	-0.1534	-0.0019
83	SLU 12	-3.76	-0.11	26.66	-0.0132	-0.1479	-0.0011
83	SLU 13	-3.62	-0.04	26.54	-0.1037	-0.1429	-0.0004
83	SLU 14	-4.03	-0.21	26.88	0.1229	-0.1575	-0.002
83	SLU 15	-3.86	-0.11	26.9	-0.0108	-0.152	-0.0011
83	SLU 16	-4	-0.21	26.74	0.1214	-0.1562	-0.0019
83	SLU 17	-3.83	-0.11	26.77	-0.0123	-0.1507	-0.0011
83	SLU 18	-4.04	-0.21	27.64	0.1215	-0.1572	-0.002
83	SLU 19	-3.88	-0.11	27.66	-0.0122	-0.1517	-0.0011
83	SLU 20	-4.14	-0.22	27.88	0.1239	-0.1613	-0.002
83	SLU 21	-3.98	-0.11	27.9	-0.0098	-0.1558	-0.0011
83	SLU 22	-3.71	-0.2	25.75	0.1173	-0.1451	-0.0019
83	SLU 23	-3.43	-0.03	25.79	-0.1055	-0.1359	-0.0004
83	SLU 24	-3.84	-0.21	26.13	0.1211	-0.1505	-0.0019
83	SLU 25	-3.67	-0.11	26.16	-0.0126	-0.1449	-0.0011
83	SLU 26	-3.53	-0.04	26.03	-0.1032	-0.14	-0.0004
83	SLU 27	-3.94	-0.21	26.37	0.1234	-0.1546	-0.002
83	SLU 28	-3.77	-0.11	26.39	-0.0103	-0.149	-0.0011
83	SLU 29	-3.91	-0.21	26.23	0.122	-0.1533	-0.0019
83	SLU 30	-3.74	-0.11	26.26	-0.0117	-0.1478	-0.0011
83	SLU 31	-4	-0.05	29.01	-0.0944	-0.1573	-0.0006
83	SLU 32	-4.41	-0.23	29.34	0.1321	-0.1719	-0.0021
83	SLU 33	-4.24	-0.13	29.37	-0.0016	-0.1663	-0.0013
83	SLU 34	-4.1	-0.06	29.25	-0.0921	-0.1614	-0.0006
83	SLU 35	-4.51	-0.23	29.58	0.1345	-0.176	-0.0022
83	SLU 36	-4.34	-0.13	29.61	0.0008	-0.1704	-0.0013





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
83	SLU 37	-4.48	-0.23	29.45	0.1331	-0.1747	-0.0021
83	SLU 38	-4.31	-0.13	29.47	-0.0006	-0.1692	-0.0013
83	SLU 39	-4.52	-0.23	30.35	0.1331	-0.1756	-0.0022
83	SLU 40	-4.36	-0.13	30.37	-0.0006	-0.1701	-0.0013
83	SLU 41	-4.62	-0.24	30.58	0.1355	-0.1798	-0.0022
83	SLU 42	-4.46	-0.13	30.61	0.0018	-0.1742	-0.0013
83	SLU 43	-4.03	-0.23	29.04	0.1334	-0.1583	-0.0021
83	SLU 44	-3.76	-0.06	29.08	-0.0894	-0.1491	-0.0006
83	SLU 45	-4.16	-0.23	29.41	0.1372	-0.1637	-0.0022
83	SLU 46	-4	-0.13	29.44	0.0035	-0.1581	-0.0013
83	SLU 47	-3.85	-0.06	29.32	-0.0871	-0.1532	-0.0007
83	SLU 48	-4.26	-0.24	29.65	0.1395	-0.1678	-0.0022
83	SLU 49	-4.09	-0.14	29.68	0.0058	-0.1623	-0.0013
83	SLU 50	-4.23	-0.24	29.51	0.1381	-0.1665	-0.0022
83	SLU 51	-4.06	-0.13	29.54	0.0044	-0.161	-0.0013
83	SLU 52	-4.33	-0.08	32.29	-0.0783	-0.1705	-0.0008
83	SLU 53	-4.73	-0.26	32.63	0.1482	-0.1851	-0.0024
83	SLU 54	-4.57	-0.15	32.65	0.0146	-0.1795	-0.0015
83	SLU 55	-4.42	-0.08	32.53	-0.076	-0.1746	-0.0009
83	SLU 56	-4.83	-0.26	32.87	0.1506	-0.1892	-0.0024
83	SLU 57	-4.66	-0.16	32.89	0.0169	-0.1836	-0.0015
83	SLU 58	-4.8	-0.26	32.73	0.1492	-0.1879	-0.0024
83	SLU 59	-4.63	-0.15	32.75	0.0155	-0.1824	-0.0015
83	SLU 60	-4.85	-0.26	33.63	0.1493	-0.1889	-0.0024
83	SLU 61	-4.68	-0.16	33.65	0.0156	-0.1833	-0.0015
83	SLU 62	-4.95	-0.26	33.87	0.1516	-0.193	-0.0024
83	SLU 63	-4.78	-0.16	33.89	0.0179	-0.1874	-0.0016
83	SLU 64	-4.51	-0.25	31.74	0.145	-0.1768	-0.0023
83	SLU 65	-4.24	-0.08	31.78	-0.0778	-0.1675	-0.0008
83	SLU 66	-4.64	-0.26	32.12	0.1488	-0.1821	-0.0024
83	SLU 67	-4.48	-0.15	32.14	0.0151	-0.1766	-0.0015
83	SLU 68	-4.34	-0.08	32.02	-0.0754	-0.1716	-0.0009
83	SLU 69	-4.74	-0.26	32.36	0.1511	-0.1862	-0.0024
83	SLU 70	-4.58	-0.16	32.38	0.0174	-0.1807	-0.0015
83	SLU 71	-4.71	-0.26	32.22	0.1497	-0.185	-0.0024
83	SLU 72	-4.54	-0.16	32.24	0.016	-0.1794	-0.0015
83	SLU 73	-4.81	-0.1	35	-0.0667	-0.1889	-0.001
83	SLU 74	-5.21	-0.28	35.33	0.1599	-0.2035	-0.0026
83	SLU 75	-5.05	-0.17	35.36	0.0262	-0.198	-0.0017
83	SLU 76	-4.91	-0.1	35.23	-0.0644	-0.193	-0.0011
83	SLU 77	-5.31	-0.28	35.57	0.1622	-0.2076	-0.0026
83	SLU 78	-5.15	-0.18	35.6	0.0285	-0.2021	-0.0017
83	SLU 79	-5.28	-0.28	35.43	0.1608	-0.2064	-0.0026
83	SLU 80	-5.11	-0.18	35.46	0.0271	-0.2008	-0.0017
83	SLU 81	-5.33	-0.28	36.33	0.1609	-0.2073	-0.0026
83	SLU 82	-5.16	-0.18	36.36	0.0272	-0.2018	-0.0017
83	SLU 83	-5.43	-0.28	36.57	0.1632	-0.2114	-0.0026
83	SLU 84	-5.26	-0.18	36.6	0.0295	-0.2059	-0.0018
83	SLE RA 1	-3.37	-0.19	23.82	0.109	-0.1319	-0.0017
83	SLE RA 2	-3.18	-0.07	23.85	-0.0395	-0.1258	-0.0008
83	SLE RA 3	-3.45	-0.19	24.07	0.1115	-0.1355	-0.0018
83	SLE RA 4	-3.34	-0.12	24.09	0.0224	-0.1318	-0.0012
83	SLE RA 5	-3.25	-0.08	24.01	-0.038	-0.1285	-0.0008
83	SLE RA 6	-3.52	-0.19	24.23	0.1131	-0.1382	-0.0018
83	SLE RA 7	-3.41	-0.13	24.25	0.0239	-0.1345	-0.0012
83	SLE RA 8	-3.5	-0.19	24.14	0.1121	-0.1374	-0.0018
83	SLE RA 9	-3.39	-0.12	24.16	0.023	-0.1337	-0.0012
83	SLE RA 10	-3.56	-0.09	25.99	-0.0321	-0.14	-0.0009
83	SLE RA 11	-3.83	-0.21	26.22	0.1189	-0.1498	-0.0019
83	SLE RA 12	-3.72	-0.14	26.23	0.0298	-0.1461	-0.0013
83	SLE RA 13	-3.63	-0.09	26.15	-0.0306	-0.1428	-0.0009
83	SLE RA 14	-3.9	-0.21	26.37	0.1205	-0.1525	-0.0019
83	SLE RA 15	-3.79	-0.14	26.39	0.0313	-0.1488	-0.0013
83	SLE RA 16	-3.88	-0.21	26.28	0.1195	-0.1516	-0.0019
83	SLE RA 17	-3.77	-0.14	26.3	0.0304	-0.148	-0.0013
83	SLE RA 18	-3.91	-0.21	26.88	0.1196	-0.1523	-0.0019
83	SLE RA 19	-3.8	-0.14	26.9	0.0304	-0.1486	-0.0013
83	SLE RA 20	-3.97	-0.21	27.04	0.1211	-0.155	-0.0019
83	SLE RA 21	-3.86	-0.14	27.06	0.032	-0.1513	-0.0014
83	SLE FR 1	-3.37	-0.19	23.82	0.109	-0.1319	-0.0017
83	SLE FR 2	-3.33	-0.16	23.83	0.0793	-0.1307	-0.0015
83	SLE FR 3	-3.39	-0.19	23.89	0.1096	-0.133	-0.0017
83	SLE FR 4	-3.49	-0.17	24.75	0.0825	-0.1368	-0.0016
83	SLE FR 5	-3.56	-0.19	24.8	0.1128	-0.1391	-0.0018
83	SLE FR 6	-3.64	-0.2	25.35	0.1143	-0.1421	-0.0018
83	SLE QP 1	-3.37	-0.19	23.82	0.109	-0.1319	-0.0017
83	SLE QP 2	-3.53	-0.19	24.74	0.1122	-0.138	-0.0018
83	SLD 1	10.26	0.09	22.62	-0.1825	0.4596	0.0007
83	SLD 2	10.26	0.09	22.62	-0.1825	0.4596	0.0007
83	SLD 3	11.59	-0.24	18.98	0.1852	0.5177	-0.0022
83	SLD 4	11.59	-0.24	18.98	0.1852	0.5177	-0.0022
83	SLD 5	-1.41	0.41	29.63	-0.5338	-0.0469	0.0034
83	SLD 6	-1.41	0.41	29.63	-0.5338	-0.0469	0.0034
83	SLD 7	3.02	-0.72	17.48	0.6916	0.1469	-0.0064
83	SLD 8	3.02	-0.72	17.48	0.6916	0.1469	-0.0064
83	SLD 9	-10.08	0.33	32	-0.4673	-0.4229	0.0028
83	SLD 10	-10.08	0.33	32	-0.4673	-0.4229	0.0028
83	SLD 11	-5.65	-0.79	19.85	0.7581	-0.2292	-0.007
83	SLD 12	-5.65	-0.79	19.85	0.7581	-0.2292	-0.007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
83	SLD 13	-18.65	-0.14	30.5	0.0392	-0.7938	-0.0014
83	SLD 14	-18.65	-0.14	30.5	0.0392	-0.7938	-0.0014
83	SLD 15	-17.32	-0.48	26.86	0.4068	-0.7357	-0.0043
83	SLD 16	-17.32	-0.48	26.86	0.4068	-0.7357	-0.0043
83	SLV 1	27.97	0.51	20.12	-0.612	1.2268	0.0043
83	SLV 2	27.97	0.51	20.12	-0.612	1.2268	0.0043
83	SLV 3	31.11	-0.33	11.29	0.3086	1.3641	-0.0029
83	SLV 4	31.11	-0.33	11.29	0.3086	1.3641	-0.0029
83	SLV 5	1.16	1.29	36.76	-1.5014	0.0631	0.0111
83	SLV 6	1.16	1.29	36.76	-1.5014	0.0631	0.0111
83	SLV 7	11.63	-1.51	7.3	1.5674	0.5209	-0.0132
83	SLV 8	11.63	-1.51	7.3	1.5674	0.5209	-0.0132
83	SLV 9	-18.68	1.12	42.18	-1.343	-0.7969	0.0096
83	SLV 10	-18.68	1.12	42.18	-1.343	-0.7969	0.0096
83	SLV 11	-8.22	-1.68	12.72	1.7257	-0.3392	-0.0147
83	SLV 12	-8.22	-1.68	12.72	1.7257	-0.3392	-0.0147
83	SLV 13	-38.17	-0.05	38.19	-0.0842	-1.6402	-0.0007
83	SLV 14	-38.17	-0.05	38.19	-0.0842	-1.6402	-0.0007
83	SLV 15	-35.03	-0.89	29.36	0.8364	-1.5029	-0.0079
83	SLV 16	-35.03	-0.89	29.36	0.8364	-1.5029	-0.0079
84	SLU 1	-2.2	-0.17	23.53	0.0994	-0.109	-0.0016
84	SLU 2	-1.6	-0.01	23.87	-0.1164	-0.0843	-0.0002
84	SLU 3	-2.29	-0.18	23.95	0.1032	-0.1133	-0.0017
84	SLU 4	-1.93	-0.08	24.15	-0.0263	-0.0985	-0.0008
84	SLU 5	-1.67	-0.01	24.14	-0.114	-0.0879	-0.0003
84	SLU 6	-2.37	-0.18	24.22	0.1055	-0.1168	-0.0017
84	SLU 7	-2	-0.08	24.42	-0.0239	-0.102	-0.0009
84	SLU 8	-2.35	-0.18	24.07	0.1042	-0.1161	-0.0017
84	SLU 9	-1.99	-0.08	24.27	-0.0253	-0.1013	-0.0009
84	SLU 10	-2.06	-0.03	27.09	-0.1064	-0.1069	-0.0004
84	SLU 11	-2.76	-0.2	27.17	0.1131	-0.1358	-0.0019
84	SLU 12	-2.39	-0.1	27.37	-0.0164	-0.121	-0.001
84	SLU 13	-2.14	-0.03	27.36	-0.104	-0.1104	-0.0004
84	SLU 14	-2.83	-0.2	27.44	0.1155	-0.1394	-0.0019
84	SLU 15	-2.47	-0.1	27.64	-0.014	-0.1246	-0.0011
84	SLU 16	-2.82	-0.2	27.29	0.1141	-0.1386	-0.0019
84	SLU 17	-2.45	-0.1	27.49	-0.0154	-0.1238	-0.001
84	SLU 18	-2.87	-0.2	28.14	0.1136	-0.1412	-0.0019
84	SLU 19	-2.5	-0.1	28.34	-0.0158	-0.1264	-0.0011
84	SLU 20	-2.94	-0.2	28.4	0.116	-0.1447	-0.0019
84	SLU 21	-2.58	-0.1	28.6	-0.0135	-0.13	-0.0011
84	SLU 22	-2.57	-0.19	26.3	0.1103	-0.1269	-0.0018
84	SLU 23	-1.96	-0.03	26.63	-0.1055	-0.1023	-0.0004
84	SLU 24	-2.66	-0.2	26.71	0.114	-0.1312	-0.0019
84	SLU 25	-2.29	-0.1	26.91	-0.0154	-0.1164	-0.001
84	SLU 26	-2.04	-0.03	26.9	-0.1031	-0.1058	-0.0004
84	SLU 27	-2.73	-0.2	26.98	0.1164	-0.1348	-0.0019
84	SLU 28	-2.37	-0.1	27.18	-0.0131	-0.12	-0.0011
84	SLU 29	-2.72	-0.2	26.83	0.115	-0.134	-0.0019
84	SLU 30	-2.35	-0.1	27.03	-0.0144	-0.1192	-0.0011
84	SLU 31	-2.43	-0.05	29.85	-0.0955	-0.1248	-0.0006
84	SLU 32	-3.12	-0.22	29.94	0.124	-0.1538	-0.0021
84	SLU 33	-2.76	-0.12	30.14	-0.0055	-0.139	-0.0012
84	SLU 34	-2.5	-0.05	30.12	-0.0932	-0.1284	-0.0006
84	SLU 35	-3.19	-0.22	30.2	0.1264	-0.1573	-0.0021
84	SLU 36	-2.83	-0.12	30.4	-0.0031	-0.1425	-0.0013
84	SLU 37	-3.18	-0.22	30.06	0.125	-0.1566	-0.0021
84	SLU 38	-2.82	-0.12	30.26	-0.0045	-0.1418	-0.0012
84	SLU 39	-3.23	-0.22	30.9	0.1245	-0.1591	-0.0021
84	SLU 40	-2.87	-0.12	31.1	-0.0049	-0.1444	-0.0012
84	SLU 41	-3.31	-0.22	31.17	0.1269	-0.1627	-0.0021
84	SLU 42	-2.94	-0.12	31.37	-0.0026	-0.1479	-0.0013
84	SLU 43	-2.74	-0.22	29.65	0.1255	-0.1355	-0.0021
84	SLU 44	-2.13	-0.05	29.98	-0.0903	-0.1109	-0.0006
84	SLU 45	-2.83	-0.22	30.06	0.1293	-0.1398	-0.0021
84	SLU 46	-2.47	-0.12	30.26	-0.0002	-0.125	-0.0013
84	SLU 47	-2.21	-0.06	30.25	-0.0879	-0.1144	-0.0007
84	SLU 48	-2.9	-0.23	30.33	0.1316	-0.1434	-0.0022
84	SLU 49	-2.54	-0.13	30.53	0.0022	-0.1286	-0.0013
84	SLU 50	-2.89	-0.22	30.18	0.1303	-0.1426	-0.0021
84	SLU 51	-2.52	-0.13	30.38	0.0008	-0.1278	-0.0013
84	SLU 52	-2.6	-0.07	33.2	-0.0803	-0.1334	-0.0008
84	SLU 53	-3.29	-0.24	33.28	0.1392	-0.1624	-0.0023
84	SLU 54	-2.93	-0.14	33.48	0.0097	-0.1476	-0.0015
84	SLU 55	-2.67	-0.07	33.47	-0.0779	-0.137	-0.0009
84	SLU 56	-3.37	-0.25	33.55	0.1416	-0.1659	-0.0024
84	SLU 57	-3	-0.15	33.75	0.0121	-0.1511	-0.0015
84	SLU 58	-3.35	-0.24	33.4	0.1402	-0.1652	-0.0023
84	SLU 59	-2.99	-0.14	33.6	0.0107	-0.1504	-0.0015
84	SLU 60	-3.4	-0.24	34.25	0.1397	-0.1677	-0.0023
84	SLU 61	-3.04	-0.14	34.45	0.0103	-0.153	-0.0015
84	SLU 62	-3.48	-0.25	34.52	0.1421	-0.1713	-0.0024
84	SLU 63	-3.11	-0.15	34.72	0.0126	-0.1565	-0.0015
84	SLU 64	-3.1	-0.24	32.41	0.1364	-0.1535	-0.0023
84	SLU 65	-2.5	-0.07	32.75	-0.0794	-0.1288	-0.0008
84	SLU 66	-3.19	-0.24	32.83	0.1401	-0.1578	-0.0023
84	SLU 67	-2.83	-0.14	33.03	0.0107	-0.143	-0.0015
84	SLU 68	-2.57	-0.08	33.01	-0.077	-0.1324	-0.0009
84	SLU 69	-3.27	-0.25	33.09	0.1425	-0.1613	-0.0024



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
84	SLU 70	-2.9	-0.15	33.29	0.013	-0.1465	-0.0015
84	SLU 71	-3.25	-0.24	32.95	0.1411	-0.1605	-0.0023
84	SLU 72	-2.89	-0.15	33.15	0.0117	-0.1458	-0.0015
84	SLU 73	-2.96	-0.09	35.97	-0.0694	-0.1514	-0.001
84	SLU 74	-3.66	-0.26	36.05	0.1501	-0.1803	-0.0025
84	SLU 75	-3.29	-0.16	36.25	0.0206	-0.1655	-0.0017
84	SLU 76	-3.04	-0.09	36.23	-0.0671	-0.1549	-0.0011
84	SLU 77	-3.73	-0.27	36.31	0.1525	-0.1839	-0.0025
84	SLU 78	-3.37	-0.17	36.51	0.023	-0.1691	-0.0017
84	SLU 79	-3.72	-0.26	36.17	0.1511	-0.1831	-0.0025
84	SLU 80	-3.35	-0.16	36.37	0.0216	-0.1683	-0.0017
84	SLU 81	-3.77	-0.26	37.01	0.1506	-0.1857	-0.0025
84	SLU 82	-3.4	-0.17	37.21	0.0211	-0.1709	-0.0017
84	SLU 83	-3.84	-0.27	37.28	0.153	-0.1892	-0.0026
84	SLU 84	-3.48	-0.17	37.48	0.0235	-0.1744	-0.0017
84	SLE RA 1	-2.31	-0.18	24.32	0.1025	-0.1141	-0.0017
84	SLE RA 2	-1.9	-0.07	24.55	-0.0413	-0.0977	-0.0007
84	SLE RA 3	-2.37	-0.18	24.6	0.105	-0.117	-0.0017
84	SLE RA 4	-2.12	-0.12	24.73	0.0187	-0.1071	-0.0012
84	SLE RA 5	-1.95	-0.07	24.72	-0.0397	-0.1	-0.0008
84	SLE RA 6	-2.42	-0.18	24.78	0.1066	-0.1193	-0.0018
84	SLE RA 7	-2.17	-0.12	24.91	0.0203	-0.1095	-0.0012
84	SLE RA 8	-2.41	-0.18	24.68	0.1057	-0.1188	-0.0017
84	SLE RA 9	-2.16	-0.12	24.81	0.0194	-0.109	-0.0012
84	SLE RA 10	-2.21	-0.08	26.69	-0.0347	-0.1127	-0.0009
84	SLE RA 11	-2.68	-0.19	26.75	0.1117	-0.132	-0.0019
84	SLE RA 12	-2.43	-0.13	26.88	0.0253	-0.1221	-0.0013
84	SLE RA 13	-2.26	-0.08	26.87	-0.0331	-0.1151	-0.0009
84	SLE RA 14	-2.73	-0.2	26.93	0.1132	-0.1344	-0.0019
84	SLE RA 15	-2.48	-0.13	27.06	0.0269	-0.1245	-0.0013
84	SLE RA 16	-2.72	-0.2	26.83	0.1123	-0.1339	-0.0019
84	SLE RA 17	-2.47	-0.13	26.96	0.026	-0.124	-0.0013
84	SLE RA 18	-2.75	-0.2	27.39	0.112	-0.1356	-0.0019
84	SLE RA 19	-2.51	-0.13	27.53	0.0257	-0.1257	-0.0013
84	SLE RA 20	-2.8	-0.2	27.57	0.1136	-0.1379	-0.0019
84	SLE RA 21	-2.56	-0.13	27.7	0.0273	-0.1281	-0.0013
84	SLE FR 1	-2.31	-0.18	24.32	0.1025	-0.1141	-0.0017
84	SLE FR 2	-2.23	-0.16	24.37	0.0738	-0.1108	-0.0015
84	SLE FR 3	-2.33	-0.18	24.4	0.1032	-0.115	-0.0017
84	SLE FR 4	-2.36	-0.16	25.29	0.0766	-0.1173	-0.0016
84	SLE FR 5	-2.46	-0.18	25.32	0.106	-0.1215	-0.0018
84	SLE FR 6	-2.53	-0.19	25.86	0.1073	-0.1248	-0.0018
84	SLE QP 1	-2.31	-0.18	24.32	0.1025	-0.1141	-0.0017
84	SLE QP 2	-2.44	-0.18	25.25	0.1054	-0.1205	-0.0018
84	SLD 1	10.84	0.1	23.89	-0.183	0.4428	-0.0021
84	SLD 2	10.84	0.1	23.89	-0.183	0.4428	-0.0021
84	SLD 3	12.06	-0.22	20.02	0.1697	0.4931	0.0007
84	SLD 4	12.06	-0.22	20.02	0.1697	0.4931	0.0007
84	SLD 5	-0.32	0.39	30.71	-0.5161	-0.0278	-0.0061
84	SLD 6	-0.32	0.39	30.71	-0.5161	-0.0278	-0.0061
84	SLD 7	3.77	-0.68	17.81	0.6597	0.1398	0.0032
84	SLD 8	3.77	-0.68	17.81	0.6597	0.1398	0.0032
84	SLD 9	-8.65	0.32	32.68	-0.4489	-0.3809	-0.0067
84	SLD 10	-8.65	0.32	32.68	-0.4489	-0.3809	-0.0067
84	SLD 11	-4.56	-0.76	19.78	0.7269	-0.2133	0.0026
84	SLD 12	-4.56	-0.76	19.78	0.7269	-0.2133	0.0026
84	SLD 13	-16.94	-0.15	30.47	0.041	-0.7342	-0.0042
84	SLD 14	-16.94	-0.15	30.47	0.041	-0.7342	-0.0042
84	SLD 15	-15.72	-0.47	26.6	0.3938	-0.6839	-0.0014
84	SLD 16	-15.72	-0.47	26.6	0.3938	-0.6839	-0.0014
84	SLV 1	27.88	0.51	22.36	-0.604	1.1665	-0.0026
84	SLV 2	27.88	0.51	22.36	-0.604	1.1665	-0.0026
84	SLV 3	30.79	-0.29	13.01	0.2797	1.2852	0.0043
84	SLV 4	30.79	-0.29	13.01	0.2797	1.2852	0.0043
84	SLV 5	2.26	1.24	38.56	-1.4477	0.0855	-0.0126
84	SLV 6	2.26	1.24	38.56	-1.4477	0.0855	-0.0126
84	SLV 7	11.93	-1.43	7.4	1.498	0.4812	0.0106
84	SLV 8	11.93	-1.43	7.4	1.498	0.4812	0.0106
84	SLV 9	-16.81	1.06	43.09	-1.2872	-0.7223	-0.0141
84	SLV 10	-16.81	1.06	43.09	-1.2872	-0.7223	-0.0141
84	SLV 11	-7.14	-1.6	11.93	1.6585	-0.3266	0.009
84	SLV 12	-7.14	-1.6	11.93	1.6585	-0.3266	0.009
84	SLV 13	-35.67	-0.07	37.48	-0.069	-1.5263	-0.0078
84	SLV 14	-35.67	-0.07	37.48	-0.069	-1.5263	-0.0078
84	SLV 15	-32.76	-0.87	28.13	0.8147	-1.4076	-0.0009
84	SLV 16	-32.76	-0.87	28.13	0.8147	-1.4076	-0.0009
85	SLU 1	-0.81	-0.19	25.65	0.1005	-0.0477	-0.0015
85	SLU 2	0.14	-0.04	26.21	-0.0951	-0.0067	-0.0005
85	SLU 3	-0.84	-0.19	26.15	0.1044	-0.0498	-0.0016
85	SLU 4	-0.27	-0.1	26.49	-0.013	-0.0252	-0.001
85	SLU 5	0.11	-0.04	26.54	-0.0926	-0.0087	-0.0005
85	SLU 6	-0.88	-0.2	26.48	0.1069	-0.0518	-0.0016
85	SLU 7	-0.31	-0.11	26.82	-0.0105	-0.0272	-0.001
85	SLU 8	-0.89	-0.19	26.3	0.1055	-0.0517	-0.0016
85	SLU 9	-0.31	-0.11	26.64	-0.0119	-0.0271	-0.001
85	SLU 10	-0.14	-0.06	29.67	-0.085	-0.0197	-0.0007
85	SLU 11	-1.13	-0.21	29.61	0.1145	-0.0629	-0.0017
85	SLU 12	-0.56	-0.13	29.95	-0.0028	-0.0383	-0.0011
85	SLU 13	-0.18	-0.06	29.99	-0.0824	-0.0217	-0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
85	SLU 14	-1.17	-0.22	29.93	0.117	-0.0649	-0.0018
85	SLU 15	-0.59	-0.13	30.27	-0.0003	-0.0403	-0.0012
85	SLU 16	-1.17	-0.22	29.76	0.1156	-0.0648	-0.0018
85	SLU 17	-0.6	-0.13	30.1	-0.0017	-0.0402	-0.0011
85	SLU 18	-1.21	-0.22	30.58	0.1149	-0.0663	-0.0018
85	SLU 19	-0.64	-0.13	30.92	-0.0024	-0.0417	-0.0011
85	SLU 20	-1.25	-0.22	30.91	0.1174	-0.0683	-0.0018
85	SLU 21	-0.68	-0.13	31.25	0.0001	-0.0437	-0.0012
85	SLU 22	-0.99	-0.21	28.69	0.1117	-0.057	-0.0017
85	SLU 23	-0.04	-0.06	29.26	-0.0838	-0.016	-0.0007
85	SLU 24	-1.03	-0.22	29.2	0.1156	-0.0592	-0.0018
85	SLU 25	-0.45	-0.13	29.54	-0.0017	-0.0346	-0.0011
85	SLU 26	-0.08	-0.07	29.59	-0.0813	-0.018	-0.0007
85	SLU 27	-1.07	-0.22	29.53	0.1181	-0.0612	-0.0018
85	SLU 28	-0.49	-0.13	29.87	0.0008	-0.0366	-0.0012
85	SLU 29	-1.07	-0.22	29.35	0.1168	-0.0611	-0.0018
85	SLU 30	-0.5	-0.13	29.69	-0.0006	-0.0365	-0.0012
85	SLU 31	-0.32	-0.08	32.71	-0.0737	-0.0291	-0.0008
85	SLU 32	-1.31	-0.24	32.65	0.1258	-0.0722	-0.0019
85	SLU 33	-0.74	-0.15	32.99	0.0084	-0.0476	-0.0013
85	SLU 34	-0.36	-0.09	33.04	-0.0712	-0.0311	-0.0009
85	SLU 35	-1.35	-0.24	32.98	0.1283	-0.0742	-0.002
85	SLU 36	-0.78	-0.15	33.32	0.0109	-0.0496	-0.0013
85	SLU 37	-1.35	-0.24	32.8	0.1269	-0.0741	-0.0019
85	SLU 38	-0.78	-0.15	33.14	0.0096	-0.0495	-0.0013
85	SLU 39	-1.4	-0.24	33.62	0.1262	-0.0757	-0.0019
85	SLU 40	-0.82	-0.15	33.96	0.0089	-0.0511	-0.0013
85	SLU 41	-1.44	-0.24	33.95	0.1287	-0.0777	-0.002
85	SLU 42	-0.86	-0.15	34.29	0.0114	-0.0531	-0.0014
85	SLU 43	-0.99	-0.23	32.3	0.1267	-0.0588	-0.0019
85	SLU 44	-0.04	-0.09	32.86	-0.0688	-0.0178	-0.0009
85	SLU 45	-1.02	-0.24	32.8	0.1306	-0.0609	-0.002
85	SLU 46	-0.45	-0.15	33.14	0.0133	-0.0363	-0.0013
85	SLU 47	-0.07	-0.09	33.19	-0.0663	-0.0198	-0.0009
85	SLU 48	-1.06	-0.25	33.13	0.1331	-0.0629	-0.002
85	SLU 49	-0.49	-0.16	33.47	0.0158	-0.0383	-0.0014
85	SLU 50	-1.07	-0.24	32.95	0.1317	-0.0628	-0.002
85	SLU 51	-0.49	-0.15	33.29	0.0144	-0.0382	-0.0014
85	SLU 52	-0.32	-0.11	36.32	-0.0587	-0.0308	-0.0011
85	SLU 53	-1.31	-0.26	36.26	0.1407	-0.074	-0.0021
85	SLU 54	-0.74	-0.17	36.6	0.0234	-0.0494	-0.0015
85	SLU 55	-0.36	-0.11	36.64	-0.0562	-0.0328	-0.0011
85	SLU 56	-1.35	-0.27	36.58	0.1433	-0.076	-0.0022
85	SLU 57	-0.77	-0.18	36.92	0.0259	-0.0514	-0.0016
85	SLU 58	-1.35	-0.26	36.41	0.1419	-0.0759	-0.0022
85	SLU 59	-0.78	-0.18	36.75	0.0245	-0.0513	-0.0015
85	SLU 60	-1.39	-0.26	37.23	0.1412	-0.0774	-0.0022
85	SLU 61	-0.82	-0.18	37.57	0.0239	-0.0528	-0.0015
85	SLU 62	-1.43	-0.27	37.56	0.1437	-0.0794	-0.0022
85	SLU 63	-0.86	-0.18	37.9	0.0264	-0.0548	-0.0016
85	SLU 64	-1.17	-0.26	35.34	0.138	-0.0681	-0.0021
85	SLU 65	-0.22	-0.11	35.91	-0.0575	-0.0271	-0.0011
85	SLU 66	-1.21	-0.26	35.85	0.1419	-0.0703	-0.0021
85	SLU 67	-0.63	-0.18	36.19	0.0246	-0.0457	-0.0015
85	SLU 68	-0.26	-0.11	36.24	-0.055	-0.0291	-0.0011
85	SLU 69	-1.25	-0.27	36.18	0.1444	-0.0723	-0.0022
85	SLU 70	-0.67	-0.18	36.52	0.0271	-0.0477	-0.0016
85	SLU 71	-1.25	-0.27	36	0.143	-0.0722	-0.0022
85	SLU 72	-0.68	-0.18	36.34	0.0257	-0.0476	-0.0015
85	SLU 73	-0.5	-0.13	39.36	-0.0474	-0.0402	-0.0012
85	SLU 74	-1.49	-0.28	39.3	0.152	-0.0833	-0.0023
85	SLU 75	-0.92	-0.2	39.64	0.0347	-0.0587	-0.0017
85	SLU 76	-0.54	-0.14	39.69	-0.0449	-0.0422	-0.0013
85	SLU 77	-1.53	-0.29	39.63	0.1545	-0.0853	-0.0024
85	SLU 78	-0.96	-0.2	39.97	0.0372	-0.0607	-0.0017
85	SLU 79	-1.53	-0.29	39.45	0.1531	-0.0852	-0.0023
85	SLU 80	-0.96	-0.2	39.79	0.0358	-0.0606	-0.0017
85	SLU 81	-1.58	-0.29	40.27	0.1525	-0.0868	-0.0023
85	SLU 82	-1	-0.2	40.61	0.0352	-0.0622	-0.0017
85	SLU 83	-1.62	-0.29	40.6	0.155	-0.0888	-0.0024
85	SLU 84	-1.04	-0.2	40.94	0.0377	-0.0642	-0.0018
85	SLE RA 1	-0.86	-0.19	26.52	0.1037	-0.0503	-0.0016
85	SLE RA 2	-0.23	-0.09	26.9	-0.0267	-0.023	-0.0009
85	SLE RA 3	-0.88	-0.2	26.85	0.1063	-0.0518	-0.0016
85	SLE RA 4	-0.5	-0.14	27.08	0.0281	-0.0354	-0.0012
85	SLE RA 5	-0.25	-0.1	27.11	-0.025	-0.0244	-0.0009
85	SLE RA 6	-0.91	-0.2	27.07	0.1079	-0.0531	-0.0016
85	SLE RA 7	-0.53	-0.14	27.3	0.0297	-0.0367	-0.0012
85	SLE RA 8	-0.91	-0.2	26.95	0.107	-0.0531	-0.0016
85	SLE RA 9	-0.53	-0.14	27.18	0.0288	-0.0366	-0.0012
85	SLE RA 10	-0.41	-0.11	29.2	-0.0199	-0.0317	-0.001
85	SLE RA 11	-1.07	-0.21	29.16	0.113	-0.0605	-0.0017
85	SLE RA 12	-0.69	-0.15	29.38	0.0348	-0.0441	-0.0013
85	SLE RA 13	-0.44	-0.11	29.42	-0.0183	-0.0331	-0.001
85	SLE RA 14	-1.1	-0.21	29.37	0.1147	-0.0618	-0.0017
85	SLE RA 15	-0.72	-0.16	29.6	0.0365	-0.0454	-0.0013
85	SLE RA 16	-1.1	-0.21	29.26	0.1138	-0.0618	-0.0017
85	SLE RA 17	-0.72	-0.15	29.48	0.0356	-0.0454	-0.0013
85	SLE RA 18	-1.13	-0.21	29.8	0.1133	-0.0628	-0.0017



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
85	SLE RA 19	-0.75	-0.15	30.03	0.0351	-0.0464	-0.0013
85	SLE RA 20	-1.16	-0.22	30.02	0.115	-0.0641	-0.0018
85	SLE RA 21	-0.78	-0.16	30.25	0.0368	-0.0477	-0.0013
85	SLE FR 1	-0.86	-0.19	26.52	0.1037	-0.0503	-0.0016
85	SLE FR 2	-0.73	-0.17	26.59	0.0776	-0.0449	-0.0014
85	SLE FR 3	-0.87	-0.19	26.6	0.1044	-0.0509	-0.0016
85	SLE FR 4	-0.82	-0.18	27.58	0.0805	-0.0486	-0.0015
85	SLE FR 5	-0.95	-0.2	27.59	0.1072	-0.0546	-0.0016
85	SLE FR 6	-1	-0.2	28.16	0.1085	-0.0566	-0.0017
85	SLE QP 1	-0.86	-0.19	26.52	0.1037	-0.0503	-0.0016
85	SLE QP 2	-0.94	-0.2	27.5	0.1066	-0.0541	-0.0016
85	SLD 1	12.87	-0.22	26.2	-0.1621	0.5542	-0.0017
85	SLD 2	12.87	-0.22	26.2	-0.1621	0.5542	-0.0017
85	SLD 3	11.6	0.07	22.09	0.156	0.4959	0.0004
85	SLD 4	11.6	0.07	22.09	0.156	0.4959	0.0004
85	SLD 5	5.13	-0.64	33.35	-0.4565	0.2168	-0.0048
85	SLD 6	5.13	-0.64	33.35	-0.4565	0.2168	-0.0048
85	SLD 7	0.89	0.31	19.64	0.6038	0.0225	0.0021
85	SLD 8	0.89	0.31	19.64	0.6038	0.0225	0.0021
85	SLD 9	-2.77	-0.71	35.37	-0.3907	-0.1307	-0.0053
85	SLD 10	-2.77	-0.71	35.37	-0.3907	-0.1307	-0.0053
85	SLD 11	-7.02	0.24	21.66	0.6696	-0.325	0.0015
85	SLD 12	-7.02	0.24	21.66	0.6696	-0.325	0.0015
85	SLD 13	-13.49	-0.47	32.92	0.0572	-0.6041	-0.0036
85	SLD 14	-13.49	-0.47	32.92	0.0572	-0.6041	-0.0036
85	SLD 15	-14.76	-0.18	28.81	0.3753	-0.6624	-0.0015
85	SLD 16	-14.76	-0.18	28.81	0.3753	-0.6624	-0.0015
85	SLV 1	30.72	-0.26	24.67	-0.5547	1.3405	-0.0019
85	SLV 2	30.72	-0.26	24.67	-0.5547	1.3405	-0.0019
85	SLV 3	27.7	0.46	14.89	0.2427	1.2009	0.0032
85	SLV 4	27.7	0.46	14.89	0.2427	1.2009	0.0032
85	SLV 5	13.14	-1.29	41.48	-1.3012	0.5761	-0.0095
85	SLV 6	13.14	-1.29	41.48	-1.3012	0.5761	-0.0095
85	SLV 7	3.06	1.08	8.89	1.3568	0.1106	0.0076
85	SLV 8	3.06	1.08	8.89	1.3568	0.1106	0.0076
85	SLV 9	-4.95	-1.47	46.12	-1.1436	-0.2188	-0.0109
85	SLV 10	-4.95	-1.47	46.12	-1.1436	-0.2188	-0.0109
85	SLV 11	-15.03	0.9	13.52	1.5143	-0.6842	0.0062
85	SLV 12	-15.03	0.9	13.52	1.5143	-0.6842	0.0062
85	SLV 13	-29.58	-0.85	40.11	-0.0296	-1.309	-0.0065
85	SLV 14	-29.58	-0.85	40.11	-0.0296	-1.309	-0.0065
85	SLV 15	-32.61	-0.14	30.33	0.7678	-1.4487	-0.0013
85	SLV 16	-32.61	-0.14	30.33	0.7678	-1.4487	-0.0013
86	SLU 1	0.28	-0.2	29.73	0.0998	-0.0126	-0.0012
86	SLU 2	1.54	-0.08	30.49	-0.0636	0.0379	-0.0006
86	SLU 3	0.3	-0.21	30.4	0.1038	-0.0128	-0.0012
86	SLU 4	1.06	-0.14	30.86	0.0057	0.0175	-0.0009
86	SLU 5	1.54	-0.09	30.93	-0.0611	0.0371	-0.0006
86	SLU 6	0.29	-0.21	30.84	0.1063	-0.0136	-0.0012
86	SLU 7	1.05	-0.14	31.29	0.0082	0.0167	-0.0009
86	SLU 8	0.27	-0.21	30.6	0.1049	-0.0142	-0.0012
86	SLU 9	1.03	-0.14	31.06	0.0068	0.0161	-0.0009
86	SLU 10	1.37	-0.11	34.45	-0.0532	0.027	-0.0007
86	SLU 11	0.12	-0.23	34.35	0.1142	-0.0237	-0.0014
86	SLU 12	0.88	-0.16	34.81	0.0161	0.0066	-0.001
86	SLU 13	1.36	-0.11	34.88	-0.0507	0.0262	-0.0008
86	SLU 14	0.11	-0.23	34.79	0.1167	-0.0245	-0.0014
86	SLU 15	0.87	-0.17	35.25	0.0186	0.0058	-0.001
86	SLU 16	0.09	-0.23	34.55	0.1153	-0.0251	-0.0014
86	SLU 17	0.85	-0.16	35.01	0.0172	0.0052	-0.001
86	SLU 18	0.02	-0.23	35.38	0.1147	-0.0282	-0.0014
86	SLU 19	0.78	-0.16	35.84	0.0166	0.0021	-0.001
86	SLU 20	0.02	-0.24	35.81	0.1173	-0.029	-0.0014
86	SLU 21	0.78	-0.17	36.27	0.0192	0.0013	-0.0011
86	SLU 22	0.22	-0.22	33.33	0.1114	-0.0183	-0.0013
86	SLU 23	1.49	-0.11	34.09	-0.052	0.0322	-0.0008
86	SLU 24	0.24	-0.23	34	0.1153	-0.0184	-0.0014
86	SLU 25	1	-0.16	34.45	0.0173	0.0119	-0.001
86	SLU 26	1.49	-0.11	34.52	-0.0495	0.0314	-0.0008
86	SLU 27	0.24	-0.24	34.43	0.1179	-0.0192	-0.0014
86	SLU 28	1	-0.17	34.89	0.0198	0.0111	-0.001
86	SLU 29	0.22	-0.23	34.2	0.1165	-0.0199	-0.0014
86	SLU 30	0.98	-0.16	34.65	0.0184	0.0104	-0.001
86	SLU 31	1.31	-0.13	38.04	-0.0416	0.0213	-0.0009
86	SLU 32	0.06	-0.26	37.95	0.1258	-0.0294	-0.0015
86	SLU 33	0.82	-0.19	38.41	0.0277	0.001	-0.0012
86	SLU 34	1.31	-0.14	38.48	-0.0391	0.0205	-0.0009
86	SLU 35	0.06	-0.26	38.38	0.1283	-0.0302	-0.0015
86	SLU 36	0.82	-0.19	38.84	0.0302	0.0002	-0.0012
86	SLU 37	0.04	-0.26	38.15	0.1269	-0.0308	-0.0015
86	SLU 38	0.8	-0.19	38.61	0.0288	-0.0005	-0.0012
86	SLU 39	-0.03	-0.26	38.97	0.1263	-0.0339	-0.0015
86	SLU 40	0.73	-0.19	39.43	0.0282	-0.0036	-0.0012
86	SLU 41	-0.03	-0.26	39.41	0.1289	-0.0347	-0.0015
86	SLU 42	0.73	-0.19	39.87	0.0308	-0.0044	-0.0012
86	SLU 43	0.38	-0.25	37.42	0.1258	-0.0144	-0.0015
86	SLU 44	1.65	-0.14	38.18	-0.0377	0.0361	-0.0009
86	SLU 45	0.4	-0.26	38.09	0.1297	-0.0146	-0.0015
86	SLU 46	1.16	-0.19	38.55	0.0316	0.0157	-0.0012



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
86	SLU 47	1.64	-0.14	38.62	-0.0351	0.0353	-0.0009
86	SLU 48	0.39	-0.26	38.52	0.1323	-0.0154	-0.0015
86	SLU 49	1.15	-0.19	38.98	0.0342	0.0149	-0.0012
86	SLU 50	0.37	-0.26	38.29	0.1309	-0.016	-0.0015
86	SLU 51	1.13	-0.19	38.75	0.0328	0.0143	-0.0012
86	SLU 52	1.47	-0.16	42.13	-0.0272	0.0252	-0.001
86	SLU 53	0.22	-0.28	42.04	0.1402	-0.0255	-0.0017
86	SLU 54	0.98	-0.21	42.5	0.0421	0.0048	-0.0013
86	SLU 55	1.46	-0.16	42.57	-0.0247	0.0244	-0.0011
86	SLU 56	0.22	-0.29	42.48	0.1427	-0.0263	-0.0017
86	SLU 57	0.98	-0.22	42.93	0.0446	0.004	-0.0013
86	SLU 58	0.19	-0.28	42.24	0.1413	-0.027	-0.0017
86	SLU 59	0.95	-0.21	42.7	0.0432	0.0034	-0.0013
86	SLU 60	0.13	-0.28	43.06	0.1407	-0.03	-0.0017
86	SLU 61	0.88	-0.21	43.52	0.0426	0.0003	-0.0013
86	SLU 62	0.12	-0.29	43.5	0.1432	-0.0308	-0.0017
86	SLU 63	0.88	-0.22	43.96	0.0451	-0.0005	-0.0014
86	SLU 64	0.33	-0.28	41.01	0.1374	-0.0201	-0.0016
86	SLU 65	1.59	-0.16	41.78	-0.0261	0.0304	-0.0011
86	SLU 66	0.34	-0.28	41.68	0.1413	-0.0203	-0.0017
86	SLU 67	1.1	-0.21	42.14	0.0432	0.01	-0.0013
86	SLU 68	1.59	-0.17	42.21	-0.0235	0.0296	-0.0011
86	SLU 69	0.34	-0.29	42.12	0.1439	-0.0211	-0.0017
86	SLU 70	1.1	-0.22	42.58	0.0458	0.0092	-0.0014
86	SLU 71	0.32	-0.29	41.88	0.1425	-0.0217	-0.0017
86	SLU 72	1.08	-0.22	42.34	0.0444	0.0086	-0.0013
86	SLU 73	1.41	-0.18	45.73	-0.0156	0.0195	-0.0012
86	SLU 74	0.17	-0.31	45.63	0.1517	-0.0312	-0.0018
86	SLU 75	0.93	-0.24	46.09	0.0537	-0.0009	-0.0015
86	SLU 76	1.41	-0.19	46.16	-0.0131	0.0187	-0.0012
86	SLU 77	0.16	-0.31	46.07	0.1543	-0.032	-0.0018
86	SLU 78	0.92	-0.24	46.53	0.0562	-0.0017	-0.0015
86	SLU 79	0.14	-0.31	45.84	0.1529	-0.0326	-0.0018
86	SLU 80	0.9	-0.24	46.29	0.0548	-0.0023	-0.0015
86	SLU 81	0.07	-0.31	46.66	0.1523	-0.0357	-0.0018
86	SLU 82	0.83	-0.24	47.12	0.0542	-0.0054	-0.0015
86	SLU 83	0.07	-0.31	47.09	0.1548	-0.0365	-0.0018
86	SLU 84	0.83	-0.24	47.55	0.0567	-0.0062	-0.0015
86	SLE RA 1	0.26	-0.21	30.76	0.1032	-0.0142	-0.0012
86	SLE RA 2	1.11	-0.13	31.27	-0.0058	0.0195	-0.0008
86	SLE RA 3	0.27	-0.21	31.2	0.1058	-0.0143	-0.0012
86	SLE RA 4	0.78	-0.17	31.51	0.0404	0.0059	-0.001
86	SLE RA 5	1.1	-0.13	31.56	-0.0041	0.0189	-0.0009
86	SLE RA 6	0.27	-0.21	31.49	0.1074	-0.0149	-0.0013
86	SLE RA 7	0.78	-0.17	31.8	0.0421	0.0053	-0.001
86	SLE RA 8	0.26	-0.21	31.34	0.1065	-0.0153	-0.0012
86	SLE RA 9	0.76	-0.17	31.64	0.0411	0.0049	-0.001
86	SLE RA 10	0.99	-0.15	33.9	0.0011	0.0122	-0.0009
86	SLE RA 11	0.16	-0.23	33.84	0.1127	-0.0216	-0.0013
86	SLE RA 12	0.66	-0.18	34.14	0.0473	-0.0014	-0.0011
86	SLE RA 13	0.99	-0.15	34.19	0.0028	0.0116	-0.0009
86	SLE RA 14	0.15	-0.23	34.13	0.1144	-0.0221	-0.0014
86	SLE RA 15	0.66	-0.18	34.44	0.049	-0.0019	-0.0011
86	SLE RA 16	0.14	-0.23	33.97	0.1135	-0.0226	-0.0013
86	SLE RA 17	0.65	-0.18	34.28	0.0481	-0.0024	-0.0011
86	SLE RA 18	0.09	-0.23	34.52	0.1131	-0.0246	-0.0013
86	SLE RA 19	0.6	-0.18	34.83	0.0477	-0.0044	-0.0011
86	SLE RA 20	0.09	-0.23	34.81	0.1148	-0.0252	-0.0014
86	SLE RA 21	0.6	-0.19	35.12	0.0494	-0.0049	-0.0011
86	SLE FR 1	0.26	-0.21	30.76	0.1032	-0.0142	-0.0012
86	SLE FR 2	0.43	-0.19	30.86	0.0814	-0.0075	-0.0011
86	SLE FR 3	0.26	-0.21	30.87	0.1038	-0.0144	-0.0012
86	SLE FR 4	0.38	-0.2	31.99	0.0843	-0.0106	-0.0012
86	SLE FR 5	0.21	-0.21	32	0.1068	-0.0176	-0.0013
86	SLE FR 6	0.18	-0.22	32.64	0.1081	-0.0194	-0.0013
86	SLE QP 1	0.26	-0.21	30.76	0.1032	-0.0142	-0.0012
86	SLE QP 2	0.21	-0.21	31.89	0.1061	-0.0173	-0.0013
86	SLD 1	12.56	-0.2	29.41	-0.1296	0.509	-0.0011
86	SLD 2	12.56	-0.2	29.41	-0.1296	0.509	-0.0011
86	SLD 3	11.27	0.03	24.77	0.136	0.4566	0.0001
86	SLD 4	11.27	0.03	24.77	0.136	0.4566	0.0001
86	SLD 5	5.88	-0.56	38.19	-0.3674	0.2202	-0.003
86	SLD 6	5.88	-0.56	38.19	-0.3674	0.2202	-0.003
86	SLD 7	1.57	0.21	22.7	0.5179	0.0452	0.0009
86	SLD 8	1.57	0.21	22.7	0.5179	0.0452	0.0009
86	SLD 9	-1.15	-0.63	41.07	-0.3056	-0.0799	-0.0034
86	SLD 10	-1.15	-0.63	41.07	-0.3056	-0.0799	-0.0034
86	SLD 11	-5.46	0.13	25.58	0.5796	-0.2549	0.0005
86	SLD 12	-5.46	0.13	25.58	0.5796	-0.2549	0.0005
86	SLD 13	-10.85	-0.45	39.01	0.0763	-0.4912	-0.0026
86	SLD 14	-10.85	-0.45	39.01	0.0763	-0.4912	-0.0026
86	SLD 15	-12.14	-0.22	34.36	0.3419	-0.5437	-0.0014
86	SLD 16	-12.14	-0.22	34.36	0.3419	-0.5437	-0.0014
86	SLV 1	28.53	-0.2	26.27	-0.4739	1.1896	-0.001
86	SLV 2	28.53	-0.2	26.27	-0.4739	1.1896	-0.001
86	SLV 3	25.47	0.37	15.47	0.1922	1.0648	0.0019
86	SLV 4	25.47	0.37	15.47	0.1922	1.0648	0.0019
86	SLV 5	13.35	-1.08	46.59	-1.0782	0.534	-0.0057
86	SLV 6	13.35	-1.08	46.59	-1.0782	0.534	-0.0057



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
86	SLV 7	3.15	0.83	10.57	1.1423	0.1181	0.0042
86	SLV 8	3.15	0.83	10.57	1.1423	0.1181	0.0042
86	SLV 9	-2.72	-1.26	53.2	-0.93	-0.1527	-0.0067
86	SLV 10	-2.72	-1.26	53.2	-0.93	-0.1527	-0.0067
86	SLV 11	-12.93	0.65	17.18	1.2905	-0.5687	0.0032
86	SLV 12	-12.93	0.65	17.18	1.2905	-0.5687	0.0032
86	SLV 13	-25.05	-0.8	48.31	0.0201	-1.0995	-0.0044
86	SLV 14	-25.05	-0.8	48.31	0.0201	-1.0995	-0.0044
86	SLV 15	-28.11	-0.23	37.5	0.6862	-1.2243	-0.0015
86	SLV 16	-28.11	-0.23	37.5	0.6862	-1.2243	-0.0015
87	SLU 1	0.63	-0.18	35.45	0.0864	-0.0087	-0.0007
87	SLU 2	2.28	-0.11	36.5	-0.0366	0.0616	-0.0005
87	SLU 3	0.67	-0.19	36.35	0.0897	-0.0081	-0.0007
87	SLU 4	1.67	-0.14	36.98	0.0159	0.0341	-0.0006
87	SLU 5	2.3	-0.11	37.09	-0.0344	0.0614	-0.0005
87	SLU 6	0.69	-0.19	36.94	0.0919	-0.0083	-0.0007
87	SLU 7	1.68	-0.15	37.57	0.0181	0.0339	-0.0006
87	SLU 8	0.66	-0.19	36.63	0.0907	-0.009	-0.0007
87	SLU 9	1.65	-0.15	37.26	0.0169	0.0331	-0.0006
87	SLU 10	2.11	-0.13	41.14	-0.0273	0.0504	-0.0006
87	SLU 11	0.5	-0.21	41	0.099	-0.0193	-0.0008
87	SLU 12	1.5	-0.17	41.63	0.0252	0.0229	-0.0007
87	SLU 13	2.13	-0.13	41.73	-0.0251	0.0502	-0.0006
87	SLU 14	0.52	-0.21	41.59	0.1012	-0.0195	-0.0008
87	SLU 15	1.51	-0.17	42.22	0.0274	0.0227	-0.0007
87	SLU 16	0.49	-0.21	41.27	0.1	-0.0203	-0.0008
87	SLU 17	1.48	-0.17	41.9	0.0262	0.0219	-0.0007
87	SLU 18	0.38	-0.21	42.09	0.0996	-0.0247	-0.0008
87	SLU 19	1.38	-0.17	42.71	0.0258	0.0175	-0.0007
87	SLU 20	0.4	-0.22	42.67	0.1018	-0.0249	-0.0008
87	SLU 21	1.39	-0.17	43.3	0.028	0.0173	-0.0007
87	SLU 22	0.6	-0.2	39.81	0.0966	-0.0143	-0.0008
87	SLU 23	2.26	-0.13	40.86	-0.0263	0.056	-0.0006
87	SLU 24	0.65	-0.21	40.71	0.1	-0.0137	-0.0008
87	SLU 25	1.64	-0.17	41.34	0.0262	0.0285	-0.0007
87	SLU 26	2.27	-0.13	41.44	-0.0242	0.0558	-0.0006
87	SLU 27	0.67	-0.22	41.3	0.1022	-0.0139	-0.0008
87	SLU 28	1.66	-0.17	41.93	0.0284	0.0283	-0.0007
87	SLU 29	0.64	-0.21	40.98	0.101	-0.0147	-0.0008
87	SLU 30	1.63	-0.17	41.61	0.0272	0.0275	-0.0007
87	SLU 31	2.09	-0.15	45.5	-0.0171	0.0448	-0.0006
87	SLU 32	0.48	-0.23	45.35	0.1093	-0.0249	-0.0009
87	SLU 33	1.47	-0.19	45.98	0.0355	0.0172	-0.0007
87	SLU 34	2.1	-0.16	46.09	-0.0149	0.0446	-0.0007
87	SLU 35	0.5	-0.24	45.94	0.1115	-0.0251	-0.0009
87	SLU 36	1.49	-0.19	46.57	0.0377	0.017	-0.0008
87	SLU 37	0.46	-0.23	45.63	0.1103	-0.0259	-0.0009
87	SLU 38	1.46	-0.19	46.26	0.0365	0.0163	-0.0007
87	SLU 39	0.36	-0.24	46.44	0.1099	-0.0303	-0.0009
87	SLU 40	1.35	-0.19	47.07	0.0361	0.0118	-0.0007
87	SLU 41	0.37	-0.24	47.03	0.1121	-0.0305	-0.0009
87	SLU 42	1.37	-0.2	47.66	0.0383	0.0116	-0.0008
87	SLU 43	0.82	-0.23	44.59	0.1087	-0.0093	-0.0008
87	SLU 44	2.48	-0.15	45.64	-0.0142	0.061	-0.0006
87	SLU 45	0.87	-0.23	45.49	0.1121	-0.0087	-0.0009
87	SLU 46	1.86	-0.19	46.12	0.0383	0.0334	-0.0007
87	SLU 47	2.5	-0.16	46.23	-0.0121	0.0608	-0.0007
87	SLU 48	0.89	-0.24	46.08	0.1143	-0.0089	-0.0009
87	SLU 49	1.88	-0.19	46.71	0.0405	0.0332	-0.0008
87	SLU 50	0.86	-0.24	45.77	0.1131	-0.0097	-0.0009
87	SLU 51	1.85	-0.19	46.4	0.0393	0.0325	-0.0008
87	SLU 52	2.31	-0.18	50.28	-0.005	0.0497	-0.0007
87	SLU 53	0.7	-0.26	50.14	0.1214	-0.02	-0.0009
87	SLU 54	1.69	-0.21	50.77	0.0476	0.0222	-0.0008
87	SLU 55	2.32	-0.18	50.87	-0.0028	0.0495	-0.0007
87	SLU 56	0.72	-0.26	50.73	0.1236	-0.0202	-0.001
87	SLU 57	1.71	-0.22	51.36	0.0498	0.022	-0.0008
87	SLU 58	0.69	-0.26	50.41	0.1224	-0.0209	-0.0009
87	SLU 59	1.68	-0.21	51.04	0.0486	0.0212	-0.0008
87	SLU 60	0.58	-0.26	51.23	0.122	-0.0254	-0.001
87	SLU 61	1.57	-0.21	51.86	0.0482	0.0168	-0.0008
87	SLU 62	0.59	-0.26	51.81	0.1242	-0.0256	-0.001
87	SLU 63	1.59	-0.22	52.44	0.0504	0.0166	-0.0008
87	SLU 64	0.8	-0.25	48.95	0.119	-0.0149	-0.0009
87	SLU 65	2.45	-0.18	50	-0.004	0.0553	-0.0007
87	SLU 66	0.84	-0.26	49.85	0.1224	-0.0144	-0.0009
87	SLU 67	1.84	-0.21	50.48	0.0486	0.0278	-0.0008
87	SLU 68	2.47	-0.18	50.58	-0.0018	0.0551	-0.0007
87	SLU 69	0.86	-0.26	50.44	0.1246	-0.0146	-0.001
87	SLU 70	1.86	-0.22	51.07	0.0508	0.0276	-0.0008
87	SLU 71	0.83	-0.26	50.12	0.1234	-0.0153	-0.001
87	SLU 72	1.83	-0.21	50.75	0.0496	0.0268	-0.0008
87	SLU 73	2.28	-0.2	54.64	0.0053	0.0441	-0.0008
87	SLU 74	0.67	-0.28	54.5	0.1317	-0.0256	-0.001
87	SLU 75	1.67	-0.23	55.12	0.0579	0.0166	-0.0009
87	SLU 76	2.3	-0.2	55.23	0.0075	0.0439	-0.0008
87	SLU 77	0.69	-0.28	55.08	0.1339	-0.0258	-0.001
87	SLU 78	1.69	-0.24	55.71	0.0601	0.0164	-0.0009
87	SLU 79	0.66	-0.28	54.77	0.1327	-0.0266	-0.001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
87	SLU 80	1.65	-0.24	55.4	0.0589	0.0156	-0.0009
87	SLU 81	0.55	-0.28	55.58	0.1323	-0.031	-0.001
87	SLU 82	1.55	-0.24	56.21	0.0585	0.0112	-0.0009
87	SLU 83	0.57	-0.29	56.17	0.1345	-0.0312	-0.0011
87	SLU 84	1.56	-0.24	56.8	0.0607	0.011	-0.0009
87	SLE RA 1	0.62	-0.19	36.69	0.0893	-0.0103	-0.0007
87	SLE RA 2	1.72	-0.14	37.39	0.0073	0.0366	-0.0006
87	SLE RA 3	0.65	-0.19	37.3	0.0916	-0.0099	-0.0007
87	SLE RA 4	1.31	-0.16	37.72	0.0424	0.0182	-0.0006
87	SLE RA 5	1.73	-0.14	37.79	0.0088	0.0365	-0.0006
87	SLE RA 6	0.66	-0.2	37.69	0.093	-0.01	-0.0007
87	SLE RA 7	1.32	-0.17	38.11	0.0438	0.0181	-0.0006
87	SLE RA 8	0.64	-0.19	37.48	0.0922	-0.0105	-0.0007
87	SLE RA 9	1.3	-0.16	37.9	0.043	0.0176	-0.0006
87	SLE RA 10	1.61	-0.15	40.49	0.0135	0.0291	-0.0006
87	SLE RA 11	0.54	-0.21	40.39	0.0977	-0.0174	-0.0008
87	SLE RA 12	1.2	-0.18	40.81	0.0485	0.0108	-0.0007
87	SLE RA 13	1.62	-0.16	40.88	0.015	0.029	-0.0006
87	SLE RA 14	0.55	-0.21	40.79	0.0992	-0.0175	-0.0008
87	SLE RA 15	1.21	-0.18	41.2	0.05	0.0106	-0.0007
87	SLE RA 16	0.53	-0.21	40.57	0.0984	-0.018	-0.0008
87	SLE RA 17	1.19	-0.18	40.99	0.0492	0.0101	-0.0007
87	SLE RA 18	0.46	-0.21	41.12	0.0981	-0.021	-0.0008
87	SLE RA 19	1.12	-0.18	41.54	0.0489	0.0072	-0.0007
87	SLE RA 20	0.47	-0.21	41.51	0.0996	-0.0211	-0.0008
87	SLE RA 21	1.13	-0.18	41.93	0.0504	0.007	-0.0007
87	SLE FR 1	0.62	-0.19	36.69	0.0893	-0.0103	-0.0007
87	SLE FR 2	0.84	-0.18	36.83	0.0729	-0.0009	-0.0007
87	SLE FR 3	0.62	-0.19	36.85	0.0899	-0.0103	-0.0007
87	SLE FR 4	0.79	-0.18	38.16	0.0756	-0.0041	-0.0007
87	SLE FR 5	0.57	-0.2	38.18	0.0925	-0.0135	-0.0007
87	SLE FR 6	0.54	-0.2	38.91	0.0937	-0.0156	-0.0007
87	SLE QP 1	0.62	-0.19	36.69	0.0893	-0.0103	-0.0007
87	SLE QP 2	0.57	-0.19	38.02	0.092	-0.0135	-0.0007
87	SLD 1	12.07	-0.15	32.93	-0.0984	0.5007	-0.0005
87	SLD 2	12.07	-0.15	32.93	-0.0984	0.5007	-0.0005
87	SLD 3	10.59	0.01	27.15	0.1009	0.4357	0
87	SLD 4	10.59	0.01	27.15	0.1009	0.4357	0
87	SLD 5	6.26	-0.42	45.25	-0.2674	0.2394	-0.0014
87	SLD 6	6.26	-0.42	45.25	-0.2674	0.2394	-0.0014
87	SLD 7	1.34	0.1	26	0.3969	0.0226	0.0002
87	SLD 8	1.34	0.1	26	0.3969	0.0226	0.0002
87	SLD 9	-0.2	-0.49	50.05	-0.213	-0.0496	-0.0016
87	SLD 10	-0.2	-0.49	50.05	-0.213	-0.0496	-0.0016
87	SLD 11	-5.12	0.03	30.79	0.4513	-0.2663	-0.0001
87	SLD 12	-5.12	0.03	30.79	0.4513	-0.2663	-0.0001
87	SLD 13	-9.46	-0.4	48.89	0.083	-0.4626	-0.0014
87	SLD 14	-9.46	-0.4	48.89	0.083	-0.4626	-0.0014
87	SLD 15	-10.93	-0.24	43.12	0.2823	-0.5276	-0.0009
87	SLD 16	-10.93	-0.24	43.12	0.2823	-0.5276	-0.0009
87	SLV 1	26.97	-0.1	26.32	-0.3759	1.1675	-0.0002
87	SLV 2	26.97	-0.1	26.32	-0.3759	1.1675	-0.0002
87	SLV 3	23.44	0.29	13.07	0.1244	1.0099	0.001
87	SLV 4	23.44	0.29	13.07	0.1244	1.0099	0.001
87	SLV 5	13.84	-0.76	54.61	-0.8071	0.5799	-0.0024
87	SLV 6	13.84	-0.76	54.61	-0.8071	0.5799	-0.0024
87	SLV 7	2.08	0.54	10.44	0.8604	0.0545	0.0016
87	SLV 8	2.08	0.54	10.44	0.8604	0.0545	0.0016
87	SLV 9	-0.95	-0.93	65.6	-0.6765	-0.0814	-0.003
87	SLV 10	-0.95	-0.93	65.6	-0.6765	-0.0814	-0.003
87	SLV 11	-12.7	0.37	21.44	0.991	-0.6068	0.0009
87	SLV 12	-12.7	0.37	21.44	0.991	-0.6068	0.0009
87	SLV 13	-22.3	-0.68	62.97	0.0595	-1.0368	-0.0024
87	SLV 14	-22.3	-0.68	62.97	0.0595	-1.0368	-0.0024
87	SLV 15	-25.83	-0.29	49.72	0.5598	-1.1944	-0.0012
87	SLV 16	-25.83	-0.29	49.72	0.5598	-1.1944	-0.0012
88	SLU 1	0.03	-0.11	42.49	0.0532	-0.0328	-0.0003
88	SLU 2	1.86	-0.08	43.94	-0.0263	0.0398	-0.0003
88	SLU 3	0.08	-0.11	43.69	0.0553	-0.0323	-0.0003
88	SLU 4	1.17	-0.1	44.56	0.0076	0.0113	-0.0003
88	SLU 5	1.88	-0.08	44.72	-0.0249	0.0396	-0.0003
88	SLU 6	0.09	-0.12	44.47	0.0567	-0.0325	-0.0003
88	SLU 7	1.19	-0.1	45.34	0.009	0.0111	-0.0003
88	SLU 8	0.06	-0.12	44.05	0.056	-0.0333	-0.0003
88	SLU 9	1.16	-0.1	44.92	0.0083	0.0103	-0.0003
88	SLU 10	1.57	-0.09	49.43	-0.0205	0.0236	-0.0003
88	SLU 11	-0.21	-0.13	49.18	0.061	-0.0485	-0.0003
88	SLU 12	0.89	-0.11	50.05	0.0134	-0.0049	-0.0003
88	SLU 13	1.59	-0.09	50.21	-0.0192	0.0233	-0.0003
88	SLU 14	-0.19	-0.13	49.96	0.0624	-0.0488	-0.0003
88	SLU 15	0.91	-0.11	50.83	0.0147	-0.0052	-0.0003
88	SLU 16	-0.22	-0.13	49.54	0.0617	-0.0496	-0.0003
88	SLU 17	0.88	-0.11	50.41	0.014	-0.006	-0.0003
88	SLU 18	-0.38	-0.13	50.34	0.0614	-0.056	-0.0003
88	SLU 19	0.72	-0.11	51.21	0.0137	-0.0124	-0.0003
88	SLU 20	-0.36	-0.13	51.12	0.0627	-0.0563	-0.0003
88	SLU 21	0.74	-0.11	51.99	0.0151	-0.0127	-0.0003
88	SLU 22	-0.08	-0.12	47.78	0.0596	-0.0422	-0.0003
88	SLU 23	1.75	-0.09	49.23	-0.0199	0.0305	-0.0003





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
88	SLU 24	-0.04	-0.13	48.98	0.0617	-0.0416	-0.0003
88	SLU 25	1.06	-0.11	49.85	0.014	0.002	-0.0003
88	SLU 26	1.76	-0.1	50.01	-0.0185	0.0302	-0.0003
88	SLU 27	-0.02	-0.13	49.76	0.0631	-0.0419	-0.0003
88	SLU 28	1.08	-0.11	50.63	0.0154	0.0017	-0.0003
88	SLU 29	-0.05	-0.13	49.34	0.0623	-0.0427	-0.0003
88	SLU 30	1.05	-0.11	50.21	0.0147	0.0009	-0.0003
88	SLU 31	1.46	-0.11	54.72	-0.0142	0.0142	-0.0004
88	SLU 32	-0.32	-0.14	54.47	0.0674	-0.0579	-0.0003
88	SLU 33	0.78	-0.12	55.34	0.0197	-0.0143	-0.0004
88	SLU 34	1.48	-0.11	55.5	-0.0128	0.014	-0.0004
88	SLU 35	-0.3	-0.14	55.25	0.0688	-0.0581	-0.0003
88	SLU 36	0.79	-0.13	56.12	0.0211	-0.0145	-0.0004
88	SLU 37	-0.33	-0.14	54.83	0.068	-0.0589	-0.0003
88	SLU 38	0.76	-0.12	55.7	0.0204	-0.0153	-0.0004
88	SLU 39	-0.49	-0.14	55.62	0.0677	-0.0654	-0.0003
88	SLU 40	0.61	-0.12	56.49	0.0201	-0.0218	-0.0004
88	SLU 41	-0.47	-0.15	56.4	0.0691	-0.0656	-0.0004
88	SLU 42	0.62	-0.13	57.28	0.0214	-0.022	-0.0004
88	SLU 43	0.08	-0.14	53.43	0.067	-0.0394	-0.0003
88	SLU 44	1.91	-0.11	54.88	-0.0125	0.0332	-0.0004
88	SLU 45	0.13	-0.14	54.62	0.0691	-0.0389	-0.0003
88	SLU 46	1.22	-0.12	55.49	0.0214	0.0047	-0.0004
88	SLU 47	1.92	-0.11	55.66	-0.0111	0.033	-0.0004
88	SLU 48	0.14	-0.15	55.4	0.0705	-0.0391	-0.0004
88	SLU 49	1.24	-0.13	56.27	0.0228	0.0044	-0.0004
88	SLU 50	0.11	-0.14	54.99	0.0697	-0.0399	-0.0003
88	SLU 51	1.21	-0.12	55.86	0.022	0.0036	-0.0004
88	SLU 52	1.62	-0.12	60.37	-0.0068	0.017	-0.0004
88	SLU 53	-0.16	-0.16	60.11	0.0748	-0.0551	-0.0004
88	SLU 54	0.94	-0.14	60.98	0.0271	-0.0116	-0.0004
88	SLU 55	1.64	-0.12	61.15	-0.0054	0.0167	-0.0004
88	SLU 56	-0.14	-0.16	60.89	0.0762	-0.0554	-0.0004
88	SLU 57	0.95	-0.14	61.76	0.0285	-0.0118	-0.0004
88	SLU 58	-0.17	-0.16	60.48	0.0754	-0.0562	-0.0004
88	SLU 59	0.92	-0.14	61.35	0.0278	-0.0126	-0.0004
88	SLU 60	-0.33	-0.16	61.27	0.0751	-0.0627	-0.0004
88	SLU 61	0.77	-0.14	62.14	0.0275	-0.0191	-0.0004
88	SLU 62	-0.31	-0.16	62.05	0.0765	-0.0629	-0.0004
88	SLU 63	0.79	-0.14	62.92	0.0288	-0.0193	-0.0004
88	SLU 64	-0.04	-0.15	58.72	0.0734	-0.0488	-0.0004
88	SLU 65	1.79	-0.12	60.17	-0.0061	0.0238	-0.0004
88	SLU 66	0.01	-0.16	59.91	0.0755	-0.0483	-0.0004
88	SLU 67	1.11	-0.14	60.78	0.0278	-0.0047	-0.0004
88	SLU 68	1.81	-0.12	60.95	-0.0047	0.0236	-0.0004
88	SLU 69	0.03	-0.16	60.69	0.0769	-0.0485	-0.0004
88	SLU 70	1.13	-0.14	61.56	0.0292	-0.0049	-0.0004
88	SLU 71	0	-0.16	60.28	0.0761	-0.0493	-0.0004
88	SLU 72	1.1	-0.14	61.15	0.0284	-0.0057	-0.0004
88	SLU 73	1.51	-0.13	65.66	-0.0004	0.0076	-0.0004
88	SLU 74	-0.27	-0.17	65.4	0.0812	-0.0645	-0.0004
88	SLU 75	0.82	-0.15	66.27	0.0335	-0.0209	-0.0004
88	SLU 76	1.53	-0.14	66.44	0.001	0.0073	-0.0004
88	SLU 77	-0.26	-0.17	66.18	0.0826	-0.0648	-0.0004
88	SLU 78	0.84	-0.15	67.05	0.0349	-0.0212	-0.0004
88	SLU 79	-0.29	-0.17	65.77	0.0818	-0.0656	-0.0004
88	SLU 80	0.81	-0.15	66.64	0.0341	-0.022	-0.0004
88	SLU 81	-0.44	-0.17	66.56	0.0815	-0.072	-0.0004
88	SLU 82	0.65	-0.15	67.43	0.0338	-0.0284	-0.0004
88	SLU 83	-0.43	-0.17	67.34	0.0829	-0.0723	-0.0004
88	SLU 84	0.67	-0.16	68.21	0.0352	-0.0287	-0.0004
88	SLE RA 1	0	-0.11	44	0.055	-0.0355	-0.0003
88	SLE RA 2	1.22	-0.09	44.97	0.0021	0.0129	-0.0003
88	SLE RA 3	0.03	-0.12	44.8	0.0564	-0.0351	-0.0003
88	SLE RA 4	0.76	-0.1	45.38	0.0247	-0.0061	-0.0003
88	SLE RA 5	1.23	-0.1	45.49	0.003	0.0128	-0.0003
88	SLE RA 6	0.04	-0.12	45.32	0.0574	-0.0353	-0.0003
88	SLE RA 7	0.77	-0.11	45.9	0.0256	-0.0062	-0.0003
88	SLE RA 8	0.02	-0.12	45.04	0.0569	-0.0358	-0.0003
88	SLE RA 9	0.75	-0.11	45.62	0.0251	-0.0068	-0.0003
88	SLE RA 10	1.03	-0.1	48.63	0.0059	0.0021	-0.0003
88	SLE RA 11	-0.16	-0.13	48.46	0.0602	-0.046	-0.0003
88	SLE RA 12	0.57	-0.11	49.04	0.0285	-0.0169	-0.0003
88	SLE RA 13	1.04	-0.1	49.15	0.0068	0.0019	-0.0003
88	SLE RA 14	-0.15	-0.13	48.98	0.0612	-0.0461	-0.0003
88	SLE RA 15	0.58	-0.12	49.56	0.0294	-0.0171	-0.0003
88	SLE RA 16	-0.17	-0.13	48.7	0.0607	-0.0467	-0.0003
88	SLE RA 17	0.56	-0.11	49.28	0.0289	-0.0176	-0.0003
88	SLE RA 18	-0.27	-0.13	49.23	0.0605	-0.051	-0.0003
88	SLE RA 19	0.46	-0.11	49.81	0.0287	-0.0219	-0.0003
88	SLE RA 20	-0.26	-0.13	49.75	0.0614	-0.0511	-0.0003
88	SLE RA 21	0.47	-0.12	50.33	0.0296	-0.0221	-0.0003
88	SLE FR 1	0	-0.11	44	0.055	-0.0355	-0.0003
88	SLE FR 2	0.24	-0.11	44.2	0.0444	-0.0258	-0.0003
88	SLE FR 3	0	-0.12	44.21	0.0554	-0.0355	-0.0003
88	SLE FR 4	0.16	-0.11	45.77	0.0461	-0.0304	-0.0003
88	SLE FR 5	-0.08	-0.12	45.78	0.057	-0.0402	-0.0003
88	SLE FR 6	-0.14	-0.12	46.62	0.0577	-0.0432	-0.0003
88	SLE QP 1	0	-0.11	44	0.055	-0.0355	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
88	SLE QP 2	-0.08	-0.12	45.57	0.0567	-0.0401	-0.0003
88	SLD 1	10.59	-0.04	36.61	-0.0775	0.4274	-0.0001
88	SLD 2	10.59	-0.04	36.61	-0.0775	0.4274	-0.0001
88	SLD 3	9.04	0.03	28.98	0.0495	0.3655	0
88	SLD 4	9.04	0.03	28.98	0.0495	0.3655	0
88	SLD 5	5.48	-0.21	54.46	-0.1762	0.194	-0.0003
88	SLD 6	5.48	-0.21	54.46	-0.1762	0.194	-0.0003
88	SLD 7	0.29	0.04	29.02	0.2471	-0.0123	-0.0001
88	SLD 8	0.29	0.04	29.02	0.2471	-0.0123	-0.0001
88	SLD 9	-0.46	-0.28	62.12	-0.1338	-0.0679	-0.0005
88	SLD 10	-0.46	-0.28	62.12	-0.1338	-0.0679	-0.0005
88	SLD 11	-5.65	-0.03	36.69	0.2895	-0.2742	-0.0002
88	SLD 12	-5.65	-0.03	36.69	0.2895	-0.2742	-0.0002
88	SLD 13	-9.21	-0.27	62.17	0.0638	-0.4457	-0.0006
88	SLD 14	-9.21	-0.27	62.17	0.0638	-0.4457	-0.0006
88	SLD 15	-10.76	-0.2	54.53	0.1908	-0.5076	-0.0005
88	SLD 16	-10.76	-0.2	54.53	0.1908	-0.5076	-0.0005
88	SLV 1	24.44	0.06	24.99	-0.2723	1.0338	0.0003
88	SLV 2	24.44	0.06	24.99	-0.2723	1.0338	0.0003
88	SLV 3	20.72	0.25	7.53	0.0467	0.8845	0.0005
88	SLV 4	20.72	0.25	7.53	0.0467	0.8845	0.0005
88	SLV 5	12.92	-0.35	65.88	-0.5259	0.5085	-0.0004
88	SLV 6	12.92	-0.35	65.88	-0.5259	0.5085	-0.0004
88	SLV 7	0.51	0.28	7.68	0.5376	0.0108	0.0003
88	SLV 8	0.51	0.28	7.68	0.5376	0.0108	0.0003
88	SLV 9	-0.68	-0.51	83.47	-0.4242	-0.091	-0.0008
88	SLV 10	-0.68	-0.51	83.47	-0.4242	-0.091	-0.0008
88	SLV 11	-13.08	0.11	25.27	0.6392	-0.5888	-0.0001
88	SLV 12	-13.08	0.11	25.27	0.6392	-0.5888	-0.0001
88	SLV 13	-20.89	-0.49	83.61	0.0666	-0.9647	-0.001
88	SLV 14	-20.89	-0.49	83.61	0.0666	-0.9647	-0.001
88	SLV 15	-24.61	-0.3	66.15	0.3856	-1.114	-0.0008
88	SLV 16	-24.61	-0.3	66.15	0.3856	-1.114	-0.0008
89	SLU 1	-1.72	0.05	52.97	0.001	-0.159	0.0004
89	SLU 2	0.16	0.06	54.9	-0.0388	-0.0816	0.0005
89	SLU 3	-1.72	0.05	54.58	0.0011	-0.1623	0.0005
89	SLU 4	-0.59	0.06	55.74	-0.0227	-0.1158	0.0005
89	SLU 5	0.15	0.06	55.95	-0.0386	-0.0842	0.0005
89	SLU 6	-1.73	0.06	55.64	0.0013	-0.1649	0.0005
89	SLU 7	-0.6	0.06	56.8	-0.0226	-0.1184	0.0005
89	SLU 8	-1.74	0.06	55.08	0.0012	-0.1643	0.0005
89	SLU 9	-0.61	0.06	56.24	-0.0226	-0.1178	0.0005
89	SLU 10	-0.35	0.07	61.7	-0.0391	-0.1142	0.0005
89	SLU 11	-2.23	0.06	61.39	0.0008	-0.1949	0.0005
89	SLU 12	-1.1	0.07	62.54	-0.023	-0.1484	0.0005
89	SLU 13	-0.36	0.07	62.76	-0.0389	-0.1168	0.0005
89	SLU 14	-2.24	0.06	62.44	0.0009	-0.1975	0.0005
89	SLU 15	-1.11	0.07	63.6	-0.0229	-0.151	0.0005
89	SLU 16	-2.25	0.06	61.88	0.0009	-0.1969	0.0005
89	SLU 17	-1.12	0.07	63.04	-0.0229	-0.1504	0.0005
89	SLU 18	-2.45	0.06	62.69	0.0005	-0.2056	0.0005
89	SLU 19	-1.32	0.07	63.85	-0.0233	-0.1591	0.0005
89	SLU 20	-2.46	0.06	63.74	0.0006	-0.2082	0.0005
89	SLU 21	-1.33	0.07	64.9	-0.0232	-0.1617	0.0005
89	SLU 22	-2.05	0.06	59.66	0.0009	-0.1848	0.0005
89	SLU 23	-0.17	0.07	61.58	-0.0388	-0.1073	0.0005
89	SLU 24	-2.05	0.06	61.27	0.0011	-0.188	0.0005
89	SLU 25	-0.93	0.07	62.43	-0.0227	-0.1415	0.0005
89	SLU 26	-0.19	0.07	62.64	-0.0387	-0.11	0.0005
89	SLU 27	-2.07	0.06	62.33	0.0012	-0.1906	0.0005
89	SLU 28	-0.94	0.07	63.48	-0.0226	-0.1442	0.0005
89	SLU 29	-2.08	0.06	61.77	0.0012	-0.19	0.0005
89	SLU 30	-0.95	0.07	62.92	-0.0227	-0.1436	0.0005
89	SLU 31	-0.68	0.08	68.39	-0.0391	-0.1399	0.0006
89	SLU 32	-2.56	0.07	68.07	0.0008	-0.2206	0.0006
89	SLU 33	-1.44	0.07	69.23	-0.023	-0.1741	0.0006
89	SLU 34	-0.7	0.08	69.44	-0.039	-0.1425	0.0006
89	SLU 35	-2.58	0.07	69.13	0.0009	-0.2232	0.0006
89	SLU 36	-1.45	0.08	70.29	-0.0229	-0.1767	0.0006
89	SLU 37	-2.59	0.07	68.57	0.0009	-0.2226	0.0006
89	SLU 38	-1.46	0.08	69.73	-0.023	-0.1761	0.0006
89	SLU 39	-2.78	0.07	69.38	0.0005	-0.2313	0.0006
89	SLU 40	-1.65	0.08	70.53	-0.0234	-0.1849	0.0006
89	SLU 41	-2.8	0.07	70.43	0.0006	-0.2339	0.0006
89	SLU 42	-1.67	0.08	71.59	-0.0232	-0.1875	0.0006
89	SLU 43	-2.12	0.07	66.57	0.0012	-0.1979	0.0005
89	SLU 44	-0.23	0.08	68.49	-0.0385	-0.1205	0.0006
89	SLU 45	-2.12	0.07	68.18	0.0014	-0.2012	0.0006
89	SLU 46	-0.99	0.07	69.34	-0.0224	-0.1547	0.0006
89	SLU 47	-0.25	0.08	69.55	-0.0383	-0.1231	0.0006
89	SLU 48	-2.13	0.07	69.24	0.0016	-0.2038	0.0006
89	SLU 49	-1	0.08	70.39	-0.0223	-0.1573	0.0006
89	SLU 50	-2.14	0.07	68.68	0.0015	-0.2032	0.0006
89	SLU 51	-1.01	0.08	69.83	-0.0223	-0.1567	0.0006
89	SLU 52	-0.75	0.08	75.3	-0.0388	-0.1531	0.0006
89	SLU 53	-2.63	0.08	74.99	0.0011	-0.2337	0.0006
89	SLU 54	-1.5	0.08	76.14	-0.0227	-0.1873	0.0006
89	SLU 55	-0.76	0.09	76.35	-0.0386	-0.1557	0.0006
89	SLU 56	-2.64	0.08	76.04	0.0012	-0.2364	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
89	SLU 57	-1.51	0.08	77.2	-0.0226	-0.1899	0.0006
89	SLU 58	-2.65	0.08	75.48	0.0012	-0.2358	0.0006
89	SLU 59	-1.52	0.08	76.64	-0.0226	-0.1893	0.0006
89	SLU 60	-2.85	0.08	76.29	0.0008	-0.2445	0.0006
89	SLU 61	-1.72	0.08	77.44	-0.023	-0.198	0.0006
89	SLU 62	-2.86	0.08	77.34	0.0009	-0.2471	0.0006
89	SLU 63	-1.73	0.08	78.5	-0.0229	-0.2006	0.0007
89	SLU 64	-2.45	0.07	73.25	0.0012	-0.2237	0.0006
89	SLU 65	-0.57	0.08	75.18	-0.0385	-0.1462	0.0006
89	SLU 66	-2.45	0.08	74.87	0.0014	-0.2269	0.0006
89	SLU 67	-1.32	0.08	76.02	-0.0224	-0.1804	0.0006
89	SLU 68	-0.58	0.09	76.24	-0.0384	-0.1489	0.0006
89	SLU 69	-2.47	0.08	75.92	0.0015	-0.2295	0.0006
89	SLU 70	-1.34	0.08	77.08	-0.0223	-0.1831	0.0006
89	SLU 71	-2.48	0.08	75.36	0.0015	-0.2289	0.0006
89	SLU 72	-1.35	0.08	76.52	-0.0224	-0.1825	0.0006
89	SLU 73	-1.08	0.09	81.98	-0.0388	-0.1788	0.0007
89	SLU 74	-2.96	0.08	81.67	0.0011	-0.2595	0.0007
89	SLU 75	-1.84	0.09	82.83	-0.0227	-0.213	0.0007
89	SLU 76	-1.1	0.09	83.04	-0.0387	-0.1814	0.0007
89	SLU 77	-2.98	0.08	82.73	0.0012	-0.2621	0.0007
89	SLU 78	-1.85	0.09	83.88	-0.0226	-0.2156	0.0007
89	SLU 79	-2.99	0.08	82.17	0.0012	-0.2615	0.0007
89	SLU 80	-1.86	0.09	83.32	-0.0227	-0.215	0.0007
89	SLU 81	-3.18	0.08	82.97	0.0008	-0.2702	0.0007
89	SLU 82	-2.05	0.09	84.13	-0.0231	-0.2238	0.0007
89	SLU 83	-3.2	0.08	84.03	0.0009	-0.2728	0.0007
89	SLU 84	-2.07	0.09	85.18	-0.0229	-0.2264	0.0007
89	SLE RA 1	-1.81	0.06	54.88	0.0009	-0.1664	0.0005
89	SLE RA 2	-0.56	0.06	56.16	-0.0255	-0.1148	0.0005
89	SLE RA 3	-1.81	0.06	55.96	0.0011	-0.1686	0.0005
89	SLE RA 4	-1.06	0.06	56.73	-0.0148	-0.1376	0.0005
89	SLE RA 5	-0.57	0.06	56.87	-0.0255	-0.1165	0.0005
89	SLE RA 6	-1.82	0.06	56.66	0.0011	-0.1703	0.0005
89	SLE RA 7	-1.07	0.06	57.43	-0.0147	-0.1393	0.0005
89	SLE RA 8	-1.83	0.06	56.29	0.0011	-0.1699	0.0005
89	SLE RA 9	-1.08	0.06	57.06	-0.0148	-0.1389	0.0005
89	SLE RA 10	-0.9	0.07	60.7	-0.0257	-0.1365	0.0005
89	SLE RA 11	-2.15	0.06	60.49	0.0009	-0.1903	0.0005
89	SLE RA 12	-1.4	0.07	61.26	-0.015	-0.1593	0.0005
89	SLE RA 13	-0.91	0.07	61.4	-0.0257	-0.1382	0.0005
89	SLE RA 14	-2.16	0.06	61.2	0.0009	-0.192	0.0005
89	SLE RA 15	-1.41	0.07	61.97	-0.0149	-0.161	0.0005
89	SLE RA 16	-2.17	0.06	60.82	0.0009	-0.1916	0.0005
89	SLE RA 17	-1.42	0.07	61.59	-0.015	-0.1606	0.0005
89	SLE RA 18	-2.3	0.06	61.36	0.0006	-0.1974	0.0005
89	SLE RA 19	-1.55	0.07	62.13	-0.0152	-0.1665	0.0005
89	SLE RA 20	-2.31	0.06	62.06	0.0007	-0.1992	0.0005
89	SLE RA 21	-1.56	0.07	62.83	-0.0152	-0.1682	0.0005
89	SLE FR 1	-1.81	0.06	54.88	0.0009	-0.1664	0.0005
89	SLE FR 2	-1.56	0.06	55.14	-0.0044	-0.1561	0.0005
89	SLE FR 3	-1.82	0.06	55.16	0.001	-0.1671	0.0005
89	SLE FR 4	-1.71	0.06	57.08	-0.0044	-0.1654	0.0005
89	SLE FR 5	-1.96	0.06	57.1	0.0009	-0.1764	0.0005
89	SLE FR 6	-2.06	0.06	58.12	0.0008	-0.1819	0.0005
89	SLE QP 1	-1.81	0.06	54.88	0.0009	-0.1664	0.0005
89	SLE QP 2	-1.96	0.06	56.82	0.0009	-0.1757	0.0005
89	SLD 1	8.45	-0.01	41.41	-0.0689	0.3256	0.0003
89	SLD 2	8.45	-0.01	41.41	-0.0689	0.3256	0.0003
89	SLD 3	6.72	-0.04	30.5	-0.0086	0.2521	0.0002
89	SLD 4	6.72	-0.04	30.5	-0.0086	0.2521	0.0002
89	SLD 5	3.78	0.09	68.74	-0.1115	0.0861	0.0006
89	SLD 6	3.78	0.09	68.74	-0.1115	0.0861	0.0006
89	SLD 7	-1.98	-0.02	32.38	0.0894	-0.1587	0.0003
89	SLD 8	-1.98	-0.02	32.38	0.0894	-0.1587	0.0003
89	SLD 9	-1.94	0.14	81.26	-0.0877	-0.1927	0.0007
89	SLD 10	-1.94	0.14	81.26	-0.0877	-0.1927	0.0007
89	SLD 11	-7.7	0.03	44.9	0.1132	-0.4375	0.0004
89	SLD 12	-7.7	0.03	44.9	0.1132	-0.4375	0.0004
89	SLD 13	-10.64	0.15	83.15	0.0103	-0.6035	0.0007
89	SLD 14	-10.64	0.15	83.15	0.0103	-0.6035	0.0007
89	SLD 15	-12.37	0.12	72.24	0.0706	-0.677	0.0006
89	SLD 16	-12.37	0.12	72.24	0.0706	-0.677	0.0006
89	SLV 1	21.95	-0.09	21.49	-0.1692	0.9772	0.0001
89	SLV 2	21.95	-0.09	21.49	-0.1692	0.9772	0.0001
89	SLV 3	17.8	-0.17	-3.52	-0.0182	0.7968	-0.0001
89	SLV 4	17.8	-0.17	-3.52	-0.0182	0.7968	-0.0001
89	SLV 5	11.51	0.13	84.16	-0.2791	0.4437	0.0007
89	SLV 6	11.51	0.13	84.16	-0.2791	0.4437	0.0007
89	SLV 7	-2.33	-0.13	0.78	0.2241	-0.1575	0
89	SLV 8	-2.33	-0.13	0.78	0.2241	-0.1575	0
89	SLV 9	-1.59	0.24	112.86	-0.2224	-0.1939	0.001
89	SLV 10	-1.59	0.24	112.86	-0.2224	-0.1939	0.001
89	SLV 11	-15.43	-0.02	29.49	0.2809	-0.7952	0.0003
89	SLV 12	-15.43	-0.02	29.49	0.2809	-0.7952	0.0003
89	SLV 13	-21.72	0.28	117.17	0.0199	-1.1482	0.0011
89	SLV 14	-21.72	0.28	117.17	0.0199	-1.1482	0.0011
89	SLV 15	-25.87	0.21	92.16	0.1709	-1.3286	0.0008
89	SLV 16	-25.87	0.21	92.16	0.1709	-1.3286	0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
90	SLU 1	-6.73	11.46	70.73	-0.3057	-0.1599	-0.0018
90	SLU 2	-6.05	12.62	73.37	-0.3502	-0.1207	-0.0026
90	SLU 3	-6.91	11.84	72.99	-0.3161	-0.164	-0.0019
90	SLU 4	-6.51	12.54	74.57	-0.3428	-0.1405	-0.0023
90	SLU 5	-6.18	12.86	74.84	-0.3567	-0.1237	-0.0026
90	SLU 6	-7.04	12.08	74.46	-0.3226	-0.167	-0.0019
90	SLU 7	-6.64	12.78	76.04	-0.3493	-0.1435	-0.0024
90	SLU 8	-6.98	11.94	73.67	-0.3187	-0.1659	-0.0019
90	SLU 9	-6.58	12.64	75.26	-0.3454	-0.1424	-0.0023
90	SLU 10	-7.06	14.01	82.48	-0.3869	-0.1478	-0.0027
90	SLU 11	-7.93	13.24	82.1	-0.3527	-0.1911	-0.002
90	SLU 12	-7.52	13.93	83.68	-0.3794	-0.1676	-0.0025
90	SLU 13	-7.19	14.26	83.95	-0.3934	-0.1508	-0.0028
90	SLU 14	-8.06	13.48	83.57	-0.3592	-0.1941	-0.0021
90	SLU 15	-7.65	14.18	85.15	-0.3859	-0.1706	-0.0025
90	SLU 16	-8	13.34	82.78	-0.3553	-0.1929	-0.002
90	SLU 17	-7.59	14.04	84.37	-0.382	-0.1694	-0.0025
90	SLU 18	-8.18	13.45	83.75	-0.358	-0.1985	-0.002
90	SLU 19	-7.77	14.15	85.33	-0.3847	-0.175	-0.0025
90	SLU 20	-8.31	13.69	85.22	-0.3645	-0.2015	-0.002
90	SLU 21	-7.9	14.39	86.8	-0.3912	-0.178	-0.0025
90	SLU 22	-7.65	12.89	79.76	-0.3435	-0.1832	-0.002
90	SLU 23	-6.97	14.05	82.4	-0.388	-0.1441	-0.0028
90	SLU 24	-7.84	13.27	82.02	-0.3538	-0.1874	-0.0021
90	SLU 25	-7.43	13.97	83.6	-0.3806	-0.1639	-0.0025
90	SLU 26	-7.1	14.29	83.87	-0.3945	-0.147	-0.0028
90	SLU 27	-7.97	13.52	83.49	-0.3603	-0.1904	-0.0021
90	SLU 28	-7.56	14.21	85.07	-0.3871	-0.1668	-0.0026
90	SLU 29	-7.91	13.37	82.7	-0.3564	-0.1892	-0.0021
90	SLU 30	-7.5	14.07	84.29	-0.3832	-0.1657	-0.0025
90	SLU 31	-7.99	15.44	91.51	-0.4246	-0.1711	-0.0029
90	SLU 32	-8.85	14.67	91.13	-0.3905	-0.2144	-0.0022
90	SLU 33	-8.45	15.36	92.71	-0.4172	-0.1909	-0.0027
90	SLU 34	-8.12	15.69	92.98	-0.4311	-0.1741	-0.003
90	SLU 35	-8.98	14.91	92.6	-0.397	-0.2174	-0.0022
90	SLU 36	-8.58	15.61	94.18	-0.4237	-0.1939	-0.0027
90	SLU 37	-8.92	14.77	91.81	-0.3931	-0.2163	-0.0022
90	SLU 38	-8.52	15.47	93.4	-0.4198	-0.1928	-0.0027
90	SLU 39	-9.1	14.88	92.78	-0.3958	-0.2219	-0.0022
90	SLU 40	-8.69	15.58	94.36	-0.4225	-0.1983	-0.0027
90	SLU 41	-9.23	15.12	94.25	-0.4023	-0.2249	-0.0022
90	SLU 42	-8.82	15.82	95.83	-0.429	-0.2013	-0.0027
90	SLU 43	-8.43	14.4	88.86	-0.3845	-0.1999	-0.0023
90	SLU 44	-7.75	15.56	91.5	-0.429	-0.1607	-0.003
90	SLU 45	-8.61	14.79	91.11	-0.3948	-0.204	-0.0023
90	SLU 46	-8.21	15.48	92.69	-0.4216	-0.1805	-0.0028
90	SLU 47	-7.88	15.81	92.97	-0.4355	-0.1637	-0.0031
90	SLU 48	-8.74	15.03	92.58	-0.4013	-0.207	-0.0024
90	SLU 49	-8.34	15.73	94.16	-0.4281	-0.1835	-0.0028
90	SLU 50	-8.69	14.89	91.8	-0.3974	-0.2059	-0.0023
90	SLU 51	-8.28	15.59	93.38	-0.4242	-0.1824	-0.0028
90	SLU 52	-8.77	16.96	100.61	-0.4656	-0.1877	-0.0032
90	SLU 53	-9.63	16.18	100.22	-0.4315	-0.231	-0.0025
90	SLU 54	-9.22	16.88	101.8	-0.4582	-0.2075	-0.0029
90	SLU 55	-8.89	17.2	102.08	-0.4721	-0.1907	-0.0032
90	SLU 56	-9.76	16.43	101.69	-0.4379	-0.234	-0.0025
90	SLU 57	-9.35	17.12	103.27	-0.4647	-0.2105	-0.003
90	SLU 58	-9.7	16.29	100.91	-0.4341	-0.2329	-0.0025
90	SLU 59	-9.29	16.98	102.49	-0.4608	-0.2094	-0.003
90	SLU 60	-9.88	16.4	101.87	-0.4368	-0.2385	-0.0025
90	SLU 61	-9.47	17.09	103.46	-0.4635	-0.215	-0.0029
90	SLU 62	-10.01	16.64	103.34	-0.4433	-0.2415	-0.0025
90	SLU 63	-9.6	17.34	104.93	-0.47	-0.218	-0.003
90	SLU 64	-9.35	15.83	97.89	-0.4222	-0.2232	-0.0024
90	SLU 65	-8.67	16.99	100.53	-0.4668	-0.184	-0.0032
90	SLU 66	-9.54	16.22	100.14	-0.4326	-0.2273	-0.0025
90	SLU 67	-9.13	16.91	101.72	-0.4593	-0.2038	-0.003
90	SLU 68	-8.8	17.24	102	-0.4733	-0.187	-0.0033
90	SLU 69	-9.67	16.46	101.61	-0.4391	-0.2303	-0.0026
90	SLU 70	-9.26	17.16	103.19	-0.4658	-0.2068	-0.003
90	SLU 71	-9.61	16.32	100.83	-0.4352	-0.2292	-0.0025
90	SLU 72	-9.2	17.02	102.41	-0.4619	-0.2057	-0.003
90	SLU 73	-9.69	18.39	109.64	-0.5034	-0.2111	-0.0034
90	SLU 74	-10.55	17.61	109.25	-0.4692	-0.2544	-0.0027
90	SLU 75	-10.15	18.31	110.83	-0.496	-0.2309	-0.0031
90	SLU 76	-9.82	18.63	111.1	-0.5099	-0.2141	-0.0034
90	SLU 77	-10.68	17.86	110.72	-0.4757	-0.2574	-0.0027
90	SLU 78	-10.28	18.55	112.3	-0.5024	-0.2339	-0.0032
90	SLU 79	-10.62	17.72	109.94	-0.4718	-0.2562	-0.0027
90	SLU 80	-10.22	18.41	111.52	-0.4986	-0.2327	-0.0032
90	SLU 81	-10.8	17.83	110.9	-0.4745	-0.2618	-0.0027
90	SLU 82	-10.4	18.52	112.48	-0.5013	-0.2383	-0.0031
90	SLU 83	-10.93	18.07	112.37	-0.481	-0.2648	-0.0027
90	SLU 84	-10.53	18.77	113.95	-0.5078	-0.2413	-0.0032
90	SLE RA 1	-6.99	11.86	73.31	-0.3165	-0.1666	-0.0018
90	SLE RA 2	-6.54	12.64	75.07	-0.3462	-0.1404	-0.0024
90	SLE RA 3	-7.11	12.12	74.82	-0.3234	-0.1693	-0.0019
90	SLE RA 4	-6.84	12.59	75.87	-0.3412	-0.1536	-0.0022
90	SLE RA 5	-6.62	12.8	76.05	-0.3505	-0.1424	-0.0024



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
90	SLE RA 6	-7.2	12.28	75.8	-0.3277	-0.1713	-0.0019
90	SLE RA 7	-6.93	12.75	76.85	-0.3456	-0.1556	-0.0022
90	SLE RA 8	-7.16	12.19	75.27	-0.3251	-0.1706	-0.0019
90	SLE RA 9	-6.89	12.65	76.33	-0.343	-0.1549	-0.0022
90	SLE RA 10	-7.22	13.57	81.15	-0.3706	-0.1585	-0.0025
90	SLE RA 11	-7.79	13.05	80.89	-0.3478	-0.1873	-0.002
90	SLE RA 12	-7.52	13.52	81.94	-0.3656	-0.1717	-0.0023
90	SLE RA 13	-7.3	13.73	82.13	-0.3749	-0.1605	-0.0025
90	SLE RA 14	-7.88	13.21	81.87	-0.3521	-0.1893	-0.002
90	SLE RA 15	-7.61	13.68	82.92	-0.37	-0.1737	-0.0023
90	SLE RA 16	-7.84	13.12	81.35	-0.3496	-0.1886	-0.002
90	SLE RA 17	-7.57	13.58	82.4	-0.3674	-0.1729	-0.0023
90	SLE RA 18	-7.96	13.19	81.99	-0.3514	-0.1923	-0.002
90	SLE RA 19	-7.69	13.66	83.05	-0.3692	-0.1766	-0.0023
90	SLE RA 20	-8.04	13.36	82.97	-0.3557	-0.1943	-0.002
90	SLE RA 21	-7.77	13.82	84.02	-0.3735	-0.1786	-0.0023
90	SLE FR 1	-6.99	11.86	73.31	-0.3165	-0.1666	-0.0018
90	SLE FR 2	-6.9	12.02	73.67	-0.3224	-0.1613	-0.0019
90	SLE FR 3	-7.02	11.93	73.71	-0.3182	-0.1674	-0.0019
90	SLE FR 4	-7.19	12.42	76.27	-0.3329	-0.1691	-0.002
90	SLE FR 5	-7.31	12.33	76.31	-0.3287	-0.1751	-0.0019
90	SLE FR 6	-7.47	12.53	77.65	-0.3339	-0.1794	-0.0019
90	SLE QP 1	-6.99	11.86	73.31	-0.3165	-0.1666	-0.0018
90	SLE QP 2	-7.28	12.26	75.92	-0.3269	-0.1743	-0.0019
90	SLD 1	-0.7	11.06	50.88	-0.3263	0.0654	-0.0046
90	SLD 2	-0.7	11.06	50.88	-0.3263	0.0654	-0.0046
90	SLD 3	0.56	7.43	34.92	-0.1965	0.1098	-0.0033
90	SLD 4	0.56	7.43	34.92	-0.1965	0.1098	-0.0033
90	SLD 5	-7.23	17.4	92.6	-0.5236	-0.1697	-0.0047
90	SLD 6	-7.23	17.4	92.6	-0.5236	-0.1697	-0.0047
90	SLD 7	-3.01	5.31	39.42	-0.0909	-0.0218	-0.0003
90	SLD 8	-3.01	5.31	39.42	-0.0909	-0.0218	-0.0003
90	SLD 9	-11.55	19.21	112.41	-0.563	-0.3268	-0.0034
90	SLD 10	-11.55	19.21	112.41	-0.563	-0.3268	-0.0034
90	SLD 11	-7.33	7.12	59.23	-0.1303	-0.1789	0.0009
90	SLD 12	-7.33	7.12	59.23	-0.1303	-0.1789	0.0009
90	SLD 13	-15.12	17.09	116.91	-0.4574	-0.4583	-0.0005
90	SLD 14	-15.12	17.09	116.91	-0.4574	-0.4583	-0.0005
90	SLD 15	-13.86	13.47	100.96	-0.3276	-0.4139	0.0008
90	SLD 16	-13.86	13.47	100.96	-0.3276	-0.4139	0.0008
90	SLV 1	7.7	9.44	18.57	-0.3232	0.3701	-0.0081
90	SLV 2	7.7	9.44	18.57	-0.3232	0.3701	-0.0081
90	SLV 3	10.72	1.15	-18.05	-0.0262	0.4795	-0.0051
90	SLV 4	10.72	1.15	-18.05	-0.0262	0.4795	-0.0051
90	SLV 5	-7.37	23.98	114.26	-0.7762	-0.1768	-0.0083
90	SLV 6	-7.37	23.98	114.26	-0.7762	-0.1768	-0.0083
90	SLV 7	2.71	-3.64	-7.82	0.2136	0.1877	0.0017
90	SLV 8	2.71	-3.64	-7.82	0.2136	0.1877	0.0017
90	SLV 9	-17.27	28.17	159.65	-0.8675	-0.5363	-0.0055
90	SLV 10	-17.27	28.17	159.65	-0.8675	-0.5363	-0.0055
90	SLV 11	-7.19	0.54	37.58	0.1223	-0.1718	0.0045
90	SLV 12	-7.19	0.54	37.58	0.1223	-0.1718	0.0045
90	SLV 13	-25.28	23.38	169.89	-0.6277	-0.828	0.0013
90	SLV 14	-25.28	23.38	169.89	-0.6277	-0.828	0.0013
90	SLV 15	-22.26	15.09	133.26	-0.3307	-0.7187	0.0044
90	SLV 16	-22.26	15.09	133.26	-0.3307	-0.7187	0.0044
91	SLU 1	-0.03	-0.58	2.22	0.0328	-0.0145	0.0002
91	SLU 2	-0.03	-0.59	2.19	0.0332	-0.0152	0.0002
91	SLU 3	-0.03	-0.62	2.05	0.035	-0.0145	0.0002
91	SLU 4	-0.03	-0.63	2.04	0.0352	-0.0149	0.0002
91	SLU 5	-0.03	-0.6	2.12	0.0341	-0.015	0.0002
91	SLU 6	-0.03	-0.64	1.98	0.0359	-0.0143	0.0002
91	SLU 7	-0.03	-0.65	1.97	0.0361	-0.0147	0.0002
91	SLU 8	-0.03	-0.62	2.08	0.0347	-0.0142	0.0002
91	SLU 9	-0.03	-0.62	2.06	0.0349	-0.0146	0.0002
91	SLU 10	-0.06	-0.53	5.93	0.0293	-0.0333	0.0005
91	SLU 11	-0.06	-0.57	5.79	0.0311	-0.0326	0.0005
91	SLU 12	-0.06	-0.57	5.78	0.0313	-0.033	0.0005
91	SLU 13	-0.06	-0.55	5.86	0.0302	-0.0332	0.0005
91	SLU 14	-0.06	-0.59	5.72	0.032	-0.0325	0.0005
91	SLU 15	-0.06	-0.59	5.7	0.0322	-0.0329	0.0005
91	SLU 16	-0.06	-0.56	5.81	0.0308	-0.0324	0.0005
91	SLU 17	-0.06	-0.56	5.8	0.031	-0.0327	0.0005
91	SLU 18	-0.08	-0.49	7.56	0.0272	-0.0404	0.0006
91	SLU 19	-0.08	-0.5	7.54	0.0275	-0.0408	0.0006
91	SLU 20	-0.08	-0.51	7.49	0.0282	-0.0403	0.0006
91	SLU 21	-0.08	-0.52	7.47	0.0284	-0.0407	0.0006
91	SLU 22	-0.03	-0.78	1.98	0.0419	-0.0179	0.0003
91	SLU 23	-0.04	-0.78	1.95	0.0423	-0.0186	0.0003
91	SLU 24	-0.03	-0.82	1.81	0.0441	-0.0179	0.0003
91	SLU 25	-0.04	-0.83	1.8	0.0443	-0.0183	0.0003
91	SLU 26	-0.04	-0.8	1.88	0.0432	-0.0184	0.0003
91	SLU 27	-0.03	-0.84	1.74	0.045	-0.0177	0.0003
91	SLU 28	-0.04	-0.85	1.72	0.0453	-0.0181	0.0003
91	SLU 29	-0.03	-0.82	1.84	0.0438	-0.0176	0.0003
91	SLU 30	-0.03	-0.82	1.82	0.044	-0.018	0.0003
91	SLU 31	-0.07	-0.73	5.69	0.0384	-0.0368	0.0005
91	SLU 32	-0.07	-0.76	5.55	0.0402	-0.0361	0.0005
91	SLU 33	-0.07	-0.77	5.53	0.0404	-0.0365	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
91	SLU 34	-0.07	-0.75	5.62	0.0393	-0.0366	0.0005
91	SLU 35	-0.07	-0.78	5.48	0.0412	-0.0359	0.0005
91	SLU 36	-0.07	-0.79	5.46	0.0414	-0.0363	0.0005
91	SLU 37	-0.07	-0.76	5.57	0.0399	-0.0358	0.0005
91	SLU 38	-0.07	-0.76	5.56	0.0401	-0.0362	0.0005
91	SLU 39	-0.08	-0.69	7.32	0.0364	-0.0439	0.0007
91	SLU 40	-0.08	-0.7	7.3	0.0366	-0.0443	0.0007
91	SLU 41	-0.08	-0.71	7.25	0.0373	-0.0437	0.0007
91	SLU 42	-0.08	-0.72	7.23	0.0375	-0.0441	0.0007
91	SLU 43	-0.03	-0.68	2.97	0.0395	-0.0177	0.0003
91	SLU 44	-0.04	-0.69	2.94	0.0399	-0.0183	0.0003
91	SLU 45	-0.03	-0.73	2.8	0.0417	-0.0176	0.0003
91	SLU 46	-0.04	-0.73	2.79	0.0419	-0.018	0.0003
91	SLU 47	-0.04	-0.71	2.87	0.0408	-0.0182	0.0003
91	SLU 48	-0.03	-0.75	2.73	0.0426	-0.0175	0.0003
91	SLU 49	-0.04	-0.75	2.71	0.0428	-0.0179	0.0003
91	SLU 50	-0.03	-0.72	2.83	0.0414	-0.0174	0.0003
91	SLU 51	-0.03	-0.73	2.81	0.0416	-0.0178	0.0003
91	SLU 52	-0.07	-0.63	6.68	0.036	-0.0365	0.0005
91	SLU 53	-0.07	-0.67	6.54	0.0378	-0.0358	0.0005
91	SLU 54	-0.07	-0.68	6.52	0.038	-0.0362	0.0005
91	SLU 55	-0.07	-0.65	6.61	0.0369	-0.0363	0.0005
91	SLU 56	-0.07	-0.69	6.47	0.0387	-0.0356	0.0005
91	SLU 57	-0.07	-0.7	6.45	0.0389	-0.036	0.0005
91	SLU 58	-0.07	-0.66	6.56	0.0375	-0.0355	0.0005
91	SLU 59	-0.07	-0.67	6.55	0.0377	-0.0359	0.0005
91	SLU 60	-0.08	-0.6	8.31	0.034	-0.0436	0.0007
91	SLU 61	-0.08	-0.6	8.29	0.0342	-0.044	0.0007
91	SLU 62	-0.08	-0.62	8.24	0.0349	-0.0435	0.0007
91	SLU 63	-0.08	-0.62	8.22	0.0351	-0.0439	0.0007
91	SLU 64	-0.04	-0.88	2.73	0.0487	-0.0211	0.0003
91	SLU 65	-0.04	-0.89	2.7	0.049	-0.0218	0.0003
91	SLU 66	-0.04	-0.93	2.56	0.0508	-0.0211	0.0003
91	SLU 67	-0.04	-0.93	2.55	0.051	-0.0215	0.0003
91	SLU 68	-0.04	-0.91	2.63	0.0499	-0.0216	0.0003
91	SLU 69	-0.04	-0.95	2.49	0.0518	-0.0209	0.0003
91	SLU 70	-0.04	-0.95	2.47	0.052	-0.0213	0.0003
91	SLU 71	-0.04	-0.92	2.58	0.0505	-0.0208	0.0003
91	SLU 72	-0.04	-0.93	2.57	0.0507	-0.0212	0.0003
91	SLU 73	-0.08	-0.83	6.44	0.0451	-0.0399	0.0006
91	SLU 74	-0.07	-0.87	6.3	0.0469	-0.0392	0.0006
91	SLU 75	-0.07	-0.87	6.28	0.0471	-0.0396	0.0006
91	SLU 76	-0.07	-0.85	6.37	0.046	-0.0398	0.0006
91	SLU 77	-0.07	-0.89	6.23	0.0479	-0.0391	0.0006
91	SLU 78	-0.07	-0.89	6.21	0.0481	-0.0395	0.0006
91	SLU 79	-0.07	-0.86	6.32	0.0466	-0.039	0.0006
91	SLU 80	-0.07	-0.87	6.31	0.0468	-0.0394	0.0006
91	SLU 81	-0.09	-0.8	8.07	0.0431	-0.047	0.0007
91	SLU 82	-0.09	-0.8	8.05	0.0433	-0.0474	0.0007
91	SLU 83	-0.09	-0.82	8	0.044	-0.0469	0.0007
91	SLU 84	-0.09	-0.82	7.98	0.0442	-0.0473	0.0007
91	SLE RA 1	-0.03	-0.63	2.15	0.0354	-0.0155	0.0002
91	SLE RA 2	-0.03	-0.64	2.13	0.0357	-0.0159	0.0002
91	SLE RA 3	-0.03	-0.67	2.04	0.0369	-0.0155	0.0002
91	SLE RA 4	-0.03	-0.67	2.03	0.037	-0.0157	0.0002
91	SLE RA 5	-0.03	-0.65	2.09	0.0363	-0.0158	0.0002
91	SLE RA 6	-0.03	-0.68	1.99	0.0375	-0.0154	0.0002
91	SLE RA 7	-0.03	-0.68	1.98	0.0376	-0.0156	0.0002
91	SLE RA 8	-0.03	-0.66	2.06	0.0367	-0.0153	0.0002
91	SLE RA 9	-0.03	-0.66	2.05	0.0368	-0.0155	0.0002
91	SLE RA 10	-0.05	-0.6	4.63	0.0331	-0.028	0.0004
91	SLE RA 11	-0.05	-0.63	4.53	0.0343	-0.0276	0.0004
91	SLE RA 12	-0.05	-0.63	4.52	0.0344	-0.0278	0.0004
91	SLE RA 13	-0.05	-0.61	4.58	0.0337	-0.0279	0.0004
91	SLE RA 14	-0.05	-0.64	4.48	0.0349	-0.0275	0.0004
91	SLE RA 15	-0.05	-0.64	4.47	0.035	-0.0277	0.0004
91	SLE RA 16	-0.05	-0.62	4.55	0.0341	-0.0274	0.0004
91	SLE RA 17	-0.05	-0.62	4.54	0.0342	-0.0276	0.0004
91	SLE RA 18	-0.06	-0.58	5.71	0.0317	-0.0328	0.0005
91	SLE RA 19	-0.06	-0.58	5.7	0.0318	-0.033	0.0005
91	SLE RA 20	-0.06	-0.59	5.66	0.0323	-0.0327	0.0005
91	SLE RA 21	-0.06	-0.6	5.65	0.0325	-0.0329	0.0005
91	SLE FR 1	-0.03	-0.63	2.15	0.0354	-0.0155	0.0002
91	SLE FR 2	-0.03	-0.64	2.15	0.0355	-0.0156	0.0002
91	SLE FR 3	-0.03	-0.64	2.13	0.0357	-0.0154	0.0002
91	SLE FR 4	-0.04	-0.62	3.22	0.0344	-0.0208	0.0003
91	SLE FR 5	-0.04	-0.62	3.2	0.0346	-0.0206	0.0003
91	SLE FR 6	-0.05	-0.61	3.93	0.0336	-0.0241	0.0004
91	SLE QP 1	-0.03	-0.63	2.15	0.0354	-0.0155	0.0002
91	SLE QP 2	-0.04	-0.62	3.22	0.0343	-0.0207	0.0003
91	SLD 1	-0.11	0.2	5.78	-0.0039	0.005	0.0009
91	SLD 2	-0.11	0.2	5.78	-0.0039	0.005	0.0009
91	SLD 3	-0.1	-0.75	2.95	0.0405	0.0079	0.0009
91	SLD 4	-0.1	-0.75	2.95	0.0405	0.0079	0.0009
91	SLD 5	-0.07	1.07	8.28	-0.0446	-0.0174	0.0006
91	SLD 6	-0.07	1.07	8.28	-0.0446	-0.0174	0.0006
91	SLD 7	-0.05	-2.1	-1.15	0.1036	-0.0076	0.0004
91	SLD 8	-0.05	-2.1	-1.15	0.1036	-0.0076	0.0004
91	SLD 9	-0.03	0.87	7.59	-0.035	-0.0337	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
91	SLD 10	-0.03	0.87	7.59	-0.035	-0.0337	0.0002
91	SLD 11	-0.01	-2.31	-1.84	0.1132	-0.0239	0
91	SLD 12	-0.01	-2.31	-1.84	0.1132	-0.0239	0
91	SLD 13	0.02	-0.49	3.49	0.0281	-0.0493	-0.0002
91	SLD 14	0.02	-0.49	3.49	0.0281	-0.0493	-0.0002
91	SLD 15	0.03	-1.44	0.66	0.0725	-0.0463	-0.0003
91	SLD 16	0.03	-1.44	0.66	0.0725	-0.0463	-0.0003
91	SLV 1	-0.21	1.29	9.14	-0.0544	0.0399	0.0018
91	SLV 2	-0.21	1.29	9.14	-0.0544	0.0399	0.0018
91	SLV 3	-0.19	-0.93	2.55	0.0492	0.0468	0.0017
91	SLV 4	-0.19	-0.93	2.55	0.0492	0.0468	0.0017
91	SLV 5	-0.11	3.32	14.99	-0.1494	-0.0129	0.001
91	SLV 6	-0.11	3.32	14.99	-0.1494	-0.0129	0.001
91	SLV 7	-0.06	-4.08	-6.97	0.1958	0.01	0.0005
91	SLV 8	-0.06	-4.08	-6.97	0.1958	0.01	0.0005
91	SLV 9	-0.02	2.85	13.41	-0.1272	-0.0513	0.0001
91	SLV 10	-0.02	2.85	13.41	-0.1272	-0.0513	0.0001
91	SLV 11	0.03	-4.56	-8.55	0.218	-0.0284	-0.0003
91	SLV 12	0.03	-4.56	-8.55	0.218	-0.0284	-0.0003
91	SLV 13	0.11	-0.3	3.89	0.0194	-0.0881	-0.001
91	SLV 14	0.11	-0.3	3.89	0.0194	-0.0881	-0.001
91	SLV 15	0.13	-2.52	-2.7	0.123	-0.0812	-0.0012
91	SLV 16	0.13	-2.52	-2.7	0.123	-0.0812	-0.0012
92	SLU 1	0.03	1.57	44.66	-0.1077	0.0178	0.0002
92	SLU 2	0.04	1.1	44.92	-0.0879	0.0194	0.0002
92	SLU 3	0.03	2.03	46.22	-0.1297	0.0183	0.0002
92	SLU 4	0.04	1.74	46.38	-0.1178	0.0192	0.0002
92	SLU 5	0.04	1.58	46.32	-0.1113	0.0197	0.0002
92	SLU 6	0.03	2.51	47.62	-0.153	0.0187	0.0002
92	SLU 7	0.04	2.23	47.78	-0.1411	0.0196	0.0002
92	SLU 8	0.03	2.54	47.45	-0.1544	0.0186	0.0002
92	SLU 9	0.03	2.26	47.61	-0.1425	0.0195	0.0002
92	SLU 10	0.04	1.5	52.3	-0.1116	0.0209	0.0003
92	SLU 11	0.04	2.44	53.6	-0.1533	0.0198	0.0002
92	SLU 12	0.04	2.15	53.76	-0.1414	0.0208	0.0002
92	SLU 13	0.04	1.99	53.7	-0.1349	0.0212	0.0003
92	SLU 14	0.04	2.92	55	-0.1766	0.0202	0.0002
92	SLU 15	0.04	2.64	55.16	-0.1647	0.0211	0.0002
92	SLU 16	0.04	2.95	54.83	-0.1781	0.0201	0.0002
92	SLU 17	0.04	2.67	54.99	-0.1662	0.021	0.0002
92	SLU 18	0.04	2.15	55.2	-0.1415	0.02	0.0002
92	SLU 19	0.04	1.87	55.36	-0.1296	0.0209	0.0003
92	SLU 20	0.04	2.64	56.6	-0.1648	0.0204	0.0002
92	SLU 21	0.04	2.35	56.76	-0.153	0.0213	0.0003
92	SLU 22	0.04	1.98	49.65	-0.1301	0.0203	0.0002
92	SLU 23	0.04	1.5	49.92	-0.1103	0.0219	0.0003
92	SLU 24	0.04	2.43	51.22	-0.152	0.0208	0.0002
92	SLU 25	0.04	2.15	51.38	-0.1401	0.0217	0.0002
92	SLU 26	0.04	1.99	51.32	-0.1336	0.0222	0.0003
92	SLU 27	0.04	2.92	52.61	-0.1754	0.0212	0.0002
92	SLU 28	0.04	2.64	52.77	-0.1635	0.0221	0.0002
92	SLU 29	0.04	2.95	52.44	-0.1768	0.021	0.0002
92	SLU 30	0.04	2.66	52.6	-0.1649	0.022	0.0002
92	SLU 31	0.05	1.91	57.3	-0.1339	0.0234	0.0003
92	SLU 32	0.04	2.84	58.6	-0.1757	0.0223	0.0003
92	SLU 33	0.05	2.56	58.76	-0.1638	0.0232	0.0003
92	SLU 34	0.05	2.4	58.7	-0.1573	0.0237	0.0003
92	SLU 35	0.04	3.33	59.99	-0.199	0.0227	0.0003
92	SLU 36	0.05	3.04	60.15	-0.1871	0.0236	0.0003
92	SLU 37	0.04	3.36	59.83	-0.2004	0.0226	0.0003
92	SLU 38	0.05	3.07	59.99	-0.1885	0.0235	0.0003
92	SLU 39	0.05	2.56	60.2	-0.1639	0.0225	0.0003
92	SLU 40	0.05	2.27	60.36	-0.152	0.0234	0.0003
92	SLU 41	0.05	3.04	61.59	-0.1872	0.0228	0.0003
92	SLU 42	0.05	2.76	61.75	-0.1753	0.0238	0.0003
92	SLU 43	0.04	1.9	56.34	-0.1324	0.0223	0.0002
92	SLU 44	0.04	1.43	56.61	-0.1126	0.0239	0.0003
92	SLU 45	0.04	2.36	57.9	-0.1543	0.0228	0.0002
92	SLU 46	0.04	2.08	58.06	-0.1424	0.0237	0.0002
92	SLU 47	0.04	1.91	58	-0.1359	0.0242	0.0003
92	SLU 48	0.04	2.85	59.3	-0.1777	0.0232	0.0002
92	SLU 49	0.04	2.56	59.46	-0.1658	0.0241	0.0002
92	SLU 50	0.04	2.87	59.13	-0.1791	0.0231	0.0002
92	SLU 51	0.04	2.59	59.29	-0.1672	0.024	0.0002
92	SLU 52	0.05	1.84	63.99	-0.1362	0.0254	0.0003
92	SLU 53	0.05	2.77	65.28	-0.1779	0.0243	0.0002
92	SLU 54	0.05	2.48	65.44	-0.1661	0.0253	0.0003
92	SLU 55	0.05	2.32	65.38	-0.1596	0.0257	0.0003
92	SLU 56	0.05	3.25	66.68	-0.2013	0.0247	0.0002
92	SLU 57	0.05	2.97	66.84	-0.1894	0.0256	0.0003
92	SLU 58	0.05	3.28	66.51	-0.2027	0.0246	0.0002
92	SLU 59	0.05	3	66.67	-0.1908	0.0255	0.0003
92	SLU 60	0.05	2.48	66.88	-0.1662	0.0245	0.0003
92	SLU 61	0.05	2.2	67.04	-0.1543	0.0254	0.0003
92	SLU 62	0.05	2.97	68.28	-0.1895	0.0248	0.0003
92	SLU 63	0.05	2.69	68.44	-0.1776	0.0258	0.0003
92	SLU 64	0.04	2.31	61.34	-0.1548	0.0248	0.0002
92	SLU 65	0.05	1.83	61.6	-0.135	0.0264	0.0003
92	SLU 66	0.04	2.77	62.9	-0.1767	0.0253	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
92	SLU 67	0.05	2.48	63.06	-0.1648	0.0262	0.0003
92	SLU 68	0.05	2.32	63	-0.1583	0.0267	0.0003
92	SLU 69	0.04	3.25	64.3	-0.2	0.0257	0.0002
92	SLU 70	0.05	2.97	64.46	-0.1881	0.0266	0.0003
92	SLU 71	0.04	3.28	64.13	-0.2015	0.0255	0.0002
92	SLU 72	0.05	3	64.29	-0.1896	0.0265	0.0003
92	SLU 73	0.06	2.24	68.98	-0.1586	0.0279	0.0003
92	SLU 74	0.05	3.17	70.28	-0.2003	0.0268	0.0003
92	SLU 75	0.06	2.89	70.44	-0.1884	0.0277	0.0003
92	SLU 76	0.06	2.73	70.38	-0.1819	0.0282	0.0003
92	SLU 77	0.05	3.66	71.68	-0.2237	0.0272	0.0003
92	SLU 78	0.06	3.38	71.84	-0.2118	0.0281	0.0003
92	SLU 79	0.05	3.69	71.51	-0.2251	0.0271	0.0003
92	SLU 80	0.05	3.4	71.67	-0.2132	0.028	0.0003
92	SLU 81	0.05	2.89	71.88	-0.1885	0.027	0.0003
92	SLU 82	0.06	2.61	72.04	-0.1766	0.0279	0.0003
92	SLU 83	0.05	3.38	73.28	-0.2119	0.0273	0.0003
92	SLU 84	0.06	3.09	73.44	-0.2	0.0283	0.0003
92	SLE RA 1	0.03	1.69	46.08	-0.1141	0.0185	0.0002
92	SLE RA 2	0.04	1.37	46.26	-0.1009	0.0196	0.0002
92	SLE RA 3	0.03	1.99	47.13	-0.1287	0.0189	0.0002
92	SLE RA 4	0.04	1.8	47.23	-0.1208	0.0195	0.0002
92	SLE RA 5	0.04	1.69	47.19	-0.1165	0.0198	0.0002
92	SLE RA 6	0.03	2.32	48.06	-0.1443	0.0191	0.0002
92	SLE RA 7	0.04	2.13	48.16	-0.1364	0.0197	0.0002
92	SLE RA 8	0.03	2.33	47.94	-0.1453	0.019	0.0002
92	SLE RA 9	0.04	2.14	48.05	-0.1373	0.0196	0.0002
92	SLE RA 10	0.04	1.64	51.18	-0.1167	0.0206	0.0002
92	SLE RA 11	0.04	2.26	52.05	-0.1445	0.0199	0.0002
92	SLE RA 12	0.04	2.07	52.15	-0.1366	0.0205	0.0002
92	SLE RA 13	0.04	1.97	52.11	-0.1322	0.0208	0.0002
92	SLE RA 14	0.04	2.59	52.98	-0.1601	0.0201	0.0002
92	SLE RA 15	0.04	2.4	53.08	-0.1521	0.0207	0.0002
92	SLE RA 16	0.04	2.61	52.87	-0.161	0.02	0.0002
92	SLE RA 17	0.04	2.42	52.97	-0.1531	0.0206	0.0002
92	SLE RA 18	0.04	2.07	53.11	-0.1366	0.02	0.0002
92	SLE RA 19	0.04	1.89	53.22	-0.1287	0.0206	0.0002
92	SLE RA 20	0.04	2.4	54.04	-0.1522	0.0202	0.0002
92	SLE RA 21	0.04	2.21	54.15	-0.1443	0.0208	0.0002
92	SLE FR 1	0.03	1.69	46.08	-0.1141	0.0185	0.0002
92	SLE FR 2	0.03	1.62	46.12	-0.1115	0.0187	0.0002
92	SLE FR 3	0.03	1.82	46.46	-0.1204	0.0186	0.0002
92	SLE FR 4	0.04	1.74	48.23	-0.1182	0.0192	0.0002
92	SLE FR 5	0.03	1.93	48.56	-0.1271	0.0191	0.0002
92	SLE FR 6	0.04	1.88	49.6	-0.1254	0.0193	0.0002
92	SLE QP 1	0.03	1.69	46.08	-0.1141	0.0185	0.0002
92	SLE QP 2	0.03	1.8	48.19	-0.1209	0.019	0.0002
92	SLD 1	0.1	2.44	58.31	-0.1609	0.0537	0.0006
92	SLD 2	0.1	2.44	58.31	-0.1609	0.0537	0.0006
92	SLD 3	0.07	-2.14	54.49	0.0518	0.0472	0.0008
92	SLD 4	0.07	-2.14	54.49	0.0518	0.0472	0.0008
92	SLD 5	0.09	8.94	57.02	-0.4555	0.0392	0
92	SLD 6	0.09	8.94	57.02	-0.4555	0.0392	0
92	SLD 7	0.01	-6.33	44.29	0.2535	0.0177	0.0006
92	SLD 8	0.01	-6.33	44.29	0.2535	0.0177	0.0006
92	SLD 9	0.06	9.93	52.1	-0.4953	0.0203	-0.0003
92	SLD 10	0.06	9.93	52.1	-0.4953	0.0203	-0.0003
92	SLD 11	-0.02	-5.34	39.36	0.2137	-0.0012	0.0004
92	SLD 12	-0.02	-5.34	39.36	0.2137	-0.0012	0.0004
92	SLD 13	0	5.75	41.9	-0.2936	-0.0093	-0.0004
92	SLD 14	0	5.75	41.9	-0.2936	-0.0093	-0.0004
92	SLD 15	-0.03	1.17	38.08	-0.0809	-0.0157	-0.0002
92	SLD 16	-0.03	1.17	38.08	-0.0809	-0.0157	-0.0002
92	SLV 1	0.18	3.24	71.54	-0.2122	0.1021	0.0011
92	SLV 2	0.18	3.24	71.54	-0.2122	0.1021	0.0011
92	SLV 3	0.13	-7.26	62.6	0.2753	0.0865	0.0015
92	SLV 4	0.13	-7.26	62.6	0.2753	0.0865	0.0015
92	SLV 5	0.16	18.15	68.76	-0.8876	0.0675	-0.0002
92	SLV 6	0.16	18.15	68.76	-0.8876	0.0675	-0.0002
92	SLV 7	-0.02	-16.83	38.95	0.7373	0.0156	0.0013
92	SLV 8	-0.02	-16.83	38.95	0.7373	0.0156	0.0013
92	SLV 9	0.09	20.44	57.43	-0.9791	0.0223	-0.0009
92	SLV 10	0.09	20.44	57.43	-0.9791	0.0223	-0.0009
92	SLV 11	-0.09	-14.55	27.62	0.6459	-0.0296	0.0006
92	SLV 12	-0.09	-14.55	27.62	0.6459	-0.0296	0.0006
92	SLV 13	-0.06	10.86	33.79	-0.5171	-0.0486	-0.0011
92	SLV 14	-0.06	10.86	33.79	-0.5171	-0.0486	-0.0011
92	SLV 15	-0.11	0.37	24.84	-0.0296	-0.0641	-0.0007
92	SLV 16	-0.11	0.37	24.84	-0.0296	-0.0641	-0.0007
93	SLU 1	0.01	-0.91	3.65	0.0388	-0.0003	-0.0002
93	SLU 2	0.01	-0.92	3.63	0.0391	-0.0006	-0.0002
93	SLU 3	0.01	-0.96	3.54	0.0407	0	-0.0002
93	SLU 4	0.01	-0.96	3.53	0.0409	-0.0001	-0.0002
93	SLU 5	0.01	-0.94	3.58	0.0399	-0.0002	-0.0002
93	SLU 6	0.01	-0.98	3.5	0.0415	0.0004	-0.0002
93	SLU 7	0.01	-0.98	3.49	0.0417	0.0003	-0.0002
93	SLU 8	0.01	-0.95	3.56	0.0404	0.0004	-0.0002
93	SLU 9	0.01	-0.96	3.55	0.0406	0.0003	-0.0002
93	SLU 10	0	-1.14	7.06	0.0481	-0.0098	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
93	SLU 11	0	-1.18	6.97	0.0498	-0.0091	-0.0001
93	SLU 12	0	-1.19	6.96	0.05	-0.0093	-0.0001
93	SLU 13	0	-1.16	7.02	0.049	-0.0094	-0.0001
93	SLU 14	0	-1.2	6.93	0.0506	-0.0088	-0.0001
93	SLU 15	0	-1.21	6.92	0.0508	-0.0089	-0.0001
93	SLU 16	0	-1.18	6.99	0.0495	-0.0088	-0.0001
93	SLU 17	0	-1.18	6.98	0.0497	-0.0089	-0.0001
93	SLU 18	-0.01	-1.23	8.55	0.0517	-0.0134	0
93	SLU 19	-0.01	-1.24	8.54	0.0519	-0.0136	0
93	SLU 20	-0.01	-1.25	8.5	0.0525	-0.0131	0
93	SLU 21	-0.01	-1.26	8.5	0.0527	-0.0132	0
93	SLU 22	0.01	-1.15	3.64	0.0486	-0.0013	-0.0002
93	SLU 23	0.01	-1.16	3.63	0.0489	-0.0016	-0.0002
93	SLU 24	0.01	-1.2	3.54	0.0506	-0.001	-0.0002
93	SLU 25	0.01	-1.21	3.53	0.0507	-0.0011	-0.0002
93	SLU 26	0.01	-1.18	3.58	0.0498	-0.0012	-0.0002
93	SLU 27	0.01	-1.22	3.49	0.0514	-0.0006	-0.0002
93	SLU 28	0.01	-1.23	3.48	0.0516	-0.0007	-0.0002
93	SLU 29	0.01	-1.19	3.55	0.0503	-0.0006	-0.0002
93	SLU 30	0.01	-1.2	3.54	0.0504	-0.0007	-0.0002
93	SLU 31	0	-1.39	7.06	0.058	-0.0108	-0.0001
93	SLU 32	0	-1.43	6.97	0.0596	-0.0101	-0.0001
93	SLU 33	0	-1.43	6.96	0.0598	-0.0103	-0.0001
93	SLU 34	0	-1.41	7.02	0.0588	-0.0104	-0.0001
93	SLU 35	0	-1.45	6.93	0.0604	-0.0098	-0.0001
93	SLU 36	0	-1.45	6.92	0.0606	-0.0099	-0.0001
93	SLU 37	0	-1.42	6.99	0.0593	-0.0098	-0.0001
93	SLU 38	0	-1.42	6.98	0.0595	-0.0099	-0.0001
93	SLU 39	-0.01	-1.47	8.55	0.0616	-0.0144	0
93	SLU 40	-0.01	-1.48	8.54	0.0617	-0.0146	0
93	SLU 41	-0.01	-1.49	8.5	0.0624	-0.0141	0
93	SLU 42	-0.01	-1.5	8.49	0.0626	-0.0142	0
93	SLU 43	0.01	-1.1	4.74	0.047	-0.0001	-0.0002
93	SLU 44	0.01	-1.11	4.72	0.0473	-0.0003	-0.0002
93	SLU 45	0.01	-1.15	4.64	0.049	0.0003	-0.0002
93	SLU 46	0.01	-1.15	4.63	0.0491	0.0001	-0.0002
93	SLU 47	0.01	-1.13	4.68	0.0482	0	-0.0002
93	SLU 48	0.01	-1.17	4.59	0.0498	0.0006	-0.0002
93	SLU 49	0.01	-1.17	4.58	0.05	0.0005	-0.0002
93	SLU 50	0.01	-1.14	4.65	0.0487	0.0006	-0.0002
93	SLU 51	0.01	-1.15	4.64	0.0489	0.0005	-0.0002
93	SLU 52	0	-1.33	8.16	0.0564	-0.0095	-0.0001
93	SLU 53	0	-1.37	8.07	0.058	-0.0089	-0.0001
93	SLU 54	0	-1.38	8.06	0.0582	-0.0091	-0.0001
93	SLU 55	0	-1.35	8.11	0.0572	-0.0092	-0.0001
93	SLU 56	0	-1.39	8.02	0.0588	-0.0085	-0.0001
93	SLU 57	0	-1.4	8.01	0.059	-0.0087	-0.0001
93	SLU 58	0	-1.37	8.08	0.0577	-0.0085	-0.0001
93	SLU 59	0	-1.37	8.07	0.0579	-0.0087	-0.0001
93	SLU 60	-0.01	-1.42	9.64	0.06	-0.0132	0
93	SLU 61	-0.01	-1.43	9.63	0.0602	-0.0134	0
93	SLU 62	-0.01	-1.44	9.6	0.0608	-0.0128	-0.0001
93	SLU 63	-0.01	-1.45	9.59	0.061	-0.013	-0.0001
93	SLU 64	0.01	-1.34	4.74	0.0569	-0.0011	-0.0002
93	SLU 65	0.01	-1.35	4.72	0.0572	-0.0013	-0.0002
93	SLU 66	0.01	-1.39	4.63	0.0588	-0.0007	-0.0002
93	SLU 67	0.01	-1.4	4.62	0.059	-0.0009	-0.0002
93	SLU 68	0.01	-1.37	4.68	0.058	-0.001	-0.0002
93	SLU 69	0.01	-1.41	4.59	0.0596	-0.0003	-0.0002
93	SLU 70	0.01	-1.42	4.58	0.0598	-0.0005	-0.0002
93	SLU 71	0.01	-1.38	4.65	0.0585	-0.0003	-0.0002
93	SLU 72	0.01	-1.39	4.64	0.0587	-0.0005	-0.0002
93	SLU 73	0	-1.58	8.15	0.0662	-0.0105	-0.0001
93	SLU 74	0	-1.62	8.07	0.0679	-0.0099	-0.0001
93	SLU 75	0	-1.62	8.06	0.0681	-0.01	-0.0001
93	SLU 76	0	-1.6	8.11	0.0671	-0.0101	-0.0001
93	SLU 77	0	-1.64	8.02	0.0687	-0.0095	-0.0001
93	SLU 78	0	-1.64	8.01	0.0689	-0.0097	-0.0001
93	SLU 79	0	-1.61	8.08	0.0676	-0.0095	-0.0001
93	SLU 80	0	-1.61	8.07	0.0678	-0.0097	-0.0001
93	SLU 81	-0.01	-1.66	9.64	0.0698	-0.0142	-0.0001
93	SLU 82	-0.01	-1.67	9.63	0.07	-0.0143	-0.0001
93	SLU 83	-0.01	-1.68	9.6	0.0706	-0.0138	-0.0001
93	SLU 84	-0.01	-1.69	9.59	0.0708	-0.014	-0.0001
93	SLE RA 1	0.01	-0.98	3.65	0.0416	-0.0006	-0.0002
93	SLE RA 2	0.01	-0.99	3.63	0.0418	-0.0008	-0.0002
93	SLE RA 3	0.01	-1.01	3.58	0.0429	-0.0004	-0.0002
93	SLE RA 4	0.01	-1.02	3.57	0.043	-0.0005	-0.0002
93	SLE RA 5	0.01	-1	3.6	0.0423	-0.0005	-0.0002
93	SLE RA 6	0.01	-1.03	3.55	0.0434	-0.0001	-0.0002
93	SLE RA 7	0.01	-1.03	3.54	0.0435	-0.0002	-0.0002
93	SLE RA 8	0.01	-1.01	3.58	0.0427	-0.0001	-0.0002
93	SLE RA 9	0.01	-1.01	3.58	0.0428	-0.0002	-0.0002
93	SLE RA 10	0	-1.14	5.92	0.0478	-0.0069	-0.0001
93	SLE RA 11	0	-1.16	5.86	0.0489	-0.0065	-0.0001
93	SLE RA 12	0	-1.17	5.86	0.049	-0.0066	-0.0001
93	SLE RA 13	0	-1.15	5.89	0.0484	-0.0067	-0.0001
93	SLE RA 14	0	-1.18	5.83	0.0495	-0.0062	-0.0001
93	SLE RA 15	0	-1.18	5.83	0.0496	-0.0063	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
93	SLE RA 16	0	-1.16	5.87	0.0487	-0.0062	-0.0001
93	SLE RA 17	0	-1.16	5.87	0.0488	-0.0063	-0.0001
93	SLE RA 18	0	-1.19	6.91	0.0502	-0.0094	-0.0001
93	SLE RA 19	0	-1.2	6.91	0.0503	-0.0095	-0.0001
93	SLE RA 20	0	-1.21	6.88	0.0508	-0.0091	-0.0001
93	SLE RA 21	0	-1.21	6.88	0.0509	-0.0092	-0.0001
93	SLE FR 1	0.01	-0.98	3.65	0.0416	-0.0006	-0.0002
93	SLE FR 2	0.01	-0.98	3.64	0.0416	-0.0007	-0.0002
93	SLE FR 3	0.01	-0.99	3.63	0.0418	-0.0005	-0.0002
93	SLE FR 4	0	-1.05	4.62	0.0442	-0.0033	-0.0001
93	SLE FR 5	0	-1.05	4.61	0.0444	-0.0031	-0.0001
93	SLE FR 6	0	-1.09	5.28	0.0459	-0.005	-0.0001
93	SLE QP 1	0.01	-0.98	3.65	0.0416	-0.0006	-0.0002
93	SLE QP 2	0	-1.04	4.63	0.0442	-0.0032	-0.0001
93	SLD 1	0.06	-0.16	6.14	0.0092	0.0417	-0.0013
93	SLD 2	0.06	-0.16	6.14	0.0092	0.0417	-0.0013
93	SLD 3	0.07	-1.2	4.5	0.0499	0.0467	-0.0015
93	SLD 4	0.07	-1.2	4.5	0.0499	0.0467	-0.0015
93	SLD 5	0.01	0.81	7.57	-0.0282	0.0026	-0.0002
93	SLD 6	0.01	0.81	7.57	-0.0282	0.0026	-0.0002
93	SLD 7	0.04	-2.68	2.1	0.1077	0.0194	-0.0008
93	SLD 8	0.04	-2.68	2.1	0.1077	0.0194	-0.0008
93	SLD 9	-0.03	0.59	7.15	-0.0194	-0.0259	0.0005
93	SLD 10	-0.03	0.59	7.15	-0.0194	-0.0259	0.0005
93	SLD 11	0	-2.9	1.68	0.1165	-0.0091	0
93	SLD 12	0	-2.9	1.68	0.1165	-0.0091	0
93	SLD 13	-0.07	-0.89	4.75	0.0384	-0.0532	0.0012
93	SLD 14	-0.07	-0.89	4.75	0.0384	-0.0532	0.0012
93	SLD 15	-0.06	-1.93	3.11	0.0792	-0.0482	0.0011
93	SLD 16	-0.06	-1.93	3.11	0.0792	-0.0482	0.0011
93	SLV 1	0.15	1.02	8.15	-0.037	0.1041	-0.003
93	SLV 2	0.15	1.02	8.15	-0.037	0.1041	-0.003
93	SLV 3	0.17	-1.42	4.33	0.0579	0.1162	-0.0034
93	SLV 4	0.17	-1.42	4.33	0.0579	0.1162	-0.0034
93	SLV 5	0.02	3.27	11.47	-0.1243	0.0106	-0.0004
93	SLV 6	0.02	3.27	11.47	-0.1243	0.0106	-0.0004
93	SLV 7	0.08	-4.86	-1.25	0.1924	0.051	-0.0017
93	SLV 8	0.08	-4.86	-1.25	0.1924	0.051	-0.0017
93	SLV 9	-0.08	2.77	10.51	-0.104	-0.0575	0.0014
93	SLV 10	-0.08	2.77	10.51	-0.104	-0.0575	0.0014
93	SLV 11	-0.01	-5.36	-2.22	0.2126	-0.0171	0.0001
93	SLV 12	-0.01	-5.36	-2.22	0.2126	-0.0171	0.0001
93	SLV 13	-0.16	-0.67	4.93	0.0304	-0.1227	0.0031
93	SLV 14	-0.16	-0.67	4.93	0.0304	-0.1227	0.0031
93	SLV 15	-0.14	-3.11	1.11	0.1254	-0.1106	0.0027
93	SLV 16	-0.14	-3.11	1.11	0.1254	-0.1106	0.0027
94	SLU 1	-0.04	2.04	20.2	-0.2653	0.0085	0
94	SLU 2	-0.03	4.55	21.41	-0.4002	0.014	-0.0001
94	SLU 3	-0.04	1.8	20.26	-0.2568	0.0089	0
94	SLU 4	-0.03	3.3	20.99	-0.3377	0.0122	0
94	SLU 5	-0.03	4.23	21.26	-0.3856	0.0142	-0.0001
94	SLU 6	-0.04	1.47	20.12	-0.2421	0.0092	0
94	SLU 7	-0.03	2.98	20.84	-0.323	0.0124	0
94	SLU 8	-0.04	1.39	19.9	-0.236	0.0091	0
94	SLU 9	-0.03	2.9	20.63	-0.3169	0.0123	0
94	SLU 10	-0.04	4.66	24.09	-0.431	0.0156	-0.0001
94	SLU 11	-0.04	1.91	22.94	-0.2875	0.0105	0
94	SLU 12	-0.04	3.41	23.67	-0.3684	0.0138	-0.0001
94	SLU 13	-0.04	4.34	23.94	-0.4163	0.0158	-0.0001
94	SLU 14	-0.04	1.58	22.79	-0.2728	0.0108	0
94	SLU 15	-0.04	3.09	23.52	-0.3538	0.014	-0.0001
94	SLU 16	-0.04	1.5	22.58	-0.2667	0.0107	0
94	SLU 17	-0.04	3.01	23.31	-0.3477	0.0139	0
94	SLU 18	-0.04	2.2	24.02	-0.3092	0.0108	0
94	SLU 19	-0.04	3.71	24.75	-0.3902	0.0141	-0.0001
94	SLU 20	-0.04	1.87	23.87	-0.2945	0.0111	0
94	SLU 21	-0.04	3.38	24.6	-0.3755	0.0143	-0.0001
94	SLU 22	-0.04	2.02	22.28	-0.286	0.01	0
94	SLU 23	-0.03	4.54	23.49	-0.4209	0.0154	-0.0001
94	SLU 24	-0.04	1.78	22.35	-0.2774	0.0104	0
94	SLU 25	-0.04	3.29	23.08	-0.3584	0.0136	-0.0001
94	SLU 26	-0.03	4.21	23.35	-0.4062	0.0157	-0.0001
94	SLU 27	-0.04	1.45	22.2	-0.2627	0.0106	0
94	SLU 28	-0.04	2.96	22.93	-0.3437	0.0139	0
94	SLU 29	-0.04	1.37	21.98	-0.2567	0.0105	0
94	SLU 30	-0.04	2.88	22.71	-0.3376	0.0138	0
94	SLU 31	-0.04	4.64	26.17	-0.4516	0.017	-0.0001
94	SLU 32	-0.05	1.89	25.03	-0.3081	0.012	0
94	SLU 33	-0.04	3.4	25.75	-0.3891	0.0152	-0.0001
94	SLU 34	-0.04	4.32	26.02	-0.437	0.0173	-0.0001
94	SLU 35	-0.05	1.56	24.88	-0.2935	0.0122	0
94	SLU 36	-0.04	3.07	25.61	-0.3744	0.0155	-0.0001
94	SLU 37	-0.05	1.48	24.66	-0.2874	0.0121	0
94	SLU 38	-0.04	2.99	25.39	-0.3683	0.0154	-0.0001
94	SLU 39	-0.05	2.18	26.11	-0.3299	0.0123	0
94	SLU 40	-0.05	3.69	26.84	-0.4108	0.0155	-0.0001
94	SLU 41	-0.05	1.85	25.96	-0.3152	0.0125	0
94	SLU 42	-0.05	3.36	26.69	-0.3962	0.0158	-0.0001
94	SLU 43	-0.05	2.66	25.54	-0.3378	0.0106	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
94	SLU 44	-0.04	5.17	26.75	-0.4728	0.016	-0.0001
94	SLU 45	-0.05	2.42	25.61	-0.3293	0.011	0
94	SLU 46	-0.04	3.92	26.34	-0.4102	0.0142	-0.0001
94	SLU 47	-0.04	4.85	26.61	-0.4581	0.0163	-0.0001
94	SLU 48	-0.05	2.09	25.46	-0.3146	0.0112	0
94	SLU 49	-0.04	3.6	26.19	-0.3955	0.0145	-0.0001
94	SLU 50	-0.05	2.01	25.24	-0.3085	0.0111	0
94	SLU 51	-0.04	3.52	25.97	-0.3895	0.0144	-0.0001
94	SLU 52	-0.05	5.28	29.43	-0.5035	0.0176	-0.0001
94	SLU 53	-0.05	2.53	28.29	-0.36	0.0125	0
94	SLU 54	-0.05	4.03	29.01	-0.4409	0.0158	-0.0001
94	SLU 55	-0.04	4.96	29.28	-0.4888	0.0179	-0.0001
94	SLU 56	-0.05	2.2	28.14	-0.3453	0.0128	0
94	SLU 57	-0.05	3.71	28.87	-0.4263	0.0161	-0.0001
94	SLU 58	-0.05	2.12	27.92	-0.3392	0.0127	0
94	SLU 59	-0.05	3.63	28.65	-0.4202	0.016	-0.0001
94	SLU 60	-0.05	2.82	29.37	-0.3817	0.0129	-0.0001
94	SLU 61	-0.05	4.33	30.1	-0.4627	0.0161	-0.0001
94	SLU 62	-0.05	2.49	29.22	-0.3671	0.0131	-0.0001
94	SLU 63	-0.05	4	29.95	-0.448	0.0164	-0.0001
94	SLU 64	-0.05	2.64	27.63	-0.3585	0.012	0
94	SLU 65	-0.04	5.15	28.84	-0.4934	0.0175	-0.0001
94	SLU 66	-0.05	2.4	27.69	-0.3499	0.0124	0
94	SLU 67	-0.05	3.91	28.42	-0.4309	0.0157	-0.0001
94	SLU 68	-0.04	4.83	28.69	-0.4787	0.0178	-0.0001
94	SLU 69	-0.05	2.07	27.54	-0.3353	0.0127	0
94	SLU 70	-0.05	3.58	28.27	-0.4162	0.016	-0.0001
94	SLU 71	-0.05	1.99	27.33	-0.3292	0.0126	0
94	SLU 72	-0.05	3.5	28.06	-0.4101	0.0159	-0.0001
94	SLU 73	-0.05	5.26	31.52	-0.5241	0.0191	-0.0001
94	SLU 74	-0.06	2.51	30.37	-0.3807	0.014	-0.0001
94	SLU 75	-0.05	4.01	31.1	-0.4616	0.0173	-0.0001
94	SLU 76	-0.05	4.94	31.37	-0.5095	0.0194	-0.0001
94	SLU 77	-0.06	2.18	30.22	-0.366	0.0143	-0.0001
94	SLU 78	-0.05	3.69	30.95	-0.4469	0.0176	-0.0001
94	SLU 79	-0.06	2.1	30.01	-0.3599	0.0142	0
94	SLU 80	-0.05	3.61	30.73	-0.4408	0.0174	-0.0001
94	SLU 81	-0.06	2.8	31.45	-0.4024	0.0143	-0.0001
94	SLU 82	-0.06	4.31	32.18	-0.4833	0.0176	-0.0001
94	SLU 83	-0.06	2.47	31.3	-0.3877	0.0146	-0.0001
94	SLU 84	-0.06	3.98	32.03	-0.4687	0.0179	-0.0001
94	SLE RA 1	-0.04	2.04	20.79	-0.2712	0.0089	0
94	SLE RA 2	-0.03	3.71	21.6	-0.3612	0.0126	-0.0001
94	SLE RA 3	-0.04	1.87	20.84	-0.2655	0.0092	0
94	SLE RA 4	-0.04	2.88	21.32	-0.3195	0.0114	0
94	SLE RA 5	-0.03	3.49	21.5	-0.3514	0.0128	-0.0001
94	SLE RA 6	-0.04	1.66	20.74	-0.2557	0.0094	0
94	SLE RA 7	-0.04	2.66	21.22	-0.3097	0.0116	0
94	SLE RA 8	-0.04	1.6	20.59	-0.2517	0.0093	0
94	SLE RA 9	-0.04	2.61	21.08	-0.3056	0.0115	0
94	SLE RA 10	-0.04	3.78	23.39	-0.3817	0.0136	-0.0001
94	SLE RA 11	-0.04	1.95	22.62	-0.286	0.0103	0
94	SLE RA 12	-0.04	2.95	23.11	-0.34	0.0124	0
94	SLE RA 13	-0.04	3.57	23.29	-0.3719	0.0138	-0.0001
94	SLE RA 14	-0.04	1.73	22.52	-0.2762	0.0104	0
94	SLE RA 15	-0.04	2.73	23.01	-0.3302	0.0126	0
94	SLE RA 16	-0.04	1.68	22.38	-0.2722	0.0104	0
94	SLE RA 17	-0.04	2.68	22.86	-0.3261	0.0125	0
94	SLE RA 18	-0.04	2.14	23.34	-0.3005	0.0105	0
94	SLE RA 19	-0.04	3.15	23.83	-0.3545	0.0126	-0.0001
94	SLE RA 20	-0.04	1.92	23.24	-0.2907	0.0106	0
94	SLE RA 21	-0.04	2.93	23.73	-0.3447	0.0128	0
94	SLE FR 1	-0.04	2.04	20.79	-0.2712	0.0089	0
94	SLE FR 2	-0.04	2.37	20.95	-0.2892	0.0097	0
94	SLE FR 3	-0.04	1.95	20.75	-0.2673	0.009	0
94	SLE FR 4	-0.04	2.4	21.72	-0.298	0.0101	0
94	SLE FR 5	-0.04	1.98	21.52	-0.2761	0.0095	0
94	SLE FR 6	-0.04	2.09	22.07	-0.2859	0.0097	0
94	SLE QP 1	-0.04	2.04	20.79	-0.2712	0.0089	0
94	SLE QP 2	-0.04	2.07	21.56	-0.28	0.0094	0
94	SLD 1	0	2.47	20.42	-0.2999	0.0293	0
94	SLD 2	0	2.47	20.42	-0.2999	0.0293	0
94	SLD 3	0.01	-2.31	17.37	-0.0619	0.0205	0
94	SLD 4	0.01	-2.31	17.37	-0.0619	0.0205	0
94	SLD 5	-0.04	9.45	25.83	-0.6469	0.0287	-0.0001
94	SLD 6	-0.04	9.45	25.83	-0.6469	0.0287	-0.0001
94	SLD 7	-0.01	-6.51	15.69	0.1464	-0.0007	0
94	SLD 8	-0.01	-6.51	15.69	0.1464	-0.0007	0
94	SLD 9	-0.07	10.64	27.43	-0.7064	0.0194	-0.0001
94	SLD 10	-0.07	10.64	27.43	-0.7064	0.0194	-0.0001
94	SLD 11	-0.04	-5.31	17.28	0.0869	-0.01	0
94	SLD 12	-0.04	-5.31	17.28	0.0869	-0.01	0
94	SLD 13	-0.09	6.45	25.74	-0.4981	-0.0017	-0.0001
94	SLD 14	-0.09	6.45	25.74	-0.4981	-0.0017	-0.0001
94	SLD 15	-0.08	1.67	22.7	-0.2601	-0.0105	-0.0001
94	SLD 16	-0.08	1.67	22.7	-0.2601	-0.0105	-0.0001
94	SLV 1	0.05	2.91	18.9	-0.3214	0.0567	0
94	SLV 2	0.05	2.91	18.9	-0.3214	0.0567	0
94	SLV 3	0.07	-8.29	11.89	0.2365	0.0346	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
94	SLV 4	0.07	-8.29	11.89	0.2365	0.0346	0.0001
94	SLV 5	-0.05	19.31	31.4	-1.1386	0.0572	-0.0001
94	SLV 6	-0.05	19.31	31.4	-1.1386	0.0572	-0.0001
94	SLV 7	0.02	-18.03	8.02	0.7211	-0.0167	0.0001
94	SLV 8	0.02	-18.03	8.02	0.7211	-0.0167	0.0001
94	SLV 9	-0.1	22.17	35.1	-1.2812	0.0355	-0.0002
94	SLV 10	-0.1	22.17	35.1	-1.2812	0.0355	-0.0002
94	SLV 11	-0.03	-15.17	11.72	0.5786	-0.0385	0.0001
94	SLV 12	-0.03	-15.17	11.72	0.5786	-0.0385	0.0001
94	SLV 13	-0.15	12.43	31.23	-0.7965	-0.0158	-0.0001
94	SLV 14	-0.15	12.43	31.23	-0.7965	-0.0158	-0.0001
94	SLV 15	-0.13	1.23	24.21	-0.2386	-0.038	-0.0001
94	SLV 16	-0.13	1.23	24.21	-0.2386	-0.038	-0.0001
95	SLU 1	-0.05	0.5	51.91	0.0101	-0.0104	0.0023
95	SLU 2	-0.05	0.03	52.68	0.0332	-0.0121	0.0023
95	SLU 3	-0.05	0.74	52.96	-0.0007	-0.0103	0.0023
95	SLU 4	-0.05	0.46	53.42	0.0132	-0.0114	0.0023
95	SLU 5	-0.05	0.29	53.39	0.0214	-0.012	0.0023
95	SLU 6	-0.05	1.01	53.68	-0.0125	-0.0102	0.0023
95	SLU 7	-0.05	0.73	54.14	0.0014	-0.0112	0.0024
95	SLU 8	-0.05	1.03	53.34	-0.0136	-0.0101	0.0023
95	SLU 9	-0.05	0.75	53.8	0.0003	-0.0111	0.0023
95	SLU 10	-0.06	0.15	61.75	0.0336	-0.0139	0.0028
95	SLU 11	-0.06	0.86	62.04	-0.0003	-0.0122	0.0028
95	SLU 12	-0.06	0.58	62.5	0.0136	-0.0132	0.0028
95	SLU 13	-0.06	0.41	62.47	0.0218	-0.0138	0.0028
95	SLU 14	-0.06	1.13	62.75	-0.0121	-0.012	0.0028
95	SLU 15	-0.06	0.85	63.21	0.0018	-0.0131	0.0028
95	SLU 16	-0.06	1.15	62.42	-0.0132	-0.0119	0.0028
95	SLU 17	-0.06	0.87	62.88	0.0007	-0.013	0.0028
95	SLU 18	-0.06	0.67	64.88	0.0107	-0.013	0.003
95	SLU 19	-0.07	0.39	65.34	0.0245	-0.014	0.003
95	SLU 20	-0.06	0.94	65.59	-0.0012	-0.0129	0.003
95	SLU 21	-0.07	0.65	66.05	0.0127	-0.0139	0.003
95	SLU 22	-0.06	0.61	57.32	0.0095	-0.0121	0.0026
95	SLU 23	-0.06	0.14	58.08	0.0326	-0.0138	0.0026
95	SLU 24	-0.06	0.85	58.37	-0.0013	-0.0121	0.0026
95	SLU 25	-0.06	0.57	58.82	0.0126	-0.0131	0.0027
95	SLU 26	-0.06	0.4	58.8	0.0208	-0.0137	0.0026
95	SLU 27	-0.06	1.12	59.08	-0.0131	-0.0119	0.0027
95	SLU 28	-0.06	0.84	59.54	0.0008	-0.013	0.0027
95	SLU 29	-0.06	1.14	58.75	-0.0142	-0.0118	0.0026
95	SLU 30	-0.06	0.86	59.2	-0.0003	-0.0129	0.0026
95	SLU 31	-0.07	0.26	67.16	0.033	-0.0157	0.0031
95	SLU 32	-0.07	0.97	67.44	-0.0009	-0.0139	0.0031
95	SLU 33	-0.07	0.69	67.9	0.013	-0.0149	0.0031
95	SLU 34	-0.07	0.52	67.87	0.0212	-0.0155	0.0031
95	SLU 35	-0.07	1.24	68.15	-0.0127	-0.0138	0.0031
95	SLU 36	-0.07	0.96	68.61	0.0012	-0.0148	0.0031
95	SLU 37	-0.07	1.26	67.82	-0.0138	-0.0137	0.0031
95	SLU 38	-0.07	0.98	68.28	0.0001	-0.0147	0.0031
95	SLU 39	-0.07	0.78	70.28	0.0101	-0.0147	0.0033
95	SLU 40	-0.07	0.5	70.74	0.024	-0.0158	0.0033
95	SLU 41	-0.07	1.05	70.99	-0.0018	-0.0146	0.0033
95	SLU 42	-0.07	0.76	71.45	0.0121	-0.0156	0.0033
95	SLU 43	-0.06	0.61	65.63	0.0133	-0.0129	0.0029
95	SLU 44	-0.07	0.14	66.4	0.0365	-0.0146	0.0029
95	SLU 45	-0.06	0.86	66.68	0.0026	-0.0129	0.0029
95	SLU 46	-0.06	0.57	67.14	0.0164	-0.0139	0.0029
95	SLU 47	-0.07	0.41	67.11	0.0246	-0.0145	0.0029
95	SLU 48	-0.06	1.12	67.4	-0.0093	-0.0127	0.0029
95	SLU 49	-0.06	0.84	67.86	0.0046	-0.0138	0.0029
95	SLU 50	-0.06	1.15	67.06	-0.0104	-0.0126	0.0029
95	SLU 51	-0.06	0.86	67.52	0.0035	-0.0137	0.0029
95	SLU 52	-0.08	0.26	75.47	0.0369	-0.0165	0.0034
95	SLU 53	-0.07	0.98	75.76	0.003	-0.0147	0.0034
95	SLU 54	-0.07	0.69	76.22	0.0169	-0.0157	0.0034
95	SLU 55	-0.08	0.53	76.19	0.025	-0.0163	0.0034
95	SLU 56	-0.07	1.24	76.47	-0.0089	-0.0146	0.0034
95	SLU 57	-0.07	0.96	76.93	0.005	-0.0156	0.0034
95	SLU 58	-0.07	1.27	76.14	-0.01	-0.0145	0.0034
95	SLU 59	-0.07	0.98	76.6	0.0039	-0.0155	0.0034
95	SLU 60	-0.07	0.78	78.6	0.0139	-0.0155	0.0036
95	SLU 61	-0.08	0.5	79.06	0.0278	-0.0166	0.0036
95	SLU 62	-0.07	1.05	79.31	0.002	-0.0154	0.0036
95	SLU 63	-0.08	0.77	79.77	0.0159	-0.0164	0.0036
95	SLU 64	-0.07	0.72	71.04	0.0127	-0.0146	0.0032
95	SLU 65	-0.07	0.25	71.8	0.0359	-0.0163	0.0032
95	SLU 66	-0.07	0.97	72.09	0.002	-0.0146	0.0032
95	SLU 67	-0.07	0.68	72.55	0.0159	-0.0156	0.0032
95	SLU 68	-0.07	0.52	72.52	0.024	-0.0162	0.0032
95	SLU 69	-0.07	1.23	72.8	-0.0099	-0.0144	0.0032
95	SLU 70	-0.07	0.95	73.26	0.004	-0.0155	0.0032
95	SLU 71	-0.07	1.26	72.47	-0.011	-0.0143	0.0032
95	SLU 72	-0.07	0.97	72.93	0.0029	-0.0154	0.0032
95	SLU 73	-0.08	0.37	80.88	0.0363	-0.0182	0.0037
95	SLU 74	-0.08	1.09	81.16	0.0024	-0.0164	0.0037
95	SLU 75	-0.08	0.8	81.62	0.0163	-0.0174	0.0037
95	SLU 76	-0.08	0.64	81.59	0.0244	-0.018	0.0037



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
95	SLU 77	-0.08	1.35	81.88	-0.0095	-0.0163	0.0037
95	SLU 78	-0.08	1.07	82.33	0.0044	-0.0173	0.0037
95	SLU 79	-0.08	1.38	81.54	-0.0106	-0.0162	0.0037
95	SLU 80	-0.08	1.09	82	0.0033	-0.0172	0.0037
95	SLU 81	-0.08	0.89	84	0.0133	-0.0172	0.0039
95	SLU 82	-0.09	0.61	84.46	0.0272	-0.0183	0.0039
95	SLU 83	-0.08	1.16	84.72	0.0014	-0.0171	0.0039
95	SLU 84	-0.08	0.88	85.17	0.0153	-0.0181	0.0039
95	SLE RA 1	-0.05	0.53	53.46	0.0099	-0.0109	0.0024
95	SLE RA 2	-0.05	0.22	53.97	0.0253	-0.012	0.0024
95	SLE RA 3	-0.05	0.69	54.16	0.0027	-0.0108	0.0024
95	SLE RA 4	-0.05	0.51	54.46	0.012	-0.0115	0.0024
95	SLE RA 5	-0.05	0.39	54.44	0.0174	-0.0119	0.0024
95	SLE RA 6	-0.05	0.87	54.63	-0.0051	-0.0108	0.0024
95	SLE RA 7	-0.05	0.68	54.94	0.0041	-0.0114	0.0024
95	SLE RA 8	-0.05	0.89	54.41	-0.0059	-0.0107	0.0024
95	SLE RA 9	-0.05	0.7	54.72	0.0034	-0.0114	0.0024
95	SLE RA 10	-0.06	0.3	60.02	0.0256	-0.0132	0.0027
95	SLE RA 11	-0.06	0.77	60.21	0.003	-0.0121	0.0027
95	SLE RA 12	-0.06	0.59	60.51	0.0123	-0.0128	0.0027
95	SLE RA 13	-0.06	0.47	60.49	0.0177	-0.0131	0.0027
95	SLE RA 14	-0.06	0.95	60.68	-0.0049	-0.012	0.0027
95	SLE RA 15	-0.06	0.76	60.99	0.0044	-0.0127	0.0027
95	SLE RA 16	-0.06	0.97	60.46	-0.0056	-0.0119	0.0027
95	SLE RA 17	-0.06	0.78	60.77	0.0036	-0.0126	0.0027
95	SLE RA 18	-0.06	0.65	62.1	0.0103	-0.0126	0.0028
95	SLE RA 19	-0.06	0.46	62.41	0.0196	-0.0133	0.0029
95	SLE RA 20	-0.06	0.82	62.58	0.0024	-0.0125	0.0028
95	SLE RA 21	-0.06	0.63	62.88	0.0117	-0.0132	0.0029
95	SLE FR 1	-0.05	0.53	53.46	0.0099	-0.0109	0.0024
95	SLE FR 2	-0.05	0.47	53.56	0.013	-0.0111	0.0024
95	SLE FR 3	-0.05	0.6	53.65	0.0068	-0.0108	0.0024
95	SLE FR 4	-0.05	0.5	56.15	0.0131	-0.0116	0.0025
95	SLE FR 5	-0.05	0.64	56.24	0.0069	-0.0114	0.0025
95	SLE FR 6	-0.06	0.59	57.78	0.0101	-0.0117	0.0026
95	SLE QP 1	-0.05	0.53	53.46	0.0099	-0.0109	0.0024
95	SLE QP 2	-0.05	0.57	56.05	0.01	-0.0114	0.0025
95	SLD 1	-0.02	1.53	47.85	-0.1522	0.007	0.0062
95	SLD 2	-0.02	1.53	47.85	-0.1522	0.007	0.0062
95	SLD 3	-0.01	-3.12	44.97	0.0545	0.014	0.0055
95	SLD 4	-0.01	-3.12	44.97	0.0545	0.014	0.0055
95	SLD 5	-0.07	7.91	57.95	-0.3521	-0.0165	0.0047
95	SLD 6	-0.07	7.91	57.95	-0.3521	-0.0165	0.0047
95	SLD 7	-0.01	-7.59	48.36	0.3368	0.0069	0.0024
95	SLD 8	-0.01	-7.59	48.36	0.3368	0.0069	0.0024
95	SLD 9	-0.09	8.72	63.73	-0.3167	-0.0297	0.0027
95	SLD 10	-0.09	8.72	63.73	-0.3167	-0.0297	0.0027
95	SLD 11	-0.04	-6.78	54.15	0.3721	-0.0063	0.0003
95	SLD 12	-0.04	-6.78	54.15	0.3721	-0.0063	0.0003
95	SLD 13	-0.1	4.25	67.13	-0.0344	-0.0368	-0.0005
95	SLD 14	-0.1	4.25	67.13	-0.0344	-0.0368	-0.0005
95	SLD 15	-0.08	-0.4	64.25	0.1723	-0.0298	-0.0012
95	SLD 16	-0.08	-0.4	64.25	0.1723	-0.0298	-0.0012
95	SLV 1	0.02	2.78	37.29	-0.3628	0.0312	0.0115
95	SLV 2	0.02	2.78	37.29	-0.3628	0.0312	0.0115
95	SLV 3	0.06	-7.92	30.5	0.1125	0.0479	0.0098
95	SLV 4	0.06	-7.92	30.5	0.1125	0.0479	0.0098
95	SLV 5	-0.1	17.46	60.73	-0.8227	-0.0241	0.0078
95	SLV 6	-0.1	17.46	60.73	-0.8227	-0.0241	0.0078
95	SLV 7	0.04	-18.21	38.08	0.7617	0.0318	0.0022
95	SLV 8	0.04	-18.21	38.08	0.7617	0.0318	0.0022
95	SLV 9	-0.15	19.34	74.02	-0.7416	-0.0546	0.0029
95	SLV 10	-0.15	19.34	74.02	-0.7416	-0.0546	0.0029
95	SLV 11	-0.01	-16.33	51.37	0.8428	0.0013	-0.0027
95	SLV 12	-0.01	-16.33	51.37	0.8428	0.0013	-0.0027
95	SLV 13	-0.17	9.05	81.6	-0.0924	-0.0707	-0.0048
95	SLV 14	-0.17	9.05	81.6	-0.0924	-0.0707	-0.0048
95	SLV 15	-0.12	-1.65	74.81	0.3829	-0.054	-0.0065
95	SLV 16	-0.12	-1.65	74.81	0.3829	-0.054	-0.0065
96	SLU 1	0.02	7.11	27.4	-0.4325	0.004	0
96	SLU 2	0.01	10.1	29.52	-0.5859	-0.001	0
96	SLU 3	0.02	7.06	27.87	-0.4326	0.0041	0
96	SLU 4	0.02	8.85	29.14	-0.5247	0.0011	0
96	SLU 5	0.01	9.9	29.71	-0.5782	-0.001	0
96	SLU 6	0.02	6.87	28.07	-0.425	0.0041	0
96	SLU 7	0.02	8.65	29.34	-0.517	0.0011	0
96	SLU 8	0.02	6.72	27.79	-0.4171	0.004	0
96	SLU 9	0.02	8.51	29.06	-0.5092	0.001	0
96	SLU 10	0.01	11.03	33.3	-0.6435	-0.0004	0
96	SLU 11	0.02	8	31.65	-0.4903	0.0046	0
96	SLU 12	0.02	9.79	32.92	-0.5823	0.0016	0
96	SLU 13	0.01	10.84	33.49	-0.6358	-0.0004	0
96	SLU 14	0.02	7.8	31.84	-0.4826	0.0046	0
96	SLU 15	0.02	9.59	33.11	-0.5746	0.0016	0
96	SLU 16	0.02	7.66	31.56	-0.4747	0.0045	0
96	SLU 17	0.02	9.45	32.83	-0.5668	0.0016	0
96	SLU 18	0.02	8.45	32.8	-0.5148	0.0047	0
96	SLU 19	0.02	10.24	34.07	-0.6068	0.0018	0
96	SLU 20	0.02	8.26	32.99	-0.5071	0.0048	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
96	SLU 21	0.02	10.05	34.26	-0.5991	0.0018	0
96	SLU 22	0.02	7.89	30.63	-0.4805	0.0045	0
96	SLU 23	0.01	10.87	32.75	-0.6339	-0.0005	0
96	SLU 24	0.02	7.83	31.11	-0.4806	0.0046	0
96	SLU 25	0.02	9.62	32.37	-0.5727	0.0016	0
96	SLU 26	0.01	10.67	32.94	-0.6262	-0.0005	0
96	SLU 27	0.02	7.64	31.3	-0.473	0.0046	0
96	SLU 28	0.02	9.42	32.57	-0.565	0.0016	0
96	SLU 29	0.02	7.49	31.02	-0.4651	0.0045	0
96	SLU 30	0.02	9.28	32.29	-0.5572	0.0015	0
96	SLU 31	0.02	11.81	36.53	-0.6915	0.0001	0
96	SLU 32	0.02	8.77	34.88	-0.5383	0.0051	0
96	SLU 33	0.02	10.56	36.15	-0.6303	0.0021	0
96	SLU 34	0.02	11.61	36.72	-0.6838	0.0001	0
96	SLU 35	0.03	8.57	35.08	-0.5306	0.0051	0
96	SLU 36	0.02	10.36	36.34	-0.6226	0.0021	0
96	SLU 37	0.02	8.43	34.8	-0.5227	0.005	0
96	SLU 38	0.02	10.22	36.07	-0.6148	0.0021	0
96	SLU 39	0.03	9.23	36.03	-0.5628	0.0052	0
96	SLU 40	0.02	11.01	37.3	-0.6548	0.0023	0
96	SLU 41	0.03	9.03	36.22	-0.5551	0.0053	0
96	SLU 42	0.02	10.82	37.49	-0.6471	0.0023	0
96	SLU 43	0.02	8.98	34.52	-0.5457	0.005	0
96	SLU 44	0.02	11.97	36.63	-0.6992	0.0001	0
96	SLU 45	0.02	8.93	34.99	-0.5459	0.0051	0
96	SLU 46	0.02	10.72	36.26	-0.638	0.0021	0
96	SLU 47	0.02	11.77	36.82	-0.6915	0.0001	0
96	SLU 48	0.02	8.74	35.18	-0.5382	0.0051	0
96	SLU 49	0.02	10.52	36.45	-0.6303	0.0021	0
96	SLU 50	0.02	8.59	34.9	-0.5304	0.0051	0
96	SLU 51	0.02	10.38	36.17	-0.6224	0.0021	0
96	SLU 52	0.02	12.9	40.41	-0.7568	0.0006	0
96	SLU 53	0.03	9.87	38.76	-0.6035	0.0056	0
96	SLU 54	0.02	11.66	40.03	-0.6956	0.0026	0
96	SLU 55	0.02	12.71	40.6	-0.7491	0.0006	0
96	SLU 56	0.03	9.67	38.96	-0.5959	0.0056	0
96	SLU 57	0.02	11.46	40.23	-0.6879	0.0027	0
96	SLU 58	0.03	9.53	38.68	-0.588	0.0056	0
96	SLU 59	0.02	11.32	39.95	-0.6801	0.0026	0
96	SLU 60	0.03	10.32	39.91	-0.628	0.0058	0
96	SLU 61	0.02	12.11	41.18	-0.7201	0.0028	0
96	SLU 62	0.03	10.13	40.1	-0.6204	0.0058	0
96	SLU 63	0.02	11.92	41.37	-0.7124	0.0028	0
96	SLU 64	0.03	9.76	37.75	-0.5937	0.0055	0
96	SLU 65	0.02	12.74	39.86	-0.7472	0.0006	0
96	SLU 66	0.03	9.7	38.22	-0.5939	0.0056	0
96	SLU 67	0.02	11.49	39.49	-0.686	0.0026	0
96	SLU 68	0.02	12.54	40.05	-0.7395	0.0006	0
96	SLU 69	0.03	9.51	38.41	-0.5862	0.0056	0
96	SLU 70	0.02	11.3	39.68	-0.6783	0.0026	0
96	SLU 71	0.03	9.36	38.13	-0.5784	0.0056	0
96	SLU 72	0.02	11.15	39.4	-0.6704	0.0026	0
96	SLU 73	0.02	13.68	43.64	-0.8048	0.0011	0
96	SLU 74	0.03	10.64	42	-0.6515	0.0061	0
96	SLU 75	0.03	12.43	43.27	-0.7436	0.0031	0
96	SLU 76	0.02	13.48	43.83	-0.7971	0.0011	0
96	SLU 77	0.03	10.44	42.19	-0.6439	0.0061	0
96	SLU 78	0.03	12.23	43.46	-0.7359	0.0031	0
96	SLU 79	0.03	10.3	41.91	-0.636	0.0061	0
96	SLU 80	0.03	12.09	43.18	-0.7281	0.0031	0
96	SLU 81	0.03	11.1	43.14	-0.676	0.0063	0
96	SLU 82	0.03	12.88	44.41	-0.7681	0.0033	0
96	SLU 83	0.03	10.9	43.34	-0.6684	0.0063	0
96	SLU 84	0.03	12.69	44.61	-0.7604	0.0033	0
96	SLE RA 1	0.02	7.34	28.33	-0.4462	0.0041	0
96	SLE RA 2	0.02	9.32	29.74	-0.5485	0.0008	0
96	SLE RA 3	0.02	7.3	28.64	-0.4463	0.0042	0
96	SLE RA 4	0.02	8.49	29.49	-0.5077	0.0022	0
96	SLE RA 5	0.02	9.19	29.86	-0.5433	0.0008	0
96	SLE RA 6	0.02	7.17	28.77	-0.4412	0.0042	0
96	SLE RA 7	0.02	8.36	29.61	-0.5026	0.0022	0
96	SLE RA 8	0.02	7.07	28.58	-0.4359	0.0042	0
96	SLE RA 9	0.02	8.26	29.43	-0.4973	0.0022	0
96	SLE RA 10	0.02	9.95	32.25	-0.5869	0.0012	0
96	SLE RA 11	0.02	7.93	31.16	-0.4847	0.0045	0
96	SLE RA 12	0.02	9.12	32	-0.5461	0.0025	0
96	SLE RA 13	0.02	9.82	32.38	-0.5818	0.0012	0
96	SLE RA 14	0.02	7.79	31.29	-0.4796	0.0045	0
96	SLE RA 15	0.02	8.99	32.13	-0.541	0.0026	0
96	SLE RA 16	0.02	7.7	31.1	-0.4743	0.0045	0
96	SLE RA 17	0.02	8.89	31.95	-0.5357	0.0025	0
96	SLE RA 18	0.02	8.23	31.92	-0.501	0.0046	0
96	SLE RA 19	0.02	9.42	32.77	-0.5624	0.0027	0
96	SLE RA 20	0.02	8.1	32.05	-0.4959	0.0046	0
96	SLE RA 21	0.02	9.29	32.9	-0.5573	0.0027	0
96	SLE FR 1	0.02	7.34	28.33	-0.4462	0.0041	0
96	SLE FR 2	0.02	7.73	28.61	-0.4666	0.0035	0
96	SLE FR 3	0.02	7.28	28.38	-0.4441	0.0041	0
96	SLE FR 4	0.02	8	29.69	-0.4831	0.0036	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
96	SLE FR 5	0.02	7.55	29.46	-0.4606	0.0043	0
96	SLE FR 6	0.02	7.78	30.12	-0.4736	0.0044	0
96	SLE QP 1	0.02	7.34	28.33	-0.4462	0.0041	0
96	SLE QP 2	0.02	7.6	29.41	-0.4626	0.0043	0
96	SLD 1	0.07	12.09	34.14	-0.6823	0.0164	0.0001
96	SLD 2	0.07	12.09	34.14	-0.6823	0.0164	0.0001
96	SLD 3	0.05	7.2	30.04	-0.4412	0.0245	0.0001
96	SLD 4	0.05	7.2	30.04	-0.4412	0.0245	0.0001
96	SLD 5	0.06	16.38	37.03	-0.8941	-0.0042	0.0001
96	SLD 6	0.06	16.38	37.03	-0.8941	-0.0042	0.0001
96	SLD 7	0.01	0.05	23.39	-0.0906	0.0225	0
96	SLD 8	0.01	0.05	23.39	-0.0906	0.0225	0
96	SLD 9	0.04	15.15	35.42	-0.8347	-0.0139	0
96	SLD 10	0.04	15.15	35.42	-0.8347	-0.0139	0
96	SLD 11	-0.02	-1.17	21.78	-0.0311	0.0128	0
96	SLD 12	-0.02	-1.17	21.78	-0.0311	0.0128	0
96	SLD 13	-0.01	8.01	28.77	-0.4841	-0.0159	0
96	SLD 14	-0.01	8.01	28.77	-0.4841	-0.0159	0
96	SLD 15	-0.03	3.11	24.67	-0.243	-0.0079	0
96	SLD 16	-0.03	3.11	24.67	-0.243	-0.0079	0
96	SLV 1	0.13	18.25	40.33	-0.9841	0.0316	0.0002
96	SLV 2	0.13	18.25	40.33	-0.9841	0.0316	0.0002
96	SLV 3	0.09	6.89	30.89	-0.4245	0.052	0.0001
96	SLV 4	0.09	6.89	30.89	-0.4245	0.052	0.0001
96	SLV 5	0.11	28.03	47	-1.4678	-0.0183	0.0001
96	SLV 6	0.11	28.03	47	-1.4678	-0.0183	0.0001
96	SLV 7	-0.02	-9.84	15.53	0.3976	0.0494	0
96	SLV 8	-0.02	-9.84	15.53	0.3976	0.0494	0
96	SLV 9	0.06	25.05	43.28	-1.3228	-0.0408	0
96	SLV 10	0.06	25.05	43.28	-1.3228	-0.0408	0
96	SLV 11	-0.07	-12.82	11.81	0.5426	0.0269	-0.0001
96	SLV 12	-0.07	-12.82	11.81	0.5426	0.0269	-0.0001
96	SLV 13	-0.05	8.31	27.92	-0.5008	-0.0434	-0.0001
96	SLV 14	-0.05	8.31	27.92	-0.5008	-0.0434	-0.0001
96	SLV 15	-0.09	-3.05	18.48	0.0588	-0.0231	-0.0001
96	SLV 16	-0.09	-3.05	18.48	0.0588	-0.0231	-0.0001
97	SLU 1	-0.12	12.05	59.18	-0.614	-0.0278	-0.0003
97	SLU 2	-0.07	14.1	62.13	-0.709	0.006	-0.0004
97	SLU 3	-0.13	12.47	61.06	-0.6358	-0.0288	-0.0004
97	SLU 4	-0.1	13.71	62.83	-0.6928	-0.0085	-0.0004
97	SLU 5	-0.07	14.37	63.34	-0.7227	0.0053	-0.0004
97	SLU 6	-0.13	12.73	62.27	-0.6495	-0.0294	-0.0004
97	SLU 7	-0.1	13.97	64.04	-0.7066	-0.0092	-0.0004
97	SLU 8	-0.13	12.57	61.61	-0.6414	-0.0291	-0.0004
97	SLU 9	-0.1	13.81	63.38	-0.6984	-0.0088	-0.0004
97	SLU 10	-0.09	15.52	69.5	-0.7833	0.0024	-0.0005
97	SLU 11	-0.14	13.88	68.43	-0.7101	-0.0324	-0.0004
97	SLU 12	-0.11	15.12	70.2	-0.7671	-0.0121	-0.0004
97	SLU 13	-0.09	15.78	70.71	-0.797	0.0017	-0.0005
97	SLU 14	-0.14	14.14	69.65	-0.7238	-0.0331	-0.0004
97	SLU 15	-0.11	15.38	71.41	-0.7808	-0.0128	-0.0005
97	SLU 16	-0.14	13.98	68.98	-0.7156	-0.0328	-0.0004
97	SLU 17	-0.11	15.22	70.75	-0.7727	-0.0125	-0.0004
97	SLU 18	-0.14	14.06	69.71	-0.72	-0.033	-0.0004
97	SLU 19	-0.11	15.3	71.48	-0.7771	-0.0127	-0.0005
97	SLU 20	-0.15	14.32	70.92	-0.7337	-0.0337	-0.0004
97	SLU 21	-0.12	15.56	72.69	-0.7908	-0.0134	-0.0005
97	SLU 22	-0.14	13.53	66.58	-0.6915	-0.0314	-0.0004
97	SLU 23	-0.09	15.59	69.53	-0.7866	0.0024	-0.0005
97	SLU 24	-0.14	13.96	68.47	-0.7134	-0.0324	-0.0004
97	SLU 25	-0.11	15.19	70.23	-0.7704	-0.0121	-0.0004
97	SLU 26	-0.09	15.85	70.74	-0.8003	0.0017	-0.0005
97	SLU 27	-0.14	14.22	69.68	-0.7271	-0.0331	-0.0004
97	SLU 28	-0.11	15.45	71.45	-0.7841	-0.0128	-0.0005
97	SLU 29	-0.14	14.06	69.01	-0.7189	-0.0328	-0.0004
97	SLU 30	-0.11	15.29	70.78	-0.776	-0.0125	-0.0004
97	SLU 31	-0.1	17	76.9	-0.8608	-0.0013	-0.0005
97	SLU 32	-0.16	15.37	75.84	-0.7876	-0.0361	-0.0004
97	SLU 33	-0.13	16.6	77.6	-0.8447	-0.0158	-0.0005
97	SLU 34	-0.1	17.26	78.12	-0.8745	-0.002	-0.0005
97	SLU 35	-0.16	15.63	77.05	-0.8013	-0.0367	-0.0005
97	SLU 36	-0.13	16.87	78.82	-0.8584	-0.0165	-0.0005
97	SLU 37	-0.16	15.47	76.38	-0.7932	-0.0364	-0.0004
97	SLU 38	-0.13	16.7	78.15	-0.8502	-0.0161	-0.0005
97	SLU 39	-0.16	15.55	77.11	-0.7976	-0.0366	-0.0005
97	SLU 40	-0.13	16.78	78.88	-0.8546	-0.0164	-0.0005
97	SLU 41	-0.16	15.81	78.33	-0.8113	-0.0373	-0.0005
97	SLU 42	-0.13	17.05	80.1	-0.8683	-0.017	-0.0005
97	SLU 43	-0.15	15.15	74.4	-0.7716	-0.0348	-0.0004
97	SLU 44	-0.1	17.21	77.34	-0.8666	-0.0011	-0.0005
97	SLU 45	-0.16	15.57	76.28	-0.7934	-0.0358	-0.0004
97	SLU 46	-0.13	16.81	78.05	-0.8504	-0.0156	-0.0005
97	SLU 47	-0.1	17.47	78.56	-0.8803	-0.0017	-0.0005
97	SLU 48	-0.16	15.84	77.49	-0.8071	-0.0365	-0.0004
97	SLU 49	-0.13	17.07	79.26	-0.8642	-0.0162	-0.0005
97	SLU 50	-0.16	15.67	76.82	-0.799	-0.0362	-0.0004
97	SLU 51	-0.13	16.91	78.59	-0.856	-0.0159	-0.0005
97	SLU 52	-0.12	18.62	84.71	-0.9409	-0.0047	-0.0006
97	SLU 53	-0.17	16.99	83.65	-0.8677	-0.0395	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
97	SLU 54	-0.14	18.22	85.42	-0.9247	-0.0192	-0.0005
97	SLU 55	-0.12	18.88	85.93	-0.9546	-0.0054	-0.0006
97	SLU 56	-0.18	17.25	84.86	-0.8814	-0.0402	-0.0005
97	SLU 57	-0.14	18.48	86.63	-0.9384	-0.0199	-0.0005
97	SLU 58	-0.17	17.08	84.19	-0.8732	-0.0398	-0.0005
97	SLU 59	-0.14	18.32	85.96	-0.9303	-0.0196	-0.0005
97	SLU 60	-0.18	17.16	84.93	-0.8776	-0.0401	-0.0005
97	SLU 61	-0.14	18.4	86.69	-0.9347	-0.0198	-0.0005
97	SLU 62	-0.18	17.43	86.14	-0.8913	-0.0407	-0.0005
97	SLU 63	-0.15	18.66	87.91	-0.9484	-0.0205	-0.0005
97	SLU 64	-0.17	16.64	81.8	-0.8491	-0.0385	-0.0005
97	SLU 65	-0.12	18.7	84.75	-0.9442	-0.0047	-0.0005
97	SLU 66	-0.17	17.06	83.68	-0.871	-0.0395	-0.0005
97	SLU 67	-0.14	18.3	85.45	-0.928	-0.0192	-0.0005
97	SLU 68	-0.12	18.96	85.96	-0.9579	-0.0054	-0.0006
97	SLU 69	-0.18	17.32	84.89	-0.8847	-0.0402	-0.0005
97	SLU 70	-0.14	18.56	86.66	-0.9417	-0.0199	-0.0005
97	SLU 71	-0.17	17.16	84.23	-0.8765	-0.0398	-0.0005
97	SLU 72	-0.14	18.4	85.99	-0.9336	-0.0196	-0.0005
97	SLU 73	-0.13	20.11	92.12	-1.0184	-0.0084	-0.0006
97	SLU 74	-0.19	18.47	91.05	-0.9452	-0.0431	-0.0005
97	SLU 75	-0.16	19.71	92.82	-1.0023	-0.0229	-0.0006
97	SLU 76	-0.14	20.37	93.33	-1.0321	-0.009	-0.0006
97	SLU 77	-0.19	18.73	92.26	-0.9589	-0.0438	-0.0005
97	SLU 78	-0.16	19.97	94.03	-1.016	-0.0235	-0.0006
97	SLU 79	-0.19	18.57	91.6	-0.9508	-0.0435	-0.0005
97	SLU 80	-0.16	19.81	93.37	-1.0078	-0.0232	-0.0006
97	SLU 81	-0.19	18.65	92.33	-0.9552	-0.0437	-0.0005
97	SLU 82	-0.16	19.89	94.1	-1.0122	-0.0234	-0.0006
97	SLU 83	-0.19	18.91	93.54	-0.9689	-0.0444	-0.0005
97	SLU 84	-0.16	20.15	95.31	-1.0259	-0.0241	-0.0006
97	SLE RA 1	-0.13	12.47	61.3	-0.6361	-0.0288	-0.0004
97	SLE RA 2	-0.09	13.84	63.26	-0.6995	-0.0063	-0.0004
97	SLE RA 3	-0.13	12.75	62.55	-0.6507	-0.0295	-0.0004
97	SLE RA 4	-0.11	13.58	63.73	-0.6887	-0.016	-0.0004
97	SLE RA 5	-0.09	14.02	64.07	-0.7086	-0.0067	-0.0004
97	SLE RA 6	-0.13	12.93	63.36	-0.6598	-0.0299	-0.0004
97	SLE RA 7	-0.11	13.75	64.54	-0.6978	-0.0164	-0.0004
97	SLE RA 8	-0.13	12.82	62.91	-0.6544	-0.0297	-0.0004
97	SLE RA 9	-0.11	13.64	64.09	-0.6924	-0.0162	-0.0004
97	SLE RA 10	-0.1	14.78	68.17	-0.749	-0.0087	-0.0004
97	SLE RA 11	-0.14	13.69	67.46	-0.7002	-0.0319	-0.0004
97	SLE RA 12	-0.12	14.52	68.64	-0.7382	-0.0184	-0.0004
97	SLE RA 13	-0.1	14.96	68.98	-0.7581	-0.0092	-0.0004
97	SLE RA 14	-0.14	13.87	68.27	-0.7093	-0.0323	-0.0004
97	SLE RA 15	-0.12	14.69	69.45	-0.7474	-0.0188	-0.0004
97	SLE RA 16	-0.14	13.76	67.83	-0.7039	-0.0321	-0.0004
97	SLE RA 17	-0.12	14.58	69.01	-0.7419	-0.0186	-0.0004
97	SLE RA 18	-0.14	13.81	68.32	-0.7068	-0.0323	-0.0004
97	SLE RA 19	-0.12	14.64	69.49	-0.7449	-0.0188	-0.0004
97	SLE RA 20	-0.14	13.99	69.12	-0.716	-0.0327	-0.0004
97	SLE RA 21	-0.12	14.81	70.3	-0.754	-0.0192	-0.0004
97	SLE FR 1	-0.13	12.47	61.3	-0.6361	-0.0288	-0.0004
97	SLE FR 2	-0.12	12.75	61.69	-0.6488	-0.0243	-0.0004
97	SLE FR 3	-0.13	12.54	61.62	-0.6398	-0.029	-0.0004
97	SLE FR 4	-0.12	13.15	63.8	-0.67	-0.0253	-0.0004
97	SLE FR 5	-0.13	12.94	63.73	-0.661	-0.03	-0.0004
97	SLE FR 6	-0.13	13.14	64.81	-0.6715	-0.0305	-0.0004
97	SLE QP 1	-0.13	12.47	61.3	-0.6361	-0.0288	-0.0004
97	SLE QP 2	-0.13	12.87	63.4	-0.6573	-0.0298	-0.0004
97	SLD 1	-0.12	13	45.63	-0.6477	0.0444	-0.0003
97	SLD 2	-0.12	13	45.63	-0.6477	0.0444	-0.0003
97	SLD 3	-0.02	8.01	34.4	-0.4096	-0.0055	-0.0002
97	SLD 4	-0.02	8.01	34.4	-0.4096	-0.0055	-0.0002
97	SLD 5	-0.27	20.49	75.11	-1.0155	0.0682	-0.0005
97	SLD 6	-0.27	20.49	75.11	-1.0155	0.0682	-0.0005
97	SLD 7	0.05	3.83	37.66	-0.222	-0.0983	-0.0001
97	SLD 8	0.05	3.83	37.66	-0.222	-0.0983	-0.0001
97	SLD 9	-0.31	21.91	89.14	-1.0927	0.0386	-0.0006
97	SLD 10	-0.31	21.91	89.14	-1.0927	0.0386	-0.0006
97	SLD 11	0.01	5.25	51.69	-0.2992	-0.1279	-0.0002
97	SLD 12	0.01	5.25	51.69	-0.2992	-0.1279	-0.0002
97	SLD 13	-0.24	17.74	92.4	-0.905	-0.0542	-0.0006
97	SLD 14	-0.24	17.74	92.4	-0.905	-0.0542	-0.0006
97	SLD 15	-0.15	12.74	81.17	-0.667	-0.1041	-0.0005
97	SLD 16	-0.15	12.74	81.17	-0.667	-0.1041	-0.0005
97	SLV 1	-0.1	13.06	22.68	-0.63	0.1496	-0.0002
97	SLV 2	-0.1	13.06	22.68	-0.63	0.1496	-0.0002
97	SLV 3	0.13	1.61	-3.12	-0.0851	0.023	0.0001
97	SLV 4	0.13	1.61	-3.12	-0.0851	0.023	0.0001
97	SLV 5	-0.49	30.3	90.31	-1.4756	0.2159	-0.0007
97	SLV 6	-0.49	30.3	90.31	-1.4756	0.2159	-0.0007
97	SLV 7	0.31	-7.87	4.32	0.3408	-0.2059	0.0002
97	SLV 8	0.31	-7.87	4.32	0.3408	-0.2059	0.0002
97	SLV 9	-0.57	33.62	122.49	-1.6555	0.1462	-0.0009
97	SLV 10	-0.57	33.62	122.49	-1.6555	0.1462	-0.0009
97	SLV 11	0.22	-4.55	36.49	0.1609	-0.2756	0
97	SLV 12	0.22	-4.55	36.49	0.1609	-0.2756	0
97	SLV 13	-0.4	24.14	129.93	-1.2296	-0.0827	-0.0009





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
97	SLV 14	-0.4	24.14	129.93	-1.2296	-0.0827	-0.0009
97	SLV 15	-0.16	12.69	104.13	-0.6847	-0.2093	-0.0006
97	SLV 16	-0.16	12.69	104.13	-0.6847	-0.2093	-0.0006
98	SLU 1	0.04	8.33	26.24	-0.4105	-0.0132	0.0003
98	SLU 2	-0.02	10	25.93	-0.4754	-0.052	0.0003
98	SLU 3	0.05	8.67	27.17	-0.4279	-0.0135	0.0003
98	SLU 4	0.01	9.67	26.99	-0.4669	-0.0368	0.0003
98	SLU 5	-0.02	10.26	26.7	-0.4891	-0.0521	0.0003
98	SLU 6	0.05	8.93	27.94	-0.4416	-0.0136	0.0003
98	SLU 7	0.01	9.93	27.75	-0.4805	-0.0368	0.0003
98	SLU 8	0.05	8.85	27.78	-0.4379	-0.0133	0.0003
98	SLU 9	0.01	9.85	27.59	-0.4768	-0.0366	0.0003
98	SLU 10	-0.01	10.78	28.73	-0.5166	-0.0539	0.0003
98	SLU 11	0.05	9.45	29.97	-0.4691	-0.0154	0.0003
98	SLU 12	0.01	10.45	29.78	-0.508	-0.0386	0.0003
98	SLU 13	-0.01	11.04	29.49	-0.5303	-0.0539	0.0003
98	SLU 14	0.05	9.71	30.74	-0.4828	-0.0154	0.0003
98	SLU 15	0.02	10.71	30.55	-0.5217	-0.0387	0.0003
98	SLU 16	0.05	9.63	30.57	-0.4791	-0.0152	0.0003
98	SLU 17	0.01	10.63	30.38	-0.518	-0.0385	0.0003
98	SLU 18	0.05	9.44	30.23	-0.4694	-0.0159	0.0003
98	SLU 19	0.01	10.45	30.05	-0.5083	-0.0392	0.0003
98	SLU 20	0.05	9.7	31	-0.4831	-0.016	0.0003
98	SLU 21	0.02	10.71	30.81	-0.522	-0.0392	0.0003
98	SLU 22	0.05	9.21	29.12	-0.4564	-0.0151	0.0003
98	SLU 23	-0.01	10.88	28.81	-0.5213	-0.0538	0.0003
98	SLU 24	0.05	9.55	30.05	-0.4738	-0.0153	0.0003
98	SLU 25	0.01	10.56	29.86	-0.5127	-0.0386	0.0003
98	SLU 26	-0.01	11.14	29.57	-0.535	-0.0539	0.0003
98	SLU 27	0.05	9.81	30.82	-0.4874	-0.0154	0.0003
98	SLU 28	0.02	10.82	30.63	-0.5264	-0.0386	0.0003
98	SLU 29	0.05	9.73	30.65	-0.4837	-0.0152	0.0003
98	SLU 30	0.01	10.74	30.46	-0.5227	-0.0384	0.0003
98	SLU 31	-0.01	11.67	31.6	-0.5625	-0.0557	0.0004
98	SLU 32	0.06	10.33	32.84	-0.515	-0.0172	0.0004
98	SLU 33	0.02	11.34	32.66	-0.5539	-0.0405	0.0004
98	SLU 34	-0.01	11.93	32.37	-0.5761	-0.0558	0.0004
98	SLU 35	0.06	10.59	33.61	-0.5286	-0.0172	0.0004
98	SLU 36	0.02	11.6	33.42	-0.5676	-0.0405	0.0004
98	SLU 37	0.06	10.51	33.45	-0.5249	-0.017	0.0004
98	SLU 38	0.02	11.52	33.26	-0.5639	-0.0403	0.0004
98	SLU 39	0.06	10.33	33.11	-0.5152	-0.0177	0.0004
98	SLU 40	0.02	11.33	32.92	-0.5542	-0.041	0.0004
98	SLU 41	0.06	10.59	33.88	-0.5289	-0.0178	0.0004
98	SLU 42	0.02	11.59	33.69	-0.5678	-0.041	0.0004
98	SLU 43	0.06	10.52	33.13	-0.518	-0.0166	0.0004
98	SLU 44	-0.01	12.19	32.82	-0.5829	-0.0554	0.0004
98	SLU 45	0.06	10.86	34.06	-0.5354	-0.0169	0.0004
98	SLU 46	0.02	11.86	33.87	-0.5743	-0.0401	0.0004
98	SLU 47	-0.01	12.45	33.58	-0.5966	-0.0554	0.0004
98	SLU 48	0.06	11.12	34.83	-0.5491	-0.0169	0.0004
98	SLU 49	0.02	12.12	34.64	-0.588	-0.0402	0.0004
98	SLU 50	0.06	11.04	34.66	-0.5454	-0.0167	0.0004
98	SLU 51	0.02	12.04	34.48	-0.5843	-0.04	0.0004
98	SLU 52	0	12.97	35.61	-0.6241	-0.0572	0.0004
98	SLU 53	0.06	11.64	36.86	-0.5766	-0.0187	0.0004
98	SLU 54	0.03	12.65	36.67	-0.6155	-0.042	0.0004
98	SLU 55	0	13.23	36.38	-0.6378	-0.0573	0.0004
98	SLU 56	0.06	11.9	37.62	-0.5902	-0.0188	0.0004
98	SLU 57	0.03	12.91	37.44	-0.6292	-0.042	0.0004
98	SLU 58	0.06	11.82	37.46	-0.5865	-0.0186	0.0004
98	SLU 59	0.03	12.83	37.27	-0.6255	-0.0418	0.0004
98	SLU 60	0.06	11.64	37.12	-0.5768	-0.0193	0.0004
98	SLU 61	0.03	12.64	36.93	-0.6158	-0.0425	0.0004
98	SLU 62	0.06	11.9	37.89	-0.5905	-0.0193	0.0004
98	SLU 63	0.03	12.9	37.7	-0.6295	-0.0426	0.0004
98	SLU 64	0.06	11.41	36	-0.5638	-0.0184	0.0004
98	SLU 65	0	13.08	35.69	-0.6287	-0.0572	0.0004
98	SLU 66	0.06	11.75	36.94	-0.5812	-0.0187	0.0004
98	SLU 67	0.03	12.75	36.75	-0.6201	-0.0419	0.0004
98	SLU 68	0	13.34	36.46	-0.6424	-0.0572	0.0004
98	SLU 69	0.06	12.01	37.7	-0.5949	-0.0187	0.0004
98	SLU 70	0.03	13.01	37.52	-0.6338	-0.042	0.0004
98	SLU 71	0.06	11.93	37.54	-0.5912	-0.0185	0.0004
98	SLU 72	0.03	12.93	37.35	-0.6301	-0.0418	0.0004
98	SLU 73	0	13.86	38.49	-0.6699	-0.0591	0.0004
98	SLU 74	0.07	12.53	39.73	-0.6224	-0.0205	0.0004
98	SLU 75	0.03	13.53	39.54	-0.6613	-0.0438	0.0004
98	SLU 76	0	14.12	39.25	-0.6836	-0.0591	0.0004
98	SLU 77	0.07	12.79	40.5	-0.6361	-0.0206	0.0005
98	SLU 78	0.03	13.79	40.31	-0.675	-0.0439	0.0005
98	SLU 79	0.07	12.71	40.33	-0.6324	-0.0204	0.0005
98	SLU 80	0.03	13.71	40.15	-0.6713	-0.0436	0.0005
98	SLU 81	0.07	12.52	40	-0.6227	-0.0211	0.0005
98	SLU 82	0.03	13.53	39.81	-0.6616	-0.0443	0.0004
98	SLU 83	0.07	12.78	40.76	-0.6364	-0.0211	0.0005
98	SLU 84	0.03	13.79	40.58	-0.6753	-0.0444	0.0005
98	SLE RA 1	0.05	8.58	27.06	-0.4236	-0.0138	0.0003
98	SLE RA 2	0	9.69	26.86	-0.4669	-0.0396	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
98	SLE RA 3	0.05	8.81	27.68	-0.4352	-0.0139	0.0003
98	SLE RA 4	0.02	9.48	27.56	-0.4612	-0.0295	0.0003
98	SLE RA 5	0.01	9.87	27.37	-0.476	-0.0396	0.0003
98	SLE RA 6	0.05	8.98	28.2	-0.4444	-0.014	0.0003
98	SLE RA 7	0.02	9.65	28.07	-0.4703	-0.0295	0.0003
98	SLE RA 8	0.05	8.93	28.09	-0.4419	-0.0138	0.0003
98	SLE RA 9	0.02	9.6	27.96	-0.4678	-0.0293	0.0003
98	SLE RA 10	0.01	10.22	28.72	-0.4944	-0.0409	0.0003
98	SLE RA 11	0.05	9.33	29.55	-0.4627	-0.0152	0.0003
98	SLE RA 12	0.03	10	29.42	-0.4886	-0.0307	0.0003
98	SLE RA 13	0.01	10.39	29.23	-0.5035	-0.0409	0.0003
98	SLE RA 14	0.05	9.5	30.06	-0.4718	-0.0152	0.0003
98	SLE RA 15	0.03	10.17	29.94	-0.4978	-0.0307	0.0003
98	SLE RA 16	0.05	9.45	29.95	-0.4693	-0.0151	0.0003
98	SLE RA 17	0.03	10.12	29.83	-0.4953	-0.0306	0.0003
98	SLE RA 18	0.05	9.32	29.73	-0.4629	-0.0155	0.0003
98	SLE RA 19	0.03	9.99	29.6	-0.4888	-0.0311	0.0003
98	SLE RA 20	0.05	9.5	30.24	-0.472	-0.0156	0.0003
98	SLE RA 21	0.03	10.17	30.11	-0.4979	-0.0311	0.0003
98	SLE FR 1	0.05	8.58	27.06	-0.4236	-0.0138	0.0003
98	SLE FR 2	0.04	8.8	27.02	-0.4323	-0.0189	0.0003
98	SLE FR 3	0.05	8.65	27.27	-0.4273	-0.0138	0.0003
98	SLE FR 4	0.04	9.03	27.82	-0.4441	-0.0195	0.0003
98	SLE FR 5	0.05	8.87	28.07	-0.4391	-0.0143	0.0003
98	SLE FR 6	0.05	8.95	28.39	-0.4433	-0.0147	0.0003
98	SLE QP 1	0.05	8.58	27.06	-0.4236	-0.0138	0.0003
98	SLE QP 2	0.05	8.8	27.86	-0.4354	-0.0143	0.0003
98	SLD 1	0.05	14.84	44.8	-0.6885	0.006	0.0005
98	SLD 2	0.05	14.84	44.8	-0.6885	0.006	0.0005
98	SLD 3	0.14	8.42	37.49	-0.391	0.0517	0.0004
98	SLD 4	0.14	8.42	37.49	-0.391	0.0517	0.0004
98	SLD 5	-0.09	20.34	44.04	-0.9626	-0.0776	0.0005
98	SLD 6	-0.09	20.34	44.04	-0.9626	-0.0776	0.0005
98	SLD 7	0.21	-1.04	19.65	0.0291	0.0749	0.0002
98	SLD 8	0.21	-1.04	19.65	0.0291	0.0749	0.0002
98	SLD 9	-0.12	18.65	36.07	-0.9	-0.1035	0.0004
98	SLD 10	-0.12	18.65	36.07	-0.9	-0.1035	0.0004
98	SLD 11	0.18	-2.74	11.68	0.0918	0.049	0.0001
98	SLD 12	0.18	-2.74	11.68	0.0918	0.049	0.0001
98	SLD 13	-0.05	9.19	18.24	-0.4798	-0.0803	0.0002
98	SLD 14	-0.05	9.19	18.24	-0.4798	-0.0803	0.0002
98	SLD 15	0.04	2.77	10.92	-0.1823	-0.0346	0.0001
98	SLD 16	0.04	2.77	10.92	-0.1823	-0.0346	0.0001
98	SLV 1	0.05	22.76	66.56	-1.0194	0.0301	0.0008
98	SLV 2	0.05	22.76	66.56	-1.0194	0.0301	0.0008
98	SLV 3	0.28	8	49.64	-0.3355	0.1458	0.0006
98	SLV 4	0.28	8	49.64	-0.3355	0.1458	0.0006
98	SLV 5	-0.3	35.38	65.13	-1.648	-0.1764	0.0007
98	SLV 6	-0.3	35.38	65.13	-1.648	-0.1764	0.0007
98	SLV 7	0.46	-13.82	8.73	0.6319	0.2092	0.0001
98	SLV 8	0.46	-13.82	8.73	0.6319	0.2092	0.0001
98	SLV 9	-0.37	31.43	46.99	-1.5027	-0.2378	0.0005
98	SLV 10	-0.37	31.43	46.99	-1.5027	-0.2378	0.0005
98	SLV 11	0.39	-17.77	-9.41	0.7771	0.1478	-0.0001
98	SLV 12	0.39	-17.77	-9.41	0.7771	0.1478	-0.0001
98	SLV 13	-0.19	9.6	6.08	-0.5354	-0.1744	0
98	SLV 14	-0.19	9.6	6.08	-0.5354	-0.1744	0
98	SLV 15	0.04	-5.16	-10.84	0.1486	-0.0587	-0.0002
98	SLV 16	0.04	-5.16	-10.84	0.1486	-0.0587	-0.0002
99	SLU 1	0.03	0.36	42.84	-0.0087	0.0204	0.0002
99	SLU 2	0.03	-0.08	42.97	0.0111	0.0217	0.0002
99	SLU 3	0.03	0.76	44.34	-0.0269	0.0211	0.0002
99	SLU 4	0.03	0.5	44.41	-0.015	0.0219	0.0002
99	SLU 5	0.03	0.35	44.25	-0.0087	0.0223	0.0003
99	SLU 6	0.03	1.19	45.62	-0.0467	0.0217	0.0002
99	SLU 7	0.03	0.93	45.69	-0.0348	0.0225	0.0003
99	SLU 8	0.03	1.22	45.4	-0.0483	0.0215	0.0002
99	SLU 9	0.03	0.96	45.48	-0.0364	0.0223	0.0003
99	SLU 10	0.03	0.15	50.24	0.0032	0.0212	0.0003
99	SLU 11	0.03	0.99	51.62	-0.0348	0.0206	0.0002
99	SLU 12	0.03	0.73	51.69	-0.0229	0.0214	0.0003
99	SLU 13	0.03	0.58	51.52	-0.0166	0.0217	0.0003
99	SLU 14	0.03	1.42	52.9	-0.0546	0.0211	0.0003
99	SLU 15	0.03	1.16	52.97	-0.0427	0.0219	0.0003
99	SLU 16	0.03	1.45	52.68	-0.0562	0.021	0.0002
99	SLU 17	0.03	1.19	52.76	-0.0443	0.0217	0.0003
99	SLU 18	0.02	0.69	53.24	-0.0199	0.0196	0.0002
99	SLU 19	0.03	0.42	53.31	-0.008	0.0204	0.0003
99	SLU 20	0.03	1.12	54.52	-0.0397	0.0201	0.0002
99	SLU 21	0.03	0.85	54.59	-0.0278	0.0209	0.0003
99	SLU 22	0.03	0.67	47.72	-0.0214	0.0228	0.0003
99	SLU 23	0.03	0.23	47.84	-0.0016	0.0242	0.0003
99	SLU 24	0.03	1.08	49.21	-0.0396	0.0236	0.0003
99	SLU 25	0.03	0.81	49.29	-0.0277	0.0244	0.0003
99	SLU 26	0.03	0.67	49.12	-0.0214	0.0247	0.0003
99	SLU 27	0.03	1.51	50.49	-0.0594	0.0241	0.0003
99	SLU 28	0.03	1.25	50.57	-0.0475	0.0249	0.0003
99	SLU 29	0.03	1.54	50.28	-0.061	0.024	0.0003
99	SLU 30	0.03	1.27	50.35	-0.0491	0.0248	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
99	SLU 31	0.03	0.46	55.12	-0.0094	0.0236	0.0003
99	SLU 32	0.03	1.31	56.49	-0.0475	0.023	0.0003
99	SLU 33	0.03	1.04	56.57	-0.0356	0.0238	0.0003
99	SLU 34	0.03	0.9	56.4	-0.0292	0.0241	0.0003
99	SLU 35	0.03	1.74	57.77	-0.0673	0.0236	0.0003
99	SLU 36	0.03	1.48	57.85	-0.0554	0.0244	0.0003
99	SLU 37	0.03	1.77	57.56	-0.0689	0.0234	0.0003
99	SLU 38	0.03	1.5	57.63	-0.057	0.0242	0.0003
99	SLU 39	0.03	1	58.12	-0.0326	0.022	0.0003
99	SLU 40	0.03	0.74	58.19	-0.0207	0.0228	0.0003
99	SLU 41	0.03	1.43	59.4	-0.0524	0.0226	0.0003
99	SLU 42	0.03	1.17	59.47	-0.0405	0.0234	0.0003
99	SLU 43	0.03	0.36	54.02	-0.007	0.0257	0.0003
99	SLU 44	0.04	-0.08	54.15	0.0128	0.027	0.0003
99	SLU 45	0.03	0.76	55.52	-0.0252	0.0264	0.0003
99	SLU 46	0.04	0.5	55.59	-0.0133	0.0272	0.0003
99	SLU 47	0.04	0.35	55.43	-0.007	0.0276	0.0003
99	SLU 48	0.04	1.19	56.8	-0.045	0.027	0.0003
99	SLU 49	0.04	0.93	56.87	-0.0331	0.0278	0.0003
99	SLU 50	0.04	1.22	56.58	-0.0466	0.0268	0.0003
99	SLU 51	0.04	0.96	56.66	-0.0347	0.0276	0.0003
99	SLU 52	0.04	0.15	61.43	0.005	0.0264	0.0003
99	SLU 53	0.03	0.99	62.8	-0.033	0.0259	0.0003
99	SLU 54	0.04	0.73	62.87	-0.0211	0.0267	0.0003
99	SLU 55	0.04	0.58	62.71	-0.0148	0.027	0.0003
99	SLU 56	0.03	1.42	64.08	-0.0528	0.0264	0.0003
99	SLU 57	0.04	1.16	64.15	-0.0409	0.0272	0.0003
99	SLU 58	0.03	1.45	63.86	-0.0544	0.0262	0.0003
99	SLU 59	0.04	1.19	63.94	-0.0425	0.027	0.0003
99	SLU 60	0.03	0.68	64.42	-0.0182	0.0249	0.0003
99	SLU 61	0.03	0.42	64.5	-0.0063	0.0257	0.0003
99	SLU 62	0.03	1.12	65.7	-0.038	0.0254	0.0003
99	SLU 63	0.03	0.85	65.78	-0.0261	0.0262	0.0003
99	SLU 64	0.04	0.67	58.9	-0.0197	0.0281	0.0003
99	SLU 65	0.04	0.23	59.02	0.0002	0.0295	0.0003
99	SLU 66	0.04	1.08	60.39	-0.0379	0.0289	0.0003
99	SLU 67	0.04	0.81	60.47	-0.026	0.0297	0.0003
99	SLU 68	0.04	0.66	60.3	-0.0197	0.03	0.0003
99	SLU 69	0.04	1.51	61.67	-0.0577	0.0294	0.0003
99	SLU 70	0.04	1.24	61.75	-0.0458	0.0302	0.0003
99	SLU 71	0.04	1.54	61.46	-0.0593	0.0293	0.0003
99	SLU 72	0.04	1.27	61.53	-0.0474	0.03	0.0003
99	SLU 73	0.04	0.46	66.3	-0.0077	0.0289	0.0003
99	SLU 74	0.04	1.31	67.67	-0.0457	0.0283	0.0003
99	SLU 75	0.04	1.04	67.75	-0.0338	0.0291	0.0003
99	SLU 76	0.04	0.89	67.58	-0.0275	0.0294	0.0004
99	SLU 77	0.04	1.74	68.95	-0.0655	0.0289	0.0003
99	SLU 78	0.04	1.47	69.03	-0.0536	0.0296	0.0004
99	SLU 79	0.04	1.77	68.74	-0.0671	0.0287	0.0003
99	SLU 80	0.04	1.5	68.81	-0.0552	0.0295	0.0004
99	SLU 81	0.04	1	69.3	-0.0309	0.0273	0.0003
99	SLU 82	0.04	0.74	69.37	-0.019	0.0281	0.0003
99	SLU 83	0.04	1.43	70.58	-0.0507	0.0279	0.0003
99	SLU 84	0.04	1.17	70.65	-0.0388	0.0287	0.0004
99	SLE RA 1	0.03	0.45	44.23	-0.0123	0.0211	0.0002
99	SLE RA 2	0.03	0.15	44.32	0.0009	0.022	0.0002
99	SLE RA 3	0.03	0.72	45.23	-0.0245	0.0216	0.0002
99	SLE RA 4	0.03	0.54	45.28	-0.0165	0.0221	0.0002
99	SLE RA 5	0.03	0.44	45.17	-0.0123	0.0224	0.0003
99	SLE RA 6	0.03	1.01	46.08	-0.0377	0.022	0.0002
99	SLE RA 7	0.03	0.83	46.13	-0.0297	0.0225	0.0003
99	SLE RA 8	0.03	1.02	45.94	-0.0387	0.0219	0.0002
99	SLE RA 9	0.03	0.85	45.99	-0.0308	0.0224	0.0003
99	SLE RA 10	0.03	0.31	49.17	-0.0044	0.0216	0.0003
99	SLE RA 11	0.03	0.87	50.08	-0.0297	0.0212	0.0002
99	SLE RA 12	0.03	0.69	50.13	-0.0218	0.0217	0.0003
99	SLE RA 13	0.03	0.6	50.02	-0.0176	0.022	0.0003
99	SLE RA 14	0.03	1.16	50.94	-0.0429	0.0216	0.0003
99	SLE RA 15	0.03	0.98	50.99	-0.035	0.0221	0.0003
99	SLE RA 16	0.03	1.18	50.79	-0.044	0.0215	0.0002
99	SLE RA 17	0.03	1	50.84	-0.0361	0.022	0.0003
99	SLE RA 18	0.03	0.67	51.17	-0.0198	0.0206	0.0002
99	SLE RA 19	0.03	0.49	51.22	-0.0119	0.0211	0.0003
99	SLE RA 20	0.03	0.96	52.02	-0.033	0.0209	0.0002
99	SLE RA 21	0.03	0.78	52.07	-0.0251	0.0215	0.0003
99	SLE FR 1	0.03	0.45	44.23	-0.0123	0.0211	0.0002
99	SLE FR 2	0.03	0.39	44.25	-0.0097	0.0213	0.0002
99	SLE FR 3	0.03	0.56	44.58	-0.0176	0.0213	0.0002
99	SLE FR 4	0.03	0.46	46.33	-0.0119	0.0211	0.0002
99	SLE FR 5	0.03	0.63	46.66	-0.0199	0.0211	0.0002
99	SLE FR 6	0.03	0.56	47.7	-0.0161	0.0208	0.0002
99	SLE QP 1	0.03	0.45	44.23	-0.0123	0.0211	0.0002
99	SLE QP 2	0.03	0.51	46.31	-0.0146	0.0209	0.0002
99	SLD 1	0.08	1.31	53.99	-0.0538	0.0953	0.0005
99	SLD 2	0.08	1.31	53.99	-0.0538	0.0953	0.0005
99	SLD 3	0.06	-3.22	51.15	0.1547	0.0854	0.0004
99	SLD 4	0.06	-3.22	51.15	0.1547	0.0854	0.0004
99	SLD 5	0.07	7.62	52.93	-0.3427	0.0584	0.0005
99	SLD 6	0.07	7.62	52.93	-0.3427	0.0584	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
99	SLD 7	0.01	-7.47	43.45	0.3526	0.0251	0.0001
99	SLD 8	0.01	-7.47	43.45	0.3526	0.0251	0.0001
99	SLD 9	0.05	8.5	49.18	-0.3817	0.0168	0.0004
99	SLD 10	0.05	8.5	49.18	-0.3817	0.0168	0.0004
99	SLD 11	-0.02	-6.59	39.7	0.3135	-0.0165	-0.0001
99	SLD 12	-0.02	-6.59	39.7	0.3135	-0.0165	-0.0001
99	SLD 13	-0.01	4.25	41.48	-0.1839	-0.0435	0.0001
99	SLD 14	-0.01	4.25	41.48	-0.1839	-0.0435	0.0001
99	SLD 15	-0.03	-0.28	38.64	0.0247	-0.0535	-0.0001
99	SLD 16	-0.03	-0.28	38.64	0.0247	-0.0535	-0.0001
99	SLV 1	0.16	2.34	64.08	-0.1045	0.2005	0.001
99	SLV 2	0.16	2.34	64.08	-0.1045	0.2005	0.001
99	SLV 3	0.11	-8.04	57.41	0.3735	0.1763	0.0006
99	SLV 4	0.11	-8.04	57.41	0.3735	0.1763	0.0006
99	SLV 5	0.14	16.8	61.75	-0.7665	0.1115	0.001
99	SLV 6	0.14	16.8	61.75	-0.7665	0.1115	0.001
99	SLV 7	-0.02	-17.79	39.54	0.8268	0.0309	-0.0002
99	SLV 8	-0.02	-17.79	39.54	0.8268	0.0309	-0.0002
99	SLV 9	0.08	18.82	53.09	-0.856	0.011	0.0006
99	SLV 10	0.08	18.82	53.09	-0.856	0.011	0.0006
99	SLV 11	-0.08	-15.78	30.88	0.7374	-0.0696	-0.0005
99	SLV 12	-0.08	-15.78	30.88	0.7374	-0.0696	-0.0005
99	SLV 13	-0.05	9.07	35.21	-0.4026	-0.1345	-0.0001
99	SLV 14	-0.05	9.07	35.21	-0.4026	-0.1345	-0.0001
99	SLV 15	-0.1	-1.31	28.55	0.0754	-0.1586	-0.0005
99	SLV 16	-0.1	-1.31	28.55	0.0754	-0.1586	-0.0005
100	SLU 1	0.02	-1.04	4.41	0.047	0.0102	-0.0006
100	SLU 2	0.02	-1.05	4.4	0.0473	0.0103	-0.0006
100	SLU 3	0.02	-1.09	4.34	0.0491	0.0108	-0.0007
100	SLU 4	0.02	-1.09	4.34	0.0493	0.0109	-0.0007
100	SLU 5	0.02	-1.07	4.37	0.0482	0.0108	-0.0007
100	SLU 6	0.02	-1.11	4.31	0.05	0.0113	-0.0007
100	SLU 7	0.02	-1.11	4.31	0.0502	0.0114	-0.0007
100	SLU 8	0.02	-1.08	4.35	0.0488	0.0112	-0.0007
100	SLU 9	0.02	-1.09	4.35	0.049	0.0113	-0.0007
100	SLU 10	0.02	-1.33	7.53	0.0528	0.0082	-0.0006
100	SLU 11	0.02	-1.37	7.47	0.0546	0.0087	-0.0006
100	SLU 12	0.02	-1.37	7.46	0.0548	0.0087	-0.0006
100	SLU 13	0.02	-1.35	7.5	0.0537	0.0087	-0.0006
100	SLU 14	0.02	-1.39	7.44	0.0555	0.0092	-0.0006
100	SLU 15	0.02	-1.39	7.43	0.0557	0.0092	-0.0006
100	SLU 16	0.02	-1.36	7.48	0.0543	0.0091	-0.0006
100	SLU 17	0.02	-1.36	7.47	0.0545	0.0092	-0.0006
100	SLU 18	0.02	-1.44	8.88	0.0548	0.0072	-0.0005
100	SLU 19	0.02	-1.44	8.88	0.055	0.0072	-0.0005
100	SLU 20	0.02	-1.46	8.85	0.0557	0.0077	-0.0006
100	SLU 21	0.02	-1.46	8.84	0.0559	0.0077	-0.0006
100	SLU 22	0.02	-1.29	4.52	0.0571	0.0111	-0.0007
100	SLU 23	0.02	-1.3	4.51	0.0575	0.0112	-0.0007
100	SLU 24	0.02	-1.34	4.45	0.0593	0.0117	-0.0007
100	SLU 25	0.02	-1.34	4.44	0.0595	0.0117	-0.0007
100	SLU 26	0.02	-1.32	4.48	0.0584	0.0117	-0.0007
100	SLU 27	0.02	-1.36	4.41	0.0602	0.0122	-0.0008
100	SLU 28	0.02	-1.36	4.41	0.0604	0.0122	-0.0008
100	SLU 29	0.02	-1.33	4.46	0.0589	0.0121	-0.0008
100	SLU 30	0.02	-1.33	4.45	0.0592	0.0122	-0.0008
100	SLU 31	0.02	-1.58	7.63	0.063	0.009	-0.0006
100	SLU 32	0.02	-1.61	7.57	0.0648	0.0096	-0.0007
100	SLU 33	0.02	-1.62	7.57	0.065	0.0096	-0.0007
100	SLU 34	0.02	-1.6	7.6	0.0639	0.0095	-0.0007
100	SLU 35	0.02	-1.63	7.54	0.0657	0.0101	-0.0007
100	SLU 36	0.02	-1.64	7.54	0.0659	0.0101	-0.0007
100	SLU 37	0.02	-1.61	7.58	0.0644	0.01	-0.0007
100	SLU 38	0.02	-1.61	7.58	0.0646	0.01	-0.0007
100	SLU 39	0.02	-1.69	8.98	0.065	0.0081	-0.0006
100	SLU 40	0.02	-1.69	8.98	0.0652	0.0081	-0.0006
100	SLU 41	0.02	-1.71	8.95	0.0659	0.0086	-0.0006
100	SLU 42	0.02	-1.71	8.95	0.0661	0.0086	-0.0006
100	SLU 43	0.02	-1.27	5.7	0.0576	0.013	-0.0008
100	SLU 44	0.02	-1.28	5.69	0.0579	0.0131	-0.0008
100	SLU 45	0.02	-1.31	5.63	0.0597	0.0136	-0.0008
100	SLU 46	0.02	-1.32	5.63	0.0599	0.0136	-0.0008
100	SLU 47	0.02	-1.3	5.66	0.0588	0.0136	-0.0008
100	SLU 48	0.02	-1.33	5.6	0.0606	0.0141	-0.0009
100	SLU 49	0.02	-1.34	5.59	0.0608	0.0141	-0.0009
100	SLU 50	0.02	-1.31	5.64	0.0594	0.014	-0.0009
100	SLU 51	0.02	-1.31	5.64	0.0596	0.0141	-0.0009
100	SLU 52	0.03	-1.55	8.82	0.0634	0.011	-0.0007
100	SLU 53	0.03	-1.59	8.76	0.0652	0.0115	-0.0008
100	SLU 54	0.03	-1.6	8.75	0.0654	0.0115	-0.0008
100	SLU 55	0.03	-1.57	8.79	0.0643	0.0115	-0.0008
100	SLU 56	0.03	-1.61	8.73	0.0661	0.012	-0.0008
100	SLU 57	0.03	-1.62	8.72	0.0663	0.012	-0.0008
100	SLU 58	0.03	-1.58	8.77	0.0649	0.0119	-0.0008
100	SLU 59	0.03	-1.59	8.76	0.0651	0.0119	-0.0008
100	SLU 60	0.03	-1.66	10.17	0.0654	0.01	-0.0007
100	SLU 61	0.03	-1.67	10.17	0.0656	0.01	-0.0007
100	SLU 62	0.03	-1.68	10.14	0.0663	0.0105	-0.0007
100	SLU 63	0.03	-1.69	10.13	0.0665	0.0105	-0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
100	SLU 64	0.03	-1.52	5.81	0.0677	0.0139	-0.0009
100	SLU 65	0.03	-1.52	5.8	0.0681	0.014	-0.0009
100	SLU 66	0.03	-1.56	5.73	0.0699	0.0145	-0.0009
100	SLU 67	0.03	-1.57	5.73	0.0701	0.0145	-0.0009
100	SLU 68	0.03	-1.54	5.76	0.069	0.0145	-0.0009
100	SLU 69	0.03	-1.58	5.7	0.0708	0.015	-0.0009
100	SLU 70	0.03	-1.59	5.7	0.071	0.015	-0.0009
100	SLU 71	0.03	-1.56	5.74	0.0695	0.0149	-0.0009
100	SLU 72	0.03	-1.56	5.74	0.0698	0.0149	-0.0009
100	SLU 73	0.03	-1.8	8.92	0.0736	0.0118	-0.0008
100	SLU 74	0.03	-1.84	8.86	0.0754	0.0123	-0.0008
100	SLU 75	0.03	-1.85	8.86	0.0756	0.0124	-0.0008
100	SLU 76	0.03	-1.82	8.89	0.0745	0.0123	-0.0008
100	SLU 77	0.03	-1.86	8.83	0.0763	0.0128	-0.0009
100	SLU 78	0.03	-1.87	8.82	0.0765	0.0129	-0.0009
100	SLU 79	0.03	-1.83	8.87	0.075	0.0128	-0.0009
100	SLU 80	0.03	-1.84	8.87	0.0752	0.0128	-0.0009
100	SLU 81	0.03	-1.91	10.27	0.0756	0.0108	-0.0008
100	SLU 82	0.03	-1.92	10.27	0.0758	0.0109	-0.0008
100	SLU 83	0.03	-1.93	10.24	0.0765	0.0113	-0.0008
100	SLU 84	0.03	-1.94	10.24	0.0767	0.0114	-0.0008
100	SLE RA 1	0.02	-1.11	4.44	0.0499	0.0105	-0.0007
100	SLE RA 2	0.02	-1.12	4.44	0.0501	0.0105	-0.0007
100	SLE RA 3	0.02	-1.14	4.4	0.0513	0.0109	-0.0007
100	SLE RA 4	0.02	-1.15	4.39	0.0514	0.0109	-0.0007
100	SLE RA 5	0.02	-1.13	4.42	0.0507	0.0109	-0.0007
100	SLE RA 6	0.02	-1.16	4.38	0.0519	0.0112	-0.0007
100	SLE RA 7	0.02	-1.16	4.37	0.052	0.0112	-0.0007
100	SLE RA 8	0.02	-1.14	4.4	0.0511	0.0112	-0.0007
100	SLE RA 9	0.02	-1.14	4.4	0.0512	0.0112	-0.0007
100	SLE RA 10	0.02	-1.3	6.52	0.0538	0.0091	-0.0006
100	SLE RA 11	0.02	-1.33	6.48	0.0549	0.0095	-0.0006
100	SLE RA 12	0.02	-1.33	6.48	0.0551	0.0095	-0.0006
100	SLE RA 13	0.02	-1.32	6.5	0.0544	0.0094	-0.0006
100	SLE RA 14	0.02	-1.34	6.46	0.0555	0.0098	-0.0007
100	SLE RA 15	0.02	-1.34	6.46	0.0557	0.0098	-0.0007
100	SLE RA 16	0.02	-1.32	6.49	0.0547	0.0097	-0.0006
100	SLE RA 17	0.02	-1.33	6.48	0.0549	0.0098	-0.0006
100	SLE RA 18	0.02	-1.38	7.42	0.0551	0.0085	-0.0006
100	SLE RA 19	0.02	-1.38	7.42	0.0552	0.0085	-0.0006
100	SLE RA 20	0.02	-1.39	7.4	0.0557	0.0088	-0.0006
100	SLE RA 21	0.02	-1.39	7.4	0.0558	0.0088	-0.0006
100	SLE FR 1	0.02	-1.11	4.44	0.0499	0.0105	-0.0007
100	SLE FR 2	0.02	-1.11	4.44	0.0499	0.0105	-0.0007
100	SLE FR 3	0.02	-1.12	4.44	0.0501	0.0106	-0.0007
100	SLE FR 4	0.02	-1.19	5.34	0.0515	0.0099	-0.0006
100	SLE FR 5	0.02	-1.2	5.33	0.0517	0.01	-0.0006
100	SLE FR 6	0.02	-1.24	5.93	0.0525	0.0095	-0.0006
100	SLE QP 1	0.02	-1.11	4.44	0.0499	0.0105	-0.0007
100	SLE QP 2	0.02	-1.19	5.34	0.0514	0.0099	-0.0006
100	SLD 1	0.12	-0.23	6.36	0.0094	0.0922	-0.0043
100	SLD 2	0.12	-0.23	6.36	0.0094	0.0922	-0.0043
100	SLD 3	0.11	-1.39	5.28	0.06	0.1013	-0.0039
100	SLD 4	0.11	-1.39	5.28	0.06	0.1013	-0.0039
100	SLD 5	0.07	0.86	7.27	-0.0379	0.0208	-0.0024
100	SLD 6	0.07	0.86	7.27	-0.0379	0.0208	-0.0024
100	SLD 7	0.03	-3.01	3.69	0.1307	0.0511	-0.0009
100	SLD 8	0.03	-3.01	3.69	0.1307	0.0511	-0.0009
100	SLD 9	0.01	0.63	6.98	-0.0278	-0.0313	-0.0004
100	SLD 10	0.01	0.63	6.98	-0.0278	-0.0313	-0.0004
100	SLD 11	-0.03	-3.24	3.4	0.1408	-0.001	0.0012
100	SLD 12	-0.03	-3.24	3.4	0.1408	-0.001	0.0012
100	SLD 13	-0.07	-0.99	5.39	0.0429	-0.0815	0.0026
100	SLD 14	-0.07	-0.99	5.39	0.0429	-0.0815	0.0026
100	SLD 15	-0.08	-2.16	4.32	0.0935	-0.0725	0.0031
100	SLD 16	-0.08	-2.16	4.32	0.0935	-0.0725	0.0031
100	SLV 1	0.27	1.05	7.7	-0.0461	0.2086	-0.0095
100	SLV 2	0.27	1.05	7.7	-0.0461	0.2086	-0.0095
100	SLV 3	0.24	-1.67	5.2	0.0718	0.2304	-0.0084
100	SLV 4	0.24	-1.67	5.2	0.0718	0.2304	-0.0084
100	SLV 5	0.14	3.59	9.84	-0.1567	0.0364	-0.005
100	SLV 6	0.14	3.59	9.84	-0.1567	0.0364	-0.005
100	SLV 7	0.04	-5.45	1.51	0.2364	0.1091	-0.0013
100	SLV 8	0.04	-5.45	1.51	0.2364	0.1091	-0.0013
100	SLV 9	0	3.06	9.17	-0.1335	-0.0894	0
100	SLV 10	0	3.06	9.17	-0.1335	-0.0894	0
100	SLV 11	-0.1	-5.97	0.84	0.2596	-0.0166	0.0037
100	SLV 12	-0.1	-5.97	0.84	0.2596	-0.0166	0.0037
100	SLV 13	-0.2	-0.72	5.47	0.0311	-0.2107	0.0071
100	SLV 14	-0.2	-0.72	5.47	0.0311	-0.2107	0.0071
100	SLV 15	-0.23	-3.43	2.97	0.149	-0.1888	0.0082
100	SLV 16	-0.23	-3.43	2.97	0.149	-0.1888	0.0082
101	SLU 1	0.03	-2.79	19.52	0.2893	0.0333	-0.0001
101	SLU 2	0.04	-0.63	20.25	0.2104	0.0428	-0.0001
101	SLU 3	0.03	-3.11	19.66	0.3069	0.0342	-0.0001
101	SLU 4	0.03	-1.81	20.1	0.2596	0.0399	-0.0001
101	SLU 5	0.04	-0.97	20.2	0.2266	0.0432	-0.0001
101	SLU 6	0.03	-3.45	19.61	0.3231	0.0347	-0.0001
101	SLU 7	0.03	-2.15	20.05	0.2758	0.0404	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
101	SLU 8	0.03	-3.47	19.41	0.3217	0.0342	-0.0001
101	SLU 9	0.03	-2.17	19.85	0.2744	0.0399	-0.0001
101	SLU 10	0.04	-1.2	22.76	0.2595	0.0486	-0.0001
101	SLU 11	0.03	-3.67	22.17	0.356	0.0401	-0.0001
101	SLU 12	0.04	-2.38	22.61	0.3086	0.0458	-0.0001
101	SLU 13	0.04	-1.54	22.71	0.2757	0.0491	-0.0001
101	SLU 14	0.03	-4.01	22.12	0.3722	0.0405	-0.0001
101	SLU 15	0.04	-2.72	22.56	0.3248	0.0462	-0.0001
101	SLU 16	0.03	-4.03	21.92	0.3708	0.04	-0.0001
101	SLU 17	0.04	-2.74	22.36	0.3234	0.0457	-0.0001
101	SLU 18	0.03	-3.6	23.1	0.3594	0.0416	-0.0001
101	SLU 19	0.04	-2.3	23.54	0.3121	0.0473	-0.0001
101	SLU 20	0.03	-3.94	23.05	0.3756	0.0421	-0.0001
101	SLU 21	0.04	-2.64	23.49	0.3283	0.0478	-0.0001
101	SLU 22	0.03	-3.38	21.54	0.3365	0.0385	-0.0001
101	SLU 23	0.04	-1.22	22.27	0.2576	0.048	-0.0001
101	SLU 24	0.03	-3.7	21.68	0.3541	0.0394	-0.0001
101	SLU 25	0.04	-2.41	22.12	0.3067	0.0451	-0.0001
101	SLU 26	0.04	-1.56	22.22	0.2738	0.0485	-0.0001
101	SLU 27	0.03	-4.04	21.63	0.3703	0.0399	-0.0001
101	SLU 28	0.04	-2.75	22.07	0.3229	0.0456	-0.0001
101	SLU 29	0.03	-4.06	21.43	0.3689	0.0394	-0.0001
101	SLU 30	0.04	-2.77	21.87	0.3215	0.0451	-0.0001
101	SLU 31	0.05	-1.79	24.78	0.3066	0.0538	-0.0002
101	SLU 32	0.03	-4.27	24.19	0.4031	0.0453	-0.0001
101	SLU 33	0.04	-2.97	24.63	0.3558	0.051	-0.0002
101	SLU 34	0.05	-2.13	24.73	0.3228	0.0543	-0.0002
101	SLU 35	0.03	-4.61	24.14	0.4193	0.0457	-0.0001
101	SLU 36	0.04	-3.31	24.58	0.372	0.0514	-0.0002
101	SLU 37	0.03	-4.63	23.94	0.418	0.0452	-0.0001
101	SLU 38	0.04	-3.33	24.38	0.3706	0.0509	-0.0002
101	SLU 39	0.04	-4.19	25.12	0.4066	0.0468	-0.0002
101	SLU 40	0.04	-2.9	25.56	0.3592	0.0525	-0.0002
101	SLU 41	0.04	-4.53	25.07	0.4228	0.0473	-0.0002
101	SLU 42	0.04	-3.24	25.51	0.3754	0.053	-0.0002
101	SLU 43	0.03	-3.42	24.68	0.36	0.0415	-0.0001
101	SLU 44	0.05	-1.26	25.41	0.2811	0.051	-0.0002
101	SLU 45	0.03	-3.74	24.82	0.3776	0.0424	-0.0001
101	SLU 46	0.04	-2.45	25.27	0.3302	0.0481	-0.0002
101	SLU 47	0.05	-1.6	25.36	0.2973	0.0514	-0.0002
101	SLU 48	0.03	-4.08	24.77	0.3937	0.0429	-0.0001
101	SLU 49	0.04	-2.79	25.21	0.3464	0.0486	-0.0002
101	SLU 50	0.03	-4.1	24.57	0.3924	0.0424	-0.0001
101	SLU 51	0.04	-2.81	25.01	0.345	0.0481	-0.0002
101	SLU 52	0.05	-1.83	27.92	0.3301	0.0568	-0.0002
101	SLU 53	0.04	-4.31	27.33	0.4266	0.0482	-0.0002
101	SLU 54	0.04	-3.01	27.78	0.3793	0.0539	-0.0002
101	SLU 55	0.05	-2.17	27.87	0.3463	0.0572	-0.0002
101	SLU 56	0.04	-4.65	27.28	0.4428	0.0487	-0.0002
101	SLU 57	0.05	-3.35	27.72	0.3955	0.0544	-0.0002
101	SLU 58	0.04	-4.67	27.08	0.4414	0.0482	-0.0002
101	SLU 59	0.04	-3.37	27.52	0.3941	0.0539	-0.0002
101	SLU 60	0.04	-4.23	28.26	0.4301	0.0498	-0.0002
101	SLU 61	0.05	-2.94	28.7	0.3827	0.0555	-0.0002
101	SLU 62	0.04	-4.57	28.21	0.4463	0.0503	-0.0002
101	SLU 63	0.05	-3.28	28.65	0.3989	0.056	-0.0002
101	SLU 64	0.04	-4.01	26.7	0.4071	0.0467	-0.0002
101	SLU 65	0.05	-1.86	27.43	0.3282	0.0562	-0.0002
101	SLU 66	0.04	-4.33	26.85	0.4247	0.0476	-0.0002
101	SLU 67	0.04	-3.04	27.29	0.3774	0.0533	-0.0002
101	SLU 68	0.05	-2.2	27.38	0.3444	0.0566	-0.0002
101	SLU 69	0.04	-4.67	26.79	0.4409	0.0481	-0.0002
101	SLU 70	0.04	-3.38	27.23	0.3936	0.0538	-0.0002
101	SLU 71	0.04	-4.69	26.59	0.4395	0.0476	-0.0002
101	SLU 72	0.04	-3.4	27.03	0.3922	0.0533	-0.0002
101	SLU 73	0.05	-2.42	29.94	0.3773	0.062	-0.0002
101	SLU 74	0.04	-4.9	29.36	0.4738	0.0535	-0.0002
101	SLU 75	0.05	-3.61	29.8	0.4264	0.0592	-0.0002
101	SLU 76	0.05	-2.76	29.89	0.3935	0.0625	-0.0002
101	SLU 77	0.04	-5.24	29.3	0.49	0.0539	-0.0002
101	SLU 78	0.05	-3.95	29.74	0.4426	0.0596	-0.0002
101	SLU 79	0.04	-5.26	29.1	0.4886	0.0534	-0.0002
101	SLU 80	0.05	-3.97	29.54	0.4412	0.0591	-0.0002
101	SLU 81	0.04	-4.82	30.28	0.4772	0.055	-0.0002
101	SLU 82	0.05	-3.53	30.72	0.4299	0.0607	-0.0002
101	SLU 83	0.04	-5.16	30.23	0.4934	0.0555	-0.0002
101	SLU 84	0.05	-3.87	30.67	0.4461	0.0612	-0.0002
101	SLE RA 1	0.03	-2.96	20.09	0.3028	0.0348	-0.0001
101	SLE RA 2	0.04	-1.52	20.58	0.2502	0.0411	-0.0001
101	SLE RA 3	0.03	-3.17	20.19	0.3145	0.0354	-0.0001
101	SLE RA 4	0.03	-2.31	20.48	0.283	0.0392	-0.0001
101	SLE RA 5	0.04	-1.75	20.55	0.261	0.0414	-0.0001
101	SLE RA 6	0.03	-3.4	20.16	0.3253	0.0357	-0.0001
101	SLE RA 7	0.03	-2.53	20.45	0.2938	0.0395	-0.0001
101	SLE RA 8	0.03	-3.41	20.02	0.3244	0.0354	-0.0001
101	SLE RA 9	0.03	-2.55	20.32	0.2928	0.0392	-0.0001
101	SLE RA 10	0.04	-1.9	22.26	0.2829	0.045	-0.0001
101	SLE RA 11	0.03	-3.55	21.86	0.3472	0.0393	-0.0001
101	SLE RA 12	0.04	-2.69	22.16	0.3157	0.0431	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
101	SLE RA 13	0.04	-2.12	22.22	0.2937	0.0453	-0.0001
101	SLE RA 14	0.03	-3.77	21.83	0.358	0.0396	-0.0001
101	SLE RA 15	0.04	-2.91	22.12	0.3265	0.0434	-0.0001
101	SLE RA 16	0.03	-3.79	21.7	0.3571	0.0393	-0.0001
101	SLE RA 17	0.04	-2.92	21.99	0.3256	0.0431	-0.0001
101	SLE RA 18	0.03	-3.5	22.48	0.3495	0.0403	-0.0001
101	SLE RA 19	0.04	-2.63	22.78	0.318	0.0441	-0.0001
101	SLE RA 20	0.03	-3.72	22.45	0.3603	0.0406	-0.0001
101	SLE RA 21	0.04	-2.86	22.74	0.3288	0.0444	-0.0001
101	SLE FR 1	0.03	-2.96	20.09	0.3028	0.0348	-0.0001
101	SLE FR 2	0.03	-2.67	20.19	0.2923	0.036	-0.0001
101	SLE FR 3	0.03	-3.05	20.08	0.3071	0.0349	-0.0001
101	SLE FR 4	0.03	-2.83	20.91	0.3063	0.0377	-0.0001
101	SLE FR 5	0.03	-3.21	20.8	0.3212	0.0366	-0.0001
101	SLE FR 6	0.03	-3.23	21.29	0.3262	0.0375	-0.0001
101	SLE QP 1	0.03	-2.96	20.09	0.3028	0.0348	-0.0001
101	SLE QP 2	0.03	-3.12	20.81	0.3168	0.0364	-0.0001
101	SLD 1	0.02	-2.79	19.57	0.1338	0.0828	-0.0003
101	SLD 2	0.02	-2.79	19.57	0.1338	0.0828	-0.0003
101	SLD 3	0	-7.39	17.5	0.3297	0.0658	-0.0003
101	SLD 4	0	-7.39	17.5	0.3297	0.0658	-0.0003
101	SLD 5	0.06	3.96	23.57	-0.0353	0.0761	-0.0002
101	SLD 6	0.06	3.96	23.57	-0.0353	0.0761	-0.0002
101	SLD 7	-0.01	-11.38	16.69	0.6179	0.0194	-0.0001
101	SLD 8	-0.01	-11.38	16.69	0.6179	0.0194	-0.0001
101	SLD 9	0.07	5.15	24.93	0.0158	0.0534	-0.0001
101	SLD 10	0.07	5.15	24.93	0.0158	0.0534	-0.0001
101	SLD 11	0	-10.2	18.05	0.6689	-0.0032	0
101	SLD 12	0	-10.2	18.05	0.6689	-0.0032	0
101	SLD 13	0.06	1.15	24.12	0.304	0.0071	0
101	SLD 14	0.06	1.15	24.12	0.304	0.0071	0
101	SLD 15	0.04	-3.45	22.05	0.4999	-0.0099	0
101	SLD 16	0.04	-3.45	22.05	0.4999	-0.0099	0
101	SLV 1	0	-2.43	17.96	-0.1134	0.147	-0.0005
101	SLV 2	0	-2.43	17.96	-0.1134	0.147	-0.0005
101	SLV 3	-0.05	-13.19	13.2	0.3435	0.1042	-0.0004
101	SLV 4	-0.05	-13.19	13.2	0.3435	0.1042	-0.0004
101	SLV 5	0.1	13.41	27.17	-0.5053	0.1346	-0.0003
101	SLV 6	0.1	13.41	27.17	-0.5053	0.1346	-0.0003
101	SLV 7	-0.08	-22.46	11.31	1.0179	-0.0082	-0.0001
101	SLV 8	-0.08	-22.46	11.31	1.0179	-0.0082	-0.0001
101	SLV 9	0.13	16.22	30.31	-0.3842	0.081	-0.0001
101	SLV 10	0.13	16.22	30.31	-0.3842	0.081	-0.0001
101	SLV 11	-0.04	-19.64	14.45	1.139	-0.0617	0.0001
101	SLV 12	-0.04	-19.64	14.45	1.139	-0.0617	0.0001
101	SLV 13	0.11	6.95	28.42	0.2901	-0.0314	0.0002
101	SLV 14	0.11	6.95	28.42	0.2901	-0.0314	0.0002
101	SLV 15	0.05	-3.81	23.66	0.7471	-0.0742	0.0003
101	SLV 16	0.05	-3.81	23.66	0.7471	-0.0742	0.0003
102	SLU 1	-0.01	-2.11	47.14	0.1258	0.0135	-0.0041
102	SLU 2	-0.01	-2.61	47.74	0.1522	0.0124	-0.0042
102	SLU 3	-0.01	-1.94	48.09	0.1166	0.0139	-0.0042
102	SLU 4	-0.01	-2.23	48.45	0.1324	0.0132	-0.0043
102	SLU 5	-0.01	-2.41	48.34	0.141	0.0126	-0.0043
102	SLU 6	-0.01	-1.73	48.69	0.1054	0.0142	-0.0043
102	SLU 7	-0.01	-2.03	49.05	0.1212	0.0135	-0.0043
102	SLU 8	-0.01	-1.71	48.34	0.1034	0.014	-0.0042
102	SLU 9	-0.01	-2.01	48.7	0.1192	0.0133	-0.0043
102	SLU 10	-0.01	-2.98	55.95	0.175	0.0153	-0.0051
102	SLU 11	-0.01	-2.31	56.3	0.1394	0.0169	-0.005
102	SLU 12	-0.01	-2.6	56.66	0.1553	0.0162	-0.0051
102	SLU 13	-0.01	-2.78	56.55	0.1638	0.0156	-0.0051
102	SLU 14	-0.01	-2.1	56.9	0.1282	0.0171	-0.0051
102	SLU 15	-0.01	-2.4	57.26	0.1441	0.0164	-0.0051
102	SLU 16	-0.01	-2.08	56.55	0.1262	0.017	-0.005
102	SLU 17	-0.01	-2.38	56.91	0.1421	0.0163	-0.0051
102	SLU 18	-0.01	-2.64	58.86	0.1584	0.0178	-0.0053
102	SLU 19	-0.01	-2.94	59.22	0.1743	0.0171	-0.0054
102	SLU 20	-0.01	-2.44	59.46	0.1472	0.018	-0.0054
102	SLU 21	-0.01	-2.74	59.83	0.1631	0.0173	-0.0054
102	SLU 22	-0.01	-2.26	52.01	0.1383	0.015	-0.0047
102	SLU 23	-0.01	-2.76	52.61	0.1647	0.0138	-0.0047
102	SLU 24	-0.01	-2.09	52.97	0.1291	0.0154	-0.0047
102	SLU 25	-0.01	-2.38	53.33	0.1449	0.0147	-0.0048
102	SLU 26	-0.01	-2.56	53.22	0.1535	0.0141	-0.0048
102	SLU 27	-0.01	-1.88	53.57	0.1179	0.0156	-0.0048
102	SLU 28	-0.01	-2.18	53.93	0.1337	0.0149	-0.0048
102	SLU 29	-0.01	-1.86	53.21	0.1159	0.0154	-0.0047
102	SLU 30	-0.01	-2.16	53.58	0.1318	0.0147	-0.0048
102	SLU 31	-0.01	-3.13	60.82	0.1875	0.0168	-0.0056
102	SLU 32	-0.01	-2.46	61.17	0.1519	0.0183	-0.0056
102	SLU 33	-0.01	-2.75	61.54	0.1678	0.0177	-0.0056
102	SLU 34	-0.01	-2.93	61.42	0.1764	0.017	-0.0056
102	SLU 35	-0.01	-2.25	61.78	0.1408	0.0186	-0.0056
102	SLU 36	-0.01	-2.55	62.14	0.1566	0.0179	-0.0056
102	SLU 37	-0.01	-2.23	61.42	0.1388	0.0184	-0.0055
102	SLU 38	-0.01	-2.53	61.78	0.1546	0.0177	-0.0056
102	SLU 39	-0.01	-2.79	63.74	0.1709	0.0192	-0.0058
102	SLU 40	-0.01	-3.09	64.1	0.1868	0.0185	-0.0059



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
102	SLU 41	-0.01	-2.59	64.34	0.1597	0.0194	-0.0059
102	SLU 42	-0.01	-2.89	64.7	0.1756	0.0188	-0.0059
102	SLU 43	-0.01	-2.7	59.61	0.1592	0.0171	-0.0052
102	SLU 44	-0.01	-3.19	60.21	0.1856	0.0159	-0.0053
102	SLU 45	-0.01	-2.52	60.56	0.15	0.0175	-0.0053
102	SLU 46	-0.01	-2.81	60.92	0.1658	0.0168	-0.0053
102	SLU 47	-0.01	-2.99	60.81	0.1744	0.0162	-0.0053
102	SLU 48	-0.01	-2.32	61.16	0.1388	0.0177	-0.0053
102	SLU 49	-0.01	-2.61	61.52	0.1547	0.017	-0.0054
102	SLU 50	-0.01	-2.29	60.81	0.1368	0.0175	-0.0053
102	SLU 51	-0.01	-2.59	61.17	0.1527	0.0168	-0.0053
102	SLU 52	-0.01	-3.56	68.42	0.2085	0.0189	-0.0061
102	SLU 53	-0.01	-2.89	68.77	0.1729	0.0205	-0.0061
102	SLU 54	-0.01	-3.19	69.13	0.1887	0.0198	-0.0062
102	SLU 55	-0.01	-3.36	69.02	0.1973	0.0191	-0.0062
102	SLU 56	-0.01	-2.69	69.37	0.1617	0.0207	-0.0061
102	SLU 57	-0.01	-2.98	69.73	0.1775	0.02	-0.0062
102	SLU 58	-0.01	-2.66	69.02	0.1597	0.0205	-0.0061
102	SLU 59	-0.01	-2.96	69.38	0.1755	0.0198	-0.0062
102	SLU 60	-0.01	-3.23	71.33	0.1918	0.0213	-0.0064
102	SLU 61	-0.01	-3.52	71.69	0.2077	0.0206	-0.0064
102	SLU 62	-0.01	-3.02	71.93	0.1807	0.0216	-0.0064
102	SLU 63	-0.01	-3.32	72.3	0.1965	0.0209	-0.0065
102	SLU 64	-0.01	-2.85	64.48	0.1717	0.0185	-0.0057
102	SLU 65	-0.01	-3.34	65.08	0.1981	0.0174	-0.0058
102	SLU 66	-0.01	-2.67	65.43	0.1625	0.0189	-0.0058
102	SLU 67	-0.01	-2.96	65.8	0.1784	0.0182	-0.0059
102	SLU 68	-0.01	-3.14	65.69	0.1869	0.0176	-0.0058
102	SLU 69	-0.01	-2.47	66.04	0.1513	0.0192	-0.0058
102	SLU 70	-0.01	-2.76	66.4	0.1672	0.0185	-0.0059
102	SLU 71	-0.01	-2.44	65.68	0.1493	0.019	-0.0058
102	SLU 72	-0.01	-2.74	66.05	0.1652	0.0183	-0.0058
102	SLU 73	-0.01	-3.71	73.29	0.221	0.0204	-0.0066
102	SLU 74	-0.01	-3.04	73.64	0.1854	0.0219	-0.0066
102	SLU 75	-0.01	-3.34	74.01	0.2012	0.0212	-0.0067
102	SLU 76	-0.01	-3.51	73.89	0.2098	0.0206	-0.0067
102	SLU 77	-0.01	-2.84	74.24	0.1742	0.0221	-0.0067
102	SLU 78	-0.01	-3.13	74.61	0.19	0.0214	-0.0067
102	SLU 79	-0.01	-2.81	73.89	0.1722	0.022	-0.0066
102	SLU 80	-0.01	-3.11	74.25	0.188	0.0213	-0.0067
102	SLU 81	-0.01	-3.38	76.21	0.2044	0.0228	-0.0069
102	SLU 82	-0.01	-3.67	76.57	0.2202	0.0221	-0.007
102	SLU 83	-0.01	-3.17	76.81	0.1932	0.023	-0.0069
102	SLU 84	-0.01	-3.47	77.17	0.209	0.0223	-0.007
102	SLE RA 1	-0.01	-2.16	48.53	0.1293	0.0139	-0.0043
102	SLE RA 2	-0.01	-2.49	48.93	0.1469	0.0132	-0.0043
102	SLE RA 3	-0.01	-2.04	49.17	0.1232	0.0142	-0.0043
102	SLE RA 4	-0.01	-2.24	49.41	0.1338	0.0137	-0.0044
102	SLE RA 5	-0.01	-2.35	49.33	0.1395	0.0133	-0.0044
102	SLE RA 6	-0.01	-1.9	49.57	0.1158	0.0144	-0.0044
102	SLE RA 7	-0.01	-2.1	49.81	0.1263	0.0139	-0.0044
102	SLE RA 8	-0.01	-1.89	49.33	0.1144	0.0142	-0.0043
102	SLE RA 9	-0.01	-2.09	49.57	0.125	0.0138	-0.0044
102	SLE RA 10	-0.01	-2.73	54.4	0.1622	0.0152	-0.0049
102	SLE RA 11	-0.01	-2.28	54.64	0.1384	0.0162	-0.0049
102	SLE RA 12	-0.01	-2.48	54.88	0.149	0.0157	-0.0049
102	SLE RA 13	-0.01	-2.6	54.8	0.1547	0.0153	-0.0049
102	SLE RA 14	-0.01	-2.15	55.04	0.131	0.0163	-0.0049
102	SLE RA 15	-0.01	-2.35	55.28	0.1415	0.0159	-0.0049
102	SLE RA 16	-0.01	-2.13	54.8	0.1297	0.0162	-0.0049
102	SLE RA 17	-0.01	-2.33	55.04	0.1402	0.0158	-0.0049
102	SLE RA 18	-0.01	-2.51	56.35	0.1511	0.0168	-0.0051
102	SLE RA 19	-0.01	-2.71	56.59	0.1617	0.0163	-0.0051
102	SLE RA 20	-0.01	-2.38	56.75	0.1436	0.0169	-0.0051
102	SLE RA 21	-0.01	-2.57	56.99	0.1542	0.0165	-0.0051
102	SLE FR 1	-0.01	-2.16	48.53	0.1293	0.0139	-0.0043
102	SLE FR 2	-0.01	-2.22	48.61	0.1329	0.0138	-0.0043
102	SLE FR 3	-0.01	-2.1	48.69	0.1264	0.014	-0.0043
102	SLE FR 4	-0.01	-2.33	50.96	0.1394	0.0146	-0.0045
102	SLE FR 5	-0.01	-2.21	51.04	0.1329	0.0148	-0.0045
102	SLE FR 6	-0.01	-2.33	52.44	0.1402	0.0154	-0.0047
102	SLE QP 1	-0.01	-2.16	48.53	0.1293	0.0139	-0.0043
102	SLE QP 2	-0.01	-2.26	50.87	0.1359	0.0148	-0.0045
102	SLD 1	-0.05	0.98	45.22	-0.0337	0.0611	-0.0115
102	SLD 2	-0.05	0.98	45.22	-0.0337	0.0611	-0.0115
102	SLD 3	-0.03	-3.03	43.93	0.1736	0.0708	-0.0111
102	SLD 4	-0.03	-3.03	43.93	0.1736	0.0708	-0.0111
102	SLD 5	-0.06	4.8	51.14	-0.2295	0.0141	-0.0071
102	SLD 6	-0.06	4.8	51.14	-0.2295	0.0141	-0.0071
102	SLD 7	0.02	-8.58	46.84	0.4617	0.0462	-0.006
102	SLD 8	0.02	-8.58	46.84	0.4617	0.0462	-0.006
102	SLD 9	-0.04	4.05	54.91	-0.1899	-0.0166	-0.0031
102	SLD 10	-0.04	4.05	54.91	-0.1899	-0.0166	-0.0031
102	SLD 11	0.04	-9.32	50.61	0.5013	0.0155	-0.0019
102	SLD 12	0.04	-9.32	50.61	0.5013	0.0155	-0.0019
102	SLD 13	0.02	-1.49	57.81	0.0981	-0.0412	0.0021
102	SLD 14	0.02	-1.49	57.81	0.0981	-0.0412	0.0021
102	SLD 15	0.04	-5.51	56.52	0.3055	-0.0316	0.0024
102	SLD 16	0.04	-5.51	56.52	0.3055	-0.0316	0.0024





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
102	SLV 1	-0.12	5.18	37.96	-0.2532	0.1264	-0.0214
102	SLV 2	-0.12	5.18	37.96	-0.2532	0.1264	-0.0214
102	SLV 3	-0.06	-4.04	34.87	0.2237	0.1497	-0.0205
102	SLV 4	-0.06	-4.04	34.87	0.2237	0.1497	-0.0205
102	SLV 5	-0.12	13.96	51.69	-0.7041	0.013	-0.0109
102	SLV 6	-0.12	13.96	51.69	-0.7041	0.013	-0.0109
102	SLV 7	0.06	-16.79	41.38	0.8855	0.0905	-0.008
102	SLV 8	0.06	-16.79	41.38	0.8855	0.0905	-0.008
102	SLV 9	-0.08	12.26	60.36	-0.6137	-0.061	-0.001
102	SLV 10	-0.08	12.26	60.36	-0.6137	-0.061	-0.001
102	SLV 11	0.11	-18.49	50.06	0.9759	0.0166	0.0018
102	SLV 12	0.11	-18.49	50.06	0.9759	0.0166	0.0018
102	SLV 13	0.05	-0.48	66.88	0.0481	-0.1201	0.0115
102	SLV 14	0.05	-0.48	66.88	0.0481	-0.1201	0.0115
102	SLV 15	0.1	-9.71	63.79	0.525	-0.0968	0.0123
102	SLV 16	0.1	-9.71	63.79	0.525	-0.0968	0.0123
103	SLU 1	0.01	2.38	30.07	0.0341	0.0035	0
103	SLU 2	0	4.9	31.91	-0.0622	-0.0046	0
103	SLU 3	0.02	2.2	30.71	0.0462	0.0035	0
103	SLU 4	0.01	3.72	31.81	-0.0116	-0.0013	0
103	SLU 5	0	4.63	32.23	-0.0475	-0.0045	0
103	SLU 6	0.02	1.93	31.03	0.0609	0.0036	0
103	SLU 7	0.01	3.45	32.13	0.0031	-0.0012	0
103	SLU 8	0.02	1.84	30.72	0.0635	0.0035	0
103	SLU 9	0.01	3.35	31.82	0.0057	-0.0013	0
103	SLU 10	0.01	5.2	36.12	-0.0556	-0.0041	0
103	SLU 11	0.02	2.5	34.92	0.0528	0.004	0
103	SLU 12	0.01	4.02	36.02	-0.005	-0.0009	0
103	SLU 13	0.01	4.93	36.45	-0.0409	-0.0041	0
103	SLU 14	0.02	2.23	35.24	0.0675	0.004	0
103	SLU 15	0.01	3.74	36.35	0.0097	-0.0008	0
103	SLU 16	0.02	2.13	34.93	0.0702	0.004	0
103	SLU 17	0.01	3.65	36.04	0.0124	-0.0009	0
103	SLU 18	0.02	2.8	36.09	0.0436	0.0041	0
103	SLU 19	0.01	4.32	37.19	-0.0142	-0.0008	0
103	SLU 20	0.02	2.53	36.41	0.0583	0.0041	0
103	SLU 21	0.01	4.05	37.52	0.0005	-0.0007	0
103	SLU 22	0.02	2.57	33.78	0.0437	0.0038	0
103	SLU 23	0.01	5.1	35.62	-0.0526	-0.0042	0
103	SLU 24	0.02	2.4	34.42	0.0558	0.0039	0
103	SLU 25	0.01	3.91	35.52	-0.002	-0.0009	0
103	SLU 26	0.01	4.83	35.94	-0.0379	-0.0041	0
103	SLU 27	0.02	2.13	34.74	0.0705	0.004	0
103	SLU 28	0.01	3.64	35.84	0.0127	-0.0009	0
103	SLU 29	0.02	2.03	34.43	0.0731	0.0039	0
103	SLU 30	0.01	3.55	35.53	0.0153	-0.0009	0
103	SLU 31	0.01	5.4	39.83	-0.046	-0.0038	0
103	SLU 32	0.02	2.7	38.63	0.0624	0.0043	0
103	SLU 33	0.01	4.21	39.73	0.0046	-0.0005	0
103	SLU 34	0.01	5.13	40.16	-0.0313	-0.0037	0
103	SLU 35	0.02	2.42	38.95	0.0771	0.0044	0
103	SLU 36	0.01	3.94	40.06	0.0193	-0.0004	0
103	SLU 37	0.02	2.33	38.64	0.0798	0.0043	0
103	SLU 38	0.01	3.84	39.75	0.022	-0.0005	0
103	SLU 39	0.02	3	39.8	0.0532	0.0044	0
103	SLU 40	0.01	4.51	40.9	-0.0046	-0.0004	0
103	SLU 41	0.02	2.73	40.12	0.0679	0.0045	0
103	SLU 42	0.01	4.24	41.23	0.0101	-0.0003	0
103	SLU 43	0.02	3.02	37.82	0.041	0.0044	0
103	SLU 44	0.01	5.55	39.66	-0.0553	-0.0037	0
103	SLU 45	0.02	2.85	38.46	0.0531	0.0044	0
103	SLU 46	0.01	4.36	39.56	-0.0047	-0.0004	0
103	SLU 47	0.01	5.28	39.98	-0.0406	-0.0036	0
103	SLU 48	0.02	2.58	38.78	0.0678	0.0045	0
103	SLU 49	0.01	4.09	39.88	0.01	-0.0003	0
103	SLU 50	0.02	2.48	38.47	0.0704	0.0044	0
103	SLU 51	0.01	4	39.57	0.0126	-0.0004	0
103	SLU 52	0.01	5.85	43.87	-0.0486	-0.0032	0
103	SLU 53	0.02	3.15	42.67	0.0598	0.0049	0
103	SLU 54	0.01	4.66	43.77	0.002	0	0
103	SLU 55	0.01	5.58	44.2	-0.0339	-0.0032	0
103	SLU 56	0.02	2.87	42.99	0.0745	0.0049	0
103	SLU 57	0.01	4.39	44.1	0.0167	0.0001	0
103	SLU 58	0.02	2.78	42.68	0.0771	0.0049	0
103	SLU 59	0.01	4.29	43.79	0.0193	0	0
103	SLU 60	0.02	3.45	43.84	0.0506	0.005	0
103	SLU 61	0.01	4.96	44.94	-0.0072	0.0002	0
103	SLU 62	0.02	3.18	44.16	0.0653	0.005	0
103	SLU 63	0.02	4.69	45.27	0.0075	0.0002	0
103	SLU 64	0.02	3.22	41.53	0.0506	0.0048	0
103	SLU 65	0.01	5.75	43.37	-0.0457	-0.0033	0
103	SLU 66	0.02	3.04	42.17	0.0627	0.0048	0
103	SLU 67	0.01	4.56	43.27	0.0049	0	0
103	SLU 68	0.01	5.47	43.69	-0.031	-0.0032	0
103	SLU 69	0.02	2.77	42.49	0.0774	0.0049	0
103	SLU 70	0.01	4.29	43.59	0.0196	0	0
103	SLU 71	0.02	2.68	42.18	0.08	0.0048	0
103	SLU 72	0.01	4.19	43.28	0.0222	0	0
103	SLU 73	0.01	6.04	47.58	-0.039	-0.0029	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
103	SLU 74	0.02	3.34	46.38	0.0694	0.0052	0.0001
103	SLU 75	0.02	4.86	47.48	0.0116	0.0004	0.0001
103	SLU 76	0.01	5.77	47.91	-0.0243	-0.0028	0.0001
103	SLU 77	0.02	3.07	46.7	0.0841	0.0053	0.0001
103	SLU 78	0.02	4.59	47.81	0.0263	0.0005	0.0001
103	SLU 79	0.02	2.97	46.39	0.0867	0.0052	0.0001
103	SLU 80	0.02	4.49	47.5	0.0289	0.0004	0.0001
103	SLU 81	0.02	3.64	47.55	0.0602	0.0054	0.0001
103	SLU 82	0.02	5.16	48.65	0.0024	0.0005	0.0001
103	SLU 83	0.02	3.37	47.87	0.0749	0.0054	0.0001
103	SLU 84	0.02	4.89	48.98	0.0171	0.0006	0.0001
103	SLE RA 1	0.02	2.43	31.13	0.0368	0.0036	0
103	SLE RA 2	0.01	4.12	32.36	-0.0274	-0.0018	0
103	SLE RA 3	0.02	2.32	31.55	0.0449	0.0036	0
103	SLE RA 4	0.01	3.33	32.29	0.0064	0.0004	0
103	SLE RA 5	0.01	3.94	32.57	-0.0176	-0.0018	0
103	SLE RA 6	0.02	2.14	31.77	0.0547	0.0036	0
103	SLE RA 7	0.01	3.15	32.51	0.0162	0.0004	0
103	SLE RA 8	0.02	2.07	31.56	0.0564	0.0036	0
103	SLE RA 9	0.01	3.08	32.3	0.0179	0.0004	0
103	SLE RA 10	0.01	4.32	35.17	-0.0229	-0.0015	0
103	SLE RA 11	0.02	2.51	34.36	0.0493	0.0039	0
103	SLE RA 12	0.01	3.53	35.1	0.0108	0.0007	0
103	SLE RA 13	0.01	4.14	35.38	-0.0131	-0.0015	0
103	SLE RA 14	0.02	2.33	34.58	0.0591	0.0039	0
103	SLE RA 15	0.01	3.34	35.31	0.0206	0.0007	0
103	SLE RA 16	0.02	2.27	34.37	0.0609	0.0039	0
103	SLE RA 17	0.01	3.28	35.11	0.0224	0.0007	0
103	SLE RA 18	0.02	2.72	35.14	0.0432	0.004	0
103	SLE RA 19	0.01	3.73	35.88	0.0047	0.0008	0
103	SLE RA 20	0.02	2.54	35.36	0.053	0.004	0
103	SLE RA 21	0.01	3.55	36.1	0.0145	0.0008	0
103	SLE FR 1	0.02	2.43	31.13	0.0368	0.0036	0
103	SLE FR 2	0.01	2.77	31.38	0.024	0.0025	0
103	SLE FR 3	0.02	2.36	31.22	0.0408	0.0036	0
103	SLE FR 4	0.01	2.85	32.58	0.0259	0.0026	0
103	SLE FR 5	0.02	2.45	32.42	0.0427	0.0037	0
103	SLE FR 6	0.02	2.57	33.14	0.04	0.0038	0
103	SLE QP 1	0.02	2.43	31.13	0.0368	0.0036	0
103	SLE QP 2	0.02	2.52	32.34	0.0387	0.0037	0
103	SLD 1	0	6.85	36.64	-0.1489	0.0323	-0.0001
103	SLD 2	0	6.85	36.64	-0.1489	0.0323	-0.0001
103	SLD 3	-0.02	2.26	33.31	0.0472	0.0463	-0.0001
103	SLD 4	-0.02	2.26	33.31	0.0472	0.0463	-0.0001
103	SLD 5	0.04	10.78	38.67	-0.3148	-0.009	0
103	SLD 6	0.04	10.78	38.67	-0.3148	-0.009	0
103	SLD 7	-0.03	-4.52	27.59	0.3386	0.0377	0
103	SLD 8	-0.03	-4.52	27.59	0.3386	0.0377	0
103	SLD 9	0.06	9.56	37.09	-0.2611	-0.0304	0.0001
103	SLD 10	0.06	9.56	37.09	-0.2611	-0.0304	0.0001
103	SLD 11	-0.01	-5.74	26	0.3923	0.0164	0
103	SLD 12	-0.01	-5.74	26	0.3923	0.0164	0
103	SLD 13	0.05	2.78	31.36	0.0303	-0.0389	0.0002
103	SLD 14	0.05	2.78	31.36	0.0303	-0.0389	0.0002
103	SLD 15	0.03	-1.81	28.03	0.2264	-0.0249	0.0001
103	SLD 16	0.03	-1.81	28.03	0.2264	-0.0249	0.0001
103	SLV 1	-0.02	12.77	42.25	-0.4049	0.07	-0.0002
103	SLV 2	-0.02	12.77	42.25	-0.4049	0.07	-0.0002
103	SLV 3	-0.08	2.14	34.55	0.0486	0.1055	-0.0002
103	SLV 4	-0.08	2.14	34.55	0.0486	0.1055	-0.0002
103	SLV 5	0.08	21.72	46.98	-0.782	-0.0303	0.0001
103	SLV 6	0.08	21.72	46.98	-0.782	-0.0303	0.0001
103	SLV 7	-0.09	-13.73	21.32	0.7294	0.0881	-0.0001
103	SLV 8	-0.09	-13.73	21.32	0.7294	0.0881	-0.0001
103	SLV 9	0.12	18.76	43.35	-0.6519	-0.0807	0.0002
103	SLV 10	0.12	18.76	43.35	-0.6519	-0.0807	0.0002
103	SLV 11	-0.05	-16.69	17.69	0.8595	0.0377	0
103	SLV 12	-0.05	-16.69	17.69	0.8595	0.0377	0
103	SLV 13	0.11	2.9	30.12	0.0289	-0.0981	0.0003
103	SLV 14	0.11	2.9	30.12	0.0289	-0.0981	0.0003
103	SLV 15	0.05	-7.74	22.43	0.4824	-0.0626	0.0003
103	SLV 16	0.05	-7.74	22.43	0.4824	-0.0626	0.0003
104	SLU 1	-0.05	8.13	56.65	-0.2853	-0.0143	0
104	SLU 2	0.03	9.66	60.01	-0.3389	0.0416	0
104	SLU 3	-0.05	8.42	58.43	-0.2952	-0.015	0
104	SLU 4	-0.01	9.34	60.44	-0.3274	0.0186	0
104	SLU 5	0.03	9.84	61.14	-0.3448	0.0412	0
104	SLU 6	-0.05	8.59	59.56	-0.3011	-0.0154	0
104	SLU 7	-0.01	9.51	61.57	-0.3333	0.0181	0
104	SLU 8	-0.05	8.48	58.91	-0.2971	-0.0152	0
104	SLU 9	-0.01	9.4	60.92	-0.3293	0.0183	0
104	SLU 10	0.02	10.63	66.88	-0.3731	0.0401	0
104	SLU 11	-0.05	9.39	65.3	-0.3294	-0.0165	0
104	SLU 12	-0.01	10.31	67.32	-0.3616	0.0171	0
104	SLU 13	0.02	10.81	68.01	-0.379	0.0396	0
104	SLU 14	-0.06	9.56	66.43	-0.3354	-0.017	0
104	SLU 15	-0.01	10.48	68.45	-0.3675	0.0166	0
104	SLU 16	-0.06	9.45	65.78	-0.3314	-0.0168	0
104	SLU 17	-0.01	10.37	67.8	-0.3635	0.0168	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
104	SLU 18	-0.06	9.52	66.47	-0.3341	-0.0165	0
104	SLU 19	-0.01	10.44	68.49	-0.3663	0.0171	0
104	SLU 20	-0.06	9.69	67.6	-0.3401	-0.0169	0
104	SLU 21	-0.01	10.61	69.61	-0.3723	0.0166	0
104	SLU 22	-0.05	9.14	63.61	-0.3204	-0.0161	0
104	SLU 23	0.02	10.67	66.97	-0.3741	0.0399	0
104	SLU 24	-0.06	9.43	65.39	-0.3304	-0.0167	0
104	SLU 25	-0.01	10.35	67.4	-0.3625	0.0168	0
104	SLU 26	0.02	10.84	68.1	-0.38	0.0394	0
104	SLU 27	-0.06	9.6	66.52	-0.3363	-0.0172	0
104	SLU 28	-0.01	10.52	68.53	-0.3685	0.0164	0
104	SLU 29	-0.06	9.49	65.87	-0.3323	-0.017	0
104	SLU 30	-0.01	10.4	67.88	-0.3645	0.0166	0
104	SLU 31	0.02	11.64	73.84	-0.4083	0.0384	0
104	SLU 32	-0.06	10.4	72.26	-0.3646	-0.0182	0
104	SLU 33	-0.02	11.32	74.28	-0.3968	0.0153	0
104	SLU 34	0.01	11.81	74.97	-0.4142	0.0379	0
104	SLU 35	-0.06	10.57	73.39	-0.3705	-0.0187	0
104	SLU 36	-0.02	11.49	75.4	-0.4027	0.0149	0
104	SLU 37	-0.06	10.46	72.74	-0.3665	-0.0185	0
104	SLU 38	-0.02	11.37	74.76	-0.3987	0.0151	0
104	SLU 39	-0.06	10.53	73.43	-0.3693	-0.0182	0
104	SLU 40	-0.02	11.45	75.45	-0.4015	0.0153	0
104	SLU 41	-0.06	10.7	74.56	-0.3752	-0.0187	0
104	SLU 42	-0.02	11.62	76.57	-0.4074	0.0149	0
104	SLU 43	-0.06	10.23	71.26	-0.3588	-0.018	0
104	SLU 44	0.01	11.76	74.62	-0.4124	0.0379	0
104	SLU 45	-0.06	10.51	73.04	-0.3687	-0.0187	0
104	SLU 46	-0.02	11.43	75.05	-0.4009	0.0149	0
104	SLU 47	0.01	11.93	75.75	-0.4184	0.0375	0
104	SLU 48	-0.06	10.69	74.17	-0.3747	-0.0191	0
104	SLU 49	-0.02	11.6	76.18	-0.4068	0.0144	0
104	SLU 50	-0.06	10.57	73.52	-0.3707	-0.0189	0
104	SLU 51	-0.02	11.49	75.53	-0.4028	0.0146	0
104	SLU 52	0.01	12.73	81.49	-0.4466	0.0364	0
104	SLU 53	-0.07	11.48	79.91	-0.4029	-0.0202	0
104	SLU 54	-0.02	12.4	81.93	-0.4351	0.0134	0
104	SLU 55	0.01	12.9	82.62	-0.4526	0.0359	0
104	SLU 56	-0.07	11.66	81.04	-0.4089	-0.0207	0
104	SLU 57	-0.02	12.57	83.06	-0.441	0.0129	0
104	SLU 58	-0.07	11.54	80.39	-0.4049	-0.0205	0
104	SLU 59	-0.02	12.46	82.41	-0.4371	0.0131	0
104	SLU 60	-0.07	11.61	81.08	-0.4076	-0.0202	0
104	SLU 61	-0.02	12.53	83.1	-0.4398	0.0134	0
104	SLU 62	-0.07	11.79	82.21	-0.4136	-0.0206	0
104	SLU 63	-0.02	12.7	84.22	-0.4458	0.0129	0
104	SLU 64	-0.07	11.24	78.22	-0.3939	-0.0198	0
104	SLU 65	0.01	12.77	81.58	-0.4476	0.0362	0
104	SLU 66	-0.07	11.52	80	-0.4039	-0.0204	0
104	SLU 67	-0.02	12.44	82.01	-0.4361	0.0131	0
104	SLU 68	0.01	12.94	82.71	-0.4535	0.0357	0
104	SLU 69	-0.07	11.69	81.13	-0.4098	-0.0209	0
104	SLU 70	-0.02	12.61	83.14	-0.442	0.0127	0
104	SLU 71	-0.07	11.58	80.48	-0.4058	-0.0207	0
104	SLU 72	-0.02	12.5	82.49	-0.438	0.0129	0
104	SLU 73	0	13.74	88.45	-0.4818	0.0347	0
104	SLU 74	-0.07	12.49	86.87	-0.4381	-0.0219	0
104	SLU 75	-0.03	13.41	88.89	-0.4703	0.0116	0
104	SLU 76	0	13.91	89.58	-0.4877	0.0342	0
104	SLU 77	-0.07	12.66	88	-0.444	-0.0224	0
104	SLU 78	-0.03	13.58	90.01	-0.4762	0.0112	0
104	SLU 79	-0.07	12.55	87.35	-0.44	-0.0222	0
104	SLU 80	-0.03	13.47	89.37	-0.4722	0.0114	0
104	SLU 81	-0.07	12.62	88.04	-0.4428	-0.0219	0
104	SLU 82	-0.03	13.54	90.06	-0.475	0.0116	0
104	SLU 83	-0.07	12.79	89.17	-0.4488	-0.0224	0
104	SLU 84	-0.03	13.71	91.18	-0.4809	0.0112	0
104	SLE RA 1	-0.05	8.42	58.64	-0.2953	-0.0148	0
104	SLE RA 2	0	9.44	60.88	-0.3311	0.0225	0
104	SLE RA 3	-0.05	8.61	59.83	-0.3019	-0.0153	0
104	SLE RA 4	-0.02	9.22	61.17	-0.3234	0.0071	0
104	SLE RA 5	0	9.56	61.63	-0.335	0.0222	0
104	SLE RA 6	-0.05	8.73	60.58	-0.3059	-0.0156	0
104	SLE RA 7	-0.02	9.34	61.92	-0.3273	0.0068	0
104	SLE RA 8	-0.05	8.65	60.14	-0.3032	-0.0154	0
104	SLE RA 9	-0.02	9.26	61.49	-0.3247	0.0069	0
104	SLE RA 10	0	10.09	65.46	-0.3539	0.0215	0
104	SLE RA 11	-0.05	9.26	64.41	-0.3247	-0.0163	0
104	SLE RA 12	-0.02	9.87	65.75	-0.3462	0.0061	0
104	SLE RA 13	0	10.2	66.21	-0.3578	0.0212	0
104	SLE RA 14	-0.05	9.37	65.16	-0.3287	-0.0166	0
104	SLE RA 15	-0.03	9.99	66.5	-0.3502	0.0058	0
104	SLE RA 16	-0.05	9.3	64.73	-0.326	-0.0164	0
104	SLE RA 17	-0.02	9.91	66.07	-0.3475	0.0059	0
104	SLE RA 18	-0.05	9.35	65.19	-0.3279	-0.0163	0
104	SLE RA 19	-0.02	9.96	66.53	-0.3493	0.0061	0
104	SLE RA 20	-0.06	9.46	65.94	-0.3318	-0.0166	0
104	SLE RA 21	-0.03	10.07	67.28	-0.3533	0.0058	0
104	SLE FR 1	-0.05	8.42	58.64	-0.2953	-0.0148	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
104	SLE FR 2	-0.04	8.63	59.09	-0.3025	-0.0074	0
104	SLE FR 3	-0.05	8.47	58.94	-0.2969	-0.0149	0
104	SLE FR 4	-0.04	8.9	61.05	-0.3122	-0.0078	0
104	SLE FR 5	-0.05	8.74	60.91	-0.3067	-0.0154	0
104	SLE FR 6	-0.05	8.88	61.91	-0.3116	-0.0155	0
104	SLE QP 1	-0.05	8.42	58.64	-0.2953	-0.0148	0
104	SLE QP 2	-0.05	8.7	60.6	-0.3051	-0.0153	0
104	SLD 1	0.08	9.35	46.3	-0.3407	0.1157	-0.0002
104	SLD 2	0.08	9.35	46.3	-0.3407	0.1157	-0.0002
104	SLD 3	-0.05	4.48	37.57	-0.1321	0.0344	-0.0001
104	SLD 4	-0.05	4.48	37.57	-0.1321	0.0344	-0.0001
104	SLD 5	0.18	16.28	69.56	-0.632	0.1472	-0.0002
104	SLD 6	0.18	16.28	69.56	-0.632	0.1472	-0.0002
104	SLD 7	-0.24	0.05	40.45	0.0631	-0.1236	0
104	SLD 8	-0.24	0.05	40.45	0.0631	-0.1236	0
104	SLD 9	0.14	17.34	80.76	-0.6732	0.0931	-0.0001
104	SLD 10	0.14	17.34	80.76	-0.6732	0.0931	-0.0001
104	SLD 11	-0.28	1.12	51.65	0.0219	-0.1777	0.0001
104	SLD 12	-0.28	1.12	51.65	0.0219	-0.1777	0.0001
104	SLD 13	-0.06	12.91	83.64	-0.478	-0.0649	0.0001
104	SLD 14	-0.06	12.91	83.64	-0.478	-0.0649	0.0001
104	SLD 15	-0.18	8.05	74.9	-0.2695	-0.1462	0.0002
104	SLD 16	-0.18	8.05	74.9	-0.2695	-0.1462	0.0002
104	SLV 1	0.27	10.14	27.79	-0.3852	0.3022	-0.0004
104	SLV 2	0.27	10.14	27.79	-0.3852	0.3022	-0.0004
104	SLV 3	-0.05	-1.02	7.72	0.0927	0.0955	-0.0003
104	SLV 4	-0.05	-1.02	7.72	0.0927	0.0955	-0.0003
104	SLV 5	0.52	26.05	81.2	-1.0539	0.3936	-0.0003
104	SLV 6	0.52	26.05	81.2	-1.0539	0.3936	-0.0003
104	SLV 7	-0.53	-11.14	14.3	0.5391	-0.2956	0.0001
104	SLV 8	-0.53	-11.14	14.3	0.5391	-0.2956	0.0001
104	SLV 9	0.42	28.53	106.91	-1.1492	0.2651	-0.0001
104	SLV 10	0.42	28.53	106.91	-1.1492	0.2651	-0.0001
104	SLV 11	-0.62	-8.66	40.01	0.4438	-0.4241	0.0003
104	SLV 12	-0.62	-8.66	40.01	0.4438	-0.4241	0.0003
104	SLV 13	-0.05	18.41	113.49	-0.7029	-0.126	0.0003
104	SLV 14	-0.05	18.41	113.49	-0.7029	-0.126	0.0003
104	SLV 15	-0.37	7.26	93.42	-0.225	-0.3327	0.0004
104	SLV 16	-0.37	7.26	93.42	-0.225	-0.3327	0.0004
105	SLU 1	-0.06	7.92	24.1	-0.3064	-0.0565	-0.0001
105	SLU 2	-0.14	9.55	24.28	-0.3751	-0.1189	-0.0002
105	SLU 3	-0.06	8.26	24.87	-0.3198	-0.0583	-0.0001
105	SLU 4	-0.11	9.24	24.98	-0.3611	-0.0958	-0.0002
105	SLU 5	-0.15	9.82	24.88	-0.3857	-0.1201	-0.0002
105	SLU 6	-0.06	8.53	25.47	-0.3304	-0.0595	-0.0001
105	SLU 7	-0.11	9.51	25.58	-0.3716	-0.097	-0.0002
105	SLU 8	-0.06	8.45	25.3	-0.3275	-0.0589	-0.0001
105	SLU 9	-0.11	9.43	25.41	-0.3687	-0.0964	-0.0002
105	SLU 10	-0.15	10.35	26.66	-0.406	-0.1268	-0.0002
105	SLU 11	-0.07	9.06	27.25	-0.3507	-0.0662	-0.0001
105	SLU 12	-0.12	10.04	27.36	-0.392	-0.1036	-0.0002
105	SLU 13	-0.16	10.62	27.26	-0.4166	-0.128	-0.0003
105	SLU 14	-0.07	9.33	27.85	-0.3613	-0.0674	-0.0001
105	SLU 15	-0.12	10.31	27.96	-0.4025	-0.1048	-0.0002
105	SLU 16	-0.07	9.25	27.68	-0.3584	-0.0668	-0.0001
105	SLU 17	-0.12	10.23	27.79	-0.3996	-0.1042	-0.0002
105	SLU 18	-0.07	9.07	27.51	-0.3505	-0.0677	-0.0001
105	SLU 19	-0.12	10.04	27.61	-0.3918	-0.1052	-0.0002
105	SLU 20	-0.07	9.33	28.11	-0.3611	-0.0689	-0.0001
105	SLU 21	-0.12	10.31	28.21	-0.4023	-0.1064	-0.0002
105	SLU 22	-0.07	8.81	26.57	-0.3409	-0.0642	-0.0001
105	SLU 23	-0.15	10.44	26.75	-0.4097	-0.1266	-0.0002
105	SLU 24	-0.07	9.15	27.34	-0.3544	-0.0661	-0.0001
105	SLU 25	-0.12	10.13	27.44	-0.3956	-0.1035	-0.0002
105	SLU 26	-0.16	10.71	27.35	-0.4202	-0.1278	-0.0003
105	SLU 27	-0.07	9.42	27.94	-0.3649	-0.0673	-0.0001
105	SLU 28	-0.12	10.4	28.04	-0.4061	-0.1047	-0.0002
105	SLU 29	-0.07	9.34	27.77	-0.362	-0.0666	-0.0001
105	SLU 30	-0.12	10.32	27.87	-0.4032	-0.1041	-0.0002
105	SLU 31	-0.16	11.25	29.13	-0.4406	-0.1345	-0.0003
105	SLU 32	-0.08	9.96	29.72	-0.3853	-0.0739	-0.0001
105	SLU 33	-0.13	10.93	29.83	-0.4265	-0.1114	-0.0002
105	SLU 34	-0.16	11.51	29.73	-0.4511	-0.1357	-0.0003
105	SLU 35	-0.08	10.22	30.32	-0.3958	-0.0751	-0.0001
105	SLU 36	-0.13	11.2	30.42	-0.437	-0.1126	-0.0002
105	SLU 37	-0.08	10.15	30.15	-0.3929	-0.0745	-0.0001
105	SLU 38	-0.13	11.12	30.26	-0.4341	-0.1119	-0.0002
105	SLU 39	-0.08	9.96	29.97	-0.3851	-0.0755	-0.0001
105	SLU 40	-0.13	10.94	30.08	-0.4263	-0.1129	-0.0002
105	SLU 41	-0.08	10.22	30.57	-0.3956	-0.0767	-0.0001
105	SLU 42	-0.13	11.2	30.68	-0.4368	-0.1141	-0.0002
105	SLU 43	-0.07	9.99	30.49	-0.3865	-0.0708	-0.0001
105	SLU 44	-0.16	11.62	30.67	-0.4552	-0.1332	-0.0003
105	SLU 45	-0.08	10.33	31.26	-0.3999	-0.0726	-0.0001
105	SLU 46	-0.13	11.31	31.36	-0.4412	-0.1101	-0.0002
105	SLU 47	-0.16	11.89	31.27	-0.4658	-0.1344	-0.0003
105	SLU 48	-0.08	10.6	31.86	-0.4105	-0.0738	-0.0001
105	SLU 49	-0.13	11.58	31.96	-0.4517	-0.1113	-0.0002
105	SLU 50	-0.08	10.52	31.69	-0.4075	-0.0732	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
105	SLU 51	-0.13	11.5	31.79	-0.4488	-0.1107	-0.0002
105	SLU 52	-0.17	12.42	33.05	-0.4861	-0.1411	-0.0003
105	SLU 53	-0.08	11.13	33.64	-0.4308	-0.0805	-0.0001
105	SLU 54	-0.14	12.11	33.75	-0.4721	-0.1179	-0.0002
105	SLU 55	-0.17	12.69	33.65	-0.4967	-0.1423	-0.0003
105	SLU 56	-0.09	11.4	34.24	-0.4414	-0.0817	-0.0001
105	SLU 57	-0.14	12.38	34.34	-0.4826	-0.1191	-0.0002
105	SLU 58	-0.09	11.32	34.07	-0.4384	-0.0811	-0.0001
105	SLU 59	-0.14	12.3	34.18	-0.4797	-0.1185	-0.0002
105	SLU 60	-0.09	11.14	33.89	-0.4306	-0.082	-0.0001
105	SLU 61	-0.14	12.11	34	-0.4719	-0.1195	-0.0002
105	SLU 62	-0.09	11.4	34.49	-0.4412	-0.0832	-0.0001
105	SLU 63	-0.14	12.38	34.6	-0.4824	-0.1207	-0.0002
105	SLU 64	-0.08	10.88	32.96	-0.421	-0.0785	-0.0001
105	SLU 65	-0.17	12.51	33.13	-0.4897	-0.1409	-0.0003
105	SLU 66	-0.08	11.22	33.72	-0.4344	-0.0804	-0.0001
105	SLU 67	-0.14	12.2	33.83	-0.4757	-0.1178	-0.0002
105	SLU 68	-0.17	12.78	33.73	-0.5003	-0.1421	-0.0003
105	SLU 69	-0.09	11.49	34.32	-0.445	-0.0816	-0.0001
105	SLU 70	-0.14	12.47	34.43	-0.4862	-0.119	-0.0002
105	SLU 71	-0.09	11.41	34.15	-0.4421	-0.0809	-0.0001
105	SLU 72	-0.14	12.39	34.26	-0.4833	-0.1184	-0.0002
105	SLU 73	-0.18	13.32	35.52	-0.5206	-0.1488	-0.0003
105	SLU 74	-0.09	12.03	36.1	-0.4653	-0.0882	-0.0001
105	SLU 75	-0.14	13	36.21	-0.5066	-0.1257	-0.0002
105	SLU 76	-0.18	13.58	36.11	-0.5312	-0.15	-0.0003
105	SLU 77	-0.09	12.29	36.7	-0.4759	-0.0894	-0.0001
105	SLU 78	-0.15	13.27	36.81	-0.5171	-0.1269	-0.0002
105	SLU 79	-0.09	12.22	36.54	-0.473	-0.0888	-0.0001
105	SLU 80	-0.15	13.19	36.64	-0.5142	-0.1262	-0.0002
105	SLU 81	-0.09	12.03	36.36	-0.4652	-0.0898	-0.0001
105	SLU 82	-0.15	13.01	36.47	-0.5064	-0.1272	-0.0002
105	SLU 83	-0.1	12.29	36.96	-0.4757	-0.091	-0.0001
105	SLU 84	-0.15	13.27	37.06	-0.5169	-0.1284	-0.0002
105	SLE RA 1	-0.06	8.18	24.81	-0.3163	-0.0587	-0.0001
105	SLE RA 2	-0.12	9.26	24.93	-0.3621	-0.1003	-0.0002
105	SLE RA 3	-0.06	8.4	25.32	-0.3252	-0.0599	-0.0001
105	SLE RA 4	-0.1	9.06	25.39	-0.3527	-0.0849	-0.0001
105	SLE RA 5	-0.12	9.44	25.33	-0.3691	-0.1011	-0.0002
105	SLE RA 6	-0.06	8.58	25.72	-0.3322	-0.0607	-0.0001
105	SLE RA 7	-0.1	9.23	25.79	-0.3597	-0.0857	-0.0001
105	SLE RA 8	-0.06	8.53	25.61	-0.3303	-0.0603	-0.0001
105	SLE RA 9	-0.1	9.18	25.68	-0.3578	-0.0853	-0.0001
105	SLE RA 10	-0.12	9.8	26.52	-0.3827	-0.1056	-0.0002
105	SLE RA 11	-0.07	8.94	26.91	-0.3458	-0.0652	-0.0001
105	SLE RA 12	-0.1	9.59	26.98	-0.3733	-0.0901	-0.0001
105	SLE RA 13	-0.13	9.97	26.91	-0.3897	-0.1064	-0.0002
105	SLE RA 14	-0.07	9.11	27.31	-0.3528	-0.066	-0.0001
105	SLE RA 15	-0.1	9.77	27.38	-0.3803	-0.0909	-0.0001
105	SLE RA 16	-0.07	9.06	27.2	-0.3509	-0.0656	-0.0001
105	SLE RA 17	-0.1	9.72	27.27	-0.3784	-0.0905	-0.0001
105	SLE RA 18	-0.07	8.94	27.08	-0.3457	-0.0662	-0.0001
105	SLE RA 19	-0.1	9.59	27.15	-0.3732	-0.0912	-0.0001
105	SLE RA 20	-0.07	9.12	27.48	-0.3527	-0.067	-0.0001
105	SLE RA 21	-0.11	9.77	27.55	-0.3802	-0.092	-0.0001
105	SLE FR 1	-0.06	8.18	24.81	-0.3163	-0.0587	-0.0001
105	SLE FR 2	-0.07	8.39	24.83	-0.3254	-0.067	-0.0001
105	SLE FR 3	-0.06	8.25	24.97	-0.3191	-0.059	-0.0001
105	SLE FR 4	-0.08	8.62	25.51	-0.3343	-0.0693	-0.0001
105	SLE FR 5	-0.06	8.48	25.65	-0.3279	-0.0613	-0.0001
105	SLE FR 6	-0.07	8.56	25.94	-0.331	-0.0625	-0.0001
105	SLE QP 1	-0.06	8.18	24.81	-0.3163	-0.0587	-0.0001
105	SLE QP 2	-0.06	8.4	25.49	-0.3251	-0.061	-0.0001
105	SLD 1	-0.17	14.52	36.5	-0.5868	-0.0219	-0.0002
105	SLD 2	-0.17	14.52	36.5	-0.5868	-0.0219	-0.0002
105	SLD 3	-0.06	7.52	32.31	-0.2835	0.0497	0
105	SLD 4	-0.06	7.52	32.31	-0.2835	0.0497	0
105	SLD 5	-0.27	20.86	35.14	-0.8637	-0.1578	-0.0005
105	SLD 6	-0.27	20.86	35.14	-0.8637	-0.1578	-0.0005
105	SLD 7	0.12	-2.48	21.19	0.1475	0.0808	0.0004
105	SLD 8	0.12	-2.48	21.19	0.1475	0.0808	0.0004
105	SLD 9	-0.24	19.29	29.79	-0.7977	-0.2027	-0.0005
105	SLD 10	-0.24	19.29	29.79	-0.7977	-0.2027	-0.0005
105	SLD 11	0.14	-4.05	15.84	0.2135	0.0359	0.0004
105	SLD 12	0.14	-4.05	15.84	0.2135	0.0359	0.0004
105	SLD 13	-0.07	9.29	18.67	-0.3667	-0.1716	-0.0002
105	SLD 14	-0.07	9.29	18.67	-0.3667	-0.1716	-0.0002
105	SLD 15	0.04	2.29	14.48	-0.0634	-0.1	0.0001
105	SLD 16	0.04	2.29	14.48	-0.0634	-0.1	0.0001
105	SLV 1	-0.33	22.53	50.65	-0.9294	0.0278	-0.0005
105	SLV 2	-0.33	22.53	50.65	-0.9294	0.0278	-0.0005
105	SLV 3	-0.04	6.41	40.93	-0.2308	0.2094	0.0002
105	SLV 4	-0.04	6.41	40.93	-0.2308	0.2094	0.0002
105	SLV 5	-0.59	37.09	47.78	-1.5659	-0.3096	-0.0012
105	SLV 6	-0.59	37.09	47.78	-1.5659	-0.3096	-0.0012
105	SLV 7	0.39	-16.64	15.38	0.7628	0.2955	0.001
105	SLV 8	0.39	-16.64	15.38	0.7628	0.2955	0.001
105	SLV 9	-0.52	33.45	35.6	-1.4129	-0.4174	-0.0012
105	SLV 10	-0.52	33.45	35.6	-1.4129	-0.4174	-0.0012



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
105	SLV 11	0.46	-20.28	3.2	0.9157	0.1877	0.0011
105	SLV 12	0.46	-20.28	3.2	0.9157	0.1877	0.0011
105	SLV 13	-0.09	10.4	10.05	-0.4194	-0.3313	-0.0003
105	SLV 14	-0.09	10.4	10.05	-0.4194	-0.3313	-0.0003
105	SLV 15	0.2	-5.72	0.32	0.2792	-0.1498	0.0004
105	SLV 16	0.2	-5.72	0.32	0.2792	-0.1498	0.0004
106	SLU 1	0.03	-0.31	42.12	0.005	0.0239	0.0001
106	SLU 2	0.03	-0.73	42.22	0.0239	0.0248	0.0002
106	SLU 3	0.03	0.06	43.56	-0.0125	0.0249	0.0002
106	SLU 4	0.03	-0.19	43.61	-0.0011	0.0254	0.0002
106	SLU 5	0.03	-0.33	43.38	0.0047	0.0256	0.0002
106	SLU 6	0.03	0.46	44.72	-0.0317	0.0256	0.0002
106	SLU 7	0.03	0.21	44.78	-0.0203	0.0261	0.0002
106	SLU 8	0.03	0.49	44.45	-0.0334	0.0254	0.0002
106	SLU 9	0.03	0.24	44.51	-0.0221	0.0259	0.0002
106	SLU 10	0.02	-0.63	49.62	0.0193	0.0227	0.0001
106	SLU 11	0.02	0.16	50.96	-0.0171	0.0227	0.0001
106	SLU 12	0.02	-0.09	51.02	-0.0057	0.0232	0.0001
106	SLU 13	0.02	-0.22	50.78	0.0001	0.0234	0.0001
106	SLU 14	0.02	0.57	52.13	-0.0363	0.0234	0.0001
106	SLU 15	0.02	0.32	52.18	-0.0249	0.024	0.0001
106	SLU 16	0.02	0.6	51.86	-0.038	0.0232	0.0001
106	SLU 17	0.02	0.35	51.91	-0.0267	0.0237	0.0001
106	SLU 18	0.02	-0.16	52.7	-0.0016	0.0208	0.0001
106	SLU 19	0.02	-0.41	52.75	0.0097	0.0214	0.0001
106	SLU 20	0.02	0.24	53.86	-0.0208	0.0215	0.0001
106	SLU 21	0.02	-0.01	53.92	-0.0095	0.0221	0.0001
106	SLU 22	0.03	-0.05	47.09	-0.0071	0.0265	0.0002
106	SLU 23	0.03	-0.46	47.18	0.0119	0.0274	0.0002
106	SLU 24	0.03	0.33	48.52	-0.0245	0.0275	0.0002
106	SLU 25	0.03	0.07	48.58	-0.0132	0.028	0.0002
106	SLU 26	0.03	-0.06	48.34	-0.0073	0.0282	0.0002
106	SLU 27	0.03	0.73	49.69	-0.0437	0.0282	0.0002
106	SLU 28	0.03	0.48	49.74	-0.0324	0.0287	0.0002
106	SLU 29	0.03	0.76	49.42	-0.0455	0.028	0.0002
106	SLU 30	0.03	0.51	49.47	-0.0341	0.0285	0.0002
106	SLU 31	0.02	-0.36	54.58	0.0072	0.0253	0.0001
106	SLU 32	0.02	0.43	55.92	-0.0291	0.0253	0.0001
106	SLU 33	0.02	0.18	55.98	-0.0178	0.0258	0.0001
106	SLU 34	0.02	0.04	55.74	-0.012	0.026	0.0001
106	SLU 35	0.02	0.83	57.09	-0.0483	0.026	0.0001
106	SLU 36	0.02	0.58	57.14	-0.037	0.0266	0.0001
106	SLU 37	0.02	0.86	56.82	-0.0501	0.0258	0.0001
106	SLU 38	0.02	0.61	56.87	-0.0387	0.0263	0.0001
106	SLU 39	0.02	0.1	57.66	-0.0137	0.0234	0.0001
106	SLU 40	0.02	-0.15	57.71	-0.0023	0.024	0.0001
106	SLU 41	0.02	0.51	58.82	-0.0328	0.0241	0.0001
106	SLU 42	0.02	0.25	58.88	-0.0215	0.0247	0.0001
106	SLU 43	0.03	-0.5	53.06	0.0106	0.0302	0.0002
106	SLU 44	0.03	-0.92	53.15	0.0295	0.0311	0.0002
106	SLU 45	0.03	-0.12	54.49	-0.0068	0.0312	0.0002
106	SLU 46	0.04	-0.38	54.55	0.0045	0.0317	0.0002
106	SLU 47	0.04	-0.51	54.32	0.0103	0.0318	0.0002
106	SLU 48	0.04	0.28	55.66	-0.026	0.0319	0.0002
106	SLU 49	0.04	0.03	55.71	-0.0147	0.0324	0.0002
106	SLU 50	0.04	0.31	55.39	-0.0278	0.0316	0.0002
106	SLU 51	0.04	0.06	55.44	-0.0164	0.0322	0.0002
106	SLU 52	0.03	-0.81	60.55	0.0249	0.0289	0.0002
106	SLU 53	0.03	-0.02	61.9	-0.0115	0.029	0.0002
106	SLU 54	0.03	-0.27	61.95	-0.0001	0.0295	0.0002
106	SLU 55	0.03	-0.41	61.72	0.0057	0.0297	0.0002
106	SLU 56	0.03	0.38	63.06	-0.0307	0.0297	0.0002
106	SLU 57	0.03	0.13	63.12	-0.0193	0.0303	0.0002
106	SLU 58	0.03	0.41	62.79	-0.0324	0.0295	0.0002
106	SLU 59	0.03	0.16	62.85	-0.021	0.03	0.0002
106	SLU 60	0.02	-0.35	63.63	0.004	0.0271	0.0001
106	SLU 61	0.02	-0.6	63.69	0.0154	0.0276	0.0001
106	SLU 62	0.02	0.06	64.8	-0.0152	0.0278	0.0001
106	SLU 63	0.03	-0.2	64.85	-0.0038	0.0284	0.0001
106	SLU 64	0.04	-0.23	58.02	-0.0014	0.0328	0.0002
106	SLU 65	0.04	-0.65	58.11	0.0175	0.0337	0.0002
106	SLU 66	0.04	0.14	59.46	-0.0189	0.0338	0.0002
106	SLU 67	0.04	-0.11	59.51	-0.0075	0.0343	0.0002
106	SLU 68	0.04	-0.25	59.28	-0.0017	0.0344	0.0002
106	SLU 69	0.04	0.54	60.62	-0.0381	0.0345	0.0002
106	SLU 70	0.04	0.29	60.68	-0.0267	0.035	0.0002
106	SLU 71	0.04	0.58	60.35	-0.0398	0.0342	0.0002
106	SLU 72	0.04	0.32	60.41	-0.0285	0.0348	0.0002
106	SLU 73	0.03	-0.54	65.51	0.0129	0.0315	0.0002
106	SLU 74	0.03	0.25	66.86	-0.0235	0.0316	0.0002
106	SLU 75	0.03	-0.01	66.91	-0.0122	0.0321	0.0002
106	SLU 76	0.03	-0.14	66.68	-0.0063	0.0323	0.0002
106	SLU 77	0.03	0.65	68.02	-0.0427	0.0323	0.0002
106	SLU 78	0.03	0.4	68.08	-0.0314	0.0328	0.0002
106	SLU 79	0.03	0.68	67.75	-0.0444	0.0321	0.0002
106	SLU 80	0.03	0.43	67.81	-0.0331	0.0326	0.0002
106	SLU 81	0.03	-0.08	68.6	-0.008	0.0297	0.0002
106	SLU 82	0.03	-0.33	68.65	0.0033	0.0302	0.0002
106	SLU 83	0.03	0.32	69.76	-0.0272	0.0304	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
106	SLU 84	0.03	0.07	69.82	-0.0159	0.031	0.0002
106	SLE RA 1	0.03	-0.24	43.54	0.0015	0.0247	0.0001
106	SLE RA 2	0.03	-0.51	43.6	0.0142	0.0253	0.0002
106	SLE RA 3	0.03	0.01	44.5	-0.0101	0.0253	0.0002
106	SLE RA 4	0.03	-0.16	44.54	-0.0025	0.0257	0.0002
106	SLE RA 5	0.03	-0.25	44.38	0.0014	0.0258	0.0002
106	SLE RA 6	0.03	0.28	45.28	-0.0229	0.0258	0.0002
106	SLE RA 7	0.03	0.11	45.31	-0.0153	0.0261	0.0002
106	SLE RA 8	0.03	0.3	45.1	-0.024	0.0256	0.0002
106	SLE RA 9	0.03	0.13	45.13	-0.0165	0.026	0.0002
106	SLE RA 10	0.02	-0.45	48.54	0.0111	0.0238	0.0001
106	SLE RA 11	0.02	0.08	49.43	-0.0132	0.0238	0.0001
106	SLE RA 12	0.02	-0.09	49.47	-0.0056	0.0242	0.0001
106	SLE RA 13	0.02	-0.18	49.31	-0.0017	0.0243	0.0001
106	SLE RA 14	0.02	0.35	50.21	-0.026	0.0243	0.0001
106	SLE RA 15	0.02	0.18	50.25	-0.0184	0.0247	0.0001
106	SLE RA 16	0.02	0.37	50.03	-0.0271	0.0242	0.0001
106	SLE RA 17	0.02	0.2	50.07	-0.0196	0.0245	0.0001
106	SLE RA 18	0.02	-0.14	50.59	-0.0028	0.0226	0.0001
106	SLE RA 19	0.02	-0.3	50.63	0.0047	0.023	0.0001
106	SLE RA 20	0.02	0.13	51.37	-0.0156	0.0231	0.0001
106	SLE RA 21	0.02	-0.04	51.4	-0.0081	0.0234	0.0001
106	SLE FR 1	0.03	-0.24	43.54	0.0015	0.0247	0.0001
106	SLE FR 2	0.03	-0.29	43.55	0.0041	0.0248	0.0001
106	SLE FR 3	0.03	-0.13	43.85	-0.0036	0.0248	0.0001
106	SLE FR 4	0.03	-0.26	45.67	0.0027	0.0242	0.0001
106	SLE FR 5	0.03	-0.1	45.97	-0.0049	0.0242	0.0001
106	SLE FR 6	0.02	-0.19	47.07	-0.0007	0.0236	0.0001
106	SLE QP 1	0.03	-0.24	43.54	0.0015	0.0247	0.0001
106	SLE QP 2	0.03	-0.21	45.66	0.0002	0.024	0.0001
106	SLD 1	0.16	3.39	51.95	-0.1647	0.1439	0.0007
106	SLD 2	0.16	3.39	51.95	-0.1647	0.1439	0.0007
106	SLD 3	0.14	-1.09	49.98	0.0435	0.1313	0.0006
106	SLD 4	0.14	-1.09	49.98	0.0435	0.1313	0.0006
106	SLD 5	0.09	7.68	50.53	-0.365	0.0791	0.0005
106	SLD 6	0.09	7.68	50.53	-0.365	0.0791	0.0005
106	SLD 7	0.03	-7.28	43.97	0.329	0.0371	0.0001
106	SLD 8	0.03	-7.28	43.97	0.329	0.0371	0.0001
106	SLD 9	0.02	6.86	47.35	-0.3285	0.0109	0.0002
106	SLD 10	0.02	6.86	47.35	-0.3285	0.0109	0.0002
106	SLD 11	-0.04	-8.09	40.78	0.3655	-0.031	-0.0002
106	SLD 12	-0.04	-8.09	40.78	0.3655	-0.031	-0.0002
106	SLD 13	-0.09	0.68	41.33	-0.0431	-0.0833	-0.0003
106	SLD 14	-0.09	0.68	41.33	-0.0431	-0.0833	-0.0003
106	SLD 15	-0.11	-3.8	39.37	0.1651	-0.0959	-0.0004
106	SLD 16	-0.11	-3.8	39.37	0.1651	-0.0959	-0.0004
106	SLV 1	0.35	8.04	60.22	-0.3774	0.3136	0.0015
106	SLV 2	0.35	8.04	60.22	-0.3774	0.3136	0.0015
106	SLV 3	0.31	-2.24	55.59	0.0998	0.2832	0.0013
106	SLV 4	0.31	-2.24	55.59	0.0998	0.2832	0.0013
106	SLV 5	0.19	17.86	57.04	-0.8367	0.1569	0.0009
106	SLV 6	0.19	17.86	57.04	-0.8367	0.1569	0.0009
106	SLV 7	0.04	-16.41	41.62	0.7538	0.0557	0.0001
106	SLV 8	0.04	-16.41	41.62	0.7538	0.0557	0.0001
106	SLV 9	0.01	16	49.69	-0.7533	-0.0077	0.0002
106	SLV 10	0.01	16	49.69	-0.7533	-0.0077	0.0002
106	SLV 11	-0.14	-18.27	34.27	0.8372	-0.1089	-0.0006
106	SLV 12	-0.14	-18.27	34.27	0.8372	-0.1089	-0.0006
106	SLV 13	-0.26	1.83	35.72	-0.0993	-0.2351	-0.001
106	SLV 14	-0.26	1.83	35.72	-0.0993	-0.2351	-0.001
106	SLV 15	-0.3	-8.45	31.09	0.3778	-0.2655	-0.0012
106	SLV 16	-0.3	-8.45	31.09	0.3778	-0.2655	-0.0012
107	SLU 1	0.04	-1.14	5.12	0.0316	0.0192	-0.0008
107	SLU 2	0.04	-1.15	5.11	0.0318	0.0196	-0.0008
107	SLU 3	0.04	-1.19	5.08	0.0329	0.0199	-0.0008
107	SLU 4	0.04	-1.19	5.08	0.033	0.0202	-0.0008
107	SLU 5	0.04	-1.17	5.1	0.0323	0.0201	-0.0008
107	SLU 6	0.04	-1.21	5.06	0.0334	0.0205	-0.0008
107	SLU 7	0.04	-1.21	5.06	0.0335	0.0207	-0.0008
107	SLU 8	0.04	-1.18	5.08	0.0326	0.0204	-0.0008
107	SLU 9	0.04	-1.18	5.08	0.0328	0.0206	-0.0008
107	SLU 10	0.05	-1.43	7.98	0.0406	0.0236	-0.001
107	SLU 11	0.05	-1.46	7.94	0.0416	0.024	-0.001
107	SLU 12	0.05	-1.47	7.94	0.0418	0.0242	-0.001
107	SLU 13	0.05	-1.44	7.96	0.0411	0.0242	-0.001
107	SLU 14	0.06	-1.48	7.93	0.0421	0.0245	-0.001
107	SLU 15	0.06	-1.49	7.92	0.0423	0.0248	-0.0011
107	SLU 16	0.06	-1.46	7.95	0.0414	0.0244	-0.001
107	SLU 17	0.06	-1.46	7.95	0.0415	0.0246	-0.0011
107	SLU 18	0.06	-1.54	9.21	0.0442	0.0249	-0.0011
107	SLU 19	0.06	-1.54	9.21	0.0443	0.0252	-0.0011
107	SLU 20	0.06	-1.55	9.2	0.0447	0.0255	-0.0011
107	SLU 21	0.06	-1.56	9.19	0.0448	0.0257	-0.0011
107	SLU 22	0.04	-1.38	5.32	0.0384	0.0217	-0.0009
107	SLU 23	0.04	-1.39	5.32	0.0386	0.022	-0.0009
107	SLU 24	0.05	-1.43	5.28	0.0396	0.0224	-0.0009
107	SLU 25	0.05	-1.43	5.28	0.0398	0.0226	-0.0009
107	SLU 26	0.05	-1.41	5.3	0.0391	0.0226	-0.0009
107	SLU 27	0.05	-1.45	5.26	0.0401	0.023	-0.0009



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
107	SLU 28	0.05	-1.45	5.26	0.0403	0.0232	-0.0009
107	SLU 29	0.05	-1.42	5.29	0.0394	0.0228	-0.0009
107	SLU 30	0.05	-1.43	5.28	0.0395	0.023	-0.0009
107	SLU 31	0.06	-1.67	8.18	0.0474	0.026	-0.0011
107	SLU 32	0.06	-1.7	8.15	0.0484	0.0264	-0.0011
107	SLU 33	0.06	-1.71	8.14	0.0485	0.0266	-0.0011
107	SLU 34	0.06	-1.69	8.17	0.0479	0.0266	-0.0011
107	SLU 35	0.06	-1.72	8.13	0.0489	0.027	-0.0012
107	SLU 36	0.06	-1.73	8.13	0.049	0.0272	-0.0012
107	SLU 37	0.06	-1.7	8.15	0.0482	0.0268	-0.0012
107	SLU 38	0.06	-1.7	8.15	0.0483	0.0271	-0.0012
107	SLU 39	0.07	-1.78	9.42	0.0509	0.0274	-0.0012
107	SLU 40	0.07	-1.78	9.41	0.051	0.0276	-0.0012
107	SLU 41	0.07	-1.8	9.4	0.0514	0.028	-0.0012
107	SLU 42	0.07	-1.8	9.4	0.0516	0.0282	-0.0012
107	SLU 43	0.05	-1.4	6.59	0.0388	0.0241	-0.001
107	SLU 44	0.05	-1.41	6.58	0.039	0.0245	-0.001
107	SLU 45	0.05	-1.45	6.54	0.04	0.0249	-0.001
107	SLU 46	0.05	-1.45	6.54	0.0401	0.0251	-0.001
107	SLU 47	0.05	-1.43	6.56	0.0395	0.0251	-0.001
107	SLU 48	0.05	-1.47	6.53	0.0405	0.0254	-0.001
107	SLU 49	0.05	-1.47	6.52	0.0407	0.0257	-0.001
107	SLU 50	0.05	-1.44	6.55	0.0398	0.0253	-0.001
107	SLU 51	0.05	-1.44	6.55	0.0399	0.0255	-0.001
107	SLU 52	0.06	-1.68	9.45	0.0478	0.0285	-0.0012
107	SLU 53	0.06	-1.72	9.41	0.0488	0.0289	-0.0012
107	SLU 54	0.06	-1.73	9.41	0.0489	0.0291	-0.0012
107	SLU 55	0.06	-1.7	9.43	0.0483	0.0291	-0.0012
107	SLU 56	0.07	-1.74	9.39	0.0493	0.0295	-0.0012
107	SLU 57	0.07	-1.75	9.39	0.0494	0.0297	-0.0012
107	SLU 58	0.06	-1.71	9.42	0.0486	0.0293	-0.0012
107	SLU 59	0.07	-1.72	9.41	0.0487	0.0295	-0.0012
107	SLU 60	0.07	-1.8	10.68	0.0513	0.0299	-0.0013
107	SLU 61	0.07	-1.8	10.68	0.0514	0.0301	-0.0013
107	SLU 62	0.07	-1.81	10.66	0.0518	0.0304	-0.0013
107	SLU 63	0.07	-1.82	10.66	0.052	0.0307	-0.0013
107	SLU 64	0.05	-1.64	6.79	0.0455	0.0266	-0.0011
107	SLU 65	0.05	-1.65	6.78	0.0458	0.0269	-0.0011
107	SLU 66	0.05	-1.69	6.75	0.0468	0.0273	-0.0011
107	SLU 67	0.06	-1.69	6.74	0.0469	0.0275	-0.0011
107	SLU 68	0.06	-1.67	6.77	0.0463	0.0275	-0.0011
107	SLU 69	0.06	-1.71	6.73	0.0473	0.0279	-0.0011
107	SLU 70	0.06	-1.71	6.73	0.0474	0.0281	-0.0011
107	SLU 71	0.06	-1.68	6.75	0.0466	0.0277	-0.0011
107	SLU 72	0.06	-1.68	6.75	0.0467	0.028	-0.0011
107	SLU 73	0.07	-1.93	9.65	0.0545	0.031	-0.0013
107	SLU 74	0.07	-1.96	9.61	0.0556	0.0313	-0.0013
107	SLU 75	0.07	-1.97	9.61	0.0557	0.0316	-0.0013
107	SLU 76	0.07	-1.94	9.63	0.0551	0.0315	-0.0013
107	SLU 77	0.07	-1.98	9.6	0.0561	0.0319	-0.0013
107	SLU 78	0.07	-1.99	9.59	0.0562	0.0321	-0.0014
107	SLU 79	0.07	-1.96	9.62	0.0554	0.0318	-0.0013
107	SLU 80	0.07	-1.96	9.62	0.0555	0.032	-0.0014
107	SLU 81	0.07	-2.04	10.88	0.0581	0.0323	-0.0014
107	SLU 82	0.08	-2.04	10.88	0.0582	0.0325	-0.0014
107	SLU 83	0.08	-2.06	10.87	0.0586	0.0329	-0.0014
107	SLU 84	0.08	-2.06	10.86	0.0587	0.0331	-0.0014
107	SLE RA 1	0.04	-1.21	5.18	0.0335	0.0199	-0.0008
107	SLE RA 2	0.04	-1.22	5.17	0.0337	0.0201	-0.0008
107	SLE RA 3	0.04	-1.24	5.15	0.0344	0.0204	-0.0008
107	SLE RA 4	0.04	-1.24	5.15	0.0345	0.0205	-0.0008
107	SLE RA 5	0.04	-1.23	5.16	0.034	0.0205	-0.0008
107	SLE RA 6	0.04	-1.25	5.14	0.0347	0.0208	-0.0008
107	SLE RA 7	0.04	-1.26	5.14	0.0348	0.0209	-0.0008
107	SLE RA 8	0.04	-1.24	5.15	0.0342	0.0207	-0.0008
107	SLE RA 9	0.04	-1.24	5.15	0.0343	0.0208	-0.0008
107	SLE RA 10	0.05	-1.4	7.08	0.0395	0.0228	-0.001
107	SLE RA 11	0.05	-1.42	7.06	0.0402	0.0231	-0.001
107	SLE RA 12	0.05	-1.43	7.06	0.0403	0.0232	-0.001
107	SLE RA 13	0.05	-1.41	7.07	0.0399	0.0232	-0.001
107	SLE RA 14	0.05	-1.44	7.05	0.0406	0.0235	-0.001
107	SLE RA 15	0.05	-1.44	7.05	0.0407	0.0236	-0.001
107	SLE RA 16	0.05	-1.42	7.07	0.0401	0.0234	-0.001
107	SLE RA 17	0.05	-1.42	7.06	0.0402	0.0235	-0.001
107	SLE RA 18	0.05	-1.47	7.91	0.0419	0.0237	-0.001
107	SLE RA 19	0.05	-1.48	7.9	0.042	0.0239	-0.001
107	SLE RA 20	0.05	-1.49	7.9	0.0422	0.0241	-0.001
107	SLE RA 21	0.06	-1.49	7.89	0.0423	0.0243	-0.001
107	SLE FR 1	0.04	-1.21	5.18	0.0335	0.0199	-0.0008
107	SLE FR 2	0.04	-1.21	5.18	0.0336	0.02	-0.0008
107	SLE FR 3	0.04	-1.22	5.17	0.0337	0.0201	-0.0008
107	SLE FR 4	0.04	-1.29	6	0.0361	0.0211	-0.0009
107	SLE FR 5	0.04	-1.29	5.99	0.0362	0.0212	-0.0009
107	SLE FR 6	0.05	-1.34	6.54	0.0377	0.0218	-0.0009
107	SLE QP 1	0.04	-1.21	5.18	0.0335	0.0199	-0.0008
107	SLE QP 2	0.04	-1.29	6	0.0361	0.0211	-0.0009
107	SLD 1	0.23	-0.23	6.63	0.0065	0.1409	-0.0048
107	SLD 2	0.23	-0.23	6.63	0.0065	0.1409	-0.0048
107	SLD 3	0.21	-1.55	5.96	0.0433	0.1535	-0.0044





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
107	SLD 4	0.21	-1.55	5.96	0.0433	0.1535	-0.0044
107	SLD 5	0.13	1.02	7.2	-0.0286	0.0378	-0.0027
107	SLD 6	0.13	1.02	7.2	-0.0286	0.0378	-0.0027
107	SLD 7	0.06	-3.36	4.97	0.0941	0.08	-0.0013
107	SLD 8	0.06	-3.36	4.97	0.0941	0.08	-0.0013
107	SLD 9	0.03	0.78	7.02	-0.022	-0.0379	-0.0004
107	SLD 10	0.03	0.78	7.02	-0.022	-0.0379	-0.0004
107	SLD 11	-0.04	-3.6	4.79	0.1008	0.0043	0.001
107	SLD 12	-0.04	-3.6	4.79	0.1008	0.0043	0.001
107	SLD 13	-0.12	-1.03	6.04	0.0288	-0.1114	0.0027
107	SLD 14	-0.12	-1.03	6.04	0.0288	-0.1114	0.0027
107	SLD 15	-0.14	-2.35	5.37	0.0656	-0.0988	0.0031
107	SLD 16	-0.14	-2.35	5.37	0.0656	-0.0988	0.0031
107	SLV 1	0.49	1.17	7.46	-0.0325	0.3111	-0.0104
107	SLV 2	0.49	1.17	7.46	-0.0325	0.3111	-0.0104
107	SLV 3	0.44	-1.9	5.91	0.0533	0.3415	-0.0094
107	SLV 4	0.44	-1.9	5.91	0.0533	0.3415	-0.0094
107	SLV 5	0.25	4.1	8.8	-0.1147	0.062	-0.0053
107	SLV 6	0.25	4.1	8.8	-0.1147	0.062	-0.0053
107	SLV 7	0.09	-6.12	3.61	0.1714	0.1633	-0.0019
107	SLV 8	0.09	-6.12	3.61	0.1714	0.1633	-0.0019
107	SLV 9	0	3.55	8.39	-0.0993	-0.1212	0.0002
107	SLV 10	0	3.55	8.39	-0.0993	-0.1212	0.0002
107	SLV 11	-0.16	-6.68	3.19	0.1868	-0.0199	0.0035
107	SLV 12	-0.16	-6.68	3.19	0.1868	-0.0199	0.0035
107	SLV 13	-0.35	-0.68	6.09	0.0188	-0.2994	0.0077
107	SLV 14	-0.35	-0.68	6.09	0.0188	-0.2994	0.0077
107	SLV 15	-0.4	-3.75	4.53	0.1046	-0.269	0.0087
107	SLV 16	-0.4	-3.75	4.53	0.1046	-0.269	0.0087
108	SLU 1	0.09	-0.07	18.41	-0.1612	0.0617	0
108	SLU 2	0.11	2.46	18.82	-0.2945	0.0737	0
108	SLU 3	0.1	-0.33	18.61	-0.1519	0.0634	0
108	SLU 4	0.11	1.19	18.86	-0.2319	0.0706	0
108	SLU 5	0.11	2.14	18.84	-0.2801	0.0744	0
108	SLU 6	0.1	-0.65	18.63	-0.1376	0.0641	0
108	SLU 7	0.11	0.86	18.88	-0.2176	0.0713	0
108	SLU 8	0.1	-0.72	18.45	-0.1326	0.0632	0
108	SLU 9	0.11	0.8	18.7	-0.2125	0.0704	0
108	SLU 10	0.13	2.34	21.13	-0.313	0.0844	0
108	SLU 11	0.11	-0.46	20.92	-0.1705	0.0741	0
108	SLU 12	0.12	1.06	21.17	-0.2505	0.0813	0
108	SLU 13	0.13	2.02	21.15	-0.2987	0.0852	0
108	SLU 14	0.11	-0.78	20.94	-0.1562	0.0749	0
108	SLU 15	0.12	0.74	21.19	-0.2361	0.0821	0
108	SLU 16	0.11	-0.84	20.76	-0.1512	0.074	0
108	SLU 17	0.12	0.68	21.01	-0.2311	0.0811	0
108	SLU 18	0.12	-0.25	21.7	-0.1878	0.0771	0
108	SLU 19	0.13	1.27	21.95	-0.2677	0.0843	0
108	SLU 20	0.12	-0.57	21.72	-0.1734	0.0778	0
108	SLU 21	0.13	0.95	21.97	-0.2534	0.085	0
108	SLU 22	0.11	-0.28	20.32	-0.172	0.0713	0
108	SLU 23	0.13	2.25	20.73	-0.3052	0.0833	0
108	SLU 24	0.11	-0.54	20.52	-0.1627	0.073	0
108	SLU 25	0.12	0.97	20.77	-0.2426	0.0802	0
108	SLU 26	0.13	1.93	20.75	-0.2909	0.084	0
108	SLU 27	0.11	-0.87	20.54	-0.1484	0.0737	0
108	SLU 28	0.12	0.65	20.79	-0.2283	0.0809	0
108	SLU 29	0.11	-0.93	20.36	-0.1433	0.0728	0
108	SLU 30	0.12	0.59	20.61	-0.2233	0.08	0
108	SLU 31	0.14	2.13	23.04	-0.3238	0.094	0
108	SLU 32	0.13	-0.67	22.83	-0.1813	0.0837	0
108	SLU 33	0.14	0.85	23.08	-0.2612	0.0909	0
108	SLU 34	0.14	1.8	23.06	-0.3095	0.0948	0
108	SLU 35	0.13	-0.99	22.85	-0.1669	0.0845	0
108	SLU 36	0.14	0.53	23.1	-0.2469	0.0917	0
108	SLU 37	0.13	-1.05	22.67	-0.1619	0.0836	0
108	SLU 38	0.14	0.47	22.91	-0.2418	0.0907	0
108	SLU 39	0.13	-0.46	23.61	-0.1985	0.0867	0
108	SLU 40	0.14	1.06	23.86	-0.2785	0.0939	0
108	SLU 41	0.13	-0.78	23.63	-0.1842	0.0874	0
108	SLU 42	0.14	0.74	23.88	-0.2641	0.0946	0
108	SLU 43	0.12	-0.02	23.28	-0.2059	0.0769	0
108	SLU 44	0.13	2.51	23.69	-0.3392	0.0889	0
108	SLU 45	0.12	-0.28	23.48	-0.1966	0.0786	0
108	SLU 46	0.13	1.24	23.73	-0.2766	0.0858	0
108	SLU 47	0.14	2.19	23.71	-0.3248	0.0897	0
108	SLU 48	0.12	-0.6	23.5	-0.1823	0.0794	0
108	SLU 49	0.13	0.92	23.75	-0.2622	0.0865	0
108	SLU 50	0.12	-0.66	23.32	-0.1773	0.0784	0
108	SLU 51	0.13	0.86	23.57	-0.2572	0.0856	0
108	SLU 52	0.15	2.39	26	-0.3577	0.0997	0
108	SLU 53	0.14	-0.4	25.79	-0.2152	0.0894	0
108	SLU 54	0.15	1.12	26.04	-0.2951	0.0965	0
108	SLU 55	0.15	2.07	26.02	-0.3434	0.1004	0
108	SLU 56	0.14	-0.73	25.81	-0.2009	0.0901	0
108	SLU 57	0.15	0.79	26.06	-0.2808	0.0973	0
108	SLU 58	0.14	-0.79	25.63	-0.1958	0.0892	0
108	SLU 59	0.15	0.73	25.87	-0.2758	0.0964	0
108	SLU 60	0.14	-0.19	26.57	-0.2325	0.0923	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
108	SLU 61	0.15	1.33	26.82	-0.3124	0.0995	0
108	SLU 62	0.14	-0.52	26.59	-0.2181	0.093	0
108	SLU 63	0.15	1	26.84	-0.2981	0.1002	0
108	SLU 64	0.13	-0.23	25.19	-0.2167	0.0865	0
108	SLU 65	0.15	2.3	25.6	-0.3499	0.0985	0
108	SLU 66	0.13	-0.49	25.39	-0.2074	0.0882	0
108	SLU 67	0.14	1.03	25.64	-0.2873	0.0954	0
108	SLU 68	0.15	1.98	25.62	-0.3356	0.0993	0
108	SLU 69	0.13	-0.82	25.41	-0.193	0.089	0
108	SLU 70	0.15	0.7	25.66	-0.273	0.0961	0
108	SLU 71	0.13	-0.88	25.23	-0.188	0.088	0
108	SLU 72	0.14	0.64	25.48	-0.268	0.0952	0
108	SLU 73	0.16	2.18	27.91	-0.3685	0.1093	0
108	SLU 74	0.15	-0.62	27.7	-0.226	0.099	0
108	SLU 75	0.16	0.9	27.94	-0.3059	0.1061	0
108	SLU 76	0.17	1.85	27.93	-0.3542	0.11	0
108	SLU 77	0.15	-0.94	27.72	-0.2116	0.0997	0
108	SLU 78	0.16	0.58	27.97	-0.2916	0.1069	0
108	SLU 79	0.15	-1	27.53	-0.2066	0.0988	0
108	SLU 80	0.16	0.52	27.78	-0.2865	0.106	0
108	SLU 81	0.15	-0.41	28.48	-0.2432	0.1019	0
108	SLU 82	0.16	1.11	28.73	-0.3232	0.1091	0
108	SLU 83	0.16	-0.73	28.5	-0.2289	0.1026	0
108	SLU 84	0.17	0.79	28.75	-0.3088	0.1098	0
108	SLE RA 1	0.1	-0.13	18.95	-0.1643	0.0645	0
108	SLE RA 2	0.11	1.56	19.23	-0.2531	0.0724	0
108	SLE RA 3	0.1	-0.3	19.09	-0.1581	0.0656	0
108	SLE RA 4	0.11	0.71	19.26	-0.2114	0.0704	0
108	SLE RA 5	0.11	1.34	19.24	-0.2436	0.0729	0
108	SLE RA 6	0.1	-0.52	19.1	-0.1486	0.0661	0
108	SLE RA 7	0.11	0.49	19.27	-0.2019	0.0709	0
108	SLE RA 8	0.1	-0.56	18.98	-0.1452	0.0654	0
108	SLE RA 9	0.11	0.45	19.15	-0.1985	0.0702	0
108	SLE RA 10	0.12	1.47	20.77	-0.2655	0.0796	0
108	SLE RA 11	0.11	-0.39	20.63	-0.1705	0.0727	0
108	SLE RA 12	0.12	0.63	20.79	-0.2238	0.0775	0
108	SLE RA 13	0.12	1.26	20.78	-0.256	0.0801	0
108	SLE RA 14	0.11	-0.6	20.64	-0.1609	0.0732	0
108	SLE RA 15	0.12	0.41	20.81	-0.2142	0.078	0
108	SLE RA 16	0.11	-0.64	20.52	-0.1576	0.0726	0
108	SLE RA 17	0.12	0.37	20.69	-0.2109	0.0774	0
108	SLE RA 18	0.11	-0.25	21.15	-0.182	0.0747	0
108	SLE RA 19	0.12	0.76	21.32	-0.2353	0.0795	0
108	SLE RA 20	0.11	-0.46	21.16	-0.1724	0.0752	0
108	SLE RA 21	0.12	0.55	21.33	-0.2257	0.08	0
108	SLE FR 1	0.1	-0.13	18.95	-0.1643	0.0645	0
108	SLE FR 2	0.1	0.21	19.01	-0.1821	0.066	0
108	SLE FR 3	0.1	-0.22	18.96	-0.1605	0.0647	0
108	SLE FR 4	0.1	0.17	19.67	-0.1874	0.0691	0
108	SLE FR 5	0.1	-0.25	19.62	-0.1658	0.0677	0
108	SLE FR 6	0.11	-0.19	20.05	-0.1732	0.0696	0
108	SLE QP 1	0.1	-0.13	18.95	-0.1643	0.0645	0
108	SLE QP 2	0.1	-0.17	19.61	-0.1696	0.0675	0
108	SLD 1	0.05	0.2	18.57	-0.1898	0.1498	-0.0001
108	SLD 2	0.05	0.2	18.57	-0.1898	0.1498	-0.0001
108	SLD 3	0.02	-4.74	17.06	0.049	0.1261	-0.0001
108	SLD 4	0.02	-4.74	17.06	0.049	0.1261	-0.0001
108	SLD 5	0.13	7.43	21.59	-0.5379	0.1282	-0.0001
108	SLD 6	0.13	7.43	21.59	-0.5379	0.1282	-0.0001
108	SLD 7	0.03	-9.03	16.56	0.2582	0.0491	0
108	SLD 8	0.03	-9.03	16.56	0.2582	0.0491	0
108	SLD 9	0.17	8.7	22.67	-0.5975	0.0859	0
108	SLD 10	0.17	8.7	22.67	-0.5975	0.0859	0
108	SLD 11	0.07	-7.76	17.64	0.1987	0.0069	0
108	SLD 12	0.07	-7.76	17.64	0.1987	0.0069	0
108	SLD 13	0.19	4.41	22.17	-0.3883	0.009	0.0001
108	SLD 14	0.19	4.41	22.17	-0.3883	0.009	0.0001
108	SLD 15	0.16	-0.53	20.66	-0.1494	-0.0147	0.0001
108	SLD 16	0.16	-0.53	20.66	-0.1494	-0.0147	0.0001
108	SLV 1	-0.03	0.59	17.21	-0.2122	0.2633	-0.0003
108	SLV 2	-0.03	0.59	17.21	-0.2122	0.2633	-0.0003
108	SLV 3	-0.1	-10.97	13.72	0.348	0.2036	-0.0002
108	SLV 4	-0.1	-10.97	13.72	0.348	0.2036	-0.0002
108	SLV 5	0.18	17.59	24.19	-1.032	0.2168	-0.0002
108	SLV 6	0.18	17.59	24.19	-1.032	0.2168	-0.0002
108	SLV 7	-0.07	-20.94	12.55	0.8353	0.0178	0
108	SLV 8	-0.07	-20.94	12.55	0.8353	0.0178	0
108	SLV 9	0.28	20.61	26.68	-1.1746	0.1172	0
108	SLV 10	0.28	20.61	26.68	-1.1746	0.1172	0
108	SLV 11	0.03	-17.93	15.03	0.6928	-0.0817	0.0001
108	SLV 12	0.03	-17.93	15.03	0.6928	-0.0817	0.0001
108	SLV 13	0.31	10.64	25.51	-0.6872	-0.0685	0.0002
108	SLV 14	0.31	10.64	25.51	-0.6872	-0.0685	0.0002
108	SLV 15	0.23	-0.92	22.01	-0.127	-0.1282	0.0002
108	SLV 16	0.23	-0.92	22.01	-0.127	-0.1282	0.0002
109	SLU 1	0.05	-2.09	46.15	0.0587	0.0319	-0.001
109	SLU 2	0.04	-2.54	46.74	0.0795	0.0315	-0.0011
109	SLU 3	0.05	-1.92	47.06	0.0493	0.0326	-0.0011
109	SLU 4	0.05	-2.19	47.42	0.0618	0.0323	-0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
109	SLU 5	0.04	-2.34	47.26	0.0686	0.0318	-0.0011
109	SLU 6	0.05	-1.72	47.58	0.0384	0.0329	-0.0011
109	SLU 7	0.05	-1.99	47.94	0.0509	0.0326	-0.0011
109	SLU 8	0.05	-1.69	47.19	0.0369	0.0325	-0.0011
109	SLU 9	0.05	-1.96	47.55	0.0494	0.0322	-0.0011
109	SLU 10	0.05	-2.91	54.86	0.0896	0.0379	-0.0013
109	SLU 11	0.06	-2.28	55.18	0.0594	0.0391	-0.0012
109	SLU 12	0.05	-2.55	55.54	0.0719	0.0388	-0.0013
109	SLU 13	0.05	-2.71	55.39	0.0787	0.0382	-0.0013
109	SLU 14	0.06	-2.08	55.71	0.0485	0.0394	-0.0012
109	SLU 15	0.06	-2.35	56.06	0.061	0.0391	-0.0013
109	SLU 16	0.06	-2.05	55.32	0.047	0.039	-0.0012
109	SLU 17	0.05	-2.33	55.67	0.0595	0.0387	-0.0013
109	SLU 18	0.06	-2.61	57.75	0.0731	0.0412	-0.0013
109	SLU 19	0.06	-2.89	58.11	0.0856	0.0409	-0.0013
109	SLU 20	0.06	-2.41	58.27	0.0622	0.0415	-0.0013
109	SLU 21	0.06	-2.68	58.63	0.0747	0.0412	-0.0013
109	SLU 22	0.05	-2.18	51.02	0.0595	0.0357	-0.0012
109	SLU 23	0.05	-2.63	51.61	0.0804	0.0353	-0.0012
109	SLU 24	0.05	-2.01	51.93	0.0502	0.0364	-0.0012
109	SLU 25	0.05	-2.28	52.29	0.0627	0.0361	-0.0012
109	SLU 26	0.05	-2.43	52.14	0.0695	0.0356	-0.0012
109	SLU 27	0.05	-1.81	52.45	0.0393	0.0367	-0.0012
109	SLU 28	0.05	-2.08	52.81	0.0518	0.0364	-0.0012
109	SLU 29	0.05	-1.78	52.06	0.0378	0.0363	-0.0012
109	SLU 30	0.05	-2.05	52.42	0.0503	0.0361	-0.0012
109	SLU 31	0.06	-3	59.74	0.0904	0.0418	-0.0014
109	SLU 32	0.06	-2.37	60.06	0.0602	0.0429	-0.0014
109	SLU 33	0.06	-2.64	60.41	0.0727	0.0426	-0.0014
109	SLU 34	0.06	-2.8	60.26	0.0795	0.0421	-0.0014
109	SLU 35	0.06	-2.17	60.58	0.0494	0.0432	-0.0014
109	SLU 36	0.06	-2.44	60.93	0.0619	0.0429	-0.0014
109	SLU 37	0.06	-2.14	60.19	0.0478	0.0428	-0.0014
109	SLU 38	0.06	-2.42	60.54	0.0603	0.0425	-0.0014
109	SLU 39	0.06	-2.7	62.63	0.0739	0.045	-0.0014
109	SLU 40	0.06	-2.98	62.98	0.0864	0.0447	-0.0014
109	SLU 41	0.06	-2.5	63.15	0.063	0.0453	-0.0014
109	SLU 42	0.06	-2.77	63.5	0.0755	0.045	-0.0014
109	SLU 43	0.06	-2.69	58.32	0.076	0.0401	-0.0013
109	SLU 44	0.06	-3.14	58.91	0.0968	0.0397	-0.0014
109	SLU 45	0.06	-2.51	59.23	0.0667	0.0408	-0.0013
109	SLU 46	0.06	-2.78	59.59	0.0791	0.0406	-0.0014
109	SLU 47	0.06	-2.94	59.44	0.0859	0.04	-0.0014
109	SLU 48	0.06	-2.31	59.76	0.0558	0.0411	-0.0013
109	SLU 49	0.06	-2.58	60.11	0.0683	0.0409	-0.0014
109	SLU 50	0.06	-2.28	59.37	0.0542	0.0407	-0.0013
109	SLU 51	0.06	-2.56	59.72	0.0667	0.0405	-0.0014
109	SLU 52	0.07	-3.5	67.04	0.1069	0.0462	-0.0015
109	SLU 53	0.07	-2.88	67.36	0.0767	0.0473	-0.0015
109	SLU 54	0.07	-3.15	67.71	0.0892	0.0471	-0.0015
109	SLU 55	0.07	-3.3	67.56	0.096	0.0465	-0.0015
109	SLU 56	0.07	-2.68	67.88	0.0658	0.0476	-0.0015
109	SLU 57	0.07	-2.95	68.24	0.0783	0.0474	-0.0015
109	SLU 58	0.07	-2.65	67.49	0.0643	0.0472	-0.0015
109	SLU 59	0.07	-2.92	67.85	0.0768	0.047	-0.0015
109	SLU 60	0.07	-3.21	69.93	0.0904	0.0494	-0.0016
109	SLU 61	0.07	-3.48	70.28	0.1029	0.0492	-0.0016
109	SLU 62	0.07	-3.01	70.45	0.0795	0.0497	-0.0016
109	SLU 63	0.07	-3.28	70.8	0.092	0.0495	-0.0016
109	SLU 64	0.06	-2.78	63.19	0.0769	0.044	-0.0014
109	SLU 65	0.06	-3.23	63.79	0.0977	0.0435	-0.0015
109	SLU 66	0.06	-2.6	64.11	0.0675	0.0447	-0.0015
109	SLU 67	0.06	-2.87	64.46	0.08	0.0444	-0.0015
109	SLU 68	0.06	-3.03	64.31	0.0868	0.0438	-0.0015
109	SLU 69	0.06	-2.4	64.63	0.0566	0.045	-0.0015
109	SLU 70	0.06	-2.67	64.98	0.0691	0.0447	-0.0015
109	SLU 71	0.06	-2.38	64.24	0.0551	0.0446	-0.0015
109	SLU 72	0.06	-2.65	64.59	0.0676	0.0443	-0.0015
109	SLU 73	0.07	-3.6	71.91	0.1077	0.05	-0.0016
109	SLU 74	0.07	-2.97	72.23	0.0776	0.0511	-0.0016
109	SLU 75	0.07	-3.24	72.59	0.0901	0.0509	-0.0017
109	SLU 76	0.07	-3.39	72.43	0.0969	0.0503	-0.0017
109	SLU 77	0.07	-2.77	72.75	0.0667	0.0514	-0.0016
109	SLU 78	0.07	-3.04	73.11	0.0792	0.0512	-0.0017
109	SLU 79	0.07	-2.74	72.36	0.0651	0.0511	-0.0016
109	SLU 80	0.07	-3.01	72.72	0.0776	0.0508	-0.0016
109	SLU 81	0.08	-3.3	74.8	0.0912	0.0533	-0.0017
109	SLU 82	0.08	-3.57	75.15	0.1037	0.053	-0.0017
109	SLU 83	0.08	-3.1	75.32	0.0803	0.0535	-0.0017
109	SLU 84	0.08	-3.37	75.68	0.0928	0.0533	-0.0017
109	SLE RA 1	0.05	-2.12	47.54	0.0589	0.033	-0.0011
109	SLE RA 2	0.05	-2.42	47.94	0.0728	0.0327	-0.0011
109	SLE RA 3	0.05	-2	48.15	0.0527	0.0334	-0.0011
109	SLE RA 4	0.05	-2.18	48.39	0.061	0.0333	-0.0011
109	SLE RA 5	0.05	-2.28	48.28	0.0656	0.0329	-0.0011
109	SLE RA 6	0.05	-1.87	48.5	0.0454	0.0336	-0.0011
109	SLE RA 7	0.05	-2.05	48.73	0.0538	0.0335	-0.0011
109	SLE RA 8	0.05	-1.85	48.24	0.0444	0.0334	-0.0011
109	SLE RA 9	0.05	-2.03	48.47	0.0528	0.0332	-0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
109	SLE RA 10	0.05	-2.66	53.35	0.0795	0.037	-0.0012
109	SLE RA 11	0.05	-2.25	53.56	0.0594	0.0378	-0.0012
109	SLE RA 12	0.05	-2.43	53.8	0.0677	0.0376	-0.0012
109	SLE RA 13	0.05	-2.53	53.7	0.0723	0.0372	-0.0012
109	SLE RA 14	0.05	-2.11	53.91	0.0521	0.038	-0.0012
109	SLE RA 15	0.05	-2.29	54.15	0.0605	0.0378	-0.0012
109	SLE RA 16	0.05	-2.09	53.65	0.0511	0.0377	-0.0012
109	SLE RA 17	0.05	-2.27	53.89	0.0595	0.0375	-0.0012
109	SLE RA 18	0.06	-2.47	55.28	0.0685	0.0392	-0.0012
109	SLE RA 19	0.06	-2.65	55.51	0.0768	0.039	-0.0013
109	SLE RA 20	0.06	-2.33	55.62	0.0613	0.0394	-0.0013
109	SLE RA 21	0.06	-2.51	55.86	0.0696	0.0392	-0.0013
109	SLE FR 1	0.05	-2.12	47.54	0.0589	0.033	-0.0011
109	SLE FR 2	0.05	-2.18	47.62	0.0617	0.0329	-0.0011
109	SLE FR 3	0.05	-2.06	47.68	0.056	0.0331	-0.0011
109	SLE FR 4	0.05	-2.28	49.94	0.0646	0.0348	-0.0011
109	SLE FR 5	0.05	-2.17	50	0.0589	0.0349	-0.0011
109	SLE FR 6	0.05	-2.29	51.41	0.0637	0.0361	-0.0012
109	SLE QP 1	0.05	-2.12	47.54	0.0589	0.033	-0.0011
109	SLE QP 2	0.05	-2.22	49.86	0.0618	0.0348	-0.0011
109	SLD 1	-0.02	-1.29	45.13	0.0223	0.1115	-0.0037
109	SLD 2	-0.02	-1.29	45.13	0.0223	0.1115	-0.0037
109	SLD 3	-0.01	-5.49	44.51	0.2311	0.1201	-0.0039
109	SLD 4	-0.01	-5.49	44.51	0.2311	0.1201	-0.0039
109	SLD 5	0.01	4.42	49.39	-0.2667	0.0448	-0.0016
109	SLD 6	0.01	4.42	49.39	-0.2667	0.0448	-0.0016
109	SLD 7	0.05	-9.56	47.31	0.4292	0.0735	-0.0023
109	SLD 8	0.05	-9.56	47.31	0.4292	0.0735	-0.0023
109	SLD 9	0.04	5.12	52.41	-0.3056	-0.0038	0
109	SLD 10	0.04	5.12	52.41	-0.3056	-0.0038	0
109	SLD 11	0.09	-8.86	50.34	0.3903	0.0249	-0.0007
109	SLD 12	0.09	-8.86	50.34	0.3903	0.0249	-0.0007
109	SLD 13	0.11	1.04	55.21	-0.1074	-0.0504	0.0016
109	SLD 14	0.11	1.04	55.21	-0.1074	-0.0504	0.0016
109	SLD 15	0.12	-3.15	54.59	0.1013	-0.0418	0.0014
109	SLD 16	0.12	-3.15	54.59	0.1013	-0.0418	0.0014
109	SLV 1	-0.12	-0.08	39.05	-0.0291	0.2206	-0.0073
109	SLV 2	-0.12	-0.08	39.05	-0.0291	0.2206	-0.0073
109	SLV 3	-0.09	-9.73	37.55	0.4513	0.2417	-0.0078
109	SLV 4	-0.09	-9.73	37.55	0.4513	0.2417	-0.0078
109	SLV 5	-0.06	13.05	48.89	-0.6942	0.0586	-0.0022
109	SLV 6	-0.06	13.05	48.89	-0.6942	0.0586	-0.0022
109	SLV 7	0.06	-19.11	43.9	0.9074	0.1289	-0.0039
109	SLV 8	0.06	-19.11	43.9	0.9074	0.1289	-0.0039
109	SLV 9	0.04	14.66	55.83	-0.7838	-0.0592	0.0017
109	SLV 10	0.04	14.66	55.83	-0.7838	-0.0592	0.0017
109	SLV 11	0.16	-17.49	50.83	0.8178	0.0111	-0.0001
109	SLV 12	0.16	-17.49	50.83	0.8178	0.0111	-0.0001
109	SLV 13	0.19	5.29	62.17	-0.3277	-0.172	0.0055
109	SLV 14	0.19	5.29	62.17	-0.3277	-0.172	0.0055
109	SLV 15	0.22	-4.36	60.67	0.1528	-0.1509	0.005
109	SLV 16	0.22	-4.36	60.67	0.1528	-0.1509	0.005
110	SLU 1	0.01	3	31.93	-0.2446	0.0007	0
110	SLU 2	-0.01	5.69	33.55	-0.3833	-0.009	0
110	SLU 3	0.01	2.85	32.69	-0.2403	0.0007	0
110	SLU 4	0	4.46	33.66	-0.3236	-0.0051	0
110	SLU 5	-0.01	5.44	33.97	-0.3731	-0.009	0
110	SLU 6	0.01	2.59	33.11	-0.2301	0.0007	0
110	SLU 7	0	4.21	34.08	-0.3134	-0.0051	0
110	SLU 8	0.01	2.48	32.77	-0.2241	0.0007	0
110	SLU 9	0	4.1	33.74	-0.3074	-0.0051	0
110	SLU 10	-0.01	6.11	38.11	-0.4167	-0.0089	0
110	SLU 11	0.01	3.26	37.25	-0.2737	0.0008	0
110	SLU 12	0	4.88	38.22	-0.3569	-0.0051	0
110	SLU 13	-0.01	5.85	38.53	-0.4065	-0.0089	0
110	SLU 14	0.01	3	37.67	-0.2635	0.0007	0
110	SLU 15	0	4.62	38.64	-0.3467	-0.0051	0
110	SLU 16	0.01	2.9	37.33	-0.2575	0.0007	0
110	SLU 17	0	4.51	38.3	-0.3407	-0.0051	0
110	SLU 18	0.01	3.59	38.44	-0.2922	0.0008	0
110	SLU 19	0	5.21	39.42	-0.3755	-0.005	0
110	SLU 20	0.01	3.33	38.87	-0.282	0.0008	0
110	SLU 21	0	4.95	39.84	-0.3652	-0.0051	0
110	SLU 22	0.01	3.3	36.02	-0.2708	0.0007	0
110	SLU 23	-0.01	5.99	37.64	-0.4095	-0.009	0
110	SLU 24	0.01	3.14	36.78	-0.2665	0.0007	0
110	SLU 25	0	4.76	37.75	-0.3498	-0.0051	0
110	SLU 26	-0.01	5.73	38.06	-0.3993	-0.009	0
110	SLU 27	0.01	2.89	37.2	-0.2563	0.0007	0
110	SLU 28	0	4.5	38.17	-0.3396	-0.0051	0
110	SLU 29	0.01	2.78	36.86	-0.2503	0.0007	0
110	SLU 30	0	4.4	37.83	-0.3336	-0.0051	0
110	SLU 31	0	6.4	42.2	-0.4428	-0.0089	0
110	SLU 32	0.01	3.56	41.34	-0.2999	0.0008	0
110	SLU 33	0	5.17	42.31	-0.3831	-0.0051	0
110	SLU 34	0	6.15	42.62	-0.4326	-0.0089	0
110	SLU 35	0.01	3.3	41.76	-0.2897	0.0008	0
110	SLU 36	0	4.92	42.73	-0.3729	-0.0051	0
110	SLU 37	0.01	3.19	41.42	-0.2837	0.0008	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
110	SLU 38	0	4.81	42.39	-0.3669	-0.0051	0
110	SLU 39	0.01	3.89	42.54	-0.3184	0.0008	0
110	SLU 40	0	5.5	43.51	-0.4016	-0.005	0
110	SLU 41	0.01	3.63	42.96	-0.3082	0.0008	0
110	SLU 42	0	5.25	43.93	-0.3914	-0.005	0
110	SLU 43	0.01	3.8	40.11	-0.309	0.0009	0
110	SLU 44	0	6.49	41.72	-0.4477	-0.0088	0
110	SLU 45	0.01	3.65	40.86	-0.3047	0.0009	0
110	SLU 46	0	5.26	41.83	-0.388	-0.0049	0
110	SLU 47	0	6.23	42.15	-0.4375	-0.0088	0
110	SLU 48	0.01	3.39	41.28	-0.2945	0.0009	0
110	SLU 49	0	5	42.26	-0.3778	-0.0049	0
110	SLU 50	0.01	3.28	40.95	-0.2885	0.0009	0
110	SLU 51	0	4.9	41.92	-0.3718	-0.0049	0
110	SLU 52	0	6.91	46.29	-0.4811	-0.0087	0
110	SLU 53	0.01	4.06	45.42	-0.3381	0.001	0
110	SLU 54	0	5.68	46.4	-0.4213	-0.0049	0
110	SLU 55	0	6.65	46.71	-0.4708	-0.0087	0
110	SLU 56	0.01	3.8	45.84	-0.3279	0.001	0
110	SLU 57	0	5.42	46.82	-0.4111	-0.0049	0
110	SLU 58	0.01	3.7	45.51	-0.3219	0.001	0
110	SLU 59	0	5.31	46.48	-0.4051	-0.0049	0
110	SLU 60	0.01	4.39	46.62	-0.3566	0.001	0
110	SLU 61	0	6.01	47.59	-0.4398	-0.0048	0
110	SLU 62	0.01	4.13	47.04	-0.3464	0.001	0
110	SLU 63	0	5.75	48.01	-0.4296	-0.0048	0
110	SLU 64	0.01	4.09	44.2	-0.3351	0.001	0
110	SLU 65	0	6.79	45.82	-0.4739	-0.0087	0
110	SLU 66	0.01	3.94	44.95	-0.3309	0.001	0
110	SLU 67	0	5.56	45.93	-0.4142	-0.0049	0
110	SLU 68	0	6.53	46.24	-0.4637	-0.0088	0
110	SLU 69	0.01	3.68	45.38	-0.3207	0.0009	0
110	SLU 70	0	5.3	46.35	-0.404	-0.0049	0
110	SLU 71	0.01	3.58	45.04	-0.3147	0.0009	0
110	SLU 72	0	5.19	46.01	-0.398	-0.0049	0
110	SLU 73	0	7.2	50.38	-0.5072	-0.0087	0
110	SLU 74	0.01	4.36	49.52	-0.3643	0.001	0
110	SLU 75	0	5.97	50.49	-0.4475	-0.0048	0
110	SLU 76	0	6.94	50.8	-0.497	-0.0087	0
110	SLU 77	0.01	4.1	49.94	-0.3541	0.001	0
110	SLU 78	0	5.71	50.91	-0.4373	-0.0048	0
110	SLU 79	0.01	3.99	49.6	-0.3481	0.001	0
110	SLU 80	0	5.61	50.57	-0.4313	-0.0048	0
110	SLU 81	0.01	4.69	50.71	-0.3828	0.001	0
110	SLU 82	0	6.3	51.68	-0.466	-0.0048	0
110	SLU 83	0.01	4.43	51.13	-0.3726	0.001	0
110	SLU 84	0	6.04	52.1	-0.4558	-0.0048	0
110	SLE RA 1	0.01	3.08	33.1	-0.2521	0.0007	0
110	SLE RA 2	0	4.88	34.18	-0.3446	-0.0057	0
110	SLE RA 3	0.01	2.98	33.6	-0.2492	0.0007	0
110	SLE RA 4	0	4.06	34.25	-0.3047	-0.0032	0
110	SLE RA 5	0	4.71	34.46	-0.3377	-0.0057	0
110	SLE RA 6	0.01	2.81	33.88	-0.2424	0.0007	0
110	SLE RA 7	0	3.89	34.53	-0.2979	-0.0032	0
110	SLE RA 8	0.01	2.74	33.66	-0.2384	0.0007	0
110	SLE RA 9	0	3.82	34.31	-0.2939	-0.0032	0
110	SLE RA 10	0	5.16	37.22	-0.3668	-0.0057	0
110	SLE RA 11	0.01	3.26	36.64	-0.2715	0.0007	0
110	SLE RA 12	0	4.34	37.29	-0.327	-0.0031	0
110	SLE RA 13	0	4.98	37.5	-0.36	-0.0057	0
110	SLE RA 14	0.01	3.09	36.92	-0.2647	0.0007	0
110	SLE RA 15	0	4.16	37.57	-0.3202	-0.0031	0
110	SLE RA 16	0.01	3.02	36.7	-0.2607	0.0007	0
110	SLE RA 17	0	4.09	37.35	-0.3162	-0.0031	0
110	SLE RA 18	0.01	3.48	37.44	-0.2838	0.0008	0
110	SLE RA 19	0	4.56	38.09	-0.3393	-0.0031	0
110	SLE RA 20	0.01	3.31	37.72	-0.277	0.0008	0
110	SLE RA 21	0	4.38	38.37	-0.3325	-0.0031	0
110	SLE FR 1	0.01	3.08	33.1	-0.2521	0.0007	0
110	SLE FR 2	0	3.44	33.31	-0.2706	-0.0006	0
110	SLE FR 3	0.01	3.02	33.21	-0.2493	0.0007	0
110	SLE FR 4	0	3.56	34.62	-0.2801	-0.0006	0
110	SLE FR 5	0.01	3.13	34.51	-0.2589	0.0007	0
110	SLE FR 6	0.01	3.28	35.27	-0.2679	0.0007	0
110	SLE QP 1	0.01	3.08	33.1	-0.2521	0.0007	0
110	SLE QP 2	0.01	3.2	34.4	-0.2616	0.0007	0
110	SLD 1	-0.07	7.7	38.19	-0.4748	0.0556	0
110	SLD 2	-0.07	7.7	38.19	-0.4748	0.0556	0
110	SLD 3	-0.04	2.95	35.39	-0.2458	0.0744	-0.0001
110	SLD 4	-0.04	2.95	35.39	-0.2458	0.0744	-0.0001
110	SLD 5	-0.05	11.76	39.77	-0.6729	-0.0113	0
110	SLD 6	-0.05	11.76	39.77	-0.6729	-0.0113	0
110	SLD 7	0.03	-4.08	30.46	0.0905	0.0513	0
110	SLD 8	0.03	-4.08	30.46	0.0905	0.0513	0
110	SLD 9	-0.02	10.48	38.34	-0.6136	-0.0498	0.0001
110	SLD 10	-0.02	10.48	38.34	-0.6136	-0.0498	0.0001
110	SLD 11	0.06	-5.35	29.03	0.1497	0.0127	0
110	SLD 12	0.06	-5.35	29.03	0.1497	0.0127	0
110	SLD 13	0.05	3.45	33.41	-0.2773	-0.0729	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
110	SLD 14	0.05	3.45	33.41	-0.2773	-0.0729	0.0001
110	SLD 15	0.08	-1.3	30.62	-0.0483	-0.0541	0.0001
110	SLD 16	0.08	-1.3	30.62	-0.0483	-0.0541	0.0001
110	SLV 1	-0.16	13.86	43.11	-0.7675	0.1296	-0.0001
110	SLV 2	-0.16	13.86	43.11	-0.7675	0.1296	-0.0001
110	SLV 3	-0.11	2.85	36.62	-0.2361	0.1771	-0.0002
110	SLV 4	-0.11	2.85	36.62	-0.2361	0.1771	-0.0002
110	SLV 5	-0.13	23.1	46.85	-1.2194	-0.0325	0
110	SLV 6	-0.13	23.1	46.85	-1.2194	-0.0325	0
110	SLV 7	0.06	-13.6	25.23	0.5521	0.1256	-0.0001
110	SLV 8	0.06	-13.6	25.23	0.5521	0.1256	-0.0001
110	SLV 9	-0.05	20.01	43.57	-1.0753	-0.1241	0.0001
110	SLV 10	-0.05	20.01	43.57	-1.0753	-0.1241	0.0001
110	SLV 11	0.15	-16.69	21.95	0.6963	0.034	0
110	SLV 12	0.15	-16.69	21.95	0.6963	0.034	0
110	SLV 13	0.12	3.56	32.18	-0.2871	-0.1756	0.0002
110	SLV 14	0.12	3.56	32.18	-0.2871	-0.1756	0.0002
110	SLV 15	0.17	-7.45	25.7	0.2444	-0.1282	0.0002
110	SLV 16	0.17	-7.45	25.7	0.2444	-0.1282	0.0002
111	SLU 1	-0.01	7.07	56.28	-0.3525	-0.0005	0
111	SLU 2	0.07	8.44	59.82	-0.4183	0.0675	0
111	SLU 3	-0.01	7.33	58.02	-0.3655	-0.0007	0
111	SLU 4	0.03	8.15	60.15	-0.405	0.0401	0
111	SLU 5	0.07	8.6	60.91	-0.4264	0.0673	0
111	SLU 6	-0.01	7.48	59.11	-0.3735	-0.0009	0
111	SLU 7	0.03	8.3	61.23	-0.4131	0.0399	0
111	SLU 8	-0.01	7.38	58.46	-0.3685	-0.0008	0
111	SLU 9	0.03	8.2	60.58	-0.4081	0.0399	0
111	SLU 10	0.07	9.33	66.56	-0.463	0.0678	0
111	SLU 11	-0.01	8.22	64.76	-0.4102	-0.0004	0
111	SLU 12	0.03	9.04	66.89	-0.4497	0.0404	0
111	SLU 13	0.07	9.49	67.65	-0.4711	0.0676	0
111	SLU 14	-0.01	8.37	65.85	-0.4182	-0.0005	0
111	SLU 15	0.03	9.2	67.98	-0.4578	0.0402	0
111	SLU 16	-0.01	8.27	65.2	-0.4132	-0.0005	0
111	SLU 17	0.03	9.09	67.32	-0.4527	0.0403	0
111	SLU 18	-0.01	8.34	65.91	-0.4163	0	0
111	SLU 19	0.03	9.17	68.04	-0.4558	0.0408	0
111	SLU 20	-0.01	8.5	67	-0.4243	-0.0002	0
111	SLU 21	0.03	9.32	69.12	-0.4639	0.0406	0
111	SLU 22	-0.01	7.98	63.12	-0.3985	-0.0004	0
111	SLU 23	0.07	9.36	66.66	-0.4644	0.0676	0
111	SLU 24	-0.01	8.24	64.86	-0.4116	-0.0006	0
111	SLU 25	0.03	9.06	66.99	-0.4511	0.0402	0
111	SLU 26	0.06	9.51	67.75	-0.4724	0.0674	0
111	SLU 27	-0.01	8.39	65.95	-0.4196	-0.0008	0
111	SLU 28	0.03	9.22	68.07	-0.4591	0.04	0
111	SLU 29	-0.01	8.29	65.3	-0.4146	-0.0008	0
111	SLU 30	0.03	9.11	67.42	-0.4541	0.04	0
111	SLU 31	0.06	10.25	73.4	-0.5091	0.0679	0
111	SLU 32	-0.01	9.13	71.6	-0.4563	-0.0003	0
111	SLU 33	0.03	9.95	73.73	-0.4958	0.0405	0
111	SLU 34	0.06	10.4	74.49	-0.5171	0.0677	0
111	SLU 35	-0.01	9.28	72.69	-0.4643	-0.0005	0
111	SLU 36	0.03	10.11	74.82	-0.5038	0.0403	0
111	SLU 37	-0.01	9.18	72.04	-0.4593	-0.0004	0
111	SLU 38	0.03	10.01	74.16	-0.4988	0.0404	0
111	SLU 39	-0.01	9.26	72.75	-0.4624	0.0001	0
111	SLU 40	0.03	10.08	74.88	-0.5019	0.0409	0
111	SLU 41	-0.01	9.41	73.84	-0.4704	-0.0001	0
111	SLU 42	0.03	10.23	75.97	-0.5099	0.0407	0
111	SLU 43	-0.01	8.88	70.82	-0.4424	-0.0006	0
111	SLU 44	0.06	10.25	74.36	-0.5083	0.0673	0
111	SLU 45	-0.01	9.13	72.56	-0.4555	-0.0009	0
111	SLU 46	0.03	9.96	74.68	-0.495	0.0399	0
111	SLU 47	0.06	10.41	75.45	-0.5163	0.0671	0
111	SLU 48	-0.02	9.29	73.65	-0.4635	-0.0011	0
111	SLU 49	0.03	10.11	75.77	-0.503	0.0397	0
111	SLU 50	-0.02	9.19	73	-0.4585	-0.001	0
111	SLU 51	0.03	10.01	75.12	-0.498	0.0398	0
111	SLU 52	0.06	11.14	81.1	-0.553	0.0677	0
111	SLU 53	-0.02	10.03	79.3	-0.5001	-0.0005	0
111	SLU 54	0.03	10.85	81.43	-0.5397	0.0403	0
111	SLU 55	0.06	11.3	82.19	-0.561	0.0675	0
111	SLU 56	-0.02	10.18	80.39	-0.5082	-0.0007	0
111	SLU 57	0.03	11	82.52	-0.5477	0.0401	0
111	SLU 58	-0.02	10.08	79.74	-0.5032	-0.0007	0
111	SLU 59	0.03	10.9	81.86	-0.5427	0.0401	0
111	SLU 60	-0.02	10.15	80.45	-0.5063	-0.0001	0
111	SLU 61	0.03	10.97	82.58	-0.5458	0.0406	0
111	SLU 62	-0.02	10.3	81.54	-0.5143	-0.0003	0
111	SLU 63	0.03	11.13	83.66	-0.5538	0.0404	0
111	SLU 64	-0.02	9.79	77.66	-0.4885	-0.0006	0
111	SLU 65	0.06	11.16	81.2	-0.5543	0.0674	0
111	SLU 66	-0.02	10.05	79.4	-0.5015	-0.0008	0
111	SLU 67	0.03	10.87	81.52	-0.541	0.04	0
111	SLU 68	0.06	11.32	82.29	-0.5624	0.0672	0
111	SLU 69	-0.02	10.2	80.49	-0.5095	-0.001	0
111	SLU 70	0.03	11.03	82.61	-0.5491	0.0398	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
111	SLU 71	-0.02	10.1	79.84	-0.5045	-0.0009	0
111	SLU 72	0.03	10.92	81.96	-0.5441	0.0398	0
111	SLU 73	0.06	12.06	87.94	-0.599	0.0677	0
111	SLU 74	-0.02	10.94	86.14	-0.5462	-0.0004	0
111	SLU 75	0.03	11.76	88.27	-0.5857	0.0403	0
111	SLU 76	0.06	12.21	89.03	-0.6071	0.0676	0
111	SLU 77	-0.02	11.09	87.23	-0.5542	-0.0006	0
111	SLU 78	0.03	11.92	89.36	-0.5938	0.0401	0
111	SLU 79	-0.02	10.99	86.58	-0.5492	-0.0006	0
111	SLU 80	0.03	11.81	88.7	-0.5887	0.0402	0
111	SLU 81	-0.02	11.06	87.29	-0.5523	-0.0001	0
111	SLU 82	0.03	11.89	89.42	-0.5918	0.0407	0
111	SLU 83	-0.02	11.22	88.38	-0.5603	-0.0003	0
111	SLU 84	0.03	12.04	90.5	-0.5999	0.0405	0
111	SLE RA 1	-0.01	7.33	58.23	-0.3656	-0.0005	0
111	SLE RA 2	0.04	8.25	60.6	-0.4095	0.0449	0
111	SLE RA 3	-0.01	7.5	59.4	-0.3743	-0.0006	0
111	SLE RA 4	0.02	8.05	60.81	-0.4007	0.0266	0
111	SLE RA 5	0.04	8.35	61.32	-0.4149	0.0447	0
111	SLE RA 6	-0.01	7.6	60.12	-0.3797	-0.0007	0
111	SLE RA 7	0.02	8.15	61.54	-0.406	0.0265	0
111	SLE RA 8	-0.01	7.54	59.69	-0.3763	-0.0007	0
111	SLE RA 9	0.02	8.09	61.1	-0.4027	0.0265	0
111	SLE RA 10	0.04	8.84	65.09	-0.4393	0.0451	0
111	SLE RA 11	-0.01	8.1	63.89	-0.4041	-0.0004	0
111	SLE RA 12	0.02	8.65	65.31	-0.4305	0.0268	0
111	SLE RA 13	0.04	8.94	65.82	-0.4447	0.045	0
111	SLE RA 14	-0.01	8.2	64.62	-0.4095	-0.0005	0
111	SLE RA 15	0.02	8.75	66.03	-0.4358	0.0267	0
111	SLE RA 16	-0.01	8.13	64.18	-0.4061	-0.0005	0
111	SLE RA 17	0.02	8.68	65.6	-0.4325	0.0267	0
111	SLE RA 18	-0.01	8.18	64.66	-0.4082	-0.0001	0
111	SLE RA 19	0.02	8.73	66.07	-0.4345	0.0271	0
111	SLE RA 20	-0.01	8.28	65.38	-0.4135	-0.0002	0
111	SLE RA 21	0.02	8.83	66.8	-0.4399	0.0269	0
111	SLE FR 1	-0.01	7.33	58.23	-0.3656	-0.0005	0
111	SLE FR 2	0	7.51	58.71	-0.3744	0.0086	0
111	SLE FR 3	-0.01	7.37	58.53	-0.3678	-0.0005	0
111	SLE FR 4	0	7.77	60.63	-0.3872	0.0087	0
111	SLE FR 5	-0.01	7.63	60.45	-0.3805	-0.0004	0
111	SLE FR 6	-0.01	7.76	61.45	-0.3869	-0.0003	0
111	SLE QP 1	-0.01	7.33	58.23	-0.3656	-0.0005	0
111	SLE QP 2	-0.01	7.59	60.16	-0.3784	-0.0004	0
111	SLD 1	0.18	8.37	47.26	-0.4036	0.1859	-0.0001
111	SLD 2	0.18	8.37	47.26	-0.4036	0.1859	-0.0001
111	SLD 3	0.05	3.44	39.96	-0.186	0.0871	-0.0001
111	SLD 4	0.05	3.44	39.96	-0.186	0.0871	-0.0001
111	SLD 5	0.23	15.28	67.36	-0.7159	0.2054	0
111	SLD 6	0.23	15.28	67.36	-0.7159	0.2054	0
111	SLD 7	-0.18	-1.12	43.03	0.0093	-0.1239	-0.0001
111	SLD 8	-0.18	-1.12	43.03	0.0093	-0.1239	-0.0001
111	SLD 9	0.15	16.29	77.29	-0.7661	0.1232	0.0001
111	SLD 10	0.15	16.29	77.29	-0.7661	0.1232	0.0001
111	SLD 11	-0.26	-0.11	52.96	-0.0409	-0.2061	-0.0001
111	SLD 12	-0.26	-0.11	52.96	-0.0409	-0.2061	-0.0001
111	SLD 13	-0.08	11.73	80.37	-0.5708	-0.0878	0.0001
111	SLD 14	-0.08	11.73	80.37	-0.5708	-0.0878	0.0001
111	SLD 15	-0.2	6.81	73.07	-0.3532	-0.1866	0
111	SLD 16	-0.2	6.81	73.07	-0.3532	-0.1866	0
111	SLV 1	0.45	9.33	30.53	-0.4336	0.45	-0.0002
111	SLV 2	0.45	9.33	30.53	-0.4336	0.45	-0.0002
111	SLV 3	0.13	-1.95	13.73	0.0648	0.1976	-0.0003
111	SLV 4	0.13	-1.95	13.73	0.0648	0.1976	-0.0003
111	SLV 5	0.6	25.22	76.76	-1.1508	0.5175	0.0001
111	SLV 6	0.6	25.22	76.76	-1.1508	0.5175	0.0001
111	SLV 7	-0.44	-12.38	20.75	0.5105	-0.3237	-0.0003
111	SLV 8	-0.44	-12.38	20.75	0.5105	-0.3237	-0.0003
111	SLV 9	0.42	27.56	99.58	-1.2673	0.323	0.0002
111	SLV 10	0.42	27.56	99.58	-1.2673	0.323	0.0002
111	SLV 11	-0.62	-10.05	43.57	0.3941	-0.5182	-0.0002
111	SLV 12	-0.62	-10.05	43.57	0.3941	-0.5182	-0.0002
111	SLV 13	-0.16	17.12	106.6	-0.8216	-0.1983	0.0003
111	SLV 14	-0.16	17.12	106.6	-0.8216	-0.1983	0.0003
111	SLV 15	-0.47	5.84	89.79	-0.3232	-0.4507	0.0001
111	SLV 16	-0.47	5.84	89.79	-0.3232	-0.4507	0.0001
112	SLU 1	-0.13	8.16	25.16	-0.3647	-0.0943	-0.0003
112	SLU 2	-0.22	9.6	25.67	-0.4236	-0.1684	-0.0006
112	SLU 3	-0.13	8.53	25.92	-0.3816	-0.0975	-0.0004
112	SLU 4	-0.19	9.4	26.23	-0.4169	-0.1419	-0.0005
112	SLU 5	-0.22	9.9	26.24	-0.4371	-0.1705	-0.0006
112	SLU 6	-0.14	8.82	26.49	-0.3951	-0.0997	-0.0004
112	SLU 7	-0.19	9.69	26.79	-0.4304	-0.1441	-0.0005
112	SLU 8	-0.13	8.75	26.3	-0.3918	-0.0987	-0.0004
112	SLU 9	-0.19	9.61	26.6	-0.4271	-0.1431	-0.0005
112	SLU 10	-0.23	10.5	28.12	-0.4643	-0.1811	-0.0007
112	SLU 11	-0.15	9.43	28.36	-0.4223	-0.1103	-0.0004
112	SLU 12	-0.2	10.3	28.67	-0.4576	-0.1547	-0.0006
112	SLU 13	-0.24	10.8	28.68	-0.4778	-0.1833	-0.0007
112	SLU 14	-0.15	9.72	28.93	-0.4358	-0.1125	-0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
112	SLU 15	-0.21	10.59	29.24	-0.4711	-0.1569	-0.0006
112	SLU 16	-0.15	9.65	28.74	-0.4325	-0.1114	-0.0004
112	SLU 17	-0.21	10.51	29.05	-0.4678	-0.1558	-0.0006
112	SLU 18	-0.15	9.44	28.65	-0.4229	-0.1126	-0.0004
112	SLU 19	-0.21	10.31	28.96	-0.4582	-0.157	-0.0006
112	SLU 20	-0.16	9.74	29.22	-0.4364	-0.1147	-0.0004
112	SLU 21	-0.21	10.61	29.53	-0.4717	-0.1592	-0.0006
112	SLU 22	-0.15	9.14	27.69	-0.4093	-0.107	-0.0004
112	SLU 23	-0.23	10.59	28.2	-0.4681	-0.181	-0.0007
112	SLU 24	-0.15	9.51	28.45	-0.4261	-0.1102	-0.0004
112	SLU 25	-0.2	10.38	28.76	-0.4614	-0.1546	-0.0006
112	SLU 26	-0.24	10.88	28.77	-0.4816	-0.1832	-0.0007
112	SLU 27	-0.15	9.81	29.02	-0.4397	-0.1124	-0.0004
112	SLU 28	-0.21	10.67	29.32	-0.4749	-0.1568	-0.0006
112	SLU 29	-0.15	9.73	28.83	-0.4363	-0.1113	-0.0004
112	SLU 30	-0.21	10.6	29.13	-0.4716	-0.1558	-0.0006
112	SLU 31	-0.25	11.49	30.65	-0.5088	-0.1938	-0.0007
112	SLU 32	-0.17	10.41	30.89	-0.4669	-0.123	-0.0004
112	SLU 33	-0.22	11.28	31.2	-0.5021	-0.1674	-0.0006
112	SLU 34	-0.26	11.78	31.21	-0.5223	-0.196	-0.0007
112	SLU 35	-0.17	10.71	31.46	-0.4804	-0.1251	-0.0005
112	SLU 36	-0.22	11.58	31.77	-0.5157	-0.1695	-0.0006
112	SLU 37	-0.17	10.63	31.27	-0.477	-0.1241	-0.0005
112	SLU 38	-0.22	11.5	31.58	-0.5123	-0.1685	-0.0006
112	SLU 39	-0.17	10.43	31.18	-0.4674	-0.1253	-0.0005
112	SLU 40	-0.22	11.3	31.49	-0.5027	-0.1697	-0.0006
112	SLU 41	-0.17	10.72	31.75	-0.481	-0.1274	-0.0005
112	SLU 42	-0.23	11.59	32.06	-0.5162	-0.1718	-0.0006
112	SLU 43	-0.16	10.27	31.84	-0.4589	-0.1183	-0.0004
112	SLU 44	-0.25	11.71	32.35	-0.5177	-0.1923	-0.0007
112	SLU 45	-0.17	10.64	32.6	-0.4758	-0.1215	-0.0004
112	SLU 46	-0.22	11.51	32.91	-0.5111	-0.1659	-0.0006
112	SLU 47	-0.25	12.01	32.92	-0.5312	-0.1945	-0.0007
112	SLU 48	-0.17	10.93	33.17	-0.4893	-0.1236	-0.0004
112	SLU 49	-0.22	11.8	33.47	-0.5246	-0.168	-0.0006
112	SLU 50	-0.17	10.86	32.98	-0.4859	-0.1226	-0.0004
112	SLU 51	-0.22	11.72	33.28	-0.5212	-0.167	-0.0006
112	SLU 52	-0.27	12.61	34.8	-0.5584	-0.2051	-0.0007
112	SLU 53	-0.18	11.54	35.04	-0.5165	-0.1342	-0.0005
112	SLU 54	-0.24	12.41	35.35	-0.5518	-0.1787	-0.0006
112	SLU 55	-0.27	12.91	35.36	-0.572	-0.2072	-0.0007
112	SLU 56	-0.19	11.83	35.61	-0.53	-0.1364	-0.0005
112	SLU 57	-0.24	12.7	35.92	-0.5653	-0.1808	-0.0007
112	SLU 58	-0.18	11.76	35.42	-0.5267	-0.1354	-0.0005
112	SLU 59	-0.24	12.62	35.73	-0.5619	-0.1798	-0.0006
112	SLU 60	-0.19	11.55	35.33	-0.5171	-0.1365	-0.0005
112	SLU 61	-0.24	12.42	35.64	-0.5524	-0.1809	-0.0007
112	SLU 62	-0.19	11.85	35.9	-0.5306	-0.1387	-0.0005
112	SLU 63	-0.24	12.72	36.21	-0.5659	-0.1831	-0.0007
112	SLU 64	-0.18	11.25	34.37	-0.5034	-0.131	-0.0005
112	SLU 65	-0.27	12.7	34.88	-0.5622	-0.205	-0.0007
112	SLU 66	-0.18	11.62	35.13	-0.5203	-0.1341	-0.0005
112	SLU 67	-0.24	12.49	35.44	-0.5556	-0.1786	-0.0006
112	SLU 68	-0.27	12.99	35.45	-0.5758	-0.2072	-0.0007
112	SLU 69	-0.19	11.92	35.7	-0.5338	-0.1363	-0.0005
112	SLU 70	-0.24	12.78	36	-0.5691	-0.1807	-0.0007
112	SLU 71	-0.18	11.84	35.51	-0.5305	-0.1353	-0.0005
112	SLU 72	-0.24	12.71	35.81	-0.5658	-0.1797	-0.0006
112	SLU 73	-0.28	13.6	37.33	-0.603	-0.2178	-0.0008
112	SLU 74	-0.2	12.52	37.57	-0.561	-0.1469	-0.0005
112	SLU 75	-0.25	13.39	37.88	-0.5963	-0.1913	-0.0007
112	SLU 76	-0.29	13.89	37.9	-0.6165	-0.2199	-0.0008
112	SLU 77	-0.2	12.82	38.14	-0.5745	-0.1491	-0.0005
112	SLU 78	-0.26	13.69	38.45	-0.6098	-0.1935	-0.0007
112	SLU 79	-0.2	12.74	37.95	-0.5712	-0.1481	-0.0005
112	SLU 80	-0.26	13.61	38.26	-0.6065	-0.1925	-0.0007
112	SLU 81	-0.2	12.54	37.86	-0.5616	-0.1492	-0.0005
112	SLU 82	-0.26	13.41	38.17	-0.5969	-0.1936	-0.0007
112	SLU 83	-0.21	12.83	38.43	-0.5751	-0.1514	-0.0005
112	SLU 84	-0.26	13.7	38.74	-0.6104	-0.1958	-0.0007
112	SLE RA 1	-0.13	8.44	25.88	-0.3775	-0.098	-0.0004
112	SLE RA 2	-0.19	9.4	26.22	-0.4167	-0.1473	-0.0005
112	SLE RA 3	-0.14	8.69	26.39	-0.3887	-0.1001	-0.0004
112	SLE RA 4	-0.17	9.27	26.59	-0.4122	-0.1297	-0.0005
112	SLE RA 5	-0.19	9.6	26.6	-0.4257	-0.1487	-0.0005
112	SLE RA 6	-0.14	8.88	26.77	-0.3977	-0.1015	-0.0004
112	SLE RA 7	-0.17	9.46	26.97	-0.4212	-0.1311	-0.0005
112	SLE RA 8	-0.14	8.83	26.64	-0.3955	-0.1008	-0.0004
112	SLE RA 9	-0.17	9.41	26.85	-0.419	-0.1304	-0.0005
112	SLE RA 10	-0.2	10	27.85	-0.4438	-0.1558	-0.0006
112	SLE RA 11	-0.15	9.29	28.02	-0.4159	-0.1086	-0.0004
112	SLE RA 12	-0.18	9.87	28.22	-0.4394	-0.1382	-0.0005
112	SLE RA 13	-0.21	10.2	28.23	-0.4528	-0.1573	-0.0006
112	SLE RA 14	-0.15	9.48	28.4	-0.4249	-0.11	-0.0004
112	SLE RA 15	-0.19	10.06	28.6	-0.4484	-0.1396	-0.0005
112	SLE RA 16	-0.15	9.43	28.27	-0.4226	-0.1094	-0.0004
112	SLE RA 17	-0.18	10.01	28.48	-0.4462	-0.139	-0.0005
112	SLE RA 18	-0.15	9.3	28.21	-0.4162	-0.1101	-0.0004
112	SLE RA 19	-0.19	9.88	28.42	-0.4398	-0.1397	-0.0005





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
112	SLE RA 20	-0.15	9.49	28.59	-0.4253	-0.1116	-0.0004
112	SLE RA 21	-0.19	10.07	28.79	-0.4488	-0.1412	-0.0005
112	SLE FR 1	-0.13	8.44	25.88	-0.3775	-0.098	-0.0004
112	SLE FR 2	-0.15	8.63	25.95	-0.3853	-0.1078	-0.0004
112	SLE FR 3	-0.13	8.52	26.03	-0.3811	-0.0985	-0.0004
112	SLE FR 4	-0.15	8.89	26.65	-0.3969	-0.1115	-0.0004
112	SLE FR 5	-0.14	8.78	26.73	-0.3927	-0.1022	-0.0004
112	SLE FR 6	-0.14	8.87	27.05	-0.3969	-0.104	-0.0004
112	SLE QP 1	-0.13	8.44	25.88	-0.3775	-0.098	-0.0004
112	SLE QP 2	-0.14	8.7	26.58	-0.3891	-0.1016	-0.0004
112	SLD 1	-0.29	14.84	35.7	-0.6541	-0.0289	-0.0008
112	SLD 2	-0.29	14.84	35.7	-0.6541	-0.0289	-0.0008
112	SLD 3	-0.19	7.46	32.83	-0.3334	0.0535	-0.0004
112	SLD 4	-0.19	7.46	32.83	-0.3334	0.0535	-0.0004
112	SLD 5	-0.35	21.73	33.68	-0.955	-0.2047	-0.001
112	SLD 6	-0.35	21.73	33.68	-0.955	-0.2047	-0.001
112	SLD 7	0.01	-2.87	24.09	0.114	0.0699	0.0001
112	SLD 8	0.01	-2.87	24.09	0.114	0.0699	0.0001
112	SLD 9	-0.29	20.26	29.07	-0.8922	-0.2731	-0.0009
112	SLD 10	-0.29	20.26	29.07	-0.8922	-0.2731	-0.0009
112	SLD 11	0.07	-4.34	19.48	0.1768	0.0015	0.0003
112	SLD 12	0.07	-4.34	19.48	0.1768	0.0015	0.0003
112	SLD 13	-0.09	9.94	20.33	-0.4448	-0.2567	-0.0003
112	SLD 14	-0.09	9.94	20.33	-0.4448	-0.2567	-0.0003
112	SLD 15	0.02	2.56	17.46	-0.1241	-0.1743	0
112	SLD 16	0.02	2.56	17.46	-0.1241	-0.1743	0
112	SLV 1	-0.52	22.84	47.47	-0.9986	0.0666	-0.0014
112	SLV 2	-0.52	22.84	47.47	-0.9986	0.0666	-0.0014
112	SLV 3	-0.24	5.85	40.76	-0.2608	0.2764	-0.0005
112	SLV 4	-0.24	5.85	40.76	-0.2608	0.2764	-0.0005
112	SLV 5	-0.67	38.7	43.02	-1.6909	-0.3693	-0.002
112	SLV 6	-0.67	38.7	43.02	-1.6909	-0.3693	-0.002
112	SLV 7	0.25	-17.92	20.66	0.7684	0.33	0.0009
112	SLV 8	0.25	-17.92	20.66	0.7684	0.33	0.0009
112	SLV 9	-0.52	35.31	32.5	-1.5466	-0.5332	-0.0017
112	SLV 10	-0.52	35.31	32.5	-1.5466	-0.5332	-0.0017
112	SLV 11	0.39	-21.31	10.14	0.9127	0.1661	0.0013
112	SLV 12	0.39	-21.31	10.14	0.9127	0.1661	0.0013
112	SLV 13	-0.03	11.54	12.4	-0.5174	-0.4796	-0.0002
112	SLV 14	-0.03	11.54	12.4	-0.5174	-0.4796	-0.0002
112	SLV 15	0.24	-5.45	5.7	0.2204	-0.2698	0.0006
112	SLV 16	0.24	-5.45	5.7	0.2204	-0.2698	0.0006
113	SLU 1	0.03	-1	41.8	0.049	0.0283	0.0001
113	SLU 2	0.03	-1.41	41.89	0.0678	0.0289	0.0001
113	SLU 3	0.03	-0.66	43.17	0.0332	0.0295	0.0001
113	SLU 4	0.03	-0.91	43.23	0.0445	0.0298	0.0001
113	SLU 5	0.03	-1.03	42.94	0.05	0.0298	0.0001
113	SLU 6	0.04	-0.28	44.22	0.0153	0.0303	0.0001
113	SLU 7	0.04	-0.53	44.28	0.0266	0.0307	0.0001
113	SLU 8	0.04	-0.25	43.89	0.0133	0.03	0.0001
113	SLU 9	0.04	-0.49	43.95	0.0246	0.0304	0.0001
113	SLU 10	0.03	-1.46	49.47	0.0715	0.0266	0.0001
113	SLU 11	0.03	-0.71	50.76	0.0368	0.0271	0.0001
113	SLU 12	0.03	-0.95	50.81	0.0481	0.0275	0.0001
113	SLU 13	0.03	-1.08	50.52	0.0536	0.0274	0.0001
113	SLU 14	0.03	-0.33	51.81	0.019	0.0279	0.0001
113	SLU 15	0.03	-0.58	51.86	0.0303	0.0283	0.0001
113	SLU 16	0.03	-0.3	51.48	0.0169	0.0276	0.0001
113	SLU 17	0.03	-0.54	51.53	0.0283	0.028	0.0001
113	SLU 18	0.02	-1.07	52.63	0.0542	0.0249	0.0001
113	SLU 19	0.02	-1.32	52.68	0.0655	0.0253	0.0001
113	SLU 20	0.02	-0.69	53.68	0.0364	0.0257	0.0001
113	SLU 21	0.02	-0.94	53.73	0.0477	0.0261	0.0001
113	SLU 22	0.04	-0.8	46.92	0.0414	0.0314	0.0001
113	SLU 23	0.04	-1.21	47.01	0.0603	0.0321	0.0001
113	SLU 24	0.04	-0.46	48.3	0.0256	0.0326	0.0001
113	SLU 25	0.04	-0.71	48.35	0.0369	0.033	0.0001
113	SLU 26	0.04	-0.84	48.06	0.0424	0.0329	0.0001
113	SLU 27	0.04	-0.09	49.35	0.0078	0.0334	0.0001
113	SLU 28	0.04	-0.33	49.4	0.0191	0.0338	0.0001
113	SLU 29	0.04	-0.05	49.02	0.0057	0.0331	0.0001
113	SLU 30	0.04	-0.29	49.07	0.017	0.0335	0.0001
113	SLU 31	0.03	-1.26	54.59	0.0639	0.0297	0.0001
113	SLU 32	0.03	-0.51	55.88	0.0292	0.0302	0.0001
113	SLU 33	0.03	-0.76	55.94	0.0406	0.0306	0.0001
113	SLU 34	0.03	-0.88	55.64	0.0461	0.0305	0.0001
113	SLU 35	0.03	-0.13	56.93	0.0114	0.031	0.0001
113	SLU 36	0.03	-0.38	56.99	0.0227	0.0314	0.0001
113	SLU 37	0.03	-0.1	56.6	0.0094	0.0307	0.0001
113	SLU 38	0.03	-0.34	56.66	0.0207	0.0311	0.0001
113	SLU 39	0.02	-0.87	57.75	0.0466	0.028	0.0001
113	SLU 40	0.02	-1.12	57.81	0.0579	0.0284	0.0001
113	SLU 41	0.03	-0.49	58.8	0.0288	0.0289	0.0001
113	SLU 42	0.03	-0.74	58.86	0.0401	0.0292	0.0001
113	SLU 43	0.04	-1.37	52.58	0.0663	0.0358	0.0001
113	SLU 44	0.04	-1.78	52.67	0.0851	0.0364	0.0001
113	SLU 45	0.04	-1.03	53.96	0.0504	0.0369	0.0001
113	SLU 46	0.04	-1.28	54.01	0.0618	0.0373	0.0001
113	SLU 47	0.04	-1.4	53.72	0.0673	0.0372	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
113	SLU 48	0.04	-0.65	55.01	0.0326	0.0377	0.0001
113	SLU 49	0.04	-0.9	55.06	0.0439	0.0381	0.0001
113	SLU 50	0.04	-0.62	54.68	0.0306	0.0374	0.0001
113	SLU 51	0.04	-0.86	54.73	0.0419	0.0378	0.0001
113	SLU 52	0.03	-1.83	60.25	0.0888	0.034	0.0001
113	SLU 53	0.04	-1.08	61.54	0.0541	0.0345	0.0001
113	SLU 54	0.04	-1.32	61.59	0.0654	0.0349	0.0001
113	SLU 55	0.04	-1.45	61.3	0.0709	0.0348	0.0001
113	SLU 56	0.04	-0.7	62.59	0.0363	0.0353	0.0001
113	SLU 57	0.04	-0.95	62.64	0.0476	0.0357	0.0001
113	SLU 58	0.04	-0.66	62.26	0.0342	0.035	0.0001
113	SLU 59	0.04	-0.91	62.31	0.0455	0.0354	0.0001
113	SLU 60	0.03	-1.44	63.41	0.0715	0.0323	0.0001
113	SLU 61	0.03	-1.69	63.47	0.0828	0.0327	0.0001
113	SLU 62	0.03	-1.06	64.46	0.0536	0.0332	0.0001
113	SLU 63	0.03	-1.31	64.52	0.0649	0.0335	0.0001
113	SLU 64	0.04	-1.17	57.7	0.0587	0.0389	0.0001
113	SLU 65	0.05	-1.58	57.79	0.0775	0.0395	0.0001
113	SLU 66	0.05	-0.83	59.08	0.0429	0.04	0.0001
113	SLU 67	0.05	-1.08	59.13	0.0542	0.0404	0.0002
113	SLU 68	0.05	-1.21	58.84	0.0597	0.0403	0.0002
113	SLU 69	0.05	-0.46	60.13	0.025	0.0408	0.0002
113	SLU 70	0.05	-0.7	60.18	0.0363	0.0412	0.0002
113	SLU 71	0.05	-0.42	59.8	0.023	0.0405	0.0002
113	SLU 72	0.05	-0.66	59.86	0.0343	0.0409	0.0002
113	SLU 73	0.04	-1.63	65.38	0.0812	0.0371	0.0001
113	SLU 74	0.04	-0.88	66.66	0.0465	0.0376	0.0001
113	SLU 75	0.04	-1.12	66.72	0.0578	0.038	0.0001
113	SLU 76	0.04	-1.25	66.43	0.0634	0.0379	0.0001
113	SLU 77	0.04	-0.5	67.71	0.0287	0.0385	0.0001
113	SLU 78	0.04	-0.75	67.77	0.04	0.0388	0.0001
113	SLU 79	0.04	-0.47	67.38	0.0267	0.0381	0.0001
113	SLU 80	0.04	-0.71	67.44	0.038	0.0385	0.0001
113	SLU 81	0.03	-1.24	68.53	0.0639	0.0355	0.0001
113	SLU 82	0.03	-1.49	68.59	0.0752	0.0358	0.0001
113	SLU 83	0.03	-0.86	69.58	0.0461	0.0363	0.0001
113	SLU 84	0.03	-1.11	69.64	0.0574	0.0367	0.0001
113	SLE RA 1	0.03	-0.95	43.26	0.0468	0.0292	0.0001
113	SLE RA 2	0.03	-1.22	43.32	0.0594	0.0296	0.0001
113	SLE RA 3	0.03	-0.72	44.18	0.0363	0.03	0.0001
113	SLE RA 4	0.03	-0.88	44.22	0.0438	0.0302	0.0001
113	SLE RA 5	0.03	-0.97	44.02	0.0475	0.0302	0.0001
113	SLE RA 6	0.04	-0.47	44.88	0.0244	0.0305	0.0001
113	SLE RA 7	0.04	-0.63	44.91	0.0319	0.0308	0.0001
113	SLE RA 8	0.04	-0.44	44.66	0.023	0.0303	0.0001
113	SLE RA 9	0.04	-0.61	44.7	0.0306	0.0306	0.0001
113	SLE RA 10	0.03	-1.25	48.38	0.0618	0.028	0.0001
113	SLE RA 11	0.03	-0.75	49.23	0.0387	0.0284	0.0001
113	SLE RA 12	0.03	-0.91	49.27	0.0462	0.0286	0.0001
113	SLE RA 13	0.03	-1	49.08	0.0499	0.0286	0.0001
113	SLE RA 14	0.03	-0.5	49.93	0.0268	0.0289	0.0001
113	SLE RA 15	0.03	-0.66	49.97	0.0344	0.0292	0.0001
113	SLE RA 16	0.03	-0.47	49.71	0.0255	0.0287	0.0001
113	SLE RA 17	0.03	-0.64	49.75	0.033	0.029	0.0001
113	SLE RA 18	0.03	-0.99	50.48	0.0503	0.0269	0.0001
113	SLE RA 19	0.03	-1.15	50.52	0.0578	0.0272	0.0001
113	SLE RA 20	0.03	-0.74	51.18	0.0384	0.0275	0.0001
113	SLE RA 21	0.03	-0.9	51.22	0.0459	0.0277	0.0001
113	SLE FR 1	0.03	-0.95	43.26	0.0468	0.0292	0.0001
113	SLE FR 2	0.03	-1	43.27	0.0493	0.0293	0.0001
113	SLE FR 3	0.03	-0.85	43.54	0.0421	0.0294	0.0001
113	SLE FR 4	0.03	-1.01	45.44	0.0504	0.0286	0.0001
113	SLE FR 5	0.03	-0.86	45.71	0.0431	0.0288	0.0001
113	SLE FR 6	0.03	-0.97	46.87	0.0485	0.0281	0.0001
113	SLE QP 1	0.03	-0.95	43.26	0.0468	0.0292	0.0001
113	SLE QP 2	0.03	-0.96	45.43	0.0479	0.0285	0.0001
113	SLD 1	0.23	2.56	50.69	-0.1159	0.1709	0.0005
113	SLD 2	0.23	2.56	50.69	-0.1159	0.1709	0.0005
113	SLD 3	0.21	-1.9	49.55	0.0922	0.1853	0.0006
113	SLD 4	0.21	-1.9	49.55	0.0922	0.1853	0.0006
113	SLD 5	0.12	6.86	48.75	-0.317	0.0494	0.0001
113	SLD 6	0.12	6.86	48.75	-0.317	0.0494	0.0001
113	SLD 7	0.05	-8	44.92	0.3769	0.0974	0.0004
113	SLD 8	0.05	-8	44.92	0.3769	0.0974	0.0004
113	SLD 9	0.01	6.08	45.93	-0.2812	-0.0403	-0.0002
113	SLD 10	0.01	6.08	45.93	-0.2812	-0.0403	-0.0002
113	SLD 11	-0.06	-8.78	42.11	0.4127	0.0077	0.0001
113	SLD 12	-0.06	-8.78	42.11	0.4127	0.0077	0.0001
113	SLD 13	-0.15	-0.02	41.3	0.0035	-0.1282	-0.0004
113	SLD 14	-0.15	-0.02	41.3	0.0035	-0.1282	-0.0004
113	SLD 15	-0.17	-4.48	40.16	0.2117	-0.1138	-0.0003
113	SLD 16	-0.17	-4.48	40.16	0.2117	-0.1138	-0.0003
113	SLV 1	0.51	7.11	57.61	-0.3271	0.3726	0.0011
113	SLV 2	0.51	7.11	57.61	-0.3271	0.3726	0.0011
113	SLV 3	0.46	-3.11	54.91	0.1499	0.4071	0.0013
113	SLV 4	0.46	-3.11	54.91	0.1499	0.4071	0.0013
113	SLV 5	0.25	16.96	53.19	-0.7881	0.0793	0.0001
113	SLV 6	0.25	16.96	53.19	-0.7881	0.0793	0.0001
113	SLV 7	0.08	-17.1	44.17	0.802	0.1945	0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
113	SLV 8	0.08	-17.1	44.17	0.802	0.1945	0.0007
113	SLV 9	-0.02	15.18	46.68	-0.7062	-0.1374	-0.0005
113	SLV 10	-0.02	15.18	46.68	-0.7062	-0.1374	-0.0005
113	SLV 11	-0.19	-18.88	37.67	0.8838	-0.0223	0.0001
113	SLV 12	-0.19	-18.88	37.67	0.8838	-0.0223	0.0001
113	SLV 13	-0.4	1.19	35.94	-0.0542	-0.3501	-0.0011
113	SLV 14	-0.4	1.19	35.94	-0.0542	-0.3501	-0.0011
113	SLV 15	-0.45	-9.03	33.24	0.4228	-0.3155	-0.0009
113	SLV 16	-0.45	-9.03	33.24	0.4228	-0.3155	-0.0009
114	SLU 1	0.05	-0.78	5.99	0.0342	0.0247	-0.0011
114	SLU 2	0.05	-0.78	5.99	0.0344	0.0253	-0.0011
114	SLU 3	0.05	-0.81	5.99	0.0355	0.0255	-0.0011
114	SLU 4	0.05	-0.81	5.99	0.0356	0.0259	-0.0011
114	SLU 5	0.05	-0.79	5.99	0.0349	0.0259	-0.0011
114	SLU 6	0.05	-0.82	5.98	0.0361	0.0261	-0.0012
114	SLU 7	0.05	-0.82	5.98	0.0362	0.0265	-0.0012
114	SLU 8	0.05	-0.8	5.99	0.0353	0.0259	-0.0011
114	SLU 9	0.05	-0.8	5.99	0.0354	0.0263	-0.0012
114	SLU 10	0.07	-0.95	8.71	0.0383	0.0331	-0.0015
114	SLU 11	0.07	-0.97	8.71	0.0394	0.0333	-0.0016
114	SLU 12	0.07	-0.97	8.7	0.0395	0.0337	-0.0016
114	SLU 13	0.07	-0.96	8.71	0.0388	0.0337	-0.0016
114	SLU 14	0.07	-0.98	8.7	0.0399	0.0339	-0.0016
114	SLU 15	0.07	-0.99	8.7	0.0401	0.0343	-0.0016
114	SLU 16	0.07	-0.96	8.71	0.0392	0.0337	-0.0016
114	SLU 17	0.07	-0.97	8.71	0.0393	0.0341	-0.0016
114	SLU 18	0.08	-1.01	9.88	0.0397	0.0358	-0.0017
114	SLU 19	0.08	-1.01	9.88	0.0398	0.0362	-0.0017
114	SLU 20	0.08	-1.02	9.88	0.0403	0.0365	-0.0017
114	SLU 21	0.08	-1.03	9.87	0.0404	0.0368	-0.0017
114	SLU 22	0.06	-0.94	6.32	0.0408	0.0281	-0.0013
114	SLU 23	0.06	-0.94	6.32	0.041	0.0287	-0.0013
114	SLU 24	0.06	-0.97	6.31	0.0421	0.029	-0.0013
114	SLU 25	0.06	-0.97	6.31	0.0423	0.0293	-0.0013
114	SLU 26	0.06	-0.95	6.32	0.0416	0.0293	-0.0013
114	SLU 27	0.06	-0.98	6.31	0.0427	0.0296	-0.0013
114	SLU 28	0.06	-0.98	6.31	0.0428	0.0299	-0.0013
114	SLU 29	0.06	-0.96	6.31	0.0419	0.0294	-0.0013
114	SLU 30	0.06	-0.96	6.31	0.042	0.0297	-0.0013
114	SLU 31	0.08	-1.11	9.04	0.0449	0.0365	-0.0017
114	SLU 32	0.08	-1.13	9.03	0.046	0.0367	-0.0017
114	SLU 33	0.08	-1.13	9.03	0.0462	0.0371	-0.0017
114	SLU 34	0.08	-1.12	9.04	0.0455	0.0371	-0.0017
114	SLU 35	0.08	-1.14	9.03	0.0466	0.0373	-0.0017
114	SLU 36	0.08	-1.15	9.03	0.0467	0.0377	-0.0018
114	SLU 37	0.08	-1.12	9.03	0.0458	0.0371	-0.0017
114	SLU 38	0.08	-1.13	9.03	0.0459	0.0375	-0.0017
114	SLU 39	0.09	-1.17	10.2	0.0463	0.0393	-0.0019
114	SLU 40	0.09	-1.17	10.2	0.0465	0.0396	-0.0019
114	SLU 41	0.09	-1.18	10.2	0.0469	0.0399	-0.0019
114	SLU 42	0.09	-1.18	10.2	0.047	0.0402	-0.0019
114	SLU 43	0.06	-0.96	7.68	0.0421	0.031	-0.0014
114	SLU 44	0.06	-0.96	7.68	0.0424	0.0315	-0.0014
114	SLU 45	0.06	-0.99	7.67	0.0435	0.0318	-0.0014
114	SLU 46	0.06	-0.99	7.67	0.0436	0.0321	-0.0014
114	SLU 47	0.06	-0.97	7.68	0.0429	0.0321	-0.0014
114	SLU 48	0.06	-1	7.67	0.044	0.0324	-0.0014
114	SLU 49	0.06	-1	7.67	0.0442	0.0327	-0.0014
114	SLU 50	0.06	-0.98	7.67	0.0432	0.0322	-0.0014
114	SLU 51	0.06	-0.98	7.67	0.0434	0.0325	-0.0014
114	SLU 52	0.08	-1.12	10.4	0.0462	0.0393	-0.0018
114	SLU 53	0.08	-1.15	10.39	0.0474	0.0396	-0.0018
114	SLU 54	0.09	-1.15	10.39	0.0475	0.0399	-0.0018
114	SLU 55	0.09	-1.14	10.4	0.0468	0.0399	-0.0018
114	SLU 56	0.09	-1.16	10.39	0.0479	0.0402	-0.0019
114	SLU 57	0.09	-1.16	10.39	0.0481	0.0405	-0.0019
114	SLU 58	0.09	-1.14	10.39	0.0471	0.04	-0.0018
114	SLU 59	0.09	-1.15	10.39	0.0473	0.0403	-0.0019
114	SLU 60	0.09	-1.19	11.56	0.0477	0.0421	-0.002
114	SLU 61	0.09	-1.19	11.56	0.0478	0.0424	-0.002
114	SLU 62	0.09	-1.2	11.56	0.0482	0.0427	-0.002
114	SLU 63	0.09	-1.2	11.56	0.0484	0.043	-0.002
114	SLU 64	0.07	-1.12	8.01	0.0488	0.0344	-0.0015
114	SLU 65	0.07	-1.12	8.01	0.049	0.035	-0.0015
114	SLU 66	0.07	-1.15	8	0.0501	0.0352	-0.0016
114	SLU 67	0.07	-1.15	8	0.0503	0.0355	-0.0016
114	SLU 68	0.07	-1.13	8	0.0496	0.0356	-0.0016
114	SLU 69	0.07	-1.16	8	0.0507	0.0358	-0.0016
114	SLU 70	0.07	-1.16	8	0.0508	0.0361	-0.0016
114	SLU 71	0.07	-1.14	8	0.0499	0.0356	-0.0016
114	SLU 72	0.07	-1.14	8	0.05	0.0359	-0.0016
114	SLU 73	0.09	-1.28	10.72	0.0529	0.0427	-0.002
114	SLU 74	0.09	-1.31	10.72	0.054	0.043	-0.002
114	SLU 75	0.09	-1.31	10.72	0.0541	0.0433	-0.002
114	SLU 76	0.09	-1.3	10.72	0.0534	0.0434	-0.002
114	SLU 77	0.09	-1.32	10.71	0.0545	0.0436	-0.002
114	SLU 78	0.09	-1.32	10.71	0.0547	0.0439	-0.002
114	SLU 79	0.09	-1.3	10.72	0.0538	0.0434	-0.002
114	SLU 80	0.09	-1.31	10.72	0.0539	0.0437	-0.002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
114	SLU 81	0.1	-1.35	11.89	0.0543	0.0455	-0.0021
114	SLU 82	0.1	-1.35	11.89	0.0544	0.0459	-0.0021
114	SLU 83	0.1	-1.36	11.89	0.0549	0.0461	-0.0022
114	SLU 84	0.1	-1.36	11.89	0.055	0.0465	-0.0022
114	SLE RA 1	0.05	-0.82	6.09	0.036	0.0257	-0.0011
114	SLE RA 2	0.05	-0.83	6.09	0.0362	0.0261	-0.0012
114	SLE RA 3	0.05	-0.84	6.08	0.0369	0.0262	-0.0012
114	SLE RA 4	0.05	-0.85	6.08	0.037	0.0265	-0.0012
114	SLE RA 5	0.05	-0.83	6.08	0.0366	0.0265	-0.0012
114	SLE RA 6	0.05	-0.85	6.08	0.0373	0.0266	-0.0012
114	SLE RA 7	0.05	-0.85	6.08	0.0374	0.0269	-0.0012
114	SLE RA 8	0.05	-0.84	6.08	0.0368	0.0265	-0.0012
114	SLE RA 9	0.05	-0.84	6.08	0.0369	0.0267	-0.0012
114	SLE RA 10	0.07	-0.94	7.9	0.0388	0.0313	-0.0014
114	SLE RA 11	0.07	-0.95	7.89	0.0395	0.0314	-0.0014
114	SLE RA 12	0.07	-0.95	7.89	0.0396	0.0317	-0.0015
114	SLE RA 13	0.07	-0.94	7.9	0.0392	0.0317	-0.0015
114	SLE RA 14	0.07	-0.96	7.89	0.0399	0.0318	-0.0015
114	SLE RA 15	0.07	-0.96	7.89	0.04	0.0321	-0.0015
114	SLE RA 16	0.07	-0.95	7.9	0.0394	0.0317	-0.0015
114	SLE RA 17	0.07	-0.95	7.9	0.0395	0.0319	-0.0015
114	SLE RA 18	0.07	-0.98	8.68	0.0397	0.0331	-0.0015
114	SLE RA 19	0.07	-0.98	8.68	0.0398	0.0333	-0.0015
114	SLE RA 20	0.07	-0.99	8.67	0.0401	0.0335	-0.0016
114	SLE RA 21	0.07	-0.99	8.67	0.0402	0.0337	-0.0016
114	SLE FR 1	0.05	-0.82	6.09	0.036	0.0257	-0.0011
114	SLE FR 2	0.05	-0.82	6.09	0.0361	0.0258	-0.0011
114	SLE FR 3	0.05	-0.83	6.09	0.0362	0.0259	-0.0011
114	SLE FR 4	0.06	-0.87	6.86	0.0372	0.028	-0.0013
114	SLE FR 5	0.06	-0.87	6.86	0.0373	0.0281	-0.0013
114	SLE FR 6	0.06	-0.9	7.38	0.0379	0.0294	-0.0013
114	SLE QP 1	0.05	-0.82	6.09	0.036	0.0257	-0.0011
114	SLE QP 2	0.06	-0.87	6.86	0.0372	0.0279	-0.0013
114	SLD 1	0.3	0.15	7.22	0.0012	0.1949	-0.0063
114	SLD 2	0.3	0.15	7.22	0.0012	0.1949	-0.0063
114	SLD 3	0.28	-1.17	6.79	0.0467	0.1796	-0.0058
114	SLD 4	0.28	-1.17	6.79	0.0467	0.1796	-0.0058
114	SLD 5	0.17	1.43	7.62	-0.0427	0.1011	-0.0036
114	SLD 6	0.17	1.43	7.62	-0.0427	0.1011	-0.0036
114	SLD 7	0.09	-2.95	6.19	0.1091	0.0503	-0.0018
114	SLD 8	0.09	-2.95	6.19	0.1091	0.0503	-0.0018
114	SLD 9	0.03	1.22	7.54	-0.0348	0.0055	-0.0008
114	SLD 10	0.03	1.22	7.54	-0.0348	0.0055	-0.0008
114	SLD 11	-0.05	-3.17	6.11	0.117	-0.0453	0.0011
114	SLD 12	-0.05	-3.17	6.11	0.117	-0.0453	0.0011
114	SLD 13	-0.16	-0.57	6.93	0.0276	-0.1238	0.0033
114	SLD 14	-0.16	-0.57	6.93	0.0276	-0.1238	0.0033
114	SLD 15	-0.19	-1.89	6.51	0.0731	-0.139	0.0038
114	SLD 16	-0.19	-1.89	6.51	0.0731	-0.139	0.0038
114	SLV 1	0.65	1.49	7.71	-0.0463	0.4322	-0.0135
114	SLV 2	0.65	1.49	7.71	-0.0463	0.4322	-0.0135
114	SLV 3	0.59	-1.58	6.71	0.0599	0.3958	-0.0122
114	SLV 4	0.59	-1.58	6.71	0.0599	0.3958	-0.0122
114	SLV 5	0.33	4.49	8.63	-0.149	0.2045	-0.007
114	SLV 6	0.33	4.49	8.63	-0.149	0.2045	-0.007
114	SLV 7	0.13	-5.74	5.3	0.2051	0.083	-0.0025
114	SLV 8	0.13	-5.74	5.3	0.2051	0.083	-0.0025
114	SLV 9	-0.01	4	8.43	-0.1308	-0.0271	0
114	SLV 10	-0.01	4	8.43	-0.1308	-0.0271	0
114	SLV 11	-0.21	-6.23	5.09	0.2233	-0.1487	0.0045
114	SLV 12	-0.21	-6.23	5.09	0.2233	-0.1487	0.0045
114	SLV 13	-0.48	-0.16	7.02	0.0144	-0.3399	0.0096
114	SLV 14	-0.48	-0.16	7.02	0.0144	-0.3399	0.0096
114	SLV 15	-0.54	-3.23	6.02	0.1206	-0.3764	0.011
114	SLV 16	-0.54	-3.23	6.02	0.1206	-0.3764	0.011
115	SLU 1	0.13	-2.84	17.8	0.2675	0.0823	0
115	SLU 2	0.15	-0.64	18	0.1832	0.0947	0
115	SLU 3	0.14	-3.14	18.08	0.2839	0.0846	0
115	SLU 4	0.15	-1.82	18.19	0.2334	0.092	0
115	SLU 5	0.15	-0.97	18.09	0.1988	0.0957	0
115	SLU 6	0.14	-3.47	18.17	0.2996	0.0856	0
115	SLU 7	0.15	-2.15	18.29	0.249	0.0931	0
115	SLU 8	0.14	-3.49	18	0.2987	0.0844	0
115	SLU 9	0.15	-2.17	18.12	0.2481	0.0918	0
115	SLU 10	0.17	-1.11	20.21	0.2247	0.1091	0
115	SLU 11	0.16	-3.61	20.29	0.3254	0.0991	0
115	SLU 12	0.17	-2.29	20.41	0.2748	0.1065	0
115	SLU 13	0.18	-1.43	20.31	0.2403	0.1102	0
115	SLU 14	0.16	-3.93	20.39	0.341	0.1001	0.0001
115	SLU 15	0.17	-2.61	20.5	0.2905	0.1075	0.0001
115	SLU 16	0.16	-3.96	20.22	0.3402	0.0988	0.0001
115	SLU 17	0.17	-2.64	20.33	0.2896	0.1063	0.0001
115	SLU 18	0.17	-3.51	20.97	0.3268	0.103	0
115	SLU 19	0.18	-2.19	21.09	0.2762	0.1104	0
115	SLU 20	0.17	-3.83	21.07	0.3424	0.104	0.0001
115	SLU 21	0.18	-2.51	21.18	0.2918	0.1114	0.0001
115	SLU 22	0.16	-3.35	19.69	0.3082	0.0952	0
115	SLU 23	0.17	-1.15	19.88	0.2239	0.1076	0
115	SLU 24	0.16	-3.65	19.96	0.3246	0.0975	0



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
115	SLU 25	0.17	-2.33	20.08	0.274	0.1049	0
115	SLU 26	0.17	-1.47	19.98	0.2395	0.1087	0
115	SLU 27	0.16	-3.98	20.06	0.3402	0.0986	0.0001
115	SLU 28	0.17	-2.65	20.18	0.2897	0.106	0.0001
115	SLU 29	0.16	-4	19.89	0.3394	0.0973	0.0001
115	SLU 30	0.17	-2.68	20	0.2888	0.1047	0.0001
115	SLU 31	0.19	-1.61	22.1	0.2654	0.1221	0.0001
115	SLU 32	0.18	-4.12	22.18	0.3661	0.112	0.0001
115	SLU 33	0.19	-2.79	22.3	0.3155	0.1194	0.0001
115	SLU 34	0.2	-1.94	22.2	0.281	0.1231	0.0001
115	SLU 35	0.18	-4.44	22.28	0.3817	0.113	0.0001
115	SLU 36	0.19	-3.12	22.39	0.3311	0.1204	0.0001
115	SLU 37	0.18	-4.47	22.11	0.3809	0.1118	0.0001
115	SLU 38	0.19	-3.14	22.22	0.3303	0.1192	0.0001
115	SLU 39	0.19	-4.02	22.86	0.3675	0.1159	0.0001
115	SLU 40	0.2	-2.69	22.98	0.3169	0.1233	0.0001
115	SLU 41	0.19	-4.34	22.96	0.3831	0.1169	0.0001
115	SLU 42	0.2	-3.02	23.07	0.3325	0.1243	0.0001
115	SLU 43	0.17	-3.52	22.5	0.3338	0.1026	0.0001
115	SLU 44	0.18	-1.32	22.69	0.2495	0.115	0.0001
115	SLU 45	0.17	-3.82	22.77	0.3502	0.1049	0.0001
115	SLU 46	0.18	-2.5	22.88	0.2997	0.1123	0.0001
115	SLU 47	0.19	-1.65	22.79	0.2651	0.116	0.0001
115	SLU 48	0.17	-4.15	22.87	0.3659	0.1059	0.0001
115	SLU 49	0.18	-2.83	22.98	0.3153	0.1133	0.0001
115	SLU 50	0.17	-4.17	22.69	0.365	0.1047	0.0001
115	SLU 51	0.18	-2.85	22.81	0.3145	0.1121	0.0001
115	SLU 52	0.21	-1.79	24.91	0.291	0.1294	0.0001
115	SLU 53	0.19	-4.29	24.99	0.3917	0.1193	0.0001
115	SLU 54	0.2	-2.97	25.1	0.3411	0.1268	0.0001
115	SLU 55	0.21	-2.11	25	0.3066	0.1305	0.0001
115	SLU 56	0.2	-4.61	25.08	0.4073	0.1204	0.0001
115	SLU 57	0.21	-3.29	25.2	0.3568	0.1278	0.0001
115	SLU 58	0.19	-4.64	24.91	0.4065	0.1191	0.0001
115	SLU 59	0.2	-3.32	25.03	0.3559	0.1265	0.0001
115	SLU 60	0.2	-4.19	25.66	0.3931	0.1232	0.0001
115	SLU 61	0.21	-2.87	25.78	0.3425	0.1307	0.0001
115	SLU 62	0.2	-4.51	25.76	0.4087	0.1243	0.0001
115	SLU 63	0.21	-3.19	25.88	0.3581	0.1317	0.0001
115	SLU 64	0.19	-4.03	24.39	0.3745	0.1155	0.0001
115	SLU 65	0.2	-1.83	24.58	0.2902	0.1279	0.0001
115	SLU 66	0.19	-4.33	24.66	0.3909	0.1178	0.0001
115	SLU 67	0.2	-3.01	24.77	0.3403	0.1252	0.0001
115	SLU 68	0.21	-2.15	24.68	0.3058	0.1289	0.0001
115	SLU 69	0.19	-4.66	24.76	0.4065	0.1188	0.0001
115	SLU 70	0.2	-3.33	24.87	0.356	0.1263	0.0001
115	SLU 71	0.19	-4.68	24.58	0.4057	0.1176	0.0001
115	SLU 72	0.2	-3.36	24.7	0.3551	0.125	0.0001
115	SLU 73	0.23	-2.29	26.79	0.3317	0.1423	0.0001
115	SLU 74	0.21	-4.8	26.87	0.4324	0.1322	0.0001
115	SLU 75	0.22	-3.47	26.99	0.3818	0.1397	0.0001
115	SLU 76	0.23	-2.62	26.89	0.3473	0.1434	0.0001
115	SLU 77	0.22	-5.12	26.97	0.448	0.1333	0.0001
115	SLU 78	0.23	-3.8	27.09	0.3974	0.1407	0.0001
115	SLU 79	0.21	-5.15	26.8	0.4472	0.132	0.0001
115	SLU 80	0.22	-3.82	26.91	0.3966	0.1395	0.0001
115	SLU 81	0.22	-4.69	27.55	0.4338	0.1361	0.0001
115	SLU 82	0.23	-3.37	27.67	0.3832	0.1436	0.0001
115	SLU 83	0.22	-5.02	27.65	0.4494	0.1372	0.0001
115	SLU 84	0.23	-3.7	27.77	0.3988	0.1446	0.0001
115	SLE RA 1	0.14	-2.99	18.34	0.2791	0.086	0
115	SLE RA 2	0.15	-1.52	18.47	0.2229	0.0943	0
115	SLE RA 3	0.14	-3.19	18.52	0.2901	0.0875	0
115	SLE RA 4	0.15	-2.31	18.6	0.2564	0.0925	0
115	SLE RA 5	0.15	-1.74	18.54	0.2333	0.095	0
115	SLE RA 6	0.14	-3.41	18.59	0.3005	0.0882	0
115	SLE RA 7	0.15	-2.52	18.67	0.2668	0.0932	0
115	SLE RA 8	0.14	-3.42	18.47	0.3	0.0874	0
115	SLE RA 9	0.15	-2.54	18.55	0.2662	0.0923	0
115	SLE RA 10	0.17	-1.83	19.95	0.2506	0.1039	0
115	SLE RA 11	0.16	-3.5	20	0.3177	0.0972	0
115	SLE RA 12	0.16	-2.62	20.08	0.284	0.1021	0
115	SLE RA 13	0.17	-2.05	20.01	0.261	0.1046	0
115	SLE RA 14	0.16	-3.72	20.07	0.3282	0.0979	0
115	SLE RA 15	0.17	-2.83	20.14	0.2944	0.1028	0
115	SLE RA 16	0.16	-3.73	19.95	0.3276	0.097	0
115	SLE RA 17	0.16	-2.85	20.03	0.2939	0.102	0
115	SLE RA 18	0.16	-3.43	20.46	0.3186	0.0998	0
115	SLE RA 19	0.17	-2.55	20.53	0.2849	0.1047	0
115	SLE RA 20	0.16	-3.65	20.52	0.3291	0.1005	0
115	SLE RA 21	0.17	-2.77	20.6	0.2953	0.1054	0
115	SLE FR 1	0.14	-2.99	18.34	0.2791	0.086	0
115	SLE FR 2	0.14	-2.7	18.37	0.2679	0.0877	0
115	SLE FR 3	0.14	-3.08	18.37	0.2833	0.0863	0
115	SLE FR 4	0.15	-2.83	19	0.2797	0.0918	0
115	SLE FR 5	0.15	-3.21	19	0.2951	0.0904	0
115	SLE FR 6	0.15	-3.21	19.4	0.2989	0.0929	0
115	SLE QP 1	0.14	-2.99	18.34	0.2791	0.086	0
115	SLE QP 2	0.15	-3.12	18.98	0.291	0.0901	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
115	SLD 1	0.29	1.32	18.14	0.0984	0.2043	0
115	SLD 2	0.29	1.32	18.14	0.0984	0.2043	0
115	SLD 3	0.25	-3.42	16.99	0.3022	0.1761	0
115	SLD 4	0.25	-3.42	16.99	0.3022	0.1761	0
115	SLD 5	0.24	5.39	20.47	-0.076	0.1672	0
115	SLD 6	0.24	5.39	20.47	-0.076	0.1672	0
115	SLD 7	0.13	-10.39	16.64	0.6035	0.0732	0.0001
115	SLD 8	0.13	-10.39	16.64	0.6035	0.0732	0.0001
115	SLD 9	0.17	4.15	21.31	-0.0215	0.1071	0
115	SLD 10	0.17	4.15	21.31	-0.0215	0.1071	0
115	SLD 11	0.05	-11.63	17.49	0.6579	0.0131	0.0001
115	SLD 12	0.05	-11.63	17.49	0.6579	0.0131	0.0001
115	SLD 13	0.04	-2.83	20.96	0.2798	0.0042	0.0001
115	SLD 14	0.04	-2.83	20.96	0.2798	0.0042	0.0001
115	SLD 15	0.01	-7.56	19.81	0.4836	-0.024	0.0001
115	SLD 16	0.01	-7.56	19.81	0.4836	-0.024	0.0001
115	SLV 1	0.48	7.32	17.05	-0.1614	0.361	-0.0001
115	SLV 2	0.48	7.32	17.05	-0.1614	0.361	-0.0001
115	SLV 3	0.4	-3.74	14.36	0.3141	0.2903	-0.0001
115	SLV 4	0.4	-3.74	14.36	0.3141	0.2903	-0.0001
115	SLV 5	0.38	16.79	22.47	-0.5658	0.2788	-0.0001
115	SLV 6	0.38	16.79	22.47	-0.5658	0.2788	-0.0001
115	SLV 7	0.09	-20.08	13.52	1.019	0.0428	0.0001
115	SLV 8	0.09	-20.08	13.52	1.019	0.0428	0.0001
115	SLV 9	0.2	13.84	24.43	-0.437	0.1375	0
115	SLV 10	0.2	13.84	24.43	-0.437	0.1375	0
115	SLV 11	-0.08	-23.03	15.48	1.1478	-0.0985	0.0002
115	SLV 12	-0.08	-23.03	15.48	1.1478	-0.0985	0.0002
115	SLV 13	-0.1	-2.51	23.59	0.2679	-0.11	0.0002
115	SLV 14	-0.1	-2.51	23.59	0.2679	-0.11	0.0002
115	SLV 15	-0.19	-13.57	20.91	0.7434	-0.1808	0.0002
115	SLV 16	-0.19	-13.57	20.91	0.7434	-0.1808	0.0002
116	SLU 1	0.07	-2.95	44.71	0.1228	0.0442	0
116	SLU 2	0.07	-3.41	45.32	0.1443	0.0443	-0.0001
116	SLU 3	0.07	-2.79	45.57	0.1144	0.0451	0
116	SLU 4	0.07	-3.06	45.93	0.1273	0.0452	-0.0001
116	SLU 5	0.07	-3.21	45.74	0.1339	0.0447	-0.0001
116	SLU 6	0.07	-2.59	45.99	0.1039	0.0454	0
116	SLU 7	0.07	-2.86	46.35	0.1168	0.0455	0
116	SLU 8	0.07	-2.55	45.56	0.1019	0.0449	0
116	SLU 9	0.07	-2.82	45.92	0.1148	0.0449	0
116	SLU 10	0.08	-3.91	53.29	0.166	0.0532	-0.0001
116	SLU 11	0.08	-3.29	53.53	0.136	0.0539	0
116	SLU 12	0.08	-3.56	53.9	0.1489	0.054	-0.0001
116	SLU 13	0.08	-3.71	53.71	0.1555	0.0535	-0.0001
116	SLU 14	0.08	-3.09	53.96	0.1255	0.0542	0
116	SLU 15	0.08	-3.36	54.32	0.1385	0.0543	-0.0001
116	SLU 16	0.08	-3.05	53.53	0.1235	0.0537	0
116	SLU 17	0.08	-3.32	53.89	0.1364	0.0538	0
116	SLU 18	0.09	-3.67	56.09	0.1537	0.0569	0
116	SLU 19	0.09	-3.94	56.46	0.1666	0.0569	-0.0001
116	SLU 20	0.09	-3.47	56.52	0.1432	0.0572	0
116	SLU 21	0.09	-3.74	56.88	0.1562	0.0572	-0.0001
116	SLU 22	0.08	-3.1	49.58	0.1295	0.0496	0
116	SLU 23	0.08	-3.56	50.18	0.151	0.0497	-0.0001
116	SLU 24	0.08	-2.94	50.43	0.1211	0.0505	0
116	SLU 25	0.08	-3.21	50.8	0.134	0.0505	-0.0001
116	SLU 26	0.08	-3.36	50.61	0.1406	0.0501	-0.0001
116	SLU 27	0.08	-2.74	50.86	0.1106	0.0508	0
116	SLU 28	0.08	-3.01	51.22	0.1235	0.0509	-0.0001
116	SLU 29	0.08	-2.7	50.42	0.1085	0.0503	0
116	SLU 30	0.08	-2.97	50.79	0.1215	0.0503	0
116	SLU 31	0.09	-4.06	58.15	0.1727	0.0586	-0.0001
116	SLU 32	0.09	-3.44	58.4	0.1427	0.0593	0
116	SLU 33	0.09	-3.71	58.76	0.1556	0.0594	-0.0001
116	SLU 34	0.09	-3.86	58.57	0.1622	0.0589	-0.0001
116	SLU 35	0.09	-3.24	58.82	0.1322	0.0596	0
116	SLU 36	0.09	-3.51	59.19	0.1452	0.0597	-0.0001
116	SLU 37	0.09	-3.2	58.39	0.1302	0.0591	0
116	SLU 38	0.09	-3.47	58.75	0.1431	0.0592	-0.0001
116	SLU 39	0.1	-3.82	60.96	0.1604	0.0622	0
116	SLU 40	0.1	-4.09	61.32	0.1733	0.0623	-0.0001
116	SLU 41	0.1	-3.62	61.38	0.1499	0.0626	0
116	SLU 42	0.1	-3.89	61.75	0.1628	0.0626	-0.0001
116	SLU 43	0.09	-3.79	56.46	0.1574	0.0557	-0.0001
116	SLU 44	0.09	-4.24	57.06	0.1789	0.0558	-0.0001
116	SLU 45	0.09	-3.62	57.31	0.1489	0.0565	-0.0001
116	SLU 46	0.09	-3.9	57.68	0.1619	0.0566	-0.0001
116	SLU 47	0.09	-4.04	57.49	0.1684	0.0561	-0.0001
116	SLU 48	0.09	-3.42	57.73	0.1385	0.0568	0
116	SLU 49	0.09	-3.7	58.1	0.1514	0.0569	-0.0001
116	SLU 50	0.09	-3.39	57.3	0.1364	0.0563	0
116	SLU 51	0.09	-3.66	57.67	0.1493	0.0564	-0.0001
116	SLU 52	0.1	-4.74	65.03	0.2005	0.0646	-0.0001
116	SLU 53	0.1	-4.12	65.28	0.1706	0.0653	-0.0001
116	SLU 54	0.1	-4.4	65.64	0.1835	0.0654	-0.0001
116	SLU 55	0.1	-4.54	65.45	0.1901	0.0649	-0.0001
116	SLU 56	0.1	-3.92	65.7	0.1601	0.0657	-0.0001
116	SLU 57	0.1	-4.2	66.07	0.173	0.0657	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
116	SLU 58	0.1	-3.89	65.27	0.158	0.0651	0
116	SLU 59	0.1	-4.16	65.63	0.171	0.0652	-0.0001
116	SLU 60	0.11	-4.5	67.84	0.1883	0.0683	-0.0001
116	SLU 61	0.11	-4.78	68.2	0.2012	0.0683	-0.0001
116	SLU 62	0.11	-4.3	68.26	0.1778	0.0686	-0.0001
116	SLU 63	0.11	-4.57	68.63	0.1907	0.0687	-0.0001
116	SLU 64	0.09	-3.94	61.32	0.164	0.061	-0.0001
116	SLU 65	0.1	-4.39	61.93	0.1856	0.0612	-0.0001
116	SLU 66	0.1	-3.77	62.18	0.1556	0.0619	-0.0001
116	SLU 67	0.1	-4.05	62.54	0.1685	0.062	-0.0001
116	SLU 68	0.1	-4.19	62.35	0.1751	0.0615	-0.0001
116	SLU 69	0.1	-3.57	62.6	0.1451	0.0622	-0.0001
116	SLU 70	0.1	-3.85	62.96	0.1581	0.0623	-0.0001
116	SLU 71	0.1	-3.54	62.17	0.1431	0.0617	0
116	SLU 72	0.1	-3.81	62.53	0.156	0.0618	-0.0001
116	SLU 73	0.11	-4.89	69.9	0.2072	0.07	-0.0001
116	SLU 74	0.11	-4.27	70.15	0.1773	0.0707	-0.0001
116	SLU 75	0.11	-4.55	70.51	0.1902	0.0708	-0.0001
116	SLU 76	0.11	-4.69	70.32	0.1967	0.0703	-0.0001
116	SLU 77	0.11	-4.07	70.57	0.1668	0.0711	-0.0001
116	SLU 78	0.11	-4.35	70.93	0.1797	0.0711	-0.0001
116	SLU 79	0.11	-4.04	70.14	0.1647	0.0705	-0.0001
116	SLU 80	0.11	-4.31	70.5	0.1777	0.0706	-0.0001
116	SLU 81	0.11	-4.65	72.71	0.1949	0.0737	-0.0001
116	SLU 82	0.11	-4.93	73.07	0.2079	0.0737	-0.0001
116	SLU 83	0.11	-4.45	73.13	0.1845	0.074	-0.0001
116	SLU 84	0.11	-4.72	73.49	0.1974	0.0741	-0.0001
116	SLE RA 1	0.07	-3	46.1	0.1247	0.0458	0
116	SLE RA 2	0.07	-3.3	46.51	0.1391	0.0458	-0.0001
116	SLE RA 3	0.07	-2.89	46.67	0.1191	0.0463	0
116	SLE RA 4	0.07	-3.07	46.91	0.1277	0.0464	0
116	SLE RA 5	0.07	-3.17	46.79	0.1321	0.0461	-0.0001
116	SLE RA 6	0.07	-2.75	46.95	0.1121	0.0466	0
116	SLE RA 7	0.07	-2.93	47.2	0.1207	0.0466	0
116	SLE RA 8	0.07	-2.73	46.67	0.1107	0.0462	0
116	SLE RA 9	0.07	-2.91	46.91	0.1194	0.0462	0
116	SLE RA 10	0.08	-3.63	51.82	0.1535	0.0517	-0.0001
116	SLE RA 11	0.08	-3.22	51.98	0.1335	0.0522	0
116	SLE RA 12	0.08	-3.4	52.23	0.1421	0.0523	-0.0001
116	SLE RA 13	0.08	-3.5	52.1	0.1465	0.052	-0.0001
116	SLE RA 14	0.08	-3.09	52.27	0.1265	0.0524	0
116	SLE RA 15	0.08	-3.27	52.51	0.1352	0.0525	0
116	SLE RA 16	0.08	-3.06	51.98	0.1252	0.0521	0
116	SLE RA 17	0.08	-3.24	52.22	0.1338	0.0521	0
116	SLE RA 18	0.08	-3.47	53.69	0.1453	0.0542	0
116	SLE RA 19	0.08	-3.65	53.93	0.1539	0.0542	-0.0001
116	SLE RA 20	0.08	-3.34	53.97	0.1383	0.0544	0
116	SLE RA 21	0.08	-3.52	54.21	0.147	0.0544	-0.0001
116	SLE FR 1	0.07	-3	46.1	0.1247	0.0458	0
116	SLE FR 2	0.07	-3.06	46.18	0.1276	0.0458	0
116	SLE FR 3	0.07	-2.94	46.22	0.1219	0.0459	0
116	SLE FR 4	0.07	-3.2	48.46	0.1338	0.0483	0
116	SLE FR 5	0.07	-3.09	48.49	0.1281	0.0484	0
116	SLE FR 6	0.08	-3.23	49.9	0.135	0.05	0
116	SLE QP 1	0.07	-3	46.1	0.1247	0.0458	0
116	SLE QP 2	0.07	-3.14	48.38	0.1309	0.0483	0
116	SLD 1	0.19	-2.26	43.59	0.0916	0.1574	-0.0011
116	SLD 2	0.19	-2.26	43.59	0.0916	0.1574	-0.0011
116	SLD 3	0.2	-6.46	45.03	0.2964	0.1648	-0.0013
116	SLD 4	0.2	-6.46	45.03	0.2964	0.1648	-0.0013
116	SLD 5	0.09	3.49	44.77	-0.1915	0.0698	0
116	SLD 6	0.09	3.49	44.77	-0.1915	0.0698	0
116	SLD 7	0.13	-10.5	49.54	0.4912	0.0945	-0.0008
116	SLD 8	0.13	-10.5	49.54	0.4912	0.0945	-0.0008
116	SLD 9	0.02	4.22	47.21	-0.2294	0.0021	0.0007
116	SLD 10	0.02	4.22	47.21	-0.2294	0.0021	0.0007
116	SLD 11	0.06	-9.77	51.99	0.4533	0.0268	-0.0001
116	SLD 12	0.06	-9.77	51.99	0.4533	0.0268	-0.0001
116	SLD 13	-0.05	0.18	51.73	-0.0346	-0.0682	0.0013
116	SLD 14	-0.05	0.18	51.73	-0.0346	-0.0682	0.0013
116	SLD 15	-0.04	-4.02	53.16	0.1702	-0.0608	0.001
116	SLD 16	-0.04	-4.02	53.16	0.1702	-0.0608	0.001
116	SLV 1	0.35	-1.11	37.4	0.0404	0.3132	-0.0027
116	SLV 2	0.35	-1.11	37.4	0.0404	0.3132	-0.0027
116	SLV 3	0.38	-10.77	40.71	0.5118	0.3319	-0.0032
116	SLV 4	0.38	-10.77	40.71	0.5118	0.3319	-0.0032
116	SLV 5	0.12	12.11	40.07	-0.6111	0.0995	0
116	SLV 6	0.12	12.11	40.07	-0.6111	0.0995	0
116	SLV 7	0.2	-20.07	51.1	0.9601	0.1616	-0.0018
116	SLV 8	0.2	-20.07	51.1	0.9601	0.1616	-0.0018
116	SLV 9	-0.05	13.79	45.66	-0.6983	-0.065	0.0017
116	SLV 10	-0.05	13.79	45.66	-0.6983	-0.065	0.0017
116	SLV 11	0.03	-18.39	56.69	0.8729	-0.0029	-0.0001
116	SLV 12	0.03	-18.39	56.69	0.8729	-0.0029	-0.0001
116	SLV 13	-0.23	4.49	56.05	-0.25	-0.2353	0.0031
116	SLV 14	-0.23	4.49	56.05	-0.25	-0.2353	0.0031
116	SLV 15	-0.2	-5.17	59.36	0.2213	-0.2166	0.0026
116	SLV 16	-0.2	-5.17	59.36	0.2213	-0.2166	0.0026
117	SLU 1	0	-0.44	33.3	0.1312	-0.0017	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
117	SLU 2	-0.01	1.79	34.65	0.043	-0.0116	0
117	SLU 3	0	-0.69	34.16	0.1457	-0.0018	0
117	SLU 4	-0.01	0.65	34.97	0.0928	-0.0077	0
117	SLU 5	-0.01	1.48	35.15	0.0592	-0.0117	0
117	SLU 6	0	-1	34.67	0.162	-0.0018	0
117	SLU 7	-0.01	0.34	35.48	0.1091	-0.0078	0
117	SLU 8	0	-1.07	34.31	0.1636	-0.0018	0
117	SLU 9	-0.01	0.27	35.12	0.1107	-0.0078	0
117	SLU 10	-0.01	1.77	39.52	0.0603	-0.0119	0
117	SLU 11	0	-0.71	39.03	0.163	-0.0021	0
117	SLU 12	-0.01	0.63	39.84	0.1101	-0.008	0
117	SLU 13	-0.01	1.45	40.02	0.0765	-0.012	0
117	SLU 14	0	-1.03	39.54	0.1793	-0.0021	0
117	SLU 15	-0.01	0.31	40.35	0.1264	-0.0081	0
117	SLU 16	0	-1.09	39.18	0.1809	-0.0021	0
117	SLU 17	-0.01	0.25	39.99	0.128	-0.0081	0
117	SLU 18	0	-0.48	40.26	0.1559	-0.0021	0
117	SLU 19	-0.01	0.86	41.07	0.103	-0.0081	0
117	SLU 20	0	-0.79	40.76	0.1721	-0.0022	0
117	SLU 21	-0.01	0.55	41.57	0.1192	-0.0081	0
117	SLU 22	0	-0.55	37.73	0.151	-0.002	0
117	SLU 23	-0.01	1.68	39.08	0.0628	-0.0119	0
117	SLU 24	0	-0.8	38.59	0.1656	-0.0021	0
117	SLU 25	-0.01	0.54	39.4	0.1127	-0.008	0
117	SLU 26	-0.01	1.37	39.58	0.0791	-0.012	0
117	SLU 27	0	-1.11	39.1	0.1818	-0.0021	0
117	SLU 28	-0.01	0.23	39.91	0.1289	-0.0081	0
117	SLU 29	0	-1.18	38.74	0.1835	-0.0021	0
117	SLU 30	-0.01	0.16	39.55	0.1306	-0.0081	0
117	SLU 31	-0.01	1.66	43.95	0.0801	-0.0122	0
117	SLU 32	0	-0.82	43.47	0.1829	-0.0024	0
117	SLU 33	-0.01	0.52	44.28	0.13	-0.0084	0
117	SLU 34	-0.01	1.35	44.46	0.0964	-0.0123	0
117	SLU 35	0	-1.13	43.97	0.1991	-0.0024	0
117	SLU 36	-0.01	0.21	44.78	0.1462	-0.0084	0
117	SLU 37	0	-1.2	43.61	0.2008	-0.0024	0
117	SLU 38	-0.01	0.14	44.42	0.1479	-0.0084	0
117	SLU 39	0	-0.59	44.69	0.1757	-0.0025	0
117	SLU 40	-0.01	0.75	45.5	0.1228	-0.0084	0
117	SLU 41	0	-0.9	45.19	0.192	-0.0025	0
117	SLU 42	-0.01	0.44	46	0.1391	-0.0085	0
117	SLU 43	0	-0.54	41.76	0.1637	-0.0021	0
117	SLU 44	-0.01	1.69	43.11	0.0755	-0.012	0
117	SLU 45	0	-0.79	42.63	0.1783	-0.0022	0
117	SLU 46	-0.01	0.55	43.44	0.1254	-0.0081	0
117	SLU 47	-0.01	1.38	43.62	0.0918	-0.0121	0
117	SLU 48	0	-1.1	43.14	0.1945	-0.0022	0
117	SLU 49	-0.01	0.24	43.95	0.1416	-0.0082	0
117	SLU 50	0	-1.17	42.78	0.1962	-0.0022	0
117	SLU 51	-0.01	0.17	43.59	0.1433	-0.0082	0
117	SLU 52	-0.01	1.67	47.99	0.0929	-0.0123	0
117	SLU 53	0	-0.81	47.5	0.1956	-0.0025	0
117	SLU 54	-0.01	0.53	48.31	0.1427	-0.0085	0
117	SLU 55	-0.01	1.36	48.49	0.1091	-0.0124	0
117	SLU 56	0	-1.12	48.01	0.2118	-0.0025	0
117	SLU 57	-0.01	0.22	48.82	0.1589	-0.0085	0
117	SLU 58	0	-1.19	47.65	0.2135	-0.0025	0
117	SLU 59	-0.01	0.15	48.46	0.1606	-0.0085	0
117	SLU 60	0	-0.57	48.72	0.1884	-0.0025	0
117	SLU 61	-0.01	0.77	49.53	0.1355	-0.0085	0
117	SLU 62	0	-0.89	49.23	0.2047	-0.0026	0
117	SLU 63	-0.01	0.45	50.04	0.1518	-0.0086	0
117	SLU 64	0	-0.65	46.2	0.1836	-0.0024	0
117	SLU 65	-0.01	1.59	47.55	0.0954	-0.0123	0
117	SLU 66	0	-0.9	47.06	0.1981	-0.0025	0
117	SLU 67	-0.01	0.45	47.87	0.1452	-0.0084	0
117	SLU 68	-0.01	1.27	48.05	0.1116	-0.0124	0
117	SLU 69	0	-1.21	47.57	0.2143	-0.0025	0
117	SLU 70	-0.01	0.13	48.38	0.1614	-0.0085	0
117	SLU 71	0	-1.27	47.21	0.216	-0.0025	0
117	SLU 72	-0.01	0.07	48.02	0.1631	-0.0085	0
117	SLU 73	-0.01	1.56	52.42	0.1127	-0.0126	0
117	SLU 74	0	-0.92	51.93	0.2154	-0.0028	0
117	SLU 75	-0.01	0.42	52.74	0.1625	-0.0088	0
117	SLU 76	-0.01	1.25	52.93	0.1289	-0.0127	0
117	SLU 77	0	-1.23	52.44	0.2316	-0.0029	0
117	SLU 78	-0.01	0.11	53.25	0.1787	-0.0088	0
117	SLU 79	0	-1.3	52.08	0.2333	-0.0028	0
117	SLU 80	-0.01	0.04	52.89	0.1804	-0.0088	0
117	SLU 81	0	-0.68	53.16	0.2083	-0.0029	0
117	SLU 82	-0.01	0.66	53.97	0.1554	-0.0088	0
117	SLU 83	0	-0.99	53.66	0.2245	-0.0029	0
117	SLU 84	-0.01	0.35	54.47	0.1716	-0.0089	0
117	SLE RA 1	0	-0.48	34.56	0.1368	-0.0018	0
117	SLE RA 2	-0.01	1.01	35.46	0.0781	-0.0084	0
117	SLE RA 3	0	-0.64	35.14	0.1465	-0.0018	0
117	SLE RA 4	0	0.25	35.68	0.1113	-0.0058	0
117	SLE RA 5	-0.01	0.81	35.8	0.0889	-0.0084	0
117	SLE RA 6	0	-0.85	35.48	0.1574	-0.0019	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
117	SLE RA 7	0	0.05	36.02	0.1221	-0.0058	0
117	SLE RA 8	0	-0.89	35.24	0.1585	-0.0019	0
117	SLE RA 9	0	0	35.78	0.1232	-0.0058	0
117	SLE RA 10	-0.01	1	38.71	0.0896	-0.0086	0
117	SLE RA 11	0	-0.66	38.39	0.1581	-0.002	0
117	SLE RA 12	0	0.24	38.93	0.1228	-0.006	0
117	SLE RA 13	-0.01	0.79	39.05	0.1004	-0.0086	0
117	SLE RA 14	0	-0.86	38.72	0.1689	-0.0021	0
117	SLE RA 15	0	0.03	39.26	0.1336	-0.0061	0
117	SLE RA 16	0	-0.91	38.49	0.17	-0.0021	0
117	SLE RA 17	0	-0.01	39.03	0.1348	-0.006	0
117	SLE RA 18	0	-0.5	39.2	0.1533	-0.0021	0
117	SLE RA 19	0	0.4	39.74	0.118	-0.0061	0
117	SLE RA 20	0	-0.71	39.54	0.1641	-0.0021	0
117	SLE RA 21	0	0.19	40.08	0.1289	-0.0061	0
117	SLE FR 1	0	-0.48	34.56	0.1368	-0.0018	0
117	SLE FR 2	0	-0.18	34.74	0.1251	-0.0031	0
117	SLE FR 3	0	-0.56	34.7	0.1412	-0.0018	0
117	SLE FR 4	0	-0.18	36.13	0.13	-0.0032	0
117	SLE FR 5	0	-0.57	36.09	0.1461	-0.0019	0
117	SLE FR 6	0	-0.49	36.88	0.1451	-0.0019	0
117	SLE QP 1	0	-0.48	34.56	0.1368	-0.0018	0
117	SLE QP 2	0	-0.48	35.95	0.1418	-0.0019	0
117	SLD 1	0.09	3.84	39.13	-0.049	0.0775	-0.0001
117	SLD 2	0.09	3.84	39.13	-0.049	0.0775	-0.0001
117	SLD 3	0.12	-0.61	36.85	0.1452	0.0996	0
117	SLD 4	0.12	-0.61	36.85	0.1452	0.0996	0
117	SLD 5	-0.01	7.58	40.36	-0.21	-0.0116	0
117	SLD 6	-0.01	7.58	40.36	-0.21	-0.0116	0
117	SLD 7	0.07	-7.28	32.77	0.4374	0.0621	0
117	SLD 8	0.07	-7.28	32.77	0.4374	0.0621	0
117	SLD 9	-0.08	6.32	39.14	-0.1538	-0.0658	0
117	SLD 10	-0.08	6.32	39.14	-0.1538	-0.0658	0
117	SLD 11	0.01	-8.54	31.55	0.4935	0.0078	0
117	SLD 12	0.01	-8.54	31.55	0.4935	0.0078	0
117	SLD 13	-0.12	-0.35	35.06	0.1383	-0.1033	0
117	SLD 14	-0.12	-0.35	35.06	0.1383	-0.1033	0
117	SLD 15	-0.09	-4.81	32.78	0.3325	-0.0812	0.0001
117	SLD 16	-0.09	-4.81	32.78	0.3325	-0.0812	0.0001
117	SLV 1	0.21	9.74	43.25	-0.3083	0.186	-0.0001
117	SLV 2	0.21	9.74	43.25	-0.3083	0.186	-0.0001
117	SLV 3	0.28	-0.57	37.94	0.1406	0.2416	-0.0001
117	SLV 4	0.28	-0.57	37.94	0.1406	0.2416	-0.0001
117	SLV 5	-0.04	18.22	46.18	-0.674	-0.0299	-0.0001
117	SLV 6	-0.04	18.22	46.18	-0.674	-0.0299	-0.0001
117	SLV 7	0.18	-16.15	28.51	0.8222	0.1555	0
117	SLV 8	0.18	-16.15	28.51	0.8222	0.1555	0
117	SLV 9	-0.18	15.18	43.4	-0.5387	-0.1593	0
117	SLV 10	-0.18	15.18	43.4	-0.5387	-0.1593	0
117	SLV 11	0.04	-19.19	25.73	0.9576	0.0261	0.0001
117	SLV 12	0.04	-19.19	25.73	0.9576	0.0261	0.0001
117	SLV 13	-0.28	-0.39	33.96	0.143	-0.2453	0.0001
117	SLV 14	-0.28	-0.39	33.96	0.143	-0.2453	0.0001
117	SLV 15	-0.21	-10.7	28.66	0.5918	-0.1897	0.0001
117	SLV 16	-0.21	-10.7	28.66	0.5918	-0.1897	0.0001
118	SLU 1	0.01	4.53	56	-0.1491	0.0089	0
118	SLU 2	0.08	5.44	59.54	-0.1812	0.0799	0
118	SLU 3	0.01	4.69	57.71	-0.1545	0.009	0
118	SLU 4	0.05	5.24	59.83	-0.1738	0.0516	0
118	SLU 5	0.08	5.53	60.59	-0.1843	0.0799	0
118	SLU 6	0.01	4.79	58.76	-0.1576	0.009	0
118	SLU 7	0.05	5.33	60.89	-0.1769	0.0516	0
118	SLU 8	0.01	4.72	58.11	-0.1552	0.0089	0
118	SLU 9	0.05	5.26	60.23	-0.1745	0.0515	0
118	SLU 10	0.08	6.07	66.22	-0.2024	0.0814	0
118	SLU 11	0.01	5.32	64.39	-0.1757	0.0105	0
118	SLU 12	0.05	5.87	66.51	-0.195	0.0531	0
118	SLU 13	0.08	6.16	67.27	-0.2054	0.0814	0
118	SLU 14	0.01	5.41	65.44	-0.1787	0.0105	0
118	SLU 15	0.05	5.96	67.56	-0.198	0.0531	0
118	SLU 16	0.01	5.34	64.79	-0.1764	0.0104	0
118	SLU 17	0.05	5.89	66.91	-0.1956	0.053	0
118	SLU 18	0.01	5.42	65.54	-0.1793	0.011	0
118	SLU 19	0.05	5.97	67.66	-0.1986	0.0536	0
118	SLU 20	0.01	5.51	66.6	-0.1824	0.011	0
118	SLU 21	0.05	6.06	68.72	-0.2017	0.0536	0
118	SLU 22	0.01	5.14	62.77	-0.1695	0.0101	0
118	SLU 23	0.08	6.06	66.31	-0.2016	0.0811	0
118	SLU 24	0.01	5.31	64.48	-0.175	0.0102	0
118	SLU 25	0.05	5.86	66.6	-0.1942	0.0528	0
118	SLU 26	0.08	6.15	67.36	-0.2047	0.0811	0
118	SLU 27	0.01	5.4	65.54	-0.178	0.0103	0
118	SLU 28	0.05	5.95	67.66	-0.1973	0.0528	0
118	SLU 29	0.01	5.33	64.88	-0.1756	0.0102	0
118	SLU 30	0.05	5.88	67	-0.1949	0.0528	0
118	SLU 31	0.08	6.68	72.99	-0.2228	0.0826	0
118	SLU 32	0.01	5.93	71.16	-0.1961	0.0117	0
118	SLU 33	0.05	6.48	73.28	-0.2154	0.0543	0
118	SLU 34	0.08	6.78	74.04	-0.2258	0.0826	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
118	SLU 35	0.01	6.03	72.21	-0.1992	0.0117	0
118	SLU 36	0.05	6.58	74.34	-0.2184	0.0543	0
118	SLU 37	0.01	5.96	71.56	-0.1968	0.0116	0
118	SLU 38	0.05	6.51	73.68	-0.2161	0.0542	0
118	SLU 39	0.01	6.04	72.32	-0.1998	0.0122	0
118	SLU 40	0.06	6.58	74.44	-0.219	0.0548	0
118	SLU 41	0.01	6.13	73.37	-0.2028	0.0123	0
118	SLU 42	0.06	6.68	75.49	-0.2221	0.0548	0
118	SLU 43	0.01	5.67	70.48	-0.1869	0.0112	0
118	SLU 44	0.08	6.59	74.02	-0.219	0.0821	0
118	SLU 45	0.01	5.84	72.19	-0.1923	0.0112	0
118	SLU 46	0.05	6.39	74.31	-0.2115	0.0538	0
118	SLU 47	0.08	6.68	75.07	-0.222	0.0822	0
118	SLU 48	0.01	5.93	73.24	-0.1953	0.0113	0
118	SLU 49	0.05	6.48	75.36	-0.2146	0.0538	0
118	SLU 50	0.01	5.86	72.59	-0.193	0.0112	0
118	SLU 51	0.05	6.41	74.71	-0.2122	0.0538	0
118	SLU 52	0.08	7.21	80.7	-0.2401	0.0836	0
118	SLU 53	0.01	6.46	78.87	-0.2134	0.0127	0
118	SLU 54	0.06	7.01	80.99	-0.2327	0.0553	0
118	SLU 55	0.08	7.31	81.75	-0.2432	0.0836	0
118	SLU 56	0.01	6.56	79.92	-0.2165	0.0127	0
118	SLU 57	0.06	7.11	82.04	-0.2357	0.0553	0
118	SLU 58	0.01	6.49	79.27	-0.2141	0.0127	0
118	SLU 59	0.06	7.04	81.39	-0.2334	0.0552	0
118	SLU 60	0.01	6.57	80.02	-0.2171	0.0133	0
118	SLU 61	0.06	7.11	82.14	-0.2363	0.0558	0
118	SLU 62	0.01	6.66	81.08	-0.2201	0.0133	0
118	SLU 63	0.06	7.21	83.2	-0.2394	0.0559	0
118	SLU 64	0.01	6.29	77.25	-0.2073	0.0124	0
118	SLU 65	0.08	7.2	80.79	-0.2394	0.0834	0
118	SLU 66	0.01	6.45	78.96	-0.2127	0.0125	0
118	SLU 67	0.05	7	81.08	-0.232	0.0551	0
118	SLU 68	0.08	7.3	81.84	-0.2424	0.0834	0
118	SLU 69	0.01	6.55	80.01	-0.2157	0.0125	0
118	SLU 70	0.05	7.1	82.14	-0.235	0.0551	0
118	SLU 71	0.01	6.48	79.36	-0.2134	0.0124	0
118	SLU 72	0.05	7.03	81.48	-0.2326	0.055	0
118	SLU 73	0.09	7.83	87.47	-0.2605	0.0848	0
118	SLU 74	0.01	7.08	85.64	-0.2339	0.0139	0
118	SLU 75	0.06	7.63	87.76	-0.2531	0.0565	0
118	SLU 76	0.09	7.92	88.52	-0.2636	0.0849	0
118	SLU 77	0.01	7.17	86.69	-0.2369	0.014	0
118	SLU 78	0.06	7.72	88.81	-0.2562	0.0566	0
118	SLU 79	0.01	7.1	86.04	-0.2345	0.0139	0
118	SLU 80	0.06	7.65	88.16	-0.2538	0.0565	0
118	SLU 81	0.01	7.18	86.79	-0.2375	0.0145	0
118	SLU 82	0.06	7.73	88.92	-0.2568	0.0571	0
118	SLU 83	0.01	7.28	87.85	-0.2406	0.0145	0
118	SLU 84	0.06	7.83	89.97	-0.2598	0.0571	0
118	SLE RA 1	0.01	4.7	57.94	-0.155	0.0093	0
118	SLE RA 2	0.06	5.31	60.29	-0.1764	0.0566	0
118	SLE RA 3	0.01	4.81	59.08	-0.1586	0.0093	0
118	SLE RA 4	0.04	5.18	60.49	-0.1714	0.0377	0
118	SLE RA 5	0.06	5.37	61	-0.1784	0.0566	0
118	SLE RA 6	0.01	4.88	59.78	-0.1606	0.0093	0
118	SLE RA 7	0.04	5.24	61.19	-0.1734	0.0377	0
118	SLE RA 8	0.01	4.83	59.34	-0.159	0.0093	0
118	SLE RA 9	0.04	5.19	60.75	-0.1719	0.0377	0
118	SLE RA 10	0.06	5.73	64.75	-0.1905	0.0576	0
118	SLE RA 11	0.01	5.23	63.53	-0.1727	0.0103	0
118	SLE RA 12	0.04	5.59	64.94	-0.1855	0.0387	0
118	SLE RA 13	0.06	5.79	65.45	-0.1925	0.0576	0
118	SLE RA 14	0.01	5.29	64.23	-0.1747	0.0103	0
118	SLE RA 15	0.04	5.66	65.64	-0.1875	0.0387	0
118	SLE RA 16	0.01	5.25	63.79	-0.1731	0.0103	0
118	SLE RA 17	0.04	5.61	65.21	-0.186	0.0387	0
118	SLE RA 18	0.01	5.3	64.3	-0.1751	0.0107	0
118	SLE RA 19	0.04	5.66	65.71	-0.1879	0.0391	0
118	SLE RA 20	0.01	5.36	65	-0.1771	0.0107	0
118	SLE RA 21	0.04	5.73	66.41	-0.19	0.0391	0
118	SLE FR 1	0.01	4.7	57.94	-0.155	0.0093	0
118	SLE FR 2	0.02	4.82	58.41	-0.1592	0.0187	0
118	SLE FR 3	0.01	4.73	58.22	-0.1558	0.0093	0
118	SLE FR 4	0.02	5	60.32	-0.1653	0.0191	0
118	SLE FR 5	0.01	4.91	60.13	-0.1618	0.0097	0
118	SLE FR 6	0.01	5	61.12	-0.165	0.01	0
118	SLE QP 1	0.01	4.7	57.94	-0.155	0.0093	0
118	SLE QP 2	0.01	4.88	59.85	-0.161	0.0097	0
118	SLD 1	0.25	5.86	47.66	-0.2059	0.2371	0
118	SLD 2	0.25	5.86	47.66	-0.2059	0.2371	0
118	SLD 3	0.14	0.99	41.5	0.0014	0.1299	-0.0001
118	SLD 4	0.14	0.99	41.5	0.0014	0.1299	-0.0001
118	SLD 5	0.26	12.57	65.52	-0.4888	0.2405	0
118	SLD 6	0.26	12.57	65.52	-0.4888	0.2405	0
118	SLD 7	-0.13	-3.68	45.01	0.202	-0.1168	-0.0001
118	SLD 8	-0.13	-3.68	45.01	0.202	-0.1168	-0.0001
118	SLD 9	0.15	13.44	74.68	-0.524	0.1362	0.0001
118	SLD 10	0.15	13.44	74.68	-0.524	0.1362	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
118	SLD 11	-0.24	-2.8	54.17	0.1668	-0.2211	0
118	SLD 12	-0.24	-2.8	54.17	0.1668	-0.2211	0
118	SLD 13	-0.12	8.77	78.19	-0.3234	-0.1106	0.0001
118	SLD 14	-0.12	8.77	78.19	-0.3234	-0.1106	0.0001
118	SLD 15	-0.23	3.9	72.03	-0.1161	-0.2177	0
118	SLD 16	-0.23	3.9	72.03	-0.1161	-0.2177	0
118	SLV 1	0.59	7.12	31.86	-0.2639	0.558	-0.0001
118	SLV 2	0.59	7.12	31.86	-0.2639	0.558	-0.0001
118	SLV 3	0.3	-4.05	17.67	0.2117	0.2836	-0.0002
118	SLV 4	0.3	-4.05	17.67	0.2117	0.2836	-0.0002
118	SLV 5	0.63	22.51	72.99	-0.9132	0.5903	0.0001
118	SLV 6	0.63	22.51	72.99	-0.9132	0.5903	0.0001
118	SLV 7	-0.35	-14.75	25.66	0.6722	-0.3243	-0.0002
118	SLV 8	-0.35	-14.75	25.66	0.6722	-0.3243	-0.0002
118	SLV 9	0.37	24.52	94.04	-0.9942	0.3436	0.0002
118	SLV 10	0.37	24.52	94.04	-0.9942	0.3436	0.0002
118	SLV 11	-0.61	-12.75	46.7	0.5912	-0.5709	-0.0001
118	SLV 12	-0.61	-12.75	46.7	0.5912	-0.5709	-0.0001
118	SLV 13	-0.28	13.82	102.03	-0.5337	-0.2643	0.0002
118	SLV 14	-0.28	13.82	102.03	-0.5337	-0.2643	0.0002
118	SLV 15	-0.57	2.64	87.83	-0.0581	-0.5386	0.0001
118	SLV 16	-0.57	2.64	87.83	-0.0581	-0.5386	0.0001
119	SLU 1	-0.17	7.2	26.98	-0.2758	-0.119	-0.0006
119	SLU 2	-0.25	8.48	27.7	-0.3311	-0.1944	-0.0009
119	SLU 3	-0.17	7.54	27.77	-0.2892	-0.123	-0.0006
119	SLU 4	-0.22	8.31	28.21	-0.3223	-0.1683	-0.0008
119	SLU 5	-0.25	8.76	28.28	-0.3418	-0.1971	-0.0009
119	SLU 6	-0.18	7.81	28.35	-0.2999	-0.1258	-0.0007
119	SLU 7	-0.23	8.58	28.79	-0.333	-0.1711	-0.0008
119	SLU 8	-0.18	7.74	28.13	-0.2972	-0.1246	-0.0007
119	SLU 9	-0.22	8.52	28.57	-0.3304	-0.1698	-0.0008
119	SLU 10	-0.27	9.34	30.37	-0.3634	-0.2102	-0.001
119	SLU 11	-0.2	8.39	30.44	-0.3214	-0.1388	-0.0007
119	SLU 12	-0.24	9.17	30.87	-0.3546	-0.1841	-0.0009
119	SLU 13	-0.27	9.61	30.95	-0.3741	-0.213	-0.001
119	SLU 14	-0.2	8.67	31.02	-0.3321	-0.1416	-0.0007
119	SLU 15	-0.25	9.44	31.45	-0.3653	-0.1869	-0.0009
119	SLU 16	-0.2	8.6	30.8	-0.3295	-0.1404	-0.0007
119	SLU 17	-0.25	9.37	31.23	-0.3627	-0.1856	-0.0009
119	SLU 18	-0.2	8.42	30.78	-0.3219	-0.1415	-0.0007
119	SLU 19	-0.25	9.19	31.22	-0.3551	-0.1868	-0.0009
119	SLU 20	-0.2	8.69	31.36	-0.3326	-0.1443	-0.0008
119	SLU 21	-0.25	9.46	31.8	-0.3658	-0.1896	-0.0009
119	SLU 22	-0.19	8.12	29.72	-0.3107	-0.1348	-0.0007
119	SLU 23	-0.27	9.4	30.45	-0.366	-0.2101	-0.001
119	SLU 24	-0.2	8.46	30.52	-0.3241	-0.1388	-0.0007
119	SLU 25	-0.24	9.23	30.95	-0.3572	-0.1841	-0.0009
119	SLU 26	-0.27	9.68	31.03	-0.3767	-0.2129	-0.001
119	SLU 27	-0.2	8.73	31.1	-0.3348	-0.1416	-0.0007
119	SLU 28	-0.25	9.5	31.53	-0.3679	-0.1869	-0.0009
119	SLU 29	-0.2	8.66	30.88	-0.3322	-0.1403	-0.0007
119	SLU 30	-0.25	9.43	31.31	-0.3653	-0.1856	-0.0009
119	SLU 31	-0.29	10.26	33.11	-0.3983	-0.226	-0.0011
119	SLU 32	-0.22	9.31	33.18	-0.3563	-0.1546	-0.0008
119	SLU 33	-0.27	10.08	33.62	-0.3895	-0.1999	-0.001
119	SLU 34	-0.3	10.53	33.69	-0.409	-0.2287	-0.0011
119	SLU 35	-0.22	9.59	33.76	-0.3671	-0.1574	-0.0008
119	SLU 36	-0.27	10.36	34.19	-0.4002	-0.2027	-0.001
119	SLU 37	-0.22	9.52	33.54	-0.3644	-0.1562	-0.0008
119	SLU 38	-0.27	10.29	33.98	-0.3976	-0.2014	-0.001
119	SLU 39	-0.22	9.34	33.53	-0.3568	-0.1573	-0.0008
119	SLU 40	-0.27	10.11	33.96	-0.39	-0.2026	-0.001
119	SLU 41	-0.23	9.61	34.1	-0.3675	-0.1601	-0.0008
119	SLU 42	-0.27	10.38	34.54	-0.4007	-0.2054	-0.001
119	SLU 43	-0.21	9.04	34.13	-0.3466	-0.1492	-0.0008
119	SLU 44	-0.29	10.33	34.86	-0.4019	-0.2246	-0.0011
119	SLU 45	-0.22	9.38	34.93	-0.36	-0.1533	-0.0008
119	SLU 46	-0.26	10.15	35.36	-0.3931	-0.1985	-0.001
119	SLU 47	-0.29	10.6	35.44	-0.4126	-0.2274	-0.0011
119	SLU 48	-0.22	9.66	35.51	-0.3707	-0.1561	-0.0008
119	SLU 49	-0.27	10.43	35.94	-0.4038	-0.2013	-0.001
119	SLU 50	-0.22	9.59	35.29	-0.368	-0.1548	-0.0008
119	SLU 51	-0.27	10.36	35.72	-0.4012	-0.2001	-0.001
119	SLU 52	-0.31	11.18	37.52	-0.4342	-0.2404	-0.0012
119	SLU 53	-0.24	10.24	37.59	-0.3922	-0.1691	-0.0009
119	SLU 54	-0.29	11.01	38.03	-0.4254	-0.2144	-0.0011
119	SLU 55	-0.32	11.45	38.1	-0.4449	-0.2432	-0.0012
119	SLU 56	-0.24	10.51	38.17	-0.4029	-0.1719	-0.0009
119	SLU 57	-0.29	11.28	38.6	-0.4361	-0.2171	-0.0011
119	SLU 58	-0.24	10.44	37.95	-0.4003	-0.1706	-0.0009
119	SLU 59	-0.29	11.21	38.39	-0.4335	-0.2159	-0.0011
119	SLU 60	-0.24	10.26	37.94	-0.3927	-0.1718	-0.0009
119	SLU 61	-0.29	11.03	38.37	-0.4259	-0.2171	-0.0011
119	SLU 62	-0.25	10.53	38.51	-0.4034	-0.1746	-0.0009
119	SLU 63	-0.29	11.31	38.95	-0.4366	-0.2198	-0.0011
119	SLU 64	-0.23	9.96	36.87	-0.3815	-0.165	-0.0009
119	SLU 65	-0.31	11.25	37.6	-0.4368	-0.2404	-0.0012
119	SLU 66	-0.24	10.3	37.67	-0.3949	-0.1691	-0.0009
119	SLU 67	-0.29	11.07	38.11	-0.428	-0.2143	-0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
119	SLU 68	-0.32	11.52	38.18	-0.4475	-0.2432	-0.0012
119	SLU 69	-0.24	10.58	38.25	-0.4056	-0.1719	-0.0009
119	SLU 70	-0.29	11.35	38.68	-0.4387	-0.2171	-0.0011
119	SLU 71	-0.24	10.51	38.03	-0.4029	-0.1706	-0.0009
119	SLU 72	-0.29	11.28	38.47	-0.4361	-0.2159	-0.0011
119	SLU 73	-0.33	12.1	40.26	-0.4691	-0.2562	-0.0013
119	SLU 74	-0.26	11.16	40.33	-0.4271	-0.1849	-0.001
119	SLU 75	-0.31	11.93	40.77	-0.4603	-0.2301	-0.0012
119	SLU 76	-0.34	12.37	40.84	-0.4798	-0.259	-0.0013
119	SLU 77	-0.27	11.43	40.91	-0.4378	-0.1877	-0.001
119	SLU 78	-0.31	12.2	41.35	-0.471	-0.2329	-0.0012
119	SLU 79	-0.26	11.36	40.69	-0.4352	-0.1864	-0.001
119	SLU 80	-0.31	12.13	41.13	-0.4684	-0.2317	-0.0012
119	SLU 81	-0.27	11.18	40.68	-0.4276	-0.1876	-0.001
119	SLU 82	-0.31	11.95	41.11	-0.4608	-0.2328	-0.0012
119	SLU 83	-0.27	11.45	41.26	-0.4383	-0.1904	-0.001
119	SLU 84	-0.32	12.23	41.69	-0.4715	-0.2356	-0.0012
119	SLE RA 1	-0.17	7.46	27.76	-0.2858	-0.1235	-0.0006
119	SLE RA 2	-0.23	8.32	28.25	-0.3227	-0.1737	-0.0009
119	SLE RA 3	-0.18	7.69	28.29	-0.2947	-0.1262	-0.0007
119	SLE RA 4	-0.21	8.2	28.58	-0.3168	-0.1563	-0.0008
119	SLE RA 5	-0.23	8.5	28.63	-0.3298	-0.1756	-0.0009
119	SLE RA 6	-0.18	7.87	28.68	-0.3018	-0.1281	-0.0007
119	SLE RA 7	-0.21	8.38	28.97	-0.3239	-0.1582	-0.0008
119	SLE RA 8	-0.18	7.82	28.53	-0.3001	-0.1272	-0.0007
119	SLE RA 9	-0.21	8.34	28.82	-0.3222	-0.1574	-0.0008
119	SLE RA 10	-0.24	8.89	30.02	-0.3442	-0.1843	-0.0009
119	SLE RA 11	-0.19	8.26	30.07	-0.3162	-0.1367	-0.0007
119	SLE RA 12	-0.22	8.77	30.36	-0.3383	-0.1669	-0.0008
119	SLE RA 13	-0.24	9.07	30.41	-0.3513	-0.1861	-0.0009
119	SLE RA 14	-0.2	8.44	30.45	-0.3233	-0.1386	-0.0007
119	SLE RA 15	-0.23	8.95	30.74	-0.3455	-0.1688	-0.0009
119	SLE RA 16	-0.19	8.39	30.31	-0.3216	-0.1377	-0.0007
119	SLE RA 17	-0.23	8.91	30.6	-0.3437	-0.1679	-0.0008
119	SLE RA 18	-0.2	8.27	30.3	-0.3165	-0.1385	-0.0007
119	SLE RA 19	-0.23	8.79	30.59	-0.3386	-0.1687	-0.0008
119	SLE RA 20	-0.2	8.45	30.68	-0.3237	-0.1404	-0.0007
119	SLE RA 21	-0.23	8.97	30.97	-0.3458	-0.1705	-0.0009
119	SLE FR 1	-0.17	7.46	27.76	-0.2858	-0.1235	-0.0006
119	SLE FR 2	-0.18	7.63	27.86	-0.2932	-0.1335	-0.0007
119	SLE FR 3	-0.18	7.53	27.92	-0.2887	-0.1242	-0.0007
119	SLE FR 4	-0.19	7.87	28.62	-0.3024	-0.138	-0.0007
119	SLE FR 5	-0.18	7.78	28.68	-0.2979	-0.1287	-0.0007
119	SLE FR 6	-0.18	7.87	29.03	-0.3012	-0.131	-0.0007
119	SLE QP 1	-0.17	7.46	27.76	-0.2858	-0.1235	-0.0006
119	SLE QP 2	-0.18	7.7	28.52	-0.295	-0.128	-0.0007
119	SLD 1	-0.38	13.87	37.13	-0.5593	-0.0253	-0.0014
119	SLD 2	-0.38	13.87	37.13	-0.5593	-0.0253	-0.0014
119	SLD 3	-0.28	6.3	35	-0.233	0.0594	-0.001
119	SLD 4	-0.28	6.3	35	-0.233	0.0594	-0.001
119	SLD 5	-0.38	21.04	34.34	-0.8693	-0.2255	-0.0014
119	SLD 6	-0.38	21.04	34.34	-0.8693	-0.2255	-0.0014
119	SLD 7	-0.07	-4.2	27.23	0.2186	0.0566	-0.0002
119	SLD 8	-0.07	-4.2	27.23	0.2186	0.0566	-0.0002
119	SLD 9	-0.29	19.61	29.82	-0.8086	-0.3125	-0.0011
119	SLD 10	-0.29	19.61	29.82	-0.8086	-0.3125	-0.0011
119	SLD 11	0.02	-5.63	22.7	0.2792	-0.0305	0.0001
119	SLD 12	0.02	-5.63	22.7	0.2792	-0.0305	0.0001
119	SLD 13	-0.08	9.11	22.05	-0.3571	-0.3153	-0.0004
119	SLD 14	-0.08	9.11	22.05	-0.3571	-0.3153	-0.0004
119	SLD 15	0.01	1.53	19.91	-0.0307	-0.2307	0
119	SLD 16	0.01	1.53	19.91	-0.0307	-0.2307	0
119	SLV 1	-0.65	21.89	48.26	-0.9032	0.1112	-0.0023
119	SLV 2	-0.65	21.89	48.26	-0.9032	0.1112	-0.0023
119	SLV 3	-0.41	4.46	43.26	-0.1516	0.3275	-0.0014
119	SLV 4	-0.41	4.46	43.26	-0.1516	0.3275	-0.0014
119	SLV 5	-0.69	38.4	42.04	-1.6176	-0.3843	-0.0026
119	SLV 6	-0.69	38.4	42.04	-1.6176	-0.3843	-0.0026
119	SLV 7	0.11	-19.71	25.35	0.8881	0.3367	0.0006
119	SLV 8	0.11	-19.71	25.35	0.8881	0.3367	0.0006
119	SLV 9	-0.47	35.12	31.69	-1.4781	-0.5927	-0.0019
119	SLV 10	-0.47	35.12	31.69	-1.4781	-0.5927	-0.0019
119	SLV 11	0.32	-22.99	15.01	1.0275	0.1284	0.0013
119	SLV 12	0.32	-22.99	15.01	1.0275	0.1284	0.0013
119	SLV 13	0.05	10.95	13.79	-0.4385	-0.5835	0
119	SLV 14	0.05	10.95	13.79	-0.4385	-0.5835	0
119	SLV 15	0.29	-6.49	8.78	0.3132	-0.3672	0.001
119	SLV 16	0.29	-6.49	8.78	0.3132	-0.3672	0.001
120	SLU 1	0.04	-1.59	41.64	0.0707	0.0326	0.0001
120	SLU 2	0.04	-1.99	41.75	0.0892	0.033	0.0001
120	SLU 3	0.04	-1.28	42.96	0.0558	0.0339	0.0001
120	SLU 4	0.04	-1.52	43.03	0.0669	0.0341	0.0001
120	SLU 5	0.04	-1.63	42.68	0.0719	0.0339	0.0001
120	SLU 6	0.04	-0.92	43.9	0.0385	0.0347	0.0001
120	SLU 7	0.04	-1.16	43.96	0.0496	0.035	0.0001
120	SLU 8	0.04	-0.88	43.51	0.0362	0.0344	0.0001
120	SLU 9	0.04	-1.12	43.57	0.0473	0.0346	0.0001
120	SLU 10	0.04	-2.19	49.52	0.0995	0.0318	0.0001
120	SLU 11	0.04	-1.48	50.73	0.0661	0.0326	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
120	SLU 12	0.04	-1.72	50.79	0.0772	0.0329	0.0001
120	SLU 13	0.04	-1.83	50.45	0.0822	0.0327	0.0001
120	SLU 14	0.04	-1.12	51.66	0.0488	0.0335	0.0001
120	SLU 15	0.04	-1.36	51.73	0.0599	0.0338	0.0001
120	SLU 16	0.04	-1.08	51.27	0.0465	0.0331	0.0001
120	SLU 17	0.04	-1.32	51.34	0.0575	0.0334	0.0001
120	SLU 18	0.03	-1.88	52.74	0.0854	0.0309	0.0001
120	SLU 19	0.03	-2.12	52.8	0.0965	0.0311	0.0001
120	SLU 20	0.04	-1.52	53.67	0.0681	0.0317	0.0001
120	SLU 21	0.04	-1.76	53.73	0.0792	0.032	0.0001
120	SLU 22	0.05	-1.46	46.97	0.0656	0.0364	0.0001
120	SLU 23	0.05	-1.86	47.07	0.0841	0.0368	0.0001
120	SLU 24	0.05	-1.14	48.29	0.0507	0.0377	0.0001
120	SLU 25	0.05	-1.38	48.35	0.0618	0.0379	0.0001
120	SLU 26	0.05	-1.5	48.01	0.0668	0.0377	0.0001
120	SLU 27	0.05	-0.79	49.22	0.0334	0.0386	0.0001
120	SLU 28	0.05	-1.03	49.28	0.0445	0.0388	0.0001
120	SLU 29	0.05	-0.74	48.83	0.031	0.0382	0.0001
120	SLU 30	0.05	-0.98	48.9	0.0421	0.0384	0.0001
120	SLU 31	0.04	-2.06	54.84	0.0944	0.0356	0.0001
120	SLU 32	0.04	-1.34	56.05	0.061	0.0365	0.0001
120	SLU 33	0.04	-1.58	56.12	0.0721	0.0367	0.0001
120	SLU 34	0.04	-1.7	55.77	0.0771	0.0365	0.0001
120	SLU 35	0.04	-0.98	56.99	0.0437	0.0374	0.0001
120	SLU 36	0.04	-1.22	57.05	0.0548	0.0376	0.0001
120	SLU 37	0.04	-0.94	56.6	0.0413	0.037	0.0001
120	SLU 38	0.04	-1.18	56.66	0.0524	0.0372	0.0001
120	SLU 39	0.04	-1.74	58.06	0.0803	0.0347	0.0001
120	SLU 40	0.04	-1.98	58.13	0.0914	0.0349	0.0001
120	SLU 41	0.04	-1.39	58.99	0.063	0.0356	0.0001
120	SLU 42	0.04	-1.63	59.06	0.0741	0.0358	0.0001
120	SLU 43	0.05	-2.12	52.31	0.0937	0.0411	0.0001
120	SLU 44	0.05	-2.52	52.42	0.1122	0.0415	0.0001
120	SLU 45	0.05	-1.8	53.63	0.0788	0.0423	0.0001
120	SLU 46	0.05	-2.04	53.7	0.0899	0.0426	0.0001
120	SLU 47	0.05	-2.16	53.35	0.0949	0.0424	0.0001
120	SLU 48	0.06	-1.44	54.56	0.0615	0.0432	0.0001
120	SLU 49	0.06	-1.68	54.63	0.0726	0.0435	0.0001
120	SLU 50	0.05	-1.4	54.17	0.0591	0.0428	0.0001
120	SLU 51	0.05	-1.64	54.24	0.0702	0.0431	0.0001
120	SLU 52	0.05	-2.72	60.18	0.1225	0.0403	0.0001
120	SLU 53	0.05	-2	61.4	0.0891	0.0411	0.0001
120	SLU 54	0.05	-2.24	61.46	0.1002	0.0414	0.0001
120	SLU 55	0.05	-2.36	61.12	0.1052	0.0411	0.0001
120	SLU 56	0.05	-1.64	62.33	0.0718	0.042	0.0001
120	SLU 57	0.05	-1.88	62.39	0.0829	0.0422	0.0001
120	SLU 58	0.05	-1.6	61.94	0.0694	0.0416	0.0001
120	SLU 59	0.05	-1.84	62.01	0.0805	0.0418	0.0001
120	SLU 60	0.05	-2.4	63.41	0.1084	0.0393	0.0001
120	SLU 61	0.05	-2.64	63.47	0.1195	0.0396	0.0001
120	SLU 62	0.05	-2.04	64.34	0.0911	0.0402	0.0001
120	SLU 63	0.05	-2.28	64.4	0.1022	0.0404	0.0001
120	SLU 64	0.06	-1.98	57.63	0.0886	0.0449	0.0001
120	SLU 65	0.06	-2.38	57.74	0.107	0.0453	0.0001
120	SLU 66	0.06	-1.67	58.95	0.0736	0.0462	0.0001
120	SLU 67	0.06	-1.91	59.02	0.0847	0.0464	0.0001
120	SLU 68	0.06	-2.02	58.67	0.0898	0.0462	0.0001
120	SLU 69	0.06	-1.31	59.89	0.0564	0.047	0.0001
120	SLU 70	0.06	-1.55	59.95	0.0675	0.0473	0.0001
120	SLU 71	0.06	-1.27	59.5	0.054	0.0467	0.0001
120	SLU 72	0.06	-1.51	59.56	0.0651	0.0469	0.0001
120	SLU 73	0.05	-2.58	65.51	0.1173	0.0441	0.0001
120	SLU 74	0.05	-1.87	66.72	0.0839	0.0449	0.0001
120	SLU 75	0.05	-2.11	66.79	0.095	0.0452	0.0001
120	SLU 76	0.05	-2.22	66.44	0.1001	0.045	0.0001
120	SLU 77	0.05	-1.51	67.65	0.0667	0.0458	0.0001
120	SLU 78	0.06	-1.75	67.72	0.0778	0.0461	0.0001
120	SLU 79	0.05	-1.47	67.27	0.0643	0.0454	0.0001
120	SLU 80	0.05	-1.71	67.33	0.0754	0.0457	0.0001
120	SLU 81	0.05	-2.27	68.73	0.1033	0.0432	0.0001
120	SLU 82	0.05	-2.51	68.79	0.1143	0.0434	0.0001
120	SLU 83	0.05	-1.91	69.66	0.086	0.044	0.0001
120	SLU 84	0.05	-2.15	69.73	0.0971	0.0443	0.0001
120	SLE RA 1	0.04	-1.56	43.16	0.0693	0.0337	0.0001
120	SLE RA 2	0.04	-1.82	43.23	0.0816	0.034	0.0001
120	SLE RA 3	0.04	-1.34	44.04	0.0593	0.0345	0.0001
120	SLE RA 4	0.04	-1.5	44.09	0.0667	0.0347	0.0001
120	SLE RA 5	0.04	-1.58	43.86	0.0701	0.0346	0.0001
120	SLE RA 6	0.04	-1.11	44.67	0.0478	0.0351	0.0001
120	SLE RA 7	0.04	-1.27	44.71	0.0552	0.0353	0.0001
120	SLE RA 8	0.04	-1.08	44.41	0.0462	0.0349	0.0001
120	SLE RA 9	0.04	-1.24	44.45	0.0536	0.035	0.0001
120	SLE RA 10	0.04	-1.95	48.41	0.0884	0.0332	0.0001
120	SLE RA 11	0.04	-1.48	49.22	0.0662	0.0337	0.0001
120	SLE RA 12	0.04	-1.64	49.27	0.0736	0.0339	0.0001
120	SLE RA 13	0.04	-1.72	49.03	0.0769	0.0337	0.0001
120	SLE RA 14	0.04	-1.24	49.84	0.0547	0.0343	0.0001
120	SLE RA 15	0.04	-1.4	49.89	0.062	0.0345	0.0001
120	SLE RA 16	0.04	-1.21	49.58	0.0531	0.034	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
120	SLE RA 17	0.04	-1.37	49.63	0.0605	0.0342	0.0001
120	SLE RA 18	0.04	-1.75	50.56	0.0791	0.0325	0.0001
120	SLE RA 19	0.04	-1.91	50.6	0.0864	0.0327	0.0001
120	SLE RA 20	0.04	-1.51	51.18	0.0675	0.0331	0.0001
120	SLE RA 21	0.04	-1.67	51.22	0.0749	0.0333	0.0001
120	SLE FR 1	0.04	-1.56	43.16	0.0693	0.0337	0.0001
120	SLE FR 2	0.04	-1.61	43.18	0.0717	0.0337	0.0001
120	SLE FR 3	0.04	-1.46	43.41	0.0646	0.0339	0.0001
120	SLE FR 4	0.04	-1.67	45.4	0.0747	0.0334	0.0001
120	SLE FR 5	0.04	-1.52	45.63	0.0676	0.0336	0.0001
120	SLE FR 6	0.04	-1.65	46.86	0.0742	0.0331	0.0001
120	SLE QP 1	0.04	-1.56	43.16	0.0693	0.0337	0.0001
120	SLE QP 2	0.04	-1.61	45.38	0.0722	0.0333	0.0001
120	SLD 1	0.25	1.84	49.95	-0.0892	0.1958	0.0006
120	SLD 2	0.25	1.84	49.95	-0.0892	0.1958	0.0006
120	SLD 3	0.27	-2.58	49.39	0.1184	0.2105	0.0007
120	SLD 4	0.27	-2.58	49.39	0.1184	0.2105	0.0007
120	SLD 5	0.07	6.14	47.61	-0.2911	0.0598	0.0002
120	SLD 6	0.07	6.14	47.61	-0.2911	0.0598	0.0002
120	SLD 7	0.14	-8.62	45.73	0.4009	0.1088	0.0004
120	SLD 8	0.14	-8.62	45.73	0.4009	0.1088	0.0004
120	SLD 9	-0.06	5.39	45.03	-0.2565	-0.0421	-0.0002
120	SLD 10	-0.06	5.39	45.03	-0.2565	-0.0421	-0.0002
120	SLD 11	0.01	-9.36	43.16	0.4355	0.0069	0
120	SLD 12	0.01	-9.36	43.16	0.4355	0.0069	0
120	SLD 13	-0.19	-0.64	41.38	0.026	-0.1438	-0.0005
120	SLD 14	-0.19	-0.64	41.38	0.026	-0.1438	-0.0005
120	SLD 15	-0.17	-5.07	40.81	0.2336	-0.1291	-0.0004
120	SLD 16	-0.17	-5.07	40.81	0.2336	-0.1291	-0.0004
120	SLV 1	0.54	6.29	55.93	-0.297	0.4262	0.0013
120	SLV 2	0.54	6.29	55.93	-0.297	0.4262	0.0013
120	SLV 3	0.59	-3.85	54.61	0.1787	0.4613	0.0014
120	SLV 4	0.59	-3.85	54.61	0.1787	0.4613	0.0014
120	SLV 5	0.12	16.14	50.55	-0.76	0.098	0.0002
120	SLV 6	0.12	16.14	50.55	-0.76	0.098	0.0002
120	SLV 7	0.28	-17.66	46.14	0.8256	0.215	0.0007
120	SLV 8	0.28	-17.66	46.14	0.8256	0.215	0.0007
120	SLV 9	-0.2	14.44	44.62	-0.6812	-0.1483	-0.0005
120	SLV 10	-0.2	14.44	44.62	-0.6812	-0.1483	-0.0005
120	SLV 11	-0.03	-19.37	40.21	0.9044	-0.0313	-0.0001
120	SLV 12	-0.03	-19.37	40.21	0.9044	-0.0313	-0.0001
120	SLV 13	-0.51	0.62	36.16	-0.0343	-0.3946	-0.0012
120	SLV 14	-0.51	0.62	36.16	-0.0343	-0.3946	-0.0012
120	SLV 15	-0.46	-9.52	34.83	0.4414	-0.3596	-0.0011
120	SLV 16	-0.46	-9.52	34.83	0.4414	-0.3596	-0.0011
121	SLU 1	0.03	-0.64	6.8	0.0219	0.0221	-0.002
121	SLU 2	0.03	-0.65	6.8	0.022	0.0226	-0.0021
121	SLU 3	0.03	-0.67	6.82	0.0226	0.0227	-0.0021
121	SLU 4	0.03	-0.67	6.82	0.0227	0.0231	-0.0021
121	SLU 5	0.03	-0.66	6.81	0.0223	0.0231	-0.0021
121	SLU 6	0.03	-0.67	6.83	0.0229	0.0232	-0.0021
121	SLU 7	0.03	-0.68	6.83	0.023	0.0236	-0.0021
121	SLU 8	0.03	-0.66	6.82	0.0225	0.023	-0.0021
121	SLU 9	0.03	-0.66	6.82	0.0225	0.0234	-0.0021
121	SLU 10	0.04	-0.75	9.52	0.0252	0.0298	-0.0029
121	SLU 11	0.04	-0.77	9.54	0.0258	0.0299	-0.0029
121	SLU 12	0.05	-0.78	9.54	0.0259	0.0302	-0.003
121	SLU 13	0.05	-0.76	9.53	0.0255	0.0303	-0.003
121	SLU 14	0.05	-0.78	9.55	0.0261	0.0304	-0.003
121	SLU 15	0.05	-0.79	9.55	0.0262	0.0307	-0.003
121	SLU 16	0.05	-0.77	9.54	0.0256	0.0302	-0.0029
121	SLU 17	0.05	-0.77	9.54	0.0257	0.0305	-0.003
121	SLU 18	0.05	-0.8	10.68	0.0264	0.0323	-0.0032
121	SLU 19	0.05	-0.8	10.68	0.0265	0.0326	-0.0033
121	SLU 20	0.05	-0.81	10.69	0.0267	0.0328	-0.0033
121	SLU 21	0.05	-0.81	10.7	0.0268	0.0331	-0.0033
121	SLU 22	0.04	-0.77	7.26	0.0259	0.0251	-0.0023
121	SLU 23	0.04	-0.77	7.27	0.026	0.0257	-0.0024
121	SLU 24	0.04	-0.79	7.29	0.0266	0.0258	-0.0024
121	SLU 25	0.04	-0.8	7.29	0.0267	0.0261	-0.0024
121	SLU 26	0.04	-0.78	7.28	0.0263	0.0262	-0.0024
121	SLU 27	0.04	-0.8	7.3	0.0269	0.0263	-0.0024
121	SLU 28	0.04	-0.8	7.3	0.027	0.0266	-0.0024
121	SLU 29	0.04	-0.79	7.28	0.0264	0.0261	-0.0024
121	SLU 30	0.04	-0.79	7.29	0.0265	0.0264	-0.0024
121	SLU 31	0.05	-0.88	9.99	0.0292	0.0328	-0.0032
121	SLU 32	0.05	-0.9	10	0.0298	0.0329	-0.0032
121	SLU 33	0.05	-0.9	10.01	0.0299	0.0333	-0.0033
121	SLU 34	0.05	-0.89	10	0.0295	0.0333	-0.0033
121	SLU 35	0.05	-0.91	10.02	0.0301	0.0334	-0.0033
121	SLU 36	0.05	-0.91	10.02	0.0301	0.0338	-0.0033
121	SLU 37	0.05	-0.89	10	0.0296	0.0332	-0.0032
121	SLU 38	0.05	-0.9	10.01	0.0297	0.0336	-0.0033
121	SLU 39	0.05	-0.92	11.15	0.0304	0.0353	-0.0035
121	SLU 40	0.05	-0.93	11.15	0.0305	0.0357	-0.0036
121	SLU 41	0.06	-0.93	11.16	0.0307	0.0358	-0.0036
121	SLU 42	0.06	-0.93	11.16	0.0307	0.0362	-0.0036
121	SLU 43	0.04	-0.79	8.68	0.0271	0.0276	-0.0025
121	SLU 44	0.04	-0.8	8.68	0.0272	0.0282	-0.0026



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
121	SLU 45	0.04	-0.81	8.7	0.0278	0.0283	-0.0026
121	SLU 46	0.04	-0.82	8.7	0.0279	0.0286	-0.0026
121	SLU 47	0.04	-0.8	8.69	0.0275	0.0287	-0.0026
121	SLU 48	0.04	-0.82	8.71	0.0281	0.0288	-0.0026
121	SLU 49	0.04	-0.83	8.71	0.0282	0.0291	-0.0026
121	SLU 50	0.04	-0.81	8.7	0.0277	0.0286	-0.0026
121	SLU 51	0.04	-0.81	8.7	0.0277	0.029	-0.0026
121	SLU 52	0.05	-0.9	11.4	0.0304	0.0354	-0.0034
121	SLU 53	0.05	-0.92	11.42	0.031	0.0355	-0.0034
121	SLU 54	0.05	-0.93	11.42	0.0311	0.0358	-0.0035
121	SLU 55	0.05	-0.91	11.41	0.0307	0.0358	-0.0035
121	SLU 56	0.05	-0.93	11.43	0.0313	0.0359	-0.0035
121	SLU 57	0.05	-0.93	11.43	0.0314	0.0363	-0.0035
121	SLU 58	0.05	-0.92	11.42	0.0308	0.0358	-0.0034
121	SLU 59	0.05	-0.92	11.42	0.0309	0.0361	-0.0035
121	SLU 60	0.06	-0.94	12.56	0.0316	0.0379	-0.0037
121	SLU 61	0.06	-0.95	12.56	0.0317	0.0382	-0.0038
121	SLU 62	0.06	-0.95	12.57	0.0319	0.0383	-0.0038
121	SLU 63	0.06	-0.96	12.57	0.032	0.0387	-0.0038
121	SLU 64	0.04	-0.92	9.14	0.0311	0.0307	-0.0028
121	SLU 65	0.04	-0.92	9.15	0.0312	0.0312	-0.0029
121	SLU 66	0.04	-0.94	9.16	0.0318	0.0313	-0.0029
121	SLU 67	0.04	-0.94	9.17	0.0319	0.0317	-0.0029
121	SLU 68	0.04	-0.93	9.16	0.0315	0.0317	-0.0029
121	SLU 69	0.04	-0.95	9.18	0.0321	0.0318	-0.0029
121	SLU 70	0.04	-0.95	9.18	0.0322	0.0322	-0.0029
121	SLU 71	0.04	-0.94	9.16	0.0316	0.0317	-0.0029
121	SLU 72	0.04	-0.94	9.17	0.0317	0.032	-0.0029
121	SLU 73	0.06	-1.03	11.86	0.0344	0.0384	-0.0037
121	SLU 74	0.06	-1.05	11.88	0.035	0.0385	-0.0037
121	SLU 75	0.06	-1.05	11.89	0.0351	0.0388	-0.0038
121	SLU 76	0.06	-1.04	11.88	0.0347	0.0389	-0.0038
121	SLU 77	0.06	-1.06	11.9	0.0353	0.039	-0.0038
121	SLU 78	0.06	-1.06	11.9	0.0353	0.0393	-0.0038
121	SLU 79	0.06	-1.04	11.88	0.0348	0.0388	-0.0037
121	SLU 80	0.06	-1.05	11.89	0.0349	0.0392	-0.0038
121	SLU 81	0.06	-1.07	13.03	0.0356	0.0409	-0.004
121	SLU 82	0.06	-1.07	13.03	0.0357	0.0412	-0.0041
121	SLU 83	0.06	-1.08	13.04	0.0359	0.0414	-0.0041
121	SLU 84	0.06	-1.08	13.04	0.0359	0.0417	-0.0041
121	SLE RA 1	0.03	-0.68	6.93	0.023	0.0229	-0.0021
121	SLE RA 2	0.03	-0.68	6.93	0.0231	0.0233	-0.0021
121	SLE RA 3	0.03	-0.69	6.95	0.0235	0.0234	-0.0021
121	SLE RA 4	0.03	-0.7	6.95	0.0236	0.0236	-0.0022
121	SLE RA 5	0.03	-0.69	6.94	0.0233	0.0236	-0.0022
121	SLE RA 6	0.03	-0.7	6.95	0.0237	0.0237	-0.0022
121	SLE RA 7	0.03	-0.7	6.95	0.0238	0.0239	-0.0022
121	SLE RA 8	0.03	-0.69	6.94	0.0234	0.0236	-0.0022
121	SLE RA 9	0.03	-0.69	6.95	0.0235	0.0238	-0.0022
121	SLE RA 10	0.04	-0.75	8.75	0.0252	0.0281	-0.0027
121	SLE RA 11	0.04	-0.77	8.76	0.0256	0.0281	-0.0027
121	SLE RA 12	0.04	-0.77	8.76	0.0257	0.0284	-0.0027
121	SLE RA 13	0.04	-0.76	8.75	0.0254	0.0284	-0.0027
121	SLE RA 14	0.04	-0.77	8.77	0.0258	0.0285	-0.0027
121	SLE RA 15	0.04	-0.77	8.77	0.0259	0.0287	-0.0028
121	SLE RA 16	0.04	-0.76	8.76	0.0255	0.0284	-0.0027
121	SLE RA 17	0.04	-0.76	8.76	0.0256	0.0286	-0.0027
121	SLE RA 18	0.04	-0.78	9.52	0.026	0.0297	-0.0029
121	SLE RA 19	0.05	-0.78	9.52	0.0261	0.03	-0.0029
121	SLE RA 20	0.05	-0.79	9.53	0.0262	0.0301	-0.0029
121	SLE RA 21	0.05	-0.79	9.53	0.0263	0.0303	-0.003
121	SLE FR 1	0.03	-0.68	6.93	0.023	0.0229	-0.0021
121	SLE FR 2	0.03	-0.68	6.93	0.023	0.023	-0.0021
121	SLE FR 3	0.03	-0.68	6.93	0.0231	0.0231	-0.0021
121	SLE FR 4	0.04	-0.71	7.71	0.0239	0.025	-0.0023
121	SLE FR 5	0.04	-0.71	7.71	0.024	0.0251	-0.0024
121	SLE FR 6	0.04	-0.73	8.22	0.0245	0.0263	-0.0025
121	SLE QP 1	0.03	-0.68	6.93	0.023	0.0229	-0.0021
121	SLE QP 2	0.04	-0.71	7.71	0.0239	0.025	-0.0023
121	SLD 1	0.21	0.34	7.4	-0.0101	0.1904	-0.014
121	SLD 2	0.21	0.34	7.4	-0.0101	0.1904	-0.014
121	SLD 3	0.19	-1.03	7.66	0.0345	0.1762	-0.0129
121	SLD 4	0.19	-1.03	7.66	0.0345	0.1762	-0.0129
121	SLD 5	0.11	1.69	7.22	-0.0538	0.096	-0.0075
121	SLD 6	0.11	1.69	7.22	-0.0538	0.096	-0.0075
121	SLD 7	0.06	-2.88	8.09	0.0946	0.0489	-0.0038
121	SLD 8	0.06	-2.88	8.09	0.0946	0.0489	-0.0038
121	SLD 9	0.01	1.47	7.32	-0.0468	0.001	-0.0008
121	SLD 10	0.01	1.47	7.32	-0.0468	0.001	-0.0008
121	SLD 11	-0.04	-3.1	8.19	0.1017	-0.0461	0.0028
121	SLD 12	-0.04	-3.1	8.19	0.1017	-0.0461	0.0028
121	SLD 13	-0.12	-0.39	7.75	0.0134	-0.1263	0.0082
121	SLD 14	-0.12	-0.39	7.75	0.0134	-0.1263	0.0082
121	SLD 15	-0.14	-1.76	8.01	0.0579	-0.1404	0.0093
121	SLD 16	-0.14	-1.76	8.01	0.0579	-0.1404	0.0093
121	SLV 1	0.46	1.73	7	-0.0551	0.4259	-0.0306
121	SLV 2	0.46	1.73	7	-0.0551	0.4259	-0.0306
121	SLV 3	0.42	-1.47	7.61	0.0489	0.3921	-0.0279
121	SLV 4	0.42	-1.47	7.61	0.0489	0.3921	-0.0279



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
121	SLV 5	0.22	4.87	6.56	-0.1574	0.1965	-0.0148
121	SLV 6	0.22	4.87	6.56	-0.1574	0.1965	-0.0148
121	SLV 7	0.09	-5.79	8.61	0.189	0.0838	-0.006
121	SLV 8	0.09	-5.79	8.61	0.189	0.0838	-0.006
121	SLV 9	-0.02	4.37	6.8	-0.1412	-0.0339	0.0014
121	SLV 10	-0.02	4.37	6.8	-0.1412	-0.0339	0.0014
121	SLV 11	-0.15	-6.29	8.85	0.2052	-0.1465	0.0101
121	SLV 12	-0.15	-6.29	8.85	0.2052	-0.1465	0.0101
121	SLV 13	-0.35	0.06	7.8	-0.001	-0.3421	0.0233
121	SLV 14	-0.35	0.06	7.8	-0.001	-0.3421	0.0233
121	SLV 15	-0.38	-3.14	8.41	0.1029	-0.3759	0.0259
121	SLV 16	-0.38	-3.14	8.41	0.1029	-0.3759	0.0259
122	SLU 1	0.15	0.27	17.39	-0.1344	0.0918	0.0001
122	SLU 2	0.16	2.75	17.35	-0.2621	0.103	0.0001
122	SLU 3	0.15	0.04	17.74	-0.1257	0.0945	0.0001
122	SLU 4	0.16	1.53	17.71	-0.2023	0.1012	0.0001
122	SLU 5	0.16	2.45	17.53	-0.2485	0.1042	0.0001
122	SLU 6	0.16	-0.26	17.92	-0.1121	0.0958	0.0001
122	SLU 7	0.16	1.23	17.9	-0.1887	0.1025	0.0001
122	SLU 8	0.15	-0.33	17.75	-0.1072	0.0944	0.0001
122	SLU 9	0.16	1.16	17.73	-0.1838	0.1011	0.0001
122	SLU 10	0.19	2.82	19.56	-0.2827	0.1193	0.0001
122	SLU 11	0.18	0.11	19.95	-0.1463	0.1108	0.0001
122	SLU 12	0.19	1.6	19.93	-0.2229	0.1175	0.0001
122	SLU 13	0.19	2.52	19.75	-0.2691	0.1206	0.0001
122	SLU 14	0.18	-0.19	20.13	-0.1327	0.1121	0.0001
122	SLU 15	0.19	1.3	20.11	-0.2093	0.1188	0.0001
122	SLU 16	0.18	-0.26	19.96	-0.1278	0.1107	0.0001
122	SLU 17	0.19	1.23	19.94	-0.2044	0.1174	0.0001
122	SLU 18	0.19	0.37	20.55	-0.1638	0.1152	0.0001
122	SLU 19	0.19	1.85	20.53	-0.2404	0.1218	0.0001
122	SLU 20	0.19	0.07	20.73	-0.1502	0.1164	0.0001
122	SLU 21	0.2	1.56	20.71	-0.2268	0.1231	0.0001
122	SLU 22	0.17	0.22	19.33	-0.1469	0.1065	0.0001
122	SLU 23	0.19	2.7	19.29	-0.2746	0.1176	0.0001
122	SLU 24	0.18	-0.01	19.68	-0.1381	0.1091	0.0001
122	SLU 25	0.18	1.48	19.66	-0.2148	0.1158	0.0001
122	SLU 26	0.19	2.4	19.48	-0.261	0.1189	0.0001
122	SLU 27	0.18	-0.31	19.86	-0.1245	0.1104	0.0001
122	SLU 28	0.19	1.18	19.84	-0.2012	0.1171	0.0001
122	SLU 29	0.18	-0.38	19.69	-0.1196	0.109	0.0001
122	SLU 30	0.18	1.11	19.67	-0.1963	0.1157	0.0001
122	SLU 31	0.21	2.77	21.51	-0.2952	0.1339	0.0001
122	SLU 32	0.2	0.06	21.89	-0.1587	0.1255	0.0001
122	SLU 33	0.21	1.55	21.87	-0.2353	0.1321	0.0001
122	SLU 34	0.21	2.47	21.69	-0.2815	0.1352	0.0001
122	SLU 35	0.2	-0.24	22.08	-0.1451	0.1267	0.0001
122	SLU 36	0.21	1.25	22.05	-0.2217	0.1334	0.0001
122	SLU 37	0.2	-0.31	21.91	-0.1402	0.1253	0.0001
122	SLU 38	0.21	1.18	21.89	-0.2169	0.132	0.0001
122	SLU 39	0.21	0.32	22.49	-0.1763	0.1298	0.0001
122	SLU 40	0.22	1.81	22.47	-0.2529	0.1365	0.0001
122	SLU 41	0.21	0.02	22.67	-0.1626	0.1311	0.0001
122	SLU 42	0.22	1.51	22.65	-0.2393	0.1378	0.0001
122	SLU 43	0.19	0.36	21.94	-0.1705	0.1144	0.0001
122	SLU 44	0.2	2.85	21.9	-0.2982	0.1255	0.0001
122	SLU 45	0.19	0.13	22.29	-0.1617	0.117	0.0001
122	SLU 46	0.2	1.62	22.26	-0.2384	0.1237	0.0001
122	SLU 47	0.2	2.55	22.08	-0.2846	0.1268	0.0001
122	SLU 48	0.19	-0.17	22.47	-0.1481	0.1183	0.0001
122	SLU 49	0.2	1.32	22.45	-0.2248	0.125	0.0001
122	SLU 50	0.19	-0.24	22.3	-0.1433	0.1169	0.0001
122	SLU 51	0.2	1.25	22.28	-0.2199	0.1236	0.0001
122	SLU 52	0.22	2.91	24.11	-0.3188	0.1418	0.0001
122	SLU 53	0.22	0.2	24.5	-0.1823	0.1334	0.0001
122	SLU 54	0.22	1.69	24.48	-0.259	0.14	0.0001
122	SLU 55	0.23	2.62	24.3	-0.3052	0.1431	0.0001
122	SLU 56	0.22	-0.1	24.68	-0.1687	0.1346	0.0001
122	SLU 57	0.23	1.39	24.66	-0.2453	0.1413	0.0001
122	SLU 58	0.22	-0.17	24.51	-0.1638	0.1332	0.0001
122	SLU 59	0.22	1.32	24.49	-0.2405	0.1399	0.0001
122	SLU 60	0.22	0.46	25.1	-0.1999	0.1377	0.0001
122	SLU 61	0.23	1.95	25.08	-0.2765	0.1444	0.0001
122	SLU 62	0.22	0.16	25.28	-0.1863	0.139	0.0001
122	SLU 63	0.23	1.65	25.26	-0.2629	0.1456	0.0001
122	SLU 64	0.21	0.32	23.88	-0.1829	0.129	0.0001
122	SLU 65	0.22	2.8	23.84	-0.3106	0.1401	0.0001
122	SLU 66	0.21	0.09	24.23	-0.1742	0.1317	0.0001
122	SLU 67	0.22	1.58	24.21	-0.2508	0.1383	0.0001
122	SLU 68	0.22	2.5	24.03	-0.297	0.1414	0.0001
122	SLU 69	0.21	-0.21	24.41	-0.1606	0.1329	0.0001
122	SLU 70	0.22	1.28	24.39	-0.2372	0.1396	0.0001
122	SLU 71	0.21	-0.28	24.24	-0.1557	0.1315	0.0001
122	SLU 72	0.22	1.21	24.22	-0.2323	0.1382	0.0001
122	SLU 73	0.25	2.87	26.06	-0.3312	0.1565	0.0001
122	SLU 74	0.24	0.15	26.44	-0.1948	0.148	0.0001
122	SLU 75	0.25	1.64	26.42	-0.2714	0.1547	0.0001
122	SLU 76	0.25	2.57	26.24	-0.3176	0.1577	0.0001
122	SLU 77	0.24	-0.14	26.63	-0.1812	0.1493	0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
122	SLU 78	0.25	1.34	26.6	-0.2578	0.1559	0.0001
122	SLU 79	0.24	-0.21	26.46	-0.1763	0.1479	0.0001
122	SLU 80	0.25	1.27	26.44	-0.2529	0.1546	0.0001
122	SLU 81	0.25	0.41	27.04	-0.2123	0.1523	0.0001
122	SLU 82	0.25	1.9	27.02	-0.2889	0.159	0.0001
122	SLU 83	0.25	0.11	27.22	-0.1987	0.1536	0.0001
122	SLU 84	0.26	1.6	27.2	-0.2753	0.1603	0.0001
122	SLE RA 1	0.16	0.25	17.94	-0.138	0.096	0.0001
122	SLE RA 2	0.16	1.91	17.92	-0.2231	0.1034	0.0001
122	SLE RA 3	0.16	0.1	18.18	-0.1322	0.0978	0.0001
122	SLE RA 4	0.16	1.09	18.16	-0.1832	0.1022	0.0001
122	SLE RA 5	0.17	1.71	18.04	-0.2141	0.1043	0.0001
122	SLE RA 6	0.16	-0.1	18.3	-0.1231	0.0986	0.0001
122	SLE RA 7	0.16	0.89	18.28	-0.1742	0.1031	0.0001
122	SLE RA 8	0.16	-0.15	18.18	-0.1198	0.0977	0.0001
122	SLE RA 9	0.16	0.85	18.17	-0.1709	0.1022	0.0001
122	SLE RA 10	0.18	1.95	19.39	-0.2368	0.1143	0.0001
122	SLE RA 11	0.18	0.15	19.65	-0.1459	0.1087	0.0001
122	SLE RA 12	0.18	1.14	19.64	-0.197	0.1131	0.0001
122	SLE RA 13	0.18	1.75	19.51	-0.2278	0.1152	0.0001
122	SLE RA 14	0.18	-0.05	19.77	-0.1368	0.1095	0.0001
122	SLE RA 15	0.18	0.94	19.76	-0.1879	0.114	0.0001
122	SLE RA 16	0.18	-0.1	19.66	-0.1335	0.1086	0.0001
122	SLE RA 17	0.18	0.89	19.65	-0.1846	0.1131	0.0001
122	SLE RA 18	0.18	0.32	20.05	-0.1576	0.1116	0.0001
122	SLE RA 19	0.19	1.31	20.04	-0.2087	0.116	0.0001
122	SLE RA 20	0.18	0.12	20.17	-0.1485	0.1124	0.0001
122	SLE RA 21	0.19	1.11	20.16	-0.1996	0.1169	0.0001
122	SLE FR 1	0.16	0.25	17.94	-0.138	0.096	0.0001
122	SLE FR 2	0.16	0.58	17.94	-0.155	0.0975	0.0001
122	SLE FR 3	0.16	0.17	17.99	-0.1343	0.0963	0.0001
122	SLE FR 4	0.16	0.6	18.57	-0.1609	0.1022	0.0001
122	SLE FR 5	0.16	0.19	18.62	-0.1402	0.101	0.0001
122	SLE FR 6	0.17	0.29	19	-0.1478	0.1038	0.0001
122	SLE QP 1	0.16	0.25	17.94	-0.138	0.096	0.0001
122	SLE QP 2	0.16	0.27	18.57	-0.1439	0.1007	0.0001
122	SLD 1	0.34	4.85	20.17	-0.165	0.2339	0
122	SLD 2	0.34	4.85	20.17	-0.165	0.2339	0
122	SLD 3	0.3	-0.11	19.28	0.0732	0.203	0
122	SLD 4	0.3	-0.11	19.28	0.0732	0.203	0
122	SLD 5	0.27	9.18	20.4	-0.5115	0.1874	0
122	SLD 6	0.27	9.18	20.4	-0.5115	0.1874	0
122	SLD 7	0.15	-7.38	17.44	0.2825	0.0846	0.0001
122	SLD 8	0.15	-7.38	17.44	0.2825	0.0846	0.0001
122	SLD 9	0.17	7.92	19.71	-0.5702	0.1167	0
122	SLD 10	0.17	7.92	19.71	-0.5702	0.1167	0
122	SLD 11	0.06	-8.63	16.75	0.2238	0.0139	0.0001
122	SLD 12	0.06	-8.63	16.75	0.2238	0.0139	0.0001
122	SLD 13	0.02	0.66	17.87	-0.3609	-0.0017	0.0001
122	SLD 14	0.02	0.66	17.87	-0.3609	-0.0017	0.0001
122	SLD 15	-0.01	-4.31	16.98	-0.1227	-0.0325	0.0001
122	SLD 16	-0.01	-4.31	16.98	-0.1227	-0.0325	0.0001
122	SLV 1	0.58	11.08	22.34	-0.1884	0.4163	0
122	SLV 2	0.58	11.08	22.34	-0.1884	0.4163	0
122	SLV 3	0.49	-0.54	20.22	0.3696	0.3392	0
122	SLV 4	0.49	-0.54	20.22	0.3696	0.3392	0
122	SLV 5	0.42	21.13	22.93	-1.0034	0.3121	0
122	SLV 6	0.42	21.13	22.93	-1.0034	0.3121	0
122	SLV 7	0.13	-17.59	15.85	0.8564	0.0554	0.0001
122	SLV 8	0.13	-17.59	15.85	0.8564	0.0554	0.0001
122	SLV 9	0.2	18.13	21.3	-1.1441	0.1459	0
122	SLV 10	0.2	18.13	21.3	-1.1441	0.1459	0
122	SLV 11	-0.1	-20.59	14.22	0.7157	-0.1108	0.0001
122	SLV 12	-0.1	-20.59	14.22	0.7157	-0.1108	0.0001
122	SLV 13	-0.16	1.08	16.93	-0.6573	-0.1379	0.0001
122	SLV 14	-0.16	1.08	16.93	-0.6573	-0.1379	0.0001
122	SLV 15	-0.25	-10.53	14.8	-0.0993	-0.2149	0.0001
122	SLV 16	-0.25	-10.53	14.8	-0.0993	-0.2149	0.0001
123	SLU 1	0.07	-3.54	43.51	0.1602	0.0474	0.0005
123	SLU 2	0.07	-4.01	44.13	0.1839	0.0479	0.0005
123	SLU 3	0.07	-3.36	44.33	0.1508	0.0483	0.0006
123	SLU 4	0.07	-3.65	44.7	0.1651	0.0486	0.0005
123	SLU 5	0.07	-3.79	44.47	0.1719	0.0482	0.0005
123	SLU 6	0.07	-3.14	44.67	0.1389	0.0486	0.0006
123	SLU 7	0.07	-3.43	45.04	0.1531	0.0488	0.0006
123	SLU 8	0.07	-3.1	44.19	0.1362	0.048	0.0006
123	SLU 9	0.07	-3.38	44.56	0.1505	0.0483	0.0006
123	SLU 10	0.09	-4.59	52.02	0.2118	0.0574	0.0006
123	SLU 11	0.09	-3.94	52.22	0.1787	0.0578	0.0007
123	SLU 12	0.09	-4.22	52.59	0.1929	0.0581	0.0006
123	SLU 13	0.09	-4.37	52.36	0.1998	0.0577	0.0006
123	SLU 14	0.09	-3.72	52.56	0.1667	0.0581	0.0007
123	SLU 15	0.09	-4	52.93	0.181	0.0584	0.0007
123	SLU 16	0.09	-3.68	52.08	0.1641	0.0575	0.0007
123	SLU 17	0.09	-3.96	52.45	0.1783	0.0578	0.0006
123	SLU 18	0.09	-4.36	54.78	0.2	0.061	0.0007
123	SLU 19	0.09	-4.65	55.16	0.2142	0.0613	0.0007
123	SLU 20	0.09	-4.14	55.12	0.188	0.0613	0.0007
123	SLU 21	0.09	-4.43	55.5	0.2023	0.0616	0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
123	SLU 22	0.08	-3.71	48.44	0.1687	0.0532	0.0006
123	SLU 23	0.08	-4.18	49.06	0.1924	0.0537	0.0006
123	SLU 24	0.08	-3.53	49.26	0.1593	0.0541	0.0006
123	SLU 25	0.08	-3.81	49.63	0.1735	0.0544	0.0006
123	SLU 26	0.08	-3.96	49.4	0.1804	0.054	0.0006
123	SLU 27	0.08	-3.31	49.6	0.1473	0.0544	0.0006
123	SLU 28	0.08	-3.59	49.97	0.1616	0.0546	0.0006
123	SLU 29	0.08	-3.27	49.12	0.1447	0.0538	0.0006
123	SLU 30	0.08	-3.55	49.49	0.1589	0.0541	0.0006
123	SLU 31	0.1	-4.76	56.95	0.2202	0.0632	0.0007
123	SLU 32	0.1	-4.11	57.15	0.1872	0.0636	0.0007
123	SLU 33	0.1	-4.39	57.52	0.2014	0.0639	0.0007
123	SLU 34	0.1	-4.54	57.29	0.2083	0.0635	0.0007
123	SLU 35	0.1	-3.89	57.49	0.1752	0.0639	0.0007
123	SLU 36	0.1	-4.17	57.86	0.1894	0.0642	0.0007
123	SLU 37	0.1	-3.85	57.01	0.1726	0.0633	0.0007
123	SLU 38	0.1	-4.13	57.39	0.1868	0.0636	0.0007
123	SLU 39	0.1	-4.53	59.72	0.2085	0.0668	0.0007
123	SLU 40	0.1	-4.82	60.09	0.2227	0.0671	0.0007
123	SLU 41	0.1	-4.31	60.06	0.1965	0.0671	0.0008
123	SLU 42	0.1	-4.6	60.43	0.2107	0.0674	0.0007
123	SLU 43	0.09	-4.54	54.88	0.2053	0.0597	0.0007
123	SLU 44	0.09	-5.01	55.49	0.229	0.0601	0.0007
123	SLU 45	0.09	-4.37	55.69	0.196	0.0605	0.0007
123	SLU 46	0.09	-4.65	56.06	0.2102	0.0608	0.0007
123	SLU 47	0.09	-4.79	55.83	0.2171	0.0604	0.0007
123	SLU 48	0.09	-4.15	56.03	0.184	0.0608	0.0007
123	SLU 49	0.09	-4.43	56.4	0.1982	0.0611	0.0007
123	SLU 50	0.09	-4.1	55.55	0.1814	0.0602	0.0007
123	SLU 51	0.09	-4.38	55.93	0.1956	0.0605	0.0007
123	SLU 52	0.11	-5.59	63.38	0.2569	0.0697	0.0008
123	SLU 53	0.11	-4.94	63.58	0.2238	0.07	0.0008
123	SLU 54	0.11	-5.23	63.95	0.2381	0.0703	0.0008
123	SLU 55	0.11	-5.37	63.72	0.245	0.0699	0.0008
123	SLU 56	0.11	-4.72	63.92	0.2119	0.0703	0.0008
123	SLU 57	0.11	-5.01	64.29	0.2261	0.0706	0.0008
123	SLU 58	0.11	-4.68	63.45	0.2093	0.0697	0.0008
123	SLU 59	0.11	-4.96	63.82	0.2235	0.07	0.0008
123	SLU 60	0.11	-5.37	66.15	0.2452	0.0733	0.0008
123	SLU 61	0.11	-5.65	66.52	0.2594	0.0735	0.0008
123	SLU 62	0.11	-5.15	66.49	0.2332	0.0735	0.0008
123	SLU 63	0.11	-5.43	66.86	0.2474	0.0738	0.0008
123	SLU 64	0.1	-4.71	59.81	0.2138	0.0655	0.0007
123	SLU 65	0.1	-5.18	60.43	0.2375	0.0659	0.0007
123	SLU 66	0.1	-4.53	60.62	0.2044	0.0663	0.0008
123	SLU 67	0.1	-4.82	60.99	0.2187	0.0666	0.0008
123	SLU 68	0.1	-4.96	60.77	0.2255	0.0662	0.0007
123	SLU 69	0.1	-4.31	60.96	0.1925	0.0666	0.0008
123	SLU 70	0.1	-4.6	61.33	0.2067	0.0669	0.0008
123	SLU 71	0.1	-4.27	60.49	0.1899	0.066	0.0008
123	SLU 72	0.1	-4.55	60.86	0.2041	0.0663	0.0008
123	SLU 73	0.11	-5.76	68.32	0.2654	0.0755	0.0008
123	SLU 74	0.11	-5.11	68.51	0.2323	0.0758	0.0009
123	SLU 75	0.12	-5.4	68.88	0.2465	0.0761	0.0008
123	SLU 76	0.11	-5.54	68.66	0.2534	0.0757	0.0008
123	SLU 77	0.11	-4.89	68.85	0.2203	0.0761	0.0009
123	SLU 78	0.12	-5.18	69.22	0.2346	0.0764	0.0009
123	SLU 79	0.11	-4.85	68.38	0.2177	0.0755	0.0009
123	SLU 80	0.11	-5.13	68.75	0.232	0.0758	0.0009
123	SLU 81	0.12	-5.54	71.08	0.2536	0.0791	0.0009
123	SLU 82	0.12	-5.82	71.45	0.2679	0.0794	0.0009
123	SLU 83	0.12	-5.32	71.42	0.2417	0.0794	0.0009
123	SLU 84	0.12	-5.6	71.79	0.2559	0.0796	0.0009
123	SLE RA 1	0.07	-3.58	44.92	0.1626	0.0491	0.0006
123	SLE RA 2	0.07	-3.9	45.33	0.1784	0.0494	0.0006
123	SLE RA 3	0.08	-3.47	45.46	0.1564	0.0496	0.0006
123	SLE RA 4	0.08	-3.66	45.71	0.1658	0.0498	0.0006
123	SLE RA 5	0.08	-3.75	45.56	0.1704	0.0496	0.0006
123	SLE RA 6	0.08	-3.32	45.69	0.1484	0.0498	0.0006
123	SLE RA 7	0.08	-3.51	45.94	0.1579	0.05	0.0006
123	SLE RA 8	0.07	-3.29	45.37	0.1466	0.0494	0.0006
123	SLE RA 9	0.08	-3.48	45.62	0.1561	0.0496	0.0006
123	SLE RA 10	0.08	-4.29	50.59	0.197	0.0557	0.0006
123	SLE RA 11	0.08	-3.85	50.72	0.1749	0.056	0.0006
123	SLE RA 12	0.08	-4.04	50.97	0.1844	0.0562	0.0006
123	SLE RA 13	0.08	-4.14	50.82	0.189	0.0559	0.0006
123	SLE RA 14	0.08	-3.71	50.95	0.167	0.0562	0.0006
123	SLE RA 15	0.09	-3.9	51.2	0.1765	0.0564	0.0006
123	SLE RA 16	0.08	-3.68	50.63	0.1652	0.0558	0.0006
123	SLE RA 17	0.08	-3.87	50.88	0.1747	0.056	0.0006
123	SLE RA 18	0.09	-4.14	52.44	0.1891	0.0582	0.0007
123	SLE RA 19	0.09	-4.33	52.68	0.1986	0.0583	0.0006
123	SLE RA 20	0.09	-3.99	52.66	0.1812	0.0583	0.0007
123	SLE RA 21	0.09	-4.18	52.91	0.1907	0.0585	0.0007
123	SLE FR 1	0.07	-3.58	44.92	0.1626	0.0491	0.0006
123	SLE FR 2	0.07	-3.65	45	0.1658	0.0491	0.0006
123	SLE FR 3	0.07	-3.53	45.01	0.1594	0.0491	0.0006
123	SLE FR 4	0.08	-3.81	47.26	0.1737	0.0519	0.0006
123	SLE FR 5	0.08	-3.69	47.27	0.1674	0.0519	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
123	SLE FR 6	0.08	-3.86	48.68	0.1759	0.0536	0.0006
123	SLE QP 1	0.07	-3.58	44.92	0.1626	0.0491	0.0006
123	SLE QP 2	0.08	-3.75	47.18	0.1706	0.0518	0.0006
123	SLD 1	0.23	-2.97	42.27	0.1343	0.1824	0.0004
123	SLD 2	0.23	-2.97	42.27	0.1343	0.1824	0.0004
123	SLD 3	0.24	-7.28	44.76	0.3566	0.1896	0.0001
123	SLD 4	0.24	-7.28	44.76	0.3566	0.1896	0.0001
123	SLD 5	0.11	3.02	41.93	-0.1774	0.0801	0.0008
123	SLD 6	0.11	3.02	41.93	-0.1774	0.0801	0.0008
123	SLD 7	0.14	-11.35	50.23	0.5635	0.104	0.0001
123	SLD 8	0.14	-11.35	50.23	0.5635	0.104	0.0001
123	SLD 9	0.02	3.85	44.13	-0.2224	-0.0004	0.001
123	SLD 10	0.02	3.85	44.13	-0.2224	-0.0004	0.001
123	SLD 11	0.05	-10.52	52.42	0.5186	0.0235	0.0003
123	SLD 12	0.05	-10.52	52.42	0.5186	0.0235	0.0003
123	SLD 13	-0.08	-0.22	49.6	-0.0155	-0.086	0.001
123	SLD 14	-0.08	-0.22	49.6	-0.0155	-0.086	0.001
123	SLD 15	-0.07	-4.53	52.08	0.2068	-0.0788	0.0008
123	SLD 16	-0.07	-4.53	52.08	0.2068	-0.0788	0.0008
123	SLV 1	0.45	-1.95	35.89	0.0872	0.3689	0
123	SLV 2	0.45	-1.95	35.89	0.0872	0.3689	0
123	SLV 3	0.47	-11.87	41.66	0.5988	0.3871	-0.0004
123	SLV 4	0.47	-11.87	41.66	0.5988	0.3871	-0.0004
123	SLV 5	0.15	11.84	35.04	-0.6304	0.1194	0.0012
123	SLV 6	0.15	11.84	35.04	-0.6304	0.1194	0.0012
123	SLV 7	0.23	-21.23	54.27	1.075	0.18	-0.0005
123	SLV 8	0.23	-21.23	54.27	1.075	0.18	-0.0005
123	SLV 9	-0.07	13.73	40.08	-0.7339	-0.0764	0.0016
123	SLV 10	-0.07	13.73	40.08	-0.7339	-0.0764	0.0016
123	SLV 11	0	-19.34	59.31	0.9715	-0.0158	0
123	SLV 12	0	-19.34	59.31	0.9715	-0.0158	0
123	SLV 13	-0.31	4.37	52.69	-0.2577	-0.2835	0.0016
123	SLV 14	-0.31	4.37	52.69	-0.2577	-0.2835	0.0016
123	SLV 15	-0.29	-5.55	58.46	0.2539	-0.2653	0.0011
123	SLV 16	-0.29	-5.55	58.46	0.2539	-0.2653	0.0011
124	SLU 1	0	0.57	34.01	-0.1128	-0.003	0
124	SLU 2	-0.01	2.93	34.96	-0.2346	-0.012	0
124	SLU 3	0	0.36	34.97	-0.1049	-0.0031	0
124	SLU 4	-0.01	1.77	35.54	-0.178	-0.0085	0
124	SLU 5	-0.01	2.63	35.54	-0.2222	-0.0121	0
124	SLU 6	0	0.06	35.55	-0.0925	-0.0032	0
124	SLU 7	-0.01	1.47	36.12	-0.1656	-0.0086	0
124	SLU 8	0	-0.02	35.17	-0.088	-0.0031	0
124	SLU 9	-0.01	1.4	35.75	-0.1611	-0.0085	0
124	SLU 10	-0.01	3.1	40.1	-0.2534	-0.0125	0
124	SLU 11	0	0.53	40.11	-0.1238	-0.0036	0
124	SLU 12	-0.01	1.94	40.68	-0.1968	-0.009	0
124	SLU 13	-0.01	2.8	40.68	-0.241	-0.0126	0
124	SLU 14	0	0.23	40.69	-0.1114	-0.0037	0
124	SLU 15	-0.01	1.65	41.26	-0.1845	-0.0091	0
124	SLU 16	0	0.16	40.31	-0.1068	-0.0036	0
124	SLU 17	-0.01	1.57	40.88	-0.1799	-0.009	0
124	SLU 18	0	0.82	41.35	-0.1397	-0.0037	0
124	SLU 19	-0.01	2.23	41.92	-0.2128	-0.0091	0
124	SLU 20	0	0.52	41.93	-0.1273	-0.0037	0
124	SLU 21	-0.01	1.94	42.5	-0.2004	-0.0092	0
124	SLU 22	0	0.63	38.74	-0.1249	-0.0034	0
124	SLU 23	-0.01	2.98	39.69	-0.2467	-0.0125	0
124	SLU 24	0	0.41	39.69	-0.1171	-0.0036	0
124	SLU 25	-0.01	1.82	40.26	-0.1902	-0.009	0
124	SLU 26	-0.01	2.69	40.27	-0.2343	-0.0125	0
124	SLU 27	0	0.12	40.27	-0.1047	-0.0036	0
124	SLU 28	-0.01	1.53	40.84	-0.1778	-0.009	0
124	SLU 29	0	0.04	39.9	-0.1001	-0.0036	0
124	SLU 30	-0.01	1.45	40.47	-0.1732	-0.009	0
124	SLU 31	-0.01	3.15	44.82	-0.2656	-0.013	0
124	SLU 32	0	0.58	44.83	-0.1359	-0.0041	0
124	SLU 33	-0.01	2	45.4	-0.209	-0.0095	0
124	SLU 34	-0.01	2.86	45.41	-0.2532	-0.013	0
124	SLU 35	0	0.29	45.41	-0.1235	-0.0041	0
124	SLU 36	-0.01	1.7	45.98	-0.1966	-0.0095	0
124	SLU 37	0	0.21	45.03	-0.119	-0.0041	0
124	SLU 38	-0.01	1.62	45.61	-0.192	-0.0095	0
124	SLU 39	0	0.87	46.07	-0.1518	-0.0041	0
124	SLU 40	-0.01	2.29	46.65	-0.2249	-0.0096	0
124	SLU 41	0	0.58	46.66	-0.1394	-0.0042	0
124	SLU 42	-0.01	1.99	47.23	-0.2125	-0.0096	0
124	SLU 43	0	0.73	42.6	-0.1425	-0.0037	0
124	SLU 44	-0.01	3.08	43.55	-0.2642	-0.0127	0
124	SLU 45	0	0.51	43.55	-0.1346	-0.0038	0
124	SLU 46	-0.01	1.92	44.12	-0.2077	-0.0092	0
124	SLU 47	-0.01	2.79	44.13	-0.2519	-0.0128	0
124	SLU 48	0	0.22	44.13	-0.1222	-0.0039	0
124	SLU 49	-0.01	1.63	44.7	-0.1953	-0.0093	0
124	SLU 50	0	0.14	43.76	-0.1177	-0.0038	0
124	SLU 51	-0.01	1.55	44.33	-0.1907	-0.0093	0
124	SLU 52	-0.01	3.25	48.68	-0.2831	-0.0132	0
124	SLU 53	0	0.68	48.69	-0.1534	-0.0043	0
124	SLU 54	-0.01	2.1	49.26	-0.2265	-0.0097	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
124	SLU 55	-0.01	2.96	49.27	-0.2707	-0.0133	0
124	SLU 56	0	0.39	49.27	-0.1411	-0.0044	0
124	SLU 57	-0.01	1.8	49.84	-0.2141	-0.0098	0
124	SLU 58	0	0.31	48.89	-0.1365	-0.0043	0
124	SLU 59	-0.01	1.72	49.47	-0.2096	-0.0098	0
124	SLU 60	0	0.97	49.93	-0.1694	-0.0044	0
124	SLU 61	-0.01	2.39	50.51	-0.2424	-0.0098	0
124	SLU 62	0	0.68	50.52	-0.157	-0.0045	0
124	SLU 63	-0.01	2.09	51.09	-0.23	-0.0099	0
124	SLU 64	0	0.78	47.32	-0.1546	-0.0042	0
124	SLU 65	-0.01	3.14	48.27	-0.2764	-0.0132	0
124	SLU 66	0	0.57	48.28	-0.1468	-0.0043	0
124	SLU 67	-0.01	1.98	48.85	-0.2198	-0.0097	0
124	SLU 68	-0.01	2.84	48.85	-0.264	-0.0133	0
124	SLU 69	0	0.27	48.86	-0.1344	-0.0044	0
124	SLU 70	-0.01	1.68	49.43	-0.2074	-0.0098	0
124	SLU 71	0	0.19	48.48	-0.1298	-0.0043	0
124	SLU 72	-0.01	1.6	49.05	-0.2029	-0.0097	0
124	SLU 73	-0.01	3.31	53.41	-0.2952	-0.0137	0
124	SLU 74	0	0.74	53.41	-0.1656	-0.0048	0
124	SLU 75	-0.01	2.15	53.98	-0.2387	-0.0102	0
124	SLU 76	-0.01	3.01	53.99	-0.2828	-0.0138	0
124	SLU 77	0	0.44	53.99	-0.1532	-0.0049	0
124	SLU 78	-0.01	1.85	54.57	-0.2263	-0.0103	0
124	SLU 79	0	0.36	53.62	-0.1486	-0.0048	0
124	SLU 80	-0.01	1.78	54.19	-0.2217	-0.0102	0
124	SLU 81	0	1.03	54.66	-0.1815	-0.0049	0
124	SLU 82	-0.01	2.44	55.23	-0.2546	-0.0103	0
124	SLU 83	0	0.73	55.24	-0.1691	-0.0049	0
124	SLU 84	-0.01	2.14	55.81	-0.2422	-0.0104	0
124	SLE RA 1	0	0.59	35.36	-0.1163	-0.0031	0
124	SLE RA 2	-0.01	2.16	36	-0.1974	-0.0091	0
124	SLE RA 3	0	0.45	36	-0.111	-0.0032	0
124	SLE RA 4	-0.01	1.39	36.38	-0.1597	-0.0068	0
124	SLE RA 5	-0.01	1.96	36.38	-0.1892	-0.0092	0
124	SLE RA 6	0	0.25	36.39	-0.1028	-0.0032	0
124	SLE RA 7	-0.01	1.19	36.77	-0.1515	-0.0068	0
124	SLE RA 8	0	0.2	36.14	-0.0997	-0.0032	0
124	SLE RA 9	-0.01	1.14	36.52	-0.1484	-0.0068	0
124	SLE RA 10	-0.01	2.27	39.42	-0.21	-0.0094	0
124	SLE RA 11	0	0.56	39.42	-0.1236	-0.0035	0
124	SLE RA 12	-0.01	1.5	39.8	-0.1723	-0.0071	0
124	SLE RA 13	-0.01	2.08	39.81	-0.2017	-0.0095	0
124	SLE RA 14	0	0.36	39.81	-0.1153	-0.0036	0
124	SLE RA 15	-0.01	1.3	40.19	-0.164	-0.0072	0
124	SLE RA 16	0	0.31	39.56	-0.1123	-0.0035	0
124	SLE RA 17	-0.01	1.25	39.94	-0.161	-0.0071	0
124	SLE RA 18	0	0.75	40.25	-0.1342	-0.0036	0
124	SLE RA 19	-0.01	1.69	40.63	-0.1829	-0.0072	0
124	SLE RA 20	0	0.56	40.64	-0.1259	-0.0036	0
124	SLE RA 21	-0.01	1.5	41.02	-0.1746	-0.0072	0
124	SLE FR 1	0	0.59	35.36	-0.1163	-0.0031	0
124	SLE FR 2	0	0.9	35.49	-0.1325	-0.0043	0
124	SLE FR 3	0	0.51	35.52	-0.113	-0.0031	0
124	SLE FR 4	0	0.95	36.96	-0.1379	-0.0044	0
124	SLE FR 5	0	0.56	36.98	-0.1183	-0.0033	0
124	SLE FR 6	0	0.67	37.81	-0.1252	-0.0033	0
124	SLE QP 1	0	0.59	35.36	-0.1163	-0.0031	0
124	SLE QP 2	0	0.64	36.83	-0.1216	-0.0032	0
124	SLD 1	0.11	0.81	39.31	-0.3286	0.0914	0
124	SLD 2	0.11	0.81	39.31	-0.3286	0.0914	0
124	SLD 3	0.14	-3.74	37.64	-0.1096	0.1148	0
124	SLD 4	0.14	-3.74	37.64	-0.1096	0.1148	0
124	SLD 5	-0.01	7.6	40.11	-0.5159	-0.0103	0
124	SLD 6	-0.01	7.6	40.11	-0.5159	-0.0103	0
124	SLD 7	0.08	-7.58	34.54	0.2141	0.0676	0
124	SLD 8	0.08	-7.58	34.54	0.2141	0.0676	0
124	SLD 9	-0.09	8.86	39.12	-0.4574	-0.0741	0
124	SLD 10	-0.09	8.86	39.12	-0.4574	-0.0741	0
124	SLD 11	0	-6.32	33.55	0.2726	0.0038	0
124	SLD 12	0	-6.32	33.55	0.2726	0.0038	0
124	SLD 13	-0.15	5.02	36.02	-0.1337	-0.1213	0
124	SLD 14	-0.15	5.02	36.02	-0.1337	-0.1213	0
124	SLD 15	-0.12	0.47	34.34	0.0853	-0.0979	0
124	SLD 16	-0.12	0.47	34.34	0.0853	-0.0979	0
124	SLV 1	0.27	0.82	42.54	-0.6114	0.2217	-0.0001
124	SLV 2	0.27	0.82	42.54	-0.6114	0.2217	-0.0001
124	SLV 3	0.34	-9.71	38.64	-0.1043	0.2804	-0.0001
124	SLV 4	0.34	-9.71	38.64	-0.1043	0.2804	-0.0001
124	SLV 5	-0.03	16.67	44.45	-1.0377	-0.0248	-0.0001
124	SLV 6	-0.03	16.67	44.45	-1.0377	-0.0248	-0.0001
124	SLV 7	0.2	-18.44	31.46	0.6527	0.1709	0
124	SLV 8	0.2	-18.44	31.46	0.6527	0.1709	0
124	SLV 9	-0.21	19.72	42.2	-0.896	-0.1774	0
124	SLV 10	-0.21	19.72	42.2	-0.896	-0.1774	0
124	SLV 11	0.02	-15.39	29.21	0.7944	0.0183	0.0001
124	SLV 12	0.02	-15.39	29.21	0.7944	0.0183	0.0001
124	SLV 13	-0.34	10.99	35.02	-0.139	-0.2869	0.0001
124	SLV 14	-0.34	10.99	35.02	-0.139	-0.2869	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
124	SLV 15	-0.28	0.46	31.12	0.3681	-0.2282	0.0001
124	SLV 16	-0.28	0.46	31.12	0.3681	-0.2282	0.0001
125	SLU 1	0.01	4.24	55.51	-0.2172	0.0126	0
125	SLU 2	0.07	5.05	58.84	-0.2583	0.0796	0
125	SLU 3	0.02	4.41	57.19	-0.2257	0.0128	0
125	SLU 4	0.05	4.89	59.18	-0.2503	0.053	0
125	SLU 5	0.07	5.14	59.86	-0.2634	0.0797	0
125	SLU 6	0.02	4.5	58.2	-0.2308	0.0129	0
125	SLU 7	0.05	4.98	60.2	-0.2554	0.0531	0
125	SLU 8	0.02	4.43	57.54	-0.2275	0.0128	0
125	SLU 9	0.05	4.91	59.54	-0.2521	0.053	0
125	SLU 10	0.08	5.69	65.48	-0.2901	0.0813	0
125	SLU 11	0.02	5.05	63.82	-0.2575	0.0145	0
125	SLU 12	0.05	5.53	65.82	-0.2821	0.0547	0
125	SLU 13	0.08	5.79	66.5	-0.2952	0.0814	0
125	SLU 14	0.02	5.15	64.84	-0.2626	0.0146	0
125	SLU 15	0.05	5.63	66.84	-0.2872	0.0548	0
125	SLU 16	0.02	5.08	64.18	-0.2593	0.0145	0
125	SLU 17	0.05	5.56	66.18	-0.2839	0.0547	0
125	SLU 18	0.02	5.17	65	-0.2627	0.0151	0
125	SLU 19	0.05	5.65	67	-0.2873	0.0553	0
125	SLU 20	0.02	5.26	66.01	-0.2678	0.0152	0
125	SLU 21	0.05	5.74	68.01	-0.2924	0.0554	0
125	SLU 22	0.02	4.87	62.22	-0.2486	0.0141	0
125	SLU 23	0.08	5.67	65.55	-0.2896	0.0812	0
125	SLU 24	0.02	5.03	63.89	-0.257	0.0144	0
125	SLU 25	0.05	5.51	65.89	-0.2816	0.0546	0
125	SLU 26	0.08	5.76	66.57	-0.2947	0.0813	0
125	SLU 27	0.02	5.12	64.91	-0.2621	0.0145	0
125	SLU 28	0.05	5.6	66.9	-0.2867	0.0547	0
125	SLU 29	0.02	5.05	64.25	-0.2588	0.0144	0
125	SLU 30	0.05	5.54	66.25	-0.2834	0.0546	0
125	SLU 31	0.08	6.32	72.19	-0.3214	0.0829	0
125	SLU 32	0.02	5.68	70.53	-0.2888	0.0161	0
125	SLU 33	0.06	6.16	72.53	-0.3134	0.0563	0
125	SLU 34	0.08	6.41	73.21	-0.3265	0.083	0
125	SLU 35	0.02	5.77	71.55	-0.2939	0.0162	0
125	SLU 36	0.06	6.25	73.54	-0.3185	0.0564	0
125	SLU 37	0.02	5.7	70.89	-0.2906	0.0161	0
125	SLU 38	0.06	6.18	72.88	-0.3152	0.0563	0
125	SLU 39	0.02	5.79	71.71	-0.294	0.0166	0
125	SLU 40	0.06	6.27	73.71	-0.3186	0.0569	0
125	SLU 41	0.02	5.88	72.72	-0.2991	0.0168	0
125	SLU 42	0.06	6.37	74.72	-0.3237	0.057	0
125	SLU 43	0.02	5.3	69.87	-0.2717	0.0158	0
125	SLU 44	0.08	6.11	73.2	-0.3127	0.0828	0
125	SLU 45	0.02	5.47	71.54	-0.2801	0.016	0
125	SLU 46	0.05	5.95	73.54	-0.3047	0.0562	0
125	SLU 47	0.08	6.2	74.21	-0.3178	0.0829	0
125	SLU 48	0.02	5.56	72.55	-0.2852	0.0161	0
125	SLU 49	0.05	6.04	74.55	-0.3098	0.0563	0
125	SLU 50	0.02	5.49	71.89	-0.2819	0.016	0
125	SLU 51	0.05	5.97	73.89	-0.3065	0.0562	0
125	SLU 52	0.08	6.75	79.84	-0.3445	0.0845	0
125	SLU 53	0.02	6.11	78.18	-0.3119	0.0178	0
125	SLU 54	0.06	6.59	80.18	-0.3366	0.058	0
125	SLU 55	0.08	6.85	80.85	-0.3497	0.0846	0
125	SLU 56	0.02	6.21	79.19	-0.317	0.0179	0
125	SLU 57	0.06	6.69	81.19	-0.3417	0.0581	0
125	SLU 58	0.02	6.14	78.53	-0.3137	0.0177	0
125	SLU 59	0.06	6.62	80.53	-0.3383	0.0579	0
125	SLU 60	0.02	6.23	79.35	-0.3172	0.0183	0
125	SLU 61	0.06	6.71	81.35	-0.3418	0.0585	0
125	SLU 62	0.02	6.32	80.36	-0.3223	0.0184	0
125	SLU 63	0.06	6.8	82.36	-0.3469	0.0586	0
125	SLU 64	0.02	5.93	76.58	-0.303	0.0174	0
125	SLU 65	0.08	6.73	79.91	-0.344	0.0844	0
125	SLU 66	0.02	6.09	78.25	-0.3114	0.0176	0
125	SLU 67	0.06	6.57	80.25	-0.336	0.0578	0
125	SLU 68	0.08	6.82	80.92	-0.3491	0.0845	0
125	SLU 69	0.02	6.18	79.26	-0.3165	0.0177	0
125	SLU 70	0.06	6.66	81.26	-0.3411	0.0579	0
125	SLU 71	0.02	6.11	78.6	-0.3132	0.0176	0
125	SLU 72	0.06	6.6	80.6	-0.3378	0.0578	0
125	SLU 73	0.08	7.38	86.55	-0.3759	0.0861	0
125	SLU 74	0.02	6.73	84.89	-0.3432	0.0193	0
125	SLU 75	0.06	7.22	86.89	-0.3679	0.0595	0
125	SLU 76	0.08	7.47	87.56	-0.381	0.0862	0
125	SLU 77	0.02	6.83	85.9	-0.3484	0.0194	0
125	SLU 78	0.06	7.31	87.9	-0.373	0.0597	0
125	SLU 79	0.02	6.76	85.24	-0.345	0.0193	0
125	SLU 80	0.06	7.24	87.24	-0.3697	0.0595	0
125	SLU 81	0.02	6.85	86.06	-0.3485	0.0199	0
125	SLU 82	0.06	7.33	88.06	-0.3731	0.0601	0
125	SLU 83	0.02	6.94	87.07	-0.3536	0.02	0
125	SLU 84	0.06	7.43	89.07	-0.3782	0.0602	0
125	SLE RA 1	0.02	4.42	57.43	-0.2262	0.013	0
125	SLE RA 2	0.06	4.96	59.65	-0.2535	0.0577	0
125	SLE RA 3	0.02	4.53	58.54	-0.2318	0.0132	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
125	SLE RA 4	0.04	4.85	59.88	-0.2482	0.04	0
125	SLE RA 5	0.06	5.02	60.33	-0.257	0.0578	0
125	SLE RA 6	0.02	4.59	59.22	-0.2352	0.0132	0
125	SLE RA 7	0.04	4.91	60.55	-0.2516	0.04	0
125	SLE RA 8	0.02	4.55	58.78	-0.233	0.0132	0
125	SLE RA 9	0.04	4.87	60.11	-0.2494	0.04	0
125	SLE RA 10	0.06	5.39	64.08	-0.2748	0.0589	0
125	SLE RA 11	0.02	4.96	62.97	-0.253	0.0143	0
125	SLE RA 12	0.04	5.28	64.3	-0.2694	0.0411	0
125	SLE RA 13	0.06	5.45	64.75	-0.2782	0.0589	0
125	SLE RA 14	0.02	5.02	63.65	-0.2564	0.0144	0
125	SLE RA 15	0.04	5.34	64.98	-0.2728	0.0412	0
125	SLE RA 16	0.02	4.98	63.21	-0.2542	0.0143	0
125	SLE RA 17	0.04	5.3	64.54	-0.2706	0.0411	0
125	SLE RA 18	0.02	5.04	63.75	-0.2565	0.0147	0
125	SLE RA 19	0.04	5.36	65.09	-0.2729	0.0415	0
125	SLE RA 20	0.02	5.1	64.43	-0.2599	0.0148	0
125	SLE RA 21	0.04	5.42	65.76	-0.2763	0.0416	0
125	SLE FR 1	0.02	4.42	57.43	-0.2262	0.013	0
125	SLE FR 2	0.02	4.53	57.87	-0.2317	0.0219	0
125	SLE FR 3	0.02	4.45	57.7	-0.2276	0.013	0
125	SLE FR 4	0.02	4.71	59.77	-0.2408	0.0224	0
125	SLE FR 5	0.02	4.63	59.6	-0.2366	0.0135	0
125	SLE FR 6	0.02	4.73	60.59	-0.2413	0.0138	0
125	SLE QP 1	0.02	4.42	57.43	-0.2262	0.013	0
125	SLE QP 2	0.02	4.61	59.33	-0.2353	0.0135	0
125	SLD 1	0.28	5.46	47.42	-0.2652	0.2588	0
125	SLD 2	0.28	5.46	47.42	-0.2652	0.2588	0
125	SLD 3	0.17	0.49	42.29	-0.0495	0.1491	0
125	SLD 4	0.17	0.49	42.29	-0.0495	0.1491	0
125	SLD 5	0.26	12.39	63.53	-0.5715	0.2535	0
125	SLD 6	0.26	12.39	63.53	-0.5715	0.2535	0
125	SLD 7	-0.1	-4.16	46.44	0.1477	-0.1122	0
125	SLD 8	-0.1	-4.16	46.44	0.1477	-0.1122	0
125	SLD 9	0.13	13.37	72.22	-0.6182	0.1392	0.0001
125	SLD 10	0.13	13.37	72.22	-0.6182	0.1392	0.0001
125	SLD 11	-0.23	-3.18	55.12	0.1009	-0.2264	0
125	SLD 12	-0.23	-3.18	55.12	0.1009	-0.2264	0
125	SLD 13	-0.14	8.72	76.36	-0.4211	-0.122	0
125	SLD 14	-0.14	8.72	76.36	-0.4211	-0.122	0
125	SLD 15	-0.25	3.76	71.23	-0.2053	-0.2317	0
125	SLD 16	-0.25	3.76	71.23	-0.2053	-0.2317	0
125	SLV 1	0.65	6.54	32.01	-0.3028	0.6038	0
125	SLV 2	0.65	6.54	32.01	-0.3028	0.6038	0
125	SLV 3	0.37	-4.85	20.14	0.1918	0.3229	-0.0001
125	SLV 4	0.37	-4.85	20.14	0.1918	0.3229	-0.0001
125	SLV 5	0.63	22.47	69.13	-1.0057	0.6167	0.0001
125	SLV 6	0.63	22.47	69.13	-1.0057	0.6167	0.0001
125	SLV 7	-0.3	-15.51	29.57	0.643	-0.3198	-0.0001
125	SLV 8	-0.3	-15.51	29.57	0.643	-0.3198	-0.0001
125	SLV 9	0.33	24.72	89.08	-1.1135	0.3468	0.0001
125	SLV 10	0.33	24.72	89.08	-1.1135	0.3468	0.0001
125	SLV 11	-0.59	-13.25	49.52	0.5351	-0.5897	-0.0001
125	SLV 12	-0.59	-13.25	49.52	0.5351	-0.5897	-0.0001
125	SLV 13	-0.34	14.07	98.51	-0.6623	-0.2959	0.0001
125	SLV 14	-0.34	14.07	98.51	-0.6623	-0.2959	0.0001
125	SLV 15	-0.62	2.67	86.64	-0.1678	-0.5768	0
125	SLV 16	-0.62	2.67	86.64	-0.1678	-0.5768	0
126	SLU 1	-0.18	7.06	29.14	-0.3127	-0.1287	-0.0008
126	SLU 2	-0.25	8.14	30	-0.3584	-0.198	-0.0011
126	SLU 3	-0.19	7.41	30	-0.3286	-0.1332	-0.0009
126	SLU 4	-0.23	8.06	30.51	-0.356	-0.1748	-0.0011
126	SLU 5	-0.25	8.43	30.61	-0.3714	-0.2011	-0.0012
126	SLU 6	-0.19	7.7	30.61	-0.3415	-0.1363	-0.0009
126	SLU 7	-0.23	8.35	31.12	-0.369	-0.1778	-0.0011
126	SLU 8	-0.19	7.63	30.36	-0.3386	-0.1349	-0.0009
126	SLU 9	-0.23	8.28	30.87	-0.366	-0.1765	-0.0011
126	SLU 10	-0.27	9.06	32.99	-0.399	-0.2149	-0.0013
126	SLU 11	-0.21	8.33	32.99	-0.3692	-0.15	-0.001
126	SLU 12	-0.25	8.98	33.51	-0.3966	-0.1916	-0.0012
126	SLU 13	-0.28	9.35	33.6	-0.412	-0.2179	-0.0013
126	SLU 14	-0.22	8.62	33.6	-0.3821	-0.1531	-0.001
126	SLU 15	-0.26	9.27	34.12	-0.4096	-0.1947	-0.0012
126	SLU 16	-0.22	8.55	33.35	-0.3792	-0.1517	-0.001
126	SLU 17	-0.25	9.2	33.87	-0.4066	-0.1933	-0.0012
126	SLU 18	-0.22	8.38	33.42	-0.3707	-0.1528	-0.001
126	SLU 19	-0.26	9.03	33.93	-0.3981	-0.1944	-0.0012
126	SLU 20	-0.22	8.66	34.03	-0.3836	-0.1558	-0.001
126	SLU 21	-0.26	9.31	34.54	-0.4111	-0.1974	-0.0012
126	SLU 22	-0.21	8.03	32.2	-0.3557	-0.1457	-0.001
126	SLU 23	-0.27	9.11	33.06	-0.4014	-0.215	-0.0013
126	SLU 24	-0.21	8.38	33.06	-0.3716	-0.1501	-0.001
126	SLU 25	-0.25	9.03	33.57	-0.3991	-0.1917	-0.0012
126	SLU 26	-0.28	9.4	33.66	-0.4144	-0.218	-0.0013
126	SLU 27	-0.22	8.67	33.66	-0.3846	-0.1532	-0.001
126	SLU 28	-0.26	9.32	34.18	-0.412	-0.1948	-0.0012
126	SLU 29	-0.22	8.6	33.41	-0.3816	-0.1518	-0.001
126	SLU 30	-0.25	9.25	33.93	-0.4091	-0.1934	-0.0012
126	SLU 31	-0.3	10.04	36.05	-0.442	-0.2318	-0.0014



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
126	SLU 32	-0.24	9.31	36.05	-0.4122	-0.1669	-0.0011
126	SLU 33	-0.28	9.96	36.57	-0.4397	-0.2085	-0.0013
126	SLU 34	-0.3	10.32	36.66	-0.455	-0.2348	-0.0014
126	SLU 35	-0.24	9.59	36.66	-0.4252	-0.17	-0.0011
126	SLU 36	-0.28	10.24	37.17	-0.4526	-0.2116	-0.0013
126	SLU 37	-0.24	9.52	36.41	-0.4222	-0.1686	-0.0011
126	SLU 38	-0.28	10.17	36.92	-0.4497	-0.2102	-0.0013
126	SLU 39	-0.24	9.35	36.48	-0.4137	-0.1697	-0.0011
126	SLU 40	-0.28	10	36.99	-0.4411	-0.2113	-0.0013
126	SLU 41	-0.25	9.63	37.08	-0.4267	-0.1728	-0.0011
126	SLU 42	-0.28	10.28	37.6	-0.4541	-0.2143	-0.0013
126	SLU 43	-0.23	8.84	36.84	-0.3917	-0.1616	-0.0011
126	SLU 44	-0.29	9.92	37.69	-0.4374	-0.2309	-0.0014
126	SLU 45	-0.24	9.2	37.69	-0.4076	-0.166	-0.0011
126	SLU 46	-0.27	9.85	38.21	-0.4351	-0.2076	-0.0013
126	SLU 47	-0.3	10.21	38.3	-0.4504	-0.2339	-0.0014
126	SLU 48	-0.24	9.48	38.3	-0.4206	-0.1691	-0.0011
126	SLU 49	-0.28	10.13	38.82	-0.448	-0.2107	-0.0013
126	SLU 50	-0.24	9.41	38.05	-0.4176	-0.1677	-0.0011
126	SLU 51	-0.28	10.06	38.57	-0.4451	-0.2093	-0.0013
126	SLU 52	-0.32	10.85	40.69	-0.478	-0.2477	-0.0015
126	SLU 53	-0.26	10.12	40.69	-0.4482	-0.1828	-0.0012
126	SLU 54	-0.3	10.77	41.2	-0.4757	-0.2244	-0.0014
126	SLU 55	-0.32	11.13	41.3	-0.491	-0.2508	-0.0015
126	SLU 56	-0.26	10.4	41.3	-0.4612	-0.1859	-0.0012
126	SLU 57	-0.3	11.05	41.81	-0.4886	-0.2275	-0.0014
126	SLU 58	-0.26	10.34	41.05	-0.4582	-0.1845	-0.0012
126	SLU 59	-0.3	10.98	41.56	-0.4857	-0.2261	-0.0014
126	SLU 60	-0.26	10.16	41.11	-0.4497	-0.1856	-0.0012
126	SLU 61	-0.3	10.81	41.63	-0.4771	-0.2272	-0.0014
126	SLU 62	-0.27	10.45	41.72	-0.4627	-0.1887	-0.0012
126	SLU 63	-0.31	11.09	42.24	-0.4901	-0.2302	-0.0014
126	SLU 64	-0.25	9.82	39.89	-0.4347	-0.1785	-0.0012
126	SLU 65	-0.32	10.9	40.75	-0.4805	-0.2478	-0.0015
126	SLU 66	-0.26	10.17	40.75	-0.4507	-0.1829	-0.0012
126	SLU 67	-0.3	10.82	41.27	-0.4781	-0.2245	-0.0014
126	SLU 68	-0.32	11.18	41.36	-0.4934	-0.2508	-0.0015
126	SLU 69	-0.26	10.45	41.36	-0.4636	-0.186	-0.0012
126	SLU 70	-0.3	11.1	41.87	-0.4911	-0.2276	-0.0014
126	SLU 71	-0.26	10.39	41.11	-0.4607	-0.1846	-0.0012
126	SLU 72	-0.3	11.03	41.62	-0.4881	-0.2262	-0.0014
126	SLU 73	-0.34	11.82	43.75	-0.5211	-0.2646	-0.0016
126	SLU 74	-0.28	11.09	43.75	-0.4913	-0.1998	-0.0013
126	SLU 75	-0.32	11.74	44.26	-0.5187	-0.2413	-0.0015
126	SLU 76	-0.35	12.11	44.35	-0.534	-0.2677	-0.0016
126	SLU 77	-0.29	11.38	44.35	-0.5042	-0.2028	-0.0013
126	SLU 78	-0.33	12.03	44.87	-0.5317	-0.2444	-0.0015
126	SLU 79	-0.29	11.31	44.1	-0.5013	-0.2014	-0.0013
126	SLU 80	-0.33	11.96	44.62	-0.5287	-0.243	-0.0015
126	SLU 81	-0.29	11.13	44.17	-0.4927	-0.2025	-0.0013
126	SLU 82	-0.33	11.78	44.68	-0.5202	-0.2441	-0.0015
126	SLU 83	-0.29	11.42	44.78	-0.5057	-0.2056	-0.0013
126	SLU 84	-0.33	12.07	45.29	-0.5331	-0.2472	-0.0015
126	SLE RA 1	-0.19	7.34	30.02	-0.325	-0.1336	-0.0009
126	SLE RA 2	-0.23	8.06	30.59	-0.3554	-0.1798	-0.0011
126	SLE RA 3	-0.19	7.57	30.59	-0.3356	-0.1365	-0.0009
126	SLE RA 4	-0.22	8	30.93	-0.3539	-0.1643	-0.001
126	SLE RA 5	-0.24	8.25	30.99	-0.3641	-0.1818	-0.0011
126	SLE RA 6	-0.2	7.76	30.99	-0.3442	-0.1386	-0.0009
126	SLE RA 7	-0.22	8.19	31.34	-0.3625	-0.1663	-0.001
126	SLE RA 8	-0.2	7.72	30.83	-0.3422	-0.1377	-0.0009
126	SLE RA 9	-0.22	8.15	31.17	-0.3605	-0.1654	-0.001
126	SLE RA 10	-0.25	8.67	32.58	-0.3825	-0.191	-0.0012
126	SLE RA 11	-0.21	8.19	32.58	-0.3626	-0.1478	-0.001
126	SLE RA 12	-0.24	8.62	32.93	-0.3809	-0.1755	-0.0011
126	SLE RA 13	-0.25	8.86	32.99	-0.3912	-0.193	-0.0012
126	SLE RA 14	-0.21	8.38	32.99	-0.3713	-0.1498	-0.001
126	SLE RA 15	-0.24	8.81	33.33	-0.3896	-0.1775	-0.0011
126	SLE RA 16	-0.21	8.33	32.82	-0.3693	-0.1489	-0.001
126	SLE RA 17	-0.24	8.76	33.16	-0.3876	-0.1766	-0.0011
126	SLE RA 18	-0.21	8.22	32.87	-0.3636	-0.1496	-0.001
126	SLE RA 19	-0.24	8.65	33.21	-0.3819	-0.1773	-0.0011
126	SLE RA 20	-0.22	8.41	33.27	-0.3723	-0.1516	-0.001
126	SLE RA 21	-0.24	8.84	33.61	-0.3906	-0.1794	-0.0011
126	SLE FR 1	-0.19	7.34	30.02	-0.325	-0.1336	-0.0009
126	SLE FR 2	-0.2	7.48	30.13	-0.3311	-0.1428	-0.0009
126	SLE FR 3	-0.19	7.41	30.18	-0.3284	-0.1344	-0.0009
126	SLE FR 4	-0.2	7.74	30.99	-0.3427	-0.1476	-0.0009
126	SLE FR 5	-0.2	7.68	31.03	-0.34	-0.1392	-0.0009
126	SLE FR 6	-0.2	7.78	31.44	-0.3443	-0.1416	-0.0009
126	SLE QP 1	-0.19	7.34	30.02	-0.325	-0.1336	-0.0009
126	SLE QP 2	-0.2	7.6	30.87	-0.3366	-0.1384	-0.0009
126	SLD 1	-0.41	13.85	39.72	-0.6114	-0.3395	-0.0019
126	SLD 2	-0.41	13.85	39.72	-0.6114	-0.3395	-0.0019
126	SLD 3	-0.32	6.16	38.06	-0.2742	-0.256	-0.0015
126	SLD 4	-0.32	6.16	38.06	-0.2742	-0.256	-0.0015
126	SLD 5	-0.39	21.15	36.03	-0.9305	-0.3254	-0.0018
126	SLD 6	-0.39	21.15	36.03	-0.9305	-0.3254	-0.0018
126	SLD 7	-0.11	-4.51	30.52	0.1936	-0.047	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
126	SLD 8	-0.11	-4.51	30.52	0.1936	-0.047	-0.0005
126	SLD 9	-0.29	19.71	31.22	-0.8667	-0.2297	-0.0014
126	SLD 10	-0.29	19.71	31.22	-0.8667	-0.2297	-0.0014
126	SLD 11	0	-5.95	25.71	0.2574	0.0486	0
126	SLD 12	0	-5.95	25.71	0.2574	0.0486	0
126	SLD 13	-0.07	9.04	23.68	-0.3989	-0.0207	-0.0004
126	SLD 14	-0.07	9.04	23.68	-0.3989	-0.0207	-0.0004
126	SLD 15	0.02	1.35	22.03	-0.0617	0.0628	0
126	SLD 16	0.02	1.35	22.03	-0.0617	0.0628	0
126	SLV 1	-0.71	21.95	51.17	-0.9667	-0.6265	-0.0032
126	SLV 2	-0.71	21.95	51.17	-0.9667	-0.6265	-0.0032
126	SLV 3	-0.49	4.22	47.27	-0.1904	-0.4126	-0.0022
126	SLV 4	-0.49	4.22	47.27	-0.1904	-0.4126	-0.0022
126	SLV 5	-0.68	38.78	42.87	-1.703	-0.6091	-0.0032
126	SLV 6	-0.68	38.78	42.87	-1.703	-0.6091	-0.0032
126	SLV 7	0.04	-20.29	29.88	0.8847	0.1037	0.0003
126	SLV 8	0.04	-20.29	29.88	0.8847	0.1037	0.0003
126	SLV 9	-0.43	35.49	31.86	-1.5578	-0.3804	-0.0021
126	SLV 10	-0.43	35.49	31.86	-1.5578	-0.3804	-0.0021
126	SLV 11	0.29	-23.58	18.87	1.0299	0.3324	0.0014
126	SLV 12	0.29	-23.58	18.87	1.0299	0.3324	0.0014
126	SLV 13	0.1	10.97	14.47	-0.4827	0.1358	0.0004
126	SLV 14	0.1	10.97	14.47	-0.4827	0.1358	0.0004
126	SLV 15	0.32	-6.75	10.57	0.2936	0.3497	0.0014
126	SLV 16	0.32	-6.75	10.57	0.2936	0.3497	0.0014
127	SLU 1	0.05	-2.22	41.64	0.1051	0.0353	0.0001
127	SLU 2	0.05	-2.62	41.77	0.1236	0.0356	0.0001
127	SLU 3	0.05	-1.94	42.91	0.0914	0.0366	0.0001
127	SLU 4	0.05	-2.17	42.98	0.1026	0.0368	0.0001
127	SLU 5	0.05	-2.28	42.59	0.1072	0.0364	0.0001
127	SLU 6	0.05	-1.59	43.72	0.075	0.0375	0.0001
127	SLU 7	0.05	-1.83	43.8	0.0861	0.0376	0.0001
127	SLU 8	0.05	-1.54	43.27	0.0721	0.037	0.0001
127	SLU 9	0.05	-1.78	43.35	0.0833	0.0372	0.0001
127	SLU 10	0.05	-2.96	49.73	0.1404	0.0362	0.0001
127	SLU 11	0.05	-2.28	50.87	0.1082	0.0372	0.0001
127	SLU 12	0.05	-2.51	50.94	0.1194	0.0374	0.0001
127	SLU 13	0.05	-2.62	50.55	0.1239	0.0371	0.0001
127	SLU 14	0.05	-1.94	51.68	0.0917	0.0381	0.0001
127	SLU 15	0.05	-2.17	51.76	0.1029	0.0383	0.0001
127	SLU 16	0.05	-1.88	51.23	0.0889	0.0377	0.0001
127	SLU 17	0.05	-2.12	51.31	0.1	0.0378	0.0001
127	SLU 18	0.05	-2.71	53.01	0.129	0.0362	0
127	SLU 19	0.05	-2.95	53.09	0.1402	0.0364	0
127	SLU 20	0.05	-2.37	53.83	0.1126	0.0371	0
127	SLU 21	0.05	-2.61	53.91	0.1237	0.0372	0
127	SLU 22	0.05	-2.17	47.2	0.104	0.0398	0.0001
127	SLU 23	0.05	-2.56	47.33	0.1226	0.04	0.0001
127	SLU 24	0.06	-1.88	48.46	0.0904	0.0411	0.0001
127	SLU 25	0.06	-2.12	48.54	0.1015	0.0412	0.0001
127	SLU 26	0.06	-2.22	48.14	0.1061	0.0409	0.0001
127	SLU 27	0.06	-1.54	49.27	0.0739	0.0419	0.0001
127	SLU 28	0.06	-1.78	49.35	0.085	0.0421	0.0001
127	SLU 29	0.06	-1.48	48.82	0.0711	0.0415	0.0001
127	SLU 30	0.06	-1.72	48.9	0.0822	0.0416	0.0001
127	SLU 31	0.05	-2.9	55.29	0.1394	0.0407	0.0001
127	SLU 32	0.06	-2.22	56.42	0.1072	0.0417	0.0001
127	SLU 33	0.06	-2.46	56.5	0.1183	0.0419	0.0001
127	SLU 34	0.06	-2.56	56.1	0.1229	0.0415	0.0001
127	SLU 35	0.06	-1.88	57.23	0.0907	0.0426	0.0001
127	SLU 36	0.06	-2.12	57.31	0.1018	0.0427	0.0001
127	SLU 37	0.06	-1.82	56.78	0.0879	0.0421	0.0001
127	SLU 38	0.06	-2.06	56.86	0.099	0.0423	0.0001
127	SLU 39	0.05	-2.65	58.57	0.128	0.0407	0.0001
127	SLU 40	0.05	-2.89	58.65	0.1391	0.0408	0.0001
127	SLU 41	0.06	-2.31	59.38	0.1115	0.0415	0.0001
127	SLU 42	0.06	-2.55	59.46	0.1227	0.0417	0.0001
127	SLU 43	0.06	-2.91	52.23	0.137	0.0443	0.0001
127	SLU 44	0.06	-3.31	52.36	0.1555	0.0446	0.0001
127	SLU 45	0.06	-2.62	53.49	0.1233	0.0457	0.0001
127	SLU 46	0.06	-2.86	53.57	0.1344	0.0458	0.0001
127	SLU 47	0.06	-2.97	53.18	0.139	0.0455	0.0001
127	SLU 48	0.06	-2.28	54.31	0.1068	0.0465	0.0001
127	SLU 49	0.06	-2.52	54.39	0.118	0.0467	0.0001
127	SLU 50	0.06	-2.23	53.86	0.104	0.0461	0.0001
127	SLU 51	0.06	-2.47	53.94	0.1151	0.0462	0.0001
127	SLU 52	0.06	-3.65	60.32	0.1723	0.0453	0.0001
127	SLU 53	0.06	-2.96	61.45	0.1401	0.0463	0.0001
127	SLU 54	0.06	-3.2	61.53	0.1512	0.0465	0.0001
127	SLU 55	0.06	-3.31	61.14	0.1558	0.0461	0.0001
127	SLU 56	0.06	-2.62	62.27	0.1236	0.0472	0.0001
127	SLU 57	0.06	-2.86	62.35	0.1348	0.0473	0.0001
127	SLU 58	0.06	-2.57	61.82	0.1208	0.0467	0.0001
127	SLU 59	0.06	-2.81	61.9	0.1319	0.0469	0.0001
127	SLU 60	0.06	-3.4	63.6	0.1609	0.0453	0.0001
127	SLU 61	0.06	-3.63	63.68	0.1721	0.0454	0.0001
127	SLU 62	0.06	-3.06	64.41	0.1445	0.0461	0.0001
127	SLU 63	0.06	-3.29	64.49	0.1556	0.0463	0.0001
127	SLU 64	0.07	-2.85	57.78	0.1359	0.0488	0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
127	SLU 65	0.07	-3.25	57.92	0.1545	0.0491	0.0001
127	SLU 66	0.07	-2.57	59.05	0.1223	0.0501	0.0001
127	SLU 67	0.07	-2.8	59.13	0.1334	0.0503	0.0001
127	SLU 68	0.07	-2.91	58.73	0.138	0.0499	0.0001
127	SLU 69	0.07	-2.22	59.86	0.1058	0.051	0.0001
127	SLU 70	0.07	-2.46	59.94	0.1169	0.0511	0.0001
127	SLU 71	0.07	-2.17	59.41	0.103	0.0505	0.0001
127	SLU 72	0.07	-2.41	59.49	0.1141	0.0507	0.0001
127	SLU 73	0.07	-3.59	65.88	0.1713	0.0497	0.0001
127	SLU 74	0.07	-2.91	67.01	0.139	0.0508	0.0001
127	SLU 75	0.07	-3.14	67.09	0.1502	0.0509	0.0001
127	SLU 76	0.07	-3.25	66.69	0.1548	0.0506	0.0001
127	SLU 77	0.07	-2.56	67.82	0.1226	0.0516	0.0001
127	SLU 78	0.07	-2.8	67.9	0.1337	0.0518	0.0001
127	SLU 79	0.07	-2.51	67.37	0.1197	0.0512	0.0001
127	SLU 80	0.07	-2.75	67.45	0.1309	0.0513	0.0001
127	SLU 81	0.07	-3.34	69.16	0.1599	0.0497	0.0001
127	SLU 82	0.07	-3.58	69.23	0.171	0.0499	0.0001
127	SLU 83	0.07	-3	69.97	0.1434	0.0506	0.0001
127	SLU 84	0.07	-3.24	70.05	0.1546	0.0508	0.0001
127	SLE RA 1	0.05	-2.21	43.23	0.1048	0.0366	0.0001
127	SLE RA 2	0.05	-2.47	43.32	0.1172	0.0367	0.0001
127	SLE RA 3	0.05	-2.02	44.07	0.0957	0.0374	0.0001
127	SLE RA 4	0.05	-2.17	44.12	0.1031	0.0375	0.0001
127	SLE RA 5	0.05	-2.24	43.86	0.1062	0.0373	0.0001
127	SLE RA 6	0.05	-1.79	44.61	0.0847	0.038	0.0001
127	SLE RA 7	0.05	-1.95	44.67	0.0921	0.0381	0.0001
127	SLE RA 8	0.05	-1.75	44.31	0.0828	0.0377	0.0001
127	SLE RA 9	0.05	-1.91	44.37	0.0902	0.0378	0.0001
127	SLE RA 10	0.05	-2.7	48.62	0.1283	0.0372	0.0001
127	SLE RA 11	0.05	-2.24	49.38	0.1069	0.0379	0.0001
127	SLE RA 12	0.05	-2.4	49.43	0.1143	0.038	0.0001
127	SLE RA 13	0.05	-2.47	49.17	0.1174	0.0377	0.0001
127	SLE RA 14	0.05	-2.01	49.92	0.0959	0.0384	0.0001
127	SLE RA 15	0.05	-2.17	49.97	0.1033	0.0385	0.0001
127	SLE RA 16	0.05	-1.98	49.62	0.094	0.0381	0.0001
127	SLE RA 17	0.05	-2.14	49.67	0.1014	0.0383	0.0001
127	SLE RA 18	0.05	-2.53	50.81	0.1208	0.0372	0.0001
127	SLE RA 19	0.05	-2.69	50.86	0.1282	0.0373	0.0001
127	SLE RA 20	0.05	-2.3	51.35	0.1098	0.0378	0.0001
127	SLE RA 21	0.05	-2.46	51.4	0.1172	0.0379	0.0001
127	SLE FR 1	0.05	-2.21	43.23	0.1048	0.0366	0.0001
127	SLE FR 2	0.05	-2.26	43.25	0.1072	0.0366	0.0001
127	SLE FR 3	0.05	-2.12	43.45	0.1004	0.0368	0.0001
127	SLE FR 4	0.05	-2.36	45.52	0.112	0.0368	0.0001
127	SLE FR 5	0.05	-2.21	45.72	0.1052	0.037	0.0001
127	SLE FR 6	0.05	-2.37	47.02	0.1128	0.0369	0.0001
127	SLE QP 1	0.05	-2.21	43.23	0.1048	0.0366	0.0001
127	SLE QP 2	0.05	-2.3	45.5	0.1096	0.0367	0.0001
127	SLD 1	0.26	1.11	49.06	-0.0519	0.2028	0.0004
127	SLD 2	0.26	1.11	49.06	-0.0519	0.2028	0.0004
127	SLD 3	0.28	-3.29	50.04	0.1566	0.2162	0.0004
127	SLD 4	0.28	-3.29	50.04	0.1566	0.2162	0.0004
127	SLD 5	0.09	5.4	45.09	-0.2551	0.0663	0.0001
127	SLD 6	0.09	5.4	45.09	-0.2551	0.0663	0.0001
127	SLD 7	0.14	-9.28	48.35	0.4399	0.1109	0.0002
127	SLD 8	0.14	-9.28	48.35	0.4399	0.1109	0.0002
127	SLD 9	-0.04	4.67	42.66	-0.2207	-0.0374	-0.0001
127	SLD 10	-0.04	4.67	42.66	-0.2207	-0.0374	-0.0001
127	SLD 11	0.01	-10	45.92	0.4742	0.0072	0
127	SLD 12	0.01	-10	45.92	0.4742	0.0072	0
127	SLD 13	-0.18	-1.32	40.96	0.0626	-0.1427	-0.0003
127	SLD 14	-0.18	-1.32	40.96	0.0626	-0.1427	-0.0003
127	SLD 15	-0.16	-5.72	41.94	0.2711	-0.1293	-0.0003
127	SLD 16	-0.16	-5.72	41.94	0.2711	-0.1293	-0.0003
127	SLV 1	0.55	5.51	53.7	-0.2598	0.4385	0.0009
127	SLV 2	0.55	5.51	53.7	-0.2598	0.4385	0.0009
127	SLV 3	0.59	-4.57	55.95	0.2179	0.4704	0.001
127	SLV 4	0.59	-4.57	55.95	0.2179	0.4704	0.001
127	SLV 5	0.14	15.33	44.54	-0.7257	0.1089	0.0002
127	SLV 6	0.14	15.33	44.54	-0.7257	0.1089	0.0002
127	SLV 7	0.28	-18.28	52.06	0.8665	0.2153	0.0005
127	SLV 8	0.28	-18.28	52.06	0.8665	0.2153	0.0005
127	SLV 9	-0.18	13.67	38.95	-0.6474	-0.1418	-0.0003
127	SLV 10	-0.18	13.67	38.95	-0.6474	-0.1418	-0.0003
127	SLV 11	-0.04	-19.94	46.46	0.9449	-0.0354	-0.0001
127	SLV 12	-0.04	-19.94	46.46	0.9449	-0.0354	-0.0001
127	SLV 13	-0.49	-0.04	35.05	0.0013	-0.3969	-0.0009
127	SLV 14	-0.49	-0.04	35.05	0.0013	-0.3969	-0.0009
127	SLV 15	-0.45	-10.12	37.31	0.479	-0.365	-0.0008
127	SLV 16	-0.45	-10.12	37.31	0.479	-0.365	-0.0008
128	SLU 1	0.02	0.41	8.77	0.0042	0.0162	0.0013
128	SLU 2	0.02	0.41	8.79	0.0042	0.0167	0.0013
128	SLU 3	0.02	0.43	8.87	0.0042	0.0166	0.0013
128	SLU 4	0.02	0.43	8.88	0.0042	0.0169	0.0013
128	SLU 5	0.02	0.42	8.83	0.0042	0.017	0.0013
128	SLU 6	0.02	0.43	8.91	0.0042	0.0168	0.0013
128	SLU 7	0.02	0.44	8.92	0.0042	0.0172	0.0013
128	SLU 8	0.02	0.43	8.86	0.0041	0.0167	0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
128	SLU 9	0.02	0.43	8.87	0.0041	0.017	0.0013
128	SLU 10	0.03	0.54	11.7	0.0045	0.0219	0.0019
128	SLU 11	0.03	0.56	11.78	0.0045	0.0218	0.0019
128	SLU 12	0.03	0.56	11.79	0.0045	0.0221	0.0019
128	SLU 13	0.03	0.55	11.75	0.0044	0.0222	0.0019
128	SLU 14	0.03	0.57	11.83	0.0044	0.0221	0.0019
128	SLU 15	0.03	0.57	11.84	0.0045	0.0224	0.0019
128	SLU 16	0.03	0.56	11.77	0.0044	0.0219	0.0019
128	SLU 17	0.03	0.56	11.78	0.0044	0.0222	0.0019
128	SLU 18	0.03	0.6	12.94	0.0045	0.0236	0.0021
128	SLU 19	0.03	0.6	12.94	0.0046	0.0239	0.0021
128	SLU 20	0.03	0.61	12.98	0.0045	0.0239	0.0021
128	SLU 21	0.03	0.61	12.99	0.0045	0.0242	0.0021
128	SLU 22	0.02	0.49	9.58	0.0047	0.0183	0.0015
128	SLU 23	0.02	0.5	9.6	0.0048	0.0188	0.0015
128	SLU 24	0.02	0.51	9.68	0.0048	0.0187	0.0015
128	SLU 25	0.02	0.51	9.69	0.0048	0.019	0.0015
128	SLU 26	0.02	0.51	9.64	0.0047	0.0191	0.0015
128	SLU 27	0.02	0.52	9.72	0.0047	0.019	0.0015
128	SLU 28	0.02	0.52	9.73	0.0048	0.0193	0.0015
128	SLU 29	0.02	0.51	9.67	0.0047	0.0189	0.0015
128	SLU 30	0.02	0.52	9.68	0.0047	0.0192	0.0015
128	SLU 31	0.03	0.63	12.51	0.005	0.024	0.0021
128	SLU 32	0.03	0.65	12.59	0.005	0.0239	0.002
128	SLU 33	0.03	0.65	12.6	0.0051	0.0242	0.0021
128	SLU 34	0.03	0.64	12.55	0.005	0.0243	0.0021
128	SLU 35	0.03	0.66	12.63	0.005	0.0242	0.0021
128	SLU 36	0.03	0.66	12.64	0.005	0.0245	0.0021
128	SLU 37	0.03	0.65	12.58	0.0049	0.0241	0.0021
128	SLU 38	0.03	0.65	12.59	0.005	0.0244	0.0021
128	SLU 39	0.03	0.69	13.74	0.0051	0.0258	0.0022
128	SLU 40	0.03	0.69	13.75	0.0051	0.0261	0.0023
128	SLU 41	0.03	0.7	13.79	0.0051	0.026	0.0023
128	SLU 42	0.03	0.7	13.8	0.0051	0.0264	0.0023
128	SLU 43	0.02	0.5	11.13	0.0052	0.0203	0.0016
128	SLU 44	0.03	0.5	11.14	0.0053	0.0208	0.0016
128	SLU 45	0.02	0.52	11.22	0.0053	0.0207	0.0016
128	SLU 46	0.03	0.52	11.23	0.0053	0.021	0.0016
128	SLU 47	0.03	0.51	11.19	0.0052	0.0211	0.0016
128	SLU 48	0.03	0.53	11.27	0.0052	0.021	0.0016
128	SLU 49	0.03	0.53	11.28	0.0053	0.0213	0.0017
128	SLU 50	0.03	0.52	11.21	0.0052	0.0208	0.0016
128	SLU 51	0.03	0.52	11.22	0.0052	0.0211	0.0017
128	SLU 52	0.03	0.63	14.06	0.0055	0.026	0.0022
128	SLU 53	0.03	0.65	14.14	0.0055	0.0259	0.0022
128	SLU 54	0.03	0.65	14.15	0.0056	0.0262	0.0022
128	SLU 55	0.03	0.64	14.1	0.0055	0.0263	0.0022
128	SLU 56	0.03	0.66	14.18	0.0055	0.0262	0.0022
128	SLU 57	0.03	0.66	14.19	0.0055	0.0265	0.0022
128	SLU 58	0.03	0.65	14.13	0.0054	0.026	0.0022
128	SLU 59	0.03	0.65	14.14	0.0055	0.0263	0.0022
128	SLU 60	0.04	0.69	15.29	0.0056	0.0277	0.0024
128	SLU 61	0.04	0.69	15.3	0.0056	0.028	0.0024
128	SLU 62	0.04	0.7	15.33	0.0056	0.028	0.0024
128	SLU 63	0.04	0.7	15.34	0.0056	0.0283	0.0024
128	SLU 64	0.03	0.59	11.94	0.0058	0.0224	0.0018
128	SLU 65	0.03	0.59	11.95	0.0058	0.0229	0.0018
128	SLU 66	0.03	0.61	12.03	0.0058	0.0228	0.0018
128	SLU 67	0.03	0.61	12.04	0.0059	0.0231	0.0018
128	SLU 68	0.03	0.6	11.99	0.0058	0.0232	0.0018
128	SLU 69	0.03	0.61	12.08	0.0058	0.0231	0.0018
128	SLU 70	0.03	0.62	12.09	0.0058	0.0234	0.0019
128	SLU 71	0.03	0.61	12.02	0.0057	0.023	0.0018
128	SLU 72	0.03	0.61	12.03	0.0057	0.0233	0.0018
128	SLU 73	0.04	0.72	14.86	0.0061	0.0281	0.0024
128	SLU 74	0.04	0.74	14.95	0.0061	0.028	0.0024
128	SLU 75	0.04	0.74	14.96	0.0061	0.0283	0.0024
128	SLU 76	0.04	0.73	14.91	0.0061	0.0284	0.0024
128	SLU 77	0.04	0.75	14.99	0.0061	0.0283	0.0024
128	SLU 78	0.04	0.75	15	0.0061	0.0286	0.0024
128	SLU 79	0.04	0.74	14.94	0.006	0.0282	0.0024
128	SLU 80	0.04	0.74	14.95	0.006	0.0285	0.0024
128	SLU 81	0.04	0.78	16.1	0.0062	0.0299	0.0026
128	SLU 82	0.04	0.78	16.11	0.0062	0.0302	0.0026
128	SLU 83	0.04	0.79	16.14	0.0061	0.0302	0.0026
128	SLU 84	0.04	0.79	16.15	0.0062	0.0305	0.0026
128	SLE RA 1	0.02	0.43	9	0.0043	0.0168	0.0013
128	SLE RA 2	0.02	0.43	9.01	0.0044	0.0171	0.0014
128	SLE RA 3	0.02	0.44	9.07	0.0044	0.017	0.0013
128	SLE RA 4	0.02	0.44	9.07	0.0044	0.0172	0.0014
128	SLE RA 5	0.02	0.44	9.04	0.0043	0.0173	0.0014
128	SLE RA 6	0.02	0.45	9.1	0.0043	0.0172	0.0014
128	SLE RA 7	0.02	0.45	9.1	0.0044	0.0174	0.0014
128	SLE RA 8	0.02	0.44	9.06	0.0043	0.0172	0.0014
128	SLE RA 9	0.02	0.45	9.07	0.0043	0.0174	0.0014
128	SLE RA 10	0.03	0.52	10.96	0.0045	0.0206	0.0017
128	SLE RA 11	0.03	0.53	11.01	0.0045	0.0205	0.0017
128	SLE RA 12	0.03	0.53	11.02	0.0046	0.0207	0.0017
128	SLE RA 13	0.03	0.53	10.99	0.0045	0.0208	0.0017



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
128	SLE RA 14	0.03	0.54	11.04	0.0045	0.0207	0.0017
128	SLE RA 15	0.03	0.54	11.05	0.0045	0.0209	0.0017
128	SLE RA 16	0.03	0.53	11	0.0045	0.0206	0.0017
128	SLE RA 17	0.03	0.54	11.01	0.0045	0.0208	0.0017
128	SLE RA 18	0.03	0.56	11.78	0.0046	0.0217	0.0019
128	SLE RA 19	0.03	0.56	11.78	0.0046	0.0219	0.0019
128	SLE RA 20	0.03	0.57	11.81	0.0046	0.0219	0.0019
128	SLE RA 21	0.03	0.57	11.81	0.0046	0.0221	0.0019
128	SLE FR 1	0.02	0.43	9	0.0043	0.0168	0.0013
128	SLE FR 2	0.02	0.43	9.01	0.0043	0.0168	0.0013
128	SLE FR 3	0.02	0.43	9.01	0.0043	0.0168	0.0013
128	SLE FR 4	0.02	0.47	9.84	0.0044	0.0183	0.0015
128	SLE FR 5	0.02	0.47	9.85	0.0044	0.0183	0.0015
128	SLE FR 6	0.02	0.5	10.39	0.0045	0.0193	0.0016
128	SLE QP 1	0.02	0.43	9	0.0043	0.0168	0.0013
128	SLE QP 2	0.02	0.47	9.84	0.0044	0.0183	0.0015
128	SLD 1	0.18	-0.62	9.12	-0.0059	0.1749	0.0114
128	SLD 2	0.18	-0.62	9.12	-0.0059	0.1749	0.0114
128	SLD 3	0.17	0.75	9.37	0.0381	0.1632	0.0106
128	SLD 4	0.17	0.75	9.37	0.0381	0.1632	0.0106
128	SLD 5	0.09	-1.94	9.24	-0.0655	0.0831	0.0057
128	SLD 6	0.09	-1.94	9.24	-0.0655	0.0831	0.0057
128	SLD 7	0.05	2.63	10.08	0.0813	0.0439	0.003
128	SLD 8	0.05	2.63	10.08	0.0813	0.0439	0.003
128	SLD 9	0	-1.69	9.59	-0.0725	-0.0074	-0.0001
128	SLD 10	0	-1.69	9.59	-0.0725	-0.0074	-0.0001
128	SLD 11	-0.04	2.88	10.43	0.0743	-0.0466	-0.0027
128	SLD 12	-0.04	2.88	10.43	0.0743	-0.0466	-0.0027
128	SLD 13	-0.12	0.19	10.3	-0.0293	-0.1267	-0.0077
128	SLD 14	-0.12	0.19	10.3	-0.0293	-0.1267	-0.0077
128	SLD 15	-0.14	1.57	10.55	0.0147	-0.1384	-0.0085
128	SLD 16	-0.14	1.57	10.55	0.0147	-0.1384	-0.0085
128	SLV 1	0.41	-2.07	8.18	-0.02	0.3984	0.0256
128	SLV 2	0.41	-2.07	8.18	-0.02	0.3984	0.0256
128	SLV 3	0.38	1.13	8.77	0.0828	0.3703	0.0237
128	SLV 4	0.38	1.13	8.77	0.0828	0.3703	0.0237
128	SLV 5	0.18	-5.15	8.43	-0.1588	0.1749	0.0116
128	SLV 6	0.18	-5.15	8.43	-0.1588	0.1749	0.0116
128	SLV 7	0.08	5.53	10.42	0.1839	0.0812	0.0053
128	SLV 8	0.08	5.53	10.42	0.1839	0.0812	0.0053
128	SLV 9	-0.04	-4.59	9.25	-0.175	-0.0447	-0.0023
128	SLV 10	-0.04	-4.59	9.25	-0.175	-0.0447	-0.0023
128	SLV 11	-0.14	6.09	11.24	0.1677	-0.1384	-0.0086
128	SLV 12	-0.14	6.09	11.24	0.1677	-0.1384	-0.0086
128	SLV 13	-0.33	-0.19	10.9	-0.074	-0.3338	-0.0207
128	SLV 14	-0.33	-0.19	10.9	-0.074	-0.3338	-0.0207
128	SLV 15	-0.36	3.02	11.49	0.0288	-0.3619	-0.0226
128	SLV 16	-0.36	3.02	11.49	0.0288	-0.3619	-0.0226
129	SLU 1	0.15	-0.99	18.39	0.1581	0.0914	0
129	SLU 2	0.15	1.21	18.19	0.0687	0.1004	0
129	SLU 3	0.15	-1.22	18.86	0.1713	0.0942	0.0001
129	SLU 4	0.16	0.1	18.74	0.1176	0.0996	0.0001
129	SLU 5	0.16	0.93	18.48	0.0827	0.1018	0.0001
129	SLU 6	0.15	-1.51	19.15	0.1853	0.0957	0.0001
129	SLU 7	0.16	-0.18	19.03	0.1316	0.101	0.0001
129	SLU 8	0.15	-1.56	18.96	0.1862	0.0943	0.0001
129	SLU 9	0.16	-0.24	18.84	0.1325	0.0996	0.0001
129	SLU 10	0.18	1.19	20.68	0.0874	0.1169	0.0001
129	SLU 11	0.18	-1.25	21.35	0.19	0.1108	0.0001
129	SLU 12	0.18	0.08	21.23	0.1363	0.1162	0.0001
129	SLU 13	0.18	0.9	20.97	0.1014	0.1184	0.0001
129	SLU 14	0.18	-1.53	21.63	0.204	0.1122	0.0001
129	SLU 15	0.18	-0.21	21.52	0.1504	0.1176	0.0001
129	SLU 16	0.18	-1.58	21.45	0.2049	0.1108	0.0001
129	SLU 17	0.18	-0.26	21.33	0.1512	0.1162	0.0001
129	SLU 18	0.18	-1.03	21.94	0.1848	0.1151	0.0001
129	SLU 19	0.19	0.29	21.82	0.1312	0.1205	0.0001
129	SLU 20	0.18	-1.31	22.23	0.1989	0.1165	0.0001
129	SLU 21	0.19	0.01	22.11	0.1452	0.1219	0.0001
129	SLU 22	0.17	-1.12	20.62	0.1793	0.1063	0.0001
129	SLU 23	0.18	1.08	20.43	0.0899	0.1153	0.0001
129	SLU 24	0.17	-1.35	21.1	0.1925	0.1091	0.0001
129	SLU 25	0.18	-0.03	20.98	0.1388	0.1145	0.0001
129	SLU 26	0.18	0.8	20.71	0.1039	0.1167	0.0001
129	SLU 27	0.18	-1.63	21.38	0.2065	0.1105	0.0001
129	SLU 28	0.18	-0.31	21.27	0.1529	0.1159	0.0001
129	SLU 29	0.17	-1.69	21.2	0.2074	0.1091	0.0001
129	SLU 30	0.18	-0.36	21.08	0.1537	0.1145	0.0001
129	SLU 31	0.2	1.06	22.92	0.1086	0.1318	0.0001
129	SLU 32	0.2	-1.37	23.59	0.2112	0.1257	0.0001
129	SLU 33	0.21	-0.05	23.47	0.1575	0.1311	0.0001
129	SLU 34	0.21	0.78	23.2	0.1226	0.1332	0.0001
129	SLU 35	0.2	-1.66	23.87	0.2252	0.1271	0.0001
129	SLU 36	0.21	-0.34	23.75	0.1716	0.1325	0.0001
129	SLU 37	0.2	-1.71	23.69	0.2261	0.1257	0.0001
129	SLU 38	0.21	-0.39	23.57	0.1724	0.1311	0.0001
129	SLU 39	0.21	-1.15	24.18	0.206	0.13	0.0001
129	SLU 40	0.21	0.17	24.06	0.1524	0.1353	0.0001
129	SLU 41	0.21	-1.44	24.47	0.2201	0.1314	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
129	SLU 42	0.21	-0.12	24.35	0.1664	0.1368	0.0001
129	SLU 43	0.18	-1.24	23.13	0.1982	0.1138	0.0001
129	SLU 44	0.19	0.96	22.94	0.1088	0.1227	0.0001
129	SLU 45	0.19	-1.48	23.61	0.2114	0.1166	0.0001
129	SLU 46	0.19	-0.15	23.49	0.1578	0.1219	0.0001
129	SLU 47	0.19	0.67	23.22	0.1228	0.1241	0.0001
129	SLU 48	0.19	-1.76	23.89	0.2254	0.118	0.0001
129	SLU 49	0.19	-0.44	23.77	0.1718	0.1234	0.0001
129	SLU 50	0.19	-1.81	23.71	0.2263	0.1166	0.0001
129	SLU 51	0.19	-0.49	23.59	0.1727	0.122	0.0001
129	SLU 52	0.22	0.93	25.43	0.1275	0.1393	0.0001
129	SLU 53	0.21	-1.5	26.09	0.2301	0.1331	0.0001
129	SLU 54	0.22	-0.18	25.98	0.1765	0.1385	0.0001
129	SLU 55	0.22	0.65	25.71	0.1416	0.1407	0.0001
129	SLU 56	0.21	-1.78	26.38	0.2442	0.1345	0.0001
129	SLU 57	0.22	-0.46	26.26	0.1905	0.1399	0.0001
129	SLU 58	0.21	-1.84	26.2	0.245	0.1331	0.0001
129	SLU 59	0.22	-0.52	26.08	0.1914	0.1385	0.0001
129	SLU 60	0.22	-1.28	26.69	0.225	0.1374	0.0001
129	SLU 61	0.22	0.04	26.57	0.1713	0.1428	0.0001
129	SLU 62	0.22	-1.56	26.98	0.239	0.1388	0.0001
129	SLU 63	0.23	-0.24	26.86	0.1854	0.1442	0.0001
129	SLU 64	0.2	-1.37	25.37	0.2194	0.1286	0.0001
129	SLU 65	0.21	0.83	25.17	0.13	0.1376	0.0001
129	SLU 66	0.21	-1.6	25.84	0.2326	0.1315	0.0001
129	SLU 67	0.21	-0.28	25.73	0.179	0.1368	0.0001
129	SLU 68	0.22	0.55	25.46	0.1441	0.139	0.0001
129	SLU 69	0.21	-1.89	26.13	0.2467	0.1329	0.0001
129	SLU 70	0.22	-0.56	26.01	0.193	0.1382	0.0001
129	SLU 71	0.21	-1.94	25.95	0.2475	0.1315	0.0001
129	SLU 72	0.21	-0.62	25.83	0.1939	0.1369	0.0001
129	SLU 73	0.24	0.81	27.66	0.1487	0.1542	0.0001
129	SLU 74	0.23	-1.63	28.33	0.2513	0.148	0.0001
129	SLU 75	0.24	-0.31	28.21	0.1977	0.1534	0.0001
129	SLU 76	0.24	0.52	27.95	0.1628	0.1556	0.0001
129	SLU 77	0.24	-1.91	28.62	0.2654	0.1494	0.0001
129	SLU 78	0.24	-0.59	28.5	0.2117	0.1548	0.0001
129	SLU 79	0.24	-1.97	28.44	0.2662	0.148	0.0001
129	SLU 80	0.24	-0.64	28.32	0.2126	0.1534	0.0001
129	SLU 81	0.24	-1.41	28.93	0.2462	0.1523	0.0001
129	SLU 82	0.25	-0.09	28.81	0.1925	0.1577	0.0001
129	SLU 83	0.24	-1.69	29.22	0.2602	0.1537	0.0001
129	SLU 84	0.25	-0.37	29.1	0.2066	0.1591	0.0001
129	SLE RA 1	0.15	-1.03	19.03	0.1641	0.0957	0.0001
129	SLE RA 2	0.16	0.44	18.89	0.1045	0.1017	0.0001
129	SLE RA 3	0.16	-1.18	19.34	0.1729	0.0976	0.0001
129	SLE RA 4	0.16	-0.3	19.26	0.1372	0.1011	0.0001
129	SLE RA 5	0.16	0.25	19.09	0.1139	0.1026	0.0001
129	SLE RA 6	0.16	-1.37	19.53	0.1823	0.0985	0.0001
129	SLE RA 7	0.16	-0.49	19.45	0.1465	0.1021	0.0001
129	SLE RA 8	0.16	-1.41	19.41	0.1829	0.0976	0.0001
129	SLE RA 9	0.16	-0.52	19.33	0.1471	0.1012	0.0001
129	SLE RA 10	0.18	0.42	20.55	0.117	0.1127	0.0001
129	SLE RA 11	0.17	-1.2	21	0.1854	0.1086	0.0001
129	SLE RA 12	0.18	-0.32	20.92	0.1496	0.1122	0.0001
129	SLE RA 13	0.18	0.24	20.74	0.1264	0.1136	0.0001
129	SLE RA 14	0.17	-1.39	21.19	0.1948	0.1095	0.0001
129	SLE RA 15	0.18	-0.51	21.11	0.159	0.1131	0.0001
129	SLE RA 16	0.17	-1.42	21.07	0.1953	0.1086	0.0001
129	SLE RA 17	0.18	-0.54	20.99	0.1596	0.1122	0.0001
129	SLE RA 18	0.18	-1.05	21.4	0.182	0.1114	0.0001
129	SLE RA 19	0.18	-0.17	21.32	0.1462	0.115	0.0001
129	SLE RA 20	0.18	-1.24	21.59	0.1913	0.1124	0.0001
129	SLE RA 21	0.18	-0.36	21.51	0.1556	0.116	0.0001
129	SLE FR 1	0.15	-1.03	19.03	0.1641	0.0957	0.0001
129	SLE FR 2	0.15	-0.73	19	0.1522	0.0969	0.0001
129	SLE FR 3	0.15	-1.1	19.1	0.1679	0.0961	0.0001
129	SLE FR 4	0.16	-0.74	19.71	0.1576	0.1016	0.0001
129	SLE FR 5	0.16	-1.11	19.81	0.1732	0.1008	0.0001
129	SLE FR 6	0.16	-1.04	20.21	0.1731	0.1036	0.0001
129	SLE QP 1	0.15	-1.03	19.03	0.1641	0.0957	0.0001
129	SLE QP 2	0.16	-1.03	19.74	0.1695	0.1004	0.0001
129	SLD 1	0.34	3.37	21.18	-0.0256	0.2352	0.0001
129	SLD 2	0.34	3.37	21.18	-0.0256	0.2352	0.0001
129	SLD 3	0.3	-1.37	20.42	0.1832	0.203	0.0001
129	SLD 4	0.3	-1.37	20.42	0.1832	0.203	0.0001
129	SLD 5	0.27	7.49	21.31	-0.2058	0.1897	0
129	SLD 6	0.27	7.49	21.31	-0.2058	0.1897	0
129	SLD 7	0.15	-8.34	18.8	0.4903	0.0823	0.0001
129	SLD 8	0.15	-8.34	18.8	0.4903	0.0823	0.0001
129	SLD 9	0.17	6.27	20.67	-0.1513	0.1185	0
129	SLD 10	0.17	6.27	20.67	-0.1513	0.1185	0
129	SLD 11	0.05	-9.56	18.16	0.5447	0.0111	0.0001
129	SLD 12	0.05	-9.56	18.16	0.5447	0.0111	0.0001
129	SLD 13	0.02	-0.69	19.05	0.1558	-0.0022	0
129	SLD 14	0.02	-0.69	19.05	0.1558	-0.0022	0
129	SLD 15	-0.02	-5.44	18.3	0.3646	-0.0344	0
129	SLD 16	-0.02	-5.44	18.3	0.3646	-0.0344	0
129	SLV 1	0.58	9.35	23.18	-0.2891	0.4196	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
129	SLV 2	0.58	9.35	23.18	-0.2891	0.4196	0.0002
129	SLV 3	0.49	-1.75	21.33	0.198	0.3396	0.0002
129	SLV 4	0.49	-1.75	21.33	0.198	0.3396	0.0002
129	SLV 5	0.42	18.91	23.58	-0.7068	0.3174	0
129	SLV 6	0.42	18.91	23.58	-0.7068	0.3174	0
129	SLV 7	0.12	-18.07	17.4	0.9168	0.0509	0.0002
129	SLV 8	0.12	-18.07	17.4	0.9168	0.0509	0.0002
129	SLV 9	0.2	16	22.07	-0.5778	0.1499	-0.0001
129	SLV 10	0.2	16	22.07	-0.5778	0.1499	-0.0001
129	SLV 11	-0.1	-20.97	15.89	1.0458	-0.1166	0.0001
129	SLV 12	-0.1	-20.97	15.89	1.0458	-0.1166	0.0001
129	SLV 13	-0.17	-0.32	18.14	0.141	-0.1388	-0.0001
129	SLV 14	-0.17	-0.32	18.14	0.141	-0.1388	-0.0001
129	SLV 15	-0.26	-11.42	16.29	0.6281	-0.2187	-0.0001
129	SLV 16	-0.26	-11.42	16.29	0.6281	-0.2187	-0.0001
130	SLU 1	0.06	-3.79	42.72	0.1881	0.0437	0.0012
130	SLU 2	0.06	-4.28	43.33	0.215	0.0444	0.0012
130	SLU 3	0.06	-3.58	43.53	0.1767	0.0445	0.0013
130	SLU 4	0.07	-3.88	43.9	0.1928	0.0449	0.0013
130	SLU 5	0.07	-4.03	43.63	0.2005	0.0446	0.0013
130	SLU 6	0.07	-3.33	43.83	0.1621	0.0447	0.0013
130	SLU 7	0.07	-3.63	44.2	0.1782	0.0451	0.0013
130	SLU 8	0.06	-3.28	43.31	0.159	0.0442	0.0013
130	SLU 9	0.06	-3.58	43.68	0.1751	0.0445	0.0013
130	SLU 10	0.08	-4.89	51.23	0.2478	0.0534	0.0015
130	SLU 11	0.08	-4.19	51.44	0.2094	0.0535	0.0015
130	SLU 12	0.08	-4.49	51.8	0.2256	0.0539	0.0015
130	SLU 13	0.08	-4.64	51.53	0.2332	0.0536	0.0015
130	SLU 14	0.08	-3.94	51.73	0.1949	0.0537	0.0015
130	SLU 15	0.08	-4.24	52.1	0.211	0.0541	0.0015
130	SLU 16	0.08	-3.89	51.21	0.1918	0.0531	0.0015
130	SLU 17	0.08	-4.19	51.58	0.2079	0.0535	0.0015
130	SLU 18	0.08	-4.65	54.01	0.2349	0.0566	0.0016
130	SLU 19	0.08	-4.95	54.38	0.2511	0.057	0.0016
130	SLU 20	0.08	-4.4	54.3	0.2204	0.0568	0.0016
130	SLU 21	0.08	-4.7	54.67	0.2365	0.0572	0.0016
130	SLU 22	0.07	-3.91	47.82	0.1962	0.0491	0.0014
130	SLU 23	0.07	-4.41	48.43	0.2231	0.0498	0.0014
130	SLU 24	0.07	-3.71	48.63	0.1847	0.0499	0.0014
130	SLU 25	0.07	-4	49	0.2008	0.0503	0.0014
130	SLU 26	0.07	-4.16	48.72	0.2085	0.05	0.0014
130	SLU 27	0.07	-3.45	48.93	0.1701	0.0501	0.0014
130	SLU 28	0.07	-3.75	49.29	0.1863	0.0505	0.0014
130	SLU 29	0.07	-3.41	48.41	0.167	0.0495	0.0014
130	SLU 30	0.07	-3.7	48.78	0.1832	0.0499	0.0014
130	SLU 31	0.09	-5.02	56.33	0.2558	0.0588	0.0016
130	SLU 32	0.09	-4.31	56.53	0.2175	0.0589	0.0017
130	SLU 33	0.09	-4.61	56.9	0.2336	0.0593	0.0017
130	SLU 34	0.09	-4.76	56.63	0.2413	0.059	0.0016
130	SLU 35	0.09	-4.06	56.83	0.2029	0.0591	0.0017
130	SLU 36	0.09	-4.36	57.2	0.219	0.0595	0.0017
130	SLU 37	0.09	-4.01	56.31	0.1998	0.0585	0.0017
130	SLU 38	0.09	-4.31	56.68	0.2159	0.0589	0.0017
130	SLU 39	0.09	-4.78	59.11	0.243	0.062	0.0017
130	SLU 40	0.09	-5.08	59.47	0.2591	0.0624	0.0017
130	SLU 41	0.09	-4.53	59.4	0.2284	0.0622	0.0017
130	SLU 42	0.09	-4.82	59.77	0.2445	0.0626	0.0017
130	SLU 43	0.08	-4.88	53.79	0.2418	0.055	0.0016
130	SLU 44	0.08	-5.38	54.4	0.2687	0.0557	0.0016
130	SLU 45	0.08	-4.68	54.6	0.2304	0.0558	0.0016
130	SLU 46	0.08	-4.97	54.97	0.2465	0.0562	0.0016
130	SLU 47	0.08	-5.13	54.7	0.2541	0.0559	0.0016
130	SLU 48	0.08	-4.42	54.9	0.2158	0.056	0.0016
130	SLU 49	0.08	-4.72	55.27	0.2319	0.0564	0.0016
130	SLU 50	0.08	-4.38	54.38	0.2127	0.0544	0.0016
130	SLU 51	0.08	-4.67	54.75	0.2288	0.0558	0.0016
130	SLU 52	0.09	-5.99	62.3	0.3015	0.0647	0.0018
130	SLU 53	0.09	-5.28	62.5	0.2631	0.0648	0.0018
130	SLU 54	0.1	-5.58	62.87	0.2793	0.0651	0.0018
130	SLU 55	0.09	-5.73	62.6	0.2869	0.0649	0.0018
130	SLU 56	0.09	-5.03	62.8	0.2486	0.065	0.0018
130	SLU 57	0.1	-5.33	63.17	0.2647	0.0654	0.0018
130	SLU 58	0.09	-4.98	62.28	0.2454	0.0644	0.0018
130	SLU 59	0.09	-5.28	62.65	0.2616	0.0648	0.0018
130	SLU 60	0.1	-5.75	65.08	0.2886	0.0679	0.0019
130	SLU 61	0.1	-6.05	65.44	0.3048	0.0683	0.0019
130	SLU 62	0.1	-5.5	65.37	0.2741	0.0681	0.0019
130	SLU 63	0.1	-5.79	65.74	0.2902	0.0685	0.0019
130	SLU 64	0.09	-5	58.89	0.2498	0.0604	0.0017
130	SLU 65	0.09	-5.5	59.5	0.2767	0.0611	0.0017
130	SLU 66	0.09	-4.8	59.7	0.2384	0.0611	0.0018
130	SLU 67	0.09	-5.1	60.07	0.2545	0.0615	0.0017
130	SLU 68	0.09	-5.25	59.79	0.2622	0.0613	0.0017
130	SLU 69	0.09	-4.55	60	0.2238	0.0614	0.0018
130	SLU 70	0.09	-4.85	60.36	0.24	0.0617	0.0018
130	SLU 71	0.09	-4.5	59.48	0.2207	0.0608	0.0018
130	SLU 72	0.09	-4.8	59.84	0.2368	0.0612	0.0018
130	SLU 73	0.1	-6.11	67.4	0.3095	0.0701	0.0019
130	SLU 74	0.1	-5.41	67.6	0.2712	0.0701	0.002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
130	SLU 75	0.1	-5.71	67.97	0.2873	0.0705	0.002
130	SLU 76	0.1	-5.86	67.7	0.295	0.0703	0.002
130	SLU 77	0.1	-5.15	67.9	0.2566	0.0704	0.002
130	SLU 78	0.1	-5.45	68.26	0.2727	0.0707	0.002
130	SLU 79	0.1	-5.11	67.38	0.2535	0.0698	0.002
130	SLU 80	0.1	-5.41	67.75	0.2696	0.0702	0.002
130	SLU 81	0.11	-5.87	70.17	0.2967	0.0733	0.002
130	SLU 82	0.11	-6.17	70.54	0.3128	0.0736	0.002
130	SLU 83	0.11	-5.62	70.47	0.2821	0.0735	0.0021
130	SLU 84	0.11	-5.92	70.84	0.2982	0.0739	0.0021
130	SLE RA 1	0.07	-3.82	44.18	0.1904	0.0453	0.0013
130	SLE RA 2	0.07	-4.15	44.58	0.2084	0.0457	0.0013
130	SLE RA 3	0.07	-3.69	44.72	0.1828	0.0458	0.0013
130	SLE RA 4	0.07	-3.88	44.96	0.1935	0.046	0.0013
130	SLE RA 5	0.07	-3.99	44.78	0.1986	0.0459	0.0013
130	SLE RA 6	0.07	-3.52	44.92	0.1731	0.0459	0.0013
130	SLE RA 7	0.07	-3.72	45.16	0.1838	0.0462	0.0013
130	SLE RA 8	0.07	-3.49	44.57	0.171	0.0456	0.0013
130	SLE RA 9	0.07	-3.68	44.82	0.1818	0.0458	0.0013
130	SLE RA 10	0.08	-4.56	49.85	0.2302	0.0517	0.0014
130	SLE RA 11	0.08	-4.09	49.99	0.2046	0.0518	0.0015
130	SLE RA 12	0.08	-4.29	50.23	0.2154	0.052	0.0015
130	SLE RA 13	0.08	-4.39	50.05	0.2205	0.0519	0.0015
130	SLE RA 14	0.08	-3.92	50.18	0.1949	0.0519	0.0015
130	SLE RA 15	0.08	-4.12	50.43	0.2057	0.0522	0.0015
130	SLE RA 16	0.08	-3.89	49.84	0.1928	0.0516	0.0015
130	SLE RA 17	0.08	-4.09	50.08	0.2036	0.0518	0.0015
130	SLE RA 18	0.08	-4.4	51.7	0.2216	0.0538	0.0015
130	SLE RA 19	0.08	-4.6	51.95	0.2324	0.0541	0.0015
130	SLE RA 20	0.08	-4.23	51.9	0.2119	0.054	0.0015
130	SLE RA 21	0.08	-4.43	52.14	0.2227	0.0542	0.0015
130	SLE FR 1	0.07	-3.82	44.18	0.1904	0.0453	0.0013
130	SLE FR 2	0.07	-3.89	44.26	0.194	0.0454	0.0013
130	SLE FR 3	0.07	-3.76	44.26	0.1865	0.0453	0.0013
130	SLE FR 4	0.07	-4.06	46.52	0.2034	0.0479	0.0014
130	SLE FR 5	0.07	-3.93	46.51	0.1959	0.0479	0.0014
130	SLE FR 6	0.07	-4.11	47.94	0.206	0.0496	0.0014
130	SLE QP 1	0.07	-3.82	44.18	0.1904	0.0453	0.0013
130	SLE QP 2	0.07	-4	46.43	0.1998	0.0478	0.0014
130	SLD 1	0.24	-3.4	40.95	0.1699	0.184	0.0003
130	SLD 2	0.24	-3.4	40.95	0.1699	0.184	0.0003
130	SLD 3	0.25	-7.82	44.27	0.4173	0.1922	0
130	SLD 4	0.25	-7.82	44.27	0.4173	0.1922	0
130	SLD 5	0.1	2.89	39.75	-0.1845	0.0762	0.0015
130	SLD 6	0.1	2.89	39.75	-0.1845	0.0762	0.0015
130	SLD 7	0.14	-11.85	50.82	0.6404	0.1037	0.0005
130	SLD 8	0.14	-11.85	50.82	0.6404	0.1037	0.0005
130	SLD 9	0	3.86	42.05	-0.2408	-0.008	0.0022
130	SLD 10	0	3.86	42.05	-0.2408	-0.008	0.0022
130	SLD 11	0.04	-10.88	53.11	0.5841	0.0195	0.0013
130	SLD 12	0.04	-10.88	53.11	0.5841	0.0195	0.0013
130	SLD 13	-0.11	-0.17	48.6	-0.0178	-0.0965	0.0027
130	SLD 14	-0.11	-0.17	48.6	-0.0178	-0.0965	0.0027
130	SLD 15	-0.1	-4.59	51.92	0.2297	-0.0883	0.0024
130	SLD 16	-0.1	-4.59	51.92	0.2297	-0.0883	0.0024
130	SLV 1	0.48	-2.63	33.8	0.1313	0.3782	-0.0013
130	SLV 2	0.48	-2.63	33.8	0.1313	0.3782	-0.0013
130	SLV 3	0.51	-12.8	41.51	0.7009	0.3986	-0.002
130	SLV 4	0.51	-12.8	41.51	0.7009	0.3986	-0.002
130	SLV 5	0.15	11.85	30.96	-0.6847	0.116	0.0016
130	SLV 6	0.15	11.85	30.96	-0.6847	0.116	0.0016
130	SLV 7	0.25	-22.07	56.64	1.214	0.1841	-0.0007
130	SLV 8	0.25	-22.07	56.64	1.214	0.1841	-0.0007
130	SLV 9	-0.11	14.08	36.23	-0.8145	-0.0884	0.0034
130	SLV 10	-0.11	14.08	36.23	-0.8145	-0.0884	0.0034
130	SLV 11	-0.01	-19.84	61.91	1.0843	-0.0203	0.0011
130	SLV 12	-0.01	-19.84	61.91	1.0843	-0.0203	0.0011
130	SLV 13	-0.37	4.81	51.36	-0.3013	-0.3029	0.0047
130	SLV 14	-0.37	4.81	51.36	-0.3013	-0.3029	0.0047
130	SLV 15	-0.34	-5.36	59.07	0.2683	-0.2825	0.004
130	SLV 16	-0.34	-5.36	59.07	0.2683	-0.2825	0.004
131	SLU 1	0	-1.47	35.16	0.1514	-0.0032	0
131	SLU 2	-0.01	0.55	35.68	0.0671	-0.0106	0
131	SLU 3	0	-1.74	36.22	0.1665	-0.0034	0
131	SLU 4	-0.01	-0.53	36.53	0.1159	-0.0078	0
131	SLU 5	-0.01	0.23	36.35	0.0837	-0.0107	0
131	SLU 6	0	-2.07	36.88	0.1832	-0.0034	0
131	SLU 7	-0.01	-0.85	37.2	0.1326	-0.0079	0
131	SLU 8	0	-2.12	36.49	0.1846	-0.0034	0
131	SLU 9	-0.01	-0.91	36.8	0.134	-0.0078	0
131	SLU 10	-0.01	0.5	41.2	0.0828	-0.0111	0
131	SLU 11	0	-1.8	41.73	0.1823	-0.0039	0
131	SLU 12	-0.01	-0.58	42.05	0.1317	-0.0083	0
131	SLU 13	-0.01	0.17	41.86	0.0995	-0.0112	0
131	SLU 14	0	-2.12	42.4	0.1989	-0.004	0
131	SLU 15	-0.01	-0.91	42.72	0.1483	-0.0084	0
131	SLU 16	0	-2.18	42	0.2004	-0.0039	0
131	SLU 17	-0.01	-0.96	42.32	0.1498	-0.0084	0
131	SLU 18	0	-1.55	43.04	0.1739	-0.004	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
131	SLU 19	-0.01	-0.34	43.35	0.1233	-0.0084	0
131	SLU 20	0	-1.88	43.7	0.1905	-0.0041	0
131	SLU 21	-0.01	-0.66	44.02	0.14	-0.0085	0
131	SLU 22	0	-1.63	40.27	0.171	-0.0037	0
131	SLU 23	-0.01	0.39	40.79	0.0867	-0.0111	0
131	SLU 24	0	-1.9	41.33	0.1862	-0.0039	0
131	SLU 25	-0.01	-0.69	41.65	0.1356	-0.0083	0
131	SLU 26	-0.01	0.06	41.46	0.1033	-0.0112	0
131	SLU 27	0	-2.23	42	0.2028	-0.0039	0
131	SLU 28	-0.01	-1.02	42.31	0.1522	-0.0084	0
131	SLU 29	0	-2.29	41.6	0.2043	-0.0039	0
131	SLU 30	-0.01	-1.07	41.91	0.1537	-0.0083	0
131	SLU 31	-0.01	0.33	46.31	0.1025	-0.0116	0
131	SLU 32	0	-1.96	46.85	0.2019	-0.0044	0
131	SLU 33	-0.01	-0.75	47.16	0.1514	-0.0088	0
131	SLU 34	-0.01	0.01	46.98	0.1191	-0.0117	0
131	SLU 35	0	-2.29	47.51	0.2186	-0.0045	0
131	SLU 36	-0.01	-1.07	47.83	0.168	-0.0089	0
131	SLU 37	0	-2.34	47.11	0.22	-0.0044	0
131	SLU 38	-0.01	-1.13	47.43	0.1695	-0.0089	0
131	SLU 39	0	-1.71	48.15	0.1936	-0.0045	0
131	SLU 40	-0.01	-0.5	48.46	0.143	-0.0089	0
131	SLU 41	0	-2.04	48.81	0.2102	-0.0046	0
131	SLU 42	-0.01	-0.83	49.13	0.1596	-0.009	0
131	SLU 43	0	-1.85	43.95	0.19	-0.004	0
131	SLU 44	-0.01	0.17	44.48	0.1057	-0.0114	0
131	SLU 45	0	-2.12	45.01	0.2052	-0.0041	0
131	SLU 46	-0.01	-0.91	45.33	0.1546	-0.0086	0
131	SLU 47	-0.01	-0.16	45.14	0.1224	-0.0115	0
131	SLU 48	0	-2.45	45.68	0.2218	-0.0042	0
131	SLU 49	-0.01	-1.24	45.99	0.1712	-0.0087	0
131	SLU 50	0	-2.51	45.28	0.2233	-0.0042	0
131	SLU 51	-0.01	-1.29	45.6	0.1727	-0.0086	0
131	SLU 52	-0.01	0.11	49.99	0.1215	-0.0119	0
131	SLU 53	0	-2.18	50.53	0.221	-0.0047	0
131	SLU 54	-0.01	-0.97	50.84	0.1704	-0.0091	0
131	SLU 55	-0.01	-0.21	50.66	0.1381	-0.012	0
131	SLU 56	0	-2.51	51.19	0.2376	-0.0048	0
131	SLU 57	-0.01	-1.29	51.51	0.187	-0.0092	0
131	SLU 58	0	-2.56	50.8	0.2391	-0.0047	0
131	SLU 59	-0.01	-1.35	51.11	0.1885	-0.0091	0
131	SLU 60	0	-1.93	51.83	0.2126	-0.0048	0
131	SLU 61	-0.01	-0.72	52.15	0.162	-0.0092	0
131	SLU 62	0	-2.26	52.5	0.2292	-0.0049	0
131	SLU 63	-0.01	-1.05	52.81	0.1786	-0.0093	0
131	SLU 64	0	-2.02	49.06	0.2097	-0.0045	0
131	SLU 65	-0.01	0	49.59	0.1254	-0.0119	0
131	SLU 66	0	-2.29	50.12	0.2248	-0.0046	0
131	SLU 67	-0.01	-1.08	50.44	0.1743	-0.0091	0
131	SLU 68	-0.01	-0.32	50.25	0.142	-0.012	0
131	SLU 69	0	-2.61	50.79	0.2415	-0.0047	0
131	SLU 70	-0.01	-1.4	51.11	0.1909	-0.0092	0
131	SLU 71	0	-2.67	50.39	0.2429	-0.0047	0
131	SLU 72	-0.01	-1.46	50.71	0.1924	-0.0091	0
131	SLU 73	-0.01	-0.05	55.11	0.1412	-0.0124	0
131	SLU 74	0	-2.35	55.64	0.2406	-0.0052	0
131	SLU 75	-0.01	-1.13	55.96	0.19	-0.0096	0
131	SLU 76	-0.01	-0.38	55.77	0.1578	-0.0125	0
131	SLU 77	0	-2.67	56.31	0.2573	-0.0053	0
131	SLU 78	-0.01	-1.46	56.62	0.2067	-0.0097	0
131	SLU 79	0	-2.73	55.91	0.2587	-0.0052	0
131	SLU 80	-0.01	-1.51	56.22	0.2081	-0.0096	0
131	SLU 81	0	-2.1	56.94	0.2322	-0.0053	0
131	SLU 82	-0.01	-0.88	57.26	0.1816	-0.0097	0
131	SLU 83	0	-2.42	57.61	0.2489	-0.0054	0
131	SLU 84	-0.01	-1.21	57.92	0.1983	-0.0098	0
131	SLE RA 1	0	-1.52	36.62	0.157	-0.0034	0
131	SLE RA 2	-0.01	-0.17	36.97	0.1008	-0.0083	0
131	SLE RA 3	0	-1.7	37.33	0.1671	-0.0034	0
131	SLE RA 4	0	-0.89	37.54	0.1334	-0.0064	0
131	SLE RA 5	-0.01	-0.39	37.41	0.1119	-0.0083	0
131	SLE RA 6	0	-1.91	37.77	0.1782	-0.0035	0
131	SLE RA 7	0	-1.11	37.98	0.1444	-0.0065	0
131	SLE RA 8	0	-1.95	37.5	0.1792	-0.0035	0
131	SLE RA 9	0	-1.14	37.71	0.1454	-0.0064	0
131	SLE RA 10	-0.01	-0.21	40.65	0.1113	-0.0086	0
131	SLE RA 11	0	-1.73	41	0.1776	-0.0038	0
131	SLE RA 12	0	-0.93	41.21	0.1439	-0.0068	0
131	SLE RA 13	-0.01	-0.42	41.09	0.1224	-0.0087	0
131	SLE RA 14	0	-1.95	41.45	0.1887	-0.0039	0
131	SLE RA 15	-0.01	-1.14	41.66	0.155	-0.0068	0
131	SLE RA 16	0	-1.99	41.18	0.1897	-0.0038	0
131	SLE RA 17	0	-1.18	41.39	0.1559	-0.0068	0
131	SLE RA 18	0	-1.57	41.87	0.172	-0.0039	0
131	SLE RA 19	-0.01	-0.76	42.08	0.1383	-0.0068	0
131	SLE RA 20	0	-1.79	42.31	0.1831	-0.0039	0
131	SLE RA 21	-0.01	-0.98	42.52	0.1494	-0.0069	0
131	SLE FR 1	0	-1.52	36.62	0.157	-0.0034	0
131	SLE FR 2	0	-1.25	36.69	0.1457	-0.0043	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
131	SLE FR 3	0	-1.6	36.79	0.1614	-0.0034	0
131	SLE FR 4	0	-1.26	38.26	0.1502	-0.0045	0
131	SLE FR 5	0	-1.62	38.37	0.1659	-0.0035	0
131	SLE FR 6	0	-1.54	39.24	0.1645	-0.0036	0
131	SLE QP 1	0	-1.52	36.62	0.157	-0.0034	0
131	SLE QP 2	0	-1.53	38.19	0.1615	-0.0035	0
131	SLD 1	0.12	-1.43	40.06	0.1582	0.0933	0
131	SLD 2	0.12	-1.43	40.06	0.1582	0.0933	0
131	SLD 3	0.14	-5.73	38.98	0.3504	0.1157	0
131	SLD 4	0.14	-5.73	38.98	0.3504	0.1157	0
131	SLD 5	-0.01	5.03	40.39	-0.131	-0.0084	0
131	SLD 6	-0.01	5.03	40.39	-0.131	-0.0084	0
131	SLD 7	0.08	-9.32	36.79	0.5097	0.0662	0
131	SLD 8	0.08	-9.32	36.79	0.5097	0.0662	0
131	SLD 9	-0.08	6.26	39.59	-0.1867	-0.0732	0
131	SLD 10	-0.08	6.26	39.59	-0.1867	-0.0732	0
131	SLD 11	0	-8.09	36	0.454	0.0013	0
131	SLD 12	0	-8.09	36	0.454	0.0013	0
131	SLD 13	-0.15	2.67	37.41	-0.0275	-0.1227	-0.0001
131	SLD 14	-0.15	2.67	37.41	-0.0275	-0.1227	-0.0001
131	SLD 15	-0.12	-1.64	36.33	0.1648	-0.1003	0
131	SLD 16	-0.12	-1.64	36.33	0.1648	-0.1003	0
131	SLV 1	0.28	-1.49	42.49	0.1631	0.2269	0.0001
131	SLV 2	0.28	-1.49	42.49	0.1631	0.2269	0.0001
131	SLV 3	0.34	-11.44	39.96	0.6069	0.283	0.0001
131	SLV 4	0.34	-11.44	39.96	0.6069	0.283	0.0001
131	SLV 5	-0.01	13.57	43.32	-0.511	-0.0195	0
131	SLV 6	-0.01	13.57	43.32	-0.511	-0.0195	0
131	SLV 7	0.2	-19.59	34.89	0.9681	0.1676	0.0001
131	SLV 8	0.2	-19.59	34.89	0.9681	0.1676	0.0001
131	SLV 9	-0.2	16.52	41.5	-0.6451	-0.1746	-0.0001
131	SLV 10	-0.2	16.52	41.5	-0.6451	-0.1746	-0.0001
131	SLV 11	0.01	-16.63	33.06	0.834	0.0125	0
131	SLV 12	0.01	-16.63	33.06	0.834	0.0125	0
131	SLV 13	-0.35	8.37	36.42	-0.2839	-0.2901	-0.0001
131	SLV 14	-0.35	8.37	36.42	-0.2839	-0.2901	-0.0001
131	SLV 15	-0.28	-1.57	33.89	0.1598	-0.2339	-0.0001
131	SLV 16	-0.28	-1.57	33.89	0.1598	-0.2339	-0.0001
132	SLU 1	0.01	2.84	55.32	-0.0918	0.0111	0
132	SLU 2	0.06	3.35	58.36	-0.1105	0.069	0
132	SLU 3	0.01	2.95	56.96	-0.0954	0.0113	0
132	SLU 4	0.04	3.26	58.79	-0.1066	0.046	0
132	SLU 5	0.06	3.41	59.34	-0.1124	0.069	0
132	SLU 6	0.01	3.01	57.94	-0.0973	0.0113	0
132	SLU 7	0.04	3.32	59.77	-0.1085	0.0461	0
132	SLU 8	0.01	2.96	57.28	-0.0956	0.0113	0
132	SLU 9	0.04	3.27	59.1	-0.1068	0.046	0
132	SLU 10	0.06	3.88	65.05	-0.1287	0.0703	0
132	SLU 11	0.01	3.47	63.65	-0.1136	0.0126	0
132	SLU 12	0.04	3.78	65.48	-0.1248	0.0473	0
132	SLU 13	0.06	3.94	66.03	-0.1306	0.0704	0
132	SLU 14	0.01	3.53	64.63	-0.1155	0.0126	0
132	SLU 15	0.04	3.84	66.46	-0.1267	0.0474	0
132	SLU 16	0.01	3.48	63.96	-0.1138	0.0126	0
132	SLU 17	0.04	3.79	65.79	-0.125	0.0473	0
132	SLU 18	0.01	3.59	64.87	-0.1179	0.0129	0
132	SLU 19	0.04	3.9	66.7	-0.1291	0.0477	0
132	SLU 20	0.01	3.65	65.85	-0.1198	0.013	0
132	SLU 21	0.04	3.96	67.68	-0.131	0.0478	0
132	SLU 22	0.01	3.31	62.04	-0.1079	0.0123	0
132	SLU 23	0.06	3.83	65.08	-0.1265	0.0702	0
132	SLU 24	0.01	3.42	63.68	-0.1115	0.0125	0
132	SLU 25	0.04	3.73	65.51	-0.1227	0.0472	0
132	SLU 26	0.06	3.89	66.06	-0.1284	0.0703	0
132	SLU 27	0.01	3.48	64.66	-0.1133	0.0126	0
132	SLU 28	0.04	3.79	66.49	-0.1245	0.0473	0
132	SLU 29	0.01	3.43	64	-0.1116	0.0125	0
132	SLU 30	0.04	3.74	65.82	-0.1228	0.0472	0
132	SLU 31	0.06	4.35	71.77	-0.1448	0.0715	0
132	SLU 32	0.02	3.95	70.37	-0.1297	0.0138	0
132	SLU 33	0.04	4.26	72.2	-0.1409	0.0485	0
132	SLU 34	0.06	4.41	72.75	-0.1467	0.0716	0
132	SLU 35	0.02	4.01	71.35	-0.1316	0.0139	0
132	SLU 36	0.04	4.32	73.18	-0.1428	0.0486	0
132	SLU 37	0.02	3.96	70.68	-0.1299	0.0138	0
132	SLU 38	0.04	4.27	72.51	-0.1411	0.0485	0
132	SLU 39	0.02	4.06	71.59	-0.1339	0.0142	0
132	SLU 40	0.04	4.37	73.42	-0.1451	0.0489	0
132	SLU 41	0.02	4.12	72.57	-0.1358	0.0143	0
132	SLU 42	0.04	4.43	74.4	-0.147	0.049	0
132	SLU 43	0.02	3.53	69.61	-0.1138	0.014	0
132	SLU 44	0.06	4.04	72.65	-0.1325	0.0719	0
132	SLU 45	0.02	3.64	71.25	-0.1174	0.0142	0
132	SLU 46	0.04	3.94	73.08	-0.1286	0.0489	0
132	SLU 47	0.06	4.1	73.63	-0.1344	0.072	0
132	SLU 48	0.02	3.7	72.23	-0.1193	0.0142	0
132	SLU 49	0.04	4	74.06	-0.1305	0.049	0
132	SLU 50	0.02	3.65	71.57	-0.1176	0.0142	0
132	SLU 51	0.04	3.95	73.39	-0.1288	0.0489	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
132	SLU 52	0.06	4.57	79.34	-0.1508	0.0732	0
132	SLU 53	0.02	4.16	77.94	-0.1357	0.0155	0
132	SLU 54	0.04	4.47	79.77	-0.1469	0.0502	0
132	SLU 55	0.06	4.63	80.32	-0.1526	0.0733	0
132	SLU 56	0.02	4.22	78.92	-0.1376	0.0156	0
132	SLU 57	0.04	4.53	80.75	-0.1488	0.0503	0
132	SLU 58	0.02	4.17	78.26	-0.1359	0.0155	0
132	SLU 59	0.04	4.48	80.08	-0.1471	0.0502	0
132	SLU 60	0.02	4.28	79.16	-0.1399	0.0158	0
132	SLU 61	0.04	4.58	80.99	-0.1511	0.0506	0
132	SLU 62	0.02	4.34	80.14	-0.1418	0.0159	0
132	SLU 63	0.04	4.65	81.97	-0.153	0.0507	0
132	SLU 64	0.02	4	76.33	-0.1299	0.0152	0
132	SLU 65	0.06	4.52	79.37	-0.1486	0.0731	0
132	SLU 66	0.02	4.11	77.97	-0.1335	0.0154	0
132	SLU 67	0.04	4.42	79.8	-0.1447	0.0501	0
132	SLU 68	0.06	4.58	80.35	-0.1505	0.0732	0
132	SLU 69	0.02	4.17	78.95	-0.1354	0.0155	0
132	SLU 70	0.04	4.48	80.78	-0.1466	0.0502	0
132	SLU 71	0.02	4.12	78.29	-0.1337	0.0154	0
132	SLU 72	0.04	4.43	80.11	-0.1449	0.0501	0
132	SLU 73	0.06	5.04	86.06	-0.1668	0.0744	0
132	SLU 74	0.02	4.64	84.66	-0.1517	0.0167	0
132	SLU 75	0.05	4.95	86.49	-0.1629	0.0514	0
132	SLU 76	0.06	5.1	87.04	-0.1687	0.0745	0
132	SLU 77	0.02	4.7	85.64	-0.1536	0.0168	0
132	SLU 78	0.05	5.01	87.47	-0.1648	0.0515	0
132	SLU 79	0.02	4.65	84.98	-0.1519	0.0167	0
132	SLU 80	0.05	4.96	86.8	-0.1631	0.0514	0
132	SLU 81	0.02	4.75	85.88	-0.156	0.0171	0
132	SLU 82	0.05	5.06	87.71	-0.1672	0.0518	0
132	SLU 83	0.02	4.81	86.86	-0.1579	0.0172	0
132	SLU 84	0.05	5.12	88.69	-0.1691	0.0519	0
132	SLE RA 1	0.01	2.97	57.24	-0.0964	0.0114	0
132	SLE RA 2	0.04	3.32	59.26	-0.1088	0.05	0
132	SLE RA 3	0.01	3.05	58.33	-0.0988	0.0115	0
132	SLE RA 4	0.03	3.25	59.55	-0.1063	0.0347	0
132	SLE RA 5	0.04	3.36	59.92	-0.1101	0.0501	0
132	SLE RA 6	0.01	3.09	58.99	-0.1	0.0116	0
132	SLE RA 7	0.03	3.29	60.2	-0.1075	0.0348	0
132	SLE RA 8	0.01	3.05	58.54	-0.0989	0.0115	0
132	SLE RA 9	0.03	3.26	59.76	-0.1064	0.0347	0
132	SLE RA 10	0.04	3.67	63.72	-0.121	0.0509	0
132	SLE RA 11	0.01	3.4	62.79	-0.1109	0.0124	0
132	SLE RA 12	0.03	3.6	64.01	-0.1184	0.0356	0
132	SLE RA 13	0.04	3.71	64.38	-0.1223	0.0509	0
132	SLE RA 14	0.01	3.44	63.45	-0.1122	0.0125	0
132	SLE RA 15	0.03	3.64	64.66	-0.1197	0.0356	0
132	SLE RA 16	0.01	3.4	63	-0.1111	0.0124	0
132	SLE RA 17	0.03	3.61	64.22	-0.1185	0.0356	0
132	SLE RA 18	0.01	3.47	63.6	-0.1138	0.0127	0
132	SLE RA 19	0.03	3.68	64.82	-0.1212	0.0358	0
132	SLE RA 20	0.01	3.51	64.26	-0.115	0.0127	0
132	SLE RA 21	0.03	3.72	65.48	-0.1225	0.0359	0
132	SLE FR 1	0.01	2.97	57.24	-0.0964	0.0114	0
132	SLE FR 2	0.02	3.04	57.64	-0.0989	0.0191	0
132	SLE FR 3	0.01	2.99	57.5	-0.0969	0.0115	0
132	SLE FR 4	0.02	3.19	59.55	-0.1041	0.0195	0
132	SLE FR 5	0.01	3.14	59.41	-0.1021	0.0118	0
132	SLE FR 6	0.01	3.22	60.42	-0.1051	0.012	0
132	SLE QP 1	0.01	2.97	57.24	-0.0964	0.0114	0
132	SLE QP 2	0.01	3.12	59.15	-0.1016	0.0118	0
132	SLD 1	0.16	3.9	47.07	-0.1384	0.2471	0.0001
132	SLD 2	0.16	3.9	47.07	-0.1384	0.2471	0.0001
132	SLD 3	0.26	-1.07	42.85	0.0727	0.1393	0
132	SLD 4	0.26	-1.07	42.85	0.0727	0.1393	0
132	SLD 5	-0.1	10.9	61.93	-0.4328	0.2458	0.0001
132	SLD 6	-0.1	10.9	61.93	-0.4328	0.2458	0.0001
132	SLD 7	0.25	-5.68	47.85	0.2708	-0.1134	0
132	SLD 8	0.25	-5.68	47.85	0.2708	-0.1134	0
132	SLD 9	-0.22	11.92	70.44	-0.4741	0.137	0
132	SLD 10	-0.22	11.92	70.44	-0.4741	0.137	0
132	SLD 11	0.13	-4.65	56.37	0.2296	-0.2222	0
132	SLD 12	0.13	-4.65	56.37	0.2296	-0.2222	0
132	SLD 13	-0.23	7.32	75.45	-0.2759	-0.1157	0
132	SLD 14	-0.23	7.32	75.45	-0.2759	-0.1157	0
132	SLD 15	-0.13	2.35	71.22	-0.0648	-0.2235	0
132	SLD 16	-0.13	2.35	71.22	-0.0648	-0.2235	0
132	SLV 1	0.34	4.9	31.45	-0.1861	0.5777	0.0001
132	SLV 2	0.34	4.9	31.45	-0.1861	0.5777	0.0001
132	SLV 3	0.61	-6.53	21.65	0.2991	0.3019	0.0001
132	SLV 4	0.61	-6.53	21.65	0.2991	0.3019	0.0001
132	SLV 5	-0.3	20.98	65.7	-0.8628	0.5999	0.0001
132	SLV 6	-0.3	20.98	65.7	-0.8628	0.5999	0.0001
132	SLV 7	0.6	-17.1	33.04	0.7544	-0.3195	-0.0001
132	SLV 8	0.6	-17.1	33.04	0.7544	-0.3195	-0.0001
132	SLV 9	-0.57	23.34	85.25	-0.9577	0.3431	0.0001
132	SLV 10	-0.57	23.34	85.25	-0.9577	0.3431	0.0001
132	SLV 11	0.32	-14.73	52.6	0.6596	-0.5763	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
132	SLV 12	0.32	-14.73	52.6	0.6596	-0.5763	-0.0001
132	SLV 13	-0.58	12.77	96.64	-0.5023	-0.2783	-0.0001
132	SLV 14	-0.58	12.77	96.64	-0.5023	-0.2783	-0.0001
132	SLV 15	-0.31	1.35	86.84	-0.0172	-0.5541	-0.0001
132	SLV 16	-0.31	1.35	86.84	-0.0172	-0.5541	-0.0001
133	SLU 1	-0.18	6.05	31.59	-0.2348	-0.1239	-0.001
133	SLU 2	-0.22	6.96	32.49	-0.2746	-0.1821	-0.0012
133	SLU 3	-0.18	6.37	32.53	-0.2474	-0.1282	-0.001
133	SLU 4	-0.21	6.91	33.07	-0.2714	-0.1632	-0.0012
133	SLU 5	-0.23	7.21	33.14	-0.285	-0.1851	-0.0012
133	SLU 6	-0.19	6.63	33.18	-0.2577	-0.1312	-0.001
133	SLU 7	-0.22	7.17	33.72	-0.2817	-0.1661	-0.0012
133	SLU 8	-0.19	6.57	32.89	-0.2554	-0.1299	-0.001
133	SLU 9	-0.21	7.11	33.43	-0.2793	-0.1648	-0.0012
133	SLU 10	-0.25	7.83	35.92	-0.308	-0.198	-0.0013
133	SLU 11	-0.21	7.25	35.96	-0.2808	-0.1441	-0.0011
133	SLU 12	-0.23	7.79	36.5	-0.3048	-0.179	-0.0013
133	SLU 13	-0.25	8.09	36.57	-0.3184	-0.201	-0.0014
133	SLU 14	-0.21	7.5	36.61	-0.2911	-0.1471	-0.0011
133	SLU 15	-0.24	8.05	37.15	-0.3151	-0.182	-0.0013
133	SLU 16	-0.21	7.44	36.32	-0.2888	-0.1458	-0.0011
133	SLU 17	-0.24	7.99	36.86	-0.3127	-0.1807	-0.0013
133	SLU 18	-0.21	7.3	36.49	-0.2825	-0.1466	-0.0011
133	SLU 19	-0.24	7.85	37.03	-0.3064	-0.1815	-0.0013
133	SLU 20	-0.21	7.56	37.14	-0.2928	-0.1496	-0.0012
133	SLU 21	-0.24	8.1	37.68	-0.3167	-0.1845	-0.0013
133	SLU 22	-0.2	6.95	35.05	-0.2694	-0.14	-0.0011
133	SLU 23	-0.25	7.86	35.95	-0.3093	-0.1982	-0.0014
133	SLU 24	-0.21	7.27	35.99	-0.2821	-0.1443	-0.0011
133	SLU 25	-0.24	7.82	36.53	-0.306	-0.1792	-0.0013
133	SLU 26	-0.25	8.12	36.6	-0.3196	-0.2012	-0.0014
133	SLU 27	-0.21	7.53	36.64	-0.2924	-0.1473	-0.0011
133	SLU 28	-0.24	8.08	37.18	-0.3163	-0.1822	-0.0013
133	SLU 29	-0.21	7.47	36.35	-0.2901	-0.146	-0.0011
133	SLU 30	-0.24	8.01	36.89	-0.314	-0.1809	-0.0013
133	SLU 31	-0.27	8.74	39.38	-0.3427	-0.2141	-0.0015
133	SLU 32	-0.23	8.15	39.42	-0.3155	-0.1602	-0.0012
133	SLU 33	-0.26	8.7	39.96	-0.3394	-0.1951	-0.0014
133	SLU 34	-0.28	9	40.03	-0.353	-0.217	-0.0015
133	SLU 35	-0.23	8.41	40.07	-0.3258	-0.1632	-0.0013
133	SLU 36	-0.26	8.95	40.61	-0.3497	-0.1981	-0.0014
133	SLU 37	-0.23	8.35	39.78	-0.3235	-0.1618	-0.0012
133	SLU 38	-0.26	8.89	40.32	-0.3474	-0.1967	-0.0014
133	SLU 39	-0.23	8.21	39.95	-0.3172	-0.1627	-0.0013
133	SLU 40	-0.26	8.75	40.49	-0.3411	-0.1976	-0.0014
133	SLU 41	-0.24	8.47	40.6	-0.3275	-0.1657	-0.0013
133	SLU 42	-0.27	9.01	41.14	-0.3514	-0.2006	-0.0014
133	SLU 43	-0.22	7.55	39.88	-0.2933	-0.1556	-0.0012
133	SLU 44	-0.27	8.46	40.78	-0.3332	-0.2138	-0.0015
133	SLU 45	-0.23	7.87	40.82	-0.306	-0.1599	-0.0012
133	SLU 46	-0.26	8.42	41.36	-0.3299	-0.1948	-0.0014
133	SLU 47	-0.27	8.72	41.43	-0.3435	-0.2168	-0.0015
133	SLU 48	-0.23	8.13	41.47	-0.3163	-0.1629	-0.0013
133	SLU 49	-0.26	8.68	42.01	-0.3402	-0.1978	-0.0014
133	SLU 50	-0.23	8.07	41.18	-0.3139	-0.1615	-0.0012
133	SLU 51	-0.26	8.61	41.72	-0.3378	-0.1965	-0.0014
133	SLU 52	-0.29	9.34	44.21	-0.3666	-0.2297	-0.0016
133	SLU 53	-0.25	8.75	44.25	-0.3394	-0.1758	-0.0014
133	SLU 54	-0.28	9.29	44.79	-0.3633	-0.2107	-0.0015
133	SLU 55	-0.3	9.6	44.86	-0.3769	-0.2326	-0.0016
133	SLU 56	-0.26	9.01	44.9	-0.3497	-0.1788	-0.0014
133	SLU 57	-0.28	9.55	45.44	-0.3736	-0.2137	-0.0015
133	SLU 58	-0.25	8.95	44.61	-0.3473	-0.1774	-0.0014
133	SLU 59	-0.28	9.49	45.15	-0.3712	-0.2123	-0.0015
133	SLU 60	-0.25	8.81	44.78	-0.341	-0.1783	-0.0014
133	SLU 61	-0.28	9.35	45.32	-0.3649	-0.2132	-0.0015
133	SLU 62	-0.26	9.06	45.43	-0.3513	-0.1813	-0.0014
133	SLU 63	-0.29	9.61	45.97	-0.3752	-0.2162	-0.0016
133	SLU 64	-0.25	8.46	43.34	-0.328	-0.1717	-0.0013
133	SLU 65	-0.29	9.36	44.24	-0.3679	-0.2299	-0.0016
133	SLU 66	-0.25	8.78	44.28	-0.3406	-0.176	-0.0014
133	SLU 67	-0.28	9.32	44.82	-0.3646	-0.2109	-0.0015
133	SLU 68	-0.3	9.62	44.89	-0.3782	-0.2328	-0.0016
133	SLU 69	-0.26	9.04	44.93	-0.3509	-0.179	-0.0014
133	SLU 70	-0.29	9.58	45.47	-0.3749	-0.2139	-0.0015
133	SLU 71	-0.25	8.97	44.64	-0.3486	-0.1776	-0.0014
133	SLU 72	-0.28	9.52	45.18	-0.3725	-0.2125	-0.0015
133	SLU 73	-0.32	10.24	47.67	-0.4013	-0.2457	-0.0017
133	SLU 74	-0.28	9.66	47.71	-0.374	-0.1919	-0.0015
133	SLU 75	-0.3	10.2	48.25	-0.398	-0.2268	-0.0016
133	SLU 76	-0.32	10.5	48.32	-0.4116	-0.2487	-0.0017
133	SLU 77	-0.28	9.91	48.36	-0.3843	-0.1948	-0.0015
133	SLU 78	-0.31	10.46	48.9	-0.4083	-0.2297	-0.0017
133	SLU 79	-0.28	9.85	48.07	-0.382	-0.1935	-0.0015
133	SLU 80	-0.31	10.4	48.61	-0.4059	-0.2284	-0.0017
133	SLU 81	-0.28	9.71	48.24	-0.3757	-0.1944	-0.0015
133	SLU 82	-0.31	10.26	48.78	-0.3996	-0.2293	-0.0017
133	SLU 83	-0.28	9.97	48.89	-0.386	-0.1973	-0.0015
133	SLU 84	-0.31	10.51	49.43	-0.4099	-0.2322	-0.0017



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
133	SLE RA 1	-0.18	6.31	32.58	-0.2447	-0.1285	-0.001
133	SLE RA 2	-0.22	6.91	33.18	-0.2713	-0.1673	-0.0012
133	SLE RA 3	-0.19	6.52	33.2	-0.2531	-0.1314	-0.001
133	SLE RA 4	-0.21	6.88	33.56	-0.2691	-0.1547	-0.0011
133	SLE RA 5	-0.22	7.08	33.61	-0.2781	-0.1693	-0.0012
133	SLE RA 6	-0.19	6.69	33.64	-0.26	-0.1334	-0.001
133	SLE RA 7	-0.21	7.06	34	-0.2759	-0.1567	-0.0011
133	SLE RA 8	-0.19	6.65	33.44	-0.2584	-0.1325	-0.001
133	SLE RA 9	-0.21	7.01	33.8	-0.2744	-0.1558	-0.0011
133	SLE RA 10	-0.23	7.5	35.46	-0.2935	-0.1779	-0.0013
133	SLE RA 11	-0.2	7.11	35.49	-0.2754	-0.142	-0.0011
133	SLE RA 12	-0.22	7.47	35.85	-0.2913	-0.1653	-0.0012
133	SLE RA 13	-0.23	7.67	35.9	-0.3004	-0.1799	-0.0013
133	SLE RA 14	-0.21	7.28	35.92	-0.2822	-0.144	-0.0011
133	SLE RA 15	-0.23	7.64	36.28	-0.2982	-0.1672	-0.0012
133	SLE RA 16	-0.21	7.24	35.73	-0.2807	-0.1431	-0.0011
133	SLE RA 17	-0.22	7.6	36.09	-0.2966	-0.1663	-0.0012
133	SLE RA 18	-0.21	7.14	35.85	-0.2765	-0.1436	-0.0011
133	SLE RA 19	-0.22	7.51	36.21	-0.2924	-0.1669	-0.0012
133	SLE RA 20	-0.21	7.32	36.28	-0.2834	-0.1456	-0.0011
133	SLE RA 21	-0.23	7.68	36.64	-0.2993	-0.1689	-0.0012
133	SLE FR 1	-0.18	6.31	32.58	-0.2447	-0.1285	-0.001
133	SLE FR 2	-0.19	6.43	32.7	-0.25	-0.1363	-0.001
133	SLE FR 3	-0.18	6.38	32.75	-0.2474	-0.1293	-0.001
133	SLE FR 4	-0.2	6.68	33.68	-0.2595	-0.1408	-0.0011
133	SLE FR 5	-0.19	6.63	33.73	-0.257	-0.1339	-0.001
133	SLE FR 6	-0.19	6.72	34.21	-0.2606	-0.1361	-0.001
133	SLE QP 1	-0.18	6.31	32.58	-0.2447	-0.1285	-0.001
133	SLE QP 2	-0.19	6.56	33.56	-0.2542	-0.1331	-0.001
133	SLD 1	-0.4	12.72	43.15	-0.5192	-0.328	-0.0021
133	SLD 2	-0.4	12.72	43.15	-0.5192	-0.328	-0.0021
133	SLD 3	-0.32	5.08	41.87	-0.1849	-0.2466	-0.0017
133	SLD 4	-0.32	5.08	41.87	-0.1849	-0.2466	-0.0017
133	SLD 5	-0.38	19.99	38.38	-0.8407	-0.315	-0.0021
133	SLD 6	-0.38	19.99	38.38	-0.8407	-0.315	-0.0021
133	SLD 7	-0.1	-5.47	34.11	0.2736	-0.0436	-0.0005
133	SLD 8	-0.1	-5.47	34.11	0.2736	-0.0436	-0.0005
133	SLD 9	-0.28	18.59	33.01	-0.782	-0.2225	-0.0015
133	SLD 10	-0.28	18.59	33.01	-0.782	-0.2225	-0.0015
133	SLD 11	0	-6.88	28.74	0.3323	0.0489	0
133	SLD 12	0	-6.88	28.74	0.3323	0.0489	0
133	SLD 13	-0.06	8.04	25.25	-0.3235	-0.0195	-0.0004
133	SLD 14	-0.06	8.04	25.25	-0.3235	-0.0195	-0.0004
133	SLD 15	0.02	0.4	23.97	0.0107	0.0619	0.0001
133	SLD 16	0.02	0.4	23.97	0.0107	0.0619	0.0001
133	SLV 1	-0.7	20.68	55.59	-0.8621	-0.6052	-0.0037
133	SLV 2	-0.7	20.68	55.59	-0.8621	-0.6052	-0.0037
133	SLV 3	-0.48	3.08	52.53	-0.092	-0.3966	-0.0026
133	SLV 4	-0.48	3.08	52.53	-0.092	-0.3966	-0.0026
133	SLV 5	-0.67	37.48	44.81	-1.6045	-0.591	-0.0036
133	SLV 6	-0.67	37.48	44.81	-1.6045	-0.591	-0.0036
133	SLV 7	0.05	-21.17	34.61	0.9624	0.1042	0.0003
133	SLV 8	0.05	-21.17	34.61	0.9624	0.1042	0.0003
133	SLV 9	-0.43	34.29	32.51	-1.4709	-0.3703	-0.0023
133	SLV 10	-0.43	34.29	32.51	-1.4709	-0.3703	-0.0023
133	SLV 11	0.29	-24.36	22.31	1.0961	0.3249	0.0016
133	SLV 12	0.29	-24.36	22.31	1.0961	0.3249	0.0016
133	SLV 13	0.1	10.03	14.59	-0.4164	0.1305	0.0005
133	SLV 14	0.1	10.03	14.59	-0.4164	0.1305	0.0005
133	SLV 15	0.32	-7.56	11.53	0.3536	0.3391	0.0017
133	SLV 16	0.32	-7.56	11.53	0.3536	0.3391	0.0017
134	SLU 1	0.05	-2.86	41.79	0.1336	0.0348	0
134	SLU 2	0.05	-3.25	41.95	0.152	0.0349	0
134	SLU 3	0.05	-2.6	42.99	0.121	0.036	0
134	SLU 4	0.05	-2.83	43.09	0.1321	0.0361	0
134	SLU 5	0.05	-2.92	42.64	0.1361	0.0357	0
134	SLU 6	0.05	-2.27	43.68	0.1051	0.0369	0
134	SLU 7	0.05	-2.51	43.78	0.1162	0.0369	0
134	SLU 8	0.05	-2.21	43.17	0.1017	0.0364	0
134	SLU 9	0.05	-2.44	43.27	0.1128	0.0365	0
134	SLU 10	0.05	-3.74	50.12	0.1767	0.0372	0
134	SLU 11	0.06	-3.09	51.16	0.1457	0.0383	0
134	SLU 12	0.06	-3.32	51.26	0.1568	0.0384	0
134	SLU 13	0.06	-3.42	50.81	0.1608	0.038	0
134	SLU 14	0.06	-2.76	51.86	0.1298	0.0391	0
134	SLU 15	0.06	-3	51.95	0.1408	0.0392	0
134	SLU 16	0.06	-2.7	51.34	0.1264	0.0387	0
134	SLU 17	0.06	-2.93	51.44	0.1375	0.0388	0
134	SLU 18	0.06	-3.56	53.46	0.1688	0.038	0
134	SLU 19	0.06	-3.79	53.56	0.1799	0.0381	0
134	SLU 20	0.06	-3.23	54.15	0.1529	0.0388	0
134	SLU 21	0.06	-3.47	54.25	0.164	0.0389	0
134	SLU 22	0.06	-2.88	47.6	0.1365	0.0395	0
134	SLU 23	0.06	-3.28	47.77	0.1549	0.0396	0
134	SLU 24	0.06	-2.62	48.81	0.124	0.0407	0
134	SLU 25	0.06	-2.86	48.9	0.135	0.0408	0
134	SLU 26	0.06	-2.95	48.46	0.139	0.0404	0
134	SLU 27	0.06	-2.3	49.5	0.1081	0.0416	0
134	SLU 28	0.06	-2.53	49.6	0.1191	0.0416	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
134	SLU 29	0.06	-2.24	48.98	0.1047	0.0411	0
134	SLU 30	0.06	-2.47	49.08	0.1157	0.0412	0
134	SLU 31	0.06	-3.77	55.94	0.1796	0.0419	0
134	SLU 32	0.06	-3.12	56.98	0.1486	0.043	0
134	SLU 33	0.06	-3.35	57.08	0.1597	0.0431	0
134	SLU 34	0.06	-3.44	56.63	0.1637	0.0427	0
134	SLU 35	0.06	-2.79	57.67	0.1327	0.0438	0
134	SLU 36	0.06	-3.03	57.77	0.1438	0.0439	0
134	SLU 37	0.06	-2.73	57.16	0.1294	0.0434	0
134	SLU 38	0.06	-2.96	57.25	0.1404	0.0435	0
134	SLU 39	0.06	-3.59	59.28	0.1717	0.0427	0
134	SLU 40	0.06	-3.82	59.37	0.1828	0.0428	0
134	SLU 41	0.06	-3.26	59.97	0.1558	0.0435	0
134	SLU 42	0.06	-3.5	60.07	0.1669	0.0436	0
134	SLU 43	0.06	-3.7	52.33	0.1726	0.0436	0
134	SLU 44	0.06	-4.09	52.49	0.1911	0.0438	0
134	SLU 45	0.06	-3.44	53.53	0.1601	0.0449	0
134	SLU 46	0.06	-3.68	53.63	0.1711	0.045	0
134	SLU 47	0.06	-3.77	53.18	0.1752	0.0446	0
134	SLU 48	0.07	-3.12	54.23	0.1442	0.0457	0
134	SLU 49	0.07	-3.35	54.32	0.1552	0.0458	0
134	SLU 50	0.06	-3.05	53.71	0.1408	0.0452	0
134	SLU 51	0.06	-3.29	53.81	0.1519	0.0453	0
134	SLU 52	0.07	-4.59	60.67	0.2157	0.046	0
134	SLU 53	0.07	-3.93	61.71	0.1848	0.0471	0
134	SLU 54	0.07	-4.17	61.8	0.1958	0.0472	0
134	SLU 55	0.07	-4.26	61.36	0.1998	0.0468	0
134	SLU 56	0.07	-3.61	62.4	0.1688	0.0479	0
134	SLU 57	0.07	-3.84	62.5	0.1799	0.048	0
134	SLU 58	0.07	-3.55	61.88	0.1655	0.0475	0
134	SLU 59	0.07	-3.78	61.98	0.1765	0.0476	0
134	SLU 60	0.07	-4.41	64	0.2079	0.0469	0
134	SLU 61	0.07	-4.64	64.1	0.2189	0.047	0
134	SLU 62	0.07	-4.08	64.7	0.192	0.0477	0
134	SLU 63	0.07	-4.32	64.79	0.203	0.0478	0
134	SLU 64	0.07	-3.73	58.14	0.1756	0.0483	0
134	SLU 65	0.07	-4.12	58.31	0.194	0.0485	0
134	SLU 66	0.07	-3.47	59.35	0.163	0.0496	0
134	SLU 67	0.07	-3.71	59.45	0.1741	0.0497	0
134	SLU 68	0.07	-3.8	59	0.1781	0.0493	0
134	SLU 69	0.07	-3.15	60.04	0.1471	0.0504	0
134	SLU 70	0.07	-3.38	60.14	0.1582	0.0505	0
134	SLU 71	0.07	-3.08	59.53	0.1437	0.0499	0
134	SLU 72	0.07	-3.32	59.63	0.1548	0.05	0
134	SLU 73	0.07	-4.62	66.48	0.2187	0.0507	0
134	SLU 74	0.08	-3.96	67.52	0.1877	0.0518	0
134	SLU 75	0.08	-4.2	67.62	0.1988	0.0519	0
134	SLU 76	0.07	-4.29	67.17	0.2028	0.0515	0
134	SLU 77	0.08	-3.64	68.21	0.1718	0.0527	0
134	SLU 78	0.08	-3.87	68.31	0.1828	0.0527	0
134	SLU 79	0.08	-3.57	67.7	0.1684	0.0522	0
134	SLU 80	0.08	-3.81	67.8	0.1795	0.0523	0
134	SLU 81	0.08	-4.44	69.82	0.2108	0.0516	0
134	SLU 82	0.08	-4.67	69.92	0.2219	0.0517	0
134	SLU 83	0.08	-4.11	70.51	0.1949	0.0524	0
134	SLU 84	0.08	-4.35	70.61	0.206	0.0525	0
134	SLE RA 1	0.05	-2.86	43.45	0.1344	0.0361	0
134	SLE RA 2	0.05	-3.13	43.56	0.1467	0.0362	0
134	SLE RA 3	0.05	-2.69	44.25	0.126	0.037	0
134	SLE RA 4	0.05	-2.85	44.32	0.1334	0.037	0
134	SLE RA 5	0.05	-2.91	44.02	0.1361	0.0368	0
134	SLE RA 6	0.05	-2.47	44.71	0.1154	0.0375	0
134	SLE RA 7	0.05	-2.63	44.78	0.1228	0.0376	0
134	SLE RA 8	0.05	-2.43	44.37	0.1132	0.0372	0
134	SLE RA 9	0.05	-2.59	44.44	0.1206	0.0373	0
134	SLE RA 10	0.05	-3.45	49.01	0.1631	0.0377	0
134	SLE RA 11	0.06	-3.02	49.7	0.1425	0.0385	0
134	SLE RA 12	0.06	-3.18	49.76	0.1499	0.0385	0
134	SLE RA 13	0.06	-3.24	49.47	0.1525	0.0383	0
134	SLE RA 14	0.06	-2.8	50.16	0.1319	0.039	0
134	SLE RA 15	0.06	-2.96	50.23	0.1393	0.0391	0
134	SLE RA 16	0.06	-2.76	49.82	0.1296	0.0387	0
134	SLE RA 17	0.06	-2.92	49.88	0.137	0.0388	0
134	SLE RA 18	0.06	-3.33	51.23	0.1579	0.0383	0
134	SLE RA 19	0.06	-3.49	51.3	0.1653	0.0384	0
134	SLE RA 20	0.06	-3.12	51.69	0.1473	0.0388	0
134	SLE RA 21	0.06	-3.27	51.76	0.1547	0.0389	0
134	SLE FR 1	0.05	-2.86	43.45	0.1344	0.0361	0
134	SLE FR 2	0.05	-2.92	43.47	0.1369	0.0362	0
134	SLE FR 3	0.05	-2.78	43.63	0.1302	0.0364	0
134	SLE FR 4	0.05	-3.06	45.8	0.1439	0.0368	0
134	SLE FR 5	0.05	-2.92	45.97	0.1372	0.037	0
134	SLE FR 6	0.05	-3.1	47.34	0.1462	0.0372	0
134	SLE QP 1	0.05	-2.86	43.45	0.1344	0.0361	0
134	SLE QP 2	0.05	-3	45.78	0.1415	0.0368	0
134	SLD 1	0.24	0.38	48.84	-0.0193	0.191	0.0002
134	SLD 2	0.24	0.38	48.84	-0.0193	0.191	0.0002
134	SLD 3	0.25	-3.98	50.7	0.1886	0.2022	0.0001
134	SLD 4	0.25	-3.98	50.7	0.1886	0.2022	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
134	SLD 5	0.09	4.63	43.88	-0.2221	0.0661	0.0001
134	SLD 6	0.09	4.63	43.88	-0.2221	0.0661	0.0001
134	SLD 7	0.13	-9.92	50.08	0.4709	0.1034	0
134	SLD 8	0.13	-9.92	50.08	0.4709	0.1034	0
134	SLD 9	-0.03	3.91	41.49	-0.188	-0.0298	0
134	SLD 10	-0.03	3.91	41.49	-0.188	-0.0298	0
134	SLD 11	0.02	-10.64	47.69	0.505	0.0075	-0.0001
134	SLD 12	0.02	-10.64	47.69	0.505	0.0075	-0.0001
134	SLD 13	-0.15	-2.03	40.87	0.0943	-0.1286	-0.0001
134	SLD 14	-0.15	-2.03	40.87	0.0943	-0.1286	-0.0001
134	SLD 15	-0.13	-6.39	42.73	0.3022	-0.1175	-0.0001
134	SLD 16	-0.13	-6.39	42.73	0.3022	-0.1175	-0.0001
134	SLV 1	0.5	4.74	52.79	-0.2262	0.41	0.0004
134	SLV 2	0.5	4.74	52.79	-0.2262	0.41	0.0004
134	SLV 3	0.53	-5.26	57.09	0.2501	0.4366	0.0003
134	SLV 4	0.53	-5.26	57.09	0.2501	0.4366	0.0003
134	SLV 5	0.14	14.48	41.37	-0.6913	0.1084	0.0002
134	SLV 6	0.14	14.48	41.37	-0.6913	0.1084	0.0002
134	SLV 7	0.24	-18.84	55.7	0.8965	0.1971	0.0001
134	SLV 8	0.24	-18.84	55.7	0.8965	0.1971	0.0001
134	SLV 9	-0.14	12.83	35.87	-0.6136	-0.1235	0
134	SLV 10	-0.14	12.83	35.87	-0.6136	-0.1235	0
134	SLV 11	-0.04	-20.49	50.2	0.9742	-0.0348	-0.0001
134	SLV 12	-0.04	-20.49	50.2	0.9742	-0.0348	-0.0001
134	SLV 13	-0.43	-0.75	34.47	0.0328	-0.363	-0.0003
134	SLV 14	-0.43	-0.75	34.47	0.0328	-0.363	-0.0003
134	SLV 15	-0.4	-10.75	38.77	0.5091	-0.3364	-0.0003
134	SLV 16	-0.4	-10.75	38.77	0.5091	-0.3364	-0.0003
135	SLU 1	0.02	1.17	10.88	-0.0249	0.0121	-0.0003
135	SLU 2	0.02	1.17	10.9	-0.025	0.0126	-0.0003
135	SLU 3	0.02	1.21	11.05	-0.0259	0.0124	-0.0003
135	SLU 4	0.02	1.22	11.06	-0.026	0.0127	-0.0003
135	SLU 5	0.02	1.2	10.98	-0.0255	0.0128	-0.0003
135	SLU 6	0.02	1.24	11.12	-0.0265	0.0126	-0.0003
135	SLU 7	0.02	1.24	11.14	-0.0265	0.0128	-0.0003
135	SLU 8	0.02	1.21	11.03	-0.0259	0.0125	-0.0003
135	SLU 9	0.02	1.22	11.05	-0.026	0.0127	-0.0003
135	SLU 10	0.02	1.43	14.15	-0.0332	0.0164	-0.0004
135	SLU 11	0.02	1.47	14.29	-0.0342	0.0162	-0.0004
135	SLU 12	0.02	1.47	14.31	-0.0343	0.0165	-0.0004
135	SLU 13	0.02	1.45	14.23	-0.0338	0.0166	-0.0004
135	SLU 14	0.02	1.49	14.37	-0.0347	0.0164	-0.0004
135	SLU 15	0.02	1.5	14.39	-0.0348	0.0167	-0.0004
135	SLU 16	0.02	1.47	14.27	-0.0342	0.0163	-0.0004
135	SLU 17	0.02	1.47	14.29	-0.0342	0.0166	-0.0004
135	SLU 18	0.03	1.53	15.51	-0.0367	0.0176	-0.0004
135	SLU 19	0.03	1.54	15.53	-0.0367	0.0179	-0.0004
135	SLU 20	0.03	1.56	15.59	-0.0372	0.0178	-0.0004
135	SLU 21	0.03	1.56	15.61	-0.0373	0.0181	-0.0004
135	SLU 22	0.02	1.39	12.05	-0.0302	0.0137	-0.0004
135	SLU 23	0.02	1.4	12.08	-0.0303	0.0141	-0.0004
135	SLU 24	0.02	1.44	12.22	-0.0313	0.0139	-0.0004
135	SLU 25	0.02	1.44	12.24	-0.0313	0.0142	-0.0004
135	SLU 26	0.02	1.42	12.15	-0.0308	0.0143	-0.0004
135	SLU 27	0.02	1.46	12.3	-0.0318	0.0141	-0.0004
135	SLU 28	0.02	1.47	12.31	-0.0319	0.0144	-0.0004
135	SLU 29	0.02	1.44	12.2	-0.0313	0.014	-0.0004
135	SLU 30	0.02	1.44	12.22	-0.0313	0.0143	-0.0004
135	SLU 31	0.03	1.66	15.32	-0.0386	0.018	-0.0004
135	SLU 32	0.03	1.7	15.47	-0.0395	0.0178	-0.0005
135	SLU 33	0.03	1.7	15.48	-0.0396	0.0181	-0.0005
135	SLU 34	0.03	1.68	15.4	-0.0391	0.0181	-0.0005
135	SLU 35	0.03	1.72	15.54	-0.04	0.0179	-0.0005
135	SLU 36	0.03	1.72	15.56	-0.0401	0.0182	-0.0005
135	SLU 37	0.03	1.7	15.45	-0.0395	0.0179	-0.0005
135	SLU 38	0.03	1.7	15.46	-0.0396	0.0181	-0.0005
135	SLU 39	0.03	1.76	16.69	-0.042	0.0192	-0.0005
135	SLU 40	0.03	1.76	16.7	-0.0421	0.0194	-0.0005
135	SLU 41	0.03	1.78	16.76	-0.0425	0.0193	-0.0005
135	SLU 42	0.03	1.79	16.78	-0.0426	0.0196	-0.0005
135	SLU 43	0.02	1.44	13.74	-0.0305	0.0153	-0.0004
135	SLU 44	0.02	1.44	13.77	-0.0306	0.0157	-0.0004
135	SLU 45	0.02	1.49	13.91	-0.0316	0.0155	-0.0004
135	SLU 46	0.02	1.49	13.93	-0.0317	0.0158	-0.0004
135	SLU 47	0.02	1.47	13.84	-0.0312	0.0159	-0.0004
135	SLU 48	0.02	1.51	13.99	-0.0321	0.0157	-0.0004
135	SLU 49	0.02	1.51	14	-0.0322	0.0159	-0.0004
135	SLU 50	0.02	1.48	13.89	-0.0316	0.0156	-0.0004
135	SLU 51	0.02	1.49	13.91	-0.0316	0.0159	-0.0004
135	SLU 52	0.03	1.7	17.01	-0.0389	0.0195	-0.0005
135	SLU 53	0.03	1.74	17.15	-0.0398	0.0193	-0.0005
135	SLU 54	0.03	1.75	17.17	-0.0399	0.0196	-0.0005
135	SLU 55	0.03	1.72	17.09	-0.0394	0.0197	-0.0005
135	SLU 56	0.03	1.76	17.23	-0.0404	0.0195	-0.0005
135	SLU 57	0.03	1.77	17.25	-0.0404	0.0198	-0.0005
135	SLU 58	0.03	1.74	17.14	-0.0398	0.0194	-0.0005
135	SLU 59	0.03	1.74	17.15	-0.0399	0.0197	-0.0005
135	SLU 60	0.03	1.81	18.37	-0.0423	0.0207	-0.0005
135	SLU 61	0.03	1.81	18.39	-0.0424	0.021	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
135	SLU 62	0.03	1.83	18.45	-0.0428	0.0209	-0.0005
135	SLU 63	0.03	1.83	18.47	-0.0429	0.0212	-0.0005
135	SLU 64	0.02	1.67	14.91	-0.0359	0.0168	-0.0004
135	SLU 65	0.02	1.67	14.94	-0.036	0.0173	-0.0005
135	SLU 66	0.02	1.71	15.08	-0.0369	0.0171	-0.0005
135	SLU 67	0.02	1.72	15.1	-0.037	0.0173	-0.0005
135	SLU 68	0.02	1.69	15.01	-0.0365	0.0174	-0.0005
135	SLU 69	0.02	1.74	15.16	-0.0374	0.0172	-0.0005
135	SLU 70	0.02	1.74	15.17	-0.0375	0.0175	-0.0005
135	SLU 71	0.02	1.71	15.06	-0.0369	0.0171	-0.0005
135	SLU 72	0.02	1.71	15.08	-0.037	0.0174	-0.0005
135	SLU 73	0.03	1.93	18.18	-0.0442	0.0211	-0.0005
135	SLU 74	0.03	1.97	18.33	-0.0452	0.0209	-0.0005
135	SLU 75	0.03	1.97	18.34	-0.0452	0.0212	-0.0005
135	SLU 76	0.03	1.95	18.26	-0.0447	0.0213	-0.0005
135	SLU 77	0.03	1.99	18.4	-0.0457	0.0211	-0.0005
135	SLU 78	0.03	2	18.42	-0.0457	0.0213	-0.0006
135	SLU 79	0.03	1.97	18.31	-0.0451	0.021	-0.0005
135	SLU 80	0.03	1.97	18.32	-0.0452	0.0212	-0.0005
135	SLU 81	0.03	2.03	19.55	-0.0476	0.0223	-0.0006
135	SLU 82	0.03	2.04	19.56	-0.0477	0.0226	-0.0006
135	SLU 83	0.03	2.06	19.62	-0.0482	0.0225	-0.0006
135	SLU 84	0.03	2.06	19.64	-0.0482	0.0227	-0.0006
135	SLE RA 1	0.02	1.23	11.21	-0.0264	0.0126	-0.0003
135	SLE RA 2	0.02	1.24	11.23	-0.0265	0.0129	-0.0003
135	SLE RA 3	0.02	1.26	11.33	-0.0271	0.0128	-0.0003
135	SLE RA 4	0.02	1.27	11.34	-0.0272	0.0129	-0.0003
135	SLE RA 5	0.02	1.25	11.28	-0.0268	0.013	-0.0003
135	SLE RA 6	0.02	1.28	11.38	-0.0275	0.0129	-0.0003
135	SLE RA 7	0.02	1.28	11.39	-0.0275	0.013	-0.0004
135	SLE RA 8	0.02	1.26	11.31	-0.0271	0.0128	-0.0003
135	SLE RA 9	0.02	1.26	11.32	-0.0272	0.013	-0.0003
135	SLE RA 10	0.02	1.41	13.39	-0.032	0.0154	-0.0004
135	SLE RA 11	0.02	1.43	13.49	-0.0326	0.0153	-0.0004
135	SLE RA 12	0.02	1.44	13.5	-0.0327	0.0155	-0.0004
135	SLE RA 13	0.02	1.42	13.44	-0.0323	0.0156	-0.0004
135	SLE RA 14	0.02	1.45	13.54	-0.033	0.0154	-0.0004
135	SLE RA 15	0.02	1.45	13.55	-0.033	0.0156	-0.0004
135	SLE RA 16	0.02	1.43	13.48	-0.0326	0.0154	-0.0004
135	SLE RA 17	0.02	1.44	13.49	-0.0327	0.0155	-0.0004
135	SLE RA 18	0.02	1.48	14.3	-0.0343	0.0162	-0.0004
135	SLE RA 19	0.02	1.48	14.31	-0.0343	0.0164	-0.0004
135	SLE RA 20	0.02	1.49	14.35	-0.0346	0.0164	-0.0004
135	SLE RA 21	0.02	1.49	14.36	-0.0347	0.0165	-0.0004
135	SLE FR 1	0.02	1.23	11.21	-0.0264	0.0126	-0.0003
135	SLE FR 2	0.02	1.23	11.22	-0.0264	0.0126	-0.0003
135	SLE FR 3	0.02	1.24	11.23	-0.0266	0.0126	-0.0003
135	SLE FR 4	0.02	1.31	12.14	-0.0288	0.0137	-0.0004
135	SLE FR 5	0.02	1.31	12.16	-0.0289	0.0137	-0.0004
135	SLE FR 6	0.02	1.35	12.76	-0.0303	0.0144	-0.0004
135	SLE QP 1	0.02	1.23	11.21	-0.0264	0.0126	-0.0003
135	SLE QP 2	0.02	1.31	12.14	-0.0288	0.0137	-0.0004
135	SLD 1	0.21	0.15	10.89	0.0127	0.1632	0.0006
135	SLD 2	0.21	0.15	10.89	0.0127	0.1632	0.0006
135	SLD 3	0.2	1.46	11.32	-0.0376	0.153	0.0004
135	SLD 4	0.2	1.46	11.32	-0.0376	0.153	0.0004
135	SLD 5	0.1	-1.03	11.11	0.06	0.074	0.0002
135	SLD 6	0.1	-1.03	11.11	0.06	0.074	0.0002
135	SLD 7	0.05	3.34	12.55	-0.1077	0.04	-0.0004
135	SLD 8	0.05	3.34	12.55	-0.1077	0.04	-0.0004
135	SLD 9	-0.01	-0.73	11.73	0.0502	-0.0126	-0.0003
135	SLD 10	-0.01	-0.73	11.73	0.0502	-0.0126	-0.0003
135	SLD 11	-0.06	3.64	13.17	-0.1175	-0.0466	-0.0009
135	SLD 12	-0.06	3.64	13.17	-0.1175	-0.0466	-0.0009
135	SLD 13	-0.16	1.15	12.96	-0.02	-0.1256	-0.0011
135	SLD 14	-0.16	1.15	12.96	-0.02	-0.1256	-0.0011
135	SLD 15	-0.17	2.46	13.39	-0.0703	-0.1358	-0.0013
135	SLD 16	-0.17	2.46	13.39	-0.0703	-0.1358	-0.0013
135	SLV 1	0.48	-1.38	9.26	0.0678	0.3765	0.0018
135	SLV 2	0.48	-1.38	9.26	0.0678	0.3765	0.0018
135	SLV 3	0.45	1.69	10.27	-0.0499	0.3521	0.0015
135	SLV 4	0.45	1.69	10.27	-0.0499	0.3521	0.0015
135	SLV 5	0.2	-4.15	9.74	0.1787	0.1595	0.0009
135	SLV 6	0.2	-4.15	9.74	0.1787	0.1595	0.0009
135	SLV 7	0.1	6.07	13.11	-0.2136	0.0783	-0.0004
135	SLV 8	0.1	6.07	13.11	-0.2136	0.0783	-0.0004
135	SLV 9	-0.06	-3.46	11.17	0.1561	-0.0509	-0.0003
135	SLV 10	-0.06	-3.46	11.17	0.1561	-0.0509	-0.0003
135	SLV 11	-0.17	6.76	14.54	-0.2363	-0.1321	-0.0016
135	SLV 12	-0.17	6.76	14.54	-0.2363	-0.1321	-0.0016
135	SLV 13	-0.41	0.92	14.01	-0.0077	-0.3247	-0.0022
135	SLV 14	-0.41	0.92	14.01	-0.0077	-0.3247	-0.0022
135	SLV 15	-0.44	3.99	15.02	-0.1254	-0.3491	-0.0026
135	SLV 16	-0.44	3.99	15.02	-0.1254	-0.3491	-0.0026
136	SLU 1	0.13	1.67	20.14	-0.151	0.0832	0
136	SLU 2	0.14	4.01	19.7	-0.2694	0.0898	0
136	SLU 3	0.14	1.52	20.77	-0.1444	0.0859	0
136	SLU 4	0.14	2.92	20.51	-0.2154	0.0898	0
136	SLU 5	0.14	3.76	20.13	-0.2575	0.0912	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
136	SLU 6	0.14	1.27	21.2	-0.1326	0.0873	0
136	SLU 7	0.14	2.67	20.94	-0.2036	0.0912	0
136	SLU 8	0.14	1.18	20.99	-0.1273	0.086	0
136	SLU 9	0.14	2.58	20.73	-0.1983	0.0899	0
136	SLU 10	0.16	4.47	22.67	-0.3001	0.1052	0
136	SLU 11	0.16	1.98	23.74	-0.1752	0.1012	0
136	SLU 12	0.16	3.38	23.48	-0.2462	0.1052	0
136	SLU 13	0.16	4.22	23.09	-0.2883	0.1065	0
136	SLU 14	0.16	1.73	24.16	-0.1633	0.1026	0.0001
136	SLU 15	0.17	3.13	23.9	-0.2343	0.1066	0
136	SLU 16	0.16	1.64	23.95	-0.1581	0.1014	0.0001
136	SLU 17	0.16	3.04	23.69	-0.2291	0.1053	0
136	SLU 18	0.17	2.33	24.37	-0.1949	0.1052	0.0001
136	SLU 19	0.17	3.74	24.11	-0.2659	0.1091	0
136	SLU 20	0.17	2.09	24.8	-0.1831	0.1066	0.0001
136	SLU 21	0.17	3.49	24.54	-0.2541	0.1105	0.0001
136	SLU 22	0.15	1.97	22.85	-0.1723	0.0971	0
136	SLU 23	0.16	4.3	22.42	-0.2907	0.1036	0
136	SLU 24	0.16	1.81	23.49	-0.1658	0.0997	0
136	SLU 25	0.16	3.22	23.23	-0.2368	0.1037	0
136	SLU 26	0.16	4.06	22.84	-0.2789	0.105	0
136	SLU 27	0.16	1.57	23.91	-0.1539	0.1011	0.0001
136	SLU 28	0.16	2.97	23.65	-0.225	0.1051	0
136	SLU 29	0.16	1.47	23.7	-0.1487	0.0998	0.0001
136	SLU 30	0.16	2.87	23.44	-0.2197	0.1038	0
136	SLU 31	0.18	4.77	25.38	-0.3214	0.119	0.0001
136	SLU 32	0.18	2.28	26.45	-0.1965	0.1151	0.0001
136	SLU 33	0.18	3.68	26.19	-0.2675	0.1191	0.0001
136	SLU 34	0.18	4.52	25.8	-0.3096	0.1204	0.0001
136	SLU 35	0.18	2.03	26.88	-0.1847	0.1165	0.0001
136	SLU 36	0.19	3.43	26.61	-0.2557	0.1205	0.0001
136	SLU 37	0.18	1.94	26.66	-0.1794	0.1152	0.0001
136	SLU 38	0.18	3.34	26.4	-0.2504	0.1192	0.0001
136	SLU 39	0.19	2.63	27.09	-0.2162	0.119	0.0001
136	SLU 40	0.19	4.03	26.82	-0.2873	0.123	0.0001
136	SLU 41	0.19	2.38	27.51	-0.2044	0.1204	0.0001
136	SLU 42	0.19	3.78	27.25	-0.2754	0.1244	0.0001
136	SLU 43	0.16	2.07	25.25	-0.189	0.1034	0.0001
136	SLU 44	0.17	4.41	24.81	-0.3073	0.11	0
136	SLU 45	0.17	1.92	25.89	-0.1824	0.1061	0.0001
136	SLU 46	0.17	3.32	25.62	-0.2534	0.11	0.0001
136	SLU 47	0.17	4.16	25.24	-0.2955	0.1114	0
136	SLU 48	0.17	1.67	26.31	-0.1706	0.1075	0.0001
136	SLU 49	0.17	3.07	26.05	-0.2416	0.1114	0.0001
136	SLU 50	0.17	1.58	26.1	-0.1653	0.1062	0.0001
136	SLU 51	0.17	2.98	25.84	-0.2363	0.1101	0.0001
136	SLU 52	0.19	4.87	27.78	-0.3381	0.1254	0.0001
136	SLU 53	0.19	2.38	28.85	-0.2131	0.1215	0.0001
136	SLU 54	0.19	3.78	28.59	-0.2841	0.1254	0.0001
136	SLU 55	0.19	4.62	28.2	-0.3262	0.1268	0.0001
136	SLU 56	0.19	2.13	29.27	-0.2013	0.1228	0.0001
136	SLU 57	0.2	3.53	29.01	-0.2723	0.1268	0.0001
136	SLU 58	0.19	2.04	29.06	-0.196	0.1216	0.0001
136	SLU 59	0.19	3.44	28.8	-0.2671	0.1255	0.0001
136	SLU 60	0.2	2.74	29.48	-0.2329	0.1254	0.0001
136	SLU 61	0.2	4.14	29.22	-0.3039	0.1293	0.0001
136	SLU 62	0.2	2.49	29.91	-0.221	0.1268	0.0001
136	SLU 63	0.2	3.89	29.65	-0.2921	0.1307	0.0001
136	SLU 64	0.18	2.37	27.96	-0.2103	0.1173	0.0001
136	SLU 65	0.19	4.71	27.53	-0.3287	0.1238	0.0001
136	SLU 66	0.19	2.21	28.6	-0.2037	0.1199	0.0001
136	SLU 67	0.19	3.62	28.34	-0.2748	0.1239	0.0001
136	SLU 68	0.19	4.46	27.95	-0.3169	0.1252	0.0001
136	SLU 69	0.19	1.97	29.02	-0.1919	0.1213	0.0001
136	SLU 70	0.19	3.37	28.76	-0.2629	0.1253	0.0001
136	SLU 71	0.19	1.87	28.81	-0.1867	0.12	0.0001
136	SLU 72	0.19	3.28	28.55	-0.2577	0.124	0.0001
136	SLU 73	0.21	5.17	30.49	-0.3594	0.1392	0.0001
136	SLU 74	0.21	2.68	31.56	-0.2345	0.1353	0.0001
136	SLU 75	0.22	4.08	31.3	-0.3055	0.1393	0.0001
136	SLU 76	0.22	4.92	30.92	-0.3476	0.1406	0.0001
136	SLU 77	0.22	2.43	31.99	-0.2226	0.1367	0.0001
136	SLU 78	0.22	3.83	31.73	-0.2937	0.1407	0.0001
136	SLU 79	0.21	2.34	31.78	-0.2174	0.1354	0.0001
136	SLU 80	0.22	3.74	31.51	-0.2884	0.1394	0.0001
136	SLU 81	0.22	3.03	32.2	-0.2542	0.1392	0.0001
136	SLU 82	0.22	4.43	31.94	-0.3252	0.1432	0.0001
136	SLU 83	0.22	2.78	32.62	-0.2424	0.1406	0.0001
136	SLU 84	0.22	4.18	32.36	-0.3134	0.1446	0.0001
136	SLE RA 1	0.14	1.76	20.91	-0.1571	0.0872	0
136	SLE RA 2	0.14	3.32	20.62	-0.236	0.0915	0
136	SLE RA 3	0.14	1.65	21.34	-0.1527	0.0889	0
136	SLE RA 4	0.14	2.59	21.16	-0.2001	0.0916	0
136	SLE RA 5	0.14	3.15	20.91	-0.2281	0.0925	0
136	SLE RA 6	0.14	1.49	21.62	-0.1448	0.0899	0
136	SLE RA 7	0.14	2.42	21.45	-0.1922	0.0925	0
136	SLE RA 8	0.14	1.43	21.48	-0.1413	0.089	0
136	SLE RA 9	0.14	2.36	21.31	-0.1887	0.0916	0
136	SLE RA 10	0.16	3.62	22.6	-0.2565	0.1018	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
136	SLE RA 11	0.16	1.96	23.31	-0.1732	0.0992	0
136	SLE RA 12	0.16	2.9	23.14	-0.2205	0.1018	0
136	SLE RA 13	0.16	3.46	22.88	-0.2486	0.1027	0
136	SLE RA 14	0.16	1.8	23.6	-0.1653	0.1001	0
136	SLE RA 15	0.16	2.73	23.42	-0.2127	0.1028	0
136	SLE RA 16	0.16	1.74	23.46	-0.1618	0.0993	0
136	SLE RA 17	0.16	2.67	23.28	-0.2091	0.1019	0
136	SLE RA 18	0.16	2.2	23.74	-0.1864	0.1018	0
136	SLE RA 19	0.16	3.13	23.56	-0.2337	0.1044	0
136	SLE RA 20	0.16	2.03	24.02	-0.1785	0.1027	0.0001
136	SLE RA 21	0.16	2.97	23.85	-0.2258	0.1054	0
136	SLE FR 1	0.14	1.76	20.91	-0.1571	0.0872	0
136	SLE FR 2	0.14	2.07	20.86	-0.1729	0.088	0
136	SLE FR 3	0.14	1.69	21.03	-0.1539	0.0875	0
136	SLE FR 4	0.14	2.2	21.7	-0.1817	0.0924	0
136	SLE FR 5	0.14	1.82	21.87	-0.1627	0.0919	0
136	SLE FR 6	0.15	1.98	22.33	-0.1717	0.0945	0
136	SLE QP 1	0.14	1.76	20.91	-0.1571	0.0872	0
136	SLE QP 2	0.14	1.89	21.76	-0.1659	0.0915	0
136	SLD 1	0.29	6.4	22.8	-0.3778	0.2105	0.0001
136	SLD 2	0.29	6.4	22.8	-0.3778	0.2105	0.0001
136	SLD 3	0.25	1.55	23.6	-0.1458	0.1778	0.0002
136	SLD 4	0.25	1.55	23.6	-0.1458	0.1778	0.0002
136	SLD 5	0.25	10.59	20.86	-0.5814	0.1769	0
136	SLD 6	0.25	10.59	20.86	-0.5814	0.1769	0
136	SLD 7	0.12	-5.56	23.52	0.1921	0.0678	0.0001
136	SLD 8	0.12	-5.56	23.52	0.1921	0.0678	0.0001
136	SLD 9	0.17	9.34	20	-0.5239	0.1153	0
136	SLD 10	0.17	9.34	20	-0.5239	0.1153	0
136	SLD 11	0.04	-6.81	22.66	0.2497	0.0062	0
136	SLD 12	0.04	-6.81	22.66	0.2497	0.0062	0
136	SLD 13	0.03	2.23	19.92	-0.186	0.0053	-0.0001
136	SLD 14	0.03	2.23	19.92	-0.186	0.0053	-0.0001
136	SLD 15	0	-2.61	20.72	0.0461	-0.0275	-0.0001
136	SLD 16	0	-2.61	20.72	0.0461	-0.0275	-0.0001
136	SLV 1	0.5	12.51	24.1	-0.6667	0.3734	0.0003
136	SLV 2	0.5	12.51	24.1	-0.6667	0.3734	0.0003
136	SLV 3	0.4	1.19	26.1	-0.1238	0.2927	0.0003
136	SLV 4	0.4	1.19	26.1	-0.1238	0.2927	0.0003
136	SLV 5	0.4	22.25	19.43	-1.1396	0.2985	0
136	SLV 6	0.4	22.25	19.43	-1.1396	0.2985	0
136	SLV 7	0.07	-15.49	26.09	0.6702	0.0295	0.0002
136	SLV 8	0.07	-15.49	26.09	0.6702	0.0295	0.0002
136	SLV 9	0.21	19.27	17.43	-1.0019	0.1536	-0.0001
136	SLV 10	0.21	19.27	17.43	-1.0019	0.1536	-0.0001
136	SLV 11	-0.11	-18.47	24.09	0.8078	-0.1154	0
136	SLV 12	-0.11	-18.47	24.09	0.8078	-0.1154	0
136	SLV 13	-0.11	2.6	17.42	-0.208	-0.1096	-0.0002
136	SLV 14	-0.11	2.6	17.42	-0.208	-0.1096	-0.0002
136	SLV 15	-0.21	-8.73	19.42	0.335	-0.1903	-0.0002
136	SLV 16	-0.21	-8.73	19.42	0.335	-0.1903	-0.0002
137	SLU 1	0.05	-3.63	42.72	0.1918	0.0354	-0.0008
137	SLU 2	0.05	-4.17	43.31	0.2183	0.0361	-0.0009
137	SLU 3	0.05	-3.36	43.58	0.1799	0.036	-0.0009
137	SLU 4	0.05	-3.69	43.93	0.1958	0.0364	-0.0009
137	SLU 5	0.05	-3.85	43.59	0.2032	0.0363	-0.0009
137	SLU 6	0.05	-3.04	43.87	0.1649	0.0362	-0.0009
137	SLU 7	0.05	-3.37	44.22	0.1808	0.0366	-0.0009
137	SLU 8	0.05	-2.99	43.29	0.1616	0.0357	-0.0009
137	SLU 9	0.05	-3.32	43.64	0.1775	0.0361	-0.0009
137	SLU 10	0.06	-4.78	51.41	0.2518	0.0437	-0.0011
137	SLU 11	0.06	-3.98	51.69	0.2135	0.0435	-0.0011
137	SLU 12	0.06	-4.3	52.04	0.2294	0.044	-0.0011
137	SLU 13	0.06	-4.47	51.7	0.2368	0.0438	-0.0011
137	SLU 14	0.06	-3.66	51.97	0.1984	0.0437	-0.0011
137	SLU 15	0.06	-3.98	52.33	0.2143	0.0441	-0.0011
137	SLU 16	0.06	-3.6	51.4	0.1952	0.0432	-0.0011
137	SLU 17	0.06	-3.93	51.75	0.2111	0.0437	-0.0011
137	SLU 18	0.06	-4.5	54.3	0.2397	0.0462	-0.0011
137	SLU 19	0.06	-4.83	54.65	0.2556	0.0466	-0.0011
137	SLU 20	0.06	-4.18	54.58	0.2246	0.0463	-0.0011
137	SLU 21	0.06	-4.51	54.94	0.2405	0.0467	-0.0011
137	SLU 22	0.05	-3.67	48.17	0.199	0.0398	-0.001
137	SLU 23	0.05	-4.21	48.76	0.2255	0.0405	-0.001
137	SLU 24	0.05	-3.4	49.04	0.1871	0.0404	-0.001
137	SLU 25	0.05	-3.73	49.39	0.203	0.0408	-0.001
137	SLU 26	0.05	-3.89	49.05	0.2104	0.0407	-0.001
137	SLU 27	0.05	-3.08	49.32	0.1721	0.0406	-0.001
137	SLU 28	0.05	-3.41	49.68	0.188	0.041	-0.001
137	SLU 29	0.05	-3.03	48.74	0.1688	0.0401	-0.001
137	SLU 30	0.05	-3.35	49.1	0.1847	0.0405	-0.001
137	SLU 31	0.06	-4.82	56.87	0.259	0.048	-0.0012
137	SLU 32	0.06	-4.01	57.14	0.2207	0.0479	-0.0012
137	SLU 33	0.06	-4.34	57.5	0.2366	0.0484	-0.0012
137	SLU 34	0.06	-4.5	57.16	0.244	0.0482	-0.0012
137	SLU 35	0.06	-3.69	57.43	0.2056	0.0481	-0.0012
137	SLU 36	0.06	-4.02	57.78	0.2215	0.0485	-0.0012
137	SLU 37	0.06	-3.64	56.85	0.2024	0.0476	-0.0012
137	SLU 38	0.06	-3.96	57.21	0.2183	0.048	-0.0012





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
137	SLU 39	0.07	-4.54	59.76	0.2469	0.0506	-0.0012
137	SLU 40	0.07	-4.87	60.11	0.2628	0.051	-0.0012
137	SLU 41	0.07	-4.22	60.04	0.2318	0.0507	-0.0012
137	SLU 42	0.07	-4.55	60.4	0.2477	0.0511	-0.0013
137	SLU 43	0.06	-4.71	53.66	0.2469	0.0446	-0.0011
137	SLU 44	0.06	-5.25	54.25	0.2733	0.0452	-0.0011
137	SLU 45	0.06	-4.44	54.52	0.235	0.0451	-0.0011
137	SLU 46	0.06	-4.77	54.88	0.2509	0.0456	-0.0011
137	SLU 47	0.06	-4.93	54.54	0.2583	0.0454	-0.0011
137	SLU 48	0.06	-4.12	54.81	0.2199	0.0453	-0.0011
137	SLU 49	0.06	-4.45	55.16	0.2358	0.0457	-0.0011
137	SLU 50	0.06	-4.07	54.23	0.2167	0.0448	-0.0011
137	SLU 51	0.06	-4.39	54.59	0.2326	0.0452	-0.0011
137	SLU 52	0.07	-5.86	62.36	0.3069	0.0528	-0.0013
137	SLU 53	0.07	-5.05	62.63	0.2685	0.0527	-0.0013
137	SLU 54	0.07	-5.38	62.99	0.2844	0.0531	-0.0013
137	SLU 55	0.07	-5.54	62.64	0.2918	0.0529	-0.0013
137	SLU 56	0.07	-4.73	62.92	0.2535	0.0528	-0.0013
137	SLU 57	0.07	-5.06	63.27	0.2694	0.0532	-0.0013
137	SLU 58	0.07	-4.68	62.34	0.2502	0.0524	-0.0013
137	SLU 59	0.07	-5	62.69	0.2661	0.0528	-0.0013
137	SLU 60	0.07	-5.58	65.24	0.2948	0.0553	-0.0013
137	SLU 61	0.07	-5.91	65.6	0.3107	0.0557	-0.0013
137	SLU 62	0.07	-5.26	65.53	0.2797	0.0555	-0.0013
137	SLU 63	0.07	-5.59	65.88	0.2956	0.0559	-0.0014
137	SLU 64	0.06	-4.74	59.12	0.2541	0.049	-0.0012
137	SLU 65	0.06	-5.29	59.71	0.2805	0.0496	-0.0012
137	SLU 66	0.06	-4.48	59.98	0.2422	0.0495	-0.0012
137	SLU 67	0.07	-4.8	60.33	0.2581	0.0499	-0.0012
137	SLU 68	0.07	-4.97	59.99	0.2655	0.0498	-0.0012
137	SLU 69	0.06	-4.16	60.27	0.2271	0.0497	-0.0012
137	SLU 70	0.07	-4.48	60.62	0.243	0.0501	-0.0012
137	SLU 71	0.06	-4.1	59.69	0.2239	0.0492	-0.0012
137	SLU 72	0.06	-4.43	60.04	0.2398	0.0496	-0.0012
137	SLU 73	0.08	-5.9	67.82	0.3141	0.0572	-0.0014
137	SLU 74	0.07	-5.09	68.09	0.2758	0.0571	-0.0014
137	SLU 75	0.08	-5.41	68.44	0.2916	0.0575	-0.0014
137	SLU 76	0.08	-5.58	68.1	0.299	0.0573	-0.0014
137	SLU 77	0.07	-4.77	68.37	0.2607	0.0572	-0.0014
137	SLU 78	0.08	-5.09	68.73	0.2766	0.0576	-0.0014
137	SLU 79	0.07	-4.72	67.8	0.2574	0.0568	-0.0014
137	SLU 80	0.08	-5.04	68.15	0.2733	0.0572	-0.0014
137	SLU 81	0.08	-5.62	70.7	0.302	0.0597	-0.0015
137	SLU 82	0.08	-5.94	71.05	0.3179	0.0601	-0.0015
137	SLU 83	0.08	-5.3	70.99	0.2869	0.0599	-0.0015
137	SLU 84	0.08	-5.62	71.34	0.3028	0.0603	-0.0015
137	SLE RA 1	0.05	-3.64	44.28	0.1938	0.0367	-0.0009
137	SLE RA 2	0.05	-4	44.67	0.2115	0.0371	-0.0009
137	SLE RA 3	0.05	-3.46	44.85	0.1859	0.0371	-0.0009
137	SLE RA 4	0.05	-3.68	45.09	0.1965	0.0374	-0.0009
137	SLE RA 5	0.05	-3.79	44.86	0.2015	0.0372	-0.0009
137	SLE RA 6	0.05	-3.25	45.04	0.1759	0.0372	-0.0009
137	SLE RA 7	0.05	-3.47	45.28	0.1865	0.0374	-0.0009
137	SLE RA 8	0.05	-3.21	44.66	0.1737	0.0369	-0.0009
137	SLE RA 9	0.05	-3.43	44.89	0.1843	0.0372	-0.0009
137	SLE RA 10	0.06	-4.41	50.07	0.2339	0.0422	-0.001
137	SLE RA 11	0.06	-3.87	50.26	0.2083	0.0421	-0.001
137	SLE RA 12	0.06	-4.09	50.49	0.2189	0.0424	-0.001
137	SLE RA 13	0.06	-4.2	50.26	0.2238	0.0423	-0.001
137	SLE RA 14	0.06	-3.66	50.45	0.1983	0.0422	-0.001
137	SLE RA 15	0.06	-3.87	50.68	0.2089	0.0425	-0.001
137	SLE RA 16	0.05	-3.62	50.06	0.1961	0.0419	-0.001
137	SLE RA 17	0.06	-3.84	50.3	0.2067	0.0422	-0.001
137	SLE RA 18	0.06	-4.22	52	0.2258	0.0439	-0.0011
137	SLE RA 19	0.06	-4.44	52.23	0.2364	0.0441	-0.0011
137	SLE RA 20	0.06	-4.01	52.19	0.2157	0.044	-0.0011
137	SLE RA 21	0.06	-4.23	52.42	0.2263	0.0442	-0.0011
137	SLE FR 1	0.05	-3.64	44.28	0.1938	0.0367	-0.0009
137	SLE FR 2	0.05	-3.71	44.35	0.1974	0.0368	-0.0009
137	SLE FR 3	0.05	-3.55	44.35	0.1898	0.0367	-0.0009
137	SLE FR 4	0.05	-3.89	46.67	0.207	0.0389	-0.0009
137	SLE FR 5	0.05	-3.73	46.67	0.1994	0.0389	-0.0009
137	SLE FR 6	0.05	-3.93	48.14	0.2098	0.0403	-0.001
137	SLE QP 1	0.05	-3.64	44.28	0.1938	0.0367	-0.0009
137	SLE QP 2	0.05	-3.81	46.59	0.2034	0.0388	-0.0009
137	SLD 1	0.2	-3.56	40.07	0.1829	0.165	-0.0029
137	SLD 2	0.2	-3.56	40.07	0.1829	0.165	-0.0029
137	SLD 3	0.22	-8.31	44.19	0.4236	0.1743	-0.0032
137	SLD 4	0.22	-8.31	44.19	0.4236	0.1743	-0.0032
137	SLD 5	0.07	3.46	38.4	-0.1677	0.0626	-0.001
137	SLD 6	0.07	3.46	38.4	-0.1677	0.0626	-0.001
137	SLD 7	0.12	-12.36	52.1	0.6344	0.0936	-0.0021
137	SLD 8	0.12	-12.36	52.1	0.6344	0.0936	-0.0021
137	SLD 9	-0.02	4.73	41.08	-0.2276	-0.0159	0.0002
137	SLD 10	-0.02	4.73	41.08	-0.2276	-0.0159	0.0002
137	SLD 11	0.03	-11.09	54.78	0.5745	0.0151	-0.0008
137	SLD 12	0.03	-11.09	54.78	0.5745	0.0151	-0.0008
137	SLD 13	-0.11	0.68	49	-0.0167	-0.0966	0.0013
137	SLD 14	-0.11	0.68	49	-0.0167	-0.0966	0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
137	SLD 15	-0.1	-4.07	53.11	0.2239	-0.0873	0.001
137	SLD 16	-0.1	-4.07	53.11	0.2239	-0.0873	0.001
137	SLV 1	0.41	-3.24	31.56	0.1567	0.3448	-0.0056
137	SLV 2	0.41	-3.24	31.56	0.1567	0.3448	-0.0056
137	SLV 3	0.45	-14.17	41.11	0.7107	0.3675	-0.0063
137	SLV 4	0.45	-14.17	41.11	0.7107	0.3675	-0.0063
137	SLV 5	0.11	12.93	27.6	-0.6507	0.0962	-0.0012
137	SLV 6	0.11	12.93	27.6	-0.6507	0.0962	-0.0012
137	SLV 7	0.22	-23.49	59.44	1.1957	0.1718	-0.0037
137	SLV 8	0.22	-23.49	59.44	1.1957	0.1718	-0.0037
137	SLV 9	-0.12	15.86	33.75	-0.7889	-0.0941	0.0019
137	SLV 10	-0.12	15.86	33.75	-0.7889	-0.0941	0.0019
137	SLV 11	0	-20.56	65.59	1.0576	-0.0185	-0.0007
137	SLV 12	0	-20.56	65.59	1.0576	-0.0185	-0.0007
137	SLV 13	-0.35	6.54	52.07	-0.3038	-0.2898	0.0045
137	SLV 14	-0.35	6.54	52.07	-0.3038	-0.2898	0.0045
137	SLV 15	-0.31	-4.39	61.62	0.2501	-0.2671	0.0037
137	SLV 16	-0.31	-4.39	61.62	0.2501	-0.2671	0.0037
138	SLU 1	0	-0.53	36.39	-0.0323	-0.0029	0
138	SLU 2	0	1.57	36.36	-0.1407	-0.0082	0
138	SLU 3	0	-0.77	37.56	-0.0222	-0.003	0
138	SLU 4	0	0.49	37.55	-0.0872	-0.0062	0
138	SLU 5	0	1.26	37.12	-0.127	-0.0083	0
138	SLU 6	0	-1.08	38.32	-0.0085	-0.0031	0
138	SLU 7	0	0.18	38.31	-0.0735	-0.0063	0
138	SLU 8	0	-1.14	37.9	-0.0049	-0.003	0
138	SLU 9	0	0.11	37.89	-0.0699	-0.0062	0
138	SLU 10	0	1.7	42.34	-0.1527	-0.0087	0
138	SLU 11	0	-0.64	43.54	-0.0342	-0.0035	0
138	SLU 12	0	0.61	43.52	-0.0992	-0.0067	0
138	SLU 13	0	1.39	43.1	-0.139	-0.0088	0
138	SLU 14	0	-0.95	44.3	-0.0205	-0.0036	0
138	SLU 15	0	0.31	44.28	-0.0855	-0.0068	0
138	SLU 16	0	-1.02	43.88	-0.0169	-0.0035	0
138	SLU 17	0	0.24	43.86	-0.0819	-0.0068	0
138	SLU 18	0	-0.34	44.92	-0.0494	-0.0036	0
138	SLU 19	0	0.91	44.91	-0.1144	-0.0068	0
138	SLU 20	0	-0.65	45.68	-0.0357	-0.0037	0
138	SLU 21	0	0.6	45.66	-0.1008	-0.0069	0
138	SLU 22	0	-0.54	41.95	-0.037	-0.0033	0
138	SLU 23	0	1.56	41.93	-0.1454	-0.0087	0
138	SLU 24	0	-0.78	43.13	-0.0269	-0.0035	0
138	SLU 25	0	0.48	43.12	-0.092	-0.0067	0
138	SLU 26	0	1.25	42.69	-0.1318	-0.0088	0
138	SLU 27	0	-1.09	43.89	-0.0133	-0.0036	0
138	SLU 28	0	0.17	43.87	-0.0783	-0.0068	0
138	SLU 29	0	-1.15	43.47	-0.0097	-0.0035	0
138	SLU 30	0	0.1	43.46	-0.0747	-0.0067	0
138	SLU 31	0	1.68	47.9	-0.1574	-0.0092	0
138	SLU 32	0	-0.65	49.1	-0.0389	-0.004	0
138	SLU 33	0	0.6	49.09	-0.104	-0.0072	0
138	SLU 34	0	1.38	48.66	-0.1438	-0.0093	0
138	SLU 35	0	-0.96	49.86	-0.0253	-0.0041	0
138	SLU 36	0	0.3	49.85	-0.0903	-0.0073	0
138	SLU 37	0	-1.03	49.44	-0.0217	-0.004	0
138	SLU 38	0	0.23	49.43	-0.0867	-0.0072	0
138	SLU 39	0	-0.36	50.49	-0.0542	-0.0041	0
138	SLU 40	0	0.9	50.47	-0.1192	-0.0073	0
138	SLU 41	0	-0.66	51.24	-0.0405	-0.0042	0
138	SLU 42	0	0.59	51.23	-0.1055	-0.0074	0
138	SLU 43	0	-0.68	45.39	-0.0403	-0.0035	0
138	SLU 44	0	1.41	45.37	-0.1487	-0.0089	0
138	SLU 45	0	-0.93	46.57	-0.0302	-0.0037	0
138	SLU 46	0	0.33	46.56	-0.0952	-0.0069	0
138	SLU 47	0	1.11	46.13	-0.135	-0.009	0
138	SLU 48	0	-1.23	47.33	-0.0165	-0.0038	0
138	SLU 49	0	0.02	47.32	-0.0816	-0.007	0
138	SLU 50	0	-1.3	46.91	-0.0129	-0.0037	0
138	SLU 51	0	-0.04	46.9	-0.078	-0.0069	0
138	SLU 52	0	1.54	51.35	-0.1607	-0.0094	0
138	SLU 53	0	-0.8	52.54	-0.0422	-0.0042	0
138	SLU 54	0	0.46	52.53	-0.1072	-0.0074	0
138	SLU 55	0	1.23	52.1	-0.147	-0.0095	0
138	SLU 56	0	-1.11	53.3	-0.0285	-0.0043	0
138	SLU 57	0	0.15	53.29	-0.0936	-0.0075	0
138	SLU 58	0	-1.17	52.88	-0.0249	-0.0042	0
138	SLU 59	0	0.09	52.87	-0.09	-0.0075	0
138	SLU 60	0	-0.5	53.93	-0.0575	-0.0043	0
138	SLU 61	0	0.76	53.91	-0.1225	-0.0075	0
138	SLU 62	0	-0.81	54.68	-0.0438	-0.0044	0
138	SLU 63	0	0.45	54.67	-0.1088	-0.0076	0
138	SLU 64	0	-0.69	50.96	-0.0451	-0.004	0
138	SLU 65	0	1.4	50.94	-0.1535	-0.0094	0
138	SLU 66	0	-0.94	52.14	-0.035	-0.0042	0
138	SLU 67	0	0.32	52.12	-0.1	-0.0074	0
138	SLU 68	0	1.09	51.7	-0.1398	-0.0095	0
138	SLU 69	0	-1.24	52.89	-0.0213	-0.0043	0
138	SLU 70	0	0.01	52.88	-0.0863	-0.0075	0
138	SLU 71	0	-1.31	52.47	-0.0177	-0.0042	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
138	SLU 72	0	-0.05	52.46	-0.0828	-0.0074	0
138	SLU 73	0	1.53	56.91	-0.1655	-0.0099	0
138	SLU 74	0	-0.81	58.11	-0.047	-0.0047	0
138	SLU 75	0	0.45	58.1	-0.112	-0.0079	0
138	SLU 76	0	1.22	57.67	-0.1518	-0.01	0
138	SLU 77	0	-1.12	58.87	-0.0333	-0.0048	0
138	SLU 78	0	0.14	58.86	-0.0983	-0.008	0
138	SLU 79	0	-1.18	58.45	-0.0297	-0.0047	0
138	SLU 80	0	0.08	58.44	-0.0948	-0.0079	0
138	SLU 81	0	-0.51	59.49	-0.0622	-0.0048	0
138	SLU 82	0	0.75	59.48	-0.1273	-0.008	0
138	SLU 83	0	-0.82	60.25	-0.0485	-0.0049	0
138	SLU 84	0	0.44	60.24	-0.1136	-0.0081	0
138	SLE RA 1	0	-0.53	37.98	-0.0336	-0.003	0
138	SLE RA 2	0	0.87	37.96	-0.1059	-0.0066	0
138	SLE RA 3	0	-0.69	38.76	-0.0269	-0.0031	0
138	SLE RA 4	0	0.15	38.75	-0.0703	-0.0052	0
138	SLE RA 5	0	0.66	38.47	-0.0968	-0.0066	0
138	SLE RA 6	0	-0.9	39.27	-0.0178	-0.0031	0
138	SLE RA 7	0	-0.06	39.26	-0.0611	-0.0053	0
138	SLE RA 8	0	-0.94	38.99	-0.0154	-0.0031	0
138	SLE RA 9	0	-0.1	38.98	-0.0587	-0.0052	0
138	SLE RA 10	0	0.95	41.94	-0.1139	-0.0069	0
138	SLE RA 11	0	-0.61	42.74	-0.0349	-0.0034	0
138	SLE RA 12	0	0.23	42.73	-0.0783	-0.0056	0
138	SLE RA 13	0	0.75	42.45	-0.1048	-0.007	0
138	SLE RA 14	0	-0.81	43.25	-0.0258	-0.0035	0
138	SLE RA 15	0	0.03	43.24	-0.0691	-0.0056	0
138	SLE RA 16	0	-0.86	42.97	-0.0234	-0.0035	0
138	SLE RA 17	0	-0.02	42.96	-0.0667	-0.0056	0
138	SLE RA 18	0	-0.41	43.67	-0.0451	-0.0035	0
138	SLE RA 19	0	0.43	43.66	-0.0884	-0.0056	0
138	SLE RA 20	0	-0.61	44.17	-0.0359	-0.0035	0
138	SLE RA 21	0	0.22	44.16	-0.0793	-0.0057	0
138	SLE FR 1	0	-0.53	37.98	-0.0336	-0.003	0
138	SLE FR 2	0	-0.25	37.97	-0.0481	-0.0037	0
138	SLE FR 3	0	-0.61	38.18	-0.03	-0.003	0
138	SLE FR 4	0	-0.21	39.68	-0.0515	-0.0039	0
138	SLE FR 5	0	-0.58	39.88	-0.0334	-0.0032	0
138	SLE FR 6	0	-0.47	40.82	-0.0393	-0.0032	0
138	SLE QP 1	0	-0.53	37.98	-0.0336	-0.003	0
138	SLE QP 2	0	-0.49	39.68	-0.0371	-0.0031	0
138	SLD 1	0.1	-0.35	41.05	-0.0474	0.0823	0.0001
138	SLD 2	0.1	-0.35	41.05	-0.0474	0.0823	0.0001
138	SLD 3	0.12	-4.66	40.52	0.1614	0.102	0.0001
138	SLD 4	0.12	-4.66	40.52	0.1614	0.102	0.0001
138	SLD 5	-0.01	6.1	40.91	-0.3568	-0.0074	0
138	SLD 6	-0.01	6.1	40.91	-0.3568	-0.0074	0
138	SLD 7	0.07	-8.29	39.12	0.3391	0.0583	0
138	SLD 8	0.07	-8.29	39.12	0.3391	0.0583	0
138	SLD 9	-0.07	7.3	40.25	-0.4132	-0.0646	-0.0001
138	SLD 10	-0.07	7.3	40.25	-0.4132	-0.0646	-0.0001
138	SLD 11	0	-7.08	38.46	0.2827	0.0011	0
138	SLD 12	0	-7.08	38.46	0.2827	0.0011	0
138	SLD 13	-0.12	3.68	38.85	-0.2355	-0.1083	-0.0001
138	SLD 14	-0.12	3.68	38.85	-0.2355	-0.1083	-0.0001
138	SLD 15	-0.1	-0.64	38.31	-0.0268	-0.0886	-0.0001
138	SLD 16	-0.1	-0.64	38.31	-0.0268	-0.0886	-0.0001
138	SLV 1	0.23	-0.36	42.92	-0.0509	0.2002	0.0002
138	SLV 2	0.23	-0.36	42.92	-0.0509	0.2002	0.0002
138	SLV 3	0.29	-10.33	41.6	0.4318	0.2497	0.0002
138	SLV 4	0.29	-10.33	41.6	0.4318	0.2497	0.0002
138	SLV 5	-0.01	14.67	42.65	-0.7732	-0.0173	0
138	SLV 6	-0.01	14.67	42.65	-0.7732	-0.0173	0
138	SLV 7	0.17	-18.57	38.26	0.8356	0.1479	0.0001
138	SLV 8	0.17	-18.57	38.26	0.8356	0.1479	0.0001
138	SLV 9	-0.17	17.58	41.11	-0.9097	-0.1541	-0.0001
138	SLV 10	-0.17	17.58	41.11	-0.9097	-0.1541	-0.0001
138	SLV 11	0.01	-15.66	36.71	0.6991	0.011	0
138	SLV 12	0.01	-15.66	36.71	0.6991	0.011	0
138	SLV 13	-0.29	9.34	37.77	-0.5059	-0.256	-0.0002
138	SLV 14	-0.29	9.34	37.77	-0.5059	-0.256	-0.0002
138	SLV 15	-0.23	-0.63	36.45	-0.0233	-0.2065	-0.0002
138	SLV 16	-0.23	-0.63	36.45	-0.0233	-0.2065	-0.0002
139	SLU 1	0	2.86	55.17	-0.1426	0.0058	0
139	SLU 2	0.03	3.33	57.83	-0.1685	0.0513	0
139	SLU 3	0	2.97	56.8	-0.1485	0.0058	0
139	SLU 4	0.02	3.26	58.39	-0.1641	0.0331	0
139	SLU 5	0.03	3.4	58.78	-0.1721	0.0512	0
139	SLU 6	0	3.04	57.75	-0.1521	0.0058	0
139	SLU 7	0.02	3.32	59.35	-0.1676	0.0331	0
139	SLU 8	0	2.99	57.08	-0.1497	0.0058	0
139	SLU 9	0.02	3.27	58.67	-0.1653	0.0331	0
139	SLU 10	0.03	3.91	64.63	-0.1948	0.0516	0
139	SLU 11	0.01	3.55	63.6	-0.1748	0.0061	0
139	SLU 12	0.02	3.83	65.19	-0.1903	0.0334	0
139	SLU 13	0.03	3.97	65.58	-0.1983	0.0515	0
139	SLU 14	0.01	3.61	64.55	-0.1783	0.0061	0
139	SLU 15	0.02	3.9	66.14	-0.1938	0.0334	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
139	SLU 16	0.01	3.56	63.87	-0.1759	0.0061	0
139	SLU 17	0.02	3.85	65.47	-0.1915	0.0334	0
139	SLU 18	0.01	3.68	64.88	-0.1801	0.0063	0
139	SLU 19	0.02	3.96	66.48	-0.1956	0.0335	0
139	SLU 20	0.01	3.75	65.84	-0.1836	0.0062	0
139	SLU 21	0.02	4.03	67.43	-0.1992	0.0335	0
139	SLU 22	0.01	3.37	61.95	-0.1669	0.0061	0
139	SLU 23	0.03	3.85	64.61	-0.1928	0.0516	0
139	SLU 24	0.01	3.49	63.58	-0.1728	0.0061	0
139	SLU 25	0.02	3.77	65.17	-0.1883	0.0334	0
139	SLU 26	0.03	3.91	65.56	-0.1963	0.0516	0
139	SLU 27	0.01	3.55	64.53	-0.1763	0.0061	0
139	SLU 28	0.02	3.84	66.12	-0.1918	0.0334	0
139	SLU 29	0.01	3.5	63.85	-0.1739	0.0061	0
139	SLU 30	0.02	3.79	65.45	-0.1895	0.0334	0
139	SLU 31	0.03	4.42	71.4	-0.219	0.0519	0
139	SLU 32	0.01	4.07	70.37	-0.199	0.0065	0
139	SLU 33	0.02	4.35	71.97	-0.2145	0.0337	0
139	SLU 34	0.03	4.49	72.36	-0.2225	0.0519	0
139	SLU 35	0.01	4.13	71.33	-0.2025	0.0064	0
139	SLU 36	0.02	4.42	72.92	-0.2181	0.0337	0
139	SLU 37	0.01	4.08	70.65	-0.2002	0.0064	0
139	SLU 38	0.02	4.36	72.25	-0.2157	0.0337	0
139	SLU 39	0.01	4.2	71.66	-0.2043	0.0066	0
139	SLU 40	0.02	4.48	73.25	-0.2199	0.0338	0
139	SLU 41	0.01	4.26	72.61	-0.2079	0.0066	0
139	SLU 42	0.02	4.55	74.21	-0.2234	0.0338	0
139	SLU 43	0.01	3.54	69.4	-0.1771	0.0075	0
139	SLU 44	0.03	4.01	72.06	-0.203	0.0529	0
139	SLU 45	0.01	3.65	71.03	-0.183	0.0075	0
139	SLU 46	0.02	3.94	72.62	-0.1986	0.0347	0
139	SLU 47	0.03	4.07	73.01	-0.2066	0.0529	0
139	SLU 48	0.01	3.72	71.98	-0.1865	0.0075	0
139	SLU 49	0.02	4	73.57	-0.2021	0.0347	0
139	SLU 50	0.01	3.67	71.31	-0.1842	0.0074	0
139	SLU 51	0.02	3.95	72.9	-0.1997	0.0347	0
139	SLU 52	0.03	4.59	78.85	-0.2293	0.0532	0
139	SLU 53	0.01	4.23	77.83	-0.2092	0.0078	0
139	SLU 54	0.02	4.51	79.42	-0.2248	0.035	0
139	SLU 55	0.03	4.65	79.81	-0.2328	0.0532	0
139	SLU 56	0.01	4.29	78.78	-0.2128	0.0078	0
139	SLU 57	0.02	4.58	80.37	-0.2283	0.035	0
139	SLU 58	0.01	4.24	78.1	-0.2104	0.0077	0
139	SLU 59	0.02	4.53	79.7	-0.226	0.035	0
139	SLU 60	0.01	4.36	79.11	-0.2146	0.0079	0
139	SLU 61	0.02	4.64	80.71	-0.2301	0.0352	0
139	SLU 62	0.01	4.43	80.06	-0.2181	0.0079	0
139	SLU 63	0.02	4.71	81.66	-0.2337	0.0351	0
139	SLU 64	0.01	4.05	76.18	-0.2014	0.0078	0
139	SLU 65	0.03	4.53	78.83	-0.2273	0.0532	0
139	SLU 66	0.01	4.17	77.81	-0.2072	0.0078	0
139	SLU 67	0.02	4.45	79.4	-0.2228	0.035	0
139	SLU 68	0.03	4.59	79.79	-0.2308	0.0532	0
139	SLU 69	0.01	4.23	78.76	-0.2108	0.0078	0
139	SLU 70	0.02	4.52	80.35	-0.2263	0.035	0
139	SLU 71	0.01	4.18	78.08	-0.2084	0.0078	0
139	SLU 72	0.02	4.47	79.68	-0.224	0.035	0
139	SLU 73	0.03	5.1	85.63	-0.2535	0.0535	0
139	SLU 74	0.01	4.74	84.6	-0.2335	0.0081	0
139	SLU 75	0.02	5.03	86.2	-0.249	0.0353	0
139	SLU 76	0.03	5.17	86.58	-0.257	0.0535	0
139	SLU 77	0.01	4.81	85.55	-0.237	0.0081	0
139	SLU 78	0.02	5.09	87.15	-0.2526	0.0353	0
139	SLU 79	0.01	4.76	84.88	-0.2346	0.0081	0
139	SLU 80	0.02	5.04	86.47	-0.2502	0.0353	0
139	SLU 81	0.01	4.88	85.89	-0.2388	0.0082	0
139	SLU 82	0.02	5.16	87.48	-0.2544	0.0355	0
139	SLU 83	0.01	4.94	86.84	-0.2424	0.0082	0
139	SLU 84	0.02	5.23	88.43	-0.2579	0.0355	0
139	SLE RA 1	0	3	57.11	-0.1496	0.0059	0
139	SLE RA 2	0.02	3.32	58.88	-0.1668	0.0362	0
139	SLE RA 3	0.01	3.08	58.19	-0.1535	0.0059	0
139	SLE RA 4	0.02	3.27	59.26	-0.1639	0.0241	0
139	SLE RA 5	0.02	3.36	59.51	-0.1692	0.0362	0
139	SLE RA 6	0.01	3.12	58.83	-0.1558	0.0059	0
139	SLE RA 7	0.02	3.31	59.89	-0.1662	0.0241	0
139	SLE RA 8	0	3.09	58.38	-0.1543	0.0059	0
139	SLE RA 9	0.02	3.28	59.44	-0.1646	0.0241	0
139	SLE RA 10	0.02	3.7	63.41	-0.1843	0.0364	0
139	SLE RA 11	0.01	3.47	62.73	-0.171	0.0061	0
139	SLE RA 12	0.02	3.65	63.79	-0.1813	0.0243	0
139	SLE RA 13	0.02	3.75	64.05	-0.1867	0.0364	0
139	SLE RA 14	0.01	3.51	63.36	-0.1733	0.0061	0
139	SLE RA 15	0.02	3.7	64.42	-0.1837	0.0243	0
139	SLE RA 16	0.01	3.48	62.91	-0.1718	0.0061	0
139	SLE RA 17	0.02	3.66	63.97	-0.1821	0.0243	0
139	SLE RA 18	0.01	3.55	63.58	-0.1745	0.0062	0
139	SLE RA 19	0.02	3.74	64.65	-0.1849	0.0244	0
139	SLE RA 20	0.01	3.6	64.22	-0.1769	0.0062	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
139	SLE RA 21	0.02	3.79	65.28	-0.1873	0.0244	0
139	SLE FR 1	0	3	57.11	-0.1496	0.0059	0
139	SLE FR 2	0.01	3.07	57.46	-0.153	0.012	0
139	SLE FR 3	0	3.02	57.36	-0.1505	0.0059	0
139	SLE FR 4	0.01	3.23	59.41	-0.1605	0.0121	0
139	SLE FR 5	0.01	3.19	59.31	-0.158	0.006	0
139	SLE FR 6	0.01	3.28	60.35	-0.162	0.0061	0
139	SLE QP 1	0	3	57.11	-0.1496	0.0059	0
139	SLE QP 2	0.01	3.17	59.05	-0.1571	0.006	0
139	SLD 1	0.09	3.61	46.39	-0.1754	0.1035	0.0001
139	SLD 2	0.09	3.61	46.39	-0.1754	0.1035	0.0001
139	SLD 3	0.2	-1.44	43.03	0.0418	0.2051	0.0001
139	SLD 4	0.2	-1.44	43.03	0.0418	0.2051	0.0001
139	SLD 5	-0.13	10.96	60.34	-0.4921	-0.1189	0.0001
139	SLD 6	-0.13	10.96	60.34	-0.4921	-0.1189	0.0001
139	SLD 7	0.22	-5.87	49.16	0.2321	0.2199	0
139	SLD 8	0.22	-5.87	49.16	0.2321	0.2199	0
139	SLD 9	-0.21	12.21	68.95	-0.5462	-0.2079	0
139	SLD 10	-0.21	12.21	68.95	-0.5462	-0.2079	0
139	SLD 11	0.14	-4.62	57.76	0.178	0.1309	-0.0001
139	SLD 12	0.14	-4.62	57.76	0.178	0.1309	-0.0001
139	SLD 13	-0.19	7.78	75.07	-0.3559	-0.1931	-0.0001
139	SLD 14	-0.19	7.78	75.07	-0.3559	-0.1931	-0.0001
139	SLD 15	-0.08	2.73	71.71	-0.1387	-0.0914	-0.0001
139	SLD 16	-0.08	2.73	71.71	-0.1387	-0.0914	-0.0001
139	SLV 1	0.2	4.17	30.04	-0.1987	0.2254	0.0003
139	SLV 2	0.2	4.17	30.04	-0.1987	0.2254	0.0003
139	SLV 3	0.47	-7.43	22.23	0.3001	0.4854	0.0002
139	SLV 4	0.47	-7.43	22.23	0.3001	0.4854	0.0002
139	SLV 5	-0.35	21.07	62.19	-0.9262	-0.3224	0.0002
139	SLV 6	-0.35	21.07	62.19	-0.9262	-0.3224	0.0002
139	SLV 7	0.55	-17.61	36.17	0.7367	0.544	-0.0001
139	SLV 8	0.55	-17.61	36.17	0.7367	0.544	-0.0001
139	SLV 9	-0.54	23.94	81.94	-1.0508	-0.532	0.0001
139	SLV 10	-0.54	23.94	81.94	-1.0508	-0.532	0.0001
139	SLV 11	0.36	-14.73	55.92	0.6121	0.3344	-0.0002
139	SLV 12	0.36	-14.73	55.92	0.6121	0.3344	-0.0002
139	SLV 13	-0.46	13.77	95.87	-0.6143	-0.4733	-0.0002
139	SLV 14	-0.46	13.77	95.87	-0.6143	-0.4733	-0.0002
139	SLV 15	-0.19	2.16	88.06	-0.1154	-0.2134	-0.0003
139	SLV 16	-0.19	2.16	88.06	-0.1154	-0.2134	-0.0003
140	SLU 1	0.04	-3.58	42.14	0.1721	0.03	0
140	SLU 2	0.04	-3.97	42.34	0.1906	0.03	0
140	SLU 3	0.04	-3.35	43.28	0.1609	0.0311	0
140	SLU 4	0.04	-3.59	43.4	0.172	0.0311	0
140	SLU 5	0.04	-3.66	42.91	0.1754	0.0307	0
140	SLU 6	0.04	-3.04	43.85	0.1457	0.0318	0
140	SLU 7	0.04	-3.28	43.97	0.1568	0.0318	0
140	SLU 8	0.04	-2.97	43.27	0.1416	0.0314	0
140	SLU 9	0.04	-3.2	43.39	0.1527	0.0314	0
140	SLU 10	0.05	-4.61	50.77	0.222	0.033	0
140	SLU 11	0.05	-3.99	51.71	0.1923	0.0341	0
140	SLU 12	0.05	-4.22	51.83	0.2034	0.0341	0
140	SLU 13	0.05	-4.3	51.34	0.2068	0.0337	0
140	SLU 14	0.05	-3.68	52.28	0.1771	0.0348	0
140	SLU 15	0.05	-3.91	52.4	0.1882	0.0348	0
140	SLU 16	0.05	-3.6	51.7	0.173	0.0344	0
140	SLU 17	0.05	-3.84	51.82	0.1841	0.0344	0
140	SLU 18	0.05	-4.49	54.18	0.2169	0.0342	0
140	SLU 19	0.05	-4.73	54.3	0.2281	0.0342	0
140	SLU 20	0.05	-4.18	54.75	0.2017	0.0349	0
140	SLU 21	0.05	-4.42	54.87	0.2128	0.0349	0
140	SLU 22	0.05	-3.72	48.25	0.1804	0.0343	0
140	SLU 23	0.05	-4.11	48.46	0.199	0.0343	0
140	SLU 24	0.05	-3.49	49.4	0.1693	0.0354	0
140	SLU 25	0.05	-3.72	49.52	0.1804	0.0354	0
140	SLU 26	0.05	-3.8	49.02	0.1837	0.035	0
140	SLU 27	0.05	-3.18	49.96	0.1541	0.0361	0
140	SLU 28	0.05	-3.41	50.08	0.1652	0.0361	0
140	SLU 29	0.05	-3.1	49.38	0.15	0.0357	0
140	SLU 30	0.05	-3.33	49.5	0.1611	0.0357	0
140	SLU 31	0.05	-4.74	56.89	0.2304	0.0373	0
140	SLU 32	0.05	-4.12	57.83	0.2007	0.0384	0
140	SLU 33	0.05	-4.36	57.95	0.2118	0.0384	0
140	SLU 34	0.05	-4.43	57.45	0.2152	0.038	0
140	SLU 35	0.05	-3.82	58.39	0.1855	0.0391	0
140	SLU 36	0.05	-4.05	58.51	0.1966	0.0391	0
140	SLU 37	0.05	-3.74	57.81	0.1814	0.0387	0
140	SLU 38	0.05	-3.97	57.93	0.1925	0.0387	0
140	SLU 39	0.05	-4.63	60.3	0.2253	0.0385	0
140	SLU 40	0.05	-4.86	60.42	0.2364	0.0385	0
140	SLU 41	0.06	-4.32	60.86	0.2101	0.0393	0
140	SLU 42	0.06	-4.55	60.98	0.2212	0.0393	0
140	SLU 43	0.05	-4.61	52.68	0.2208	0.0375	0
140	SLU 44	0.05	-5	52.89	0.2393	0.0375	0
140	SLU 45	0.05	-4.38	53.83	0.2097	0.0386	0
140	SLU 46	0.05	-4.61	53.95	0.2208	0.0386	0
140	SLU 47	0.05	-4.69	53.45	0.2241	0.0382	0
140	SLU 48	0.05	-4.07	54.39	0.1944	0.0393	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
140	SLU 49	0.05	-4.31	54.51	0.2055	0.0393	0
140	SLU 50	0.05	-4	53.81	0.1903	0.0389	0
140	SLU 51	0.05	-4.23	53.93	0.2015	0.0389	0
140	SLU 52	0.06	-5.64	61.32	0.2708	0.0405	0
140	SLU 53	0.06	-5.02	62.26	0.2411	0.0416	0
140	SLU 54	0.06	-5.25	62.38	0.2522	0.0416	0
140	SLU 55	0.06	-5.33	61.88	0.2555	0.0412	0
140	SLU 56	0.06	-4.71	62.82	0.2258	0.0423	0
140	SLU 57	0.06	-4.94	62.94	0.237	0.0423	0
140	SLU 58	0.06	-4.63	62.24	0.2217	0.0419	0
140	SLU 59	0.06	-4.87	62.36	0.2329	0.0419	0
140	SLU 60	0.06	-5.52	64.73	0.2657	0.0417	0
140	SLU 61	0.06	-5.75	64.85	0.2768	0.0417	0
140	SLU 62	0.06	-5.21	65.29	0.2505	0.0425	0
140	SLU 63	0.06	-5.45	65.41	0.2616	0.0425	0
140	SLU 64	0.06	-4.75	58.8	0.2292	0.0418	0
140	SLU 65	0.06	-5.13	59	0.2477	0.0418	0
140	SLU 66	0.06	-4.52	59.94	0.218	0.0429	0
140	SLU 67	0.06	-4.75	60.06	0.2292	0.0429	0
140	SLU 68	0.06	-4.83	59.56	0.2325	0.0425	0
140	SLU 69	0.06	-4.21	60.5	0.2028	0.0436	0
140	SLU 70	0.06	-4.44	60.63	0.2139	0.0436	0
140	SLU 71	0.06	-4.13	59.93	0.1987	0.0433	0
140	SLU 72	0.06	-4.36	60.05	0.2098	0.0433	0
140	SLU 73	0.06	-5.77	67.43	0.2791	0.0448	0
140	SLU 74	0.06	-5.15	68.37	0.2495	0.0459	0
140	SLU 75	0.06	-5.39	68.49	0.2606	0.0459	0
140	SLU 76	0.06	-5.46	68	0.2639	0.0455	0
140	SLU 77	0.06	-4.85	68.94	0.2342	0.0466	0
140	SLU 78	0.06	-5.08	69.06	0.2453	0.0466	0
140	SLU 79	0.06	-4.77	68.36	0.2301	0.0462	0
140	SLU 80	0.06	-5	68.48	0.2412	0.0462	0
140	SLU 81	0.06	-5.66	70.84	0.2741	0.0461	0
140	SLU 82	0.06	-5.89	70.96	0.2852	0.0461	0
140	SLU 83	0.07	-5.35	71.41	0.2588	0.0468	0
140	SLU 84	0.07	-5.58	71.53	0.27	0.0468	0
140	SLE RA 1	0.04	-3.62	43.89	0.1745	0.0312	0
140	SLE RA 2	0.04	-3.88	44.02	0.1868	0.0312	0
140	SLE RA 3	0.04	-3.47	44.65	0.167	0.032	0
140	SLE RA 4	0.04	-3.62	44.73	0.1744	0.032	0
140	SLE RA 5	0.04	-3.67	44.4	0.1767	0.0317	0
140	SLE RA 6	0.04	-3.26	45.02	0.1569	0.0324	0
140	SLE RA 7	0.04	-3.42	45.1	0.1643	0.0324	0
140	SLE RA 8	0.04	-3.21	44.64	0.1541	0.0322	0
140	SLE RA 9	0.04	-3.37	44.72	0.1616	0.0322	0
140	SLE RA 10	0.05	-4.3	49.64	0.2078	0.0332	0
140	SLE RA 11	0.05	-3.89	50.27	0.188	0.0339	0
140	SLE RA 12	0.05	-4.05	50.35	0.1954	0.0339	0
140	SLE RA 13	0.05	-4.1	50.02	0.1976	0.0337	0
140	SLE RA 14	0.05	-3.69	50.64	0.1778	0.0344	0
140	SLE RA 15	0.05	-3.84	50.73	0.1852	0.0344	0
140	SLE RA 16	0.05	-3.64	50.26	0.1751	0.0342	0
140	SLE RA 17	0.05	-3.79	50.34	0.1825	0.0342	0
140	SLE RA 18	0.05	-4.23	51.91	0.2044	0.034	0
140	SLE RA 19	0.05	-4.38	52	0.2118	0.034	0
140	SLE RA 20	0.05	-4.02	52.29	0.1942	0.0345	0
140	SLE RA 21	0.05	-4.18	52.37	0.2016	0.0345	0
140	SLE FR 1	0.04	-3.62	43.89	0.1745	0.0312	0
140	SLE FR 2	0.04	-3.67	43.91	0.1769	0.0312	0
140	SLE FR 3	0.04	-3.54	44.04	0.1704	0.0314	0
140	SLE FR 4	0.04	-3.86	46.32	0.1859	0.0321	0
140	SLE FR 5	0.04	-3.72	46.44	0.1794	0.0323	0
140	SLE FR 6	0.05	-3.92	47.9	0.1894	0.0326	0
140	SLE QP 1	0.04	-3.62	43.89	0.1745	0.0312	0
140	SLE QP 2	0.04	-3.8	46.29	0.1834	0.0321	0
140	SLD 1	0.19	-0.43	48.99	0.021	0.1615	0.0001
140	SLD 2	0.19	-0.43	48.99	0.021	0.1615	0.0001
140	SLD 3	0.2	-4.75	51.87	0.23	0.1705	0.0001
140	SLD 4	0.2	-4.75	51.87	0.23	0.1705	0.0001
140	SLD 5	0.07	3.77	42.73	-0.1823	0.0573	0
140	SLD 6	0.07	3.77	42.73	-0.1823	0.0573	0
140	SLD 7	0.1	-10.65	52.34	0.5145	0.0872	0
140	SLD 8	0.1	-10.65	52.34	0.5145	0.0872	0
140	SLD 9	-0.02	3.04	40.25	-0.1476	-0.023	0
140	SLD 10	-0.02	3.04	40.25	-0.1476	-0.023	0
140	SLD 11	0.01	-11.38	49.86	0.5492	0.0068	0
140	SLD 12	0.01	-11.38	49.86	0.5492	0.0068	0
140	SLD 13	-0.11	-2.85	40.71	0.1368	-0.1063	0
140	SLD 14	-0.11	-2.85	40.71	0.1368	-0.1063	0
140	SLD 15	-0.1	-7.18	43.6	0.3459	-0.0974	0
140	SLD 16	-0.1	-7.18	43.6	0.3459	-0.0974	0
140	SLV 1	0.39	3.91	52.47	-0.1881	0.3453	0.0001
140	SLV 2	0.39	3.91	52.47	-0.1881	0.3453	0.0001
140	SLV 3	0.42	-5.99	59.14	0.2908	0.3665	0.0001
140	SLV 4	0.42	-5.99	59.14	0.2908	0.3665	0.0001
140	SLV 5	0.12	13.54	38.03	-0.6544	0.0939	0.0001
140	SLV 6	0.12	13.54	38.03	-0.6544	0.0939	0.0001
140	SLV 7	0.19	-19.49	60.27	0.942	0.1646	0
140	SLV 8	0.19	-19.49	60.27	0.942	0.1646	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
140	SLV 9	-0.1	11.88	32.32	-0.5751	-0.1004	0
140	SLV 10	-0.1	11.88	32.32	-0.5751	-0.1004	0
140	SLV 11	-0.03	-21.14	54.56	1.0213	-0.0297	0
140	SLV 12	-0.03	-21.14	54.56	1.0213	-0.0297	0
140	SLV 13	-0.33	-1.61	33.45	0.0761	-0.3023	-0.0001
140	SLV 14	-0.33	-1.61	33.45	0.0761	-0.3023	-0.0001
140	SLV 15	-0.31	-11.52	40.12	0.555	-0.2811	-0.0001
140	SLV 16	-0.31	-11.52	40.12	0.555	-0.2811	-0.0001
141	SLU 1	0	1.75	14.13	-0.052	0.006	0
141	SLU 2	0	1.76	14.17	-0.0523	0.0063	0
141	SLU 3	0	1.83	14.42	-0.0542	0.0061	0
141	SLU 4	0	1.83	14.44	-0.0543	0.0063	0
141	SLU 5	0	1.8	14.3	-0.0533	0.0063	0
141	SLU 6	0	1.86	14.55	-0.0552	0.0061	0
141	SLU 7	0	1.86	14.57	-0.0553	0.0063	0
141	SLU 8	0	1.82	14.38	-0.054	0.0061	0
141	SLU 9	0	1.83	14.41	-0.0542	0.0062	0
141	SLU 10	0.01	2.09	17.96	-0.0619	0.0081	0
141	SLU 11	0.01	2.16	18.2	-0.0637	0.0079	0
141	SLU 12	0.01	2.16	18.23	-0.0639	0.008	0
141	SLU 13	0.01	2.13	18.09	-0.0629	0.0081	0
141	SLU 14	0.01	2.19	18.33	-0.0647	0.0079	0
141	SLU 15	0.01	2.2	18.36	-0.0649	0.0081	0
141	SLU 16	0.01	2.15	18.17	-0.0636	0.0079	0
141	SLU 17	0.01	2.16	18.2	-0.0638	0.008	0
141	SLU 18	0.01	2.23	19.54	-0.0657	0.0086	0
141	SLU 19	0.01	2.23	19.56	-0.0659	0.0088	0
141	SLU 20	0.01	2.26	19.66	-0.0667	0.0086	0
141	SLU 21	0.01	2.27	19.69	-0.0669	0.0088	0
141	SLU 22	0	2.1	15.89	-0.0623	0.0067	0
141	SLU 23	0	2.11	15.93	-0.0625	0.007	0
141	SLU 24	0	2.17	16.18	-0.0644	0.0067	0
141	SLU 25	0	2.17	16.21	-0.0645	0.0069	0
141	SLU 26	0	2.14	16.06	-0.0635	0.007	0
141	SLU 27	0	2.2	16.31	-0.0654	0.0068	0
141	SLU 28	0	2.21	16.34	-0.0656	0.0069	0
141	SLU 29	0	2.16	16.15	-0.0643	0.0067	0
141	SLU 30	0	2.17	16.17	-0.0644	0.0069	0
141	SLU 31	0.01	2.44	19.72	-0.0721	0.0088	0
141	SLU 32	0.01	2.5	19.97	-0.074	0.0085	0
141	SLU 33	0.01	2.5	19.99	-0.0741	0.0087	0
141	SLU 34	0.01	2.47	19.85	-0.0731	0.0088	0
141	SLU 35	0.01	2.53	20.1	-0.075	0.0085	0
141	SLU 36	0.01	2.54	20.12	-0.0751	0.0087	0
141	SLU 37	0.01	2.5	19.93	-0.0738	0.0085	0
141	SLU 38	0.01	2.5	19.96	-0.074	0.0087	0
141	SLU 39	0.01	2.57	21.3	-0.0759	0.0092	0
141	SLU 40	0.01	2.58	21.33	-0.0761	0.0094	0
141	SLU 41	0.01	2.6	21.43	-0.0769	0.0093	0
141	SLU 42	0.01	2.61	21.46	-0.0771	0.0094	0
141	SLU 43	0	2.16	17.76	-0.0641	0.0076	0
141	SLU 44	0.01	2.17	17.8	-0.0644	0.0079	0
141	SLU 45	0	2.23	18.05	-0.0663	0.0077	0
141	SLU 46	0.01	2.24	18.08	-0.0664	0.0078	0
141	SLU 47	0.01	2.21	17.93	-0.0654	0.0079	0
141	SLU 48	0	2.27	18.18	-0.0673	0.0077	0
141	SLU 49	0.01	2.27	18.21	-0.0674	0.0079	0
141	SLU 50	0	2.23	18.02	-0.0661	0.0076	0
141	SLU 51	0.01	2.24	18.04	-0.0663	0.0078	0
141	SLU 52	0.01	2.5	21.59	-0.074	0.0097	0.0001
141	SLU 53	0.01	2.57	21.84	-0.0758	0.0094	0
141	SLU 54	0.01	2.57	21.86	-0.076	0.0096	0.0001
141	SLU 55	0.01	2.54	21.72	-0.075	0.0097	0.0001
141	SLU 56	0.01	2.6	21.97	-0.0768	0.0095	0
141	SLU 57	0.01	2.6	21.99	-0.077	0.0096	0
141	SLU 58	0.01	2.56	21.8	-0.0757	0.0094	0
141	SLU 59	0.01	2.57	21.83	-0.0759	0.0096	0
141	SLU 60	0.01	2.64	23.17	-0.0778	0.0102	0.0001
141	SLU 61	0.01	2.64	23.2	-0.078	0.0103	0.0001
141	SLU 62	0.01	2.67	23.3	-0.0788	0.0102	0.0001
141	SLU 63	0.01	2.67	23.32	-0.079	0.0104	0.0001
141	SLU 64	0.01	2.51	19.52	-0.0744	0.0083	0
141	SLU 65	0.01	2.52	19.57	-0.0746	0.0086	0
141	SLU 66	0.01	2.58	19.81	-0.0765	0.0083	0
141	SLU 67	0.01	2.58	19.84	-0.0767	0.0085	0
141	SLU 68	0.01	2.55	19.7	-0.0756	0.0086	0
141	SLU 69	0.01	2.61	19.94	-0.0775	0.0083	0
141	SLU 70	0.01	2.62	19.97	-0.0777	0.0085	0
141	SLU 71	0.01	2.57	19.78	-0.0764	0.0083	0
141	SLU 72	0.01	2.58	19.81	-0.0765	0.0085	0
141	SLU 73	0.01	2.85	23.35	-0.0842	0.0104	0.0001
141	SLU 74	0.01	2.91	23.6	-0.0861	0.0101	0
141	SLU 75	0.01	2.91	23.63	-0.0862	0.0103	0.0001
141	SLU 76	0.01	2.88	23.48	-0.0852	0.0104	0.0001
141	SLU 77	0.01	2.94	23.73	-0.0871	0.0101	0
141	SLU 78	0.01	2.95	23.76	-0.0872	0.0103	0.0001
141	SLU 79	0.01	2.9	23.57	-0.0859	0.0101	0
141	SLU 80	0.01	2.91	23.59	-0.0861	0.0103	0.0001
141	SLU 81	0.01	2.98	24.93	-0.088	0.0108	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
141	SLU 82	0.01	2.98	24.96	-0.0882	0.011	0.0001
141	SLU 83	0.01	3.01	25.06	-0.089	0.0108	0.0001
141	SLU 84	0.01	3.02	25.09	-0.0892	0.011	0.0001
141	SLE RA 1	0	1.85	14.63	-0.0549	0.0062	0
141	SLE RA 2	0	1.86	14.66	-0.0551	0.0064	0
141	SLE RA 3	0	1.9	14.82	-0.0564	0.0062	0
141	SLE RA 4	0	1.9	14.84	-0.0565	0.0064	0
141	SLE RA 5	0	1.88	14.75	-0.0558	0.0064	0
141	SLE RA 6	0	1.92	14.91	-0.057	0.0063	0
141	SLE RA 7	0	1.93	14.93	-0.0571	0.0064	0
141	SLE RA 8	0	1.9	14.8	-0.0563	0.0062	0
141	SLE RA 9	0	1.9	14.82	-0.0564	0.0064	0
141	SLE RA 10	0.01	2.08	17.18	-0.0615	0.0076	0
141	SLE RA 11	0.01	2.12	17.35	-0.0628	0.0074	0
141	SLE RA 12	0.01	2.12	17.37	-0.0629	0.0076	0
141	SLE RA 13	0.01	2.1	17.27	-0.0622	0.0076	0
141	SLE RA 14	0.01	2.14	17.43	-0.0634	0.0075	0
141	SLE RA 15	0.01	2.15	17.45	-0.0635	0.0076	0
141	SLE RA 16	0.01	2.12	17.33	-0.0627	0.0074	0
141	SLE RA 17	0.01	2.12	17.34	-0.0628	0.0076	0
141	SLE RA 18	0.01	2.17	18.24	-0.0641	0.0079	0
141	SLE RA 19	0.01	2.17	18.25	-0.0642	0.008	0
141	SLE RA 20	0.01	2.19	18.32	-0.0647	0.0079	0
141	SLE RA 21	0.01	2.19	18.34	-0.0648	0.0081	0
141	SLE FR 1	0	1.85	14.63	-0.0549	0.0062	0
141	SLE FR 2	0	1.85	14.64	-0.055	0.0063	0
141	SLE FR 3	0	1.86	14.66	-0.0552	0.0062	0
141	SLE FR 4	0	1.95	15.72	-0.0577	0.0068	0
141	SLE FR 5	0	1.96	15.75	-0.058	0.0067	0
141	SLE FR 6	0	2.01	16.43	-0.0595	0.0071	0
141	SLE QP 1	0	1.85	14.63	-0.0549	0.0062	0
141	SLE QP 2	0	1.95	15.71	-0.0577	0.0067	0
141	SLD 1	0.13	0.66	13.57	-0.0204	0.1218	0.0017
141	SLD 2	0.13	0.66	13.57	-0.0204	0.1218	0.0017
141	SLD 3	0.12	2	14.34	-0.0587	0.1149	0.0016
141	SLD 4	0.12	2	14.34	-0.0587	0.1149	0.0016
141	SLD 5	0.05	-0.47	13.89	0.0116	0.0518	0.0006
141	SLD 6	0.05	-0.47	13.89	0.0116	0.0518	0.0006
141	SLD 7	0.03	4	16.48	-0.116	0.0287	0.0004
141	SLD 8	0.03	4	16.48	-0.116	0.0287	0.0004
141	SLD 9	-0.02	-0.1	14.95	0.0007	-0.0152	-0.0003
141	SLD 10	-0.02	-0.1	14.95	0.0007	-0.0152	-0.0003
141	SLD 11	-0.04	4.37	17.53	-0.1269	-0.0383	-0.0006
141	SLD 12	-0.04	4.37	17.53	-0.1269	-0.0383	-0.0006
141	SLD 13	-0.11	1.89	17.08	-0.0567	-0.1015	-0.0015
141	SLD 14	-0.11	1.89	17.08	-0.0567	-0.1015	-0.0015
141	SLD 15	-0.12	3.24	17.85	-0.095	-0.1084	-0.0016
141	SLD 16	-0.12	3.24	17.85	-0.095	-0.1084	-0.0016
141	SLV 1	0.31	-1.05	10.77	0.029	0.286	0.004
141	SLV 2	0.31	-1.05	10.77	0.029	0.286	0.004
141	SLV 3	0.29	2.09	12.57	-0.0607	0.2695	0.0038
141	SLV 4	0.29	2.09	12.57	-0.0607	0.2695	0.0038
141	SLV 5	0.12	-3.72	11.49	0.1043	0.1155	0.0015
141	SLV 6	0.12	-3.72	11.49	0.1043	0.1155	0.0015
141	SLV 7	0.07	6.76	17.51	-0.1946	0.0605	0.0009
141	SLV 8	0.07	6.76	17.51	-0.1946	0.0605	0.0009
141	SLV 9	-0.06	-2.86	13.92	0.0792	-0.0471	-0.0008
141	SLV 10	-0.06	-2.86	13.92	0.0792	-0.0471	-0.0008
141	SLV 11	-0.11	7.61	19.93	-0.2197	-0.1021	-0.0015
141	SLV 12	-0.11	7.61	19.93	-0.2197	-0.1021	-0.0015
141	SLV 13	-0.28	1.8	18.85	-0.0547	-0.2561	-0.0037
141	SLV 14	-0.28	1.8	18.85	-0.0547	-0.2561	-0.0037
141	SLV 15	-0.3	4.94	20.66	-0.1443	-0.2726	-0.0039
141	SLV 16	-0.3	4.94	20.66	-0.1443	-0.2726	-0.0039
142	SLU 1	-0.15	5.69	34.31	-0.2435	-0.1048	-0.0009
142	SLU 2	-0.18	6.41	35.16	-0.2755	-0.1491	-0.0011
142	SLU 3	-0.16	6.01	35.34	-0.2576	-0.1085	-0.0009
142	SLU 4	-0.17	6.44	35.85	-0.2768	-0.1351	-0.0011
142	SLU 5	-0.18	6.67	35.86	-0.2871	-0.1516	-0.0011
142	SLU 6	-0.16	6.27	36.04	-0.2693	-0.111	-0.001
142	SLU 7	-0.18	6.7	36.56	-0.2885	-0.1376	-0.0011
142	SLU 8	-0.16	6.21	35.71	-0.2667	-0.1099	-0.001
142	SLU 9	-0.18	6.64	36.22	-0.2859	-0.1365	-0.0011
142	SLU 10	-0.2	7.35	39.16	-0.3147	-0.1621	-0.0012
142	SLU 11	-0.18	6.95	39.34	-0.2968	-0.1215	-0.0011
142	SLU 12	-0.19	7.38	39.85	-0.316	-0.1481	-0.0012
142	SLU 13	-0.2	7.61	39.86	-0.3263	-0.1646	-0.0012
142	SLU 14	-0.18	7.21	40.04	-0.3084	-0.1241	-0.0011
142	SLU 15	-0.2	7.64	40.55	-0.3276	-0.1506	-0.0012
142	SLU 16	-0.18	7.15	39.71	-0.3059	-0.1229	-0.0011
142	SLU 17	-0.2	7.58	40.22	-0.3251	-0.1495	-0.0012
142	SLU 18	-0.18	7.03	40.02	-0.2994	-0.1235	-0.0011
142	SLU 19	-0.2	7.46	40.53	-0.3186	-0.15	-0.0012
142	SLU 20	-0.18	7.29	40.72	-0.3111	-0.126	-0.0011
142	SLU 21	-0.2	7.72	41.23	-0.3303	-0.1525	-0.0012
142	SLU 22	-0.17	6.64	38.29	-0.2834	-0.1182	-0.001
142	SLU 23	-0.2	7.36	39.14	-0.3154	-0.1624	-0.0012
142	SLU 24	-0.18	6.96	39.32	-0.2976	-0.1218	-0.0011
142	SLU 25	-0.19	7.39	39.83	-0.3168	-0.1484	-0.0012





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
142	SLU 26	-0.2	7.62	39.84	-0.327	-0.165	-0.0013
142	SLU 27	-0.18	7.22	40.02	-0.3092	-0.1244	-0.0011
142	SLU 28	-0.2	7.65	40.53	-0.3284	-0.1509	-0.0012
142	SLU 29	-0.18	7.15	39.69	-0.3067	-0.1232	-0.0011
142	SLU 30	-0.2	7.59	40.2	-0.3259	-0.1498	-0.0012
142	SLU 31	-0.22	8.3	43.14	-0.3546	-0.1754	-0.0013
142	SLU 32	-0.19	7.9	43.32	-0.3367	-0.1349	-0.0012
142	SLU 33	-0.21	8.33	43.83	-0.3559	-0.1614	-0.0013
142	SLU 34	-0.22	8.56	43.84	-0.3662	-0.178	-0.0014
142	SLU 35	-0.2	8.16	44.02	-0.3484	-0.1374	-0.0012
142	SLU 36	-0.22	8.59	44.53	-0.3676	-0.1639	-0.0013
142	SLU 37	-0.2	8.09	43.69	-0.3458	-0.1363	-0.0012
142	SLU 38	-0.21	8.53	44.2	-0.365	-0.1628	-0.0013
142	SLU 39	-0.2	7.98	44	-0.3394	-0.1368	-0.0012
142	SLU 40	-0.22	8.41	44.51	-0.3586	-0.1633	-0.0013
142	SLU 41	-0.2	8.24	44.7	-0.351	-0.1393	-0.0012
142	SLU 42	-0.22	8.67	45.21	-0.3702	-0.1659	-0.0013
142	SLU 43	-0.19	7.07	43.24	-0.3028	-0.1317	-0.0011
142	SLU 44	-0.22	7.79	44.09	-0.3348	-0.176	-0.0013
142	SLU 45	-0.19	7.39	44.27	-0.317	-0.1354	-0.0012
142	SLU 46	-0.21	7.83	44.78	-0.3362	-0.1619	-0.0013
142	SLU 47	-0.22	8.05	44.79	-0.3465	-0.1785	-0.0014
142	SLU 48	-0.2	7.65	44.97	-0.3286	-0.1379	-0.0012
142	SLU 49	-0.22	8.09	45.48	-0.3478	-0.1645	-0.0013
142	SLU 50	-0.2	7.59	44.64	-0.3261	-0.1368	-0.0012
142	SLU 51	-0.21	8.02	45.15	-0.3453	-0.1633	-0.0013
142	SLU 52	-0.24	8.73	48.09	-0.374	-0.189	-0.0015
142	SLU 53	-0.21	8.33	48.27	-0.3562	-0.1484	-0.0013
142	SLU 54	-0.23	8.77	48.78	-0.3754	-0.175	-0.0014
142	SLU 55	-0.24	8.99	48.79	-0.3856	-0.1915	-0.0015
142	SLU 56	-0.22	8.59	48.97	-0.3678	-0.1509	-0.0013
142	SLU 57	-0.24	9.03	49.48	-0.387	-0.1775	-0.0014
142	SLU 58	-0.22	8.53	48.64	-0.3653	-0.1498	-0.0013
142	SLU 59	-0.23	8.96	49.15	-0.3845	-0.1764	-0.0014
142	SLU 60	-0.22	8.41	48.95	-0.3588	-0.1503	-0.0013
142	SLU 61	-0.23	8.85	49.46	-0.378	-0.1769	-0.0014
142	SLU 62	-0.22	8.67	49.65	-0.3704	-0.1529	-0.0013
142	SLU 63	-0.24	9.11	50.16	-0.3896	-0.1794	-0.0014
142	SLU 64	-0.21	8.02	47.21	-0.3428	-0.1451	-0.0013
142	SLU 65	-0.24	8.74	48.07	-0.3748	-0.1893	-0.0015
142	SLU 66	-0.21	8.34	48.25	-0.3569	-0.1487	-0.0013
142	SLU 67	-0.23	8.77	48.76	-0.3761	-0.1753	-0.0014
142	SLU 68	-0.24	9	48.77	-0.3864	-0.1918	-0.0015
142	SLU 69	-0.22	8.6	48.95	-0.3685	-0.1513	-0.0013
142	SLU 70	-0.24	9.03	49.46	-0.3877	-0.1778	-0.0014
142	SLU 71	-0.22	8.54	48.62	-0.366	-0.1501	-0.0013
142	SLU 72	-0.23	8.97	49.13	-0.3852	-0.1767	-0.0014
142	SLU 73	-0.26	9.68	52.07	-0.4139	-0.2023	-0.0016
142	SLU 74	-0.23	9.28	52.25	-0.3961	-0.1617	-0.0014
142	SLU 75	-0.25	9.71	52.76	-0.4153	-0.1883	-0.0015
142	SLU 76	-0.26	9.94	52.77	-0.4256	-0.2049	-0.0016
142	SLU 77	-0.24	9.54	52.95	-0.4077	-0.1643	-0.0014
142	SLU 78	-0.25	9.97	53.46	-0.4269	-0.1908	-0.0016
142	SLU 79	-0.24	9.48	52.61	-0.4052	-0.1632	-0.0014
142	SLU 80	-0.25	9.91	53.13	-0.4244	-0.1897	-0.0015
142	SLU 81	-0.24	9.36	52.93	-0.3987	-0.1637	-0.0014
142	SLU 82	-0.25	9.79	53.44	-0.4179	-0.1902	-0.0015
142	SLU 83	-0.24	9.62	53.63	-0.4103	-0.1662	-0.0014
142	SLU 84	-0.26	10.05	54.14	-0.4296	-0.1927	-0.0016
142	SLE RA 1	-0.16	5.96	35.44	-0.2549	-0.1087	-0.0009
142	SLE RA 2	-0.18	6.44	36.01	-0.2762	-0.1382	-0.0011
142	SLE RA 3	-0.16	6.17	36.13	-0.2643	-0.1111	-0.001
142	SLE RA 4	-0.17	6.46	36.48	-0.2771	-0.1288	-0.001
142	SLE RA 5	-0.18	6.61	36.48	-0.284	-0.1398	-0.0011
142	SLE RA 6	-0.16	6.35	36.6	-0.2721	-0.1128	-0.001
142	SLE RA 7	-0.17	6.64	36.94	-0.2849	-0.1305	-0.0011
142	SLE RA 8	-0.16	6.31	36.38	-0.2704	-0.112	-0.001
142	SLE RA 9	-0.17	6.59	36.72	-0.2832	-0.1297	-0.0011
142	SLE RA 10	-0.19	7.07	38.68	-0.3023	-0.1468	-0.0012
142	SLE RA 11	-0.17	6.8	38.8	-0.2904	-0.1198	-0.001
142	SLE RA 12	-0.18	7.09	39.14	-0.3032	-0.1375	-0.0011
142	SLE RA 13	-0.19	7.24	39.15	-0.3101	-0.1485	-0.0012
142	SLE RA 14	-0.18	6.97	39.27	-0.2982	-0.1215	-0.0011
142	SLE RA 15	-0.19	7.26	39.61	-0.311	-0.1392	-0.0011
142	SLE RA 16	-0.17	6.93	39.04	-0.2965	-0.1207	-0.001
142	SLE RA 17	-0.19	7.22	39.39	-0.3093	-0.1384	-0.0011
142	SLE RA 18	-0.17	6.85	39.25	-0.2922	-0.1211	-0.0011
142	SLE RA 19	-0.19	7.14	39.59	-0.305	-0.1388	-0.0011
142	SLE RA 20	-0.18	7.03	39.72	-0.2999	-0.1227	-0.0011
142	SLE RA 21	-0.19	7.32	40.06	-0.3127	-0.1404	-0.0011
142	SLE FR 1	-0.16	5.96	35.44	-0.2549	-0.1087	-0.0009
142	SLE FR 2	-0.16	6.06	35.56	-0.2592	-0.1146	-0.001
142	SLE FR 3	-0.16	6.03	35.63	-0.258	-0.1093	-0.0009
142	SLE FR 4	-0.17	6.32	36.7	-0.2704	-0.1183	-0.001
142	SLE FR 5	-0.16	6.3	36.77	-0.2692	-0.1131	-0.001
142	SLE FR 6	-0.17	6.41	37.35	-0.2735	-0.1149	-0.001
142	SLE QP 1	-0.16	5.96	35.44	-0.2549	-0.1087	-0.0009
142	SLE QP 2	-0.16	6.23	36.59	-0.2661	-0.1124	-0.001
142	SLE D 1	-0.27	12.43	47.5	-0.5407	-0.2844	-0.0016



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
142	SLD 2	-0.27	12.43	47.5	-0.5407	-0.2844	-0.0016
142	SLD 3	-0.36	4.94	46.47	-0.2049	-0.2059	-0.0021
142	SLD 4	-0.36	4.94	46.47	-0.2049	-0.2059	-0.0021
142	SLD 5	-0.05	19.45	41.42	-0.8577	-0.283	-0.0003
142	SLD 6	-0.05	19.45	41.42	-0.8577	-0.283	-0.0003
142	SLD 7	-0.36	-5.52	38	0.2615	-0.0213	-0.0022
142	SLD 8	-0.36	-5.52	38	0.2615	-0.0213	-0.0022
142	SLD 9	0.04	17.97	35.18	-0.7937	-0.2034	0.0002
142	SLD 10	0.04	17.97	35.18	-0.7937	-0.2034	0.0002
142	SLD 11	-0.27	-6.99	31.76	0.3255	0.0583	-0.0016
142	SLD 12	-0.27	-6.99	31.76	0.3255	0.0583	-0.0016
142	SLD 13	0.04	7.51	26.7	-0.3273	-0.0189	0.0002
142	SLD 14	0.04	7.51	26.7	-0.3273	-0.0189	0.0002
142	SLD 15	-0.06	0.02	25.67	0.0085	0.0596	-0.0004
142	SLD 16	-0.06	0.02	25.67	0.0085	0.0596	-0.0004
142	SLV 1	-0.4	20.42	61.66	-0.8942	-0.528	-0.0024
142	SLV 2	-0.4	20.42	61.66	-0.8942	-0.528	-0.0024
142	SLV 3	-0.63	3.17	59.17	-0.121	-0.3271	-0.0038
142	SLV 4	-0.63	3.17	59.17	-0.121	-0.3271	-0.0038
142	SLV 5	0.13	36.64	47.88	-1.6272	-0.5418	0.0007
142	SLV 6	0.13	36.64	47.88	-1.6272	-0.5418	0.0007
142	SLV 7	-0.66	-20.85	39.59	0.9501	0.128	-0.0039
142	SLV 8	-0.66	-20.85	39.59	0.9501	0.128	-0.0039
142	SLV 9	0.34	33.3	33.59	-1.4823	-0.3527	0.002
142	SLV 10	0.34	33.3	33.59	-1.4823	-0.3527	0.002
142	SLV 11	-0.45	-24.19	25.29	1.095	0.3171	-0.0027
142	SLV 12	-0.45	-24.19	25.29	1.095	0.3171	-0.0027
142	SLV 13	0.31	9.28	14	-0.4112	0.1023	0.0018
142	SLV 14	0.31	9.28	14	-0.4112	0.1023	0.0018
142	SLV 15	0.07	-7.96	11.51	0.362	0.3033	0.0004
142	SLV 16	0.07	-7.96	11.51	0.362	0.3033	0.0004
143	SLU 1	0.11	1.02	23.61	0.0517	0.0692	0
143	SLU 2	0.11	3.11	22.91	-0.0382	0.0738	0
143	SLU 3	0.11	0.87	24.48	0.0613	0.0714	0
143	SLU 4	0.12	2.13	24.06	0.0073	0.0742	0
143	SLU 5	0.12	2.88	23.52	-0.0261	0.0749	0
143	SLU 6	0.12	0.64	25.09	0.0734	0.0726	0
143	SLU 7	0.12	1.9	24.67	0.0194	0.0754	0
143	SLU 8	0.11	0.56	24.82	0.0759	0.0715	0
143	SLU 9	0.12	1.82	24.4	0.0219	0.0743	0
143	SLU 10	0.13	3.56	26.7	-0.0422	0.0869	0
143	SLU 11	0.13	1.33	28.27	0.0573	0.0846	0
143	SLU 12	0.14	2.58	27.85	0.0034	0.0873	0
143	SLU 13	0.14	3.34	27.31	-0.0301	0.0881	0
143	SLU 14	0.14	1.1	28.88	0.0694	0.0858	0
143	SLU 15	0.14	2.35	28.46	0.0154	0.0885	0
143	SLU 16	0.14	1.01	28.61	0.0719	0.0847	0
143	SLU 17	0.14	2.27	28.19	0.018	0.0874	0
143	SLU 18	0.14	1.66	29.03	0.046	0.0879	0
143	SLU 19	0.14	2.92	28.61	-0.0079	0.0907	0
143	SLU 20	0.14	1.43	29.64	0.0581	0.0891	0
143	SLU 21	0.14	2.69	29.21	0.0042	0.0919	0
143	SLU 22	0.13	1.31	27.11	0.0534	0.081	0
143	SLU 23	0.13	3.4	26.41	-0.0365	0.0856	0
143	SLU 24	0.13	1.16	27.98	0.0629	0.0832	0
143	SLU 25	0.13	2.42	27.56	0.009	0.086	0
143	SLU 26	0.13	3.17	27.02	-0.0244	0.0867	0
143	SLU 27	0.13	0.93	28.59	0.075	0.0844	0
143	SLU 28	0.14	2.19	28.17	0.0211	0.0872	0
143	SLU 29	0.13	0.85	28.32	0.0775	0.0833	0
143	SLU 30	0.13	2.1	27.9	0.0236	0.0861	0
143	SLU 31	0.15	3.85	30.2	-0.0405	0.0987	0
143	SLU 32	0.15	1.61	31.77	0.0589	0.0964	0
143	SLU 33	0.16	2.87	31.35	0.005	0.0992	0
143	SLU 34	0.15	3.62	30.81	-0.0284	0.0999	0
143	SLU 35	0.16	1.38	32.38	0.071	0.0976	0
143	SLU 36	0.16	2.64	31.96	0.0171	0.1003	0
143	SLU 37	0.15	1.3	32.12	0.0735	0.0965	0
143	SLU 38	0.16	2.56	31.69	0.0196	0.0992	0
143	SLU 39	0.16	1.95	32.53	0.0477	0.0998	0
143	SLU 40	0.16	3.21	32.11	-0.0063	0.1025	0
143	SLU 41	0.16	1.72	33.14	0.0597	0.1009	0
143	SLU 42	0.16	2.98	32.72	0.0058	0.1037	0
143	SLU 43	0.14	1.22	29.5	0.0666	0.0859	0
143	SLU 44	0.14	3.32	28.8	-0.0232	0.0905	0
143	SLU 45	0.14	1.08	30.37	0.0762	0.0881	0
143	SLU 46	0.14	2.34	29.94	0.0223	0.0909	0
143	SLU 47	0.14	3.09	29.4	-0.0111	0.0916	0
143	SLU 48	0.14	0.85	30.97	0.0883	0.0893	0
143	SLU 49	0.14	2.11	30.55	0.0344	0.0921	0
143	SLU 50	0.14	0.77	30.71	0.0908	0.0882	0
143	SLU 51	0.14	2.02	30.29	0.0369	0.091	0
143	SLU 52	0.16	3.77	32.59	-0.0272	0.1036	0
143	SLU 53	0.16	1.53	34.16	0.0722	0.1013	0
143	SLU 54	0.16	2.79	33.74	0.0183	0.104	0
143	SLU 55	0.16	3.54	33.19	-0.0151	0.1048	0
143	SLU 56	0.16	1.3	34.76	0.0843	0.1025	0
143	SLU 57	0.17	2.56	34.34	0.0304	0.1052	0
143	SLU 58	0.16	1.22	34.5	0.0868	0.1014	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
143	SLU 59	0.16	2.47	34.08	0.0329	0.1041	0
143	SLU 60	0.17	1.87	34.91	0.0609	0.1046	0
143	SLU 61	0.17	3.13	34.49	0.007	0.1074	0
143	SLU 62	0.17	1.64	35.52	0.073	0.1058	0
143	SLU 63	0.17	2.9	35.1	0.0191	0.1086	0
143	SLU 64	0.16	1.51	33	0.0683	0.0977	0
143	SLU 65	0.16	3.61	32.3	-0.0216	0.1023	0
143	SLU 66	0.16	1.37	33.87	0.0779	0.0999	0
143	SLU 67	0.16	2.63	33.45	0.0239	0.1027	0
143	SLU 68	0.16	3.38	32.9	-0.0095	0.1034	0
143	SLU 69	0.16	1.14	34.47	0.09	0.1011	0
143	SLU 70	0.16	2.4	34.05	0.036	0.1039	0
143	SLU 71	0.16	1.05	34.21	0.0925	0.1	0
143	SLU 72	0.16	2.31	33.79	0.0385	0.1028	0
143	SLU 73	0.18	4.06	36.09	-0.0256	0.1154	0
143	SLU 74	0.18	1.82	37.66	0.0739	0.1131	0
143	SLU 75	0.18	3.08	37.24	0.02	0.1159	0
143	SLU 76	0.18	3.83	36.69	-0.0135	0.1166	0
143	SLU 77	0.18	1.59	38.26	0.086	0.1143	0
143	SLU 78	0.18	2.85	37.84	0.032	0.117	0
143	SLU 79	0.18	1.51	38	0.0885	0.1132	0
143	SLU 80	0.18	2.76	37.58	0.0346	0.1159	0
143	SLU 81	0.19	2.16	38.41	0.0626	0.1165	0
143	SLU 82	0.19	3.41	37.99	0.0087	0.1192	0
143	SLU 83	0.19	1.93	39.02	0.0747	0.1176	0
143	SLU 84	0.19	3.19	38.6	0.0208	0.1204	0
143	SLE RA 1	0.12	1.1	24.61	0.0522	0.0725	0
143	SLE RA 2	0.12	2.5	24.15	-0.0077	0.0756	0
143	SLE RA 3	0.12	1	25.19	0.0586	0.0741	0
143	SLE RA 4	0.12	1.84	24.91	0.0226	0.0759	0
143	SLE RA 5	0.12	2.34	24.55	0.0003	0.0764	0
143	SLE RA 6	0.12	0.85	25.6	0.0666	0.0748	0
143	SLE RA 7	0.12	1.69	25.32	0.0307	0.0767	0
143	SLE RA 8	0.12	0.79	25.42	0.0683	0.0741	0
143	SLE RA 9	0.12	1.63	25.14	0.0323	0.0759	0
143	SLE RA 10	0.13	2.8	26.67	-0.0104	0.0844	0
143	SLE RA 11	0.13	1.31	27.72	0.0559	0.0828	0
143	SLE RA 12	0.13	2.14	27.44	0.0199	0.0847	0
143	SLE RA 13	0.13	2.65	27.08	-0.0023	0.0852	0
143	SLE RA 14	0.13	1.15	28.12	0.064	0.0836	0
143	SLE RA 15	0.13	1.99	27.84	0.028	0.0854	0
143	SLE RA 16	0.13	1.1	27.95	0.0656	0.0829	0
143	SLE RA 17	0.13	1.93	27.67	0.0297	0.0847	0
143	SLE RA 18	0.14	1.53	28.22	0.0484	0.0851	0
143	SLE RA 19	0.14	2.37	27.94	0.0124	0.0869	0
143	SLE RA 20	0.14	1.38	28.63	0.0564	0.0858	0
143	SLE RA 21	0.14	2.22	28.35	0.0205	0.0877	0
143	SLE FR 1	0.12	1.1	24.61	0.0522	0.0725	0
143	SLE FR 2	0.12	1.38	24.52	0.0402	0.0731	0
143	SLE FR 3	0.12	1.04	24.77	0.0554	0.0728	0
143	SLE FR 4	0.12	1.51	25.6	0.0391	0.0769	0
143	SLE FR 5	0.12	1.17	25.86	0.0543	0.0766	0
143	SLE FR 6	0.13	1.31	26.42	0.0503	0.0788	0
143	SLE QP 1	0.12	1.1	24.61	0.0522	0.0725	0
143	SLE QP 2	0.12	1.23	25.7	0.051	0.0763	0
143	SLD 1	0.22	5.75	27.75	-0.1506	0.167	0.0001
143	SLD 2	0.22	5.75	27.75	-0.1506	0.167	0.0001
143	SLD 3	0.18	1.14	28.85	0.0574	0.1347	0.0002
143	SLD 4	0.18	1.14	28.85	0.0574	0.1347	0.0002
143	SLD 5	0.22	9.58	24.65	-0.3249	0.1525	0
143	SLD 6	0.22	9.58	24.65	-0.3249	0.1525	0
143	SLD 7	0.07	-5.8	28.3	0.3684	0.0448	0.0001
143	SLD 8	0.07	-5.8	28.3	0.3684	0.0448	0.0001
143	SLD 9	0.17	8.25	23.09	-0.2664	0.1078	-0.0001
143	SLD 10	0.17	8.25	23.09	-0.2664	0.1078	-0.0001
143	SLD 11	0.02	-7.12	26.74	0.427	0.0001	0
143	SLD 12	0.02	-7.12	26.74	0.427	0.0001	0
143	SLD 13	0.07	1.32	22.54	0.0446	0.0179	-0.0001
143	SLD 14	0.07	1.32	22.54	0.0446	0.0179	-0.0001
143	SLD 15	0.02	-3.29	23.64	0.2526	-0.0144	-0.0001
143	SLD 16	0.02	-3.29	23.64	0.2526	-0.0144	-0.0001
143	SLV 1	0.36	11.85	30.35	-0.4223	0.2915	0.0003
143	SLV 2	0.36	11.85	30.35	-0.4223	0.2915	0.0003
143	SLV 3	0.25	1.07	33.04	0.0634	0.2121	0.0004
143	SLV 4	0.25	1.07	33.04	0.0634	0.2121	0.0004
143	SLV 5	0.36	20.77	23.01	-0.8276	0.2613	0
143	SLV 6	0.36	20.77	23.01	-0.8276	0.2613	0
143	SLV 7	-0.01	-15.17	31.98	0.7914	-0.0034	0.0002
143	SLV 8	-0.01	-15.17	31.98	0.7914	-0.0034	0.0002
143	SLV 9	0.25	17.63	19.42	-0.6893	0.1559	-0.0002
143	SLV 10	0.25	17.63	19.42	-0.6893	0.1559	-0.0002
143	SLV 11	-0.12	-18.31	28.38	0.9297	-0.1087	0
143	SLV 12	-0.12	-18.31	28.38	0.9297	-0.1087	0
143	SLV 13	-0.01	1.39	18.35	0.0387	-0.0595	-0.0003
143	SLV 14	-0.01	1.39	18.35	0.0387	-0.0595	-0.0003
143	SLV 15	-0.12	-9.39	21.04	0.5244	-0.1389	-0.0003
143	SLV 16	-0.12	-9.39	21.04	0.5244	-0.1389	-0.0003
144	SLU 1	0.03	-3.23	43.75	0.1502	0.0234	0
144	SLU 2	0.03	-3.78	44.3	0.1732	0.0239	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
144	SLU 3	0.03	-2.93	44.72	0.1388	0.0237	0
144	SLU 4	0.03	-3.26	45.05	0.1526	0.0241	0
144	SLU 5	0.03	-3.43	44.63	0.1591	0.024	0
144	SLU 6	0.03	-2.58	45.04	0.1247	0.0238	0
144	SLU 7	0.03	-2.91	45.38	0.1385	0.0242	0
144	SLU 8	0.03	-2.53	44.4	0.122	0.0235	0
144	SLU 9	0.03	-2.86	44.73	0.1358	0.0239	0
144	SLU 10	0.04	-4.34	52.79	0.2	0.0292	0
144	SLU 11	0.04	-3.49	53.21	0.1656	0.029	0
144	SLU 12	0.04	-3.82	53.54	0.1794	0.0293	0
144	SLU 13	0.04	-3.99	53.12	0.1859	0.0293	0
144	SLU 14	0.04	-3.14	53.53	0.1515	0.0291	0
144	SLU 15	0.04	-3.47	53.86	0.1653	0.0294	0
144	SLU 16	0.03	-3.09	52.89	0.1488	0.0288	0
144	SLU 17	0.04	-3.42	53.22	0.1626	0.0291	0
144	SLU 18	0.04	-4.02	55.88	0.1885	0.0309	0
144	SLU 19	0.04	-4.35	56.21	0.2023	0.0312	0
144	SLU 20	0.04	-3.68	56.2	0.1744	0.031	0
144	SLU 21	0.04	-4.01	56.53	0.1882	0.0313	0
144	SLU 22	0.03	-3.18	49.73	0.1534	0.0263	0
144	SLU 23	0.03	-3.73	50.29	0.1764	0.0269	0.0001
144	SLU 24	0.03	-2.89	50.7	0.142	0.0267	0
144	SLU 25	0.03	-3.22	51.03	0.1558	0.027	0
144	SLU 26	0.03	-3.39	50.61	0.1623	0.027	0
144	SLU 27	0.03	-2.54	51.03	0.1279	0.0268	0
144	SLU 28	0.03	-2.87	51.36	0.1417	0.0271	0
144	SLU 29	0.03	-2.49	50.38	0.1251	0.0265	0
144	SLU 30	0.03	-2.82	50.72	0.1389	0.0268	0
144	SLU 31	0.04	-4.29	58.78	0.2032	0.0321	0
144	SLU 32	0.04	-3.44	59.19	0.1688	0.0319	0
144	SLU 33	0.04	-3.77	59.52	0.1826	0.0323	0
144	SLU 34	0.04	-3.94	59.1	0.1891	0.0322	0
144	SLU 35	0.04	-3.09	59.52	0.1547	0.032	0
144	SLU 36	0.04	-3.42	59.85	0.1685	0.0324	0
144	SLU 37	0.04	-3.04	58.87	0.152	0.0317	0
144	SLU 38	0.04	-3.37	59.2	0.1658	0.0321	0
144	SLU 39	0.04	-3.98	61.86	0.1917	0.0338	0
144	SLU 40	0.04	-4.31	62.19	0.2055	0.0341	0
144	SLU 41	0.04	-3.63	62.18	0.1776	0.0339	0
144	SLU 42	0.04	-3.96	62.52	0.1914	0.0342	0
144	SLU 43	0.03	-4.22	54.82	0.1942	0.0294	0.0001
144	SLU 44	0.04	-4.77	55.38	0.2172	0.0299	0.0001
144	SLU 45	0.04	-3.92	55.79	0.1828	0.0297	0.0001
144	SLU 46	0.04	-4.25	56.12	0.1966	0.0301	0.0001
144	SLU 47	0.04	-4.42	55.7	0.2031	0.03	0.0001
144	SLU 48	0.04	-3.57	56.11	0.1687	0.0298	0
144	SLU 49	0.04	-3.9	56.45	0.1825	0.0302	0
144	SLU 50	0.04	-3.52	55.47	0.1659	0.0296	0
144	SLU 51	0.04	-3.85	55.8	0.1797	0.0299	0
144	SLU 52	0.04	-5.32	63.86	0.244	0.0352	0.0001
144	SLU 53	0.04	-4.47	64.28	0.2096	0.035	0
144	SLU 54	0.04	-4.8	64.61	0.2234	0.0353	0.0001
144	SLU 55	0.04	-4.97	64.19	0.2299	0.0353	0
144	SLU 56	0.04	-4.13	64.6	0.1955	0.0351	0
144	SLU 57	0.04	-4.46	64.94	0.2093	0.0354	0
144	SLU 58	0.04	-4.07	63.96	0.1928	0.0348	0
144	SLU 59	0.04	-4.4	64.29	0.2066	0.0352	0
144	SLU 60	0.04	-5.01	66.95	0.2325	0.0369	0.0001
144	SLU 61	0.04	-5.34	67.28	0.2463	0.0372	0.0001
144	SLU 62	0.04	-4.66	67.27	0.2184	0.037	0
144	SLU 63	0.05	-4.99	67.61	0.2322	0.0373	0
144	SLU 64	0.04	-4.17	60.8	0.1974	0.0323	0.0001
144	SLU 65	0.04	-4.72	61.36	0.2204	0.0329	0.0001
144	SLU 66	0.04	-3.87	61.77	0.186	0.0327	0.0001
144	SLU 67	0.04	-4.2	62.11	0.1998	0.033	0.0001
144	SLU 68	0.04	-4.37	61.68	0.2062	0.033	0.0001
144	SLU 69	0.04	-3.52	62.1	0.1718	0.0328	0
144	SLU 70	0.04	-3.85	62.43	0.1857	0.0331	0.0001
144	SLU 71	0.04	-3.47	61.45	0.1691	0.0325	0
144	SLU 72	0.04	-3.8	61.79	0.1829	0.0328	0
144	SLU 73	0.05	-5.27	69.85	0.2472	0.0381	0.0001
144	SLU 74	0.05	-4.43	70.26	0.2128	0.0379	0.0001
144	SLU 75	0.05	-4.76	70.6	0.2266	0.0383	0.0001
144	SLU 76	0.05	-4.93	70.17	0.2331	0.0382	0.0001
144	SLU 77	0.05	-4.08	70.59	0.1987	0.038	0
144	SLU 78	0.05	-4.41	70.92	0.2125	0.0384	0
144	SLU 79	0.05	-4.03	69.94	0.1959	0.0377	0
144	SLU 80	0.05	-4.36	70.28	0.2097	0.0381	0
144	SLU 81	0.05	-4.96	72.93	0.2357	0.0398	0.0001
144	SLU 82	0.05	-5.29	73.27	0.2495	0.0402	0.0001
144	SLU 83	0.05	-4.61	73.26	0.2215	0.0399	0
144	SLU 84	0.05	-4.94	73.59	0.2354	0.0402	0
144	SLE RA 1	0.03	-3.22	45.46	0.1511	0.0242	0
144	SLE RA 2	0.03	-3.58	45.83	0.1665	0.0246	0
144	SLE RA 3	0.03	-3.02	46.1	0.1435	0.0245	0
144	SLE RA 4	0.03	-3.24	46.33	0.1527	0.0247	0
144	SLE RA 5	0.03	-3.35	46.04	0.157	0.0246	0
144	SLE RA 6	0.03	-2.79	46.32	0.1341	0.0245	0
144	SLE RA 7	0.03	-3.01	46.54	0.1433	0.0247	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
144	SLE RA 8	0.03	-2.75	45.89	0.1323	0.0243	0
144	SLE RA 9	0.03	-2.97	46.11	0.1415	0.0245	0
144	SLE RA 10	0.03	-3.95	51.49	0.1843	0.0281	0
144	SLE RA 11	0.03	-3.39	51.76	0.1614	0.028	0
144	SLE RA 12	0.03	-3.61	51.99	0.1706	0.0282	0
144	SLE RA 13	0.03	-3.72	51.7	0.1749	0.0281	0
144	SLE RA 14	0.03	-3.16	51.98	0.152	0.028	0
144	SLE RA 15	0.03	-3.38	52.2	0.1612	0.0282	0
144	SLE RA 16	0.03	-3.12	51.55	0.1502	0.0278	0
144	SLE RA 17	0.03	-3.34	51.77	0.1594	0.0281	0
144	SLE RA 18	0.04	-3.75	53.54	0.1767	0.0292	0
144	SLE RA 19	0.04	-3.97	53.76	0.1859	0.0294	0
144	SLE RA 20	0.04	-3.51	53.76	0.1672	0.0293	0
144	SLE RA 21	0.04	-3.73	53.98	0.1764	0.0295	0
144	SLE FR 1	0.03	-3.22	45.46	0.1511	0.0242	0
144	SLE FR 2	0.03	-3.29	45.53	0.1542	0.0243	0
144	SLE FR 3	0.03	-3.12	45.54	0.1473	0.0242	0
144	SLE FR 4	0.03	-3.45	47.96	0.1618	0.0258	0
144	SLE FR 5	0.03	-3.28	47.97	0.155	0.0257	0
144	SLE FR 6	0.03	-3.48	49.5	0.1639	0.0267	0
144	SLE QP 1	0.03	-3.22	45.46	0.1511	0.0242	0
144	SLE QP 2	0.03	-3.38	47.88	0.1588	0.0257	0
144	SLD 1	0.15	-3.39	40.06	0.1499	0.125	-0.0003
144	SLD 2	0.15	-3.39	40.06	0.1499	0.125	-0.0003
144	SLD 3	0.17	-8.15	44.78	0.3577	0.135	-0.0005
144	SLD 4	0.17	-8.15	44.78	0.3577	0.135	-0.0005
144	SLD 5	0.04	3.85	38.38	-0.1591	0.0403	0.0004
144	SLD 6	0.04	3.85	38.38	-0.1591	0.0403	0.0004
144	SLD 7	0.1	-12.04	54.1	0.5336	0.0736	-0.0006
144	SLD 8	0.1	-12.04	54.1	0.5336	0.0736	-0.0006
144	SLD 9	-0.04	5.28	41.66	-0.2161	-0.0222	0.0006
144	SLD 10	-0.04	5.28	41.66	-0.2161	-0.0222	0.0006
144	SLD 11	0.02	-10.6	57.38	0.4766	0.0111	-0.0003
144	SLD 12	0.02	-10.6	57.38	0.4766	0.0111	-0.0003
144	SLD 13	-0.1	1.4	50.99	-0.0401	-0.0836	0.0006
144	SLD 14	-0.1	1.4	50.99	-0.0401	-0.0836	0.0006
144	SLD 15	-0.09	-3.37	55.71	0.1677	-0.0736	0.0003
144	SLD 16	-0.09	-3.37	55.71	0.1677	-0.0736	0.0003
144	SLV 1	0.31	-3.41	29.84	0.1388	0.2661	-0.0006
144	SLV 2	0.31	-3.41	29.84	0.1388	0.2661	-0.0006
144	SLV 3	0.36	-14.38	40.81	0.6172	0.2902	-0.0013
144	SLV 4	0.36	-14.38	40.81	0.6172	0.2902	-0.0013
144	SLV 5	0.05	13.25	25.84	-0.5729	0.0613	0.0009
144	SLV 6	0.05	13.25	25.84	-0.5729	0.0613	0.0009
144	SLV 7	0.19	-23.31	62.4	1.0219	0.1416	-0.0014
144	SLV 8	0.19	-23.31	62.4	1.0219	0.1416	-0.0014
144	SLV 9	-0.13	16.56	33.37	-0.7044	-0.0902	0.0015
144	SLV 10	-0.13	16.56	33.37	-0.7044	-0.0902	0.0015
144	SLV 11	0.01	-20	69.93	0.8904	-0.0099	-0.0008
144	SLV 12	0.01	-20	69.93	0.8904	-0.0099	-0.0008
144	SLV 13	-0.29	7.62	54.96	-0.2996	-0.2388	0.0014
144	SLV 14	-0.29	7.62	54.96	-0.2996	-0.2388	0.0014
144	SLV 15	-0.25	-3.34	65.92	0.1788	-0.2147	0.0007
144	SLV 16	-0.25	-3.34	65.92	0.1788	-0.2147	0.0007
145	SLU 1	0	-2.04	38.47	0.163	-0.0023	0
145	SLU 2	0	-0.18	37.84	0.0805	-0.0057	0
145	SLU 3	0	-2.33	39.8	0.1786	-0.0024	0
145	SLU 4	0	-1.21	39.42	0.1291	-0.0045	0
145	SLU 5	0	-0.51	38.71	0.0973	-0.0058	0
145	SLU 6	0	-2.66	40.68	0.1954	-0.0025	0
145	SLU 7	0	-1.54	40.3	0.1459	-0.0045	0
145	SLU 8	0	-2.7	40.22	0.1966	-0.0025	0
145	SLU 9	0	-1.58	39.84	0.1471	-0.0045	0
145	SLU 10	0	-0.24	44.45	0.0951	-0.0062	0
145	SLU 11	0	-2.39	46.41	0.1932	-0.0029	0
145	SLU 12	0	-1.27	46.04	0.1437	-0.005	0
145	SLU 13	0	-0.57	45.33	0.1119	-0.0062	0
145	SLU 14	0	-2.71	47.29	0.21	-0.003	0
145	SLU 15	0	-1.6	46.91	0.1605	-0.005	0
145	SLU 16	0	-2.76	46.84	0.2112	-0.003	0
145	SLU 17	0	-1.64	46.46	0.1617	-0.005	0
145	SLU 18	0	-2.13	47.92	0.1839	-0.003	0
145	SLU 19	0	-1.01	47.54	0.1343	-0.005	0
145	SLU 20	0	-2.46	48.8	0.2007	-0.0031	0
145	SLU 21	0	-1.34	48.42	0.1511	-0.0051	0
145	SLU 22	0	-2.23	44.65	0.1828	-0.0027	0
145	SLU 23	0	-0.37	44.02	0.1002	-0.0061	0
145	SLU 24	0	-2.52	45.98	0.1983	-0.0029	0
145	SLU 25	0	-1.4	45.61	0.1488	-0.0049	0
145	SLU 26	0	-0.7	44.9	0.117	-0.0062	0
145	SLU 27	0	-2.85	46.86	0.2151	-0.0029	0
145	SLU 28	0	-1.73	46.48	0.1656	-0.005	0
145	SLU 29	0	-2.89	46.41	0.2164	-0.0029	0
145	SLU 30	0	-1.77	46.03	0.1668	-0.0049	0
145	SLU 31	0	-0.43	50.64	0.1148	-0.0066	0
145	SLU 32	0	-2.58	52.6	0.2129	-0.0034	0
145	SLU 33	0	-1.46	52.22	0.1634	-0.0054	0
145	SLU 34	0	-0.76	51.52	0.1316	-0.0067	0
145	SLU 35	0	-2.9	53.48	0.2297	-0.0034	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
145	SLU 36	0	-1.78	53.1	0.1802	-0.0055	0
145	SLU 37	0	-2.95	53.03	0.2309	-0.0034	0
145	SLU 38	0	-1.83	52.65	0.1814	-0.0054	0
145	SLU 39	0	-2.32	54.11	0.2036	-0.0034	0
145	SLU 40	0	-1.2	53.73	0.154	-0.0055	0
145	SLU 41	0	-2.65	54.99	0.2204	-0.0035	0
145	SLU 42	0	-1.53	54.61	0.1708	-0.0055	0
145	SLU 43	0	-2.59	47.88	0.2052	-0.0028	0
145	SLU 44	0	-0.73	47.25	0.1226	-0.0062	0
145	SLU 45	0	-2.88	49.21	0.2208	-0.003	0
145	SLU 46	0	-1.76	48.84	0.1712	-0.005	0
145	SLU 47	0	-1.06	48.13	0.1394	-0.0063	0
145	SLU 48	0	-3.2	50.09	0.2376	-0.0031	0
145	SLU 49	0	-2.09	49.71	0.188	-0.0051	0
145	SLU 50	0	-3.25	49.64	0.2388	-0.003	0
145	SLU 51	0	-2.13	49.26	0.1893	-0.005	0
145	SLU 52	0	-0.79	53.87	0.1372	-0.0067	0
145	SLU 53	0	-2.93	55.83	0.2353	-0.0035	0
145	SLU 54	0	-1.82	55.45	0.1858	-0.0055	0
145	SLU 55	0	-1.11	54.75	0.154	-0.0068	0
145	SLU 56	0	-3.26	56.71	0.2521	-0.0036	0
145	SLU 57	0	-2.14	56.33	0.2026	-0.0056	0
145	SLU 58	0	-3.31	56.26	0.2534	-0.0035	0
145	SLU 59	0	-2.19	55.88	0.2038	-0.0055	0
145	SLU 60	0	-2.68	57.34	0.226	-0.0035	0
145	SLU 61	0	-1.56	56.96	0.1765	-0.0056	0
145	SLU 62	0	-3	58.22	0.2428	-0.0036	0
145	SLU 63	0	-1.88	57.84	0.1933	-0.0057	0
145	SLU 64	0	-2.78	54.07	0.2249	-0.0033	0
145	SLU 65	0	-0.92	53.44	0.1424	-0.0066	0
145	SLU 66	0	-3.07	55.4	0.2405	-0.0034	0
145	SLU 67	0	-1.95	55.02	0.191	-0.0054	0
145	SLU 68	0	-1.25	54.32	0.1592	-0.0067	0
145	SLU 69	0	-3.39	56.28	0.2573	-0.0035	0
145	SLU 70	0	-2.28	55.9	0.2078	-0.0055	0
145	SLU 71	0	-3.44	55.83	0.2585	-0.0034	0
145	SLU 72	0	-2.32	55.45	0.209	-0.0055	0
145	SLU 73	0	-0.98	60.06	0.1569	-0.0071	0
145	SLU 74	0	-3.12	62.02	0.2551	-0.0039	0
145	SLU 75	0	-2	61.64	0.2055	-0.0059	0
145	SLU 76	0	-1.3	60.94	0.1737	-0.0072	0
145	SLU 77	0	-3.45	62.9	0.2719	-0.004	0
145	SLU 78	0	-2.33	62.52	0.2223	-0.006	0
145	SLU 79	0	-3.5	62.45	0.2731	-0.0039	0
145	SLU 80	0	-2.38	62.07	0.2236	-0.0059	0
145	SLU 81	0	-2.87	63.53	0.2457	-0.004	0
145	SLU 82	0	-1.75	63.15	0.1962	-0.006	0
145	SLU 83	0	-3.19	64.41	0.2625	-0.0041	0
145	SLU 84	0	-2.07	64.03	0.213	-0.0061	0
145	SLE RA 1	0	-2.1	40.23	0.1687	-0.0024	0
145	SLE RA 2	0	-0.86	39.81	0.1136	-0.0047	0
145	SLE RA 3	0	-2.29	41.12	0.1791	-0.0025	0
145	SLE RA 4	0	-1.54	40.87	0.146	-0.0039	0
145	SLE RA 5	0	-1.07	40.4	0.1248	-0.0047	0
145	SLE RA 6	0	-2.51	41.71	0.1903	-0.0026	0
145	SLE RA 7	0	-1.76	41.45	0.1572	-0.0039	0
145	SLE RA 8	0	-2.54	41.41	0.1911	-0.0025	0
145	SLE RA 9	0	-1.79	41.15	0.1581	-0.0039	0
145	SLE RA 10	0	-0.89	44.23	0.1233	-0.005	0
145	SLE RA 11	0	-2.33	45.53	0.1888	-0.0028	0
145	SLE RA 12	0	-1.58	45.28	0.1558	-0.0042	0
145	SLE RA 13	0	-1.11	44.81	0.1346	-0.0051	0
145	SLE RA 14	0	-2.54	46.12	0.2	-0.0029	0
145	SLE RA 15	0	-1.8	45.87	0.167	-0.0042	0
145	SLE RA 16	0	-2.57	45.82	0.2008	-0.0029	0
145	SLE RA 17	0	-1.83	45.57	0.1678	-0.0042	0
145	SLE RA 18	0	-2.15	46.54	0.1826	-0.0029	0
145	SLE RA 19	0	-1.41	46.28	0.1495	-0.0042	0
145	SLE RA 20	0	-2.37	47.12	0.1938	-0.0029	0
145	SLE RA 21	0	-1.63	46.87	0.1607	-0.0043	0
145	SLE FR 1	0	-2.1	40.23	0.1687	-0.0024	0
145	SLE FR 2	0	-1.85	40.15	0.1577	-0.0029	0
145	SLE FR 3	0	-2.19	40.47	0.1732	-0.0024	0
145	SLE FR 4	0	-1.87	42.04	0.1618	-0.003	0
145	SLE FR 5	0	-2.2	42.36	0.1773	-0.0026	0
145	SLE FR 6	0	-2.13	43.39	0.1756	-0.0027	0
145	SLE QP 1	0	-2.1	40.23	0.1687	-0.0024	0
145	SLE QP 2	0	-2.12	42.13	0.1728	-0.0026	0
145	SLD 1	0.06	-2.01	42.78	0.1689	0.0612	0.0001
145	SLD 2	0.06	-2.01	42.78	0.1689	0.0612	0.0001
145	SLD 3	0.08	-6.07	43.67	0.3554	0.0782	0.0001
145	SLD 4	0.08	-6.07	43.67	0.3554	0.0782	0.0001
145	SLD 5	-0.02	4.07	40.97	-0.1111	-0.0091	0
145	SLD 6	-0.02	4.07	40.97	-0.1111	-0.0091	0
145	SLD 7	0.06	-9.46	43.94	0.5104	0.0474	0.0001
145	SLD 8	0.06	-9.46	43.94	0.5104	0.0474	0.0001
145	SLD 9	-0.06	5.23	40.31	-0.1647	-0.0525	-0.0001
145	SLD 10	-0.06	5.23	40.31	-0.1647	-0.0525	-0.0001
145	SLD 11	0.02	-8.3	43.28	0.4568	0.004	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
145	SLD 12	0.02	-8.3	43.28	0.4568	0.004	0
145	SLD 13	-0.08	1.84	40.58	-0.0097	-0.0833	-0.0001
145	SLD 14	-0.08	1.84	40.58	-0.0097	-0.0833	-0.0001
145	SLD 15	-0.06	-2.22	41.47	0.1767	-0.0663	-0.0001
145	SLD 16	-0.06	-2.22	41.47	0.1767	-0.0663	-0.0001
145	SLV 1	0.14	-2.07	43.71	0.1732	0.1491	0.0002
145	SLV 2	0.14	-2.07	43.71	0.1732	0.1491	0.0002
145	SLV 3	0.19	-11.44	45.88	0.6033	0.1917	0.0002
145	SLV 4	0.19	-11.44	45.88	0.6033	0.1917	0.0002
145	SLV 5	-0.04	12.1	39.32	-0.4794	-0.0217	0
145	SLV 6	-0.04	12.1	39.32	-0.4794	-0.0217	0
145	SLV 7	0.14	-19.12	46.53	0.9543	0.1203	0.0001
145	SLV 8	0.14	-19.12	46.53	0.9543	0.1203	0.0001
145	SLV 9	-0.14	14.89	37.72	-0.6086	-0.1255	-0.0001
145	SLV 10	-0.14	14.89	37.72	-0.6086	-0.1255	-0.0001
145	SLV 11	0.04	-16.33	44.93	0.8251	0.0165	0
145	SLV 12	0.04	-16.33	44.93	0.8251	0.0165	0
145	SLV 13	-0.2	7.21	38.38	-0.2576	-0.1969	-0.0002
145	SLV 14	-0.2	7.21	38.38	-0.2576	-0.1969	-0.0002
145	SLV 15	-0.14	-2.16	40.54	0.1725	-0.1543	-0.0002
145	SLV 16	-0.14	-2.16	40.54	0.1725	-0.1543	-0.0002
146	SLU 1	-0.01	2.13	55.56	-0.0705	-0.0022	0
146	SLU 2	0.01	2.45	57.81	-0.0833	0.0294	0
146	SLU 3	-0.01	2.22	57.19	-0.0734	-0.0025	0
146	SLU 4	0	2.41	58.54	-0.0811	0.0165	0
146	SLU 5	0.01	2.5	58.75	-0.0848	0.0292	0
146	SLU 6	-0.01	2.27	58.13	-0.0749	-0.0026	0
146	SLU 7	0	2.46	59.48	-0.0826	0.0163	0
146	SLU 8	-0.01	2.22	57.44	-0.0735	-0.0025	0
146	SLU 9	0	2.42	58.79	-0.0812	0.0164	0
146	SLU 10	0	2.99	64.85	-0.1024	0.0282	0
146	SLU 11	-0.01	2.75	64.23	-0.0925	-0.0036	0
146	SLU 12	0	2.94	65.58	-0.1002	0.0153	0
146	SLU 13	0	3.03	65.79	-0.1039	0.028	0
146	SLU 14	-0.01	2.8	65.17	-0.094	-0.0038	0
146	SLU 15	0	2.99	66.52	-0.1017	0.0151	0
146	SLU 16	-0.01	2.75	64.48	-0.0925	-0.0037	0
146	SLU 17	0	2.95	65.83	-0.1002	0.0152	0
146	SLU 18	-0.01	2.89	65.62	-0.0977	-0.0039	0
146	SLU 19	0	3.08	66.97	-0.1054	0.0151	0
146	SLU 20	-0.01	2.93	66.56	-0.0992	-0.004	0
146	SLU 21	0	3.13	67.9	-0.1069	0.0149	0
146	SLU 22	-0.01	2.58	62.52	-0.0863	-0.0032	0
146	SLU 23	0	2.91	64.76	-0.0991	0.0284	0
146	SLU 24	-0.01	2.67	64.15	-0.0892	-0.0035	0
146	SLU 25	0	2.86	65.49	-0.0969	0.0155	0
146	SLU 26	0	2.95	65.7	-0.1006	0.0282	0
146	SLU 27	-0.01	2.72	65.08	-0.0907	-0.0037	0
146	SLU 28	0	2.91	66.43	-0.0984	0.0153	0
146	SLU 29	-0.01	2.68	64.39	-0.0893	-0.0036	0
146	SLU 30	0	2.87	65.74	-0.097	0.0154	0
146	SLU 31	0	3.44	71.8	-0.1182	0.0272	0
146	SLU 32	-0.01	3.2	71.19	-0.1083	-0.0047	0
146	SLU 33	0	3.39	72.53	-0.116	0.0143	0
146	SLU 34	0	3.48	72.74	-0.1197	0.027	0
146	SLU 35	-0.01	3.25	72.12	-0.1098	-0.0049	0
146	SLU 36	0	3.44	73.47	-0.1175	0.0141	0
146	SLU 37	-0.01	3.21	71.43	-0.1083	-0.0048	0
146	SLU 38	0	3.4	72.78	-0.116	0.0142	0
146	SLU 39	-0.01	3.34	72.57	-0.1135	-0.0049	0
146	SLU 40	0	3.53	73.92	-0.1212	0.014	0
146	SLU 41	-0.01	3.39	73.51	-0.115	-0.0051	0
146	SLU 42	0	3.58	74.86	-0.1227	0.0139	0
146	SLU 43	-0.01	2.61	69.85	-0.0862	-0.0025	0
146	SLU 44	0.01	2.94	72.09	-0.0991	0.0291	0
146	SLU 45	-0.01	2.7	71.48	-0.0892	-0.0027	0
146	SLU 46	0	2.9	72.83	-0.0969	0.0162	0
146	SLU 47	0	2.99	73.03	-0.1006	0.0289	0
146	SLU 48	-0.01	2.75	72.42	-0.0907	-0.0029	0
146	SLU 49	0	2.94	73.76	-0.0984	0.016	0
146	SLU 50	-0.01	2.71	71.72	-0.0892	-0.0028	0
146	SLU 51	0	2.9	73.07	-0.0969	0.0161	0
146	SLU 52	0	3.47	79.13	-0.1181	0.0279	0
146	SLU 53	-0.01	3.23	78.52	-0.1082	-0.0039	0
146	SLU 54	0	3.43	79.87	-0.1159	0.015	0
146	SLU 55	0	3.52	80.07	-0.1196	0.0278	0
146	SLU 56	-0.01	3.28	79.46	-0.1097	-0.0041	0
146	SLU 57	0	3.48	80.8	-0.1174	0.0148	0
146	SLU 58	-0.01	3.24	78.76	-0.1083	-0.004	0
146	SLU 59	0	3.43	80.11	-0.116	0.0149	0
146	SLU 60	-0.01	3.37	79.91	-0.1134	-0.0041	0
146	SLU 61	0	3.57	81.25	-0.1211	0.0148	0
146	SLU 62	-0.01	3.42	80.84	-0.1149	-0.0043	0
146	SLU 63	0	3.61	82.19	-0.1226	0.0146	0
146	SLU 64	-0.01	3.07	76.8	-0.102	-0.0035	0
146	SLU 65	0	3.39	79.05	-0.1149	0.0281	0
146	SLU 66	-0.01	3.15	78.43	-0.105	-0.0038	0
146	SLU 67	0	3.35	79.78	-0.1127	0.0152	0
146	SLU 68	0	3.44	79.98	-0.1164	0.0279	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
146	SLU 69	-0.01	3.2	79.37	-0.1065	-0.004	0
146	SLU 70	0	3.4	80.72	-0.1142	0.015	0
146	SLU 71	-0.01	3.16	78.68	-0.105	-0.0039	0
146	SLU 72	0	3.35	80.02	-0.1127	0.0151	0
146	SLU 73	0	3.92	86.09	-0.1339	0.0269	0
146	SLU 74	-0.01	3.68	85.47	-0.124	-0.005	0
146	SLU 75	0	3.88	86.82	-0.1317	0.014	0
146	SLU 76	0	3.97	87.02	-0.1354	0.0267	0
146	SLU 77	-0.01	3.73	86.41	-0.1255	-0.0052	0
146	SLU 78	0	3.93	87.76	-0.1332	0.0138	0
146	SLU 79	-0.01	3.69	85.72	-0.1241	-0.0051	0
146	SLU 80	0	3.88	87.06	-0.1318	0.0139	0
146	SLU 81	-0.01	3.82	86.86	-0.1292	-0.0052	0
146	SLU 82	0	4.02	88.2	-0.1369	0.0138	0
146	SLU 83	-0.01	3.87	87.8	-0.1307	-0.0054	0
146	SLU 84	0	4.07	89.14	-0.1384	0.0136	0
146	SLE RA 1	-0.01	2.26	57.55	-0.075	-0.0025	0
146	SLE RA 2	0	2.48	59.05	-0.0836	0.0186	0
146	SLE RA 3	-0.01	2.32	58.64	-0.077	-0.0027	0
146	SLE RA 4	0	2.45	59.53	-0.0821	0.01	0
146	SLE RA 5	0	2.51	59.67	-0.0846	0.0185	0
146	SLE RA 6	-0.01	2.35	59.26	-0.078	-0.0028	0
146	SLE RA 7	0	2.48	60.16	-0.0831	0.0099	0
146	SLE RA 8	-0.01	2.32	58.8	-0.077	-0.0027	0
146	SLE RA 9	0	2.45	59.7	-0.0821	0.0099	0
146	SLE RA 10	0	2.83	63.74	-0.0963	0.0178	0
146	SLE RA 11	-0.01	2.67	63.33	-0.0897	-0.0034	0
146	SLE RA 12	0	2.8	64.23	-0.0948	0.0092	0
146	SLE RA 13	0	2.86	64.36	-0.0973	0.0177	0
146	SLE RA 14	-0.01	2.7	63.96	-0.0907	-0.0036	0
146	SLE RA 15	0	2.83	64.85	-0.0958	0.0091	0
146	SLE RA 16	-0.01	2.68	63.49	-0.0897	-0.0035	0
146	SLE RA 17	0	2.81	64.39	-0.0948	0.0091	0
146	SLE RA 18	-0.01	2.76	64.25	-0.0931	-0.0036	0
146	SLE RA 19	0	2.89	65.15	-0.0983	0.009	0
146	SLE RA 20	-0.01	2.8	64.88	-0.0941	-0.0037	0
146	SLE RA 21	0	2.93	65.78	-0.0993	0.0089	0
146	SLE FR 1	-0.01	2.26	57.55	-0.075	-0.0025	0
146	SLE FR 2	0	2.3	57.85	-0.0767	0.0017	0
146	SLE FR 3	-0.01	2.27	57.8	-0.0754	-0.0025	0
146	SLE FR 4	0	2.45	59.86	-0.0822	0.0014	0
146	SLE FR 5	-0.01	2.42	59.81	-0.0809	-0.0029	0
146	SLE FR 6	-0.01	2.51	60.9	-0.0841	-0.003	0
146	SLE QP 1	-0.01	2.26	57.55	-0.075	-0.0025	0
146	SLE QP 2	-0.01	2.41	59.56	-0.0805	-0.0028	0
146	SLD 1	-0.12	2.57	45.72	-0.0944	0.052	0.0001
146	SLD 2	-0.12	2.57	45.72	-0.0944	0.052	0.0001
146	SLD 3	-0.02	-2.49	43.15	0.1202	0.1425	0.0001
146	SLD 4	-0.02	-2.49	43.15	0.1202	0.1425	0.0001
146	SLD 5	-0.21	10.13	59.31	-0.4102	-0.1236	0.0001
146	SLD 6	-0.21	10.13	59.31	-0.4102	-0.1236	0.0001
146	SLD 7	0.16	-6.73	50.74	0.3053	0.178	0
146	SLD 8	0.16	-6.73	50.74	0.3053	0.178	0
146	SLD 9	-0.17	11.55	68.38	-0.4663	-0.1836	0
146	SLD 10	-0.17	11.55	68.38	-0.4663	-0.1836	0
146	SLD 11	0.19	-5.31	59.81	0.2493	0.118	-0.0001
146	SLD 12	0.19	-5.31	59.81	0.2493	0.118	-0.0001
146	SLD 13	0	7.31	75.97	-0.2811	-0.1481	-0.0001
146	SLD 14	0	7.31	75.97	-0.2811	-0.1481	-0.0001
146	SLD 15	0.11	2.25	73.4	-0.0665	-0.0576	-0.0002
146	SLD 16	0.11	2.25	73.4	-0.0665	-0.0576	-0.0002
146	SLV 1	-0.3	2.78	27.88	-0.1126	0.1168	0.0004
146	SLV 2	-0.3	2.78	27.88	-0.1126	0.1168	0.0004
146	SLV 3	-0.02	-8.85	21.88	0.3813	0.3481	0.0003
146	SLV 4	-0.02	-8.85	21.88	0.3813	0.3481	0.0003
146	SLV 5	-0.51	20.17	59.15	-0.8392	-0.3176	0.0003
146	SLV 6	-0.51	20.17	59.15	-0.8392	-0.3176	0.0003
146	SLV 7	0.41	-18.62	39.17	0.8072	0.4532	-0.0001
146	SLV 8	0.41	-18.62	39.17	0.8072	0.4532	-0.0001
146	SLV 9	-0.42	23.44	79.95	-0.9681	-0.4588	0.0001
146	SLV 10	-0.42	23.44	79.95	-0.9681	-0.4588	0.0001
146	SLV 11	0.5	-15.35	59.98	0.6783	0.312	-0.0003
146	SLV 12	0.5	-15.35	59.98	0.6783	0.312	-0.0003
146	SLV 13	0.01	13.67	97.24	-0.5422	-0.3537	-0.0003
146	SLV 14	0.01	13.67	97.24	-0.5422	-0.3537	-0.0003
146	SLV 15	0.28	2.04	91.25	-0.0483	-0.1224	-0.0004
146	SLV 16	0.28	2.04	91.25	-0.0483	-0.1224	-0.0004
147	SLU 1	0.01	-4.45	42.81	0.2138	0.0223	0.0003
147	SLU 2	0.01	-4.83	43.06	0.2322	0.0221	0.0003
147	SLU 3	0.01	-4.25	43.88	0.2042	0.0232	0.0003
147	SLU 4	0.01	-4.48	44.04	0.2152	0.0231	0.0003
147	SLU 5	0.01	-4.54	43.49	0.2177	0.0227	0.0003
147	SLU 6	0.01	-3.96	44.31	0.1897	0.0239	0.0003
147	SLU 7	0.01	-4.19	44.46	0.2007	0.0238	0.0003
147	SLU 8	0.01	-3.87	43.66	0.1848	0.0236	0.0003
147	SLU 9	0.01	-4.1	43.81	0.1958	0.0235	0.0003
147	SLU 10	0.01	-5.66	51.83	0.2737	0.0249	0.0004
147	SLU 11	0.01	-5.08	52.65	0.2457	0.026	0.0004
147	SLU 12	0.01	-5.31	52.81	0.2567	0.0259	0.0004





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
147	SLU 13	0.01	-5.37	52.26	0.2591	0.0255	0.0004
147	SLU 14	0.01	-4.79	53.08	0.2311	0.0267	0.0004
147	SLU 15	0.01	-5.02	53.23	0.2422	0.0266	0.0004
147	SLU 16	0.01	-4.69	52.43	0.2262	0.0264	0.0004
147	SLU 17	0.01	-4.92	52.58	0.2373	0.0263	0.0004
147	SLU 18	0.01	-5.63	55.34	0.273	0.0263	0.0004
147	SLU 19	0.01	-5.86	55.49	0.2841	0.0262	0.0004
147	SLU 20	0.01	-5.34	55.76	0.2585	0.027	0.0004
147	SLU 21	0.01	-5.57	55.92	0.2696	0.0268	0.0004
147	SLU 22	0.01	-4.72	49.28	0.2289	0.0259	0.0003
147	SLU 23	0.01	-5.1	49.53	0.2473	0.0257	0.0003
147	SLU 24	0.01	-4.53	50.35	0.2193	0.0268	0.0003
147	SLU 25	0.01	-4.76	50.51	0.2304	0.0267	0.0004
147	SLU 26	0.01	-4.81	49.96	0.2328	0.0263	0.0003
147	SLU 27	0.01	-4.24	50.78	0.2048	0.0275	0.0003
147	SLU 28	0.01	-4.47	50.93	0.2159	0.0273	0.0004
147	SLU 29	0.01	-4.14	50.13	0.1999	0.0272	0.0003
147	SLU 30	0.01	-4.37	50.28	0.211	0.0271	0.0003
147	SLU 31	0.01	-5.93	58.3	0.2888	0.0285	0.0004
147	SLU 32	0.01	-5.35	59.12	0.2608	0.0296	0.0004
147	SLU 33	0.01	-5.58	59.28	0.2719	0.0295	0.0004
147	SLU 34	0.01	-5.64	58.73	0.2743	0.0291	0.0004
147	SLU 35	0.01	-5.06	59.55	0.2463	0.0303	0.0004
147	SLU 36	0.01	-5.29	59.7	0.2573	0.0301	0.0004
147	SLU 37	0.01	-4.97	58.9	0.2414	0.03	0.0004
147	SLU 38	0.01	-5.2	59.05	0.2524	0.0299	0.0004
147	SLU 39	0.01	-5.9	61.81	0.2882	0.0299	0.0004
147	SLU 40	0.01	-6.13	61.96	0.2992	0.0297	0.0004
147	SLU 41	0.01	-5.61	62.23	0.2737	0.0305	0.0004
147	SLU 42	0.01	-5.84	62.39	0.2847	0.0304	0.0004
147	SLU 43	0.01	-5.69	53.43	0.2727	0.0278	0.0004
147	SLU 44	0.01	-6.07	53.69	0.2911	0.0275	0.0004
147	SLU 45	0.01	-5.49	54.51	0.2631	0.0287	0.0004
147	SLU 46	0.01	-5.72	54.66	0.2741	0.0286	0.0004
147	SLU 47	0.01	-5.78	54.11	0.2766	0.0282	0.0004
147	SLU 48	0.01	-5.2	54.93	0.2486	0.0294	0.0004
147	SLU 49	0.01	-5.43	55.09	0.2596	0.0292	0.0004
147	SLU 50	0.01	-5.11	54.28	0.2437	0.0291	0.0004
147	SLU 51	0.01	-5.34	54.44	0.2547	0.029	0.0004
147	SLU 52	0.01	-6.9	62.46	0.3326	0.0303	0.0004
147	SLU 53	0.01	-6.32	63.28	0.3046	0.0315	0.0004
147	SLU 54	0.01	-6.55	63.43	0.3156	0.0314	0.0004
147	SLU 55	0.01	-6.61	62.88	0.3181	0.031	0.0004
147	SLU 56	0.01	-6.03	63.7	0.2901	0.0322	0.0004
147	SLU 57	0.01	-6.26	63.86	0.3011	0.032	0.0004
147	SLU 58	0.01	-5.93	63.05	0.2852	0.0319	0.0004
147	SLU 59	0.01	-6.16	63.21	0.2962	0.0317	0.0004
147	SLU 60	0.01	-6.87	65.96	0.332	0.0318	0.0005
147	SLU 61	0.01	-7.1	66.11	0.343	0.0316	0.0005
147	SLU 62	0.01	-6.58	66.39	0.3175	0.0324	0.0005
147	SLU 63	0.01	-6.81	66.54	0.3285	0.0323	0.0005
147	SLU 64	0.01	-5.96	59.9	0.2879	0.0314	0.0004
147	SLU 65	0.01	-6.34	60.15	0.3063	0.0311	0.0004
147	SLU 66	0.01	-5.77	60.98	0.2783	0.0323	0.0004
147	SLU 67	0.01	-6	61.13	0.2893	0.0322	0.0004
147	SLU 68	0.01	-6.05	60.58	0.2918	0.0318	0.0004
147	SLU 69	0.02	-5.48	61.4	0.2638	0.0329	0.0004
147	SLU 70	0.02	-5.71	61.56	0.2748	0.0328	0.0004
147	SLU 71	0.02	-5.38	60.75	0.2589	0.0327	0.0004
147	SLU 72	0.02	-5.61	60.91	0.2699	0.0325	0.0004
147	SLU 73	0.01	-7.17	68.93	0.3478	0.0339	0.0005
147	SLU 74	0.02	-6.59	69.75	0.3198	0.0351	0.0005
147	SLU 75	0.02	-6.82	69.9	0.3308	0.0349	0.0005
147	SLU 76	0.01	-6.88	69.35	0.3332	0.0346	0.0005
147	SLU 77	0.02	-6.3	70.17	0.3052	0.0357	0.0005
147	SLU 78	0.02	-6.53	70.33	0.3163	0.0356	0.0005
147	SLU 79	0.02	-6.21	69.52	0.3003	0.0355	0.0005
147	SLU 80	0.02	-6.44	69.68	0.3114	0.0353	0.0005
147	SLU 81	0.01	-7.14	72.43	0.3471	0.0353	0.0005
147	SLU 82	0.01	-7.37	72.58	0.3582	0.0352	0.0005
147	SLU 83	0.02	-6.85	72.86	0.3326	0.036	0.0005
147	SLU 84	0.02	-7.08	73.01	0.3437	0.0359	0.0005
147	SLE RA 1	0.01	-4.52	44.65	0.2181	0.0233	0.0003
147	SLE RA 2	0.01	-4.78	44.82	0.2304	0.0232	0.0003
147	SLE RA 3	0.01	-4.39	45.37	0.2117	0.024	0.0003
147	SLE RA 4	0.01	-4.55	45.47	0.2191	0.0239	0.0003
147	SLE RA 5	0.01	-4.59	45.11	0.2207	0.0236	0.0003
147	SLE RA 6	0.01	-4.2	45.66	0.202	0.0244	0.0003
147	SLE RA 7	0.01	-4.35	45.76	0.2094	0.0243	0.0003
147	SLE RA 8	0.01	-4.14	45.22	0.1988	0.0242	0.0003
147	SLE RA 9	0.01	-4.29	45.33	0.2061	0.0241	0.0003
147	SLE RA 10	0.01	-5.33	50.67	0.258	0.025	0.0004
147	SLE RA 11	0.01	-4.95	51.22	0.2394	0.0258	0.0004
147	SLE RA 12	0.01	-5.1	51.32	0.2467	0.0257	0.0004
147	SLE RA 13	0.01	-5.14	50.96	0.2484	0.0255	0.0004
147	SLE RA 14	0.01	-4.75	51.5	0.2297	0.0263	0.0004
147	SLE RA 15	0.01	-4.91	51.61	0.237	0.0262	0.0004
147	SLE RA 16	0.01	-4.69	51.07	0.2264	0.0261	0.0004
147	SLE RA 17	0.01	-4.84	51.17	0.2338	0.026	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
147	SLE RA 18	0.01	-5.31	53.01	0.2576	0.026	0.0004
147	SLE RA 19	0.01	-5.47	53.11	0.265	0.0259	0.0004
147	SLE RA 20	0.01	-5.12	53.29	0.2479	0.0264	0.0004
147	SLE RA 21	0.01	-5.27	53.39	0.2553	0.0263	0.0004
147	SLE FR 1	0.01	-4.52	44.65	0.2181	0.0233	0.0003
147	SLE FR 2	0.01	-4.58	44.69	0.2206	0.0233	0.0003
147	SLE FR 3	0.01	-4.45	44.77	0.2142	0.0235	0.0003
147	SLE FR 4	0.01	-4.81	47.19	0.2324	0.0241	0.0003
147	SLE FR 5	0.01	-4.68	47.27	0.2261	0.0243	0.0003
147	SLE FR 6	0.01	-4.92	48.83	0.2379	0.0247	0.0003
147	SLE QP 1	0.01	-4.52	44.65	0.2181	0.0233	0.0003
147	SLE QP 2	0.01	-4.76	47.16	0.23	0.0241	0.0003
147	SLD 1	0.11	-1.41	49.7	0.0682	0.1275	0.0004
147	SLD 2	0.11	-1.41	49.7	0.0682	0.1275	0.0004
147	SLD 3	0.1	-5.67	53.78	0.2757	0.1199	0.0004
147	SLD 4	0.1	-5.67	53.78	0.2757	0.1199	0.0004
147	SLD 5	0.06	2.71	41.74	-0.1334	0.0666	0.0002
147	SLD 6	0.06	2.71	41.74	-0.1334	0.0666	0.0002
147	SLD 7	0.02	-11.5	55.33	0.5585	0.0414	0.0004
147	SLD 8	0.02	-11.5	55.33	0.5585	0.0414	0.0004
147	SLD 9	0	1.98	38.99	-0.0986	0.0069	0.0002
147	SLD 10	0	1.98	38.99	-0.0986	0.0069	0.0002
147	SLD 11	-0.04	-12.23	52.58	0.5933	-0.0184	0.0004
147	SLD 12	-0.04	-12.23	52.58	0.5933	-0.0184	0.0004
147	SLD 13	-0.08	-3.85	40.55	0.1842	-0.0717	0.0002
147	SLD 14	-0.08	-3.85	40.55	0.1842	-0.0717	0.0002
147	SLD 15	-0.09	-8.11	44.62	0.3918	-0.0792	0.0003
147	SLD 16	-0.09	-8.11	44.62	0.3918	-0.0792	0.0003
147	SLV 1	0.25	2.91	52.95	-0.1402	0.2736	0.0004
147	SLV 2	0.25	2.91	52.95	-0.1402	0.2736	0.0004
147	SLV 3	0.22	-6.86	62.39	0.3354	0.2559	0.0005
147	SLV 4	0.22	-6.86	62.39	0.3354	0.2559	0.0005
147	SLV 5	0.13	12.35	34.58	-0.6024	0.1259	0.0001
147	SLV 6	0.13	12.35	34.58	-0.6024	0.1259	0.0001
147	SLV 7	0.03	-20.2	66.05	0.9829	0.0667	0.0006
147	SLV 8	0.03	-20.2	66.05	0.9829	0.0667	0.0006
147	SLV 9	-0.01	10.68	28.27	-0.5229	-0.0185	0.0001
147	SLV 10	-0.01	10.68	28.27	-0.5229	-0.0185	0.0001
147	SLV 11	-0.11	-21.88	59.74	1.0623	-0.0776	0.0005
147	SLV 12	-0.11	-21.88	59.74	1.0623	-0.0776	0.0005
147	SLV 13	-0.2	-2.66	31.93	0.1246	-0.2076	0.0001
147	SLV 14	-0.2	-2.66	31.93	0.1246	-0.2076	0.0001
147	SLV 15	-0.23	-12.43	41.37	0.6002	-0.2254	0.0003
147	SLV 16	-0.23	-12.43	41.37	0.6002	-0.2254	0.0003
148	SLU 1	0	2.35	18.65	-0.0701	0.0012	-0.0002
148	SLU 2	0	2.37	18.72	-0.0704	0.0014	-0.0002
148	SLU 3	0	2.45	19.1	-0.073	0.0011	-0.0002
148	SLU 4	0	2.46	19.15	-0.0732	0.0012	-0.0002
148	SLU 5	0	2.41	18.92	-0.0718	0.0013	-0.0002
148	SLU 6	0	2.5	19.3	-0.0743	0.001	-0.0002
148	SLU 7	0	2.51	19.35	-0.0745	0.0011	-0.0002
148	SLU 8	0	2.44	19.05	-0.0727	0.001	-0.0002
148	SLU 9	0	2.45	19.09	-0.073	0.0011	-0.0002
148	SLU 10	-0.01	2.76	23.26	-0.0824	0.0018	-0.0002
148	SLU 11	-0.01	2.84	23.64	-0.085	0.0015	-0.0002
148	SLU 12	-0.01	2.85	23.69	-0.0852	0.0016	-0.0002
148	SLU 13	-0.01	2.8	23.46	-0.0838	0.0017	-0.0002
148	SLU 14	-0.01	2.89	23.84	-0.0863	0.0015	-0.0002
148	SLU 15	-0.01	2.89	23.89	-0.0865	0.0016	-0.0002
148	SLU 16	-0.01	2.83	23.59	-0.0847	0.0015	-0.0002
148	SLU 17	-0.01	2.84	23.63	-0.085	0.0016	-0.0002
148	SLU 18	-0.01	2.91	25.14	-0.0872	0.0018	-0.0002
148	SLU 19	-0.01	2.92	25.18	-0.0874	0.0019	-0.0002
148	SLU 20	-0.01	2.96	25.34	-0.0885	0.0018	-0.0002
148	SLU 21	-0.01	2.96	25.38	-0.0888	0.0019	-0.0002
148	SLU 22	-0.01	2.82	21.22	-0.0841	0.0012	-0.0002
148	SLU 23	-0.01	2.84	21.29	-0.0844	0.0014	-0.0002
148	SLU 24	-0.01	2.92	21.67	-0.087	0.0011	-0.0002
148	SLU 25	-0.01	2.93	21.71	-0.0872	0.0012	-0.0002
148	SLU 26	-0.01	2.88	21.49	-0.0858	0.0013	-0.0002
148	SLU 27	-0.01	2.97	21.87	-0.0883	0.001	-0.0002
148	SLU 28	-0.01	2.97	21.92	-0.0885	0.0011	-0.0002
148	SLU 29	-0.01	2.91	21.62	-0.0867	0.001	-0.0002
148	SLU 30	-0.01	2.92	21.66	-0.087	0.0011	-0.0002
148	SLU 31	-0.01	3.23	25.83	-0.0964	0.0018	-0.0003
148	SLU 32	-0.01	3.31	26.21	-0.099	0.0015	-0.0003
148	SLU 33	-0.01	3.32	26.25	-0.0992	0.0016	-0.0003
148	SLU 34	-0.01	3.27	26.03	-0.0978	0.0017	-0.0003
148	SLU 35	-0.01	3.36	26.41	-0.1003	0.0015	-0.0003
148	SLU 36	-0.01	3.36	26.46	-0.1005	0.0016	-0.0003
148	SLU 37	-0.01	3.3	26.16	-0.0987	0.0015	-0.0003
148	SLU 38	-0.01	3.31	26.2	-0.099	0.0016	-0.0003
148	SLU 39	-0.01	3.38	27.71	-0.1012	0.0018	-0.0003
148	SLU 40	-0.01	3.39	27.75	-0.1014	0.0019	-0.0003
148	SLU 41	-0.01	3.42	27.91	-0.1025	0.0017	-0.0003
148	SLU 42	-0.01	3.43	27.95	-0.1028	0.0018	-0.0003
148	SLU 43	-0.01	2.9	23.37	-0.0863	0.0016	-0.0002
148	SLU 44	-0.01	2.91	23.44	-0.0867	0.0017	-0.0002
148	SLU 45	-0.01	3	23.82	-0.0892	0.0015	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
148	SLU 46	-0.01	3.01	23.86	-0.0894	0.0016	-0.0003
148	SLU 47	-0.01	2.96	23.64	-0.088	0.0016	-0.0002
148	SLU 48	-0.01	3.04	24.02	-0.0905	0.0014	-0.0003
148	SLU 49	-0.01	3.05	24.06	-0.0908	0.0015	-0.0003
148	SLU 50	-0.01	2.99	23.77	-0.089	0.0014	-0.0003
148	SLU 51	-0.01	3	23.81	-0.0892	0.0015	-0.0003
148	SLU 52	-0.01	3.3	27.98	-0.0986	0.0022	-0.0003
148	SLU 53	-0.01	3.39	28.36	-0.1012	0.0019	-0.0003
148	SLU 54	-0.01	3.4	28.4	-0.1014	0.002	-0.0003
148	SLU 55	-0.01	3.35	28.18	-0.1	0.0021	-0.0003
148	SLU 56	-0.01	3.43	28.56	-0.1025	0.0018	-0.0003
148	SLU 57	-0.01	3.44	28.6	-0.1028	0.0019	-0.0003
148	SLU 58	-0.01	3.38	28.31	-0.101	0.0018	-0.0003
148	SLU 59	-0.01	3.39	28.35	-0.1012	0.0019	-0.0003
148	SLU 60	-0.01	3.46	29.85	-0.1034	0.0022	-0.0003
148	SLU 61	-0.01	3.46	29.89	-0.1036	0.0023	-0.0003
148	SLU 62	-0.01	3.5	30.05	-0.1048	0.0021	-0.0003
148	SLU 63	-0.01	3.51	30.09	-0.105	0.0022	-0.0003
148	SLU 64	-0.01	3.37	25.93	-0.1003	0.0016	-0.0003
148	SLU 65	-0.01	3.38	26	-0.1007	0.0017	-0.0003
148	SLU 66	-0.01	3.47	26.39	-0.1032	0.0015	-0.0003
148	SLU 67	-0.01	3.47	26.43	-0.1034	0.0016	-0.0003
148	SLU 68	-0.01	3.43	26.21	-0.102	0.0016	-0.0003
148	SLU 69	-0.01	3.51	26.59	-0.1045	0.0014	-0.0003
148	SLU 70	-0.01	3.52	26.63	-0.1048	0.0015	-0.0003
148	SLU 71	-0.01	3.46	26.34	-0.103	0.0014	-0.0003
148	SLU 72	-0.01	3.47	26.38	-0.1032	0.0015	-0.0003
148	SLU 73	-0.01	3.77	30.54	-0.1126	0.0022	-0.0003
148	SLU 74	-0.01	3.86	30.93	-0.1152	0.0019	-0.0003
148	SLU 75	-0.01	3.86	30.97	-0.1154	0.002	-0.0003
148	SLU 76	-0.01	3.82	30.75	-0.114	0.0021	-0.0003
148	SLU 77	-0.01	3.9	31.13	-0.1165	0.0018	-0.0003
148	SLU 78	-0.01	3.91	31.17	-0.1168	0.0019	-0.0003
148	SLU 79	-0.01	3.85	30.88	-0.115	0.0018	-0.0003
148	SLU 80	-0.01	3.86	30.92	-0.1152	0.0019	-0.0003
148	SLU 81	-0.01	3.93	32.42	-0.1174	0.0022	-0.0003
148	SLU 82	-0.01	3.93	32.46	-0.1176	0.0023	-0.0003
148	SLU 83	-0.01	3.97	32.62	-0.1188	0.0021	-0.0003
148	SLU 84	-0.01	3.98	32.66	-0.119	0.0022	-0.0003
148	SLE RA 1	0	2.49	19.39	-0.0741	0.0012	-0.0002
148	SLE RA 2	0	2.5	19.43	-0.0743	0.0013	-0.0002
148	SLE RA 3	0	2.55	19.69	-0.076	0.0011	-0.0002
148	SLE RA 4	0	2.56	19.71	-0.0762	0.0012	-0.0002
148	SLE RA 5	0	2.53	19.57	-0.0752	0.0013	-0.0002
148	SLE RA 6	0	2.58	19.82	-0.0769	0.0011	-0.0002
148	SLE RA 7	0	2.59	19.85	-0.0771	0.0011	-0.0002
148	SLE RA 8	0	2.55	19.65	-0.0759	0.0011	-0.0002
148	SLE RA 9	0	2.55	19.68	-0.076	0.0012	-0.0002
148	SLE RA 10	-0.01	2.76	22.46	-0.0823	0.0016	-0.0002
148	SLE RA 11	-0.01	2.81	22.71	-0.084	0.0014	-0.0002
148	SLE RA 12	-0.01	2.82	22.74	-0.0842	0.0015	-0.0002
148	SLE RA 13	-0.01	2.79	22.59	-0.0832	0.0016	-0.0002
148	SLE RA 14	-0.01	2.84	22.85	-0.0849	0.0014	-0.0002
148	SLE RA 15	-0.01	2.85	22.88	-0.085	0.0014	-0.0002
148	SLE RA 16	-0.01	2.81	22.68	-0.0838	0.0014	-0.0002
148	SLE RA 17	-0.01	2.81	22.71	-0.084	0.0015	-0.0002
148	SLE RA 18	-0.01	2.86	23.71	-0.0855	0.0016	-0.0002
148	SLE RA 19	-0.01	2.86	23.74	-0.0856	0.0017	-0.0002
148	SLE RA 20	-0.01	2.89	23.84	-0.0864	0.0016	-0.0002
148	SLE RA 21	-0.01	2.89	23.87	-0.0865	0.0016	-0.0002
148	SLE FR 1	0	2.49	19.39	-0.0741	0.0012	-0.0002
148	SLE FR 2	0	2.49	19.39	-0.0741	0.0012	-0.0002
148	SLE FR 3	0	2.5	19.44	-0.0744	0.0012	-0.0002
148	SLE FR 4	0	2.6	20.69	-0.0775	0.0014	-0.0002
148	SLE FR 5	0	2.61	20.74	-0.0778	0.0013	-0.0002
148	SLE FR 6	0	2.67	21.55	-0.0798	0.0014	-0.0002
148	SLE QP 1	0	2.49	19.39	-0.0741	0.0012	-0.0002
148	SLE QP 2	0	2.6	20.68	-0.0775	0.0013	-0.0002
148	SLD 1	0.05	1.26	17.33	-0.0336	0.0779	0.0013
148	SLD 2	0.05	1.26	17.33	-0.0336	0.0779	0.0013
148	SLD 3	0.04	2.52	18.63	-0.0768	0.0739	0.0011
148	SLD 4	0.04	2.52	18.63	-0.0768	0.0739	0.0011
148	SLD 5	0.02	0.29	17.71	0.0012	0.0304	0.0004
148	SLD 6	0.02	0.29	17.71	0.0012	0.0304	0.0004
148	SLD 7	0	4.49	22.03	-0.1428	0.017	0
148	SLD 8	0	4.49	22.03	-0.1428	0.017	0
148	SLD 9	-0.01	0.71	19.33	-0.0122	-0.0143	-0.0004
148	SLD 10	-0.01	0.71	19.33	-0.0122	-0.0143	-0.0004
148	SLD 11	-0.03	4.91	23.65	-0.1562	-0.0278	-0.0009
148	SLD 12	-0.03	4.91	23.65	-0.1562	-0.0278	-0.0009
148	SLD 13	-0.05	2.68	22.74	-0.0782	-0.0713	-0.0016
148	SLD 14	-0.05	2.68	22.74	-0.0782	-0.0713	-0.0016
148	SLD 15	-0.06	3.94	24.03	-0.1214	-0.0753	-0.0017
148	SLD 16	-0.06	3.94	24.03	-0.1214	-0.0753	-0.0017
148	SLV 1	0.12	-0.51	12.95	0.0246	0.1869	0.0033
148	SLV 2	0.12	-0.51	12.95	0.0246	0.1869	0.0033
148	SLV 3	0.11	2.45	15.96	-0.0767	0.1773	0.003
148	SLV 4	0.11	2.45	15.96	-0.0767	0.1773	0.003
148	SLV 5	0.04	-2.81	13.8	0.1068	0.0715	0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
148	SLV 6	0.04	-2.81	13.8	0.1068	0.0715	0.0013
148	SLV 7	0.02	7.03	23.83	-0.2309	0.0396	0.0003
148	SLV 8	0.02	7.03	23.83	-0.2309	0.0396	0.0003
148	SLV 9	-0.03	-1.83	17.53	0.0759	-0.0369	-0.0007
148	SLV 10	-0.03	-1.83	17.53	0.0759	-0.0369	-0.0007
148	SLV 11	-0.05	8.01	27.57	-0.2618	-0.0689	-0.0018
148	SLV 12	-0.05	8.01	27.57	-0.2618	-0.0689	-0.0018
148	SLV 13	-0.12	2.75	25.4	-0.0783	-0.1746	-0.0034
148	SLV 14	-0.12	2.75	25.4	-0.0783	-0.1746	-0.0034
148	SLV 15	-0.13	5.71	28.41	-0.1796	-0.1842	-0.0038
148	SLV 16	-0.13	5.71	28.41	-0.1796	-0.1842	-0.0038
149	SLU 1	-0.1	4.54	37.52	-0.1824	-0.0723	-0.0006
149	SLU 2	-0.11	5.09	38.23	-0.208	-0.1018	-0.0007
149	SLU 3	-0.1	4.82	38.68	-0.194	-0.0748	-0.0007
149	SLU 4	-0.11	5.15	39.1	-0.2093	-0.0925	-0.0007
149	SLU 5	-0.12	5.32	38.99	-0.2174	-0.1036	-0.0008
149	SLU 6	-0.11	5.05	39.44	-0.2034	-0.0765	-0.0007
149	SLU 7	-0.11	5.38	39.86	-0.2188	-0.0942	-0.0007
149	SLU 8	-0.1	4.99	39.05	-0.2013	-0.0758	-0.0007
149	SLU 9	-0.11	5.33	39.47	-0.2166	-0.0935	-0.0007
149	SLU 10	-0.12	5.97	42.97	-0.2425	-0.1102	-0.0008
149	SLU 11	-0.11	5.7	43.42	-0.2285	-0.0831	-0.0007
149	SLU 12	-0.12	6.03	43.85	-0.2438	-0.1008	-0.0008
149	SLU 13	-0.13	6.2	43.74	-0.2519	-0.1119	-0.0008
149	SLU 14	-0.12	5.93	44.19	-0.2379	-0.0848	-0.0007
149	SLU 15	-0.13	6.26	44.61	-0.2533	-0.1026	-0.0008
149	SLU 16	-0.12	5.87	43.8	-0.2358	-0.0841	-0.0007
149	SLU 17	-0.12	6.2	44.22	-0.2511	-0.1018	-0.0008
149	SLU 18	-0.12	5.79	44.3	-0.2317	-0.0842	-0.0007
149	SLU 19	-0.12	6.12	44.73	-0.247	-0.1019	-0.0008
149	SLU 20	-0.12	6.02	45.07	-0.2411	-0.0859	-0.0008
149	SLU 21	-0.13	6.35	45.49	-0.2565	-0.1037	-0.0008
149	SLU 22	-0.11	5.4	42.17	-0.2165	-0.081	-0.0007
149	SLU 23	-0.13	5.95	42.88	-0.2421	-0.1106	-0.0008
149	SLU 24	-0.12	5.68	43.33	-0.2281	-0.0835	-0.0007
149	SLU 25	-0.12	6.02	43.75	-0.2435	-0.1012	-0.0008
149	SLU 26	-0.13	6.18	43.64	-0.2515	-0.1123	-0.0008
149	SLU 27	-0.12	5.91	44.09	-0.2376	-0.0852	-0.0008
149	SLU 28	-0.13	6.24	44.51	-0.2529	-0.103	-0.0008
149	SLU 29	-0.12	5.85	43.7	-0.2354	-0.0845	-0.0007
149	SLU 30	-0.12	6.19	44.12	-0.2508	-0.1022	-0.0008
149	SLU 31	-0.14	6.83	47.62	-0.2766	-0.1189	-0.0009
149	SLU 32	-0.13	6.56	48.07	-0.2626	-0.0918	-0.0008
149	SLU 33	-0.14	6.89	48.49	-0.278	-0.1096	-0.0009
149	SLU 34	-0.14	7.06	48.38	-0.286	-0.1207	-0.0009
149	SLU 35	-0.13	6.79	48.83	-0.2721	-0.0936	-0.0008
149	SLU 36	-0.14	7.12	49.26	-0.2874	-0.1113	-0.0009
149	SLU 37	-0.13	6.73	48.44	-0.2699	-0.0928	-0.0008
149	SLU 38	-0.14	7.06	48.87	-0.2853	-0.1106	-0.0009
149	SLU 39	-0.13	6.65	48.95	-0.2658	-0.0929	-0.0008
149	SLU 40	-0.14	6.99	49.37	-0.2812	-0.1107	-0.0009
149	SLU 41	-0.13	6.88	49.71	-0.2753	-0.0947	-0.0008
149	SLU 42	-0.14	7.21	50.14	-0.2906	-0.1124	-0.0009
149	SLU 43	-0.12	5.61	47.19	-0.2254	-0.0909	-0.0008
149	SLU 44	-0.14	6.16	47.89	-0.251	-0.1205	-0.0009
149	SLU 45	-0.13	5.89	48.34	-0.237	-0.0934	-0.0008
149	SLU 46	-0.14	6.22	48.76	-0.2524	-0.1112	-0.0009
149	SLU 47	-0.14	6.39	48.65	-0.2604	-0.1223	-0.0009
149	SLU 48	-0.13	6.12	49.1	-0.2465	-0.0952	-0.0008
149	SLU 49	-0.14	6.45	49.53	-0.2618	-0.1129	-0.0009
149	SLU 50	-0.13	6.06	48.71	-0.2443	-0.0944	-0.0008
149	SLU 51	-0.14	6.39	49.14	-0.2597	-0.1122	-0.0009
149	SLU 52	-0.15	7.04	52.64	-0.2855	-0.1289	-0.001
149	SLU 53	-0.14	6.76	53.09	-0.2715	-0.1018	-0.0009
149	SLU 54	-0.15	7.1	53.51	-0.2868	-0.1195	-0.001
149	SLU 55	-0.15	7.26	53.4	-0.2949	-0.1306	-0.001
149	SLU 56	-0.14	6.99	53.85	-0.281	-0.1035	-0.0009
149	SLU 57	-0.15	7.32	54.27	-0.2963	-0.1213	-0.001
149	SLU 58	-0.14	6.94	53.46	-0.2788	-0.1028	-0.0009
149	SLU 59	-0.15	7.27	53.88	-0.2941	-0.1205	-0.001
149	SLU 60	-0.14	6.86	53.97	-0.2747	-0.1029	-0.0009
149	SLU 61	-0.15	7.19	54.39	-0.29	-0.1206	-0.001
149	SLU 62	-0.14	7.09	54.73	-0.2842	-0.1046	-0.0009
149	SLU 63	-0.15	7.42	55.15	-0.2995	-0.1223	-0.001
149	SLU 64	-0.14	6.47	51.83	-0.2596	-0.0997	-0.0009
149	SLU 65	-0.15	7.02	52.54	-0.2851	-0.1293	-0.001
149	SLU 66	-0.14	6.75	52.99	-0.2711	-0.1022	-0.0009
149	SLU 67	-0.15	7.08	53.41	-0.2865	-0.1199	-0.001
149	SLU 68	-0.15	7.25	53.3	-0.2946	-0.131	-0.001
149	SLU 69	-0.14	6.98	53.75	-0.2806	-0.1039	-0.0009
149	SLU 70	-0.15	7.31	54.17	-0.2959	-0.1217	-0.001
149	SLU 71	-0.14	6.92	53.36	-0.2784	-0.1032	-0.0009
149	SLU 72	-0.15	7.25	53.78	-0.2938	-0.1209	-0.001
149	SLU 73	-0.16	7.9	57.28	-0.3196	-0.1376	-0.0011
149	SLU 74	-0.15	7.63	57.73	-0.3056	-0.1105	-0.001
149	SLU 75	-0.16	7.96	58.16	-0.321	-0.1283	-0.001
149	SLU 76	-0.16	8.12	58.05	-0.3291	-0.1393	-0.0011
149	SLU 77	-0.16	7.85	58.5	-0.3151	-0.1123	-0.001
149	SLU 78	-0.16	8.19	58.92	-0.3304	-0.13	-0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
149	SLU 79	-0.15	7.8	58.11	-0.3129	-0.1115	-0.001
149	SLU 80	-0.16	8.13	58.53	-0.3283	-0.1293	-0.001
149	SLU 81	-0.15	7.72	58.61	-0.3088	-0.1116	-0.001
149	SLU 82	-0.16	8.05	59.04	-0.3242	-0.1293	-0.001
149	SLU 83	-0.16	7.95	59.38	-0.3183	-0.1133	-0.001
149	SLU 84	-0.16	8.28	59.8	-0.3336	-0.1311	-0.0011
149	SLE RA 1	-0.1	4.79	38.85	-0.1922	-0.0748	-0.0007
149	SLE RA 2	-0.11	5.15	39.32	-0.2092	-0.0945	-0.0007
149	SLE RA 3	-0.11	4.97	39.62	-0.1999	-0.0764	-0.0007
149	SLE RA 4	-0.11	5.2	39.9	-0.2101	-0.0882	-0.0007
149	SLE RA 5	-0.11	5.31	39.83	-0.2155	-0.0956	-0.0007
149	SLE RA 6	-0.11	5.13	40.13	-0.2062	-0.0776	-0.0007
149	SLE RA 7	-0.11	5.35	40.41	-0.2164	-0.0894	-0.0007
149	SLE RA 8	-0.11	5.09	39.87	-0.2048	-0.0771	-0.0007
149	SLE RA 9	-0.11	5.31	40.15	-0.215	-0.0889	-0.0007
149	SLE RA 10	-0.12	5.74	42.48	-0.2322	-0.1	-0.0008
149	SLE RA 11	-0.11	5.56	42.78	-0.2229	-0.082	-0.0007
149	SLE RA 12	-0.12	5.78	43.07	-0.2331	-0.0938	-0.0008
149	SLE RA 13	-0.12	5.89	42.99	-0.2385	-0.1012	-0.0008
149	SLE RA 14	-0.11	5.71	43.29	-0.2292	-0.0831	-0.0007
149	SLE RA 15	-0.12	5.93	43.58	-0.2394	-0.095	-0.0008
149	SLE RA 16	-0.11	5.67	43.03	-0.2277	-0.0826	-0.0007
149	SLE RA 17	-0.12	5.89	43.31	-0.238	-0.0945	-0.0008
149	SLE RA 18	-0.11	5.62	43.37	-0.225	-0.0827	-0.0007
149	SLE RA 19	-0.12	5.84	43.65	-0.2352	-0.0945	-0.0008
149	SLE RA 20	-0.12	5.77	43.88	-0.2313	-0.0839	-0.0007
149	SLE RA 21	-0.12	5.99	44.16	-0.2415	-0.0957	-0.0008
149	SLE FR 1	-0.1	4.79	38.85	-0.1922	-0.0748	-0.0007
149	SLE FR 2	-0.1	4.86	38.94	-0.1956	-0.0787	-0.0007
149	SLE FR 3	-0.1	4.85	39.05	-0.1947	-0.0752	-0.0007
149	SLE FR 4	-0.11	5.11	40.3	-0.2054	-0.0811	-0.0007
149	SLE FR 5	-0.11	5.1	40.41	-0.2045	-0.0776	-0.0007
149	SLE FR 6	-0.11	5.2	41.11	-0.2086	-0.0787	-0.0007
149	SLE QP 1	-0.1	4.79	38.85	-0.1922	-0.0748	-0.0007
149	SLE QP 2	-0.11	5.04	40.21	-0.202	-0.0771	-0.0007
149	SLD 1	-0.17	10.95	52.04	-0.4608	-0.142	-0.0012
149	SLD 2	-0.17	10.95	52.04	-0.4608	-0.142	-0.0012
149	SLD 3	-0.28	3.9	53.57	-0.1428	-0.2142	-0.0018
149	SLD 4	-0.28	3.9	53.57	-0.1428	-0.2142	-0.0018
149	SLD 5	0.04	17.5	41.43	-0.7619	0.0129	0.0001
149	SLD 6	0.04	17.5	41.43	-0.7619	0.0129	0.0001
149	SLD 7	-0.32	-6	46.54	0.298	-0.2278	-0.0019
149	SLD 8	-0.32	-6	46.54	0.298	-0.2278	-0.0019
149	SLD 9	0.11	16.07	33.87	-0.702	0.0735	0.0006
149	SLD 10	0.11	16.07	33.87	-0.702	0.0735	0.0006
149	SLD 11	-0.25	-7.43	38.98	0.3579	-0.1672	-0.0014
149	SLD 12	-0.25	-7.43	38.98	0.3579	-0.1672	-0.0014
149	SLD 13	0.07	6.17	26.84	-0.2612	0.0599	0.0004
149	SLD 14	0.07	6.17	26.84	-0.2612	0.0599	0.0004
149	SLD 15	-0.04	-0.88	28.37	0.0568	-0.0123	-0.0002
149	SLD 16	-0.04	-0.88	28.37	0.0568	-0.0123	-0.0002
149	SLV 1	-0.25	18.55	67.26	-0.7937	-0.2229	-0.0018
149	SLV 2	-0.25	18.55	67.26	-0.7937	-0.2229	-0.0018
149	SLV 3	-0.53	2.31	70.88	-0.0612	-0.4077	-0.0033
149	SLV 4	-0.53	2.31	70.88	-0.0612	-0.4077	-0.0033
149	SLV 5	0.27	33.72	42.84	-1.4905	0.1593	0.0013
149	SLV 6	0.27	33.72	42.84	-1.4905	0.1593	0.0013
149	SLV 7	-0.66	-20.41	54.89	0.9512	-0.4565	-0.0038
149	SLV 8	-0.66	-20.41	54.89	0.9512	-0.4565	-0.0038
149	SLV 9	0.45	30.48	25.53	-1.3552	0.3022	0.0024
149	SLV 10	0.45	30.48	25.53	-1.3552	0.3022	0.0024
149	SLV 11	-0.48	-23.64	37.57	1.0864	-0.3136	-0.0027
149	SLV 12	-0.48	-23.64	37.57	1.0864	-0.3136	-0.0027
149	SLV 13	0.32	7.76	9.54	-0.3428	0.2534	0.002
149	SLV 14	0.32	7.76	9.54	-0.3428	0.2534	0.002
149	SLV 15	0.04	-8.48	13.15	0.3897	0.0686	0.0004
149	SLV 16	0.04	-8.48	13.15	0.3897	0.0686	0.0004
150	SLU 1	0.08	2.41	28.29	-0.1439	0.0489	0
150	SLU 2	0.08	4.57	27.19	-0.2535	0.0526	0
150	SLU 3	0.08	2.3	29.46	-0.1382	0.0504	0
150	SLU 4	0.08	3.59	28.79	-0.204	0.0526	0
150	SLU 5	0.08	4.35	28.02	-0.2424	0.0533	0
150	SLU 6	0.08	2.08	30.29	-0.1271	0.0511	0
150	SLU 7	0.09	3.38	29.63	-0.1928	0.0533	0
150	SLU 8	0.08	1.97	29.95	-0.1217	0.0502	0
150	SLU 9	0.08	3.27	29.29	-0.1874	0.0524	0
150	SLU 10	0.1	5.29	32.1	-0.2889	0.0624	0
150	SLU 11	0.1	3.02	34.37	-0.1736	0.0602	0
150	SLU 12	0.1	4.31	33.71	-0.2394	0.0624	0
150	SLU 13	0.1	5.07	32.93	-0.2778	0.063	0
150	SLU 14	0.1	2.8	35.2	-0.1625	0.0608	0
150	SLU 15	0.1	4.09	34.54	-0.2283	0.063	0
150	SLU 16	0.1	2.69	34.86	-0.1571	0.06	0
150	SLU 17	0.1	3.99	34.2	-0.2228	0.0622	0
150	SLU 18	0.1	3.43	35.31	-0.1945	0.0628	0
150	SLU 19	0.11	4.73	34.64	-0.2602	0.0651	0
150	SLU 20	0.1	3.21	36.14	-0.1834	0.0635	0
150	SLU 21	0.11	4.51	35.48	-0.2491	0.0657	0
150	SLU 22	0.09	2.92	32.84	-0.1689	0.0575	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
150	SLU 23	0.1	5.08	31.74	-0.2785	0.0612	0
150	SLU 24	0.1	2.81	34.01	-0.1633	0.059	0
150	SLU 25	0.1	4.1	33.35	-0.229	0.0612	0
150	SLU 26	0.1	4.86	32.57	-0.2674	0.0618	0
150	SLU 27	0.1	2.59	34.84	-0.1521	0.0597	0
150	SLU 28	0.1	3.89	34.18	-0.2179	0.0619	0
150	SLU 29	0.09	2.48	34.5	-0.1467	0.0588	0
150	SLU 30	0.1	3.78	33.84	-0.2125	0.061	0
150	SLU 31	0.11	5.79	36.65	-0.314	0.0709	0
150	SLU 32	0.11	3.52	38.92	-0.1987	0.0687	0
150	SLU 33	0.11	4.82	38.26	-0.2644	0.071	0
150	SLU 34	0.12	5.58	37.48	-0.3029	0.0716	0
150	SLU 35	0.11	3.31	39.75	-0.1876	0.0694	0
150	SLU 36	0.12	4.6	39.09	-0.2533	0.0716	0
150	SLU 37	0.11	3.2	39.41	-0.1821	0.0685	0
150	SLU 38	0.11	4.5	38.75	-0.2479	0.0708	0
150	SLU 39	0.12	3.94	39.86	-0.2195	0.0714	0
150	SLU 40	0.12	5.24	39.19	-0.2853	0.0736	0
150	SLU 41	0.12	3.72	40.69	-0.2084	0.0721	0
150	SLU 42	0.12	5.02	40.03	-0.2742	0.0743	0
150	SLU 43	0.1	2.95	35.21	-0.1784	0.0607	0
150	SLU 44	0.1	5.12	34.11	-0.2881	0.0644	0
150	SLU 45	0.1	2.85	36.38	-0.1728	0.0622	0
150	SLU 46	0.1	4.14	35.72	-0.2385	0.0644	0
150	SLU 47	0.1	4.9	34.94	-0.2769	0.065	0
150	SLU 48	0.1	2.63	37.21	-0.1617	0.0628	0
150	SLU 49	0.1	3.92	36.55	-0.2274	0.065	0
150	SLU 50	0.1	2.52	36.88	-0.1562	0.062	0
150	SLU 51	0.1	3.82	36.22	-0.222	0.0642	0
150	SLU 52	0.12	5.83	39.02	-0.3235	0.0741	0
150	SLU 53	0.12	3.56	41.3	-0.2082	0.0719	0
150	SLU 54	0.12	4.86	40.63	-0.274	0.0741	0
150	SLU 55	0.12	5.61	39.86	-0.3124	0.0747	0
150	SLU 56	0.12	3.34	42.13	-0.1971	0.0726	0
150	SLU 57	0.12	4.64	41.46	-0.2628	0.0748	0
150	SLU 58	0.12	3.24	41.79	-0.1916	0.0717	0
150	SLU 59	0.12	4.53	41.13	-0.2574	0.0739	0
150	SLU 60	0.12	3.98	42.23	-0.229	0.0746	0
150	SLU 61	0.12	5.28	41.57	-0.2948	0.0768	0
150	SLU 62	0.12	3.76	43.06	-0.2179	0.0752	0
150	SLU 63	0.12	5.06	42.4	-0.2837	0.0774	0
150	SLU 64	0.11	3.46	39.76	-0.2035	0.0692	0
150	SLU 65	0.12	5.63	38.66	-0.3131	0.0729	0
150	SLU 66	0.11	3.36	40.93	-0.1978	0.0707	0
150	SLU 67	0.12	4.65	40.27	-0.2636	0.073	0
150	SLU 68	0.12	5.41	39.49	-0.302	0.0736	0
150	SLU 69	0.12	3.14	41.76	-0.1867	0.0714	0
150	SLU 70	0.12	4.43	41.1	-0.2525	0.0736	0
150	SLU 71	0.11	3.03	41.43	-0.1813	0.0705	0
150	SLU 72	0.12	4.33	40.77	-0.247	0.0728	0
150	SLU 73	0.13	6.34	43.57	-0.3485	0.0827	0
150	SLU 74	0.13	4.07	45.85	-0.2332	0.0805	0
150	SLU 75	0.13	5.37	45.18	-0.299	0.0827	0
150	SLU 76	0.13	6.12	44.41	-0.3374	0.0833	0
150	SLU 77	0.13	3.85	46.68	-0.2221	0.0811	0
150	SLU 78	0.13	5.15	46.02	-0.2879	0.0834	0
150	SLU 79	0.13	3.75	46.34	-0.2167	0.0803	0
150	SLU 80	0.13	5.04	45.68	-0.2825	0.0825	0
150	SLU 81	0.14	4.49	46.78	-0.2541	0.0832	0
150	SLU 82	0.14	5.78	46.12	-0.3199	0.0854	0
150	SLU 83	0.14	4.27	47.61	-0.243	0.0838	0
150	SLU 84	0.14	5.57	46.95	-0.3088	0.086	0
150	SLE RA 1	0.08	2.55	29.59	-0.151	0.0514	0
150	SLE RA 2	0.09	3.99	28.85	-0.2241	0.0538	0
150	SLE RA 3	0.08	2.48	30.37	-0.1472	0.0524	0
150	SLE RA 4	0.09	3.34	29.93	-0.1911	0.0539	0
150	SLE RA 5	0.09	3.85	29.41	-0.2167	0.0543	0
150	SLE RA 6	0.09	2.33	30.92	-0.1398	0.0528	0
150	SLE RA 7	0.09	3.2	30.48	-0.1837	0.0543	0
150	SLE RA 8	0.08	2.26	30.7	-0.1362	0.0522	0
150	SLE RA 9	0.09	3.13	30.26	-0.1801	0.0537	0
150	SLE RA 10	0.1	4.47	32.13	-0.2477	0.0603	0
150	SLE RA 11	0.1	2.96	33.64	-0.1709	0.0589	0
150	SLE RA 12	0.1	3.82	33.2	-0.2147	0.0604	0
150	SLE RA 13	0.1	4.33	32.68	-0.2403	0.0608	0
150	SLE RA 14	0.1	2.81	34.2	-0.1635	0.0593	0
150	SLE RA 15	0.1	3.68	33.76	-0.2073	0.0608	0
150	SLE RA 16	0.1	2.74	33.97	-0.1598	0.0587	0
150	SLE RA 17	0.1	3.6	33.53	-0.2037	0.0602	0
150	SLE RA 18	0.1	3.24	34.27	-0.1848	0.0607	0
150	SLE RA 19	0.1	4.1	33.83	-0.2286	0.0621	0
150	SLE RA 20	0.1	3.09	34.82	-0.1774	0.0611	0
150	SLE RA 21	0.1	3.95	34.38	-0.2212	0.0626	0
150	SLE FR 1	0.08	2.55	29.59	-0.151	0.0514	0
150	SLE FR 2	0.08	2.84	29.44	-0.1656	0.0519	0
150	SLE FR 3	0.08	2.49	29.81	-0.1481	0.0516	0
150	SLE FR 4	0.09	3.05	30.84	-0.1758	0.0547	0
150	SLE FR 5	0.09	2.7	31.21	-0.1582	0.0543	0
150	SLE FR 6	0.09	2.89	31.93	-0.1679	0.056	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
150	SLE QP 1	0.08	2.55	29.59	-0.151	0.0514	0
150	SLE QP 2	0.09	2.76	30.99	-0.1612	0.0542	0
150	SLD 1	0.16	7.59	34.96	-0.3812	0.1131	-0.0002
150	SLD 2	0.16	7.59	34.96	-0.3812	0.1131	-0.0002
150	SLD 3	0.1	2.99	36.71	-0.1579	0.083	-0.0001
150	SLD 4	0.1	2.99	36.71	-0.1579	0.083	-0.0001
150	SLD 5	0.2	11.19	29.53	-0.5657	0.1174	-0.0001
150	SLD 6	0.2	11.19	29.53	-0.5657	0.1174	-0.0001
150	SLD 7	0	-4.16	35.36	0.1784	0.0172	0.0001
150	SLD 8	0	-4.16	35.36	0.1784	0.0172	0.0001
150	SLD 9	0.17	9.67	26.62	-0.5007	0.0911	0
150	SLD 10	0.17	9.67	26.62	-0.5007	0.0911	0
150	SLD 11	-0.02	-5.67	32.46	0.2434	-0.0091	0.0002
150	SLD 12	-0.02	-5.67	32.46	0.2434	-0.0091	0.0002
150	SLD 13	0.08	2.53	25.27	-0.1644	0.0253	0.0001
150	SLD 14	0.08	2.53	25.27	-0.1644	0.0253	0.0001
150	SLD 15	0.02	-2.08	27.02	0.0589	-0.0047	0.0002
150	SLD 16	0.02	-2.08	27.02	0.0589	-0.0047	0.0002
150	SLV 1	0.25	14.09	40.02	-0.679	0.1943	-0.0004
150	SLV 2	0.25	14.09	40.02	-0.679	0.1943	-0.0004
150	SLV 3	0.11	3.32	44.23	-0.1567	0.1206	-0.0003
150	SLV 4	0.11	3.32	44.23	-0.1567	0.1206	-0.0003
150	SLV 5	0.35	22.49	27.32	-1.1085	0.2079	-0.0003
150	SLV 6	0.35	22.49	27.32	-1.1085	0.2079	-0.0003
150	SLV 7	-0.12	-13.41	41.34	0.6322	-0.0376	0.0001
150	SLV 8	-0.12	-13.41	41.34	0.6322	-0.0376	0.0001
150	SLV 9	0.3	18.92	20.64	-0.9545	0.1459	-0.0001
150	SLV 10	0.3	18.92	20.64	-0.9545	0.1459	-0.0001
150	SLV 11	-0.18	-16.97	34.66	0.7862	-0.0996	0.0003
150	SLV 12	-0.18	-16.97	34.66	0.7862	-0.0996	0.0003
150	SLV 13	0.07	2.2	17.76	-0.1656	-0.0123	0.0003
150	SLV 14	0.07	2.2	17.76	-0.1656	-0.0123	0.0003
150	SLV 15	-0.07	-8.57	21.96	0.3567	-0.086	0.0004
150	SLV 16	-0.07	-8.57	21.96	0.3567	-0.086	0.0004
151	SLU 1	0	-4.07	46.05	0.1645	0.0106	-0.0007
151	SLU 2	0	-4.65	46.59	0.1872	0.011	-0.0007
151	SLU 3	0	-3.78	47.15	0.1535	0.0108	-0.0007
151	SLU 4	0	-4.13	47.48	0.1671	0.011	-0.0007
151	SLU 5	0	-4.28	46.97	0.173	0.011	-0.0007
151	SLU 6	0	-3.42	47.53	0.1394	0.0109	-0.0007
151	SLU 7	0	-3.76	47.86	0.153	0.0111	-0.0007
151	SLU 8	0	-3.34	46.81	0.1362	0.0108	-0.0007
151	SLU 9	0	-3.69	47.13	0.1498	0.011	-0.0007
151	SLU 10	0	-5.41	55.71	0.2185	0.0136	-0.0009
151	SLU 11	0	-4.55	56.28	0.1849	0.0135	-0.0008
151	SLU 12	0	-4.9	56.6	0.1985	0.0137	-0.0009
151	SLU 13	0	-5.05	56.09	0.2043	0.0137	-0.0009
151	SLU 14	0	-4.18	56.65	0.1707	0.0136	-0.0008
151	SLU 15	0	-4.53	56.98	0.1843	0.0138	-0.0009
151	SLU 16	0	-4.11	55.93	0.1675	0.0135	-0.0008
151	SLU 17	0	-4.45	56.25	0.1811	0.0137	-0.0008
151	SLU 18	0	-5.16	59.08	0.2092	0.0144	-0.0009
151	SLU 19	0	-5.51	59.4	0.2229	0.0146	-0.0009
151	SLU 20	0	-4.8	59.46	0.1951	0.0145	-0.0009
151	SLU 21	0	-5.15	59.78	0.2087	0.0147	-0.0009
151	SLU 22	0	-4.19	52.74	0.1706	0.012	-0.0008
151	SLU 23	0	-4.77	53.28	0.1933	0.0123	-0.0008
151	SLU 24	0	-3.91	53.84	0.1597	0.0122	-0.0008
151	SLU 25	0	-4.25	54.17	0.1733	0.0124	-0.0008
151	SLU 26	0	-4.41	53.66	0.1791	0.0124	-0.0008
151	SLU 27	0	-3.54	54.22	0.1455	0.0123	-0.0008
151	SLU 28	0	-3.89	54.55	0.1591	0.0124	-0.0008
151	SLU 29	0	-3.46	53.49	0.1423	0.0121	-0.0008
151	SLU 30	0	-3.81	53.82	0.1559	0.0123	-0.0008
151	SLU 31	0	-5.54	62.4	0.2246	0.015	-0.0009
151	SLU 32	0	-4.67	62.96	0.191	0.0148	-0.0009
151	SLU 33	0	-5.02	63.29	0.2046	0.015	-0.0009
151	SLU 34	0	-5.17	62.78	0.2104	0.015	-0.0009
151	SLU 35	0	-4.31	63.34	0.1768	0.0149	-0.0009
151	SLU 36	0	-4.66	63.67	0.1904	0.0151	-0.0009
151	SLU 37	0	-4.23	62.61	0.1736	0.0148	-0.0009
151	SLU 38	0	-4.58	62.94	0.1872	0.015	-0.0009
151	SLU 39	0	-5.29	65.77	0.2154	0.0158	-0.001
151	SLU 40	0	-5.64	66.09	0.229	0.016	-0.001
151	SLU 41	0	-4.92	66.14	0.2012	0.0159	-0.001
151	SLU 42	0	-5.27	66.47	0.2148	0.0161	-0.001
151	SLU 43	0	-5.25	57.57	0.2118	0.0134	-0.0009
151	SLU 44	0	-5.82	58.11	0.2344	0.0137	-0.0009
151	SLU 45	0	-4.96	58.68	0.2008	0.0136	-0.0009
151	SLU 46	0	-5.31	59	0.2144	0.0138	-0.0009
151	SLU 47	0	-5.46	58.49	0.2203	0.0138	-0.0009
151	SLU 48	0	-4.6	59.06	0.1866	0.0137	-0.0009
151	SLU 49	0	-4.94	59.38	0.2002	0.0138	-0.0009
151	SLU 50	0	-4.52	58.33	0.1834	0.0135	-0.0009
151	SLU 51	0	-4.86	58.65	0.197	0.0137	-0.0009
151	SLU 52	0	-6.59	67.23	0.2658	0.0164	-0.001
151	SLU 53	0	-5.73	67.8	0.2321	0.0162	-0.001
151	SLU 54	0	-6.07	68.12	0.2457	0.0164	-0.001
151	SLU 55	0	-6.23	67.61	0.2516	0.0164	-0.001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
151	SLU 56	0	-5.36	68.18	0.2179	0.0163	-0.001
151	SLU 57	0	-5.71	68.5	0.2316	0.0165	-0.001
151	SLU 58	0	-5.28	67.45	0.2147	0.0162	-0.001
151	SLU 59	0	-5.63	67.77	0.2284	0.0164	-0.001
151	SLU 60	0	-6.34	70.6	0.2565	0.0172	-0.0011
151	SLU 61	0	-6.69	70.92	0.2701	0.0174	-0.0011
151	SLU 62	0	-5.98	70.98	0.2423	0.0173	-0.0011
151	SLU 63	0	-6.32	71.3	0.2559	0.0175	-0.0011
151	SLU 64	0	-5.37	64.26	0.2179	0.0147	-0.001
151	SLU 65	0	-5.95	64.8	0.2406	0.015	-0.001
151	SLU 66	0	-5.08	65.36	0.2069	0.0149	-0.001
151	SLU 67	0	-5.43	65.69	0.2205	0.0151	-0.001
151	SLU 68	0	-5.58	65.18	0.2264	0.0151	-0.001
151	SLU 69	0	-4.72	65.74	0.1927	0.015	-0.001
151	SLU 70	0	-5.07	66.07	0.2064	0.0152	-0.001
151	SLU 71	0	-4.64	65.02	0.1895	0.0149	-0.001
151	SLU 72	0	-4.99	65.34	0.2031	0.0151	-0.001
151	SLU 73	0	-6.72	73.92	0.2719	0.0177	-0.0011
151	SLU 74	0	-5.85	74.49	0.2382	0.0176	-0.0011
151	SLU 75	0	-6.2	74.81	0.2518	0.0178	-0.0011
151	SLU 76	0	-6.35	74.3	0.2577	0.0178	-0.0011
151	SLU 77	0	-5.49	74.86	0.2241	0.0177	-0.0011
151	SLU 78	0	-5.83	75.19	0.2377	0.0178	-0.0011
151	SLU 79	0	-5.41	74.14	0.2209	0.0175	-0.0011
151	SLU 80	0	-5.76	74.46	0.2345	0.0177	-0.0011
151	SLU 81	0	-6.47	77.29	0.2626	0.0185	-0.0012
151	SLU 82	0	-6.81	77.61	0.2762	0.0187	-0.0012
151	SLU 83	0	-6.1	77.67	0.2484	0.0186	-0.0012
151	SLU 84	0	-6.45	77.99	0.2621	0.0188	-0.0012
151	SLE RA 1	0	-4.1	47.96	0.1663	0.011	-0.0007
151	SLE RA 2	0	-4.49	48.32	0.1814	0.0112	-0.0007
151	SLE RA 3	0	-3.91	48.7	0.1589	0.0112	-0.0007
151	SLE RA 4	0	-4.14	48.91	0.168	0.0113	-0.0007
151	SLE RA 5	0	-4.25	48.57	0.1719	0.0113	-0.0007
151	SLE RA 6	0	-3.67	48.95	0.1495	0.0112	-0.0007
151	SLE RA 7	0	-3.9	49.17	0.1586	0.0113	-0.0007
151	SLE RA 8	0	-3.62	48.46	0.1474	0.0111	-0.0007
151	SLE RA 9	0	-3.85	48.68	0.1564	0.0113	-0.0007
151	SLE RA 10	0	-5	54.4	0.2022	0.013	-0.0008
151	SLE RA 11	0	-4.42	54.78	0.1798	0.0129	-0.0008
151	SLE RA 12	0	-4.66	54.99	0.1889	0.0131	-0.0008
151	SLE RA 13	0	-4.76	54.65	0.1928	0.0131	-0.0008
151	SLE RA 14	0	-4.18	55.03	0.1704	0.013	-0.0008
151	SLE RA 15	0	-4.41	55.25	0.1794	0.0131	-0.0008
151	SLE RA 16	0	-4.13	54.55	0.1682	0.0129	-0.0008
151	SLE RA 17	0	-4.36	54.76	0.1773	0.013	-0.0008
151	SLE RA 18	0	-4.83	56.65	0.1961	0.0136	-0.0009
151	SLE RA 19	0	-5.07	56.86	0.2051	0.0137	-0.0009
151	SLE RA 20	0	-4.59	56.9	0.1866	0.0136	-0.0009
151	SLE RA 21	0	-4.82	57.11	0.1957	0.0137	-0.0009
151	SLE FR 1	0	-4.1	47.96	0.1663	0.011	-0.0007
151	SLE FR 2	0	-4.18	48.03	0.1693	0.0111	-0.0007
151	SLE FR 3	0	-4.01	48.06	0.1625	0.011	-0.0007
151	SLE FR 4	0	-4.4	50.64	0.1782	0.0118	-0.0008
151	SLE FR 5	0	-4.23	50.67	0.1714	0.0118	-0.0008
151	SLE FR 6	0	-4.47	52.3	0.1812	0.0123	-0.0008
151	SLE QP 1	0	-4.1	47.96	0.1663	0.011	-0.0007
151	SLE QP 2	0	-4.32	50.57	0.1752	0.0118	-0.0008
151	SLD 1	0.01	-4.26	41.17	0.1716	0.0709	-0.003
151	SLD 2	0.01	-4.26	41.17	0.1716	0.0709	-0.003
151	SLD 3	0.03	-9.46	46.63	0.3763	0.0799	-0.0027
151	SLD 4	0.03	-9.46	46.63	0.3763	0.0799	-0.0027
151	SLD 5	-0.02	3.58	39.47	-0.1365	0.0159	-0.0018
151	SLD 6	-0.02	3.58	39.47	-0.1365	0.0159	-0.0018
151	SLD 7	0.03	-13.75	57.66	0.5461	0.0459	-0.001
151	SLD 8	0.03	-13.75	57.66	0.5461	0.0459	-0.001
151	SLD 9	-0.03	5.1	43.47	-0.1957	-0.0223	-0.0006
151	SLD 10	-0.03	5.1	43.47	-0.1957	-0.0223	-0.0006
151	SLD 11	0.01	-12.22	61.66	0.4869	0.0077	0.0003
151	SLD 12	0.01	-12.22	61.66	0.4869	0.0077	0.0003
151	SLD 13	-0.03	0.81	54.5	-0.0259	-0.0563	0.0012
151	SLD 14	-0.03	0.81	54.5	-0.0259	-0.0563	0.0012
151	SLD 15	-0.02	-4.39	59.96	0.1788	-0.0474	0.0014
151	SLD 16	-0.02	-4.39	59.96	0.1788	-0.0474	0.0014
151	SLV 1	0.03	-4.19	28.91	0.1674	0.1545	-0.0062
151	SLV 2	0.03	-4.19	28.91	0.1674	0.1545	-0.0062
151	SLV 3	0.06	-16.16	41.6	0.639	0.176	-0.0056
151	SLV 4	0.06	-16.16	41.6	0.639	0.176	-0.0056
151	SLV 5	-0.04	13.87	24.81	-0.5423	0.022	-0.0034
151	SLV 6	-0.04	13.87	24.81	-0.5423	0.022	-0.0034
151	SLV 7	0.07	-26.03	67.14	1.0296	0.0937	-0.0013
151	SLV 8	0.07	-26.03	67.14	1.0296	0.0937	-0.0013
151	SLV 9	-0.07	17.38	34	-0.6792	-0.0701	-0.0003
151	SLV 10	-0.07	17.38	34	-0.6792	-0.0701	-0.0003
151	SLV 11	0.04	-22.51	76.32	0.8927	0.0016	0.0018
151	SLV 12	0.04	-22.51	76.32	0.8927	0.0016	0.0018
151	SLV 13	-0.07	7.52	59.53	-0.2886	-0.1524	0.004
151	SLV 14	-0.07	7.52	59.53	-0.2886	-0.1524	0.004
151	SLV 15	-0.04	-4.45	72.23	0.183	-0.1309	0.0046





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
151	SLV 16	-0.04	-4.45	72.23	0.183	-0.1309	0.0046
152	SLU 1	0	-2.19	40.99	0.0704	-0.0018	0
152	SLU 2	0	-0.27	39.57	-0.0296	-0.0036	0
152	SLU 3	0	-2.48	42.5	0.0837	-0.002	0
152	SLU 4	0	-1.33	41.65	0.0237	-0.0031	0
152	SLU 5	0	-0.6	40.6	-0.0141	-0.0037	0
152	SLU 6	0	-2.81	43.53	0.0992	-0.0021	0
152	SLU 7	0	-1.66	42.68	0.0392	-0.0032	0
152	SLU 8	0	-2.85	43.04	0.1014	-0.002	0
152	SLU 9	0	-1.7	42.19	0.0414	-0.0031	0
152	SLU 10	0	-0.38	46.95	-0.0269	-0.0041	0
152	SLU 11	0	-2.58	49.89	0.0864	-0.0025	0
152	SLU 12	0	-1.43	49.04	0.0264	-0.0036	0
152	SLU 13	0	-0.7	47.98	-0.0114	-0.0042	0
152	SLU 14	0	-2.91	50.91	0.1019	-0.0026	0
152	SLU 15	0	-1.76	50.06	0.0419	-0.0036	0
152	SLU 16	0	-2.95	50.43	0.1041	-0.0025	0
152	SLU 17	0	-1.8	49.58	0.0441	-0.0036	0
152	SLU 18	0	-2.33	51.53	0.0743	-0.0025	0
152	SLU 19	0	-1.18	50.68	0.0143	-0.0036	0
152	SLU 20	0	-2.66	52.56	0.0898	-0.0026	0
152	SLU 21	0	-1.51	51.71	0.0297	-0.0037	0
152	SLU 22	0	-2.43	47.91	0.08	-0.0022	0
152	SLU 23	0	-0.51	46.49	-0.02	-0.004	0
152	SLU 24	0	-2.72	49.43	0.0933	-0.0024	0
152	SLU 25	0	-1.57	48.58	0.0333	-0.0035	0
152	SLU 26	0	-0.84	47.52	-0.0045	-0.0041	0
152	SLU 27	0	-3.05	50.46	0.1088	-0.0025	0
152	SLU 28	0	-1.9	49.6	0.0488	-0.0035	0
152	SLU 29	0	-3.09	49.97	0.111	-0.0024	0
152	SLU 30	0	-1.94	49.12	0.051	-0.0035	0
152	SLU 31	0	-0.61	53.88	-0.0173	-0.0045	0
152	SLU 32	0	-2.82	56.81	0.096	-0.0029	0
152	SLU 33	0	-1.67	55.96	0.036	-0.0039	0
152	SLU 34	0	-0.94	54.91	-0.0018	-0.0046	0
152	SLU 35	0	-3.15	57.84	0.1115	-0.0029	0
152	SLU 36	0	-2	56.99	0.0515	-0.004	0
152	SLU 37	0	-3.19	57.35	0.1137	-0.0029	0
152	SLU 38	0	-2.04	56.5	0.0537	-0.004	0
152	SLU 39	0	-2.57	58.46	0.0839	-0.0029	0
152	SLU 40	0	-1.42	57.61	0.0238	-0.004	0
152	SLU 41	0	-2.9	59.49	0.0994	-0.003	0
152	SLU 42	0	-1.75	58.64	0.0393	-0.0041	0
152	SLU 43	0	-2.76	50.91	0.0883	-0.0023	0
152	SLU 44	0	-0.85	49.49	-0.0118	-0.0041	0
152	SLU 45	0	-3.05	52.42	0.1016	-0.0024	0
152	SLU 46	0	-1.9	51.57	0.0416	-0.0035	0
152	SLU 47	0	-1.18	50.52	0.0037	-0.0041	0
152	SLU 48	0	-3.38	53.45	0.1171	-0.0025	0
152	SLU 49	0	-2.23	52.6	0.057	-0.0036	0
152	SLU 50	0	-3.42	52.97	0.1192	-0.0024	0
152	SLU 51	0	-2.27	52.12	0.0592	-0.0035	0
152	SLU 52	0	-0.95	56.87	-0.0091	-0.0046	0
152	SLU 53	0	-3.15	59.81	0.1043	-0.0029	0
152	SLU 54	0	-2.01	58.96	0.0443	-0.004	0
152	SLU 55	0	-1.28	57.9	0.0064	-0.0046	0
152	SLU 56	0	-3.48	60.84	0.1198	-0.003	0
152	SLU 57	0	-2.33	59.99	0.0597	-0.0041	0
152	SLU 58	0	-3.52	60.35	0.1219	-0.0029	0
152	SLU 59	0	-2.37	59.5	0.0619	-0.004	0
152	SLU 60	0	-2.91	61.46	0.0921	-0.003	0
152	SLU 61	0	-1.76	60.61	0.0321	-0.004	0
152	SLU 62	0	-3.24	62.49	0.1076	-0.003	0
152	SLU 63	0	-2.09	61.63	0.0476	-0.0041	0
152	SLU 64	0	-3	57.83	0.0979	-0.0027	0
152	SLU 65	0	-1.09	56.42	-0.0022	-0.0045	0
152	SLU 66	0	-3.29	59.35	0.1112	-0.0028	0
152	SLU 67	0	-2.14	58.5	0.0512	-0.0039	0
152	SLU 68	0	-1.42	57.44	0.0133	-0.0045	0
152	SLU 69	0	-3.62	60.38	0.1267	-0.0029	0
152	SLU 70	0	-2.47	59.53	0.0666	-0.004	0
152	SLU 71	0	-3.66	59.89	0.1288	-0.0028	0
152	SLU 72	0	-2.51	59.04	0.0688	-0.0039	0
152	SLU 73	0	-1.19	63.8	0.0005	-0.0049	0
152	SLU 74	0	-3.39	66.73	0.1139	-0.0033	0
152	SLU 75	0	-2.24	65.88	0.0538	-0.0044	0
152	SLU 76	0	-1.52	64.83	0.016	-0.005	0
152	SLU 77	0	-3.72	67.76	0.1294	-0.0034	0
152	SLU 78	0	-2.57	66.91	0.0693	-0.0044	0
152	SLU 79	0	-3.76	67.27	0.1315	-0.0033	0
152	SLU 80	0	-2.61	66.42	0.0715	-0.0044	0
152	SLU 81	0	-3.15	68.38	0.1017	-0.0033	0
152	SLU 82	0	-2	67.53	0.0417	-0.0044	0
152	SLU 83	0	-3.48	69.41	0.1172	-0.0034	0
152	SLU 84	0	-2.33	68.56	0.0572	-0.0045	0
152	SLE RA 1	0	-2.26	42.97	0.0732	-0.002	0
152	SLE RA 2	0	-0.98	42.02	0.0065	-0.0032	0
152	SLE RA 3	0	-2.45	43.98	0.082	-0.0021	0
152	SLE RA 4	0	-1.68	43.41	0.042	-0.0028	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
152	SLE RA 5	0	-1.2	42.71	0.0168	-0.0032	0
152	SLE RA 6	0	-2.67	44.66	0.0924	-0.0021	0
152	SLE RA 7	0	-1.9	44.09	0.0524	-0.0028	0
152	SLE RA 8	0	-2.7	44.34	0.0938	-0.0021	0
152	SLE RA 9	0	-1.93	43.77	0.0538	-0.0028	0
152	SLE RA 10	0	-1.05	46.94	0.0083	-0.0035	0
152	SLE RA 11	0	-2.52	48.9	0.0838	-0.0024	0
152	SLE RA 12	0	-1.75	48.33	0.0438	-0.0031	0
152	SLE RA 13	0	-1.27	47.63	0.0186	-0.0035	0
152	SLE RA 14	0	-2.74	49.58	0.0942	-0.0024	0
152	SLE RA 15	0	-1.97	49.02	0.0541	-0.0031	0
152	SLE RA 16	0	-2.76	49.26	0.0956	-0.0024	0
152	SLE RA 17	0	-2	48.69	0.0556	-0.0031	0
152	SLE RA 18	0	-2.35	50	0.0757	-0.0024	0
152	SLE RA 19	0	-1.59	49.43	0.0357	-0.0031	0
152	SLE RA 20	0	-2.57	50.68	0.0861	-0.0025	0
152	SLE RA 21	0	-1.81	50.12	0.046	-0.0032	0
152	SLE FR 1	0	-2.26	42.97	0.0732	-0.002	0
152	SLE FR 2	0	-2	42.78	0.0598	-0.0022	0
152	SLE FR 3	0	-2.34	43.24	0.0773	-0.002	0
152	SLE FR 4	0	-2.03	44.89	0.0606	-0.0023	0
152	SLE FR 5	0	-2.37	45.35	0.0781	-0.0021	0
152	SLE FR 6	0	-2.3	46.48	0.0745	-0.0022	0
152	SLE QP 1	0	-2.26	42.97	0.0732	-0.002	0
152	SLE QP 2	0	-2.29	45.07	0.0739	-0.0021	0
152	SLD 1	0.02	-2.14	45.48	0.0641	0.0371	0.0001
152	SLD 2	0.02	-2.14	45.48	0.0641	0.0371	0.0001
152	SLD 3	0.05	-6.13	47.44	0.2618	0.0519	0.0001
152	SLD 4	0.05	-6.13	47.44	0.2618	0.0519	0.0001
152	SLD 5	-0.04	3.81	42.22	-0.2288	-0.0128	0.0001
152	SLD 6	-0.04	3.81	42.22	-0.2288	-0.0128	0.0001
152	SLD 7	0.06	-9.49	48.76	0.4301	0.0366	0
152	SLD 8	0.06	-9.49	48.76	0.4301	0.0366	0
152	SLD 9	-0.06	4.92	41.39	-0.2822	-0.0408	0
152	SLD 10	-0.06	4.92	41.39	-0.2822	-0.0408	0
152	SLD 11	0.04	-8.38	47.93	0.3767	0.0087	-0.0001
152	SLD 12	0.04	-8.38	47.93	0.3767	0.0087	-0.0001
152	SLD 13	-0.05	1.56	42.71	-0.1139	-0.0561	-0.0001
152	SLD 14	-0.05	1.56	42.71	-0.1139	-0.0561	-0.0001
152	SLD 15	-0.02	-2.43	44.67	0.0837	-0.0413	-0.0001
152	SLD 16	-0.02	-2.43	44.67	0.0837	-0.0413	-0.0001
152	SLV 1	0.05	-2.15	46.21	0.0611	0.0908	0.0002
152	SLV 2	0.05	-2.15	46.21	0.0611	0.0908	0.0002
152	SLV 3	0.12	-11.36	50.86	0.5179	0.1279	0.0002
152	SLV 4	0.12	-11.36	50.86	0.5179	0.1279	0.0002
152	SLV 5	-0.1	11.73	38.37	-0.6227	-0.0305	0.0001
152	SLV 6	-0.1	11.73	38.37	-0.6227	-0.0305	0.0001
152	SLV 7	0.15	-18.99	53.86	0.8999	0.0931	0
152	SLV 8	0.15	-18.99	53.86	0.8999	0.0931	0
152	SLV 9	-0.15	14.41	36.29	-0.752	-0.0973	0
152	SLV 10	-0.15	14.41	36.29	-0.752	-0.0973	0
152	SLV 11	0.1	-16.3	51.78	0.7706	0.0263	-0.0001
152	SLV 12	0.1	-16.3	51.78	0.7706	0.0263	-0.0001
152	SLV 13	-0.12	6.79	39.29	-0.37	-0.1321	-0.0002
152	SLV 14	-0.12	6.79	39.29	-0.37	-0.1321	-0.0002
152	SLV 15	-0.05	-2.43	43.94	0.0868	-0.095	-0.0002
152	SLV 16	-0.05	-2.43	43.94	0.0868	-0.095	-0.0002
153	SLU 1	-0.02	2.23	56.42	-0.097	-0.0141	-0.0001
153	SLU 2	-0.02	2.56	58.21	-0.1158	0.0044	-0.0001
153	SLU 3	-0.02	2.32	58.08	-0.1012	-0.0148	-0.0001
153	SLU 4	-0.02	2.52	59.15	-0.1126	-0.0037	-0.0001
153	SLU 5	-0.02	2.61	59.14	-0.1184	0.004	-0.0001
153	SLU 6	-0.02	2.38	59.02	-0.1038	-0.0153	-0.0002
153	SLU 7	-0.02	2.58	60.09	-0.1151	-0.0042	-0.0001
153	SLU 8	-0.02	2.34	58.3	-0.1021	-0.015	-0.0002
153	SLU 9	-0.02	2.53	59.37	-0.1134	-0.0039	-0.0001
153	SLU 10	-0.03	3.13	65.63	-0.138	0.0009	-0.0002
153	SLU 11	-0.03	2.89	65.51	-0.1234	-0.0183	-0.0002
153	SLU 12	-0.03	3.09	66.58	-0.1347	-0.0072	-0.0002
153	SLU 13	-0.03	3.18	66.57	-0.1406	0.0005	-0.0002
153	SLU 14	-0.03	2.95	66.45	-0.126	-0.0188	-0.0002
153	SLU 15	-0.03	3.15	67.52	-0.1373	-0.0076	-0.0002
153	SLU 16	-0.03	2.91	65.73	-0.1243	-0.0185	-0.0002
153	SLU 17	-0.03	3.1	66.8	-0.1356	-0.0074	-0.0002
153	SLU 18	-0.03	3.04	67.03	-0.1287	-0.0191	-0.0002
153	SLU 19	-0.03	3.24	68.1	-0.14	-0.008	-0.0002
153	SLU 20	-0.03	3.1	67.97	-0.1312	-0.0195	-0.0002
153	SLU 21	-0.03	3.3	69.04	-0.1425	-0.0084	-0.0002
153	SLU 22	-0.02	2.71	63.68	-0.1164	-0.0173	-0.0002
153	SLU 23	-0.03	3.05	65.46	-0.1352	0.0012	-0.0002
153	SLU 24	-0.03	2.81	65.34	-0.1207	-0.018	-0.0002
153	SLU 25	-0.03	3.01	66.41	-0.132	-0.0069	-0.0002
153	SLU 26	-0.03	3.1	66.4	-0.1378	0.0008	-0.0002
153	SLU 27	-0.03	2.86	66.27	-0.1232	-0.0184	-0.0002
153	SLU 28	-0.03	3.06	67.34	-0.1345	-0.0073	-0.0002
153	SLU 29	-0.03	2.82	65.55	-0.1215	-0.0181	-0.0002
153	SLU 30	-0.03	3.02	66.62	-0.1328	-0.007	-0.0002
153	SLU 31	-0.03	3.62	72.89	-0.1574	-0.0022	-0.0002
153	SLU 32	-0.03	3.38	72.76	-0.1429	-0.0215	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
153	SLU 33	-0.03	3.58	73.83	-0.1542	-0.0103	-0.0002
153	SLU 34	-0.03	3.67	73.83	-0.16	-0.0027	-0.0002
153	SLU 35	-0.03	3.43	73.7	-0.1454	-0.0219	-0.0002
153	SLU 36	-0.03	3.63	74.77	-0.1567	-0.0108	-0.0002
153	SLU 37	-0.03	3.39	72.98	-0.1437	-0.0216	-0.0002
153	SLU 38	-0.03	3.59	74.05	-0.155	-0.0105	-0.0002
153	SLU 39	-0.03	3.53	74.29	-0.1481	-0.0222	-0.0002
153	SLU 40	-0.03	3.73	75.36	-0.1594	-0.0111	-0.0002
153	SLU 41	-0.03	3.58	75.23	-0.1507	-0.0227	-0.0002
153	SLU 42	-0.03	3.78	76.3	-0.162	-0.0116	-0.0002
153	SLU 43	-0.02	2.73	70.86	-0.1194	-0.0173	-0.0002
153	SLU 44	-0.03	3.06	72.65	-0.1383	0.0012	-0.0002
153	SLU 45	-0.03	2.83	72.52	-0.1237	-0.018	-0.0002
153	SLU 46	-0.03	3.03	73.59	-0.135	-0.0069	-0.0002
153	SLU 47	-0.03	3.12	73.58	-0.1408	0.0008	-0.0002
153	SLU 48	-0.03	2.88	73.46	-0.1262	-0.0184	-0.0002
153	SLU 49	-0.03	3.08	74.53	-0.1375	-0.0073	-0.0002
153	SLU 50	-0.03	2.84	72.74	-0.1245	-0.0182	-0.0002
153	SLU 51	-0.03	3.04	73.81	-0.1358	-0.0071	-0.0002
153	SLU 52	-0.03	3.63	80.07	-0.1605	-0.0022	-0.0002
153	SLU 53	-0.03	3.4	79.95	-0.1459	-0.0215	-0.0002
153	SLU 54	-0.03	3.6	81.02	-0.1572	-0.0104	-0.0002
153	SLU 55	-0.03	3.69	81.01	-0.163	-0.0027	-0.0002
153	SLU 56	-0.03	3.45	80.89	-0.1484	-0.0219	-0.0002
153	SLU 57	-0.03	3.65	81.96	-0.1597	-0.0108	-0.0002
153	SLU 58	-0.03	3.41	80.17	-0.1467	-0.0216	-0.0002
153	SLU 59	-0.03	3.61	81.24	-0.158	-0.0105	-0.0002
153	SLU 60	-0.03	3.55	81.47	-0.1511	-0.0223	-0.0002
153	SLU 61	-0.03	3.74	82.54	-0.1624	-0.0111	-0.0002
153	SLU 62	-0.03	3.6	82.41	-0.1537	-0.0227	-0.0002
153	SLU 63	-0.03	3.8	83.48	-0.165	-0.0116	-0.0002
153	SLU 64	-0.03	3.22	78.12	-0.1388	-0.0204	-0.0002
153	SLU 65	-0.03	3.55	79.9	-0.1577	-0.0019	-0.0002
153	SLU 66	-0.03	3.31	79.77	-0.1431	-0.0212	-0.0002
153	SLU 67	-0.03	3.51	80.84	-0.1544	-0.01	-0.0002
153	SLU 68	-0.03	3.6	80.84	-0.1602	-0.0023	-0.0002
153	SLU 69	-0.03	3.37	80.71	-0.1457	-0.0216	-0.0002
153	SLU 70	-0.03	3.56	81.78	-0.157	-0.0105	-0.0002
153	SLU 71	-0.03	3.32	79.99	-0.1439	-0.0213	-0.0002
153	SLU 72	-0.03	3.52	81.06	-0.1553	-0.0102	-0.0002
153	SLU 73	-0.03	4.12	87.33	-0.1799	-0.0054	-0.0002
153	SLU 74	-0.03	3.88	87.2	-0.1653	-0.0246	-0.0002
153	SLU 75	-0.04	4.08	88.27	-0.1766	-0.0135	-0.0002
153	SLU 76	-0.04	4.17	88.27	-0.1824	-0.0058	-0.0002
153	SLU 77	-0.03	3.94	88.14	-0.1678	-0.0251	-0.0002
153	SLU 78	-0.04	4.13	89.21	-0.1792	-0.0139	-0.0002
153	SLU 79	-0.03	3.89	87.42	-0.1661	-0.0248	-0.0002
153	SLU 80	-0.04	4.09	88.49	-0.1774	-0.0137	-0.0002
153	SLU 81	-0.03	4.03	88.73	-0.1705	-0.0254	-0.0002
153	SLU 82	-0.04	4.23	89.8	-0.1818	-0.0143	-0.0002
153	SLU 83	-0.04	4.08	89.67	-0.1731	-0.0258	-0.0002
153	SLU 84	-0.04	4.28	90.74	-0.1844	-0.0147	-0.0002
153	SLE RA 1	-0.02	2.37	58.5	-0.1025	-0.015	-0.0002
153	SLE RA 2	-0.02	2.59	59.68	-0.1151	-0.0027	-0.0001
153	SLE RA 3	-0.02	2.43	59.6	-0.1054	-0.0155	-0.0002
153	SLE RA 4	-0.02	2.56	60.31	-0.1129	-0.0081	-0.0001
153	SLE RA 5	-0.02	2.62	60.31	-0.1168	-0.003	-0.0001
153	SLE RA 6	-0.02	2.47	60.23	-0.1071	-0.0158	-0.0002
153	SLE RA 7	-0.02	2.6	60.94	-0.1146	-0.0084	-0.0002
153	SLE RA 8	-0.02	2.44	59.75	-0.1059	-0.0156	-0.0002
153	SLE RA 9	-0.02	2.57	60.46	-0.1135	-0.0082	-0.0002
153	SLE RA 10	-0.03	2.97	64.64	-0.1299	-0.005	-0.0002
153	SLE RA 11	-0.02	2.81	64.55	-0.1202	-0.0178	-0.0002
153	SLE RA 12	-0.03	2.94	65.27	-0.1277	-0.0104	-0.0002
153	SLE RA 13	-0.03	3	65.26	-0.1316	-0.0053	-0.0002
153	SLE RA 14	-0.03	2.85	65.18	-0.1219	-0.0181	-0.0002
153	SLE RA 15	-0.03	2.98	65.89	-0.1294	-0.0107	-0.0002
153	SLE RA 16	-0.02	2.82	64.7	-0.1207	-0.0179	-0.0002
153	SLE RA 17	-0.03	2.95	65.41	-0.1283	-0.0105	-0.0002
153	SLE RA 18	-0.03	2.91	65.57	-0.1237	-0.0183	-0.0002
153	SLE RA 19	-0.03	3.04	66.28	-0.1312	-0.0109	-0.0002
153	SLE RA 20	-0.03	2.95	66.2	-0.1254	-0.0186	-0.0002
153	SLE RA 21	-0.03	3.08	66.91	-0.1329	-0.0112	-0.0002
153	SLE FR 1	-0.02	2.37	58.5	-0.1025	-0.015	-0.0002
153	SLE FR 2	-0.02	2.41	58.73	-0.105	-0.0126	-0.0001
153	SLE FR 3	-0.02	2.38	58.75	-0.1032	-0.0151	-0.0002
153	SLE FR 4	-0.02	2.57	60.86	-0.1114	-0.0136	-0.0002
153	SLE FR 5	-0.02	2.54	60.87	-0.1096	-0.0161	-0.0002
153	SLE FR 6	-0.02	2.64	62.03	-0.1131	-0.0167	-0.0002
153	SLE QP 1	-0.02	2.37	58.5	-0.1025	-0.015	-0.0002
153	SLE QP 2	-0.02	2.53	60.62	-0.1089	-0.016	-0.0002
153	SLD 1	-0.13	2.28	44.83	-0.1117	0.0023	0.0001
153	SLD 2	-0.13	2.28	44.83	-0.1117	0.0023	0.0001
153	SLD 3	-0.03	-2.82	42.97	0.1069	0.0739	0
153	SLD 4	-0.03	-2.82	42.97	0.1069	0.0739	0
153	SLD 5	-0.21	10.2	58.7	-0.4412	-0.1192	0
153	SLD 6	-0.21	10.2	58.7	-0.4412	-0.1192	0
153	SLD 7	0.14	-6.82	52.51	0.2874	0.1196	-0.0002
153	SLD 8	0.14	-6.82	52.51	0.2874	0.1196	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
153	SLD 9	-0.18	11.88	68.73	-0.5051	-0.1516	-0.0002
153	SLD 10	-0.18	11.88	68.73	-0.5051	-0.1516	-0.0002
153	SLD 11	0.17	-5.14	62.54	0.2235	0.0871	-0.0003
153	SLD 12	0.17	-5.14	62.54	0.2235	0.0871	-0.0003
153	SLD 13	-0.02	7.88	78.26	-0.3246	-0.106	-0.0004
153	SLD 14	-0.02	7.88	78.26	-0.3246	-0.106	-0.0004
153	SLD 15	0.09	2.78	76.41	-0.1061	-0.0343	-0.0004
153	SLD 16	0.09	2.78	76.41	-0.1061	-0.0343	-0.0004
153	SLV 1	-0.29	1.97	24.49	-0.1152	0.0191	0.0004
153	SLV 2	-0.29	1.97	24.49	-0.1152	0.0191	0.0004
153	SLV 3	-0.03	-9.77	20.16	0.3874	0.2022	0.0003
153	SLV 4	-0.03	-9.77	20.16	0.3874	0.2022	0.0003
153	SLV 5	-0.51	20.17	56.35	-0.8729	-0.2832	0.0002
153	SLV 6	-0.51	20.17	56.35	-0.8729	-0.2832	0.0002
153	SLV 7	0.38	-18.97	41.91	0.8021	0.3271	-0.0002
153	SLV 8	0.38	-18.97	41.91	0.8021	0.3271	-0.0002
153	SLV 9	-0.43	24.03	79.33	-1.0199	-0.3592	-0.0001
153	SLV 10	-0.43	24.03	79.33	-1.0199	-0.3592	-0.0001
153	SLV 11	0.47	-15.11	64.88	0.6551	0.2511	-0.0005
153	SLV 12	0.47	-15.11	64.88	0.6551	0.2511	-0.0005
153	SLV 13	-0.02	14.83	101.07	-0.6051	-0.2342	-0.0006
153	SLV 14	-0.02	14.83	101.07	-0.6051	-0.2342	-0.0006
153	SLV 15	0.25	3.09	96.74	-0.1026	-0.0511	-0.0007
153	SLV 16	0.25	3.09	96.74	-0.1026	-0.0511	-0.0007
154	SLU 1	0.08	-5.6	44.04	0.2789	0.0279	-0.0004
154	SLU 2	0.07	-5.98	44.38	0.2974	0.0276	-0.0004
154	SLU 3	0.08	-5.46	45.04	0.2713	0.0289	-0.0004
154	SLU 4	0.08	-5.68	45.24	0.2825	0.0287	-0.0004
154	SLU 5	0.08	-5.71	44.64	0.2837	0.0282	-0.0004
154	SLU 6	0.08	-5.19	45.3	0.2576	0.0295	-0.0004
154	SLU 7	0.08	-5.42	45.5	0.2687	0.0293	-0.0004
154	SLU 8	0.08	-5.08	44.57	0.2514	0.0291	-0.0004
154	SLU 9	0.08	-5.3	44.77	0.2625	0.0289	-0.0004
154	SLU 10	0.09	-7.05	53.62	0.3522	0.0328	-0.0005
154	SLU 11	0.1	-6.53	54.28	0.3261	0.0341	-0.0005
154	SLU 12	0.1	-6.75	54.49	0.3372	0.0339	-0.0005
154	SLU 13	0.09	-6.78	53.89	0.3385	0.0334	-0.0005
154	SLU 14	0.1	-6.26	54.55	0.3124	0.0347	-0.0005
154	SLU 15	0.1	-6.49	54.75	0.3235	0.0345	-0.0005
154	SLU 16	0.1	-6.15	53.81	0.3062	0.0343	-0.0005
154	SLU 17	0.1	-6.37	54.02	0.3173	0.0341	-0.0005
154	SLU 18	0.1	-7.14	57.25	0.3572	0.0354	-0.0005
154	SLU 19	0.1	-7.36	57.45	0.3683	0.0352	-0.0005
154	SLU 20	0.1	-6.87	57.51	0.3434	0.0359	-0.0005
154	SLU 21	0.1	-7.09	57.72	0.3545	0.0358	-0.0005
154	SLU 22	0.09	-6.08	50.94	0.3049	0.0329	-0.0005
154	SLU 23	0.09	-6.45	51.28	0.3234	0.0326	-0.0005
154	SLU 24	0.09	-5.93	51.94	0.2973	0.0339	-0.0005
154	SLU 25	0.09	-6.16	52.15	0.3084	0.0337	-0.0005
154	SLU 26	0.09	-6.19	51.55	0.3097	0.0332	-0.0005
154	SLU 27	0.1	-5.67	52.21	0.2836	0.0345	-0.0005
154	SLU 28	0.09	-5.89	52.41	0.2947	0.0343	-0.0005
154	SLU 29	0.09	-5.55	51.47	0.2774	0.0341	-0.0005
154	SLU 30	0.09	-5.78	51.67	0.2885	0.0339	-0.0005
154	SLU 31	0.11	-7.53	60.53	0.3782	0.0379	-0.0006
154	SLU 32	0.11	-7.01	61.19	0.3521	0.0391	-0.0006
154	SLU 33	0.11	-7.23	61.39	0.3632	0.039	-0.0006
154	SLU 34	0.11	-7.26	60.79	0.3645	0.0384	-0.0006
154	SLU 35	0.11	-6.74	61.45	0.3383	0.0397	-0.0006
154	SLU 36	0.11	-6.97	61.66	0.3495	0.0396	-0.0006
154	SLU 37	0.11	-6.63	60.72	0.3322	0.0393	-0.0006
154	SLU 38	0.11	-6.85	60.92	0.3433	0.0391	-0.0006
154	SLU 39	0.12	-7.61	64.15	0.3832	0.0404	-0.0006
154	SLU 40	0.12	-7.84	64.36	0.3943	0.0402	-0.0006
154	SLU 41	0.12	-7.35	64.42	0.3694	0.041	-0.0006
154	SLU 42	0.12	-7.57	64.62	0.3805	0.0408	-0.0006
154	SLU 43	0.09	-7.12	54.88	0.3537	0.0345	-0.0005
154	SLU 44	0.09	-7.49	55.22	0.3722	0.0342	-0.0005
154	SLU 45	0.1	-6.97	55.88	0.3461	0.0355	-0.0005
154	SLU 46	0.1	-7.2	56.08	0.3572	0.0354	-0.0005
154	SLU 47	0.09	-7.23	55.48	0.3585	0.0348	-0.0005
154	SLU 48	0.1	-6.71	56.14	0.3324	0.0361	-0.0005
154	SLU 49	0.1	-6.93	56.35	0.3435	0.036	-0.0005
154	SLU 50	0.1	-6.59	55.41	0.3262	0.0357	-0.0005
154	SLU 51	0.1	-6.82	55.61	0.3373	0.0355	-0.0005
154	SLU 52	0.11	-8.57	64.47	0.427	0.0395	-0.0006
154	SLU 53	0.11	-8.05	65.13	0.4009	0.0408	-0.0006
154	SLU 54	0.11	-8.27	65.33	0.412	0.0406	-0.0006
154	SLU 55	0.11	-8.3	64.73	0.4132	0.0401	-0.0006
154	SLU 56	0.12	-7.78	65.39	0.3871	0.0413	-0.0006
154	SLU 57	0.11	-8.01	65.59	0.3982	0.0412	-0.0006
154	SLU 58	0.11	-7.67	64.66	0.381	0.0409	-0.0006
154	SLU 59	0.11	-7.89	64.86	0.3921	0.0408	-0.0006
154	SLU 60	0.12	-8.65	68.09	0.432	0.042	-0.0006
154	SLU 61	0.12	-8.88	68.3	0.4431	0.0418	-0.0006
154	SLU 62	0.12	-8.39	68.36	0.4182	0.0426	-0.0006
154	SLU 63	0.12	-8.61	68.56	0.4293	0.0424	-0.0006
154	SLU 64	0.11	-7.6	61.79	0.3797	0.0396	-0.0006
154	SLU 65	0.11	-7.97	62.13	0.3982	0.0393	-0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
154	SLU 66	0.11	-7.45	62.79	0.3721	0.0406	-0.0006
154	SLU 67	0.11	-7.68	62.99	0.3832	0.0404	-0.0006
154	SLU 68	0.11	-7.71	62.39	0.3844	0.0399	-0.0006
154	SLU 69	0.11	-7.19	63.05	0.3583	0.0411	-0.0006
154	SLU 70	0.11	-7.41	63.25	0.3694	0.041	-0.0006
154	SLU 71	0.11	-7.07	62.32	0.3522	0.0407	-0.0006
154	SLU 72	0.11	-7.29	62.52	0.3633	0.0406	-0.0006
154	SLU 73	0.13	-9.04	71.37	0.453	0.0445	-0.0007
154	SLU 74	0.13	-8.52	72.03	0.4269	0.0458	-0.0007
154	SLU 75	0.13	-8.75	72.24	0.438	0.0456	-0.0007
154	SLU 76	0.13	-8.78	71.64	0.4392	0.0451	-0.0007
154	SLU 77	0.13	-8.26	72.3	0.4131	0.0464	-0.0007
154	SLU 78	0.13	-8.48	72.5	0.4242	0.0462	-0.0007
154	SLU 79	0.13	-8.14	71.56	0.4069	0.046	-0.0007
154	SLU 80	0.13	-8.37	71.77	0.4181	0.0458	-0.0007
154	SLU 81	0.13	-9.13	75	0.4579	0.047	-0.0007
154	SLU 82	0.13	-9.35	75.2	0.4691	0.0468	-0.0007
154	SLU 83	0.14	-8.87	75.26	0.4442	0.0476	-0.0007
154	SLU 84	0.13	-9.09	75.47	0.4553	0.0474	-0.0007
154	SLE RA 1	0.08	-5.74	46.01	0.2864	0.0293	-0.0004
154	SLE RA 2	0.08	-5.99	46.24	0.2987	0.0291	-0.0004
154	SLE RA 3	0.08	-5.64	46.68	0.2813	0.03	-0.0004
154	SLE RA 4	0.08	-5.79	46.81	0.2887	0.0299	-0.0004
154	SLE RA 5	0.08	-5.81	46.41	0.2895	0.0295	-0.0004
154	SLE RA 6	0.08	-5.47	46.85	0.2721	0.0304	-0.0004
154	SLE RA 7	0.08	-5.62	46.99	0.2795	0.0303	-0.0004
154	SLE RA 8	0.08	-5.39	46.36	0.268	0.0301	-0.0004
154	SLE RA 9	0.08	-5.54	46.5	0.2754	0.03	-0.0004
154	SLE RA 10	0.09	-6.7	52.4	0.3352	0.0326	-0.0005
154	SLE RA 11	0.09	-6.36	52.84	0.3178	0.0335	-0.0005
154	SLE RA 12	0.09	-6.51	52.98	0.3252	0.0334	-0.0005
154	SLE RA 13	0.09	-6.53	52.58	0.326	0.033	-0.0005
154	SLE RA 14	0.09	-6.18	53.02	0.3086	0.0339	-0.0005
154	SLE RA 15	0.09	-6.33	53.15	0.3161	0.0338	-0.0005
154	SLE RA 16	0.09	-6.1	52.53	0.3045	0.0336	-0.0005
154	SLE RA 17	0.09	-6.25	52.66	0.3119	0.0335	-0.0005
154	SLE RA 18	0.1	-6.76	54.82	0.3385	0.0343	-0.0005
154	SLE RA 19	0.1	-6.91	54.95	0.3459	0.0342	-0.0005
154	SLE RA 20	0.1	-6.59	54.99	0.3294	0.0347	-0.0005
154	SLE RA 21	0.1	-6.73	55.13	0.3368	0.0346	-0.0005
154	SLE FR 1	0.08	-5.74	46.01	0.2864	0.0293	-0.0004
154	SLE FR 2	0.08	-5.79	46.06	0.2888	0.0293	-0.0004
154	SLE FR 3	0.08	-5.67	46.08	0.2827	0.0295	-0.0004
154	SLE FR 4	0.09	-6.1	48.7	0.3045	0.0308	-0.0005
154	SLE FR 5	0.09	-5.98	48.72	0.2983	0.031	-0.0005
154	SLE FR 6	0.09	-6.25	50.42	0.3124	0.0318	-0.0005
154	SLE QP 1	0.08	-5.74	46.01	0.2864	0.0293	-0.0004
154	SLE QP 2	0.09	-6.05	48.65	0.302	0.0308	-0.0005
154	SLD 1	0.13	-2.8	51.17	0.1369	0.0925	-0.0005
154	SLD 2	0.13	-2.8	51.17	0.1369	0.0925	-0.0005
154	SLD 3	0.15	-6.97	56.81	0.3477	0.0989	-0.0006
154	SLD 4	0.15	-6.97	56.81	0.3477	0.0989	-0.0006
154	SLD 5	0.07	1.24	40.86	-0.0672	0.0396	-0.0004
154	SLD 6	0.07	1.24	40.86	-0.0672	0.0396	-0.0004
154	SLD 7	0.13	-12.64	59.65	0.6354	0.0609	-0.0006
154	SLD 8	0.13	-12.64	59.65	0.6354	0.0609	-0.0006
154	SLD 9	0.04	0.55	37.66	-0.0314	0.0007	-0.0003
154	SLD 10	0.04	0.55	37.66	-0.0314	0.0007	-0.0003
154	SLD 11	0.1	-13.34	56.45	0.6712	0.022	-0.0005
154	SLD 12	0.1	-13.34	56.45	0.6712	0.022	-0.0005
154	SLD 13	0.02	-5.13	40.5	0.2563	-0.0372	-0.0003
154	SLD 14	0.02	-5.13	40.5	0.2563	-0.0372	-0.0003
154	SLD 15	0.04	-9.29	46.14	0.4671	-0.0308	-0.0004
154	SLD 16	0.04	-9.29	46.14	0.4671	-0.0308	-0.0004
154	SLV 1	0.2	1.37	54.4	-0.076	0.1795	-0.0006
154	SLV 2	0.2	1.37	54.4	-0.076	0.1795	-0.0006
154	SLV 3	0.23	-8.17	67.44	0.4071	0.1946	-0.0008
154	SLV 4	0.23	-8.17	67.44	0.4071	0.1946	-0.0008
154	SLV 5	0.06	10.65	30.61	-0.5441	0.0527	-0.0003
154	SLV 6	0.06	10.65	30.61	-0.5441	0.0527	-0.0003
154	SLV 7	0.19	-21.16	74.06	1.0662	0.1027	-0.0007
154	SLV 8	0.19	-21.16	74.06	1.0662	0.1027	-0.0007
154	SLV 9	-0.02	9.07	23.25	-0.4622	-0.0411	-0.0002
154	SLV 10	-0.02	9.07	23.25	-0.4622	-0.0411	-0.0002
154	SLV 11	0.11	-22.75	66.7	1.1481	0.009	-0.0006
154	SLV 12	0.11	-22.75	66.7	1.1481	0.009	-0.0006
154	SLV 13	-0.06	-3.92	29.87	0.1969	-0.1329	-0.0002
154	SLV 14	-0.06	-3.92	29.87	0.1969	-0.1329	-0.0002
154	SLV 15	-0.03	-13.46	42.91	0.68	-0.1179	-0.0003
154	SLV 16	-0.03	-13.46	42.91	0.68	-0.1179	-0.0003
155	SLU 1	-0.01	2.19	23.89	-0.069	-0.0013	-0.0003
155	SLU 2	-0.01	2.21	23.99	-0.0694	-0.0013	-0.0003
155	SLU 3	-0.01	2.29	24.53	-0.0723	-0.0015	-0.0003
155	SLU 4	-0.01	2.3	24.59	-0.0726	-0.0014	-0.0003
155	SLU 5	-0.01	2.25	24.27	-0.0709	-0.0014	-0.0003
155	SLU 6	-0.01	2.34	24.82	-0.0739	-0.0016	-0.0003
155	SLU 7	-0.01	2.34	24.87	-0.0741	-0.0016	-0.0003
155	SLU 8	-0.01	2.28	24.46	-0.0721	-0.0016	-0.0003
155	SLU 9	-0.01	2.29	24.52	-0.0723	-0.0015	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
155	SLU 10	-0.01	2.5	29.41	-0.0766	-0.0014	-0.0003
155	SLU 11	-0.01	2.59	29.95	-0.0795	-0.0016	-0.0003
155	SLU 12	-0.01	2.59	30.01	-0.0798	-0.0016	-0.0003
155	SLU 13	-0.01	2.55	29.69	-0.0781	-0.0015	-0.0003
155	SLU 14	-0.01	2.63	30.23	-0.0811	-0.0018	-0.0003
155	SLU 15	-0.01	2.64	30.29	-0.0813	-0.0017	-0.0003
155	SLU 16	-0.01	2.58	29.87	-0.0792	-0.0017	-0.0003
155	SLU 17	-0.01	2.59	29.93	-0.0795	-0.0017	-0.0003
155	SLU 18	-0.01	2.61	31.63	-0.0792	-0.0016	-0.0003
155	SLU 19	-0.01	2.62	31.69	-0.0795	-0.0015	-0.0003
155	SLU 20	-0.01	2.66	31.91	-0.0808	-0.0017	-0.0003
155	SLU 21	-0.01	2.67	31.97	-0.081	-0.0016	-0.0003
155	SLU 22	-0.01	2.66	27.4	-0.0842	-0.0017	-0.0003
155	SLU 23	-0.01	2.67	27.5	-0.0847	-0.0016	-0.0003
155	SLU 24	-0.01	2.76	28.04	-0.0876	-0.0018	-0.0003
155	SLU 25	-0.01	2.76	28.1	-0.0878	-0.0018	-0.0003
155	SLU 26	-0.01	2.71	27.78	-0.0862	-0.0017	-0.0003
155	SLU 27	-0.01	2.8	28.32	-0.0891	-0.0019	-0.0003
155	SLU 28	-0.01	2.81	28.38	-0.0894	-0.0019	-0.0003
155	SLU 29	-0.01	2.75	27.96	-0.0873	-0.0019	-0.0003
155	SLU 30	-0.01	2.75	28.02	-0.0876	-0.0019	-0.0003
155	SLU 31	-0.01	2.96	32.91	-0.0918	-0.0018	-0.0004
155	SLU 32	-0.01	3.05	33.45	-0.0948	-0.002	-0.0004
155	SLU 33	-0.01	3.06	33.51	-0.095	-0.0019	-0.0004
155	SLU 34	-0.01	3.01	33.2	-0.0934	-0.0019	-0.0004
155	SLU 35	-0.01	3.09	33.74	-0.0963	-0.0021	-0.0004
155	SLU 36	-0.01	3.1	33.8	-0.0966	-0.0021	-0.0004
155	SLU 37	-0.01	3.04	33.38	-0.0945	-0.0021	-0.0004
155	SLU 38	-0.01	3.05	33.44	-0.0948	-0.002	-0.0004
155	SLU 39	-0.01	3.08	35.14	-0.0945	-0.0019	-0.0004
155	SLU 40	-0.01	3.08	35.19	-0.0948	-0.0019	-0.0004
155	SLU 41	-0.01	3.12	35.42	-0.0961	-0.002	-0.0004
155	SLU 42	-0.01	3.13	35.48	-0.0963	-0.002	-0.0004
155	SLU 43	-0.01	2.69	29.86	-0.0844	-0.0016	-0.0003
155	SLU 44	-0.01	2.71	29.96	-0.0848	-0.0015	-0.0003
155	SLU 45	-0.01	2.79	30.5	-0.0878	-0.0018	-0.0004
155	SLU 46	-0.01	2.8	30.56	-0.088	-0.0017	-0.0004
155	SLU 47	-0.01	2.75	30.24	-0.0864	-0.0017	-0.0004
155	SLU 48	-0.01	2.84	30.78	-0.0893	-0.0019	-0.0004
155	SLU 49	-0.01	2.84	30.84	-0.0896	-0.0019	-0.0004
155	SLU 50	-0.01	2.78	30.42	-0.0875	-0.0019	-0.0004
155	SLU 51	-0.01	2.79	30.48	-0.0877	-0.0018	-0.0004
155	SLU 52	-0.01	3	35.37	-0.092	-0.0017	-0.0004
155	SLU 53	-0.01	3.09	35.91	-0.095	-0.0019	-0.0004
155	SLU 54	-0.01	3.09	35.97	-0.0952	-0.0019	-0.0004
155	SLU 55	-0.01	3.05	35.65	-0.0936	-0.0018	-0.0004
155	SLU 56	-0.01	3.13	36.2	-0.0965	-0.0021	-0.0004
155	SLU 57	-0.01	3.14	36.26	-0.0968	-0.002	-0.0004
155	SLU 58	-0.01	3.08	35.84	-0.0947	-0.002	-0.0004
155	SLU 59	-0.01	3.08	35.9	-0.0949	-0.002	-0.0004
155	SLU 60	-0.01	3.11	37.59	-0.0947	-0.0018	-0.0004
155	SLU 61	-0.01	3.12	37.65	-0.0949	-0.0018	-0.0004
155	SLU 62	-0.01	3.16	37.88	-0.0962	-0.002	-0.0004
155	SLU 63	-0.01	3.17	37.94	-0.0965	-0.0019	-0.0004
155	SLU 64	-0.01	3.16	33.36	-0.0997	-0.0019	-0.0004
155	SLU 65	-0.01	3.17	33.46	-0.1001	-0.0019	-0.0004
155	SLU 66	-0.01	3.25	34	-0.103	-0.0021	-0.0004
155	SLU 67	-0.01	3.26	34.06	-0.1033	-0.0021	-0.0004
155	SLU 68	-0.01	3.21	33.75	-0.1016	-0.002	-0.0004
155	SLU 69	-0.01	3.3	34.29	-0.1046	-0.0022	-0.0004
155	SLU 70	-0.01	3.31	34.35	-0.1048	-0.0022	-0.0004
155	SLU 71	-0.01	3.25	33.93	-0.1028	-0.0022	-0.0004
155	SLU 72	-0.01	3.25	33.99	-0.103	-0.0022	-0.0004
155	SLU 73	-0.01	3.46	38.88	-0.1073	-0.002	-0.0004
155	SLU 74	-0.01	3.55	39.42	-0.1102	-0.0023	-0.0004
155	SLU 75	-0.01	3.56	39.48	-0.1105	-0.0022	-0.0004
155	SLU 76	-0.01	3.51	39.16	-0.1088	-0.0022	-0.0004
155	SLU 77	-0.01	3.59	39.7	-0.1118	-0.0024	-0.0004
155	SLU 78	-0.01	3.6	39.76	-0.112	-0.0023	-0.0005
155	SLU 79	-0.01	3.54	39.35	-0.11	-0.0024	-0.0004
155	SLU 80	-0.01	3.55	39.4	-0.1102	-0.0023	-0.0004
155	SLU 81	-0.01	3.58	41.1	-0.11	-0.0022	-0.0004
155	SLU 82	-0.01	3.58	41.16	-0.1102	-0.0021	-0.0004
155	SLU 83	-0.01	3.62	41.38	-0.1115	-0.0023	-0.0004
155	SLU 84	-0.01	3.63	41.44	-0.1118	-0.0023	-0.0005
155	SLE RA 1	-0.01	2.33	24.89	-0.0733	-0.0014	-0.0003
155	SLE RA 2	-0.01	2.33	24.96	-0.0736	-0.0014	-0.0003
155	SLE RA 3	-0.01	2.39	25.32	-0.0756	-0.0015	-0.0003
155	SLE RA 4	-0.01	2.4	25.36	-0.0757	-0.0015	-0.0003
155	SLE RA 5	-0.01	2.36	25.15	-0.0746	-0.0015	-0.0003
155	SLE RA 6	-0.01	2.42	25.51	-0.0766	-0.0016	-0.0003
155	SLE RA 7	-0.01	2.43	25.55	-0.0768	-0.0016	-0.0003
155	SLE RA 8	-0.01	2.39	25.27	-0.0754	-0.0016	-0.0003
155	SLE RA 9	-0.01	2.39	25.31	-0.0756	-0.0016	-0.0003
155	SLE RA 10	-0.01	2.53	28.57	-0.0784	-0.0015	-0.0003
155	SLE RA 11	-0.01	2.59	28.93	-0.0804	-0.0016	-0.0003
155	SLE RA 12	-0.01	2.59	28.97	-0.0805	-0.0016	-0.0003
155	SLE RA 13	-0.01	2.56	28.76	-0.0794	-0.0016	-0.0003
155	SLE RA 14	-0.01	2.62	29.12	-0.0814	-0.0017	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
155	SLE RA 15	-0.01	2.62	29.16	-0.0816	-0.0017	-0.0003
155	SLE RA 16	-0.01	2.58	28.88	-0.0802	-0.0017	-0.0003
155	SLE RA 17	-0.01	2.59	28.92	-0.0803	-0.0017	-0.0003
155	SLE RA 18	-0.01	2.61	30.05	-0.0802	-0.0016	-0.0003
155	SLE RA 19	-0.01	2.61	30.09	-0.0803	-0.0015	-0.0003
155	SLE RA 20	-0.01	2.64	30.24	-0.0812	-0.0017	-0.0003
155	SLE RA 21	-0.01	2.64	30.28	-0.0814	-0.0016	-0.0003
155	SLE FR 1	-0.01	2.33	24.89	-0.0733	-0.0014	-0.0003
155	SLE FR 2	-0.01	2.33	24.91	-0.0734	-0.0014	-0.0003
155	SLE FR 3	-0.01	2.34	24.97	-0.0737	-0.0015	-0.0003
155	SLE FR 4	-0.01	2.41	26.45	-0.0754	-0.0015	-0.0003
155	SLE FR 5	-0.01	2.42	26.52	-0.0758	-0.0015	-0.0003
155	SLE FR 6	-0.01	2.47	27.47	-0.0767	-0.0015	-0.0003
155	SLE QP 1	-0.01	2.33	24.89	-0.0733	-0.0014	-0.0003
155	SLE QP 2	-0.01	2.41	26.44	-0.0754	-0.0015	-0.0003
155	SLD 1	0.02	1.18	21.78	-0.0222	0.0436	0.001
155	SLD 2	0.02	1.18	21.78	-0.0222	0.0436	0.001
155	SLD 3	0.02	2.4	23.71	-0.0801	0.0412	0.0008
155	SLD 4	0.02	2.4	23.71	-0.0801	0.0412	0.0008
155	SLD 5	0.01	0.19	22.11	0.0283	0.0157	0.0005
155	SLD 6	0.01	0.19	22.11	0.0283	0.0157	0.0005
155	SLD 7	-0.01	4.25	28.56	-0.1645	0.0077	-0.0003
155	SLD 8	-0.01	4.25	28.56	-0.1645	0.0077	-0.0003
155	SLD 9	-0.01	0.57	24.33	0.0137	-0.0106	-0.0003
155	SLD 10	-0.01	0.57	24.33	0.0137	-0.0106	-0.0003
155	SLD 11	-0.02	4.63	30.77	-0.179	-0.0186	-0.0011
155	SLD 12	-0.02	4.63	30.77	-0.179	-0.0186	-0.0011
155	SLD 13	-0.03	2.42	29.17	-0.0707	-0.0442	-0.0014
155	SLD 14	-0.03	2.42	29.17	-0.0707	-0.0442	-0.0014
155	SLD 15	-0.04	3.64	31.1	-0.1285	-0.0466	-0.0016
155	SLD 16	-0.04	3.64	31.1	-0.1285	-0.0466	-0.0016
155	SLV 1	0.06	-0.45	15.69	0.0482	0.1071	0.0028
155	SLV 2	0.06	-0.45	15.69	0.0482	0.1071	0.0028
155	SLV 3	0.04	2.4	20.17	-0.0873	0.1015	0.0022
155	SLV 4	0.04	2.4	20.17	-0.0873	0.1015	0.0022
155	SLV 5	0.03	-2.78	16.41	0.1672	0.0397	0.0015
155	SLV 6	0.03	-2.78	16.41	0.1672	0.0397	0.0015
155	SLV 7	-0.01	6.74	31.36	-0.2845	0.0208	-0.0004
155	SLV 8	-0.01	6.74	31.36	-0.2845	0.0208	-0.0004
155	SLV 9	0	-1.92	21.52	0.1337	-0.0238	-0.0002
155	SLV 10	0	-1.92	21.52	0.1337	-0.0238	-0.0002
155	SLV 11	-0.05	7.6	36.47	-0.3179	-0.0426	-0.0021
155	SLV 12	-0.05	7.6	36.47	-0.3179	-0.0426	-0.0021
155	SLV 13	-0.06	2.42	32.71	-0.0634	-0.1044	-0.0028
155	SLV 14	-0.06	2.42	32.71	-0.0634	-0.1044	-0.0028
155	SLV 15	-0.07	5.27	37.2	-0.1989	-0.1101	-0.0034
155	SLV 16	-0.07	5.27	37.2	-0.1989	-0.1101	-0.0034
156	SLU 1	-0.02	3.28	41.13	-0.1049	-0.0289	-0.0001
156	SLU 2	-0.02	3.67	41.55	-0.1248	-0.0451	-0.0001
156	SLU 3	-0.02	3.53	42.42	-0.1144	-0.0298	-0.0001
156	SLU 4	-0.02	3.76	42.68	-0.1263	-0.0395	-0.0001
156	SLU 5	-0.03	3.87	42.38	-0.133	-0.0457	-0.0001
156	SLU 6	-0.02	3.73	43.25	-0.1226	-0.0305	-0.0001
156	SLU 7	-0.02	3.96	43.51	-0.1345	-0.0402	-0.0001
156	SLU 8	-0.02	3.68	42.79	-0.1213	-0.0302	-0.0001
156	SLU 9	-0.02	3.91	43.05	-0.1332	-0.0399	-0.0001
156	SLU 10	-0.03	4.49	47.27	-0.1506	-0.0471	-0.0001
156	SLU 11	-0.02	4.34	48.14	-0.1401	-0.0318	-0.0001
156	SLU 12	-0.03	4.58	48.39	-0.1521	-0.0415	-0.0001
156	SLU 13	-0.03	4.69	48.1	-0.1588	-0.0477	-0.0001
156	SLU 14	-0.02	4.54	48.97	-0.1483	-0.0325	-0.0001
156	SLU 15	-0.03	4.78	49.22	-0.1603	-0.0421	-0.0001
156	SLU 16	-0.02	4.5	48.5	-0.147	-0.0322	-0.0001
156	SLU 17	-0.03	4.73	48.76	-0.159	-0.0419	-0.0001
156	SLU 18	-0.02	4.45	49.29	-0.1417	-0.0318	-0.0001
156	SLU 19	-0.02	4.68	49.54	-0.1536	-0.0414	-0.0001
156	SLU 20	-0.02	4.65	50.12	-0.1499	-0.0324	-0.0001
156	SLU 21	-0.03	4.88	50.38	-0.1618	-0.0421	-0.0001
156	SLU 22	-0.02	4.06	46.63	-0.1304	-0.0314	-0.0001
156	SLU 23	-0.03	4.45	47.05	-0.1503	-0.0475	-0.0001
156	SLU 24	-0.02	4.31	47.92	-0.1399	-0.0323	-0.0001
156	SLU 25	-0.03	4.54	48.18	-0.1518	-0.042	-0.0001
156	SLU 26	-0.03	4.65	47.88	-0.1585	-0.0482	-0.0001
156	SLU 27	-0.02	4.51	48.75	-0.1481	-0.033	-0.0001
156	SLU 28	-0.03	4.74	49.01	-0.16	-0.0426	-0.0001
156	SLU 29	-0.02	4.46	48.29	-0.1468	-0.0327	-0.0001
156	SLU 30	-0.03	4.7	48.54	-0.1587	-0.0424	-0.0001
156	SLU 31	-0.03	5.27	52.77	-0.1761	-0.0495	-0.0001
156	SLU 32	-0.03	5.12	53.64	-0.1656	-0.0343	-0.0001
156	SLU 33	-0.03	5.36	53.89	-0.1776	-0.044	-0.0001
156	SLU 34	-0.03	5.47	53.6	-0.1843	-0.0502	-0.0001
156	SLU 35	-0.03	5.32	54.47	-0.1738	-0.0349	-0.0001
156	SLU 36	-0.03	5.56	54.72	-0.1858	-0.0446	-0.0001
156	SLU 37	-0.03	5.28	54	-0.1725	-0.0347	-0.0001
156	SLU 38	-0.03	5.51	54.26	-0.1845	-0.0444	-0.0001
156	SLU 39	-0.02	5.23	54.79	-0.1672	-0.0342	-0.0001
156	SLU 40	-0.03	5.46	55.04	-0.1791	-0.0439	-0.0001
156	SLU 41	-0.03	5.62	55.62	-0.1754	-0.0349	-0.0001
156	SLU 42	-0.03	5.66	55.87	-0.1873	-0.0446	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
156	SLU 43	-0.03	4	51.58	-0.1276	-0.0367	-0.0001
156	SLU 44	-0.03	4.39	52.01	-0.1475	-0.0529	-0.0001
156	SLU 45	-0.03	4.24	52.88	-0.1371	-0.0376	-0.0001
156	SLU 46	-0.03	4.48	53.13	-0.1491	-0.0473	-0.0001
156	SLU 47	-0.03	4.59	52.84	-0.1557	-0.0535	-0.0001
156	SLU 48	-0.03	4.44	53.71	-0.1453	-0.0383	-0.0001
156	SLU 49	-0.03	4.68	53.96	-0.1572	-0.048	-0.0001
156	SLU 50	-0.03	4.4	53.24	-0.144	-0.0381	-0.0001
156	SLU 51	-0.03	4.63	53.5	-0.156	-0.0478	-0.0001
156	SLU 52	-0.03	5.2	57.72	-0.1733	-0.0549	-0.0001
156	SLU 53	-0.03	5.06	58.59	-0.1628	-0.0396	-0.0001
156	SLU 54	-0.03	5.29	58.85	-0.1748	-0.0493	-0.0001
156	SLU 55	-0.03	5.4	58.55	-0.1815	-0.0555	-0.0001
156	SLU 56	-0.03	5.26	59.42	-0.171	-0.0403	-0.0001
156	SLU 57	-0.03	5.5	59.68	-0.183	-0.05	-0.0001
156	SLU 58	-0.03	5.21	58.96	-0.1697	-0.0401	-0.0001
156	SLU 59	-0.03	5.45	59.21	-0.1817	-0.0497	-0.0001
156	SLU 60	-0.03	5.16	59.74	-0.1644	-0.0396	-0.0001
156	SLU 61	-0.03	5.4	60	-0.1764	-0.0493	-0.0001
156	SLU 62	-0.03	5.36	60.57	-0.1726	-0.0402	-0.0001
156	SLU 63	-0.03	5.6	60.83	-0.1846	-0.0499	-0.0001
156	SLU 64	-0.03	4.78	57.08	-0.1531	-0.0392	-0.0001
156	SLU 65	-0.03	5.17	57.51	-0.173	-0.0554	-0.0001
156	SLU 66	-0.03	5.02	58.38	-0.1626	-0.0401	-0.0001
156	SLU 67	-0.03	5.26	58.63	-0.1745	-0.0498	-0.0001
156	SLU 68	-0.03	5.37	58.34	-0.1812	-0.056	-0.0001
156	SLU 69	-0.03	5.22	59.21	-0.1708	-0.0408	-0.0001
156	SLU 70	-0.03	5.46	59.46	-0.1827	-0.0505	-0.0001
156	SLU 71	-0.03	5.18	58.74	-0.1695	-0.0406	-0.0001
156	SLU 72	-0.03	5.41	59	-0.1814	-0.0502	-0.0001
156	SLU 73	-0.03	5.99	63.22	-0.1988	-0.0574	-0.0001
156	SLU 74	-0.03	5.84	64.09	-0.1883	-0.0421	-0.0001
156	SLU 75	-0.03	6.08	64.34	-0.2003	-0.0518	-0.0001
156	SLU 76	-0.03	6.19	64.05	-0.207	-0.058	-0.0001
156	SLU 77	-0.03	6.04	64.92	-0.1965	-0.0428	-0.0001
156	SLU 78	-0.03	6.28	65.18	-0.2085	-0.0525	-0.0001
156	SLU 79	-0.03	5.99	64.45	-0.1952	-0.0425	-0.0001
156	SLU 80	-0.03	6.23	64.71	-0.2072	-0.0522	-0.0001
156	SLU 81	-0.03	5.94	65.24	-0.1899	-0.0421	-0.0001
156	SLU 82	-0.03	6.18	65.5	-0.2019	-0.0518	-0.0001
156	SLU 83	-0.03	6.14	66.07	-0.1981	-0.0427	-0.0001
156	SLU 84	-0.03	6.38	66.33	-0.2101	-0.0524	-0.0001
156	SLE RA 1	-0.02	3.5	42.7	-0.1122	-0.0296	-0.0001
156	SLE RA 2	-0.02	3.76	42.98	-0.1255	-0.0404	-0.0001
156	SLE RA 3	-0.02	3.67	43.56	-0.1185	-0.0302	-0.0001
156	SLE RA 4	-0.02	3.82	43.73	-0.1265	-0.0367	-0.0001
156	SLE RA 5	-0.02	3.9	43.54	-0.1309	-0.0408	-0.0001
156	SLE RA 6	-0.02	3.8	44.12	-0.124	-0.0307	-0.0001
156	SLE RA 7	-0.02	3.96	44.29	-0.1319	-0.0371	-0.0001
156	SLE RA 8	-0.02	3.77	43.81	-0.1231	-0.0305	-0.0001
156	SLE RA 9	-0.02	3.93	43.98	-0.1311	-0.037	-0.0001
156	SLE RA 10	-0.02	4.31	46.79	-0.1426	-0.0417	-0.0001
156	SLE RA 11	-0.02	4.21	47.37	-0.1357	-0.0315	-0.0001
156	SLE RA 12	-0.02	4.37	47.54	-0.1436	-0.038	-0.0001
156	SLE RA 13	-0.03	4.44	47.35	-0.1481	-0.0422	-0.0001
156	SLE RA 14	-0.02	4.35	47.93	-0.1411	-0.032	-0.0001
156	SLE RA 15	-0.02	4.5	48.1	-0.1491	-0.0384	-0.0001
156	SLE RA 16	-0.02	4.31	47.62	-0.1403	-0.0318	-0.0001
156	SLE RA 17	-0.02	4.47	47.79	-0.1482	-0.0383	-0.0001
156	SLE RA 18	-0.02	4.28	48.14	-0.1367	-0.0315	-0.0001
156	SLE RA 19	-0.02	4.44	48.31	-0.1447	-0.038	-0.0001
156	SLE RA 20	-0.02	4.41	48.69	-0.1422	-0.032	-0.0001
156	SLE RA 21	-0.02	4.57	48.86	-0.1501	-0.0384	-0.0001
156	SLE FR 1	-0.02	3.5	42.7	-0.1122	-0.0296	-0.0001
156	SLE FR 2	-0.02	3.55	42.76	-0.1148	-0.0318	-0.0001
156	SLE FR 3	-0.02	3.56	42.92	-0.1143	-0.0298	-0.0001
156	SLE FR 4	-0.02	3.79	44.39	-0.1222	-0.0324	-0.0001
156	SLE FR 5	-0.02	3.79	44.55	-0.1217	-0.0304	-0.0001
156	SLE FR 6	-0.02	3.89	45.42	-0.1244	-0.0306	-0.0001
156	SLE QP 1	-0.02	3.5	42.7	-0.1122	-0.0296	-0.0001
156	SLE QP 2	-0.02	3.74	44.33	-0.1195	-0.0302	-0.0001
156	SLD 1	-0.04	9.42	58.57	-0.3616	0.0652	0.0008
156	SLD 2	-0.04	9.42	58.57	-0.3616	0.0652	0.0008
156	SLD 3	-0.17	2.98	61.99	-0.0556	0.0083	0.0003
156	SLD 4	-0.17	2.98	61.99	-0.0556	0.0083	0.0003
156	SLD 5	0.17	15.2	43.41	-0.6563	0.0846	0.0009
156	SLD 6	0.17	15.2	43.41	-0.6563	0.0846	0.0009
156	SLD 7	-0.26	-6.25	54.82	0.3638	-0.1048	-0.0007
156	SLD 8	-0.26	-6.25	54.82	0.3638	-0.1048	-0.0007
156	SLD 9	0.21	13.72	33.85	-0.6029	0.0444	0.0005
156	SLD 10	0.21	13.72	33.85	-0.6029	0.0444	0.0005
156	SLD 11	-0.21	-7.73	45.25	0.4173	-0.145	-0.0011
156	SLD 12	-0.21	-7.73	45.25	0.4173	-0.145	-0.0011
156	SLD 13	0.12	4.49	26.68	-0.1834	-0.0687	-0.0005
156	SLD 14	0.12	4.49	26.68	-0.1834	-0.0687	-0.0005
156	SLD 15	-0.01	-1.95	30.1	0.1226	-0.1256	-0.001
156	SLD 16	-0.01	-1.95	30.1	0.1226	-0.1256	-0.001
156	SLV 1	-0.05	16.71	76.86	-0.6734	0.199	0.002
156	SLV 2	-0.05	16.71	76.86	-0.6734	0.199	0.002





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
156	SLV 3	-0.37	1.89	84.8	0.0314	0.0537	0.0008
156	SLV 4	-0.37	1.89	84.8	0.0314	0.0537	0.0008
156	SLV 5	0.46	30.1	42.05	-1.3547	0.259	0.0023
156	SLV 6	0.46	30.1	42.05	-1.3547	0.259	0.0023
156	SLV 7	-0.62	-19.29	68.51	0.9947	-0.2255	-0.0016
156	SLV 8	-0.62	-19.29	68.51	0.9947	-0.2255	-0.0016
156	SLV 9	0.58	26.76	20.15	-1.2338	0.1651	0.0015
156	SLV 10	0.58	26.76	20.15	-1.2338	0.1651	0.0015
156	SLV 11	-0.51	-22.63	46.61	1.1156	-0.3194	-0.0025
156	SLV 12	-0.51	-22.63	46.61	1.1156	-0.3194	-0.0025
156	SLV 13	0.33	5.58	3.86	-0.2704	-0.1141	-0.001
156	SLV 14	0.33	5.58	3.86	-0.2704	-0.1141	-0.001
156	SLV 15	0	-9.23	11.8	0.4344	-0.2594	-0.0022
156	SLV 16	0	-9.23	11.8	0.4344	-0.2594	-0.0022
157	SLU 1	0.11	-0.15	33.95	0.0937	0.0467	-0.0066
157	SLU 2	0.14	1.85	32.22	0.0008	0.0508	-0.0069
157	SLU 3	0.12	-0.35	35.48	0.1061	0.048	-0.0068
157	SLU 4	0.13	0.85	34.44	0.0504	0.0505	-0.007
157	SLU 5	0.14	1.58	33.32	0.0155	0.0513	-0.007
157	SLU 6	0.12	-0.62	36.57	0.1208	0.0485	-0.0069
157	SLU 7	0.13	0.58	35.53	0.0651	0.051	-0.0071
157	SLU 8	0.11	-0.7	36.15	0.1232	0.0476	-0.0068
157	SLU 9	0.13	0.5	35.11	0.0674	0.0501	-0.007
157	SLU 10	0.16	2.14	38.48	0.0031	0.0606	-0.0082
157	SLU 11	0.14	-0.06	41.73	0.1084	0.0578	-0.0082
157	SLU 12	0.16	1.14	40.69	0.0527	0.0603	-0.0084
157	SLU 13	0.16	1.87	39.57	0.0179	0.0611	-0.0084
157	SLU 14	0.14	-0.33	42.83	0.1232	0.0583	-0.0083
157	SLU 15	0.15	0.87	41.79	0.0674	0.0608	-0.0085
157	SLU 16	0.14	-0.41	42.4	0.1255	0.0574	-0.0082
157	SLU 17	0.15	0.79	41.36	0.0697	0.0598	-0.0084
157	SLU 18	0.15	0.26	42.89	0.097	0.0607	-0.0085
157	SLU 19	0.17	1.46	41.85	0.0413	0.0632	-0.0087
157	SLU 20	0.15	-0.01	43.98	0.1118	0.0611	-0.0086
157	SLU 21	0.16	1.19	42.94	0.056	0.0636	-0.0088
157	SLU 22	0.14	-0.04	39.74	0.1026	0.0551	-0.0078
157	SLU 23	0.16	1.96	38.01	0.0097	0.0592	-0.0081
157	SLU 24	0.14	-0.23	41.27	0.115	0.0564	-0.008
157	SLU 25	0.15	0.97	40.23	0.0592	0.0589	-0.0082
157	SLU 26	0.16	1.69	39.11	0.0244	0.0597	-0.0082
157	SLU 27	0.14	-0.51	42.36	0.1297	0.0569	-0.0081
157	SLU 28	0.15	0.69	41.32	0.074	0.0593	-0.0083
157	SLU 29	0.13	-0.58	41.93	0.132	0.056	-0.008
157	SLU 30	0.15	0.62	40.89	0.0763	0.0584	-0.0082
157	SLU 31	0.18	2.25	44.26	0.012	0.069	-0.0094
157	SLU 32	0.16	0.06	47.52	0.1173	0.0662	-0.0094
157	SLU 33	0.18	1.26	46.48	0.0616	0.0687	-0.0095
157	SLU 34	0.18	1.98	45.36	0.0267	0.0695	-0.0096
157	SLU 35	0.16	-0.22	48.61	0.132	0.0667	-0.0095
157	SLU 36	0.18	0.99	47.57	0.0763	0.0691	-0.0097
157	SLU 37	0.16	-0.29	48.19	0.1344	0.0657	-0.0094
157	SLU 38	0.17	0.91	47.15	0.0786	0.0682	-0.0096
157	SLU 39	0.17	0.38	48.67	0.1059	0.0691	-0.0097
157	SLU 40	0.19	1.58	47.64	0.0502	0.0715	-0.0099
157	SLU 41	0.17	0.1	49.77	0.1206	0.0695	-0.0098
157	SLU 42	0.19	1.31	48.73	0.0649	0.072	-0.01
157	SLU 43	0.14	-0.24	42.16	0.1188	0.0578	-0.0081
157	SLU 44	0.16	1.76	40.43	0.0259	0.062	-0.0084
157	SLU 45	0.14	-0.44	43.68	0.1312	0.0592	-0.0084
157	SLU 46	0.16	0.77	42.64	0.0754	0.0616	-0.0086
157	SLU 47	0.16	1.49	41.52	0.0406	0.0624	-0.0086
157	SLU 48	0.14	-0.71	44.78	0.1459	0.0596	-0.0085
157	SLU 49	0.16	0.49	43.74	0.0902	0.0621	-0.0087
157	SLU 50	0.14	-0.78	44.35	0.1482	0.0587	-0.0084
157	SLU 51	0.15	0.42	43.31	0.0925	0.0612	-0.0086
157	SLU 52	0.19	2.05	46.68	0.0282	0.0717	-0.0098
157	SLU 53	0.17	-0.14	49.93	0.1335	0.0689	-0.0097
157	SLU 54	0.18	1.06	48.89	0.0778	0.0714	-0.0099
157	SLU 55	0.19	1.78	47.77	0.0429	0.0722	-0.0099
157	SLU 56	0.17	-0.42	51.03	0.1482	0.0694	-0.0098
157	SLU 57	0.18	0.79	49.99	0.0925	0.0719	-0.01
157	SLU 58	0.17	-0.49	50.6	0.1506	0.0685	-0.0097
157	SLU 59	0.18	0.71	49.56	0.0948	0.071	-0.0099
157	SLU 60	0.18	0.18	51.09	0.1221	0.0718	-0.0101
157	SLU 61	0.19	1.38	50.05	0.0664	0.0743	-0.0103
157	SLU 62	0.18	-0.1	52.18	0.1368	0.0722	-0.0102
157	SLU 63	0.19	1.11	51.15	0.0811	0.0747	-0.0104
157	SLU 64	0.16	-0.13	47.94	0.1277	0.0662	-0.0093
157	SLU 65	0.18	1.88	46.21	0.0348	0.0703	-0.0096
157	SLU 66	0.16	-0.32	49.47	0.1401	0.0675	-0.0096
157	SLU 67	0.18	0.88	48.43	0.0843	0.07	-0.0098
157	SLU 68	0.18	1.61	47.31	0.0495	0.0708	-0.0098
157	SLU 69	0.16	-0.59	50.56	0.1548	0.068	-0.0097
157	SLU 70	0.18	0.61	49.52	0.099	0.0705	-0.0099
157	SLU 71	0.16	-0.67	50.13	0.1571	0.0671	-0.0096
157	SLU 72	0.17	0.53	49.1	0.1014	0.0696	-0.0098
157	SLU 73	0.21	2.17	52.47	0.0371	0.0801	-0.011
157	SLU 74	0.19	-0.03	55.72	0.1424	0.0773	-0.0109
157	SLU 75	0.2	1.17	54.68	0.0866	0.0798	-0.0111



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
157	SLU 76	0.21	1.9	53.56	0.0518	0.0806	-0.0111
157	SLU 77	0.19	-0.3	56.82	0.1571	0.0778	-0.011
157	SLU 78	0.2	0.9	55.78	0.1014	0.0803	-0.0112
157	SLU 79	0.19	-0.38	56.39	0.1594	0.0769	-0.0109
157	SLU 80	0.2	0.82	55.35	0.1037	0.0794	-0.0111
157	SLU 81	0.2	0.29	56.88	0.131	0.0802	-0.0113
157	SLU 82	0.21	1.49	55.84	0.0752	0.0827	-0.0115
157	SLU 83	0.2	0.02	57.97	0.1457	0.0806	-0.0114
157	SLU 84	0.21	1.22	56.93	0.09	0.0831	-0.0116
157	SLE RA 1	0.12	-0.12	35.61	0.0963	0.0491	-0.0069
157	SLE RA 2	0.14	1.21	34.45	0.0343	0.0518	-0.0071
157	SLE RA 3	0.12	-0.25	36.62	0.1045	0.05	-0.0071
157	SLE RA 4	0.13	0.55	35.93	0.0674	0.0516	-0.0072
157	SLE RA 5	0.13	1.03	35.18	0.0441	0.0521	-0.0072
157	SLE RA 6	0.12	-0.43	37.35	0.1143	0.0503	-0.0071
157	SLE RA 7	0.13	0.37	36.66	0.0772	0.0519	-0.0073
157	SLE RA 8	0.12	-0.48	37.07	0.1159	0.0497	-0.0071
157	SLE RA 9	0.13	0.32	36.38	0.0787	0.0513	-0.0072
157	SLE RA 10	0.15	1.41	38.62	0.0359	0.0584	-0.008
157	SLE RA 11	0.14	-0.06	40.79	0.1061	0.0565	-0.008
157	SLE RA 12	0.15	0.74	40.1	0.0689	0.0582	-0.0081
157	SLE RA 13	0.15	1.23	39.35	0.0457	0.0587	-0.0081
157	SLE RA 14	0.14	-0.24	41.52	0.1159	0.0568	-0.0081
157	SLE RA 15	0.15	0.56	40.83	0.0787	0.0585	-0.0082
157	SLE RA 16	0.14	-0.29	41.24	0.1174	0.0562	-0.008
157	SLE RA 17	0.15	0.51	40.54	0.0803	0.0579	-0.0081
157	SLE RA 18	0.15	0.16	41.56	0.0985	0.0584	-0.0082
157	SLE RA 19	0.15	0.96	40.87	0.0613	0.0601	-0.0083
157	SLE RA 20	0.14	-0.03	42.29	0.1083	0.0587	-0.0083
157	SLE RA 21	0.15	0.78	41.6	0.0711	0.0604	-0.0084
157	SLE FR 1	0.12	-0.12	35.61	0.0963	0.0491	-0.0069
157	SLE FR 2	0.12	0.15	35.38	0.0839	0.0496	-0.007
157	SLE FR 3	0.12	-0.19	35.9	0.1002	0.0492	-0.0069
157	SLE FR 4	0.13	0.23	37.16	0.0845	0.0524	-0.0073
157	SLE FR 5	0.13	-0.11	37.69	0.1008	0.052	-0.0073
157	SLE FR 6	0.13	0.02	38.59	0.0974	0.0537	-0.0076
157	SLE QP 1	0.12	-0.12	35.61	0.0963	0.0491	-0.0069
157	SLE QP 2	0.13	-0.04	37.39	0.0969	0.0519	-0.0073
157	SLD 1	0.27	4.85	44.25	-0.121	0.0934	-0.0106
157	SLD 2	0.27	4.85	44.25	-0.121	0.0934	-0.0106
157	SLD 3	0.18	0.57	47.28	0.0867	0.07	-0.0097
157	SLD 4	0.18	0.57	47.28	0.0867	0.07	-0.0097
157	SLD 5	0.3	7.93	34.86	-0.2835	0.0999	-0.0096
157	SLD 6	0.3	7.93	34.86	-0.2835	0.0999	-0.0096
157	SLD 7	0.01	-6.36	44.95	0.4089	0.0217	-0.0067
157	SLD 8	0.01	-6.36	44.95	0.4089	0.0217	-0.0067
157	SLD 9	0.24	6.28	29.83	-0.215	0.082	-0.0079
157	SLD 10	0.24	6.28	29.83	-0.215	0.082	-0.0079
157	SLD 11	-0.05	-8.01	39.93	0.4773	0.0039	-0.005
157	SLD 12	-0.05	-8.01	39.93	0.4773	0.0039	-0.005
157	SLD 13	0.08	-0.64	27.51	0.1071	0.0338	-0.0049
157	SLD 14	0.08	-0.64	27.51	0.1071	0.0338	-0.0049
157	SLD 15	-0.01	-4.93	30.54	0.3148	0.0103	-0.004
157	SLD 16	-0.01	-4.93	30.54	0.3148	0.0103	-0.004
157	SLV 1	0.45	11.38	53	-0.4136	0.1495	-0.0147
157	SLV 2	0.45	11.38	53	-0.4136	0.1495	-0.0147
157	SLV 3	0.24	1.36	60.19	0.0719	0.0925	-0.0128
157	SLV 4	0.24	1.36	60.19	0.0719	0.0925	-0.0128
157	SLV 5	0.54	18.58	31.17	-0.7926	0.1677	-0.0125
157	SLV 6	0.54	18.58	31.17	-0.7926	0.1677	-0.0125
157	SLV 7	-0.15	-14.81	55.14	0.8258	-0.0225	-0.006
157	SLV 8	-0.15	-14.81	55.14	0.8258	-0.0225	-0.006
157	SLV 9	0.41	14.74	19.65	-0.6319	0.1263	-0.0086
157	SLV 10	0.41	14.74	19.65	-0.6319	0.1263	-0.0086
157	SLV 11	-0.28	-18.66	43.62	0.9864	-0.064	-0.0021
157	SLV 12	-0.28	-18.66	43.62	0.9864	-0.064	-0.0021
157	SLV 13	0.01	-1.44	14.6	0.1219	0.0113	-0.0018
157	SLV 14	0.01	-1.44	14.6	0.1219	0.0113	-0.0018
157	SLV 15	-0.19	-11.46	21.79	0.6074	-0.0458	0.0002
157	SLV 16	-0.19	-11.46	21.79	0.6074	-0.0458	0.0002
158	SLU 1	-0.02	-3.01	49.2	0.4254	-0.0001	-0.0006
158	SLU 2	-0.02	-3.5	49.74	0.4602	0	-0.0007
158	SLU 3	-0.02	-2.72	50.49	0.4142	-0.0001	-0.0006
158	SLU 4	-0.02	-3.01	50.81	0.435	0	-0.0006
158	SLU 5	-0.02	-3.17	50.2	0.441	0	-0.0006
158	SLU 6	-0.02	-2.39	50.94	0.395	0	-0.0005
158	SLU 7	-0.02	-2.68	51.26	0.4158	0	-0.0006
158	SLU 8	-0.02	-2.36	50.11	0.3871	0	-0.0005
158	SLU 9	-0.02	-2.65	50.44	0.4079	0.0001	-0.0005
158	SLU 10	-0.02	-3.99	59.63	0.5446	0.0003	-0.0008
158	SLU 11	-0.02	-3.22	60.37	0.4985	0.0003	-0.0007
158	SLU 12	-0.02	-3.51	60.7	0.5194	0.0003	-0.0007
158	SLU 13	-0.02	-3.66	60.09	0.5254	0.0004	-0.0007
158	SLU 14	-0.02	-2.89	60.83	0.4793	0.0003	-0.0006
158	SLU 15	-0.02	-3.18	61.15	0.5002	0.0004	-0.0007
158	SLU 16	-0.02	-2.85	60	0.4714	0.0004	-0.0006
158	SLU 17	-0.02	-3.14	60.32	0.4923	0.0004	-0.0006
158	SLU 18	-0.02	-3.72	63.33	0.5459	0.0004	-0.0007
158	SLU 19	-0.03	-4.01	63.65	0.5668	0.0005	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
158	SLU 20	-0.02	-3.39	63.79	0.5267	0.0005	-0.0007
158	SLU 21	-0.02	-3.68	64.11	0.5476	0.0005	-0.0007
158	SLU 22	-0.02	-2.85	56.79	0.4629	-0.0002	-0.0006
158	SLU 23	-0.02	-3.33	57.33	0.4977	-0.0001	-0.0007
158	SLU 24	-0.02	-2.55	58.07	0.4516	-0.0002	-0.0006
158	SLU 25	-0.02	-2.84	58.4	0.4725	-0.0001	-0.0006
158	SLU 26	-0.02	-3	57.78	0.4785	-0.0001	-0.0006
158	SLU 27	-0.02	-2.22	58.53	0.4325	-0.0001	-0.0005
158	SLU 28	-0.02	-2.52	58.85	0.4533	-0.0001	-0.0006
158	SLU 29	-0.02	-2.19	57.7	0.4245	-0.0001	-0.0005
158	SLU 30	-0.02	-2.48	58.02	0.4454	0	-0.0006
158	SLU 31	-0.03	-3.83	67.22	0.5821	0.0002	-0.0008
158	SLU 32	-0.02	-3.05	67.96	0.536	0.0002	-0.0007
158	SLU 33	-0.02	-3.34	68.28	0.5568	0.0002	-0.0007
158	SLU 34	-0.02	-3.5	67.67	0.5629	0.0003	-0.0007
158	SLU 35	-0.02	-2.72	68.42	0.5168	0.0002	-0.0007
158	SLU 36	-0.02	-3.01	68.74	0.5377	0.0003	-0.0007
158	SLU 37	-0.02	-2.68	67.59	0.5089	0.0003	-0.0006
158	SLU 38	-0.02	-2.97	67.91	0.5298	0.0003	-0.0007
158	SLU 39	-0.03	-3.55	70.92	0.5834	0.0003	-0.0008
158	SLU 40	-0.03	-3.84	71.24	0.6043	0.0004	-0.0008
158	SLU 41	-0.02	-3.22	71.37	0.5642	0.0004	-0.0007
158	SLU 42	-0.02	-3.51	71.69	0.5851	0.0004	-0.0008
158	SLU 43	-0.02	-3.98	61.36	0.5402	-0.0001	-0.0008
158	SLU 44	-0.03	-4.46	61.9	0.575	0	-0.0008
158	SLU 45	-0.02	-3.68	62.65	0.5289	0	-0.0007
158	SLU 46	-0.02	-3.97	62.97	0.5498	0	-0.0008
158	SLU 47	-0.03	-4.13	62.36	0.5558	0	-0.0008
158	SLU 48	-0.02	-3.35	63.1	0.5097	0	-0.0007
158	SLU 49	-0.02	-3.64	63.42	0.5306	0	-0.0007
158	SLU 50	-0.02	-3.32	62.27	0.5018	0	-0.0007
158	SLU 51	-0.02	-3.61	62.6	0.5227	0.0001	-0.0007
158	SLU 52	-0.03	-4.95	71.79	0.6593	0.0004	-0.0009
158	SLU 53	-0.03	-4.18	72.54	0.6133	0.0003	-0.0008
158	SLU 54	-0.03	-4.47	72.86	0.6341	0.0003	-0.0009
158	SLU 55	-0.03	-4.62	72.25	0.6401	0.0004	-0.0009
158	SLU 56	-0.03	-3.85	72.99	0.5941	0.0004	-0.0008
158	SLU 57	-0.03	-4.14	73.31	0.6149	0.0004	-0.0008
158	SLU 58	-0.02	-3.81	72.16	0.5862	0.0004	-0.0008
158	SLU 59	-0.03	-4.1	72.48	0.607	0.0004	-0.0008
158	SLU 60	-0.03	-4.68	75.49	0.6607	0.0004	-0.0009
158	SLU 61	-0.03	-4.97	75.81	0.6816	0.0005	-0.001
158	SLU 62	-0.03	-4.35	75.95	0.6415	0.0005	-0.0009
158	SLU 63	-0.03	-4.64	76.27	0.6624	0.0005	-0.0009
158	SLU 64	-0.03	-3.81	68.95	0.5777	-0.0002	-0.0008
158	SLU 65	-0.03	-4.29	69.49	0.6125	-0.0001	-0.0009
158	SLU 66	-0.02	-3.52	70.23	0.5664	-0.0001	-0.0008
158	SLU 67	-0.03	-3.81	70.56	0.5873	-0.0001	-0.0008
158	SLU 68	-0.03	-3.96	69.94	0.5933	-0.0001	-0.0008
158	SLU 69	-0.02	-3.19	70.69	0.5472	-0.0001	-0.0007
158	SLU 70	-0.02	-3.48	71.01	0.5681	-0.0001	-0.0008
158	SLU 71	-0.02	-3.15	69.86	0.5393	-0.0001	-0.0007
158	SLU 72	-0.02	-3.44	70.18	0.5602	0	-0.0007
158	SLU 73	-0.03	-4.79	79.38	0.6968	0.0003	-0.001
158	SLU 74	-0.03	-4.01	80.12	0.6507	0.0002	-0.0009
158	SLU 75	-0.03	-4.3	80.44	0.6716	0.0002	-0.0009
158	SLU 76	-0.03	-4.46	79.83	0.6776	0.0003	-0.0009
158	SLU 77	-0.03	-3.68	80.58	0.6316	0.0003	-0.0008
158	SLU 78	-0.03	-3.97	80.9	0.6524	0.0003	-0.0009
158	SLU 79	-0.03	-3.64	79.75	0.6236	0.0003	-0.0008
158	SLU 80	-0.03	-3.93	80.07	0.6445	0.0003	-0.0008
158	SLU 81	-0.03	-4.52	83.08	0.6982	0.0003	-0.0009
158	SLU 82	-0.03	-4.81	83.4	0.7191	0.0004	-0.001
158	SLU 83	-0.03	-4.19	83.53	0.679	0.0004	-0.0009
158	SLU 84	-0.03	-4.48	83.85	0.6999	0.0004	-0.0009
158	SLE RA 1	-0.02	-2.97	51.37	0.4361	-0.0001	-0.0006
158	SLE RA 2	-0.02	-3.29	51.73	0.4593	-0.0001	-0.0006
158	SLE RA 3	-0.02	-2.77	52.23	0.4286	-0.0001	-0.0006
158	SLE RA 4	-0.02	-2.96	52.44	0.4425	-0.0001	-0.0006
158	SLE RA 5	-0.02	-3.07	52.03	0.4466	0	-0.0006
158	SLE RA 6	-0.02	-2.55	52.53	0.4158	-0.0001	-0.0006
158	SLE RA 7	-0.02	-2.75	52.74	0.4298	0	-0.0006
158	SLE RA 8	-0.02	-2.53	51.98	0.4106	0	-0.0005
158	SLE RA 9	-0.02	-2.72	52.19	0.4245	0	-0.0006
158	SLE RA 10	-0.02	-3.62	58.32	0.5156	0.0002	-0.0007
158	SLE RA 11	-0.02	-3.1	58.82	0.4848	0.0001	-0.0007
158	SLE RA 12	-0.02	-3.29	59.03	0.4988	0.0002	-0.0007
158	SLE RA 13	-0.02	-3.4	58.63	0.5028	0.0002	-0.0007
158	SLE RA 14	-0.02	-2.88	59.12	0.472	0.0002	-0.0006
158	SLE RA 15	-0.02	-3.07	59.34	0.486	0.0002	-0.0006
158	SLE RA 16	-0.02	-2.86	58.57	0.4668	0.0002	-0.0006
158	SLE RA 17	-0.02	-3.05	58.79	0.4807	0.0002	-0.0006
158	SLE RA 18	-0.02	-3.44	60.79	0.5165	0.0002	-0.0007
158	SLE RA 19	-0.02	-3.63	61.01	0.5304	0.0003	-0.0007
158	SLE RA 20	-0.02	-3.22	61.09	0.5037	0.0003	-0.0007
158	SLE RA 21	-0.02	-3.41	61.31	0.5176	0.0003	-0.0007
158	SLE FR 1	-0.02	-2.97	51.37	0.4361	-0.0001	-0.0006
158	SLE FR 2	-0.02	-3.03	51.44	0.4408	-0.0001	-0.0006
158	SLE FR 3	-0.02	-2.88	51.49	0.431	-0.0001	-0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
158	SLE FR 4	-0.02	-3.17	54.27	0.4649	0	-0.0006
158	SLE FR 5	-0.02	-3.02	54.32	0.4551	0	-0.0006
158	SLE FR 6	-0.02	-3.2	56.08	0.4763	0.0001	-0.0007
158	SLE QP 1	-0.02	-2.97	51.37	0.4361	-0.0001	-0.0006
158	SLE QP 2	-0.02	-3.11	54.2	0.4602	0	-0.0006
158	SLD 1	0.01	-4.37	42.18	0.4412	0.0274	-0.0032
158	SLD 2	0.01	-4.37	42.18	0.4412	0.0274	-0.0032
158	SLD 3	0	-8.13	48.77	0.7574	0.0339	-0.0036
158	SLD 4	0	-8.13	48.77	0.7574	0.0339	-0.0036
158	SLD 5	0.02	2.22	40.6	-0.0251	-0.0016	-0.0008
158	SLD 6	0.02	2.22	40.6	-0.0251	-0.0016	-0.0008
158	SLD 7	-0.04	-10.32	62.56	1.029	0.02	-0.0021
158	SLD 8	-0.04	-10.32	62.56	1.029	0.02	-0.0021
158	SLD 9	0	4.11	45.83	-0.1085	-0.02	0.0008
158	SLD 10	0	4.11	45.83	-0.1085	-0.02	0.0008
158	SLD 11	-0.06	-8.44	67.8	0.9455	0.0016	-0.0004
158	SLD 12	-0.06	-8.44	67.8	0.9455	0.0016	-0.0004
158	SLD 13	-0.04	1.91	59.62	0.1631	-0.0339	0.0024
158	SLD 14	-0.04	1.91	59.62	0.1631	-0.0339	0.0024
158	SLD 15	-0.06	-1.85	66.21	0.4793	-0.0274	0.002
158	SLD 16	-0.06	-1.85	66.21	0.4793	-0.0274	0.002
158	SLV 1	0.06	-6	26.52	0.418	0.0653	-0.0071
158	SLV 2	0.06	-6	26.52	0.418	0.0653	-0.0071
158	SLV 3	0.02	-14.66	41.84	1.1466	0.0808	-0.0079
158	SLV 4	0.02	-14.66	41.84	1.1466	0.0808	-0.0079
158	SLV 5	0.07	9.16	22.66	-0.6576	-0.0039	-0.0013
158	SLV 6	0.07	9.16	22.66	-0.6576	-0.0039	-0.0013
158	SLV 7	-0.08	-19.71	73.73	1.7713	0.0477	-0.0041
158	SLV 8	-0.08	-19.71	73.73	1.7713	0.0477	-0.0041
158	SLV 9	0.03	13.5	34.67	-0.8508	-0.0477	0.0029
158	SLV 10	0.03	13.5	34.67	-0.8508	-0.0477	0.0029
158	SLV 11	-0.11	-15.38	85.74	1.5781	0.0039	0
158	SLV 12	-0.11	-15.38	85.74	1.5781	0.0039	0
158	SLV 13	-0.06	8.44	66.55	-0.2261	-0.0808	0.0067
158	SLV 14	-0.06	8.44	66.55	-0.2261	-0.0808	0.0067
158	SLV 15	-0.1	-0.22	81.87	0.5025	-0.0653	0.0058
158	SLV 16	-0.1	-0.22	81.87	0.5025	-0.0653	0.0058
159	SLU 1	0	-5.38	44.41	0.3173	-0.0016	0
159	SLU 2	0	-3.58	41.9	0.2302	-0.0025	0
159	SLU 3	0	-5.77	46.18	0.3387	-0.0018	0
159	SLU 4	0	-4.69	44.67	0.2865	-0.0023	0
159	SLU 5	0	-3.97	43.14	0.2507	-0.0025	0
159	SLU 6	0	-6.16	47.43	0.3592	-0.0018	0
159	SLU 7	0	-5.08	45.92	0.3069	-0.0023	0
159	SLU 8	0	-6.15	46.9	0.3583	-0.0018	0
159	SLU 9	0	-5.07	45.39	0.306	-0.0023	0
159	SLU 10	0	-4.27	50.19	0.2743	-0.003	0
159	SLU 11	0	-6.46	54.48	0.3828	-0.0023	0
159	SLU 12	0	-5.38	52.97	0.3306	-0.0028	0
159	SLU 13	0	-4.66	51.44	0.2948	-0.003	0
159	SLU 14	0	-6.84	55.72	0.4033	-0.0023	0
159	SLU 15	0	-5.77	54.22	0.351	-0.0028	0
159	SLU 16	0	-6.84	55.2	0.4024	-0.0023	0
159	SLU 17	0	-5.76	53.69	0.3501	-0.0028	0
159	SLU 18	0	-6.36	56.26	0.3803	-0.0023	0
159	SLU 19	0	-5.29	54.76	0.328	-0.0028	0
159	SLU 20	0	-6.75	57.51	0.4008	-0.0024	0
159	SLU 21	0	-5.67	56	0.3485	-0.0029	0
159	SLU 22	0	-6.16	52.23	0.3651	-0.002	0
159	SLU 23	0	-4.37	49.72	0.278	-0.0028	0
159	SLU 24	0	-6.55	54	0.3865	-0.0022	0
159	SLU 25	0	-5.47	52.49	0.3343	-0.0027	0
159	SLU 26	0	-4.75	50.96	0.2985	-0.0029	0
159	SLU 27	0	-6.94	55.25	0.407	-0.0022	0
159	SLU 28	0	-5.86	53.74	0.3547	-0.0027	0
159	SLU 29	0	-6.93	54.72	0.4061	-0.0022	0
159	SLU 30	0	-5.86	53.21	0.3538	-0.0026	0
159	SLU 31	0	-5.05	58.01	0.3221	-0.0033	0
159	SLU 32	0	-7.24	62.3	0.4306	-0.0027	0
159	SLU 33	0	-6.16	60.79	0.3784	-0.0032	0
159	SLU 34	0	-5.44	59.26	0.3426	-0.0034	0
159	SLU 35	0	-7.63	63.54	0.4511	-0.0027	0
159	SLU 36	0	-6.55	62.04	0.3988	-0.0032	0
159	SLU 37	0	-7.62	63.02	0.4502	-0.0027	0
159	SLU 38	0	-6.55	61.51	0.3979	-0.0031	0
159	SLU 39	0	-7.14	64.08	0.4281	-0.0027	0
159	SLU 40	0	-6.07	62.58	0.3759	-0.0032	0
159	SLU 41	0	-7.53	65.33	0.4486	-0.0028	0
159	SLU 42	0	-6.45	63.82	0.3963	-0.0033	0
159	SLU 43	0	-6.72	55.05	0.3961	-0.002	0
159	SLU 44	0	-4.93	52.54	0.309	-0.0028	0
159	SLU 45	0	-7.11	56.82	0.4175	-0.0021	0
159	SLU 46	0	-6.04	55.31	0.3653	-0.0026	0
159	SLU 47	0	-5.32	53.78	0.3295	-0.0029	0
159	SLU 48	0	-7.5	58.07	0.438	-0.0022	0
159	SLU 49	0	-6.43	56.56	0.3857	-0.0027	0
159	SLU 50	0	-7.49	57.55	0.4371	-0.0021	0
159	SLU 51	0	-6.42	56.04	0.3848	-0.0026	0
159	SLU 52	0	-5.62	60.84	0.3531	-0.0033	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
159	SLU 53	0	-7.8	65.12	0.4616	-0.0026	0
159	SLU 54	0	-6.73	63.61	0.4094	-0.0031	0
159	SLU 55	0	-6.01	62.08	0.3736	-0.0034	0
159	SLU 56	0	-8.19	66.37	0.4821	-0.0027	0
159	SLU 57	0	-7.12	64.86	0.4298	-0.0032	0
159	SLU 58	0	-8.18	65.84	0.4812	-0.0026	0
159	SLU 59	0	-7.11	64.33	0.4289	-0.0031	0
159	SLU 60	0	-7.71	66.91	0.4591	-0.0027	0
159	SLU 61	0	-6.63	65.4	0.4069	-0.0032	0
159	SLU 62	0	-8.09	68.15	0.4796	-0.0028	0
159	SLU 63	0	-7.02	66.64	0.4273	-0.0033	0
159	SLU 64	0	-7.5	62.87	0.4439	-0.0024	0
159	SLU 65	0	-5.71	60.36	0.3568	-0.0032	0
159	SLU 66	0	-7.89	64.64	0.4653	-0.0025	0
159	SLU 67	0	-6.82	63.13	0.4131	-0.003	0
159	SLU 68	0	-6.1	61.6	0.3773	-0.0033	0
159	SLU 69	0	-8.28	65.89	0.4858	-0.0026	0
159	SLU 70	0	-7.21	64.38	0.4335	-0.0031	0
159	SLU 71	0	-8.28	65.37	0.4849	-0.0025	0
159	SLU 72	0	-7.2	63.86	0.4326	-0.003	0
159	SLU 73	0	-6.4	68.66	0.4009	-0.0037	0
159	SLU 74	0	-8.58	72.94	0.5094	-0.003	0
159	SLU 75	0	-7.51	71.43	0.4572	-0.0035	0
159	SLU 76	0	-6.79	69.9	0.4214	-0.0038	0
159	SLU 77	0	-8.97	74.19	0.5299	-0.0031	0
159	SLU 78	0	-7.9	72.68	0.4776	-0.0036	0
159	SLU 79	0	-8.97	73.66	0.529	-0.003	0
159	SLU 80	0	-7.89	72.15	0.4767	-0.0035	0
159	SLU 81	0	-8.49	74.73	0.5069	-0.0031	0
159	SLU 82	0	-7.41	73.22	0.4547	-0.0036	0
159	SLU 83	0	-8.87	75.97	0.5274	-0.0032	0
159	SLU 84	0	-7.8	74.46	0.4751	-0.0037	0
159	SLE RA 1	0	-5.6	46.64	0.331	-0.0017	0
159	SLE RA 2	0	-4.4	44.97	0.2729	-0.0023	0
159	SLE RA 3	0	-5.86	47.82	0.3452	-0.0018	0
159	SLE RA 4	0	-5.14	46.82	0.3104	-0.0022	0
159	SLE RA 5	0	-4.66	45.8	0.2866	-0.0023	0
159	SLE RA 6	0	-6.12	48.66	0.3589	-0.0019	0
159	SLE RA 7	0	-5.4	47.65	0.3241	-0.0022	0
159	SLE RA 8	0	-6.11	48.31	0.3583	-0.0018	0
159	SLE RA 9	0	-5.4	47.3	0.3234	-0.0022	0
159	SLE RA 10	0	-4.86	50.5	0.3023	-0.0026	0
159	SLE RA 11	0	-6.32	53.36	0.3746	-0.0022	0
159	SLE RA 12	0	-5.6	52.35	0.3398	-0.0025	0
159	SLE RA 13	0	-5.12	51.33	0.316	-0.0027	0
159	SLE RA 14	0	-6.58	54.19	0.3883	-0.0022	0
159	SLE RA 15	0	-5.86	53.18	0.3535	-0.0025	0
159	SLE RA 16	0	-6.57	53.84	0.3877	-0.0022	0
159	SLE RA 17	0	-5.86	52.83	0.3528	-0.0025	0
159	SLE RA 18	0	-6.26	54.55	0.373	-0.0022	0
159	SLE RA 19	0	-5.54	53.54	0.3381	-0.0025	0
159	SLE RA 20	0	-6.51	55.38	0.3866	-0.0023	0
159	SLE RA 21	0	-5.8	54.37	0.3518	-0.0026	0
159	SLE FR 1	0	-5.6	46.64	0.331	-0.0017	0
159	SLE FR 2	0	-5.36	46.31	0.3194	-0.0019	0
159	SLE FR 3	0	-5.7	46.98	0.3364	-0.0018	0
159	SLE FR 4	0	-5.56	48.68	0.332	-0.002	0
159	SLE FR 5	0	-5.9	49.35	0.349	-0.0019	0
159	SLE FR 6	0	-5.93	50.6	0.352	-0.002	0
159	SLE QP 1	0	-5.6	46.64	0.331	-0.0017	0
159	SLE QP 2	0	-5.8	49.02	0.3436	-0.0019	0
159	SLD 1	0.01	-5.66	49.22	0.3379	0.0182	-0.0001
159	SLD 2	0.01	-5.66	49.22	0.3379	0.0182	-0.0001
159	SLD 3	0.05	-9.39	52.92	0.522	0.0288	-0.0002
159	SLD 4	0.05	-9.39	52.92	0.522	0.0288	-0.0002
159	SLD 5	-0.05	-0.09	43.46	0.0627	-0.012	0.0001
159	SLD 6	-0.05	-0.09	43.46	0.0627	-0.012	0.0001
159	SLD 7	0.07	-12.53	55.81	0.6763	0.0234	-0.0002
159	SLD 8	0.07	-12.53	55.81	0.6763	0.0234	-0.0002
159	SLD 9	-0.07	0.94	42.22	0.0108	-0.0272	0.0002
159	SLD 10	-0.07	0.94	42.22	0.0108	-0.0272	0.0002
159	SLD 11	0.05	-11.5	54.57	0.6244	0.0082	-0.0001
159	SLD 12	0.05	-11.5	54.57	0.6244	0.0082	-0.0001
159	SLD 13	-0.05	-2.21	45.11	0.1651	-0.0326	0.0002
159	SLD 14	-0.05	-2.21	45.11	0.1651	-0.0326	0.0002
159	SLD 15	-0.01	-5.94	48.81	0.3492	-0.022	0.0001
159	SLD 16	-0.01	-5.94	48.81	0.3492	-0.022	0.0001
159	SLV 1	0.03	-5.67	49.82	0.3409	0.0453	-0.0003
159	SLV 2	0.03	-5.67	49.82	0.3409	0.0453	-0.0003
159	SLV 3	0.12	-14.29	58.51	0.7657	0.0717	-0.0005
159	SLV 4	0.12	-14.29	58.51	0.7657	0.0717	-0.0005
159	SLV 5	-0.13	7.3	36.08	-0.3015	-0.0277	0.0002
159	SLV 6	-0.13	7.3	36.08	-0.3015	-0.0277	0.0002
159	SLV 7	0.18	-21.41	65.04	1.1145	0.0602	-0.0005
159	SLV 8	0.18	-21.41	65.04	1.1145	0.0602	-0.0005
159	SLV 9	-0.18	9.81	32.99	-0.4274	-0.0639	0.0005
159	SLV 10	-0.18	9.81	32.99	-0.4274	-0.0639	0.0005
159	SLV 11	0.13	-18.9	61.95	0.9887	0.0239	-0.0002
159	SLV 12	0.13	-18.9	61.95	0.9887	0.0239	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
159	SLV 13	-0.12	2.69	39.52	-0.0786	-0.0754	0.0005
159	SLV 14	-0.12	2.69	39.52	-0.0786	-0.0754	0.0005
159	SLV 15	-0.03	-5.92	48.21	0.3463	-0.0491	0.0003
159	SLV 16	-0.03	-5.92	48.21	0.3463	-0.0491	0.0003
160	SLU 1	-0.12	2.24	59.61	-0.0619	-0.0369	0.0004
160	SLU 2	-0.12	2.52	60.91	-0.074	-0.0287	0.0004
160	SLU 3	-0.12	2.34	61.4	-0.0644	-0.0384	0.0004
160	SLU 4	-0.13	2.5	62.18	-0.0717	-0.0336	0.0004
160	SLU 5	-0.13	2.57	61.91	-0.0752	-0.0297	0.0004
160	SLU 6	-0.13	2.39	62.4	-0.0657	-0.0394	0.0005
160	SLU 7	-0.13	2.55	63.18	-0.0729	-0.0345	0.0004
160	SLU 8	-0.12	2.35	61.61	-0.0644	-0.0387	0.0005
160	SLU 9	-0.13	2.51	62.39	-0.0717	-0.0338	0.0004
160	SLU 10	-0.15	3.13	69.28	-0.0925	-0.0368	0.0005
160	SLU 11	-0.15	2.95	69.77	-0.0829	-0.0465	0.0005
160	SLU 12	-0.15	3.11	70.55	-0.0901	-0.0416	0.0005
160	SLU 13	-0.15	3.18	70.28	-0.0937	-0.0377	0.0005
160	SLU 14	-0.15	3	70.77	-0.0841	-0.0474	0.0005
160	SLU 15	-0.15	3.16	71.55	-0.0914	-0.0425	0.0005
160	SLU 16	-0.15	2.96	69.98	-0.0829	-0.0468	0.0005
160	SLU 17	-0.15	3.12	70.76	-0.0901	-0.0419	0.0005
160	SLU 18	-0.15	3.12	71.57	-0.0883	-0.0484	0.0006
160	SLU 19	-0.16	3.28	72.35	-0.0955	-0.0435	0.0005
160	SLU 20	-0.16	3.17	72.57	-0.0895	-0.0493	0.0006
160	SLU 21	-0.16	3.33	73.35	-0.0968	-0.0444	0.0006
160	SLU 22	-0.14	2.76	67.67	-0.0768	-0.0442	0.0005
160	SLU 23	-0.15	3.03	68.96	-0.0889	-0.036	0.0005
160	SLU 24	-0.15	2.85	69.45	-0.0793	-0.0457	0.0005
160	SLU 25	-0.15	3.01	70.23	-0.0866	-0.0408	0.0005
160	SLU 26	-0.15	3.08	69.96	-0.0902	-0.0369	0.0005
160	SLU 27	-0.15	2.9	70.45	-0.0806	-0.0466	0.0005
160	SLU 28	-0.15	3.06	71.23	-0.0878	-0.0418	0.0005
160	SLU 29	-0.15	2.86	69.66	-0.0793	-0.046	0.0005
160	SLU 30	-0.15	3.02	70.44	-0.0866	-0.0411	0.0005
160	SLU 31	-0.17	3.64	77.33	-0.1074	-0.044	0.0006
160	SLU 32	-0.17	3.46	77.82	-0.0978	-0.0538	0.0006
160	SLU 33	-0.17	3.63	78.6	-0.1051	-0.0489	0.0006
160	SLU 34	-0.17	3.69	78.33	-0.1086	-0.045	0.0006
160	SLU 35	-0.17	3.51	78.82	-0.099	-0.0547	0.0006
160	SLU 36	-0.18	3.68	79.6	-0.1063	-0.0498	0.0006
160	SLU 37	-0.17	3.47	78.03	-0.0978	-0.054	0.0006
160	SLU 38	-0.17	3.63	78.81	-0.105	-0.0491	0.0006
160	SLU 39	-0.18	3.63	79.62	-0.1032	-0.0556	0.0006
160	SLU 40	-0.18	3.79	80.4	-0.1105	-0.0508	0.0006
160	SLU 41	-0.18	3.68	80.62	-0.1044	-0.0566	0.0006
160	SLU 42	-0.18	3.84	81.4	-0.1117	-0.0517	0.0006
160	SLU 43	-0.15	2.74	74.74	-0.0753	-0.0455	0.0005
160	SLU 44	-0.15	3.01	76.03	-0.0874	-0.0373	0.0005
160	SLU 45	-0.15	2.84	76.53	-0.0779	-0.047	0.0006
160	SLU 46	-0.15	3	77.3	-0.0851	-0.0421	0.0005
160	SLU 47	-0.15	3.06	77.03	-0.0887	-0.0382	0.0005
160	SLU 48	-0.15	2.89	77.52	-0.0791	-0.0479	0.0006
160	SLU 49	-0.16	3.05	78.3	-0.0864	-0.043	0.0005
160	SLU 50	-0.15	2.84	76.74	-0.0778	-0.0473	0.0006
160	SLU 51	-0.15	3.01	77.51	-0.0851	-0.0424	0.0005
160	SLU 52	-0.18	3.63	84.4	-0.1059	-0.0453	0.0006
160	SLU 53	-0.18	3.45	84.9	-0.0963	-0.055	0.0006
160	SLU 54	-0.18	3.61	85.67	-0.1036	-0.0502	0.0006
160	SLU 55	-0.18	3.68	85.4	-0.1072	-0.0463	0.0006
160	SLU 56	-0.18	3.5	85.89	-0.0976	-0.056	0.0006
160	SLU 57	-0.18	3.66	86.67	-0.1048	-0.0511	0.0006
160	SLU 58	-0.18	3.46	85.11	-0.0963	-0.0553	0.0006
160	SLU 59	-0.18	3.62	85.88	-0.1036	-0.0504	0.0006
160	SLU 60	-0.18	3.62	86.7	-0.1017	-0.0569	0.0007
160	SLU 61	-0.18	3.78	87.47	-0.109	-0.052	0.0006
160	SLU 62	-0.18	3.67	87.69	-0.103	-0.0578	0.0007
160	SLU 63	-0.19	3.83	88.47	-0.1102	-0.053	0.0007
160	SLU 64	-0.17	3.25	82.79	-0.0903	-0.0527	0.0006
160	SLU 65	-0.17	3.53	84.09	-0.1024	-0.0446	0.0006
160	SLU 66	-0.17	3.35	84.58	-0.0928	-0.0543	0.0006
160	SLU 67	-0.18	3.51	85.35	-0.1	-0.0494	0.0006
160	SLU 68	-0.18	3.58	85.08	-0.1036	-0.0455	0.0006
160	SLU 69	-0.18	3.4	85.58	-0.094	-0.0552	0.0006
160	SLU 70	-0.18	3.56	86.35	-0.1013	-0.0503	0.0006
160	SLU 71	-0.17	3.36	84.79	-0.0928	-0.0546	0.0006
160	SLU 72	-0.18	3.52	85.57	-0.1	-0.0497	0.0006
160	SLU 73	-0.2	4.14	92.46	-0.1208	-0.0526	0.0007
160	SLU 74	-0.2	3.96	92.95	-0.1112	-0.0623	0.0007
160	SLU 75	-0.2	4.12	93.72	-0.1185	-0.0574	0.0007
160	SLU 76	-0.2	4.19	93.45	-0.1221	-0.0535	0.0007
160	SLU 77	-0.2	4.01	93.95	-0.1125	-0.0632	0.0007
160	SLU 78	-0.2	4.17	94.72	-0.1198	-0.0584	0.0007
160	SLU 79	-0.2	3.97	93.16	-0.1112	-0.0626	0.0007
160	SLU 80	-0.2	4.13	93.94	-0.1185	-0.0577	0.0007
160	SLU 81	-0.2	4.13	94.75	-0.1166	-0.0642	0.0007
160	SLU 82	-0.21	4.29	95.52	-0.1239	-0.0593	0.0007
160	SLU 83	-0.21	4.18	95.75	-0.1179	-0.0651	0.0007
160	SLU 84	-0.21	4.34	96.52	-0.1252	-0.0602	0.0007
160	SLE RA 1	-0.12	2.39	61.91	-0.0662	-0.039	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
160	SLE RA 2	-0.13	2.57	62.78	-0.0742	-0.0335	0.0004
160	SLE RA 3	-0.13	2.45	63.11	-0.0678	-0.04	0.0005
160	SLE RA 4	-0.13	2.56	63.62	-0.0727	-0.0367	0.0005
160	SLE RA 5	-0.13	2.61	63.44	-0.0751	-0.0341	0.0004
160	SLE RA 6	-0.13	2.49	63.77	-0.0687	-0.0406	0.0005
160	SLE RA 7	-0.13	2.6	64.29	-0.0735	-0.0374	0.0005
160	SLE RA 8	-0.13	2.46	63.25	-0.0678	-0.0402	0.0005
160	SLE RA 9	-0.13	2.57	63.77	-0.0727	-0.0369	0.0005
160	SLE RA 10	-0.14	2.98	68.36	-0.0865	-0.0389	0.0005
160	SLE RA 11	-0.14	2.86	68.69	-0.0801	-0.0454	0.0005
160	SLE RA 12	-0.15	2.97	69.2	-0.085	-0.0421	0.0005
160	SLE RA 13	-0.15	3.01	69.02	-0.0874	-0.0395	0.0005
160	SLE RA 14	-0.15	2.9	69.35	-0.081	-0.046	0.0005
160	SLE RA 15	-0.15	3	69.87	-0.0858	-0.0427	0.0005
160	SLE RA 16	-0.14	2.87	68.83	-0.0801	-0.0455	0.0005
160	SLE RA 17	-0.15	2.97	69.35	-0.085	-0.0423	0.0005
160	SLE RA 18	-0.15	2.97	69.89	-0.0837	-0.0466	0.0005
160	SLE RA 19	-0.15	3.08	70.4	-0.0886	-0.0434	0.0005
160	SLE RA 20	-0.15	3.01	70.55	-0.0846	-0.0472	0.0005
160	SLE RA 21	-0.15	3.12	71.07	-0.0894	-0.044	0.0005
160	SLE FR 1	-0.12	2.39	61.91	-0.0662	-0.039	0.0005
160	SLE FR 2	-0.13	2.43	62.09	-0.0678	-0.0379	0.0005
160	SLE FR 3	-0.13	2.4	62.18	-0.0665	-0.0392	0.0005
160	SLE FR 4	-0.13	2.6	64.48	-0.073	-0.0402	0.0005
160	SLE FR 5	-0.13	2.58	64.57	-0.0718	-0.0415	0.0005
160	SLE FR 6	-0.14	2.68	65.9	-0.075	-0.0428	0.0005
160	SLE QP 1	-0.12	2.39	61.91	-0.0662	-0.039	0.0005
160	SLE QP 2	-0.13	2.57	64.31	-0.0714	-0.0413	0.0005
160	SLD 1	-0.06	1.74	44.16	-0.0643	-0.0214	0.0001
160	SLD 2	-0.06	1.74	44.16	-0.0643	-0.0214	0.0001
160	SLD 3	0.01	-3.35	42.73	0.1521	0.0198	0.0002
160	SLD 4	0.01	-3.35	42.73	0.1521	0.0198	0.0002
160	SLD 5	-0.22	10.04	60.42	-0.3975	-0.0978	0.0002
160	SLD 6	-0.22	10.04	60.42	-0.3975	-0.0978	0.0002
160	SLD 7	0.02	-6.93	55.68	0.3238	0.0396	0.0005
160	SLD 8	0.02	-6.93	55.68	0.3238	0.0396	0.0005
160	SLD 9	-0.28	12.07	72.93	-0.4667	-0.1221	0.0004
160	SLD 10	-0.28	12.07	72.93	-0.4667	-0.1221	0.0004
160	SLD 11	-0.04	-4.91	68.2	0.2546	0.0153	0.0007
160	SLD 12	-0.04	-4.91	68.2	0.2546	0.0153	0.0007
160	SLD 13	-0.27	8.48	85.88	-0.2949	-0.1023	0.0008
160	SLD 14	-0.27	8.48	85.88	-0.2949	-0.1023	0.0008
160	SLD 15	-0.2	3.39	84.46	-0.0785	-0.0611	0.0009
160	SLD 16	-0.2	3.39	84.46	-0.0785	-0.0611	0.0009
160	SLV 1	0.02	0.69	18.24	-0.0552	-0.001	-0.0004
160	SLV 2	0.02	0.69	18.24	-0.0552	-0.001	-0.0004
160	SLV 3	0.21	-11.04	14.93	0.4428	0.1044	-0.0002
160	SLV 4	0.21	-11.04	14.93	0.4428	0.1044	-0.0002
160	SLV 5	-0.37	19.79	55.51	-0.822	-0.1891	-0.0001
160	SLV 6	-0.37	19.79	55.51	-0.822	-0.1891	-0.0001
160	SLV 7	0.25	-19.3	44.47	0.8382	0.1623	0.0006
160	SLV 8	0.25	-19.3	44.47	0.8382	0.1623	0.0006
160	SLV 9	-0.52	24.43	84.14	-0.9811	-0.2449	0.0003
160	SLV 10	-0.52	24.43	84.14	-0.9811	-0.2449	0.0003
160	SLV 11	0.11	-14.65	73.1	0.6791	0.1066	0.0011
160	SLV 12	0.11	-14.65	73.1	0.6791	0.1066	0.0011
160	SLV 13	-0.47	16.17	113.68	-0.5857	-0.1869	0.0012
160	SLV 14	-0.47	16.17	113.68	-0.5857	-0.1869	0.0012
160	SLV 15	-0.28	4.45	110.37	-0.0876	-0.0815	0.0014
160	SLV 16	-0.28	4.45	110.37	-0.0876	-0.0815	0.0014
161	SLU 1	-0.23	-8.24	45.15	0.4307	-0.045	0.0178
161	SLU 2	-0.22	-8.61	45.6	0.4494	-0.0445	0.0174
161	SLU 3	-0.24	-8.18	46.02	0.4274	-0.0466	0.0186
161	SLU 4	-0.23	-8.4	46.3	0.4386	-0.0463	0.0184
161	SLU 5	-0.23	-8.38	45.66	0.437	-0.0454	0.0179
161	SLU 6	-0.25	-7.95	46.08	0.4151	-0.0475	0.0191
161	SLU 7	-0.24	-8.17	46.36	0.4263	-0.0472	0.0188
161	SLU 8	-0.25	-7.78	45.27	0.4061	-0.0467	0.0188
161	SLU 9	-0.24	-8	45.54	0.4173	-0.0464	0.0186
161	SLU 10	-0.27	-10.26	55.32	0.5381	-0.0548	0.0216
161	SLU 11	-0.29	-9.83	55.74	0.5162	-0.0569	0.0227
161	SLU 12	-0.29	-10.05	56.01	0.5274	-0.0566	0.0225
161	SLU 13	-0.28	-10.04	55.38	0.5258	-0.0556	0.022
161	SLU 14	-0.3	-9.61	55.8	0.5039	-0.0577	0.0232
161	SLU 15	-0.3	-9.83	56.07	0.515	-0.0575	0.0229
161	SLU 16	-0.3	-9.44	54.98	0.4949	-0.057	0.0229
161	SLU 17	-0.29	-9.66	55.25	0.506	-0.0567	0.0227
161	SLU 18	-0.3	-10.61	59.02	0.5575	-0.0596	0.0237
161	SLU 19	-0.3	-10.83	59.3	0.5687	-0.0594	0.0235
161	SLU 20	-0.31	-10.38	59.08	0.5452	-0.0605	0.0242
161	SLU 21	-0.31	-10.6	59.36	0.5564	-0.0602	0.0239
161	SLU 22	-0.28	-9.2	52.44	0.4836	-0.0534	0.0214
161	SLU 23	-0.27	-9.56	52.9	0.5022	-0.053	0.0211
161	SLU 24	-0.29	-9.13	53.32	0.4803	-0.0551	0.0222
161	SLU 25	-0.28	-9.35	53.59	0.4915	-0.0548	0.022
161	SLU 26	-0.28	-9.33	52.96	0.4899	-0.0538	0.0216
161	SLU 27	-0.3	-8.9	53.38	0.468	-0.0559	0.0227
161	SLU 28	-0.29	-9.12	53.65	0.4792	-0.0557	0.0225
161	SLU 29	-0.29	-8.74	52.56	0.459	-0.0552	0.0224



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
161	SLU 30	-0.29	-8.96	52.83	0.4701	-0.0549	0.0222
161	SLU 31	-0.32	-11.22	62.61	0.591	-0.0632	0.0252
161	SLU 32	-0.34	-10.79	63.03	0.5691	-0.0653	0.0263
161	SLU 33	-0.34	-11.01	63.31	0.5802	-0.065	0.0261
161	SLU 34	-0.33	-10.99	62.67	0.5787	-0.0641	0.0257
161	SLU 35	-0.35	-10.56	63.09	0.5567	-0.0662	0.0268
161	SLU 36	-0.34	-10.78	63.37	0.5679	-0.0659	0.0266
161	SLU 37	-0.35	-10.39	62.27	0.5477	-0.0654	0.0265
161	SLU 38	-0.34	-10.61	62.55	0.5589	-0.0651	0.0263
161	SLU 39	-0.35	-11.56	66.32	0.6104	-0.0681	0.0273
161	SLU 40	-0.34	-11.78	66.59	0.6216	-0.0678	0.0271
161	SLU 41	-0.36	-11.33	66.38	0.5981	-0.069	0.0278
161	SLU 42	-0.35	-11.55	66.65	0.6093	-0.0687	0.0276
161	SLU 43	-0.28	-10.39	56.19	0.5418	-0.0556	0.0219
161	SLU 44	-0.27	-10.76	56.64	0.5605	-0.0551	0.0215
161	SLU 45	-0.29	-10.33	57.07	0.5385	-0.0572	0.0227
161	SLU 46	-0.29	-10.55	57.34	0.5497	-0.0569	0.0225
161	SLU 47	-0.28	-10.53	56.7	0.5481	-0.056	0.022
161	SLU 48	-0.3	-10.1	57.13	0.5262	-0.0581	0.0232
161	SLU 49	-0.3	-10.32	57.4	0.5374	-0.0578	0.0229
161	SLU 50	-0.3	-9.93	56.31	0.5172	-0.0573	0.0229
161	SLU 51	-0.29	-10.15	56.58	0.5284	-0.057	0.0227
161	SLU 52	-0.32	-12.41	66.36	0.6492	-0.0654	0.0257
161	SLU 53	-0.34	-11.98	66.78	0.6273	-0.0675	0.0268
161	SLU 54	-0.34	-12.2	67.05	0.6385	-0.0672	0.0266
161	SLU 55	-0.33	-12.18	66.42	0.6369	-0.0662	0.0261
161	SLU 56	-0.35	-11.75	66.84	0.615	-0.0683	0.0273
161	SLU 57	-0.35	-11.97	67.11	0.6261	-0.0681	0.027
161	SLU 58	-0.35	-11.59	66.02	0.6059	-0.0676	0.027
161	SLU 59	-0.34	-11.81	66.3	0.6171	-0.0673	0.0268
161	SLU 60	-0.35	-12.75	70.07	0.6686	-0.0702	0.0278
161	SLU 61	-0.35	-12.97	70.34	0.6798	-0.07	0.0276
161	SLU 62	-0.36	-12.52	70.12	0.6563	-0.0711	0.0283
161	SLU 63	-0.36	-12.74	70.4	0.6675	-0.0708	0.028
161	SLU 64	-0.33	-11.34	63.48	0.5947	-0.064	0.0255
161	SLU 65	-0.32	-11.71	63.94	0.6133	-0.0636	0.0252
161	SLU 66	-0.34	-11.28	64.36	0.5914	-0.0657	0.0263
161	SLU 67	-0.33	-11.5	64.63	0.6026	-0.0654	0.0261
161	SLU 68	-0.33	-11.48	64	0.601	-0.0644	0.0257
161	SLU 69	-0.35	-11.05	64.42	0.5791	-0.0665	0.0268
161	SLU 70	-0.34	-11.27	64.69	0.5902	-0.0663	0.0266
161	SLU 71	-0.35	-10.88	63.6	0.5701	-0.0658	0.0265
161	SLU 72	-0.34	-11.1	63.88	0.5812	-0.0655	0.0263
161	SLU 73	-0.37	-13.36	73.65	0.7021	-0.0738	0.0293
161	SLU 74	-0.39	-12.93	74.07	0.6802	-0.0759	0.0304
161	SLU 75	-0.39	-13.15	74.35	0.6913	-0.0756	0.0302
161	SLU 76	-0.38	-13.13	73.71	0.6898	-0.0747	0.0298
161	SLU 77	-0.4	-12.71	74.13	0.6678	-0.0768	0.0309
161	SLU 78	-0.4	-12.92	74.41	0.679	-0.0765	0.0307
161	SLU 79	-0.4	-12.54	73.32	0.6588	-0.076	0.0306
161	SLU 80	-0.39	-12.76	73.59	0.67	-0.0757	0.0304
161	SLU 81	-0.4	-13.71	77.36	0.7215	-0.0787	0.0314
161	SLU 82	-0.4	-13.93	77.63	0.7327	-0.0784	0.0312
161	SLU 83	-0.41	-13.48	77.42	0.7092	-0.0795	0.0319
161	SLU 84	-0.41	-13.7	77.69	0.7204	-0.0793	0.0317
161	SLE RA 1	-0.24	-8.52	47.23	0.4459	-0.0474	0.0188
161	SLE RA 2	-0.24	-8.76	47.53	0.4583	-0.0471	0.0186
161	SLE RA 3	-0.25	-8.47	47.82	0.4436	-0.0485	0.0193
161	SLE RA 4	-0.25	-8.62	48	0.4511	-0.0483	0.0192
161	SLE RA 5	-0.24	-8.61	47.57	0.4501	-0.0477	0.0189
161	SLE RA 6	-0.26	-8.32	47.85	0.4354	-0.0491	0.0197
161	SLE RA 7	-0.25	-8.47	48.04	0.4429	-0.0489	0.0195
161	SLE RA 8	-0.25	-8.21	47.31	0.4294	-0.0485	0.0195
161	SLE RA 9	-0.25	-8.36	47.49	0.4369	-0.0484	0.0193
161	SLE RA 10	-0.27	-9.86	54.01	0.5174	-0.0539	0.0213
161	SLE RA 11	-0.28	-9.58	54.29	0.5028	-0.0553	0.0221
161	SLE RA 12	-0.28	-9.72	54.47	0.5103	-0.0551	0.0219
161	SLE RA 13	-0.28	-9.71	54.05	0.5092	-0.0545	0.0217
161	SLE RA 14	-0.29	-9.42	54.33	0.4946	-0.0559	0.0224
161	SLE RA 15	-0.29	-9.57	54.51	0.502	-0.0557	0.0223
161	SLE RA 16	-0.29	-9.31	53.79	0.4886	-0.0554	0.0222
161	SLE RA 17	-0.28	-9.46	53.97	0.496	-0.0552	0.0221
161	SLE RA 18	-0.29	-10.09	56.48	0.5304	-0.0572	0.0228
161	SLE RA 19	-0.29	-10.24	56.66	0.5378	-0.057	0.0226
161	SLE RA 20	-0.3	-9.94	56.52	0.5222	-0.0577	0.0231
161	SLE RA 21	-0.29	-10.09	56.7	0.5296	-0.0576	0.0229
161	SLE FR 1	-0.24	-8.52	47.23	0.4459	-0.0474	0.0188
161	SLE FR 2	-0.24	-8.56	47.29	0.4483	-0.0473	0.0188
161	SLE FR 3	-0.24	-8.45	47.25	0.4426	-0.0476	0.019
161	SLE FR 4	-0.25	-9.04	50.07	0.4737	-0.0503	0.02
161	SLE FR 5	-0.26	-8.93	50.02	0.4679	-0.0506	0.0201
161	SLE FR 6	-0.27	-9.3	51.86	0.4881	-0.0523	0.0208
161	SLE QP 1	-0.24	-8.52	47.23	0.4459	-0.0474	0.0188
161	SLE QP 2	-0.26	-8.99	50.01	0.4712	-0.0503	0.02
161	SLD 1	-0.38	-8.06	52.83	0.4279	-0.0137	0.0272
161	SLD 2	-0.38	-8.06	52.83	0.4279	-0.0137	0.0272
161	SLD 3	-0.31	-12.26	60.44	0.6468	-0.019	0.0242
161	SLD 4	-0.31	-12.26	60.44	0.6468	-0.019	0.0242
161	SLD 5	-0.4	-2.34	39.32	0.1263	-0.0312	0.0266





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
161	SLD 6	-0.4	-2.34	39.32	0.1263	-0.0312	0.0266
161	SLD 7	-0.16	-16.34	64.67	0.8559	-0.049	0.0168
161	SLD 8	-0.16	-16.34	64.67	0.8559	-0.049	0.0168
161	SLD 9	-0.35	-1.64	35.34	0.0866	-0.0516	0.0232
161	SLD 10	-0.35	-1.64	35.34	0.0866	-0.0516	0.0232
161	SLD 11	-0.11	-15.64	60.69	0.8162	-0.0694	0.0134
161	SLD 12	-0.11	-15.64	60.69	0.8162	-0.0694	0.0134
161	SLD 13	-0.21	-5.72	39.57	0.2956	-0.0816	0.0158
161	SLD 14	-0.21	-5.72	39.57	0.2956	-0.0816	0.0158
161	SLD 15	-0.14	-9.92	47.18	0.5145	-0.087	0.0129
161	SLD 16	-0.14	-9.92	47.18	0.5145	-0.087	0.0129
161	SLV 1	-0.54	-6.85	56.49	0.3728	0.0385	0.0364
161	SLV 2	-0.54	-6.85	56.49	0.3728	0.0385	0.0364
161	SLV 3	-0.38	-16.49	74.04	0.8752	0.0257	0.0296
161	SLV 4	-0.38	-16.49	74.04	0.8752	0.0257	0.0296
161	SLV 5	-0.59	6.27	25.34	-0.3202	-0.0043	0.0353
161	SLV 6	-0.59	6.27	25.34	-0.3202	-0.0043	0.0353
161	SLV 7	-0.05	-25.85	83.83	1.3543	-0.0469	0.0125
161	SLV 8	-0.05	-25.85	83.83	1.3543	-0.0469	0.0125
161	SLV 9	-0.47	7.87	16.18	-0.4119	-0.0537	0.0275
161	SLV 10	-0.47	7.87	16.18	-0.4119	-0.0537	0.0275
161	SLV 11	0.08	-24.24	74.67	1.2626	-0.0964	0.0047
161	SLV 12	0.08	-24.24	74.67	1.2626	-0.0964	0.0047
161	SLV 13	-0.13	-1.49	25.97	0.0673	-0.1263	0.0105
161	SLV 14	-0.13	-1.49	25.97	0.0673	-0.1263	0.0105
161	SLV 15	0.03	-11.12	43.52	0.5696	-0.1391	0.0036
161	SLV 16	0.03	-11.12	43.52	0.5696	-0.1391	0.0036
162	SLU 1	-0.01	0.5	29.24	0.0093	-0.0017	-0.0004
162	SLU 2	-0.01	0.5	29.37	0.0093	-0.0017	-0.0004
162	SLU 3	-0.01	0.54	30.06	0.008	-0.0018	-0.0004
162	SLU 4	-0.01	0.55	30.14	0.008	-0.0018	-0.0004
162	SLU 5	-0.01	0.52	29.73	0.0086	-0.0018	-0.0004
162	SLU 6	-0.01	0.56	30.42	0.0074	-0.002	-0.0004
162	SLU 7	-0.01	0.57	30.5	0.0074	-0.002	-0.0004
162	SLU 8	-0.01	0.54	29.96	0.0081	-0.0019	-0.0004
162	SLU 9	-0.01	0.54	30.04	0.008	-0.0019	-0.0004
162	SLU 10	-0.01	0.42	35.72	0.02	-0.0019	-0.0004
162	SLU 11	-0.01	0.46	36.41	0.0188	-0.0021	-0.0004
162	SLU 12	-0.01	0.46	36.49	0.0188	-0.0021	-0.0004
162	SLU 13	-0.01	0.44	36.08	0.0194	-0.002	-0.0004
162	SLU 14	-0.01	0.48	36.77	0.0182	-0.0022	-0.0004
162	SLU 15	-0.01	0.48	36.85	0.0181	-0.0022	-0.0005
162	SLU 16	-0.01	0.45	36.31	0.0188	-0.0022	-0.0004
162	SLU 17	-0.01	0.45	36.39	0.0188	-0.0022	-0.0004
162	SLU 18	-0.01	0.37	38.32	0.0247	-0.002	-0.0004
162	SLU 19	-0.01	0.38	38.39	0.0247	-0.002	-0.0005
162	SLU 20	-0.01	0.39	38.68	0.0241	-0.0022	-0.0005
162	SLU 21	-0.01	0.4	38.75	0.024	-0.0021	-0.0005
162	SLU 22	-0.01	0.69	33.68	0.0054	-0.002	-0.0004
162	SLU 23	-0.01	0.7	33.81	0.0054	-0.002	-0.0004
162	SLU 24	-0.01	0.74	34.5	0.0042	-0.0022	-0.0004
162	SLU 25	-0.01	0.74	34.58	0.0041	-0.0022	-0.0004
162	SLU 26	-0.01	0.72	34.17	0.0048	-0.0021	-0.0004
162	SLU 27	-0.01	0.76	34.86	0.0035	-0.0023	-0.0004
162	SLU 28	-0.01	0.76	34.94	0.0035	-0.0023	-0.0005
162	SLU 29	-0.01	0.73	34.4	0.0042	-0.0023	-0.0004
162	SLU 30	-0.01	0.74	34.48	0.0041	-0.0023	-0.0004
162	SLU 31	-0.01	0.61	40.16	0.0162	-0.0023	-0.0005
162	SLU 32	-0.01	0.65	40.85	0.0149	-0.0024	-0.0005
162	SLU 33	-0.01	0.66	40.93	0.0149	-0.0024	-0.0005
162	SLU 34	-0.01	0.63	40.52	0.0155	-0.0024	-0.0005
162	SLU 35	-0.01	0.67	41.21	0.0143	-0.0026	-0.0005
162	SLU 36	-0.01	0.68	41.29	0.0142	-0.0025	-0.0005
162	SLU 37	-0.01	0.65	40.75	0.0149	-0.0025	-0.0005
162	SLU 38	-0.01	0.65	40.83	0.0149	-0.0025	-0.0005
162	SLU 39	-0.01	0.57	42.76	0.0208	-0.0024	-0.0005
162	SLU 40	-0.01	0.57	42.83	0.0208	-0.0024	-0.0005
162	SLU 41	-0.01	0.59	43.12	0.0202	-0.0025	-0.0005
162	SLU 42	-0.01	0.59	43.19	0.0201	-0.0025	-0.0005
162	SLU 43	-0.01	0.58	36.49	0.0135	-0.0021	-0.0005
162	SLU 44	-0.01	0.58	36.62	0.0134	-0.002	-0.0005
162	SLU 45	-0.01	0.62	37.31	0.0122	-0.0022	-0.0005
162	SLU 46	-0.01	0.63	37.39	0.0121	-0.0022	-0.0005
162	SLU 47	-0.01	0.6	36.98	0.0128	-0.0022	-0.0005
162	SLU 48	-0.01	0.64	37.67	0.0115	-0.0023	-0.0005
162	SLU 49	-0.01	0.65	37.75	0.0115	-0.0023	-0.0005
162	SLU 50	-0.01	0.62	37.21	0.0122	-0.0023	-0.0005
162	SLU 51	-0.01	0.62	37.29	0.0122	-0.0023	-0.0005
162	SLU 52	-0.01	0.5	42.97	0.0242	-0.0023	-0.0005
162	SLU 53	-0.01	0.54	43.66	0.0229	-0.0025	-0.0005
162	SLU 54	-0.01	0.54	43.74	0.0229	-0.0025	-0.0005
162	SLU 55	-0.01	0.52	43.33	0.0235	-0.0024	-0.0005
162	SLU 56	-0.01	0.56	44.02	0.0223	-0.0026	-0.0005
162	SLU 57	-0.01	0.56	44.1	0.0223	-0.0026	-0.0005
162	SLU 58	-0.01	0.53	43.56	0.0229	-0.0026	-0.0005
162	SLU 59	-0.01	0.54	43.64	0.0229	-0.0026	-0.0005
162	SLU 60	-0.01	0.46	45.57	0.0288	-0.0024	-0.0005
162	SLU 61	-0.01	0.46	45.64	0.0288	-0.0024	-0.0005
162	SLU 62	-0.01	0.48	45.93	0.0282	-0.0025	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
162	SLU 63	-0.01	0.48	46	0.0282	-0.0025	-0.0006
162	SLU 64	-0.01	0.77	40.93	0.0096	-0.0024	-0.0005
162	SLU 65	-0.01	0.78	41.06	0.0095	-0.0024	-0.0005
162	SLU 66	-0.01	0.82	41.75	0.0083	-0.0026	-0.0005
162	SLU 67	-0.01	0.82	41.83	0.0083	-0.0026	-0.0005
162	SLU 68	-0.01	0.8	41.42	0.0089	-0.0025	-0.0005
162	SLU 69	-0.01	0.84	42.11	0.0076	-0.0027	-0.0005
162	SLU 70	-0.01	0.84	42.19	0.0076	-0.0027	-0.0005
162	SLU 71	-0.01	0.81	41.65	0.0083	-0.0027	-0.0005
162	SLU 72	-0.01	0.82	41.73	0.0083	-0.0027	-0.0005
162	SLU 73	-0.01	0.69	47.41	0.0203	-0.0026	-0.0006
162	SLU 74	-0.01	0.73	48.1	0.019	-0.0028	-0.0006
162	SLU 75	-0.01	0.74	48.18	0.019	-0.0028	-0.0006
162	SLU 76	-0.01	0.71	47.77	0.0196	-0.0028	-0.0006
162	SLU 77	-0.01	0.75	48.46	0.0184	-0.0029	-0.0006
162	SLU 78	-0.01	0.76	48.54	0.0184	-0.0029	-0.0006
162	SLU 79	-0.01	0.73	48	0.0191	-0.0029	-0.0006
162	SLU 80	-0.01	0.73	48.08	0.019	-0.0029	-0.0006
162	SLU 81	-0.01	0.65	50.01	0.0249	-0.0028	-0.0006
162	SLU 82	-0.01	0.65	50.08	0.0249	-0.0027	-0.0006
162	SLU 83	-0.01	0.67	50.37	0.0243	-0.0029	-0.0006
162	SLU 84	-0.01	0.67	50.44	0.0243	-0.0029	-0.0006
162	SLE RA 1	-0.01	0.55	30.51	0.0082	-0.0018	-0.0004
162	SLE RA 2	-0.01	0.56	30.59	0.0082	-0.0018	-0.0004
162	SLE RA 3	-0.01	0.58	31.06	0.0074	-0.0019	-0.0004
162	SLE RA 4	-0.01	0.59	31.11	0.0073	-0.0019	-0.0004
162	SLE RA 5	-0.01	0.57	30.83	0.0078	-0.0019	-0.0004
162	SLE RA 6	-0.01	0.6	31.3	0.0069	-0.002	-0.0004
162	SLE RA 7	-0.01	0.6	31.35	0.0069	-0.002	-0.0004
162	SLE RA 8	-0.01	0.58	30.99	0.0074	-0.0019	-0.0004
162	SLE RA 9	-0.01	0.58	31.04	0.0073	-0.0019	-0.0004
162	SLE RA 10	-0.01	0.5	34.83	0.0154	-0.0019	-0.0004
162	SLE RA 11	-0.01	0.53	35.29	0.0145	-0.002	-0.0004
162	SLE RA 12	-0.01	0.53	35.34	0.0145	-0.002	-0.0004
162	SLE RA 13	-0.01	0.51	35.07	0.0149	-0.002	-0.0004
162	SLE RA 14	-0.01	0.54	35.53	0.0141	-0.0021	-0.0004
162	SLE RA 15	-0.01	0.54	35.58	0.0141	-0.0021	-0.0004
162	SLE RA 16	-0.01	0.52	35.22	0.0145	-0.0021	-0.0004
162	SLE RA 17	-0.01	0.52	35.27	0.0145	-0.0021	-0.0004
162	SLE RA 18	-0.01	0.47	36.56	0.0185	-0.002	-0.0004
162	SLE RA 19	-0.01	0.47	36.61	0.0184	-0.002	-0.0004
162	SLE RA 20	-0.01	0.48	36.8	0.018	-0.0021	-0.0004
162	SLE RA 21	-0.01	0.49	36.85	0.018	-0.0021	-0.0004
162	SLE FR 1	-0.01	0.55	30.51	0.0082	-0.0018	-0.0004
162	SLE FR 2	-0.01	0.55	30.53	0.0082	-0.0018	-0.0004
162	SLE FR 3	-0.01	0.56	30.61	0.0081	-0.0018	-0.0004
162	SLE FR 4	-0.01	0.53	32.34	0.0113	-0.0018	-0.0004
162	SLE FR 5	-0.01	0.53	32.42	0.0111	-0.0019	-0.0004
162	SLE FR 6	-0.01	0.51	33.54	0.0133	-0.0019	-0.0004
162	SLE QP 1	-0.01	0.55	30.51	0.0082	-0.0018	-0.0004
162	SLE QP 2	-0.01	0.53	32.33	0.0113	-0.0018	-0.0004
162	SLD 1	0.02	-0.18	26.53	0.0697	0.0227	-0.0038
162	SLD 2	0.02	-0.18	26.53	0.0697	0.0227	-0.0038
162	SLD 3	0.01	0.81	29.4	-0.0025	0.0212	-0.0041
162	SLD 4	0.01	0.81	29.4	-0.0025	0.0212	-0.0041
162	SLD 5	0.01	-1.18	26.23	0.1383	0.0078	-0.0009
162	SLD 6	0.01	-1.18	26.23	0.1383	0.0078	-0.0009
162	SLD 7	-0.01	2.1	35.8	-0.1023	0.0028	-0.002
162	SLD 8	-0.01	2.1	35.8	-0.1023	0.0028	-0.002
162	SLD 9	0	-1.05	28.85	0.1249	-0.0065	0.0012
162	SLD 10	0	-1.05	28.85	0.1249	-0.0065	0.0012
162	SLD 11	-0.02	2.23	38.42	-0.1157	-0.0115	0.0001
162	SLD 12	-0.02	2.23	38.42	-0.1157	-0.0115	0.0001
162	SLD 13	-0.03	0.25	35.25	0.0251	-0.0249	0.0033
162	SLD 14	-0.03	0.25	35.25	0.0251	-0.0249	0.0033
162	SLD 15	-0.03	1.23	38.12	-0.0471	-0.0264	0.003
162	SLD 16	-0.03	1.23	38.12	-0.0471	-0.0264	0.003
162	SLV 1	0.05	-1.11	18.93	0.1479	0.0565	-0.0086
162	SLV 2	0.05	-1.11	18.93	0.1479	0.0565	-0.0086
162	SLV 3	0.04	1.19	25.58	-0.021	0.053	-0.0095
162	SLV 4	0.04	1.19	25.58	-0.021	0.053	-0.0095
162	SLV 5	0.04	-3.46	18.22	0.3084	0.021	-0.0016
162	SLV 6	0.04	-3.46	18.22	0.3084	0.021	-0.0016
162	SLV 7	-0.02	4.22	40.39	-0.2545	0.0093	-0.0044
162	SLV 8	-0.02	4.22	40.39	-0.2545	0.0093	-0.0044
162	SLV 9	0.01	-3.17	24.26	0.2771	-0.013	0.0036
162	SLV 10	0.01	-3.17	24.26	0.2771	-0.013	0.0036
162	SLV 11	-0.05	4.52	46.43	-0.2858	-0.0247	0.0008
162	SLV 12	-0.05	4.52	46.43	-0.2858	-0.0247	0.0008
162	SLV 13	-0.05	-0.14	39.07	0.0436	-0.0567	0.0087
162	SLV 14	-0.05	-0.14	39.07	0.0436	-0.0567	0.0087
162	SLV 15	-0.07	2.17	45.72	-0.1253	-0.0602	0.0078
162	SLV 16	-0.07	2.17	45.72	-0.1253	-0.0602	0.0078
163	SLU 1	0.12	0.48	46.9	-0.0369	0.021	-0.0001
163	SLU 2	0.12	0.72	46.79	-0.051	0.0178	0
163	SLU 3	0.12	0.61	48.4	-0.044	0.022	-0.0001
163	SLU 4	0.12	0.76	48.33	-0.0525	0.0201	-0.0001
163	SLU 5	0.12	0.84	47.7	-0.0572	0.0184	0
163	SLU 6	0.12	0.72	49.31	-0.0502	0.0226	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
163	SLU 7	0.13	0.87	49.24	-0.0587	0.0207	-0.0001
163	SLU 8	0.12	0.71	48.73	-0.0493	0.0222	-0.0001
163	SLU 9	0.12	0.85	48.66	-0.0578	0.0203	-0.0001
163	SLU 10	0.14	1.13	54.01	-0.0724	0.0237	-0.0001
163	SLU 11	0.15	1.01	55.62	-0.0653	0.0279	-0.0002
163	SLU 12	0.15	1.16	55.55	-0.0738	0.026	-0.0001
163	SLU 13	0.14	1.24	54.92	-0.0786	0.0243	-0.0001
163	SLU 14	0.15	1.13	56.53	-0.0715	0.0286	-0.0002
163	SLU 15	0.15	1.27	56.46	-0.08	0.0266	-0.0001
163	SLU 16	0.15	1.11	55.95	-0.0706	0.0281	-0.0002
163	SLU 17	0.15	1.26	55.88	-0.0791	0.0262	-0.0001
163	SLU 18	0.15	1.06	57.22	-0.0674	0.0294	-0.0002
163	SLU 19	0.15	1.2	57.15	-0.0758	0.0275	-0.0001
163	SLU 20	0.15	1.17	58.13	-0.0736	0.0301	-0.0002
163	SLU 21	0.15	1.32	58.06	-0.082	0.0281	-0.0001
163	SLU 22	0.14	0.85	53.72	-0.0567	0.0261	-0.0002
163	SLU 23	0.14	1.1	53.6	-0.0709	0.023	-0.0001
163	SLU 24	0.14	0.98	55.22	-0.0639	0.0272	-0.0002
163	SLU 25	0.14	1.13	55.15	-0.0723	0.0253	-0.0001
163	SLU 26	0.14	1.21	54.52	-0.0771	0.0236	-0.0001
163	SLU 27	0.15	1.09	56.13	-0.07	0.0278	-0.0002
163	SLU 28	0.15	1.24	56.06	-0.0785	0.0259	-0.0001
163	SLU 29	0.14	1.08	55.55	-0.0691	0.0274	-0.0002
163	SLU 30	0.15	1.22	55.48	-0.0776	0.0255	-0.0001
163	SLU 31	0.16	1.5	60.83	-0.0922	0.0289	-0.0001
163	SLU 32	0.17	1.39	62.44	-0.0852	0.0331	-0.0002
163	SLU 33	0.17	1.53	62.37	-0.0936	0.0312	-0.0001
163	SLU 34	0.17	1.61	61.74	-0.0984	0.0295	-0.0001
163	SLU 35	0.17	1.5	63.35	-0.0914	0.0337	-0.0002
163	SLU 36	0.17	1.64	63.28	-0.0998	0.0318	-0.0001
163	SLU 37	0.17	1.48	62.77	-0.0905	0.0333	-0.0002
163	SLU 38	0.17	1.63	62.7	-0.0989	0.0314	-0.0001
163	SLU 39	0.17	1.43	64.04	-0.0872	0.0346	-0.0002
163	SLU 40	0.17	1.58	63.97	-0.0957	0.0327	-0.0002
163	SLU 41	0.18	1.54	64.95	-0.0934	0.0352	-0.0002
163	SLU 42	0.18	1.69	64.88	-0.1019	0.0333	-0.0002
163	SLU 43	0.14	0.5	58.63	-0.0412	0.0255	-0.0002
163	SLU 44	0.15	0.74	58.52	-0.0553	0.0223	-0.0001
163	SLU 45	0.15	0.63	60.13	-0.0483	0.0265	-0.0002
163	SLU 46	0.15	0.77	60.06	-0.0568	0.0246	-0.0001
163	SLU 47	0.15	0.85	59.43	-0.0615	0.0229	-0.0001
163	SLU 48	0.15	0.74	61.04	-0.0545	0.0271	-0.0002
163	SLU 49	0.15	0.89	60.97	-0.063	0.0252	-0.0001
163	SLU 50	0.15	0.72	60.46	-0.0536	0.0267	-0.0002
163	SLU 51	0.15	0.87	60.39	-0.0621	0.0248	-0.0001
163	SLU 52	0.17	1.14	65.74	-0.0766	0.0282	-0.0001
163	SLU 53	0.17	1.03	67.35	-0.0696	0.0324	-0.0002
163	SLU 54	0.17	1.18	67.28	-0.0781	0.0305	-0.0001
163	SLU 55	0.17	1.26	66.65	-0.0828	0.0288	-0.0001
163	SLU 56	0.18	1.14	68.27	-0.0758	0.0331	-0.0002
163	SLU 57	0.18	1.29	68.2	-0.0843	0.0311	-0.0002
163	SLU 58	0.17	1.13	67.68	-0.0749	0.0326	-0.0002
163	SLU 59	0.17	1.27	67.61	-0.0834	0.0307	-0.0001
163	SLU 60	0.18	1.07	68.95	-0.0716	0.0339	-0.0002
163	SLU 61	0.18	1.22	68.88	-0.0801	0.032	-0.0002
163	SLU 62	0.18	1.19	69.86	-0.0778	0.0346	-0.0002
163	SLU 63	0.18	1.33	69.79	-0.0863	0.0326	-0.0002
163	SLU 64	0.17	0.87	65.45	-0.061	0.0307	-0.0002
163	SLU 65	0.17	1.11	65.34	-0.0751	0.0275	-0.0001
163	SLU 66	0.17	1	66.95	-0.0681	0.0317	-0.0002
163	SLU 67	0.17	1.14	66.88	-0.0766	0.0298	-0.0001
163	SLU 68	0.17	1.23	66.25	-0.0813	0.0281	-0.0001
163	SLU 69	0.17	1.11	67.86	-0.0743	0.0323	-0.0002
163	SLU 70	0.17	1.26	67.79	-0.0828	0.0304	-0.0001
163	SLU 71	0.17	1.09	67.28	-0.0734	0.0319	-0.0002
163	SLU 72	0.17	1.24	67.21	-0.0819	0.03	-0.0001
163	SLU 73	0.19	1.52	72.56	-0.0965	0.0334	-0.0001
163	SLU 74	0.19	1.4	74.17	-0.0894	0.0376	-0.0002
163	SLU 75	0.2	1.55	74.1	-0.0979	0.0357	-0.0002
163	SLU 76	0.19	1.63	73.47	-0.1027	0.034	-0.0001
163	SLU 77	0.2	1.51	75.08	-0.0956	0.0382	-0.0002
163	SLU 78	0.2	1.66	75.02	-0.1041	0.0363	-0.0002
163	SLU 79	0.2	1.5	74.5	-0.0947	0.0378	-0.0002
163	SLU 80	0.2	1.64	74.43	-0.1032	0.0359	-0.0002
163	SLU 81	0.2	1.44	75.77	-0.0915	0.0391	-0.0002
163	SLU 82	0.2	1.59	75.7	-0.0999	0.0372	-0.0002
163	SLU 83	0.2	1.56	76.68	-0.0977	0.0397	-0.0002
163	SLU 84	0.2	1.7	76.61	-0.1061	0.0378	-0.0002
163	SLE RA 1	0.12	0.59	48.85	-0.0426	0.0224	-0.0001
163	SLE RA 2	0.12	0.75	48.77	-0.052	0.0203	-0.0001
163	SLE RA 3	0.13	0.67	49.85	-0.0473	0.0231	-0.0001
163	SLE RA 4	0.13	0.77	49.8	-0.053	0.0219	-0.0001
163	SLE RA 5	0.13	0.82	49.38	-0.0561	0.0207	-0.0001
163	SLE RA 6	0.13	0.75	50.45	-0.0515	0.0236	-0.0001
163	SLE RA 7	0.13	0.85	50.41	-0.0571	0.0223	-0.0001
163	SLE RA 8	0.13	0.74	50.07	-0.0508	0.0233	-0.0001
163	SLE RA 9	0.13	0.83	50.02	-0.0565	0.022	-0.0001
163	SLE RA 10	0.14	1.02	53.59	-0.0662	0.0243	-0.0001
163	SLE RA 11	0.14	0.94	54.66	-0.0615	0.0271	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
163	SLE RA 12	0.14	1.04	54.62	-0.0672	0.0258	-0.0001
163	SLE RA 13	0.14	1.09	54.2	-0.0703	0.0247	-0.0001
163	SLE RA 14	0.14	1.02	55.27	-0.0657	0.0275	-0.0002
163	SLE RA 15	0.14	1.11	55.22	-0.0713	0.0262	-0.0001
163	SLE RA 16	0.14	1.01	54.88	-0.0651	0.0272	-0.0002
163	SLE RA 17	0.14	1.1	54.84	-0.0707	0.0259	-0.0001
163	SLE RA 18	0.15	0.97	55.73	-0.0629	0.0281	-0.0002
163	SLE RA 19	0.15	1.07	55.68	-0.0685	0.0268	-0.0001
163	SLE RA 20	0.15	1.05	56.34	-0.067	0.0285	-0.0002
163	SLE RA 21	0.15	1.14	56.29	-0.0727	0.0272	-0.0001
163	SLE FR 1	0.12	0.59	48.85	-0.0426	0.0224	-0.0001
163	SLE FR 2	0.12	0.62	48.83	-0.0445	0.022	-0.0001
163	SLE FR 3	0.12	0.62	49.09	-0.0442	0.0226	-0.0001
163	SLE FR 4	0.13	0.73	50.9	-0.0506	0.0237	-0.0001
163	SLE FR 5	0.13	0.73	51.16	-0.0503	0.0243	-0.0002
163	SLE FR 6	0.13	0.78	52.29	-0.0527	0.0253	-0.0002
163	SLE QP 1	0.12	0.59	48.85	-0.0426	0.0224	-0.0001
163	SLE QP 2	0.13	0.7	50.91	-0.0487	0.0241	-0.0002
163	SLD 1	0.25	4.9	68.85	-0.2786	0.0745	-0.0004
163	SLD 2	0.25	4.9	68.85	-0.2786	0.0745	-0.0004
163	SLD 3	0.16	-0.11	77.47	-0.0047	0.0601	-0.0006
163	SLD 4	0.16	-0.11	77.47	-0.0047	0.0601	-0.0006
163	SLD 5	0.3	9.57	43.22	-0.533	0.0611	0
163	SLD 6	0.3	9.57	43.22	-0.533	0.0611	0
163	SLD 7	0.01	-7.15	71.95	0.3799	0.0131	-0.0005
163	SLD 8	0.01	-7.15	71.95	0.3799	0.0131	-0.0005
163	SLD 9	0.25	8.55	29.87	-0.4772	0.0352	0.0002
163	SLD 10	0.25	8.55	29.87	-0.4772	0.0352	0.0002
163	SLD 11	-0.04	-8.17	58.6	0.4357	-0.0128	-0.0003
163	SLD 12	-0.04	-8.17	58.6	0.4357	-0.0128	-0.0003
163	SLD 13	0.1	1.51	24.36	-0.0926	-0.0118	0.0003
163	SLD 14	0.1	1.51	24.36	-0.0926	-0.0118	0.0003
163	SLD 15	0.01	-3.5	32.98	0.1812	-0.0263	0.0001
163	SLD 16	0.01	-3.5	32.98	0.1812	-0.0263	0.0001
163	SLV 1	0.42	10.32	91.86	-0.5749	0.1416	-0.0008
163	SLV 2	0.42	10.32	91.86	-0.5749	0.1416	-0.0008
163	SLV 3	0.19	-1.23	111.79	0.0559	0.1048	-0.0012
163	SLV 4	0.19	-1.23	111.79	0.0559	0.1048	-0.0012
163	SLV 5	0.56	21.1	32.96	-1.1633	0.1152	0.0003
163	SLV 6	0.56	21.1	32.96	-1.1633	0.1152	0.0003
163	SLV 7	-0.19	-17.39	99.41	0.9394	-0.0075	-0.001
163	SLV 8	-0.19	-17.39	99.41	0.9394	-0.0075	-0.001
163	SLV 9	0.45	18.79	2.41	-1.0368	0.0558	0.0007
163	SLV 10	0.45	18.79	2.41	-1.0368	0.0558	0.0007
163	SLV 11	-0.3	-19.7	68.86	1.066	-0.0669	-0.0006
163	SLV 12	-0.3	-19.7	68.86	1.066	-0.0669	-0.0006
163	SLV 13	0.07	2.63	-9.97	-0.1532	-0.0565	0.0009
163	SLV 14	0.07	2.63	-9.97	-0.1532	-0.0565	0.0009
163	SLV 15	-0.16	-8.92	9.97	0.4776	-0.0933	0.0005
163	SLV 16	-0.16	-8.92	9.97	0.4776	-0.0933	0.0005
165	SLU 1	13.7	-0.06	52.96	0.0169	0.6975	0
165	SLU 2	13.45	-0.09	52.68	0.0255	0.6848	0.0001
165	SLU 3	14.32	-0.06	54.82	0.0173	0.7293	0
165	SLU 4	14.17	-0.08	54.65	0.0225	0.7217	0.0001
165	SLU 5	13.84	-0.09	53.85	0.0257	0.7048	0.0001
165	SLU 6	14.71	-0.06	55.99	0.0174	0.7493	0
165	SLU 7	14.56	-0.08	55.82	0.0226	0.7417	0.0001
165	SLU 8	14.48	-0.06	55.3	0.0172	0.7375	0
165	SLU 9	14.33	-0.08	55.13	0.0224	0.7299	0.0001
165	SLU 10	16.69	-0.1	62.17	0.0279	0.8479	0.0001
165	SLU 11	17.57	-0.07	64.31	0.0196	0.8924	0
165	SLU 12	17.42	-0.09	64.15	0.0248	0.8847	0.0001
165	SLU 13	17.08	-0.1	63.35	0.0281	0.8679	0.0001
165	SLU 14	17.96	-0.07	65.49	0.0198	0.9124	0
165	SLU 15	17.81	-0.09	65.32	0.025	0.9047	0.0001
165	SLU 16	17.73	-0.07	64.8	0.0196	0.9006	0
165	SLU 17	17.58	-0.09	64.63	0.0248	0.8929	0.0001
165	SLU 18	18.34	-0.07	66.52	0.0202	0.9304	0
165	SLU 19	18.19	-0.09	66.36	0.0254	0.9228	0.0001
165	SLU 20	18.73	-0.07	67.69	0.0204	0.9504	0
165	SLU 21	18.58	-0.09	67.53	0.0256	0.9428	0.0001
165	SLU 22	16.62	-0.07	61.73	0.0191	0.8444	0
165	SLU 23	16.36	-0.1	61.45	0.0277	0.8318	0.0001
165	SLU 24	17.24	-0.07	63.6	0.0195	0.8762	0
165	SLU 25	17.08	-0.09	63.43	0.0247	0.8686	0.0001
165	SLU 26	16.75	-0.1	62.63	0.0279	0.8517	0.0001
165	SLU 27	17.63	-0.07	64.77	0.0196	0.8962	0
165	SLU 28	17.47	-0.09	64.6	0.0248	0.8886	0.0001
165	SLU 29	17.4	-0.07	64.08	0.0194	0.8844	0
165	SLU 30	17.24	-0.09	63.91	0.0246	0.8768	0.0001
165	SLU 31	19.61	-0.11	70.95	0.0301	0.9948	0.0001
165	SLU 32	20.49	-0.08	73.09	0.0218	1.0393	0
165	SLU 33	20.33	-0.1	72.92	0.027	1.0317	0.0001
165	SLU 34	20	-0.11	72.12	0.0303	1.0148	0.0001
165	SLU 35	20.88	-0.08	74.26	0.022	1.0593	0
165	SLU 36	20.72	-0.1	74.1	0.0272	1.0517	0.0001
165	SLU 37	20.65	-0.08	73.57	0.0218	1.0475	0
165	SLU 38	20.49	-0.1	73.41	0.027	1.0399	0.0001
165	SLU 39	21.26	-0.08	75.3	0.0224	1.0774	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
165	SLU 40	21.1	-0.1	75.13	0.0276	1.0698	0.0001
165	SLU 41	21.65	-0.08	76.47	0.0226	1.0974	0
165	SLU 42	21.49	-0.1	76.3	0.0278	1.0898	0.0001
165	SLU 43	16.82	-0.08	65.83	0.0212	0.8564	0
165	SLU 44	16.56	-0.11	65.56	0.0298	0.8437	0.0001
165	SLU 45	17.43	-0.08	67.7	0.0216	0.8882	0
165	SLU 46	17.28	-0.1	67.53	0.0268	0.8806	0.0001
165	SLU 47	16.95	-0.11	66.73	0.03	0.8637	0.0001
165	SLU 48	17.82	-0.08	68.87	0.0218	0.9082	0
165	SLU 49	17.67	-0.1	68.7	0.027	0.9006	0.0001
165	SLU 50	17.59	-0.08	68.18	0.0215	0.8964	0
165	SLU 51	17.44	-0.1	68.01	0.0267	0.8888	0.0001
165	SLU 52	19.81	-0.11	75.05	0.0322	1.0068	0.0001
165	SLU 53	20.68	-0.09	77.19	0.0239	1.0512	0
165	SLU 54	20.53	-0.1	77.02	0.0291	1.0436	0.0001
165	SLU 55	20.2	-0.11	76.22	0.0324	1.0268	0.0001
165	SLU 56	21.07	-0.09	78.36	0.0241	1.0712	0
165	SLU 57	20.92	-0.1	78.2	0.0293	1.0636	0.0001
165	SLU 58	20.84	-0.09	77.67	0.0239	1.0594	0
165	SLU 59	20.69	-0.1	77.51	0.0291	1.0518	0.0001
165	SLU 60	21.46	-0.09	79.4	0.0245	1.0893	0
165	SLU 61	21.3	-0.1	79.23	0.0297	1.0817	0.0001
165	SLU 62	21.85	-0.09	80.57	0.0247	1.1093	0
165	SLU 63	21.69	-0.11	80.4	0.0299	1.1017	0.0001
165	SLU 64	19.73	-0.08	74.61	0.0234	1.0033	0
165	SLU 65	19.47	-0.11	74.33	0.032	0.9906	0.0001
165	SLU 66	20.35	-0.09	76.47	0.0238	1.0351	0
165	SLU 67	20.19	-0.1	76.31	0.029	1.0275	0.0001
165	SLU 68	19.86	-0.11	75.5	0.0322	1.0106	0.0001
165	SLU 69	20.74	-0.09	77.65	0.024	1.0551	0
165	SLU 70	20.58	-0.1	77.48	0.0292	1.0475	0.0001
165	SLU 71	20.51	-0.09	76.96	0.0237	1.0433	0
165	SLU 72	20.36	-0.1	76.79	0.0289	1.0357	0.0001
165	SLU 73	22.72	-0.12	83.83	0.0344	1.1537	0.0001
165	SLU 74	23.6	-0.09	85.97	0.0261	1.1982	0
165	SLU 75	23.44	-0.11	85.8	0.0313	1.1905	0.0001
165	SLU 76	23.11	-0.12	85	0.0346	1.1737	0.0001
165	SLU 77	23.99	-0.09	87.14	0.0263	1.2182	0
165	SLU 78	23.83	-0.11	86.97	0.0315	1.2105	0.0001
165	SLU 79	23.76	-0.09	86.45	0.0261	1.2064	0
165	SLU 80	23.6	-0.11	86.28	0.0313	1.1987	0.0001
165	SLU 81	24.37	-0.09	88.18	0.0267	1.2363	0
165	SLU 82	24.22	-0.11	88.01	0.0319	1.2286	0.0001
165	SLU 83	24.76	-0.1	89.35	0.0269	1.2562	0
165	SLU 84	24.61	-0.11	89.18	0.0321	1.2486	0.0001
165	SLE RA 1	14.54	-0.06	55.46	0.0175	0.7395	0
165	SLE RA 2	14.36	-0.08	55.28	0.0233	0.731	0.0001
165	SLE RA 3	14.95	-0.06	56.71	0.0178	0.7607	0
165	SLE RA 4	14.85	-0.08	56.59	0.0212	0.7556	0.0001
165	SLE RA 5	14.62	-0.08	56.06	0.0234	0.7444	0.0001
165	SLE RA 6	15.21	-0.07	57.49	0.0179	0.774	0
165	SLE RA 7	15.11	-0.08	57.38	0.0213	0.7689	0.0001
165	SLE RA 8	15.06	-0.06	57.03	0.0177	0.7662	0
165	SLE RA 9	14.95	-0.08	56.92	0.0212	0.7611	0.0001
165	SLE RA 10	16.53	-0.09	61.61	0.0248	0.8397	0.0001
165	SLE RA 11	17.11	-0.07	63.04	0.0193	0.8694	0
165	SLE RA 12	17.01	-0.08	62.92	0.0228	0.8643	0
165	SLE RA 13	16.79	-0.09	62.39	0.025	0.8531	0.0001
165	SLE RA 14	17.37	-0.07	63.82	0.0194	0.8827	0
165	SLE RA 15	17.27	-0.08	63.71	0.0229	0.8776	0
165	SLE RA 16	17.22	-0.07	63.36	0.0193	0.8749	0
165	SLE RA 17	17.12	-0.08	63.25	0.0228	0.8698	0
165	SLE RA 18	17.63	-0.07	64.51	0.0197	0.8948	0
165	SLE RA 19	17.53	-0.08	64.4	0.0232	0.8897	0
165	SLE RA 20	17.89	-0.07	65.29	0.0198	0.9081	0
165	SLE RA 21	17.79	-0.08	65.18	0.0233	0.903	0
165	SLE FR 1	14.54	-0.06	55.46	0.0175	0.7395	0
165	SLE FR 2	14.5	-0.07	55.43	0.0187	0.7378	0
165	SLE FR 3	14.64	-0.06	55.78	0.0175	0.7448	0
165	SLE FR 4	15.43	-0.07	58.14	0.0193	0.7844	0
165	SLE FR 5	15.57	-0.07	58.49	0.0182	0.7914	0
165	SLE FR 6	16.08	-0.07	59.99	0.0186	0.8171	0
165	SLE QP 1	14.54	-0.06	55.46	0.0175	0.7395	0
165	SLE QP 2	15.46	-0.07	58.18	0.0182	0.7861	0
165	SLD 1	28.45	-0.09	82.5	0.0048	1.4708	-0.0005
165	SLD 2	28.45	-0.09	82.5	0.0048	1.4708	-0.0005
165	SLD 3	29.34	-0.18	85.74	0.068	1.5133	0
165	SLD 4	29.34	-0.18	85.74	0.068	1.5133	0
165	SLD 5	18.01	0.06	60.57	-0.0817	0.927	-0.0009
165	SLD 6	18.01	0.06	60.57	-0.0817	0.927	-0.0009
165	SLD 7	20.98	-0.23	71.35	0.1289	1.0687	0.0008
165	SLD 8	20.98	-0.23	71.35	0.1289	1.0687	0.0008
165	SLD 9	9.95	0.1	45	-0.0926	0.5034	-0.0007
165	SLD 10	9.95	0.1	45	-0.0926	0.5034	-0.0007
165	SLD 11	12.92	-0.19	55.79	0.118	0.6452	0.0009
165	SLD 12	12.92	-0.19	55.79	0.118	0.6452	0.0009
165	SLD 13	1.58	0.05	30.62	-0.0316	0.0589	0.0001
165	SLD 14	1.58	0.05	30.62	-0.0316	0.0589	0.0001
165	SLD 15	2.48	-0.04	33.85	0.0316	0.1014	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
165	SLD 16	2.48	-0.04	33.85	0.0316	0.1014	0.0006
165	SLV 1	45.15	-0.12	113.69	-0.017	2.3511	-0.0013
165	SLV 2	45.15	-0.12	113.69	-0.017	2.3511	-0.0013
165	SLV 3	47.23	-0.34	121.19	0.1431	2.4506	0
165	SLV 4	47.23	-0.34	121.19	0.1431	2.4506	0
165	SLV 5	21.21	0.25	63.45	-0.2351	1.1048	-0.0023
165	SLV 6	21.21	0.25	63.45	-0.2351	1.1048	-0.0023
165	SLV 7	28.15	-0.48	88.46	0.2983	1.4363	0.002
165	SLV 8	28.15	-0.48	88.46	0.2983	1.4363	0.002
165	SLV 9	2.77	0.35	27.9	-0.262	0.1359	-0.0019
165	SLV 10	2.77	0.35	27.9	-0.262	0.1359	-0.0019
165	SLV 11	9.72	-0.38	52.9	0.2714	0.4674	0.0024
165	SLV 12	9.72	-0.38	52.9	0.2714	0.4674	0.0024
165	SLV 13	-16.3	0.21	-4.83	-0.1067	-0.8784	0
165	SLV 14	-16.3	0.21	-4.83	-0.1067	-0.8784	0
165	SLV 15	-14.22	-0.01	2.67	0.0533	-0.779	0.0013
165	SLV 16	-14.22	-0.01	2.67	0.0533	-0.779	0.0013
166	SLU 1	12.25	-0.02	48.89	0.0115	0.5452	0
166	SLU 2	11.96	-0.05	48.73	0.0243	0.5318	-0.0001
166	SLU 3	12.85	-0.02	50.51	0.0118	0.5719	0
166	SLU 4	12.67	-0.04	50.41	0.0194	0.5639	0
166	SLU 5	12.33	-0.05	49.76	0.0244	0.5484	-0.0001
166	SLU 6	13.22	-0.03	51.54	0.0119	0.5885	0
166	SLU 7	13.04	-0.04	51.44	0.0195	0.5805	0
166	SLU 8	12.99	-0.03	50.95	0.0117	0.5784	0
166	SLU 9	12.82	-0.04	50.85	0.0194	0.5704	0
166	SLU 10	15.1	-0.05	57.34	0.0259	0.6729	-0.0001
166	SLU 11	15.99	-0.03	59.12	0.0134	0.7131	0
166	SLU 12	15.81	-0.04	59.02	0.021	0.705	-0.0001
166	SLU 13	15.47	-0.05	58.37	0.026	0.6895	-0.0001
166	SLU 14	16.36	-0.03	60.15	0.0135	0.7296	0
166	SLU 15	16.18	-0.04	60.05	0.0212	0.7216	-0.0001
166	SLU 16	16.14	-0.03	59.56	0.0134	0.7195	0
166	SLU 17	15.96	-0.04	59.46	0.021	0.7115	-0.0001
166	SLU 18	16.74	-0.03	61.19	0.0138	0.7468	0
166	SLU 19	16.57	-0.04	61.09	0.0215	0.7388	-0.0001
166	SLU 20	17.11	-0.03	62.22	0.0139	0.7634	0
166	SLU 21	16.94	-0.04	62.12	0.0216	0.7554	-0.0001
166	SLU 22	15.05	-0.03	56.82	0.013	0.6707	0
166	SLU 23	14.75	-0.05	56.66	0.0258	0.6573	-0.0001
166	SLU 24	15.64	-0.03	58.44	0.0133	0.6974	0
166	SLU 25	15.46	-0.04	58.35	0.0209	0.6894	-0.0001
166	SLU 26	15.12	-0.05	57.69	0.0259	0.6738	-0.0001
166	SLU 27	16.01	-0.03	59.47	0.0134	0.714	0
166	SLU 28	15.83	-0.04	59.38	0.021	0.7059	-0.0001
166	SLU 29	15.79	-0.03	58.88	0.0132	0.7038	0
166	SLU 30	15.61	-0.04	58.79	0.0209	0.6958	-0.0001
166	SLU 31	17.9	-0.05	65.28	0.0274	0.7984	-0.0001
166	SLU 32	18.78	-0.03	67.05	0.0149	0.8385	0
166	SLU 33	18.61	-0.04	66.96	0.0225	0.8305	-0.0001
166	SLU 34	18.27	-0.05	66.31	0.0275	0.815	-0.0001
166	SLU 35	19.15	-0.03	68.08	0.015	0.8551	0
166	SLU 36	18.98	-0.05	67.99	0.0227	0.847	-0.0001
166	SLU 37	18.93	-0.03	67.5	0.0148	0.8449	0
166	SLU 38	18.75	-0.05	67.4	0.0225	0.8369	-0.0001
166	SLU 39	19.54	-0.03	69.13	0.0153	0.8722	0
166	SLU 40	19.36	-0.05	69.03	0.023	0.8642	-0.0001
166	SLU 41	19.91	-0.03	70.16	0.0154	0.8888	0
166	SLU 42	19.73	-0.05	70.06	0.0231	0.8808	-0.0001
166	SLU 43	14.97	-0.03	60.84	0.0145	0.6658	0
166	SLU 44	14.67	-0.05	60.67	0.0272	0.6524	-0.0001
166	SLU 45	15.56	-0.03	62.45	0.0147	0.6925	0
166	SLU 46	15.39	-0.04	62.36	0.0224	0.6845	-0.0001
166	SLU 47	15.04	-0.05	61.7	0.0273	0.669	-0.0001
166	SLU 48	15.93	-0.03	63.48	0.0148	0.7091	0
166	SLU 49	15.76	-0.05	63.39	0.0225	0.7011	-0.0001
166	SLU 50	15.71	-0.03	62.89	0.0147	0.6989	0
166	SLU 51	15.53	-0.04	62.8	0.0223	0.6909	-0.0001
166	SLU 52	17.82	-0.06	69.29	0.0288	0.7935	-0.0001
166	SLU 53	18.71	-0.03	71.06	0.0163	0.8336	-0.0001
166	SLU 54	18.53	-0.05	70.97	0.024	0.8256	-0.0001
166	SLU 55	18.19	-0.06	70.32	0.0289	0.8101	-0.0001
166	SLU 56	19.08	-0.03	72.09	0.0164	0.8502	-0.0001
166	SLU 57	18.9	-0.05	72	0.0241	0.8422	-0.0001
166	SLU 58	18.85	-0.03	71.51	0.0163	0.8401	-0.0001
166	SLU 59	18.68	-0.05	71.41	0.024	0.832	-0.0001
166	SLU 60	19.46	-0.04	73.14	0.0168	0.8674	-0.0001
166	SLU 61	19.28	-0.05	73.04	0.0244	0.8593	-0.0001
166	SLU 62	19.83	-0.04	74.17	0.0169	0.8839	-0.0001
166	SLU 63	19.65	-0.05	74.07	0.0245	0.8759	-0.0001
166	SLU 64	17.77	-0.03	68.77	0.016	0.7912	-0.0001
166	SLU 65	17.47	-0.06	68.61	0.0287	0.7778	-0.0001
166	SLU 66	18.36	-0.03	70.39	0.0162	0.8179	-0.0001
166	SLU 67	18.18	-0.05	70.29	0.0239	0.8099	-0.0001
166	SLU 68	17.84	-0.06	69.64	0.0288	0.7944	-0.0001
166	SLU 69	18.73	-0.03	71.42	0.0163	0.8345	-0.0001
166	SLU 70	18.55	-0.05	71.32	0.024	0.8265	-0.0001
166	SLU 71	18.51	-0.03	70.83	0.0162	0.8244	-0.0001
166	SLU 72	18.33	-0.05	70.73	0.0238	0.8163	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
166	SLU 73	20.61	-0.06	77.22	0.0303	0.9189	-0.0001
166	SLU 74	21.5	-0.04	79	0.0178	0.9591	-0.0001
166	SLU 75	21.32	-0.05	78.9	0.0255	0.951	-0.0001
166	SLU 76	20.98	-0.06	78.25	0.0304	0.9355	-0.0001
166	SLU 77	21.87	-0.04	80.03	0.0179	0.9756	-0.0001
166	SLU 78	21.69	-0.05	79.93	0.0256	0.9676	-0.0001
166	SLU 79	21.65	-0.04	79.44	0.0178	0.9655	-0.0001
166	SLU 80	21.47	-0.05	79.35	0.0254	0.9575	-0.0001
166	SLU 81	22.26	-0.04	81.07	0.0183	0.9928	-0.0001
166	SLU 82	22.08	-0.05	80.98	0.0259	0.9848	-0.0001
166	SLU 83	22.63	-0.04	82.1	0.0184	1.0094	-0.0001
166	SLU 84	22.45	-0.05	82.01	0.026	1.0014	-0.0001
166	SLE RA 1	13.05	-0.03	51.16	0.0119	0.5811	0
166	SLE RA 2	12.85	-0.04	51.05	0.0205	0.5721	-0.0001
166	SLE RA 3	13.45	-0.03	52.23	0.0121	0.5989	0
166	SLE RA 4	13.33	-0.03	52.17	0.0172	0.5935	0
166	SLE RA 5	13.1	-0.04	51.74	0.0205	0.5832	-0.0001
166	SLE RA 6	13.69	-0.03	52.92	0.0122	0.6099	0
166	SLE RA 7	13.57	-0.03	52.86	0.0173	0.6046	0
166	SLE RA 8	13.54	-0.03	52.53	0.0121	0.6032	0
166	SLE RA 9	13.43	-0.03	52.47	0.0172	0.5978	0
166	SLE RA 10	14.95	-0.04	56.79	0.0215	0.6662	-0.0001
166	SLE RA 11	15.54	-0.03	57.98	0.0132	0.693	0
166	SLE RA 12	15.42	-0.04	57.91	0.0183	0.6876	0
166	SLE RA 13	15.2	-0.04	57.48	0.0216	0.6773	-0.0001
166	SLE RA 14	15.79	-0.03	58.66	0.0133	0.704	0
166	SLE RA 15	15.67	-0.04	58.6	0.0184	0.6987	0
166	SLE RA 16	15.64	-0.03	58.27	0.0132	0.6972	0
166	SLE RA 17	15.52	-0.04	58.21	0.0183	0.6919	0
166	SLE RA 18	16.05	-0.03	59.36	0.0135	0.7154	0
166	SLE RA 19	15.93	-0.04	59.29	0.0186	0.7101	-0.0001
166	SLE RA 20	16.29	-0.03	60.04	0.0136	0.7265	0
166	SLE RA 21	16.17	-0.04	59.98	0.0187	0.7211	-0.0001
166	SLE FR 1	13.05	-0.03	51.16	0.0119	0.5811	0
166	SLE FR 2	13.01	-0.03	51.14	0.0136	0.5793	0
166	SLE FR 3	13.15	-0.03	51.43	0.012	0.5855	0
166	SLE FR 4	13.91	-0.03	53.6	0.0141	0.6196	0
166	SLE FR 5	14.05	-0.03	53.89	0.0124	0.6258	0
166	SLE FR 6	14.55	-0.03	55.26	0.0127	0.6483	0
166	SLE QP 1	13.05	-0.03	51.16	0.0119	0.5811	0
166	SLE QP 2	13.95	-0.03	53.62	0.0124	0.6214	0
166	SLD 1	28.12	-0.1	68.99	-0.0193	1.2917	0
166	SLD 2	28.12	-0.1	68.99	-0.0193	1.2917	0
166	SLD 3	29.06	-0.03	71.09	0.0973	1.3335	-0.0002
166	SLD 4	29.06	-0.03	71.09	0.0973	1.3335	-0.0002
166	SLD 5	16.77	-0.16	55.03	-0.1739	0.759	0.0003
166	SLD 6	16.77	-0.16	55.03	-0.1739	0.759	0.0003
166	SLD 7	19.91	0.08	62.06	0.2146	0.8985	-0.0004
166	SLD 8	19.91	0.08	62.06	0.2146	0.8985	-0.0004
166	SLD 9	7.99	-0.13	45.17	-0.1898	0.3442	0.0003
166	SLD 10	7.99	-0.13	45.17	-0.1898	0.3442	0.0003
166	SLD 11	11.13	0.1	52.21	0.1987	0.4838	-0.0004
166	SLD 12	11.13	0.1	52.21	0.1987	0.4838	-0.0004
166	SLD 13	-1.16	-0.02	36.14	-0.0725	-0.0908	0.0001
166	SLD 14	-1.16	-0.02	36.14	-0.0725	-0.0908	0.0001
166	SLD 15	-0.22	0.05	38.25	0.0441	-0.0489	-0.0001
166	SLD 16	-0.22	0.05	38.25	0.0441	-0.0489	-0.0001
166	SLV 1	46.33	-0.22	88.69	-0.0697	2.153	0.0001
166	SLV 2	46.33	-0.22	88.69	-0.0697	2.153	0.0001
166	SLV 3	48.53	-0.04	93.59	0.2274	2.251	-0.0005
166	SLV 4	48.53	-0.04	93.59	0.2274	2.251	-0.0005
166	SLV 5	20.33	-0.35	56.71	-0.4628	0.9321	0.0008
166	SLV 6	20.33	-0.35	56.71	-0.4628	0.9321	0.0008
166	SLV 7	27.66	0.24	73.04	0.5274	1.259	-0.001
166	SLV 8	27.66	0.24	73.04	0.5274	1.259	-0.001
166	SLV 9	0.24	-0.29	34.2	-0.5026	-0.0163	0.0009
166	SLV 10	0.24	-0.29	34.2	-0.5026	-0.0163	0.0009
166	SLV 11	7.58	0.3	50.52	0.4876	0.3106	-0.0009
166	SLV 12	7.58	0.3	50.52	0.4876	0.3106	-0.0009
166	SLV 13	-20.63	-0.01	13.65	-0.2025	-1.0083	0.0004
166	SLV 14	-20.63	-0.01	13.65	-0.2025	-1.0083	0.0004
166	SLV 15	-18.43	0.17	18.54	0.0945	-0.9102	-0.0002
166	SLV 16	-18.43	0.17	18.54	0.0945	-0.9102	-0.0002
167	SLU 1	10.88	-0.01	48.6	0.008	0.4993	0
167	SLU 2	10.55	-0.03	48.45	0.0219	0.484	-0.0001
167	SLU 3	11.44	-0.01	50.15	0.0082	0.525	0
167	SLU 4	11.24	-0.02	50.06	0.0165	0.5159	0
167	SLU 5	10.9	-0.03	49.45	0.022	0.5001	-0.0001
167	SLU 6	11.79	-0.01	51.15	0.0082	0.5411	0
167	SLU 7	11.59	-0.02	51.06	0.0165	0.5319	0
167	SLU 8	11.58	-0.01	50.6	0.0081	0.5314	0
167	SLU 9	11.38	-0.02	50.5	0.0164	0.5223	0
167	SLU 10	13.45	-0.03	57.12	0.0232	0.6143	-0.0001
167	SLU 11	14.34	-0.01	58.83	0.0094	0.6552	0
167	SLU 12	14.14	-0.02	58.74	0.0177	0.6461	0
167	SLU 13	13.79	-0.03	58.12	0.0232	0.6303	-0.0001
167	SLU 14	14.68	-0.01	59.83	0.0094	0.6713	0
167	SLU 15	14.48	-0.02	59.74	0.0178	0.6622	0
167	SLU 16	14.47	-0.01	59.27	0.0093	0.6616	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
167	SLU 17	14.27	-0.02	59.18	0.0176	0.6525	0
167	SLU 18	15.02	-0.01	60.99	0.0098	0.6853	0
167	SLU 19	14.82	-0.02	60.9	0.0181	0.6762	0
167	SLU 20	15.37	-0.01	61.99	0.0098	0.7014	0
167	SLU 21	15.17	-0.02	61.9	0.0181	0.6922	0
167	SLU 22	13.45	-0.01	56.54	0.0091	0.6154	0
167	SLU 23	13.12	-0.03	56.39	0.023	0.6002	-0.0001
167	SLU 24	14.01	-0.01	58.1	0.0092	0.6411	0
167	SLU 25	13.81	-0.02	58.01	0.0176	0.632	0
167	SLU 26	13.47	-0.03	57.39	0.023	0.6162	-0.0001
167	SLU 27	14.36	-0.01	59.09	0.0093	0.6572	0
167	SLU 28	14.16	-0.02	59	0.0176	0.6481	0
167	SLU 29	14.15	-0.01	58.54	0.0091	0.6475	0
167	SLU 30	13.95	-0.02	58.45	0.0175	0.6384	0
167	SLU 31	16.01	-0.03	65.06	0.0242	0.7304	-0.0001
167	SLU 32	16.9	-0.01	66.77	0.0105	0.7714	0
167	SLU 33	16.71	-0.02	66.68	0.0188	0.7622	0
167	SLU 34	16.36	-0.03	66.06	0.0243	0.7464	-0.0001
167	SLU 35	17.25	-0.01	67.77	0.0105	0.7874	0
167	SLU 36	17.05	-0.03	67.68	0.0188	0.7783	0
167	SLU 37	17.04	-0.01	67.21	0.0104	0.7777	0
167	SLU 38	16.84	-0.03	67.12	0.0187	0.7686	0
167	SLU 39	17.59	-0.01	68.93	0.0108	0.8014	0
167	SLU 40	17.39	-0.03	68.84	0.0192	0.7923	0
167	SLU 41	17.93	-0.01	69.93	0.0109	0.8175	0
167	SLU 42	17.74	-0.03	69.84	0.0192	0.8083	0
167	SLU 43	13.27	-0.01	60.46	0.0101	0.6093	0
167	SLU 44	12.94	-0.03	60.3	0.024	0.594	-0.0001
167	SLU 45	13.83	-0.01	62.01	0.0102	0.635	0
167	SLU 46	13.63	-0.02	61.92	0.0186	0.6259	0
167	SLU 47	13.28	-0.03	61.3	0.024	0.6101	-0.0001
167	SLU 48	14.17	-0.01	63.01	0.0102	0.6511	0
167	SLU 49	13.97	-0.02	62.92	0.0186	0.6419	0
167	SLU 50	13.96	-0.01	62.45	0.0101	0.6414	0
167	SLU 51	13.76	-0.02	62.36	0.0185	0.6323	0
167	SLU 52	15.83	-0.03	68.98	0.0252	0.7242	-0.0001
167	SLU 53	16.72	-0.02	70.69	0.0114	0.7652	0
167	SLU 54	16.52	-0.03	70.59	0.0198	0.7561	0
167	SLU 55	16.18	-0.03	69.98	0.0252	0.7403	-0.0001
167	SLU 56	17.07	-0.02	71.68	0.0115	0.7813	0
167	SLU 57	16.87	-0.03	71.59	0.0198	0.7721	0
167	SLU 58	16.86	-0.02	71.13	0.0113	0.7716	0
167	SLU 59	16.66	-0.03	71.04	0.0197	0.7625	0
167	SLU 60	17.4	-0.02	72.85	0.0118	0.7953	0
167	SLU 61	17.2	-0.03	72.76	0.0202	0.7861	0
167	SLU 62	17.75	-0.02	73.85	0.0118	0.8114	0
167	SLU 63	17.55	-0.03	73.75	0.0202	0.8022	0
167	SLU 64	15.84	-0.01	68.4	0.0111	0.7254	0
167	SLU 65	15.5	-0.03	68.25	0.0251	0.7101	-0.0001
167	SLU 66	16.39	-0.02	69.95	0.0113	0.7511	0
167	SLU 67	16.2	-0.03	69.86	0.0196	0.742	0
167	SLU 68	15.85	-0.03	69.24	0.0251	0.7262	-0.0001
167	SLU 69	16.74	-0.02	70.95	0.0113	0.7672	0
167	SLU 70	16.54	-0.03	70.86	0.0197	0.758	0
167	SLU 71	16.53	-0.02	70.39	0.0112	0.7575	0
167	SLU 72	16.33	-0.03	70.3	0.0195	0.7484	0
167	SLU 73	18.4	-0.03	76.92	0.0263	0.8404	-0.0001
167	SLU 74	19.29	-0.02	78.63	0.0125	0.8813	0
167	SLU 75	19.09	-0.03	78.54	0.0208	0.8722	-0.0001
167	SLU 76	18.75	-0.03	77.92	0.0263	0.8564	-0.0001
167	SLU 77	19.64	-0.02	79.63	0.0125	0.8974	0
167	SLU 78	19.44	-0.03	79.53	0.0209	0.8883	-0.0001
167	SLU 79	19.43	-0.02	79.07	0.0124	0.8877	0
167	SLU 80	19.23	-0.03	78.98	0.0207	0.8786	-0.0001
167	SLU 81	19.97	-0.02	80.79	0.0129	0.9114	0
167	SLU 82	19.77	-0.03	80.7	0.0212	0.9023	-0.0001
167	SLU 83	20.32	-0.02	81.79	0.0129	0.9275	0
167	SLU 84	20.12	-0.03	81.7	0.0213	0.9183	-0.0001
167	SLE RA 1	11.62	-0.01	50.87	0.0083	0.5325	0
167	SLE RA 2	11.4	-0.02	50.77	0.0176	0.5223	0
167	SLE RA 3	11.99	-0.01	51.9	0.0084	0.5496	0
167	SLE RA 4	11.86	-0.02	51.84	0.014	0.5435	0
167	SLE RA 5	11.63	-0.02	51.43	0.0176	0.533	0
167	SLE RA 6	12.22	-0.01	52.57	0.0084	0.5603	0
167	SLE RA 7	12.09	-0.02	52.51	0.014	0.5542	0
167	SLE RA 8	12.08	-0.01	52.2	0.0084	0.5539	0
167	SLE RA 9	11.95	-0.02	52.14	0.0139	0.5478	0
167	SLE RA 10	13.33	-0.02	56.55	0.0184	0.6091	0
167	SLE RA 11	13.92	-0.01	57.69	0.0092	0.6364	0
167	SLE RA 12	13.79	-0.02	57.63	0.0148	0.6303	0
167	SLE RA 13	13.56	-0.02	57.22	0.0184	0.6198	0
167	SLE RA 14	14.15	-0.01	58.35	0.0093	0.6471	0
167	SLE RA 15	14.02	-0.02	58.29	0.0148	0.641	0
167	SLE RA 16	14.01	-0.01	57.98	0.0092	0.6407	0
167	SLE RA 17	13.88	-0.02	57.92	0.0147	0.6346	0
167	SLE RA 18	14.37	-0.01	59.13	0.0095	0.6565	0
167	SLE RA 19	14.24	-0.02	59.07	0.0151	0.6504	0
167	SLE RA 20	14.61	-0.01	59.79	0.0095	0.6672	0
167	SLE RA 21	14.47	-0.02	59.73	0.0151	0.6611	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
167	SLE FR 1	11.62	-0.01	50.87	0.0083	0.5325	0
167	SLE FR 2	11.57	-0.01	50.85	0.0102	0.5304	0
167	SLE FR 3	11.71	-0.01	51.13	0.0083	0.5367	0
167	SLE FR 4	12.4	-0.01	53.33	0.0105	0.5676	0
167	SLE FR 5	12.54	-0.01	53.61	0.0087	0.574	0
167	SLE FR 6	13	-0.01	55	0.0089	0.5945	0
167	SLE QP 1	11.62	-0.01	50.87	0.0083	0.5325	0
167	SLE QP 2	12.44	-0.01	53.35	0.0087	0.5697	0
167	SLD 1	27.08	0.01	64.48	-0.1146	1.2479	0.0001
167	SLD 2	27.08	0.01	64.48	-0.1146	1.2479	0.0001
167	SLD 3	28	-0.11	65.94	0.0633	1.2894	-0.0003
167	SLD 4	28	-0.11	65.94	0.0633	1.2894	-0.0003
167	SLD 5	15.44	0.18	54.47	-0.2981	0.7103	0.0005
167	SLD 6	15.44	0.18	54.47	-0.2981	0.7103	0.0005
167	SLD 7	18.5	-0.23	59.34	0.2949	0.8484	-0.0006
167	SLD 8	18.5	-0.23	59.34	0.2949	0.8484	-0.0006
167	SLD 9	6.38	0.21	47.35	-0.2775	0.2909	0.0006
167	SLD 10	6.38	0.21	47.35	-0.2775	0.2909	0.0006
167	SLD 11	9.44	-0.21	52.22	0.3155	0.429	-0.0006
167	SLD 12	9.44	-0.21	52.22	0.3155	0.429	-0.0006
167	SLD 13	-3.11	0.09	40.75	-0.0459	-0.15	0.0002
167	SLD 14	-3.11	0.09	40.75	-0.0459	-0.15	0.0002
167	SLD 15	-2.2	-0.04	42.21	0.132	-0.1086	-0.0001
167	SLD 16	-2.2	-0.04	42.21	0.132	-0.1086	-0.0001
167	SLV 1	45.92	0.06	78.76	-0.3052	2.1208	0.0002
167	SLV 2	45.92	0.06	78.76	-0.3052	2.1208	0.0002
167	SLV 3	48.07	-0.26	82.17	0.1492	2.218	-0.0006
167	SLV 4	48.07	-0.26	82.17	0.1492	2.218	-0.0006
167	SLV 5	19.22	0.49	55.8	-0.7748	0.8876	0.0014
167	SLV 6	19.22	0.49	55.8	-0.7748	0.8876	0.0014
167	SLV 7	26.4	-0.56	67.16	0.7401	1.2116	-0.0015
167	SLV 8	26.4	-0.56	67.16	0.7401	1.2116	-0.0015
167	SLV 9	-1.51	0.54	39.53	-0.7227	-0.0722	0.0015
167	SLV 10	-1.51	0.54	39.53	-0.7227	-0.0722	0.0015
167	SLV 11	5.67	-0.51	50.89	0.7921	0.2517	-0.0014
167	SLV 12	5.67	-0.51	50.89	0.7921	0.2517	-0.0014
167	SLV 13	-23.18	0.24	24.53	-0.1319	-1.0787	0.0006
167	SLV 14	-23.18	0.24	24.53	-0.1319	-1.0787	0.0006
167	SLV 15	-21.03	-0.08	27.93	0.3226	-0.9815	-0.0003
167	SLV 16	-21.03	-0.08	27.93	0.3226	-0.9815	-0.0003
168	SLU 1	9.38	0	48.69	0.0058	0.406	0
168	SLU 2	9.05	-0.02	48.52	0.0195	0.392	0
168	SLU 3	9.89	0	50.21	0.0058	0.4287	0
168	SLU 4	9.7	-0.01	50.11	0.0141	0.4202	0
168	SLU 5	9.37	-0.02	49.5	0.0194	0.4059	0
168	SLU 6	10.21	-0.01	51.19	0.0057	0.4426	0
168	SLU 7	10.02	-0.01	51.09	0.014	0.4342	0
168	SLU 8	10.02	0	50.66	0.0056	0.4339	0
168	SLU 9	9.82	-0.01	50.55	0.0139	0.4255	0
168	SLU 10	11.65	-0.02	57.35	0.0204	0.5057	0
168	SLU 11	12.5	-0.01	59.04	0.0067	0.5424	0
168	SLU 12	12.3	-0.01	58.94	0.0149	0.534	0
168	SLU 13	11.97	-0.02	58.33	0.0203	0.5197	-0.0001
168	SLU 14	12.82	-0.01	60.03	0.0066	0.5564	0
168	SLU 15	12.62	-0.01	59.93	0.0149	0.5479	0
168	SLU 16	12.62	-0.01	59.49	0.0065	0.5477	0
168	SLU 17	12.42	-0.01	59.39	0.0148	0.5393	0
168	SLU 18	13.1	-0.01	61.31	0.007	0.5685	0
168	SLU 19	12.9	-0.01	61.21	0.0153	0.5601	0
168	SLU 20	13.42	-0.01	62.29	0.007	0.5825	0
168	SLU 21	13.22	-0.01	62.19	0.0152	0.5741	0
168	SLU 22	11.68	-0.01	56.73	0.0065	0.5066	0
168	SLU 23	11.35	-0.02	56.56	0.0203	0.4925	0
168	SLU 24	12.2	-0.01	58.25	0.0065	0.5292	0
168	SLU 25	12	-0.01	58.15	0.0148	0.5207	0
168	SLU 26	11.67	-0.02	57.54	0.0202	0.5064	0
168	SLU 27	12.52	-0.01	59.23	0.0065	0.5431	0
168	SLU 28	12.32	-0.01	59.13	0.0147	0.5347	0
168	SLU 29	12.32	-0.01	58.69	0.0064	0.5345	0
168	SLU 30	12.12	-0.01	58.59	0.0146	0.526	0
168	SLU 31	13.95	-0.02	65.39	0.0212	0.6063	-0.0001
168	SLU 32	14.8	-0.01	67.08	0.0074	0.6429	0
168	SLU 33	14.6	-0.02	66.98	0.0157	0.6345	0
168	SLU 34	14.27	-0.02	66.37	0.0211	0.6202	-0.0001
168	SLU 35	15.12	-0.01	68.07	0.0074	0.6569	0
168	SLU 36	14.92	-0.02	67.96	0.0156	0.6485	0
168	SLU 37	14.93	-0.01	67.53	0.0073	0.6482	0
168	SLU 38	14.73	-0.02	67.43	0.0155	0.6398	0
168	SLU 39	15.4	-0.01	69.35	0.0078	0.6691	0
168	SLU 40	15.2	-0.02	69.25	0.016	0.6606	0
168	SLU 41	15.72	-0.01	70.33	0.0077	0.683	0
168	SLU 42	15.52	-0.02	70.23	0.016	0.6746	0
168	SLU 43	11.4	-0.01	60.54	0.0072	0.4934	0
168	SLU 44	11.07	-0.02	60.37	0.021	0.4793	-0.0001
168	SLU 45	11.92	-0.01	62.06	0.0073	0.516	0
168	SLU 46	11.72	-0.01	61.96	0.0155	0.5076	0
168	SLU 47	11.39	-0.02	61.35	0.0209	0.4933	-0.0001
168	SLU 48	12.24	-0.01	63.04	0.0072	0.5299	0
168	SLU 49	12.04	-0.01	62.94	0.0155	0.5215	0



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
168	SLU 50	12.04	-0.01	62.51	0.0071	0.5213	0
168	SLU 51	11.84	-0.01	62.4	0.0154	0.5128	0
168	SLU 52	13.68	-0.02	69.2	0.0219	0.5931	-0.0001
168	SLU 53	14.52	-0.01	70.89	0.0082	0.6298	0
168	SLU 54	14.32	-0.02	70.79	0.0164	0.6213	0
168	SLU 55	14	-0.02	70.19	0.0218	0.607	-0.0001
168	SLU 56	14.84	-0.01	71.88	0.0081	0.6437	0
168	SLU 57	14.64	-0.02	71.78	0.0164	0.6353	0
168	SLU 58	14.65	-0.01	71.34	0.008	0.635	0
168	SLU 59	14.45	-0.02	71.24	0.0163	0.6266	0
168	SLU 60	15.12	-0.01	73.16	0.0085	0.6559	0
168	SLU 61	14.92	-0.02	73.06	0.0168	0.6474	0
168	SLU 62	15.44	-0.01	74.14	0.0085	0.6698	0
168	SLU 63	15.24	-0.02	74.04	0.0167	0.6614	0
168	SLU 64	13.71	-0.01	68.58	0.008	0.5939	0
168	SLU 65	13.37	-0.02	68.41	0.0217	0.5798	-0.0001
168	SLU 66	14.22	-0.01	70.1	0.008	0.6165	0
168	SLU 67	14.02	-0.02	70	0.0163	0.6081	0
168	SLU 68	13.69	-0.02	69.39	0.0217	0.5938	-0.0001
168	SLU 69	14.54	-0.01	71.08	0.008	0.6305	0
168	SLU 70	14.34	-0.02	70.98	0.0162	0.622	0
168	SLU 71	14.35	-0.01	70.54	0.0078	0.6218	0
168	SLU 72	14.15	-0.02	70.44	0.0161	0.6134	0
168	SLU 73	15.98	-0.02	77.24	0.0226	0.6936	-0.0001
168	SLU 74	16.83	-0.01	78.93	0.0089	0.7303	0
168	SLU 75	16.63	-0.02	78.83	0.0172	0.7218	0
168	SLU 76	16.3	-0.02	78.22	0.0226	0.7075	-0.0001
168	SLU 77	17.15	-0.01	79.92	0.0088	0.7442	0
168	SLU 78	16.95	-0.02	79.81	0.0171	0.7358	0
168	SLU 79	16.95	-0.01	79.38	0.0087	0.7356	0
168	SLU 80	16.75	-0.02	79.28	0.017	0.7271	0
168	SLU 81	17.43	-0.01	81.2	0.0093	0.7564	0
168	SLU 82	17.23	-0.02	81.1	0.0175	0.748	0
168	SLU 83	17.75	-0.01	82.18	0.0092	0.7704	0
168	SLU 84	17.55	-0.02	82.08	0.0174	0.7619	0
168	SLE RA 1	10.04	-0.01	50.99	0.006	0.4348	0
168	SLE RA 2	9.82	-0.01	50.87	0.0151	0.4254	0
168	SLE RA 3	10.38	-0.01	52	0.006	0.4498	0
168	SLE RA 4	10.25	-0.01	51.93	0.0115	0.4442	0
168	SLE RA 5	10.03	-0.01	51.53	0.0151	0.4347	0
168	SLE RA 6	10.59	-0.01	52.66	0.006	0.4591	0
168	SLE RA 7	10.46	-0.01	52.59	0.0115	0.4535	0
168	SLE RA 8	10.46	-0.01	52.3	0.0059	0.4534	0
168	SLE RA 9	10.33	-0.01	52.23	0.0114	0.4477	0
168	SLE RA 10	11.55	-0.02	56.76	0.0157	0.5012	0
168	SLE RA 11	12.12	-0.01	57.89	0.0066	0.5257	0
168	SLE RA 12	11.98	-0.01	57.82	0.0121	0.5201	0
168	SLE RA 13	11.77	-0.02	57.42	0.0157	0.5105	0
168	SLE RA 14	12.33	-0.01	58.55	0.0066	0.535	0
168	SLE RA 15	12.2	-0.01	58.48	0.0121	0.5294	0
168	SLE RA 16	12.2	-0.01	58.19	0.0065	0.5292	0
168	SLE RA 17	12.07	-0.01	58.12	0.012	0.5236	0
168	SLE RA 18	12.52	-0.01	59.4	0.0068	0.5431	0
168	SLE RA 19	12.38	-0.01	59.33	0.0123	0.5375	0
168	SLE RA 20	12.73	-0.01	60.05	0.0068	0.5524	0
168	SLE RA 21	12.6	-0.01	59.99	0.0123	0.5468	0
168	SLE FR 1	10.04	-0.01	50.99	0.006	0.4348	0
168	SLE FR 2	9.99	-0.01	50.96	0.0078	0.4329	0
168	SLE FR 3	10.12	-0.01	51.25	0.006	0.4385	0
168	SLE FR 4	10.74	-0.01	53.49	0.0081	0.4654	0
168	SLE FR 5	10.87	-0.01	53.77	0.0062	0.471	0
168	SLE FR 6	11.28	-0.01	55.19	0.0064	0.4889	0
168	SLE QP 1	10.04	-0.01	50.99	0.006	0.4348	0
168	SLE QP 2	10.78	-0.01	53.51	0.0062	0.4673	0
168	SLD 1	25.77	0.05	61.5	-0.156	1.1495	0.0001
168	SLD 2	25.77	0.05	61.5	-0.156	1.1495	0.0001
168	SLD 3	26.68	-0.14	62.58	0.083	1.1903	-0.0004
168	SLD 4	26.68	-0.14	62.58	0.083	1.1903	-0.0004
168	SLD 5	13.89	0.31	54.27	-0.4049	0.6099	0.0008
168	SLD 6	13.89	0.31	54.27	-0.4049	0.6099	0.0008
168	SLD 7	16.93	-0.34	57.87	0.3917	0.7462	-0.0009
168	SLD 8	16.93	-0.34	57.87	0.3917	0.7462	-0.0009
168	SLD 9	4.63	0.33	49.15	-0.3792	0.1883	0.0009
168	SLD 10	4.63	0.33	49.15	-0.3792	0.1883	0.0009
168	SLD 11	7.67	-0.32	52.75	0.4173	0.3246	-0.0009
168	SLD 12	7.67	-0.32	52.75	0.4173	0.3246	-0.0009
168	SLD 13	-5.12	0.13	44.44	-0.0705	-0.2558	0.0003
168	SLD 14	-5.12	0.13	44.44	-0.0705	-0.2558	0.0003
168	SLD 15	-4.21	-0.06	45.52	0.1684	-0.2149	-0.0002
168	SLD 16	-4.21	-0.06	45.52	0.1684	-0.2149	-0.0002
168	SLV 1	45.04	0.15	71.76	-0.4079	2.0265	0.0004
168	SLV 2	45.04	0.15	71.76	-0.4079	2.0265	0.0004
168	SLV 3	47.19	-0.35	74.29	0.2032	2.1223	-0.0009
168	SLV 4	47.19	-0.35	74.29	0.2032	2.1223	-0.0009
168	SLV 5	17.81	0.8	55.14	-1.0449	0.7896	0.0021
168	SLV 6	17.81	0.8	55.14	-1.0449	0.7896	0.0021
168	SLV 7	24.95	-0.86	63.59	0.9922	1.1092	-0.0023
168	SLV 8	24.95	-0.86	63.59	0.9922	1.1092	-0.0023
168	SLV 9	-3.39	0.85	43.43	-0.9798	-0.1747	0.0022



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
168	SLV 10	-3.39	0.85	43.43	-0.9798	-0.1747	0.0022
168	SLV 11	3.75	-0.81	51.88	1.0574	0.1449	-0.0021
168	SLV 12	3.75	-0.81	51.88	1.0574	0.1449	-0.0021
168	SLV 13	-25.62	0.34	32.73	-0.1907	-1.1878	0.0009
168	SLV 14	-25.62	0.34	32.73	-0.1907	-1.1878	0.0009
168	SLV 15	-23.48	-0.16	35.26	0.4204	-1.092	-0.0004
168	SLV 16	-23.48	-0.16	35.26	0.4204	-1.092	-0.0004
169	SLU 1	8.45	0	48.9	0.0047	0.3858	0
169	SLU 2	8.1	-0.01	48.7	0.0175	0.3698	0
169	SLU 3	8.95	0	50.4	0.0047	0.4085	0
169	SLU 4	8.74	-0.01	50.28	0.0123	0.3989	0
169	SLU 5	8.41	-0.01	49.67	0.0174	0.384	0
169	SLU 6	9.26	0	51.38	0.0045	0.4227	0
169	SLU 7	9.05	-0.01	51.26	0.0122	0.4131	0
169	SLU 8	9.07	0	50.85	0.0044	0.4142	0
169	SLU 9	8.86	-0.01	50.73	0.0121	0.4046	0
169	SLU 10	10.47	-0.01	57.7	0.0182	0.4759	0
169	SLU 11	11.32	0	59.41	0.0054	0.5147	0
169	SLU 12	11.11	-0.01	59.29	0.0131	0.5051	0
169	SLU 13	10.78	-0.01	58.68	0.0181	0.4901	0
169	SLU 14	11.63	0	60.39	0.0052	0.5289	0
169	SLU 15	11.42	-0.01	60.27	0.0129	0.5193	0
169	SLU 16	11.45	0	59.86	0.0051	0.5204	0
169	SLU 17	11.23	-0.01	59.74	0.0128	0.5108	0
169	SLU 18	11.84	0	61.77	0.0057	0.5374	0
169	SLU 19	11.63	-0.01	61.65	0.0134	0.5278	0
169	SLU 20	12.15	0	62.75	0.0056	0.5517	0
169	SLU 21	11.94	-0.01	62.62	0.0133	0.542	0
169	SLU 22	10.55	0	57.05	0.0053	0.4803	0
169	SLU 23	10.2	-0.01	56.85	0.0181	0.4643	0
169	SLU 24	11.05	0	58.56	0.0052	0.503	0
169	SLU 25	10.84	-0.01	58.44	0.0129	0.4934	0
169	SLU 26	10.51	-0.01	57.83	0.0179	0.4785	0
169	SLU 27	11.36	0	59.53	0.0051	0.5172	0
169	SLU 28	11.15	-0.01	59.41	0.0128	0.5076	0
169	SLU 29	11.18	0	59.01	0.005	0.5087	0
169	SLU 30	10.96	-0.01	58.89	0.0127	0.4991	0
169	SLU 31	12.57	-0.02	65.86	0.0188	0.5704	0
169	SLU 32	13.42	0	67.57	0.0059	0.6092	0
169	SLU 33	13.21	-0.01	67.44	0.0136	0.5996	0
169	SLU 34	12.89	-0.02	66.84	0.0187	0.5846	0
169	SLU 35	13.74	0	68.54	0.0058	0.6234	0
169	SLU 36	13.52	-0.01	68.42	0.0135	0.6138	0
169	SLU 37	13.55	0	68.02	0.0057	0.6149	0
169	SLU 38	13.34	-0.01	67.9	0.0134	0.6053	0
169	SLU 39	13.94	0	69.92	0.0063	0.6319	0
169	SLU 40	13.73	-0.01	69.8	0.014	0.6223	0
169	SLU 41	14.25	0	70.9	0.0062	0.6462	0
169	SLU 42	14.04	-0.01	70.78	0.0138	0.6365	0
169	SLU 43	10.26	0	60.77	0.0059	0.4691	0
169	SLU 44	9.91	-0.02	60.57	0.0187	0.4531	0
169	SLU 45	10.76	0	62.27	0.0059	0.4919	0
169	SLU 46	10.55	-0.01	62.15	0.0135	0.4822	0
169	SLU 47	10.22	-0.02	61.55	0.0186	0.4673	0
169	SLU 48	11.07	0	63.25	0.0057	0.5061	0
169	SLU 49	10.86	-0.01	63.13	0.0134	0.4965	0
169	SLU 50	10.89	0	62.73	0.0056	0.4976	0
169	SLU 51	10.68	-0.01	62.61	0.0133	0.4879	0
169	SLU 52	12.29	-0.02	69.58	0.0194	0.5593	0
169	SLU 53	13.14	0	71.28	0.0066	0.598	0
169	SLU 54	12.92	-0.01	71.16	0.0143	0.5884	0
169	SLU 55	12.6	-0.02	70.56	0.0193	0.5735	0
169	SLU 56	13.45	0	72.26	0.0064	0.6122	0
169	SLU 57	13.24	-0.01	72.14	0.0141	0.6026	0
169	SLU 58	13.26	0	71.74	0.0063	0.6037	0
169	SLU 59	13.05	-0.01	71.61	0.014	0.5941	0
169	SLU 60	13.65	0	73.64	0.0069	0.6208	0
169	SLU 61	13.44	-0.01	73.52	0.0146	0.6112	0
169	SLU 62	13.97	0	74.62	0.0068	0.635	0
169	SLU 63	13.75	-0.01	74.5	0.0145	0.6254	0
169	SLU 64	12.37	0	68.93	0.0065	0.5636	0
169	SLU 65	12.02	-0.02	68.72	0.0193	0.5476	0
169	SLU 66	12.87	0	70.43	0.0064	0.5864	0
169	SLU 67	12.65	-0.01	70.31	0.0141	0.5767	0
169	SLU 68	12.33	-0.02	69.7	0.0191	0.5618	0
169	SLU 69	13.18	0	71.41	0.0063	0.6006	0
169	SLU 70	12.97	-0.01	71.29	0.014	0.591	0
169	SLU 71	12.99	0	70.88	0.0062	0.5921	0
169	SLU 72	12.78	-0.01	70.76	0.0139	0.5825	0
169	SLU 73	14.39	-0.02	77.73	0.02	0.6538	0
169	SLU 74	15.24	0	79.44	0.0072	0.6925	0
169	SLU 75	15.03	-0.01	79.32	0.0148	0.6829	0
169	SLU 76	14.7	-0.02	78.71	0.0199	0.668	0
169	SLU 77	15.55	0	80.42	0.007	0.7067	0
169	SLU 78	15.34	-0.01	80.3	0.0147	0.6971	0
169	SLU 79	15.36	0	79.89	0.0069	0.6982	0
169	SLU 80	15.15	-0.01	79.77	0.0146	0.6886	0
169	SLU 81	15.76	-0.01	81.8	0.0075	0.7153	0
169	SLU 82	15.55	-0.01	81.67	0.0152	0.7057	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
169	SLU 83	16.07	-0.01	82.77	0.0074	0.7295	0
169	SLU 84	15.86	-0.01	82.65	0.015	0.7199	0
169	SLE RA 1	9.05	0	51.23	0.0048	0.4128	0
169	SLE RA 2	8.82	-0.01	51.09	0.0134	0.4021	0
169	SLE RA 3	9.38	0	52.23	0.0048	0.4279	0
169	SLE RA 4	9.24	-0.01	52.15	0.0099	0.4215	0
169	SLE RA 5	9.02	-0.01	51.75	0.0133	0.4116	0
169	SLE RA 6	9.59	0	52.88	0.0047	0.4374	0
169	SLE RA 7	9.45	-0.01	52.8	0.0099	0.431	0
169	SLE RA 8	9.47	0	52.53	0.0047	0.4317	0
169	SLE RA 9	9.33	-0.01	52.45	0.0098	0.4253	0
169	SLE RA 10	10.4	-0.01	57.1	0.0139	0.4729	0
169	SLE RA 11	10.96	0	58.24	0.0053	0.4987	0
169	SLE RA 12	10.82	-0.01	58.16	0.0104	0.4923	0
169	SLE RA 13	10.61	-0.01	57.75	0.0138	0.4824	0
169	SLE RA 14	11.17	0	58.89	0.0052	0.5082	0
169	SLE RA 15	11.03	-0.01	58.81	0.0103	0.5018	0
169	SLE RA 16	11.05	0	58.54	0.0051	0.5025	0
169	SLE RA 17	10.91	-0.01	58.46	0.0103	0.4961	0
169	SLE RA 18	11.31	0	59.81	0.0055	0.5139	0
169	SLE RA 19	11.17	-0.01	59.73	0.0107	0.5075	0
169	SLE RA 20	11.52	0	60.46	0.0054	0.5234	0
169	SLE RA 21	11.38	-0.01	60.38	0.0106	0.517	0
169	SLE FR 1	9.05	0	51.23	0.0048	0.4128	0
169	SLE FR 2	9	0	51.2	0.0066	0.4107	0
169	SLE FR 3	9.13	0	51.49	0.0048	0.4166	0
169	SLE FR 4	9.68	0	53.77	0.0068	0.441	0
169	SLE FR 5	9.81	0	54.06	0.005	0.4469	0
169	SLE FR 6	10.18	0	55.52	0.0052	0.4633	0
169	SLE QP 1	9.05	0	51.23	0.0048	0.4128	0
169	SLE QP 2	9.73	0	53.8	0.0051	0.4431	0
169	SLD 1	25.09	0.17	59.27	-0.1895	1.1412	0.0005
169	SLD 2	25.09	0.17	59.27	-0.1895	1.1412	0.0005
169	SLD 3	26.02	-0.09	60.12	0.0986	1.183	-0.0002
169	SLD 4	26.02	-0.09	60.12	0.0986	1.183	-0.0002
169	SLD 5	12.93	0.44	54.16	-0.4903	0.5892	0.0012
169	SLD 6	12.93	0.44	54.16	-0.4903	0.5892	0.0012
169	SLD 7	16.02	-0.42	56.98	0.4702	0.7285	-0.0012
169	SLD 8	16.02	-0.42	56.98	0.4702	0.7285	-0.0012
169	SLD 9	3.43	0.41	50.62	-0.4601	0.1578	0.0011
169	SLD 10	3.43	0.41	50.62	-0.4601	0.1578	0.0011
169	SLD 11	6.53	-0.44	53.45	0.5005	0.2971	-0.0012
169	SLD 12	6.53	-0.44	53.45	0.5005	0.2971	-0.0012
169	SLD 13	-6.56	0.08	47.48	-0.0885	-0.2968	0.0002
169	SLD 14	-6.56	0.08	47.48	-0.0885	-0.2968	0.0002
169	SLD 15	-5.63	-0.18	48.33	0.1996	-0.255	-0.0005
169	SLD 16	-5.63	-0.18	48.33	0.1996	-0.255	-0.0005
169	SLV 1	44.84	0.44	66.31	-0.4925	2.0393	0.0012
169	SLV 2	44.84	0.44	66.31	-0.4925	2.0393	0.0012
169	SLV 3	47.02	-0.22	68.32	0.2449	2.1374	-0.0006
169	SLV 4	47.02	-0.22	68.32	0.2449	2.1374	-0.0006
169	SLV 5	16.95	1.12	54.51	-1.2626	0.7732	0.0031
169	SLV 6	16.95	1.12	54.51	-1.2626	0.7732	0.0031
169	SLV 7	24.23	-1.06	61.2	1.1953	1.1002	-0.0029
169	SLV 8	24.23	-1.06	61.2	1.1953	1.1002	-0.0029
169	SLV 9	-4.77	1.06	46.4	-1.1852	-0.214	0.0029
169	SLV 10	-4.77	1.06	46.4	-1.1852	-0.214	0.0029
169	SLV 11	2.51	-1.13	53.1	1.2727	0.1131	-0.0031
169	SLV 12	2.51	-1.13	53.1	1.2727	0.1131	-0.0031
169	SLV 13	-27.56	0.21	39.28	-0.2348	-1.2511	0.0006
169	SLV 14	-27.56	0.21	39.28	-0.2348	-1.2511	0.0006
169	SLV 15	-25.38	-0.44	41.29	0.5026	-1.153	-0.0012
169	SLV 16	-25.38	-0.44	41.29	0.5026	-1.153	-0.0012
170	SLU 1	7.25	0	49.12	0.0042	0.311	0
170	SLU 2	6.9	-0.01	48.88	0.0156	0.2962	0
170	SLU 3	7.73	0	50.62	0.0041	0.3315	0
170	SLU 4	7.52	-0.01	50.48	0.0109	0.3226	0
170	SLU 5	7.2	-0.01	49.87	0.0154	0.309	0
170	SLU 6	8.02	0	51.6	0.0039	0.3443	0
170	SLU 7	7.81	-0.01	51.46	0.0107	0.3354	0
170	SLU 8	7.85	0	51.09	0.0038	0.3365	0
170	SLU 9	7.64	-0.01	50.95	0.0106	0.3277	0
170	SLU 10	9.01	-0.01	58.04	0.0162	0.3877	0
170	SLU 11	9.83	0	59.78	0.0048	0.423	0
170	SLU 12	9.62	-0.01	59.64	0.0116	0.4141	0
170	SLU 13	9.31	-0.01	59.03	0.016	0.4004	0
170	SLU 14	10.13	0	60.76	0.0046	0.4358	0
170	SLU 15	9.92	-0.01	60.62	0.0114	0.4269	0
170	SLU 16	9.96	0	60.25	0.0044	0.428	0
170	SLU 17	9.74	-0.01	60.1	0.0113	0.4191	0
170	SLU 18	10.27	0	62.21	0.0051	0.4417	0
170	SLU 19	10.05	-0.01	62.06	0.0119	0.4328	0
170	SLU 20	10.56	0	63.19	0.0049	0.4545	0
170	SLU 21	10.35	-0.01	63.05	0.0117	0.4456	0
170	SLU 22	9.12	0	57.38	0.0047	0.392	0
170	SLU 23	8.77	-0.01	57.14	0.0161	0.3772	0
170	SLU 24	9.59	0	58.88	0.0046	0.4125	0
170	SLU 25	9.38	-0.01	58.74	0.0114	0.4036	0
170	SLU 26	9.07	-0.01	58.12	0.0159	0.3899	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
170	SLU 27	9.89	0	59.86	0.0044	0.4253	0
170	SLU 28	9.68	-0.01	59.72	0.0112	0.4164	0
170	SLU 29	9.72	0	59.35	0.0043	0.4175	0
170	SLU 30	9.5	-0.01	59.2	0.0111	0.4086	0
170	SLU 31	10.88	-0.01	66.3	0.0167	0.4687	0
170	SLU 32	11.7	0	68.04	0.0052	0.504	0
170	SLU 33	11.49	-0.01	67.89	0.0121	0.4951	0
170	SLU 34	11.17	-0.01	67.28	0.0165	0.4814	0
170	SLU 35	12	0	69.02	0.005	0.5167	0
170	SLU 36	11.79	-0.01	68.88	0.0119	0.5079	0
170	SLU 37	11.82	0	68.51	0.0049	0.509	0
170	SLU 38	11.61	-0.01	68.36	0.0117	0.5001	0
170	SLU 39	12.13	0	70.47	0.0056	0.5227	0
170	SLU 40	11.92	-0.01	70.32	0.0124	0.5138	0
170	SLU 41	12.43	0	71.45	0.0054	0.5355	0
170	SLU 42	12.22	-0.01	71.31	0.0122	0.5266	0
170	SLU 43	8.79	0	61.03	0.0053	0.3765	0
170	SLU 44	8.44	-0.01	60.79	0.0167	0.3617	0
170	SLU 45	9.26	0	62.53	0.0052	0.397	0
170	SLU 46	9.05	-0.01	62.38	0.012	0.3881	0
170	SLU 47	8.74	-0.01	61.77	0.0165	0.3745	0
170	SLU 48	9.56	0	63.51	0.005	0.4098	0
170	SLU 49	9.35	-0.01	63.36	0.0118	0.4009	0
170	SLU 50	9.38	0	63	0.0049	0.4021	0
170	SLU 51	9.17	-0.01	62.85	0.0117	0.3932	0
170	SLU 52	10.55	-0.01	69.95	0.0173	0.4532	0
170	SLU 53	11.37	0	71.69	0.0058	0.4885	0
170	SLU 54	11.16	-0.01	71.54	0.0127	0.4796	0
170	SLU 55	10.84	-0.01	70.93	0.0171	0.466	0
170	SLU 56	11.67	0	72.67	0.0056	0.5013	0
170	SLU 57	11.46	-0.01	72.52	0.0125	0.4924	0
170	SLU 58	11.49	0	72.16	0.0055	0.4936	0
170	SLU 59	11.28	-0.01	72.01	0.0123	0.4847	0
170	SLU 60	11.8	0	74.11	0.0062	0.5072	0
170	SLU 61	11.59	-0.01	73.97	0.013	0.4983	0
170	SLU 62	12.1	0	75.1	0.006	0.52	0
170	SLU 63	11.89	-0.01	74.95	0.0128	0.5111	0
170	SLU 64	10.66	0	69.29	0.0058	0.4575	0
170	SLU 65	10.31	-0.01	69.05	0.0171	0.4427	0
170	SLU 66	11.13	0	70.79	0.0057	0.478	0
170	SLU 67	10.92	-0.01	70.64	0.0125	0.4691	0
170	SLU 68	10.6	-0.01	70.03	0.0169	0.4555	0
170	SLU 69	11.43	0	71.77	0.0055	0.4908	0
170	SLU 70	11.22	-0.01	71.62	0.0123	0.4819	0
170	SLU 71	11.25	0	71.25	0.0054	0.4831	0
170	SLU 72	11.04	-0.01	71.11	0.0122	0.4742	0
170	SLU 73	12.41	-0.01	78.21	0.0178	0.5342	0
170	SLU 74	13.24	0	79.95	0.0063	0.5695	0
170	SLU 75	13.03	-0.01	79.8	0.0132	0.5606	0
170	SLU 76	12.71	-0.01	79.19	0.0176	0.547	0
170	SLU 77	13.53	0	80.93	0.0061	0.5823	0
170	SLU 78	13.32	-0.01	80.78	0.013	0.5734	0
170	SLU 79	13.36	0	80.41	0.006	0.5746	0
170	SLU 80	13.15	-0.01	80.27	0.0128	0.5657	0
170	SLU 81	13.67	0	82.37	0.0067	0.5882	0
170	SLU 82	13.46	-0.01	82.23	0.0135	0.5793	0
170	SLU 83	13.97	0	83.36	0.0065	0.601	0
170	SLU 84	13.75	-0.01	83.21	0.0133	0.5921	0
170	SLE RA 1	7.79	0	51.48	0.0043	0.3341	0
170	SLE RA 2	7.55	-0.01	51.32	0.0119	0.3243	0
170	SLE RA 3	8.1	0	52.48	0.0043	0.3478	0
170	SLE RA 4	7.96	-0.01	52.39	0.0088	0.3419	0
170	SLE RA 5	7.75	-0.01	51.98	0.0118	0.3328	0
170	SLE RA 6	8.3	0	53.14	0.0041	0.3563	0
170	SLE RA 7	8.16	-0.01	53.04	0.0087	0.3504	0
170	SLE RA 8	8.18	0	52.79	0.0041	0.3512	0
170	SLE RA 9	8.04	-0.01	52.7	0.0086	0.3452	0
170	SLE RA 10	8.96	-0.01	57.43	0.0123	0.3853	0
170	SLE RA 11	9.51	0	58.59	0.0047	0.4088	0
170	SLE RA 12	9.37	-0.01	58.49	0.0093	0.4029	0
170	SLE RA 13	9.16	-0.01	58.08	0.0122	0.3938	0
170	SLE RA 14	9.71	0	59.24	0.0046	0.4173	0
170	SLE RA 15	9.56	-0.01	59.15	0.0091	0.4114	0
170	SLE RA 16	9.59	0	58.9	0.0045	0.4122	0
170	SLE RA 17	9.45	-0.01	58.8	0.009	0.4062	0
170	SLE RA 18	9.8	0	60.21	0.0049	0.4213	0
170	SLE RA 19	9.65	-0.01	60.11	0.0095	0.4153	0
170	SLE RA 20	9.99	0	60.86	0.0048	0.4298	0
170	SLE RA 21	9.85	-0.01	60.77	0.0094	0.4239	0
170	SLE FR 1	7.79	0	51.48	0.0043	0.3341	0
170	SLE FR 2	7.74	0	51.45	0.0058	0.3322	0
170	SLE FR 3	7.87	0	51.75	0.0043	0.3375	0
170	SLE FR 4	8.34	0	54.07	0.006	0.3583	0
170	SLE FR 5	8.47	0	54.36	0.0045	0.3637	0
170	SLE FR 6	8.79	0	55.85	0.0046	0.3777	0
170	SLE QP 1	7.79	0	51.48	0.0043	0.3341	0
170	SLE QP 2	8.39	0	54.1	0.0045	0.3603	0
170	SLD 1	24.06	0.19	57.45	-0.2106	1.0663	0.0006
170	SLD 2	24.06	0.19	57.45	-0.2106	1.0663	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
170	SLD 3	25	-0.1	58.16	0.1065	1.1088	-0.0003
170	SLD 4	25	-0.1	58.16	0.1065	1.1088	-0.0003
170	SLD 5	11.65	0.5	54.03	-0.541	0.5077	0.0015
170	SLD 6	11.65	0.5	54.03	-0.541	0.5077	0.0015
170	SLD 7	14.81	-0.48	56.4	0.5161	0.6492	-0.0014
170	SLD 8	14.81	-0.48	56.4	0.5161	0.6492	-0.0014
170	SLD 9	1.97	0.47	51.8	-0.507	0.0713	0.0014
170	SLD 10	1.97	0.47	51.8	-0.507	0.0713	0.0014
170	SLD 11	5.13	-0.51	54.17	0.55	0.2129	-0.0015
170	SLD 12	5.13	-0.51	54.17	0.55	0.2129	-0.0015
170	SLD 13	-8.22	0.09	50.04	-0.0975	-0.3883	0.0003
170	SLD 14	-8.22	0.09	50.04	-0.0975	-0.3883	0.0003
170	SLD 15	-7.27	-0.2	50.75	0.2197	-0.3458	-0.0006
170	SLD 16	-7.27	-0.2	50.75	0.2197	-0.3458	-0.0006
170	SLV 1	44.19	0.5	61.78	-0.5461	1.9738	0.0015
170	SLV 2	44.19	0.5	61.78	-0.5461	1.9738	0.0015
170	SLV 3	46.42	-0.25	63.5	0.2656	2.0734	-0.0007
170	SLV 4	46.42	-0.25	63.5	0.2656	2.0734	-0.0007
170	SLV 5	15.75	1.29	53.8	-1.3917	0.6932	0.0037
170	SLV 6	15.75	1.29	53.8	-1.3917	0.6932	0.0037
170	SLV 7	23.18	-1.22	59.53	1.3138	1.0254	-0.0035
170	SLV 8	23.18	-1.22	59.53	1.3138	1.0254	-0.0035
170	SLV 9	-6.4	1.21	48.67	-1.3048	-0.3048	0.0035
170	SLV 10	-6.4	1.21	48.67	-1.3048	-0.3048	0.0035
170	SLV 11	1.03	-1.29	54.4	1.4007	0.0274	-0.0038
170	SLV 12	1.03	-1.29	54.4	1.4007	0.0274	-0.0038
170	SLV 13	-29.64	0.25	44.7	-0.2566	-1.3529	0.0007
170	SLV 14	-29.64	0.25	44.7	-0.2566	-1.3529	0.0007
170	SLV 15	-27.41	-0.51	46.42	0.5551	-1.2532	-0.0015
170	SLV 16	-27.41	-0.51	46.42	0.5551	-1.2532	-0.0015
171	SLU 1	6.6	0	49.35	0.0039	0.3031	0
171	SLU 2	6.22	-0.01	49.06	0.0136	0.2859	0
171	SLU 3	7.08	0	50.85	0.0038	0.3246	0
171	SLU 4	6.85	-0.01	50.68	0.0096	0.3142	0
171	SLU 5	6.53	-0.01	50.06	0.0133	0.2996	0
171	SLU 6	7.38	0	51.85	0.0035	0.3383	0
171	SLU 7	7.15	-0.01	51.68	0.0093	0.328	0
171	SLU 8	7.21	0	51.35	0.0034	0.3306	0
171	SLU 9	6.98	-0.01	51.18	0.0092	0.3202	0
171	SLU 10	8.15	-0.01	58.35	0.0142	0.3728	0
171	SLU 11	9.01	0	60.14	0.0044	0.4115	0
171	SLU 12	8.78	-0.01	59.97	0.0102	0.4011	0
171	SLU 13	8.46	-0.01	59.35	0.0139	0.3865	0
171	SLU 14	9.31	0	61.14	0.0042	0.4252	0
171	SLU 15	9.08	-0.01	60.97	0.01	0.4149	0
171	SLU 16	9.14	0	60.64	0.004	0.4174	0
171	SLU 17	8.91	-0.01	60.47	0.0098	0.4071	0
171	SLU 18	9.36	0	62.62	0.0048	0.4272	0
171	SLU 19	9.13	-0.01	62.45	0.0106	0.4169	0
171	SLU 20	9.67	0	63.62	0.0045	0.4409	0
171	SLU 21	9.44	-0.01	63.45	0.0103	0.4306	0
171	SLU 22	8.33	0	57.7	0.0044	0.3809	0
171	SLU 23	7.95	-0.01	57.41	0.014	0.3637	0
171	SLU 24	8.8	0	59.21	0.0042	0.4024	0
171	SLU 25	8.57	-0.01	59.03	0.01	0.3921	0
171	SLU 26	8.25	-0.01	58.41	0.0138	0.3774	0
171	SLU 27	9.1	0	60.21	0.004	0.4161	0
171	SLU 28	8.88	-0.01	60.03	0.0098	0.4058	0
171	SLU 29	8.93	0	59.7	0.0039	0.4084	0
171	SLU 30	8.71	-0.01	59.53	0.0096	0.3981	0
171	SLU 31	9.88	-0.01	66.7	0.0146	0.4506	0
171	SLU 32	10.73	0	68.5	0.0049	0.4893	0
171	SLU 33	10.5	-0.01	68.32	0.0107	0.479	0
171	SLU 34	10.18	-0.01	67.7	0.0144	0.4643	0
171	SLU 35	11.04	0	69.5	0.0046	0.503	0
171	SLU 36	10.81	-0.01	69.32	0.0104	0.4927	0
171	SLU 37	10.87	0	68.99	0.0045	0.4953	0
171	SLU 38	10.64	-0.01	68.82	0.0103	0.4849	0
171	SLU 39	11.09	0	70.97	0.0052	0.505	0
171	SLU 40	10.86	-0.01	70.8	0.011	0.4947	0
171	SLU 41	11.39	0	71.98	0.005	0.5188	0
171	SLU 42	11.16	-0.01	71.8	0.0108	0.5084	0
171	SLU 43	7.99	0	61.29	0.0049	0.3673	0
171	SLU 44	7.61	-0.01	61	0.0146	0.3501	0
171	SLU 45	8.47	0	62.79	0.0048	0.3888	0
171	SLU 46	8.24	-0.01	62.62	0.0106	0.3785	0
171	SLU 47	7.92	-0.01	62	0.0143	0.3639	0
171	SLU 48	8.77	0	63.79	0.0046	0.4026	0
171	SLU 49	8.54	-0.01	63.62	0.0104	0.3922	0
171	SLU 50	8.6	0	63.29	0.0044	0.3948	0
171	SLU 51	8.37	-0.01	63.12	0.0102	0.3845	0
171	SLU 52	9.54	-0.01	70.29	0.0152	0.437	0
171	SLU 53	10.4	0	72.08	0.0054	0.4757	0
171	SLU 54	10.17	-0.01	71.91	0.0112	0.4654	0
171	SLU 55	9.85	-0.01	71.29	0.015	0.4507	0
171	SLU 56	10.7	0	73.08	0.0052	0.4894	0
171	SLU 57	10.47	-0.01	72.91	0.011	0.4791	0
171	SLU 58	10.53	0	72.58	0.005	0.4817	0
171	SLU 59	10.3	-0.01	72.41	0.0108	0.4714	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
171	SLU 60	10.75	0	74.56	0.0058	0.4915	0
171	SLU 61	10.52	-0.01	74.39	0.0116	0.4811	0
171	SLU 62	11.06	0	75.56	0.0056	0.5052	0
171	SLU 63	10.83	-0.01	75.39	0.0114	0.4949	0
171	SLU 64	9.72	0	69.64	0.0054	0.4452	0
171	SLU 65	9.34	-0.01	69.35	0.015	0.428	0
171	SLU 66	10.19	0	71.15	0.0053	0.4667	0
171	SLU 67	9.96	-0.01	70.97	0.0111	0.4563	0
171	SLU 68	9.64	-0.01	70.35	0.0148	0.4417	0
171	SLU 69	10.49	0	72.15	0.005	0.4804	0
171	SLU 70	10.27	-0.01	71.97	0.0108	0.4701	0
171	SLU 71	10.32	0	71.65	0.0049	0.4726	0
171	SLU 72	10.1	-0.01	71.47	0.0107	0.4623	0
171	SLU 73	11.27	-0.01	78.64	0.0157	0.5148	0
171	SLU 74	12.12	-0.01	80.44	0.0059	0.5535	0
171	SLU 75	11.89	-0.01	80.26	0.0117	0.5432	0
171	SLU 76	11.57	-0.01	79.64	0.0154	0.5286	0
171	SLU 77	12.43	-0.01	81.44	0.0056	0.5673	0
171	SLU 78	12.2	-0.01	81.26	0.0114	0.5569	0
171	SLU 79	12.26	0	80.94	0.0055	0.5595	0
171	SLU 80	12.03	-0.01	80.76	0.0113	0.5492	0
171	SLU 81	12.48	-0.01	82.91	0.0063	0.5693	0
171	SLU 82	12.25	-0.01	82.74	0.0121	0.559	0
171	SLU 83	12.78	-0.01	83.92	0.006	0.583	0
171	SLU 84	12.55	-0.01	83.74	0.0118	0.5727	0
171	SLE RA 1	7.1	0	51.74	0.004	0.3253	0
171	SLE RA 2	6.84	-0.01	51.54	0.0105	0.3139	0
171	SLE RA 3	7.41	0	52.74	0.004	0.3397	0
171	SLE RA 4	7.26	-0.01	52.62	0.0078	0.3328	0
171	SLE RA 5	7.04	-0.01	52.21	0.0103	0.323	0
171	SLE RA 6	7.61	0	53.41	0.0038	0.3488	0
171	SLE RA 7	7.46	-0.01	53.29	0.0077	0.3419	0
171	SLE RA 8	7.5	0	53.07	0.0037	0.3436	0
171	SLE RA 9	7.35	-0.01	52.95	0.0076	0.3368	0
171	SLE RA 10	8.13	-0.01	57.73	0.0109	0.3718	0
171	SLE RA 11	8.7	0	58.93	0.0044	0.3976	0
171	SLE RA 12	8.55	-0.01	58.82	0.0082	0.3907	0
171	SLE RA 13	8.33	-0.01	58.4	0.0107	0.3809	0
171	SLE RA 14	8.9	0	59.6	0.0042	0.4067	0
171	SLE RA 15	8.75	-0.01	59.48	0.0081	0.3998	0
171	SLE RA 16	8.79	0	59.26	0.0041	0.4016	0
171	SLE RA 17	8.64	-0.01	59.15	0.008	0.3947	0
171	SLE RA 18	8.93	0	60.58	0.0046	0.4081	0
171	SLE RA 19	8.78	-0.01	60.47	0.0085	0.4012	0
171	SLE RA 20	9.14	0	61.25	0.0045	0.4172	0
171	SLE RA 21	8.98	-0.01	61.13	0.0083	0.4103	0
171	SLE FR 1	7.1	0	51.74	0.004	0.3253	0
171	SLE FR 2	7.05	0	51.7	0.0053	0.323	0
171	SLE FR 3	7.18	0	52	0.004	0.329	0
171	SLE FR 4	7.6	0	54.35	0.0055	0.3479	0
171	SLE FR 5	7.73	0	54.66	0.0042	0.3538	0
171	SLE FR 6	8.02	0	56.16	0.0043	0.3667	0
171	SLE QP 1	7.1	0	51.74	0.004	0.3253	0
171	SLE QP 2	7.65	0	54.39	0.0042	0.3502	0
171	SLD 1	23.71	0.2	56.77	-0.2168	1.0775	0.0006
171	SLD 2	23.71	0.2	56.77	-0.2168	1.0775	0.0006
171	SLD 3	24.69	-0.1	56.11	0.1046	1.1214	-0.0003
171	SLD 4	24.69	-0.1	56.11	0.1046	1.1214	-0.0003
171	SLD 5	10.98	0.51	56.1	-0.5496	0.5019	0.0016
171	SLD 6	10.98	0.51	56.1	-0.5496	0.5019	0.0016
171	SLD 7	14.24	-0.49	53.91	0.5218	0.648	-0.0015
171	SLD 8	14.24	-0.49	53.91	0.5218	0.648	-0.0015
171	SLD 9	1.05	0.48	54.87	-0.5133	0.0523	0.0015
171	SLD 10	1.05	0.48	54.87	-0.5133	0.0523	0.0015
171	SLD 11	4.31	-0.52	52.68	0.558	0.1985	-0.0016
171	SLD 12	4.31	-0.52	52.68	0.558	0.1985	-0.0016
171	SLD 13	-9.39	0.09	52.67	-0.0961	-0.421	0.0003
171	SLD 14	-9.39	0.09	52.67	-0.0961	-0.421	0.0003
171	SLD 15	-8.42	-0.21	52.01	0.2253	-0.3772	-0.0006
171	SLD 16	-8.42	-0.21	52.01	0.2253	-0.3772	-0.0006
171	SLV 1	44.35	0.52	60.01	-0.5615	2.0123	0.0016
171	SLV 2	44.35	0.52	60.01	-0.5615	2.0123	0.0016
171	SLV 3	46.65	-0.25	58.38	0.2611	2.1154	-0.0007
171	SLV 4	46.65	-0.25	58.38	0.2611	2.1154	-0.0007
171	SLV 5	15.17	1.32	58.54	-1.4131	0.6924	0.004
171	SLV 6	15.17	1.32	58.54	-1.4131	0.6924	0.004
171	SLV 7	22.84	-1.24	53.12	1.3289	1.0361	-0.0038
171	SLV 8	22.84	-1.24	53.12	1.3289	1.0361	-0.0038
171	SLV 9	-7.55	1.24	55.66	-1.3204	-0.3358	0.0037
171	SLV 10	-7.55	1.24	55.66	-1.3204	-0.3358	0.0037
171	SLV 11	0.13	-1.33	50.24	1.4215	0.0079	-0.004
171	SLV 12	0.13	-1.33	50.24	1.4215	0.0079	-0.004
171	SLV 13	-31.36	0.24	50.4	-0.2526	-1.4151	0.0007
171	SLV 14	-31.36	0.24	50.4	-0.2526	-1.4151	0.0007
171	SLV 15	-29.06	-0.53	48.77	0.57	-1.3119	-0.0016
171	SLV 16	-29.06	-0.53	48.77	0.57	-1.3119	-0.0016
172	SLU 1	5.64	0	49.7	0.0036	0.2398	0
172	SLU 2	5.25	-0.01	49.34	0.0114	0.2233	0
172	SLU 3	6.11	0	51.23	0.0035	0.2598	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
172	SLU 4	5.87	-0.01	51.02	0.0081	0.2499	0
172	SLU 5	5.56	-0.01	50.38	0.0111	0.2362	0
172	SLU 6	6.41	0	52.27	0.0032	0.2727	0
172	SLU 7	6.18	-0.01	52.06	0.0078	0.2628	0
172	SLU 8	6.25	0	51.78	0.003	0.2656	0
172	SLU 9	6.02	-0.01	51.56	0.0077	0.2557	0
172	SLU 10	6.97	-0.01	58.76	0.012	0.2974	0
172	SLU 11	7.82	0	60.66	0.0041	0.334	0
172	SLU 12	7.59	-0.01	60.44	0.0087	0.3241	0
172	SLU 13	7.27	-0.01	59.8	0.0117	0.3103	0
172	SLU 14	8.13	0	61.7	0.0038	0.3469	0
172	SLU 15	7.89	-0.01	61.48	0.0084	0.337	0
172	SLU 16	7.96	0	61.2	0.0036	0.3398	0
172	SLU 17	7.73	-0.01	60.98	0.0083	0.3298	0
172	SLU 18	8.09	0	63.16	0.0045	0.3457	0
172	SLU 19	7.86	-0.01	62.94	0.0091	0.3358	0
172	SLU 20	8.4	0	64.2	0.0042	0.3586	0
172	SLU 21	8.16	-0.01	63.98	0.0088	0.3487	0
172	SLU 22	7.18	0	58.16	0.0041	0.3063	0
172	SLU 23	6.79	-0.01	57.8	0.0118	0.2897	0
172	SLU 24	7.65	0	59.7	0.0039	0.3263	0
172	SLU 25	7.41	-0.01	59.48	0.0086	0.3164	0
172	SLU 26	7.1	-0.01	58.84	0.0115	0.3026	0
172	SLU 27	7.95	0	60.74	0.0036	0.3392	0
172	SLU 28	7.72	-0.01	60.52	0.0083	0.3293	0
172	SLU 29	7.79	0	60.24	0.0034	0.3321	0
172	SLU 30	7.56	-0.01	60.03	0.0081	0.3221	0
172	SLU 31	8.51	-0.01	67.23	0.0124	0.3639	0
172	SLU 32	9.36	-0.01	69.12	0.0045	0.4004	0
172	SLU 33	9.13	-0.01	68.9	0.0092	0.3905	0
172	SLU 34	8.81	-0.01	68.27	0.0121	0.3768	0
172	SLU 35	9.67	-0.01	70.16	0.0042	0.4134	0
172	SLU 36	9.43	-0.01	69.95	0.0088	0.4034	0
172	SLU 37	9.5	0	69.67	0.004	0.4062	0
172	SLU 38	9.27	-0.01	69.45	0.0087	0.3963	0
172	SLU 39	9.63	-0.01	71.62	0.0049	0.4122	0
172	SLU 40	9.4	-0.01	71.41	0.0096	0.4023	0
172	SLU 41	9.94	-0.01	72.66	0.0046	0.4251	0
172	SLU 42	9.7	-0.01	72.45	0.0092	0.4152	0
172	SLU 43	6.81	0	61.7	0.0046	0.289	0
172	SLU 44	6.42	-0.01	61.34	0.0123	0.2724	0
172	SLU 45	7.28	0	63.24	0.0045	0.309	0
172	SLU 46	7.04	-0.01	63.02	0.0091	0.2991	0
172	SLU 47	6.72	-0.01	62.38	0.012	0.2853	0
172	SLU 48	7.58	0	64.28	0.0041	0.3219	0
172	SLU 49	7.34	-0.01	64.06	0.0088	0.312	0
172	SLU 50	7.42	0	63.78	0.004	0.3148	0
172	SLU 51	7.18	-0.01	63.57	0.0086	0.3048	0
172	SLU 52	8.13	-0.01	70.77	0.0129	0.3466	0
172	SLU 53	8.99	-0.01	72.66	0.005	0.3831	0
172	SLU 54	8.75	-0.01	72.45	0.0097	0.3732	0
172	SLU 55	8.43	-0.01	71.81	0.0126	0.3595	0
172	SLU 56	9.29	-0.01	73.7	0.0047	0.396	0
172	SLU 57	9.06	-0.01	73.49	0.0094	0.3861	0
172	SLU 58	9.13	-0.01	73.21	0.0046	0.3889	0
172	SLU 59	8.89	-0.01	72.99	0.0092	0.379	0
172	SLU 60	9.26	-0.01	75.17	0.0054	0.3949	0
172	SLU 61	9.02	-0.01	74.95	0.0101	0.385	0
172	SLU 62	9.56	-0.01	76.21	0.0051	0.4078	0
172	SLU 63	9.33	-0.01	75.99	0.0098	0.3979	0
172	SLU 64	8.35	-0.01	70.17	0.005	0.3554	0
172	SLU 65	7.96	-0.01	69.81	0.0128	0.3389	0
172	SLU 66	8.81	-0.01	71.7	0.0049	0.3755	0
172	SLU 67	8.58	-0.01	71.49	0.0095	0.3655	0
172	SLU 68	8.26	-0.01	70.85	0.0125	0.3518	0
172	SLU 69	9.12	-0.01	72.74	0.0046	0.3884	0
172	SLU 70	8.88	-0.01	72.53	0.0092	0.3784	0
172	SLU 71	8.96	-0.01	72.25	0.0044	0.3812	0
172	SLU 72	8.72	-0.01	72.03	0.009	0.3713	0
172	SLU 73	9.67	-0.01	79.23	0.0134	0.413	0
172	SLU 74	10.53	-0.01	81.13	0.0055	0.4496	0
172	SLU 75	10.29	-0.01	80.91	0.0101	0.4397	0
172	SLU 76	9.97	-0.01	80.27	0.013	0.4259	0
172	SLU 77	10.83	-0.01	82.17	0.0052	0.4625	0
172	SLU 78	10.6	-0.01	81.95	0.0098	0.4526	0
172	SLU 79	10.67	-0.01	81.67	0.005	0.4554	0
172	SLU 80	10.43	-0.01	81.46	0.0096	0.4454	0
172	SLU 81	10.8	-0.01	83.63	0.0059	0.4613	0
172	SLU 82	10.56	-0.01	83.41	0.0105	0.4514	0
172	SLU 83	11.1	-0.01	84.67	0.0056	0.4743	0
172	SLU 84	10.87	-0.01	84.45	0.0102	0.4643	0
172	SLE RA 1	6.08	0	52.12	0.0038	0.2588	0
172	SLE RA 2	5.82	-0.01	51.88	0.0089	0.2478	0
172	SLE RA 3	6.39	0	53.14	0.0037	0.2721	0
172	SLE RA 4	6.24	-0.01	53	0.0068	0.2655	0
172	SLE RA 5	6.03	-0.01	52.57	0.0087	0.2564	0
172	SLE RA 6	6.6	0	53.83	0.0035	0.2808	0
172	SLE RA 7	6.44	-0.01	53.69	0.0066	0.2741	0
172	SLE RA 8	6.49	0	53.5	0.0034	0.276	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
172	SLE RA 9	6.33	-0.01	53.36	0.0065	0.2694	0
172	SLE RA 10	6.97	-0.01	58.16	0.0093	0.2972	0
172	SLE RA 11	7.54	0	59.42	0.0041	0.3216	0
172	SLE RA 12	7.38	-0.01	59.28	0.0072	0.315	0
172	SLE RA 13	7.17	-0.01	58.85	0.0091	0.3058	0
172	SLE RA 14	7.74	0	60.11	0.0039	0.3302	0
172	SLE RA 15	7.58	-0.01	59.97	0.007	0.3236	0
172	SLE RA 16	7.63	0	59.78	0.0038	0.3254	0
172	SLE RA 17	7.47	-0.01	59.64	0.0069	0.3188	0
172	SLE RA 18	7.72	0	61.09	0.0043	0.3294	0
172	SLE RA 19	7.56	-0.01	60.95	0.0074	0.3228	0
172	SLE RA 20	7.92	0	61.78	0.0041	0.338	0
172	SLE RA 21	7.76	-0.01	61.64	0.0072	0.3314	0
172	SLE FR 1	6.08	0	52.12	0.0038	0.2588	0
172	SLE FR 2	6.03	0	52.07	0.0048	0.2566	0
172	SLE FR 3	6.17	0	52.39	0.0037	0.2622	0
172	SLE FR 4	6.52	0	54.76	0.005	0.2778	0
172	SLE FR 5	6.66	0	55.08	0.0039	0.2834	0
172	SLE FR 6	6.9	0	56.6	0.004	0.2941	0
172	SLE QP 1	6.08	0	52.12	0.0038	0.2588	0
172	SLE QP 2	6.57	0	54.81	0.0039	0.28	0
172	SLD 1	22.9	0.19	56.95	-0.2078	1.0175	0.0006
172	SLD 2	22.9	0.19	56.95	-0.2078	1.0175	0.0006
172	SLD 3	23.9	-0.09	56.26	0.0927	1.0622	-0.0002
172	SLD 4	23.9	-0.09	56.26	0.0927	1.0622	-0.0002
172	SLD 5	9.96	0.48	56.49	-0.5154	0.4333	0.0014
172	SLD 6	9.96	0.48	56.49	-0.5154	0.4333	0.0014
172	SLD 7	13.29	-0.45	54.2	0.4863	0.5826	-0.0013
172	SLD 8	13.29	-0.45	54.2	0.4863	0.5826	-0.0013
172	SLD 9	-0.14	0.44	55.41	-0.4785	-0.0226	0.0013
172	SLD 10	-0.14	0.44	55.41	-0.4785	-0.0226	0.0013
172	SLD 11	3.19	-0.49	53.13	0.5232	0.1266	-0.0015
172	SLD 12	3.19	-0.49	53.13	0.5232	0.1266	-0.0015
172	SLD 13	-10.75	0.08	53.35	-0.0848	-0.5023	0.0002
172	SLD 14	-10.75	0.08	53.35	-0.0848	-0.5023	0.0002
172	SLD 15	-9.75	-0.2	52.67	0.2157	-0.4575	-0.0006
172	SLD 16	-9.75	-0.2	52.67	0.2157	-0.4575	-0.0006
172	SLV 1	43.87	0.5	59.93	-0.5379	1.9646	0.0015
172	SLV 2	43.87	0.5	59.93	-0.5379	1.9646	0.0015
172	SLV 3	46.22	-0.21	58.2	0.231	2.0699	-0.0006
172	SLV 4	46.22	-0.21	58.2	0.231	2.0699	-0.0006
172	SLV 5	14.19	1.23	58.97	-1.3247	0.6257	0.0037
172	SLV 6	14.19	1.23	58.97	-1.3247	0.6257	0.0037
172	SLV 7	22.04	-1.15	53.2	1.2381	0.9766	-0.0034
172	SLV 8	22.04	-1.15	53.2	1.2381	0.9766	-0.0034
172	SLV 9	-8.89	1.14	56.42	-1.2303	-0.4167	0.0034
172	SLV 10	-8.89	1.14	56.42	-1.2303	-0.4167	0.0034
172	SLV 11	-1.04	-1.23	50.64	1.3326	-0.0658	-0.0037
172	SLV 12	-1.04	-1.23	50.64	1.3326	-0.0658	-0.0037
172	SLV 13	-33.07	0.2	51.41	-0.2231	-1.5099	0.0006
172	SLV 14	-33.07	0.2	51.41	-0.2231	-1.5099	0.0006
172	SLV 15	-30.72	-0.51	49.68	0.5458	-1.4047	-0.0016
172	SLV 16	-30.72	-0.51	49.68	0.5458	-1.4047	-0.0016
173	SLU 1	4.92	0	50.15	0.0031	0.2288	0
173	SLU 2	4.5	-0.01	49.71	0.0088	0.2101	0
173	SLU 3	5.38	0	51.74	0.0029	0.2499	0
173	SLU 4	5.13	-0.01	51.48	0.0064	0.2386	0
173	SLU 5	4.81	-0.01	50.81	0.0085	0.224	0
173	SLU 6	5.69	0	52.84	0.0025	0.2639	0
173	SLU 7	5.44	-0.01	52.58	0.006	0.2526	0
173	SLU 8	5.54	0	52.36	0.0024	0.2568	0
173	SLU 9	5.29	-0.01	52.09	0.0058	0.2455	0
173	SLU 10	6.02	-0.01	59.27	0.0094	0.2796	0
173	SLU 11	6.91	-0.01	61.3	0.0034	0.3195	0
173	SLU 12	6.66	-0.01	61.04	0.0069	0.3082	0
173	SLU 13	6.34	-0.01	60.37	0.009	0.2936	0
173	SLU 14	7.22	-0.01	62.41	0.0031	0.3335	0
173	SLU 15	6.97	-0.01	62.14	0.0065	0.3222	0
173	SLU 16	7.06	-0.01	61.92	0.0029	0.3264	0
173	SLU 17	6.81	-0.01	61.65	0.0063	0.3151	0
173	SLU 18	7.09	-0.01	63.81	0.0038	0.3282	0
173	SLU 19	6.84	-0.01	63.54	0.0073	0.317	0
173	SLU 20	7.41	-0.01	64.91	0.0035	0.3422	0
173	SLU 21	7.16	-0.01	64.65	0.0069	0.331	0
173	SLU 22	6.31	-0.01	58.75	0.0034	0.2923	0
173	SLU 23	5.89	-0.01	58.31	0.0092	0.2736	0
173	SLU 24	6.77	-0.01	60.34	0.0032	0.3134	0
173	SLU 25	6.52	-0.01	60.07	0.0067	0.3022	0
173	SLU 26	6.2	-0.01	59.41	0.0088	0.2876	0
173	SLU 27	7.08	-0.01	61.44	0.0029	0.3274	0
173	SLU 28	6.83	-0.01	61.18	0.0063	0.3162	0
173	SLU 29	6.93	0	60.95	0.0027	0.3203	0
173	SLU 30	6.68	-0.01	60.69	0.0062	0.309	0
173	SLU 31	7.41	-0.01	67.87	0.0097	0.3432	0
173	SLU 32	8.3	-0.01	69.9	0.0038	0.383	0
173	SLU 33	8.05	-0.01	69.63	0.0072	0.3718	0
173	SLU 34	7.73	-0.01	68.97	0.0093	0.3571	0
173	SLU 35	8.61	-0.01	71	0.0034	0.397	0
173	SLU 36	8.36	-0.01	70.74	0.0069	0.3857	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
173	SLU 37	8.45	-0.01	70.51	0.0032	0.3899	0
173	SLU 38	8.2	-0.01	70.25	0.0067	0.3786	0
173	SLU 39	8.49	-0.01	72.41	0.0042	0.3917	0
173	SLU 40	8.24	-0.01	72.14	0.0076	0.3805	0
173	SLU 41	8.8	-0.01	73.51	0.0038	0.4057	0
173	SLU 42	8.55	-0.01	73.24	0.0073	0.3945	0
173	SLU 43	5.91	-0.01	62.25	0.0039	0.2757	0
173	SLU 44	5.5	-0.01	61.81	0.0097	0.2569	0
173	SLU 45	6.38	-0.01	63.84	0.0037	0.2968	0
173	SLU 46	6.13	-0.01	63.57	0.0072	0.2855	0
173	SLU 47	5.81	-0.01	62.91	0.0093	0.2709	0
173	SLU 48	6.69	-0.01	64.94	0.0033	0.3108	0
173	SLU 49	6.44	-0.01	64.68	0.0068	0.2995	0
173	SLU 50	6.54	-0.01	64.45	0.0032	0.3037	0
173	SLU 51	6.29	-0.01	64.19	0.0066	0.2924	0
173	SLU 52	7.02	-0.01	71.37	0.0102	0.3265	0
173	SLU 53	7.9	-0.01	73.4	0.0042	0.3664	0
173	SLU 54	7.65	-0.01	73.13	0.0077	0.3551	0
173	SLU 55	7.33	-0.01	72.47	0.0098	0.3405	0
173	SLU 56	8.22	-0.01	74.5	0.0039	0.3803	0
173	SLU 57	7.97	-0.01	74.24	0.0073	0.3691	0
173	SLU 58	8.06	-0.01	74.02	0.0037	0.3732	0
173	SLU 59	7.81	-0.01	73.75	0.0072	0.362	0
173	SLU 60	8.09	-0.01	75.91	0.0046	0.3751	0
173	SLU 61	7.84	-0.01	75.64	0.0081	0.3638	0
173	SLU 62	8.4	-0.01	77.01	0.0043	0.3891	0
173	SLU 63	8.15	-0.01	76.74	0.0077	0.3778	0
173	SLU 64	7.3	-0.01	70.85	0.0042	0.3392	0
173	SLU 65	6.89	-0.01	70.4	0.01	0.3204	0
173	SLU 66	7.77	-0.01	72.44	0.004	0.3603	0
173	SLU 67	7.52	-0.01	72.17	0.0075	0.349	0
173	SLU 68	7.2	-0.01	71.51	0.0096	0.3344	0
173	SLU 69	8.08	-0.01	73.54	0.0037	0.3743	0
173	SLU 70	7.83	-0.01	73.27	0.0071	0.363	0
173	SLU 71	7.93	-0.01	73.05	0.0035	0.3672	0
173	SLU 72	7.68	-0.01	72.79	0.007	0.3559	0
173	SLU 73	8.41	-0.01	79.96	0.0105	0.39	0
173	SLU 74	9.3	-0.01	82	0.0046	0.4299	0
173	SLU 75	9.05	-0.01	81.73	0.008	0.4186	0
173	SLU 76	8.72	-0.01	81.07	0.0102	0.404	0
173	SLU 77	9.61	-0.01	83.1	0.0042	0.4439	0
173	SLU 78	9.36	-0.01	82.83	0.0077	0.4326	0
173	SLU 79	9.45	-0.01	82.61	0.004	0.4368	0
173	SLU 80	9.2	-0.01	82.35	0.0075	0.4255	0
173	SLU 81	9.48	-0.01	84.5	0.005	0.4386	0
173	SLU 82	9.23	-0.01	84.24	0.0084	0.4274	0
173	SLU 83	9.79	-0.01	85.61	0.0046	0.4526	0
173	SLU 84	9.54	-0.01	85.34	0.0081	0.4413	0
173	SLE RA 1	5.31	0	52.61	0.0032	0.247	0
173	SLE RA 2	5.03	-0.01	52.31	0.007	0.2345	0
173	SLE RA 3	5.62	0	53.67	0.0031	0.261	0
173	SLE RA 4	5.46	-0.01	53.49	0.0054	0.2535	0
173	SLE RA 5	5.24	-0.01	53.05	0.0068	0.2438	0
173	SLE RA 6	5.83	0	54.4	0.0028	0.2703	0
173	SLE RA 7	5.66	-0.01	54.23	0.0051	0.2628	0
173	SLE RA 8	5.73	0	54.08	0.0027	0.2656	0
173	SLE RA 9	5.56	-0.01	53.9	0.005	0.2581	0
173	SLE RA 10	6.05	-0.01	58.69	0.0074	0.2808	0
173	SLE RA 11	6.64	-0.01	60.04	0.0034	0.3074	0
173	SLE RA 12	6.47	-0.01	59.86	0.0057	0.2999	0
173	SLE RA 13	6.26	-0.01	59.42	0.0071	0.2902	0
173	SLE RA 14	6.85	-0.01	60.78	0.0032	0.3167	0
173	SLE RA 15	6.68	-0.01	60.6	0.0055	0.3092	0
173	SLE RA 16	6.75	-0.01	60.45	0.003	0.312	0
173	SLE RA 17	6.58	-0.01	60.27	0.0054	0.3045	0
173	SLE RA 18	6.77	-0.01	61.71	0.0037	0.3132	0
173	SLE RA 19	6.6	-0.01	61.54	0.006	0.3057	0
173	SLE RA 20	6.97	-0.01	62.45	0.0034	0.3226	0
173	SLE RA 21	6.81	-0.01	62.27	0.0057	0.3151	0
173	SLE FR 1	5.31	0	52.61	0.0032	0.247	0
173	SLE FR 2	5.26	-0.01	52.55	0.0039	0.2445	0
173	SLE FR 3	5.4	0	52.9	0.0031	0.2507	0
173	SLE FR 4	5.69	-0.01	55.28	0.0041	0.2643	0
173	SLE FR 5	5.83	0	55.63	0.0032	0.2706	0
173	SLE FR 6	6.04	-0.01	57.16	0.0034	0.2801	0
173	SLE QP 1	5.31	0	52.61	0.0032	0.247	0
173	SLE QP 2	5.75	0	55.34	0.0033	0.2668	0
173	SLD 1	22.09	0.17	52.42	-0.1851	1.0153	0.0005
173	SLD 2	22.09	0.17	52.42	-0.1851	1.0153	0.0005
173	SLD 3	23.09	-0.06	51.62	0.0722	1.0607	-0.0002
173	SLD 4	23.09	-0.06	51.62	0.0722	1.0607	-0.0002
173	SLD 5	9.13	0.4	55.68	-0.4434	0.4225	0.0011
173	SLD 6	9.13	0.4	55.68	-0.4434	0.4225	0.0011
173	SLD 7	12.47	-0.38	53.01	0.4142	0.5738	-0.001
173	SLD 8	12.47	-0.38	53.01	0.4142	0.5738	-0.001
173	SLD 9	-0.97	0.37	57.67	-0.4075	-0.0401	0.001
173	SLD 10	-0.97	0.37	57.67	-0.4075	-0.0401	0.001
173	SLD 11	2.37	-0.41	55	0.4501	0.1112	-0.0012
173	SLD 12	2.37	-0.41	55	0.4501	0.1112	-0.0012



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
173	SLD 13	-11.59	0.05	59.06	-0.0655	-0.527	0.0001
173	SLD 14	-11.59	0.05	59.06	-0.0655	-0.527	0.0001
173	SLD 15	-10.59	-0.18	58.26	0.1918	-0.4816	-0.0005
173	SLD 16	-10.59	-0.18	58.26	0.1918	-0.4816	-0.0005
173	SLV 1	43.07	0.45	48.66	-0.4786	1.9762	0.0013
173	SLV 2	43.07	0.45	48.66	-0.4786	1.9762	0.0013
173	SLV 3	45.43	-0.15	46.63	0.1791	2.0832	-0.0004
173	SLV 4	45.43	-0.15	46.63	0.1791	2.0832	-0.0004
173	SLV 5	13.36	1.03	56.42	-1.1387	0.6174	0.0029
173	SLV 6	13.36	1.03	56.42	-1.1387	0.6174	0.0029
173	SLV 7	21.24	-0.95	49.64	1.0535	0.974	-0.0026
173	SLV 8	21.24	-0.95	49.64	1.0535	0.974	-0.0026
173	SLV 9	-9.74	0.94	61.04	-1.0469	-0.4403	0.0026
173	SLV 10	-9.74	0.94	61.04	-1.0469	-0.4403	0.0026
173	SLV 11	-1.86	-1.04	54.25	1.1454	-0.0837	-0.0029
173	SLV 12	-1.86	-1.04	54.25	1.1454	-0.0837	-0.0029
173	SLV 13	-33.93	0.14	64.05	-0.1724	-1.5495	0.0003
173	SLV 14	-33.93	0.14	64.05	-0.1724	-1.5495	0.0003
173	SLV 15	-31.57	-0.46	62.02	0.4853	-1.4425	-0.0013
173	SLV 16	-31.57	-0.46	62.02	0.4853	-1.4425	-0.0013
174	SLU 1	3.32	0	50.54	0.0018	0.1377	0
174	SLU 2	2.92	-0.01	50.01	0.0056	0.1208	0
174	SLU 3	3.74	0	52.19	0.0016	0.1558	0
174	SLU 4	3.5	0	51.87	0.0038	0.1456	0
174	SLU 5	3.21	-0.01	51.19	0.0051	0.1328	0
174	SLU 6	4.02	0	53.37	0.0011	0.1677	0
174	SLU 7	3.78	0	53.05	0.0034	0.1576	0
174	SLU 8	3.89	0	52.89	0.0009	0.1617	0
174	SLU 9	3.65	0	52.58	0.0032	0.1516	0
174	SLU 10	4.09	-0.01	59.66	0.0059	0.1713	0
174	SLU 11	4.9	-0.01	61.84	0.0019	0.2062	0
174	SLU 12	4.67	-0.01	61.52	0.0041	0.1961	0
174	SLU 13	4.37	-0.01	60.84	0.0055	0.1833	0
174	SLU 14	5.19	0	63.02	0.0014	0.2182	0
174	SLU 15	4.95	-0.01	62.7	0.0037	0.2081	0
174	SLU 16	5.05	0	62.54	0.0013	0.2122	0
174	SLU 17	4.82	-0.01	62.23	0.0035	0.202	0
174	SLU 18	4.98	-0.01	64.32	0.0023	0.2098	0
174	SLU 19	4.75	-0.01	64.01	0.0045	0.1997	0
174	SLU 20	5.27	-0.01	65.5	0.0018	0.2218	0
174	SLU 21	5.03	-0.01	65.19	0.0041	0.2117	0
174	SLU 22	4.4	0	59.24	0.0019	0.1842	0
174	SLU 23	4	-0.01	58.71	0.0057	0.1673	0
174	SLU 24	4.82	0	60.89	0.0017	0.2022	0
174	SLU 25	4.58	-0.01	60.58	0.004	0.1921	0
174	SLU 26	4.29	-0.01	59.89	0.0053	0.1793	0
174	SLU 27	5.1	0	62.07	0.0013	0.2142	0
174	SLU 28	4.86	-0.01	61.75	0.0035	0.2041	0
174	SLU 29	4.97	0	61.59	0.0011	0.2082	0
174	SLU 30	4.73	-0.01	61.28	0.0033	0.1981	0
174	SLU 31	5.17	-0.01	68.36	0.006	0.2178	0
174	SLU 32	5.98	-0.01	70.54	0.002	0.2527	0
174	SLU 33	5.75	-0.01	70.23	0.0043	0.2426	0
174	SLU 34	5.45	-0.01	69.54	0.0056	0.2298	0
174	SLU 35	6.27	-0.01	71.72	0.0016	0.2647	0
174	SLU 36	6.03	-0.01	71.4	0.0038	0.2546	0
174	SLU 37	6.13	-0.01	71.25	0.0014	0.2587	0
174	SLU 38	5.9	-0.01	70.93	0.0037	0.2485	0
174	SLU 39	6.06	-0.01	73.03	0.0024	0.2563	0
174	SLU 40	5.83	-0.01	72.71	0.0047	0.2462	0
174	SLU 41	6.35	-0.01	74.2	0.002	0.2683	0
174	SLU 42	6.11	-0.01	73.89	0.0042	0.2582	0
174	SLU 43	3.95	-0.01	62.71	0.0023	0.1631	0
174	SLU 44	3.55	-0.01	62.19	0.0061	0.1462	0
174	SLU 45	4.36	-0.01	64.37	0.0021	0.1811	0
174	SLU 46	4.13	-0.01	64.05	0.0043	0.171	0
174	SLU 47	3.83	-0.01	63.37	0.0056	0.1582	0
174	SLU 48	4.65	-0.01	65.54	0.0016	0.1931	0
174	SLU 49	4.41	-0.01	65.23	0.0039	0.183	0
174	SLU 50	4.51	0	65.07	0.0014	0.1871	0
174	SLU 51	4.28	-0.01	64.75	0.0037	0.1769	0
174	SLU 52	4.72	-0.01	71.84	0.0064	0.1967	0
174	SLU 53	5.53	-0.01	74.02	0.0024	0.2316	0
174	SLU 54	5.29	-0.01	73.7	0.0046	0.2215	0
174	SLU 55	5	-0.01	73.02	0.0059	0.2087	0
174	SLU 56	5.81	-0.01	75.19	0.0019	0.2436	0
174	SLU 57	5.57	-0.01	74.88	0.0042	0.2334	0
174	SLU 58	5.68	-0.01	74.72	0.0018	0.2376	0
174	SLU 59	5.44	-0.01	74.4	0.004	0.2274	0
174	SLU 60	5.61	-0.01	76.5	0.0028	0.2352	0
174	SLU 61	5.37	-0.01	76.19	0.005	0.2251	0
174	SLU 62	5.89	-0.01	77.68	0.0023	0.2472	0
174	SLU 63	5.66	-0.01	77.36	0.0046	0.2371	0
174	SLU 64	5.03	-0.01	71.42	0.0024	0.2096	0
174	SLU 65	4.63	-0.01	70.89	0.0062	0.1927	0
174	SLU 66	5.44	-0.01	73.07	0.0022	0.2276	0
174	SLU 67	5.21	-0.01	72.75	0.0044	0.2175	0
174	SLU 68	4.91	-0.01	72.07	0.0058	0.2047	0
174	SLU 69	5.73	-0.01	74.25	0.0018	0.2396	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
174	SLU 70	5.49	-0.01	73.93	0.004	0.2295	0
174	SLU 71	5.59	-0.01	73.77	0.0016	0.2336	0
174	SLU 72	5.36	-0.01	73.46	0.0038	0.2234	0
174	SLU 73	5.8	-0.01	80.54	0.0065	0.2432	0
174	SLU 74	6.61	-0.01	82.72	0.0025	0.2781	0
174	SLU 75	6.37	-0.01	82.4	0.0048	0.268	0
174	SLU 76	6.08	-0.01	81.72	0.0061	0.2552	0
174	SLU 77	6.89	-0.01	83.9	0.0021	0.2901	0
174	SLU 78	6.65	-0.01	83.58	0.0043	0.2799	0
174	SLU 79	6.76	-0.01	83.42	0.0019	0.2841	0
174	SLU 80	6.52	-0.01	83.11	0.0042	0.2739	0
174	SLU 81	6.69	-0.01	85.2	0.0029	0.2817	0
174	SLU 82	6.45	-0.01	84.89	0.0052	0.2716	0
174	SLU 83	6.97	-0.01	86.38	0.0025	0.2937	0
174	SLU 84	6.74	-0.01	86.07	0.0047	0.2835	0
174	SLE RA 1	3.63	0	53.02	0.0018	0.151	0
174	SLE RA 2	3.36	-0.01	52.67	0.0044	0.1397	0
174	SLE RA 3	3.91	0	54.12	0.0017	0.163	0
174	SLE RA 4	3.75	0	53.91	0.0032	0.1563	0
174	SLE RA 5	3.55	-0.01	53.46	0.0041	0.1477	0
174	SLE RA 6	4.1	0	54.91	0.0014	0.171	0
174	SLE RA 7	3.94	0	54.7	0.0029	0.1643	0
174	SLE RA 8	4.01	0	54.59	0.0013	0.167	0
174	SLE RA 9	3.85	0	54.38	0.0028	0.1602	0
174	SLE RA 10	4.14	-0.01	59.11	0.0046	0.1734	0
174	SLE RA 11	4.68	-0.01	60.56	0.0019	0.1967	0
174	SLE RA 12	4.53	-0.01	60.35	0.0034	0.1899	0
174	SLE RA 13	4.33	-0.01	59.89	0.0043	0.1814	0
174	SLE RA 14	4.87	0	61.34	0.0016	0.2047	0
174	SLE RA 15	4.71	-0.01	61.13	0.0031	0.1979	0
174	SLE RA 16	4.78	0	61.03	0.0015	0.2006	0
174	SLE RA 17	4.63	-0.01	60.82	0.003	0.1939	0
174	SLE RA 18	4.74	-0.01	62.21	0.0022	0.1991	0
174	SLE RA 19	4.58	-0.01	62	0.0037	0.1923	0
174	SLE RA 20	4.93	-0.01	63	0.0019	0.2071	0
174	SLE RA 21	4.77	-0.01	62.79	0.0034	0.2003	0
174	SLE FR 1	3.63	0	53.02	0.0018	0.151	0
174	SLE FR 2	3.58	0	52.95	0.0023	0.1488	0
174	SLE FR 3	3.7	0	53.34	0.0017	0.1542	0
174	SLE FR 4	3.91	0	55.71	0.0024	0.1632	0
174	SLE FR 5	4.04	0	56.09	0.0018	0.1686	0
174	SLE FR 6	4.18	0	57.62	0.002	0.175	0
174	SLE QP 1	3.63	0	53.02	0.0018	0.151	0
174	SLE QP 2	3.96	0	55.78	0.0019	0.1654	0
174	SLD 1	19.64	0.15	50.02	-0.1509	0.8932	0.0004
174	SLD 2	19.64	0.15	50.02	-0.1509	0.8932	0.0004
174	SLD 3	20.6	-0.03	49.01	0.0452	0.9371	-0.0001
174	SLD 4	20.6	-0.03	49.01	0.0452	0.9371	-0.0001
174	SLD 5	7.22	0.31	55.58	-0.3413	0.3172	0.0008
174	SLD 6	7.22	0.31	55.58	-0.3413	0.3172	0.0008
174	SLD 7	10.4	-0.28	52.22	0.3123	0.4635	-0.0007
174	SLD 8	10.4	-0.28	52.22	0.3123	0.4635	-0.0007
174	SLD 9	-2.48	0.27	59.34	-0.3085	-0.1326	0.0006
174	SLD 10	-2.48	0.27	59.34	-0.3085	-0.1326	0.0006
174	SLD 11	0.71	-0.32	55.98	0.3452	0.0136	-0.0008
174	SLD 12	0.71	-0.32	55.98	0.3452	0.0136	-0.0008
174	SLD 13	-12.68	0.02	62.55	-0.0413	-0.6062	0
174	SLD 14	-12.68	0.02	62.55	-0.0413	-0.6062	0
174	SLD 15	-11.72	-0.16	61.54	0.1547	-0.5624	-0.0004
174	SLD 16	-11.72	-0.16	61.54	0.1547	-0.5624	-0.0004
174	SLV 1	39.77	0.38	42.64	-0.3881	1.8275	0.001
174	SLV 2	39.77	0.38	42.64	-0.3881	1.8275	0.001
174	SLV 3	42.03	-0.07	40.1	0.112	1.9307	-0.0001
174	SLV 4	42.03	-0.07	40.1	0.112	1.9307	-0.0001
174	SLV 5	11.28	0.79	55.69	-0.8734	0.5075	0.0019
174	SLV 6	11.28	0.79	55.69	-0.8734	0.5075	0.0019
174	SLV 7	18.8	-0.7	47.22	0.7933	0.8516	-0.0017
174	SLV 8	18.8	-0.7	47.22	0.7933	0.8516	-0.0017
174	SLV 9	-10.88	0.69	64.34	-0.7895	-0.5207	0.0017
174	SLV 10	-10.88	0.69	64.34	-0.7895	-0.5207	0.0017
174	SLV 11	-3.36	-0.8	55.87	0.8773	-0.1766	-0.002
174	SLV 12	-3.36	-0.8	55.87	0.8773	-0.1766	-0.002
174	SLV 13	-34.1	0.06	71.46	-0.1081	-1.5999	0.0001
174	SLV 14	-34.1	0.06	71.46	-0.1081	-1.5999	0.0001
174	SLV 15	-31.85	-0.39	68.92	0.3919	-1.4966	-0.001
174	SLV 16	-31.85	-0.39	68.92	0.3919	-1.4966	-0.001
175	SLU 1	1.11	0	50.23	-0.0007	0.0704	0
175	SLU 2	0.76	0	49.67	0.0009	0.0537	0
175	SLU 3	1.43	0	51.9	-0.0011	0.0862	0
175	SLU 4	1.23	0	51.56	-0.0001	0.0762	0
175	SLU 5	0.98	0	50.9	0.0004	0.0643	0
175	SLU 6	1.66	0	53.13	-0.0016	0.0968	0
175	SLU 7	1.45	0	52.79	-0.0006	0.0868	0
175	SLU 8	1.55	0	52.69	-0.0018	0.0916	0
175	SLU 9	1.35	0	52.36	-0.0008	0.0816	0
175	SLU 10	1.42	0	59.22	0.0008	0.0882	0
175	SLU 11	2.09	0	61.44	-0.0012	0.1207	0
175	SLU 12	1.89	0	61.11	-0.0002	0.1107	0
175	SLU 13	1.64	0	60.45	0.0002	0.0989	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
175	SLU 14	2.32	0	62.67	-0.0017	0.1314	0
175	SLU 15	2.11	0	62.34	-0.0008	0.1214	0
175	SLU 16	2.21	0	62.24	-0.0019	0.1262	0
175	SLU 17	2.01	0	61.9	-0.0009	0.1162	0
175	SLU 18	2.05	0	63.87	-0.0009	0.1197	0
175	SLU 19	1.84	0	63.53	0.0001	0.1097	0
175	SLU 20	2.27	0	65.1	-0.0014	0.1303	0
175	SLU 21	2.07	0	64.76	-0.0005	0.1203	0
175	SLU 22	1.74	0	58.88	-0.001	0.1032	0
175	SLU 23	1.39	0	58.31	0.0006	0.0866	0
175	SLU 24	2.07	0	60.54	-0.0014	0.1191	0
175	SLU 25	1.86	0	60.21	-0.0004	0.1091	0
175	SLU 26	1.62	0	59.54	0.0001	0.0972	0
175	SLU 27	2.29	0	61.77	-0.0019	0.1297	0
175	SLU 28	2.08	0	61.43	-0.0009	0.1197	0
175	SLU 29	2.19	0	61.33	-0.0021	0.1245	0
175	SLU 30	1.98	0	61	-0.0011	0.1145	0
175	SLU 31	2.06	0	67.86	0.0005	0.1211	0
175	SLU 32	2.73	0	70.09	-0.0015	0.1536	0
175	SLU 33	2.52	0	69.75	-0.0005	0.1436	0
175	SLU 34	2.28	0	69.09	0	0.1318	0
175	SLU 35	2.95	0	71.32	-0.002	0.1642	0
175	SLU 36	2.74	0	70.98	-0.0011	0.1542	0
175	SLU 37	2.85	0	70.88	-0.0022	0.1591	0
175	SLU 38	2.64	0	70.54	-0.0012	0.1491	0
175	SLU 39	2.69	0	72.51	-0.0012	0.1526	0
175	SLU 40	2.48	0	72.17	-0.0002	0.1426	0
175	SLU 41	2.91	0	73.74	-0.0017	0.1632	0
175	SLU 42	2.7	0	73.4	-0.0007	0.1532	0
175	SLU 43	1.22	0	62.34	-0.0009	0.0802	0
175	SLU 44	0.88	0	61.78	0.0008	0.0635	0
175	SLU 45	1.55	0	64.01	-0.0012	0.096	0
175	SLU 46	1.34	0	63.67	-0.0002	0.086	0
175	SLU 47	1.1	0	63.01	0.0002	0.0742	0
175	SLU 48	1.77	0	65.24	-0.0017	0.1067	0
175	SLU 49	1.56	0	64.9	-0.0008	0.0967	0
175	SLU 50	1.67	0	64.8	-0.0019	0.1015	0
175	SLU 51	1.46	0	64.46	-0.0009	0.0915	0
175	SLU 52	1.54	0	71.32	0.0007	0.0981	0
175	SLU 53	2.21	0	73.55	-0.0013	0.1305	0
175	SLU 54	2	0	73.22	-0.0004	0.1206	0
175	SLU 55	1.76	0	72.55	0.0001	0.1087	0
175	SLU 56	2.43	0	74.78	-0.0019	0.1412	0
175	SLU 57	2.22	0	74.44	-0.0009	0.1312	0
175	SLU 58	2.33	0	74.34	-0.002	0.136	0
175	SLU 59	2.12	0	74.01	-0.0011	0.126	0
175	SLU 60	2.17	0	75.98	-0.001	0.1295	0
175	SLU 61	1.96	0	75.64	0	0.1195	0
175	SLU 62	2.39	0	77.2	-0.0016	0.1402	0
175	SLU 63	2.18	0	76.87	-0.0006	0.1302	0
175	SLU 64	1.86	0	70.98	-0.0011	0.1131	0
175	SLU 65	1.51	0	70.42	0.0005	0.0964	0
175	SLU 66	2.18	0	72.65	-0.0015	0.1289	0
175	SLU 67	1.97	0	72.31	-0.0005	0.1189	0
175	SLU 68	1.73	0	71.65	0	0.1071	0
175	SLU 69	2.41	0	73.88	-0.002	0.1395	0
175	SLU 70	2.2	0	73.54	-0.0011	0.1295	0
175	SLU 71	2.3	0	73.44	-0.0022	0.1344	0
175	SLU 72	2.09	0	73.1	-0.0012	0.1244	0
175	SLU 73	2.17	0	79.97	0.0004	0.131	0
175	SLU 74	2.84	0	82.19	-0.0016	0.1634	0
175	SLU 75	2.63	0	81.86	-0.0006	0.1534	0
175	SLU 76	2.39	0	81.19	-0.0002	0.1416	0
175	SLU 77	3.07	0	83.42	-0.0022	0.1741	0
175	SLU 78	2.86	0	83.09	-0.0012	0.1641	0
175	SLU 79	2.96	0	82.98	-0.0023	0.1689	0
175	SLU 80	2.76	0	82.65	-0.0014	0.1589	0
175	SLU 81	2.8	0	84.62	-0.0013	0.1624	0
175	SLU 82	2.59	0	84.28	-0.0003	0.1524	0
175	SLU 83	3.02	0	85.85	-0.0018	0.1731	0
175	SLU 84	2.82	0	85.51	-0.0009	0.1631	0
175	SLE RA 1	1.29	0	52.7	-0.0008	0.0798	0
175	SLE RA 2	1.06	0	52.33	0.0003	0.0686	0
175	SLE RA 3	1.51	0	53.81	-0.0011	0.0903	0
175	SLE RA 4	1.37	0	53.59	-0.0004	0.0836	0
175	SLE RA 5	1.21	0	53.15	-0.0001	0.0757	0
175	SLE RA 6	1.66	0	54.63	-0.0014	0.0974	0
175	SLE RA 7	1.52	0	54.41	-0.0008	0.0907	0
175	SLE RA 8	1.59	0	54.34	-0.0015	0.0939	0
175	SLE RA 9	1.45	0	54.12	-0.0009	0.0873	0
175	SLE RA 10	1.5	0	58.69	0.0002	0.0917	0
175	SLE RA 11	1.95	0	60.18	-0.0011	0.1133	0
175	SLE RA 12	1.81	0	59.95	-0.0005	0.1067	0
175	SLE RA 13	1.65	0	59.51	-0.0002	0.0988	0
175	SLE RA 14	2.1	0	61	-0.0015	0.1204	0
175	SLE RA 15	1.96	0	60.77	-0.0008	0.1138	0
175	SLE RA 16	2.03	0	60.7	-0.0016	0.117	0
175	SLE RA 17	1.89	0	60.48	-0.001	0.1103	0
175	SLE RA 18	1.92	0	61.79	-0.0009	0.1126	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
175	SLE RA 19	1.78	0	61.57	-0.0003	0.106	0
175	SLE RA 20	2.07	0	62.61	-0.0013	0.1197	0
175	SLE RA 21	1.93	0	62.39	-0.0006	0.1131	0
175	SLE FR 1	1.29	0	52.7	-0.0008	0.0798	0
175	SLE FR 2	1.24	0	52.63	-0.0006	0.0775	0
175	SLE FR 3	1.35	0	53.03	-0.001	0.0826	0
175	SLE FR 4	1.43	0	55.35	-0.0006	0.0874	0
175	SLE FR 5	1.54	0	55.76	-0.001	0.0925	0
175	SLE FR 6	1.6	0	57.25	-0.0009	0.0962	0
175	SLE QP 1	1.29	0	52.7	-0.0008	0.0798	0
175	SLE QP 2	1.48	0	55.43	-0.0009	0.0896	0
175	SLD 1	15.79	0.11	44.29	-0.105	0.791	0.0003
175	SLD 2	15.79	0.11	44.29	-0.105	0.791	0.0003
175	SLD 3	16.64	0	42.97	0.0138	0.8324	-0.0001
175	SLD 4	16.64	0	42.97	0.0138	0.8324	-0.0001
175	SLD 5	4.48	0.2	54.09	-0.2122	0.2372	0.0006
175	SLD 6	4.48	0.2	54.09	-0.2122	0.2372	0.0006
175	SLD 7	7.32	-0.17	49.69	0.1837	0.3753	-0.0006
175	SLD 8	7.32	-0.17	49.69	0.1837	0.3753	-0.0006
175	SLD 9	-4.36	0.17	61.17	-0.1854	-0.1961	0.0006
175	SLD 10	-4.36	0.17	61.17	-0.1854	-0.1961	0.0006
175	SLD 11	-1.52	-0.21	56.77	0.2105	-0.0579	-0.0006
175	SLD 12	-1.52	-0.21	56.77	0.2105	-0.0579	-0.0006
175	SLD 13	-13.68	-0.01	67.89	-0.0155	-0.6532	0.0001
175	SLD 14	-13.68	-0.01	67.89	-0.0155	-0.6532	0.0001
175	SLD 15	-12.83	-0.12	66.57	0.1033	-0.6117	-0.0003
175	SLD 16	-12.83	-0.12	66.57	0.1033	-0.6117	-0.0003
175	SLV 1	34.15	0.29	30.01	-0.2649	1.6913	0.0008
175	SLV 2	34.15	0.29	30.01	-0.2649	1.6913	0.0008
175	SLV 3	36.16	0.01	26.76	0.0352	1.7886	-0.0002
175	SLV 4	36.16	0.01	26.76	0.0352	1.7886	-0.0002
175	SLV 5	8.24	0.51	52.74	-0.5352	0.4225	0.0016
175	SLV 6	8.24	0.51	52.74	-0.5352	0.4225	0.0016
175	SLV 7	14.93	-0.42	41.89	0.4651	0.747	-0.0014
175	SLV 8	14.93	-0.42	41.89	0.4651	0.747	-0.0014
175	SLV 9	-11.97	0.42	68.97	-0.4668	-0.5677	0.0014
175	SLV 10	-11.97	0.42	68.97	-0.4668	-0.5677	0.0014
175	SLV 11	-5.28	-0.52	58.12	0.5335	-0.2432	-0.0016
175	SLV 12	-5.28	-0.52	58.12	0.5335	-0.2432	-0.0016
175	SLV 13	-33.2	-0.02	84.1	-0.0369	-1.6094	0.0001
175	SLV 14	-33.2	-0.02	84.1	-0.0369	-1.6094	0.0001
175	SLV 15	-31.19	-0.3	80.85	0.2632	-1.512	-0.0008
175	SLV 16	-31.19	-0.3	80.85	0.2632	-1.512	-0.0008
176	SLU 1	-2.61	0.01	49.34	-0.005	-0.1429	0
176	SLU 2	-2.82	0.01	48.92	-0.006	-0.1535	0.0001
176	SLU 3	-2.49	0.01	50.87	-0.0055	-0.1368	0
176	SLU 4	-2.61	0.01	50.62	-0.0061	-0.1431	0.0001
176	SLU 5	-2.74	0.01	50.1	-0.0067	-0.1499	0.0001
176	SLU 6	-2.41	0.01	52.05	-0.0062	-0.1333	0.0001
176	SLU 7	-2.53	0.01	51.8	-0.0068	-0.1396	0.0001
176	SLU 8	-2.45	0.01	51.71	-0.0063	-0.1359	0.0001
176	SLU 9	-2.58	0.01	51.45	-0.0069	-0.1422	0.0001
176	SLU 10	-3	0.01	58.03	-0.0069	-0.1635	0.0001
176	SLU 11	-2.67	0.01	59.99	-0.0064	-0.1468	0.0001
176	SLU 12	-2.79	0.01	59.73	-0.0071	-0.1532	0.0001
176	SLU 13	-2.92	0.01	59.22	-0.0076	-0.16	0.0001
176	SLU 14	-2.59	0.01	61.17	-0.0071	-0.1433	0.0001
176	SLU 15	-2.71	0.01	60.91	-0.0077	-0.1497	0.0001
176	SLU 16	-2.63	0.01	60.83	-0.0072	-0.1459	0.0001
176	SLU 17	-2.76	0.01	60.57	-0.0078	-0.1523	0.0001
176	SLU 18	-2.87	0.01	62.37	-0.0063	-0.1572	0.0001
176	SLU 19	-2.99	0.01	62.11	-0.0069	-0.1636	0.0001
176	SLU 20	-2.79	0.01	63.55	-0.007	-0.1537	0.0001
176	SLU 21	-2.91	0.01	63.29	-0.0076	-0.1601	0.0001
176	SLU 22	-2.74	0.01	57.63	-0.0061	-0.1509	0.0001
176	SLU 23	-2.95	0.01	57.2	-0.0071	-0.1615	0.0001
176	SLU 24	-2.62	0.01	59.15	-0.0066	-0.1448	0.0001
176	SLU 25	-2.75	0.01	58.9	-0.0072	-0.1512	0.0001
176	SLU 26	-2.88	0.01	58.38	-0.0077	-0.158	0.0001
176	SLU 27	-2.54	0.01	60.34	-0.0072	-0.1413	0.0001
176	SLU 28	-2.67	0.01	60.08	-0.0078	-0.1477	0.0001
176	SLU 29	-2.59	0.01	59.99	-0.0074	-0.1439	0.0001
176	SLU 30	-2.71	0.01	59.73	-0.008	-0.1503	0.0001
176	SLU 31	-3.13	0.01	66.32	-0.008	-0.1716	0.0001
176	SLU 32	-2.8	0.01	68.27	-0.0075	-0.1549	0.0001
176	SLU 33	-2.93	0.01	68.01	-0.0081	-0.1612	0.0001
176	SLU 34	-3.06	0.02	67.5	-0.0086	-0.1681	0.0001
176	SLU 35	-2.73	0.01	69.45	-0.0081	-0.1514	0.0001
176	SLU 36	-2.85	0.01	69.2	-0.0087	-0.1577	0.0001
176	SLU 37	-2.77	0.01	69.11	-0.0083	-0.154	0.0001
176	SLU 38	-2.9	0.01	68.85	-0.0089	-0.1603	0.0001
176	SLU 39	-3	0.01	70.65	-0.0073	-0.1653	0.0001
176	SLU 40	-3.13	0.01	70.39	-0.008	-0.1716	0.0001
176	SLU 41	-2.93	0.01	71.83	-0.008	-0.1618	0.0001
176	SLU 42	-3.05	0.01	71.58	-0.0086	-0.1681	0.0001
176	SLU 43	-3.34	0.01	61.31	-0.0062	-0.183	0.0001
176	SLU 44	-3.55	0.01	60.88	-0.0072	-0.1936	0.0001
176	SLU 45	-3.22	0.01	62.84	-0.0067	-0.1769	0.0001
176	SLU 46	-3.35	0.01	62.58	-0.0073	-0.1832	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
176	SLU 47	-3.47	0.01	62.06	-0.0078	-0.19	0.0001
176	SLU 48	-3.14	0.01	64.02	-0.0074	-0.1734	0.0001
176	SLU 49	-3.27	0.01	63.76	-0.008	-0.1797	0.0001
176	SLU 50	-3.19	0.01	63.67	-0.0075	-0.176	0.0001
176	SLU 51	-3.31	0.01	63.42	-0.0081	-0.1823	0.0001
176	SLU 52	-3.73	0.01	70	-0.0081	-0.2036	0.0001
176	SLU 53	-3.4	0.01	71.95	-0.0076	-0.1869	0.0001
176	SLU 54	-3.53	0.01	71.7	-0.0082	-0.1933	0.0001
176	SLU 55	-3.66	0.02	71.18	-0.0088	-0.2001	0.0001
176	SLU 56	-3.32	0.01	73.13	-0.0083	-0.1834	0.0001
176	SLU 57	-3.45	0.01	72.88	-0.0089	-0.1898	0.0001
176	SLU 58	-3.37	0.01	72.79	-0.0084	-0.186	0.0001
176	SLU 59	-3.49	0.01	72.53	-0.009	-0.1924	0.0001
176	SLU 60	-3.6	0.01	74.33	-0.0075	-0.1973	0.0001
176	SLU 61	-3.73	0.01	74.08	-0.0081	-0.2037	0.0001
176	SLU 62	-3.52	0.01	75.51	-0.0081	-0.1938	0.0001
176	SLU 63	-3.65	0.01	75.26	-0.0087	-0.2002	0.0001
176	SLU 64	-3.48	0.01	69.59	-0.0072	-0.191	0.0001
176	SLU 65	-3.69	0.01	69.16	-0.0082	-0.2016	0.0001
176	SLU 66	-3.36	0.01	71.12	-0.0077	-0.1849	0.0001
176	SLU 67	-3.48	0.01	70.86	-0.0083	-0.1913	0.0001
176	SLU 68	-3.61	0.02	70.35	-0.0089	-0.1981	0.0001
176	SLU 69	-3.28	0.01	72.3	-0.0084	-0.1814	0.0001
176	SLU 70	-3.41	0.01	72.04	-0.009	-0.1878	0.0001
176	SLU 71	-3.32	0.01	71.95	-0.0085	-0.184	0.0001
176	SLU 72	-3.45	0.01	71.7	-0.0091	-0.1904	0.0001
176	SLU 73	-3.87	0.02	78.28	-0.0091	-0.2117	0.0001
176	SLU 74	-3.54	0.01	80.23	-0.0086	-0.195	0.0001
176	SLU 75	-3.66	0.02	79.98	-0.0092	-0.2013	0.0001
176	SLU 76	-3.79	0.02	79.46	-0.0098	-0.2082	0.0001
176	SLU 77	-3.46	0.01	81.42	-0.0093	-0.1915	0.0001
176	SLU 78	-3.59	0.02	81.16	-0.0099	-0.1978	0.0001
176	SLU 79	-3.5	0.01	81.07	-0.0094	-0.1941	0.0001
176	SLU 80	-3.63	0.02	80.81	-0.01	-0.2004	0.0001
176	SLU 81	-3.74	0.01	82.61	-0.0085	-0.2054	0.0001
176	SLU 82	-3.86	0.02	82.36	-0.0091	-0.2117	0.0001
176	SLU 83	-3.66	0.01	83.8	-0.0092	-0.2019	0.0001
176	SLU 84	-3.79	0.02	83.54	-0.0098	-0.2082	0.0001
176	SLE RA 1	-2.65	0.01	51.71	-0.0053	-0.1452	0
176	SLE RA 2	-2.79	0.01	51.43	-0.006	-0.1522	0.0001
176	SLE RA 3	-2.56	0.01	52.73	-0.0057	-0.1411	0.0001
176	SLE RA 4	-2.65	0.01	52.56	-0.0061	-0.1453	0.0001
176	SLE RA 5	-2.73	0.01	52.21	-0.0064	-0.1499	0.0001
176	SLE RA 6	-2.51	0.01	53.52	-0.0061	-0.1388	0.0001
176	SLE RA 7	-2.6	0.01	53.35	-0.0065	-0.143	0.0001
176	SLE RA 8	-2.54	0.01	53.29	-0.0062	-0.1405	0.0001
176	SLE RA 9	-2.63	0.01	53.12	-0.0066	-0.1447	0.0001
176	SLE RA 10	-2.91	0.01	57.5	-0.0066	-0.1589	0.0001
176	SLE RA 11	-2.69	0.01	58.81	-0.0063	-0.1478	0.0001
176	SLE RA 12	-2.77	0.01	58.64	-0.0067	-0.152	0.0001
176	SLE RA 13	-2.85	0.01	58.29	-0.007	-0.1566	0.0001
176	SLE RA 14	-2.63	0.01	59.59	-0.0067	-0.1455	0.0001
176	SLE RA 15	-2.72	0.01	59.42	-0.0071	-0.1497	0.0001
176	SLE RA 16	-2.66	0.01	59.36	-0.0068	-0.1472	0.0001
176	SLE RA 17	-2.75	0.01	59.19	-0.0072	-0.1514	0.0001
176	SLE RA 18	-2.82	0.01	60.39	-0.0062	-0.1547	0.0001
176	SLE RA 19	-2.9	0.01	60.22	-0.0066	-0.159	0.0001
176	SLE RA 20	-2.77	0.01	61.18	-0.0066	-0.1524	0.0001
176	SLE RA 21	-2.85	0.01	61.01	-0.007	-0.1566	0.0001
176	SLE FR 1	-2.65	0.01	51.71	-0.0053	-0.1452	0
176	SLE FR 2	-2.67	0.01	51.65	-0.0055	-0.1466	0
176	SLE FR 3	-2.63	0.01	52.03	-0.0055	-0.1442	0
176	SLE FR 4	-2.73	0.01	54.26	-0.0057	-0.1495	0.0001
176	SLE FR 5	-2.68	0.01	54.63	-0.0058	-0.1471	0.0001
176	SLE FR 6	-2.73	0.01	56.05	-0.0058	-0.15	0.0001
176	SLE QP 1	-2.65	0.01	51.71	-0.0053	-0.1452	0
176	SLE QP 2	-2.7	0.01	54.31	-0.0056	-0.148	0.0001
176	SLD 1	8.57	0	29.67	-0.056	0.497	0.0001
176	SLD 2	8.57	0	29.67	-0.056	0.497	0.0001
176	SLD 3	9.21	0.11	27.76	-0.0125	0.5337	0.0004
176	SLD 4	9.21	0.11	27.76	-0.0125	0.5337	0.0004
176	SLD 5	-0.28	-0.15	49.82	-0.0867	-0.0101	-0.0003
176	SLD 6	-0.28	-0.15	49.82	-0.0867	-0.0101	-0.0003
176	SLD 7	1.84	0.2	43.45	0.0583	0.1121	0.0005
176	SLD 8	1.84	0.2	43.45	0.0583	0.1121	0.0005
176	SLD 9	-7.24	-0.18	65.18	-0.0695	-0.4082	-0.0004
176	SLD 10	-7.24	-0.18	65.18	-0.0695	-0.4082	-0.0004
176	SLD 11	-5.11	0.17	58.81	0.0755	-0.2859	0.0004
176	SLD 12	-5.11	0.17	58.81	0.0755	-0.2859	0.0004
176	SLD 13	-14.61	-0.09	80.87	0.0013	-0.8298	-0.0003
176	SLD 14	-14.61	-0.09	80.87	0.0013	-0.8298	-0.0003
176	SLD 15	-13.97	0.02	78.96	0.0448	-0.7931	0
176	SLD 16	-13.97	0.02	78.96	0.0448	-0.7931	0
176	SLV 1	23.05	-0.01	-2	-0.1277	1.3259	0.0003
176	SLV 2	23.05	-0.01	-2	-0.1277	1.3259	0.0003
176	SLV 3	24.53	0.25	-6.54	-0.027	1.4112	0.0008
176	SLV 4	24.53	0.25	-6.54	-0.027	1.4112	0.0008
176	SLV 5	2.77	-0.39	44.3	-0.1948	0.1647	-0.0007
176	SLV 6	2.77	-0.39	44.3	-0.1948	0.1647	-0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
176	SLV 7	7.72	0.47	29.17	0.1406	0.4491	0.0011
176	SLV 8	7.72	0.47	29.17	0.1406	0.4491	0.0011
176	SLV 9	-13.12	-0.45	79.46	-0.1518	-0.7452	-0.001
176	SLV 10	-13.12	-0.45	79.46	-0.1518	-0.7452	-0.001
176	SLV 11	-8.17	0.41	64.33	0.1836	-0.4608	0.0008
176	SLV 12	-8.17	0.41	64.33	0.1836	-0.4608	0.0008
176	SLV 13	-29.93	-0.23	115.17	0.0159	-1.7073	-0.0007
176	SLV 14	-29.93	-0.23	115.17	0.0159	-1.7073	-0.0007
176	SLV 15	-28.45	0.03	110.63	0.1165	-1.622	-0.0002
176	SLV 16	-28.45	0.03	110.63	0.1165	-1.622	-0.0002
177	SLU 1	-6.26	0.02	26.73	-0.0045	-0.1092	-0.0008
177	SLU 2	-6.33	0.03	26.67	-0.0062	-0.1143	-0.0012
177	SLU 3	-6.35	0.02	27.41	-0.0048	-0.1075	-0.0009
177	SLU 4	-6.39	0.02	27.38	-0.0058	-0.1106	-0.0011
177	SLU 5	-6.41	0.03	27.23	-0.0066	-0.1136	-0.0012
177	SLU 6	-6.44	0.02	27.97	-0.0052	-0.1068	-0.0009
177	SLU 7	-6.48	0.02	27.94	-0.0062	-0.1099	-0.0012
177	SLU 8	-6.43	0.02	27.85	-0.0052	-0.1078	-0.001
177	SLU 9	-6.47	0.02	27.82	-0.0062	-0.1109	-0.0012
177	SLU 10	-7.34	0.03	31.37	-0.007	-0.1272	-0.0013
177	SLU 11	-7.36	0.02	32.11	-0.0056	-0.1204	-0.001
177	SLU 12	-7.4	0.03	32.07	-0.0067	-0.1235	-0.0012
177	SLU 13	-7.42	0.03	31.93	-0.0074	-0.1265	-0.0014
177	SLU 14	-7.44	0.02	32.67	-0.006	-0.1197	-0.0011
177	SLU 15	-7.48	0.03	32.63	-0.007	-0.1228	-0.0013
177	SLU 16	-7.44	0.02	32.55	-0.006	-0.1207	-0.0011
177	SLU 17	-7.48	0.03	32.51	-0.007	-0.1238	-0.0013
177	SLU 18	-7.7	0.02	33.44	-0.0057	-0.1276	-0.001
177	SLU 19	-7.74	0.03	33.4	-0.0067	-0.1307	-0.0013
177	SLU 20	-7.78	0.02	34	-0.006	-0.1269	-0.0011
177	SLU 21	-7.82	0.03	33.96	-0.007	-0.13	-0.0013
177	SLU 22	-7.17	0.02	30.99	-0.0053	-0.1203	-0.001
177	SLU 23	-7.23	0.03	30.93	-0.0071	-0.1254	-0.0013
177	SLU 24	-7.26	0.02	31.68	-0.0056	-0.1186	-0.001
177	SLU 25	-7.3	0.03	31.64	-0.0067	-0.1216	-0.0013
177	SLU 26	-7.32	0.03	31.49	-0.0074	-0.1247	-0.0014
177	SLU 27	-7.34	0.02	32.24	-0.006	-0.1179	-0.0011
177	SLU 28	-7.38	0.03	32.2	-0.007	-0.121	-0.0013
177	SLU 29	-7.33	0.02	32.12	-0.006	-0.1189	-0.0011
177	SLU 30	-7.37	0.03	32.08	-0.0071	-0.1219	-0.0013
177	SLU 31	-8.24	0.03	35.63	-0.0079	-0.1382	-0.0015
177	SLU 32	-8.26	0.02	36.37	-0.0065	-0.1314	-0.0012
177	SLU 33	-8.3	0.03	36.33	-0.0075	-0.1345	-0.0014
177	SLU 34	-8.32	0.03	36.19	-0.0082	-0.1375	-0.0015
177	SLU 35	-8.35	0.02	36.93	-0.0068	-0.1308	-0.0013
177	SLU 36	-8.39	0.03	36.89	-0.0078	-0.1338	-0.0015
177	SLU 37	-8.34	0.02	36.81	-0.0069	-0.1318	-0.0013
177	SLU 38	-8.38	0.03	36.77	-0.0079	-0.1348	-0.0015
177	SLU 39	-8.6	0.03	37.7	-0.0065	-0.1386	-0.0012
177	SLU 40	-8.64	0.03	37.67	-0.0075	-0.1417	-0.0014
177	SLU 41	-8.69	0.03	38.26	-0.0069	-0.138	-0.0013
177	SLU 42	-8.73	0.03	38.23	-0.0079	-0.141	-0.0015
177	SLU 43	-7.83	0.02	33.29	-0.0056	-0.1382	-0.001
177	SLU 44	-7.9	0.03	33.23	-0.0073	-0.1433	-0.0014
177	SLU 45	-7.92	0.02	33.97	-0.0059	-0.1365	-0.0011
177	SLU 46	-7.96	0.03	33.94	-0.0069	-0.1396	-0.0013
177	SLU 47	-7.98	0.03	33.79	-0.0076	-0.1426	-0.0014
177	SLU 48	-8.01	0.02	34.53	-0.0062	-0.1358	-0.0011
177	SLU 49	-8.05	0.03	34.5	-0.0072	-0.1389	-0.0014
177	SLU 50	-8	0.02	34.41	-0.0063	-0.1368	-0.0011
177	SLU 51	-8.04	0.03	34.38	-0.0073	-0.1399	-0.0014
177	SLU 52	-8.91	0.04	37.93	-0.0081	-0.1562	-0.0015
177	SLU 53	-8.93	0.03	38.67	-0.0067	-0.1494	-0.0012
177	SLU 54	-8.97	0.03	38.63	-0.0077	-0.1524	-0.0014
177	SLU 55	-8.99	0.04	38.49	-0.0084	-0.1555	-0.0016
177	SLU 56	-9.01	0.03	39.23	-0.007	-0.1487	-0.0013
177	SLU 57	-9.05	0.03	39.19	-0.0081	-0.1518	-0.0015
177	SLU 58	-9	0.03	39.11	-0.0071	-0.1497	-0.0013
177	SLU 59	-9.05	0.03	39.07	-0.0081	-0.1528	-0.0015
177	SLU 60	-9.27	0.03	40	-0.0067	-0.1566	-0.0012
177	SLU 61	-9.31	0.03	39.96	-0.0078	-0.1596	-0.0015
177	SLU 62	-9.35	0.03	40.56	-0.0071	-0.1559	-0.0013
177	SLU 63	-9.39	0.03	40.52	-0.0081	-0.159	-0.0015
177	SLU 64	-8.73	0.02	37.55	-0.0064	-0.1492	-0.0012
177	SLU 65	-8.8	0.04	37.49	-0.0081	-0.1543	-0.0015
177	SLU 66	-8.83	0.03	38.23	-0.0067	-0.1476	-0.0012
177	SLU 67	-8.87	0.03	38.2	-0.0077	-0.1506	-0.0014
177	SLU 68	-8.89	0.04	38.05	-0.0085	-0.1536	-0.0016
177	SLU 69	-8.91	0.03	38.79	-0.0071	-0.1469	-0.0013
177	SLU 70	-8.95	0.03	38.76	-0.0081	-0.1499	-0.0015
177	SLU 71	-8.9	0.03	38.67	-0.0071	-0.1479	-0.0013
177	SLU 72	-8.94	0.03	38.64	-0.0081	-0.1509	-0.0015
177	SLU 73	-9.81	0.04	42.19	-0.0089	-0.1672	-0.0017
177	SLU 74	-9.83	0.03	42.93	-0.0075	-0.1604	-0.0014
177	SLU 75	-9.87	0.04	42.89	-0.0086	-0.1635	-0.0016
177	SLU 76	-9.89	0.04	42.75	-0.0093	-0.1665	-0.0017
177	SLU 77	-9.92	0.03	43.49	-0.0079	-0.1597	-0.0014
177	SLU 78	-9.96	0.04	43.45	-0.0089	-0.1628	-0.0017
177	SLU 79	-9.91	0.03	43.37	-0.0079	-0.1607	-0.0015





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
177	SLU 80	-9.95	0.04	43.33	-0.0089	-0.1638	-0.0017
177	SLU 81	-10.17	0.03	44.26	-0.0076	-0.1676	-0.0014
177	SLU 82	-10.21	0.04	44.22	-0.0086	-0.1707	-0.0016
177	SLU 83	-10.26	0.03	44.82	-0.0079	-0.1669	-0.0015
177	SLU 84	-10.3	0.04	44.78	-0.0089	-0.17	-0.0017
177	SLE RA 1	-6.52	0.02	27.95	-0.0047	-0.1124	-0.0009
177	SLE RA 2	-6.57	0.03	27.91	-0.0059	-0.1158	-0.0011
177	SLE RA 3	-6.58	0.02	28.4	-0.0049	-0.1112	-0.0009
177	SLE RA 4	-6.61	0.02	28.38	-0.0056	-0.1133	-0.0011
177	SLE RA 5	-6.62	0.03	28.28	-0.0061	-0.1153	-0.0012
177	SLE RA 6	-6.64	0.02	28.78	-0.0052	-0.1108	-0.001
177	SLE RA 7	-6.66	0.02	28.75	-0.0059	-0.1128	-0.0011
177	SLE RA 8	-6.63	0.02	28.7	-0.0052	-0.1115	-0.001
177	SLE RA 9	-6.66	0.02	28.67	-0.0059	-0.1135	-0.0011
177	SLE RA 10	-7.24	0.03	31.04	-0.0064	-0.1243	-0.0012
177	SLE RA 11	-7.25	0.02	31.53	-0.0055	-0.1198	-0.001
177	SLE RA 12	-7.28	0.03	31.51	-0.0062	-0.1219	-0.0012
177	SLE RA 13	-7.29	0.03	31.41	-0.0067	-0.1239	-0.0013
177	SLE RA 14	-7.31	0.02	31.91	-0.0057	-0.1194	-0.0011
177	SLE RA 15	-7.33	0.03	31.88	-0.0064	-0.1214	-0.0012
177	SLE RA 16	-7.3	0.02	31.83	-0.0058	-0.12	-0.0011
177	SLE RA 17	-7.33	0.03	31.8	-0.0064	-0.1221	-0.0012
177	SLE RA 18	-7.48	0.02	32.42	-0.0055	-0.1246	-0.001
177	SLE RA 19	-7.51	0.03	32.4	-0.0062	-0.1267	-0.0012
177	SLE RA 20	-7.54	0.02	32.8	-0.0058	-0.1242	-0.0011
177	SLE RA 21	-7.56	0.03	32.77	-0.0064	-0.1262	-0.0012
177	SLE FR 1	-6.52	0.02	27.95	-0.0047	-0.1124	-0.0009
177	SLE FR 2	-6.53	0.02	27.94	-0.005	-0.113	-0.0009
177	SLE FR 3	-6.54	0.02	28.1	-0.0048	-0.1122	-0.0009
177	SLE FR 4	-6.82	0.02	29.28	-0.0052	-0.1167	-0.001
177	SLE FR 5	-6.83	0.02	29.44	-0.0051	-0.1159	-0.0009
177	SLE FR 6	-7	0.02	30.19	-0.0051	-0.1185	-0.0009
177	SLE QP 1	-6.52	0.02	27.95	-0.0047	-0.1124	-0.0009
177	SLE QP 2	-6.81	0.02	29.29	-0.005	-0.116	-0.0009
177	SLD 1	2.24	-0.28	5.14	0.0348	0.2185	0.0073
177	SLD 2	2.24	-0.28	5.14	0.0348	0.2185	0.0073
177	SLD 3	2.75	0.14	3.61	-0.0212	0.2371	-0.0047
177	SLD 4	2.75	0.14	3.61	-0.0212	0.2371	-0.0047
177	SLD 5	-4.86	-0.71	24.36	0.0919	-0.0438	0.0196
177	SLD 6	-4.86	-0.71	24.36	0.0919	-0.0438	0.0196
177	SLD 7	-3.17	0.7	19.28	-0.0948	0.018	-0.0202
177	SLD 8	-3.17	0.7	19.28	-0.0948	0.018	-0.0202
177	SLD 9	-10.45	-0.66	39.31	0.0848	-0.2501	0.0183
177	SLD 10	-10.45	-0.66	39.31	0.0848	-0.2501	0.0183
177	SLD 11	-8.75	0.75	34.23	-0.1018	-0.1883	-0.0215
177	SLD 12	-8.75	0.75	34.23	-0.1018	-0.1883	-0.0215
177	SLD 13	-16.37	-0.1	54.97	0.0113	-0.4691	0.0028
177	SLD 14	-16.37	-0.1	54.97	0.0113	-0.4691	0.0028
177	SLD 15	-15.86	0.32	53.45	-0.0447	-0.4506	-0.0091
177	SLD 16	-15.86	0.32	53.45	-0.0447	-0.4506	-0.0091
177	SLV 1	13.88	-0.76	-25.92	0.095	0.6483	0.0198
177	SLV 2	13.88	-0.76	-25.92	0.095	0.6483	0.0198
177	SLV 3	15.06	0.33	-29.47	-0.0469	0.6913	-0.0106
177	SLV 4	15.06	0.33	-29.47	-0.0469	0.6913	-0.0106
177	SLV 5	-2.38	-1.86	18.11	0.2403	0.0481	0.0514
177	SLV 6	-2.38	-1.86	18.11	0.2403	0.0481	0.0514
177	SLV 7	1.53	1.76	6.28	-0.2328	0.1914	-0.0499
177	SLV 8	1.53	1.76	6.28	-0.2328	0.1914	-0.0499
177	SLV 9	-15.15	-1.72	52.31	0.2229	-0.4235	0.0481
177	SLV 10	-15.15	-1.72	52.31	0.2229	-0.4235	0.0481
177	SLV 11	-11.23	1.9	40.47	-0.2502	-0.2801	-0.0533
177	SLV 12	-11.23	1.9	40.47	-0.2502	-0.2801	-0.0533
177	SLV 13	-28.68	-0.29	88.05	0.037	-0.9234	0.0087
177	SLV 14	-28.68	-0.29	88.05	0.037	-0.9234	0.0087
177	SLV 15	-27.5	0.79	84.5	-0.105	-0.8804	-0.0217
177	SLV 16	-27.5	0.79	84.5	-0.105	-0.8804	-0.0217
178	SLU 1	10.53	-0.12	34.38	0.0191	0.2674	-0.0043
178	SLU 2	10.01	-0.13	32.5	0.0176	0.2571	-0.0042
178	SLU 3	10.98	-0.13	35.95	0.02	0.278	-0.0044
178	SLU 4	10.67	-0.13	34.82	0.0191	0.2718	-0.0044
178	SLU 5	10.28	-0.13	33.52	0.0182	0.2622	-0.0043
178	SLU 6	11.25	-0.13	36.96	0.0207	0.2831	-0.0045
178	SLU 7	10.94	-0.13	35.83	0.0197	0.2769	-0.0045
178	SLU 8	11.06	-0.13	36.41	0.0205	0.2777	-0.0045
178	SLU 9	10.75	-0.13	35.28	0.0195	0.2715	-0.0044
178	SLU 10	12.23	-0.16	39.5	0.0212	0.3162	-0.005
178	SLU 11	13.2	-0.15	42.94	0.0237	0.3371	-0.0053
178	SLU 12	12.89	-0.16	41.81	0.0228	0.331	-0.0052
178	SLU 13	12.5	-0.16	40.51	0.0219	0.3214	-0.0051
178	SLU 14	13.47	-0.15	43.96	0.0244	0.3423	-0.0054
178	SLU 15	13.16	-0.16	42.83	0.0234	0.3361	-0.0053
178	SLU 16	13.28	-0.15	43.41	0.0241	0.3368	-0.0053
178	SLU 17	12.97	-0.16	42.28	0.0232	0.3306	-0.0053
178	SLU 18	13.69	-0.16	44.38	0.0244	0.3519	-0.0055
178	SLU 19	13.39	-0.17	43.25	0.0234	0.3457	-0.0054
178	SLU 20	13.96	-0.16	45.4	0.025	0.357	-0.0056
178	SLU 21	13.65	-0.17	44.27	0.0241	0.3509	-0.0055
178	SLU 22	12.45	-0.15	40.61	0.0226	0.3166	-0.005
178	SLU 23	11.93	-0.16	38.73	0.021	0.3063	-0.0049



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
178	SLU 24	12.9	-0.15	42.17	0.0235	0.3272	-0.0052
178	SLU 25	12.59	-0.16	41.04	0.0225	0.321	-0.0051
178	SLU 26	12.2	-0.16	39.74	0.0216	0.3115	-0.005
178	SLU 27	13.17	-0.15	43.19	0.0241	0.3324	-0.0053
178	SLU 28	12.86	-0.16	42.06	0.0232	0.3262	-0.0052
178	SLU 29	12.98	-0.15	42.64	0.0239	0.3269	-0.0052
178	SLU 30	12.68	-0.15	41.51	0.0229	0.3207	-0.0052
178	SLU 31	14.15	-0.18	45.73	0.0246	0.3655	-0.0058
178	SLU 32	15.12	-0.17	49.17	0.0271	0.3864	-0.006
178	SLU 33	14.81	-0.18	48.04	0.0262	0.3802	-0.006
178	SLU 34	14.42	-0.18	46.74	0.0253	0.3706	-0.0059
178	SLU 35	15.39	-0.18	50.19	0.0278	0.3915	-0.0061
178	SLU 36	15.08	-0.18	49.06	0.0268	0.3854	-0.0061
178	SLU 37	15.2	-0.17	49.64	0.0275	0.3861	-0.0061
178	SLU 38	14.89	-0.18	48.51	0.0266	0.3799	-0.006
178	SLU 39	15.61	-0.18	50.61	0.0278	0.4012	-0.0062
178	SLU 40	15.31	-0.19	49.48	0.0269	0.395	-0.0062
178	SLU 41	15.88	-0.18	51.63	0.0285	0.4063	-0.0063
178	SLU 42	15.57	-0.19	50.5	0.0275	0.4001	-0.0063
178	SLU 43	13.03	-0.15	42.56	0.0237	0.3307	-0.0053
178	SLU 44	12.51	-0.16	40.68	0.0221	0.3204	-0.0052
178	SLU 45	13.48	-0.16	44.13	0.0246	0.3413	-0.0054
178	SLU 46	13.17	-0.16	43	0.0237	0.3351	-0.0054
178	SLU 47	12.78	-0.16	41.7	0.0228	0.3255	-0.0053
178	SLU 48	13.75	-0.16	45.14	0.0253	0.3464	-0.0056
178	SLU 49	13.44	-0.16	44.01	0.0243	0.3403	-0.0055
178	SLU 50	13.56	-0.16	44.59	0.025	0.341	-0.0055
178	SLU 51	13.25	-0.16	43.46	0.0241	0.3348	-0.0054
178	SLU 52	14.73	-0.19	47.68	0.0258	0.3796	-0.006
178	SLU 53	15.7	-0.18	51.12	0.0283	0.4005	-0.0063
178	SLU 54	15.39	-0.19	49.99	0.0273	0.3943	-0.0062
178	SLU 55	15	-0.19	48.69	0.0265	0.3847	-0.0061
178	SLU 56	15.97	-0.18	52.14	0.0289	0.4056	-0.0064
178	SLU 57	15.66	-0.19	51.01	0.028	0.3994	-0.0063
178	SLU 58	15.78	-0.18	51.59	0.0287	0.4001	-0.0063
178	SLU 59	15.47	-0.19	50.46	0.0277	0.394	-0.0063
178	SLU 60	16.19	-0.19	52.56	0.029	0.4152	-0.0065
178	SLU 61	15.88	-0.2	51.43	0.028	0.409	-0.0064
178	SLU 62	16.46	-0.19	53.58	0.0296	0.4204	-0.0066
178	SLU 63	16.15	-0.2	52.45	0.0287	0.4142	-0.0065
178	SLU 64	14.95	-0.18	48.79	0.0271	0.3799	-0.006
178	SLU 65	14.43	-0.18	46.91	0.0255	0.3696	-0.0059
178	SLU 66	15.4	-0.18	50.35	0.028	0.3906	-0.0062
178	SLU 67	15.09	-0.18	49.22	0.0271	0.3844	-0.0062
178	SLU 68	14.7	-0.19	47.92	0.0262	0.3748	-0.0061
178	SLU 69	15.67	-0.18	51.37	0.0287	0.3957	-0.0063
178	SLU 70	15.36	-0.19	50.24	0.0277	0.3895	-0.0063
178	SLU 71	15.48	-0.18	50.82	0.0284	0.3902	-0.0063
178	SLU 72	15.17	-0.18	49.69	0.0275	0.384	-0.0062
178	SLU 73	16.65	-0.21	53.91	0.0292	0.4288	-0.0068
178	SLU 74	17.62	-0.2	57.35	0.0317	0.4497	-0.0071
178	SLU 75	17.31	-0.21	56.22	0.0307	0.4435	-0.007
178	SLU 76	16.92	-0.21	54.92	0.0299	0.4339	-0.0069
178	SLU 77	17.89	-0.21	58.37	0.0324	0.4549	-0.0072
178	SLU 78	17.58	-0.21	57.24	0.0314	0.4487	-0.0071
178	SLU 79	17.7	-0.2	57.82	0.0321	0.4494	-0.0071
178	SLU 80	17.39	-0.21	56.69	0.0312	0.4432	-0.007
178	SLU 81	18.11	-0.21	58.79	0.0324	0.4645	-0.0073
178	SLU 82	17.81	-0.22	57.66	0.0314	0.4583	-0.0072
178	SLU 83	18.38	-0.21	59.81	0.033	0.4696	-0.0074
178	SLU 84	18.07	-0.22	58.68	0.0321	0.4634	-0.0073
178	SLE RA 1	11.08	-0.13	36.16	0.0201	0.2814	-0.0045
178	SLE RA 2	10.73	-0.14	34.91	0.0191	0.2746	-0.0044
178	SLE RA 3	11.38	-0.13	37.2	0.0207	0.2885	-0.0046
178	SLE RA 4	11.17	-0.14	36.45	0.0201	0.2844	-0.0046
178	SLE RA 5	10.91	-0.14	35.59	0.0195	0.278	-0.0045
178	SLE RA 6	11.56	-0.13	37.88	0.0212	0.2919	-0.0047
178	SLE RA 7	11.35	-0.14	37.13	0.0205	0.2878	-0.0046
178	SLE RA 8	11.43	-0.13	37.52	0.021	0.2883	-0.0046
178	SLE RA 9	11.23	-0.14	36.76	0.0204	0.2842	-0.0046
178	SLE RA 10	12.21	-0.15	39.57	0.0215	0.314	-0.005
178	SLE RA 11	12.86	-0.15	41.87	0.0232	0.328	-0.0052
178	SLE RA 12	12.65	-0.15	41.12	0.0225	0.3238	-0.0051
178	SLE RA 13	12.39	-0.15	40.25	0.0219	0.3174	-0.0051
178	SLE RA 14	13.03	-0.15	42.55	0.0236	0.3314	-0.0052
178	SLE RA 15	12.83	-0.15	41.79	0.023	0.3273	-0.0052
178	SLE RA 16	12.91	-0.15	42.18	0.0234	0.3277	-0.0052
178	SLE RA 17	12.71	-0.15	41.43	0.0228	0.3236	-0.0051
178	SLE RA 18	13.19	-0.15	42.83	0.0236	0.3378	-0.0053
178	SLE RA 19	12.98	-0.16	42.08	0.023	0.3337	-0.0052
178	SLE RA 20	13.37	-0.16	43.51	0.0241	0.3412	-0.0054
178	SLE RA 21	13.16	-0.16	42.75	0.0234	0.3371	-0.0053
178	SLE FR 1	11.08	-0.13	36.16	0.0201	0.2814	-0.0045
178	SLE FR 2	11.01	-0.13	35.91	0.0199	0.2801	-0.0045
178	SLE FR 3	11.15	-0.13	36.44	0.0203	0.2828	-0.0045
178	SLE FR 4	11.64	-0.14	37.91	0.021	0.297	-0.0047
178	SLE FR 5	11.78	-0.14	38.43	0.0213	0.2997	-0.0048
178	SLE FR 6	12.13	-0.14	39.5	0.0219	0.3096	-0.0049
178	SLE QP 1	11.08	-0.13	36.16	0.0201	0.2814	-0.0045



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
178	SLE QP 2	11.71	-0.14	38.16	0.0212	0.2983	-0.0047
178	SLD 1	19.99	-0.37	59.17	0.0508	0.6017	-0.0118
178	SLD 2	19.99	-0.37	59.17	0.0508	0.6017	-0.0118
178	SLD 3	21.46	-0.13	63.69	0.0214	0.6425	-0.0047
178	SLD 4	21.46	-0.13	63.69	0.0214	0.6425	-0.0047
178	SLD 5	11.96	-0.57	37.61	0.0748	0.3275	-0.0177
178	SLD 6	11.96	-0.57	37.61	0.0748	0.3275	-0.0177
178	SLD 7	16.87	0.23	52.68	-0.0235	0.4634	0.0062
178	SLD 8	16.87	0.23	52.68	-0.0235	0.4634	0.0062
178	SLD 9	6.55	-0.51	23.65	0.0658	0.1333	-0.0156
178	SLD 10	6.55	-0.51	23.65	0.0658	0.1333	-0.0156
178	SLD 11	11.46	0.3	38.72	-0.0324	0.2692	0.0083
178	SLD 12	11.46	0.3	38.72	-0.0324	0.2692	0.0083
178	SLD 13	1.95	-0.14	12.64	0.021	-0.0458	-0.0048
178	SLD 14	1.95	-0.14	12.64	0.021	-0.0458	-0.0048
178	SLD 15	3.43	0.1	17.16	-0.0085	-0.005	0.0024
178	SLD 16	3.43	0.1	17.16	-0.0085	-0.005	0.0024
178	SLV 1	30.59	-0.7	86.01	0.0926	0.9906	-0.0219
178	SLV 2	30.59	-0.7	86.01	0.0926	0.9906	-0.0219
178	SLV 3	34.06	-0.11	96.7	0.0205	1.0862	-0.0043
178	SLV 4	34.06	-0.11	96.7	0.0205	1.0862	-0.0043
178	SLV 5	12.12	-1.2	36.3	0.152	0.361	-0.0365
178	SLV 6	12.12	-1.2	36.3	0.152	0.361	-0.0365
178	SLV 7	23.67	0.77	71.94	-0.0884	0.6797	0.022
178	SLV 8	23.67	0.77	71.94	-0.0884	0.6797	0.022
178	SLV 9	-0.25	-1.04	4.39	0.1308	-0.083	-0.0315
178	SLV 10	-0.25	-1.04	4.39	0.1308	-0.083	-0.0315
178	SLV 11	11.3	0.93	40.02	-0.1096	0.2357	0.0271
178	SLV 12	11.3	0.93	40.02	-0.1096	0.2357	0.0271
178	SLV 13	-10.64	-0.16	-20.37	0.0218	-0.4895	-0.0051
178	SLV 14	-10.64	-0.16	-20.37	0.0218	-0.4895	-0.0051
178	SLV 15	-7.18	0.43	-9.68	-0.0503	-0.3939	0.0124
178	SLV 16	-7.18	0.43	-9.68	-0.0503	-0.3939	0.0124
179	SLU 1	9.58	-3.62	82.44	0.0466	0.4916	-0.0074
179	SLU 2	9.64	-2.31	76.82	-0.0166	0.4952	-0.0049
179	SLU 3	9.89	-3.9	86.36	0.0553	0.5072	-0.008
179	SLU 4	9.92	-3.12	82.99	0.0174	0.5094	-0.0065
179	SLU 5	9.72	-2.59	79.64	-0.0064	0.4989	-0.0054
179	SLU 6	9.97	-4.18	89.18	0.0655	0.511	-0.0085
179	SLU 7	10.01	-3.39	85.81	0.0275	0.5132	-0.007
179	SLU 8	9.75	-4.17	88.08	0.0669	0.4991	-0.0085
179	SLU 9	9.78	-3.39	84.7	0.029	0.5013	-0.007
179	SLU 10	11.86	-2.86	92.76	-0.0134	0.6113	-0.006
179	SLU 11	12.11	-4.45	102.31	0.0585	0.6234	-0.0091
179	SLU 12	12.15	-3.67	98.94	0.0206	0.6255	-0.0076
179	SLU 13	11.94	-3.14	95.58	-0.0033	0.6151	-0.0066
179	SLU 14	12.2	-4.73	105.13	0.0686	0.6272	-0.0096
179	SLU 15	12.23	-3.94	101.76	0.0307	0.6293	-0.0081
179	SLU 16	11.97	-4.72	104.02	0.0701	0.6153	-0.0096
179	SLU 17	12.01	-3.94	100.65	0.0321	0.6174	-0.0081
179	SLU 18	12.76	-4.41	105.21	0.0511	0.6575	-0.009
179	SLU 19	12.79	-3.62	101.84	0.0132	0.6597	-0.0075
179	SLU 20	12.84	-4.68	108.03	0.0613	0.6613	-0.0096
179	SLU 21	12.88	-3.9	104.66	0.0234	0.6634	-0.0081
179	SLU 22	11.35	-4.21	97.08	0.0541	0.5834	-0.0086
179	SLU 23	11.41	-2.9	91.46	-0.0091	0.587	-0.0061
179	SLU 24	11.66	-4.5	101.01	0.0628	0.599	-0.0092
179	SLU 25	11.69	-3.71	97.64	0.0249	0.6012	-0.0077
179	SLU 26	11.49	-3.18	94.28	0.001	0.5907	-0.0067
179	SLU 27	11.74	-4.77	103.83	0.0729	0.6028	-0.0097
179	SLU 28	11.77	-3.99	100.45	0.035	0.605	-0.0082
179	SLU 29	11.52	-4.77	102.72	0.0744	0.5909	-0.0097
179	SLU 30	11.55	-3.98	99.35	0.0365	0.5931	-0.0082
179	SLU 31	13.63	-3.45	107.4	-0.0059	0.7031	-0.0073
179	SLU 32	13.88	-5.05	116.95	0.0659	0.7152	-0.0103
179	SLU 33	13.91	-4.26	113.58	0.028	0.7173	-0.0088
179	SLU 34	13.71	-3.73	110.22	0.0042	0.7069	-0.0078
179	SLU 35	13.96	-5.32	119.77	0.0761	0.719	-0.0109
179	SLU 36	14	-4.54	116.4	0.0382	0.7211	-0.0094
179	SLU 37	13.74	-5.32	118.66	0.0775	0.7071	-0.0109
179	SLU 38	13.77	-4.53	115.29	0.0396	0.7092	-0.0094
179	SLU 39	14.53	-5	119.86	0.0586	0.7493	-0.0102
179	SLU 40	14.56	-4.21	116.48	0.0207	0.7515	-0.0087
179	SLU 41	14.61	-5.27	122.67	0.0688	0.7531	-0.0108
179	SLU 42	14.64	-4.49	119.3	0.0308	0.7552	-0.0093
179	SLU 43	11.85	-4.5	102.15	0.0581	0.6075	-0.0092
179	SLU 44	11.91	-3.19	96.53	-0.0051	0.6111	-0.0067
179	SLU 45	12.16	-4.79	106.08	0.0668	0.6232	-0.0098
179	SLU 46	12.19	-4	102.71	0.0288	0.6254	-0.0083
179	SLU 47	11.99	-3.47	99.35	0.005	0.6149	-0.0072
179	SLU 48	12.24	-5.06	108.9	0.0769	0.627	-0.0103
179	SLU 49	12.27	-4.28	105.52	0.039	0.6292	-0.0088
179	SLU 50	12.02	-5.06	107.79	0.0783	0.6151	-0.0103
179	SLU 51	12.05	-4.27	104.42	0.0404	0.6173	-0.0088
179	SLU 52	14.13	-3.74	112.47	-0.002	0.7273	-0.0078
179	SLU 53	14.38	-5.33	122.02	0.0699	0.7394	-0.0109
179	SLU 54	14.42	-4.55	118.65	0.032	0.7415	-0.0094
179	SLU 55	14.21	-4.02	115.29	0.0082	0.7311	-0.0084
179	SLU 56	14.47	-5.61	124.84	0.08	0.7432	-0.0114



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
179	SLU 57	14.5	-4.82	121.47	0.0421	0.7453	-0.0099
179	SLU 58	14.24	-5.6	123.73	0.0815	0.7313	-0.0114
179	SLU 59	14.27	-4.82	120.36	0.0436	0.7334	-0.0099
179	SLU 60	15.03	-5.29	124.92	0.0626	0.7735	-0.0108
179	SLU 61	15.06	-4.5	121.55	0.0247	0.7757	-0.0093
179	SLU 62	15.11	-5.56	127.74	0.0727	0.7773	-0.0114
179	SLU 63	15.14	-4.78	124.37	0.0348	0.7794	-0.0099
179	SLU 64	13.62	-5.1	116.79	0.0655	0.6993	-0.0104
179	SLU 65	13.68	-3.79	111.17	0.0023	0.7029	-0.0079
179	SLU 66	13.93	-5.38	120.72	0.0742	0.715	-0.011
179	SLU 67	13.96	-4.59	117.35	0.0363	0.7172	-0.0095
179	SLU 68	13.76	-4.06	113.99	0.0125	0.7067	-0.0085
179	SLU 69	14.01	-5.66	123.54	0.0844	0.7188	-0.0115
179	SLU 70	14.04	-4.87	120.17	0.0464	0.721	-0.01
179	SLU 71	13.79	-5.65	122.43	0.0858	0.7069	-0.0115
179	SLU 72	13.82	-4.86	119.06	0.0479	0.7091	-0.01
179	SLU 73	15.9	-4.34	127.11	0.0055	0.8191	-0.0091
179	SLU 74	16.15	-5.93	136.66	0.0774	0.8312	-0.0121
179	SLU 75	16.18	-5.14	133.29	0.0395	0.8333	-0.0106
179	SLU 76	15.98	-4.61	129.93	0.0156	0.8229	-0.0096
179	SLU 77	16.23	-6.2	139.48	0.0875	0.835	-0.0127
179	SLU 78	16.27	-5.42	136.11	0.0496	0.8371	-0.0112
179	SLU 79	16.01	-6.2	138.37	0.089	0.8231	-0.0127
179	SLU 80	16.04	-5.41	135	0.051	0.8252	-0.0112
179	SLU 81	16.8	-5.88	139.57	0.07	0.8653	-0.012
179	SLU 82	16.83	-5.1	136.2	0.0321	0.8675	-0.0105
179	SLU 83	16.88	-6.16	142.39	0.0802	0.8691	-0.0126
179	SLU 84	16.91	-5.37	139.01	0.0423	0.8712	-0.0111
179	SLE RA 1	10.09	-3.79	86.62	0.0488	0.5178	-0.0077
179	SLE RA 2	10.13	-2.92	82.87	0.0066	0.5202	-0.0061
179	SLE RA 3	10.29	-3.98	89.24	0.0546	0.5282	-0.0081
179	SLE RA 4	10.32	-3.45	86.99	0.0293	0.5297	-0.0071
179	SLE RA 5	10.18	-3.1	84.75	0.0134	0.5227	-0.0064
179	SLE RA 6	10.35	-4.16	91.12	0.0613	0.5307	-0.0085
179	SLE RA 7	10.37	-3.64	88.87	0.036	0.5322	-0.0075
179	SLE RA 8	10.2	-4.16	90.38	0.0623	0.5228	-0.0085
179	SLE RA 9	10.22	-3.63	88.13	0.037	0.5243	-0.0075
179	SLE RA 10	11.61	-3.28	93.5	0.0087	0.5976	-0.0068
179	SLE RA 11	11.78	-4.34	99.87	0.0567	0.6057	-0.0089
179	SLE RA 12	11.8	-3.82	97.62	0.0314	0.6071	-0.0079
179	SLE RA 13	11.66	-3.47	95.38	0.0155	0.6001	-0.0072
179	SLE RA 14	11.83	-4.53	101.75	0.0634	0.6082	-0.0092
179	SLE RA 15	11.85	-4	99.5	0.0381	0.6096	-0.0082
179	SLE RA 16	11.68	-4.52	101.01	0.0644	0.6003	-0.0092
179	SLE RA 17	11.7	-4	98.76	0.0391	0.6017	-0.0082
179	SLE RA 18	12.21	-4.31	101.8	0.0518	0.6284	-0.0088
179	SLE RA 19	12.23	-3.79	99.56	0.0265	0.6299	-0.0078
179	SLE RA 20	12.26	-4.5	103.68	0.0585	0.6309	-0.0092
179	SLE RA 21	12.28	-3.97	101.44	0.0333	0.6324	-0.0082
179	SLE FR 1	10.09	-3.79	86.62	0.0488	0.5178	-0.0077
179	SLE FR 2	10.1	-3.62	85.87	0.0403	0.5183	-0.0074
179	SLE FR 3	10.11	-3.86	87.37	0.0515	0.5188	-0.0079
179	SLE FR 4	10.73	-3.77	90.43	0.0412	0.5515	-0.0077
179	SLE FR 5	10.75	-4.02	91.93	0.0524	0.552	-0.0082
179	SLE FR 6	11.15	-4.05	94.21	0.0503	0.5731	-0.0083
179	SLE QP 1	10.09	-3.79	86.62	0.0488	0.5178	-0.0077
179	SLE QP 2	10.72	-3.95	91.18	0.0497	0.551	-0.0081
179	SLD 1	23.38	-3.74	116.36	-0.0725	1.2806	-0.0077
179	SLD 2	23.38	-3.74	116.36	-0.0725	1.2806	-0.0077
179	SLD 3	24.45	-6.4	127.83	0.0545	1.3383	-0.0128
179	SLD 4	24.45	-6.4	127.83	0.0545	1.3383	-0.0128
179	SLD 5	12.9	0.15	81.34	-0.1796	0.6823	-0.0001
179	SLD 6	12.9	0.15	81.34	-0.1796	0.6823	-0.0001
179	SLD 7	16.46	-8.71	119.56	0.2437	0.8747	-0.0173
179	SLD 8	16.46	-8.71	119.56	0.2437	0.8747	-0.0173
179	SLD 9	4.99	0.82	62.79	-0.1444	0.2272	0.0012
179	SLD 10	4.99	0.82	62.79	-0.1444	0.2272	0.0012
179	SLD 11	8.55	-8.04	101.01	0.2789	0.4196	-0.016
179	SLD 12	8.55	-8.04	101.01	0.2789	0.4196	-0.016
179	SLD 13	-3	-1.49	54.52	0.0449	-0.2364	-0.0033
179	SLD 14	-3	-1.49	54.52	0.0449	-0.2364	-0.0033
179	SLD 15	-1.93	-4.15	65.99	0.1719	-0.1787	-0.0085
179	SLD 16	-1.93	-4.15	65.99	0.1719	-0.1787	-0.0085
179	SLV 1	39.62	-3.55	148.37	-0.2389	2.218	-0.0072
179	SLV 2	39.62	-3.55	148.37	-0.2389	2.218	-0.0072
179	SLV 3	42.12	-9.77	175.53	0.058	2.3521	-0.0193
179	SLV 4	42.12	-9.77	175.53	0.058	2.3521	-0.0193
179	SLV 5	15.61	5.61	67.15	-0.4872	0.8476	0.0105
179	SLV 6	15.61	5.61	67.15	-0.4872	0.8476	0.0105
179	SLV 7	23.93	-15.14	157.67	0.5025	1.2948	-0.0298
179	SLV 8	23.93	-15.14	157.67	0.5025	1.2948	-0.0298
179	SLV 9	-2.48	7.24	24.68	-0.4031	-0.1929	0.0137
179	SLV 10	-2.48	7.24	24.68	-0.4031	-0.1929	0.0137
179	SLV 11	5.84	-13.51	115.2	0.5865	0.2544	-0.0267
179	SLV 12	5.84	-13.51	115.2	0.5865	0.2544	-0.0267
179	SLV 13	-20.67	1.88	6.82	0.0413	-1.2502	0.0032
179	SLV 14	-20.67	1.88	6.82	0.0413	-1.2502	0.0032
179	SLV 15	-18.17	-4.35	33.98	0.3382	-1.116	-0.0089
179	SLV 16	-18.17	-4.35	33.98	0.3382	-1.116	-0.0089



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
180	SLU 1	8.57	0.07	67.61	-0.0146	0.385	0
180	SLU 2	9.14	0.1	64.46	-0.0245	0.4039	-0.0001
180	SLU 3	8.73	0.07	70.67	-0.014	0.3934	0.0001
180	SLU 4	9.07	0.08	68.78	-0.0199	0.4047	0
180	SLU 5	9.03	0.09	66.62	-0.0233	0.4	-0.0001
180	SLU 6	8.63	0.06	72.84	-0.0128	0.3894	0.0001
180	SLU 7	8.97	0.08	70.94	-0.0188	0.4007	0
180	SLU 8	8.36	0.06	71.95	-0.0123	0.3771	0.0001
180	SLU 9	8.7	0.08	70.05	-0.0182	0.3884	0
180	SLU 10	11.38	0.11	77.46	-0.0285	0.5055	-0.0001
180	SLU 11	10.97	0.08	83.68	-0.018	0.4949	0.0001
180	SLU 12	11.31	0.1	81.78	-0.024	0.5063	0
180	SLU 13	11.27	0.11	79.63	-0.0273	0.5015	-0.0001
180	SLU 14	10.87	0.08	85.85	-0.0169	0.491	0.0001
180	SLU 15	11.21	0.1	83.95	-0.0228	0.5023	0
180	SLU 16	10.6	0.08	84.95	-0.0163	0.4787	0.0001
180	SLU 17	10.94	0.1	83.06	-0.0222	0.49	0
180	SLU 18	11.77	0.09	86.19	-0.0204	0.5301	0
180	SLU 19	12.11	0.11	84.3	-0.0263	0.5415	0
180	SLU 20	11.67	0.09	88.36	-0.0192	0.5262	0.0001
180	SLU 21	12.01	0.11	86.47	-0.0251	0.5375	0
180	SLU 22	10.19	0.08	79.56	-0.0175	0.4585	0
180	SLU 23	10.75	0.11	76.4	-0.0274	0.4774	-0.0001
180	SLU 24	10.35	0.08	82.62	-0.0169	0.4668	0.0001
180	SLU 25	10.69	0.1	80.72	-0.0228	0.4782	0
180	SLU 26	10.65	0.11	78.56	-0.0262	0.4734	-0.0001
180	SLU 27	10.25	0.08	84.78	-0.0157	0.4629	0.0001
180	SLU 28	10.59	0.1	82.89	-0.0216	0.4742	0
180	SLU 29	9.98	0.08	83.89	-0.0151	0.4506	0.0001
180	SLU 30	10.32	0.09	81.99	-0.0211	0.4619	0
180	SLU 31	12.99	0.13	89.4	-0.0314	0.579	-0.0001
180	SLU 32	12.59	0.1	95.62	-0.0209	0.5684	0.0001
180	SLU 33	12.93	0.12	93.73	-0.0268	0.5797	0
180	SLU 34	12.89	0.13	91.57	-0.0302	0.575	-0.0001
180	SLU 35	12.49	0.09	97.79	-0.0197	0.5644	0.0001
180	SLU 36	12.83	0.11	95.89	-0.0256	0.5758	0
180	SLU 37	12.22	0.09	96.9	-0.0191	0.5521	0.0001
180	SLU 38	12.56	0.11	95	-0.0251	0.5635	0
180	SLU 39	13.39	0.1	98.14	-0.0232	0.6036	0
180	SLU 40	13.73	0.12	96.24	-0.0291	0.6149	0
180	SLU 41	13.28	0.1	100.3	-0.022	0.5996	0.0001
180	SLU 42	13.62	0.12	98.41	-0.028	0.611	0
180	SLU 43	10.59	0.08	83.8	-0.018	0.4754	0.0001
180	SLU 44	11.15	0.11	80.64	-0.0279	0.4942	-0.0001
180	SLU 45	10.75	0.08	86.86	-0.0174	0.4837	0.0001
180	SLU 46	11.09	0.1	84.97	-0.0233	0.495	0
180	SLU 47	11.05	0.11	82.81	-0.0267	0.4903	0
180	SLU 48	10.65	0.08	89.03	-0.0162	0.4797	0.0001
180	SLU 49	10.99	0.1	87.13	-0.0222	0.491	0
180	SLU 50	10.38	0.08	88.14	-0.0157	0.4674	0.0001
180	SLU 51	10.72	0.1	86.24	-0.0216	0.4788	0
180	SLU 52	13.39	0.13	93.65	-0.0319	0.5958	-0.0001
180	SLU 53	12.99	0.1	99.87	-0.0214	0.5852	0.0001
180	SLU 54	13.33	0.12	97.97	-0.0274	0.5966	0
180	SLU 55	13.29	0.13	95.82	-0.0307	0.5918	-0.0001
180	SLU 56	12.89	0.1	102.04	-0.0203	0.5813	0.0001
180	SLU 57	13.23	0.12	100.14	-0.0262	0.5926	0
180	SLU 58	12.62	0.09	101.14	-0.0197	0.569	0.0001
180	SLU 59	12.96	0.11	99.25	-0.0256	0.5803	0
180	SLU 60	13.79	0.11	102.38	-0.0238	0.6204	0
180	SLU 61	14.13	0.13	100.49	-0.0297	0.6318	0
180	SLU 62	13.68	0.1	104.55	-0.0226	0.6165	0.0001
180	SLU 63	14.02	0.12	102.66	-0.0285	0.6278	0
180	SLU 64	12.2	0.1	95.75	-0.0209	0.5488	0.0001
180	SLU 65	12.77	0.13	92.59	-0.0308	0.5677	-0.0001
180	SLU 66	12.37	0.1	98.81	-0.0203	0.5572	0.0001
180	SLU 67	12.71	0.11	96.91	-0.0262	0.5685	0
180	SLU 68	12.67	0.12	94.75	-0.0296	0.5638	0
180	SLU 69	12.26	0.09	100.97	-0.0191	0.5532	0.0001
180	SLU 70	12.6	0.11	99.08	-0.025	0.5645	0
180	SLU 71	11.99	0.09	100.08	-0.0185	0.5409	0.0001
180	SLU 72	12.33	0.11	98.18	-0.0245	0.5522	0
180	SLU 73	15.01	0.14	105.59	-0.0348	0.6693	-0.0001
180	SLU 74	14.61	0.11	111.81	-0.0243	0.6587	0.0001
180	SLU 75	14.95	0.13	109.92	-0.0302	0.67	0
180	SLU 76	14.91	0.14	107.76	-0.0336	0.6653	-0.0001
180	SLU 77	14.5	0.11	113.98	-0.0231	0.6547	0.0001
180	SLU 78	14.84	0.13	112.08	-0.029	0.6661	0
180	SLU 79	14.23	0.11	113.09	-0.0225	0.6425	0.0001
180	SLU 80	14.57	0.13	111.19	-0.0285	0.6538	0
180	SLU 81	15.4	0.12	114.33	-0.0266	0.6939	0
180	SLU 82	15.74	0.14	112.43	-0.0325	0.7053	0
180	SLU 83	15.3	0.12	116.49	-0.0254	0.69	0.0001
180	SLU 84	15.64	0.14	114.6	-0.0314	0.7013	0
180	SLE RA 1	9.03	0.07	71.03	-0.0154	0.406	0
180	SLE RA 2	9.41	0.09	68.92	-0.022	0.4186	0
180	SLE RA 3	9.14	0.07	73.07	-0.015	0.4116	0.0001
180	SLE RA 4	9.37	0.08	71.8	-0.019	0.4191	0
180	SLE RA 5	9.34	0.09	70.36	-0.0212	0.416	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
180	SLE RA 6	9.07	0.07	74.51	-0.0143	0.4089	0.0001
180	SLE RA 7	9.3	0.08	73.25	-0.0182	0.4165	0
180	SLE RA 8	8.89	0.07	73.91	-0.0139	0.4007	0.0001
180	SLE RA 9	9.12	0.08	72.65	-0.0178	0.4083	0
180	SLE RA 10	10.9	0.1	77.59	-0.0247	0.4863	0
180	SLE RA 11	10.63	0.08	81.74	-0.0177	0.4793	0.0001
180	SLE RA 12	10.86	0.09	80.47	-0.0217	0.4868	0
180	SLE RA 13	10.83	0.1	79.04	-0.0239	0.4837	0
180	SLE RA 14	10.57	0.08	83.18	-0.0169	0.4766	0.0001
180	SLE RA 15	10.79	0.09	81.92	-0.0209	0.4842	0
180	SLE RA 16	10.39	0.08	82.59	-0.0165	0.4684	0.0001
180	SLE RA 17	10.61	0.09	81.32	-0.0205	0.476	0
180	SLE RA 18	11.17	0.09	83.41	-0.0193	0.5028	0
180	SLE RA 19	11.39	0.1	82.15	-0.0232	0.5103	0
180	SLE RA 20	11.1	0.09	84.86	-0.0185	0.5001	0.0001
180	SLE RA 21	11.32	0.1	83.59	-0.0224	0.5077	0
180	SLE FR 1	9.03	0.07	71.03	-0.0154	0.406	0
180	SLE FR 2	9.11	0.07	70.61	-0.0168	0.4086	0
180	SLE FR 3	9	0.07	71.6	-0.0151	0.405	0.0001
180	SLE FR 4	9.75	0.08	74.32	-0.0179	0.4376	0
180	SLE FR 5	9.64	0.07	75.32	-0.0163	0.434	0
180	SLE FR 6	10.1	0.08	77.22	-0.0174	0.4544	0
180	SLE QP 1	9.03	0.07	71.03	-0.0154	0.406	0
180	SLE QP 2	9.67	0.08	74.74	-0.0166	0.4351	0
180	SLD 1	28.27	0.24	83.83	-0.0962	1.3499	-0.0006
180	SLD 2	28.27	0.24	83.83	-0.0962	1.3499	-0.0006
180	SLD 3	29.6	0.11	90.03	-0.0025	1.4143	0.0003
180	SLD 4	29.6	0.11	90.03	-0.0025	1.4143	0.0003
180	SLD 5	13.24	0.32	68.07	-0.1826	0.6118	-0.0015
180	SLD 6	13.24	0.32	68.07	-0.1826	0.6118	-0.0015
180	SLD 7	17.66	-0.11	88.72	0.1297	0.8265	0.0015
180	SLD 8	17.66	-0.11	88.72	0.1297	0.8265	0.0015
180	SLD 9	1.68	0.26	60.76	-0.1629	0.0436	-0.0014
180	SLD 10	1.68	0.26	60.76	-0.1629	0.0436	-0.0014
180	SLD 11	6.1	-0.17	81.41	0.1494	0.2583	0.0016
180	SLD 12	6.1	-0.17	81.41	0.1494	0.2583	0.0016
180	SLD 13	-10.26	0.04	59.46	-0.0306	-0.5442	-0.0002
180	SLD 14	-10.26	0.04	59.46	-0.0306	-0.5442	-0.0002
180	SLD 15	-8.93	-0.09	65.65	0.063	-0.4798	0.0007
180	SLD 16	-8.93	-0.09	65.65	0.063	-0.4798	0.0007
180	SLV 1	52.18	0.47	95.29	-0.2092	2.5256	-0.0015
180	SLV 2	52.18	0.47	95.29	-0.2092	2.5256	-0.0015
180	SLV 3	55.26	0.15	110.09	0.0195	2.6752	0.0007
180	SLV 4	55.26	0.15	110.09	0.0195	2.6752	0.0007
180	SLV 5	17.75	0.68	58.46	-0.4212	0.8354	-0.0037
180	SLV 6	17.75	0.68	58.46	-0.4212	0.8354	-0.0037
180	SLV 7	28.03	-0.38	107.8	0.3411	1.3339	0.0035
180	SLV 8	28.03	-0.38	107.8	0.3411	1.3339	0.0035
180	SLV 9	-8.68	0.53	41.69	-0.3742	-0.4638	-0.0035
180	SLV 10	-8.68	0.53	41.69	-0.3742	-0.4638	-0.0035
180	SLV 11	1.6	-0.52	91.03	0.388	0.0347	0.0038
180	SLV 12	1.6	-0.52	91.03	0.388	0.0347	0.0038
180	SLV 13	-35.92	0	39.39	-0.0526	-1.8051	-0.0006
180	SLV 14	-35.92	0	39.39	-0.0526	-1.8051	-0.0006
180	SLV 15	-32.84	-0.32	54.19	0.176	-1.6555	0.0016
180	SLV 16	-32.84	-0.32	54.19	0.176	-1.6555	0.0016
181	SLU 1	5.96	0.06	69.21	-0.0227	0.2605	-0.0004
181	SLU 2	6.47	0.07	67.04	-0.0297	0.2797	-0.0004
181	SLU 3	6	0.06	72.17	-0.0225	0.2629	-0.0004
181	SLU 4	6.31	0.06	70.87	-0.0267	0.2744	-0.0004
181	SLU 5	6.27	0.07	69.07	-0.0289	0.2713	-0.0004
181	SLU 6	5.8	0.06	74.2	-0.0217	0.2545	-0.0004
181	SLU 7	6.11	0.06	72.9	-0.0259	0.266	-0.0004
181	SLU 8	5.56	0.06	73.28	-0.021	0.2437	-0.0004
181	SLU 9	5.86	0.06	71.97	-0.0252	0.2552	-0.0004
181	SLU 10	8.24	0.08	80.38	-0.035	0.3577	-0.0004
181	SLU 11	7.78	0.07	85.51	-0.0279	0.3409	-0.0004
181	SLU 12	8.08	0.08	84.21	-0.0321	0.3524	-0.0004
181	SLU 13	8.04	0.08	82.41	-0.0342	0.3492	-0.0005
181	SLU 14	7.58	0.07	87.54	-0.027	0.3325	-0.0004
181	SLU 15	7.88	0.08	86.24	-0.0312	0.344	-0.0005
181	SLU 16	7.33	0.07	86.61	-0.0264	0.3217	-0.0004
181	SLU 17	7.64	0.08	85.31	-0.0306	0.3332	-0.0004
181	SLU 18	8.49	0.07	88.27	-0.0303	0.3719	-0.0005
181	SLU 19	8.8	0.08	86.96	-0.0345	0.3834	-0.0005
181	SLU 20	8.29	0.08	90.3	-0.0295	0.3635	-0.0005
181	SLU 21	8.6	0.08	88.99	-0.0337	0.375	-0.0005
181	SLU 22	7.1	0.07	81.36	-0.0269	0.3109	-0.0004
181	SLU 23	7.61	0.08	79.18	-0.0339	0.3301	-0.0004
181	SLU 24	7.15	0.07	84.32	-0.0267	0.3133	-0.0004
181	SLU 25	7.45	0.07	83.01	-0.0309	0.3248	-0.0004
181	SLU 26	7.41	0.08	81.21	-0.033	0.3217	-0.0004
181	SLU 27	6.95	0.07	86.35	-0.0259	0.3049	-0.0004
181	SLU 28	7.25	0.08	85.04	-0.0301	0.3164	-0.0004
181	SLU 29	6.7	0.07	85.42	-0.0252	0.2941	-0.0004
181	SLU 30	7.01	0.07	84.11	-0.0294	0.3056	-0.0004
181	SLU 31	9.38	0.09	92.52	-0.0392	0.4081	-0.0005
181	SLU 32	8.92	0.08	97.66	-0.0321	0.3913	-0.0005
181	SLU 33	9.23	0.09	96.35	-0.0363	0.4028	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
181	SLU 34	9.18	0.09	94.55	-0.0384	0.3996	-0.0005
181	SLU 35	8.72	0.08	99.69	-0.0312	0.3829	-0.0005
181	SLU 36	9.03	0.09	98.38	-0.0354	0.3944	-0.0005
181	SLU 37	8.47	0.08	98.76	-0.0306	0.372	-0.0005
181	SLU 38	8.78	0.09	97.45	-0.0348	0.3836	-0.0005
181	SLU 39	9.64	0.09	100.41	-0.0345	0.4223	-0.0005
181	SLU 40	9.94	0.09	99.11	-0.0387	0.4338	-0.0005
181	SLU 41	9.43	0.09	102.44	-0.0337	0.4139	-0.0005
181	SLU 42	9.74	0.09	101.14	-0.0379	0.4254	-0.0005
181	SLU 43	7.35	0.07	85.81	-0.0281	0.3214	-0.0004
181	SLU 44	7.86	0.08	83.64	-0.0351	0.3406	-0.0005
181	SLU 45	7.4	0.07	88.77	-0.0279	0.3238	-0.0004
181	SLU 46	7.71	0.08	87.47	-0.0321	0.3353	-0.0005
181	SLU 47	7.66	0.08	85.67	-0.0342	0.3322	-0.0005
181	SLU 48	7.2	0.07	90.81	-0.0271	0.3154	-0.0005
181	SLU 49	7.51	0.08	89.5	-0.0313	0.3269	-0.0005
181	SLU 50	6.95	0.07	89.88	-0.0264	0.3046	-0.0004
181	SLU 51	7.26	0.08	88.57	-0.0306	0.3161	-0.0005
181	SLU 52	9.64	0.09	96.98	-0.0404	0.4185	-0.0005
181	SLU 53	9.17	0.08	102.11	-0.0332	0.4018	-0.0005
181	SLU 54	9.48	0.09	100.81	-0.0374	0.4133	-0.0005
181	SLU 55	9.44	0.09	99.01	-0.0396	0.4101	-0.0005
181	SLU 56	8.97	0.08	104.14	-0.0324	0.3933	-0.0005
181	SLU 57	9.28	0.09	102.84	-0.0366	0.4048	-0.0005
181	SLU 58	8.73	0.08	103.21	-0.0318	0.3825	-0.0005
181	SLU 59	9.03	0.09	101.91	-0.036	0.394	-0.0005
181	SLU 60	9.89	0.09	104.87	-0.0357	0.4328	-0.0005
181	SLU 61	10.19	0.09	103.56	-0.0399	0.4443	-0.0006
181	SLU 62	9.69	0.09	106.9	-0.0349	0.4244	-0.0005
181	SLU 63	9.99	0.09	105.59	-0.0391	0.4359	-0.0006
181	SLU 64	8.5	0.08	97.96	-0.0323	0.3718	-0.0005
181	SLU 65	9.01	0.09	95.78	-0.0393	0.391	-0.0005
181	SLU 66	8.54	0.08	100.92	-0.0321	0.3742	-0.0005
181	SLU 67	8.85	0.09	99.61	-0.0363	0.3857	-0.0005
181	SLU 68	8.81	0.09	97.81	-0.0384	0.3826	-0.0005
181	SLU 69	8.34	0.08	102.95	-0.0313	0.3658	-0.0005
181	SLU 70	8.65	0.09	101.64	-0.0355	0.3773	-0.0005
181	SLU 71	8.1	0.08	102.02	-0.0306	0.355	-0.0005
181	SLU 72	8.4	0.09	100.71	-0.0348	0.3665	-0.0005
181	SLU 73	10.78	0.1	109.12	-0.0446	0.4689	-0.0006
181	SLU 74	10.32	0.1	114.26	-0.0374	0.4522	-0.0006
181	SLU 75	10.62	0.1	112.95	-0.0416	0.4637	-0.0006
181	SLU 76	10.58	0.1	111.15	-0.0438	0.4605	-0.0006
181	SLU 77	10.12	0.1	116.29	-0.0366	0.4437	-0.0006
181	SLU 78	10.42	0.1	114.98	-0.0408	0.4552	-0.0006
181	SLU 79	9.87	0.09	115.36	-0.0359	0.4329	-0.0006
181	SLU 80	10.18	0.1	114.05	-0.0401	0.4444	-0.0006
181	SLU 81	11.03	0.1	117.01	-0.0399	0.4832	-0.0006
181	SLU 82	11.34	0.1	115.71	-0.0441	0.4947	-0.0006
181	SLU 83	10.83	0.1	119.04	-0.0391	0.4748	-0.0006
181	SLU 84	11.14	0.11	117.74	-0.0433	0.4863	-0.0006
181	SLE RA 1	6.29	0.06	72.68	-0.0239	0.2749	-0.0004
181	SLE RA 2	6.63	0.07	71.23	-0.0286	0.2877	-0.0004
181	SLE RA 3	6.32	0.06	74.66	-0.0238	0.2765	-0.0004
181	SLE RA 4	6.52	0.06	73.79	-0.0266	0.2842	-0.0004
181	SLE RA 5	6.49	0.07	72.59	-0.028	0.2821	-0.0004
181	SLE RA 6	6.18	0.06	76.01	-0.0232	0.2709	-0.0004
181	SLE RA 7	6.39	0.06	75.14	-0.026	0.2786	-0.0004
181	SLE RA 8	6.02	0.06	75.39	-0.0228	0.2637	-0.0004
181	SLE RA 9	6.22	0.06	74.52	-0.0256	0.2714	-0.0004
181	SLE RA 10	7.81	0.07	80.12	-0.0321	0.3397	-0.0004
181	SLE RA 11	7.5	0.07	83.55	-0.0273	0.3285	-0.0004
181	SLE RA 12	7.7	0.07	82.68	-0.0301	0.3362	-0.0004
181	SLE RA 13	7.67	0.08	81.48	-0.0316	0.3341	-0.0004
181	SLE RA 14	7.36	0.07	84.9	-0.0268	0.3229	-0.0004
181	SLE RA 15	7.57	0.07	84.03	-0.0296	0.3306	-0.0004
181	SLE RA 16	7.2	0.07	84.28	-0.0263	0.3157	-0.0004
181	SLE RA 17	7.4	0.07	83.41	-0.0291	0.3233	-0.0004
181	SLE RA 18	7.97	0.07	85.39	-0.029	0.3492	-0.0004
181	SLE RA 19	8.18	0.08	84.52	-0.0318	0.3568	-0.0004
181	SLE RA 20	7.84	0.07	86.74	-0.0284	0.3436	-0.0004
181	SLE RA 21	8.04	0.08	85.87	-0.0312	0.3512	-0.0005
181	SLE FR 1	6.29	0.06	72.68	-0.0239	0.2749	-0.0004
181	SLE FR 2	6.35	0.06	72.39	-0.0248	0.2775	-0.0004
181	SLE FR 3	6.23	0.06	73.22	-0.0237	0.2727	-0.0004
181	SLE FR 4	6.86	0.06	76.2	-0.0264	0.2998	-0.0004
181	SLE FR 5	6.74	0.06	77.03	-0.0252	0.295	-0.0004
181	SLE FR 6	7.13	0.07	79.03	-0.0264	0.3121	-0.0004
181	SLE QP 1	6.29	0.06	72.68	-0.0239	0.2749	-0.0004
181	SLE QP 2	6.79	0.06	76.49	-0.0254	0.2972	-0.0004
181	SLD 1	27.19	0.23	79.49	-0.1544	1.2329	-0.001
181	SLD 2	27.19	0.23	79.49	-0.1544	1.2329	-0.001
181	SLD 3	28.68	0.07	83.94	0.0164	1.3011	-0.0005
181	SLD 4	28.68	0.07	83.94	0.0164	1.3011	-0.0005
181	SLD 5	10.67	0.36	70.65	-0.3232	0.4745	-0.0014
181	SLD 6	10.67	0.36	70.65	-0.3232	0.4745	-0.0014
181	SLD 7	15.61	-0.18	85.47	0.2463	0.7018	0.0004
181	SLD 8	15.61	-0.18	85.47	0.2463	0.7018	0.0004
181	SLD 9	-2.02	0.31	67.52	-0.2971	-0.1074	-0.0012



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
181	SLD 10	-2.02	0.31	67.52	-0.2971	-0.1074	-0.0012
181	SLD 11	2.92	-0.23	82.34	0.2724	0.1199	0.0006
181	SLD 12	2.92	-0.23	82.34	0.2724	0.1199	0.0006
181	SLD 13	-15.09	0.06	69.05	-0.0673	-0.7067	-0.0003
181	SLD 14	-15.09	0.06	69.05	-0.0673	-0.7067	-0.0003
181	SLD 15	-13.61	-0.11	73.5	0.1036	-0.6385	0.0002
181	SLD 16	-13.61	-0.11	73.5	0.1036	-0.6385	0.0002
181	SLV 1	53.42	0.47	83.18	-0.3387	2.4355	-0.0019
181	SLV 2	53.42	0.47	83.18	-0.3387	2.4355	-0.0019
181	SLV 3	56.87	0.07	93.89	0.0789	2.5942	-0.0005
181	SLV 4	56.87	0.07	93.89	0.0789	2.5942	-0.0005
181	SLV 5	15.54	0.79	62.27	-0.7528	0.698	-0.0028
181	SLV 6	15.54	0.79	62.27	-0.7528	0.698	-0.0028
181	SLV 7	27.05	-0.54	97.95	0.6393	1.227	0.0016
181	SLV 8	27.05	-0.54	97.95	0.6393	1.227	0.0016
181	SLV 9	-13.47	0.66	55.04	-0.6901	-0.6325	-0.0023
181	SLV 10	-13.47	0.66	55.04	-0.6901	-0.6325	-0.0023
181	SLV 11	-1.96	-0.66	90.72	0.702	-0.1036	0.002
181	SLV 12	-1.96	-0.66	90.72	0.702	-0.1036	0.002
181	SLV 13	-43.28	0.05	59.1	-0.1297	-1.9998	-0.0002
181	SLV 14	-43.28	0.05	59.1	-0.1297	-1.9998	-0.0002
181	SLV 15	-39.83	-0.34	69.8	0.2879	-1.8411	0.0011
181	SLV 16	-39.83	-0.34	69.8	0.2879	-1.8411	0.0011
182	SLU 1	4.01	0.02	70.83	-0.0206	0.1706	-0.0001
182	SLU 2	4.47	0.03	69.2	-0.0256	0.1892	-0.0001
182	SLU 3	3.97	0.02	73.74	-0.0202	0.1695	-0.0001
182	SLU 4	4.25	0.03	72.75	-0.0233	0.1806	-0.0001
182	SLU 5	4.22	0.03	71.13	-0.0246	0.1782	-0.0001
182	SLU 6	3.71	0.02	75.66	-0.0192	0.1585	-0.0001
182	SLU 7	3.99	0.03	74.68	-0.0223	0.1696	-0.0001
182	SLU 8	3.49	0.02	74.69	-0.0186	0.1487	-0.0001
182	SLU 9	3.77	0.03	73.71	-0.0216	0.1598	-0.0001
182	SLU 10	5.88	0.03	82.89	-0.0304	0.2504	-0.0002
182	SLU 11	5.38	0.03	87.43	-0.025	0.2306	-0.0002
182	SLU 12	5.66	0.03	86.45	-0.028	0.2418	-0.0002
182	SLU 13	5.63	0.03	84.82	-0.0294	0.2394	-0.0002
182	SLU 14	5.12	0.03	89.36	-0.024	0.2197	-0.0002
182	SLU 15	5.4	0.03	88.38	-0.027	0.2308	-0.0002
182	SLU 16	4.9	0.03	88.39	-0.0233	0.2099	-0.0002
182	SLU 17	5.18	0.03	87.41	-0.0263	0.221	-0.0002
182	SLU 18	6.02	0.03	90.4	-0.0273	0.258	-0.0002
182	SLU 19	6.3	0.03	89.42	-0.0304	0.2692	-0.0002
182	SLU 20	5.76	0.03	92.33	-0.0263	0.2471	-0.0002
182	SLU 21	6.04	0.03	91.35	-0.0294	0.2582	-0.0002
182	SLU 22	4.8	0.03	83.19	-0.0242	0.2052	-0.0002
182	SLU 23	5.27	0.03	81.55	-0.0293	0.2238	-0.0002
182	SLU 24	4.77	0.03	86.09	-0.0239	0.204	-0.0002
182	SLU 25	5.05	0.03	85.11	-0.0269	0.2152	-0.0002
182	SLU 26	5.01	0.03	83.48	-0.0283	0.2128	-0.0002
182	SLU 27	4.51	0.03	88.02	-0.0229	0.1931	-0.0002
182	SLU 28	4.79	0.03	87.04	-0.0259	0.2042	-0.0002
182	SLU 29	4.28	0.03	87.05	-0.0222	0.1833	-0.0002
182	SLU 30	4.57	0.03	86.06	-0.0252	0.1944	-0.0002
182	SLU 31	6.68	0.04	95.25	-0.034	0.2849	-0.0002
182	SLU 32	6.18	0.03	99.79	-0.0286	0.2652	-0.0002
182	SLU 33	6.46	0.04	98.81	-0.0316	0.2763	-0.0002
182	SLU 34	6.42	0.04	97.18	-0.033	0.274	-0.0002
182	SLU 35	5.92	0.03	101.72	-0.0276	0.2542	-0.0002
182	SLU 36	6.2	0.04	100.73	-0.0306	0.2654	-0.0002
182	SLU 37	5.69	0.03	100.74	-0.0269	0.2444	-0.0002
182	SLU 38	5.98	0.04	99.76	-0.03	0.2556	-0.0002
182	SLU 39	6.81	0.04	102.76	-0.031	0.2926	-0.0002
182	SLU 40	7.1	0.04	101.77	-0.034	0.3037	-0.0002
182	SLU 41	6.56	0.04	104.69	-0.03	0.2816	-0.0002
182	SLU 42	6.84	0.04	103.7	-0.033	0.2928	-0.0002
182	SLU 43	4.93	0.03	87.85	-0.0255	0.21	-0.0002
182	SLU 44	5.4	0.03	86.21	-0.0305	0.2285	-0.0002
182	SLU 45	4.9	0.03	90.75	-0.0252	0.2088	-0.0002
182	SLU 46	5.18	0.03	89.77	-0.0282	0.2199	-0.0002
182	SLU 47	5.15	0.03	88.14	-0.0295	0.2176	-0.0002
182	SLU 48	4.64	0.03	92.68	-0.0241	0.1978	-0.0002
182	SLU 49	4.92	0.03	91.7	-0.0272	0.209	-0.0002
182	SLU 50	4.42	0.03	91.7	-0.0235	0.188	-0.0002
182	SLU 51	4.7	0.03	90.72	-0.0265	0.1992	-0.0002
182	SLU 52	6.81	0.04	99.91	-0.0353	0.2897	-0.0002
182	SLU 53	6.31	0.03	104.45	-0.0299	0.27	-0.0002
182	SLU 54	6.59	0.04	103.47	-0.0329	0.2811	-0.0002
182	SLU 55	6.56	0.04	101.84	-0.0343	0.2787	-0.0002
182	SLU 56	6.05	0.03	106.38	-0.0289	0.259	-0.0002
182	SLU 57	6.33	0.04	105.39	-0.0319	0.2701	-0.0002
182	SLU 58	5.83	0.03	105.4	-0.0282	0.2492	-0.0002
182	SLU 59	6.11	0.04	104.42	-0.0312	0.2604	-0.0002
182	SLU 60	6.95	0.04	107.42	-0.0323	0.2974	-0.0002
182	SLU 61	7.23	0.04	106.43	-0.0353	0.3085	-0.0002
182	SLU 62	6.69	0.04	109.34	-0.0312	0.2864	-0.0002
182	SLU 63	6.97	0.04	108.36	-0.0343	0.2975	-0.0002
182	SLU 64	5.73	0.03	100.2	-0.0291	0.2445	-0.0002
182	SLU 65	6.2	0.04	98.57	-0.0342	0.2631	-0.0002
182	SLU 66	5.7	0.03	103.1	-0.0288	0.2434	-0.0002





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
182	SLU 67	5.98	0.04	102.12	-0.0318	0.2545	-0.0002
182	SLU 68	5.94	0.04	100.49	-0.0332	0.2521	-0.0002
182	SLU 69	5.44	0.03	105.03	-0.0278	0.2324	-0.0002
182	SLU 70	5.72	0.04	104.05	-0.0308	0.2435	-0.0002
182	SLU 71	5.21	0.03	104.06	-0.0271	0.2226	-0.0002
182	SLU 72	5.5	0.04	103.08	-0.0302	0.2337	-0.0002
182	SLU 73	7.61	0.04	112.26	-0.0389	0.3243	-0.0002
182	SLU 74	7.11	0.04	116.8	-0.0335	0.3045	-0.0002
182	SLU 75	7.39	0.04	115.82	-0.0366	0.3157	-0.0002
182	SLU 76	7.35	0.04	114.19	-0.0379	0.3133	-0.0002
182	SLU 77	6.85	0.04	118.73	-0.0325	0.2936	-0.0002
182	SLU 78	7.13	0.04	117.75	-0.0356	0.3047	-0.0002
182	SLU 79	6.62	0.04	117.76	-0.0319	0.2838	-0.0002
182	SLU 80	6.9	0.04	116.78	-0.0349	0.2949	-0.0002
182	SLU 81	7.74	0.04	119.77	-0.0359	0.3319	-0.0002
182	SLU 82	8.02	0.04	118.79	-0.0389	0.3431	-0.0002
182	SLU 83	7.49	0.04	121.7	-0.0349	0.321	-0.0002
182	SLU 84	7.77	0.04	120.72	-0.0379	0.3321	-0.0002
182	SLE RA 1	4.23	0.02	74.36	-0.0216	0.1805	-0.0001
182	SLE RA 2	4.55	0.03	73.27	-0.025	0.1929	-0.0001
182	SLE RA 3	4.21	0.02	76.3	-0.0214	0.1797	-0.0001
182	SLE RA 4	4.4	0.03	75.64	-0.0234	0.1872	-0.0001
182	SLE RA 5	4.37	0.03	74.56	-0.0243	0.1856	-0.0001
182	SLE RA 6	4.04	0.02	77.58	-0.0207	0.1724	-0.0001
182	SLE RA 7	4.23	0.03	76.93	-0.0227	0.1798	-0.0001
182	SLE RA 8	3.89	0.02	76.93	-0.0203	0.1659	-0.0001
182	SLE RA 9	4.08	0.03	76.28	-0.0223	0.1733	-0.0001
182	SLE RA 10	5.49	0.03	82.4	-0.0281	0.2337	-0.0002
182	SLE RA 11	5.15	0.03	85.43	-0.0245	0.2205	-0.0002
182	SLE RA 12	5.34	0.03	84.78	-0.0266	0.2279	-0.0002
182	SLE RA 13	5.31	0.03	83.69	-0.0275	0.2264	-0.0002
182	SLE RA 14	4.98	0.03	86.72	-0.0239	0.2132	-0.0002
182	SLE RA 15	5.17	0.03	86.06	-0.0259	0.2206	-0.0002
182	SLE RA 16	4.83	0.03	86.07	-0.0234	0.2067	-0.0002
182	SLE RA 17	5.02	0.03	85.41	-0.0254	0.2141	-0.0002
182	SLE RA 18	5.58	0.03	87.41	-0.0261	0.2388	-0.0002
182	SLE RA 19	5.76	0.03	86.75	-0.0281	0.2462	-0.0002
182	SLE RA 20	5.4	0.03	88.69	-0.0254	0.2315	-0.0002
182	SLE RA 21	5.59	0.03	88.04	-0.0275	0.2389	-0.0002
182	SLE FR 1	4.23	0.02	74.36	-0.0216	0.1805	-0.0001
182	SLE FR 2	4.3	0.03	74.15	-0.0223	0.183	-0.0001
182	SLE FR 3	4.16	0.02	74.88	-0.0213	0.1776	-0.0001
182	SLE FR 4	4.7	0.03	78.06	-0.0236	0.2005	-0.0001
182	SLE FR 5	4.57	0.03	78.79	-0.0227	0.1951	-0.0001
182	SLE FR 6	4.9	0.03	80.89	-0.0239	0.2096	-0.0001
182	SLE QP 1	4.23	0.02	74.36	-0.0216	0.1805	-0.0001
182	SLE QP 2	4.64	0.03	78.28	-0.023	0.198	-0.0001
182	SLD 1	25.78	0.22	77.64	-0.1875	1.1714	-0.001
182	SLD 2	25.78	0.22	77.64	-0.1875	1.1714	-0.001
182	SLD 3	27.38	-0.04	81.5	0.057	1.2436	0.0002
182	SLD 4	27.38	-0.04	81.5	0.057	1.2436	0.0002
182	SLD 5	8.56	0.47	72.22	-0.4432	0.3806	-0.0022
182	SLD 6	8.56	0.47	72.22	-0.4432	0.3806	-0.0022
182	SLD 7	13.88	-0.38	85.11	0.3719	0.6211	0.0017
182	SLD 8	13.88	-0.38	85.11	0.3719	0.6211	0.0017
182	SLD 9	-4.61	0.43	71.45	-0.4178	-0.2251	-0.002
182	SLD 10	-4.61	0.43	71.45	-0.4178	-0.2251	-0.002
182	SLD 11	0.71	-0.42	84.33	0.3972	0.0154	0.0019
182	SLD 12	0.71	-0.42	84.33	0.3972	0.0154	0.0019
182	SLD 13	-18.11	0.09	75.05	-0.1029	-0.8476	-0.0005
182	SLD 14	-18.11	0.09	75.05	-0.1029	-0.8476	-0.0005
182	SLD 15	-16.51	-0.17	78.91	0.1416	-0.7755	0.0007
182	SLD 16	-16.51	-0.17	78.91	0.1416	-0.7755	0.0007
182	SLV 1	52.96	0.49	76.85	-0.4241	2.4225	-0.0022
182	SLV 2	52.96	0.49	76.85	-0.4241	2.4225	-0.0022
182	SLV 3	56.68	-0.13	86.17	0.1734	2.5905	0.0006
182	SLV 4	56.68	-0.13	86.17	0.1734	2.5905	0.0006
182	SLV 5	13.49	1.12	63.72	-1.0496	0.6106	-0.0051
182	SLV 6	13.49	1.12	63.72	-1.0496	0.6106	-0.0051
182	SLV 7	25.89	-0.97	94.77	0.9422	1.1705	0.0044
182	SLV 8	25.89	-0.97	94.77	0.9422	1.1705	0.0044
182	SLV 9	-16.62	1.03	61.78	-0.9881	-0.7745	-0.0047
182	SLV 10	-16.62	1.03	61.78	-0.9881	-0.7745	-0.0047
182	SLV 11	-4.22	-1.07	92.83	1.0037	-0.2147	0.0048
182	SLV 12	-4.22	-1.07	92.83	1.0037	-0.2147	0.0048
182	SLV 13	-47.41	0.19	70.38	-0.2193	-2.1945	-0.0009
182	SLV 14	-47.41	0.19	70.38	-0.2193	-2.1945	-0.0009
182	SLV 15	-43.69	-0.44	79.7	0.3782	-2.0266	0.0019
182	SLV 16	-43.69	-0.44	79.7	0.3782	-2.0266	0.0019
183	SLU 1	2.32	0.01	72.54	-0.0223	0.0944	0
183	SLU 2	2.75	0.02	71.29	-0.026	0.1117	-0.0001
183	SLU 3	2.22	0.01	75.41	-0.0218	0.0902	0
183	SLU 4	2.48	0.02	74.66	-0.0241	0.1006	0
183	SLU 5	2.45	0.02	73.14	-0.0248	0.0991	0
183	SLU 6	1.93	0.01	77.26	-0.0206	0.0776	0
183	SLU 7	2.19	0.02	76.51	-0.0228	0.088	0
183	SLU 8	1.73	0.01	76.23	-0.0198	0.0691	0
183	SLU 9	1.99	0.01	75.48	-0.022	0.0795	0
183	SLU 10	3.82	0.02	85.38	-0.0309	0.1574	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
183	SLU 11	3.3	0.02	89.5	-0.0267	0.1359	-0.0001
183	SLU 12	3.56	0.02	88.75	-0.029	0.1463	-0.0001
183	SLU 13	3.53	0.02	87.23	-0.0297	0.1448	-0.0001
183	SLU 14	3.01	0.02	91.35	-0.0255	0.1233	0
183	SLU 15	3.26	0.02	90.6	-0.0277	0.1337	-0.0001
183	SLU 16	2.81	0.02	90.33	-0.0247	0.1148	0
183	SLU 17	3.06	0.02	89.58	-0.0269	0.1252	-0.0001
183	SLU 18	3.86	0.02	92.67	-0.0293	0.1597	-0.0001
183	SLU 19	4.11	0.02	91.92	-0.0315	0.17	-0.0001
183	SLU 20	3.56	0.02	94.52	-0.028	0.147	-0.0001
183	SLU 21	3.82	0.02	93.77	-0.0303	0.1574	-0.0001
183	SLU 22	2.81	0.02	85.14	-0.026	0.1149	0
183	SLU 23	3.24	0.02	83.89	-0.0298	0.1323	-0.0001
183	SLU 24	2.72	0.02	88.01	-0.0256	0.1108	0
183	SLU 25	2.97	0.02	87.26	-0.0279	0.1212	-0.0001
183	SLU 26	2.95	0.02	85.73	-0.0286	0.1196	-0.0001
183	SLU 27	2.42	0.02	89.85	-0.0244	0.0982	0
183	SLU 28	2.68	0.02	89.1	-0.0266	0.1086	-0.0001
183	SLU 29	2.22	0.02	88.83	-0.0236	0.0897	0
183	SLU 30	2.48	0.02	88.08	-0.0258	0.1001	0
183	SLU 31	4.32	0.02	97.98	-0.0347	0.178	-0.0001
183	SLU 32	3.79	0.02	102.1	-0.0305	0.1565	-0.0001
183	SLU 33	4.05	0.02	101.35	-0.0328	0.1669	-0.0001
183	SLU 34	4.02	0.02	99.83	-0.0335	0.1653	-0.0001
183	SLU 35	3.5	0.02	103.94	-0.0293	0.1439	-0.0001
183	SLU 36	3.76	0.02	103.19	-0.0315	0.1543	-0.0001
183	SLU 37	3.3	0.02	102.92	-0.0285	0.1354	-0.0001
183	SLU 38	3.56	0.02	102.17	-0.0307	0.1458	-0.0001
183	SLU 39	4.35	0.02	105.27	-0.033	0.1802	-0.0001
183	SLU 40	4.6	0.02	104.52	-0.0353	0.1906	-0.0001
183	SLU 41	4.05	0.02	107.11	-0.0318	0.1676	-0.0001
183	SLU 42	4.31	0.02	106.36	-0.0341	0.178	-0.0001
183	SLU 43	2.85	0.02	89.99	-0.0276	0.1156	-0.0001
183	SLU 44	3.28	0.02	88.73	-0.0314	0.1329	-0.0001
183	SLU 45	2.75	0.02	92.85	-0.0272	0.1115	-0.0001
183	SLU 46	3.01	0.02	92.1	-0.0294	0.1219	-0.0001
183	SLU 47	2.98	0.02	90.58	-0.0302	0.1203	-0.0001
183	SLU 48	2.46	0.02	94.7	-0.0259	0.0989	0
183	SLU 49	2.71	0.02	93.95	-0.0282	0.1093	-0.0001
183	SLU 50	2.26	0.02	93.68	-0.0252	0.0904	0
183	SLU 51	2.52	0.02	92.93	-0.0274	0.1008	-0.0001
183	SLU 52	4.35	0.03	102.83	-0.0363	0.1786	-0.0001
183	SLU 53	3.83	0.02	106.94	-0.0321	0.1572	-0.0001
183	SLU 54	4.08	0.02	106.19	-0.0343	0.1676	-0.0001
183	SLU 55	4.06	0.02	104.67	-0.0351	0.166	-0.0001
183	SLU 56	3.53	0.02	108.79	-0.0308	0.1446	-0.0001
183	SLU 57	3.79	0.02	108.04	-0.0331	0.155	-0.0001
183	SLU 58	3.33	0.02	107.77	-0.0301	0.1361	-0.0001
183	SLU 59	3.59	0.02	107.02	-0.0323	0.1465	-0.0001
183	SLU 60	4.38	0.02	110.12	-0.0346	0.1809	-0.0001
183	SLU 61	4.64	0.03	109.37	-0.0369	0.1913	-0.0001
183	SLU 62	4.09	0.02	111.96	-0.0334	0.1683	-0.0001
183	SLU 63	4.35	0.02	111.21	-0.0357	0.1787	-0.0001
183	SLU 64	3.34	0.02	102.58	-0.0314	0.1362	-0.0001
183	SLU 65	3.77	0.02	101.33	-0.0352	0.1535	-0.0001
183	SLU 66	3.24	0.02	105.45	-0.031	0.1321	-0.0001
183	SLU 67	3.5	0.02	104.7	-0.0332	0.1425	-0.0001
183	SLU 68	3.47	0.02	103.18	-0.034	0.1409	-0.0001
183	SLU 69	2.95	0.02	107.3	-0.0297	0.1194	-0.0001
183	SLU 70	3.21	0.02	106.55	-0.032	0.1298	-0.0001
183	SLU 71	2.75	0.02	106.27	-0.029	0.1109	-0.0001
183	SLU 72	3.01	0.02	105.52	-0.0312	0.1213	-0.0001
183	SLU 73	4.84	0.03	115.42	-0.0401	0.1992	-0.0001
183	SLU 74	4.32	0.02	119.54	-0.0359	0.1778	-0.0001
183	SLU 75	4.58	0.03	118.79	-0.0381	0.1882	-0.0001
183	SLU 76	4.55	0.03	117.27	-0.0389	0.1866	-0.0001
183	SLU 77	4.02	0.02	121.39	-0.0346	0.1652	-0.0001
183	SLU 78	4.28	0.03	120.64	-0.0369	0.1755	-0.0001
183	SLU 79	3.83	0.02	120.37	-0.0339	0.1567	-0.0001
183	SLU 80	4.08	0.02	119.62	-0.0361	0.167	-0.0001
183	SLU 81	4.87	0.03	122.71	-0.0384	0.2015	-0.0001
183	SLU 82	5.13	0.03	121.96	-0.0407	0.2119	-0.0001
183	SLU 83	4.58	0.03	124.56	-0.0372	0.1889	-0.0001
183	SLU 84	4.84	0.03	123.81	-0.0394	0.1993	-0.0001
183	SLE RA 1	2.46	0.02	76.14	-0.0233	0.1002	0
183	SLE RA 2	2.75	0.02	75.31	-0.0258	0.1118	-0.0001
183	SLE RA 3	2.4	0.02	78.05	-0.023	0.0975	0
183	SLE RA 4	2.57	0.02	77.55	-0.0245	0.1044	0
183	SLE RA 5	2.55	0.02	76.54	-0.025	0.1034	0
183	SLE RA 6	2.2	0.01	79.28	-0.0222	0.0891	0
183	SLE RA 7	2.37	0.02	78.78	-0.0237	0.096	0
183	SLE RA 8	2.07	0.01	78.6	-0.0217	0.0834	0
183	SLE RA 9	2.24	0.02	78.1	-0.0232	0.0903	0
183	SLE RA 10	3.46	0.02	84.7	-0.0291	0.1423	-0.0001
183	SLE RA 11	3.11	0.02	87.45	-0.0263	0.128	-0.0001
183	SLE RA 12	3.28	0.02	86.95	-0.0278	0.1349	-0.0001
183	SLE RA 13	3.27	0.02	85.93	-0.0283	0.1338	-0.0001
183	SLE RA 14	2.92	0.02	88.68	-0.0255	0.1195	0
183	SLE RA 15	3.09	0.02	88.18	-0.027	0.1265	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
183	SLE RA 16	2.79	0.02	88	-0.025	0.1139	0
183	SLE RA 17	2.96	0.02	87.5	-0.0265	0.1208	-0.0001
183	SLE RA 18	3.48	0.02	89.56	-0.028	0.1438	-0.0001
183	SLE RA 19	3.66	0.02	89.06	-0.0295	0.1507	-0.0001
183	SLE RA 20	3.29	0.02	90.79	-0.0272	0.1354	-0.0001
183	SLE RA 21	3.46	0.02	90.29	-0.0287	0.1423	-0.0001
183	SLE FR 1	2.46	0.02	76.14	-0.0233	0.1002	0
183	SLE FR 2	2.52	0.02	75.97	-0.0238	0.1026	0
183	SLE FR 3	2.38	0.02	76.63	-0.023	0.0969	0
183	SLE FR 4	2.82	0.02	80	-0.0252	0.1156	0
183	SLE FR 5	2.69	0.02	80.66	-0.0244	0.1099	0
183	SLE FR 6	2.97	0.02	82.85	-0.0257	0.122	0
183	SLE QP 1	2.46	0.02	76.14	-0.0233	0.1002	0
183	SLE QP 2	2.77	0.02	80.17	-0.0247	0.1133	0
183	SLD 1	23.65	0.23	74.25	-0.2104	1.0562	-0.0008
183	SLD 2	23.65	0.23	74.25	-0.2104	1.0562	-0.0008
183	SLD 3	25.28	-0.1	77.96	0.0866	1.1284	0.0004
183	SLD 4	25.28	-0.1	77.96	0.0866	1.1284	0.0004
183	SLD 5	6.56	0.59	72.75	-0.5309	0.2867	-0.0021
183	SLD 6	6.56	0.59	72.75	-0.5309	0.2867	-0.0021
183	SLD 7	11.99	-0.53	85.15	0.4591	0.5273	0.0019
183	SLD 8	11.99	-0.53	85.15	0.4591	0.5273	0.0019
183	SLD 9	-6.46	0.56	75.19	-0.5086	-0.3007	-0.002
183	SLD 10	-6.46	0.56	75.19	-0.5086	-0.3007	-0.002
183	SLD 11	-1.03	-0.55	87.58	0.4814	-0.0601	0.002
183	SLD 12	-1.03	-0.55	87.58	0.4814	-0.0601	0.002
183	SLD 13	-19.75	0.14	82.37	-0.1361	-0.9018	-0.0005
183	SLD 14	-19.75	0.14	82.37	-0.1361	-0.9018	-0.0005
183	SLD 15	-18.12	-0.2	86.09	0.1609	-0.8296	0.0007
183	SLD 16	-18.12	-0.2	86.09	0.1609	-0.8296	0.0007
183	SLV 1	50.49	0.54	66.34	-0.4785	2.2681	-0.002
183	SLV 2	50.49	0.54	66.34	-0.4785	2.2681	-0.002
183	SLV 3	54.29	-0.27	75.28	0.247	2.4362	0.001
183	SLV 4	54.29	-0.27	75.28	0.247	2.4362	0.001
183	SLV 5	11.32	1.41	62.45	-1.2611	0.5048	-0.0051
183	SLV 6	11.32	1.41	62.45	-1.2611	0.5048	-0.0051
183	SLV 7	23.99	-1.31	92.27	1.157	1.0651	0.0047
183	SLV 8	23.99	-1.31	92.27	1.157	1.0651	0.0047
183	SLV 9	-18.46	1.34	68.07	-1.2065	-0.8385	-0.0048
183	SLV 10	-18.46	1.34	68.07	-1.2065	-0.8385	-0.0048
183	SLV 11	-5.79	-1.38	97.88	1.2116	-0.2782	0.005
183	SLV 12	-5.79	-1.38	97.88	1.2116	-0.2782	0.005
183	SLV 13	-48.76	0.31	85.05	-0.2965	-2.2096	-0.0011
183	SLV 14	-48.76	0.31	85.05	-0.2965	-2.2096	-0.0011
183	SLV 15	-44.96	-0.51	94	0.429	-2.0415	0.0019
183	SLV 16	-44.96	-0.51	94	0.429	-2.0415	0.0019
184	SLU 1	0.31	0.02	74.46	-0.0296	-0.003	-0.0001
184	SLU 2	0.7	0.02	73.49	-0.0322	0.0123	-0.0001
184	SLU 3	0.15	0.02	77.32	-0.0292	-0.01	-0.0001
184	SLU 4	0.39	0.02	76.75	-0.0308	-0.0008	-0.0001
184	SLU 5	0.38	0.02	75.29	-0.0309	-0.0011	-0.0001
184	SLU 6	-0.16	0.02	79.12	-0.0279	-0.0234	-0.0001
184	SLU 7	0.07	0.02	78.55	-0.0295	-0.0142	-0.0001
184	SLU 8	-0.32	0.02	78.06	-0.0269	-0.0298	-0.0001
184	SLU 9	-0.09	0.02	77.48	-0.0285	-0.0206	-0.0001
184	SLU 10	1.34	0.03	87.99	-0.0384	0.0362	-0.0001
184	SLU 11	0.79	0.03	91.82	-0.0354	0.0139	-0.0001
184	SLU 12	1.03	0.03	91.25	-0.037	0.0231	-0.0001
184	SLU 13	1.02	0.03	89.79	-0.037	0.0228	-0.0001
184	SLU 14	0.48	0.03	93.63	-0.034	0.0005	-0.0001
184	SLU 15	0.71	0.03	93.05	-0.0356	0.0097	-0.0001
184	SLU 16	0.32	0.02	92.56	-0.033	-0.0059	-0.0001
184	SLU 17	0.55	0.03	91.98	-0.0346	0.0033	-0.0001
184	SLU 18	1.23	0.03	95.17	-0.0383	0.0311	-0.0001
184	SLU 19	1.46	0.03	94.59	-0.0399	0.0403	-0.0001
184	SLU 20	0.91	0.03	96.97	-0.037	0.0177	-0.0001
184	SLU 21	1.14	0.03	96.39	-0.0386	0.0269	-0.0001
184	SLU 22	0.44	0.03	87.34	-0.0345	0	-0.0001
184	SLU 23	0.83	0.03	86.37	-0.0372	0.0153	-0.0001
184	SLU 24	0.29	0.03	90.21	-0.0342	-0.0069	-0.0001
184	SLU 25	0.52	0.03	89.63	-0.0358	0.0023	-0.0001
184	SLU 26	0.52	0.03	88.17	-0.0359	0.0019	-0.0001
184	SLU 27	-0.03	0.02	92.01	-0.0329	-0.0203	-0.0001
184	SLU 28	0.2	0.03	91.43	-0.0345	-0.0111	-0.0001
184	SLU 29	-0.19	0.02	90.94	-0.0318	-0.0268	-0.0001
184	SLU 30	0.05	0.03	90.36	-0.0335	-0.0176	-0.0001
184	SLU 31	1.47	0.03	100.87	-0.0433	0.0392	-0.0001
184	SLU 32	0.93	0.03	104.71	-0.0403	0.017	-0.0001
184	SLU 33	1.16	0.03	104.13	-0.0419	0.0262	-0.0001
184	SLU 34	1.16	0.03	102.67	-0.042	0.0258	-0.0001
184	SLU 35	0.61	0.03	106.51	-0.039	0.0036	-0.0001
184	SLU 36	0.85	0.03	105.93	-0.0406	0.0128	-0.0001
184	SLU 37	0.45	0.03	105.44	-0.038	-0.0029	-0.0001
184	SLU 38	0.69	0.03	104.86	-0.0396	0.0063	-0.0001
184	SLU 39	1.36	0.03	108.05	-0.0433	0.0342	-0.0001
184	SLU 40	1.59	0.03	107.47	-0.0449	0.0434	-0.0001
184	SLU 41	1.04	0.03	109.85	-0.042	0.0208	-0.0001
184	SLU 42	1.28	0.03	109.27	-0.0436	0.03	-0.0001
184	SLU 43	0.36	0.03	92.37	-0.0367	-0.005	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
184	SLU 44	0.75	0.03	91.41	-0.0394	0.0103	-0.0001
184	SLU 45	0.2	0.03	95.24	-0.0364	-0.0119	-0.0001
184	SLU 46	0.43	0.03	94.66	-0.038	-0.0027	-0.0001
184	SLU 47	0.43	0.03	93.21	-0.0381	-0.0031	-0.0001
184	SLU 48	-0.11	0.03	97.04	-0.0351	-0.0253	-0.0001
184	SLU 49	0.12	0.03	96.47	-0.0367	-0.0162	-0.0001
184	SLU 50	-0.27	0.03	95.98	-0.0341	-0.0318	-0.0001
184	SLU 51	-0.04	0.03	95.4	-0.0357	-0.0226	-0.0001
184	SLU 52	1.39	0.03	105.91	-0.0455	0.0342	-0.0001
184	SLU 53	0.84	0.03	109.74	-0.0425	0.012	-0.0001
184	SLU 54	1.07	0.03	109.17	-0.0441	0.0212	-0.0001
184	SLU 55	1.07	0.03	107.71	-0.0442	0.0208	-0.0001
184	SLU 56	0.53	0.03	111.54	-0.0412	-0.0014	-0.0001
184	SLU 57	0.76	0.03	110.97	-0.0428	0.0078	-0.0001
184	SLU 58	0.37	0.03	110.48	-0.0402	-0.0079	-0.0001
184	SLU 59	0.6	0.03	109.9	-0.0418	0.0013	-0.0001
184	SLU 60	1.27	0.03	113.09	-0.0455	0.0292	-0.0001
184	SLU 61	1.51	0.04	112.51	-0.0471	0.0384	-0.0001
184	SLU 62	0.96	0.03	114.89	-0.0442	0.0158	-0.0001
184	SLU 63	1.19	0.03	114.31	-0.0458	0.025	-0.0001
184	SLU 64	0.49	0.03	105.26	-0.0417	-0.0019	-0.0001
184	SLU 65	0.88	0.03	104.29	-0.0444	0.0134	-0.0001
184	SLU 66	0.33	0.03	108.13	-0.0414	-0.0089	-0.0001
184	SLU 67	0.57	0.03	107.55	-0.043	0.0003	-0.0001
184	SLU 68	0.56	0.03	106.09	-0.043	0	-0.0001
184	SLU 69	0.02	0.03	109.93	-0.04	-0.0223	-0.0001
184	SLU 70	0.25	0.03	109.35	-0.0416	-0.0131	-0.0001
184	SLU 71	-0.14	0.03	108.86	-0.039	-0.0287	-0.0001
184	SLU 72	0.09	0.03	108.28	-0.0406	-0.0195	-0.0001
184	SLU 73	1.52	0.04	118.79	-0.0505	0.0373	-0.0001
184	SLU 74	0.98	0.04	122.63	-0.0475	0.015	-0.0001
184	SLU 75	1.21	0.04	122.05	-0.0491	0.0242	-0.0001
184	SLU 76	1.2	0.04	120.59	-0.0492	0.0239	-0.0001
184	SLU 77	0.66	0.03	124.43	-0.0462	0.0016	-0.0001
184	SLU 78	0.89	0.04	123.85	-0.0478	0.0108	-0.0001
184	SLU 79	0.5	0.03	123.36	-0.0452	-0.0048	-0.0001
184	SLU 80	0.73	0.04	122.78	-0.0468	0.0044	-0.0001
184	SLU 81	1.41	0.04	125.97	-0.0505	0.0322	-0.0001
184	SLU 82	1.64	0.04	125.39	-0.0521	0.0414	-0.0001
184	SLU 83	1.09	0.04	127.77	-0.0491	0.0188	-0.0001
184	SLU 84	1.32	0.04	127.19	-0.0507	0.028	-0.0001
184	SLE RA 1	0.35	0.02	78.14	-0.031	-0.0021	-0.0001
184	SLE RA 2	0.61	0.02	77.49	-0.0328	0.0081	-0.0001
184	SLE RA 3	0.24	0.02	80.05	-0.0308	-0.0068	-0.0001
184	SLE RA 4	0.4	0.02	79.66	-0.0318	-0.0007	-0.0001
184	SLE RA 5	0.4	0.02	78.69	-0.0319	-0.0009	-0.0001
184	SLE RA 6	0.03	0.02	81.25	-0.0299	-0.0157	-0.0001
184	SLE RA 7	0.19	0.02	80.86	-0.0309	-0.0096	-0.0001
184	SLE RA 8	-0.07	0.02	80.54	-0.0292	-0.02	-0.0001
184	SLE RA 9	0.08	0.02	80.15	-0.0303	-0.0139	-0.0001
184	SLE RA 10	1.03	0.03	87.16	-0.0368	0.024	-0.0001
184	SLE RA 11	0.67	0.03	89.72	-0.0348	0.0092	-0.0001
184	SLE RA 12	0.83	0.03	89.33	-0.0359	0.0153	-0.0001
184	SLE RA 13	0.82	0.03	88.36	-0.036	0.0151	-0.0001
184	SLE RA 14	0.46	0.03	90.92	-0.034	0.0002	-0.0001
184	SLE RA 15	0.62	0.03	90.53	-0.035	0.0063	-0.0001
184	SLE RA 16	0.36	0.03	90.2	-0.0333	-0.0041	-0.0001
184	SLE RA 17	0.51	0.03	89.82	-0.0344	0.002	-0.0001
184	SLE RA 18	0.96	0.03	91.95	-0.0368	0.0206	-0.0001
184	SLE RA 19	1.11	0.03	91.56	-0.0379	0.0267	-0.0001
184	SLE RA 20	0.75	0.03	93.15	-0.0359	0.0117	-0.0001
184	SLE RA 21	0.9	0.03	92.76	-0.037	0.0178	-0.0001
184	SLE FR 1	0.35	0.02	78.14	-0.031	-0.0021	-0.0001
184	SLE FR 2	0.4	0.02	78.01	-0.0313	-0.0001	-0.0001
184	SLE FR 3	0.26	0.02	78.62	-0.0306	-0.0057	-0.0001
184	SLE FR 4	0.58	0.02	82.15	-0.0331	0.0067	-0.0001
184	SLE FR 5	0.45	0.02	82.76	-0.0324	0.0011	-0.0001
184	SLE FR 6	0.65	0.03	85.04	-0.0339	0.0092	-0.0001
184	SLE QP 1	0.35	0.02	78.14	-0.031	-0.0021	-0.0001
184	SLE QP 2	0.53	0.02	82.28	-0.0327	0.0047	-0.0001
184	SLD 1	20.2	0.25	70.53	-0.2209	0.877	-0.0011
184	SLD 2	20.2	0.25	70.53	-0.2209	0.877	-0.0011
184	SLD 3	21.74	-0.12	74.32	0.0941	0.9427	0.0005
184	SLD 4	21.74	-0.12	74.32	0.0941	0.9427	0.0005
184	SLD 5	4.1	0.64	73.01	-0.5669	0.1667	-0.0028
184	SLD 6	4.1	0.64	73.01	-0.5669	0.1667	-0.0028
184	SLD 7	9.23	-0.57	85.63	0.4831	0.3858	0.0025
184	SLD 8	9.23	-0.57	85.63	0.4831	0.3858	0.0025
184	SLD 9	-8.16	0.62	78.93	-0.5485	-0.3764	-0.0027
184	SLD 10	-8.16	0.62	78.93	-0.5485	-0.3764	-0.0027
184	SLD 11	-3.04	-0.59	91.54	0.5015	-0.1574	0.0026
184	SLD 12	-3.04	-0.59	91.54	0.5015	-0.1574	0.0026
184	SLD 13	-20.67	0.17	90.24	-0.1595	-0.9333	-0.0007
184	SLD 14	-20.67	0.17	90.24	-0.1595	-0.9333	-0.0007
184	SLD 15	-19.13	-0.2	94.03	0.1554	-0.8676	0.0009
184	SLD 16	-19.13	-0.2	94.03	0.1554	-0.8676	0.0009
184	SLV 1	45.47	0.57	55.18	-0.4928	1.9981	-0.0025
184	SLV 2	45.47	0.57	55.18	-0.4928	1.9981	-0.0025
184	SLV 3	49.06	-0.32	64.25	0.2759	2.1512	0.0014



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
184	SLV 4	49.06	-0.32	64.25	0.2759	2.1512	0.0014
184	SLV 5	8.57	1.53	60.39	-1.3367	0.3706	-0.0067
184	SLV 6	8.57	1.53	60.39	-1.3367	0.3706	-0.0067
184	SLV 7	20.53	-1.42	90.63	1.2258	0.8807	0.0063
184	SLV 8	20.53	-1.42	90.63	1.2258	0.8807	0.0063
184	SLV 9	-19.47	1.47	73.92	-1.2912	-0.8714	-0.0064
184	SLV 10	-19.47	1.47	73.92	-1.2912	-0.8714	-0.0064
184	SLV 11	-7.51	-1.48	104.17	1.2712	-0.3612	0.0065
184	SLV 12	-7.51	-1.48	104.17	1.2712	-0.3612	0.0065
184	SLV 13	-48	0.37	100.3	-0.3413	-2.1418	-0.0016
184	SLV 14	-48	0.37	100.3	-0.3413	-2.1418	-0.0016
184	SLV 15	-44.41	-0.52	109.38	0.4274	-1.9887	0.0023
184	SLV 16	-44.41	-0.52	109.38	0.4274	-1.9887	0.0023
185	SLU 1	-2.64	0.04	76.39	-0.0405	-0.1095	-0.0002
185	SLU 2	-2.29	0.04	75.63	-0.042	-0.095	-0.0002
185	SLU 3	-2.89	0.04	79.3	-0.0405	-0.1201	-0.0002
185	SLU 4	-2.68	0.04	78.84	-0.0414	-0.1114	-0.0002
185	SLU 5	-2.63	0.04	77.44	-0.0408	-0.11	-0.0002
185	SLU 6	-3.23	0.04	81.11	-0.0392	-0.1351	-0.0002
185	SLU 7	-3.02	0.04	80.65	-0.0402	-0.1264	-0.0002
185	SLU 8	-3.33	0.03	80.01	-0.038	-0.1395	-0.0001
185	SLU 9	-3.12	0.03	79.55	-0.0389	-0.1308	-0.0001
185	SLU 10	-2.3	0.04	90.47	-0.0501	-0.0937	-0.0002
185	SLU 11	-2.9	0.04	94.14	-0.0485	-0.1188	-0.0002
185	SLU 12	-2.69	0.04	93.68	-0.0495	-0.1101	-0.0002
185	SLU 13	-2.64	0.04	92.28	-0.0488	-0.1087	-0.0002
185	SLU 14	-3.24	0.04	95.95	-0.0473	-0.1337	-0.0002
185	SLU 15	-3.03	0.04	95.49	-0.0482	-0.125	-0.0002
185	SLU 16	-3.34	0.04	94.85	-0.046	-0.1381	-0.0002
185	SLU 17	-3.13	0.04	94.4	-0.047	-0.1294	-0.0002
185	SLU 18	-2.65	0.05	97.59	-0.052	-0.1076	-0.0002
185	SLU 19	-2.44	0.05	97.14	-0.0529	-0.0989	-0.0002
185	SLU 20	-3	0.05	99.4	-0.0507	-0.1226	-0.0002
185	SLU 21	-2.79	0.05	98.95	-0.0517	-0.1139	-0.0002
185	SLU 22	-3.04	0.04	89.57	-0.0473	-0.1255	-0.0002
185	SLU 23	-2.68	0.04	88.81	-0.0488	-0.111	-0.0002
185	SLU 24	-3.28	0.04	92.47	-0.0473	-0.1361	-0.0002
185	SLU 25	-3.07	0.04	92.01	-0.0482	-0.1274	-0.0002
185	SLU 26	-3.03	0.04	90.62	-0.0476	-0.126	-0.0002
185	SLU 27	-3.63	0.04	94.28	-0.0461	-0.151	-0.0002
185	SLU 28	-3.42	0.04	93.82	-0.047	-0.1423	-0.0002
185	SLU 29	-3.73	0.04	93.19	-0.0448	-0.1554	-0.0002
185	SLU 30	-3.52	0.04	92.73	-0.0457	-0.1467	-0.0002
185	SLU 31	-2.69	0.05	103.65	-0.0569	-0.1097	-0.0002
185	SLU 32	-3.29	0.05	107.31	-0.0554	-0.1347	-0.0002
185	SLU 33	-3.08	0.05	106.86	-0.0563	-0.1261	-0.0002
185	SLU 34	-3.04	0.05	105.46	-0.0556	-0.1247	-0.0002
185	SLU 35	-3.64	0.05	109.12	-0.0541	-0.1497	-0.0002
185	SLU 36	-3.43	0.05	108.67	-0.055	-0.141	-0.0002
185	SLU 37	-3.74	0.05	108.03	-0.0528	-0.1541	-0.0002
185	SLU 38	-3.52	0.05	107.57	-0.0538	-0.1454	-0.0002
185	SLU 39	-3.05	0.05	110.77	-0.0588	-0.1236	-0.0002
185	SLU 40	-2.84	0.05	110.31	-0.0597	-0.1149	-0.0002
185	SLU 41	-3.39	0.05	112.58	-0.0575	-0.1386	-0.0002
185	SLU 42	-3.18	0.05	112.12	-0.0585	-0.1299	-0.0002
185	SLU 43	-3.3	0.05	94.79	-0.0503	-0.1369	-0.0002
185	SLU 44	-2.95	0.05	94.03	-0.0518	-0.1224	-0.0002
185	SLU 45	-3.55	0.05	97.7	-0.0503	-0.1475	-0.0002
185	SLU 46	-3.34	0.05	97.24	-0.0512	-0.1388	-0.0002
185	SLU 47	-3.29	0.05	95.84	-0.0506	-0.1374	-0.0002
185	SLU 48	-3.89	0.04	99.51	-0.0491	-0.1624	-0.0002
185	SLU 49	-3.68	0.04	99.05	-0.05	-0.1537	-0.0002
185	SLU 50	-3.99	0.04	98.41	-0.0478	-0.1668	-0.0002
185	SLU 51	-3.78	0.04	97.95	-0.0487	-0.1581	-0.0002
185	SLU 52	-2.96	0.05	108.87	-0.0599	-0.1211	-0.0002
185	SLU 53	-3.56	0.05	112.54	-0.0584	-0.1462	-0.0002
185	SLU 54	-3.34	0.05	112.08	-0.0593	-0.1375	-0.0002
185	SLU 55	-3.3	0.05	110.68	-0.0586	-0.1361	-0.0002
185	SLU 56	-3.9	0.05	114.35	-0.0571	-0.1611	-0.0002
185	SLU 57	-3.69	0.05	113.89	-0.058	-0.1524	-0.0002
185	SLU 58	-4	0.05	113.25	-0.0558	-0.1655	-0.0002
185	SLU 59	-3.79	0.05	112.8	-0.0568	-0.1568	-0.0002
185	SLU 60	-3.31	0.06	115.99	-0.0618	-0.135	-0.0002
185	SLU 61	-3.1	0.06	115.54	-0.0627	-0.1263	-0.0002
185	SLU 62	-3.66	0.05	117.8	-0.0605	-0.15	-0.0002
185	SLU 63	-3.45	0.06	117.35	-0.0615	-0.1413	-0.0002
185	SLU 64	-3.69	0.05	107.97	-0.0571	-0.1529	-0.0002
185	SLU 65	-3.34	0.05	107.21	-0.0587	-0.1384	-0.0002
185	SLU 66	-3.94	0.05	110.87	-0.0571	-0.1635	-0.0002
185	SLU 67	-3.73	0.05	110.41	-0.0581	-0.1548	-0.0002
185	SLU 68	-3.69	0.05	109.02	-0.0574	-0.1534	-0.0002
185	SLU 69	-4.29	0.05	112.68	-0.0559	-0.1784	-0.0002
185	SLU 70	-4.07	0.05	112.22	-0.0568	-0.1697	-0.0002
185	SLU 71	-4.38	0.05	111.59	-0.0546	-0.1828	-0.0002
185	SLU 72	-4.17	0.05	111.13	-0.0555	-0.1741	-0.0002
185	SLU 73	-3.35	0.06	122.05	-0.0667	-0.1371	-0.0002
185	SLU 74	-3.95	0.06	125.71	-0.0652	-0.1621	-0.0002
185	SLU 75	-3.74	0.06	125.26	-0.0661	-0.1534	-0.0002
185	SLU 76	-3.69	0.06	123.86	-0.0654	-0.152	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
185	SLU 77	-4.3	0.06	127.52	-0.0639	-0.1771	-0.0002
185	SLU 78	-4.08	0.06	127.07	-0.0648	-0.1684	-0.0002
185	SLU 79	-4.39	0.06	126.43	-0.0626	-0.1815	-0.0002
185	SLU 80	-4.18	0.06	125.97	-0.0636	-0.1728	-0.0002
185	SLU 81	-3.71	0.06	129.17	-0.0686	-0.151	-0.0003
185	SLU 82	-3.49	0.06	128.71	-0.0695	-0.1423	-0.0003
185	SLU 83	-4.05	0.06	130.98	-0.0673	-0.166	-0.0003
185	SLU 84	-3.84	0.06	130.52	-0.0683	-0.1573	-0.0003
185	SLE RA 1	-2.75	0.04	80.16	-0.0424	-0.1141	-0.0002
185	SLE RA 2	-2.52	0.04	79.65	-0.0435	-0.1044	-0.0002
185	SLE RA 3	-2.92	0.04	82.09	-0.0424	-0.1211	-0.0002
185	SLE RA 4	-2.78	0.04	81.79	-0.0431	-0.1153	-0.0002
185	SLE RA 5	-2.75	0.04	80.85	-0.0426	-0.1144	-0.0002
185	SLE RA 6	-3.15	0.04	83.3	-0.0416	-0.1311	-0.0002
185	SLE RA 7	-3.01	0.04	82.99	-0.0422	-0.1253	-0.0002
185	SLE RA 8	-3.21	0.04	82.57	-0.0408	-0.134	-0.0002
185	SLE RA 9	-3.07	0.04	82.26	-0.0414	-0.1282	-0.0002
185	SLE RA 10	-2.53	0.04	89.54	-0.0488	-0.1036	-0.0002
185	SLE RA 11	-2.93	0.04	91.99	-0.0478	-0.1203	-0.0002
185	SLE RA 12	-2.78	0.04	91.68	-0.0484	-0.1145	-0.0002
185	SLE RA 13	-2.76	0.04	90.75	-0.048	-0.1135	-0.0002
185	SLE RA 14	-3.16	0.04	93.19	-0.047	-0.1302	-0.0002
185	SLE RA 15	-3.01	0.04	92.89	-0.0476	-0.1244	-0.0002
185	SLE RA 16	-3.22	0.04	92.46	-0.0461	-0.1332	-0.0002
185	SLE RA 17	-3.08	0.04	92.16	-0.0467	-0.1274	-0.0002
185	SLE RA 18	-2.76	0.05	94.29	-0.0501	-0.1128	-0.0002
185	SLE RA 19	-2.62	0.05	93.99	-0.0507	-0.107	-0.0002
185	SLE RA 20	-2.99	0.04	95.5	-0.0493	-0.1228	-0.0002
185	SLE RA 21	-2.85	0.04	95.19	-0.0499	-0.117	-0.0002
185	SLE FR 1	-2.75	0.04	80.16	-0.0424	-0.1141	-0.0002
185	SLE FR 2	-2.71	0.04	80.05	-0.0426	-0.1122	-0.0002
185	SLE FR 3	-2.85	0.04	80.64	-0.0421	-0.1181	-0.0002
185	SLE FR 4	-2.71	0.04	84.29	-0.0449	-0.1118	-0.0002
185	SLE FR 5	-2.85	0.04	84.88	-0.0444	-0.1177	-0.0002
185	SLE FR 6	-2.76	0.04	87.22	-0.0463	-0.1135	-0.0002
185	SLE QP 1	-2.75	0.04	80.16	-0.0424	-0.1141	-0.0002
185	SLE QP 2	-2.76	0.04	84.4	-0.0447	-0.1137	-0.0002
185	SLD 1	15.06	0.24	63.26	-0.215	0.7158	-0.0008
185	SLD 2	15.06	0.24	63.26	-0.215	0.7158	-0.0008
185	SLD 3	16.39	-0.1	67.17	0.0785	0.7762	0.0003
185	SLD 4	16.39	-0.1	67.17	0.0785	0.7762	0.0003
185	SLD 5	0.58	0.62	72.12	-0.5409	0.0434	-0.0021
185	SLD 6	0.58	0.62	72.12	-0.5409	0.0434	-0.0021
185	SLD 7	5	-0.52	85.16	0.4374	0.2449	0.0017
185	SLD 8	5	-0.52	85.16	0.4374	0.2449	0.0017
185	SLD 9	-10.52	0.6	83.63	-0.5268	-0.4724	-0.002
185	SLD 10	-10.52	0.6	83.63	-0.5268	-0.4724	-0.002
185	SLD 11	-6.09	-0.54	96.67	0.4515	-0.2709	0.0017
185	SLD 12	-6.09	-0.54	96.67	0.4515	-0.2709	0.0017
185	SLD 13	-21.91	0.18	101.62	-0.1679	-1.0037	-0.0006
185	SLD 14	-21.91	0.18	101.62	-0.1679	-1.0037	-0.0006
185	SLD 15	-20.58	-0.16	105.53	0.1255	-0.9432	0.0005
185	SLD 16	-20.58	-0.16	105.53	0.1255	-0.9432	0.0005
185	SLV 1	37.97	0.53	35.86	-0.4601	1.7818	-0.0018
185	SLV 2	37.97	0.53	35.86	-0.4601	1.7818	-0.0018
185	SLV 3	41.07	-0.3	45.21	0.255	1.9226	0.001
185	SLV 4	41.07	-0.3	45.21	0.255	1.9226	0.001
185	SLV 5	4.76	1.45	55.64	-1.2539	0.2415	-0.0048
185	SLV 6	4.76	1.45	55.64	-1.2539	0.2415	-0.0048
185	SLV 7	15.09	-1.33	86.83	1.1298	0.7106	0.0043
185	SLV 8	15.09	-1.33	86.83	1.1298	0.7106	0.0043
185	SLV 9	-20.6	1.41	81.96	-1.2192	-0.9381	-0.0047
185	SLV 10	-20.6	1.41	81.96	-1.2192	-0.9381	-0.0047
185	SLV 11	-10.28	-1.37	113.15	1.1644	-0.4689	0.0045
185	SLV 12	-10.28	-1.37	113.15	1.1644	-0.4689	0.0045
185	SLV 13	-46.58	0.38	123.58	-0.3445	-2.15	-0.0013
185	SLV 14	-46.58	0.38	123.58	-0.3445	-2.15	-0.0013
185	SLV 15	-43.48	-0.45	132.94	0.3706	-2.0093	0.0014
185	SLV 16	-43.48	-0.45	132.94	0.3706	-2.0093	0.0014
186	SLU 1	-7.26	0.07	80.03	-0.0526	-0.3832	0.0001
186	SLU 2	-6.97	0.07	79.3	-0.0528	-0.3696	0.0001
186	SLU 3	-7.64	0.07	83.12	-0.0532	-0.4028	0.0001
186	SLU 4	-7.47	0.07	82.68	-0.0533	-0.3947	0.0001
186	SLU 5	-7.34	0.07	81.31	-0.0519	-0.3886	0.0001
186	SLU 6	-8.02	0.07	85.12	-0.0523	-0.4219	0.0001
186	SLU 7	-7.84	0.07	84.69	-0.0524	-0.4137	0.0001
186	SLU 8	-8.01	0.07	84.04	-0.0508	-0.4212	0.0001
186	SLU 9	-7.84	0.07	83.6	-0.0509	-0.413	0.0001
186	SLU 10	-8.03	0.08	94.57	-0.0629	-0.4269	0.0001
186	SLU 11	-8.71	0.08	98.38	-0.0633	-0.4602	0.0001
186	SLU 12	-8.53	0.08	97.95	-0.0634	-0.452	0.0001
186	SLU 13	-8.41	0.08	96.57	-0.062	-0.4459	0.0001
186	SLU 14	-9.08	0.08	100.39	-0.0624	-0.4792	0.0001
186	SLU 15	-8.91	0.08	99.95	-0.0625	-0.4711	0.0001
186	SLU 16	-9.08	0.08	99.31	-0.0609	-0.4786	0.0001
186	SLU 17	-8.9	0.08	98.87	-0.061	-0.4704	0.0001
186	SLU 18	-8.78	0.09	101.84	-0.0671	-0.4651	0.0001
186	SLU 19	-8.6	0.09	101.4	-0.0672	-0.4569	0.0001
186	SLU 20	-9.15	0.09	103.84	-0.0662	-0.4841	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
186	SLU 21	-8.98	0.09	103.41	-0.0663	-0.476	0.0001
186	SLU 22	-8.48	0.08	93.78	-0.0616	-0.4477	0.0001
186	SLU 23	-8.19	0.08	93.05	-0.0617	-0.4341	0.0001
186	SLU 24	-8.86	0.08	96.86	-0.0622	-0.4674	0.0001
186	SLU 25	-8.69	0.08	96.43	-0.0623	-0.4592	0.0001
186	SLU 26	-8.56	0.08	95.06	-0.0608	-0.4531	0.0001
186	SLU 27	-9.24	0.08	98.87	-0.0613	-0.4864	0.0001
186	SLU 28	-9.06	0.08	98.43	-0.0614	-0.4783	0.0001
186	SLU 29	-9.23	0.08	97.79	-0.0598	-0.4858	0.0001
186	SLU 30	-9.06	0.08	97.35	-0.0598	-0.4776	0.0001
186	SLU 31	-9.25	0.09	108.32	-0.0718	-0.4915	0.0001
186	SLU 32	-9.93	0.09	112.13	-0.0723	-0.5247	0.0001
186	SLU 33	-9.75	0.09	111.69	-0.0724	-0.5166	0.0001
186	SLU 34	-9.63	0.09	110.32	-0.0709	-0.5105	0.0001
186	SLU 35	-10.3	0.09	114.14	-0.0714	-0.5438	0.0001
186	SLU 36	-10.12	0.09	113.7	-0.0715	-0.5356	0.0001
186	SLU 37	-10.29	0.09	113.05	-0.0699	-0.5431	0.0001
186	SLU 38	-10.12	0.09	112.62	-0.07	-0.535	0.0001
186	SLU 39	-10	0.1	115.59	-0.076	-0.5296	0.0001
186	SLU 40	-9.82	0.1	115.15	-0.0761	-0.5215	0.0001
186	SLU 41	-10.37	0.1	117.59	-0.0751	-0.5487	0.0001
186	SLU 42	-10.2	0.1	117.16	-0.0752	-0.5405	0.0001
186	SLU 43	-9.02	0.08	99.32	-0.0653	-0.476	0.0001
186	SLU 44	-8.73	0.08	98.6	-0.0655	-0.4624	0.0001
186	SLU 45	-9.4	0.09	102.41	-0.0659	-0.4957	0.0001
186	SLU 46	-9.23	0.09	101.97	-0.066	-0.4875	0.0001
186	SLU 47	-9.1	0.08	100.6	-0.0646	-0.4814	0.0001
186	SLU 48	-9.78	0.09	104.42	-0.065	-0.5147	0.0001
186	SLU 49	-9.6	0.08	103.98	-0.0651	-0.5065	0.0001
186	SLU 50	-9.77	0.08	103.33	-0.0635	-0.514	0.0001
186	SLU 51	-9.6	0.08	102.9	-0.0636	-0.5059	0.0001
186	SLU 52	-9.79	0.1	113.86	-0.0756	-0.5197	0.0001
186	SLU 53	-10.47	0.1	117.68	-0.0761	-0.553	0.0001
186	SLU 54	-10.29	0.1	117.24	-0.0761	-0.5449	0.0001
186	SLU 55	-10.17	0.1	115.87	-0.0747	-0.5388	0.0001
186	SLU 56	-10.84	0.1	119.68	-0.0751	-0.572	0.0001
186	SLU 57	-10.67	0.1	119.25	-0.0752	-0.5639	0.0001
186	SLU 58	-10.84	0.1	118.6	-0.0736	-0.5714	0.0001
186	SLU 59	-10.66	0.1	118.17	-0.0737	-0.5632	0.0001
186	SLU 60	-10.54	0.1	121.13	-0.0798	-0.5579	0.0001
186	SLU 61	-10.36	0.1	120.7	-0.0799	-0.5498	0.0001
186	SLU 62	-10.92	0.1	123.14	-0.0789	-0.5769	0.0001
186	SLU 63	-10.74	0.1	122.7	-0.079	-0.5688	0.0001
186	SLU 64	-10.24	0.1	113.07	-0.0743	-0.5405	0.0001
186	SLU 65	-9.95	0.1	112.34	-0.0744	-0.5269	0.0001
186	SLU 66	-10.62	0.1	116.16	-0.0749	-0.5602	0.0001
186	SLU 67	-10.45	0.1	115.72	-0.075	-0.5521	0.0001
186	SLU 68	-10.32	0.09	114.35	-0.0735	-0.546	0.0001
186	SLU 69	-11	0.1	118.16	-0.074	-0.5792	0.0001
186	SLU 70	-10.82	0.1	117.73	-0.0741	-0.5711	0.0001
186	SLU 71	-10.99	0.09	117.08	-0.0725	-0.5786	0.0001
186	SLU 72	-10.82	0.09	116.65	-0.0726	-0.5704	0.0001
186	SLU 73	-11.01	0.11	127.61	-0.0846	-0.5843	0.0001
186	SLU 74	-11.69	0.11	131.43	-0.085	-0.6176	0.0001
186	SLU 75	-11.51	0.11	130.99	-0.0851	-0.6094	0.0001
186	SLU 76	-11.39	0.11	129.62	-0.0836	-0.6033	0.0001
186	SLU 77	-12.06	0.11	133.43	-0.0841	-0.6366	0.0001
186	SLU 78	-11.89	0.11	133	-0.0842	-0.6284	0.0001
186	SLU 79	-12.06	0.11	132.35	-0.0826	-0.6359	0.0001
186	SLU 80	-11.88	0.11	131.91	-0.0827	-0.6278	0.0001
186	SLU 81	-11.76	0.11	134.88	-0.0887	-0.6225	0.0001
186	SLU 82	-11.58	0.11	134.45	-0.0888	-0.6143	0.0001
186	SLU 83	-12.14	0.11	136.89	-0.0878	-0.6415	0.0001
186	SLU 84	-11.96	0.11	136.45	-0.0879	-0.6333	0.0001
186	SLE RA 1	-7.61	0.07	83.96	-0.0552	-0.4016	0.0001
186	SLE RA 2	-7.41	0.07	83.47	-0.0553	-0.3926	0.0001
186	SLE RA 3	-7.87	0.07	86.01	-0.0556	-0.4147	0.0001
186	SLE RA 4	-7.75	0.07	85.72	-0.0556	-0.4093	0.0001
186	SLE RA 5	-7.67	0.07	84.81	-0.0547	-0.4052	0.0001
186	SLE RA 6	-8.12	0.07	87.35	-0.055	-0.4274	0.0001
186	SLE RA 7	-8	0.07	87.06	-0.055	-0.422	0.0001
186	SLE RA 8	-8.11	0.07	86.63	-0.054	-0.427	0.0001
186	SLE RA 9	-7.99	0.07	86.34	-0.054	-0.4215	0.0001
186	SLE RA 10	-8.12	0.08	93.65	-0.062	-0.4308	0.0001
186	SLE RA 11	-8.57	0.08	96.19	-0.0623	-0.453	0.0001
186	SLE RA 12	-8.46	0.08	95.9	-0.0624	-0.4475	0.0001
186	SLE RA 13	-8.37	0.08	94.99	-0.0614	-0.4435	0.0001
186	SLE RA 14	-8.82	0.08	97.53	-0.0617	-0.4656	0.0001
186	SLE RA 15	-8.71	0.08	97.24	-0.0618	-0.4602	0.0001
186	SLE RA 16	-8.82	0.08	96.81	-0.0607	-0.4652	0.0001
186	SLE RA 17	-8.7	0.08	96.52	-0.0608	-0.4598	0.0001
186	SLE RA 18	-8.62	0.08	98.5	-0.0648	-0.4562	0.0001
186	SLE RA 19	-8.5	0.08	98.21	-0.0649	-0.4508	0.0001
186	SLE RA 20	-8.87	0.08	99.83	-0.0642	-0.4689	0.0001
186	SLE RA 21	-8.75	0.08	99.54	-0.0643	-0.4635	0.0001
186	SLE FR 1	-7.61	0.07	83.96	-0.0552	-0.4016	0.0001
186	SLE FR 2	-7.57	0.07	83.86	-0.0552	-0.3998	0.0001
186	SLE FR 3	-7.71	0.07	84.49	-0.0549	-0.4067	0.0001
186	SLE FR 4	-7.88	0.08	88.22	-0.0581	-0.4162	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
186	SLE FR 5	-8.01	0.08	88.85	-0.0578	-0.4231	0.0001
186	SLE FR 6	-8.12	0.08	91.23	-0.06	-0.4289	0.0001
186	SLE QP 1	-7.61	0.07	83.96	-0.0552	-0.4016	0.0001
186	SLE QP 2	-7.91	0.08	88.32	-0.0581	-0.418	0.0001
186	SLD 1	6.6	0.24	46.91	-0.1934	0.364	0.0002
186	SLD 2	6.6	0.24	46.91	-0.1934	0.364	0.0002
186	SLD 3	7.52	-0.02	50.98	0.0327	0.4119	0.0001
186	SLD 4	7.52	-0.02	50.98	0.0327	0.4119	0.0001
186	SLD 5	-4.96	0.52	69.72	-0.4416	-0.256	0.0003
186	SLD 6	-4.96	0.52	69.72	-0.4416	-0.256	0.0003
186	SLD 7	-1.88	-0.35	83.29	0.3121	-0.0964	-0.0001
186	SLD 8	-1.88	-0.35	83.29	0.3121	-0.0964	-0.0001
186	SLD 9	-13.94	0.5	93.35	-0.4282	-0.7396	0.0002
186	SLD 10	-13.94	0.5	93.35	-0.4282	-0.7396	0.0002
186	SLD 11	-10.87	-0.37	106.91	0.3255	-0.58	-0.0001
186	SLD 12	-10.87	-0.37	106.91	0.3255	-0.58	-0.0001
186	SLD 13	-23.35	0.18	125.66	-0.1488	-1.2479	0.0001
186	SLD 14	-23.35	0.18	125.66	-0.1488	-1.2479	0.0001
186	SLD 15	-22.42	-0.09	129.73	0.0773	-1.2	0
186	SLD 16	-22.42	-0.09	129.73	0.0773	-1.2	0
186	SLV 1	25.24	0.47	-6.55	-0.3853	1.3689	0.0003
186	SLV 2	25.24	0.47	-6.55	-0.3853	1.3689	0.0003
186	SLV 3	27.4	-0.17	3.16	0.1632	1.4806	0
186	SLV 4	27.4	-0.17	3.16	0.1632	1.4806	0
186	SLV 5	-1.24	1.16	45.13	-0.9881	-0.0513	0.0005
186	SLV 6	-1.24	1.16	45.13	-0.9881	-0.0513	0.0005
186	SLV 7	5.95	-0.96	77.49	0.8402	0.321	-0.0003
186	SLV 8	5.95	-0.96	77.49	0.8402	0.321	-0.0003
186	SLV 9	-21.78	1.11	99.14	-0.9564	-1.157	0.0005
186	SLV 10	-21.78	1.11	99.14	-0.9564	-1.157	0.0005
186	SLV 11	-14.59	-1.01	131.5	0.872	-0.7847	-0.0004
186	SLV 12	-14.59	-1.01	131.5	0.872	-0.7847	-0.0004
186	SLV 13	-43.23	0.32	173.48	-0.2794	-2.3166	0.0001
186	SLV 14	-43.23	0.32	173.48	-0.2794	-2.3166	0.0001
186	SLV 15	-41.07	-0.32	183.19	0.2691	-2.2049	-0.0001
186	SLV 16	-41.07	-0.32	183.19	0.2691	-2.2049	-0.0001
187	SLU 1	-11.64	0.04	47.14	-0.0292	-0.2882	-0.0047
187	SLU 2	-11.43	0.04	46.62	-0.0286	-0.2808	-0.0045
187	SLU 3	-12.14	0.04	49.03	-0.0298	-0.3019	-0.0048
187	SLU 4	-12.02	0.04	48.72	-0.0294	-0.2975	-0.0047
187	SLU 5	-11.83	0.04	47.95	-0.0284	-0.2929	-0.0045
187	SLU 6	-12.53	0.04	50.35	-0.0296	-0.314	-0.0047
187	SLU 7	-12.41	0.04	50.04	-0.0292	-0.3095	-0.0047
187	SLU 8	-12.42	0.04	49.78	-0.0288	-0.3123	-0.0046
187	SLU 9	-12.3	0.04	49.48	-0.0284	-0.3079	-0.0045
187	SLU 10	-13.49	0.04	55.36	-0.0341	-0.3274	-0.0054
187	SLU 11	-14.2	0.05	57.76	-0.0353	-0.3485	-0.0056
187	SLU 12	-14.08	0.05	57.45	-0.0349	-0.3441	-0.0056
187	SLU 13	-13.88	0.04	56.68	-0.0339	-0.3395	-0.0054
187	SLU 14	-14.59	0.05	59.08	-0.0351	-0.3606	-0.0056
187	SLU 15	-14.47	0.05	58.77	-0.0347	-0.3561	-0.0055
187	SLU 16	-14.48	0.05	58.52	-0.0343	-0.359	-0.0055
187	SLU 17	-14.36	0.05	58.21	-0.0339	-0.3545	-0.0054
187	SLU 18	-14.58	0.05	59.61	-0.0371	-0.3548	-0.0059
187	SLU 19	-14.46	0.05	59.3	-0.0367	-0.3504	-0.0058
187	SLU 20	-14.97	0.05	60.94	-0.0369	-0.3669	-0.0059
187	SLU 21	-14.85	0.05	60.63	-0.0365	-0.3624	-0.0058
187	SLU 22	-13.63	0.05	55.21	-0.0342	-0.3371	-0.0055
187	SLU 23	-13.43	0.04	54.7	-0.0337	-0.3297	-0.0053
187	SLU 24	-14.13	0.05	57.1	-0.0348	-0.3508	-0.0056
187	SLU 25	-14.01	0.05	56.79	-0.0345	-0.3463	-0.0055
187	SLU 26	-13.82	0.04	56.02	-0.0335	-0.3417	-0.0053
187	SLU 27	-14.53	0.05	58.42	-0.0346	-0.3629	-0.0055
187	SLU 28	-14.4	0.05	58.12	-0.0343	-0.3584	-0.0055
187	SLU 29	-14.42	0.05	57.86	-0.0338	-0.3612	-0.0054
187	SLU 30	-14.29	0.05	57.55	-0.0335	-0.3568	-0.0053
187	SLU 31	-15.48	0.05	63.43	-0.0392	-0.3763	-0.0062
187	SLU 32	-16.19	0.06	65.83	-0.0403	-0.3974	-0.0064
187	SLU 33	-16.07	0.05	65.53	-0.04	-0.393	-0.0064
187	SLU 34	-15.88	0.05	64.75	-0.039	-0.3884	-0.0062
187	SLU 35	-16.58	0.06	67.16	-0.0401	-0.4095	-0.0064
187	SLU 36	-16.46	0.05	66.85	-0.0398	-0.405	-0.0063
187	SLU 37	-16.47	0.06	66.59	-0.0393	-0.4078	-0.0063
187	SLU 38	-16.35	0.05	66.28	-0.039	-0.4034	-0.0062
187	SLU 39	-16.57	0.06	67.69	-0.0421	-0.4037	-0.0067
187	SLU 40	-16.45	0.05	67.38	-0.0418	-0.3992	-0.0066
187	SLU 41	-16.96	0.06	69.01	-0.0419	-0.4158	-0.0067
187	SLU 42	-16.84	0.06	68.7	-0.0415	-0.4113	-0.0066
187	SLU 43	-14.45	0.05	58.51	-0.0362	-0.3579	-0.0058
187	SLU 44	-14.24	0.04	58	-0.0357	-0.3505	-0.0057
187	SLU 45	-14.95	0.05	60.4	-0.0368	-0.3716	-0.0059
187	SLU 46	-14.83	0.05	60.09	-0.0365	-0.3672	-0.0058
187	SLU 47	-14.64	0.05	59.32	-0.0355	-0.3626	-0.0056
187	SLU 48	-15.34	0.05	61.72	-0.0366	-0.3837	-0.0059
187	SLU 49	-15.22	0.05	61.42	-0.0363	-0.3792	-0.0058
187	SLU 50	-15.23	0.05	61.16	-0.0358	-0.382	-0.0057
187	SLU 51	-15.11	0.05	60.85	-0.0355	-0.3776	-0.0057
187	SLU 52	-16.3	0.05	66.73	-0.0412	-0.3971	-0.0065
187	SLU 53	-17.01	0.06	69.13	-0.0423	-0.4182	-0.0067





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
187	SLU 54	-16.89	0.06	68.83	-0.042	-0.4138	-0.0067
187	SLU 55	-16.69	0.05	68.05	-0.041	-0.4092	-0.0065
187	SLU 56	-17.4	0.06	70.46	-0.0421	-0.4303	-0.0067
187	SLU 57	-17.28	0.06	70.15	-0.0418	-0.4258	-0.0067
187	SLU 58	-17.29	0.06	69.89	-0.0413	-0.4287	-0.0066
187	SLU 59	-17.17	0.06	69.58	-0.041	-0.4242	-0.0065
187	SLU 60	-17.39	0.06	70.99	-0.0441	-0.4245	-0.007
187	SLU 61	-17.26	0.06	70.68	-0.0438	-0.4201	-0.0069
187	SLU 62	-17.78	0.06	72.31	-0.0439	-0.4366	-0.007
187	SLU 63	-17.66	0.06	72	-0.0435	-0.4321	-0.0069
187	SLU 64	-16.44	0.06	66.59	-0.0413	-0.4068	-0.0066
187	SLU 65	-16.24	0.05	66.07	-0.0407	-0.3994	-0.0065
187	SLU 66	-16.94	0.06	68.48	-0.0418	-0.4205	-0.0067
187	SLU 67	-16.82	0.06	68.17	-0.0415	-0.416	-0.0066
187	SLU 68	-16.63	0.05	67.39	-0.0405	-0.4114	-0.0064
187	SLU 69	-17.34	0.06	69.8	-0.0416	-0.4326	-0.0067
187	SLU 70	-17.21	0.06	69.49	-0.0413	-0.4281	-0.0066
187	SLU 71	-17.23	0.06	69.23	-0.0409	-0.4309	-0.0065
187	SLU 72	-17.1	0.06	68.92	-0.0405	-0.4265	-0.0065
187	SLU 73	-18.29	0.06	74.8	-0.0462	-0.446	-0.0073
187	SLU 74	-19	0.07	77.21	-0.0473	-0.4671	-0.0075
187	SLU 75	-18.88	0.06	76.9	-0.047	-0.4627	-0.0075
187	SLU 76	-18.68	0.06	76.13	-0.046	-0.4581	-0.0073
187	SLU 77	-19.39	0.07	78.53	-0.0471	-0.4792	-0.0075
187	SLU 78	-19.27	0.06	78.22	-0.0468	-0.4747	-0.0075
187	SLU 79	-19.28	0.07	77.96	-0.0464	-0.4775	-0.0074
187	SLU 80	-19.16	0.06	77.65	-0.046	-0.4731	-0.0073
187	SLU 81	-19.38	0.07	79.06	-0.0491	-0.4734	-0.0078
187	SLU 82	-19.26	0.06	78.75	-0.0488	-0.4689	-0.0077
187	SLU 83	-19.77	0.07	80.38	-0.0489	-0.4855	-0.0078
187	SLU 84	-19.65	0.06	80.07	-0.0486	-0.481	-0.0077
187	SLE RA 1	-12.21	0.04	49.45	-0.0306	-0.3022	-0.0049
187	SLE RA 2	-12.07	0.04	49.1	-0.0303	-0.2972	-0.0048
187	SLE RA 3	-12.54	0.04	50.71	-0.031	-0.3113	-0.005
187	SLE RA 4	-12.46	0.04	50.5	-0.0308	-0.3083	-0.0049
187	SLE RA 5	-12.33	0.04	49.98	-0.0301	-0.3053	-0.0048
187	SLE RA 6	-12.81	0.04	51.59	-0.0309	-0.3194	-0.0049
187	SLE RA 7	-12.72	0.04	51.38	-0.0307	-0.3164	-0.0049
187	SLE RA 8	-12.73	0.04	51.21	-0.0304	-0.3183	-0.0049
187	SLE RA 9	-12.65	0.04	51	-0.0301	-0.3153	-0.0048
187	SLE RA 10	-13.44	0.04	54.92	-0.0339	-0.3283	-0.0054
187	SLE RA 11	-13.92	0.05	56.53	-0.0347	-0.3424	-0.0055
187	SLE RA 12	-13.83	0.05	56.32	-0.0345	-0.3394	-0.0055
187	SLE RA 13	-13.7	0.04	55.81	-0.0338	-0.3364	-0.0054
187	SLE RA 14	-14.18	0.05	57.41	-0.0346	-0.3504	-0.0055
187	SLE RA 15	-14.09	0.05	57.2	-0.0343	-0.3475	-0.0055
187	SLE RA 16	-14.1	0.05	57.03	-0.034	-0.3493	-0.0054
187	SLE RA 17	-14.02	0.05	56.82	-0.0338	-0.3464	-0.0054
187	SLE RA 18	-14.17	0.05	57.76	-0.0359	-0.3466	-0.0057
187	SLE RA 19	-14.09	0.05	57.56	-0.0357	-0.3436	-0.0057
187	SLE RA 20	-14.43	0.05	58.64	-0.0357	-0.3546	-0.0057
187	SLE RA 21	-14.35	0.05	58.44	-0.0355	-0.3517	-0.0056
187	SLE FR 1	-12.21	0.04	49.45	-0.0306	-0.3022	-0.0049
187	SLE FR 2	-12.18	0.04	49.38	-0.0306	-0.3012	-0.0049
187	SLE FR 3	-12.31	0.04	49.8	-0.0306	-0.3054	-0.0049
187	SLE FR 4	-12.77	0.04	51.87	-0.0321	-0.3145	-0.0051
187	SLE FR 5	-12.9	0.04	52.29	-0.0322	-0.3187	-0.0051
187	SLE FR 6	-13.19	0.04	53.6	-0.0333	-0.3244	-0.0053
187	SLE QP 1	-12.21	0.04	49.45	-0.0306	-0.3022	-0.0049
187	SLE QP 2	-12.8	0.04	51.94	-0.0322	-0.3155	-0.0051
187	SLD 1	-0.57	-0.15	16.69	-0.0524	0.1485	-0.0071
187	SLD 2	-0.57	-0.15	16.69	-0.0524	0.1485	-0.0071
187	SLD 3	0.15	0.11	14.17	0.0203	0.1757	0.0026
187	SLD 4	0.15	0.11	14.17	0.0203	0.1757	0.0026
187	SLD 5	-10.23	-0.41	45.18	-0.1484	-0.2176	-0.0203
187	SLD 6	-10.23	-0.41	45.18	-0.1484	-0.2176	-0.0203
187	SLD 7	-7.81	0.46	36.79	0.0937	-0.1268	0.0118
187	SLD 8	-7.81	0.46	36.79	0.0937	-0.1268	0.0118
187	SLD 9	-17.78	-0.37	67.09	-0.1581	-0.5042	-0.022
187	SLD 10	-17.78	-0.37	67.09	-0.1581	-0.5042	-0.022
187	SLD 11	-15.36	0.5	58.7	0.084	-0.4134	0.01
187	SLD 12	-15.36	0.5	58.7	0.084	-0.4134	0.01
187	SLD 13	-25.75	-0.02	89.71	-0.0847	-0.8067	-0.0128
187	SLD 14	-25.75	-0.02	89.71	-0.0847	-0.8067	-0.0128
187	SLD 15	-25.02	0.24	87.19	-0.0121	-0.7795	-0.0032
187	SLD 16	-25.02	0.24	87.19	-0.0121	-0.7795	-0.0032
187	SLV 1	15.12	-0.43	-28.54	-0.0809	0.7446	-0.0097
187	SLV 2	15.12	-0.43	-28.54	-0.0809	0.7446	-0.0097
187	SLV 3	16.83	0.2	-34.5	0.0931	0.8082	0.0132
187	SLV 4	16.83	0.2	-34.5	0.0931	0.8082	0.0132
187	SLV 5	-7.01	-1.06	36.84	-0.3107	-0.0939	-0.0412
187	SLV 6	-7.01	-1.06	36.84	-0.3107	-0.0939	-0.0412
187	SLV 7	-1.32	1.05	16.96	0.2692	0.118	0.035
187	SLV 8	-1.32	1.05	16.96	0.2692	0.118	0.035
187	SLV 9	-24.28	-0.96	86.92	-0.3337	-0.749	-0.0453
187	SLV 10	-24.28	-0.96	86.92	-0.3337	-0.749	-0.0453
187	SLV 11	-18.58	1.15	67.04	0.2462	-0.5371	0.0309
187	SLV 12	-18.58	1.15	67.04	0.2462	-0.5371	0.0309
187	SLV 13	-42.43	-0.11	138.38	-0.1575	-1.4392	-0.0234



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
187	SLV 14	-42.43	-0.11	138.38	-0.1575	-1.4392	-0.0234
187	SLV 15	-40.72	0.52	132.42	0.0165	-1.3756	-0.0006
187	SLV 16	-40.72	0.52	132.42	0.0165	-1.3756	-0.0006
188	SLU 1	6.67	-0.08	30.66	0.0186	0.0058	-0.0039
188	SLU 2	6.8	-0.08	31.1	0.0196	0.0084	-0.004
188	SLU 3	6.79	-0.08	31.38	0.0187	0.0037	-0.0039
188	SLU 4	6.87	-0.08	31.64	0.0193	0.0053	-0.004
188	SLU 5	6.79	-0.08	31.22	0.0194	0.0056	-0.004
188	SLU 6	6.79	-0.08	31.5	0.0185	0.0009	-0.0039
188	SLU 7	6.87	-0.08	31.76	0.0191	0.0025	-0.004
188	SLU 8	6.65	-0.08	30.9	0.0182	0.0002	-0.0038
188	SLU 9	6.73	-0.08	31.17	0.0188	0.0018	-0.0039
188	SLU 10	8.23	-0.1	37.6	0.0236	0.0115	-0.0049
188	SLU 11	8.22	-0.1	37.88	0.0227	0.0069	-0.0047
188	SLU 12	8.3	-0.1	38.14	0.0233	0.0084	-0.0048
188	SLU 13	8.22	-0.1	37.73	0.0234	0.0088	-0.0049
188	SLU 14	8.22	-0.1	38	0.0225	0.0041	-0.0047
188	SLU 15	8.3	-0.1	38.27	0.0231	0.0056	-0.0048
188	SLU 16	8.08	-0.1	37.41	0.0223	0.0034	-0.0047
188	SLU 17	8.16	-0.1	37.67	0.0228	0.0049	-0.0048
188	SLU 18	8.71	-0.11	39.95	0.0244	0.0103	-0.0051
188	SLU 19	8.79	-0.11	40.21	0.0249	0.0119	-0.0052
188	SLU 20	8.7	-0.11	40.07	0.0242	0.0075	-0.005
188	SLU 21	8.78	-0.11	40.34	0.0247	0.0091	-0.0051
188	SLU 22	7.69	-0.09	35.52	0.0209	0.004	-0.0043
188	SLU 23	7.82	-0.09	35.96	0.0219	0.0066	-0.0045
188	SLU 24	7.82	-0.09	36.24	0.021	0.0019	-0.0044
188	SLU 25	7.9	-0.09	36.5	0.0216	0.0035	-0.0045
188	SLU 26	7.82	-0.09	36.08	0.0217	0.0038	-0.0045
188	SLU 27	7.81	-0.09	36.36	0.0208	-0.0009	-0.0043
188	SLU 28	7.89	-0.09	36.62	0.0214	0.0007	-0.0045
188	SLU 29	7.68	-0.09	35.76	0.0205	-0.0016	-0.0043
188	SLU 30	7.76	-0.09	36.03	0.0211	0	-0.0044
188	SLU 31	9.25	-0.11	42.46	0.0259	0.0097	-0.0054
188	SLU 32	9.25	-0.11	42.74	0.025	0.0051	-0.0052
188	SLU 33	9.32	-0.11	43	0.0256	0.0066	-0.0053
188	SLU 34	9.24	-0.11	42.58	0.0257	0.0069	-0.0053
188	SLU 35	9.24	-0.11	42.86	0.0248	0.0023	-0.0052
188	SLU 36	9.32	-0.11	43.13	0.0254	0.0038	-0.0053
188	SLU 37	9.11	-0.11	42.27	0.0245	0.0016	-0.0051
188	SLU 38	9.19	-0.11	42.53	0.0251	0.0031	-0.0052
188	SLU 39	9.73	-0.12	44.81	0.0267	0.0085	-0.0055
188	SLU 40	9.81	-0.12	45.07	0.0272	0.01	-0.0057
188	SLU 41	9.72	-0.12	44.93	0.0265	0.0057	-0.0055
188	SLU 42	9.8	-0.12	45.2	0.027	0.0072	-0.0056
188	SLU 43	8.32	-0.1	38.19	0.0235	0.0082	-0.0048
188	SLU 44	8.45	-0.1	38.63	0.0244	0.0108	-0.005
188	SLU 45	8.44	-0.1	38.91	0.0235	0.0061	-0.0049
188	SLU 46	8.52	-0.1	39.17	0.0241	0.0077	-0.005
188	SLU 47	8.44	-0.1	38.75	0.0242	0.008	-0.005
188	SLU 48	8.44	-0.1	39.03	0.0233	0.0033	-0.0049
188	SLU 49	8.52	-0.1	39.29	0.0239	0.0049	-0.005
188	SLU 50	8.3	-0.1	38.44	0.0231	0.0026	-0.0048
188	SLU 51	8.38	-0.1	38.7	0.0236	0.0042	-0.0049
188	SLU 52	9.88	-0.12	45.13	0.0284	0.0139	-0.0059
188	SLU 53	9.87	-0.12	45.41	0.0275	0.0092	-0.0057
188	SLU 54	9.95	-0.12	45.67	0.0281	0.0108	-0.0058
188	SLU 55	9.87	-0.12	45.26	0.0282	0.0111	-0.0059
188	SLU 56	9.87	-0.12	45.53	0.0273	0.0064	-0.0057
188	SLU 57	9.95	-0.12	45.8	0.0279	0.008	-0.0058
188	SLU 58	9.73	-0.12	44.94	0.0271	0.0057	-0.0056
188	SLU 59	9.81	-0.12	45.2	0.0276	0.0073	-0.0058
188	SLU 60	10.36	-0.13	47.48	0.0292	0.0127	-0.006
188	SLU 61	10.44	-0.13	47.74	0.0298	0.0142	-0.0062
188	SLU 62	10.35	-0.13	47.6	0.029	0.0099	-0.006
188	SLU 63	10.43	-0.13	47.87	0.0296	0.0114	-0.0061
188	SLU 64	9.34	-0.11	43.05	0.0257	0.0064	-0.0053
188	SLU 65	9.47	-0.11	43.49	0.0267	0.009	-0.0055
188	SLU 66	9.47	-0.11	43.77	0.0258	0.0043	-0.0054
188	SLU 67	9.55	-0.11	44.03	0.0264	0.0059	-0.0055
188	SLU 68	9.47	-0.11	43.61	0.0265	0.0062	-0.0055
188	SLU 69	9.46	-0.11	43.89	0.0256	0.0015	-0.0053
188	SLU 70	9.54	-0.11	44.15	0.0262	0.0031	-0.0054
188	SLU 71	9.33	-0.11	43.29	0.0253	0.0008	-0.0053
188	SLU 72	9.41	-0.11	43.56	0.0259	0.0024	-0.0054
188	SLU 73	10.9	-0.13	49.99	0.0307	0.0121	-0.0064
188	SLU 74	10.89	-0.13	50.27	0.0298	0.0074	-0.0062
188	SLU 75	10.97	-0.13	50.53	0.0304	0.009	-0.0063
188	SLU 76	10.89	-0.13	50.12	0.0305	0.0093	-0.0063
188	SLU 77	10.89	-0.13	50.39	0.0296	0.0046	-0.0062
188	SLU 78	10.97	-0.13	50.66	0.0302	0.0062	-0.0063
188	SLU 79	10.75	-0.13	49.8	0.0293	0.0039	-0.0061
188	SLU 80	10.83	-0.13	50.06	0.0299	0.0055	-0.0062
188	SLU 81	11.38	-0.14	52.34	0.0315	0.0109	-0.0065
188	SLU 82	11.46	-0.14	52.6	0.032	0.0124	-0.0066
188	SLU 83	11.37	-0.14	52.46	0.0313	0.0081	-0.0065
188	SLU 84	11.45	-0.14	52.73	0.0318	0.0096	-0.0066
188	SLE RA 1	6.96	-0.08	32.05	0.0193	0.0053	-0.004
188	SLE RA 2	7.05	-0.08	32.34	0.0199	0.007	-0.0041



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
188	SLE RA 3	7.04	-0.08	32.52	0.0193	0.0039	-0.004
188	SLE RA 4	7.1	-0.08	32.7	0.0197	0.005	-0.0041
188	SLE RA 5	7.04	-0.09	32.42	0.0198	0.0052	-0.0041
188	SLE RA 6	7.04	-0.08	32.61	0.0192	0.0021	-0.004
188	SLE RA 7	7.09	-0.09	32.78	0.0196	0.0031	-0.0041
188	SLE RA 8	6.95	-0.08	32.21	0.019	0.0016	-0.004
188	SLE RA 9	7	-0.08	32.39	0.0194	0.0026	-0.004
188	SLE RA 10	8	-0.1	36.68	0.0226	0.0091	-0.0047
188	SLE RA 11	8	-0.1	36.86	0.022	0.006	-0.0046
188	SLE RA 12	8.05	-0.1	37.04	0.0224	0.007	-0.0046
188	SLE RA 13	8	-0.1	36.76	0.0225	0.0073	-0.0047
188	SLE RA 14	7.99	-0.1	36.94	0.0219	0.0041	-0.0046
188	SLE RA 15	8.05	-0.1	37.12	0.0223	0.0052	-0.0046
188	SLE RA 16	7.9	-0.1	36.55	0.0217	0.0037	-0.0045
188	SLE RA 17	7.96	-0.1	36.72	0.0221	0.0047	-0.0046
188	SLE RA 18	8.32	-0.1	38.24	0.0231	0.0083	-0.0048
188	SLE RA 19	8.37	-0.1	38.42	0.0235	0.0093	-0.0049
188	SLE RA 20	8.32	-0.1	38.32	0.023	0.0064	-0.0048
188	SLE RA 21	8.37	-0.1	38.5	0.0234	0.0075	-0.0049
188	SLE FR 1	6.96	-0.08	32.05	0.0193	0.0053	-0.004
188	SLE FR 2	6.98	-0.08	32.1	0.0194	0.0057	-0.004
188	SLE FR 3	6.96	-0.08	32.08	0.0192	0.0046	-0.004
188	SLE FR 4	7.38	-0.09	33.96	0.0206	0.0066	-0.0043
188	SLE FR 5	7.37	-0.09	33.94	0.0204	0.0055	-0.0042
188	SLE FR 6	7.64	-0.09	35.14	0.0212	0.0068	-0.0044
188	SLE QP 1	6.96	-0.08	32.05	0.0193	0.0053	-0.004
188	SLE QP 2	7.37	-0.09	33.9	0.0204	0.0062	-0.0042
188	SLD 1	9.62	-0.35	41.05	0.0461	0.1429	-0.0114
188	SLD 2	9.62	-0.35	41.05	0.0461	0.1429	-0.0114
188	SLD 3	11.13	-0.45	46.6	0.0614	0.1661	-0.0151
188	SLD 4	11.13	-0.45	46.6	0.0614	0.1661	-0.0151
188	SLD 5	5.76	-0.02	27.62	0.0049	0.012	-0.0008
188	SLD 6	5.76	-0.02	27.62	0.0049	0.012	-0.0008
188	SLD 7	10.78	-0.34	46.14	0.056	0.0893	-0.013
188	SLD 8	10.78	-0.34	46.14	0.056	0.0893	-0.013
188	SLD 9	3.96	0.17	21.67	-0.0151	-0.0769	0.0046
188	SLD 10	3.96	0.17	21.67	-0.0151	-0.0769	0.0046
188	SLD 11	8.97	-0.15	40.18	0.036	0.0004	-0.0076
188	SLD 12	8.97	-0.15	40.18	0.036	0.0004	-0.0076
188	SLD 13	3.61	0.27	21.21	-0.0206	-0.1537	0.0066
188	SLD 14	3.61	0.27	21.21	-0.0206	-0.1537	0.0066
188	SLD 15	5.11	0.18	26.76	-0.0052	-0.1305	0.003
188	SLD 16	5.11	0.18	26.76	-0.0052	-0.1305	0.003
188	SLV 1	12.53	-0.73	50.28	0.0831	0.3187	-0.0218
188	SLV 2	12.53	-0.73	50.28	0.0831	0.3187	-0.0218
188	SLV 3	16.01	-0.96	63.15	0.1191	0.3721	-0.0304
188	SLV 4	16.01	-0.96	63.15	0.1191	0.3721	-0.0304
188	SLV 5	3.64	0.07	19.3	-0.0154	0.019	0.0036
188	SLV 6	3.64	0.07	19.3	-0.0154	0.019	0.0036
188	SLV 7	15.24	-0.7	62.2	0.1047	0.1969	-0.0252
188	SLV 8	15.24	-0.7	62.2	0.1047	0.1969	-0.0252
188	SLV 9	-0.51	0.52	5.61	-0.0638	-0.1845	0.0167
188	SLV 10	-0.51	0.52	5.61	-0.0638	-0.1845	0.0167
188	SLV 11	11.1	-0.24	48.51	0.0563	-0.0066	-0.0121
188	SLV 12	11.1	-0.24	48.51	0.0563	-0.0066	-0.0121
188	SLV 13	-1.28	0.79	4.66	-0.0782	-0.3596	0.0219
188	SLV 14	-1.28	0.79	4.66	-0.0782	-0.3596	0.0219
188	SLV 15	2.2	0.56	17.53	-0.0422	-0.3063	0.0133
188	SLV 16	2.2	0.56	17.53	-0.0422	-0.3063	0.0133
189	SLU 1	0.33	-13.25	85.12	0.2712	-0.0562	-0.0019
189	SLU 2	0.36	-13.67	86.31	0.2876	-0.0549	-0.0019
189	SLU 3	0.33	-13.41	87.26	0.2685	-0.0597	-0.0019
189	SLU 4	0.35	-13.66	87.97	0.2784	-0.0589	-0.0019
189	SLU 5	0.35	-13.58	86.91	0.2798	-0.0581	-0.0019
189	SLU 6	0.32	-13.33	87.87	0.2607	-0.0629	-0.0019
189	SLU 7	0.34	-13.58	88.58	0.2706	-0.0621	-0.0019
189	SLU 8	0.32	-13.08	86.34	0.2556	-0.0625	-0.0019
189	SLU 9	0.33	-13.33	87.05	0.2654	-0.0617	-0.0019
189	SLU 10	0.41	-16.39	103.8	0.3427	-0.0636	-0.0023
189	SLU 11	0.38	-16.13	104.75	0.3237	-0.0684	-0.0023
189	SLU 12	0.4	-16.38	105.46	0.3335	-0.0676	-0.0023
189	SLU 13	0.4	-16.3	104.41	0.3349	-0.0667	-0.0023
189	SLU 14	0.37	-16.05	105.36	0.3159	-0.0715	-0.0023
189	SLU 15	0.39	-16.3	106.07	0.3257	-0.0707	-0.0023
189	SLU 16	0.37	-15.8	103.83	0.3108	-0.0712	-0.0023
189	SLU 17	0.38	-16.05	104.54	0.3206	-0.0704	-0.0023
189	SLU 18	0.4	-17.13	110.11	0.35	-0.0686	-0.0024
189	SLU 19	0.42	-17.38	110.82	0.3598	-0.0678	-0.0025
189	SLU 20	0.4	-17.05	110.72	0.3422	-0.0718	-0.0024
189	SLU 21	0.41	-17.3	111.43	0.352	-0.071	-0.0025
189	SLU 22	0.36	-15.15	98.69	0.3019	-0.0672	-0.0021
189	SLU 23	0.39	-15.57	99.88	0.3183	-0.0659	-0.0022
189	SLU 24	0.36	-15.31	100.83	0.2993	-0.0707	-0.0022
189	SLU 25	0.37	-15.56	101.54	0.3091	-0.0699	-0.0022
189	SLU 26	0.38	-15.48	100.49	0.3105	-0.0691	-0.0022
189	SLU 27	0.35	-15.23	101.44	0.2915	-0.0738	-0.0022
189	SLU 28	0.37	-15.48	102.15	0.3013	-0.0731	-0.0022
189	SLU 29	0.34	-14.98	99.91	0.2864	-0.0735	-0.0021
189	SLU 30	0.36	-15.23	100.62	0.2962	-0.0727	-0.0022



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
189	SLU 31	0.44	-18.29	117.37	0.3735	-0.0746	-0.0026
189	SLU 32	0.41	-18.03	118.32	0.3544	-0.0794	-0.0025
189	SLU 33	0.42	-18.28	119.03	0.3643	-0.0786	-0.0026
189	SLU 34	0.43	-18.2	117.98	0.3657	-0.0777	-0.0026
189	SLU 35	0.4	-17.95	118.93	0.3466	-0.0825	-0.0025
189	SLU 36	0.41	-18.2	119.64	0.3565	-0.0817	-0.0026
189	SLU 37	0.39	-17.7	117.4	0.3415	-0.0822	-0.0025
189	SLU 38	0.41	-17.95	118.11	0.3513	-0.0814	-0.0026
189	SLU 39	0.43	-19.03	123.68	0.3807	-0.0796	-0.0027
189	SLU 40	0.45	-19.29	124.39	0.3906	-0.0788	-0.0027
189	SLU 41	0.42	-18.95	124.29	0.3729	-0.0828	-0.0027
189	SLU 42	0.44	-19.2	125	0.3828	-0.082	-0.0027
189	SLU 43	0.42	-16.57	106	0.342	-0.0693	-0.0024
189	SLU 44	0.45	-16.99	107.19	0.3584	-0.068	-0.0024
189	SLU 45	0.42	-16.73	108.14	0.3393	-0.0728	-0.0024
189	SLU 46	0.44	-16.98	108.85	0.3492	-0.072	-0.0024
189	SLU 47	0.44	-16.91	107.8	0.3506	-0.0712	-0.0024
189	SLU 48	0.41	-16.65	108.75	0.3315	-0.076	-0.0024
189	SLU 49	0.43	-16.9	109.46	0.3414	-0.0752	-0.0024
189	SLU 50	0.41	-16.4	107.22	0.3264	-0.0756	-0.0023
189	SLU 51	0.42	-16.66	107.93	0.3363	-0.0749	-0.0024
189	SLU 52	0.5	-19.71	124.68	0.4135	-0.0767	-0.0028
189	SLU 53	0.47	-19.45	125.63	0.3945	-0.0815	-0.0028
189	SLU 54	0.49	-19.7	126.34	0.4043	-0.0807	-0.0028
189	SLU 55	0.49	-19.63	125.29	0.4057	-0.0798	-0.0028
189	SLU 56	0.46	-19.37	126.24	0.3867	-0.0846	-0.0028
189	SLU 57	0.48	-19.62	126.95	0.3965	-0.0839	-0.0028
189	SLU 58	0.46	-19.12	124.71	0.3816	-0.0843	-0.0027
189	SLU 59	0.47	-19.38	125.42	0.3914	-0.0835	-0.0028
189	SLU 60	0.49	-20.46	130.99	0.4208	-0.0817	-0.0029
189	SLU 61	0.51	-20.71	131.7	0.4306	-0.0809	-0.0029
189	SLU 62	0.49	-20.37	131.6	0.413	-0.0849	-0.0029
189	SLU 63	0.5	-20.62	132.31	0.4228	-0.0841	-0.0029
189	SLU 64	0.45	-18.47	119.57	0.3728	-0.0803	-0.0026
189	SLU 65	0.48	-18.89	120.76	0.3891	-0.079	-0.0027
189	SLU 66	0.45	-18.63	121.71	0.3701	-0.0838	-0.0026
189	SLU 67	0.46	-18.88	122.42	0.3799	-0.083	-0.0027
189	SLU 68	0.47	-18.81	121.37	0.3814	-0.0822	-0.0027
189	SLU 69	0.44	-18.55	122.32	0.3623	-0.087	-0.0026
189	SLU 70	0.46	-18.8	123.03	0.3721	-0.0862	-0.0027
189	SLU 71	0.43	-18.31	120.79	0.3572	-0.0866	-0.0026
189	SLU 72	0.45	-18.56	121.5	0.367	-0.0858	-0.0026
189	SLU 73	0.53	-21.61	138.25	0.4443	-0.0877	-0.0031
189	SLU 74	0.5	-21.35	139.2	0.4252	-0.0925	-0.003
189	SLU 75	0.51	-21.6	139.92	0.4351	-0.0917	-0.0031
189	SLU 76	0.52	-21.53	138.86	0.4365	-0.0908	-0.003
189	SLU 77	0.49	-21.27	139.81	0.4174	-0.0956	-0.003
189	SLU 78	0.51	-21.52	140.53	0.4273	-0.0948	-0.0031
189	SLU 79	0.48	-21.03	138.28	0.4123	-0.0953	-0.003
189	SLU 80	0.5	-21.28	139	0.4222	-0.0945	-0.003
189	SLU 81	0.52	-22.36	144.56	0.4515	-0.0927	-0.0032
189	SLU 82	0.54	-22.61	145.27	0.4614	-0.0919	-0.0032
189	SLU 83	0.51	-22.27	145.17	0.4438	-0.0959	-0.0032
189	SLU 84	0.53	-22.53	145.88	0.4536	-0.0951	-0.0032
189	SLE RA 1	0.34	-13.79	89	0.28	-0.0594	-0.002
189	SLE RA 2	0.36	-14.07	89.79	0.2909	-0.0585	-0.002
189	SLE RA 3	0.34	-13.9	90.42	0.2782	-0.0617	-0.002
189	SLE RA 4	0.35	-14.07	90.9	0.2848	-0.0612	-0.002
189	SLE RA 5	0.35	-14.01	90.19	0.2857	-0.0606	-0.002
189	SLE RA 6	0.33	-13.84	90.83	0.273	-0.0638	-0.002
189	SLE RA 7	0.34	-14.01	91.3	0.2796	-0.0633	-0.002
189	SLE RA 8	0.33	-13.68	89.81	0.2696	-0.0636	-0.0019
189	SLE RA 9	0.34	-13.85	90.28	0.2761	-0.063	-0.002
189	SLE RA 10	0.39	-15.88	101.45	0.3277	-0.0643	-0.0022
189	SLE RA 11	0.37	-15.71	102.08	0.315	-0.0675	-0.0022
189	SLE RA 12	0.38	-15.88	102.56	0.3215	-0.0669	-0.0022
189	SLE RA 13	0.39	-15.83	101.86	0.3225	-0.0664	-0.0022
189	SLE RA 14	0.37	-15.66	102.49	0.3098	-0.0696	-0.0022
189	SLE RA 15	0.38	-15.82	102.96	0.3163	-0.069	-0.0022
189	SLE RA 16	0.36	-15.49	101.47	0.3064	-0.0694	-0.0022
189	SLE RA 17	0.37	-15.66	101.94	0.3129	-0.0688	-0.0022
189	SLE RA 18	0.39	-16.38	105.66	0.3325	-0.0676	-0.0023
189	SLE RA 19	0.4	-16.55	106.13	0.3391	-0.0671	-0.0023
189	SLE RA 20	0.38	-16.33	106.06	0.3273	-0.0697	-0.0023
189	SLE RA 21	0.39	-16.49	106.54	0.3339	-0.0692	-0.0023
189	SLE FR 1	0.34	-13.79	89	0.28	-0.0594	-0.002
189	SLE FR 2	0.35	-13.85	89.16	0.2822	-0.0592	-0.002
189	SLE FR 3	0.34	-13.77	89.16	0.2779	-0.0602	-0.002
189	SLE FR 4	0.36	-14.62	94.15	0.2979	-0.0617	-0.0021
189	SLE FR 5	0.35	-14.55	94.16	0.2937	-0.0627	-0.0021
189	SLE FR 6	0.37	-15.09	97.33	0.3062	-0.0635	-0.0021
189	SLE QP 1	0.34	-13.79	89	0.28	-0.0594	-0.002
189	SLE QP 2	0.36	-14.57	93.99	0.2957	-0.0619	-0.0021
189	SLD 1	-0.92	-10.12	71.38	0.1497	0.1214	-0.0001
189	SLD 2	-0.92	-10.12	71.38	0.1497	0.1214	-0.0001
189	SLD 3	-0.68	-14.46	86.41	0.3056	0.1347	-0.0005
189	SLD 4	-0.68	-14.46	86.41	0.3056	0.1347	-0.0005
189	SLD 5	-0.4	-6.66	64.41	0.0155	-0.0271	-0.0008
189	SLD 6	-0.4	-6.66	64.41	0.0155	-0.0271	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
189	SLD 7	0.42	-21.11	114.52	0.5352	0.0173	-0.0023
189	SLD 8	0.42	-21.11	114.52	0.5352	0.0173	-0.0023
189	SLD 9	0.3	-8.02	73.47	0.0563	-0.141	-0.0019
189	SLD 10	0.3	-8.02	73.47	0.0563	-0.141	-0.0019
189	SLD 11	1.11	-22.48	123.58	0.576	-0.0966	-0.0033
189	SLD 12	1.11	-22.48	123.58	0.576	-0.0966	-0.0033
189	SLD 13	1.39	-14.68	101.58	0.2859	-0.2584	-0.0036
189	SLD 14	1.39	-14.68	101.58	0.2859	-0.2584	-0.0036
189	SLD 15	1.63	-19.01	116.61	0.4418	-0.2451	-0.004
189	SLD 16	1.63	-19.01	116.61	0.4418	-0.2451	-0.004
189	SLV 1	-2.57	-4.3	41.83	-0.0422	0.3569	0.0027
189	SLV 2	-2.57	-4.3	41.83	-0.0422	0.3569	0.0027
189	SLV 3	-2.01	-14.31	76.69	0.3175	0.3877	0.0017
189	SLV 4	-2.01	-14.31	76.69	0.3175	0.3877	0.0017
189	SLV 5	-1.37	3.71	25.47	-0.3511	0.0171	0.0009
189	SLV 6	-1.37	3.71	25.47	-0.3511	0.0171	0.0009
189	SLV 7	0.5	-29.69	141.67	0.8478	0.1196	-0.0025
189	SLV 8	0.5	-29.69	141.67	0.8478	0.1196	-0.0025
189	SLV 9	0.21	0.55	46.31	-0.2563	-0.2433	-0.0016
189	SLV 10	0.21	0.55	46.31	-0.2563	-0.2433	-0.0016
189	SLV 11	2.08	-32.84	162.52	0.9426	-0.1409	-0.005
189	SLV 12	2.08	-32.84	162.52	0.9426	-0.1409	-0.005
189	SLV 13	2.72	-14.82	111.3	0.274	-0.5114	-0.0058
189	SLV 14	2.72	-14.82	111.3	0.274	-0.5114	-0.0058
189	SLV 15	3.28	-24.84	146.16	0.6336	-0.4806	-0.0068
189	SLV 16	3.28	-24.84	146.16	0.6336	-0.4806	-0.0068
190	SLU 1	-8.58	0	23.06	0.0082	-0.0662	0.0024
190	SLU 2	-8.67	0	23.3	0.0087	-0.0668	0.0026
190	SLU 3	-8.82	0	23.72	0.008	-0.0681	0.0024
190	SLU 4	-8.88	0	23.87	0.0083	-0.0685	0.0025
190	SLU 5	-8.77	0	23.58	0.0084	-0.0678	0.0025
190	SLU 6	-8.92	0	24	0.0077	-0.0691	0.0023
190	SLU 7	-8.98	0	24.14	0.008	-0.0695	0.0024
190	SLU 8	-8.78	0	23.61	0.0075	-0.0681	0.0022
190	SLU 9	-8.83	0	23.75	0.0078	-0.0685	0.0023
190	SLU 10	-10.4	0	27.93	0.0103	-0.0797	0.003
190	SLU 11	-10.55	0	28.35	0.0096	-0.081	0.0028
190	SLU 12	-10.61	0	28.49	0.0099	-0.0814	0.0029
190	SLU 13	-10.5	0	28.2	0.0099	-0.0806	0.0029
190	SLU 14	-10.65	0	28.63	0.0092	-0.0819	0.0027
190	SLU 15	-10.7	0	28.77	0.0095	-0.0823	0.0028
190	SLU 16	-10.5	0	28.24	0.009	-0.0809	0.0027
190	SLU 17	-10.56	0	28.38	0.0094	-0.0813	0.0028
190	SLU 18	-11.05	0	29.67	0.0104	-0.0845	0.0031
190	SLU 19	-11.1	0	29.82	0.0107	-0.0849	0.0032
190	SLU 20	-11.15	0	29.95	0.0101	-0.0855	0.003
190	SLU 21	-11.2	0	30.09	0.0104	-0.0859	0.0031
190	SLU 22	-9.97	0	26.81	0.0091	-0.077	0.0027
190	SLU 23	-10.07	0	27.05	0.0096	-0.0776	0.0029
190	SLU 24	-10.22	0	27.48	0.0089	-0.0789	0.0026
190	SLU 25	-10.27	0	27.62	0.0092	-0.0793	0.0027
190	SLU 26	-10.17	0	27.33	0.0093	-0.0786	0.0027
190	SLU 27	-10.32	0	27.75	0.0086	-0.0799	0.0025
190	SLU 28	-10.37	0	27.89	0.0089	-0.0803	0.0026
190	SLU 29	-10.17	0	27.36	0.0084	-0.0789	0.0025
190	SLU 30	-10.23	0	27.51	0.0087	-0.0793	0.0026
190	SLU 31	-11.8	0	31.68	0.0112	-0.0905	0.0033
190	SLU 32	-11.95	0	32.1	0.0105	-0.0918	0.0031
190	SLU 33	-12	0	32.25	0.0108	-0.0922	0.0032
190	SLU 34	-11.89	0	31.95	0.0108	-0.0914	0.0032
190	SLU 35	-12.04	0.01	32.38	0.0101	-0.0927	0.003
190	SLU 36	-12.1	0	32.52	0.0104	-0.0931	0.0031
190	SLU 37	-11.9	0.01	31.99	0.0099	-0.0917	0.0029
190	SLU 38	-11.96	0.01	32.13	0.0103	-0.0922	0.003
190	SLU 39	-12.44	0	33.42	0.0113	-0.0953	0.0033
190	SLU 40	-12.5	0	33.57	0.0116	-0.0957	0.0034
190	SLU 41	-12.54	0	33.7	0.011	-0.0963	0.0032
190	SLU 42	-12.6	0	33.84	0.0113	-0.0967	0.0033
190	SLU 43	-10.67	0	28.7	0.0103	-0.0823	0.0031
190	SLU 44	-10.77	0	28.93	0.0109	-0.083	0.0032
190	SLU 45	-10.92	0	29.36	0.0102	-0.0843	0.003
190	SLU 46	-10.97	0	29.5	0.0105	-0.0847	0.0031
190	SLU 47	-10.87	0	29.21	0.0105	-0.084	0.0031
190	SLU 48	-11.02	0	29.63	0.0098	-0.0853	0.0029
190	SLU 49	-11.07	0	29.77	0.0101	-0.0857	0.003
190	SLU 50	-10.87	0	29.24	0.0096	-0.0843	0.0028
190	SLU 51	-10.93	0	29.39	0.01	-0.0847	0.0029
190	SLU 52	-12.49	0	33.56	0.0124	-0.0958	0.0037
190	SLU 53	-12.65	0	33.98	0.0117	-0.0971	0.0035
190	SLU 54	-12.7	0	34.13	0.0121	-0.0975	0.0036
190	SLU 55	-12.59	0	33.84	0.0121	-0.0968	0.0036
190	SLU 56	-12.74	0	34.26	0.0114	-0.0981	0.0034
190	SLU 57	-12.8	0	34.4	0.0117	-0.0985	0.0035
190	SLU 58	-12.6	0	33.87	0.0112	-0.0971	0.0033
190	SLU 59	-12.65	0	34.01	0.0115	-0.0975	0.0034
190	SLU 60	-13.14	0	35.31	0.0126	-0.1006	0.0037
190	SLU 61	-13.2	0	35.45	0.0129	-0.101	0.0038
190	SLU 62	-13.24	0	35.58	0.0122	-0.1016	0.0036
190	SLU 63	-13.3	0	35.72	0.0125	-0.102	0.0037



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
190	SLU 64	-12.07	0	32.45	0.0112	-0.0931	0.0033
190	SLU 65	-12.16	0	32.69	0.0118	-0.0938	0.0035
190	SLU 66	-12.31	0	33.11	0.0111	-0.0951	0.0033
190	SLU 67	-12.37	0	33.25	0.0114	-0.0955	0.0034
190	SLU 68	-12.26	0	32.96	0.0114	-0.0948	0.0034
190	SLU 69	-12.41	0	33.38	0.0107	-0.0961	0.0032
190	SLU 70	-12.47	0	33.53	0.011	-0.0965	0.0033
190	SLU 71	-12.27	0	32.99	0.0105	-0.0951	0.0031
190	SLU 72	-12.32	0	33.14	0.0108	-0.0955	0.0032
190	SLU 73	-13.89	0	37.31	0.0133	-0.1066	0.0039
190	SLU 74	-14.04	0	37.74	0.0126	-0.1079	0.0037
190	SLU 75	-14.1	0	37.88	0.0129	-0.1083	0.0038
190	SLU 76	-13.99	0	37.59	0.013	-0.1076	0.0038
190	SLU 77	-14.14	0	38.01	0.0123	-0.1089	0.0036
190	SLU 78	-14.2	0	38.15	0.0126	-0.1093	0.0037
190	SLU 79	-13.99	0	37.62	0.0121	-0.1079	0.0036
190	SLU 80	-14.05	0	37.76	0.0124	-0.1083	0.0037
190	SLU 81	-14.54	0	39.06	0.0135	-0.1114	0.004
190	SLU 82	-14.59	0	39.2	0.0138	-0.1118	0.0041
190	SLU 83	-14.64	0	39.33	0.0131	-0.1124	0.0039
190	SLU 84	-14.69	0	39.47	0.0134	-0.1128	0.004
190	SLE RA 1	-8.98	0	24.14	0.0084	-0.0693	0.0025
190	SLE RA 2	-9.04	0	24.29	0.0088	-0.0697	0.0026
190	SLE RA 3	-9.14	0	24.58	0.0083	-0.0706	0.0025
190	SLE RA 4	-9.18	0	24.67	0.0085	-0.0708	0.0025
190	SLE RA 5	-9.11	0	24.48	0.0086	-0.0704	0.0025
190	SLE RA 6	-9.21	0	24.76	0.0081	-0.0712	0.0024
190	SLE RA 7	-9.24	0	24.85	0.0083	-0.0715	0.0025
190	SLE RA 8	-9.11	0	24.5	0.008	-0.0706	0.0024
190	SLE RA 9	-9.15	0	24.6	0.0082	-0.0708	0.0024
190	SLE RA 10	-10.19	0	27.38	0.0098	-0.0783	0.0029
190	SLE RA 11	-10.29	0	27.66	0.0094	-0.0791	0.0028
190	SLE RA 12	-10.33	0	27.76	0.0096	-0.0794	0.0028
190	SLE RA 13	-10.26	0	27.56	0.0096	-0.0789	0.0028
190	SLE RA 14	-10.36	0	27.84	0.0091	-0.0798	0.0027
190	SLE RA 15	-10.39	0	27.94	0.0094	-0.08	0.0028
190	SLE RA 16	-10.26	0	27.58	0.009	-0.0791	0.0027
190	SLE RA 17	-10.3	0	27.68	0.0092	-0.0794	0.0027
190	SLE RA 18	-10.62	0	28.54	0.0099	-0.0815	0.0029
190	SLE RA 19	-10.66	0	28.64	0.0101	-0.0817	0.003
190	SLE RA 20	-10.69	0	28.72	0.0097	-0.0821	0.0029
190	SLE RA 21	-10.73	0	28.82	0.0099	-0.0824	0.0029
190	SLE FR 1	-8.98	0	24.14	0.0084	-0.0693	0.0025
190	SLE FR 2	-8.99	0	24.17	0.0085	-0.0693	0.0025
190	SLE FR 3	-9	0	24.21	0.0084	-0.0695	0.0025
190	SLE FR 4	-9.48	0	25.49	0.009	-0.073	0.0027
190	SLE FR 5	-9.5	0	25.53	0.0088	-0.0732	0.0026
190	SLE FR 6	-9.8	0	26.34	0.0092	-0.0754	0.0027
190	SLE QP 1	-8.98	0	24.14	0.0084	-0.0693	0.0025
190	SLE QP 2	-9.47	0	25.46	0.0089	-0.0729	0.0026
190	SLD 1	-5	0.24	13.1	-0.0084	-0.0112	-0.0037
190	SLD 2	-5	0.24	13.1	-0.0084	-0.0112	-0.0037
190	SLD 3	-6.3	0.3	16.5	-0.0041	-0.0214	-0.0023
190	SLD 4	-6.3	0.3	16.5	-0.0041	-0.0214	-0.0023
190	SLD 5	-6.16	-0.02	16.61	-0.0028	-0.039	-0.0014
190	SLD 6	-6.16	-0.02	16.61	-0.0028	-0.039	-0.0014
190	SLD 7	-10.49	0.18	27.91	0.0115	-0.0729	0.0033
190	SLD 8	-10.49	0.18	27.91	0.0115	-0.0729	0.0033
190	SLD 9	-8.45	-0.18	23	0.0063	-0.073	0.002
190	SLD 10	-8.45	-0.18	23	0.0063	-0.073	0.002
190	SLD 11	-12.79	0.02	34.31	0.0206	-0.1068	0.0067
190	SLD 12	-12.79	0.02	34.31	0.0206	-0.1068	0.0067
190	SLD 13	-12.64	-0.3	34.42	0.0219	-0.1245	0.0076
190	SLD 14	-12.64	-0.3	34.42	0.0219	-0.1245	0.0076
190	SLD 15	-13.95	-0.24	37.81	0.0262	-0.1346	0.009
190	SLD 16	-13.95	-0.24	37.81	0.0262	-0.1346	0.009
190	SLV 1	0.78	0.58	-2.84	-0.0326	0.0683	-0.0126
190	SLV 2	0.78	0.58	-2.84	-0.0326	0.0683	-0.0126
190	SLV 3	-2.24	0.72	5.05	-0.0227	0.0446	-0.0094
190	SLV 4	-2.24	0.72	5.05	-0.0227	0.0446	-0.0094
190	SLV 5	-1.81	-0.05	5.01	-0.0185	0.0053	-0.0069
190	SLV 6	-1.81	-0.05	5.01	-0.0185	0.0053	-0.0069
190	SLV 7	-11.89	0.44	31.29	0.0144	-0.0735	0.004
190	SLV 8	-11.89	0.44	31.29	0.0144	-0.0735	0.004
190	SLV 9	-7.06	-0.44	19.62	0.0034	-0.0723	0.0013
190	SLV 10	-7.06	-0.44	19.62	0.0034	-0.0723	0.0013
190	SLV 11	-17.13	0.05	45.9	0.0363	-0.1511	0.0122
190	SLV 12	-17.13	0.05	45.9	0.0363	-0.1511	0.0122
190	SLV 13	-16.7	-0.73	45.87	0.0405	-0.1905	0.0146
190	SLV 14	-16.7	-0.73	45.87	0.0405	-0.1905	0.0146
190	SLV 15	-19.72	-0.58	53.75	0.0504	-0.2141	0.0179
190	SLV 16	-19.72	-0.58	53.75	0.0504	-0.2141	0.0179
191	SLU 1	4.76	-3.41	45.56	0.0797	-2.5822	-0.5077
191	SLU 2	4.78	-3.42	45.75	0.08	-2.5938	-0.5098
191	SLU 3	4.89	-3.49	46.84	0.0812	-2.6565	-0.5203
191	SLU 4	4.9	-3.5	46.95	0.0814	-2.6634	-0.5215
191	SLU 5	4.83	-3.46	46.29	0.0806	-2.6269	-0.5153
191	SLU 6	4.94	-3.53	47.37	0.0819	-2.6896	-0.5257
191	SLU 7	4.95	-3.53	47.49	0.082	-2.6965	-0.527



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
191	SLU 8	4.86	-3.48	46.63	0.081	-2.6485	-0.5186
191	SLU 9	4.87	-3.49	46.74	0.0812	-2.6554	-0.5199
191	SLU 10	5.79	-4.24	55.48	0.1016	-3.1517	-0.6325
191	SLU 11	5.9	-4.31	56.56	0.1029	-3.2144	-0.6429
191	SLU 12	5.91	-4.32	56.68	0.1031	-3.2214	-0.6442
191	SLU 13	5.84	-4.28	56.01	0.1023	-3.1848	-0.6379
191	SLU 14	5.95	-4.35	57.1	0.1035	-3.2475	-0.6484
191	SLU 15	5.97	-4.36	57.21	0.1037	-3.2545	-0.6496
191	SLU 16	5.88	-4.3	56.35	0.1026	-3.2064	-0.6413
191	SLU 17	5.89	-4.31	56.47	0.1028	-3.2133	-0.6425
191	SLU 18	6.21	-4.58	59.45	0.1106	-3.3793	-0.683
191	SLU 19	6.22	-4.59	59.57	0.1108	-3.3862	-0.6842
191	SLU 20	6.26	-4.62	59.99	0.1113	-3.4124	-0.6884
191	SLU 21	6.27	-4.63	60.1	0.1115	-3.4193	-0.6897
191	SLU 22	5.51	-3.88	52.64	0.0894	-2.9771	-0.5791
191	SLU 23	5.53	-3.9	52.83	0.0897	-2.9886	-0.5812
191	SLU 24	5.64	-3.97	53.92	0.0909	-3.0513	-0.5917
191	SLU 25	5.65	-3.98	54.04	0.0911	-3.0583	-0.5929
191	SLU 26	5.58	-3.93	53.37	0.0903	-3.0218	-0.5866
191	SLU 27	5.69	-4	54.45	0.0916	-3.0845	-0.5971
191	SLU 28	5.7	-4.01	54.57	0.0917	-3.0914	-0.5984
191	SLU 29	5.61	-3.96	53.71	0.0907	-3.0433	-0.59
191	SLU 30	5.62	-3.96	53.83	0.0908	-3.0503	-0.5913
191	SLU 31	6.54	-4.72	62.56	0.1113	-3.5466	-0.7039
191	SLU 32	6.65	-4.79	63.64	0.1126	-3.6093	-0.7143
191	SLU 33	6.67	-4.8	63.76	0.1128	-3.6162	-0.7156
191	SLU 34	6.59	-4.76	63.09	0.112	-3.5797	-0.7093
191	SLU 35	6.71	-4.83	64.18	0.1132	-3.6424	-0.7198
191	SLU 36	6.72	-4.83	64.29	0.1134	-3.6493	-0.721
191	SLU 37	6.63	-4.78	63.44	0.1123	-3.6013	-0.7127
191	SLU 38	6.64	-4.79	63.55	0.1125	-3.6082	-0.7139
191	SLU 39	6.96	-5.06	66.53	0.1203	-3.7741	-0.7544
191	SLU 40	6.97	-5.07	66.65	0.1205	-3.7811	-0.7556
191	SLU 41	7.01	-5.09	67.07	0.121	-3.8073	-0.7598
191	SLU 42	7.02	-5.1	67.18	0.1212	-3.8142	-0.761
191	SLU 43	5.93	-4.26	56.8	0.1002	-3.2215	-0.6356
191	SLU 44	5.95	-4.28	56.99	0.1006	-3.2331	-0.6377
191	SLU 45	6.06	-4.35	58.08	0.1018	-3.2958	-0.6481
191	SLU 46	6.07	-4.36	58.19	0.102	-3.3027	-0.6494
191	SLU 47	6	-4.31	57.53	0.1012	-3.2662	-0.6431
191	SLU 48	6.11	-4.38	58.61	0.1024	-3.3289	-0.6536
191	SLU 49	6.12	-4.39	58.73	0.1026	-3.3358	-0.6548
191	SLU 50	6.03	-4.34	57.87	0.1015	-3.2878	-0.6465
191	SLU 51	6.04	-4.34	57.98	0.1017	-3.2947	-0.6477
191	SLU 52	6.96	-5.1	66.72	0.1222	-3.791	-0.7603
191	SLU 53	7.07	-5.17	67.8	0.1235	-3.8537	-0.7708
191	SLU 54	7.08	-5.18	67.92	0.1236	-3.8607	-0.772
191	SLU 55	7.01	-5.14	67.25	0.1229	-3.8241	-0.7658
191	SLU 56	7.12	-5.21	68.34	0.1241	-3.8868	-0.7762
191	SLU 57	7.14	-5.21	68.45	0.1243	-3.8938	-0.7775
191	SLU 58	7.04	-5.16	67.59	0.1232	-3.8457	-0.7691
191	SLU 59	7.06	-5.17	67.71	0.1234	-3.8526	-0.7704
191	SLU 60	7.38	-5.44	70.69	0.1312	-4.0186	-0.8108
191	SLU 61	7.39	-5.45	70.81	0.1314	-4.0255	-0.8121
191	SLU 62	7.43	-5.47	71.22	0.1319	-4.0517	-0.8163
191	SLU 63	7.44	-5.48	71.34	0.132	-4.0586	-0.8175
191	SLU 64	6.68	-4.74	63.88	0.1099	-3.6164	-0.707
191	SLU 65	6.7	-4.76	64.07	0.1102	-3.6279	-0.709
191	SLU 66	6.81	-4.83	65.16	0.1115	-3.6906	-0.7195
191	SLU 67	6.82	-4.83	65.28	0.1117	-3.6976	-0.7208
191	SLU 68	6.75	-4.79	64.61	0.1109	-3.6611	-0.7145
191	SLU 69	6.86	-4.86	65.69	0.1121	-3.7238	-0.7225
191	SLU 70	6.87	-4.87	65.81	0.1123	-3.7307	-0.7262
191	SLU 71	6.78	-4.81	64.95	0.1112	-3.6826	-0.7179
191	SLU 72	6.79	-4.82	65.07	0.1114	-3.6896	-0.7191
191	SLU 73	7.71	-5.58	73.8	0.1319	-4.1859	-0.8317
191	SLU 74	7.82	-5.65	74.88	0.1332	-4.2486	-0.8422
191	SLU 75	7.84	-5.66	75	0.1333	-4.2555	-0.8434
191	SLU 76	7.76	-5.61	74.33	0.1326	-4.219	-0.8371
191	SLU 77	7.87	-5.68	75.42	0.1338	-4.2817	-0.8476
191	SLU 78	7.89	-5.69	75.53	0.134	-4.2886	-0.8489
191	SLU 79	7.8	-5.64	74.67	0.1329	-4.2406	-0.8405
191	SLU 80	7.81	-5.64	74.79	0.1331	-4.2475	-0.8418
191	SLU 81	8.13	-5.92	77.77	0.1409	-4.4134	-0.8822
191	SLU 82	8.14	-5.92	77.89	0.1411	-4.4204	-0.8834
191	SLU 83	8.18	-5.95	78.31	0.1416	-4.4466	-0.8876
191	SLU 84	8.19	-5.96	78.42	0.1417	-4.4535	-0.8889
191	SLE RA 1	4.97	-3.54	47.58	0.0824	-2.6951	-0.5281
191	SLE RA 2	4.98	-3.55	47.71	0.0826	-2.7028	-0.5295
191	SLE RA 3	5.06	-3.6	48.44	0.0835	-2.7446	-0.5365
191	SLE RA 4	5.07	-3.6	48.51	0.0836	-2.7492	-0.5373
191	SLE RA 5	5.02	-3.58	48.07	0.0831	-2.7248	-0.5331
191	SLE RA 6	5.09	-3.62	48.79	0.0839	-2.7666	-0.5401
191	SLE RA 7	5.1	-3.63	48.87	0.084	-2.7713	-0.5409
191	SLE RA 8	5.04	-3.59	48.3	0.0833	-2.7392	-0.5354
191	SLE RA 9	5.05	-3.6	48.37	0.0834	-2.7438	-0.5362
191	SLE RA 10	5.66	-4.1	54.19	0.0971	-3.0747	-0.6113
191	SLE RA 11	5.74	-4.15	54.92	0.0979	-3.1165	-0.6183
191	SLE RA 12	5.74	-4.15	54.99	0.098	-3.1211	-0.6191



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
191	SLE RA 13	5.7	-4.12	54.55	0.0975	-3.0968	-0.6149
191	SLE RA 14	5.77	-4.17	55.27	0.0983	-3.1386	-0.6219
191	SLE RA 15	5.78	-4.18	55.35	0.0985	-3.1432	-0.6227
191	SLE RA 16	5.72	-4.14	54.78	0.0978	-3.1112	-0.6172
191	SLE RA 17	5.72	-4.14	54.86	0.0979	-3.1158	-0.618
191	SLE RA 18	5.94	-4.33	56.84	0.1031	-3.2264	-0.645
191	SLE RA 19	5.95	-4.33	56.92	0.1032	-3.231	-0.6458
191	SLE RA 20	5.97	-4.35	57.2	0.1035	-3.2485	-0.6486
191	SLE RA 21	5.98	-4.36	57.28	0.1036	-3.2531	-0.6494
191	SLE FR 1	4.97	-3.54	47.58	0.0824	-2.6951	-0.5281
191	SLE FR 2	4.97	-3.54	47.61	0.0825	-2.6966	-0.5284
191	SLE FR 3	4.98	-3.55	47.73	0.0826	-2.7039	-0.5296
191	SLE FR 4	5.26	-3.78	50.39	0.0887	-2.856	-0.5635
191	SLE FR 5	5.28	-3.79	50.5	0.0888	-2.8633	-0.5646
191	SLE FR 6	5.46	-3.93	52.21	0.0928	-2.9607	-0.5865
191	SLE QP 1	4.97	-3.54	47.58	0.0824	-2.6951	-0.5281
191	SLE QP 2	5.26	-3.78	50.36	0.0886	-2.8545	-0.5632
191	SLD 1	4.29	-2.77	43.16	0.0536	-2.1908	-0.4199
191	SLD 2	4.29	-2.77	43.16	0.0536	-2.1908	-0.4199
191	SLD 3	4.81	-3.63	48.15	0.093	-2.4971	-0.5495
191	SLD 4	4.81	-3.63	48.15	0.093	-2.4971	-0.5495
191	SLD 5	4.19	-2.17	40.64	0.0184	-2.1909	-0.3236
191	SLD 6	4.19	-2.17	40.64	0.0184	-2.1909	-0.3236
191	SLD 7	5.91	-5.04	57.26	0.1496	-3.2117	-0.7557
191	SLD 8	5.91	-5.04	57.26	0.1496	-3.2117	-0.7557
191	SLD 9	4.61	-2.51	43.46	0.0276	-2.4972	-0.3707
191	SLD 10	4.61	-2.51	43.46	0.0276	-2.4972	-0.3707
191	SLD 11	6.34	-5.39	60.09	0.1588	-3.518	-0.8028
191	SLD 12	6.34	-5.39	60.09	0.1588	-3.518	-0.8028
191	SLD 13	5.71	-3.92	52.57	0.0843	-3.2119	-0.5768
191	SLD 14	5.71	-3.92	52.57	0.0843	-3.2119	-0.5768
191	SLD 15	6.23	-4.78	57.56	0.1236	-3.5181	-0.7065
191	SLD 16	6.23	-4.78	57.56	0.1236	-3.5181	-0.7065
191	SLV 1	3.02	-1.44	33.55	0.0073	-1.3273	-0.232
191	SLV 2	3.02	-1.44	33.55	0.0073	-1.3273	-0.232
191	SLV 3	4.21	-3.45	45.09	0.0991	-2.0364	-0.5334
191	SLV 4	4.21	-3.45	45.09	0.0991	-2.0364	-0.5334
191	SLV 5	2.78	-0.04	27.81	-0.075	-1.3208	-0.0067
191	SLV 6	2.78	-0.04	27.81	-0.075	-1.3208	-0.0067
191	SLV 7	6.76	-6.72	66.29	0.231	-3.6845	-1.0113
191	SLV 8	6.76	-6.72	66.29	0.231	-3.6845	-1.0113
191	SLV 9	3.76	-0.84	34.44	-0.0537	-2.0244	-0.115
191	SLV 10	3.76	-0.84	34.44	-0.0537	-2.0244	-0.115
191	SLV 11	7.75	-7.52	72.91	0.2523	-4.3881	-1.1196
191	SLV 12	7.75	-7.52	72.91	0.2523	-4.3881	-1.1196
191	SLV 13	6.31	-4.11	55.63	0.0782	-3.6725	-0.593
191	SLV 14	6.31	-4.11	55.63	0.0782	-3.6725	-0.593
191	SLV 15	7.51	-6.11	67.17	0.17	-4.3816	-0.8944
191	SLV 16	7.51	-6.11	67.17	0.17	-4.3816	-0.8944
193	SLU 1	-5.58	-0.02	32.96	0.0055	-0.0867	0.0011
193	SLU 2	-5.6	-0.02	33.13	0.0055	-0.0875	0.0011
193	SLU 3	-5.76	-0.02	34.02	0.0057	-0.0909	0.0011
193	SLU 4	-5.78	-0.02	34.12	0.0057	-0.0913	0.0011
193	SLU 5	-5.69	-0.02	33.64	0.0056	-0.0902	0.0011
193	SLU 6	-5.85	-0.02	34.53	0.0057	-0.0935	0.0011
193	SLU 7	-5.87	-0.02	34.63	0.0057	-0.094	0.0011
193	SLU 8	-5.75	-0.02	33.97	0.0057	-0.0921	0.0011
193	SLU 9	-5.77	-0.02	34.08	0.0057	-0.0925	0.0011
193	SLU 10	-6.76	-0.03	39.91	0.007	-0.1044	0.0014
193	SLU 11	-6.92	-0.03	40.8	0.0072	-0.1078	0.0014
193	SLU 12	-6.93	-0.03	40.9	0.0072	-0.1082	0.0014
193	SLU 13	-6.85	-0.03	40.42	0.0071	-0.1071	0.0014
193	SLU 14	-7.01	-0.03	41.31	0.0073	-0.1104	0.0014
193	SLU 15	-7.02	-0.03	41.41	0.0072	-0.1109	0.0014
193	SLU 16	-6.91	-0.03	40.75	0.0072	-0.109	0.0014
193	SLU 17	-6.93	-0.03	40.85	0.0072	-0.1094	0.0014
193	SLU 18	-7.23	-0.03	42.65	0.0077	-0.1109	0.0015
193	SLU 19	-7.25	-0.03	42.75	0.0077	-0.1114	0.0015
193	SLU 20	-7.32	-0.03	43.15	0.0078	-0.1135	0.0015
193	SLU 21	-7.34	-0.03	43.25	0.0078	-0.114	0.0015
193	SLU 22	-6.47	-0.03	38.21	0.0063	-0.1007	0.0012
193	SLU 23	-6.49	-0.03	38.38	0.0063	-0.1015	0.0012
193	SLU 24	-6.65	-0.03	39.27	0.0065	-0.1049	0.0013
193	SLU 25	-6.67	-0.03	39.37	0.0064	-0.1053	0.0013
193	SLU 26	-6.58	-0.03	38.88	0.0064	-0.1041	0.0012
193	SLU 27	-6.74	-0.03	39.78	0.0065	-0.1075	0.0013
193	SLU 28	-6.76	-0.03	39.88	0.0065	-0.108	0.0013
193	SLU 29	-6.64	-0.03	39.22	0.0065	-0.106	0.0013
193	SLU 30	-6.66	-0.03	39.32	0.0064	-0.1065	0.0013
193	SLU 31	-7.65	-0.03	45.16	0.0078	-0.1184	0.0015
193	SLU 32	-7.81	-0.03	46.05	0.008	-0.1218	0.0016
193	SLU 33	-7.82	-0.03	46.15	0.008	-0.1222	0.0016
193	SLU 34	-7.74	-0.03	45.66	0.0079	-0.121	0.0015
193	SLU 35	-7.9	-0.03	46.56	0.0081	-0.1244	0.0016
193	SLU 36	-7.91	-0.03	46.66	0.008	-0.1249	0.0016
193	SLU 37	-7.8	-0.03	46	0.008	-0.1229	0.0016
193	SLU 38	-7.82	-0.03	46.1	0.008	-0.1234	0.0016
193	SLU 39	-8.12	-0.04	47.89	0.0085	-0.1249	0.0017
193	SLU 40	-8.14	-0.04	48	0.0085	-0.1253	0.0017





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
193	SLU 41	-8.21	-0.04	48.4	0.0086	-0.1275	0.0017
193	SLU 42	-8.23	-0.04	48.5	0.0086	-0.128	0.0017
193	SLU 43	-6.94	-0.03	41.05	0.0069	-0.108	0.0013
193	SLU 44	-6.97	-0.03	41.22	0.0069	-0.1087	0.0013
193	SLU 45	-7.13	-0.03	42.11	0.007	-0.1121	0.0014
193	SLU 46	-7.14	-0.03	42.21	0.007	-0.1126	0.0014
193	SLU 47	-7.06	-0.03	41.73	0.007	-0.1114	0.0013
193	SLU 48	-7.21	-0.03	42.62	0.0071	-0.1148	0.0014
193	SLU 49	-7.23	-0.03	42.72	0.0071	-0.1152	0.0014
193	SLU 50	-7.12	-0.03	42.06	0.007	-0.1133	0.0014
193	SLU 51	-7.14	-0.03	42.16	0.007	-0.1137	0.0014
193	SLU 52	-8.13	-0.03	48	0.0084	-0.1256	0.0016
193	SLU 53	-8.28	-0.03	48.89	0.0086	-0.129	0.0017
193	SLU 54	-8.3	-0.03	48.99	0.0086	-0.1295	0.0017
193	SLU 55	-8.22	-0.03	48.51	0.0085	-0.1283	0.0016
193	SLU 56	-8.37	-0.04	49.4	0.0086	-0.1317	0.0017
193	SLU 57	-8.39	-0.04	49.5	0.0086	-0.1321	0.0017
193	SLU 58	-8.28	-0.04	48.84	0.0086	-0.1302	0.0017
193	SLU 59	-8.3	-0.03	48.94	0.0086	-0.1306	0.0017
193	SLU 60	-8.6	-0.04	50.74	0.0091	-0.1321	0.0018
193	SLU 61	-8.61	-0.04	50.84	0.0091	-0.1326	0.0018
193	SLU 62	-8.68	-0.04	51.24	0.0092	-0.1348	0.0018
193	SLU 63	-8.7	-0.04	51.34	0.0091	-0.1352	0.0018
193	SLU 64	-7.83	-0.03	46.3	0.0077	-0.122	0.0015
193	SLU 65	-7.86	-0.03	46.47	0.0077	-0.1227	0.0015
193	SLU 66	-8.02	-0.03	47.36	0.0078	-0.1261	0.0015
193	SLU 67	-8.03	-0.03	47.46	0.0078	-0.1266	0.0015
193	SLU 68	-7.95	-0.03	46.97	0.0078	-0.1254	0.0015
193	SLU 69	-8.11	-0.03	47.86	0.0079	-0.1288	0.0015
193	SLU 70	-8.12	-0.03	47.97	0.0079	-0.1292	0.0015
193	SLU 71	-8.01	-0.03	47.31	0.0078	-0.1273	0.0015
193	SLU 72	-8.03	-0.03	47.41	0.0078	-0.1277	0.0015
193	SLU 73	-9.02	-0.04	53.25	0.0092	-0.1396	0.0018
193	SLU 74	-9.17	-0.04	54.14	0.0094	-0.143	0.0018
193	SLU 75	-9.19	-0.04	54.24	0.0094	-0.1435	0.0018
193	SLU 76	-9.11	-0.04	53.75	0.0093	-0.1423	0.0018
193	SLU 77	-9.26	-0.04	54.64	0.0094	-0.1457	0.0018
193	SLU 78	-9.28	-0.04	54.75	0.0094	-0.1461	0.0018
193	SLU 79	-9.17	-0.04	54.09	0.0094	-0.1442	0.0018
193	SLU 80	-9.19	-0.04	54.19	0.0094	-0.1446	0.0018
193	SLU 81	-9.49	-0.04	55.98	0.0099	-0.1461	0.0019
193	SLU 82	-9.5	-0.04	56.09	0.0099	-0.1466	0.0019
193	SLU 83	-9.58	-0.04	56.49	0.0099	-0.1488	0.0019
193	SLU 84	-9.59	-0.04	56.59	0.0099	-0.1492	0.0019
193	SLE RA 1	-5.83	-0.02	34.46	0.0057	-0.0907	0.0011
193	SLE RA 2	-5.85	-0.02	34.57	0.0057	-0.0912	0.0011
193	SLE RA 3	-5.95	-0.02	35.17	0.0058	-0.0935	0.0011
193	SLE RA 4	-5.96	-0.02	35.24	0.0058	-0.0938	0.0011
193	SLE RA 5	-5.91	-0.02	34.91	0.0058	-0.093	0.0011
193	SLE RA 6	-6.01	-0.02	35.51	0.0059	-0.0953	0.0011
193	SLE RA 7	-6.02	-0.02	35.57	0.0059	-0.0956	0.0011
193	SLE RA 8	-5.95	-0.02	35.14	0.0058	-0.0943	0.0011
193	SLE RA 9	-5.96	-0.02	35.2	0.0058	-0.0946	0.0011
193	SLE RA 10	-6.62	-0.03	39.09	0.0068	-0.1025	0.0013
193	SLE RA 11	-6.72	-0.03	39.69	0.0069	-0.1048	0.0013
193	SLE RA 12	-6.73	-0.03	39.76	0.0069	-0.1051	0.0013
193	SLE RA 13	-6.68	-0.03	39.43	0.0068	-0.1043	0.0013
193	SLE RA 14	-6.78	-0.03	40.03	0.0069	-0.1065	0.0013
193	SLE RA 15	-6.79	-0.03	40.09	0.0069	-0.1068	0.0013
193	SLE RA 16	-6.72	-0.03	39.66	0.0069	-0.1055	0.0013
193	SLE RA 17	-6.73	-0.03	39.72	0.0069	-0.1059	0.0013
193	SLE RA 18	-6.93	-0.03	40.92	0.0072	-0.1068	0.0014
193	SLE RA 19	-6.94	-0.03	40.99	0.0072	-0.1071	0.0014
193	SLE RA 20	-6.99	-0.03	41.26	0.0072	-0.1086	0.0014
193	SLE RA 21	-7	-0.03	41.32	0.0072	-0.1089	0.0014
193	SLE FR 1	-5.83	-0.02	34.46	0.0057	-0.0907	0.0011
193	SLE FR 2	-5.83	-0.02	34.48	0.0057	-0.0908	0.0011
193	SLE FR 3	-5.85	-0.02	34.6	0.0058	-0.0914	0.0011
193	SLE FR 4	-6.16	-0.02	36.42	0.0062	-0.0957	0.0012
193	SLE FR 5	-6.18	-0.03	36.53	0.0062	-0.0963	0.0012
193	SLE FR 6	-6.38	-0.03	37.69	0.0065	-0.0988	0.0013
193	SLE QP 1	-5.83	-0.02	34.46	0.0057	-0.0907	0.0011
193	SLE QP 2	-6.16	-0.03	36.4	0.0062	-0.0956	0.0012
193	SLD 1	-3.25	0.24	20.92	-0.0132	0.0911	-0.0053
193	SLD 2	-3.25	0.24	20.92	-0.0132	0.0911	-0.0053
193	SLD 3	-3.8	0.22	24	-0.0097	0.1042	-0.0045
193	SLD 4	-3.8	0.22	24	-0.0097	0.1042	-0.0045
193	SLD 5	-4.46	0.1	27.08	-0.0051	-0.0594	-0.002
193	SLD 6	-4.46	0.1	27.08	-0.0051	-0.0594	-0.002
193	SLD 7	-6.28	0.01	37.35	0.0069	-0.0158	0.0008
193	SLD 8	-6.28	0.01	37.35	0.0069	-0.0158	0.0008
193	SLD 9	-6.04	-0.06	35.45	0.0055	-0.1754	0.0016
193	SLD 10	-6.04	-0.06	35.45	0.0055	-0.1754	0.0016
193	SLD 11	-7.86	-0.15	45.71	0.0174	-0.1317	0.0044
193	SLD 12	-7.86	-0.15	45.71	0.0174	-0.1317	0.0044
193	SLD 13	-8.52	-0.27	48.8	0.022	-0.2954	0.0069
193	SLD 14	-8.52	-0.27	48.8	0.022	-0.2954	0.0069
193	SLD 15	-9.07	-0.29	51.88	0.0256	-0.2822	0.0077
193	SLD 16	-9.07	-0.29	51.88	0.0256	-0.2822	0.0077



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
193	SLV 1	0.5	0.63	0.93	-0.0409	0.3308	-0.0146
193	SLV 2	0.5	0.63	0.93	-0.0409	0.3308	-0.0146
193	SLV 3	-0.76	0.56	8.08	-0.0325	0.3614	-0.0126
193	SLV 4	-0.76	0.56	8.08	-0.0325	0.3614	-0.0126
193	SLV 5	-2.24	0.26	14.92	-0.0206	-0.0141	-0.0066
193	SLV 6	-2.24	0.26	14.92	-0.0206	-0.0141	-0.0066
193	SLV 7	-6.46	0.06	38.74	0.0073	0.0879	0.0001
193	SLV 8	-6.46	0.06	38.74	0.0073	0.0879	0.0001
193	SLV 9	-5.86	-0.11	34.06	0.0051	-0.2791	0.0023
193	SLV 10	-5.86	-0.11	34.06	0.0051	-0.2791	0.0023
193	SLV 11	-10.08	-0.31	57.88	0.033	-0.1771	0.009
193	SLV 12	-10.08	-0.31	57.88	0.033	-0.1771	0.009
193	SLV 13	-11.56	-0.61	64.72	0.0449	-0.5525	0.015
193	SLV 14	-11.56	-0.61	64.72	0.0449	-0.5525	0.015
193	SLV 15	-12.82	-0.68	71.87	0.0533	-0.5219	0.017
193	SLV 16	-12.82	-0.68	71.87	0.0533	-0.5219	0.017
194	SLU 1	8.88	-0.19	26.86	0.024	0.0808	-0.0068
194	SLU 2	8.96	-0.19	27.07	0.0244	0.0816	-0.0069
194	SLU 3	9.02	-0.19	27.29	0.0243	0.0816	-0.007
194	SLU 4	9.06	-0.19	27.42	0.0245	0.0821	-0.007
194	SLU 5	8.93	-0.19	27	0.0243	0.0809	-0.0069
194	SLU 6	8.99	-0.19	27.22	0.0242	0.0809	-0.0069
194	SLU 7	9.04	-0.19	27.34	0.0244	0.0814	-0.007
194	SLU 8	8.82	-0.19	26.72	0.0237	0.0794	-0.0068
194	SLU 9	8.87	-0.19	26.84	0.024	0.0799	-0.0069
194	SLU 10	10.97	-0.22	33.12	0.0293	0.1003	-0.0083
194	SLU 11	11.03	-0.23	33.34	0.0292	0.1003	-0.0083
194	SLU 12	11.07	-0.23	33.47	0.0294	0.1008	-0.0084
194	SLU 13	10.94	-0.23	33.05	0.0292	0.0996	-0.0083
194	SLU 14	11	-0.23	33.27	0.0291	0.0996	-0.0083
194	SLU 15	11.04	-0.23	33.4	0.0293	0.1001	-0.0084
194	SLU 16	10.83	-0.23	32.77	0.0286	0.0981	-0.0082
194	SLU 17	10.88	-0.23	32.89	0.0289	0.0985	-0.0083
194	SLU 18	11.75	-0.24	35.5	0.031	0.1075	-0.0088
194	SLU 19	11.79	-0.24	35.63	0.0312	0.108	-0.0089
194	SLU 20	11.72	-0.24	35.43	0.0308	0.1068	-0.0088
194	SLU 21	11.77	-0.24	35.56	0.0311	0.1073	-0.0089
194	SLU 22	10.43	-0.22	31.54	0.0277	0.0952	-0.0079
194	SLU 23	10.51	-0.22	31.76	0.0281	0.096	-0.008
194	SLU 24	10.57	-0.22	31.97	0.028	0.096	-0.008
194	SLU 25	10.61	-0.22	32.1	0.0282	0.0965	-0.0081
194	SLU 26	10.48	-0.22	31.68	0.028	0.0953	-0.008
194	SLU 27	10.54	-0.23	31.9	0.0279	0.0952	-0.008
194	SLU 28	10.58	-0.23	32.03	0.0281	0.0957	-0.0081
194	SLU 29	10.37	-0.22	31.4	0.0274	0.0937	-0.0079
194	SLU 30	10.42	-0.22	31.53	0.0277	0.0942	-0.008
194	SLU 31	12.51	-0.26	37.81	0.033	0.1147	-0.0094
194	SLU 32	12.57	-0.26	38.02	0.0329	0.1146	-0.0094
194	SLU 33	12.62	-0.26	38.15	0.0331	0.1151	-0.0095
194	SLU 34	12.48	-0.26	37.73	0.0329	0.1139	-0.0094
194	SLU 35	12.55	-0.26	37.95	0.0328	0.1139	-0.0094
194	SLU 36	12.59	-0.26	38.08	0.033	0.1144	-0.0095
194	SLU 37	12.38	-0.26	37.45	0.0323	0.1124	-0.0093
194	SLU 38	12.42	-0.26	37.58	0.0326	0.1129	-0.0094
194	SLU 39	13.3	-0.27	40.19	0.0347	0.1219	-0.0099
194	SLU 40	13.34	-0.27	40.31	0.0349	0.1223	-0.01
194	SLU 41	13.27	-0.27	40.12	0.0345	0.1211	-0.0099
194	SLU 42	13.31	-0.27	40.24	0.0348	0.1216	-0.01
194	SLU 43	11.01	-0.23	33.31	0.0299	0.1002	-0.0085
194	SLU 44	11.09	-0.23	33.53	0.0303	0.101	-0.0086
194	SLU 45	11.15	-0.24	33.74	0.0302	0.101	-0.0086
194	SLU 46	11.2	-0.24	33.87	0.0305	0.1014	-0.0087
194	SLU 47	11.06	-0.23	33.45	0.0302	0.1002	-0.0086
194	SLU 48	11.12	-0.24	33.67	0.0301	0.1002	-0.0086
194	SLU 49	11.17	-0.24	33.8	0.0303	0.1007	-0.0087
194	SLU 50	10.95	-0.24	33.17	0.0296	0.0987	-0.0085
194	SLU 51	11	-0.24	33.3	0.0299	0.0992	-0.0086
194	SLU 52	13.1	-0.27	39.58	0.0352	0.1197	-0.01
194	SLU 53	13.16	-0.27	39.79	0.0351	0.1196	-0.01
194	SLU 54	13.21	-0.27	39.92	0.0354	0.1201	-0.0101
194	SLU 55	13.07	-0.27	39.5	0.0351	0.1189	-0.01
194	SLU 56	13.13	-0.28	39.72	0.035	0.1189	-0.01
194	SLU 57	13.18	-0.28	39.85	0.0352	0.1194	-0.0101
194	SLU 58	12.96	-0.27	39.22	0.0345	0.1174	-0.0099
194	SLU 59	13.01	-0.27	39.35	0.0348	0.1179	-0.01
194	SLU 60	13.88	-0.29	41.96	0.0369	0.1269	-0.0105
194	SLU 61	13.93	-0.29	42.08	0.0372	0.1273	-0.0106
194	SLU 62	13.85	-0.29	41.88	0.0368	0.1261	-0.0105
194	SLU 63	13.9	-0.29	42.01	0.037	0.1266	-0.0106
194	SLU 64	12.56	-0.26	38	0.0336	0.1145	-0.0096
194	SLU 65	12.64	-0.26	38.21	0.034	0.1153	-0.0097
194	SLU 66	12.7	-0.27	38.43	0.0339	0.1153	-0.0097
194	SLU 67	12.75	-0.27	38.55	0.0342	0.1158	-0.0098
194	SLU 68	12.61	-0.27	38.14	0.0339	0.1146	-0.0097
194	SLU 69	12.67	-0.27	38.35	0.0338	0.1146	-0.0097
194	SLU 70	12.72	-0.27	38.48	0.034	0.1151	-0.0098
194	SLU 71	12.5	-0.27	37.85	0.0333	0.113	-0.0096
194	SLU 72	12.55	-0.27	37.98	0.0336	0.1135	-0.0096
194	SLU 73	14.65	-0.3	44.26	0.0389	0.134	-0.0111



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
194	SLU 74	14.71	-0.31	44.48	0.0388	0.134	-0.0111
194	SLU 75	14.75	-0.31	44.6	0.0391	0.1345	-0.0112
194	SLU 76	14.62	-0.3	44.19	0.0388	0.1333	-0.0111
194	SLU 77	14.68	-0.31	44.4	0.0387	0.1333	-0.0111
194	SLU 78	14.72	-0.31	44.53	0.0389	0.1337	-0.0112
194	SLU 79	14.51	-0.31	43.9	0.0382	0.1317	-0.011
194	SLU 80	14.56	-0.31	44.03	0.0385	0.1322	-0.011
194	SLU 81	15.43	-0.32	46.64	0.0406	0.1412	-0.0116
194	SLU 82	15.48	-0.32	46.77	0.0408	0.1417	-0.0117
194	SLU 83	15.4	-0.32	46.57	0.0405	0.1405	-0.0116
194	SLU 84	15.45	-0.32	46.7	0.0407	0.1409	-0.0116
194	SLE RA 1	9.32	-0.2	28.2	0.025	0.0849	-0.0071
194	SLE RA 2	9.37	-0.2	28.34	0.0253	0.0855	-0.0072
194	SLE RA 3	9.42	-0.2	28.49	0.0252	0.0855	-0.0072
194	SLE RA 4	9.45	-0.2	28.57	0.0254	0.0858	-0.0073
194	SLE RA 5	9.35	-0.2	28.29	0.0252	0.085	-0.0072
194	SLE RA 6	9.4	-0.2	28.44	0.0252	0.085	-0.0072
194	SLE RA 7	9.43	-0.2	28.52	0.0253	0.0853	-0.0073
194	SLE RA 8	9.28	-0.2	28.1	0.0249	0.084	-0.0071
194	SLE RA 9	9.31	-0.2	28.19	0.025	0.0843	-0.0072
194	SLE RA 10	10.71	-0.22	32.37	0.0286	0.0979	-0.0081
194	SLE RA 11	10.75	-0.22	32.52	0.0285	0.0979	-0.0082
194	SLE RA 12	10.78	-0.22	32.6	0.0287	0.0982	-0.0082
194	SLE RA 13	10.69	-0.22	32.33	0.0285	0.0974	-0.0081
194	SLE RA 14	10.73	-0.23	32.47	0.0284	0.0974	-0.0081
194	SLE RA 15	10.76	-0.23	32.56	0.0286	0.0977	-0.0082
194	SLE RA 16	10.62	-0.22	32.14	0.0281	0.0964	-0.0081
194	SLE RA 17	10.65	-0.22	32.22	0.0283	0.0967	-0.0081
194	SLE RA 18	11.24	-0.23	33.96	0.0297	0.1027	-0.0085
194	SLE RA 19	11.27	-0.23	34.05	0.0299	0.103	-0.0085
194	SLE RA 20	11.22	-0.23	33.91	0.0296	0.1022	-0.0085
194	SLE RA 21	11.25	-0.23	34	0.0298	0.1026	-0.0085
194	SLE FR 1	9.32	-0.2	28.2	0.025	0.0849	-0.0071
194	SLE FR 2	9.33	-0.2	28.23	0.0251	0.085	-0.0072
194	SLE FR 3	9.32	-0.2	28.18	0.025	0.0847	-0.0071
194	SLE FR 4	9.91	-0.21	29.96	0.0265	0.0904	-0.0076
194	SLE FR 5	9.89	-0.21	29.91	0.0264	0.0901	-0.0075
194	SLE FR 6	10.28	-0.21	31.08	0.0274	0.0938	-0.0078
194	SLE QP 1	9.32	-0.2	28.2	0.025	0.0849	-0.0071
194	SLE QP 2	9.9	-0.21	29.93	0.0264	0.0903	-0.0075
194	SLD 1	14.11	-0.52	42.91	0.0483	0.1631	-0.0149
194	SLD 2	14.11	-0.52	42.91	0.0483	0.1631	-0.0149
194	SLD 3	15.89	-0.58	48.11	0.055	0.1833	-0.0168
194	SLD 4	15.89	-0.58	48.11	0.055	0.1833	-0.0168
194	SLD 5	8.45	-0.22	25.94	0.0227	0.0815	-0.007
194	SLD 6	8.45	-0.22	25.94	0.0227	0.0815	-0.007
194	SLD 7	14.4	-0.4	43.26	0.0453	0.1488	-0.0131
194	SLD 8	14.4	-0.4	43.26	0.0453	0.1488	-0.0131
194	SLD 9	5.39	-0.01	16.59	0.0076	0.0317	-0.002
194	SLD 10	5.39	-0.01	16.59	0.0076	0.0317	-0.002
194	SLD 11	11.34	-0.19	33.91	0.0301	0.099	-0.0081
194	SLD 12	11.34	-0.19	33.91	0.0301	0.099	-0.0081
194	SLD 13	3.9	0.16	11.75	-0.0022	-0.0028	0.0017
194	SLD 14	3.9	0.16	11.75	-0.0022	-0.0028	0.0017
194	SLD 15	5.68	0.11	16.94	0.0046	0.0174	-0.0001
194	SLD 16	5.68	0.11	16.94	0.0046	0.0174	-0.0001
194	SLV 1	19.53	-0.98	59.62	0.0796	0.2569	-0.0256
194	SLV 2	19.53	-0.98	59.62	0.0796	0.2569	-0.0256
194	SLV 3	23.66	-1.11	71.64	0.0957	0.3035	-0.03
194	SLV 4	23.66	-1.11	71.64	0.0957	0.3035	-0.03
194	SLV 5	6.53	-0.24	20.6	0.018	0.0695	-0.0062
194	SLV 6	6.53	-0.24	20.6	0.018	0.0695	-0.0062
194	SLV 7	20.29	-0.67	60.67	0.0716	0.225	-0.021
194	SLV 8	20.29	-0.67	60.67	0.0716	0.225	-0.021
194	SLV 9	-0.49	0.26	-0.82	-0.0187	-0.0444	0.0059
194	SLV 10	-0.49	0.26	-0.82	-0.0187	-0.0444	0.0059
194	SLV 11	13.27	-0.17	39.25	0.0348	0.111	-0.0089
194	SLV 12	13.27	-0.17	39.25	0.0348	0.111	-0.0089
194	SLV 13	-3.86	0.69	-11.78	-0.0428	-0.1229	0.0149
194	SLV 14	-3.86	0.69	-11.78	-0.0428	-0.1229	0.0149
194	SLV 15	0.27	0.56	0.24	-0.0268	-0.0763	0.0105
194	SLV 16	0.27	0.56	0.24	-0.0268	-0.0763	0.0105
195	SLU 1	-0.56	-9.43	80.91	0.2956	0.2685	0.0619
195	SLU 2	-0.58	-9.67	81.98	0.3059	0.2679	0.0635
195	SLU 3	-0.54	-9.49	82.23	0.2954	0.2736	0.0623
195	SLU 4	-0.56	-9.63	82.87	0.3015	0.2732	0.0632
195	SLU 5	-0.56	-9.54	81.73	0.2996	0.2685	0.0626
195	SLU 6	-0.52	-9.37	81.98	0.2891	0.2742	0.0614
195	SLU 7	-0.53	-9.51	82.62	0.2952	0.2738	0.0624
195	SLU 8	-0.5	-9.18	80.41	0.283	0.2697	0.0602
195	SLU 9	-0.52	-9.32	81.05	0.2891	0.2693	0.0612
195	SLU 10	-0.7	-11.66	99.66	0.3676	0.3306	0.0765
195	SLU 11	-0.66	-11.48	99.91	0.3571	0.3363	0.0754
195	SLU 12	-0.67	-11.63	100.55	0.3633	0.3359	0.0763
195	SLU 13	-0.67	-11.54	99.41	0.3613	0.3312	0.0757
195	SLU 14	-0.63	-11.36	99.66	0.3508	0.3368	0.0745
195	SLU 15	-0.64	-11.51	100.3	0.357	0.3365	0.0755
195	SLU 16	-0.62	-11.18	98.09	0.3447	0.3324	0.0733
195	SLU 17	-0.63	-11.32	98.73	0.3509	0.332	0.0743



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
195	SLU 18	-0.72	-12.28	106.17	0.3838	0.3581	0.0806
195	SLU 19	-0.74	-12.42	106.82	0.39	0.3577	0.0815
195	SLU 20	-0.69	-12.15	105.92	0.3775	0.3586	0.0797
195	SLU 21	-0.71	-12.3	106.56	0.3837	0.3583	0.0807
195	SLU 22	-0.62	-10.79	94.2	0.3354	0.3194	0.0708
195	SLU 23	-0.65	-11.04	95.27	0.3457	0.3188	0.0724
195	SLU 24	-0.61	-10.86	95.52	0.3352	0.3244	0.0712
195	SLU 25	-0.62	-11	96.16	0.3413	0.324	0.0722
195	SLU 26	-0.62	-10.91	95.01	0.3393	0.3193	0.0716
195	SLU 27	-0.58	-10.73	95.26	0.3288	0.325	0.0704
195	SLU 28	-0.59	-10.88	95.9	0.335	0.3246	0.0714
195	SLU 29	-0.57	-10.55	93.69	0.3227	0.3205	0.0692
195	SLU 30	-0.58	-10.69	94.33	0.3289	0.3202	0.0702
195	SLU 31	-0.76	-13.03	112.95	0.4074	0.3814	0.0855
195	SLU 32	-0.72	-12.85	113.2	0.3969	0.3871	0.0843
195	SLU 33	-0.73	-13	113.84	0.4031	0.3867	0.0853
195	SLU 34	-0.73	-12.91	112.7	0.4011	0.382	0.0847
195	SLU 35	-0.69	-12.73	112.94	0.3906	0.3877	0.0835
195	SLU 36	-0.71	-12.87	113.58	0.3967	0.3873	0.0845
195	SLU 37	-0.68	-12.54	111.37	0.3845	0.3832	0.0823
195	SLU 38	-0.69	-12.69	112.02	0.3907	0.3828	0.0832
195	SLU 39	-0.78	-13.64	119.46	0.4236	0.4089	0.0895
195	SLU 40	-0.8	-13.79	120.1	0.4298	0.4085	0.0905
195	SLU 41	-0.76	-13.52	119.21	0.4173	0.4095	0.0887
195	SLU 42	-0.77	-13.67	119.85	0.4234	0.4091	0.0897
195	SLU 43	-0.7	-11.78	100.63	0.3707	0.3317	0.0773
195	SLU 44	-0.73	-12.03	101.7	0.3809	0.3311	0.0789
195	SLU 45	-0.69	-11.85	101.95	0.3704	0.3367	0.0777
195	SLU 46	-0.7	-11.99	102.59	0.3766	0.3364	0.0787
195	SLU 47	-0.7	-11.9	101.45	0.3746	0.3316	0.0781
195	SLU 48	-0.66	-11.72	101.7	0.3641	0.3373	0.0769
195	SLU 49	-0.68	-11.87	102.34	0.3703	0.3369	0.0779
195	SLU 50	-0.65	-11.54	100.13	0.358	0.3328	0.0757
195	SLU 51	-0.67	-11.68	100.77	0.3642	0.3325	0.0767
195	SLU 52	-0.84	-14.02	119.38	0.4427	0.3937	0.092
195	SLU 53	-0.8	-13.84	119.63	0.4322	0.3994	0.0908
195	SLU 54	-0.82	-13.99	120.27	0.4383	0.399	0.0918
195	SLU 55	-0.82	-13.9	119.13	0.4363	0.3943	0.0912
195	SLU 56	-0.78	-13.72	119.38	0.4258	0.4	0.09
195	SLU 57	-0.79	-13.87	120.02	0.432	0.3996	0.091
195	SLU 58	-0.76	-13.53	117.81	0.4197	0.3955	0.0888
195	SLU 59	-0.78	-13.68	118.45	0.4259	0.3951	0.0898
195	SLU 60	-0.87	-14.64	125.89	0.4588	0.4212	0.096
195	SLU 61	-0.88	-14.78	126.53	0.465	0.4208	0.097
195	SLU 62	-0.84	-14.51	125.64	0.4525	0.4218	0.0952
195	SLU 63	-0.85	-14.66	126.28	0.4587	0.4214	0.0962
195	SLU 64	-0.77	-13.15	113.92	0.4104	0.3825	0.0863
195	SLU 65	-0.79	-13.39	114.99	0.4207	0.3819	0.0879
195	SLU 66	-0.75	-13.22	115.23	0.4102	0.3876	0.0867
195	SLU 67	-0.77	-13.36	115.88	0.4164	0.3872	0.0877
195	SLU 68	-0.76	-13.27	114.73	0.4144	0.3825	0.0871
195	SLU 69	-0.72	-13.09	114.98	0.4039	0.3881	0.0859
195	SLU 70	-0.74	-13.24	115.62	0.41	0.3878	0.0869
195	SLU 71	-0.71	-12.91	113.41	0.3978	0.3837	0.0847
195	SLU 72	-0.73	-13.05	114.05	0.404	0.3833	0.0856
195	SLU 73	-0.91	-15.39	132.67	0.4824	0.4446	0.101
195	SLU 74	-0.87	-15.21	132.92	0.4719	0.4502	0.0998
195	SLU 75	-0.88	-15.36	133.56	0.4781	0.4499	0.1008
195	SLU 76	-0.88	-15.27	132.42	0.4761	0.4451	0.1002
195	SLU 77	-0.84	-15.09	132.66	0.4656	0.4508	0.099
195	SLU 78	-0.85	-15.23	133.3	0.4718	0.4504	0.0999
195	SLU 79	-0.83	-14.9	131.09	0.4595	0.4463	0.0978
195	SLU 80	-0.84	-15.05	131.74	0.4657	0.446	0.0987
195	SLU 81	-0.93	-16	139.18	0.4986	0.472	0.105
195	SLU 82	-0.94	-16.15	139.82	0.5048	0.4717	0.106
195	SLU 83	-0.9	-15.88	138.93	0.4923	0.4726	0.1042
195	SLU 84	-0.92	-16.03	139.57	0.4985	0.4722	0.1052
195	SLE RA 1	-0.58	-9.82	84.71	0.307	0.2831	0.0644
195	SLE RA 2	-0.59	-9.98	85.42	0.3138	0.2827	0.0655
195	SLE RA 3	-0.57	-9.86	85.59	0.3068	0.2864	0.0647
195	SLE RA 4	-0.58	-9.96	86.01	0.3109	0.2862	0.0653
195	SLE RA 5	-0.57	-9.9	85.25	0.3096	0.283	0.0649
195	SLE RA 6	-0.55	-9.78	85.42	0.3026	0.2868	0.0641
195	SLE RA 7	-0.56	-9.87	85.85	0.3067	0.2866	0.0648
195	SLE RA 8	-0.54	-9.65	84.37	0.2985	0.2838	0.0633
195	SLE RA 9	-0.55	-9.75	84.8	0.3027	0.2836	0.064
195	SLE RA 10	-0.67	-11.31	97.21	0.355	0.3244	0.0742
195	SLE RA 11	-0.64	-11.19	97.37	0.348	0.3282	0.0734
195	SLE RA 12	-0.65	-11.29	97.8	0.3521	0.328	0.0741
195	SLE RA 13	-0.65	-11.23	97.04	0.3508	0.3248	0.0737
195	SLE RA 14	-0.62	-11.11	97.21	0.3438	0.3286	0.0729
195	SLE RA 15	-0.63	-11.2	97.63	0.3479	0.3284	0.0735
195	SLE RA 16	-0.62	-10.98	96.16	0.3397	0.3256	0.0721
195	SLE RA 17	-0.63	-11.08	96.59	0.3438	0.3254	0.0727
195	SLE RA 18	-0.68	-11.72	101.55	0.3658	0.3427	0.0769
195	SLE RA 19	-0.69	-11.81	101.98	0.3699	0.3425	0.0775
195	SLE RA 20	-0.67	-11.64	101.38	0.3616	0.3431	0.0763
195	SLE RA 21	-0.68	-11.73	101.81	0.3657	0.3429	0.077
195	SLE FR 1	-0.58	-9.82	84.71	0.307	0.2831	0.0644



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
195	SLE FR 2	-0.58	-9.85	84.85	0.3083	0.283	0.0646
195	SLE FR 3	-0.57	-9.78	84.64	0.3053	0.2832	0.0642
195	SLE FR 4	-0.61	-10.42	89.9	0.326	0.3009	0.0684
195	SLE FR 5	-0.6	-10.35	89.69	0.3229	0.3011	0.068
195	SLE FR 6	-0.63	-10.77	93.13	0.3364	0.3129	0.0707
195	SLE QP 1	-0.58	-9.82	84.71	0.307	0.2831	0.0644
195	SLE QP 2	-0.61	-10.39	89.76	0.3246	0.301	0.0682
195	SLD 1	-1.53	-10.18	93.26	0.3039	0.5887	0.0677
195	SLD 2	-1.53	-10.18	93.26	0.3039	0.5887	0.0677
195	SLD 3	-1.88	-13.27	110.29	0.4291	0.6271	0.0881
195	SLD 4	-1.88	-13.27	110.29	0.4291	0.6271	0.0881
195	SLD 5	-0.35	-5.64	65	0.1285	0.3291	0.0371
195	SLD 6	-0.35	-5.64	65	0.1285	0.3291	0.0371
195	SLD 7	-1.53	-15.94	121.74	0.5458	0.457	0.1051
195	SLD 8	-1.53	-15.94	121.74	0.5458	0.457	0.1051
195	SLD 9	0.31	-4.83	57.79	0.1034	0.145	0.0313
195	SLD 10	0.31	-4.83	57.79	0.1034	0.145	0.0313
195	SLD 11	-0.87	-15.13	114.53	0.5207	0.2728	0.0992
195	SLD 12	-0.87	-15.13	114.53	0.5207	0.2728	0.0992
195	SLD 13	0.67	-7.5	69.24	0.2202	-0.0251	0.0483
195	SLD 14	0.67	-7.5	69.24	0.2202	-0.0251	0.0483
195	SLD 15	0.31	-10.59	86.26	0.3453	0.0132	0.0687
195	SLD 16	0.31	-10.59	86.26	0.3453	0.0132	0.0687
195	SLV 1	-2.72	-9.94	97.89	0.2775	0.9583	0.0672
195	SLV 2	-2.72	-9.94	97.89	0.2775	0.9583	0.0672
195	SLV 3	-3.54	-17.04	137.16	0.5648	1.0476	0.1141
195	SLV 4	-3.54	-17.04	137.16	0.5648	1.0476	0.1141
195	SLV 5	0	0.52	32.63	-0.1251	0.3628	-0.0032
195	SLV 6	0	0.52	32.63	-0.1251	0.3628	-0.0032
195	SLV 7	-2.73	-23.15	163.55	0.8323	0.6604	0.153
195	SLV 8	-2.73	-23.15	163.55	0.8323	0.6604	0.153
195	SLV 9	1.51	2.38	15.97	-0.1831	-0.0584	-0.0167
195	SLV 10	1.51	2.38	15.97	-0.1831	-0.0584	-0.0167
195	SLV 11	-1.22	-21.29	146.9	0.7744	0.2392	0.1395
195	SLV 12	-1.22	-21.29	146.9	0.7744	0.2392	0.1395
195	SLV 13	2.32	-3.73	42.36	0.0845	-0.4457	0.0223
195	SLV 14	2.32	-3.73	42.36	0.0845	-0.4457	0.0223
195	SLV 15	1.5	-10.83	81.64	0.3717	-0.3564	0.0691
195	SLV 16	1.5	-10.83	81.64	0.3717	-0.3564	0.0691
196	SLU 1	-6.74	0.07	30.82	0.0073	-0.0402	0.0003
196	SLU 2	-6.9	0.07	31.37	0.0081	-0.0435	0.0005
196	SLU 3	-6.84	0.08	31.37	0.0068	-0.0405	0.0001
196	SLU 4	-6.93	0.07	31.69	0.0073	-0.0425	0.0002
196	SLU 5	-6.85	0.07	31.28	0.0074	-0.0426	0.0003
196	SLU 6	-6.8	0.08	31.28	0.006	-0.0397	0
196	SLU 7	-6.89	0.08	31.61	0.0065	-0.0416	0.0001
196	SLU 8	-6.66	0.08	30.65	0.0058	-0.0384	-0.0001
196	SLU 9	-6.75	0.08	30.98	0.0063	-0.0404	0
196	SLU 10	-8.31	0.08	37.95	0.01	-0.0495	0.0006
196	SLU 11	-8.26	0.09	37.94	0.0087	-0.0466	0.0003
196	SLU 12	-8.35	0.09	38.27	0.0092	-0.0486	0.0004
196	SLU 13	-8.27	0.08	37.86	0.0093	-0.0486	0.0004
196	SLU 14	-8.22	0.09	37.86	0.0079	-0.0457	0.0001
196	SLU 15	-8.31	0.09	38.18	0.0084	-0.0477	0.0002
196	SLU 16	-8.08	0.09	37.23	0.0077	-0.0445	0.0001
196	SLU 17	-8.17	0.09	37.56	0.0082	-0.0464	0.0002
196	SLU 18	-8.77	0.09	40.22	0.01	-0.0488	0.0005
196	SLU 19	-8.86	0.09	40.55	0.0105	-0.0508	0.0006
196	SLU 20	-8.72	0.09	40.13	0.0092	-0.0479	0.0003
196	SLU 21	-8.82	0.09	40.46	0.0097	-0.0499	0.0004
196	SLU 22	-7.75	0.09	35.66	0.0078	-0.0421	0.0002
196	SLU 23	-7.9	0.08	36.21	0.0086	-0.0454	0.0003
196	SLU 24	-7.85	0.09	36.21	0.0073	-0.0425	0
196	SLU 25	-7.94	0.09	36.53	0.0078	-0.0445	0.0001
196	SLU 26	-7.86	0.09	36.12	0.0079	-0.0445	0.0002
196	SLU 27	-7.81	0.09	36.12	0.0065	-0.0416	-0.0001
196	SLU 28	-7.9	0.09	36.45	0.007	-0.0436	0
196	SLU 29	-7.67	0.09	35.49	0.0063	-0.0404	-0.0002
196	SLU 30	-7.76	0.09	35.82	0.0068	-0.0424	-0.0001
196	SLU 31	-9.32	0.1	42.79	0.0105	-0.0515	0.0005
196	SLU 32	-9.27	0.1	42.79	0.0092	-0.0486	0.0002
196	SLU 33	-9.36	0.1	43.11	0.0097	-0.0505	0.0003
196	SLU 34	-9.28	0.1	42.7	0.0097	-0.0506	0.0003
196	SLU 35	-9.23	0.11	42.7	0.0084	-0.0477	0
196	SLU 36	-9.32	0.11	43.03	0.0089	-0.0496	0.0001
196	SLU 37	-9.08	0.11	42.07	0.0082	-0.0464	0
196	SLU 38	-9.18	0.1	42.4	0.0087	-0.0484	0.0001
196	SLU 39	-9.77	0.1	45.06	0.0105	-0.0508	0.0004
196	SLU 40	-9.87	0.1	45.39	0.011	-0.0528	0.0005
196	SLU 41	-9.73	0.11	44.98	0.0097	-0.0499	0.0002
196	SLU 42	-9.83	0.11	45.3	0.0102	-0.0519	0.0003
196	SLU 43	-8.42	0.09	38.41	0.0093	-0.0516	0.0004
196	SLU 44	-8.57	0.08	38.96	0.0102	-0.0548	0.0006
196	SLU 45	-8.52	0.09	38.95	0.0088	-0.0519	0.0003
196	SLU 46	-8.61	0.09	39.28	0.0093	-0.0539	0.0004
196	SLU 47	-8.53	0.09	38.87	0.0094	-0.054	0.0004
196	SLU 48	-8.48	0.1	38.87	0.0081	-0.051	0.0001
196	SLU 49	-8.57	0.09	39.19	0.0086	-0.053	0.0002
196	SLU 50	-8.34	0.09	38.24	0.0078	-0.0498	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
196	SLU 51	-8.43	0.09	38.57	0.0083	-0.0518	0.0002
196	SLU 52	-9.99	0.1	45.53	0.012	-0.0609	0.0007
196	SLU 53	-9.94	0.1	45.53	0.0107	-0.058	0.0004
196	SLU 54	-10.03	0.1	45.86	0.0112	-0.0599	0.0005
196	SLU 55	-9.95	0.1	45.45	0.0113	-0.06	0.0005
196	SLU 56	-9.9	0.11	45.45	0.01	-0.0571	0.0002
196	SLU 57	-9.99	0.11	45.77	0.0105	-0.0591	0.0003
196	SLU 58	-9.75	0.11	44.82	0.0097	-0.0559	0.0002
196	SLU 59	-9.85	0.11	45.14	0.0102	-0.0578	0.0003
196	SLU 60	-10.44	0.1	47.81	0.012	-0.0602	0.0006
196	SLU 61	-10.54	0.1	48.13	0.0125	-0.0622	0.0007
196	SLU 62	-10.4	0.11	47.72	0.0113	-0.0593	0.0004
196	SLU 63	-10.49	0.11	48.05	0.0118	-0.0613	0.0005
196	SLU 64	-9.43	0.1	43.25	0.0098	-0.0535	0.0003
196	SLU 65	-9.58	0.1	43.8	0.0106	-0.0568	0.0005
196	SLU 66	-9.53	0.11	43.79	0.0093	-0.0539	0.0002
196	SLU 67	-9.62	0.11	44.12	0.0098	-0.0558	0.0003
196	SLU 68	-9.54	0.1	43.71	0.0099	-0.0559	0.0003
196	SLU 69	-9.49	0.11	43.71	0.0086	-0.053	0
196	SLU 70	-9.58	0.11	44.04	0.0091	-0.055	0.0001
196	SLU 71	-9.34	0.11	43.08	0.0083	-0.0518	-0.0001
196	SLU 72	-9.44	0.11	43.41	0.0088	-0.0537	0.0001
196	SLU 73	-11	0.11	50.37	0.0125	-0.0629	0.0006
196	SLU 74	-10.94	0.12	50.37	0.0112	-0.0599	0.0003
196	SLU 75	-11.04	0.12	50.7	0.0117	-0.0619	0.0004
196	SLU 76	-10.96	0.12	50.29	0.0118	-0.062	0.0004
196	SLU 77	-10.9	0.12	50.29	0.0104	-0.0591	0.0001
196	SLU 78	-11	0.12	50.61	0.0109	-0.061	0.0002
196	SLU 79	-10.76	0.12	49.66	0.0102	-0.0578	0.0001
196	SLU 80	-10.85	0.12	49.98	0.0107	-0.0598	0.0002
196	SLU 81	-11.45	0.12	52.65	0.0125	-0.0622	0.0005
196	SLU 82	-11.54	0.12	52.98	0.013	-0.0641	0.0006
196	SLU 83	-11.41	0.12	52.56	0.0117	-0.0613	0.0003
196	SLU 84	-11.5	0.12	52.89	0.0122	-0.0633	0.0004
196	SLE RA 1	-7.03	0.08	32.21	0.0074	-0.0407	0.0002
196	SLE RA 2	-7.13	0.07	32.57	0.008	-0.0429	0.0004
196	SLE RA 3	-7.1	0.08	32.57	0.0071	-0.041	0.0002
196	SLE RA 4	-7.16	0.08	32.79	0.0074	-0.0423	0.0002
196	SLE RA 5	-7.1	0.08	32.51	0.0075	-0.0423	0.0002
196	SLE RA 6	-7.07	0.08	32.51	0.0066	-0.0404	0
196	SLE RA 7	-7.13	0.08	32.73	0.0069	-0.0417	0.0001
196	SLE RA 8	-6.97	0.08	32.09	0.0064	-0.0396	0
196	SLE RA 9	-7.04	0.08	32.31	0.0068	-0.0409	0.0001
196	SLE RA 10	-8.08	0.08	36.95	0.0092	-0.047	0.0005
196	SLE RA 11	-8.04	0.09	36.95	0.0084	-0.045	0.0003
196	SLE RA 12	-8.1	0.09	37.17	0.0087	-0.0463	0.0003
196	SLE RA 13	-8.05	0.08	36.9	0.0087	-0.0464	0.0003
196	SLE RA 14	-8.01	0.09	36.9	0.0079	-0.0444	0.0001
196	SLE RA 15	-8.08	0.09	37.11	0.0082	-0.0457	0.0002
196	SLE RA 16	-7.92	0.09	36.48	0.0077	-0.0436	0.0001
196	SLE RA 17	-7.98	0.09	36.7	0.008	-0.0449	0.0002
196	SLE RA 18	-8.38	0.09	38.47	0.0092	-0.0465	0.0004
196	SLE RA 19	-8.44	0.09	38.69	0.0096	-0.0478	0.0005
196	SLE RA 20	-8.35	0.09	38.41	0.0087	-0.0459	0.0003
196	SLE RA 21	-8.41	0.09	38.63	0.0091	-0.0472	0.0003
196	SLE FR 1	-7.03	0.08	32.21	0.0074	-0.0407	0.0002
196	SLE FR 2	-7.05	0.07	32.28	0.0076	-0.0412	0.0003
196	SLE FR 3	-7.02	0.08	32.18	0.0072	-0.0405	0.0002
196	SLE FR 4	-7.45	0.08	34.16	0.0081	-0.0429	0.0003
196	SLE FR 5	-7.42	0.08	34.06	0.0078	-0.0422	0.0002
196	SLE FR 6	-7.7	0.08	35.34	0.0083	-0.0436	0.0003
196	SLE QP 1	-7.03	0.08	32.21	0.0074	-0.0407	0.0002
196	SLE QP 2	-7.43	0.08	34.09	0.008	-0.0425	0.0003
196	SLD 1	-2.95	0.51	18.96	-0.0404	0.1502	-0.0123
196	SLD 2	-2.95	0.51	18.96	-0.0404	0.1502	-0.0123
196	SLD 3	-4.72	0.44	25.8	-0.0286	0.1265	-0.0097
196	SLD 4	-4.72	0.44	25.8	-0.0286	0.1265	-0.0097
196	SLD 5	-3.41	0.31	19.16	-0.0244	0.0514	-0.0075
196	SLD 6	-3.41	0.31	19.16	-0.0244	0.0514	-0.0075
196	SLD 7	-9.3	0.08	41.98	0.0149	-0.0278	0.0013
196	SLD 8	-9.3	0.08	41.98	0.0149	-0.0278	0.0013
196	SLD 9	-5.57	0.08	26.19	0.001	-0.0571	-0.0008
196	SLD 10	-5.57	0.08	26.19	0.001	-0.0571	-0.0008
196	SLD 11	-11.46	-0.15	49.01	0.0404	-0.1363	0.0081
196	SLD 12	-11.46	-0.15	49.01	0.0404	-0.1363	0.0081
196	SLD 13	-10.15	-0.28	42.37	0.0445	-0.2114	0.0102
196	SLD 14	-10.15	-0.28	42.37	0.0445	-0.2114	0.0102
196	SLD 15	-11.91	-0.35	49.21	0.0563	-0.2352	0.0129
196	SLD 16	-11.91	-0.35	49.21	0.0563	-0.2352	0.0129
196	SLV 1	2.8	1.11	-0.49	-0.1087	0.3978	-0.0302
196	SLV 2	2.8	1.11	-0.49	-0.1087	0.3978	-0.0302
196	SLV 3	-1.26	0.95	15.28	-0.0818	0.3434	-0.0241
196	SLV 4	-1.26	0.95	15.28	-0.0818	0.3434	-0.0241
196	SLV 5	1.8	0.63	-0.21	-0.0678	0.1721	-0.0181
196	SLV 6	1.8	0.63	-0.21	-0.0678	0.1721	-0.0181
196	SLV 7	-11.75	0.1	52.37	0.0218	-0.0092	0.0022
196	SLV 8	-11.75	0.1	52.37	0.0218	-0.0092	0.0022
196	SLV 9	-3.12	0.06	15.8	-0.0059	-0.0757	-0.0016
196	SLV 10	-3.12	0.06	15.8	-0.0059	-0.0757	-0.0016



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
196	SLV 11	-16.67	-0.47	68.39	0.0838	-0.2571	0.0187
196	SLV 12	-16.67	-0.47	68.39	0.0838	-0.2571	0.0187
196	SLV 13	-13.6	-0.8	52.89	0.0977	-0.4283	0.0247
196	SLV 14	-13.6	-0.8	52.89	0.0977	-0.4283	0.0247
196	SLV 15	-17.67	-0.96	68.67	0.1247	-0.4827	0.0308
196	SLV 16	-17.67	-0.96	68.67	0.1247	-0.4827	0.0308
197	SLU 1	9.12	0.01	36.3	-0.0047	0.1945	0.0008
197	SLU 2	8.79	0.01	35.43	-0.0042	0.1826	0.0007
197	SLU 3	9.39	0.01	37.3	-0.0044	0.2002	0.0008
197	SLU 4	9.19	0.01	36.78	-0.0041	0.1931	0.0007
197	SLU 5	8.97	0.01	36.02	-0.0041	0.1877	0.0007
197	SLU 6	9.57	0.01	37.89	-0.0043	0.2053	0.0007
197	SLU 7	9.37	0.01	37.37	-0.004	0.1982	0.0007
197	SLU 8	9.49	0.01	37.48	-0.0044	0.2046	0.0008
197	SLU 9	9.29	0.01	36.96	-0.0041	0.1975	0.0007
197	SLU 10	10.62	0.01	43.03	-0.0085	0.2186	0.0015
197	SLU 11	11.22	0.02	44.9	-0.0087	0.2362	0.0015
197	SLU 12	11.02	0.02	44.38	-0.0084	0.2291	0.0015
197	SLU 13	10.8	0.01	43.62	-0.0084	0.2237	0.0015
197	SLU 14	11.4	0.02	45.49	-0.0086	0.2413	0.0015
197	SLU 15	11.2	0.02	44.97	-0.0083	0.2342	0.0015
197	SLU 16	11.32	0.02	45.08	-0.0088	0.2406	0.0015
197	SLU 17	11.12	0.02	44.56	-0.0085	0.2335	0.0015
197	SLU 18	11.74	0.02	47.16	-0.0109	0.2459	0.0019
197	SLU 19	11.54	0.02	46.63	-0.0106	0.2387	0.0018
197	SLU 20	11.92	0.02	47.75	-0.0107	0.2509	0.0019
197	SLU 21	11.72	0.02	47.23	-0.0105	0.2438	0.0018
197	SLU 22	10.84	0.02	43.11	-0.0075	0.2316	0.0013
197	SLU 23	10.51	0.01	42.24	-0.007	0.2197	0.0012
197	SLU 24	11.11	0.01	44.11	-0.0072	0.2373	0.0013
197	SLU 25	10.91	0.01	43.59	-0.0069	0.2302	0.0012
197	SLU 26	10.69	0.01	42.83	-0.0069	0.2248	0.0012
197	SLU 27	11.29	0.02	44.7	-0.0071	0.2424	0.0013
197	SLU 28	11.09	0.01	44.18	-0.0068	0.2353	0.0012
197	SLU 29	11.21	0.02	44.29	-0.0073	0.2417	0.0013
197	SLU 30	11.01	0.01	43.77	-0.007	0.2346	0.0012
197	SLU 31	12.34	0.02	49.84	-0.0114	0.2557	0.002
197	SLU 32	12.94	0.02	51.71	-0.0116	0.2733	0.002
197	SLU 33	12.74	0.02	51.19	-0.0113	0.2662	0.002
197	SLU 34	12.52	0.02	50.43	-0.0113	0.2607	0.002
197	SLU 35	13.12	0.02	52.3	-0.0115	0.2784	0.002
197	SLU 36	12.92	0.02	51.78	-0.0112	0.2712	0.002
197	SLU 37	13.04	0.02	51.89	-0.0116	0.2777	0.002
197	SLU 38	12.84	0.02	51.37	-0.0113	0.2705	0.002
197	SLU 39	13.46	0.03	53.96	-0.0137	0.2829	0.0024
197	SLU 40	13.26	0.03	53.44	-0.0134	0.2758	0.0023
197	SLU 41	13.64	0.03	54.56	-0.0136	0.288	0.0024
197	SLU 42	13.44	0.03	54.03	-0.0133	0.2809	0.0023
197	SLU 43	11.27	0.01	44.86	-0.0051	0.2401	0.0009
197	SLU 44	10.94	0.01	43.99	-0.0046	0.2282	0.0008
197	SLU 45	11.53	0.01	45.86	-0.0048	0.2459	0.0008
197	SLU 46	11.33	0.01	45.34	-0.0045	0.2387	0.0008
197	SLU 47	11.12	0.01	44.58	-0.0045	0.2333	0.0008
197	SLU 48	11.72	0.01	46.45	-0.0047	0.2509	0.0008
197	SLU 49	11.51	0.01	45.93	-0.0044	0.2438	0.0008
197	SLU 50	11.63	0.01	46.04	-0.0048	0.2503	0.0009
197	SLU 51	11.43	0.01	45.52	-0.0046	0.2431	0.0008
197	SLU 52	12.77	0.02	51.59	-0.0089	0.2642	0.0015
197	SLU 53	13.37	0.02	53.46	-0.0091	0.2818	0.0016
197	SLU 54	13.17	0.02	52.94	-0.0089	0.2747	0.0015
197	SLU 55	12.95	0.02	52.18	-0.0088	0.2693	0.0015
197	SLU 56	13.55	0.02	54.05	-0.009	0.2869	0.0016
197	SLU 57	13.35	0.02	53.53	-0.0087	0.2798	0.0015
197	SLU 58	13.47	0.02	53.64	-0.0092	0.2862	0.0016
197	SLU 59	13.27	0.02	53.12	-0.0089	0.2791	0.0016
197	SLU 60	13.89	0.02	55.71	-0.0113	0.2915	0.002
197	SLU 61	13.69	0.02	55.19	-0.011	0.2844	0.0019
197	SLU 62	14.07	0.02	56.31	-0.0112	0.2966	0.002
197	SLU 63	13.87	0.02	55.78	-0.0109	0.2894	0.0019
197	SLU 64	12.99	0.02	51.67	-0.0079	0.2772	0.0014
197	SLU 65	12.66	0.01	50.79	-0.0075	0.2653	0.0013
197	SLU 66	13.25	0.02	52.67	-0.0076	0.2829	0.0013
197	SLU 67	13.05	0.01	52.14	-0.0074	0.2758	0.0013
197	SLU 68	12.84	0.01	51.38	-0.0073	0.2704	0.0013
197	SLU 69	13.44	0.02	53.26	-0.0075	0.288	0.0013
197	SLU 70	13.23	0.01	52.73	-0.0072	0.2809	0.0013
197	SLU 71	13.35	0.02	52.85	-0.0077	0.2873	0.0014
197	SLU 72	13.15	0.01	52.32	-0.0074	0.2802	0.0013
197	SLU 73	14.49	0.02	58.39	-0.0118	0.3013	0.002
197	SLU 74	15.09	0.02	60.27	-0.012	0.3189	0.0021
197	SLU 75	14.89	0.02	59.74	-0.0117	0.3118	0.002
197	SLU 76	14.67	0.02	58.98	-0.0117	0.3064	0.002
197	SLU 77	15.27	0.02	60.86	-0.0119	0.324	0.0021
197	SLU 78	15.07	0.02	60.33	-0.0116	0.3169	0.002
197	SLU 79	15.19	0.02	60.45	-0.012	0.3233	0.0021
197	SLU 80	14.99	0.02	59.92	-0.0118	0.3162	0.0021
197	SLU 81	15.61	0.03	62.52	-0.0141	0.3286	0.0025
197	SLU 82	15.41	0.03	62	-0.0138	0.3215	0.0024
197	SLU 83	15.79	0.03	63.11	-0.014	0.3336	0.0025



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
197	SLU 84	15.59	0.03	62.59	-0.0137	0.3265	0.0024
197	SLE RA 1	9.61	0.01	38.25	-0.0055	0.2051	0.001
197	SLE RA 2	9.39	0.01	37.67	-0.0052	0.1972	0.0009
197	SLE RA 3	9.79	0.01	38.91	-0.0053	0.2089	0.0009
197	SLE RA 4	9.66	0.01	38.57	-0.0051	0.2042	0.0009
197	SLE RA 5	9.51	0.01	38.06	-0.0051	0.2005	0.0009
197	SLE RA 6	9.91	0.01	39.31	-0.0052	0.2123	0.0009
197	SLE RA 7	9.78	0.01	38.96	-0.005	0.2075	0.0009
197	SLE RA 8	9.86	0.01	39.03	-0.0053	0.2118	0.0009
197	SLE RA 9	9.72	0.01	38.69	-0.0051	0.2071	0.0009
197	SLE RA 10	10.61	0.01	42.73	-0.008	0.2211	0.0014
197	SLE RA 11	11.01	0.02	43.98	-0.0082	0.2329	0.0014
197	SLE RA 12	10.88	0.02	43.63	-0.008	0.2281	0.0014
197	SLE RA 13	10.74	0.01	43.13	-0.008	0.2245	0.0014
197	SLE RA 14	11.13	0.02	44.37	-0.0081	0.2363	0.0014
197	SLE RA 15	11	0.02	44.03	-0.0079	0.2315	0.0014
197	SLE RA 16	11.08	0.02	44.1	-0.0082	0.2358	0.0014
197	SLE RA 17	10.95	0.02	43.75	-0.008	0.2311	0.0014
197	SLE RA 18	11.36	0.02	45.48	-0.0096	0.2393	0.0017
197	SLE RA 19	11.23	0.02	45.13	-0.0094	0.2346	0.0016
197	SLE RA 20	11.48	0.02	45.88	-0.0095	0.2427	0.0017
197	SLE RA 21	11.35	0.02	45.53	-0.0093	0.238	0.0016
197	SLE FR 1	9.61	0.01	38.25	-0.0055	0.2051	0.001
197	SLE FR 2	9.57	0.01	38.13	-0.0054	0.2035	0.0009
197	SLE FR 3	9.66	0.01	38.4	-0.0054	0.2064	0.001
197	SLE FR 4	10.09	0.01	40.3	-0.0066	0.2138	0.0012
197	SLE FR 5	10.19	0.01	40.58	-0.0067	0.2167	0.0012
197	SLE FR 6	10.49	0.02	41.86	-0.0075	0.2222	0.0013
197	SLE QP 1	9.61	0.01	38.25	-0.0055	0.2051	0.001
197	SLE QP 2	10.14	0.01	40.42	-0.0067	0.2154	0.0012
197	SLD 1	22.45	0.06	75.54	0.0242	0.6809	0.0009
197	SLD 2	22.45	0.06	75.54	0.0242	0.6809	0.0009
197	SLD 3	23.13	0.34	77.89	-0.0106	0.656	0.0084
197	SLD 4	23.13	0.34	77.89	-0.0106	0.656	0.0084
197	SLD 5	12.81	-0.41	47.4	0.0552	0.3928	-0.0103
197	SLD 6	12.81	-0.41	47.4	0.0552	0.3928	-0.0103
197	SLD 7	15.06	0.54	55.21	-0.0606	0.3097	0.0147
197	SLD 8	15.06	0.54	55.21	-0.0606	0.3097	0.0147
197	SLD 9	5.22	-0.52	25.62	0.0471	0.121	-0.0124
197	SLD 10	5.22	-0.52	25.62	0.0471	0.121	-0.0124
197	SLD 11	7.47	0.43	33.43	-0.0687	0.0379	0.0126
197	SLD 12	7.47	0.43	33.43	-0.0687	0.0379	0.0126
197	SLD 13	-2.85	-0.32	2.95	-0.0028	-0.2253	-0.006
197	SLD 14	-2.85	-0.32	2.95	-0.0028	-0.2253	-0.006
197	SLD 15	-2.17	-0.03	5.29	-0.0376	-0.2502	0.0015
197	SLD 16	-2.17	-0.03	5.29	-0.0376	-0.2502	0.0015
197	SLV 1	38.28	0.14	120.67	0.0682	1.2802	0.0009
197	SLV 2	38.28	0.14	120.67	0.0682	1.2802	0.0009
197	SLV 3	39.86	0.83	126.17	-0.0148	1.2227	0.0189
197	SLV 4	39.86	0.83	126.17	-0.0148	1.2227	0.0189
197	SLV 5	16.19	-1	56.15	0.1417	0.622	-0.0263
197	SLV 6	16.19	-1	56.15	0.1417	0.622	-0.0263
197	SLV 7	21.44	1.31	74.49	-0.1351	0.4304	0.0339
197	SLV 8	21.44	1.31	74.49	-0.1351	0.4304	0.0339
197	SLV 9	-1.17	-1.29	6.35	0.1216	0.0003	-0.0315
197	SLV 10	-1.17	-1.29	6.35	0.1216	0.0003	-0.0315
197	SLV 11	4.09	1.03	24.68	-0.1551	-0.1913	0.0286
197	SLV 12	4.09	1.03	24.68	-0.1551	-0.1913	0.0286
197	SLV 13	-19.58	-0.81	-45.34	0.0014	-0.792	-0.0166
197	SLV 14	-19.58	-0.81	-45.34	0.0014	-0.792	-0.0166
197	SLV 15	-18	-0.11	-39.84	-0.0816	-0.8495	0.0015
197	SLV 16	-18	-0.11	-39.84	-0.0816	-0.8495	0.0015
198	SLU 1	4.64	0.01	65.12	-0.0078	0.2366	0
198	SLU 2	4.22	0.01	64.03	-0.0077	0.2141	0
198	SLU 3	4.8	0.01	66.97	-0.0073	0.244	0
198	SLU 4	4.54	0.01	66.31	-0.0072	0.2305	0
198	SLU 5	4.38	0.01	65.01	-0.0074	0.2223	0
198	SLU 6	4.96	0.01	67.95	-0.007	0.2522	0
198	SLU 7	4.71	0.01	67.29	-0.0069	0.2387	0
198	SLU 8	4.97	0.01	67.09	-0.0072	0.253	0
198	SLU 9	4.72	0.01	66.43	-0.0072	0.2395	0
198	SLU 10	4.94	0.02	77.95	-0.015	0.2507	-0.0001
198	SLU 11	5.52	0.02	80.88	-0.0146	0.2805	-0.0001
198	SLU 12	5.27	0.02	80.22	-0.0145	0.267	-0.0001
198	SLU 13	5.11	0.02	78.93	-0.0147	0.2589	-0.0001
198	SLU 14	5.69	0.02	81.86	-0.0143	0.2887	-0.0001
198	SLU 15	5.44	0.02	81.21	-0.0142	0.2753	-0.0001
198	SLU 16	5.7	0.02	81.01	-0.0145	0.2896	-0.0001
198	SLU 17	5.44	0.02	80.35	-0.0145	0.2761	-0.0001
198	SLU 18	5.68	0.03	85	-0.0183	0.2888	-0.0001
198	SLU 19	5.42	0.03	84.35	-0.0182	0.2753	-0.0001
198	SLU 20	5.84	0.03	85.99	-0.018	0.297	-0.0001
198	SLU 21	5.59	0.03	85.33	-0.0179	0.2835	-0.0001
198	SLU 22	5.51	0.02	77.27	-0.0126	0.281	-0.0001
198	SLU 23	5.08	0.02	76.18	-0.0124	0.2585	-0.0001
198	SLU 24	5.66	0.02	79.11	-0.012	0.2883	0
198	SLU 25	5.41	0.02	78.46	-0.0119	0.2748	0
198	SLU 26	5.25	0.02	77.16	-0.0121	0.2667	-0.0001
198	SLU 27	5.83	0.02	80.1	-0.0117	0.2965	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
198	SLU 28	5.57	0.02	79.44	-0.0116	0.2831	0
198	SLU 29	5.84	0.02	79.24	-0.012	0.2974	0
198	SLU 30	5.58	0.02	78.58	-0.0119	0.2839	0
198	SLU 31	5.81	0.03	90.09	-0.0198	0.295	-0.0001
198	SLU 32	6.39	0.03	93.03	-0.0193	0.3249	-0.0001
198	SLU 33	6.14	0.03	92.37	-0.0193	0.3114	-0.0001
198	SLU 34	5.97	0.03	91.08	-0.0195	0.3032	-0.0001
198	SLU 35	6.55	0.03	94.01	-0.019	0.3331	-0.0001
198	SLU 36	6.3	0.03	93.36	-0.019	0.3196	-0.0001
198	SLU 37	6.56	0.03	93.15	-0.0193	0.3339	-0.0001
198	SLU 38	6.31	0.03	92.5	-0.0192	0.3204	-0.0001
198	SLU 39	6.54	0.03	97.15	-0.023	0.3332	-0.0001
198	SLU 40	6.29	0.03	96.5	-0.0229	0.3197	-0.0001
198	SLU 41	6.71	0.03	98.14	-0.0227	0.3414	-0.0001
198	SLU 42	6.46	0.03	97.48	-0.0226	0.3279	-0.0001
198	SLU 43	5.74	0.01	80.5	-0.0086	0.2924	0
198	SLU 44	5.31	0.01	79.4	-0.0084	0.2699	0
198	SLU 45	5.89	0.01	82.34	-0.008	0.2998	0
198	SLU 46	5.64	0.01	81.68	-0.0079	0.2863	0
198	SLU 47	5.48	0.01	80.38	-0.0081	0.2781	0
198	SLU 48	6.06	0.01	83.32	-0.0077	0.308	0
198	SLU 49	5.8	0.01	82.66	-0.0076	0.2945	0
198	SLU 50	6.07	0.01	82.46	-0.008	0.3088	0
198	SLU 51	5.81	0.01	81.8	-0.0079	0.2953	0
198	SLU 52	6.04	0.02	93.32	-0.0158	0.3065	-0.0001
198	SLU 53	6.62	0.02	96.25	-0.0153	0.3363	-0.0001
198	SLU 54	6.37	0.02	95.6	-0.0152	0.3228	-0.0001
198	SLU 55	6.2	0.02	94.3	-0.0155	0.3147	-0.0001
198	SLU 56	6.78	0.02	97.24	-0.015	0.3445	-0.0001
198	SLU 57	6.53	0.02	96.58	-0.015	0.331	-0.0001
198	SLU 58	6.79	0.02	96.38	-0.0153	0.3454	-0.0001
198	SLU 59	6.54	0.02	95.72	-0.0152	0.3319	-0.0001
198	SLU 60	6.77	0.03	100.38	-0.019	0.3446	-0.0001
198	SLU 61	6.52	0.03	99.72	-0.0189	0.3311	-0.0001
198	SLU 62	6.94	0.03	101.36	-0.0187	0.3528	-0.0001
198	SLU 63	6.68	0.03	100.7	-0.0186	0.3393	-0.0001
198	SLU 64	6.6	0.02	92.65	-0.0133	0.3367	-0.0001
198	SLU 65	6.18	0.02	91.55	-0.0132	0.3143	-0.0001
198	SLU 66	6.76	0.02	94.49	-0.0127	0.3441	-0.0001
198	SLU 67	6.5	0.02	93.83	-0.0127	0.3306	-0.0001
198	SLU 68	6.34	0.02	92.53	-0.0129	0.3225	-0.0001
198	SLU 69	6.92	0.02	95.47	-0.0124	0.3523	-0.0001
198	SLU 70	6.67	0.02	94.81	-0.0124	0.3388	-0.0001
198	SLU 71	6.93	0.02	94.61	-0.0127	0.3532	-0.0001
198	SLU 72	6.68	0.02	93.95	-0.0126	0.3397	-0.0001
198	SLU 73	6.9	0.03	105.47	-0.0205	0.3508	-0.0001
198	SLU 74	7.48	0.03	108.4	-0.0201	0.3807	-0.0001
198	SLU 75	7.23	0.03	107.75	-0.02	0.3672	-0.0001
198	SLU 76	7.07	0.03	106.45	-0.0202	0.359	-0.0001
198	SLU 77	7.65	0.03	109.38	-0.0198	0.3889	-0.0001
198	SLU 78	7.4	0.03	108.73	-0.0197	0.3754	-0.0001
198	SLU 79	7.66	0.03	108.53	-0.02	0.3897	-0.0001
198	SLU 80	7.4	0.03	107.87	-0.0199	0.3762	-0.0001
198	SLU 81	7.64	0.03	112.52	-0.0237	0.389	-0.0001
198	SLU 82	7.39	0.03	111.87	-0.0237	0.3755	-0.0001
198	SLU 83	7.8	0.03	113.51	-0.0234	0.3972	-0.0001
198	SLU 84	7.55	0.03	112.85	-0.0234	0.3837	-0.0001
198	SLE RA 1	4.89	0.01	68.6	-0.0092	0.2493	0
198	SLE RA 2	4.61	0.01	67.87	-0.0091	0.2343	0
198	SLE RA 3	4.99	0.01	69.82	-0.0088	0.2542	0
198	SLE RA 4	4.82	0.01	69.38	-0.0088	0.2452	0
198	SLE RA 5	4.72	0.01	68.52	-0.0089	0.2398	0
198	SLE RA 6	5.1	0.01	70.48	-0.0086	0.2597	0
198	SLE RA 7	4.93	0.01	70.04	-0.0086	0.2507	0
198	SLE RA 8	5.11	0.01	69.91	-0.0088	0.2602	0
198	SLE RA 9	4.94	0.01	69.47	-0.0087	0.2512	0
198	SLE RA 10	5.09	0.02	77.14	-0.014	0.2587	-0.0001
198	SLE RA 11	5.48	0.02	79.1	-0.0137	0.2786	-0.0001
198	SLE RA 12	5.31	0.02	78.66	-0.0136	0.2696	-0.0001
198	SLE RA 13	5.2	0.02	77.8	-0.0138	0.2641	-0.0001
198	SLE RA 14	5.59	0.02	79.76	-0.0135	0.284	-0.0001
198	SLE RA 15	5.42	0.02	79.32	-0.0134	0.275	-0.0001
198	SLE RA 16	5.59	0.02	79.18	-0.0137	0.2846	-0.0001
198	SLE RA 17	5.42	0.02	78.74	-0.0136	0.2756	-0.0001
198	SLE RA 18	5.58	0.02	81.85	-0.0162	0.2841	-0.0001
198	SLE RA 19	5.41	0.02	81.41	-0.0161	0.2751	-0.0001
198	SLE RA 20	5.69	0.02	82.5	-0.016	0.2896	-0.0001
198	SLE RA 21	5.52	0.02	82.07	-0.0159	0.2806	-0.0001
198	SLE FR 1	4.89	0.01	68.6	-0.0092	0.2493	0
198	SLE FR 2	4.83	0.01	68.45	-0.0092	0.2463	0
198	SLE FR 3	4.93	0.01	68.86	-0.0091	0.2515	0
198	SLE FR 4	5.04	0.02	72.43	-0.0113	0.2567	0
198	SLE FR 5	5.14	0.02	72.83	-0.0112	0.2619	0
198	SLE FR 6	5.23	0.02	75.22	-0.0127	0.2667	-0.0001
198	SLE QP 1	4.89	0.01	68.6	-0.0092	0.2493	0
198	SLE QP 2	5.1	0.02	72.57	-0.0113	0.2597	0
198	SLD 1	19.37	-0.06	109.29	0.0466	1.1182	0.0001
198	SLD 2	19.37	-0.06	109.29	0.0466	1.1182	0.0001
198	SLD 3	18.53	0.01	113.41	0.0002	1.0682	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
198	SLD 4	18.53	0.01	113.41	0.0002	1.0682	0
198	SLD 5	10.66	-0.11	77.35	0.0766	0.5931	0.0001
198	SLD 6	10.66	-0.11	77.35	0.0766	0.5931	0.0001
198	SLD 7	7.85	0.12	91.06	-0.0783	0.4264	-0.0002
198	SLD 8	7.85	0.12	91.06	-0.0783	0.4264	-0.0002
198	SLD 9	2.34	-0.09	54.08	0.0558	0.0931	0.0001
198	SLD 10	2.34	-0.09	54.08	0.0558	0.0931	0.0001
198	SLD 11	-0.47	0.15	67.8	-0.0991	-0.0737	-0.0002
198	SLD 12	-0.47	0.15	67.8	-0.0991	-0.0737	-0.0002
198	SLD 13	-8.34	0.03	31.74	-0.0227	-0.5487	0
198	SLD 14	-8.34	0.03	31.74	-0.0227	-0.5487	0
198	SLD 15	-9.18	0.1	35.85	-0.0692	-0.5988	-0.0002
198	SLD 16	-9.18	0.1	35.85	-0.0692	-0.5988	-0.0002
198	SLV 1	37.75	-0.17	156.43	0.1292	2.2232	0.0002
198	SLV 2	37.75	-0.17	156.43	0.1292	2.2232	0.0002
198	SLV 3	35.8	-0.01	166.12	0.0209	2.108	0
198	SLV 4	35.8	-0.01	166.12	0.0209	2.108	0
198	SLV 5	17.84	-0.29	83.02	0.1953	1.0234	0.0004
198	SLV 6	17.84	-0.29	83.02	0.1953	1.0234	0.0004
198	SLV 7	11.36	0.25	115.35	-0.166	0.6396	-0.0004
198	SLV 8	11.36	0.25	115.35	-0.166	0.6396	-0.0004
198	SLV 9	-1.17	-0.22	29.8	0.1435	-0.1201	0.0003
198	SLV 10	-1.17	-0.22	29.8	0.1435	-0.1201	0.0003
198	SLV 11	-7.65	0.32	62.12	-0.2178	-0.504	-0.0005
198	SLV 12	-7.65	0.32	62.12	-0.2178	-0.504	-0.0005
198	SLV 13	-25.61	0.05	-20.98	-0.0434	-1.5886	-0.0001
198	SLV 14	-25.61	0.05	-20.98	-0.0434	-1.5886	-0.0001
198	SLV 15	-27.56	0.21	-11.28	-0.1518	-1.7037	-0.0003
198	SLV 16	-27.56	0.21	-11.28	-0.1518	-1.7037	-0.0003
199	SLU 1	0.48	0.01	65.85	-0.0055	0.0109	0
199	SLU 2	-0.01	0.01	64.97	-0.0063	-0.0127	0
199	SLU 3	0.53	0.01	67.81	-0.005	0.012	0
199	SLU 4	0.23	0.01	67.28	-0.0055	-0.0021	0
199	SLU 5	0.13	0.01	65.97	-0.006	-0.0066	0
199	SLU 6	0.67	0.01	68.81	-0.0047	0.0181	0
199	SLU 7	0.37	0.01	68.28	-0.0052	0.004	0
199	SLU 8	0.76	0.01	67.85	-0.0048	0.023	0
199	SLU 9	0.46	0.01	67.33	-0.0053	0.0089	0
199	SLU 10	-0.28	0.01	79.15	-0.0115	-0.0275	0
199	SLU 11	0.26	0.01	81.98	-0.0103	-0.0028	0
199	SLU 12	-0.04	0.01	81.45	-0.0107	-0.0169	0
199	SLU 13	-0.14	0.01	80.15	-0.0112	-0.0214	0
199	SLU 14	0.4	0.01	82.98	-0.0099	0.0033	0
199	SLU 15	0.1	0.01	82.46	-0.0104	-0.0109	0
199	SLU 16	0.49	0.01	82.03	-0.0101	0.0082	0
199	SLU 17	0.2	0.01	81.5	-0.0106	-0.0059	0
199	SLU 18	0.1	0.01	86.1	-0.013	-0.0103	0
199	SLU 19	-0.2	0.01	85.57	-0.0135	-0.0244	0
199	SLU 20	0.24	0.01	87.1	-0.0127	-0.0042	0
199	SLU 21	-0.06	0.01	86.57	-0.0131	-0.0184	0
199	SLU 22	0.58	0.01	78.08	-0.0088	0.0134	0
199	SLU 23	0.08	0.01	77.2	-0.0096	-0.0101	0
199	SLU 24	0.62	0.01	80.03	-0.0083	0.0146	0
199	SLU 25	0.32	0.01	79.51	-0.0088	0.0005	0
199	SLU 26	0.22	0.01	78.2	-0.0093	-0.004	0
199	SLU 27	0.76	0.01	81.04	-0.008	0.0207	0
199	SLU 28	0.46	0.01	80.51	-0.0085	0.0065	0
199	SLU 29	0.85	0.01	80.08	-0.0081	0.0256	0
199	SLU 30	0.56	0.01	79.55	-0.0086	0.0114	0
199	SLU 31	-0.19	0.01	91.37	-0.0149	-0.0249	0
199	SLU 32	0.35	0.01	94.21	-0.0136	-0.0002	0
199	SLU 33	0.05	0.01	93.68	-0.0141	-0.0144	0
199	SLU 34	-0.05	0.01	92.37	-0.0145	-0.0189	0
199	SLU 35	0.49	0.01	95.21	-0.0133	0.0058	0
199	SLU 36	0.19	0.01	94.68	-0.0137	-0.0083	0
199	SLU 37	0.59	0.01	94.25	-0.0134	0.0107	0
199	SLU 38	0.29	0.01	93.73	-0.0139	-0.0034	0
199	SLU 39	0.19	0.02	98.32	-0.0163	-0.0077	0
199	SLU 40	-0.1	0.02	97.8	-0.0168	-0.0219	0
199	SLU 41	0.33	0.02	99.33	-0.016	-0.0017	0
199	SLU 42	0.03	0.02	98.8	-0.0165	-0.0158	0
199	SLU 43	0.6	0.01	81.41	-0.006	0.0133	0
199	SLU 44	0.1	0.01	80.53	-0.0068	-0.0103	0
199	SLU 45	0.64	0.01	83.37	-0.0055	0.0144	0
199	SLU 46	0.35	0.01	82.84	-0.006	0.0003	0
199	SLU 47	0.24	0.01	81.54	-0.0065	-0.0042	0
199	SLU 48	0.78	0.01	84.37	-0.0052	0.0205	0
199	SLU 49	0.48	0.01	83.84	-0.0057	0.0064	0
199	SLU 50	0.88	0.01	83.42	-0.0053	0.0254	0
199	SLU 51	0.58	0.01	82.89	-0.0058	0.0113	0
199	SLU 52	-0.17	0.01	94.71	-0.0121	-0.0251	0
199	SLU 53	0.37	0.01	97.54	-0.0108	-0.0004	0
199	SLU 54	0.08	0.01	97.02	-0.0113	-0.0145	0
199	SLU 55	-0.03	0.01	95.71	-0.0117	-0.019	0
199	SLU 56	0.51	0.01	98.54	-0.0105	0.0057	0
199	SLU 57	0.22	0.01	98.02	-0.0109	-0.0085	0
199	SLU 58	0.61	0.01	97.59	-0.0106	0.0106	0
199	SLU 59	0.31	0.01	97.06	-0.0111	-0.0036	0
199	SLU 60	0.21	0.01	101.66	-0.0135	-0.0079	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
199	SLU 61	-0.08	0.01	101.13	-0.014	-0.022	0
199	SLU 62	0.35	0.01	102.66	-0.0132	-0.0019	0
199	SLU 63	0.06	0.01	102.14	-0.0137	-0.016	0
199	SLU 64	0.69	0.01	93.64	-0.0093	0.0158	0
199	SLU 65	0.19	0.01	92.76	-0.0101	-0.0077	0
199	SLU 66	0.73	0.01	95.59	-0.0089	0.017	0
199	SLU 67	0.44	0.01	95.07	-0.0093	0.0029	0
199	SLU 68	0.33	0.01	93.76	-0.0098	-0.0016	0
199	SLU 69	0.87	0.01	96.6	-0.0085	0.023	0
199	SLU 70	0.58	0.01	96.07	-0.009	0.0089	0
199	SLU 71	0.97	0.01	95.64	-0.0087	0.028	0
199	SLU 72	0.67	0.01	95.12	-0.0091	0.0138	0
199	SLU 73	-0.07	0.02	106.93	-0.0154	-0.0225	0
199	SLU 74	0.47	0.01	109.77	-0.0141	0.0021	0
199	SLU 75	0.17	0.01	109.24	-0.0146	-0.012	0
199	SLU 76	0.06	0.01	107.94	-0.015	-0.0165	0
199	SLU 77	0.6	0.01	110.77	-0.0138	0.0082	0
199	SLU 78	0.31	0.01	110.24	-0.0142	-0.0059	0
199	SLU 79	0.7	0.01	109.82	-0.0139	0.0131	0
199	SLU 80	0.4	0.01	109.29	-0.0144	-0.001	0
199	SLU 81	0.31	0.02	113.89	-0.0168	-0.0054	0
199	SLU 82	0.01	0.02	113.36	-0.0173	-0.0195	0
199	SLU 83	0.45	0.02	114.89	-0.0165	0.0007	0
199	SLU 84	0.15	0.02	114.36	-0.017	-0.0134	0
199	SLE RA 1	0.51	0.01	69.34	-0.0065	0.0116	0
199	SLE RA 2	0.18	0.01	68.76	-0.007	-0.0041	0
199	SLE RA 3	0.54	0.01	70.65	-0.0061	0.0124	0
199	SLE RA 4	0.34	0.01	70.3	-0.0064	0.003	0
199	SLE RA 5	0.27	0.01	69.43	-0.0068	0	0
199	SLE RA 6	0.63	0.01	71.32	-0.0059	0.0164	0
199	SLE RA 7	0.43	0.01	70.96	-0.0062	0.007	0
199	SLE RA 8	0.7	0.01	70.68	-0.006	0.0197	0
199	SLE RA 9	0.5	0.01	70.33	-0.0063	0.0103	0
199	SLE RA 10	0	0.01	78.21	-0.0105	-0.014	0
199	SLE RA 11	0.36	0.01	80.1	-0.0096	0.0025	0
199	SLE RA 12	0.16	0.01	79.74	-0.0099	-0.0069	0
199	SLE RA 13	0.09	0.01	78.87	-0.0103	-0.0099	0
199	SLE RA 14	0.45	0.01	80.76	-0.0094	0.0065	0
199	SLE RA 15	0.26	0.01	80.41	-0.0097	-0.0029	0
199	SLE RA 16	0.52	0.01	80.13	-0.0095	0.0098	0
199	SLE RA 17	0.32	0.01	79.78	-0.0098	0.0004	0
199	SLE RA 18	0.26	0.01	82.84	-0.0115	-0.0025	0
199	SLE RA 19	0.06	0.01	82.49	-0.0118	-0.0119	0
199	SLE RA 20	0.35	0.01	83.51	-0.0112	0.0015	0
199	SLE RA 21	0.15	0.01	83.16	-0.0115	-0.0079	0
199	SLE FR 1	0.51	0.01	69.34	-0.0065	0.0116	0
199	SLE FR 2	0.44	0.01	69.22	-0.0066	0.0085	0
199	SLE FR 3	0.55	0.01	69.61	-0.0064	0.0132	0
199	SLE FR 4	0.37	0.01	73.27	-0.0081	0.0042	0
199	SLE FR 5	0.47	0.01	73.66	-0.0079	0.009	0
199	SLE FR 6	0.38	0.01	76.09	-0.009	0.0046	0
199	SLE QP 1	0.51	0.01	69.34	-0.0065	0.0116	0
199	SLE QP 2	0.43	0.01	73.39	-0.008	0.0074	0
199	SLD 1	17.92	-0.05	87.81	0.0212	0.9192	0
199	SLD 2	17.92	-0.05	87.81	0.0212	0.9192	0
199	SLD 3	16.63	-0.17	92.23	0.1209	0.8532	0.0001
199	SLD 4	16.63	-0.17	92.23	0.1209	0.8532	0.0001
199	SLD 5	7.65	0.18	71.01	-0.1503	0.381	-0.0001
199	SLD 6	7.65	0.18	71.01	-0.1503	0.381	-0.0001
199	SLD 7	3.33	-0.23	85.75	0.1818	0.161	0.0002
199	SLD 8	3.33	-0.23	85.75	0.1818	0.161	0.0002
199	SLD 9	-2.46	0.25	61.03	-0.1977	-0.1463	-0.0002
199	SLD 10	-2.46	0.25	61.03	-0.1977	-0.1463	-0.0002
199	SLD 11	-6.78	-0.16	75.77	0.1344	-0.3663	0.0002
199	SLD 12	-6.78	-0.16	75.77	0.1344	-0.3663	0.0002
199	SLD 13	-15.76	0.19	54.55	-0.1368	-0.8385	-0.0001
199	SLD 14	-15.76	0.19	54.55	-0.1368	-0.8385	-0.0001
199	SLD 15	-17.05	0.06	58.97	-0.0371	-0.9045	0
199	SLD 16	-17.05	0.06	58.97	-0.0371	-0.9045	0
199	SLV 1	40.44	-0.14	106.28	0.071	2.093	0
199	SLV 2	40.44	-0.14	106.28	0.071	2.093	0
199	SLV 3	37.45	-0.43	116.69	0.3118	1.9409	0.0003
199	SLV 4	37.45	-0.43	116.69	0.3118	1.9409	0.0003
199	SLV 5	16.97	0.42	67.47	-0.3495	0.8638	-0.0004
199	SLV 6	16.97	0.42	67.47	-0.3495	0.8638	-0.0004
199	SLV 7	7.01	-0.58	102.16	0.4532	0.3567	0.0005
199	SLV 8	7.01	-0.58	102.16	0.4532	0.3567	0.0005
199	SLV 9	-6.14	0.59	44.62	-0.4691	-0.342	-0.0005
199	SLV 10	-6.14	0.59	44.62	-0.4691	-0.342	-0.0005
199	SLV 11	-16.1	-0.4	79.31	0.3336	-0.849	0.0004
199	SLV 12	-16.1	-0.4	79.31	0.3336	-0.849	0.0004
199	SLV 13	-36.58	0.45	30.09	-0.3277	-1.9262	-0.0003
199	SLV 14	-36.58	0.45	30.09	-0.3277	-1.9262	-0.0003
199	SLV 15	-39.57	0.15	40.5	-0.0869	-2.0783	0
199	SLV 16	-39.57	0.15	40.5	-0.0869	-2.0783	0
200	SLU 1	-3.14	0	67.34	-0.0034	-0.1551	0
200	SLU 2	-3.62	0	66.45	-0.005	-0.1767	0
200	SLU 3	-3.21	0	69.44	-0.003	-0.159	0
200	SLU 4	-3.49	0	68.91	-0.0039	-0.172	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
200	SLU 5	-3.53	0	67.54	-0.0046	-0.1732	0
200	SLU 6	-3.12	0	70.53	-0.0027	-0.1555	0
200	SLU 7	-3.4	0	70	-0.0036	-0.1684	0
200	SLU 8	-2.96	0	69.52	-0.0027	-0.1481	0
200	SLU 9	-3.25	0	68.99	-0.0036	-0.161	0
200	SLU 10	-4.7	0.01	80.92	-0.0085	-0.2286	0
200	SLU 11	-4.29	0.01	83.91	-0.0066	-0.2109	0
200	SLU 12	-4.57	0.01	83.38	-0.0075	-0.2239	0
200	SLU 13	-4.61	0.01	82.01	-0.0082	-0.2251	0
200	SLU 14	-4.2	0.01	85	-0.0062	-0.2074	0
200	SLU 15	-4.48	0.01	84.47	-0.0071	-0.2203	0
200	SLU 16	-4.04	0.01	83.98	-0.0063	-0.2	0
200	SLU 17	-4.33	0.01	83.45	-0.0072	-0.2129	0
200	SLU 18	-4.69	0.01	88	-0.0085	-0.2293	0
200	SLU 19	-4.97	0.01	87.47	-0.0095	-0.2422	0
200	SLU 20	-4.6	0.01	89.09	-0.0082	-0.2257	0
200	SLU 21	-4.88	0.01	88.56	-0.0091	-0.2387	0
200	SLU 22	-3.73	0.01	79.82	-0.0056	-0.1842	0
200	SLU 23	-4.21	0.01	78.93	-0.0071	-0.2058	0
200	SLU 24	-3.79	0.01	81.92	-0.0052	-0.1881	0
200	SLU 25	-4.08	0.01	81.39	-0.0061	-0.201	0
200	SLU 26	-4.12	0.01	80.02	-0.0068	-0.2022	0
200	SLU 27	-3.7	0	83.01	-0.0048	-0.1845	0
200	SLU 28	-3.99	0.01	82.48	-0.0057	-0.1975	0
200	SLU 29	-3.55	0	82	-0.0049	-0.1771	0
200	SLU 30	-3.84	0.01	81.47	-0.0058	-0.1901	0
200	SLU 31	-5.29	0.01	93.4	-0.0107	-0.2577	0
200	SLU 32	-4.87	0.01	96.39	-0.0087	-0.24	0
200	SLU 33	-5.16	0.01	95.86	-0.0097	-0.2529	0
200	SLU 34	-5.2	0.01	94.49	-0.0103	-0.2541	0
200	SLU 35	-4.78	0.01	97.48	-0.0084	-0.2364	0
200	SLU 36	-5.07	0.01	96.95	-0.0093	-0.2494	0
200	SLU 37	-4.63	0.01	96.46	-0.0085	-0.229	0
200	SLU 38	-4.92	0.01	95.93	-0.0094	-0.242	0
200	SLU 39	-5.27	0.01	100.48	-0.0107	-0.2583	0
200	SLU 40	-5.56	0.01	99.95	-0.0116	-0.2713	0
200	SLU 41	-5.18	0.01	101.57	-0.0103	-0.2548	0
200	SLU 42	-5.47	0.01	101.04	-0.0113	-0.2677	0
200	SLU 43	-3.89	0	83.26	-0.0037	-0.1917	0
200	SLU 44	-4.36	0	82.38	-0.0053	-0.2133	0
200	SLU 45	-3.95	0	85.36	-0.0033	-0.1956	0
200	SLU 46	-4.24	0	84.83	-0.0042	-0.2085	0
200	SLU 47	-4.27	0	83.47	-0.0049	-0.2097	0
200	SLU 48	-3.86	0	86.46	-0.0029	-0.1921	0
200	SLU 49	-4.15	0	85.93	-0.0039	-0.205	0
200	SLU 50	-3.7	0	85.44	-0.003	-0.1846	0
200	SLU 51	-3.99	0	84.91	-0.0039	-0.1976	0
200	SLU 52	-5.44	0.01	96.84	-0.0088	-0.2652	0
200	SLU 53	-5.03	0.01	99.83	-0.0069	-0.2475	0
200	SLU 54	-5.32	0.01	99.3	-0.0078	-0.2604	0
200	SLU 55	-5.35	0.01	97.93	-0.0085	-0.2616	0
200	SLU 56	-4.94	0.01	100.92	-0.0065	-0.244	0
200	SLU 57	-5.23	0.01	100.39	-0.0074	-0.2569	0
200	SLU 58	-4.78	0.01	99.91	-0.0066	-0.2365	0
200	SLU 59	-5.07	0.01	99.38	-0.0075	-0.2495	0
200	SLU 60	-5.43	0.01	103.93	-0.0088	-0.2658	0
200	SLU 61	-5.72	0.01	103.39	-0.0097	-0.2788	0
200	SLU 62	-5.34	0.01	105.02	-0.0085	-0.2623	0
200	SLU 63	-5.62	0.01	104.49	-0.0094	-0.2753	0
200	SLU 64	-4.47	0.01	95.74	-0.0059	-0.2208	0
200	SLU 65	-4.95	0.01	94.86	-0.0074	-0.2423	0
200	SLU 66	-4.54	0.01	97.84	-0.0055	-0.2247	0
200	SLU 67	-4.82	0.01	97.31	-0.0064	-0.2376	0
200	SLU 68	-4.86	0.01	95.95	-0.0071	-0.2388	0
200	SLU 69	-4.45	0.01	98.94	-0.0051	-0.2211	0
200	SLU 70	-4.73	0.01	98.4	-0.006	-0.2341	0
200	SLU 71	-4.29	0.01	97.92	-0.0052	-0.2137	0
200	SLU 72	-4.58	0.01	97.39	-0.0061	-0.2266	0
200	SLU 73	-6.03	0.01	109.32	-0.011	-0.2942	0
200	SLU 74	-5.62	0.01	112.31	-0.009	-0.2766	0
200	SLU 75	-5.9	0.01	111.78	-0.0099	-0.2895	0
200	SLU 76	-5.94	0.01	110.41	-0.0106	-0.2907	0
200	SLU 77	-5.52	0.01	113.4	-0.0087	-0.273	0
200	SLU 78	-5.81	0.01	112.87	-0.0096	-0.286	0
200	SLU 79	-5.37	0.01	112.39	-0.0087	-0.2656	0
200	SLU 80	-5.66	0.01	111.86	-0.0097	-0.2785	0
200	SLU 81	-6.01	0.01	116.4	-0.011	-0.2949	0
200	SLU 82	-6.3	0.01	115.87	-0.0119	-0.3079	0
200	SLU 83	-5.92	0.01	117.5	-0.0106	-0.2914	0
200	SLU 84	-6.21	0.01	116.97	-0.0115	-0.3043	0
200	SLE RA 1	-3.31	0	70.9	-0.004	-0.1634	0
200	SLE RA 2	-3.63	0	70.31	-0.0051	-0.1778	0
200	SLE RA 3	-3.35	0	72.31	-0.0038	-0.166	0
200	SLE RA 4	-3.55	0	71.95	-0.0044	-0.1747	0
200	SLE RA 5	-3.57	0	71.04	-0.0048	-0.1755	0
200	SLE RA 6	-3.29	0	73.03	-0.0035	-0.1637	0
200	SLE RA 7	-3.48	0	72.68	-0.0041	-0.1723	0
200	SLE RA 8	-3.19	0	72.36	-0.0036	-0.1587	0
200	SLE RA 9	-3.38	0	72	-0.0042	-0.1674	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
200	SLE RA 10	-4.35	0.01	79.96	-0.0074	-0.2124	0
200	SLE RA 11	-4.07	0.01	81.95	-0.0061	-0.2006	0
200	SLE RA 12	-4.26	0.01	81.6	-0.0068	-0.2093	0
200	SLE RA 13	-4.29	0.01	80.68	-0.0072	-0.2101	0
200	SLE RA 14	-4.01	0.01	82.68	-0.0059	-0.1983	0
200	SLE RA 15	-4.2	0.01	82.32	-0.0065	-0.2069	0
200	SLE RA 16	-3.91	0.01	82	-0.006	-0.1933	0
200	SLE RA 17	-4.1	0.01	81.65	-0.0066	-0.202	0
200	SLE RA 18	-4.34	0.01	84.68	-0.0075	-0.2129	0
200	SLE RA 19	-4.53	0.01	84.33	-0.0081	-0.2215	0
200	SLE RA 20	-4.28	0.01	85.41	-0.0072	-0.2105	0
200	SLE RA 21	-4.47	0.01	85.05	-0.0078	-0.2191	0
200	SLE FR 1	-3.31	0	70.9	-0.004	-0.1634	0
200	SLE FR 2	-3.38	0	70.78	-0.0043	-0.1663	0
200	SLE FR 3	-3.29	0	71.19	-0.004	-0.1625	0
200	SLE FR 4	-3.68	0.01	74.92	-0.0053	-0.1811	0
200	SLE FR 5	-3.6	0.01	75.33	-0.005	-0.1773	0
200	SLE FR 6	-3.83	0.01	77.79	-0.0057	-0.1881	0
200	SLE QP 1	-3.31	0	70.9	-0.004	-0.1634	0
200	SLE QP 2	-3.62	0.01	75.04	-0.0051	-0.1783	0
200	SLD 1	14.54	-0.05	76.96	0.0266	0.7252	0
200	SLD 2	14.54	-0.05	76.96	0.0266	0.7252	0
200	SLD 3	12.99	-0.21	81.64	0.171	0.6508	0.0001
200	SLD 4	12.99	-0.21	81.64	0.171	0.6508	0.0001
200	SLD 5	4.18	0.24	68.51	-0.2145	0.2057	0
200	SLD 6	4.18	0.24	68.51	-0.2145	0.2057	0
200	SLD 7	-0.99	-0.31	84.12	0.2667	-0.0425	0.0001
200	SLD 8	-0.99	-0.31	84.12	0.2667	-0.0425	0.0001
200	SLD 9	-6.25	0.32	65.95	-0.2769	-0.3141	-0.0001
200	SLD 10	-6.25	0.32	65.95	-0.2769	-0.3141	-0.0001
200	SLD 11	-11.42	-0.23	81.56	0.2044	-0.5622	0
200	SLD 12	-11.42	-0.23	81.56	0.2044	-0.5622	0
200	SLD 13	-20.23	0.22	68.43	-0.1811	-1.0073	-0.0001
200	SLD 14	-20.23	0.22	68.43	-0.1811	-1.0073	-0.0001
200	SLD 15	-21.78	0.06	73.11	-0.0367	-1.0817	0
200	SLD 16	-21.78	0.06	73.11	-0.0367	-1.0817	0
200	SLV 1	37.91	-0.14	79.44	0.0819	1.8883	0.0001
200	SLV 2	37.91	-0.14	79.44	0.0819	1.8883	0.0001
200	SLV 3	34.34	-0.54	90.44	0.4324	1.7165	0.0001
200	SLV 4	34.34	-0.54	90.44	0.4324	1.7165	0.0001
200	SLV 5	14.26	0.57	59.68	-0.5105	0.7022	-0.0001
200	SLV 6	14.26	0.57	59.68	-0.5105	0.7022	-0.0001
200	SLV 7	2.35	-0.76	96.34	0.6577	0.1297	0.0001
200	SLV 8	2.35	-0.76	96.34	0.6577	0.1297	0.0001
200	SLV 9	-9.59	0.78	53.74	-0.6679	-0.4862	-0.0001
200	SLV 10	-9.59	0.78	53.74	-0.6679	-0.4862	-0.0001
200	SLV 11	-21.5	-0.56	90.39	0.5004	-1.0587	0.0001
200	SLV 12	-21.5	-0.56	90.39	0.5004	-1.0587	0.0001
200	SLV 13	-41.58	0.55	59.63	-0.4425	-2.0731	-0.0001
200	SLV 14	-41.58	0.55	59.63	-0.4425	-2.0731	-0.0001
200	SLV 15	-45.15	0.15	70.63	-0.0921	-2.2448	-0.0001
200	SLV 16	-45.15	0.15	70.63	-0.0921	-2.2448	-0.0001
201	SLU 1	-6.34	0	68.61	-0.0014	-0.2966	0
201	SLU 2	-6.74	0	67.72	-0.0037	-0.3162	0
201	SLU 3	-6.51	0	70.86	-0.0011	-0.3051	0
201	SLU 4	-6.75	0	70.33	-0.0024	-0.3169	0
201	SLU 5	-6.72	0	68.9	-0.0034	-0.3151	0
201	SLU 6	-6.48	0	72.04	-0.0007	-0.304	0
201	SLU 7	-6.72	0	71.51	-0.0021	-0.3158	0
201	SLU 8	-6.28	0	70.97	-0.0007	-0.2944	0
201	SLU 9	-6.52	0	70.44	-0.0021	-0.3062	0
201	SLU 10	-8.48	0.01	82.46	-0.006	-0.3977	0
201	SLU 11	-8.24	0	85.6	-0.0033	-0.3865	0
201	SLU 12	-8.49	0	85.07	-0.0047	-0.3983	0
201	SLU 13	-8.45	0.01	83.64	-0.0056	-0.3966	0
201	SLU 14	-8.21	0	86.78	-0.0029	-0.3854	0
201	SLU 15	-8.46	0	86.25	-0.0043	-0.3972	0
201	SLU 16	-8.02	0	85.71	-0.003	-0.3759	0
201	SLU 17	-8.26	0	85.18	-0.0043	-0.3876	0
201	SLU 18	-8.82	0	89.66	-0.0046	-0.4129	0
201	SLU 19	-9.06	0.01	89.13	-0.006	-0.4247	0
201	SLU 20	-8.79	0	90.84	-0.0043	-0.4118	0
201	SLU 21	-9.04	0.01	90.31	-0.0056	-0.4236	0
201	SLU 22	-7.51	0	81.33	-0.0027	-0.3515	0
201	SLU 23	-7.92	0	80.44	-0.0049	-0.3712	0
201	SLU 24	-7.68	0	83.58	-0.0023	-0.36	0
201	SLU 25	-7.93	0	83.05	-0.0036	-0.3718	0
201	SLU 26	-7.89	0	81.62	-0.0046	-0.3701	0
201	SLU 27	-7.65	0	84.76	-0.0019	-0.3589	0
201	SLU 28	-7.9	0	84.23	-0.0033	-0.3707	0
201	SLU 29	-7.45	0	83.69	-0.0019	-0.3494	0
201	SLU 30	-7.7	0	83.15	-0.0033	-0.3612	0
201	SLU 31	-9.66	0.01	95.18	-0.0072	-0.4526	0
201	SLU 32	-9.42	0	98.32	-0.0045	-0.4414	0
201	SLU 33	-9.66	0.01	97.79	-0.0059	-0.4532	0
201	SLU 34	-9.63	0.01	96.36	-0.0068	-0.4515	0
201	SLU 35	-9.39	0	99.5	-0.0041	-0.4404	0
201	SLU 36	-9.63	0.01	98.97	-0.0055	-0.4522	0
201	SLU 37	-9.19	0	98.43	-0.0042	-0.4308	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
201	SLU 38	-9.44	0.01	97.89	-0.0055	-0.4426	0
201	SLU 39	-10	0.01	102.38	-0.0058	-0.4678	0
201	SLU 40	-10.24	0.01	101.85	-0.0072	-0.4796	0
201	SLU 41	-9.97	0.01	103.56	-0.0055	-0.4668	0
201	SLU 42	-10.21	0.01	103.03	-0.0068	-0.4786	0
201	SLU 43	-7.84	0	84.83	-0.0015	-0.3667	0
201	SLU 44	-8.24	0	83.94	-0.0038	-0.3864	0
201	SLU 45	-8	0	87.09	-0.0011	-0.3752	0
201	SLU 46	-8.25	0	86.55	-0.0024	-0.387	0
201	SLU 47	-8.21	0	85.12	-0.0034	-0.3853	0
201	SLU 48	-7.97	0	88.27	-0.0007	-0.3741	0
201	SLU 49	-8.22	0	87.73	-0.0021	-0.3859	0
201	SLU 50	-7.78	0	87.19	-0.0007	-0.3646	0
201	SLU 51	-8.02	0	86.66	-0.0021	-0.3764	0
201	SLU 52	-9.98	0.01	98.68	-0.006	-0.4678	0
201	SLU 53	-9.74	0	101.82	-0.0033	-0.4566	0
201	SLU 54	-9.99	0	101.29	-0.0047	-0.4684	0
201	SLU 55	-9.95	0.01	99.86	-0.0056	-0.4667	0
201	SLU 56	-9.71	0	103	-0.0029	-0.4556	0
201	SLU 57	-9.96	0	102.47	-0.0043	-0.4674	0
201	SLU 58	-9.52	0	101.93	-0.003	-0.446	0
201	SLU 59	-9.76	0	101.4	-0.0043	-0.4578	0
201	SLU 60	-10.32	0.01	105.89	-0.0047	-0.483	0
201	SLU 61	-10.56	0.01	105.36	-0.006	-0.4948	0
201	SLU 62	-10.29	0	107.07	-0.0043	-0.482	0
201	SLU 63	-10.53	0.01	106.54	-0.0057	-0.4938	0
201	SLU 64	-9.01	0	97.55	-0.0027	-0.4217	0
201	SLU 65	-9.42	0	96.66	-0.005	-0.4413	0
201	SLU 66	-9.18	0	99.8	-0.0023	-0.4301	0
201	SLU 67	-9.42	0	99.27	-0.0037	-0.4419	0
201	SLU 68	-9.39	0	97.84	-0.0046	-0.4402	0
201	SLU 69	-9.15	0	100.98	-0.0019	-0.4291	0
201	SLU 70	-9.39	0	100.45	-0.0033	-0.4409	0
201	SLU 71	-8.95	0	99.91	-0.0019	-0.4195	0
201	SLU 72	-9.2	0	99.38	-0.0033	-0.4313	0
201	SLU 73	-11.16	0.01	111.4	-0.0072	-0.5227	0
201	SLU 74	-10.92	0.01	114.54	-0.0045	-0.5116	0
201	SLU 75	-11.16	0.01	114.01	-0.0059	-0.5234	0
201	SLU 76	-11.13	0.01	112.58	-0.0068	-0.5217	0
201	SLU 77	-10.89	0	115.72	-0.0041	-0.5105	0
201	SLU 78	-11.13	0.01	115.19	-0.0055	-0.5223	0
201	SLU 79	-10.69	0	114.65	-0.0042	-0.5009	0
201	SLU 80	-10.94	0.01	114.12	-0.0055	-0.5127	0
201	SLU 81	-11.49	0.01	118.61	-0.0059	-0.538	0
201	SLU 82	-11.74	0.01	118.07	-0.0072	-0.5498	0
201	SLU 83	-11.47	0.01	119.79	-0.0055	-0.5369	0
201	SLU 84	-11.71	0.01	119.25	-0.0069	-0.5487	0
201	SLE RA 1	-6.67	0	72.24	-0.0018	-0.3123	0
201	SLE RA 2	-6.95	0	71.65	-0.0033	-0.3254	0
201	SLE RA 3	-6.79	0	73.75	-0.0015	-0.3179	0
201	SLE RA 4	-6.95	0	73.39	-0.0024	-0.3258	0
201	SLE RA 5	-6.93	0	72.44	-0.0031	-0.3247	0
201	SLE RA 6	-6.77	0	74.53	-0.0013	-0.3172	0
201	SLE RA 7	-6.93	0	74.18	-0.0022	-0.3251	0
201	SLE RA 8	-6.63	0	73.82	-0.0013	-0.3108	0
201	SLE RA 9	-6.8	0	73.46	-0.0022	-0.3187	0
201	SLE RA 10	-8.1	0	81.48	-0.0048	-0.3797	0
201	SLE RA 11	-7.94	0	83.57	-0.003	-0.3722	0
201	SLE RA 12	-8.11	0	83.22	-0.0039	-0.3801	0
201	SLE RA 13	-8.08	0	82.26	-0.0046	-0.3789	0
201	SLE RA 14	-7.92	0	84.36	-0.0028	-0.3715	0
201	SLE RA 15	-8.09	0	84	-0.0037	-0.3794	0
201	SLE RA 16	-7.79	0	83.64	-0.0028	-0.3651	0
201	SLE RA 17	-7.96	0	83.29	-0.0037	-0.373	0
201	SLE RA 18	-8.33	0	86.28	-0.0039	-0.3898	0
201	SLE RA 19	-8.49	0	85.93	-0.0048	-0.3977	0
201	SLE RA 20	-8.31	0	87.07	-0.0037	-0.3891	0
201	SLE RA 21	-8.47	0	86.71	-0.0046	-0.397	0
201	SLE FR 1	-6.67	0	72.24	-0.0018	-0.3123	0
201	SLE FR 2	-6.73	0	72.12	-0.0021	-0.3149	0
201	SLE FR 3	-6.67	0	72.56	-0.0017	-0.312	0
201	SLE FR 4	-7.22	0	76.34	-0.0027	-0.3382	0
201	SLE FR 5	-7.16	0	76.77	-0.0023	-0.3353	0
201	SLE FR 6	-7.5	0	79.26	-0.0029	-0.3511	0
201	SLE QP 1	-6.67	0	72.24	-0.0018	-0.3123	0
201	SLE QP 2	-7.17	0	76.45	-0.0024	-0.3355	0
201	SLD 1	10.34	-0.04	63.2	0.0249	0.5746	0.0001
201	SLD 2	10.34	-0.04	63.2	0.0249	0.5746	0.0001
201	SLD 3	8.67	-0.24	68.22	0.1988	0.4929	0
201	SLD 4	8.67	-0.24	68.22	0.1988	0.4929	0
201	SLD 5	0.6	0.29	64.86	-0.2579	0.0614	0.0001
201	SLD 6	0.6	0.29	64.86	-0.2579	0.0614	0.0001
201	SLD 7	-4.94	-0.37	81.6	0.3216	-0.2109	-0.0001
201	SLD 8	-4.94	-0.37	81.6	0.3216	-0.2109	-0.0001
201	SLD 9	-9.4	0.37	71.31	-0.3265	-0.4601	0.0001
201	SLD 10	-9.4	0.37	71.31	-0.3265	-0.4601	0.0001
201	SLD 11	-14.94	-0.28	88.05	0.2531	-0.7325	-0.0001
201	SLD 12	-14.94	-0.28	88.05	0.2531	-0.7325	-0.0001
201	SLD 13	-23.01	0.24	84.69	-0.2036	-1.164	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
201	SLD 14	-23.01	0.24	84.69	-0.2036	-1.164	0
201	SLD 15	-24.68	0.05	89.71	-0.0298	-1.2457	-0.0001
201	SLD 16	-24.68	0.05	89.71	-0.0298	-1.2457	-0.0001
201	SLV 1	32.88	-0.11	46.01	0.0745	1.7463	0.0002
201	SLV 2	32.88	-0.11	46.01	0.0745	1.7463	0.0002
201	SLV 3	29.03	-0.59	57.78	0.497	1.5575	0
201	SLV 4	29.03	-0.59	57.78	0.497	1.5575	0
201	SLV 5	10.67	0.69	49.47	-0.62	0.5753	0.0002
201	SLV 6	10.67	0.69	49.47	-0.62	0.5753	0.0002
201	SLV 7	-2.14	-0.89	88.7	0.7881	-0.0539	-0.0002
201	SLV 8	-2.14	-0.89	88.7	0.7881	-0.0539	-0.0002
201	SLV 9	-12.2	0.9	64.21	-0.7929	-0.6172	0.0002
201	SLV 10	-12.2	0.9	64.21	-0.7929	-0.6172	0.0002
201	SLV 11	-25.01	-0.68	103.44	0.6152	-1.2464	-0.0002
201	SLV 12	-25.01	-0.68	103.44	0.6152	-1.2464	-0.0002
201	SLV 13	-43.37	0.6	95.13	-0.5018	-2.2286	0
201	SLV 14	-43.37	0.6	95.13	-0.5018	-2.2286	0
201	SLV 15	-47.22	0.12	106.9	-0.0794	-2.4174	-0.0002
201	SLV 16	-47.22	0.12	106.9	-0.0794	-2.4174	-0.0002
202	SLU 1	-9.36	0	73.54	0.0008	-0.517	0
202	SLU 2	-9.6	0	72.82	-0.0023	-0.5295	0
202	SLU 3	-9.64	0	76.06	0.0012	-0.5335	0
202	SLU 4	-9.79	0	75.63	-0.0007	-0.5409	0
202	SLU 5	-9.66	0	74.1	-0.0019	-0.5335	0
202	SLU 6	-9.7	0	77.35	0.0015	-0.5375	0
202	SLU 7	-9.85	0	76.91	-0.0003	-0.545	0
202	SLU 8	-9.48	0	76.11	0.0015	-0.5252	0
202	SLU 9	-9.63	0	75.67	-0.0003	-0.5327	0
202	SLU 10	-11.9	0	88.82	-0.0032	-0.6566	0
202	SLU 11	-11.94	0	92.06	0.0002	-0.6606	0
202	SLU 12	-12.09	0	91.63	-0.0016	-0.668	0
202	SLU 13	-11.96	0	90.1	-0.0028	-0.6606	0
202	SLU 14	-12	0	93.34	-0.0006	-0.6646	0
202	SLU 15	-12.15	0	92.91	-0.0012	-0.6721	0
202	SLU 16	-11.78	0	92.1	0.0006	-0.6523	0
202	SLU 17	-11.93	0	91.67	-0.0012	-0.6597	0
202	SLU 18	-12.65	0	96.39	-0.0005	-0.6986	0
202	SLU 19	-12.79	0	95.96	-0.0024	-0.7061	0
202	SLU 20	-12.71	0	97.67	-0.0002	-0.7027	0
202	SLU 21	-12.85	0	97.24	-0.002	-0.7101	0
202	SLU 22	-11.11	0	87.21	0.0005	-0.6139	0
202	SLU 23	-11.34	0	86.49	-0.0025	-0.6263	0
202	SLU 24	-11.39	0	89.73	0.0009	-0.6303	0
202	SLU 25	-11.53	0	89.3	-0.0009	-0.6378	0
202	SLU 26	-11.41	0	87.77	-0.0022	-0.6304	0
202	SLU 27	-11.45	0	91.01	0.0013	-0.6344	0
202	SLU 28	-11.59	0	90.58	-0.0006	-0.6418	0
202	SLU 29	-11.23	0	89.77	0.0013	-0.6221	0
202	SLU 30	-11.37	0	89.34	-0.0006	-0.6295	0
202	SLU 31	-13.64	0	102.48	-0.0034	-0.7534	0
202	SLU 32	-13.69	0	105.72	0	-0.7574	0
202	SLU 33	-13.83	0	105.29	-0.0019	-0.7649	0
202	SLU 34	-13.71	0	103.76	-0.0031	-0.7575	0
202	SLU 35	-13.75	0	107.01	0.0003	-0.7615	0
202	SLU 36	-13.89	0	106.57	-0.0015	-0.7689	0
202	SLU 37	-13.53	0	105.77	0.0004	-0.7492	0
202	SLU 38	-13.67	0	105.34	-0.0015	-0.7566	0
202	SLU 39	-14.39	0	110.06	-0.0008	-0.7955	0
202	SLU 40	-14.53	0	109.62	-0.0026	-0.8029	0
202	SLU 41	-14.45	0	111.34	-0.0004	-0.7995	0
202	SLU 42	-14.6	0	110.91	-0.0022	-0.807	0
202	SLU 43	-11.57	0	90.92	0.0011	-0.6389	0
202	SLU 44	-11.81	0	90.2	-0.0019	-0.6514	0
202	SLU 45	-11.85	0	93.44	0.0015	-0.6554	0
202	SLU 46	-12	0	93.01	-0.0003	-0.6628	0
202	SLU 47	-11.87	0	91.48	-0.0016	-0.6554	0
202	SLU 48	-11.91	0	94.72	0.0019	-0.6594	0
202	SLU 49	-12.06	0	94.29	0	-0.6669	0
202	SLU 50	-11.69	0	93.48	0.0019	-0.6471	0
202	SLU 51	-11.84	0	93.05	0	-0.6546	0
202	SLU 52	-14.11	0	106.19	-0.0029	-0.7785	0
202	SLU 53	-14.15	0	109.44	0.0006	-0.7825	0
202	SLU 54	-14.3	0	109	-0.0013	-0.7899	0
202	SLU 55	-14.17	0	107.48	-0.0025	-0.7825	0
202	SLU 56	-14.21	0	110.72	0.0009	-0.7865	0
202	SLU 57	-14.36	0	110.29	-0.0009	-0.794	0
202	SLU 58	-13.99	0	109.48	0.0009	-0.7742	0
202	SLU 59	-14.14	0	109.05	-0.0009	-0.7817	0
202	SLU 60	-14.86	0	113.77	-0.0002	-0.8205	0
202	SLU 61	-15	0	113.34	-0.002	-0.828	0
202	SLU 62	-14.92	0	115.05	0.0002	-0.8246	0
202	SLU 63	-15.06	0	114.62	-0.0017	-0.832	0
202	SLU 64	-13.32	0	104.58	0.0009	-0.7358	0
202	SLU 65	-13.55	0	103.86	-0.0022	-0.7482	0
202	SLU 66	-13.6	0	107.11	0.0012	-0.7522	0
202	SLU 67	-13.74	0	106.67	-0.0006	-0.7597	0
202	SLU 68	-13.62	0	105.15	-0.0018	-0.7523	0
202	SLU 69	-13.66	0	108.39	0.0016	-0.7563	0
202	SLU 70	-13.8	0	107.96	-0.0002	-0.7637	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
202	SLU 71	-13.44	0	107.15	0.0016	-0.744	0
202	SLU 72	-13.58	0	106.72	-0.0002	-0.7514	0
202	SLU 73	-15.85	0	119.86	-0.0031	-0.8753	0
202	SLU 74	-15.9	0	123.1	0.0003	-0.8793	0
202	SLU 75	-16.04	0	122.67	-0.0015	-0.8868	0
202	SLU 76	-15.92	0	121.14	-0.0027	-0.8794	0
202	SLU 77	-15.96	0	124.38	0.0007	-0.8834	0
202	SLU 78	-16.1	0	123.95	-0.0012	-0.8908	0
202	SLU 79	-15.74	0	123.14	0.0007	-0.8711	0
202	SLU 80	-15.88	0	122.71	-0.0012	-0.8785	0
202	SLU 81	-16.6	0	127.43	-0.0004	-0.9174	0
202	SLU 82	-16.74	0	127	-0.0023	-0.9248	0
202	SLU 83	-16.66	0	128.72	-0.0001	-0.9214	0
202	SLU 84	-16.81	0	128.28	-0.0019	-0.9289	0
202	SLE RA 1	-9.86	0	77.45	0.0007	-0.5447	0
202	SLE RA 2	-10.02	0	76.97	-0.0013	-0.553	0
202	SLE RA 3	-10.05	0	79.13	0.001	-0.5557	0
202	SLE RA 4	-10.14	0	78.84	-0.0003	-0.5606	0
202	SLE RA 5	-10.06	0	77.82	-0.0011	-0.5557	0
202	SLE RA 6	-10.09	0	79.98	0.0012	-0.5584	0
202	SLE RA 7	-10.18	0	79.69	0	-0.5633	0
202	SLE RA 8	-9.94	0	79.16	0.0012	-0.5502	0
202	SLE RA 9	-10.04	0	78.87	0	-0.5551	0
202	SLE RA 10	-11.55	0	87.63	-0.0019	-0.6377	0
202	SLE RA 11	-11.58	0	89.79	0.0004	-0.6404	0
202	SLE RA 12	-11.68	0	89.5	-0.0009	-0.6454	0
202	SLE RA 13	-11.59	0	88.48	-0.0017	-0.6404	0
202	SLE RA 14	-11.62	0	90.65	0.0006	-0.6431	0
202	SLE RA 15	-11.72	0	90.36	-0.0006	-0.6481	0
202	SLE RA 16	-11.47	0	89.82	0.0006	-0.6349	0
202	SLE RA 17	-11.57	0	89.53	-0.0006	-0.6399	0
202	SLE RA 18	-12.05	0	92.68	-0.0002	-0.6658	0
202	SLE RA 19	-12.15	0	92.39	-0.0014	-0.6707	0
202	SLE RA 20	-12.09	0	93.53	0.0001	-0.6685	0
202	SLE RA 21	-12.19	0	93.25	-0.0011	-0.6734	0
202	SLE FR 1	-9.86	0	77.45	0.0007	-0.5447	0
202	SLE FR 2	-9.89	0	77.35	0.0003	-0.5464	0
202	SLE FR 3	-9.88	0	77.79	0.0008	-0.5458	0
202	SLE FR 4	-10.55	0	81.92	0.0001	-0.5827	0
202	SLE FR 5	-10.53	0	82.36	0.0006	-0.5821	0
202	SLE FR 6	-10.96	0	85.06	0.0003	-0.6052	0
202	SLE QP 1	-9.86	0	77.45	0.0007	-0.5447	0
202	SLE QP 2	-10.52	0	82.02	0.0005	-0.581	0
202	SLD 1	3.7	-0.03	46.49	0.0193	0.2748	0
202	SLD 2	3.7	-0.03	46.49	0.0193	0.2748	0
202	SLD 3	2.14	-0.27	52.71	0.2036	0.1863	-0.0006
202	SLD 4	2.14	-0.27	52.71	0.2036	0.1863	-0.0006
202	SLD 5	-3.88	0.36	61.92	-0.2734	-0.19	0.0009
202	SLD 6	-3.88	0.36	61.92	-0.2734	-0.19	0.0009
202	SLD 7	-9.09	-0.45	82.66	0.3409	-0.4851	-0.0011
202	SLD 8	-9.09	-0.45	82.66	0.3409	-0.4851	-0.0011
202	SLD 9	-11.94	0.44	81.37	-0.34	-0.677	0.0011
202	SLD 10	-11.94	0.44	81.37	-0.34	-0.677	0.0011
202	SLD 11	-17.15	-0.36	102.11	0.2743	-0.972	-0.0009
202	SLD 12	-17.15	-0.36	102.11	0.2743	-0.972	-0.0009
202	SLD 13	-23.17	0.27	111.32	-0.2026	-1.3483	0.0006
202	SLD 14	-23.17	0.27	111.32	-0.2026	-1.3483	0.0006
202	SLD 15	-24.74	0.03	117.54	-0.0183	-1.4368	0
202	SLD 16	-24.74	0.03	117.54	-0.0183	-1.4368	0
202	SLV 1	22.01	-0.08	0.69	0.0559	1.3767	-0.0001
202	SLV 2	22.01	-0.08	0.69	0.0559	1.3767	-0.0001
202	SLV 3	18.39	-0.66	15.2	0.5035	1.1718	-0.0015
202	SLV 4	18.39	-0.66	15.2	0.5035	1.1718	-0.0015
202	SLV 5	4.73	0.86	35.6	-0.6618	0.3169	0.0021
202	SLV 6	4.73	0.86	35.6	-0.6618	0.3169	0.0021
202	SLV 7	-7.34	-1.09	83.99	0.8303	-0.3658	-0.0026
202	SLV 8	-7.34	-1.09	83.99	0.8303	-0.3658	-0.0026
202	SLV 9	-13.7	1.08	80.04	-0.8293	-0.7962	0.0026
202	SLV 10	-13.7	1.08	80.04	-0.8293	-0.7962	0.0026
202	SLV 11	-25.77	-0.86	128.43	0.6627	-1.479	-0.0021
202	SLV 12	-25.77	-0.86	128.43	0.6627	-1.479	-0.0021
202	SLV 13	-39.42	0.66	148.83	-0.5026	-2.3339	0.0015
202	SLV 14	-39.42	0.66	148.83	-0.5026	-2.3339	0.0015
202	SLV 15	-43.04	0.08	163.34	-0.0549	-2.5387	0.0001
202	SLV 16	-43.04	0.08	163.34	-0.0549	-2.5387	0.0001
203	SLU 1	-12.65	-0.01	45.31	0.0013	-0.3245	0.0003
203	SLU 2	-12.7	-0.01	45.12	-0.0004	-0.3297	0
203	SLU 3	-13.08	-0.01	46.89	0.0015	-0.3352	0.0003
203	SLU 4	-13.11	-0.01	46.77	0.0005	-0.3383	0.0001
203	SLU 5	-12.88	-0.01	45.87	-0.0002	-0.3332	0
203	SLU 6	-13.26	-0.01	47.64	0.0017	-0.3387	0.0003
203	SLU 7	-13.28	-0.01	47.52	0.0006	-0.3418	0.0002
203	SLU 8	-13	-0.01	46.81	0.0017	-0.3314	0.0003
203	SLU 9	-13.03	-0.01	46.69	0.0006	-0.3346	0.0002
203	SLU 10	-15.6	-0.01	55.19	-0.0003	-0.4069	0
203	SLU 11	-15.98	-0.01	56.96	0.0016	-0.4124	0.0003
203	SLU 12	-16.01	-0.01	56.84	0.0005	-0.4155	0.0002
203	SLU 13	-15.78	-0.01	55.94	-0.0001	-0.4104	0
203	SLU 14	-16.16	-0.01	57.71	0.0018	-0.4159	0.0004





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
203	SLU 15	-16.19	-0.01	57.59	0.0007	-0.419	0.0002
203	SLU 16	-15.9	-0.01	56.88	0.0018	-0.4086	0.0004
203	SLU 17	-15.93	-0.01	56.76	0.0007	-0.4118	0.0002
203	SLU 18	-16.8	-0.01	59.7	0.0015	-0.4347	0.0003
203	SLU 19	-16.83	-0.01	59.58	0.0004	-0.4379	0.0002
203	SLU 20	-16.97	-0.01	60.45	0.0016	-0.4382	0.0004
203	SLU 21	-17	-0.01	60.33	0.0006	-0.4414	0.0002
203	SLU 22	-15.02	-0.01	53.76	0.0016	-0.3851	0.0003
203	SLU 23	-15.07	-0.01	53.56	-0.0001	-0.3903	0
203	SLU 24	-15.44	-0.01	55.33	0.0018	-0.3958	0.0004
203	SLU 25	-15.47	-0.01	55.22	0.0007	-0.3989	0.0002
203	SLU 26	-15.24	-0.01	54.31	0	-0.3938	0.0001
203	SLU 27	-15.62	-0.01	56.08	0.0019	-0.3993	0.0004
203	SLU 28	-15.65	-0.01	55.97	0.0009	-0.4024	0.0002
203	SLU 29	-15.37	-0.01	55.25	0.0019	-0.3921	0.0004
203	SLU 30	-15.4	-0.01	55.14	0.0009	-0.3952	0.0002
203	SLU 31	-17.97	-0.01	63.63	0	-0.4675	0.0001
203	SLU 32	-18.34	-0.01	65.4	0.0018	-0.473	0.0004
203	SLU 33	-18.37	-0.01	65.29	0.0008	-0.4761	0.0002
203	SLU 34	-18.14	-0.01	64.38	0.0001	-0.471	0.0001
203	SLU 35	-18.52	-0.01	66.15	0.002	-0.4765	0.0004
203	SLU 36	-18.55	-0.01	66.04	0.001	-0.4796	0.0003
203	SLU 37	-18.27	-0.01	65.32	0.002	-0.4692	0.0004
203	SLU 38	-18.3	-0.01	65.21	0.001	-0.4724	0.0003
203	SLU 39	-19.16	-0.02	68.14	0.0017	-0.4954	0.0004
203	SLU 40	-19.19	-0.01	68.03	0.0007	-0.4985	0.0002
203	SLU 41	-19.34	-0.02	68.89	0.0019	-0.4988	0.0004
203	SLU 42	-19.37	-0.01	68.77	0.0009	-0.502	0.0003
203	SLU 43	-15.64	-0.01	56.01	0.0016	-0.401	0.0003
203	SLU 44	-15.69	-0.01	55.82	-0.0001	-0.4062	0
203	SLU 45	-16.06	-0.01	57.59	0.0018	-0.4117	0.0004
203	SLU 46	-16.09	-0.01	57.47	0.0008	-0.4149	0.0002
203	SLU 47	-15.86	-0.01	56.56	0.0001	-0.4097	0.0001
203	SLU 48	-16.24	-0.01	58.34	0.002	-0.4152	0.0004
203	SLU 49	-16.27	-0.01	58.22	0.0009	-0.4184	0.0002
203	SLU 50	-15.99	-0.01	57.51	0.002	-0.408	0.0004
203	SLU 51	-16.02	-0.01	57.39	0.0009	-0.4111	0.0002
203	SLU 52	-18.59	-0.01	65.88	0	-0.4834	0.0001
203	SLU 53	-18.96	-0.01	67.66	0.0019	-0.4889	0.0004
203	SLU 54	-18.99	-0.01	67.54	0.0009	-0.4921	0.0002
203	SLU 55	-18.76	-0.01	66.63	0.0002	-0.4869	0.0001
203	SLU 56	-19.14	-0.01	68.41	0.0021	-0.4924	0.0004
203	SLU 57	-19.17	-0.01	68.29	0.001	-0.4955	0.0003
203	SLU 58	-18.89	-0.01	67.58	0.0021	-0.4852	0.0004
203	SLU 59	-18.92	-0.01	67.46	0.001	-0.4883	0.0003
203	SLU 60	-19.78	-0.01	70.4	0.0018	-0.5113	0.0004
203	SLU 61	-19.81	-0.01	70.28	0.0007	-0.5144	0.0002
203	SLU 62	-19.96	-0.01	71.14	0.0019	-0.5148	0.0004
203	SLU 63	-19.99	-0.01	71.03	0.0009	-0.5179	0.0002
203	SLU 64	-18	-0.01	64.46	0.0019	-0.4616	0.0004
203	SLU 65	-18.05	-0.01	64.26	0.0002	-0.4668	0.0001
203	SLU 66	-18.43	-0.01	66.03	0.0021	-0.4724	0.0004
203	SLU 67	-18.46	-0.01	65.92	0.001	-0.4755	0.0002
203	SLU 68	-18.23	-0.01	65.01	0.0004	-0.4703	0.0001
203	SLU 69	-18.61	-0.01	66.78	0.0022	-0.4758	0.0005
203	SLU 70	-18.63	-0.01	66.66	0.0012	-0.479	0.0003
203	SLU 71	-18.35	-0.01	65.95	0.0022	-0.4686	0.0005
203	SLU 72	-18.38	-0.01	65.84	0.0012	-0.4717	0.0003
203	SLU 73	-20.95	-0.01	74.33	0.0003	-0.544	0.0001
203	SLU 74	-21.33	-0.02	76.1	0.0022	-0.5495	0.0005
203	SLU 75	-21.36	-0.01	75.99	0.0011	-0.5527	0.0003
203	SLU 76	-21.13	-0.01	75.08	0.0004	-0.5475	0.0002
203	SLU 77	-21.51	-0.02	76.85	0.0023	-0.553	0.0005
203	SLU 78	-21.53	-0.01	76.73	0.0013	-0.5562	0.0003
203	SLU 79	-21.25	-0.02	76.02	0.0023	-0.5458	0.0005
203	SLU 80	-21.28	-0.01	75.91	0.0013	-0.5489	0.0003
203	SLU 81	-22.15	-0.02	78.84	0.002	-0.5719	0.0005
203	SLU 82	-22.18	-0.02	78.72	0.001	-0.575	0.0003
203	SLU 83	-22.32	-0.02	79.59	0.0022	-0.5754	0.0005
203	SLU 84	-22.35	-0.02	79.47	0.0012	-0.5785	0.0003
203	SLE RA 1	-13.33	-0.01	47.72	0.0014	-0.3418	0.0003
203	SLE RA 2	-13.36	-0.01	47.59	0.0003	-0.3453	0.0001
203	SLE RA 3	-13.61	-0.01	48.78	0.0015	-0.3489	0.0003
203	SLE RA 4	-13.63	-0.01	48.7	0.0008	-0.351	0.0002
203	SLE RA 5	-13.48	-0.01	48.09	0.0004	-0.3476	0.0001
203	SLE RA 6	-13.73	-0.01	49.28	0.0016	-0.3513	0.0003
203	SLE RA 7	-13.75	-0.01	49.2	0.0009	-0.3533	0.0002
203	SLE RA 8	-13.56	-0.01	48.72	0.0016	-0.3464	0.0003
203	SLE RA 9	-13.58	-0.01	48.65	0.0009	-0.3485	0.0002
203	SLE RA 10	-15.29	-0.01	54.31	0.0003	-0.3967	0.0001
203	SLE RA 11	-15.55	-0.01	55.49	0.0016	-0.4004	0.0003
203	SLE RA 12	-15.57	-0.01	55.41	0.0009	-0.4025	0.0002
203	SLE RA 13	-15.41	-0.01	54.81	0.0004	-0.399	0.0001
203	SLE RA 14	-15.66	-0.01	55.99	0.0017	-0.4027	0.0004
203	SLE RA 15	-15.68	-0.01	55.91	0.001	-0.4048	0.0002
203	SLE RA 16	-15.5	-0.01	55.44	0.0017	-0.3979	0.0004
203	SLE RA 17	-15.52	-0.01	55.36	0.001	-0.4	0.0002
203	SLE RA 18	-16.09	-0.01	57.32	0.0015	-0.4153	0.0003
203	SLE RA 19	-16.11	-0.01	57.24	0.0008	-0.4174	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
203	SLE RA 20	-16.21	-0.01	57.81	0.0016	-0.4176	0.0004
203	SLE RA 21	-16.23	-0.01	57.74	0.0009	-0.4197	0.0002
203	SLE FR 1	-13.33	-0.01	47.72	0.0014	-0.3418	0.0003
203	SLE FR 2	-13.33	-0.01	47.7	0.0012	-0.3425	0.0003
203	SLE FR 3	-13.38	-0.01	47.92	0.0015	-0.3427	0.0003
203	SLE FR 4	-14.16	-0.01	50.58	0.0012	-0.3645	0.0003
203	SLE FR 5	-14.2	-0.01	50.8	0.0015	-0.3648	0.0003
203	SLE FR 6	-14.71	-0.01	52.52	0.0015	-0.3785	0.0003
203	SLE QP 1	-13.33	-0.01	47.72	0.0014	-0.3418	0.0003
203	SLE QP 2	-14.16	-0.01	50.6	0.0014	-0.3638	0.0003
203	SLD 1	-1.69	0.02	15.74	0.0067	0.0902	0.001
203	SLD 2	-1.69	0.02	15.74	0.0067	0.0902	0.001
203	SLD 3	-3.19	0.06	20.3	0.092	0.0422	0.015
203	SLD 4	-3.19	0.06	20.3	0.092	0.0422	0.015
203	SLD 5	-8.13	-0.06	33.22	-0.1264	-0.1548	-0.0208
203	SLD 6	-8.13	-0.06	33.22	-0.1264	-0.1548	-0.0208
203	SLD 7	-13.15	0.07	48.44	0.158	-0.3148	0.026
203	SLD 8	-13.15	0.07	48.44	0.158	-0.3148	0.026
203	SLD 9	-15.16	-0.09	52.77	-0.1551	-0.4128	-0.0254
203	SLD 10	-15.16	-0.09	52.77	-0.1551	-0.4128	-0.0254
203	SLD 11	-20.18	0.04	67.98	0.1292	-0.5729	0.0214
203	SLD 12	-20.18	0.04	67.98	0.1292	-0.5729	0.0214
203	SLD 13	-25.12	-0.08	80.9	-0.0891	-0.7699	-0.0144
203	SLD 14	-25.12	-0.08	80.9	-0.0891	-0.7699	-0.0144
203	SLD 15	-26.62	-0.04	85.46	-0.0038	-0.8179	-0.0004
203	SLD 16	-26.62	-0.04	85.46	-0.0038	-0.8179	-0.0004
203	SLV 1	14.37	0.07	-29.16	0.0183	0.6749	0.0026
203	SLV 2	14.37	0.07	-29.16	0.0183	0.6749	0.0026
203	SLV 3	10.87	0.16	-18.55	0.2253	0.5637	0.0367
203	SLV 4	10.87	0.16	-18.55	0.2253	0.5637	0.0367
203	SLV 5	-0.3	-0.12	10.58	-0.3076	0.1164	-0.0506
203	SLV 6	-0.3	-0.12	10.58	-0.3076	0.1164	-0.0506
203	SLV 7	-11.95	0.18	45.95	0.3826	-0.2542	0.0629
203	SLV 8	-11.95	0.18	45.95	0.3826	-0.2542	0.0629
203	SLV 9	-16.37	-0.2	55.25	-0.3798	-0.4734	-0.0622
203	SLV 10	-16.37	-0.2	55.25	-0.3798	-0.4734	-0.0622
203	SLV 11	-28.01	0.11	90.63	0.3104	-0.8441	0.0513
203	SLV 12	-28.01	0.11	90.63	0.3104	-0.8441	0.0513
203	SLV 13	-39.19	-0.17	119.75	-0.2224	-1.2914	-0.0361
203	SLV 14	-39.19	-0.17	119.75	-0.2224	-1.2914	-0.0361
203	SLV 15	-42.68	-0.08	130.37	-0.0154	-1.4026	-0.002
203	SLV 16	-42.68	-0.08	130.37	-0.0154	-1.4026	-0.002
204	SLU 1	6.67	-0.04	24.57	0.0126	0.0484	-0.0029
204	SLU 2	6.02	-0.02	22.39	0.0087	0.0397	-0.002
204	SLU 3	6.94	-0.04	25.55	0.0134	0.0501	-0.0031
204	SLU 4	6.55	-0.03	24.24	0.0111	0.0449	-0.0025
204	SLU 5	6.23	-0.02	23.15	0.0094	0.0417	-0.0021
204	SLU 6	7.16	-0.04	26.31	0.0141	0.0521	-0.0032
204	SLU 7	6.77	-0.03	25	0.0117	0.0469	-0.0027
204	SLU 8	7.1	-0.04	26.1	0.014	0.0523	-0.0032
204	SLU 9	6.71	-0.03	24.79	0.0117	0.0471	-0.0026
204	SLU 10	7.22	-0.03	26.88	0.0109	0.046	-0.0025
204	SLU 11	8.15	-0.05	30.03	0.0155	0.0564	-0.0036
204	SLU 12	7.75	-0.04	28.73	0.0132	0.0512	-0.003
204	SLU 13	7.44	-0.03	27.64	0.0116	0.0479	-0.0026
204	SLU 14	8.36	-0.05	30.8	0.0162	0.0584	-0.0037
204	SLU 15	7.97	-0.04	29.49	0.0139	0.0532	-0.0032
204	SLU 16	8.31	-0.05	30.58	0.0161	0.0586	-0.0037
204	SLU 17	7.92	-0.04	29.28	0.0138	0.0534	-0.0031
204	SLU 18	8.39	-0.05	30.98	0.0157	0.0574	-0.0036
204	SLU 19	8	-0.04	29.67	0.0133	0.0522	-0.003
204	SLU 20	8.61	-0.05	31.74	0.0164	0.0594	-0.0037
204	SLU 21	8.22	-0.04	30.44	0.014	0.0541	-0.0032
204	SLU 22	7.86	-0.05	28.95	0.0148	0.056	-0.0034
204	SLU 23	7.2	-0.03	26.77	0.0109	0.0473	-0.0025
204	SLU 24	8.13	-0.05	29.92	0.0156	0.0577	-0.0036
204	SLU 25	7.74	-0.04	28.62	0.0132	0.0525	-0.003
204	SLU 26	7.42	-0.03	27.53	0.0116	0.0492	-0.0026
204	SLU 27	8.35	-0.05	30.69	0.0162	0.0596	-0.0037
204	SLU 28	7.95	-0.04	29.38	0.0139	0.0544	-0.0032
204	SLU 29	8.29	-0.05	30.47	0.0162	0.0599	-0.0037
204	SLU 30	7.9	-0.04	29.17	0.0138	0.0547	-0.0031
204	SLU 31	8.41	-0.04	31.25	0.0131	0.0535	-0.003
204	SLU 32	9.33	-0.06	34.41	0.0177	0.064	-0.004
204	SLU 33	8.94	-0.05	33.1	0.0154	0.0588	-0.0035
204	SLU 34	8.62	-0.04	32.02	0.0137	0.0555	-0.0031
204	SLU 35	9.55	-0.06	35.18	0.0184	0.0659	-0.0042
204	SLU 36	9.16	-0.05	33.87	0.0161	0.0607	-0.0036
204	SLU 37	9.5	-0.06	34.96	0.0183	0.0662	-0.0042
204	SLU 38	9.1	-0.05	33.65	0.016	0.061	-0.0036
204	SLU 39	9.58	-0.06	35.36	0.0178	0.065	-0.0041
204	SLU 40	9.19	-0.05	34.05	0.0155	0.0597	-0.0035
204	SLU 41	9.8	-0.06	36.12	0.0185	0.0669	-0.0042
204	SLU 42	9.4	-0.05	34.81	0.0162	0.0617	-0.0037
204	SLU 43	8.26	-0.05	30.44	0.0157	0.0603	-0.0036
204	SLU 44	7.61	-0.03	28.26	0.0118	0.0516	-0.0027
204	SLU 45	8.54	-0.05	31.42	0.0164	0.0621	-0.0038
204	SLU 46	8.14	-0.04	30.11	0.0141	0.0568	-0.0032
204	SLU 47	7.83	-0.03	29.02	0.0125	0.0536	-0.0028



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
204	SLU 48	8.75	-0.05	32.18	0.0171	0.064	-0.0039
204	SLU 49	8.36	-0.04	30.87	0.0148	0.0588	-0.0034
204	SLU 50	8.7	-0.05	31.96	0.017	0.0643	-0.0039
204	SLU 51	8.31	-0.04	30.66	0.0147	0.059	-0.0033
204	SLU 52	8.82	-0.04	32.75	0.0139	0.0579	-0.0032
204	SLU 53	9.74	-0.06	35.9	0.0186	0.0684	-0.0042
204	SLU 54	9.35	-0.05	34.6	0.0162	0.0631	-0.0037
204	SLU 55	9.03	-0.04	33.51	0.0146	0.0599	-0.0033
204	SLU 56	9.96	-0.06	36.67	0.0192	0.0703	-0.0044
204	SLU 57	9.57	-0.05	35.36	0.0169	0.0651	-0.0039
204	SLU 58	9.9	-0.06	36.45	0.0192	0.0706	-0.0044
204	SLU 59	9.51	-0.05	35.14	0.0168	0.0653	-0.0038
204	SLU 60	9.99	-0.06	36.85	0.0187	0.0693	-0.0043
204	SLU 61	9.59	-0.05	35.54	0.0164	0.0641	-0.0037
204	SLU 62	10.2	-0.06	37.61	0.0194	0.0713	-0.0044
204	SLU 63	9.81	-0.05	36.3	0.0171	0.0661	-0.0039
204	SLU 64	9.45	-0.06	34.82	0.0178	0.0679	-0.0041
204	SLU 65	8.8	-0.04	32.64	0.014	0.0592	-0.0032
204	SLU 66	9.72	-0.06	35.79	0.0186	0.0696	-0.0043
204	SLU 67	9.33	-0.05	34.49	0.0163	0.0644	-0.0037
204	SLU 68	9.01	-0.04	33.4	0.0146	0.0611	-0.0033
204	SLU 69	9.94	-0.06	36.56	0.0193	0.0716	-0.0044
204	SLU 70	9.55	-0.05	35.25	0.0169	0.0663	-0.0039
204	SLU 71	9.89	-0.06	36.34	0.0192	0.0718	-0.0044
204	SLU 72	9.49	-0.05	35.03	0.0169	0.0666	-0.0038
204	SLU 73	10	-0.05	37.12	0.0161	0.0655	-0.0037
204	SLU 74	10.93	-0.07	40.28	0.0207	0.0759	-0.0047
204	SLU 75	10.53	-0.06	38.97	0.0184	0.0707	-0.0042
204	SLU 76	10.22	-0.05	37.89	0.0168	0.0674	-0.0038
204	SLU 77	11.14	-0.07	41.05	0.0214	0.0779	-0.0049
204	SLU 78	10.75	-0.06	39.74	0.0191	0.0726	-0.0043
204	SLU 79	11.09	-0.07	40.83	0.0213	0.0781	-0.0049
204	SLU 80	10.7	-0.06	39.52	0.019	0.0729	-0.0043
204	SLU 81	11.17	-0.07	41.23	0.0209	0.0769	-0.0048
204	SLU 82	10.78	-0.06	39.92	0.0186	0.0717	-0.0042
204	SLU 83	11.39	-0.07	41.99	0.0216	0.0789	-0.0049
204	SLU 84	11	-0.06	40.68	0.0192	0.0736	-0.0044
204	SLE RA 1	7.01	-0.04	25.82	0.0132	0.0506	-0.003
204	SLE RA 2	6.57	-0.03	24.37	0.0107	0.0448	-0.0024
204	SLE RA 3	7.19	-0.04	26.47	0.0137	0.0517	-0.0031
204	SLE RA 4	6.93	-0.04	25.6	0.0122	0.0482	-0.0028
204	SLE RA 5	6.72	-0.03	24.87	0.0111	0.0461	-0.0025
204	SLE RA 6	7.33	-0.04	26.98	0.0142	0.053	-0.0032
204	SLE RA 7	7.07	-0.04	26.11	0.0127	0.0495	-0.0029
204	SLE RA 8	7.3	-0.04	26.84	0.0141	0.0532	-0.0032
204	SLE RA 9	7.04	-0.04	25.96	0.0126	0.0497	-0.0029
204	SLE RA 10	7.38	-0.04	27.36	0.0121	0.049	-0.0027
204	SLE RA 11	7.99	-0.05	29.46	0.0152	0.0559	-0.0035
204	SLE RA 12	7.73	-0.04	28.59	0.0136	0.0524	-0.0031
204	SLE RA 13	7.52	-0.04	27.87	0.0125	0.0503	-0.0029
204	SLE RA 14	8.14	-0.05	29.97	0.0156	0.0572	-0.0036
204	SLE RA 15	7.88	-0.04	29.1	0.0141	0.0537	-0.0032
204	SLE RA 16	8.1	-0.05	29.83	0.0156	0.0574	-0.0036
204	SLE RA 17	7.84	-0.04	28.96	0.014	0.0539	-0.0032
204	SLE RA 18	8.16	-0.05	30.09	0.0153	0.0566	-0.0035
204	SLE RA 19	7.9	-0.04	29.22	0.0137	0.0531	-0.0031
204	SLE RA 20	8.3	-0.05	30.6	0.0157	0.0579	-0.0036
204	SLE RA 21	8.04	-0.04	29.73	0.0142	0.0544	-0.0032
204	SLE FR 1	7.01	-0.04	25.82	0.0132	0.0506	-0.003
204	SLE FR 2	6.92	-0.04	25.53	0.0127	0.0494	-0.0029
204	SLE FR 3	7.07	-0.04	26.02	0.0134	0.0511	-0.0031
204	SLE FR 4	7.27	-0.04	26.81	0.0133	0.0512	-0.0031
204	SLE FR 5	7.41	-0.04	27.31	0.014	0.0529	-0.0032
204	SLE FR 6	7.58	-0.05	27.96	0.0143	0.0536	-0.0033
204	SLE QP 1	7.01	-0.04	25.82	0.0132	0.0506	-0.003
204	SLE QP 2	7.35	-0.04	27.1	0.0138	0.0524	-0.0032
204	SLD 1	10.5	-0.19	37.57	0.0255	0.1576	-0.0067
204	SLD 2	10.5	-0.19	37.57	0.0255	0.1576	-0.0067
204	SLD 3	11.31	-0.34	40.2	0.0413	0.1683	-0.0113
204	SLD 4	11.31	-0.34	40.2	0.0413	0.1683	-0.0113
204	SLD 5	7.08	0.14	26.25	-0.0065	0.0678	0.0027
204	SLD 6	7.08	0.14	26.25	-0.0065	0.0678	0.0027
204	SLD 7	9.76	-0.36	35.03	0.0459	0.1033	-0.0125
204	SLD 8	9.76	-0.36	35.03	0.0459	0.1033	-0.0125
204	SLD 9	4.95	0.27	19.18	-0.0182	0.0014	0.0062
204	SLD 10	4.95	0.27	19.18	-0.0182	0.0014	0.0062
204	SLD 11	7.63	-0.23	27.96	0.0342	0.037	-0.009
204	SLD 12	7.63	-0.23	27.96	0.0342	0.037	-0.009
204	SLD 13	3.4	0.25	14	-0.0136	-0.0635	0.005
204	SLD 14	3.4	0.25	14	-0.0136	-0.0635	0.005
204	SLD 15	4.2	0.1	16.64	0.0022	-0.0529	0.0004
204	SLD 16	4.2	0.1	16.64	0.0022	-0.0529	0.0004
204	SLV 1	14.58	-0.39	51.09	0.0421	0.2931	-0.0118
204	SLV 2	14.58	-0.39	51.09	0.0421	0.2931	-0.0118
204	SLV 3	16.47	-0.76	57.29	0.0808	0.3182	-0.023
204	SLV 4	16.47	-0.76	57.29	0.0808	0.3182	-0.023
204	SLV 5	6.65	0.41	24.89	-0.0364	0.0864	0.0113
204	SLV 6	6.65	0.41	24.89	-0.0364	0.0864	0.0113
204	SLV 7	12.96	-0.82	45.56	0.0926	0.1703	-0.0262



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
204	SLV 8	12.96	-0.82	45.56	0.0926	0.1703	-0.0262
204	SLV 9	1.75	0.73	8.64	-0.0649	-0.0656	0.0199
204	SLV 10	1.75	0.73	8.64	-0.0649	-0.0656	0.0199
204	SLV 11	8.05	-0.5	29.31	0.0641	0.0183	-0.0177
204	SLV 12	8.05	-0.5	29.31	0.0641	0.0183	-0.0177
204	SLV 13	-1.76	0.67	-3.09	-0.0531	-0.2135	0.0167
204	SLV 14	-1.76	0.67	-3.09	-0.0531	-0.2135	0.0167
204	SLV 15	0.13	0.3	3.12	-0.0144	-0.1883	0.0054
204	SLV 16	0.13	0.3	3.12	-0.0144	-0.1883	0.0054
205	SLU 1	0.13	-7.41	77.53	0.1987	-0.0358	-0.0001
205	SLU 2	0.15	-6.1	71.09	0.1397	-0.0364	-0.0002
205	SLU 3	0.14	-7.81	80.88	0.2121	-0.039	-0.0002
205	SLU 4	0.15	-7.03	77.02	0.1767	-0.0393	-0.0002
205	SLU 5	0.16	-6.44	73.56	0.1522	-0.0378	-0.0002
205	SLU 6	0.14	-8.16	83.35	0.2246	-0.0403	-0.0002
205	SLU 7	0.16	-7.37	79.49	0.1892	-0.0407	-0.0002
205	SLU 8	0.14	-8.1	82.46	0.2237	-0.0385	-0.0002
205	SLU 9	0.15	-7.31	78.6	0.1883	-0.0389	-0.0002
205	SLU 10	0.19	-7.37	85.9	0.1718	-0.0483	-0.0002
205	SLU 11	0.18	-9.09	95.69	0.2442	-0.0509	-0.0002
205	SLU 12	0.19	-8.3	91.83	0.2088	-0.0513	-0.0002
205	SLU 13	0.19	-7.72	88.37	0.1843	-0.0497	-0.0002
205	SLU 14	0.18	-9.43	98.16	0.2568	-0.0522	-0.0002
205	SLU 15	0.19	-8.64	94.3	0.2213	-0.0526	-0.0002
205	SLU 16	0.17	-9.37	97.27	0.2559	-0.0504	-0.0002
205	SLU 17	0.19	-8.59	93.41	0.2205	-0.0508	-0.0002
205	SLU 18	0.19	-9.23	98.69	0.2446	-0.0528	-0.0002
205	SLU 19	0.2	-8.45	94.83	0.2092	-0.0532	-0.0002
205	SLU 20	0.19	-9.58	101.15	0.2571	-0.0542	-0.0002
205	SLU 21	0.2	-8.79	97.29	0.2217	-0.0546	-0.0002
205	SLU 22	0.16	-8.69	91.59	0.2327	-0.0445	-0.0002
205	SLU 23	0.18	-7.37	85.15	0.1736	-0.0451	-0.0002
205	SLU 24	0.17	-9.09	94.94	0.2461	-0.0477	-0.0002
205	SLU 25	0.18	-8.3	91.08	0.2106	-0.0481	-0.0002
205	SLU 26	0.19	-7.72	87.62	0.1861	-0.0465	-0.0002
205	SLU 27	0.17	-9.43	97.41	0.2586	-0.049	-0.0002
205	SLU 28	0.19	-8.64	93.55	0.2232	-0.0494	-0.0002
205	SLU 29	0.17	-9.37	96.52	0.2577	-0.0472	-0.0002
205	SLU 30	0.18	-8.58	92.66	0.2223	-0.0476	-0.0002
205	SLU 31	0.22	-8.65	99.96	0.2058	-0.0571	-0.0002
205	SLU 32	0.21	-10.36	109.75	0.2782	-0.0596	-0.0002
205	SLU 33	0.22	-9.57	105.89	0.2428	-0.06	-0.0002
205	SLU 34	0.22	-8.99	102.43	0.2183	-0.0584	-0.0002
205	SLU 35	0.21	-10.71	112.22	0.2907	-0.0609	-0.0002
205	SLU 36	0.22	-9.92	108.36	0.2553	-0.0613	-0.0002
205	SLU 37	0.2	-10.65	111.33	0.2898	-0.0591	-0.0002
205	SLU 38	0.22	-9.86	107.47	0.2544	-0.0595	-0.0002
205	SLU 39	0.22	-10.51	112.75	0.2786	-0.0615	-0.0002
205	SLU 40	0.23	-9.72	108.89	0.2432	-0.0619	-0.0002
205	SLU 41	0.22	-10.85	115.21	0.2911	-0.0629	-0.0002
205	SLU 42	0.23	-10.06	111.35	0.2557	-0.0633	-0.0003
205	SLU 43	0.16	-9.2	95.96	0.2466	-0.0435	-0.0002
205	SLU 44	0.18	-7.89	89.53	0.1876	-0.0442	-0.0002
205	SLU 45	0.17	-9.6	99.32	0.26	-0.0467	-0.0002
205	SLU 46	0.18	-8.81	95.46	0.2246	-0.0471	-0.0002
205	SLU 47	0.19	-8.23	91.99	0.2001	-0.0455	-0.0002
205	SLU 48	0.17	-9.94	101.78	0.2725	-0.0481	-0.0002
205	SLU 49	0.18	-9.16	97.92	0.2371	-0.0484	-0.0002
205	SLU 50	0.17	-9.89	100.9	0.2717	-0.0462	-0.0002
205	SLU 51	0.18	-9.1	97.04	0.2362	-0.0466	-0.0002
205	SLU 52	0.22	-9.16	104.34	0.2198	-0.0561	-0.0002
205	SLU 53	0.21	-10.88	114.13	0.2922	-0.0586	-0.0002
205	SLU 54	0.22	-10.09	110.27	0.2568	-0.059	-0.0002
205	SLU 55	0.22	-9.5	106.81	0.2323	-0.0574	-0.0002
205	SLU 56	0.21	-11.22	116.6	0.3047	-0.06	-0.0002
205	SLU 57	0.22	-10.43	112.73	0.2693	-0.0604	-0.0002
205	SLU 58	0.2	-11.16	115.71	0.3038	-0.0582	-0.0002
205	SLU 59	0.22	-10.37	111.85	0.2684	-0.0586	-0.0002
205	SLU 60	0.21	-11.02	117.12	0.2926	-0.0606	-0.0002
205	SLU 61	0.23	-10.23	113.26	0.2572	-0.0609	-0.0002
205	SLU 62	0.22	-11.36	119.59	0.3051	-0.0619	-0.0002
205	SLU 63	0.23	-10.58	115.73	0.2697	-0.0623	-0.0003
205	SLU 64	0.19	-10.47	110.02	0.2806	-0.0523	-0.0002
205	SLU 65	0.21	-9.16	103.59	0.2216	-0.0529	-0.0002
205	SLU 66	0.2	-10.87	113.38	0.294	-0.0554	-0.0002
205	SLU 67	0.21	-10.09	109.52	0.2586	-0.0558	-0.0002
205	SLU 68	0.22	-9.5	106.05	0.2341	-0.0543	-0.0002
205	SLU 69	0.2	-11.22	115.84	0.3065	-0.0568	-0.0002
205	SLU 70	0.21	-10.43	111.98	0.2711	-0.0572	-0.0002
205	SLU 71	0.2	-11.16	114.96	0.3056	-0.055	-0.0002
205	SLU 72	0.21	-10.37	111.1	0.2702	-0.0554	-0.0002
205	SLU 73	0.25	-10.43	118.4	0.2537	-0.0648	-0.0003
205	SLU 74	0.24	-12.15	128.19	0.3262	-0.0673	-0.0003
205	SLU 75	0.25	-11.36	124.33	0.2908	-0.0677	-0.0003
205	SLU 76	0.25	-10.78	120.87	0.2663	-0.0662	-0.0003
205	SLU 77	0.24	-12.49	130.66	0.3387	-0.0687	-0.0003
205	SLU 78	0.25	-11.7	126.8	0.3033	-0.0691	-0.0003
205	SLU 79	0.23	-12.43	129.77	0.3378	-0.0669	-0.0003
205	SLU 80	0.25	-11.65	125.91	0.3024	-0.0673	-0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
205	SLU 81	0.24	-12.29	131.18	0.3266	-0.0693	-0.0003
205	SLU 82	0.26	-11.51	127.32	0.2911	-0.0697	-0.0003
205	SLU 83	0.25	-12.64	133.65	0.3391	-0.0706	-0.0003
205	SLU 84	0.26	-11.85	129.79	0.3037	-0.071	-0.0003
205	SLE RA 1	0.14	-7.78	81.54	0.2084	-0.0383	-0.0002
205	SLE RA 2	0.15	-6.9	77.25	0.169	-0.0387	-0.0002
205	SLE RA 3	0.15	-8.04	83.78	0.2173	-0.0404	-0.0002
205	SLE RA 4	0.15	-7.52	81.2	0.1937	-0.0406	-0.0002
205	SLE RA 5	0.16	-7.13	78.9	0.1774	-0.0396	-0.0002
205	SLE RA 6	0.15	-8.27	85.42	0.2257	-0.0413	-0.0002
205	SLE RA 7	0.16	-7.75	82.85	0.2021	-0.0416	-0.0002
205	SLE RA 8	0.14	-8.23	84.83	0.2251	-0.0401	-0.0002
205	SLE RA 9	0.15	-7.71	82.26	0.2015	-0.0403	-0.0002
205	SLE RA 10	0.18	-7.75	87.13	0.1905	-0.0466	-0.0002
205	SLE RA 11	0.17	-8.89	93.65	0.2388	-0.0483	-0.0002
205	SLE RA 12	0.18	-8.37	91.08	0.2152	-0.0486	-0.0002
205	SLE RA 13	0.18	-7.98	88.77	0.1988	-0.0476	-0.0002
205	SLE RA 14	0.17	-9.12	95.3	0.2471	-0.0492	-0.0002
205	SLE RA 15	0.18	-8.6	92.72	0.2235	-0.0495	-0.0002
205	SLE RA 16	0.17	-9.08	94.71	0.2465	-0.048	-0.0002
205	SLE RA 17	0.18	-8.56	92.13	0.2229	-0.0483	-0.0002
205	SLE RA 18	0.18	-8.99	95.65	0.239	-0.0496	-0.0002
205	SLE RA 19	0.18	-8.47	93.08	0.2154	-0.0499	-0.0002
205	SLE RA 20	0.18	-9.22	97.29	0.2474	-0.0505	-0.0002
205	SLE RA 21	0.19	-8.69	94.72	0.2237	-0.0508	-0.0002
205	SLE FR 1	0.14	-7.78	81.54	0.2084	-0.0383	-0.0002
205	SLE FR 2	0.14	-7.6	80.68	0.2005	-0.0384	-0.0002
205	SLE FR 3	0.14	-7.87	82.2	0.2117	-0.0386	-0.0002
205	SLE FR 4	0.15	-7.97	84.92	0.2097	-0.0418	-0.0002
205	SLE FR 5	0.15	-8.23	86.43	0.2209	-0.042	-0.0002
205	SLE FR 6	0.16	-8.38	88.6	0.2237	-0.044	-0.0002
205	SLE QP 1	0.14	-7.78	81.54	0.2084	-0.0383	-0.0002
205	SLE QP 2	0.15	-8.14	85.78	0.2176	-0.0417	-0.0002
205	SLD 1	-0.49	-8.04	85.61	0.2117	0.1949	0.0008
205	SLD 2	-0.49	-8.04	85.61	0.2117	0.1949	0.0008
205	SLD 3	-0.55	-10.48	95.72	0.3237	0.1707	0.0007
205	SLD 4	-0.55	-10.48	95.72	0.3237	0.1707	0.0007
205	SLD 5	0.06	-4.4	70.38	0.0459	0.0659	0.0003
205	SLD 6	0.06	-4.4	70.38	0.0459	0.0659	0.0003
205	SLD 7	-0.16	-12.56	104.1	0.4193	-0.0145	-0.0001
205	SLD 8	-0.16	-12.56	104.1	0.4193	-0.0145	-0.0001
205	SLD 9	0.46	-3.73	67.45	0.0158	-0.0688	-0.0002
205	SLD 10	0.46	-3.73	67.45	0.0158	-0.0688	-0.0002
205	SLD 11	0.24	-11.88	101.17	0.3892	-0.1492	-0.0007
205	SLD 12	0.24	-11.88	101.17	0.3892	-0.1492	-0.0007
205	SLD 13	0.86	-5.8	75.83	0.1114	-0.2541	-0.001
205	SLD 14	0.86	-5.8	75.83	0.1114	-0.2541	-0.001
205	SLD 15	0.79	-8.24	85.94	0.2234	-0.2782	-0.0011
205	SLD 16	0.79	-8.24	85.94	0.2234	-0.2782	-0.0011
205	SLV 1	-1.31	-8.05	86.19	0.2104	0.4993	0.0021
205	SLV 2	-1.31	-8.05	86.19	0.2104	0.4993	0.0021
205	SLV 3	-1.47	-13.72	109.78	0.4694	0.4439	0.0017
205	SLV 4	-1.47	-13.72	109.78	0.4694	0.4439	0.0017
205	SLV 5	-0.04	0.48	50.12	-0.1774	0.2047	0.001
205	SLV 6	-0.04	0.48	50.12	-0.1774	0.2047	0.001
205	SLV 7	-0.58	-18.41	128.76	0.686	0.0199	-0.0001
205	SLV 8	-0.58	-18.41	128.76	0.686	0.0199	-0.0001
205	SLV 9	0.88	2.13	42.79	-0.2508	-0.1033	-0.0002
205	SLV 10	0.88	2.13	42.79	-0.2508	-0.1033	-0.0002
205	SLV 11	0.35	-16.76	121.43	0.6126	-0.2881	-0.0014
205	SLV 12	0.35	-16.76	121.43	0.6126	-0.2881	-0.0014
205	SLV 13	1.77	-2.56	61.77	-0.0343	-0.5272	-0.002
205	SLV 14	1.77	-2.56	61.77	-0.0343	-0.5272	-0.002
205	SLV 15	1.61	-8.23	85.36	0.2247	-0.5827	-0.0024
205	SLV 16	1.61	-8.23	85.36	0.2247	-0.5827	-0.0024
206	SLU 1	-7.91	-0.04	30.7	0.0133	-0.0913	0.0028
206	SLU 2	-7.27	-0.04	28.48	0.0112	-0.0827	0.0025
206	SLU 3	-8.28	-0.04	32.1	0.0141	-0.0965	0.003
206	SLU 4	-7.9	-0.04	30.77	0.0128	-0.0914	0.0028
206	SLU 5	-7.53	-0.05	29.44	0.0119	-0.0862	0.0026
206	SLU 6	-8.54	-0.04	33.07	0.0148	-0.1	0.0031
206	SLU 7	-8.16	-0.05	31.74	0.0136	-0.0949	0.0029
206	SLU 8	-8.43	-0.04	32.64	0.0148	-0.0983	0.0031
206	SLU 9	-8.05	-0.05	31.3	0.0135	-0.0931	0.0029
206	SLU 10	-8.87	-0.05	34.67	0.0134	-0.1026	0.0029
206	SLU 11	-9.88	-0.05	38.3	0.0163	-0.1164	0.0034
206	SLU 12	-9.5	-0.05	36.96	0.015	-0.1112	0.0032
206	SLU 13	-9.13	-0.05	35.64	0.0141	-0.1061	0.0031
206	SLU 14	-10.14	-0.05	39.27	0.017	-0.1199	0.0036
206	SLU 15	-9.76	-0.05	37.93	0.0158	-0.1147	0.0034
206	SLU 16	-10.03	-0.05	38.83	0.017	-0.1181	0.0036
206	SLU 17	-9.65	-0.05	37.5	0.0157	-0.113	0.0034
206	SLU 18	-10.19	-0.05	39.55	0.0164	-0.1197	0.0035
206	SLU 19	-9.81	-0.05	38.22	0.0151	-0.1145	0.0033
206	SLU 20	-10.46	-0.05	40.52	0.0171	-0.1232	0.0036
206	SLU 21	-10.07	-0.05	39.19	0.0159	-0.118	0.0034
206	SLU 22	-9.39	-0.05	36.43	0.0155	-0.109	0.0033
206	SLU 23	-8.75	-0.05	34.21	0.0134	-0.1004	0.0029
206	SLU 24	-9.76	-0.05	37.83	0.0164	-0.1142	0.0035



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
206	SLU 25	-9.38	-0.05	36.5	0.0151	-0.1091	0.0032
206	SLU 26	-9.01	-0.05	35.18	0.0142	-0.1039	0.0031
206	SLU 27	-10.02	-0.05	38.8	0.0171	-0.1177	0.0036
206	SLU 28	-9.64	-0.05	37.47	0.0159	-0.1125	0.0034
206	SLU 29	-9.91	-0.05	38.37	0.017	-0.1159	0.0036
206	SLU 30	-9.53	-0.05	37.03	0.0158	-0.1108	0.0034
206	SLU 31	-10.35	-0.06	40.4	0.0156	-0.1203	0.0034
206	SLU 32	-11.36	-0.06	44.03	0.0186	-0.1341	0.0039
206	SLU 33	-10.98	-0.06	42.7	0.0173	-0.1289	0.0037
206	SLU 34	-10.61	-0.06	41.37	0.0164	-0.1238	0.0036
206	SLU 35	-11.62	-0.06	45	0.0193	-0.1376	0.0041
206	SLU 36	-11.24	-0.06	43.66	0.018	-0.1324	0.0039
206	SLU 37	-11.51	-0.06	44.56	0.0192	-0.1358	0.004
206	SLU 38	-11.13	-0.06	43.23	0.018	-0.1307	0.0038
206	SLU 39	-11.67	-0.06	45.28	0.0187	-0.1374	0.0039
206	SLU 40	-11.29	-0.06	43.95	0.0174	-0.1322	0.0037
206	SLU 41	-11.94	-0.06	46.25	0.0194	-0.1409	0.0041
206	SLU 42	-11.55	-0.06	44.92	0.0182	-0.1357	0.0039
206	SLU 43	-9.77	-0.05	37.94	0.0165	-0.1127	0.0035
206	SLU 44	-9.13	-0.05	35.72	0.0144	-0.1041	0.0031
206	SLU 45	-10.15	-0.05	39.35	0.0173	-0.1179	0.0037
206	SLU 46	-9.76	-0.05	38.01	0.016	-0.1127	0.0035
206	SLU 47	-9.39	-0.06	36.69	0.0151	-0.1075	0.0033
206	SLU 48	-10.41	-0.05	40.32	0.0181	-0.1213	0.0038
206	SLU 49	-10.02	-0.06	38.98	0.0168	-0.1162	0.0036
206	SLU 50	-10.29	-0.05	39.88	0.018	-0.1196	0.0038
206	SLU 51	-9.91	-0.06	38.55	0.0167	-0.1144	0.0036
206	SLU 52	-10.73	-0.06	41.92	0.0166	-0.1239	0.0036
206	SLU 53	-11.75	-0.06	45.54	0.0195	-0.1377	0.0041
206	SLU 54	-11.36	-0.06	44.21	0.0182	-0.1326	0.0039
206	SLU 55	-10.99	-0.06	42.89	0.0173	-0.1274	0.0038
206	SLU 56	-12.01	-0.06	46.51	0.0202	-0.1412	0.0043
206	SLU 57	-11.62	-0.06	45.18	0.019	-0.136	0.0041
206	SLU 58	-11.89	-0.06	46.08	0.0202	-0.1394	0.0043
206	SLU 59	-11.51	-0.06	44.74	0.0189	-0.1343	0.004
206	SLU 60	-12.06	-0.06	46.8	0.0196	-0.141	0.0041
206	SLU 61	-11.67	-0.06	45.46	0.0183	-0.1359	0.0039
206	SLU 62	-12.32	-0.06	47.77	0.0203	-0.1445	0.0043
206	SLU 63	-11.94	-0.06	46.43	0.0191	-0.1393	0.0041
206	SLU 64	-11.25	-0.06	43.67	0.0187	-0.1304	0.004
206	SLU 65	-10.61	-0.06	41.45	0.0166	-0.1218	0.0036
206	SLU 66	-11.63	-0.06	45.08	0.0196	-0.1356	0.0041
206	SLU 67	-11.24	-0.06	43.74	0.0183	-0.1304	0.0039
206	SLU 68	-10.88	-0.06	42.42	0.0174	-0.1252	0.0038
206	SLU 69	-11.89	-0.06	46.05	0.0203	-0.139	0.0043
206	SLU 70	-11.5	-0.06	44.71	0.0191	-0.1339	0.0041
206	SLU 71	-11.78	-0.06	45.61	0.0202	-0.1373	0.0043
206	SLU 72	-11.39	-0.06	44.28	0.019	-0.1321	0.0041
206	SLU 73	-12.21	-0.07	47.65	0.0188	-0.1416	0.0041
206	SLU 74	-13.23	-0.07	51.27	0.0218	-0.1554	0.0046
206	SLU 75	-12.84	-0.07	49.94	0.0205	-0.1503	0.0044
206	SLU 76	-12.48	-0.07	48.62	0.0196	-0.1451	0.0042
206	SLU 77	-13.49	-0.07	52.24	0.0225	-0.1589	0.0047
206	SLU 78	-13.11	-0.07	50.91	0.0212	-0.1537	0.0045
206	SLU 79	-13.38	-0.07	51.81	0.0224	-0.1571	0.0047
206	SLU 80	-12.99	-0.07	50.48	0.0212	-0.152	0.0045
206	SLU 81	-13.54	-0.07	52.53	0.0219	-0.1587	0.0046
206	SLU 82	-13.16	-0.07	51.19	0.0206	-0.1536	0.0044
206	SLU 83	-13.8	-0.07	53.5	0.0226	-0.1622	0.0048
206	SLU 84	-13.42	-0.07	52.16	0.0214	-0.157	0.0046
206	SLE RA 1	-8.33	-0.04	32.34	0.0139	-0.0964	0.0029
206	SLE RA 2	-7.9	-0.04	30.85	0.0125	-0.0907	0.0027
206	SLE RA 3	-8.58	-0.04	33.27	0.0145	-0.0999	0.0031
206	SLE RA 4	-8.32	-0.05	32.38	0.0136	-0.0964	0.0029
206	SLE RA 5	-8.08	-0.05	31.5	0.013	-0.093	0.0028
206	SLE RA 6	-8.75	-0.05	33.92	0.015	-0.1022	0.0032
206	SLE RA 7	-8.5	-0.05	33.03	0.0141	-0.0987	0.003
206	SLE RA 8	-8.68	-0.05	33.63	0.0149	-0.101	0.0031
206	SLE RA 9	-8.42	-0.05	32.74	0.0141	-0.0976	0.003
206	SLE RA 10	-8.97	-0.05	34.99	0.014	-0.1039	0.003
206	SLE RA 11	-9.65	-0.05	37.4	0.0159	-0.1131	0.0034
206	SLE RA 12	-9.39	-0.05	36.51	0.0151	-0.1097	0.0032
206	SLE RA 13	-9.15	-0.05	35.63	0.0145	-0.1062	0.0031
206	SLE RA 14	-9.82	-0.05	38.05	0.0164	-0.1154	0.0035
206	SLE RA 15	-9.57	-0.05	37.16	0.0156	-0.112	0.0033
206	SLE RA 16	-9.75	-0.05	37.76	0.0164	-0.1142	0.0035
206	SLE RA 17	-9.49	-0.05	36.87	0.0155	-0.1108	0.0033
206	SLE RA 18	-9.85	-0.05	38.24	0.016	-0.1153	0.0034
206	SLE RA 19	-9.6	-0.05	37.35	0.0152	-0.1119	0.0032
206	SLE RA 20	-10.03	-0.05	38.88	0.0165	-0.1176	0.0035
206	SLE RA 21	-9.77	-0.05	37.99	0.0157	-0.1142	0.0033
206	SLE FR 1	-8.33	-0.04	32.34	0.0139	-0.0964	0.0029
206	SLE FR 2	-8.25	-0.04	32.04	0.0136	-0.0952	0.0029
206	SLE FR 3	-8.4	-0.04	32.59	0.0141	-0.0973	0.003
206	SLE FR 4	-8.7	-0.04	33.81	0.0143	-0.1009	0.003
206	SLE FR 5	-8.86	-0.04	34.37	0.0147	-0.103	0.0031
206	SLE FR 6	-9.09	-0.05	35.29	0.015	-0.1058	0.0032
206	SLE QP 1	-8.33	-0.04	32.34	0.0139	-0.0964	0.0029
206	SLE QP 2	-8.79	-0.04	34.11	0.0145	-0.1021	0.0031



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
206	SLD 1	-4.57	0.11	19.53	-0.0142	0.0321	-0.005
206	SLD 2	-4.57	0.11	19.53	-0.0142	0.0321	-0.005
206	SLD 3	-5.89	0.25	23.94	-0.0006	0.0071	-0.0012
206	SLD 4	-5.89	0.25	23.94	-0.0006	0.0071	-0.0012
206	SLD 5	-5.53	-0.22	23.05	-0.0147	-0.024	-0.0051
206	SLD 6	-5.53	-0.22	23.05	-0.0147	-0.024	-0.0051
206	SLD 7	-9.91	0.26	37.75	0.0306	-0.1072	0.0076
206	SLD 8	-9.91	0.26	37.75	0.0306	-0.1072	0.0076
206	SLD 9	-7.66	-0.35	30.47	-0.0015	-0.097	-0.0015
206	SLD 10	-7.66	-0.35	30.47	-0.0015	-0.097	-0.0015
206	SLD 11	-12.05	0.13	45.17	0.0438	-0.1801	0.0113
206	SLD 12	-12.05	0.13	45.17	0.0438	-0.1801	0.0113
206	SLD 13	-11.69	-0.34	44.27	0.0297	-0.2112	0.0073
206	SLD 14	-11.69	-0.34	44.27	0.0297	-0.2112	0.0073
206	SLD 15	-13	-0.19	48.68	0.0433	-0.2362	0.0111
206	SLD 16	-13	-0.19	48.68	0.0433	-0.2362	0.0111
206	SLV 1	0.85	0.32	0.77	-0.0557	0.2044	-0.0167
206	SLV 2	0.85	0.32	0.77	-0.0557	0.2044	-0.0167
206	SLV 3	-2.2	0.67	11.01	-0.0226	0.1469	-0.0073
206	SLV 4	-2.2	0.67	11.01	-0.0226	0.1469	-0.0073
206	SLV 5	-1.27	-0.47	8.57	-0.0568	0.0772	-0.0171
206	SLV 6	-1.27	-0.47	8.57	-0.0568	0.0772	-0.0171
206	SLV 7	-11.44	0.71	42.71	0.0537	-0.1147	0.0142
206	SLV 8	-11.44	0.71	42.71	0.0537	-0.1147	0.0142
206	SLV 9	-6.14	-0.79	25.5	-0.0246	-0.0895	-0.008
206	SLV 10	-6.14	-0.79	25.5	-0.0246	-0.0895	-0.008
206	SLV 11	-16.31	0.38	59.64	0.0859	-0.2813	0.0232
206	SLV 12	-16.31	0.38	59.64	0.0859	-0.2813	0.0232
206	SLV 13	-15.38	-0.76	57.2	0.0517	-0.351	0.0135
206	SLV 14	-15.38	-0.76	57.2	0.0517	-0.351	0.0135
206	SLV 15	-18.43	-0.41	67.44	0.0848	-0.4085	0.0229
206	SLV 16	-18.43	-0.41	67.44	0.0848	-0.4085	0.0229
207	SLU 1	6.01	0.01	25.57	-0.0048	0.0957	0.0008
207	SLU 2	6.12	0.03	25.59	-0.0072	0.1024	0.0013
207	SLU 3	6	0.01	25.84	-0.0047	0.0916	0.0008
207	SLU 4	6.07	0.02	25.85	-0.0062	0.0956	0.0011
207	SLU 5	6.12	0.03	25.76	-0.0071	0.0998	0.0013
207	SLU 6	6	0.01	26.01	-0.0045	0.089	0.0008
207	SLU 7	6.06	0.02	26.02	-0.006	0.093	0.0011
207	SLU 8	6	0.01	25.92	-0.0044	0.0905	0.0008
207	SLU 9	6.07	0.02	25.93	-0.0059	0.0945	0.0011
207	SLU 10	6.97	0.03	29.8	-0.0081	0.1088	0.0015
207	SLU 11	6.85	0.01	30.05	-0.0055	0.0981	0.001
207	SLU 12	6.92	0.02	30.06	-0.007	0.102	0.0013
207	SLU 13	6.97	0.03	29.97	-0.0079	0.1062	0.0015
207	SLU 14	6.85	0.01	30.22	-0.0053	0.0954	0.0009
207	SLU 15	6.91	0.02	30.23	-0.0068	0.0994	0.0012
207	SLU 16	6.85	0.01	30.13	-0.0053	0.0969	0.0009
207	SLU 17	6.92	0.02	30.14	-0.0067	0.1009	0.0012
207	SLU 18	7.23	0.01	31.59	-0.006	0.1049	0.001
207	SLU 19	7.3	0.02	31.6	-0.0075	0.1089	0.0013
207	SLU 20	7.22	0.01	31.76	-0.0058	0.1023	0.001
207	SLU 21	7.29	0.02	31.77	-0.0073	0.1063	0.0013
207	SLU 22	6.78	0.01	29.39	-0.0055	0.1014	0.0009
207	SLU 23	6.89	0.03	29.41	-0.0079	0.1081	0.0015
207	SLU 24	6.77	0.01	29.66	-0.0054	0.0973	0.0009
207	SLU 25	6.84	0.02	29.66	-0.0069	0.1013	0.0012
207	SLU 26	6.89	0.03	29.58	-0.0078	0.1055	0.0014
207	SLU 27	6.77	0.01	29.83	-0.0052	0.0947	0.0009
207	SLU 28	6.83	0.02	29.84	-0.0067	0.0987	0.0012
207	SLU 29	6.77	0.01	29.74	-0.0051	0.0962	0.0009
207	SLU 30	6.84	0.02	29.75	-0.0066	0.1002	0.0012
207	SLU 31	7.75	0.03	33.62	-0.0088	0.1145	0.0016
207	SLU 32	7.62	0.01	33.87	-0.0062	0.1037	0.0011
207	SLU 33	7.69	0.02	33.87	-0.0077	0.1077	0.0014
207	SLU 34	7.74	0.03	33.79	-0.0086	0.1119	0.0016
207	SLU 35	7.62	0.01	34.04	-0.006	0.1011	0.001
207	SLU 36	7.68	0.02	34.05	-0.0075	0.1051	0.0014
207	SLU 37	7.62	0.01	33.95	-0.006	0.1026	0.001
207	SLU 38	7.69	0.02	33.96	-0.0074	0.1066	0.0013
207	SLU 39	8	0.02	35.41	-0.0067	0.1106	0.0012
207	SLU 40	8.07	0.02	35.42	-0.0082	0.1146	0.0015
207	SLU 41	7.99	0.02	35.58	-0.0065	0.108	0.0011
207	SLU 42	8.06	0.02	35.59	-0.008	0.1119	0.0014
207	SLU 43	7.55	0.01	31.94	-0.006	0.1225	0.001
207	SLU 44	7.66	0.03	31.95	-0.0084	0.1291	0.0015
207	SLU 45	7.54	0.01	32.2	-0.0059	0.1184	0.001
207	SLU 46	7.61	0.02	32.21	-0.0073	0.1224	0.0013
207	SLU 47	7.66	0.03	32.12	-0.0082	0.1265	0.0015
207	SLU 48	7.54	0.01	32.37	-0.0057	0.1158	0.001
207	SLU 49	7.6	0.02	32.38	-0.0072	0.1198	0.0013
207	SLU 50	7.54	0.01	32.28	-0.0056	0.1173	0.001
207	SLU 51	7.61	0.02	32.29	-0.0071	0.1213	0.0013
207	SLU 52	8.51	0.03	36.16	-0.0093	0.1355	0.0017
207	SLU 53	8.39	0.02	36.41	-0.0067	0.1248	0.0012
207	SLU 54	8.46	0.03	36.42	-0.0082	0.1288	0.0015
207	SLU 55	8.51	0.03	36.33	-0.0091	0.1329	0.0017
207	SLU 56	8.39	0.02	36.58	-0.0065	0.1222	0.0011
207	SLU 57	8.45	0.03	36.59	-0.008	0.1262	0.0014



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
207	SLU 58	8.39	0.02	36.49	-0.0065	0.1237	0.0011
207	SLU 59	8.46	0.03	36.5	-0.0079	0.1277	0.0014
207	SLU 60	8.77	0.02	37.95	-0.0072	0.1316	0.0012
207	SLU 61	8.84	0.03	37.96	-0.0087	0.1356	0.0015
207	SLU 62	8.76	0.02	38.12	-0.007	0.129	0.0012
207	SLU 63	8.83	0.03	38.13	-0.0085	0.133	0.0015
207	SLU 64	8.32	0.02	35.76	-0.0067	0.1282	0.0012
207	SLU 65	8.43	0.03	35.77	-0.0091	0.1348	0.0017
207	SLU 66	8.31	0.02	36.02	-0.0066	0.1241	0.0011
207	SLU 67	8.38	0.03	36.03	-0.008	0.1281	0.0014
207	SLU 68	8.43	0.03	35.94	-0.0089	0.1322	0.0016
207	SLU 69	8.31	0.02	36.19	-0.0064	0.1215	0.0011
207	SLU 70	8.37	0.02	36.2	-0.0079	0.1255	0.0014
207	SLU 71	8.31	0.02	36.1	-0.0063	0.123	0.0011
207	SLU 72	8.38	0.02	36.11	-0.0078	0.127	0.0014
207	SLU 73	9.29	0.03	39.98	-0.01	0.1412	0.0018
207	SLU 74	9.16	0.02	40.23	-0.0074	0.1305	0.0013
207	SLU 75	9.23	0.03	40.24	-0.0089	0.1345	0.0016
207	SLU 76	9.28	0.03	40.15	-0.0098	0.1386	0.0018
207	SLU 77	9.16	0.02	40.4	-0.0072	0.1279	0.0012
207	SLU 78	9.22	0.03	40.41	-0.0087	0.1319	0.0016
207	SLU 79	9.16	0.02	40.31	-0.0072	0.1294	0.0012
207	SLU 80	9.23	0.03	40.32	-0.0086	0.1334	0.0015
207	SLU 81	9.54	0.02	41.77	-0.0079	0.1373	0.0014
207	SLU 82	9.61	0.03	41.78	-0.0094	0.1413	0.0017
207	SLU 83	9.53	0.02	41.94	-0.0077	0.1347	0.0013
207	SLU 84	9.6	0.03	41.95	-0.0092	0.1387	0.0016
207	SLE RA 1	6.23	0.01	26.67	-0.005	0.0973	0.0009
207	SLE RA 2	6.31	0.02	26.67	-0.0066	0.1018	0.0012
207	SLE RA 3	6.23	0.01	26.84	-0.0049	0.0946	0.0008
207	SLE RA 4	6.27	0.02	26.85	-0.0059	0.0973	0.0011
207	SLE RA 5	6.3	0.02	26.79	-0.0065	0.1	0.0012
207	SLE RA 6	6.22	0.01	26.96	-0.0048	0.0929	0.0008
207	SLE RA 7	6.27	0.02	26.96	-0.0058	0.0956	0.001
207	SLE RA 8	6.22	0.01	26.9	-0.0047	0.0939	0.0008
207	SLE RA 9	6.27	0.02	26.9	-0.0057	0.0965	0.001
207	SLE RA 10	6.87	0.02	29.48	-0.0072	0.1061	0.0013
207	SLE RA 11	6.79	0.01	29.65	-0.0055	0.0989	0.0009
207	SLE RA 12	6.84	0.02	29.65	-0.0065	0.1016	0.0012
207	SLE RA 13	6.87	0.02	29.6	-0.0071	0.1043	0.0013
207	SLE RA 14	6.79	0.01	29.76	-0.0054	0.0972	0.0009
207	SLE RA 15	6.83	0.02	29.77	-0.0063	0.0998	0.0011
207	SLE RA 16	6.79	0.01	29.7	-0.0053	0.0981	0.0009
207	SLE RA 17	6.84	0.02	29.71	-0.0063	0.1008	0.0011
207	SLE RA 18	7.04	0.01	30.67	-0.0058	0.1034	0.001
207	SLE RA 19	7.09	0.02	30.68	-0.0068	0.1061	0.0012
207	SLE RA 20	7.04	0.01	30.79	-0.0057	0.1017	0.001
207	SLE RA 21	7.08	0.02	30.8	-0.0067	0.1044	0.0012
207	SLE FR 1	6.23	0.01	26.67	-0.005	0.0973	0.0009
207	SLE FR 2	6.25	0.01	26.67	-0.0053	0.0982	0.0009
207	SLE FR 3	6.23	0.01	26.71	-0.0049	0.0966	0.0009
207	SLE FR 4	6.49	0.01	27.87	-0.0055	0.1001	0.001
207	SLE FR 5	6.47	0.01	27.91	-0.0052	0.0985	0.0009
207	SLE FR 6	6.64	0.01	28.67	-0.0054	0.1004	0.0009
207	SLE QP 1	6.23	0.01	26.67	-0.005	0.0973	0.0009
207	SLE QP 2	6.48	0.01	27.87	-0.0052	0.0992	0.0009
207	SLD 1	17.1	-0.14	57.45	0.036	0.4801	-0.0072
207	SLD 2	17.1	-0.14	57.45	0.036	0.4801	-0.0072
207	SLD 3	16.5	0.31	55.72	-0.0187	0.4584	0.0048
207	SLD 4	16.5	0.31	55.72	-0.0187	0.4584	0.0048
207	SLD 5	10.57	-0.73	39.36	0.09	0.2463	-0.0199
207	SLD 6	10.57	-0.73	39.36	0.09	0.2463	-0.0199
207	SLD 7	8.57	0.8	33.6	-0.0921	0.1741	0.0204
207	SLD 8	8.57	0.8	33.6	-0.0921	0.1741	0.0204
207	SLD 9	4.38	-0.77	22.14	0.0817	0.0243	-0.0186
207	SLD 10	4.38	-0.77	22.14	0.0817	0.0243	-0.0186
207	SLD 11	2.38	0.75	16.37	-0.1005	-0.048	0.0217
207	SLD 12	2.38	0.75	16.37	-0.1005	-0.048	0.0217
207	SLD 13	-3.54	-0.29	0.02	0.0082	-0.2601	-0.003
207	SLD 14	-3.54	-0.29	0.02	0.0082	-0.2601	-0.003
207	SLD 15	-4.14	0.17	-1.71	-0.0464	-0.2818	0.009
207	SLD 16	-4.14	0.17	-1.71	-0.0464	-0.2818	0.009
207	SLV 1	30.77	-0.39	95.52	0.0987	0.9706	-0.0197
207	SLV 2	30.77	-0.39	95.52	0.0987	0.9706	-0.0197
207	SLV 3	29.39	0.78	91.56	-0.04	0.9204	0.0111
207	SLV 4	29.39	0.78	91.56	-0.04	0.9204	0.0111
207	SLV 5	15.86	-1.89	54.16	0.2364	0.4369	-0.052
207	SLV 6	15.86	-1.89	54.16	0.2364	0.4369	-0.052
207	SLV 7	11.26	2.02	40.98	-0.2261	0.2693	0.0506
207	SLV 8	11.26	2.02	40.98	-0.2261	0.2693	0.0506
207	SLV 9	1.69	-2	14.76	0.2156	-0.0709	-0.0488
207	SLV 10	1.69	-2	14.76	0.2156	-0.0709	-0.0488
207	SLV 11	-2.9	1.91	1.58	-0.2468	-0.2385	0.0538
207	SLV 12	-2.9	1.91	1.58	-0.2468	-0.2385	0.0538
207	SLV 13	-16.44	-0.76	-35.83	0.0296	-0.722	-0.0093
207	SLV 14	-16.44	-0.76	-35.83	0.0296	-0.722	-0.0093
207	SLV 15	-17.82	0.41	-39.78	-0.1091	-0.7723	0.0215
207	SLV 16	-17.82	0.41	-39.78	-0.1091	-0.7723	0.0215
208	SLU 1	2.65	0.01	47.9	-0.0077	0.1417	-0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
208	SLU 2	2.94	0.02	47.58	-0.009	0.1564	-0.0001
208	SLU 3	2.48	0.01	48.77	-0.0075	0.1325	-0.0001
208	SLU 4	2.66	0.01	48.58	-0.0082	0.1414	-0.0001
208	SLU 5	2.83	0.02	48.13	-0.0086	0.1504	-0.0001
208	SLU 6	2.37	0.01	49.33	-0.0071	0.1265	-0.0001
208	SLU 7	2.55	0.01	49.13	-0.0079	0.1353	-0.0001
208	SLU 8	2.43	0.01	49.01	-0.007	0.1296	-0.0001
208	SLU 9	2.6	0.01	48.82	-0.0077	0.1384	-0.0001
208	SLU 10	2.98	0.02	56.09	-0.0104	0.1584	-0.0001
208	SLU 11	2.52	0.01	57.28	-0.0089	0.1345	-0.0001
208	SLU 12	2.7	0.02	57.09	-0.0096	0.1433	-0.0001
208	SLU 13	2.87	0.02	56.64	-0.01	0.1523	-0.0001
208	SLU 14	2.41	0.01	57.84	-0.0085	0.1285	-0.0001
208	SLU 15	2.58	0.02	57.64	-0.0092	0.1373	-0.0001
208	SLU 16	2.46	0.01	57.52	-0.0084	0.1316	-0.0001
208	SLU 17	2.64	0.02	57.33	-0.0091	0.1404	-0.0001
208	SLU 18	2.7	0.01	60.06	-0.0097	0.1445	-0.0001
208	SLU 19	2.87	0.02	59.87	-0.0105	0.1533	-0.0001
208	SLU 20	2.59	0.01	60.61	-0.0093	0.1384	-0.0001
208	SLU 21	2.76	0.02	60.42	-0.0101	0.1473	-0.0001
208	SLU 22	2.68	0.01	55.6	-0.0088	0.1438	-0.0001
208	SLU 23	2.97	0.02	55.28	-0.0101	0.1585	-0.0001
208	SLU 24	2.52	0.01	56.48	-0.0086	0.1347	-0.0001
208	SLU 25	2.69	0.02	56.28	-0.0094	0.1435	-0.0001
208	SLU 26	2.86	0.02	55.84	-0.0097	0.1525	-0.0001
208	SLU 27	2.41	0.01	57.03	-0.0082	0.1286	-0.0001
208	SLU 28	2.58	0.02	56.84	-0.009	0.1374	-0.0001
208	SLU 29	2.46	0.01	56.71	-0.0081	0.1317	-0.0001
208	SLU 30	2.64	0.02	56.52	-0.0088	0.1405	-0.0001
208	SLU 31	3.01	0.02	63.79	-0.0115	0.1605	-0.0001
208	SLU 32	2.55	0.02	64.99	-0.01	0.1366	-0.0001
208	SLU 33	2.73	0.02	64.79	-0.0107	0.1454	-0.0001
208	SLU 34	2.9	0.02	64.35	-0.0111	0.1544	-0.0001
208	SLU 35	2.44	0.01	65.54	-0.0096	0.1306	-0.0001
208	SLU 36	2.62	0.02	65.35	-0.0104	0.1394	-0.0001
208	SLU 37	2.5	0.01	65.23	-0.0095	0.1337	-0.0001
208	SLU 38	2.67	0.02	65.03	-0.0102	0.1425	-0.0001
208	SLU 39	2.73	0.02	67.76	-0.0108	0.1466	-0.0001
208	SLU 40	2.91	0.02	67.57	-0.0116	0.1554	-0.0001
208	SLU 41	2.62	0.02	68.32	-0.0104	0.1406	-0.0001
208	SLU 42	2.8	0.02	68.13	-0.0112	0.1494	-0.0001
208	SLU 43	3.43	0.01	59.63	-0.0097	0.1835	-0.0001
208	SLU 44	3.72	0.02	59.3	-0.0109	0.1982	-0.0001
208	SLU 45	3.27	0.01	60.5	-0.0094	0.1743	-0.0001
208	SLU 46	3.44	0.02	60.3	-0.0102	0.1832	-0.0001
208	SLU 47	3.61	0.02	59.86	-0.0105	0.1921	-0.0001
208	SLU 48	3.16	0.01	61.05	-0.0091	0.1683	-0.0001
208	SLU 49	3.33	0.02	60.86	-0.0098	0.1771	-0.0001
208	SLU 50	3.21	0.01	60.74	-0.0089	0.1714	-0.0001
208	SLU 51	3.39	0.02	60.54	-0.0097	0.1802	-0.0001
208	SLU 52	3.76	0.02	67.82	-0.0123	0.2001	-0.0001
208	SLU 53	3.3	0.02	69.01	-0.0108	0.1763	-0.0001
208	SLU 54	3.48	0.02	68.82	-0.0116	0.1851	-0.0001
208	SLU 55	3.65	0.02	68.37	-0.0119	0.1941	-0.0001
208	SLU 56	3.19	0.02	69.57	-0.0104	0.1702	-0.0001
208	SLU 57	3.37	0.02	69.37	-0.0112	0.1791	-0.0001
208	SLU 58	3.25	0.02	69.25	-0.0103	0.1733	-0.0001
208	SLU 59	3.42	0.02	69.06	-0.011	0.1822	-0.0001
208	SLU 60	3.48	0.02	71.79	-0.0116	0.1863	-0.0001
208	SLU 61	3.66	0.02	71.59	-0.0124	0.1951	-0.0001
208	SLU 62	3.37	0.02	72.34	-0.0113	0.1802	-0.0001
208	SLU 63	3.55	0.02	72.15	-0.012	0.1891	-0.0001
208	SLU 64	3.46	0.02	67.33	-0.0108	0.1856	-0.0001
208	SLU 65	3.76	0.02	67.01	-0.012	0.2003	-0.0001
208	SLU 66	3.3	0.02	68.2	-0.0105	0.1764	-0.0001
208	SLU 67	3.48	0.02	68.01	-0.0113	0.1853	-0.0001
208	SLU 68	3.65	0.02	67.56	-0.0117	0.1943	-0.0001
208	SLU 69	3.19	0.02	68.76	-0.0102	0.1704	-0.0001
208	SLU 70	3.37	0.02	68.56	-0.0109	0.1792	-0.0001
208	SLU 71	3.24	0.02	68.44	-0.01	0.1735	-0.0001
208	SLU 72	3.42	0.02	68.25	-0.0108	0.1823	-0.0001
208	SLU 73	3.79	0.02	75.52	-0.0134	0.2023	-0.0001
208	SLU 74	3.34	0.02	76.72	-0.0119	0.1784	-0.0001
208	SLU 75	3.51	0.02	76.52	-0.0127	0.1872	-0.0001
208	SLU 76	3.68	0.02	76.08	-0.013	0.1962	-0.0001
208	SLU 77	3.22	0.02	77.27	-0.0115	0.1724	-0.0001
208	SLU 78	3.4	0.02	77.08	-0.0123	0.1812	-0.0001
208	SLU 79	3.28	0.02	76.95	-0.0114	0.1755	-0.0001
208	SLU 80	3.45	0.02	76.76	-0.0122	0.1843	-0.0001
208	SLU 81	3.52	0.02	79.49	-0.0128	0.1884	-0.0001
208	SLU 82	3.69	0.02	79.3	-0.0135	0.1972	-0.0001
208	SLU 83	3.4	0.02	80.05	-0.0124	0.1823	-0.0001
208	SLU 84	3.58	0.02	79.85	-0.0131	0.1912	-0.0001
208	SLE RA 1	2.66	0.01	50.1	-0.008	0.1423	-0.0001
208	SLE RA 2	2.85	0.02	49.89	-0.0089	0.1521	-0.0001
208	SLE RA 3	2.55	0.01	50.68	-0.0079	0.1362	-0.0001
208	SLE RA 4	2.67	0.01	50.55	-0.0084	0.1421	-0.0001
208	SLE RA 5	2.78	0.02	50.26	-0.0086	0.1481	-0.0001
208	SLE RA 6	2.47	0.01	51.05	-0.0076	0.1322	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
208	SLE RA 7	2.59	0.01	50.92	-0.0081	0.1381	-0.0001
208	SLE RA 8	2.51	0.01	50.84	-0.0075	0.1342	-0.0001
208	SLE RA 9	2.63	0.01	50.71	-0.008	0.1401	-0.0001
208	SLE RA 10	2.88	0.02	55.56	-0.0098	0.1534	-0.0001
208	SLE RA 11	2.57	0.01	56.36	-0.0088	0.1375	-0.0001
208	SLE RA 12	2.69	0.02	56.23	-0.0093	0.1434	-0.0001
208	SLE RA 13	2.8	0.02	55.93	-0.0096	0.1494	-0.0001
208	SLE RA 14	2.5	0.01	56.73	-0.0086	0.1335	-0.0001
208	SLE RA 15	2.62	0.02	56.6	-0.0091	0.1394	-0.0001
208	SLE RA 16	2.53	0.01	56.52	-0.0085	0.1355	-0.0001
208	SLE RA 17	2.65	0.02	56.39	-0.009	0.1414	-0.0001
208	SLE RA 18	2.69	0.01	58.21	-0.0094	0.1442	-0.0001
208	SLE RA 19	2.81	0.02	58.08	-0.0099	0.15	-0.0001
208	SLE RA 20	2.62	0.01	58.58	-0.0091	0.1401	-0.0001
208	SLE RA 21	2.73	0.02	58.45	-0.0096	0.146	-0.0001
208	SLE FR 1	2.66	0.01	50.1	-0.008	0.1423	-0.0001
208	SLE FR 2	2.7	0.01	50.06	-0.0082	0.1443	-0.0001
208	SLE FR 3	2.63	0.01	50.25	-0.0079	0.1407	-0.0001
208	SLE FR 4	2.71	0.01	52.49	-0.0086	0.1448	-0.0001
208	SLE FR 5	2.64	0.01	52.68	-0.0083	0.1412	-0.0001
208	SLE FR 6	2.68	0.01	54.15	-0.0087	0.1432	-0.0001
208	SLE QP 1	2.66	0.01	50.1	-0.008	0.1423	-0.0001
208	SLE QP 2	2.67	0.01	52.53	-0.0084	0.1429	-0.0001
208	SLD 1	15.24	-0.09	84.27	0.0102	0.8706	0.0001
208	SLD 2	15.24	-0.09	84.27	0.0102	0.8706	0.0001
208	SLD 3	14.5	0	82.34	0.0497	0.8261	0.0003
208	SLD 4	14.5	0	82.34	0.0497	0.8261	0.0003
208	SLD 5	7.56	-0.16	64.98	-0.0628	0.4287	-0.0004
208	SLD 6	7.56	-0.16	64.98	-0.0628	0.4287	-0.0004
208	SLD 7	5.1	0.15	58.55	0.069	0.2803	0.0004
208	SLD 8	5.1	0.15	58.55	0.069	0.2803	0.0004
208	SLD 9	0.24	-0.12	46.51	-0.0859	0.0054	-0.0006
208	SLD 10	0.24	-0.12	46.51	-0.0859	0.0054	-0.0006
208	SLD 11	-2.22	0.18	40.09	0.0459	-0.143	0.0003
208	SLD 12	-2.22	0.18	40.09	0.0459	-0.143	0.0003
208	SLD 13	-9.17	0.02	22.72	-0.0666	-0.5404	-0.0005
208	SLD 14	-9.17	0.02	22.72	-0.0666	-0.5404	-0.0005
208	SLD 15	-9.9	0.12	20.8	-0.0271	-0.5849	-0.0002
208	SLD 16	-9.9	0.12	20.8	-0.0271	-0.5849	-0.0002
208	SLV 1	31.43	-0.24	125.14	0.0431	1.8077	0.0004
208	SLV 2	31.43	-0.24	125.14	0.0431	1.8077	0.0004
208	SLV 3	29.72	-0.02	120.73	0.1346	1.705	0.001
208	SLV 4	29.72	-0.02	120.73	0.1346	1.705	0.001
208	SLV 5	13.88	-0.41	81.02	-0.1318	0.7981	-0.0009
208	SLV 6	13.88	-0.41	81.02	-0.1318	0.7981	-0.0009
208	SLV 7	8.2	0.35	66.29	0.1733	0.4557	0.0012
208	SLV 8	8.2	0.35	66.29	0.1733	0.4557	0.0012
208	SLV 9	-2.86	-0.32	38.77	-0.1902	-0.17	-0.0013
208	SLV 10	-2.86	-0.32	38.77	-0.1902	-0.17	-0.0013
208	SLV 11	-8.55	0.43	24.05	0.1149	-0.5124	0.0007
208	SLV 12	-8.55	0.43	24.05	0.1149	-0.5124	0.0007
208	SLV 13	-24.39	0.04	-15.66	-0.1515	-1.4193	-0.0011
208	SLV 14	-24.39	0.04	-15.66	-0.1515	-1.4193	-0.0011
208	SLV 15	-26.09	0.27	-20.08	-0.06	-1.522	-0.0005
208	SLV 16	-26.09	0.27	-20.08	-0.06	-1.522	-0.0005
209	SLU 1	-1.1	0.01	49.81	-0.0052	-0.0759	0
209	SLU 2	-0.66	0	49.39	-0.0025	-0.0558	0
209	SLU 3	-1.44	0	50.94	-0.005	-0.0926	0
209	SLU 4	-1.17	0	50.7	-0.0033	-0.0805	0
209	SLU 5	-0.88	0	50.1	-0.0021	-0.0666	0
209	SLU 6	-1.66	0	51.65	-0.0046	-0.1033	0
209	SLU 7	-1.39	0	51.4	-0.003	-0.0913	0
209	SLU 8	-1.54	0	51.21	-0.0045	-0.0974	0
209	SLU 9	-1.28	0	50.97	-0.0029	-0.0853	0
209	SLU 10	-1.51	0.01	58.57	-0.0034	-0.0999	0
209	SLU 11	-2.29	0.01	60.12	-0.0059	-0.1367	0
209	SLU 12	-2.02	0.01	59.87	-0.0042	-0.1247	0
209	SLU 13	-1.73	0.01	59.27	-0.0031	-0.1107	0
209	SLU 14	-2.51	0.01	60.82	-0.0055	-0.1474	0
209	SLU 15	-2.24	0.01	60.57	-0.0039	-0.1354	0
209	SLU 16	-2.39	0.01	60.39	-0.0055	-0.1415	0
209	SLU 17	-2.13	0.01	60.14	-0.0038	-0.1294	0
209	SLU 18	-2.32	0.01	62.91	-0.0065	-0.1389	0
209	SLU 19	-2.05	0.01	62.66	-0.0049	-0.1269	0
209	SLU 20	-2.54	0.01	63.61	-0.0062	-0.1497	0
209	SLU 21	-2.27	0.01	63.37	-0.0046	-0.1376	0
209	SLU 22	-1.87	0.01	58.09	-0.0059	-0.1157	0
209	SLU 23	-1.43	0.01	57.68	-0.0032	-0.0956	0
209	SLU 24	-2.21	0.01	59.22	-0.0057	-0.1324	0
209	SLU 25	-1.94	0.01	58.98	-0.0041	-0.1204	0
209	SLU 26	-1.65	0.01	58.38	-0.0029	-0.1064	0
209	SLU 27	-2.43	0.01	59.93	-0.0054	-0.1431	0
209	SLU 28	-2.16	0.01	59.68	-0.0037	-0.1311	0
209	SLU 29	-2.31	0.01	59.5	-0.0053	-0.1372	0
209	SLU 30	-2.04	0.01	59.25	-0.0036	-0.1251	0
209	SLU 31	-2.28	0.01	66.85	-0.0041	-0.1398	0
209	SLU 32	-3.05	0.01	68.4	-0.0066	-0.1765	0
209	SLU 33	-2.79	0.01	68.15	-0.005	-0.1645	0
209	SLU 34	-2.5	0.01	67.55	-0.0038	-0.1505	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
209	SLU 35	-3.27	0.01	69.1	-0.0063	-0.1872	0
209	SLU 36	-3.01	0.01	68.85	-0.0047	-0.1752	0
209	SLU 37	-3.16	0.01	68.67	-0.0062	-0.1813	0
209	SLU 38	-2.89	0.01	68.42	-0.0046	-0.1692	0
209	SLU 39	-3.08	0.01	71.19	-0.0073	-0.1788	0
209	SLU 40	-2.82	0.01	70.94	-0.0056	-0.1667	0
209	SLU 41	-3.3	0.01	71.9	-0.0069	-0.1895	0
209	SLU 42	-3.04	0.01	71.65	-0.0053	-0.1774	0
209	SLU 43	-1.17	0.01	61.91	-0.0065	-0.0851	0
209	SLU 44	-0.73	0.01	61.5	-0.0038	-0.065	0
209	SLU 45	-1.51	0.01	63.05	-0.0063	-0.1017	0
209	SLU 46	-1.24	0.01	62.8	-0.0046	-0.0897	0
209	SLU 47	-0.95	0.01	62.2	-0.0035	-0.0757	0
209	SLU 48	-1.73	0.01	63.75	-0.0059	-0.1125	0
209	SLU 49	-1.46	0.01	63.5	-0.0043	-0.1004	0
209	SLU 50	-1.61	0.01	63.32	-0.0058	-0.1065	0
209	SLU 51	-1.35	0.01	63.07	-0.0042	-0.0944	0
209	SLU 52	-1.58	0.01	70.67	-0.0047	-0.1091	0
209	SLU 53	-2.36	0.01	72.22	-0.0072	-0.1458	0
209	SLU 54	-2.09	0.01	71.97	-0.0056	-0.1338	0
209	SLU 55	-1.8	0.01	71.37	-0.0044	-0.1198	0
209	SLU 56	-2.58	0.01	72.92	-0.0068	-0.1566	0
209	SLU 57	-2.31	0.01	72.68	-0.0052	-0.1445	0
209	SLU 58	-2.46	0.01	72.49	-0.0068	-0.1506	0
209	SLU 59	-2.19	0.01	72.24	-0.0051	-0.1386	0
209	SLU 60	-2.38	0.01	75.01	-0.0078	-0.1481	0
209	SLU 61	-2.12	0.01	74.77	-0.0062	-0.136	0
209	SLU 62	-2.6	0.01	75.72	-0.0075	-0.1588	0
209	SLU 63	-2.34	0.01	75.47	-0.0059	-0.1467	0
209	SLU 64	-1.94	0.01	70.19	-0.0072	-0.1249	0
209	SLU 65	-1.49	0.01	69.78	-0.0045	-0.1048	0
209	SLU 66	-2.27	0.01	71.33	-0.007	-0.1415	0
209	SLU 67	-2.01	0.01	71.08	-0.0054	-0.1295	0
209	SLU 68	-1.71	0.01	70.48	-0.0042	-0.1155	0
209	SLU 69	-2.49	0.01	72.03	-0.0067	-0.1523	0
209	SLU 70	-2.23	0.01	71.78	-0.005	-0.1402	0
209	SLU 71	-2.38	0.01	71.6	-0.0066	-0.1463	0
209	SLU 72	-2.11	0.01	71.35	-0.0049	-0.1342	0
209	SLU 73	-2.34	0.01	78.95	-0.0054	-0.1489	0
209	SLU 74	-3.12	0.01	80.5	-0.0079	-0.1857	0
209	SLU 75	-2.86	0.01	80.25	-0.0063	-0.1736	0
209	SLU 76	-2.56	0.01	79.66	-0.0051	-0.1596	0
209	SLU 77	-3.34	0.01	81.2	-0.0076	-0.1964	0
209	SLU 78	-3.08	0.01	80.96	-0.006	-0.1843	0
209	SLU 79	-3.23	0.01	80.77	-0.0075	-0.1904	0
209	SLU 80	-2.96	0.01	80.52	-0.0059	-0.1784	0
209	SLU 81	-3.15	0.01	83.29	-0.0086	-0.1879	0
209	SLU 82	-2.88	0.01	83.05	-0.0069	-0.1758	0
209	SLU 83	-3.37	0.01	84	-0.0082	-0.1986	0
209	SLU 84	-3.1	0.01	83.75	-0.0066	-0.1866	0
209	SLE RA 1	-1.32	0.01	52.17	-0.0054	-0.0873	0
209	SLE RA 2	-1.03	0.01	51.9	-0.0036	-0.0739	0
209	SLE RA 3	-1.55	0.01	52.93	-0.0052	-0.0984	0
209	SLE RA 4	-1.37	0.01	52.77	-0.0042	-0.0904	0
209	SLE RA 5	-1.17	0	52.37	-0.0034	-0.081	0
209	SLE RA 6	-1.69	0.01	53.4	-0.005	-0.1056	0
209	SLE RA 7	-1.52	0	53.24	-0.0039	-0.0975	0
209	SLE RA 8	-1.62	0	53.11	-0.005	-0.1016	0
209	SLE RA 9	-1.44	0	52.95	-0.0039	-0.0936	0
209	SLE RA 10	-1.59	0.01	58.01	-0.0042	-0.1033	0
209	SLE RA 11	-2.11	0.01	59.05	-0.0059	-0.1278	0
209	SLE RA 12	-1.94	0.01	58.88	-0.0048	-0.1198	0
209	SLE RA 13	-1.74	0.01	58.48	-0.004	-0.1105	0
209	SLE RA 14	-2.26	0.01	59.51	-0.0056	-0.135	0
209	SLE RA 15	-2.08	0.01	59.35	-0.0046	-0.1269	0
209	SLE RA 16	-2.18	0.01	59.23	-0.0056	-0.131	0
209	SLE RA 17	-2	0.01	59.06	-0.0045	-0.123	0
209	SLE RA 18	-2.13	0.01	60.91	-0.0063	-0.1293	0
209	SLE RA 19	-1.95	0.01	60.74	-0.0052	-0.1213	0
209	SLE RA 20	-2.28	0.01	61.38	-0.0061	-0.1365	0
209	SLE RA 21	-2.1	0.01	61.21	-0.005	-0.1284	0
209	SLE FR 1	-1.32	0.01	52.17	-0.0054	-0.0873	0
209	SLE FR 2	-1.26	0.01	52.12	-0.005	-0.0846	0
209	SLE FR 3	-1.38	0.01	52.36	-0.0053	-0.0902	0
209	SLE FR 4	-1.51	0.01	54.74	-0.0053	-0.0972	0
209	SLE FR 5	-1.62	0.01	54.98	-0.0056	-0.1028	0
209	SLE FR 6	-1.73	0.01	56.54	-0.0058	-0.1083	0
209	SLE QP 1	-1.32	0.01	52.17	-0.0054	-0.0873	0
209	SLE QP 2	-1.56	0.01	54.79	-0.0057	-0.0999	0
209	SLD 1	14.28	0	70.43	-0.021	0.6792	-0.0001
209	SLD 2	14.28	0	70.43	-0.021	0.6792	-0.0001
209	SLD 3	13.34	-0.13	69.33	0.1115	0.633	0.0005
209	SLD 4	13.34	-0.13	69.33	0.1115	0.633	0.0005
209	SLD 5	4.62	0.2	61.16	-0.2111	0.2038	-0.0009
209	SLD 6	4.62	0.2	61.16	-0.2111	0.2038	-0.0009
209	SLD 7	1.47	-0.23	57.48	0.2304	0.05	0.001
209	SLD 8	1.47	-0.23	57.48	0.2304	0.05	0.001
209	SLD 9	-4.6	0.24	52.11	-0.2417	-0.2498	-0.001
209	SLD 10	-4.6	0.24	52.11	-0.2417	-0.2498	-0.001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
209	SLD 11	-7.75	-0.18	48.43	0.1998	-0.4036	0.0009
209	SLD 12	-7.75	-0.18	48.43	0.1998	-0.4036	0.0009
209	SLD 13	-16.47	0.14	40.26	-0.1228	-0.8328	-0.0005
209	SLD 14	-16.47	0.14	40.26	-0.1228	-0.8328	-0.0005
209	SLD 15	-17.41	0.01	39.15	0.0096	-0.879	0
209	SLD 16	-17.41	0.01	39.15	0.0096	-0.879	0
209	SLV 1	34.69	-0.01	90.62	-0.0443	1.6825	-0.0002
209	SLV 2	34.69	-0.01	90.62	-0.0443	1.6825	-0.0002
209	SLV 3	32.49	-0.33	88.04	0.2926	1.5751	0.0013
209	SLV 4	32.49	-0.33	88.04	0.2926	1.5751	0.0013
209	SLV 5	12.64	0.48	69.45	-0.5281	0.5977	-0.0022
209	SLV 6	12.64	0.48	69.45	-0.5281	0.5977	-0.0022
209	SLV 7	5.32	-0.58	60.86	0.5947	0.2397	0.0026
209	SLV 8	5.32	-0.58	60.86	0.5947	0.2397	0.0026
209	SLV 9	-8.45	0.59	48.73	-0.6061	-0.4395	-0.0026
209	SLV 10	-8.45	0.59	48.73	-0.6061	-0.4395	-0.0026
209	SLV 11	-15.77	-0.47	40.14	0.5168	-0.7975	0.0022
209	SLV 12	-15.77	-0.47	40.14	0.5168	-0.7975	0.0022
209	SLV 13	-35.62	0.34	21.54	-0.3039	-1.7749	-0.0013
209	SLV 14	-35.62	0.34	21.54	-0.3039	-1.7749	-0.0013
209	SLV 15	-37.82	0.02	18.97	0.0329	-1.8823	0.0001
209	SLV 16	-37.82	0.02	18.97	0.0329	-1.8823	0.0001
210	SLU 1	-3.38	0	50.93	-0.0033	-0.1456	0
210	SLU 2	-2.89	0	50.63	0.0026	-0.1243	0
210	SLU 3	-3.81	0	52.15	-0.003	-0.1646	0
210	SLU 4	-3.51	0	51.97	0.0005	-0.1519	0
210	SLU 5	-3.16	0	51.37	0.0029	-0.1365	0
210	SLU 6	-4.08	0	52.88	-0.0028	-0.1768	0
210	SLU 7	-3.78	0	52.71	0.0007	-0.1641	0
210	SLU 8	-3.93	0	52.4	-0.0027	-0.17	0
210	SLU 9	-3.63	0	52.23	0.0008	-0.1572	0
210	SLU 10	-4.27	0	60.02	0.002	-0.1849	0
210	SLU 11	-5.19	0	61.53	-0.0036	-0.2253	0
210	SLU 12	-4.89	0	61.36	-0.0001	-0.2125	0
210	SLU 13	-4.55	0	60.76	0.0023	-0.1971	0
210	SLU 14	-5.46	0	62.27	-0.0034	-0.2375	0
210	SLU 15	-5.17	0	62.1	0.0001	-0.2247	0
210	SLU 16	-5.31	0	61.79	-0.0033	-0.2306	0
210	SLU 17	-5.02	0	61.61	0.0002	-0.2179	0
210	SLU 18	-5.36	0	64.34	-0.0041	-0.2322	0
210	SLU 19	-5.06	0	64.16	-0.0006	-0.2194	0
210	SLU 20	-5.63	0	65.08	-0.0038	-0.2444	0
210	SLU 21	-5.34	0	64.9	-0.0003	-0.2316	0
210	SLU 22	-4.62	0	59.39	-0.0037	-0.1996	0
210	SLU 23	-4.12	0	59.09	0.0021	-0.1783	0
210	SLU 24	-5.04	0	60.61	-0.0035	-0.2187	0
210	SLU 25	-4.75	0	60.43	0	-0.2059	0
210	SLU 26	-4.4	0	59.83	0.0024	-0.1905	0
210	SLU 27	-5.32	0	61.34	-0.0032	-0.2309	0
210	SLU 28	-5.02	0	61.17	0.0003	-0.2181	0
210	SLU 29	-5.17	0	60.86	-0.0032	-0.224	0
210	SLU 30	-4.87	0	60.68	0.0003	-0.2113	0
210	SLU 31	-5.51	0	68.48	0.0015	-0.2389	0
210	SLU 32	-6.42	0	69.99	-0.0041	-0.2793	0
210	SLU 33	-6.13	0	69.82	-0.0006	-0.2665	0
210	SLU 34	-5.78	0	69.22	0.0018	-0.2511	0
210	SLU 35	-6.7	0	70.73	-0.0038	-0.2915	0
210	SLU 36	-6.4	0	70.56	-0.0003	-0.2787	0
210	SLU 37	-6.55	0	70.25	-0.0038	-0.2847	0
210	SLU 38	-6.25	0	70.07	-0.0003	-0.2719	0
210	SLU 39	-6.59	0	72.8	-0.0046	-0.2862	0
210	SLU 40	-6.3	0	72.62	-0.0011	-0.2734	0
210	SLU 41	-6.87	0	73.53	-0.0043	-0.2984	0
210	SLU 42	-6.57	0	73.36	-0.0008	-0.2856	0
210	SLU 43	-3.98	0	63.3	-0.0041	-0.1708	0
210	SLU 44	-3.48	0	63.01	0.0018	-0.1495	0
210	SLU 45	-4.4	0	64.52	-0.0039	-0.1898	0
210	SLU 46	-4.1	0	64.35	-0.0004	-0.177	0
210	SLU 47	-3.76	0	63.75	0.002	-0.1617	0
210	SLU 48	-4.67	0	65.26	-0.0036	-0.202	0
210	SLU 49	-4.38	0	65.09	-0.0001	-0.1892	0
210	SLU 50	-4.52	0	64.78	-0.0035	-0.1952	0
210	SLU 51	-4.23	0	64.6	0	-0.1824	0
210	SLU 52	-4.86	0	72.4	0.0012	-0.2101	0
210	SLU 53	-5.78	0	73.91	-0.0045	-0.2504	0
210	SLU 54	-5.49	0	73.73	-0.001	-0.2376	0
210	SLU 55	-5.14	0	73.13	0.0014	-0.2223	0
210	SLU 56	-6.06	0	74.65	-0.0042	-0.2626	0
210	SLU 57	-5.76	0	74.47	-0.0007	-0.2498	0
210	SLU 58	-5.9	0	74.17	-0.0041	-0.2558	0
210	SLU 59	-5.61	0	73.99	-0.0006	-0.243	0
210	SLU 60	-5.95	0	76.71	-0.0049	-0.2574	0
210	SLU 61	-5.65	0	76.54	-0.0014	-0.2446	0
210	SLU 62	-6.22	0	77.45	-0.0047	-0.2696	0
210	SLU 63	-5.93	0	77.28	-0.0012	-0.2568	0
210	SLU 64	-5.21	0	71.76	-0.0046	-0.2248	0
210	SLU 65	-4.72	0	71.47	0.0013	-0.2035	0
210	SLU 66	-5.63	0	72.98	-0.0043	-0.2438	0
210	SLU 67	-5.34	0	72.81	-0.0008	-0.231	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
210	SLU 68	-4.99	0	72.21	0.0016	-0.2157	0
210	SLU 69	-5.91	0	73.72	-0.0041	-0.256	0
210	SLU 70	-5.61	0	73.54	-0.0006	-0.2432	0
210	SLU 71	-5.76	0	73.24	-0.004	-0.2492	0
210	SLU 72	-5.46	0	73.06	-0.0005	-0.2364	0
210	SLU 73	-6.1	0	80.86	0.0007	-0.2641	0
210	SLU 74	-7.02	0	82.37	-0.0049	-0.3044	0
210	SLU 75	-6.72	0	82.19	-0.0014	-0.2916	0
210	SLU 76	-6.37	0	81.59	0.001	-0.2763	0
210	SLU 77	-7.29	0	83.11	-0.0046	-0.3166	0
210	SLU 78	-6.99	0	82.93	-0.0011	-0.3038	0
210	SLU 79	-7.14	0	82.63	-0.0046	-0.3098	0
210	SLU 80	-6.84	0	82.45	-0.0011	-0.297	0
210	SLU 81	-7.18	0	85.17	-0.0054	-0.3114	0
210	SLU 82	-6.89	0	85	-0.0019	-0.2986	0
210	SLU 83	-7.46	0	85.91	-0.0051	-0.3236	0
210	SLU 84	-7.16	0	85.74	-0.0016	-0.3108	0
210	SLE RA 1	-3.74	0	53.34	-0.0034	-0.1611	0
210	SLE RA 2	-3.41	0	53.15	0.0005	-0.1469	0
210	SLE RA 3	-4.02	0	54.16	-0.0033	-0.1737	0
210	SLE RA 4	-3.82	0	54.04	-0.0009	-0.1652	0
210	SLE RA 5	-3.59	0	53.64	0.0007	-0.155	0
210	SLE RA 6	-4.2	0	54.65	-0.0031	-0.1819	0
210	SLE RA 7	-4	0	54.53	-0.0007	-0.1733	0
210	SLE RA 8	-4.1	0	54.33	-0.003	-0.1773	0
210	SLE RA 9	-3.9	0	54.21	-0.0007	-0.1688	0
210	SLE RA 10	-4.33	0	59.4	0.0001	-0.1873	0
210	SLE RA 11	-4.94	0	60.42	-0.0036	-0.2141	0
210	SLE RA 12	-4.74	0	60.3	-0.0013	-0.2056	0
210	SLE RA 13	-4.51	0	59.9	0.0003	-0.1954	0
210	SLE RA 14	-5.12	0	60.91	-0.0035	-0.2223	0
210	SLE RA 15	-4.93	0	60.79	-0.0011	-0.2138	0
210	SLE RA 16	-5.02	0	60.59	-0.0034	-0.2177	0
210	SLE RA 17	-4.83	0	60.47	-0.0011	-0.2092	0
210	SLE RA 18	-5.05	0	62.28	-0.004	-0.2188	0
210	SLE RA 19	-4.86	0	62.17	-0.0016	-0.2103	0
210	SLE RA 20	-5.24	0	62.78	-0.0038	-0.2269	0
210	SLE RA 21	-5.04	0	62.66	-0.0014	-0.2184	0
210	SLE FR 1	-3.74	0	53.34	-0.0034	-0.1611	0
210	SLE FR 2	-3.67	0	53.3	-0.0026	-0.1582	0
210	SLE FR 3	-3.81	0	53.54	-0.0033	-0.1643	0
210	SLE FR 4	-4.07	0	55.99	-0.0028	-0.1755	0
210	SLE FR 5	-4.2	0	56.22	-0.0035	-0.1816	0
210	SLE FR 6	-4.39	0	57.81	-0.0037	-0.1899	0
210	SLE QP 1	-3.74	0	53.34	-0.0034	-0.1611	0
210	SLE QP 2	-4.13	0	56.02	-0.0036	-0.1784	0
210	SLD 1	13.4	0.03	64.68	-0.0545	0.6383	-0.0001
210	SLD 2	13.4	0.03	64.68	-0.0545	0.6383	-0.0001
210	SLD 3	12.32	-0.16	63.9	0.1604	0.5874	0.0007
210	SLD 4	12.32	-0.16	63.9	0.1604	0.5874	0.0007
210	SLD 5	2.76	0.31	59.81	-0.3448	0.1438	-0.0014
210	SLD 6	2.76	0.31	59.81	-0.3448	0.1438	-0.0014
210	SLD 7	-0.83	-0.35	57.2	0.3715	-0.0258	0.0015
210	SLD 8	-0.83	-0.35	57.2	0.3715	-0.0258	0.0015
210	SLD 9	-7.43	0.35	54.85	-0.3786	-0.331	-0.0016
210	SLD 10	-7.43	0.35	54.85	-0.3786	-0.331	-0.0016
210	SLD 11	-11.03	-0.31	52.24	0.3376	-0.5005	0.0014
210	SLD 12	-11.03	-0.31	52.24	0.3376	-0.5005	0.0014
210	SLD 13	-20.58	0.17	48.15	-0.1675	-0.9442	-0.0008
210	SLD 14	-20.58	0.17	48.15	-0.1675	-0.9442	-0.0008
210	SLD 15	-21.66	-0.03	47.37	0.0474	-0.995	0.0001
210	SLD 16	-21.66	-0.03	47.37	0.0474	-0.995	0.0001
210	SLV 1	35.98	0.08	75.91	-0.1342	1.6901	-0.0003
210	SLV 2	35.98	0.08	75.91	-0.1342	1.6901	-0.0003
210	SLV 3	33.47	-0.42	74.04	0.4153	1.572	0.0019
210	SLV 4	33.47	-0.42	74.04	0.4153	1.572	0.0019
210	SLV 5	11.71	0.8	64.82	-0.8762	0.5613	-0.0035
210	SLV 6	11.71	0.8	64.82	-0.8762	0.5613	-0.0035
210	SLV 7	3.34	-0.9	58.6	0.9555	0.1676	0.0039
210	SLV 8	3.34	-0.9	58.6	0.9555	0.1676	0.0039
210	SLV 9	-11.6	0.9	53.45	-0.9627	-0.5244	-0.004
210	SLV 10	-11.6	0.9	53.45	-0.9627	-0.5244	-0.004
210	SLV 11	-19.97	-0.79	47.23	0.8691	-0.9181	0.0035
210	SLV 12	-19.97	-0.79	47.23	0.8691	-0.9181	0.0035
210	SLV 13	-41.73	0.43	38.01	-0.4224	-1.9288	-0.0019
210	SLV 14	-41.73	0.43	38.01	-0.4224	-1.9288	-0.0019
210	SLV 15	-44.24	-0.08	36.14	0.1271	-2.0469	0.0003
210	SLV 16	-44.24	-0.08	36.14	0.1271	-2.0469	0.0003
211	SLU 1	-5.09	0	51.25	-0.0019	-0.2355	0
211	SLU 2	-4.59	0	51.12	0.0068	-0.2144	0
211	SLU 3	-5.56	0	52.49	-0.0017	-0.2568	0
211	SLU 4	-5.26	0	52.41	0.0035	-0.2442	0
211	SLU 5	-4.89	0	51.85	0.007	-0.2279	0
211	SLU 6	-5.86	0	53.23	-0.0015	-0.2703	0
211	SLU 7	-5.57	0	53.15	0.0037	-0.2577	0
211	SLU 8	-5.69	0	52.72	-0.0014	-0.2624	0
211	SLU 9	-5.39	0	52.64	0.0038	-0.2498	0
211	SLU 10	-6.36	0	60.48	0.0065	-0.2943	0
211	SLU 11	-7.33	0	61.85	-0.0021	-0.3368	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
211	SLU 12	-7.04	0	61.77	0.0032	-0.3241	0
211	SLU 13	-6.67	0	61.21	0.0067	-0.3078	0
211	SLU 14	-7.63	0	62.59	-0.0018	-0.3502	0
211	SLU 15	-7.34	0	62.51	0.0034	-0.3376	0
211	SLU 16	-7.46	0	62.08	-0.0018	-0.3423	0
211	SLU 17	-7.17	0	62	0.0034	-0.3297	0
211	SLU 18	-7.62	0	64.62	-0.0024	-0.3496	0
211	SLU 19	-7.32	0	64.54	0.0028	-0.337	0
211	SLU 20	-7.92	0	65.36	-0.0022	-0.3631	0
211	SLU 21	-7.62	0	65.28	0.003	-0.3504	0
211	SLU 22	-6.66	0	59.68	-0.0022	-0.3066	0
211	SLU 23	-6.17	0	59.55	0.0065	-0.2855	0
211	SLU 24	-7.14	0	60.92	-0.002	-0.328	0
211	SLU 25	-6.84	0	60.84	0.0032	-0.3153	0
211	SLU 26	-6.47	0	60.28	0.0068	-0.299	0
211	SLU 27	-7.44	0	61.66	-0.0018	-0.3414	0
211	SLU 28	-7.14	0	61.58	0.0035	-0.3288	0
211	SLU 29	-7.26	0	61.15	-0.0017	-0.3335	0
211	SLU 30	-6.97	0	61.07	0.0035	-0.3209	0
211	SLU 31	-7.94	0	68.9	0.0062	-0.3654	0
211	SLU 32	-8.91	0	70.28	-0.0023	-0.4079	0
211	SLU 33	-8.61	0	70.2	0.0029	-0.3952	0
211	SLU 34	-8.24	0	69.64	0.0064	-0.3789	0
211	SLU 35	-9.21	0	71.02	-0.0021	-0.4213	0
211	SLU 36	-8.91	0	70.94	0.0031	-0.4087	0
211	SLU 37	-9.04	0	70.51	-0.0021	-0.4134	0
211	SLU 38	-8.74	0	70.43	0.0031	-0.4008	0
211	SLU 39	-9.19	0	73.05	-0.0027	-0.4207	0
211	SLU 40	-8.9	0	72.97	0.0025	-0.4081	0
211	SLU 41	-9.49	0	73.79	-0.0025	-0.4342	0
211	SLU 42	-9.2	0	73.7	0.0028	-0.4216	0
211	SLU 43	-6.07	0	63.74	-0.0024	-0.2817	0
211	SLU 44	-5.58	0	63.6	0.0063	-0.2606	0
211	SLU 45	-6.55	0	64.98	-0.0022	-0.3031	0
211	SLU 46	-6.25	0	64.9	0.003	-0.2905	0
211	SLU 47	-5.88	0	64.34	0.0066	-0.2741	0
211	SLU 48	-6.85	0	65.72	-0.002	-0.3166	0
211	SLU 49	-6.55	0	65.63	0.0033	-0.3039	0
211	SLU 50	-6.68	0	65.21	-0.0019	-0.3087	0
211	SLU 51	-6.38	0	65.13	0.0033	-0.296	0
211	SLU 52	-7.35	0	72.96	0.006	-0.3405	0
211	SLU 53	-8.32	0	74.34	-0.0025	-0.383	0
211	SLU 54	-8.02	0	74.26	0.0027	-0.3704	0
211	SLU 55	-7.65	0	73.7	0.0062	-0.354	0
211	SLU 56	-8.62	0	75.07	-0.0023	-0.3965	0
211	SLU 57	-8.32	0	74.99	0.0029	-0.3838	0
211	SLU 58	-8.45	0	74.57	-0.0023	-0.3886	0
211	SLU 59	-8.15	0	74.49	0.0029	-0.3759	0
211	SLU 60	-8.6	0	77.11	-0.0029	-0.3959	0
211	SLU 61	-8.31	0	77.03	0.0023	-0.3832	0
211	SLU 62	-8.91	0	77.84	-0.0026	-0.4094	0
211	SLU 63	-8.61	0	77.76	0.0026	-0.3967	0
211	SLU 64	-7.65	0	72.17	-0.0026	-0.3528	0
211	SLU 65	-7.15	0	72.03	0.0061	-0.3317	0
211	SLU 66	-8.12	0	73.41	-0.0024	-0.3742	0
211	SLU 67	-7.83	0	73.33	0.0028	-0.3616	0
211	SLU 68	-7.46	0	72.77	0.0063	-0.3452	0
211	SLU 69	-8.42	0	74.14	-0.0022	-0.3877	0
211	SLU 70	-8.13	0	74.06	0.003	-0.375	0
211	SLU 71	-8.25	0	73.64	-0.0022	-0.3798	0
211	SLU 72	-7.95	0	73.56	0.003	-0.3671	0
211	SLU 73	-8.93	0	81.39	0.0057	-0.4117	0
211	SLU 74	-9.89	0	82.77	-0.0028	-0.4541	0
211	SLU 75	-9.6	0	82.69	0.0024	-0.4415	0
211	SLU 76	-9.23	0	82.13	0.0059	-0.4251	0
211	SLU 77	-10.2	0	83.5	-0.0026	-0.4676	0
211	SLU 78	-9.9	0	83.42	0.0026	-0.4549	0
211	SLU 79	-10.02	0	83	-0.0026	-0.4597	0
211	SLU 80	-9.73	0	82.91	0.0027	-0.447	0
211	SLU 81	-10.18	0	85.54	-0.0031	-0.467	0
211	SLU 82	-9.88	0	85.46	0.0021	-0.4543	0
211	SLU 83	-10.48	0	86.27	-0.0029	-0.4805	0
211	SLU 84	-10.18	0	86.19	0.0023	-0.4678	0
211	SLE RA 1	-5.54	0	53.66	-0.002	-0.2558	0
211	SLE RA 2	-5.21	0	53.57	0.0038	-0.2417	0
211	SLE RA 3	-5.85	0	54.49	-0.0018	-0.27	0
211	SLE RA 4	-5.66	0	54.43	0.0016	-0.2616	0
211	SLE RA 5	-5.41	0	54.06	0.004	-0.2507	0
211	SLE RA 6	-6.05	0	54.98	-0.0017	-0.279	0
211	SLE RA 7	-5.86	0	54.92	0.0018	-0.2706	0
211	SLE RA 8	-5.94	0	54.64	-0.0017	-0.2738	0
211	SLE RA 9	-5.74	0	54.59	0.0018	-0.2653	0
211	SLE RA 10	-6.39	0	59.81	0.0036	-0.295	0
211	SLE RA 11	-7.03	0	60.73	-0.0021	-0.3233	0
211	SLE RA 12	-6.84	0	60.67	0.0014	-0.3149	0
211	SLE RA 13	-6.59	0	60.3	0.0037	-0.304	0
211	SLE RA 14	-7.24	0	61.22	-0.0019	-0.3323	0
211	SLE RA 15	-7.04	0	61.16	0.0015	-0.3239	0
211	SLE RA 16	-7.12	0	60.88	-0.0019	-0.327	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
211	SLE RA 17	-6.92	0	60.83	0.0016	-0.3186	0
211	SLE RA 18	-7.22	0	62.57	-0.0023	-0.3319	0
211	SLE RA 19	-7.03	0	62.52	0.0012	-0.3235	0
211	SLE RA 20	-7.43	0	63.06	-0.0022	-0.3409	0
211	SLE RA 21	-7.23	0	63.01	0.0013	-0.3324	0
211	SLE FR 1	-5.54	0	53.66	-0.002	-0.2558	0
211	SLE FR 2	-5.47	0	53.64	-0.0008	-0.253	0
211	SLE FR 3	-5.62	0	53.86	-0.0019	-0.2594	0
211	SLE FR 4	-5.98	0	56.32	-0.0009	-0.2758	0
211	SLE FR 5	-6.12	0	56.53	-0.002	-0.2822	0
211	SLE FR 6	-6.38	0	58.12	-0.0021	-0.2938	0
211	SLE QP 1	-5.54	0	53.66	-0.002	-0.2558	0
211	SLE QP 2	-6.04	0	56.33	-0.0021	-0.2786	0
211	SLD 1	12.44	0.07	61.03	-0.0838	0.5611	-0.0003
211	SLD 2	12.44	0.07	61.03	-0.0838	0.5611	-0.0003
211	SLD 3	11.3	-0.19	60.4	0.1941	0.5101	0.001
211	SLD 4	11.3	-0.19	60.4	0.1941	0.5101	0.001
211	SLD 5	1.23	0.42	58.69	-0.4481	0.0508	-0.0021
211	SLD 6	1.23	0.42	58.69	-0.4481	0.0508	-0.0021
211	SLD 7	-2.57	-0.45	56.6	0.4783	-0.1195	0.0023
211	SLD 8	-2.57	-0.45	56.6	0.4783	-0.1195	0.0023
211	SLD 9	-9.52	0.45	56.07	-0.4824	-0.4377	-0.0023
211	SLD 10	-9.52	0.45	56.07	-0.4824	-0.4377	-0.0023
211	SLD 11	-13.31	-0.41	53.98	0.444	-0.608	0.0021
211	SLD 12	-13.31	-0.41	53.98	0.444	-0.608	0.0021
211	SLD 13	-23.39	0.19	52.27	-0.1982	-1.0673	-0.001
211	SLD 14	-23.39	0.19	52.27	-0.1982	-1.0673	-0.001
211	SLD 15	-24.52	-0.07	51.64	0.0797	-1.1184	0.0003
211	SLD 16	-24.52	-0.07	51.64	0.0797	-1.1184	0.0003
211	SLV 1	36.24	0.18	67.16	-0.212	1.6428	-0.0008
211	SLV 2	36.24	0.18	67.16	-0.212	1.6428	-0.0008
211	SLV 3	33.6	-0.49	65.64	0.4996	1.524	0.0025
211	SLV 4	33.6	-0.49	65.64	0.4996	1.524	0.0025
211	SLV 5	10.66	1.06	61.87	-1.1444	0.478	-0.0053
211	SLV 6	10.66	1.06	61.87	-1.1444	0.478	-0.0053
211	SLV 7	1.84	-1.15	56.83	1.2278	0.082	0.0058
211	SLV 8	1.84	-1.15	56.83	1.2278	0.082	0.0058
211	SLV 9	-13.92	1.16	55.83	-1.2319	-0.6392	-0.0058
211	SLV 10	-13.92	1.16	55.83	-1.2319	-0.6392	-0.0058
211	SLV 11	-22.74	-1.06	50.79	1.1403	-1.0352	0.0053
211	SLV 12	-22.74	-1.06	50.79	1.1403	-1.0352	0.0053
211	SLV 13	-45.68	0.49	47.02	-0.5038	-2.0812	-0.0025
211	SLV 14	-45.68	0.49	47.02	-0.5038	-2.0812	-0.0025
211	SLV 15	-48.33	-0.17	45.51	0.2079	-2.2	0.0008
211	SLV 16	-48.33	-0.17	45.51	0.2079	-2.2	0.0008
212	SLU 1	-6.02	0	51.32	-0.0009	-0.2613	0
212	SLU 2	-5.55	-0.01	51.34	0.0105	-0.2413	0
212	SLU 3	-6.51	0	52.56	-0.0007	-0.2829	0
212	SLU 4	-6.23	0	52.57	0.0061	-0.2709	0
212	SLU 5	-5.86	-0.01	52.06	0.0107	-0.2549	0
212	SLU 6	-6.81	0	53.29	-0.0006	-0.2965	0
212	SLU 7	-6.53	0	53.3	0.0063	-0.2845	0
212	SLU 8	-6.63	0	52.76	-0.0005	-0.2884	0
212	SLU 9	-6.35	0	52.78	0.0063	-0.2764	0
212	SLU 10	-7.55	-0.01	60.57	0.0103	-0.328	0
212	SLU 11	-8.5	0	61.79	-0.0009	-0.3695	0
212	SLU 12	-8.22	0	61.8	0.0059	-0.3576	0
212	SLU 13	-7.85	-0.01	61.29	0.0105	-0.3415	0
212	SLU 14	-8.81	0	62.52	-0.0007	-0.3831	0
212	SLU 15	-8.53	0	62.53	0.0061	-0.3711	0
212	SLU 16	-8.63	0	61.99	-0.0007	-0.375	0
212	SLU 17	-8.35	0	62.01	0.0061	-0.363	0
212	SLU 18	-8.87	0	64.5	-0.0012	-0.385	0
212	SLU 19	-8.59	0	64.51	0.0057	-0.3731	0
212	SLU 20	-9.18	0	65.23	-0.001	-0.3986	0
212	SLU 21	-8.9	0	65.24	0.0058	-0.3866	0
212	SLU 22	-7.78	0	59.64	-0.001	-0.3378	0
212	SLU 23	-7.31	-0.01	59.66	0.0104	-0.3179	0
212	SLU 24	-8.27	0	60.88	-0.0009	-0.3594	0
212	SLU 25	-7.99	0	60.9	0.006	-0.3475	0
212	SLU 26	-7.62	-0.01	60.38	0.0105	-0.3314	0
212	SLU 27	-8.58	0	61.61	-0.0007	-0.373	0
212	SLU 28	-8.3	0	61.62	0.0061	-0.361	0
212	SLU 29	-8.4	0	61.09	-0.0007	-0.3649	0
212	SLU 30	-8.12	0	61.1	0.0061	-0.353	0
212	SLU 31	-9.31	-0.01	68.89	0.0102	-0.4045	0
212	SLU 32	-10.27	0	70.11	-0.0011	-0.4461	0
212	SLU 33	-9.99	0	70.13	0.0058	-0.4341	0
212	SLU 34	-9.62	-0.01	69.61	0.0103	-0.418	0
212	SLU 35	-10.57	0	70.84	-0.0009	-0.4596	0
212	SLU 36	-10.29	0	70.85	0.0059	-0.4476	0
212	SLU 37	-10.39	0	70.32	-0.0009	-0.4515	0
212	SLU 38	-10.11	0	70.33	0.0059	-0.4396	0
212	SLU 39	-10.63	0	72.82	-0.0013	-0.4616	0
212	SLU 40	-10.35	0	72.84	0.0055	-0.4496	0
212	SLU 41	-10.94	0	73.55	-0.0011	-0.4751	0
212	SLU 42	-10.66	0	73.56	0.0057	-0.4631	0
212	SLU 43	-7.21	0	63.86	-0.0011	-0.3134	0
212	SLU 44	-6.75	-0.01	63.88	0.0103	-0.2935	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
212	SLU 45	-7.71	0	65.1	-0.0009	-0.335	0
212	SLU 46	-7.43	0	65.12	0.0059	-0.3231	0
212	SLU 47	-7.06	-0.01	64.6	0.0105	-0.307	0
212	SLU 48	-8.01	0	65.83	-0.0008	-0.3486	0
212	SLU 49	-7.73	0	65.84	0.0061	-0.3366	0
212	SLU 50	-7.83	0	65.31	-0.0008	-0.3405	0
212	SLU 51	-7.55	0	65.32	0.0061	-0.3286	0
212	SLU 52	-8.75	-0.01	73.11	0.0101	-0.3801	0
212	SLU 53	-9.7	0	74.33	-0.0011	-0.4217	0
212	SLU 54	-9.42	0	74.35	0.0057	-0.4097	0
212	SLU 55	-9.05	-0.01	73.83	0.0103	-0.3936	0
212	SLU 56	-10.01	0	75.06	-0.001	-0.4352	0
212	SLU 57	-9.73	0	75.07	0.0059	-0.4232	0
212	SLU 58	-9.83	0	74.54	-0.0009	-0.4271	0
212	SLU 59	-9.55	0	74.55	0.0059	-0.4152	0
212	SLU 60	-10.07	0	77.04	-0.0014	-0.4372	0
212	SLU 61	-9.79	0	77.06	0.0055	-0.4252	0
212	SLU 62	-10.38	0	77.77	-0.0012	-0.4507	0
212	SLU 63	-10.1	0	77.78	0.0056	-0.4387	0
212	SLU 64	-8.98	0	72.18	-0.0012	-0.39	0
212	SLU 65	-8.51	-0.01	72.2	0.0101	-0.37	0
212	SLU 66	-9.47	0	73.42	-0.0011	-0.4116	0
212	SLU 67	-9.19	0	73.44	0.0057	-0.3996	0
212	SLU 68	-8.82	-0.01	72.92	0.0103	-0.3836	0
212	SLU 69	-9.78	0	74.15	-0.0009	-0.4251	0
212	SLU 70	-9.5	0	74.16	0.0059	-0.4132	0
212	SLU 71	-9.6	0	73.63	-0.0009	-0.4171	0
212	SLU 72	-9.32	0	73.64	0.0059	-0.4051	0
212	SLU 73	-10.51	-0.01	81.43	0.01	-0.4566	0
212	SLU 74	-11.47	0	82.65	-0.0013	-0.4982	0
212	SLU 75	-11.19	0	82.67	0.0056	-0.4862	0
212	SLU 76	-10.82	-0.01	82.15	0.0101	-0.4702	0
212	SLU 77	-11.77	0	83.38	-0.0011	-0.5118	0
212	SLU 78	-11.49	0	83.39	0.0057	-0.4998	0
212	SLU 79	-11.59	0	82.86	-0.0011	-0.5037	0
212	SLU 80	-11.31	0	82.87	0.0057	-0.4917	0
212	SLU 81	-11.83	0	85.36	-0.0015	-0.5137	0
212	SLU 82	-11.55	0	85.38	0.0053	-0.5017	0
212	SLU 83	-12.14	0	86.09	-0.0013	-0.5273	0
212	SLU 84	-11.86	0	86.1	0.0055	-0.5153	0
212	SLE RA 1	-6.52	0	53.69	-0.0009	-0.2831	0
212	SLE RA 2	-6.21	0	53.71	0.0067	-0.2698	0
212	SLE RA 3	-6.85	0	54.52	-0.0008	-0.2976	0
212	SLE RA 4	-6.66	0	54.53	0.0037	-0.2896	0
212	SLE RA 5	-6.41	0	54.19	0.0068	-0.2789	0
212	SLE RA 6	-7.05	0	55.01	-0.0007	-0.3066	0
212	SLE RA 7	-6.87	0	55.02	0.0038	-0.2986	0
212	SLE RA 8	-6.93	0	54.66	-0.0007	-0.3012	0
212	SLE RA 9	-6.74	0	54.67	0.0039	-0.2932	0
212	SLE RA 10	-7.54	0	59.86	0.0065	-0.3276	0
212	SLE RA 11	-8.18	0	60.68	-0.0009	-0.3553	0
212	SLE RA 12	-7.99	0	60.69	0.0036	-0.3473	0
212	SLE RA 13	-7.74	0	60.34	0.0067	-0.3366	0
212	SLE RA 14	-8.38	0	61.16	-0.0008	-0.3643	0
212	SLE RA 15	-8.2	0	61.17	0.0037	-0.3564	0
212	SLE RA 16	-8.26	0	60.81	-0.0008	-0.359	0
212	SLE RA 17	-8.07	0	60.82	0.0037	-0.351	0
212	SLE RA 18	-8.42	0	62.48	-0.0011	-0.3656	0
212	SLE RA 19	-8.23	0	62.49	0.0035	-0.3577	0
212	SLE RA 20	-8.63	0	62.97	-0.001	-0.3747	0
212	SLE RA 21	-8.44	0	62.98	0.0036	-0.3667	0
212	SLE FR 1	-6.52	0	53.69	-0.0009	-0.2831	0
212	SLE FR 2	-6.46	0	53.7	0.0006	-0.2805	0
212	SLE FR 3	-6.6	0	53.89	-0.0009	-0.2868	0
212	SLE FR 4	-7.03	0	56.33	0.0005	-0.3052	0
212	SLE FR 5	-7.17	0	56.52	-0.0009	-0.3115	0
212	SLE FR 6	-7.47	0	58.09	-0.001	-0.3244	0
212	SLE QP 1	-6.52	0	53.69	-0.0009	-0.2831	0
212	SLE QP 2	-7.09	0	56.33	-0.001	-0.3079	0
212	SLD 1	11.7	0.1	58.6	-0.1064	0.5358	-0.0005
212	SLD 2	11.7	0.1	58.6	-0.1064	0.5358	-0.0005
212	SLD 3	10.54	-0.21	58.05	0.2141	0.4833	0.0011
212	SLD 4	10.54	-0.21	58.05	0.2141	0.4833	0.0011
212	SLD 5	0.32	0.49	57.83	-0.5187	0.025	-0.0026
212	SLD 6	0.32	0.49	57.83	-0.5187	0.025	-0.0026
212	SLD 7	-3.57	-0.53	56.02	0.5497	-0.1503	0.0028
212	SLD 8	-3.57	-0.53	56.02	0.5497	-0.1503	0.0028
212	SLD 9	-10.61	0.53	56.64	-0.5516	-0.4655	-0.0028
212	SLD 10	-10.61	0.53	56.64	-0.5516	-0.4655	-0.0028
212	SLD 11	-14.5	-0.49	54.83	0.5168	-0.6408	0.0026
212	SLD 12	-14.5	-0.49	54.83	0.5168	-0.6408	0.0026
212	SLD 13	-24.71	0.21	54.61	-0.2161	-1.0991	-0.0011
212	SLD 14	-24.71	0.21	54.61	-0.2161	-1.0991	-0.0011
212	SLD 15	-25.88	-0.1	54.07	0.1045	-1.1516	0.0005
212	SLD 16	-25.88	-0.1	54.07	0.1045	-1.1516	0.0005
212	SLV 1	35.91	0.26	61.62	-0.2718	1.6228	-0.0013
212	SLV 2	35.91	0.26	61.62	-0.2718	1.6228	-0.0013
212	SLV 3	33.2	-0.53	60.31	0.5493	1.5008	0.0029
212	SLV 4	33.2	-0.53	60.31	0.5493	1.5008	0.0029





Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
212	SLV 5	9.92	1.26	59.91	-1.3275	0.4563	-0.0067
212	SLV 6	9.92	1.26	59.91	-1.3275	0.4563	-0.0067
212	SLV 7	0.89	-1.35	55.53	1.4094	0.0497	0.0072
212	SLV 8	0.89	-1.35	55.53	1.4094	0.0497	0.0072
212	SLV 9	-15.07	1.35	57.13	-1.4114	-0.6655	-0.0072
212	SLV 10	-15.07	1.35	57.13	-1.4114	-0.6655	-0.0072
212	SLV 11	-24.1	-1.26	52.75	1.3256	-1.0721	0.0067
212	SLV 12	-24.1	-1.26	52.75	1.3256	-1.0721	0.0067
212	SLV 13	-47.38	0.53	52.35	-0.5513	-2.1166	-0.0029
212	SLV 14	-47.38	0.53	52.35	-0.5513	-2.1166	-0.0029
212	SLV 15	-50.09	-0.25	51.04	0.2698	-2.2386	0.0013
212	SLV 16	-50.09	-0.25	51.04	0.2698	-2.2386	0.0013
213	SLU 1	-6.98	0	51.42	-0.0001	-0.312	0
213	SLU 2	-6.55	-0.01	51.57	0.0137	-0.2941	0.0001
213	SLU 3	-7.48	0	52.67	0	-0.3342	0
213	SLU 4	-7.22	-0.01	52.76	0.0083	-0.3235	0
213	SLU 5	-6.86	-0.01	52.28	0.0138	-0.3078	0.0001
213	SLU 6	-7.79	0	53.39	0.0001	-0.3479	0
213	SLU 7	-7.53	-0.01	53.48	0.0084	-0.3372	0
213	SLU 8	-7.6	0	52.85	0.0001	-0.3394	0
213	SLU 9	-7.34	-0.01	52.94	0.0084	-0.3287	0
213	SLU 10	-8.76	-0.01	60.65	0.0136	-0.3913	0.0001
213	SLU 11	-9.69	0	61.75	-0.0001	-0.4314	0
213	SLU 12	-9.43	-0.01	61.84	0.0082	-0.4207	0
213	SLU 13	-9.07	-0.01	61.37	0.0137	-0.405	0.0001
213	SLU 14	-10	0	62.47	0	-0.4451	0
213	SLU 15	-9.74	-0.01	62.56	0.0083	-0.4344	0
213	SLU 16	-9.81	0	61.94	0	-0.4366	0
213	SLU 17	-9.55	-0.01	62.03	0.0083	-0.4259	0
213	SLU 18	-10.14	0	64.39	-0.0002	-0.4509	0
213	SLU 19	-9.88	-0.01	64.48	0.008	-0.4401	0
213	SLU 20	-10.45	0	65.11	-0.0001	-0.4646	0
213	SLU 21	-10.19	-0.01	65.2	0.0082	-0.4538	0
213	SLU 22	-8.92	0	59.62	-0.0002	-0.3978	0
213	SLU 23	-8.5	-0.01	59.77	0.0136	-0.3799	0.0001
213	SLU 24	-9.42	0	60.88	-0.0001	-0.42	0
213	SLU 25	-9.17	-0.01	60.97	0.0082	-0.4093	0
213	SLU 26	-8.81	-0.01	60.49	0.0137	-0.3936	0.0001
213	SLU 27	-9.74	0	61.6	0.0001	-0.4337	0
213	SLU 28	-9.48	-0.01	61.69	0.0083	-0.423	0
213	SLU 29	-9.55	0	61.06	0.0001	-0.4252	0
213	SLU 30	-9.29	-0.01	61.15	0.0083	-0.4145	0
213	SLU 31	-10.71	-0.01	68.86	0.0135	-0.4771	0.0001
213	SLU 32	-11.64	0	69.96	-0.0001	-0.5172	0
213	SLU 33	-11.38	-0.01	70.05	0.0081	-0.5065	0
213	SLU 34	-11.02	-0.01	69.57	0.0136	-0.4908	0.0001
213	SLU 35	-11.95	0	70.68	0	-0.5309	0
213	SLU 36	-11.69	-0.01	70.77	0.0083	-0.5202	0
213	SLU 37	-11.76	0	70.14	0	-0.5224	0
213	SLU 38	-11.5	-0.01	70.23	0.0083	-0.5117	0
213	SLU 39	-12.08	0	72.6	-0.0003	-0.5367	0
213	SLU 40	-11.83	-0.01	72.69	0.008	-0.5259	0
213	SLU 41	-12.4	0	73.32	-0.0002	-0.5504	0
213	SLU 42	-12.14	-0.01	73.41	0.0081	-0.5396	0
213	SLU 43	-8.4	0	64.03	-0.0001	-0.3762	0
213	SLU 44	-7.97	-0.01	64.18	0.0136	-0.3583	0.0001
213	SLU 45	-8.9	0	65.28	0	-0.3984	0
213	SLU 46	-8.65	-0.01	65.37	0.0082	-0.3877	0
213	SLU 47	-8.29	-0.01	64.9	0.0138	-0.372	0.0001
213	SLU 48	-9.21	0	66	0.0001	-0.4121	0
213	SLU 49	-8.96	-0.01	66.09	0.0084	-0.4014	0
213	SLU 50	-9.02	0	65.46	0.0001	-0.4036	0
213	SLU 51	-8.77	-0.01	65.55	0.0084	-0.3929	0
213	SLU 52	-10.19	-0.01	73.26	0.0136	-0.4555	0.0001
213	SLU 53	-11.11	0	74.36	-0.0001	-0.4956	0
213	SLU 54	-10.86	-0.01	74.45	0.0082	-0.4849	0
213	SLU 55	-10.5	-0.01	73.98	0.0137	-0.4692	0.0001
213	SLU 56	-11.42	0	75.08	0	-0.5093	0
213	SLU 57	-11.17	-0.01	75.17	0.0083	-0.4986	0
213	SLU 58	-11.23	0	74.55	0	-0.5008	0
213	SLU 59	-10.98	-0.01	74.64	0.0083	-0.4901	0
213	SLU 60	-11.56	0	77	-0.0002	-0.5151	0
213	SLU 61	-11.3	-0.01	77.09	0.008	-0.5043	0
213	SLU 62	-11.87	0	77.72	-0.0001	-0.5288	0
213	SLU 63	-11.62	-0.01	77.81	0.0081	-0.518	0
213	SLU 64	-10.35	0	72.23	-0.0002	-0.462	0
213	SLU 65	-9.92	-0.01	72.38	0.0136	-0.4441	0.0001
213	SLU 66	-10.85	0	73.49	-0.0001	-0.4842	0
213	SLU 67	-10.59	-0.01	73.58	0.0082	-0.4735	0
213	SLU 68	-10.23	-0.01	73.1	0.0137	-0.4578	0.0001
213	SLU 69	-11.16	0	74.21	0	-0.4979	0
213	SLU 70	-10.91	-0.01	74.3	0.0083	-0.4872	0
213	SLU 71	-10.97	0	73.67	0	-0.4894	0
213	SLU 72	-10.72	-0.01	73.76	0.0083	-0.4787	0
213	SLU 73	-12.14	-0.01	81.47	0.0135	-0.5413	0.0001
213	SLU 74	-13.06	0	82.57	-0.0002	-0.5814	0
213	SLU 75	-12.81	-0.01	82.66	0.0081	-0.5707	0
213	SLU 76	-12.45	-0.01	82.19	0.0136	-0.555	0.0001
213	SLU 77	-13.37	0	83.29	0	-0.5951	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
213	SLU 78	-13.12	-0.01	83.38	0.0082	-0.5844	0
213	SLU 79	-13.18	0	82.76	0	-0.5866	0
213	SLU 80	-12.93	-0.01	82.84	0.0082	-0.5759	0
213	SLU 81	-13.51	0	85.21	-0.0003	-0.6009	0
213	SLU 82	-13.25	-0.01	85.3	0.008	-0.5901	0
213	SLU 83	-13.82	0	85.93	-0.0002	-0.6146	0
213	SLU 84	-13.56	-0.01	86.02	0.0081	-0.6038	0
213	SLE RA 1	-7.53	0	53.76	-0.0001	-0.3365	0
213	SLE RA 2	-7.25	-0.01	53.86	0.009	-0.3246	0
213	SLE RA 3	-7.87	0	54.6	-0.0001	-0.3513	0
213	SLE RA 4	-7.7	0	54.66	0.0055	-0.3442	0
213	SLE RA 5	-7.46	-0.01	54.34	0.0091	-0.3337	0
213	SLE RA 6	-8.07	0	55.08	0	-0.3605	0
213	SLE RA 7	-7.9	0	55.14	0.0055	-0.3533	0
213	SLE RA 8	-7.95	0	54.72	0	-0.3548	0
213	SLE RA 9	-7.78	0	54.78	0.0055	-0.3476	0
213	SLE RA 10	-8.72	-0.01	59.91	0.009	-0.3894	0
213	SLE RA 11	-9.34	0	60.65	-0.0001	-0.4161	0
213	SLE RA 12	-9.17	0	60.71	0.0054	-0.409	0
213	SLE RA 13	-8.93	-0.01	60.39	0.0091	-0.3985	0
213	SLE RA 14	-9.55	0	61.13	0	-0.4253	0
213	SLE RA 15	-9.38	0	61.19	0.0055	-0.4181	0
213	SLE RA 16	-9.42	0	60.77	0	-0.4196	0
213	SLE RA 17	-9.25	0	60.83	0.0055	-0.4124	0
213	SLE RA 18	-9.64	0	62.41	-0.0002	-0.4291	0
213	SLE RA 19	-9.47	0	62.47	0.0053	-0.4219	0
213	SLE RA 20	-9.85	0	62.89	-0.0001	-0.4382	0
213	SLE RA 21	-9.68	0	62.95	0.0054	-0.4311	0
213	SLE FR 1	-7.53	0	53.76	-0.0001	-0.3365	0
213	SLE FR 2	-7.48	0	53.78	0.0017	-0.3342	0
213	SLE FR 3	-7.61	0	53.95	-0.0001	-0.3402	0
213	SLE FR 4	-8.11	0	56.38	0.0017	-0.3619	0
213	SLE FR 5	-8.25	0	56.55	-0.0001	-0.368	0
213	SLE FR 6	-8.59	0	58.09	-0.0002	-0.3828	0
213	SLE QP 1	-7.53	0	53.76	-0.0001	-0.3365	0
213	SLE QP 2	-8.16	0	56.36	-0.0002	-0.3643	0
213	SLD 1	10.48	0.12	55.7	-0.1192	0.4635	-0.0006
213	SLD 2	10.48	0.12	55.7	-0.1192	0.4635	-0.0006
213	SLD 3	9.33	-0.21	55.2	0.2196	0.4132	0.0011
213	SLD 4	9.33	-0.21	55.2	0.2196	0.4132	0.0011
213	SLD 5	-0.83	0.53	56.92	-0.5497	-0.0396	-0.0028
213	SLD 6	-0.83	0.53	56.92	-0.5497	-0.0396	-0.0028
213	SLD 7	-4.65	-0.56	55.25	0.5797	-0.2074	0.0029
213	SLD 8	-4.65	-0.56	55.25	0.5797	-0.2074	0.0029
213	SLD 9	-11.67	0.56	57.46	-0.58	-0.5212	-0.0029
213	SLD 10	-11.67	0.56	57.46	-0.58	-0.5212	-0.0029
213	SLD 11	-15.5	-0.53	55.79	0.5494	-0.689	0.0028
213	SLD 12	-15.5	-0.53	55.79	0.5494	-0.689	0.0028
213	SLD 13	-25.66	0.21	57.51	-0.22	-1.1418	-0.0011
213	SLD 14	-25.66	0.21	57.51	-0.22	-1.1418	-0.0011
213	SLD 15	-26.81	-0.12	57.01	0.1189	-1.1922	0.0006
213	SLD 16	-26.81	-0.12	57.01	0.1189	-1.1922	0.0006
213	SLV 1	34.5	0.3	54.77	-0.3058	1.5301	-0.0015
213	SLV 2	34.5	0.3	54.77	-0.3058	1.5301	-0.0015
213	SLV 3	31.84	-0.54	53.56	0.5623	1.4133	0.0028
213	SLV 4	31.84	-0.54	53.56	0.5623	1.4133	0.0028
213	SLV 5	8.67	1.36	57.71	-1.4083	0.3812	-0.0071
213	SLV 6	8.67	1.36	57.71	-1.4083	0.3812	-0.0071
213	SLV 7	-0.2	-1.43	53.68	1.485	-0.0082	0.0075
213	SLV 8	-0.2	-1.43	53.68	1.485	-0.0082	0.0075
213	SLV 9	-16.13	1.43	59.03	-1.4854	-0.7204	-0.0075
213	SLV 10	-16.13	1.43	59.03	-1.4854	-0.7204	-0.0075
213	SLV 11	-25	-1.36	55	1.408	-1.1098	0.0071
213	SLV 12	-25	-1.36	55	1.408	-1.1098	0.0071
213	SLV 13	-48.17	0.54	59.15	-0.5626	-2.1419	-0.0028
213	SLV 14	-48.17	0.54	59.15	-0.5626	-2.1419	-0.0028
213	SLV 15	-50.83	-0.3	57.94	0.3054	-2.2588	0.0015
213	SLV 16	-50.83	-0.3	57.94	0.3054	-2.2588	0.0015
214	SLU 1	-7.81	0	51.55	0.0004	-0.339	0
214	SLU 2	-7.42	-0.01	51.8	0.0161	-0.3221	0.0001
214	SLU 3	-8.32	0	52.82	0.0005	-0.3614	0
214	SLU 4	-8.08	-0.01	52.98	0.0099	-0.3513	0
214	SLU 5	-7.73	-0.01	52.53	0.0162	-0.3359	0.0001
214	SLU 6	-8.63	0	53.55	0.0006	-0.3752	0
214	SLU 7	-8.4	-0.01	53.7	0.01	-0.365	0
214	SLU 8	-8.44	0	52.99	0.0006	-0.3665	0
214	SLU 9	-8.2	-0.01	53.15	0.01	-0.3564	0
214	SLU 10	-9.82	-0.01	60.72	0.0161	-0.4258	0.0001
214	SLU 11	-10.72	0	61.74	0.0005	-0.465	0
214	SLU 12	-10.49	-0.01	61.89	0.0099	-0.4549	0
214	SLU 13	-10.13	-0.01	61.44	0.0162	-0.4395	0.0001
214	SLU 14	-11.04	0	62.46	0.0006	-0.4788	0
214	SLU 15	-10.8	-0.01	62.62	0.01	-0.4687	0
214	SLU 16	-10.84	0	61.91	0.0006	-0.4701	0
214	SLU 17	-10.6	-0.01	62.06	0.01	-0.46	0
214	SLU 18	-11.24	0	64.29	0.0005	-0.487	0
214	SLU 19	-11.01	-0.01	64.44	0.0099	-0.4769	0
214	SLU 20	-11.56	0	65.01	0.0005	-0.5008	0
214	SLU 21	-11.32	-0.01	65.16	0.0099	-0.4907	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
214	SLU 22	-9.92	0	59.64	0.0005	-0.4302	0
214	SLU 23	-9.53	-0.01	59.9	0.0161	-0.4134	0.0001
214	SLU 24	-10.43	0	60.91	0.0005	-0.4526	0
214	SLU 25	-10.2	-0.01	61.07	0.0099	-0.4425	0
214	SLU 26	-9.84	-0.01	60.62	0.0162	-0.4272	0.0001
214	SLU 27	-10.74	0	61.64	0.0006	-0.4664	0
214	SLU 28	-10.51	-0.01	61.79	0.01	-0.4563	0
214	SLU 29	-10.55	0	61.09	0.0006	-0.4578	0
214	SLU 30	-10.31	-0.01	61.24	0.01	-0.4477	0
214	SLU 31	-11.93	-0.01	68.81	0.0161	-0.517	0.0001
214	SLU 32	-12.83	0	69.83	0.0006	-0.5562	0
214	SLU 33	-12.6	-0.01	69.98	0.01	-0.5461	0
214	SLU 34	-12.25	-0.01	69.54	0.0162	-0.5308	0.0001
214	SLU 35	-13.15	0	70.55	0.0006	-0.57	0
214	SLU 36	-12.91	-0.01	70.71	0.01	-0.5599	0
214	SLU 37	-12.95	0	70	0.0006	-0.5614	0
214	SLU 38	-12.72	-0.01	70.16	0.01	-0.5513	0
214	SLU 39	-13.35	0	72.38	0.0005	-0.5783	0
214	SLU 40	-13.12	-0.01	72.53	0.0099	-0.5682	0
214	SLU 41	-13.67	0	73.1	0.0006	-0.592	0
214	SLU 42	-13.43	-0.01	73.26	0.01	-0.5819	0
214	SLU 43	-9.43	0	64.24	0.0006	-0.4094	0
214	SLU 44	-9.03	-0.01	64.5	0.0162	-0.3926	0.0001
214	SLU 45	-9.94	0	65.51	0.0007	-0.4318	0
214	SLU 46	-9.7	-0.01	65.67	0.0101	-0.4217	0
214	SLU 47	-9.35	-0.01	65.22	0.0163	-0.4063	0.0001
214	SLU 48	-10.25	0	66.24	0.0007	-0.4456	0
214	SLU 49	-10.01	-0.01	66.39	0.0101	-0.4355	0
214	SLU 50	-10.05	0	65.68	0.0007	-0.4369	0
214	SLU 51	-9.82	-0.01	65.84	0.0101	-0.4268	0
214	SLU 52	-11.44	-0.01	73.41	0.0163	-0.4962	0.0001
214	SLU 53	-12.34	0	74.43	0.0007	-0.5354	0
214	SLU 54	-12.1	-0.01	74.58	0.0101	-0.5253	0
214	SLU 55	-11.75	-0.01	74.14	0.0163	-0.51	0.0001
214	SLU 56	-12.65	0	75.15	0.0008	-0.5492	0
214	SLU 57	-12.42	-0.01	75.31	0.0102	-0.5391	0
214	SLU 58	-12.46	0	74.6	0.0007	-0.5406	0
214	SLU 59	-12.22	-0.01	74.76	0.0101	-0.5305	0
214	SLU 60	-12.86	0	76.98	0.0006	-0.5574	0
214	SLU 61	-12.62	-0.01	77.13	0.01	-0.5473	0
214	SLU 62	-13.17	0	77.7	0.0007	-0.5712	0
214	SLU 63	-12.94	-0.01	77.85	0.0101	-0.5611	0
214	SLU 64	-11.54	0	72.33	0.0006	-0.5006	0
214	SLU 65	-11.15	-0.01	72.59	0.0163	-0.4838	0.0001
214	SLU 66	-12.05	0	73.6	0.0007	-0.523	0
214	SLU 67	-11.81	-0.01	73.76	0.0101	-0.5129	0
214	SLU 68	-11.46	-0.01	73.31	0.0163	-0.4976	0.0001
214	SLU 69	-12.36	0	74.33	0.0007	-0.5368	0
214	SLU 70	-12.13	-0.01	74.48	0.0101	-0.5267	0
214	SLU 71	-12.17	0	73.78	0.0007	-0.5282	0
214	SLU 72	-11.93	-0.01	73.93	0.0101	-0.5181	0
214	SLU 73	-13.55	-0.01	81.5	0.0163	-0.5874	0.0001
214	SLU 74	-14.45	0	82.52	0.0007	-0.6267	0
214	SLU 75	-14.22	-0.01	82.67	0.0101	-0.6166	0
214	SLU 76	-13.86	-0.01	82.23	0.0163	-0.6012	0.0001
214	SLU 77	-14.77	0	83.24	0.0008	-0.6404	0
214	SLU 78	-14.53	-0.01	83.4	0.0102	-0.6303	0
214	SLU 79	-14.57	0	82.69	0.0008	-0.6318	0
214	SLU 80	-14.33	-0.01	82.85	0.0102	-0.6217	0
214	SLU 81	-14.97	0	85.07	0.0006	-0.6487	0
214	SLU 82	-14.74	-0.01	85.22	0.01	-0.6386	0
214	SLU 83	-15.29	0	85.79	0.0007	-0.6624	0
214	SLU 84	-15.05	-0.01	85.95	0.0101	-0.6523	0
214	SLE RA 1	-8.41	0	53.86	0.0005	-0.3651	0
214	SLE RA 2	-8.15	-0.01	54.03	0.0109	-0.3538	0
214	SLE RA 3	-8.75	0	54.71	0.0005	-0.38	0
214	SLE RA 4	-8.59	-0.01	54.81	0.0068	-0.3732	0
214	SLE RA 5	-8.36	-0.01	54.51	0.0109	-0.363	0
214	SLE RA 6	-8.96	0	55.19	0.0006	-0.3892	0
214	SLE RA 7	-8.8	-0.01	55.29	0.0068	-0.3824	0
214	SLE RA 8	-8.83	0	54.82	0.0005	-0.3834	0
214	SLE RA 9	-8.67	-0.01	54.93	0.0068	-0.3767	0
214	SLE RA 10	-9.75	-0.01	59.98	0.0109	-0.4229	0
214	SLE RA 11	-10.35	0	60.65	0.0005	-0.4491	0
214	SLE RA 12	-10.2	-0.01	60.76	0.0068	-0.4423	0
214	SLE RA 13	-9.96	-0.01	60.46	0.011	-0.4321	0
214	SLE RA 14	-10.56	0	61.14	0.0006	-0.4582	0
214	SLE RA 15	-10.41	-0.01	61.24	0.0068	-0.4515	0
214	SLE RA 16	-10.43	0	60.77	0.0006	-0.4525	0
214	SLE RA 17	-10.28	-0.01	60.87	0.0068	-0.4458	0
214	SLE RA 18	-10.7	0	62.35	0.0005	-0.4637	0
214	SLE RA 19	-10.54	-0.01	62.46	0.0067	-0.457	0
214	SLE RA 20	-10.91	0	62.83	0.0005	-0.4729	0
214	SLE RA 21	-10.75	-0.01	62.94	0.0068	-0.4662	0
214	SLE FR 1	-8.41	0	53.86	0.0005	-0.3651	0
214	SLE FR 2	-8.36	0	53.89	0.0025	-0.3628	0
214	SLE FR 3	-8.5	0	54.05	0.0005	-0.3687	0
214	SLE FR 4	-9.05	0	56.44	0.0025	-0.3924	0
214	SLE FR 5	-9.18	0	56.6	0.0005	-0.3983	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
214	SLE FR 6	-9.56	0	58.11	0.0005	-0.4144	0
214	SLE QP 1	-8.41	0	53.86	0.0005	-0.3651	0
214	SLE QP 2	-9.1	0	56.41	0.0005	-0.3947	0
214	SLD 1	9.29	0.12	54.37	-0.1205	0.4201	-0.0006
214	SLD 2	9.29	0.12	54.37	-0.1205	0.4201	-0.0006
214	SLD 3	8.16	-0.2	53.88	0.21	0.3702	0.001
214	SLD 4	8.16	-0.2	53.88	0.21	0.3702	0.001
214	SLD 5	-1.87	0.51	56.55	-0.5371	-0.0744	-0.0025
214	SLD 6	-1.87	0.51	56.55	-0.5371	-0.0744	-0.0025
214	SLD 7	-5.63	-0.54	54.9	0.5646	-0.241	0.0026
214	SLD 8	-5.63	-0.54	54.9	0.5646	-0.241	0.0026
214	SLD 9	-12.56	0.54	57.92	-0.5637	-0.5483	-0.0026
214	SLD 10	-12.56	0.54	57.92	-0.5637	-0.5483	-0.0026
214	SLD 11	-16.32	-0.51	56.27	0.538	-0.7149	0.0025
214	SLD 12	-16.32	-0.51	56.27	0.538	-0.7149	0.0025
214	SLD 13	-26.35	0.2	58.94	-0.2091	-1.1595	-0.001
214	SLD 14	-26.35	0.2	58.94	-0.2091	-1.1595	-0.001
214	SLD 15	-27.48	-0.12	58.44	0.1214	-1.2095	0.0006
214	SLD 16	-27.48	-0.12	58.44	0.1214	-1.2095	0.0006
214	SLV 1	32.98	0.3	51.73	-0.3098	1.4701	-0.0015
214	SLV 2	32.98	0.3	51.73	-0.3098	1.4701	-0.0015
214	SLV 3	30.36	-0.5	50.55	0.5368	1.3543	0.0025
214	SLV 4	30.36	-0.5	50.55	0.5368	1.3543	0.0025
214	SLV 5	7.49	1.31	56.81	-1.3767	0.3405	-0.0064
214	SLV 6	7.49	1.31	56.81	-1.3767	0.3405	-0.0064
214	SLV 7	-1.23	-1.38	52.85	1.4454	-0.0457	0.0067
214	SLV 8	-1.23	-1.38	52.85	1.4454	-0.0457	0.0067
214	SLV 9	-16.97	1.37	59.97	-1.4445	-0.7436	-0.0067
214	SLV 10	-16.97	1.37	59.97	-1.4445	-0.7436	-0.0067
214	SLV 11	-25.69	-1.32	56.01	1.3776	-1.1298	0.0064
214	SLV 12	-25.69	-1.32	56.01	1.3776	-1.1298	0.0064
214	SLV 13	-48.56	0.5	62.27	-0.5359	-2.1436	-0.0025
214	SLV 14	-48.56	0.5	62.27	-0.5359	-2.1436	-0.0025
214	SLV 15	-51.17	-0.31	61.08	0.3107	-2.2594	0.0015
214	SLV 16	-51.17	-0.31	61.08	0.3107	-2.2594	0.0015
215	SLU 1	-8.9	0	51.7	0.0009	-0.3912	0
215	SLU 2	-8.54	-0.02	52.04	0.0177	-0.3763	0.0001
215	SLU 3	-9.42	0	53	0.0009	-0.4143	0
215	SLU 4	-9.21	-0.01	53.21	0.011	-0.4053	0
215	SLU 5	-8.86	-0.02	52.78	0.0177	-0.3903	0.0001
215	SLU 6	-9.75	0	53.73	0.0009	-0.4283	0
215	SLU 7	-9.53	-0.01	53.94	0.011	-0.4194	0
215	SLU 8	-9.54	0	53.16	0.0009	-0.4193	0
215	SLU 9	-9.33	-0.01	53.37	0.011	-0.4103	0
215	SLU 10	-11.17	-0.02	60.78	0.0177	-0.4903	0.0001
215	SLU 11	-12.06	0	61.73	0.001	-0.5283	0
215	SLU 12	-11.84	-0.01	61.94	0.0111	-0.5194	0
215	SLU 13	-11.5	-0.02	61.51	0.0178	-0.5044	0.0001
215	SLU 14	-12.38	0	62.47	0.001	-0.5424	0
215	SLU 15	-12.17	-0.01	62.67	0.0111	-0.5334	0
215	SLU 16	-12.17	0	61.9	0.001	-0.5333	0
215	SLU 17	-11.96	-0.01	62.1	0.0111	-0.5244	0
215	SLU 18	-12.66	0	64.17	0.001	-0.5541	0
215	SLU 19	-12.45	-0.01	64.38	0.0111	-0.5451	0
215	SLU 20	-12.98	0	64.91	0.001	-0.5681	0
215	SLU 21	-12.77	-0.01	65.11	0.0111	-0.5592	0
215	SLU 22	-11.21	0	59.66	0.0009	-0.4916	0
215	SLU 23	-10.86	-0.02	60.01	0.0177	-0.4767	0.0001
215	SLU 24	-11.74	0	60.96	0.001	-0.5147	0
215	SLU 25	-11.53	-0.01	61.17	0.0111	-0.5058	0
215	SLU 26	-11.18	-0.02	60.74	0.0178	-0.4908	0.0001
215	SLU 27	-12.06	0	61.7	0.001	-0.5288	0
215	SLU 28	-11.85	-0.01	61.9	0.0111	-0.5199	0
215	SLU 29	-11.86	0	61.13	0.001	-0.5197	0
215	SLU 30	-11.64	-0.01	61.33	0.0111	-0.5108	0
215	SLU 31	-13.49	-0.02	68.74	0.0178	-0.5908	0.0001
215	SLU 32	-14.37	0	69.7	0.0011	-0.6288	0
215	SLU 33	-14.16	-0.01	69.9	0.0111	-0.6198	0
215	SLU 34	-13.81	-0.02	69.47	0.0178	-0.6048	0.0001
215	SLU 35	-14.7	0	70.43	0.0011	-0.6428	0
215	SLU 36	-14.48	-0.01	70.64	0.0112	-0.6339	0
215	SLU 37	-14.49	0	69.86	0.0011	-0.6338	0
215	SLU 38	-14.28	-0.01	70.07	0.0112	-0.6248	0
215	SLU 39	-14.98	0	72.14	0.001	-0.6545	0
215	SLU 40	-14.76	-0.01	72.35	0.0111	-0.6456	0
215	SLU 41	-15.3	0	72.87	0.0011	-0.6686	0
215	SLU 42	-15.08	-0.01	73.08	0.0112	-0.6596	0
215	SLU 43	-10.77	0	64.48	0.0011	-0.4741	0
215	SLU 44	-10.42	-0.02	64.82	0.0179	-0.4592	0.0001
215	SLU 45	-11.3	0	65.78	0.0012	-0.4972	0
215	SLU 46	-11.09	-0.01	65.99	0.0112	-0.4882	0
215	SLU 47	-10.74	-0.02	65.55	0.0179	-0.4732	0.0001
215	SLU 48	-11.62	0	66.51	0.0012	-0.5112	0
215	SLU 49	-11.41	-0.01	66.72	0.0113	-0.5023	0
215	SLU 50	-11.42	0	65.94	0.0012	-0.5022	0
215	SLU 51	-11.2	-0.01	66.15	0.0112	-0.4932	0
215	SLU 52	-13.05	-0.02	73.55	0.018	-0.5732	0.0001
215	SLU 53	-13.93	0	74.51	0.0012	-0.6112	0
215	SLU 54	-13.72	-0.01	74.72	0.0113	-0.6023	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
215	SLU 55	-13.37	-0.02	74.29	0.018	-0.5873	0.0001
215	SLU 56	-14.26	0	75.24	0.0013	-0.6253	0
215	SLU 57	-14.04	-0.01	75.45	0.0114	-0.6163	0
215	SLU 58	-14.05	0	74.67	0.0013	-0.6162	0
215	SLU 59	-13.84	-0.01	74.88	0.0113	-0.6073	0
215	SLU 60	-14.54	0	76.95	0.0012	-0.637	0
215	SLU 61	-14.32	-0.01	77.16	0.0113	-0.628	0
215	SLU 62	-14.86	0	77.69	0.0013	-0.651	0
215	SLU 63	-14.64	-0.01	77.89	0.0113	-0.6421	0
215	SLU 64	-13.09	0	72.44	0.0012	-0.5745	0
215	SLU 65	-12.73	-0.02	72.79	0.018	-0.5596	0.0001
215	SLU 66	-13.62	0	73.74	0.0012	-0.5976	0
215	SLU 67	-13.4	-0.01	73.95	0.0113	-0.5887	0
215	SLU 68	-13.05	-0.02	73.52	0.018	-0.5737	0.0001
215	SLU 69	-13.94	0	74.48	0.0012	-0.6117	0
215	SLU 70	-13.72	-0.01	74.68	0.0113	-0.6028	0
215	SLU 71	-13.73	0	73.91	0.0012	-0.6027	0
215	SLU 72	-13.52	-0.01	74.11	0.0113	-0.5937	0
215	SLU 73	-15.37	-0.02	81.52	0.018	-0.6737	0.0001
215	SLU 74	-16.25	0	82.48	0.0013	-0.7117	0
215	SLU 75	-16.03	-0.01	82.68	0.0114	-0.7027	0
215	SLU 76	-15.69	-0.02	82.25	0.0181	-0.6877	0.0001
215	SLU 77	-16.57	0	83.21	0.0013	-0.7257	0
215	SLU 78	-16.36	-0.01	83.42	0.0114	-0.7168	0
215	SLU 79	-16.37	0	82.64	0.0013	-0.7167	0
215	SLU 80	-16.15	-0.01	82.85	0.0114	-0.7077	0
215	SLU 81	-16.85	0	84.92	0.0013	-0.7374	0
215	SLU 82	-16.64	-0.01	85.12	0.0114	-0.7285	0
215	SLU 83	-17.17	0	85.65	0.0013	-0.7515	0
215	SLU 84	-16.96	-0.01	85.86	0.0114	-0.7425	0
215	SLE RA 1	-9.56	0	53.97	0.0009	-0.4199	0
215	SLE RA 2	-9.32	-0.01	54.2	0.0121	-0.4099	0
215	SLE RA 3	-9.91	0	54.84	0.0009	-0.4353	0
215	SLE RA 4	-9.77	-0.01	54.98	0.0076	-0.4293	0
215	SLE RA 5	-9.54	-0.01	54.69	0.0121	-0.4193	0
215	SLE RA 6	-10.13	0	55.33	0.0009	-0.4446	0
215	SLE RA 7	-9.98	-0.01	55.47	0.0077	-0.4387	0
215	SLE RA 8	-9.99	0	54.95	0.0009	-0.4386	0
215	SLE RA 9	-9.85	-0.01	55.09	0.0076	-0.4327	0
215	SLE RA 10	-11.08	-0.01	60.03	0.0121	-0.486	0
215	SLE RA 11	-11.67	0	60.66	0.001	-0.5113	0
215	SLE RA 12	-11.52	-0.01	60.8	0.0077	-0.5053	0
215	SLE RA 13	-11.29	-0.01	60.51	0.0122	-0.4953	0
215	SLE RA 14	-11.88	0	61.15	0.001	-0.5207	0
215	SLE RA 15	-11.74	-0.01	61.29	0.0077	-0.5147	0
215	SLE RA 16	-11.74	0	60.77	0.001	-0.5146	0
215	SLE RA 17	-11.6	-0.01	60.91	0.0077	-0.5087	0
215	SLE RA 18	-12.07	0	62.29	0.001	-0.5285	0
215	SLE RA 19	-11.92	-0.01	62.43	0.0077	-0.5225	0
215	SLE RA 20	-12.28	0	62.78	0.001	-0.5378	0
215	SLE RA 21	-12.14	-0.01	62.92	0.0077	-0.5319	0
215	SLE FR 1	-9.56	0	53.97	0.0009	-0.4199	0
215	SLE FR 2	-9.51	0	54.02	0.0031	-0.4179	0
215	SLE FR 3	-9.65	0	54.17	0.0009	-0.4236	0
215	SLE FR 4	-10.26	0	56.52	0.0031	-0.4505	0
215	SLE FR 5	-10.4	0	56.66	0.0009	-0.4562	0
215	SLE FR 6	-10.81	0	58.13	0.0009	-0.4742	0
215	SLE QP 1	-9.56	0	53.97	0.0009	-0.4199	0
215	SLE QP 2	-10.31	0	56.47	0.0009	-0.4524	0
215	SLD 1	7.7	0.17	52.54	-0.1103	0.3402	-0.0007
215	SLD 2	7.7	0.17	52.54	-0.1103	0.3402	-0.0007
215	SLD 3	6.61	-0.11	52.02	0.1862	0.2926	0.0005
215	SLD 4	6.61	-0.11	52.02	0.1862	0.2926	0.0005
215	SLD 5	-3.25	0.46	56.08	-0.4821	-0.1424	-0.002
215	SLD 6	-3.25	0.46	56.08	-0.4821	-0.1424	-0.002
215	SLD 7	-6.89	-0.45	54.34	0.5062	-0.3012	0.0019
215	SLD 8	-6.89	-0.45	54.34	0.5062	-0.3012	0.0019
215	SLD 9	-13.73	0.44	58.6	-0.5044	-0.6037	-0.0019
215	SLD 10	-13.73	0.44	58.6	-0.5044	-0.6037	-0.0019
215	SLD 11	-17.37	-0.46	56.85	0.4839	-0.7625	0.002
215	SLD 12	-17.37	-0.46	56.85	0.4839	-0.7625	0.002
215	SLD 13	-27.23	0.1	60.92	-0.1844	-1.1975	-0.0005
215	SLD 14	-27.23	0.1	60.92	-0.1844	-1.1975	-0.0005
215	SLD 15	-28.33	-0.17	60.4	0.1121	-1.2451	0.0007
215	SLD 16	-28.33	-0.17	60.4	0.1121	-1.2451	0.0007
215	SLV 1	30.92	0.43	47.48	-0.2842	1.3617	-0.0019
215	SLV 2	30.92	0.43	47.48	-0.2842	1.3617	-0.0019
215	SLV 3	28.38	-0.27	46.23	0.4751	1.2513	0.0012
215	SLV 4	28.38	-0.27	46.23	0.4751	1.2513	0.0012
215	SLV 5	5.9	1.18	55.66	-1.2363	0.2592	-0.0052
215	SLV 6	5.9	1.18	55.66	-1.2363	0.2592	-0.0052
215	SLV 7	-2.54	-1.14	51.51	1.2949	-0.1087	0.005
215	SLV 8	-2.54	-1.14	51.51	1.2949	-0.1087	0.005
215	SLV 9	-18.08	1.13	61.43	-1.2931	-0.7962	-0.005
215	SLV 10	-18.08	1.13	61.43	-1.2931	-0.7962	-0.005
215	SLV 11	-26.52	-1.18	57.28	1.2382	-1.1641	0.0052
215	SLV 12	-26.52	-1.18	57.28	1.2382	-1.1641	0.0052
215	SLV 13	-49.01	0.27	66.71	-0.4733	-2.1562	-0.0012
215	SLV 14	-49.01	0.27	66.71	-0.4733	-2.1562	-0.0012



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
215	SLV 15	-51.54	-0.43	65.46	0.2861	-2.2666	0.0019
215	SLV 16	-51.54	-0.43	65.46	0.2861	-2.2666	0.0019
216	SLU 1	-10.05	0	51.83	0.0011	-0.4337	0
216	SLU 2	-9.72	-0.02	52.25	0.018	-0.4194	0.0001
216	SLU 3	-10.6	0	53.17	0.0012	-0.4577	0
216	SLU 4	-10.4	-0.01	53.42	0.0113	-0.449	0
216	SLU 5	-10.05	-0.02	53	0.018	-0.4339	0.0001
216	SLU 6	-10.93	0	53.91	0.0012	-0.4722	0
216	SLU 7	-10.73	-0.01	54.17	0.0113	-0.4635	0
216	SLU 8	-10.72	0	53.33	0.0011	-0.4627	0
216	SLU 9	-10.52	-0.01	53.58	0.0112	-0.4541	0
216	SLU 10	-12.59	-0.02	60.78	0.0181	-0.5421	0.0001
216	SLU 11	-13.47	0	61.69	0.0013	-0.5804	0
216	SLU 12	-13.27	-0.01	61.94	0.0114	-0.5717	0
216	SLU 13	-12.92	-0.02	61.52	0.0181	-0.5566	0.0001
216	SLU 14	-13.8	0	62.44	0.0013	-0.5949	0
216	SLU 15	-13.6	-0.01	62.69	0.0114	-0.5862	0
216	SLU 16	-13.59	0	61.85	0.0013	-0.5854	0
216	SLU 17	-13.39	-0.01	62.1	0.0114	-0.5768	0
216	SLU 18	-14.15	0	64	0.0013	-0.609	0
216	SLU 19	-13.95	-0.01	64.26	0.0114	-0.6004	0
216	SLU 20	-14.48	0	64.75	0.0013	-0.6235	0
216	SLU 21	-14.28	-0.01	65.01	0.0114	-0.6149	0
216	SLU 22	-12.58	0	59.65	0.0012	-0.5419	0
216	SLU 23	-12.24	-0.02	60.07	0.0181	-0.5275	0.0001
216	SLU 24	-13.12	0	60.99	0.0012	-0.5658	0
216	SLU 25	-12.92	-0.01	61.24	0.0114	-0.5572	0
216	SLU 26	-12.57	-0.02	60.82	0.0181	-0.542	0.0001
216	SLU 27	-13.46	0	61.74	0.0013	-0.5803	0
216	SLU 28	-13.26	-0.01	61.99	0.0114	-0.5717	0
216	SLU 29	-13.24	0	61.15	0.0012	-0.5709	0
216	SLU 30	-13.04	-0.01	61.4	0.0113	-0.5623	0
216	SLU 31	-15.11	-0.02	68.6	0.0182	-0.6502	0.0001
216	SLU 32	-15.99	0	69.51	0.0014	-0.6885	0
216	SLU 33	-15.79	-0.01	69.76	0.0115	-0.6799	0
216	SLU 34	-15.44	-0.02	69.34	0.0182	-0.6647	0.0001
216	SLU 35	-16.33	0	70.26	0.0014	-0.703	0
216	SLU 36	-16.12	-0.01	70.51	0.0115	-0.6944	0
216	SLU 37	-16.11	0	69.67	0.0014	-0.6936	0
216	SLU 38	-15.91	-0.01	69.92	0.0115	-0.685	0
216	SLU 39	-16.67	0	71.83	0.0014	-0.7172	0
216	SLU 40	-16.47	-0.01	72.08	0.0115	-0.7085	0
216	SLU 41	-17.01	0	72.57	0.0014	-0.7317	0
216	SLU 42	-16.81	-0.01	72.83	0.0115	-0.723	0
216	SLU 43	-12.2	0	64.7	0.0014	-0.5268	0
216	SLU 44	-11.87	-0.02	65.12	0.0183	-0.5124	0.0001
216	SLU 45	-12.75	0	66.04	0.0015	-0.5507	0
216	SLU 46	-12.55	-0.01	66.29	0.0116	-0.5421	0
216	SLU 47	-12.2	-0.02	65.87	0.0183	-0.5269	0.0001
216	SLU 48	-13.09	0	66.78	0.0015	-0.5652	0
216	SLU 49	-12.88	-0.01	67.04	0.0116	-0.5566	0
216	SLU 50	-12.87	0	66.19	0.0014	-0.5558	0
216	SLU 51	-12.67	-0.01	66.45	0.0116	-0.5472	0
216	SLU 52	-14.74	-0.02	73.64	0.0184	-0.6351	0.0001
216	SLU 53	-15.62	0	74.56	0.0016	-0.6734	0
216	SLU 54	-15.42	-0.01	74.81	0.0117	-0.6648	0
216	SLU 55	-15.07	-0.02	74.39	0.0184	-0.6496	0.0001
216	SLU 56	-15.95	0	75.3	0.0016	-0.6879	0
216	SLU 57	-15.75	-0.01	75.56	0.0117	-0.6793	0
216	SLU 58	-15.74	0	74.71	0.0016	-0.6785	0
216	SLU 59	-15.54	-0.01	74.97	0.0117	-0.6698	0
216	SLU 60	-16.3	0	76.87	0.0016	-0.702	0
216	SLU 61	-16.1	-0.01	77.13	0.0117	-0.6934	0
216	SLU 62	-16.63	0	77.62	0.0016	-0.7165	0
216	SLU 63	-16.43	-0.01	77.87	0.0117	-0.7079	0
216	SLU 64	-14.73	0	72.52	0.0015	-0.6349	0
216	SLU 65	-14.39	-0.02	72.94	0.0184	-0.6206	0.0001
216	SLU 66	-15.28	0	73.86	0.0016	-0.6589	0
216	SLU 67	-15.07	-0.01	74.11	0.0117	-0.6502	0
216	SLU 68	-14.73	-0.02	73.69	0.0184	-0.6351	0.0001
216	SLU 69	-15.61	0	74.6	0.0016	-0.6734	0
216	SLU 70	-15.41	-0.01	74.86	0.0117	-0.6647	0
216	SLU 71	-15.39	0	74.01	0.0015	-0.6639	0
216	SLU 72	-15.19	-0.01	74.27	0.0116	-0.6553	0
216	SLU 73	-17.26	-0.02	81.46	0.0185	-0.7433	0.0001
216	SLU 74	-18.14	0	82.38	0.0017	-0.7815	0
216	SLU 75	-17.94	-0.01	82.63	0.0118	-0.7729	0
216	SLU 76	-17.59	-0.02	82.21	0.0185	-0.7578	0.0001
216	SLU 77	-18.48	0	83.13	0.0017	-0.7961	0
216	SLU 78	-18.28	-0.01	83.38	0.0118	-0.7874	0
216	SLU 79	-18.26	0	82.54	0.0017	-0.7866	0
216	SLU 80	-18.06	-0.01	82.79	0.0118	-0.778	0
216	SLU 81	-18.83	0	84.69	0.0017	-0.8102	0
216	SLU 82	-18.62	-0.01	84.95	0.0118	-0.8016	0
216	SLU 83	-19.16	0	85.44	0.0017	-0.8247	0
216	SLU 84	-18.96	-0.01	85.69	0.0118	-0.8161	0
216	SLE RA 1	-10.77	0	54.07	0.0012	-0.4646	0
216	SLE RA 2	-10.55	-0.01	54.35	0.0124	-0.4551	0
216	SLE RA 3	-11.14	0	54.96	0.0012	-0.4806	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
216	SLE RA 4	-11.01	-0.01	55.13	0.0079	-0.4748	0
216	SLE RA 5	-10.77	-0.01	54.85	0.0124	-0.4647	0
216	SLE RA 6	-11.36	0	55.45	0.0012	-0.4903	0
216	SLE RA 7	-11.23	-0.01	55.62	0.0079	-0.4845	0
216	SLE RA 8	-11.22	0	55.06	0.0012	-0.484	0
216	SLE RA 9	-11.08	-0.01	55.23	0.0079	-0.4782	0
216	SLE RA 10	-12.46	-0.01	60.03	0.0125	-0.5368	0
216	SLE RA 11	-13.05	0	60.64	0.0013	-0.5624	0
216	SLE RA 12	-12.92	-0.01	60.81	0.008	-0.5566	0
216	SLE RA 13	-12.69	-0.01	60.53	0.0125	-0.5465	0
216	SLE RA 14	-13.27	0	61.14	0.0013	-0.5721	0
216	SLE RA 15	-13.14	-0.01	61.3	0.008	-0.5663	0
216	SLE RA 16	-13.13	0	60.74	0.0012	-0.5658	0
216	SLE RA 17	-13	-0.01	60.91	0.008	-0.56	0
216	SLE RA 18	-13.51	0	62.18	0.0013	-0.5815	0
216	SLE RA 19	-13.37	-0.01	62.35	0.008	-0.5757	0
216	SLE RA 20	-13.73	0	62.68	0.0013	-0.5912	0
216	SLE RA 21	-13.59	-0.01	62.85	0.008	-0.5854	0
216	SLE FR 1	-10.77	0	54.07	0.0012	-0.4646	0
216	SLE FR 2	-10.73	0	54.12	0.0034	-0.4627	0
216	SLE FR 3	-10.86	0	54.26	0.0012	-0.4685	0
216	SLE FR 4	-11.55	0	56.56	0.0034	-0.4978	0
216	SLE FR 5	-11.68	0	56.7	0.0012	-0.5036	0
216	SLE FR 6	-12.14	0	58.12	0.0012	-0.5231	0
216	SLE QP 1	-10.77	0	54.07	0.0012	-0.4646	0
216	SLE QP 2	-11.59	0	56.5	0.0012	-0.4997	0
216	SLD 1	6.11	0.12	50.42	-0.1488	0.2806	-0.0005
216	SLD 2	6.11	0.12	50.42	-0.1488	0.2806	-0.0005
216	SLD 3	5.04	-0.08	49.84	0.0926	0.2336	0.0003
216	SLD 4	5.04	-0.08	49.84	0.0926	0.2336	0.0003
216	SLD 5	-4.66	0.34	55.56	-0.4099	-0.1944	-0.0013
216	SLD 6	-4.66	0.34	55.56	-0.4099	-0.1944	-0.0013
216	SLD 7	-8.22	-0.33	53.61	0.3948	-0.3509	0.0013
216	SLD 8	-8.22	-0.33	53.61	0.3948	-0.3509	0.0013
216	SLD 9	-14.96	0.33	59.39	-0.3924	-0.6484	-0.0013
216	SLD 10	-14.96	0.33	59.39	-0.3924	-0.6484	-0.0013
216	SLD 11	-18.53	-0.35	57.44	0.4123	-0.805	0.0013
216	SLD 12	-18.53	-0.35	57.44	0.4123	-0.805	0.0013
216	SLD 13	-28.23	0.07	63.16	-0.0902	-1.233	-0.0003
216	SLD 14	-28.23	0.07	63.16	-0.0902	-1.233	-0.0003
216	SLD 15	-29.3	-0.13	62.58	0.1512	-1.28	0.0005
216	SLD 16	-29.3	-0.13	62.58	0.1512	-1.28	0.0005
216	SLV 1	28.93	0.32	42.6	-0.3824	1.2861	-0.0012
216	SLV 2	28.93	0.32	42.6	-0.3824	1.2861	-0.0012
216	SLV 3	26.45	-0.2	41.22	0.2356	1.1773	0.0008
216	SLV 4	26.45	-0.2	41.22	0.2356	1.1773	0.0008
216	SLV 5	4.32	0.88	54.43	-1.0513	0.2011	-0.0033
216	SLV 6	4.32	0.88	54.43	-1.0513	0.2011	-0.0033
216	SLV 7	-3.94	-0.84	49.82	1.0089	-0.1617	0.0032
216	SLV 8	-3.94	-0.84	49.82	1.0089	-0.1617	0.0032
216	SLV 9	-19.25	0.84	63.18	-1.0065	-0.8377	-0.0032
216	SLV 10	-19.25	0.84	63.18	-1.0065	-0.8377	-0.0032
216	SLV 11	-27.51	-0.88	58.57	1.0536	-1.2005	0.0034
216	SLV 12	-27.51	-0.88	58.57	1.0536	-1.2005	0.0034
216	SLV 13	-49.64	0.19	71.78	-0.2332	-2.1767	-0.0008
216	SLV 14	-49.64	0.19	71.78	-0.2332	-2.1767	-0.0008
216	SLV 15	-52.12	-0.32	70.4	0.3848	-2.2855	0.0012
216	SLV 16	-52.12	-0.32	70.4	0.3848	-2.2855	0.0012
217	SLU 1	-11.53	0	52.02	0.0012	-0.5018	0
217	SLU 2	-11.23	-0.02	52.52	0.0167	-0.4895	0
217	SLU 3	-12.11	0	53.41	0.0012	-0.5271	0
217	SLU 4	-11.93	-0.01	53.7	0.0105	-0.5197	0
217	SLU 5	-11.58	-0.02	53.28	0.0167	-0.5047	0
217	SLU 6	-12.46	0	54.18	0.0012	-0.5422	0
217	SLU 7	-12.28	-0.01	54.47	0.0105	-0.5348	0
217	SLU 8	-12.23	0	53.56	0.0012	-0.5321	0
217	SLU 9	-12.05	-0.01	53.86	0.0105	-0.5247	0
217	SLU 10	-14.37	-0.02	60.82	0.0168	-0.624	0
217	SLU 11	-15.25	0	61.71	0.0014	-0.6616	0
217	SLU 12	-15.07	-0.01	62.01	0.0106	-0.6542	0
217	SLU 13	-14.72	-0.02	61.59	0.0168	-0.6392	0
217	SLU 14	-15.6	0	62.48	0.0014	-0.6768	0
217	SLU 15	-15.42	-0.01	62.77	0.0106	-0.6694	0
217	SLU 16	-15.37	0	61.86	0.0013	-0.6667	0
217	SLU 17	-15.19	-0.01	62.16	0.0106	-0.6593	0
217	SLU 18	-16.01	0	63.88	0.0014	-0.694	0
217	SLU 19	-15.83	-0.01	64.18	0.0107	-0.6866	0
217	SLU 20	-16.36	0	64.65	0.0014	-0.7092	0
217	SLU 21	-16.18	-0.01	64.95	0.0107	-0.7018	0
217	SLU 22	-14.3	0	59.7	0.0013	-0.6207	0
217	SLU 23	-14	-0.02	60.2	0.0168	-0.6084	0
217	SLU 24	-14.88	0	61.09	0.0013	-0.646	0
217	SLU 25	-14.7	-0.01	61.38	0.0106	-0.6386	0
217	SLU 26	-14.35	-0.02	60.96	0.0168	-0.6236	0
217	SLU 27	-15.22	0	61.85	0.0013	-0.6612	0
217	SLU 28	-15.04	-0.01	62.15	0.0106	-0.6538	0
217	SLU 29	-14.99	0	61.24	0.0013	-0.6511	0
217	SLU 30	-14.81	-0.01	61.54	0.0106	-0.6437	0
217	SLU 31	-17.13	-0.02	68.5	0.0169	-0.743	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
217	SLU 32	-18.01	0	69.39	0.0015	-0.7805	0
217	SLU 33	-17.83	-0.01	69.69	0.0108	-0.7732	0
217	SLU 34	-17.48	-0.02	69.27	0.0169	-0.7581	0
217	SLU 35	-18.36	0	70.16	0.0015	-0.7957	0
217	SLU 36	-18.18	-0.01	70.45	0.0107	-0.7883	0
217	SLU 37	-18.13	0	69.54	0.0014	-0.7856	0
217	SLU 38	-17.95	-0.01	69.84	0.0107	-0.7782	0
217	SLU 39	-18.78	0	71.56	0.0015	-0.813	0
217	SLU 40	-18.6	-0.01	71.86	0.0108	-0.8056	0
217	SLU 41	-19.13	0	72.33	0.0015	-0.8281	0
217	SLU 42	-18.95	-0.01	72.63	0.0108	-0.8207	0
217	SLU 43	-14.05	0	65	0.0015	-0.6116	0
217	SLU 44	-13.75	-0.02	65.49	0.017	-0.5993	0
217	SLU 45	-14.62	0	66.38	0.0015	-0.6368	0
217	SLU 46	-14.44	-0.01	66.68	0.0108	-0.6294	0
217	SLU 47	-14.09	-0.02	66.26	0.017	-0.6144	0
217	SLU 48	-14.97	0	67.15	0.0015	-0.652	0
217	SLU 49	-14.79	-0.01	67.44	0.0108	-0.6446	0
217	SLU 50	-14.74	0	66.53	0.0015	-0.6419	0
217	SLU 51	-14.56	-0.01	66.83	0.0108	-0.6345	0
217	SLU 52	-16.88	-0.02	73.79	0.0171	-0.7338	0
217	SLU 53	-17.76	0	74.68	0.0017	-0.7714	0
217	SLU 54	-17.58	-0.01	74.98	0.011	-0.764	0
217	SLU 55	-17.23	-0.02	74.56	0.0171	-0.749	0
217	SLU 56	-18.11	0	75.45	0.0017	-0.7865	0
217	SLU 57	-17.93	-0.01	75.75	0.011	-0.7792	0
217	SLU 58	-17.88	0	74.84	0.0017	-0.7765	0
217	SLU 59	-17.7	-0.01	75.13	0.0109	-0.7691	0
217	SLU 60	-18.53	0	76.86	0.0018	-0.8038	0
217	SLU 61	-18.35	-0.01	77.15	0.011	-0.7964	0
217	SLU 62	-18.87	0	77.63	0.0017	-0.819	0
217	SLU 63	-18.69	-0.01	77.92	0.011	-0.8116	0
217	SLU 64	-16.81	0	72.68	0.0017	-0.7305	0
217	SLU 65	-16.51	-0.02	73.17	0.0171	-0.7182	0
217	SLU 66	-17.39	0	74.06	0.0017	-0.7558	0
217	SLU 67	-17.21	-0.01	74.36	0.0109	-0.7484	0
217	SLU 68	-16.86	-0.02	73.94	0.0171	-0.7334	0
217	SLU 69	-17.74	0	74.83	0.0016	-0.7709	0
217	SLU 70	-17.56	-0.01	75.12	0.0109	-0.7635	0
217	SLU 71	-17.51	0	74.21	0.0016	-0.7608	0
217	SLU 72	-17.33	-0.01	74.51	0.0109	-0.7534	0
217	SLU 73	-19.65	-0.02	81.47	0.0173	-0.8527	0
217	SLU 74	-20.52	0	82.36	0.0018	-0.8903	0
217	SLU 75	-20.34	-0.01	82.66	0.0111	-0.8829	0
217	SLU 76	-19.99	-0.02	82.24	0.0172	-0.8679	0
217	SLU 77	-20.87	0	83.13	0.0018	-0.9055	0
217	SLU 78	-20.69	-0.01	83.43	0.0111	-0.8981	0
217	SLU 79	-20.64	0	82.52	0.0018	-0.8954	0
217	SLU 80	-20.46	-0.01	82.81	0.011	-0.888	0
217	SLU 81	-21.29	0	84.54	0.0019	-0.9227	0
217	SLU 82	-21.11	-0.01	84.83	0.0111	-0.9153	0
217	SLU 83	-21.64	0	85.31	0.0019	-0.9379	0
217	SLU 84	-21.46	-0.01	85.6	0.0111	-0.9305	0
217	SLE RA 1	-12.32	0	54.22	0.0012	-0.5358	0
217	SLE RA 2	-12.12	-0.01	54.55	0.0116	-0.5276	0
217	SLE RA 3	-12.71	0	55.14	0.0012	-0.5526	0
217	SLE RA 4	-12.59	-0.01	55.34	0.0074	-0.5477	0
217	SLE RA 5	-12.36	-0.01	55.06	0.0115	-0.5377	0
217	SLE RA 6	-12.94	0	55.65	0.0012	-0.5627	0
217	SLE RA 7	-12.82	-0.01	55.85	0.0074	-0.5578	0
217	SLE RA 8	-12.79	0	55.24	0.0012	-0.556	0
217	SLE RA 9	-12.67	-0.01	55.44	0.0074	-0.5511	0
217	SLE RA 10	-14.21	-0.01	60.08	0.0117	-0.6173	0
217	SLE RA 11	-14.8	0	60.67	0.0014	-0.6423	0
217	SLE RA 12	-14.68	-0.01	60.87	0.0075	-0.6374	0
217	SLE RA 13	-14.45	-0.01	60.59	0.0116	-0.6274	0
217	SLE RA 14	-15.03	0	61.19	0.0013	-0.6524	0
217	SLE RA 15	-14.91	-0.01	61.38	0.0075	-0.6475	0
217	SLE RA 16	-14.88	0	60.78	0.0013	-0.6457	0
217	SLE RA 17	-14.76	-0.01	60.98	0.0075	-0.6408	0
217	SLE RA 18	-15.31	0	62.12	0.0014	-0.6639	0
217	SLE RA 19	-15.19	-0.01	62.32	0.0076	-0.659	0
217	SLE RA 20	-15.54	0	62.64	0.0014	-0.674	0
217	SLE RA 21	-15.42	-0.01	62.83	0.0076	-0.6691	0
217	SLE FR 1	-12.32	0	54.22	0.0012	-0.5358	0
217	SLE FR 2	-12.28	0	54.28	0.0033	-0.5342	0
217	SLE FR 3	-12.42	0	54.42	0.0012	-0.5398	0
217	SLE FR 4	-13.18	0	56.65	0.0034	-0.5726	0
217	SLE FR 5	-13.31	0	56.79	0.0013	-0.5783	0
217	SLE FR 6	-13.82	0	58.17	0.0013	-0.5999	0
217	SLE QP 1	-12.32	0	54.22	0.0012	-0.5358	0
217	SLE QP 2	-13.22	0	56.59	0.0013	-0.5742	0
217	SLD 1	4.14	0.08	47.97	-0.1072	0.1881	-0.0003
217	SLD 2	4.14	0.08	47.97	-0.1072	0.1881	-0.0003
217	SLD 3	3.1	-0.04	47.29	0.0662	0.1428	0.0002
217	SLD 4	3.1	-0.04	47.29	0.0662	0.1428	0.0002
217	SLD 5	-6.44	0.2	55.04	-0.2944	-0.277	-0.0007
217	SLD 6	-6.44	0.2	55.04	-0.2944	-0.277	-0.0007
217	SLD 7	-9.9	-0.19	52.76	0.2839	-0.4277	0.0007





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
217	SLD 8	-9.9	-0.19	52.76	0.2839	-0.4277	0.0007
217	SLD 9	-16.54	0.19	60.42	-0.2813	-0.7208	-0.0007
217	SLD 10	-16.54	0.19	60.42	-0.2813	-0.7208	-0.0007
217	SLD 11	-20	-0.2	58.14	0.297	-0.8715	0.0007
217	SLD 12	-20	-0.2	58.14	0.297	-0.8715	0.0007
217	SLD 13	-29.54	0.03	65.89	-0.0637	-1.2913	-0.0001
217	SLD 14	-29.54	0.03	65.89	-0.0637	-1.2913	-0.0001
217	SLD 15	-30.58	-0.08	65.2	0.1098	-1.3365	0.0003
217	SLD 16	-30.58	-0.08	65.2	0.1098	-1.3365	0.0003
217	SLV 1	26.5	0.2	36.89	-0.2759	1.1702	-0.0007
217	SLV 2	26.5	0.2	36.89	-0.2759	1.1702	-0.0007
217	SLV 3	24.09	-0.09	35.28	0.1679	1.0654	0.0004
217	SLV 4	24.09	-0.09	35.28	0.1679	1.0654	0.0004
217	SLV 5	2.34	0.51	53.11	-0.755	0.108	-0.0018
217	SLV 6	2.34	0.51	53.11	-0.755	0.108	-0.0018
217	SLV 7	-5.67	-0.48	47.76	0.7244	-0.2412	0.0017
217	SLV 8	-5.67	-0.48	47.76	0.7244	-0.2412	0.0017
217	SLV 9	-20.77	0.47	65.42	-0.7218	-0.9072	-0.0017
217	SLV 10	-20.77	0.47	65.42	-0.7218	-0.9072	-0.0017
217	SLV 11	-28.78	-0.51	60.06	0.7576	-1.2565	0.0018
217	SLV 12	-28.78	-0.51	60.06	0.7576	-1.2565	0.0018
217	SLV 13	-50.53	0.09	77.9	-0.1654	-2.2139	-0.0004
217	SLV 14	-50.53	0.09	77.9	-0.1654	-2.2139	-0.0004
217	SLV 15	-52.94	-0.21	76.29	0.2785	-2.3187	0.0007
217	SLV 16	-52.94	-0.21	76.29	0.2785	-2.3187	0.0007
218	SLU 1	-13.4	0	52.37	0.0011	-0.5743	0
218	SLU 2	-13.13	-0.02	52.92	0.0132	-0.5627	0
218	SLU 3	-14.02	0	53.81	0.0011	-0.6013	0
218	SLU 4	-13.86	-0.01	54.15	0.0084	-0.5943	0
218	SLU 5	-13.5	-0.02	53.73	0.0132	-0.5788	0
218	SLU 6	-14.39	0	54.62	0.0011	-0.6174	0
218	SLU 7	-14.23	-0.01	54.95	0.0084	-0.6104	0
218	SLU 8	-14.14	0	53.97	0.0011	-0.6065	0
218	SLU 9	-13.98	-0.01	54.31	0.0084	-0.5996	0
218	SLU 10	-16.56	-0.02	61.04	0.0134	-0.7087	0
218	SLU 11	-17.45	0	61.93	0.0013	-0.7473	0
218	SLU 12	-17.29	-0.01	62.27	0.0086	-0.7404	0
218	SLU 13	-16.93	-0.02	61.84	0.0134	-0.7249	0
218	SLU 14	-17.82	0	62.73	0.0013	-0.7634	0
218	SLU 15	-17.66	-0.01	63.07	0.0085	-0.7565	0
218	SLU 16	-17.57	0	62.09	0.0012	-0.7525	0
218	SLU 17	-17.41	-0.01	62.42	0.0085	-0.7456	0
218	SLU 18	-18.3	0	63.96	0.0014	-0.7829	0
218	SLU 19	-18.14	-0.01	64.3	0.0086	-0.7759	0
218	SLU 20	-18.67	0	64.76	0.0013	-0.799	0
218	SLU 21	-18.51	-0.01	65.1	0.0086	-0.7921	0
218	SLU 22	-16.43	0	59.94	0.0013	-0.7039	0
218	SLU 23	-16.17	-0.02	60.5	0.0134	-0.6923	0
218	SLU 24	-17.06	0	61.39	0.0013	-0.7309	0
218	SLU 25	-16.89	-0.01	61.72	0.0085	-0.7239	0
218	SLU 26	-16.54	-0.02	61.3	0.0133	-0.7084	0
218	SLU 27	-17.43	0	62.19	0.0012	-0.747	0
218	SLU 28	-17.27	-0.01	62.52	0.0085	-0.74	0
218	SLU 29	-17.18	0	61.54	0.0012	-0.7361	0
218	SLU 30	-17.02	-0.01	61.88	0.0085	-0.7292	0
218	SLU 31	-19.6	-0.02	68.61	0.0135	-0.8383	0
218	SLU 32	-20.49	0	69.5	0.0014	-0.8769	0
218	SLU 33	-20.32	-0.01	69.84	0.0087	-0.87	0
218	SLU 34	-19.97	-0.02	69.41	0.0135	-0.8544	0
218	SLU 35	-20.86	0	70.31	0.0014	-0.893	0
218	SLU 36	-20.7	-0.01	70.64	0.0087	-0.8861	0
218	SLU 37	-20.61	0	69.66	0.0014	-0.8821	0
218	SLU 38	-20.45	-0.01	69.99	0.0086	-0.8752	0
218	SLU 39	-21.34	0	71.53	0.0015	-0.9125	0
218	SLU 40	-21.17	-0.01	71.87	0.0087	-0.9055	0
218	SLU 41	-21.71	0	72.34	0.0015	-0.9286	0
218	SLU 42	-21.54	-0.01	72.67	0.0087	-0.9217	0
218	SLU 43	-16.38	0	65.48	0.0014	-0.7021	0
218	SLU 44	-16.11	-0.02	66.04	0.0135	-0.6906	0
218	SLU 45	-17	0	66.93	0.0014	-0.7291	0
218	SLU 46	-16.83	-0.01	67.26	0.0087	-0.7222	0
218	SLU 47	-16.48	-0.02	66.84	0.0135	-0.7067	0
218	SLU 48	-17.37	0	67.73	0.0014	-0.7452	0
218	SLU 49	-17.21	-0.01	68.06	0.0087	-0.7383	0
218	SLU 50	-17.12	0	67.09	0.0014	-0.7343	0
218	SLU 51	-16.96	-0.01	67.42	0.0087	-0.7274	0
218	SLU 52	-19.54	-0.02	74.15	0.0137	-0.8366	0
218	SLU 53	-20.43	0	75.05	0.0016	-0.8751	0
218	SLU 54	-20.26	-0.01	75.38	0.0088	-0.8682	0
218	SLU 55	-19.91	-0.02	74.96	0.0137	-0.8527	0
218	SLU 56	-20.8	0	75.85	0.0016	-0.8913	0
218	SLU 57	-20.64	-0.01	76.18	0.0088	-0.8843	0
218	SLU 58	-20.55	0	75.2	0.0015	-0.8804	0
218	SLU 59	-20.39	-0.01	75.54	0.0088	-0.8734	0
218	SLU 60	-21.28	0	77.08	0.0017	-0.9107	0
218	SLU 61	-21.11	-0.01	77.41	0.0089	-0.9038	0
218	SLU 62	-21.65	0	77.88	0.0016	-0.9268	0
218	SLU 63	-21.49	-0.01	78.21	0.0089	-0.9199	0
218	SLU 64	-19.41	0	73.05	0.0016	-0.8317	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
218	SLU 65	-19.14	-0.02	73.61	0.0137	-0.8202	0
218	SLU 66	-20.03	0	74.5	0.0016	-0.8587	0
218	SLU 67	-19.87	-0.01	74.83	0.0088	-0.8518	0
218	SLU 68	-19.51	-0.02	74.41	0.0136	-0.8363	0
218	SLU 69	-20.4	0	75.3	0.0015	-0.8748	0
218	SLU 70	-20.24	-0.01	75.64	0.0088	-0.8679	0
218	SLU 71	-20.15	0	74.66	0.0015	-0.8639	0
218	SLU 72	-19.99	-0.01	74.99	0.0088	-0.857	0
218	SLU 73	-22.57	-0.02	81.73	0.0138	-0.9662	0
218	SLU 74	-23.46	0	82.62	0.0017	-1.0047	0
218	SLU 75	-23.3	-0.01	82.95	0.009	-0.9978	0
218	SLU 76	-22.94	-0.02	82.53	0.0138	-0.9823	0
218	SLU 77	-23.83	0	83.42	0.0017	-1.0209	0
218	SLU 78	-23.67	-0.01	83.75	0.009	-1.0139	0
218	SLU 79	-23.58	0	82.77	0.0017	-1.01	0
218	SLU 80	-23.42	-0.01	83.11	0.0089	-1.003	0
218	SLU 81	-24.31	0	84.65	0.0018	-1.0403	0
218	SLU 82	-24.15	-0.01	84.98	0.009	-1.0334	0
218	SLU 83	-24.68	0	85.45	0.0018	-1.0564	0
218	SLU 84	-24.52	-0.01	85.78	0.009	-1.0495	0
218	SLE RA 1	-14.27	0	54.53	0.0012	-0.6113	0
218	SLE RA 2	-14.09	-0.01	54.9	0.0092	-0.6036	0
218	SLE RA 3	-14.68	0	55.5	0.0012	-0.6293	0
218	SLE RA 4	-14.57	-0.01	55.72	0.006	-0.6247	0
218	SLE RA 5	-14.33	-0.01	55.44	0.0092	-0.6143	0
218	SLE RA 6	-14.93	0	56.03	0.0012	-0.64	0
218	SLE RA 7	-14.82	-0.01	56.25	0.006	-0.6354	0
218	SLE RA 8	-14.76	0	55.6	0.0011	-0.6328	0
218	SLE RA 9	-14.65	-0.01	55.82	0.006	-0.6282	0
218	SLE RA 10	-16.37	-0.01	60.31	0.0093	-0.7009	0
218	SLE RA 11	-16.97	0	60.91	0.0013	-0.7266	0
218	SLE RA 12	-16.86	-0.01	61.13	0.0061	-0.722	0
218	SLE RA 13	-16.62	-0.01	60.85	0.0093	-0.7117	0
218	SLE RA 14	-17.21	0	61.44	0.0013	-0.7374	0
218	SLE RA 15	-17.11	-0.01	61.66	0.0061	-0.7328	0
218	SLE RA 16	-17.05	0	61.01	0.0012	-0.7301	0
218	SLE RA 17	-16.94	-0.01	61.23	0.0061	-0.7255	0
218	SLE RA 18	-17.53	0	62.26	0.0013	-0.7504	0
218	SLE RA 19	-17.42	-0.01	62.48	0.0062	-0.7457	0
218	SLE RA 20	-17.78	0	62.8	0.0013	-0.7611	0
218	SLE RA 21	-17.67	-0.01	63.02	0.0061	-0.7565	0
218	SLE FR 1	-14.27	0	54.53	0.0012	-0.6113	0
218	SLE FR 2	-14.23	0	54.6	0.0028	-0.6098	0
218	SLE FR 3	-14.36	0	54.74	0.0012	-0.6156	0
218	SLE FR 4	-15.21	0	56.92	0.0028	-0.6515	0
218	SLE FR 5	-15.34	0	57.06	0.0012	-0.6573	0
218	SLE FR 6	-15.9	0	58.4	0.0012	-0.6808	0
218	SLE QP 1	-14.27	0	54.53	0.0012	-0.6113	0
218	SLE QP 2	-15.25	0	56.85	0.0012	-0.653	0
218	SLD 1	1.91	0	45.05	-0.066	0.1045	-0.0001
218	SLD 2	1.91	0	45.05	-0.066	0.1045	-0.0001
218	SLD 3	0.89	0.05	44.22	0.0385	0.0595	0.0001
218	SLD 4	0.89	0.05	44.22	0.0385	0.0595	0.0001
218	SLD 5	-8.55	-0.08	54.57	-0.1775	-0.3576	-0.0003
218	SLD 6	-8.55	-0.08	54.57	-0.1775	-0.3576	-0.0003
218	SLD 7	-11.96	0.09	51.8	0.1709	-0.5074	0.0003
218	SLD 8	-11.96	0.09	51.8	0.1709	-0.5074	0.0003
218	SLD 9	-18.54	-0.1	61.9	-0.1685	-0.7986	-0.0003
218	SLD 10	-18.54	-0.1	61.9	-0.1685	-0.7986	-0.0003
218	SLD 11	-21.94	0.08	59.13	0.1799	-0.9484	0.0003
218	SLD 12	-21.94	0.08	59.13	0.1799	-0.9484	0.0003
218	SLD 13	-31.38	-0.05	69.48	-0.036	-1.3656	-0.0001
218	SLD 14	-31.38	-0.05	69.48	-0.036	-1.3656	-0.0001
218	SLD 15	-32.4	0	68.65	0.0685	-1.4105	0.0001
218	SLD 16	-32.4	0	68.65	0.0685	-1.4105	0.0001
218	SLV 1	24.01	-0.01	29.87	-0.17	1.0803	-0.0003
218	SLV 2	24.01	-0.01	29.87	-0.17	1.0803	-0.0003
218	SLV 3	21.64	0.12	27.94	0.097	0.9762	0.0002
218	SLV 4	21.64	0.12	27.94	0.097	0.9762	0.0002
218	SLV 5	0.12	-0.2	51.69	-0.4551	0.0249	-0.0008
218	SLV 6	0.12	-0.2	51.69	-0.4551	0.0249	-0.0008
218	SLV 7	-7.77	0.23	45.24	0.4349	-0.3221	0.0008
218	SLV 8	-7.77	0.23	45.24	0.4349	-0.3221	0.0008
218	SLV 9	-22.72	-0.24	68.46	-0.4325	-0.9839	-0.0008
218	SLV 10	-22.72	-0.24	68.46	-0.4325	-0.9839	-0.0008
218	SLV 11	-30.61	0.2	62	0.4576	-1.3309	0.0009
218	SLV 12	-30.61	0.2	62	0.4576	-1.3309	0.0009
218	SLV 13	-52.13	-0.12	85.76	-0.0946	-2.2823	-0.0001
218	SLV 14	-52.13	-0.12	85.76	-0.0946	-2.2823	-0.0001
218	SLV 15	-54.5	0.01	83.83	0.1724	-2.3864	0.0003
218	SLV 16	-54.5	0.01	83.83	0.1724	-2.3864	0.0003
219	SLU 1	-15.98	0	54.49	0.0009	-0.7185	0
219	SLU 2	-15.78	-0.01	55.1	0.0072	-0.7104	0
219	SLU 3	-16.66	0	56.09	0.0009	-0.7493	0
219	SLU 4	-16.54	-0.01	56.45	0.0047	-0.7444	0
219	SLU 5	-16.18	-0.01	55.98	0.0072	-0.7285	0
219	SLU 6	-17.07	0	56.97	0.0009	-0.7673	0
219	SLU 7	-16.94	-0.01	57.34	0.0047	-0.7624	0
219	SLU 8	-16.79	0	56.26	0.0009	-0.7547	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
219	SLU 9	-16.67	-0.01	56.62	0.0047	-0.7498	0
219	SLU 10	-19.54	-0.01	63.42	0.0074	-0.8769	0
219	SLU 11	-20.42	0	64.42	0.001	-0.9158	0
219	SLU 12	-20.3	-0.01	64.78	0.0048	-0.9109	0
219	SLU 13	-19.94	-0.01	64.31	0.0074	-0.895	0
219	SLU 14	-20.82	0	65.3	0.001	-0.9339	0
219	SLU 15	-20.7	-0.01	65.66	0.0048	-0.929	0
219	SLU 16	-20.54	0	64.59	0.001	-0.9212	0
219	SLU 17	-20.42	-0.01	64.95	0.0048	-0.9163	0
219	SLU 18	-21.35	0	66.39	0.0011	-0.9564	0
219	SLU 19	-21.23	-0.01	66.75	0.0049	-0.9515	0
219	SLU 20	-21.75	0	67.28	0.0011	-0.9745	0
219	SLU 21	-21.63	-0.01	67.64	0.0049	-0.9696	0
219	SLU 22	-19.34	0	62.32	0.001	-0.8676	0
219	SLU 23	-19.14	-0.01	62.93	0.0074	-0.8595	0
219	SLU 24	-20.02	0	63.92	0.001	-0.8983	0
219	SLU 25	-19.9	-0.01	64.28	0.0048	-0.8934	0
219	SLU 26	-19.54	-0.01	63.81	0.0074	-0.8776	0
219	SLU 27	-20.42	0	64.8	0.001	-0.9164	0
219	SLU 28	-20.3	-0.01	65.17	0.0048	-0.9115	0
219	SLU 29	-20.14	0	64.09	0.001	-0.9038	0
219	SLU 30	-20.02	-0.01	64.45	0.0048	-0.8989	0
219	SLU 31	-22.89	-0.01	71.26	0.0075	-1.026	0
219	SLU 32	-23.77	0	72.25	0.0012	-1.0649	0
219	SLU 33	-23.65	-0.01	72.61	0.005	-1.06	0
219	SLU 34	-23.29	-0.01	72.14	0.0075	-1.0441	0
219	SLU 35	-24.18	0	73.13	0.0012	-1.083	0
219	SLU 36	-24.05	-0.01	73.49	0.005	-1.0781	0
219	SLU 37	-23.9	0	72.42	0.0011	-1.0703	0
219	SLU 38	-23.78	-0.01	72.78	0.005	-1.0654	0
219	SLU 39	-24.71	0	74.22	0.0012	-1.1055	0
219	SLU 40	-24.58	-0.01	74.58	0.005	-1.1006	0
219	SLU 41	-25.11	0	75.11	0.0012	-1.1236	0
219	SLU 42	-24.99	-0.01	75.47	0.005	-1.1187	0
219	SLU 43	-19.63	0	68.16	0.0011	-0.883	0
219	SLU 44	-19.43	-0.01	68.76	0.0074	-0.8748	0
219	SLU 45	-20.31	0	69.75	0.0011	-0.9137	0
219	SLU 46	-20.19	-0.01	70.11	0.0049	-0.9088	0
219	SLU 47	-19.83	-0.01	69.64	0.0074	-0.8929	0
219	SLU 48	-20.71	0	70.64	0.0011	-0.9318	0
219	SLU 49	-20.59	-0.01	71	0.0049	-0.9269	0
219	SLU 50	-20.43	0	69.93	0.0011	-0.9192	0
219	SLU 51	-20.31	-0.01	70.29	0.0049	-0.9143	0
219	SLU 52	-23.18	-0.01	77.09	0.0076	-1.0413	0
219	SLU 53	-24.07	0	78.08	0.0012	-1.0802	0
219	SLU 54	-23.95	-0.01	78.44	0.0051	-1.0753	0
219	SLU 55	-23.59	-0.01	77.97	0.0076	-1.0594	0
219	SLU 56	-24.47	0	78.97	0.0012	-1.0983	0
219	SLU 57	-24.35	-0.01	79.33	0.0051	-1.0934	0
219	SLU 58	-24.19	0	78.25	0.0012	-1.0857	0
219	SLU 59	-24.07	-0.01	78.62	0.005	-1.0808	0
219	SLU 60	-25	0	80.05	0.0013	-1.1209	0
219	SLU 61	-24.88	-0.01	80.42	0.0051	-1.116	0
219	SLU 62	-25.4	0	80.94	0.0013	-1.139	0
219	SLU 63	-25.28	-0.01	81.3	0.0051	-1.1341	0
219	SLU 64	-22.98	0	75.99	0.0012	-1.0321	0
219	SLU 65	-22.78	-0.01	76.59	0.0076	-1.0239	0
219	SLU 66	-23.66	0	77.58	0.0012	-1.0628	0
219	SLU 67	-23.54	-0.01	77.94	0.0051	-1.0579	0
219	SLU 68	-23.18	-0.01	77.47	0.0076	-1.042	0
219	SLU 69	-24.06	0	78.47	0.0012	-1.0809	0
219	SLU 70	-23.94	-0.01	78.83	0.0051	-1.076	0
219	SLU 71	-23.79	0	77.76	0.0012	-1.0682	0
219	SLU 72	-23.66	-0.01	78.12	0.005	-1.0634	0
219	SLU 73	-26.54	-0.01	84.92	0.0077	-1.1904	0
219	SLU 74	-27.42	0	85.91	0.0014	-1.2293	0
219	SLU 75	-27.3	-0.01	86.27	0.0052	-1.2244	0
219	SLU 76	-26.94	-0.01	85.8	0.0077	-1.2085	0
219	SLU 77	-27.82	0	86.8	0.0014	-1.2474	0
219	SLU 78	-27.7	-0.01	87.16	0.0052	-1.2425	0
219	SLU 79	-27.54	0	86.08	0.0014	-1.2348	0
219	SLU 80	-27.42	-0.01	86.45	0.0052	-1.2299	0
219	SLU 81	-28.35	0	87.88	0.0014	-1.27	0
219	SLU 82	-28.23	-0.01	88.25	0.0052	-1.2651	0
219	SLU 83	-28.75	0	88.77	0.0014	-1.2881	0
219	SLU 84	-28.63	-0.01	89.13	0.0052	-1.2832	0
219	SLE RA 1	-16.94	0	56.73	0.0009	-0.7611	0
219	SLE RA 2	-16.81	-0.01	57.13	0.0052	-0.7557	0
219	SLE RA 3	-17.4	0	57.79	0.0009	-0.7816	0
219	SLE RA 4	-17.31	-0.01	58.04	0.0035	-0.7783	0
219	SLE RA 5	-17.08	-0.01	57.72	0.0052	-0.7677	0
219	SLE RA 6	-17.66	0	58.38	0.0009	-0.7937	0
219	SLE RA 7	-17.58	-0.01	58.63	0.0035	-0.7904	0
219	SLE RA 8	-17.48	0	57.91	0.0009	-0.7853	0
219	SLE RA 9	-17.4	-0.01	58.15	0.0035	-0.782	0
219	SLE RA 10	-19.31	-0.01	62.68	0.0052	-0.8667	0
219	SLE RA 11	-19.9	0	63.35	0.001	-0.8926	0
219	SLE RA 12	-19.82	-0.01	63.59	0.0036	-0.8894	0
219	SLE RA 13	-19.58	-0.01	63.27	0.0052	-0.8788	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
219	SLE RA 14	-20.17	0	63.94	0.001	-0.9047	0
219	SLE RA 15	-20.09	-0.01	64.18	0.0036	-0.9014	0
219	SLE RA 16	-19.98	0	63.46	0.001	-0.8963	0
219	SLE RA 17	-19.9	-0.01	63.7	0.0035	-0.893	0
219	SLE RA 18	-20.52	0	64.66	0.0011	-0.9197	0
219	SLE RA 19	-20.44	-0.01	64.9	0.0036	-0.9165	0
219	SLE RA 20	-20.79	0	65.25	0.001	-0.9318	0
219	SLE RA 21	-20.71	-0.01	65.49	0.0036	-0.9285	0
219	SLE FR 1	-16.94	0	56.73	0.0009	-0.7611	0
219	SLE FR 2	-16.92	0	56.81	0.0018	-0.76	0
219	SLE FR 3	-17.05	0	56.97	0.0009	-0.766	0
219	SLE FR 4	-17.99	0	59.19	0.0018	-0.8076	0
219	SLE FR 5	-18.12	0	59.35	0.001	-0.8135	0
219	SLE FR 6	-18.73	0	60.7	0.001	-0.8404	0
219	SLE QP 1	-16.94	0	56.73	0.0009	-0.7611	0
219	SLE QP 2	-18.02	0	59.11	0.001	-0.8087	0
219	SLD 1	-1.19	-0.01	41.95	-0.0313	-0.0411	0
219	SLD 2	-1.19	-0.01	41.95	-0.0313	-0.0411	0
219	SLD 3	-2.19	0.04	40.84	0.0163	-0.0861	-0.0001
219	SLD 4	-2.19	0.04	40.84	0.0163	-0.0861	-0.0001
219	SLD 5	-11.46	-0.07	55.64	-0.081	-0.5101	0.0002
219	SLD 6	-11.46	-0.07	55.64	-0.081	-0.5101	0.0002
219	SLD 7	-14.77	0.08	51.95	0.0779	-0.6602	-0.0002
219	SLD 8	-14.77	0.08	51.95	0.0779	-0.6602	-0.0002
219	SLD 9	-21.26	-0.08	66.27	-0.0759	-0.9572	0.0002
219	SLD 10	-21.26	-0.08	66.27	-0.0759	-0.9572	0.0002
219	SLD 11	-24.57	0.07	62.58	0.0829	-1.1073	-0.0002
219	SLD 12	-24.57	0.07	62.58	0.0829	-1.1073	-0.0002
219	SLD 13	-33.85	-0.04	77.38	-0.0144	-1.5313	0.0001
219	SLD 14	-33.85	-0.04	77.38	-0.0144	-1.5313	0.0001
219	SLD 15	-34.84	0	76.27	0.0332	-1.5763	0
219	SLD 16	-34.84	0	76.27	0.0332	-1.5763	0
219	SLV 1	20.47	-0.02	19.89	-0.0806	0.9472	0.0001
219	SLV 2	20.47	-0.02	19.89	-0.0806	0.9472	0.0001
219	SLV 3	18.17	0.1	17.32	0.0406	0.8429	-0.0003
219	SLV 4	18.17	0.1	17.32	0.0406	0.8429	-0.0003
219	SLV 5	-2.98	-0.18	51.25	-0.2073	-0.1238	0.0005
219	SLV 6	-2.98	-0.18	51.25	-0.2073	-0.1238	0.0005
219	SLV 7	-10.65	0.2	42.67	0.1966	-0.4713	-0.0006
219	SLV 8	-10.65	0.2	42.67	0.1966	-0.4713	-0.0006
219	SLV 9	-25.38	-0.21	75.55	-0.1947	-1.1461	0.0006
219	SLV 10	-25.38	-0.21	75.55	-0.1947	-1.1461	0.0006
219	SLV 11	-33.05	0.18	66.97	0.2092	-1.4936	-0.0005
219	SLV 12	-33.05	0.18	66.97	0.2092	-1.4936	-0.0005
219	SLV 13	-54.2	-0.1	100.9	-0.0387	-2.4604	0.0003
219	SLV 14	-54.2	-0.1	100.9	-0.0387	-2.4604	0.0003
219	SLV 15	-56.5	0.01	98.33	0.0825	-2.5646	-0.0001
219	SLV 16	-56.5	0.01	98.33	0.0825	-2.5646	-0.0001
220	SLU 1	-13.88	-0.21	99.85	-0.0052	-0.4761	0.0001
220	SLU 2	-13.84	0.17	100.96	-0.0238	-0.4728	0
220	SLU 3	-14.4	-0.23	102.95	-0.0051	-0.4955	0.0001
220	SLU 4	-14.38	0	103.62	-0.0163	-0.4935	0.0001
220	SLU 5	-14.14	0.16	102.68	-0.0238	-0.4841	0
220	SLU 6	-14.7	-0.25	104.67	-0.0051	-0.5067	0.0001
220	SLU 7	-14.68	-0.02	105.34	-0.0163	-0.5048	0.0001
220	SLU 8	-14.48	-0.24	103.3	-0.0052	-0.4987	0.0001
220	SLU 9	-14.46	-0.01	103.96	-0.0163	-0.4967	0.0001
220	SLU 10	-16.63	0.12	116.24	-0.0239	-0.5761	0
220	SLU 11	-17.18	-0.28	118.23	-0.0053	-0.5987	0.0001
220	SLU 12	-17.16	-0.05	118.89	-0.0164	-0.5967	0.0001
220	SLU 13	-16.93	0.11	117.96	-0.0239	-0.5874	0
220	SLU 14	-17.49	-0.3	119.95	-0.0052	-0.61	0.0001
220	SLU 15	-17.46	-0.07	120.61	-0.0164	-0.608	0.0001
220	SLU 16	-17.27	-0.29	118.57	-0.0053	-0.602	0.0001
220	SLU 17	-17.24	-0.07	119.24	-0.0164	-0.6	0.0001
220	SLU 18	-17.85	-0.28	121.68	-0.0054	-0.6236	0.0001
220	SLU 19	-17.83	-0.05	122.34	-0.0165	-0.6217	0.0001
220	SLU 20	-18.16	-0.3	123.4	-0.0054	-0.6349	0.0001
220	SLU 21	-18.14	-0.07	124.06	-0.0165	-0.6329	0.0001
220	SLU 22	-16.41	-0.28	114.29	-0.0046	-0.5693	0.0001
220	SLU 23	-16.37	0.1	115.4	-0.0232	-0.566	0
220	SLU 24	-16.93	-0.3	117.38	-0.0045	-0.5886	0.0001
220	SLU 25	-16.91	-0.07	118.05	-0.0157	-0.5866	0.0001
220	SLU 26	-16.68	0.08	117.12	-0.0231	-0.5773	0
220	SLU 27	-17.23	-0.32	119.1	-0.0045	-0.5999	0.0001
220	SLU 28	-17.21	-0.09	119.77	-0.0156	-0.5979	0.0001
220	SLU 29	-17.01	-0.32	117.73	-0.0045	-0.5919	0.0001
220	SLU 30	-16.99	-0.09	118.39	-0.0157	-0.5899	0.0001
220	SLU 31	-19.16	0.05	130.67	-0.0233	-0.6692	0.0001
220	SLU 32	-19.72	-0.36	132.66	-0.0046	-0.6919	0.0001
220	SLU 33	-19.7	-0.13	133.33	-0.0158	-0.6899	0.0001
220	SLU 34	-19.46	0.03	132.39	-0.0233	-0.6805	0.0001
220	SLU 35	-20.02	-0.37	134.38	-0.0046	-0.7031	0.0001
220	SLU 36	-20	-0.14	135.05	-0.0157	-0.7012	0.0001
220	SLU 37	-19.8	-0.37	133	-0.0046	-0.6951	0.0001
220	SLU 38	-19.78	-0.14	133.67	-0.0158	-0.6931	0.0001
220	SLU 39	-20.39	-0.35	136.11	-0.0048	-0.7168	0.0001
220	SLU 40	-20.37	-0.13	136.77	-0.0159	-0.7148	0.0001
220	SLU 41	-20.69	-0.37	137.83	-0.0047	-0.7281	0.0001



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
220	SLU 42	-20.67	-0.14	138.49	-0.0159	-0.7261	0.0001
220	SLU 43	-17.17	-0.25	124.86	-0.007	-0.587	0.0001
220	SLU 44	-17.14	0.14	125.97	-0.0256	-0.5837	0
220	SLU 45	-17.69	-0.27	127.96	-0.0069	-0.6064	0.0001
220	SLU 46	-17.67	-0.04	128.62	-0.0181	-0.6044	0.0001
220	SLU 47	-17.44	0.12	127.69	-0.0256	-0.595	0
220	SLU 48	-18	-0.29	129.68	-0.0069	-0.6177	0.0001
220	SLU 49	-17.97	-0.06	130.35	-0.018	-0.6157	0.0001
220	SLU 50	-17.78	-0.28	128.3	-0.007	-0.6096	0.0001
220	SLU 51	-17.75	-0.05	128.97	-0.0181	-0.6076	0.0001
220	SLU 52	-19.92	0.09	141.25	-0.0257	-0.687	0.0001
220	SLU 53	-20.48	-0.32	143.23	-0.0071	-0.7096	0.0001
220	SLU 54	-20.46	-0.09	143.9	-0.0182	-0.7076	0.0001
220	SLU 55	-20.22	0.07	142.97	-0.0257	-0.6983	0.0001
220	SLU 56	-20.78	-0.34	144.95	-0.007	-0.7209	0.0001
220	SLU 57	-20.76	-0.11	145.62	-0.0182	-0.7189	0.0001
220	SLU 58	-20.56	-0.33	143.58	-0.0071	-0.7129	0.0001
220	SLU 59	-20.54	-0.1	144.24	-0.0182	-0.7109	0.0001
220	SLU 60	-21.15	-0.32	146.68	-0.0072	-0.7345	0.0001
220	SLU 61	-21.13	-0.09	147.35	-0.0183	-0.7326	0.0001
220	SLU 62	-21.45	-0.34	148.4	-0.0072	-0.7458	0.0001
220	SLU 63	-21.43	-0.11	149.07	-0.0183	-0.7438	0.0001
220	SLU 64	-19.7	-0.32	139.29	-0.0064	-0.6802	0.0001
220	SLU 65	-19.67	0.06	140.4	-0.025	-0.6769	0.0001
220	SLU 66	-20.23	-0.34	142.39	-0.0063	-0.6995	0.0001
220	SLU 67	-20.21	-0.11	143.06	-0.0174	-0.6975	0.0001
220	SLU 68	-19.97	0.05	142.12	-0.0249	-0.6882	0.0001
220	SLU 69	-20.53	-0.36	144.11	-0.0063	-0.7108	0.0001
220	SLU 70	-20.51	-0.13	144.78	-0.0174	-0.7088	0.0001
220	SLU 71	-20.31	-0.35	142.74	-0.0063	-0.7028	0.0001
220	SLU 72	-20.29	-0.12	143.4	-0.0175	-0.7008	0.0001
220	SLU 73	-22.45	0.01	155.68	-0.0251	-0.7801	0.0001
220	SLU 74	-23.01	-0.39	157.67	-0.0064	-0.8028	0.0002
220	SLU 75	-22.99	-0.16	158.33	-0.0176	-0.8008	0.0001
220	SLU 76	-22.76	-0.01	157.4	-0.025	-0.7914	0.0001
220	SLU 77	-23.31	-0.41	159.39	-0.0064	-0.814	0.0002
220	SLU 78	-23.29	-0.18	160.05	-0.0175	-0.8121	0.0001
220	SLU 79	-23.09	-0.41	158.01	-0.0064	-0.806	0.0002
220	SLU 80	-23.07	-0.18	158.68	-0.0176	-0.804	0.0001
220	SLU 81	-23.68	-0.39	161.12	-0.0066	-0.8277	0.0002
220	SLU 82	-23.66	-0.16	161.78	-0.0177	-0.8257	0.0001
220	SLU 83	-23.98	-0.41	162.84	-0.0065	-0.839	0.0002
220	SLU 84	-23.96	-0.18	163.5	-0.0177	-0.837	0.0001
220	SLE RA 1	-14.6	-0.23	103.98	-0.0051	-0.5028	0.0001
220	SLE RA 2	-14.58	0.03	104.72	-0.0174	-0.5006	0
220	SLE RA 3	-14.95	-0.24	106.04	-0.005	-0.5156	0.0001
220	SLE RA 4	-14.93	-0.09	106.49	-0.0124	-0.5143	0.0001
220	SLE RA 5	-14.78	0.01	105.86	-0.0174	-0.5081	0.0001
220	SLE RA 6	-15.15	-0.26	107.19	-0.005	-0.5232	0.0001
220	SLE RA 7	-15.14	-0.1	107.63	-0.0124	-0.5218	0.0001
220	SLE RA 8	-15	-0.25	106.27	-0.005	-0.5178	0.0001
220	SLE RA 9	-14.99	-0.1	106.72	-0.0124	-0.5165	0.0001
220	SLE RA 10	-16.43	-0.01	114.9	-0.0175	-0.5694	0.0001
220	SLE RA 11	-16.8	-0.28	116.23	-0.0051	-0.5845	0.0001
220	SLE RA 12	-16.79	-0.13	116.67	-0.0125	-0.5831	0.0001
220	SLE RA 13	-16.63	-0.02	116.05	-0.0175	-0.5769	0.0001
220	SLE RA 14	-17.01	-0.29	117.37	-0.005	-0.592	0.0001
220	SLE RA 15	-16.99	-0.14	117.82	-0.0125	-0.5907	0.0001
220	SLE RA 16	-16.86	-0.29	116.45	-0.0051	-0.5866	0.0001
220	SLE RA 17	-16.85	-0.13	116.9	-0.0125	-0.5853	0.0001
220	SLE RA 18	-17.25	-0.28	118.52	-0.0052	-0.6011	0.0001
220	SLE RA 19	-17.24	-0.13	118.97	-0.0126	-0.5998	0.0001
220	SLE RA 20	-17.45	-0.29	119.67	-0.0051	-0.6086	0.0001
220	SLE RA 21	-17.44	-0.14	120.12	-0.0126	-0.6073	0.0001
220	SLE FR 1	-14.6	-0.23	103.98	-0.0051	-0.5028	0.0001
220	SLE FR 2	-14.6	-0.18	104.13	-0.0075	-0.5023	0.0001
220	SLE FR 3	-14.68	-0.23	104.44	-0.005	-0.5058	0.0001
220	SLE FR 4	-15.39	-0.19	108.49	-0.0076	-0.5318	0.0001
220	SLE FR 5	-15.48	-0.25	108.8	-0.0051	-0.5353	0.0001
220	SLE FR 6	-15.93	-0.25	111.25	-0.0051	-0.5519	0.0001
220	SLE QP 1	-14.6	-0.23	103.98	-0.0051	-0.5028	0.0001
220	SLE QP 2	-15.4	-0.24	108.34	-0.0051	-0.5323	0.0001
220	SLD 1	-4.55	0.96	67.26	-0.0558	-0.083	-0.0007
220	SLD 2	-4.55	0.96	67.26	-0.0558	-0.083	-0.0007
220	SLD 3	-5.19	-4.35	64.71	0.1751	-0.1093	0.0004
220	SLD 4	-5.19	-4.35	64.71	0.1751	-0.1093	0.0004
220	SLD 5	-11.18	8.18	99.88	-0.3705	-0.3575	-0.0017
220	SLD 6	-11.18	8.18	99.88	-0.3705	-0.3575	-0.0017
220	SLD 7	-13.29	-9.53	91.39	0.3992	-0.4454	0.0018
220	SLD 8	-13.29	-9.53	91.39	0.3992	-0.4454	0.0018
220	SLD 9	-17.5	9.05	125.3	-0.4094	-0.6191	-0.0016
220	SLD 10	-17.5	9.05	125.3	-0.4094	-0.6191	-0.0016
220	SLD 11	-19.61	-8.66	116.8	0.3604	-0.707	0.002
220	SLD 12	-19.61	-8.66	116.8	0.3604	-0.707	0.002
220	SLD 13	-25.6	3.86	151.97	-0.1852	-0.9552	-0.0001
220	SLD 14	-25.6	3.86	151.97	-0.1852	-0.9552	-0.0001
220	SLD 15	-26.24	-1.45	149.42	0.0457	-0.9815	0.0009
220	SLD 16	-26.24	-1.45	149.42	0.0457	-0.9815	0.0009
220	SLV 1	9.4	2.55	14.48	-0.1226	0.4954	-0.0018



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
220	SLV 2	9.4	2.55	14.48	-0.1226	0.4954	-0.0018
220	SLV 3	7.93	-9.67	8.58	0.4089	0.4343	0.0007
220	SLV 4	7.93	-9.67	8.58	0.4089	0.4343	0.0007
220	SLV 5	-5.73	19.12	89.14	-0.8464	-0.1314	-0.0042
220	SLV 6	-5.73	19.12	89.14	-0.8464	-0.1314	-0.0042
220	SLV 7	-10.62	-21.6	69.45	0.9251	-0.3348	0.004
220	SLV 8	-10.62	-21.6	69.45	0.9251	-0.3348	0.004
220	SLV 9	-20.17	21.11	147.23	-0.9353	-0.7297	-0.0038
220	SLV 10	-20.17	21.11	147.23	-0.9353	-0.7297	-0.0038
220	SLV 11	-25.06	-19.61	127.54	0.8362	-0.9331	0.0044
220	SLV 12	-25.06	-19.61	127.54	0.8362	-0.9331	0.0044
220	SLV 13	-38.72	9.18	208.11	-0.4191	-1.4989	-0.0005
220	SLV 14	-38.72	9.18	208.11	-0.4191	-1.4989	-0.0005
220	SLV 15	-40.19	-3.03	202.2	0.1124	-1.5599	0.002
220	SLV 16	-40.19	-3.03	202.2	0.1124	-1.5599	0.002
221	SLU 1	12.53	-6.16	62.07	-7.6241	0.4086	2.7803
221	SLU 2	12.41	-5.96	61.39	-7.5691	0.4049	2.7429
221	SLU 3	13.04	-6.32	64.22	-7.9148	0.4266	2.8952
221	SLU 4	12.97	-6.2	63.81	-7.8818	0.4243	2.8728
221	SLU 5	12.73	-6.04	62.69	-7.7517	0.4161	2.815
221	SLU 6	13.37	-6.4	65.52	-8.0974	0.4378	2.9673
221	SLU 7	13.3	-6.28	65.11	-8.0644	0.4355	2.9448
221	SLU 8	13.18	-6.32	64.67	-7.9894	0.4311	2.9244
221	SLU 9	13.11	-6.2	64.26	-7.9563	0.4288	2.902
221	SLU 10	15.07	-6.9	72.36	-9.0238	0.4981	3.3341
221	SLU 11	15.7	-7.26	75.19	-9.3695	0.5198	3.4864
221	SLU 12	15.63	-7.14	74.78	-9.3365	0.5175	3.464
221	SLU 13	15.39	-6.98	73.66	-9.2064	0.5093	3.4062
221	SLU 14	16.03	-7.34	76.49	-9.5521	0.531	3.5585
221	SLU 15	15.96	-7.22	76.08	-9.5191	0.5288	3.5361
221	SLU 16	15.84	-7.26	75.64	-9.4441	0.5243	3.5157
221	SLU 17	15.76	-7.14	75.23	-9.4111	0.522	3.4932
221	SLU 18	16.33	-7.5	77.75	-9.7023	0.5418	3.6249
221	SLU 19	16.26	-7.38	77.34	-9.6693	0.5396	3.6025
221	SLU 20	16.65	-7.58	79.05	-9.8849	0.553	3.697
221	SLU 21	16.58	-7.46	78.64	-9.8519	0.5508	3.6745
221	SLU 22	14.94	-7.03	72.23	-8.9632	0.4927	3.3174
221	SLU 23	14.83	-6.83	71.55	-8.9081	0.4889	3.28
221	SLU 24	15.46	-7.19	74.38	-9.2538	0.5106	3.4323
221	SLU 25	15.39	-7.07	73.97	-9.2208	0.5084	3.4098
221	SLU 26	15.15	-6.91	72.84	-9.0908	0.5001	3.352
221	SLU 27	15.79	-7.27	75.67	-9.4365	0.5218	3.5043
221	SLU 28	15.71	-7.15	75.26	-9.4034	0.5196	3.4819
221	SLU 29	15.59	-7.19	74.82	-9.3284	0.5151	3.4615
221	SLU 30	15.52	-7.07	74.41	-9.2954	0.5129	3.439
221	SLU 31	17.48	-7.77	82.52	-10.3628	0.5821	3.8712
221	SLU 32	18.12	-8.13	85.35	-10.7085	0.6038	4.0235
221	SLU 33	18.05	-8.01	84.94	-10.6755	0.6016	4.001
221	SLU 34	17.81	-7.85	83.82	-10.5455	0.5934	3.9432
221	SLU 35	18.44	-8.21	86.65	-10.8912	0.615	4.0956
221	SLU 36	18.37	-8.09	86.24	-10.8582	0.6128	4.0731
221	SLU 37	18.25	-8.13	85.8	-10.7831	0.6083	4.0527
221	SLU 38	18.18	-8.01	85.39	-10.7501	0.6061	4.0303
221	SLU 39	18.74	-8.37	87.9	-11.0413	0.6258	4.162
221	SLU 40	18.67	-8.25	87.5	-11.0083	0.6236	4.1395
221	SLU 41	19.07	-8.45	89.2	-11.224	0.6371	4.234
221	SLU 42	19	-8.33	88.79	-11.1909	0.6348	4.2116
221	SLU 43	15.46	-7.71	77.21	-9.4522	0.5024	3.4303
221	SLU 44	15.34	-7.51	76.53	-9.3972	0.4987	3.3929
221	SLU 45	15.97	-7.87	79.36	-9.7429	0.5204	3.5452
221	SLU 46	15.9	-7.75	78.95	-9.7099	0.5181	3.5227
221	SLU 47	15.66	-7.59	77.83	-9.5798	0.5099	3.4649
221	SLU 48	16.3	-7.95	80.66	-9.9255	0.5316	3.6172
221	SLU 49	16.23	-7.83	80.25	-9.8925	0.5293	3.5948
221	SLU 50	16.11	-7.87	79.81	-9.8175	0.5249	3.5744
221	SLU 51	16.03	-7.75	79.4	-9.7845	0.5226	3.5519
221	SLU 52	18	-8.45	87.5	-10.8519	0.5919	3.9841
221	SLU 53	18.63	-8.81	90.33	-11.1976	0.6136	4.1364
221	SLU 54	18.56	-8.69	89.92	-11.1646	0.6113	4.114
221	SLU 55	18.32	-8.53	88.8	-11.0345	0.6031	4.0562
221	SLU 56	18.96	-8.89	91.63	-11.3802	0.6248	4.2085
221	SLU 57	18.89	-8.77	91.22	-11.3472	0.6225	4.186
221	SLU 58	18.77	-8.81	90.78	-11.2722	0.6181	4.1656
221	SLU 59	18.69	-8.69	90.37	-11.2392	0.6158	4.1432
221	SLU 60	19.26	-9.05	92.89	-11.5304	0.6356	4.2749
221	SLU 61	19.18	-8.93	92.48	-11.4974	0.6333	4.2525
221	SLU 62	19.58	-9.13	94.18	-11.713	0.6468	4.347
221	SLU 63	19.51	-9.01	93.77	-11.68	0.6446	4.3245
221	SLU 64	17.87	-8.58	87.37	-10.7913	0.5865	3.9673
221	SLU 65	17.75	-8.38	86.68	-10.7363	0.5827	3.9299
221	SLU 66	18.39	-8.74	89.51	-11.082	0.6044	4.0822
221	SLU 67	18.32	-8.62	89.11	-11.0489	0.6021	4.0598
221	SLU 68	18.08	-8.46	87.98	-10.9189	0.5939	4.002
221	SLU 69	18.72	-8.82	90.81	-11.2646	0.6156	4.1543
221	SLU 70	18.64	-8.7	90.4	-11.2316	0.6134	4.1318
221	SLU 71	18.52	-8.74	89.96	-11.1565	0.6089	4.1115
221	SLU 72	18.45	-8.62	89.55	-11.1235	0.6066	4.089
221	SLU 73	20.41	-9.32	97.66	-12.191	0.6759	4.5212
221	SLU 74	21.05	-9.68	100.49	-12.5367	0.6976	4.6735



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
221	SLU 75	20.98	-9.56	100.08	-12.5037	0.6954	4.651
221	SLU 76	20.74	-9.4	98.96	-12.3736	0.6871	4.5932
221	SLU 77	21.37	-9.76	101.79	-12.7193	0.7088	4.7455
221	SLU 78	21.3	-9.64	101.38	-12.6863	0.7066	4.7231
221	SLU 79	21.18	-9.68	100.94	-12.6113	0.7021	4.7027
221	SLU 80	21.11	-9.56	100.53	-12.5782	0.6999	4.6802
221	SLU 81	21.67	-9.92	103.04	-12.8695	0.7196	4.812
221	SLU 82	21.6	-9.8	102.63	-12.8364	0.7174	4.7895
221	SLU 83	22	-10	104.34	-13.0521	0.7308	4.884
221	SLU 84	21.93	-9.88	103.93	-13.0191	0.7286	4.8616
221	SLE RA 1	13.22	-6.41	64.97	-8.0067	0.4327	2.9338
221	SLE RA 2	13.14	-6.28	64.52	-7.97	0.4302	2.9088
221	SLE RA 3	13.56	-6.52	66.4	-8.2005	0.4446	3.0104
221	SLE RA 4	13.52	-6.44	66.13	-8.1785	0.4431	2.9954
221	SLE RA 5	13.36	-6.33	65.38	-8.0918	0.4376	2.9569
221	SLE RA 6	13.78	-6.57	67.27	-8.3222	0.4521	3.0584
221	SLE RA 7	13.73	-6.49	67	-8.3002	0.4506	3.0434
221	SLE RA 8	13.65	-6.52	66.7	-8.2502	0.4476	3.0298
221	SLE RA 9	13.6	-6.44	66.43	-8.2282	0.4461	3.0149
221	SLE RA 10	14.91	-6.9	71.83	-8.9398	0.4923	3.303
221	SLE RA 11	15.34	-7.14	73.72	-9.1703	0.5068	3.4045
221	SLE RA 12	15.29	-7.06	73.45	-9.1483	0.5053	3.3895
221	SLE RA 13	15.13	-6.95	72.7	-9.0616	0.4998	3.351
221	SLE RA 14	15.55	-7.19	74.59	-9.292	0.5142	3.4526
221	SLE RA 15	15.5	-7.11	74.31	-9.27	0.5127	3.4376
221	SLE RA 16	15.42	-7.14	74.02	-9.22	0.5098	3.424
221	SLE RA 17	15.38	-7.06	73.75	-9.198	0.5083	3.409
221	SLE RA 18	15.75	-7.3	75.42	-9.3921	0.5214	3.4968
221	SLE RA 19	15.7	-7.22	75.15	-9.3701	0.5199	3.4819
221	SLE RA 20	15.97	-7.36	76.29	-9.5139	0.5289	3.5449
221	SLE RA 21	15.92	-7.28	76.02	-9.4919	0.5274	3.5299
221	SLE FR 1	13.22	-6.41	64.97	-8.0067	0.4327	2.9338
221	SLE FR 2	13.2	-6.38	64.88	-7.9994	0.4322	2.9288
221	SLE FR 3	13.3	-6.43	65.32	-8.0554	0.4356	2.953
221	SLE FR 4	13.96	-6.65	68.02	-8.415	0.4588	3.0977
221	SLE FR 5	14.06	-6.7	68.45	-8.471	0.4623	3.1219
221	SLE FR 6	14.48	-6.86	70.2	-8.6994	0.477	3.2153
221	SLE QP 1	13.22	-6.41	64.97	-8.0067	0.4327	2.9338
221	SLE QP 2	13.98	-6.68	68.11	-8.4223	0.4593	3.1027
221	SLD 1	23.66	-8.38	99.57	-13.1855	0.8315	5.2811
221	SLD 2	23.66	-8.38	99.57	-13.1855	0.8315	5.2811
221	SLD 3	24.28	-11.99	110.67	-13.5755	0.8565	5.4081
221	SLD 4	24.28	-11.99	110.67	-13.5755	0.8565	5.4081
221	SLD 5	15.93	-1.72	60.71	-9.2597	0.5331	3.5635
221	SLD 6	15.93	-1.72	60.71	-9.2597	0.5331	3.5635
221	SLD 7	18.02	-13.74	97.72	-10.5599	0.6163	3.987
221	SLD 8	18.02	-13.74	97.72	-10.5599	0.6163	3.987
221	SLD 9	9.94	0.39	38.5	-6.2848	0.3022	2.2184
221	SLD 10	9.94	0.39	38.5	-6.2848	0.3022	2.2184
221	SLD 11	12.02	-11.64	75.51	-7.585	0.3855	2.6419
221	SLD 12	12.02	-11.64	75.51	-7.585	0.3855	2.6419
221	SLD 13	3.67	-1.37	25.54	-3.2691	0.0621	0.7973
221	SLD 14	3.67	-1.37	25.54	-3.2691	0.0621	0.7973
221	SLD 15	4.3	-4.98	36.65	-3.6592	0.087	0.9243
221	SLD 16	4.3	-4.98	36.65	-3.6592	0.087	0.9243
221	SLV 1	36.07	-10.57	139.91	-19.2942	1.3085	8.0773
221	SLV 2	36.07	-10.57	139.91	-19.2942	1.3085	8.0773
221	SLV 3	37.55	-18.88	165.57	-20.2007	1.3682	8.3736
221	SLV 4	37.55	-18.88	165.57	-20.2007	1.3682	8.3736
221	SLV 5	18.36	4.76	50.73	-10.309	0.6236	4.1458
221	SLV 6	18.36	4.76	50.73	-10.309	0.6236	4.1458
221	SLV 7	23.29	-22.94	136.26	-13.3307	0.8225	5.1333
221	SLV 8	23.29	-22.94	136.26	-13.3307	0.8225	5.1333
221	SLV 9	4.67	9.59	-0.05	-3.514	0.0961	1.0721
221	SLV 10	4.67	9.59	-0.05	-3.514	0.0961	1.0721
221	SLV 11	9.59	-18.11	85.48	-6.5356	0.295	2.0596
221	SLV 12	9.59	-18.11	85.48	-6.5356	0.295	2.0596
221	SLV 13	-9.59	5.52	-29.35	3.356	-0.4496	-2.1682
221	SLV 14	-9.59	5.52	-29.35	3.356	-0.4496	-2.1682
221	SLV 15	-8.11	-2.79	-3.69	2.4495	-0.39	-1.872
221	SLV 16	-8.11	-2.79	-3.69	2.4495	-0.39	-1.872
222	SLU 1	-0.12	-3	62.68	0.1028	-0.0392	-0.0005
222	SLU 2	-0.13	-2.58	63.17	0.0851	-0.0475	-0.0005
222	SLU 3	-0.12	-3.16	64.48	0.1082	-0.0408	-0.0005
222	SLU 4	-0.13	-2.91	64.77	0.0976	-0.0457	-0.0005
222	SLU 5	-0.13	-2.68	64.13	0.0886	-0.0484	-0.0005
222	SLU 6	-0.13	-3.26	65.44	0.1117	-0.0417	-0.0005
222	SLU 7	-0.13	-3.01	65.73	0.1011	-0.0467	-0.0005
222	SLU 8	-0.12	-3.2	64.6	0.1097	-0.041	-0.0005
222	SLU 9	-0.13	-2.95	64.9	0.0991	-0.046	-0.0005
222	SLU 10	-0.15	-3.34	71.93	0.11	-0.0559	-0.0005
222	SLU 11	-0.15	-3.92	73.23	0.1331	-0.0492	-0.0006
222	SLU 12	-0.15	-3.67	73.53	0.1225	-0.0542	-0.0006
222	SLU 13	-0.16	-3.44	72.89	0.1135	-0.0568	-0.0006
222	SLU 14	-0.15	-4.02	74.2	0.1366	-0.0501	-0.0006
222	SLU 15	-0.16	-3.77	74.49	0.126	-0.0551	-0.0006
222	SLU 16	-0.15	-3.96	73.36	0.1346	-0.0494	-0.0006
222	SLU 17	-0.15	-3.71	73.66	0.124	-0.0544	-0.0006
222	SLU 18	-0.15	-4.08	75.19	0.1383	-0.0512	-0.0006



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
222	SLU 19	-0.16	-3.83	75.48	0.1277	-0.0562	-0.0006
222	SLU 20	-0.16	-4.18	76.15	0.1418	-0.0521	-0.0006
222	SLU 21	-0.16	-3.93	76.45	0.1312	-0.0571	-0.0006
222	SLU 22	-0.14	-3.71	71.05	0.1264	-0.0468	-0.0006
222	SLU 23	-0.15	-3.29	71.54	0.1087	-0.0551	-0.0005
222	SLU 24	-0.14	-3.87	72.85	0.1318	-0.0483	-0.0006
222	SLU 25	-0.15	-3.61	73.14	0.1212	-0.0533	-0.0006
222	SLU 26	-0.15	-3.39	72.5	0.1122	-0.056	-0.0005
222	SLU 27	-0.15	-3.97	73.81	0.1353	-0.0493	-0.0006
222	SLU 28	-0.15	-3.71	74.11	0.1247	-0.0543	-0.0006
222	SLU 29	-0.15	-3.91	72.98	0.1333	-0.0486	-0.0006
222	SLU 30	-0.15	-3.66	73.27	0.1227	-0.0536	-0.0006
222	SLU 31	-0.18	-4.05	80.3	0.1336	-0.0635	-0.0006
222	SLU 32	-0.17	-4.62	81.6	0.1567	-0.0568	-0.0007
222	SLU 33	-0.18	-4.37	81.9	0.1461	-0.0618	-0.0007
222	SLU 34	-0.18	-4.15	81.26	0.1371	-0.0644	-0.0006
222	SLU 35	-0.17	-4.72	82.57	0.1602	-0.0577	-0.0007
222	SLU 36	-0.18	-4.47	82.86	0.1496	-0.0627	-0.0007
222	SLU 37	-0.17	-4.66	81.73	0.1582	-0.057	-0.0007
222	SLU 38	-0.18	-4.41	82.03	0.1476	-0.062	-0.0007
222	SLU 39	-0.17	-4.79	83.56	0.162	-0.0588	-0.0007
222	SLU 40	-0.18	-4.54	83.86	0.1513	-0.0638	-0.0007
222	SLU 41	-0.18	-4.89	84.52	0.1654	-0.0597	-0.0007
222	SLU 42	-0.18	-4.64	84.82	0.1548	-0.0647	-0.0007
222	SLU 43	-0.15	-3.66	78.61	0.1255	-0.0483	-0.0006
222	SLU 44	-0.16	-3.24	79.1	0.1078	-0.0566	-0.0006
222	SLU 45	-0.15	-3.82	80.41	0.1309	-0.0499	-0.0006
222	SLU 46	-0.16	-3.57	80.7	0.1203	-0.0549	-0.0006
222	SLU 47	-0.16	-3.34	80.07	0.1113	-0.0575	-0.0006
222	SLU 48	-0.15	-3.92	81.37	0.1344	-0.0508	-0.0006
222	SLU 49	-0.16	-3.67	81.67	0.1238	-0.0558	-0.0006
222	SLU 50	-0.15	-3.86	80.54	0.1324	-0.0501	-0.0006
222	SLU 51	-0.16	-3.61	80.83	0.1218	-0.0551	-0.0006
222	SLU 52	-0.18	-4	87.86	0.1327	-0.0651	-0.0007
222	SLU 53	-0.17	-4.58	89.17	0.1558	-0.0583	-0.0007
222	SLU 54	-0.18	-4.32	89.46	0.1452	-0.0633	-0.0007
222	SLU 55	-0.19	-4.1	88.82	0.1362	-0.066	-0.0007
222	SLU 56	-0.18	-4.68	90.13	0.1593	-0.0592	-0.0007
222	SLU 57	-0.18	-4.42	90.42	0.1487	-0.0642	-0.0007
222	SLU 58	-0.18	-4.62	89.3	0.1574	-0.0586	-0.0007
222	SLU 59	-0.18	-4.37	89.59	0.1468	-0.0635	-0.0007
222	SLU 60	-0.18	-4.74	91.12	0.1611	-0.0603	-0.0007
222	SLU 61	-0.19	-4.49	91.42	0.1505	-0.0653	-0.0007
222	SLU 62	-0.18	-4.84	92.09	0.1646	-0.0613	-0.0007
222	SLU 63	-0.19	-4.59	92.38	0.154	-0.0662	-0.0007
222	SLU 64	-0.17	-4.37	86.98	0.1491	-0.0559	-0.0007
222	SLU 65	-0.18	-3.95	87.47	0.1314	-0.0642	-0.0006
222	SLU 66	-0.17	-4.52	88.78	0.1545	-0.0575	-0.0007
222	SLU 67	-0.18	-4.27	89.07	0.1439	-0.0625	-0.0007
222	SLU 68	-0.18	-4.05	88.44	0.1349	-0.0651	-0.0007
222	SLU 69	-0.18	-4.62	89.74	0.158	-0.0584	-0.0007
222	SLU 70	-0.18	-4.37	90.04	0.1474	-0.0634	-0.0007
222	SLU 71	-0.17	-4.57	88.91	0.1561	-0.0577	-0.0007
222	SLU 72	-0.18	-4.31	89.2	0.1454	-0.0627	-0.0007
222	SLU 73	-0.2	-4.71	96.23	0.1563	-0.0726	-0.0007
222	SLU 74	-0.2	-5.28	97.54	0.1795	-0.0659	-0.0008
222	SLU 75	-0.2	-5.03	97.83	0.1688	-0.0709	-0.0008
222	SLU 76	-0.21	-4.81	97.19	0.1598	-0.0736	-0.0008
222	SLU 77	-0.2	-5.38	98.5	0.1829	-0.0668	-0.0008
222	SLU 78	-0.21	-5.13	98.8	0.1723	-0.0718	-0.0008
222	SLU 79	-0.2	-5.32	97.67	0.181	-0.0661	-0.0008
222	SLU 80	-0.2	-5.07	97.96	0.1704	-0.0711	-0.0008
222	SLU 81	-0.2	-5.45	99.49	0.1847	-0.0679	-0.0008
222	SLU 82	-0.21	-5.2	99.79	0.1741	-0.0729	-0.0008
222	SLU 83	-0.21	-5.55	100.46	0.1882	-0.0688	-0.0008
222	SLU 84	-0.21	-5.3	100.75	0.1776	-0.0738	-0.0008
222	SLE RA 1	-0.12	-3.2	65.07	0.1095	-0.0413	-0.0005
222	SLE RA 2	-0.13	-2.92	65.4	0.0977	-0.0469	-0.0005
222	SLE RA 3	-0.13	-3.31	66.27	0.1131	-0.0424	-0.0005
222	SLE RA 4	-0.13	-3.14	66.46	0.1061	-0.0457	-0.0005
222	SLE RA 5	-0.13	-2.99	66.04	0.1	-0.0475	-0.0005
222	SLE RA 6	-0.13	-3.38	66.91	0.1154	-0.043	-0.0005
222	SLE RA 7	-0.13	-3.21	67.11	0.1084	-0.0463	-0.0005
222	SLE RA 8	-0.13	-3.34	66.35	0.1141	-0.0426	-0.0005
222	SLE RA 9	-0.13	-3.17	66.55	0.1071	-0.0459	-0.0005
222	SLE RA 10	-0.15	-3.43	71.24	0.1143	-0.0525	-0.0005
222	SLE RA 11	-0.14	-3.81	72.11	0.1297	-0.048	-0.0006
222	SLE RA 12	-0.15	-3.65	72.3	0.1227	-0.0513	-0.0006
222	SLE RA 13	-0.15	-3.5	71.88	0.1166	-0.0531	-0.0006
222	SLE RA 14	-0.15	-3.88	72.75	0.1321	-0.0486	-0.0006
222	SLE RA 15	-0.15	-3.71	72.95	0.125	-0.0519	-0.0006
222	SLE RA 16	-0.14	-3.84	72.19	0.1307	-0.0482	-0.0006
222	SLE RA 17	-0.15	-3.67	72.39	0.1237	-0.0515	-0.0006
222	SLE RA 18	-0.15	-3.93	73.41	0.1332	-0.0494	-0.0006
222	SLE RA 19	-0.15	-3.76	73.61	0.1262	-0.0527	-0.0006
222	SLE RA 20	-0.15	-3.99	74.05	0.1355	-0.05	-0.0006
222	SLE RA 21	-0.15	-3.82	74.25	0.1285	-0.0533	-0.0006
222	SLE FR 1	-0.12	-3.2	65.07	0.1095	-0.0413	-0.0005
222	SLE FR 2	-0.13	-3.15	65.13	0.1071	-0.0424	-0.0005





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
222	SLE FR 3	-0.13	-3.23	65.33	0.1104	-0.0416	-0.0005
222	SLE FR 4	-0.13	-3.36	67.64	0.1143	-0.0449	-0.0005
222	SLE FR 5	-0.13	-3.45	67.83	0.1175	-0.044	-0.0005
222	SLE FR 6	-0.14	-3.56	69.24	0.1214	-0.0453	-0.0005
222	SLE QP 1	-0.12	-3.2	65.07	0.1095	-0.0413	-0.0005
222	SLE QP 2	-0.13	-3.42	67.57	0.1166	-0.0437	-0.0005
222	SLD 1	0.03	2.29	45.16	-0.0943	0.0239	-0.0002
222	SLD 2	0.03	2.29	45.16	-0.0943	0.0239	-0.0002
222	SLD 3	-0.05	-3.19	46.81	0.1341	-0.023	-0.0001
222	SLD 4	-0.05	-3.19	46.81	0.1341	-0.023	-0.0001
222	SLD 5	0.04	6.61	58.34	-0.2932	0.0476	-0.0006
222	SLD 6	0.04	6.61	58.34	-0.2932	0.0476	-0.0006
222	SLD 7	-0.23	-11.67	63.85	0.4684	-0.1085	-0.0003
222	SLD 8	-0.23	-11.67	63.85	0.4684	-0.1085	-0.0003
222	SLD 9	-0.03	4.83	71.29	-0.2351	0.0211	-0.0008
222	SLD 10	-0.03	4.83	71.29	-0.2351	0.0211	-0.0008
222	SLD 11	-0.3	-13.45	76.8	0.5264	-0.1351	-0.0005
222	SLD 12	-0.3	-13.45	76.8	0.5264	-0.1351	-0.0005
222	SLD 13	-0.21	-3.65	88.33	0.0991	-0.0645	-0.0009
222	SLD 14	-0.21	-3.65	88.33	0.0991	-0.0645	-0.0009
222	SLD 15	-0.29	-9.14	89.99	0.3276	-0.1114	-0.0008
222	SLD 16	-0.29	-9.14	89.99	0.3276	-0.1114	-0.0008
222	SLV 1	0.25	9.64	16.28	-0.3654	0.1179	0.0002
222	SLV 2	0.25	9.64	16.28	-0.3654	0.1179	0.0002
222	SLV 3	0.05	-2.98	20.12	0.1601	-0.0017	0.0005
222	SLV 4	0.05	-2.98	20.12	0.1601	-0.0017	0.0005
222	SLV 5	0.29	19.63	46.37	-0.8249	0.1861	-0.0006
222	SLV 6	0.29	19.63	46.37	-0.8249	0.1861	-0.0006
222	SLV 7	-0.39	-22.42	59.15	0.9266	-0.2125	0.0001
222	SLV 8	-0.39	-22.42	59.15	0.9266	-0.2125	0.0001
222	SLV 9	0.12	15.58	75.99	-0.6933	0.125	-0.0012
222	SLV 10	0.12	15.58	75.99	-0.6933	0.125	-0.0012
222	SLV 11	-0.55	-26.47	88.77	1.0581	-0.2736	-0.0004
222	SLV 12	-0.55	-26.47	88.77	1.0581	-0.2736	-0.0004
222	SLV 13	-0.31	-3.86	115.02	0.0732	-0.0858	-0.0015
222	SLV 14	-0.31	-3.86	115.02	0.0732	-0.0858	-0.0015
222	SLV 15	-0.51	-16.48	118.86	0.5986	-0.2054	-0.0013
222	SLV 16	-0.51	-16.48	118.86	0.5986	-0.2054	-0.0013
223	SLU 1	-0.02	-2.6	58.49	0.0885	-0.0162	0.0002
223	SLU 2	-0.04	-2.15	58.62	0.0668	-0.0309	0.0002
223	SLU 3	-0.02	-2.74	60.05	0.0929	-0.0169	0.0002
223	SLU 4	-0.03	-2.47	60.12	0.0799	-0.0257	0.0002
223	SLU 5	-0.04	-2.24	59.42	0.0693	-0.0312	0.0002
223	SLU 6	-0.02	-2.83	60.85	0.0955	-0.0172	0.0002
223	SLU 7	-0.03	-2.55	60.92	0.0824	-0.026	0.0002
223	SLU 8	-0.02	-2.77	60.09	0.0936	-0.0169	0.0002
223	SLU 9	-0.03	-2.5	60.17	0.0806	-0.0257	0.0002
223	SLU 10	-0.04	-2.82	66.25	0.0897	-0.0346	0.0002
223	SLU 11	-0.03	-3.41	67.67	0.1159	-0.0206	0.0002
223	SLU 12	-0.04	-3.14	67.75	0.1029	-0.0294	0.0002
223	SLU 13	-0.04	-2.9	67.05	0.0923	-0.0349	0.0002
223	SLU 14	-0.03	-3.49	68.48	0.1184	-0.021	0.0002
223	SLU 15	-0.04	-3.22	68.55	0.1054	-0.0297	0.0002
223	SLU 16	-0.03	-3.44	67.72	0.1165	-0.0206	0.0002
223	SLU 17	-0.04	-3.17	67.8	0.1035	-0.0294	0.0002
223	SLU 18	-0.03	-3.56	69.39	0.1213	-0.0216	0.0002
223	SLU 19	-0.04	-3.29	69.46	0.1083	-0.0303	0.0002
223	SLU 20	-0.03	-3.64	70.19	0.1238	-0.0219	0.0002
223	SLU 21	-0.04	-3.37	70.26	0.1108	-0.0307	0.0002
223	SLU 22	-0.02	-3.23	65.83	0.1098	-0.0195	0.0002
223	SLU 23	-0.04	-2.77	65.96	0.0881	-0.0342	0.0002
223	SLU 24	-0.03	-3.37	67.39	0.1143	-0.0202	0.0002
223	SLU 25	-0.04	-3.09	67.47	0.1013	-0.029	0.0002
223	SLU 26	-0.04	-2.86	66.76	0.0907	-0.0345	0.0002
223	SLU 27	-0.03	-3.45	68.19	0.1168	-0.0205	0.0002
223	SLU 28	-0.04	-3.18	68.27	0.1038	-0.0293	0.0002
223	SLU 29	-0.03	-3.4	67.43	0.1149	-0.0202	0.0002
223	SLU 30	-0.04	-3.13	67.51	0.1019	-0.029	0.0002
223	SLU 31	-0.05	-3.44	73.59	0.1111	-0.0379	0.0002
223	SLU 32	-0.03	-4.03	75.02	0.1372	-0.0239	0.0002
223	SLU 33	-0.04	-3.76	75.1	0.1242	-0.0327	0.0002
223	SLU 34	-0.05	-3.53	74.39	0.1137	-0.0382	0.0002
223	SLU 35	-0.03	-4.12	75.82	0.1398	-0.0243	0.0002
223	SLU 36	-0.04	-3.85	75.9	0.1268	-0.033	0.0002
223	SLU 37	-0.03	-4.06	75.06	0.1379	-0.0239	0.0002
223	SLU 38	-0.04	-3.79	75.14	0.1249	-0.0327	0.0002
223	SLU 39	-0.03	-4.18	76.73	0.1426	-0.0249	0.0002
223	SLU 40	-0.04	-3.91	76.81	0.1296	-0.0336	0.0002
223	SLU 41	-0.03	-4.27	77.53	0.1452	-0.0252	0.0003
223	SLU 42	-0.04	-3.99	77.61	0.1322	-0.034	0.0002
223	SLU 43	-0.03	-3.17	73.51	0.1077	-0.02	0.0002
223	SLU 44	-0.04	-2.72	73.64	0.086	-0.0346	0.0002
223	SLU 45	-0.03	-3.31	75.07	0.1121	-0.0206	0.0002
223	SLU 46	-0.04	-3.04	75.15	0.0991	-0.0294	0.0002
223	SLU 47	-0.05	-2.8	74.45	0.0885	-0.0349	0.0002
223	SLU 48	-0.03	-3.4	75.87	0.1147	-0.021	0.0002
223	SLU 49	-0.04	-3.12	75.95	0.1017	-0.0297	0.0002
223	SLU 50	-0.03	-3.34	75.12	0.1128	-0.0206	0.0002
223	SLU 51	-0.04	-3.07	75.19	0.0998	-0.0294	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
223	SLU 52	-0.05	-3.39	81.27	0.109	-0.0383	0.0002
223	SLU 53	-0.03	-3.98	82.7	0.1351	-0.0243	0.0002
223	SLU 54	-0.04	-3.71	82.78	0.1221	-0.0331	0.0002
223	SLU 55	-0.05	-3.47	82.07	0.1115	-0.0387	0.0002
223	SLU 56	-0.03	-4.06	83.5	0.1376	-0.0247	0.0003
223	SLU 57	-0.04	-3.79	83.58	0.1246	-0.0335	0.0003
223	SLU 58	-0.03	-4.01	82.75	0.1358	-0.0244	0.0003
223	SLU 59	-0.04	-3.74	82.82	0.1227	-0.0332	0.0002
223	SLU 60	-0.03	-4.13	84.41	0.1405	-0.0253	0.0003
223	SLU 61	-0.04	-3.85	84.49	0.1275	-0.0341	0.0003
223	SLU 62	-0.03	-4.21	85.21	0.143	-0.0256	0.0003
223	SLU 63	-0.04	-3.94	85.29	0.13	-0.0344	0.0003
223	SLU 64	-0.03	-3.8	80.86	0.129	-0.0233	0.0002
223	SLU 65	-0.05	-3.34	80.99	0.1073	-0.0379	0.0002
223	SLU 66	-0.03	-3.93	82.42	0.1335	-0.0239	0.0002
223	SLU 67	-0.04	-3.66	82.5	0.1205	-0.0327	0.0002
223	SLU 68	-0.05	-3.43	81.79	0.1099	-0.0382	0.0002
223	SLU 69	-0.03	-4.02	83.22	0.136	-0.0243	0.0003
223	SLU 70	-0.04	-3.75	83.3	0.123	-0.033	0.0002
223	SLU 71	-0.03	-3.97	82.46	0.1342	-0.0239	0.0002
223	SLU 72	-0.04	-3.69	82.54	0.1211	-0.0327	0.0002
223	SLU 73	-0.05	-4.01	88.62	0.1303	-0.0416	0.0003
223	SLU 74	-0.03	-4.6	90.05	0.1565	-0.0276	0.0003
223	SLU 75	-0.05	-4.33	90.12	0.1434	-0.0364	0.0003
223	SLU 76	-0.05	-4.09	89.42	0.1329	-0.042	0.0003
223	SLU 77	-0.04	-4.69	90.85	0.159	-0.028	0.0003
223	SLU 78	-0.05	-4.41	90.93	0.146	-0.0368	0.0003
223	SLU 79	-0.04	-4.63	90.09	0.1571	-0.0277	0.0003
223	SLU 80	-0.05	-4.36	90.17	0.1441	-0.0365	0.0003
223	SLU 81	-0.04	-4.75	91.76	0.1619	-0.0286	0.0003
223	SLU 82	-0.05	-4.48	91.84	0.1488	-0.0374	0.0003
223	SLU 83	-0.04	-4.83	92.56	0.1644	-0.0289	0.0003
223	SLU 84	-0.05	-4.56	92.64	0.1514	-0.0377	0.0003
223	SLE RA 1	-0.02	-2.78	60.59	0.0946	-0.0172	0.0002
223	SLE RA 2	-0.03	-2.48	60.67	0.0801	-0.0269	0.0002
223	SLE RA 3	-0.02	-2.87	61.62	0.0975	-0.0176	0.0002
223	SLE RA 4	-0.03	-2.69	61.68	0.0888	-0.0235	0.0002
223	SLE RA 5	-0.04	-2.54	61.21	0.0818	-0.0271	0.0002
223	SLE RA 6	-0.02	-2.93	62.16	0.0992	-0.0178	0.0002
223	SLE RA 7	-0.03	-2.75	62.21	0.0906	-0.0237	0.0002
223	SLE RA 8	-0.02	-2.9	61.65	0.098	-0.0176	0.0002
223	SLE RA 9	-0.03	-2.71	61.71	0.0893	-0.0235	0.0002
223	SLE RA 10	-0.04	-2.93	65.76	0.0954	-0.0294	0.0002
223	SLE RA 11	-0.03	-3.32	66.71	0.1128	-0.0201	0.0002
223	SLE RA 12	-0.03	-3.14	66.76	0.1042	-0.0259	0.0002
223	SLE RA 13	-0.04	-2.98	66.29	0.0971	-0.0296	0.0002
223	SLE RA 14	-0.03	-3.38	67.24	0.1145	-0.0203	0.0002
223	SLE RA 15	-0.03	-3.19	67.3	0.1059	-0.0262	0.0002
223	SLE RA 16	-0.03	-3.34	66.74	0.1133	-0.0201	0.0002
223	SLE RA 17	-0.03	-3.16	66.79	0.1046	-0.026	0.0002
223	SLE RA 18	-0.03	-3.42	67.85	0.1164	-0.0207	0.0002
223	SLE RA 19	-0.03	-3.24	67.9	0.1078	-0.0266	0.0002
223	SLE RA 20	-0.03	-3.47	68.38	0.1181	-0.0209	0.0002
223	SLE RA 21	-0.03	-3.29	68.44	0.1095	-0.0268	0.0002
223	SLE FR 1	-0.02	-2.78	60.59	0.0946	-0.0172	0.0002
223	SLE FR 2	-0.02	-2.72	60.6	0.0917	-0.0191	0.0002
223	SLE FR 3	-0.02	-2.81	60.8	0.0952	-0.0173	0.0002
223	SLE FR 4	-0.03	-2.91	62.78	0.0982	-0.0202	0.0002
223	SLE FR 5	-0.02	-3	62.98	0.1018	-0.0183	0.0002
223	SLE FR 6	-0.02	-3.1	64.22	0.1055	-0.0189	0.0002
223	SLE QP 1	-0.02	-2.78	60.59	0.0946	-0.0172	0.0002
223	SLE QP 2	-0.02	-2.97	62.77	0.1011	-0.0182	0.0002
223	SLD 1	-0.04	2.14	45	-0.0988	0.0784	0
223	SLD 2	-0.04	2.14	45	-0.0988	0.0784	0
223	SLD 3	-0.15	-3.38	47.04	0.1318	-0.0015	-0.0001
223	SLD 4	-0.15	-3.38	47.04	0.1318	-0.0015	-0.0001
223	SLD 5	0.14	6.92	54.33	-0.3087	0.1319	0.0002
223	SLD 6	0.14	6.92	54.33	-0.3087	0.1319	0.0002
223	SLD 7	-0.23	-11.45	61.15	0.4601	-0.1344	0
223	SLD 8	-0.23	-11.45	61.15	0.4601	-0.1344	0
223	SLD 9	0.18	5.51	64.38	-0.2579	0.0979	0.0004
223	SLD 10	0.18	5.51	64.38	-0.2579	0.0979	0.0004
223	SLD 11	-0.19	-12.87	71.2	0.5109	-0.1684	0.0002
223	SLD 12	-0.19	-12.87	71.2	0.5109	-0.1684	0.0002
223	SLD 13	0.1	-2.57	78.49	0.0704	-0.035	0.0005
223	SLD 14	0.1	-2.57	78.49	0.0704	-0.035	0.0005
223	SLD 15	-0.01	-8.08	80.53	0.3011	-0.1149	0.0004
223	SLD 16	-0.01	-8.08	80.53	0.3011	-0.1149	0.0004
223	SLV 1	-0.05	8.7	22.06	-0.3558	0.2186	-0.0004
223	SLV 2	-0.05	8.7	22.06	-0.3558	0.2186	-0.0004
223	SLV 3	-0.34	-3.98	26.81	0.1746	0.0144	-0.0005
223	SLV 4	-0.34	-3.98	26.81	0.1746	0.0144	-0.0005
223	SLV 5	0.4	19.76	43.34	-0.8404	0.3624	0.0002
223	SLV 6	0.4	19.76	43.34	-0.8404	0.3624	0.0002
223	SLV 7	-0.55	-22.51	59.19	0.9276	-0.318	-0.0002
223	SLV 8	-0.55	-22.51	59.19	0.9276	-0.318	-0.0002
223	SLV 9	0.5	16.56	66.34	-0.7253	0.2815	0.0006
223	SLV 10	0.5	16.56	66.34	-0.7253	0.2815	0.0006
223	SLV 11	-0.45	-25.71	82.19	1.0426	-0.3988	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
223	SLV 12	-0.45	-25.71	82.19	1.0426	-0.3988	0.0002
223	SLV 13	0.29	-1.97	98.72	0.0277	-0.0509	0.0009
223	SLV 14	0.29	-1.97	98.72	0.0277	-0.0509	0.0009
223	SLV 15	0.01	-14.65	103.47	0.5581	-0.255	0.0007
223	SLV 16	0.01	-14.65	103.47	0.5581	-0.255	0.0007
224	SLU 1	0	7.69	28.55	-0.2105	0.0006	-0.0001
224	SLU 2	0	7.63	28.26	-0.2093	0.0004	-0.0001
224	SLU 3	0	8.06	29.9	-0.2214	0.0007	-0.0001
224	SLU 4	0	8.03	29.73	-0.2207	0.0005	-0.0001
224	SLU 5	0	7.97	29.46	-0.2198	0.0004	-0.0001
224	SLU 6	0	8.4	31.1	-0.2319	0.0008	-0.0001
224	SLU 7	0	8.36	30.92	-0.2312	0.0006	-0.0001
224	SLU 8	0	8.36	30.94	-0.2316	0.0007	-0.0001
224	SLU 9	0	8.33	30.77	-0.2308	0.0006	-0.0001
224	SLU 10	0	8.96	33.38	-0.2448	0.0006	-0.0001
224	SLU 11	0	9.39	35.02	-0.257	0.0009	-0.0002
224	SLU 12	0	9.35	34.85	-0.2562	0.0007	-0.0001
224	SLU 13	0	9.3	34.58	-0.2553	0.0006	-0.0001
224	SLU 14	0	9.72	36.21	-0.2675	0.0009	-0.0002
224	SLU 15	0	9.69	36.04	-0.2668	0.0008	-0.0001
224	SLU 16	0	9.69	36.06	-0.2671	0.0009	-0.0002
224	SLU 17	0	9.66	35.89	-0.2664	0.0008	-0.0001
224	SLU 18	0	9.59	35.86	-0.2613	0.0009	-0.0002
224	SLU 19	0	9.55	35.69	-0.2605	0.0008	-0.0001
224	SLU 20	0	9.92	37.06	-0.2718	0.001	-0.0002
224	SLU 21	0	9.89	36.88	-0.2711	0.0008	-0.0001
224	SLU 22	0	9	33.51	-0.2461	0.0008	-0.0001
224	SLU 23	0	8.94	33.23	-0.2449	0.0006	-0.0001
224	SLU 24	0	9.37	34.87	-0.257	0.0009	-0.0001
224	SLU 25	0	9.33	34.69	-0.2563	0.0007	-0.0001
224	SLU 26	0	9.27	34.42	-0.2554	0.0006	-0.0001
224	SLU 27	0	9.7	36.06	-0.2676	0.0009	-0.0002
224	SLU 28	0	9.67	35.89	-0.2668	0.0008	-0.0001
224	SLU 29	0	9.67	35.9	-0.2672	0.0009	-0.0002
224	SLU 30	0	9.63	35.73	-0.2665	0.0008	-0.0001
224	SLU 31	0	10.26	38.35	-0.2804	0.0007	-0.0001
224	SLU 32	0	10.69	39.98	-0.2926	0.0011	-0.0002
224	SLU 33	0	10.66	39.81	-0.2919	0.0009	-0.0002
224	SLU 34	0	10.6	39.54	-0.291	0.0008	-0.0001
224	SLU 35	0	11.03	41.18	-0.3031	0.0011	-0.0002
224	SLU 36	0	10.99	41.01	-0.3024	0.001	-0.0002
224	SLU 37	0	10.99	41.02	-0.3027	0.0011	-0.0002
224	SLU 38	0	10.96	40.85	-0.302	0.001	-0.0002
224	SLU 39	0	10.89	40.83	-0.2969	0.0011	-0.0002
224	SLU 40	0	10.85	40.65	-0.2962	0.0009	-0.0002
224	SLU 41	0	11.23	42.02	-0.3074	0.0011	-0.0002
224	SLU 42	0	11.19	41.85	-0.3067	0.001	-0.0002
224	SLU 43	0	9.55	35.41	-0.2614	0.0008	-0.0001
224	SLU 44	0	9.49	35.13	-0.2602	0.0005	-0.0001
224	SLU 45	0	9.92	36.76	-0.2723	0.0008	-0.0001
224	SLU 46	0	9.89	36.59	-0.2716	0.0007	-0.0001
224	SLU 47	0	9.83	36.32	-0.2707	0.0006	-0.0001
224	SLU 48	0	10.26	37.96	-0.2829	0.0009	-0.0001
224	SLU 49	0	10.22	37.79	-0.2821	0.0007	-0.0001
224	SLU 50	0	10.23	37.8	-0.2825	0.0009	-0.0001
224	SLU 51	0	10.19	37.63	-0.2817	0.0007	-0.0001
224	SLU 52	0	10.82	40.25	-0.2957	0.0007	-0.0001
224	SLU 53	0	11.25	41.88	-0.3079	0.001	-0.0002
224	SLU 54	0	11.21	41.71	-0.3071	0.0009	-0.0002
224	SLU 55	0	11.16	41.44	-0.3063	0.0007	-0.0001
224	SLU 56	0	11.58	43.08	-0.3184	0.0011	-0.0002
224	SLU 57	0	11.55	42.91	-0.3177	0.0009	-0.0002
224	SLU 58	0	11.55	42.92	-0.318	0.0011	-0.0002
224	SLU 59	0	11.52	42.75	-0.3173	0.0009	-0.0002
224	SLU 60	0	11.45	42.73	-0.3122	0.001	-0.0002
224	SLU 61	0	11.41	42.55	-0.3115	0.0009	-0.0002
224	SLU 62	0	11.78	43.92	-0.3227	0.0011	-0.0002
224	SLU 63	0	11.75	43.75	-0.322	0.0009	-0.0002
224	SLU 64	0	10.86	40.38	-0.297	0.0009	-0.0002
224	SLU 65	0	10.8	40.09	-0.2958	0.0007	-0.0001
224	SLU 66	0	11.23	41.73	-0.308	0.001	-0.0002
224	SLU 67	0	11.19	41.56	-0.3072	0.0009	-0.0001
224	SLU 68	0	11.13	41.29	-0.3064	0.0007	-0.0001
224	SLU 69	0	11.56	42.92	-0.3185	0.0011	-0.0002
224	SLU 70	0	11.53	42.75	-0.3178	0.0009	-0.0002
224	SLU 71	0	11.53	42.76	-0.3181	0.001	-0.0002
224	SLU 72	0	11.49	42.59	-0.3174	0.0009	-0.0002
224	SLU 73	0	12.12	45.21	-0.3314	0.0009	-0.0002
224	SLU 74	0	12.55	46.85	-0.3435	0.0012	-0.0002
224	SLU 75	0	12.52	46.68	-0.3428	0.001	-0.0002
224	SLU 76	0	12.46	46.4	-0.3419	0.0009	-0.0002
224	SLU 77	0	12.89	48.04	-0.3541	0.0012	-0.0002
224	SLU 78	0	12.85	47.87	-0.3533	0.0011	-0.0002
224	SLU 79	0	12.85	47.88	-0.3537	0.0012	-0.0002
224	SLU 80	0	12.82	47.71	-0.3529	0.0011	-0.0002
224	SLU 81	0	12.75	47.69	-0.3478	0.0012	-0.0002
224	SLU 82	0	12.72	47.52	-0.3471	0.0011	-0.0002
224	SLU 83	0	13.09	48.88	-0.3584	0.0013	-0.0002
224	SLU 84	0	13.05	48.71	-0.3576	0.0011	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
224	SLE RA 1	0	8.06	29.97	-0.2207	0.0007	-0.0001
224	SLE RA 2	0	8.03	29.78	-0.2198	0.0005	-0.0001
224	SLE RA 3	0	8.31	30.87	-0.2279	0.0007	-0.0001
224	SLE RA 4	0	8.29	30.76	-0.2275	0.0006	-0.0001
224	SLE RA 5	0	8.25	30.57	-0.2269	0.0005	-0.0001
224	SLE RA 6	0	8.53	31.67	-0.235	0.0008	-0.0001
224	SLE RA 7	0	8.51	31.55	-0.2345	0.0007	-0.0001
224	SLE RA 8	0	8.51	31.56	-0.2347	0.0008	-0.0001
224	SLE RA 9	0	8.49	31.45	-0.2342	0.0007	-0.0001
224	SLE RA 10	0	8.91	33.19	-0.2435	0.0006	-0.0001
224	SLE RA 11	0	9.19	34.28	-0.2516	0.0009	-0.0001
224	SLE RA 12	0	9.17	34.17	-0.2512	0.0008	-0.0001
224	SLE RA 13	0	9.13	33.99	-0.2506	0.0007	-0.0001
224	SLE RA 14	0	9.42	35.08	-0.2587	0.0009	-0.0002
224	SLE RA 15	0	9.4	34.96	-0.2582	0.0008	-0.0001
224	SLE RA 16	0	9.4	34.97	-0.2584	0.0009	-0.0001
224	SLE RA 17	0	9.37	34.86	-0.2579	0.0008	-0.0001
224	SLE RA 18	0	9.33	34.84	-0.2545	0.0009	-0.0001
224	SLE RA 19	0	9.3	34.73	-0.254	0.0008	-0.0001
224	SLE RA 20	0	9.55	35.64	-0.2615	0.0009	-0.0002
224	SLE RA 21	0	9.53	35.52	-0.2611	0.0008	-0.0001
224	SLE FR 1	0	8.06	29.97	-0.2207	0.0007	-0.0001
224	SLE FR 2	0	8.06	29.93	-0.2205	0.0007	-0.0001
224	SLE FR 3	0	8.15	30.29	-0.2235	0.0007	-0.0001
224	SLE FR 4	0	8.44	31.39	-0.2307	0.0007	-0.0001
224	SLE FR 5	0	8.53	31.75	-0.2336	0.0008	-0.0001
224	SLE FR 6	0	8.7	32.41	-0.2376	0.0008	-0.0001
224	SLE QP 1	0	8.06	29.97	-0.2207	0.0007	-0.0001
224	SLE QP 2	0	8.44	31.43	-0.2308	0.0007	-0.0001
224	SLD 1	-0.29	9.09	33.42	-0.255	0.0511	-0.0057
224	SLD 2	-0.29	9.09	33.42	-0.255	0.0511	-0.0057
224	SLD 3	-0.34	4.57	20.78	-0.0888	0.0398	-0.004
224	SLD 4	-0.34	4.57	20.78	-0.0888	0.0398	-0.004
224	SLD 5	0	15.49	51.19	-0.4902	0.0329	-0.0044
224	SLD 6	0	15.49	51.19	-0.4902	0.0329	-0.0044
224	SLD 7	-0.18	0.42	9.07	0.0638	-0.0046	0.0013
224	SLD 8	-0.18	0.42	9.07	0.0638	-0.0046	0.0013
224	SLD 9	0.19	16.46	53.79	-0.5255	0.0061	-0.0016
224	SLD 10	0.19	16.46	53.79	-0.5255	0.0061	-0.0016
224	SLD 11	0.01	1.39	11.67	0.0285	-0.0314	0.0041
224	SLD 12	0.01	1.39	11.67	0.0285	-0.0314	0.0041
224	SLD 13	0.35	12.32	42.08	-0.3728	-0.0383	0.0037
224	SLD 14	0.35	12.32	42.08	-0.3728	-0.0383	0.0037
224	SLD 15	0.29	7.8	29.44	-0.2066	-0.0496	0.0054
224	SLD 16	0.29	7.8	29.44	-0.2066	-0.0496	0.0054
224	SLV 1	-0.74	9.9	35.91	-0.2852	0.1287	-0.0142
224	SLV 2	-0.74	9.9	35.91	-0.2852	0.1287	-0.0142
224	SLV 3	-0.88	-0.52	6.79	0.0973	0.1	-0.0098
224	SLV 4	-0.88	-0.52	6.79	0.0973	0.1	-0.0098
224	SLV 5	-0.01	24.67	76.94	-0.8274	0.0827	-0.011
224	SLV 6	-0.01	24.67	76.94	-0.8274	0.0827	-0.011
224	SLV 7	-0.47	-10.04	-20.13	0.4478	-0.013	0.0036
224	SLV 8	-0.47	-10.04	-20.13	0.4478	-0.013	0.0036
224	SLV 9	0.48	26.93	82.99	-0.9095	0.0145	-0.0038
224	SLV 10	0.48	26.93	82.99	-0.9095	0.0145	-0.0038
224	SLV 11	0.02	-7.79	-14.08	0.3657	-0.0812	0.0107
224	SLV 12	0.02	-7.79	-14.08	0.3657	-0.0812	0.0107
224	SLV 13	0.89	17.4	56.07	-0.559	-0.0985	0.0096
224	SLV 14	0.89	17.4	56.07	-0.559	-0.0985	0.0096
224	SLV 15	0.75	6.99	26.95	-0.1764	-0.1272	0.0139
224	SLV 16	0.75	6.99	26.95	-0.1764	-0.1272	0.0139
225	SLU 1	0	7.18	25.65	-0.2149	-0.0011	0.0002
225	SLU 2	0	7.14	25.4	-0.2147	-0.0007	0.0001
225	SLU 3	0	7.32	26.28	-0.2176	-0.0011	0.0002
225	SLU 4	0	7.3	26.13	-0.2175	-0.0009	0.0001
225	SLU 5	0	7.2	25.75	-0.2148	-0.0007	0.0001
225	SLU 6	0	7.39	26.63	-0.2178	-0.0012	0.0002
225	SLU 7	0	7.36	26.48	-0.2177	-0.0009	0.0001
225	SLU 8	0	7.3	26.35	-0.2152	-0.0011	0.0002
225	SLU 9	0	7.28	26.2	-0.2151	-0.0009	0.0001
225	SLU 10	0	8.39	29.97	-0.251	-0.0009	0.0001
225	SLU 11	0	8.57	30.85	-0.254	-0.0014	0.0002
225	SLU 12	0	8.55	30.7	-0.2538	-0.0012	0.0002
225	SLU 13	0	8.45	30.31	-0.2512	-0.001	0.0001
225	SLU 14	0	8.64	31.2	-0.2541	-0.0014	0.0002
225	SLU 15	0	8.61	31.05	-0.254	-0.0012	0.0002
225	SLU 16	0	8.55	30.91	-0.2516	-0.0014	0.0002
225	SLU 17	0	8.53	30.76	-0.2514	-0.0012	0.0002
225	SLU 18	0	8.97	32.17	-0.2668	-0.0014	0.0002
225	SLU 19	0	8.94	32.02	-0.2667	-0.0012	0.0002
225	SLU 20	0	9.03	32.52	-0.267	-0.0015	0.0002
225	SLU 21	0	9	32.37	-0.2668	-0.0012	0.0002
225	SLU 22	0	8.32	29.86	-0.2475	-0.0013	0.0002
225	SLU 23	0	8.28	29.61	-0.2473	-0.0009	0.0001
225	SLU 24	0	8.46	30.49	-0.2502	-0.0014	0.0002
225	SLU 25	0	8.44	30.34	-0.2501	-0.0011	0.0002
225	SLU 26	0	8.34	29.96	-0.2474	-0.001	0.0001
225	SLU 27	0	8.53	30.84	-0.2504	-0.0014	0.0002
225	SLU 28	0	8.5	30.69	-0.2503	-0.0012	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
225	SLU 29	0	8.44	30.56	-0.2478	-0.0014	0.0002
225	SLU 30	0	8.42	30.41	-0.2477	-0.0012	0.0002
225	SLU 31	0	9.53	34.17	-0.2836	-0.0012	0.0002
225	SLU 32	0	9.71	35.05	-0.2866	-0.0016	0.0002
225	SLU 33	0	9.69	34.9	-0.2864	-0.0014	0.0002
225	SLU 34	0	9.59	34.52	-0.2838	-0.0012	0.0002
225	SLU 35	0	9.78	35.4	-0.2867	-0.0017	0.0003
225	SLU 36	0	9.75	35.25	-0.2866	-0.0014	0.0002
225	SLU 37	0	9.69	35.12	-0.2842	-0.0016	0.0003
225	SLU 38	0	9.67	34.97	-0.284	-0.0014	0.0002
225	SLU 39	0	10.11	36.38	-0.2994	-0.0017	0.0003
225	SLU 40	0	10.08	36.23	-0.2993	-0.0014	0.0002
225	SLU 41	0	10.17	36.73	-0.2996	-0.0017	0.0003
225	SLU 42	0	10.14	36.58	-0.2994	-0.0015	0.0002
225	SLU 43	0	8.94	31.91	-0.2682	-0.0013	0.0002
225	SLU 44	0	8.9	31.65	-0.2679	-0.0009	0.0001
225	SLU 45	0	9.09	32.54	-0.2709	-0.0014	0.0002
225	SLU 46	0	9.06	32.39	-0.2708	-0.0011	0.0002
225	SLU 47	0	8.97	32	-0.2681	-0.001	0.0001
225	SLU 48	0	9.15	32.89	-0.2711	-0.0014	0.0002
225	SLU 49	0	9.12	32.73	-0.271	-0.0012	0.0002
225	SLU 50	0	9.07	32.6	-0.2685	-0.0014	0.0002
225	SLU 51	0	9.04	32.45	-0.2684	-0.0012	0.0002
225	SLU 52	0	10.15	36.22	-0.3043	-0.0012	0.0002
225	SLU 53	0	10.34	37.1	-0.3072	-0.0016	0.0002
225	SLU 54	0	10.31	36.95	-0.3071	-0.0014	0.0002
225	SLU 55	0	10.22	36.57	-0.3045	-0.0012	0.0002
225	SLU 56	0	10.4	37.45	-0.3074	-0.0017	0.0003
225	SLU 57	0	10.37	37.3	-0.3073	-0.0014	0.0002
225	SLU 58	0	10.32	37.17	-0.3049	-0.0016	0.0002
225	SLU 59	0	10.29	37.02	-0.3047	-0.0014	0.0002
225	SLU 60	0	10.73	38.43	-0.3201	-0.0017	0.0003
225	SLU 61	0	10.71	38.28	-0.3199	-0.0014	0.0002
225	SLU 62	0	10.79	38.78	-0.3203	-0.0017	0.0003
225	SLU 63	0	10.77	38.62	-0.3201	-0.0015	0.0002
225	SLU 64	0	10.08	36.11	-0.3008	-0.0015	0.0002
225	SLU 65	0	10.04	35.86	-0.3005	-0.0011	0.0002
225	SLU 66	0	10.23	36.74	-0.3035	-0.0016	0.0002
225	SLU 67	0	10.2	36.59	-0.3034	-0.0014	0.0002
225	SLU 68	0	10.11	36.21	-0.3007	-0.0012	0.0002
225	SLU 69	0	10.29	37.09	-0.3037	-0.0016	0.0002
225	SLU 70	0	10.26	36.94	-0.3035	-0.0014	0.0002
225	SLU 71	0	10.21	36.81	-0.3011	-0.0016	0.0002
225	SLU 72	0	10.18	36.66	-0.301	-0.0014	0.0002
225	SLU 73	0	11.29	40.42	-0.3369	-0.0014	0.0002
225	SLU 74	0	11.48	41.31	-0.3398	-0.0019	0.0003
225	SLU 75	0	11.45	41.16	-0.3397	-0.0016	0.0002
225	SLU 76	0	11.36	40.77	-0.3371	-0.0014	0.0002
225	SLU 77	0	11.54	41.66	-0.34	-0.0019	0.0003
225	SLU 78	0	11.51	41.5	-0.3399	-0.0017	0.0003
225	SLU 79	0	11.46	41.37	-0.3375	-0.0019	0.0003
225	SLU 80	0	11.43	41.22	-0.3373	-0.0016	0.0003
225	SLU 81	0	11.87	42.63	-0.3527	-0.0019	0.0003
225	SLU 82	0	11.85	42.48	-0.3525	-0.0017	0.0003
225	SLU 83	0	11.93	42.98	-0.3529	-0.0019	0.0003
225	SLU 84	0	11.91	42.83	-0.3527	-0.0017	0.0003
225	SLE RA 1	0	7.51	26.85	-0.2242	-0.0011	0.0002
225	SLE RA 2	0	7.48	26.69	-0.224	-0.0009	0.0001
225	SLE RA 3	0	7.6	27.27	-0.226	-0.0012	0.0002
225	SLE RA 4	0	7.59	27.17	-0.2259	-0.001	0.0002
225	SLE RA 5	0	7.52	26.92	-0.2242	-0.0009	0.0001
225	SLE RA 6	0	7.64	27.51	-0.2261	-0.0012	0.0002
225	SLE RA 7	0	7.63	27.41	-0.226	-0.001	0.0002
225	SLE RA 8	0	7.59	27.32	-0.2244	-0.0012	0.0002
225	SLE RA 9	0	7.57	27.22	-0.2243	-0.001	0.0002
225	SLE RA 10	0	8.31	29.73	-0.2483	-0.001	0.0002
225	SLE RA 11	0	8.44	30.32	-0.2502	-0.0013	0.0002
225	SLE RA 12	0	8.42	30.22	-0.2502	-0.0012	0.0002
225	SLE RA 13	0	8.35	29.96	-0.2484	-0.0011	0.0002
225	SLE RA 14	0	8.48	30.55	-0.2504	-0.0014	0.0002
225	SLE RA 15	0	8.46	30.45	-0.2503	-0.0012	0.0002
225	SLE RA 16	0	8.42	30.36	-0.2487	-0.0014	0.0002
225	SLE RA 17	0	8.41	30.26	-0.2486	-0.0012	0.0002
225	SLE RA 18	0	8.7	31.2	-0.2588	-0.0014	0.0002
225	SLE RA 19	0	8.68	31.1	-0.2587	-0.0012	0.0002
225	SLE RA 20	0	8.74	31.43	-0.2589	-0.0014	0.0002
225	SLE RA 21	0	8.72	31.33	-0.2588	-0.0012	0.0002
225	SLE FR 1	0	7.51	26.85	-0.2242	-0.0011	0.0002
225	SLE FR 2	0	7.5	26.82	-0.2242	-0.0011	0.0002
225	SLE FR 3	0	7.52	26.95	-0.2242	-0.0011	0.0002
225	SLE FR 4	0	7.86	28.12	-0.2346	-0.0011	0.0002
225	SLE FR 5	0	7.88	28.25	-0.2346	-0.0012	0.0002
225	SLE FR 6	0	8.1	29.03	-0.2415	-0.0012	0.0002
225	SLE QP 1	0	7.51	26.85	-0.2242	-0.0011	0.0002
225	SLE QP 2	0	7.86	28.16	-0.2346	-0.0012	0.0002
225	SLD 1	-0.33	11.15	36.69	-0.3691	0.0245	-0.0022
225	SLD 2	-0.33	11.15	36.69	-0.3691	0.0245	-0.0022
225	SLD 3	-0.26	7.7	27.71	-0.2288	0.0381	-0.0043
225	SLD 4	-0.26	7.7	27.71	-0.2288	0.0381	-0.0043



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
225	SLD 5	-0.21	14.08	44.34	-0.4876	-0.0141	0.0027
225	SLD 6	-0.21	14.08	44.34	-0.4876	-0.0141	0.0027
225	SLD 7	0.03	2.58	14.4	-0.0201	0.0313	-0.0044
225	SLD 8	0.03	2.58	14.4	-0.0201	0.0313	-0.0044
225	SLD 9	-0.03	13.14	41.91	-0.449	-0.0336	0.0047
225	SLD 10	-0.03	13.14	41.91	-0.449	-0.0336	0.0047
225	SLD 11	0.21	1.65	11.98	0.0185	0.0117	-0.0023
225	SLD 12	0.21	1.65	11.98	0.0185	0.0117	-0.0023
225	SLD 13	0.26	8.02	28.6	-0.2403	-0.0405	0.0047
225	SLD 14	0.26	8.02	28.6	-0.2403	-0.0405	0.0047
225	SLD 15	0.33	4.57	19.62	-0.1001	-0.0269	0.0026
225	SLD 16	0.33	4.57	19.62	-0.1001	-0.0269	0.0026
225	SLV 1	-0.84	15.46	47.88	-0.5453	0.0632	-0.0056
225	SLV 2	-0.84	15.46	47.88	-0.5453	0.0632	-0.0056
225	SLV 3	-0.65	7.55	27.29	-0.2237	0.098	-0.011
225	SLV 4	-0.65	7.55	27.29	-0.2237	0.098	-0.011
225	SLV 5	-0.53	22.14	65.31	-0.8156	-0.0346	0.0066
225	SLV 6	-0.53	22.14	65.31	-0.8156	-0.0346	0.0066
225	SLV 7	0.08	-4.22	-3.33	0.2565	0.0813	-0.0113
225	SLV 8	0.08	-4.22	-3.33	0.2565	0.0813	-0.0113
225	SLV 9	-0.08	19.95	59.65	-0.7257	-0.0837	0.0117
225	SLV 10	-0.08	19.95	59.65	-0.7257	-0.0837	0.0117
225	SLV 11	0.53	-6.41	-8.99	0.3464	0.0322	-0.0063
225	SLV 12	0.53	-6.41	-8.99	0.3464	0.0322	-0.0063
225	SLV 13	0.66	8.17	29.03	-0.2455	-0.1004	0.0113
225	SLV 14	0.66	8.17	29.03	-0.2455	-0.1004	0.0113
225	SLV 15	0.84	0.26	8.43	0.0761	-0.0656	0.0059
225	SLV 16	0.84	0.26	8.43	0.0761	-0.0656	0.0059
226	SLU 1	0	2.02	10.91	-0.0145	-0.0004	0.0001
226	SLU 2	0	2.03	10.92	-0.0148	-0.0006	0.0001
226	SLU 3	0	1.96	10.79	-0.0109	-0.0004	0.0001
226	SLU 4	0	1.96	10.79	-0.0111	-0.0005	0.0001
226	SLU 5	0	1.99	10.84	-0.0126	-0.0005	0.0001
226	SLU 6	0	1.92	10.71	-0.0088	-0.0004	0.0001
226	SLU 7	0	1.92	10.71	-0.0089	-0.0005	0.0001
226	SLU 8	0	1.95	10.75	-0.0102	-0.0004	0.0001
226	SLU 9	0	1.95	10.76	-0.0103	-0.0004	0.0001
226	SLU 10	0	2.99	15.37	-0.0339	-0.0007	0.0001
226	SLU 11	0	2.93	15.24	-0.0301	-0.0005	0.0001
226	SLU 12	0	2.93	15.24	-0.0302	-0.0006	0.0001
226	SLU 13	0	2.96	15.29	-0.0317	-0.0006	0.0001
226	SLU 14	0	2.89	15.16	-0.0279	-0.0005	0.0001
226	SLU 15	0	2.89	15.16	-0.028	-0.0006	0.0001
226	SLU 16	0	2.91	15.2	-0.0293	-0.0005	0.0001
226	SLU 17	0	2.92	15.21	-0.0295	-0.0005	0.0001
226	SLU 18	0	3.4	17.27	-0.0419	-0.0006	0.0001
226	SLU 19	0	3.41	17.27	-0.042	-0.0007	0.0001
226	SLU 20	0	3.37	17.19	-0.0397	-0.0005	0.0001
226	SLU 21	0	3.37	17.19	-0.0398	-0.0006	0.0001
226	SLU 22	0	2.67	14.05	-0.0252	-0.0005	0.0001
226	SLU 23	0	2.68	14.06	-0.0254	-0.0006	0.0001
226	SLU 24	0	2.61	13.93	-0.0216	-0.0005	0.0001
226	SLU 25	0	2.61	13.93	-0.0217	-0.0006	0.0001
226	SLU 26	0	2.64	13.98	-0.0232	-0.0006	0.0001
226	SLU 27	0	2.57	13.85	-0.0194	-0.0004	0.0001
226	SLU 28	0	2.58	13.85	-0.0195	-0.0005	0.0001
226	SLU 29	0	2.6	13.9	-0.0208	-0.0004	0.0001
226	SLU 30	0	2.6	13.9	-0.021	-0.0005	0.0001
226	SLU 31	0	3.64	18.51	-0.0445	-0.0007	0.0001
226	SLU 32	0	3.58	18.38	-0.0407	-0.0006	0.0001
226	SLU 33	0	3.58	18.38	-0.0408	-0.0007	0.0001
226	SLU 34	0	3.61	18.43	-0.0424	-0.0007	0.0001
226	SLU 35	0	3.54	18.3	-0.0385	-0.0006	0.0001
226	SLU 36	0	3.54	18.3	-0.0387	-0.0006	0.0001
226	SLU 37	0	3.57	18.35	-0.04	-0.0005	0.0001
226	SLU 38	0	3.57	18.35	-0.0401	-0.0006	0.0001
226	SLU 39	0	4.06	20.41	-0.0525	-0.0006	0.0001
226	SLU 40	0	4.06	20.41	-0.0526	-0.0007	0.0001
226	SLU 41	0	4.02	20.33	-0.0503	-0.0006	0.0001
226	SLU 42	0	4.02	20.34	-0.0505	-0.0007	0.0001
226	SLU 43	0	2.4	13.1	-0.0152	-0.0005	0.0001
226	SLU 44	0	2.41	13.11	-0.0155	-0.0007	0.0001
226	SLU 45	0	2.34	12.98	-0.0116	-0.0005	0.0001
226	SLU 46	0	2.35	12.98	-0.0118	-0.0006	0.0001
226	SLU 47	0	2.37	13.03	-0.0133	-0.0006	0.0001
226	SLU 48	0	2.31	12.9	-0.0095	-0.0005	0.0001
226	SLU 49	0	2.31	12.91	-0.0096	-0.0006	0.0001
226	SLU 50	0	2.33	12.95	-0.0109	-0.0005	0.0001
226	SLU 51	0	2.33	12.95	-0.0111	-0.0005	0.0001
226	SLU 52	0	3.38	17.56	-0.0346	-0.0008	0.0001
226	SLU 53	0	3.31	17.43	-0.0308	-0.0006	0.0001
226	SLU 54	0	3.31	17.44	-0.0309	-0.0007	0.0001
226	SLU 55	0	3.34	17.48	-0.0324	-0.0007	0.0001
226	SLU 56	0	3.27	17.35	-0.0286	-0.0006	0.0001
226	SLU 57	0	3.28	17.36	-0.0288	-0.0007	0.0001
226	SLU 58	0	3.3	17.4	-0.03	-0.0006	0.0001
226	SLU 59	0	3.3	17.4	-0.0302	-0.0007	0.0001
226	SLU 60	0	3.79	19.46	-0.0426	-0.0007	0.0001
226	SLU 61	0	3.79	19.47	-0.0427	-0.0008	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
226	SLU 62	0	3.75	19.39	-0.0404	-0.0007	0.0001
226	SLU 63	0	3.75	19.39	-0.0406	-0.0007	0.0001
226	SLU 64	0	3.06	16.25	-0.0259	-0.0006	0.0001
226	SLU 65	0	3.06	16.25	-0.0261	-0.0007	0.0001
226	SLU 66	0	2.99	16.12	-0.0223	-0.0006	0.0001
226	SLU 67	0	3	16.13	-0.0224	-0.0007	0.0001
226	SLU 68	0	3.02	16.18	-0.0239	-0.0007	0.0001
226	SLU 69	0	2.96	16.04	-0.0201	-0.0005	0.0001
226	SLU 70	0	2.96	16.05	-0.0203	-0.0006	0.0001
226	SLU 71	0	2.98	16.09	-0.0215	-0.0005	0.0001
226	SLU 72	0	2.98	16.09	-0.0217	-0.0006	0.0001
226	SLU 73	0	4.03	20.7	-0.0452	-0.0008	0.0001
226	SLU 74	0	3.96	20.57	-0.0414	-0.0007	0.0001
226	SLU 75	0	3.96	20.58	-0.0416	-0.0008	0.0001
226	SLU 76	0	3.99	20.63	-0.0431	-0.0008	0.0001
226	SLU 77	0	3.92	20.5	-0.0392	-0.0007	0.0001
226	SLU 78	0	3.93	20.5	-0.0394	-0.0007	0.0001
226	SLU 79	0	3.95	20.54	-0.0407	-0.0006	0.0001
226	SLU 80	0	3.95	20.55	-0.0408	-0.0007	0.0001
226	SLU 81	0	4.44	22.61	-0.0532	-0.0007	0.0001
226	SLU 82	0	4.44	22.61	-0.0533	-0.0008	0.0001
226	SLU 83	0	4.4	22.53	-0.051	-0.0007	0.0001
226	SLU 84	0	4.4	22.53	-0.0512	-0.0008	0.0001
226	SLE RA 1	0	2.21	11.81	-0.0176	-0.0004	0.0001
226	SLE RA 2	0	2.21	11.81	-0.0177	-0.0005	0.0001
226	SLE RA 3	0	2.17	11.72	-0.0152	-0.0004	0.0001
226	SLE RA 4	0	2.17	11.73	-0.0153	-0.0005	0.0001
226	SLE RA 5	0	2.19	11.76	-0.0163	-0.0005	0.0001
226	SLE RA 6	0	2.14	11.67	-0.0137	-0.0004	0.0001
226	SLE RA 7	0	2.14	11.68	-0.0138	-0.0005	0.0001
226	SLE RA 8	0	2.16	11.7	-0.0147	-0.0004	0.0001
226	SLE RA 9	0	2.16	11.71	-0.0148	-0.0004	0.0001
226	SLE RA 10	0	2.86	14.78	-0.0305	-0.0006	0.0001
226	SLE RA 11	0	2.81	14.69	-0.0279	-0.0005	0.0001
226	SLE RA 12	0	2.81	14.69	-0.028	-0.0006	0.0001
226	SLE RA 13	0	2.83	14.73	-0.029	-0.0006	0.0001
226	SLE RA 14	0	2.79	14.64	-0.0265	-0.0005	0.0001
226	SLE RA 15	0	2.79	14.64	-0.0266	-0.0005	0.0001
226	SLE RA 16	0	2.8	14.67	-0.0274	-0.0005	0.0001
226	SLE RA 17	0	2.8	14.67	-0.0275	-0.0005	0.0001
226	SLE RA 18	0	3.13	16.05	-0.0358	-0.0005	0.0001
226	SLE RA 19	0	3.13	16.05	-0.0359	-0.0006	0.0001
226	SLE RA 20	0	3.1	15.99	-0.0343	-0.0005	0.0001
226	SLE RA 21	0	3.11	16	-0.0344	-0.0006	0.0001
226	SLE FR 1	0	2.21	11.81	-0.0176	-0.0004	0.0001
226	SLE FR 2	0	2.21	11.81	-0.0176	-0.0005	0.0001
226	SLE FR 3	0	2.2	11.79	-0.017	-0.0004	0.0001
226	SLE FR 4	0	2.48	13.08	-0.0231	-0.0005	0.0001
226	SLE FR 5	0	2.47	13.06	-0.0225	-0.0005	0.0001
226	SLE FR 6	0	2.67	13.93	-0.0267	-0.0005	0.0001
226	SLE QP 1	0	2.21	11.81	-0.0176	-0.0004	0.0001
226	SLE QP 2	0	2.48	13.08	-0.023	-0.0005	0.0001
226	SLD 1	-0.62	4.7	19.5	-0.1054	0.035	-0.0041
226	SLD 2	-0.62	4.7	19.5	-0.1054	0.035	-0.0041
226	SLD 3	-0.65	1.73	10.86	0.0054	0.0401	-0.005
226	SLD 4	-0.65	1.73	10.86	0.0054	0.0401	-0.005
226	SLD 5	-0.15	7.66	28.1	-0.2158	0.0025	0.0002
226	SLD 6	-0.15	7.66	28.1	-0.2158	0.0025	0.0002
226	SLD 7	-0.24	-2.26	-0.68	0.1536	0.0194	-0.0028
226	SLD 8	-0.24	-2.26	-0.68	0.1536	0.0194	-0.0028
226	SLD 9	0.23	7.23	26.84	-0.1996	-0.0203	0.003
226	SLD 10	0.23	7.23	26.84	-0.1996	-0.0203	0.003
226	SLD 11	0.15	-2.7	-1.94	0.1698	-0.0034	0
226	SLD 12	0.15	-2.7	-1.94	0.1698	-0.0034	0
226	SLD 13	0.65	3.24	15.29	-0.0514	-0.041	0.0051
226	SLD 14	0.65	3.24	15.29	-0.0514	-0.041	0.0051
226	SLD 15	0.62	0.27	6.66	0.0594	-0.0359	0.0042
226	SLD 16	0.62	0.27	6.66	0.0594	-0.0359	0.0042
226	SLV 1	-1.6	7.63	27.96	-0.2141	0.0877	-0.0098
226	SLV 2	-1.6	7.63	27.96	-0.2141	0.0877	-0.0098
226	SLV 3	-1.66	0.69	7.82	0.0443	0.1004	-0.0121
226	SLV 4	-1.66	0.69	7.82	0.0443	0.1004	-0.0121
226	SLV 5	-0.38	14.56	48.08	-0.4722	0.0067	0.0005
226	SLV 6	-0.38	14.56	48.08	-0.4722	0.0067	0.0005
226	SLV 7	-0.6	-8.58	-19.04	0.3891	0.0491	-0.007
226	SLV 8	-0.6	-8.58	-19.04	0.3891	0.0491	-0.007
226	SLV 9	0.6	13.55	45.2	-0.4351	-0.05	0.0071
226	SLV 10	0.6	13.55	45.2	-0.4351	-0.05	0.0071
226	SLV 11	0.38	-9.59	-21.93	0.4262	-0.0077	-0.0004
226	SLV 12	0.38	-9.59	-21.93	0.4262	-0.0077	-0.0004
226	SLV 13	1.66	4.28	18.33	-0.0904	-0.1014	0.0122
226	SLV 14	1.66	4.28	18.33	-0.0904	-0.1014	0.0122
226	SLV 15	1.59	-2.66	-1.8	0.168	-0.0887	0.01
226	SLV 16	1.59	-2.66	-1.8	0.168	-0.0887	0.01
227	SLU 1	-0.07	2.01	12.97	0.0003	-0.0662	0.0105
227	SLU 2	-0.07	2.45	14.12	-0.0166	-0.0583	0.0093
227	SLU 3	-0.08	2.08	13.37	-0.0004	-0.0685	0.0109
227	SLU 4	-0.08	2.34	14.06	-0.0105	-0.0638	0.0101
227	SLU 5	-0.08	2.52	14.47	-0.0182	-0.0598	0.0095



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
227	SLU 6	-0.08	2.16	13.72	-0.002	-0.0701	0.0111
227	SLU 7	-0.08	2.42	14.41	-0.0121	-0.0653	0.0104
227	SLU 8	-0.08	2.16	13.67	-0.003	-0.0693	0.011
227	SLU 9	-0.08	2.43	14.36	-0.0131	-0.0646	0.0103
227	SLU 10	-0.08	2.48	14.97	-0.0107	-0.0662	0.0105
227	SLU 11	-0.08	2.11	14.22	0.0055	-0.0764	0.0121
227	SLU 12	-0.09	2.38	14.91	-0.0046	-0.0717	0.0114
227	SLU 13	-0.08	2.56	15.32	-0.0123	-0.0677	0.0108
227	SLU 14	-0.09	2.19	14.57	0.0039	-0.078	0.0124
227	SLU 15	-0.09	2.45	15.26	-0.0062	-0.0732	0.0116
227	SLU 16	-0.09	2.2	14.52	0.0029	-0.0772	0.0122
227	SLU 17	-0.09	2.46	15.21	-0.0072	-0.0725	0.0115
227	SLU 18	-0.08	2.06	14.18	0.0087	-0.0775	0.0123
227	SLU 19	-0.09	2.32	14.87	-0.0014	-0.0727	0.0115
227	SLU 20	-0.09	2.13	14.53	0.0071	-0.079	0.0125
227	SLU 21	-0.09	2.4	15.22	-0.003	-0.0743	0.0118
227	SLU 22	-0.08	2.08	13.93	0.0051	-0.0745	0.0118
227	SLU 23	-0.08	2.52	15.08	-0.0118	-0.0666	0.0106
227	SLU 24	-0.09	2.15	14.33	0.0044	-0.0768	0.0122
227	SLU 25	-0.09	2.41	15.02	-0.0057	-0.0721	0.0115
227	SLU 26	-0.09	2.59	15.43	-0.0134	-0.0681	0.0108
227	SLU 27	-0.09	2.22	14.68	0.0028	-0.0784	0.0124
227	SLU 28	-0.09	2.49	15.37	-0.0074	-0.0736	0.0117
227	SLU 29	-0.09	2.23	14.64	0.0018	-0.0776	0.0123
227	SLU 30	-0.09	2.49	15.32	-0.0083	-0.0729	0.0116
227	SLU 31	-0.09	2.55	15.93	-0.0059	-0.0745	0.0118
227	SLU 32	-0.09	2.18	15.18	0.0103	-0.0847	0.0134
227	SLU 33	-0.09	2.45	15.87	0.0002	-0.08	0.0127
227	SLU 34	-0.09	2.63	16.28	-0.0075	-0.076	0.0121
227	SLU 35	-0.1	2.26	15.53	0.0087	-0.0863	0.0137
227	SLU 36	-0.1	2.52	16.22	-0.0015	-0.0815	0.0129
227	SLU 37	-0.09	2.27	15.48	0.0077	-0.0855	0.0136
227	SLU 38	-0.09	2.53	16.17	-0.0024	-0.0808	0.0128
227	SLU 39	-0.09	2.13	15.14	0.0135	-0.0858	0.0136
227	SLU 40	-0.09	2.39	15.83	0.0034	-0.081	0.0129
227	SLU 41	-0.1	2.2	15.49	0.0118	-0.0873	0.0138
227	SLU 42	-0.1	2.47	16.18	0.0017	-0.0826	0.0131
227	SLU 43	-0.09	2.59	16.54	-0.0012	-0.0832	0.0132
227	SLU 44	-0.09	3.03	17.69	-0.0181	-0.0753	0.012
227	SLU 45	-0.1	2.66	16.94	-0.0019	-0.0855	0.0136
227	SLU 46	-0.1	2.92	17.63	-0.012	-0.0808	0.0128
227	SLU 47	-0.1	3.1	18.04	-0.0197	-0.0768	0.0122
227	SLU 48	-0.1	2.73	17.29	-0.0035	-0.0871	0.0138
227	SLU 49	-0.1	3	17.98	-0.0136	-0.0823	0.0131
227	SLU 50	-0.1	2.74	17.24	-0.0045	-0.0863	0.0137
227	SLU 51	-0.1	3	17.93	-0.0146	-0.0816	0.013
227	SLU 52	-0.1	3.06	18.53	-0.0122	-0.0832	0.0132
227	SLU 53	-0.1	2.69	17.78	0.004	-0.0934	0.0148
227	SLU 54	-0.1	2.95	18.47	-0.0061	-0.0887	0.0141
227	SLU 55	-0.1	3.14	18.88	-0.0138	-0.0848	0.0135
227	SLU 56	-0.11	2.77	18.13	0.0024	-0.095	0.0151
227	SLU 57	-0.11	3.03	18.82	-0.0077	-0.0903	0.0143
227	SLU 58	-0.1	2.78	18.08	0.0014	-0.0942	0.0149
227	SLU 59	-0.11	3.04	18.77	-0.0087	-0.0895	0.0142
227	SLU 60	-0.1	2.64	17.74	0.0072	-0.0945	0.015
227	SLU 61	-0.1	2.9	18.43	-0.0029	-0.0898	0.0142
227	SLU 62	-0.11	2.71	18.09	0.0056	-0.0961	0.0152
227	SLU 63	-0.11	2.98	18.78	-0.0046	-0.0913	0.0145
227	SLU 64	-0.1	2.66	17.5	0.0035	-0.0915	0.0145
227	SLU 65	-0.1	3.1	18.65	-0.0133	-0.0836	0.0133
227	SLU 66	-0.1	2.73	17.9	0.0029	-0.0938	0.0149
227	SLU 67	-0.11	2.99	18.59	-0.0073	-0.0891	0.0141
227	SLU 68	-0.1	3.17	19	-0.015	-0.0851	0.0135
227	SLU 69	-0.11	2.8	18.25	0.0012	-0.0954	0.0151
227	SLU 70	-0.11	3.07	18.94	-0.0089	-0.0906	0.0144
227	SLU 71	-0.11	2.81	18.2	0.0002	-0.0946	0.015
227	SLU 72	-0.11	3.07	18.89	-0.0099	-0.0899	0.0143
227	SLU 73	-0.11	3.13	19.49	-0.0074	-0.0915	0.0145
227	SLU 74	-0.11	2.76	18.74	0.0088	-0.1017	0.0161
227	SLU 75	-0.11	3.02	19.43	-0.0014	-0.097	0.0154
227	SLU 76	-0.11	3.21	19.84	-0.0091	-0.0931	0.0148
227	SLU 77	-0.11	2.84	19.09	0.0071	-0.1033	0.0164
227	SLU 78	-0.12	3.1	19.78	-0.003	-0.0986	0.0156
227	SLU 79	-0.11	2.85	19.04	0.0061	-0.1025	0.0163
227	SLU 80	-0.11	3.11	19.73	-0.004	-0.0978	0.0155
227	SLU 81	-0.11	2.71	18.7	0.0119	-0.1028	0.0163
227	SLU 82	-0.11	2.97	19.39	0.0018	-0.0981	0.0156
227	SLU 83	-0.11	2.78	19.05	0.0103	-0.1044	0.0165
227	SLU 84	-0.12	3.05	19.74	0.0002	-0.0996	0.0158
227	SLE RA 1	-0.08	2.03	13.25	0.0017	-0.0686	0.0109
227	SLE RA 2	-0.08	2.32	14.01	-0.0096	-0.0633	0.0101
227	SLE RA 3	-0.08	2.08	13.52	0.0012	-0.0701	0.0111
227	SLE RA 4	-0.08	2.25	13.97	-0.0055	-0.067	0.0106
227	SLE RA 5	-0.08	2.37	14.25	-0.0107	-0.0643	0.0102
227	SLE RA 6	-0.08	2.13	13.75	0.0001	-0.0712	0.0113
227	SLE RA 7	-0.08	2.3	14.21	-0.0066	-0.068	0.0108
227	SLE RA 8	-0.08	2.13	13.72	-0.0005	-0.0706	0.0112
227	SLE RA 9	-0.08	2.31	14.18	-0.0073	-0.0675	0.0107
227	SLE RA 10	-0.08	2.34	14.58	-0.0056	-0.0686	0.0109





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
227	SLE RA 11	-0.08	2.1	14.08	0.0052	-0.0754	0.012
227	SLE RA 12	-0.08	2.27	14.54	-0.0016	-0.0722	0.0115
227	SLE RA 13	-0.08	2.4	14.81	-0.0067	-0.0696	0.0111
227	SLE RA 14	-0.08	2.15	14.31	0.0041	-0.0764	0.0121
227	SLE RA 15	-0.09	2.32	14.77	-0.0027	-0.0733	0.0116
227	SLE RA 16	-0.08	2.15	14.28	0.0034	-0.0759	0.012
227	SLE RA 17	-0.08	2.33	14.74	-0.0033	-0.0727	0.0115
227	SLE RA 18	-0.08	2.06	14.05	0.0073	-0.0761	0.0121
227	SLE RA 19	-0.08	2.24	14.51	0.0005	-0.0729	0.0116
227	SLE RA 20	-0.08	2.11	14.29	0.0062	-0.0771	0.0122
227	SLE RA 21	-0.09	2.29	14.74	-0.0006	-0.074	0.0117
227	SLE FR 1	-0.08	2.03	13.25	0.0017	-0.0686	0.0109
227	SLE FR 2	-0.08	2.09	13.4	-0.0006	-0.0675	0.0107
227	SLE FR 3	-0.08	2.05	13.34	0.0012	-0.069	0.0109
227	SLE FR 4	-0.08	2.1	13.64	0.0011	-0.0698	0.0111
227	SLE FR 5	-0.08	2.06	13.58	0.0029	-0.0712	0.0113
227	SLE FR 6	-0.08	2.05	13.65	0.0045	-0.0723	0.0115
227	SLE QP 1	-0.08	2.03	13.25	0.0017	-0.0686	0.0109
227	SLE QP 2	-0.08	2.04	13.49	0.0033	-0.0708	0.0112
227	SLD 1	-0.37	4.96	22.3	-0.0265	-0.1486	0.0236
227	SLD 2	-0.37	4.96	22.3	-0.0265	-0.1486	0.0236
227	SLD 3	-0.29	1.24	12.13	0.1109	-0.1091	0.0173
227	SLD 4	-0.29	1.24	12.13	0.1109	-0.1091	0.0173
227	SLD 5	-0.29	8.54	31.56	-0.2141	-0.1541	0.0246
227	SLD 6	-0.29	8.54	31.56	-0.2141	-0.1541	0.0246
227	SLD 7	-0.02	-3.83	-2.34	0.2441	-0.0223	0.0034
227	SLD 8	-0.02	-3.83	-2.34	0.2441	-0.0223	0.0034
227	SLD 9	-0.14	7.91	29.32	-0.2374	-0.1193	0.0191
227	SLD 10	-0.14	7.91	29.32	-0.2374	-0.1193	0.0191
227	SLD 11	0.13	-4.46	-4.58	0.2208	0.0125	-0.0021
227	SLD 12	0.13	-4.46	-4.58	0.2208	0.0125	-0.0021
227	SLD 13	0.14	2.83	14.85	-0.1042	-0.0326	0.0052
227	SLD 14	0.14	2.83	14.85	-0.1042	-0.0326	0.0052
227	SLD 15	0.22	-0.88	4.68	0.0332	0.0069	-0.0012
227	SLD 16	0.22	-0.88	4.68	0.0332	0.0069	-0.0012
227	SLV 1	-0.8	8.74	33.75	-0.0659	-0.2566	0.0408
227	SLV 2	-0.8	8.74	33.75	-0.0659	-0.2566	0.0408
227	SLV 3	-0.6	0.19	10.33	0.2508	-0.1557	0.0246
227	SLV 4	-0.6	0.19	10.33	0.2508	-0.1557	0.0246
227	SLV 5	-0.61	17.02	55.09	-0.4977	-0.2796	0.0447
227	SLV 6	-0.61	17.02	55.09	-0.4977	-0.2796	0.0447
227	SLV 7	0.08	-11.49	-22.98	0.5579	0.0568	-0.0094
227	SLV 8	0.08	-11.49	-22.98	0.5579	0.0568	-0.0094
227	SLV 9	-0.23	15.57	49.96	-0.5512	-0.1984	0.0318
227	SLV 10	-0.23	15.57	49.96	-0.5512	-0.1984	0.0318
227	SLV 11	0.45	-12.94	-28.11	0.5044	0.138	-0.0222
227	SLV 12	0.45	-12.94	-28.11	0.5044	0.138	-0.0222
227	SLV 13	0.44	3.89	16.65	-0.2441	0.014	-0.0021
227	SLV 14	0.44	3.89	16.65	-0.2441	0.014	-0.0021
227	SLV 15	0.65	-4.66	-6.77	0.0726	0.1149	-0.0184
227	SLV 16	0.65	-4.66	-6.77	0.0726	0.1149	-0.0184
228	SLU 1	0	6.39	24.27	-0.0941	-0.0005	0.0001
228	SLU 2	0	6.39	24.25	-0.0941	-0.0005	0.0001
228	SLU 3	0	6.27	23.94	-0.088	-0.0006	0.0001
228	SLU 4	0	6.27	23.93	-0.088	-0.0006	0.0001
228	SLU 5	0	6.14	23.43	-0.0859	-0.0006	0.0001
228	SLU 6	0	6.02	23.13	-0.0798	-0.0007	0.0001
228	SLU 7	0	6.02	23.11	-0.0798	-0.0007	0.0001
228	SLU 8	0	5.89	22.64	-0.0777	-0.0007	0.0001
228	SLU 9	0	5.89	22.63	-0.0777	-0.0007	0.0001
228	SLU 10	0	7.78	29.41	-0.1185	-0.0005	0.0001
228	SLU 11	0	7.67	29.1	-0.1125	-0.0006	0.0001
228	SLU 12	0	7.66	29.09	-0.1125	-0.0006	0.0001
228	SLU 13	0	7.53	28.6	-0.1103	-0.0006	0.0001
228	SLU 14	0	7.42	28.29	-0.1043	-0.0007	0.0001
228	SLU 15	0	7.41	28.28	-0.1043	-0.0007	0.0001
228	SLU 16	0	7.29	27.81	-0.1021	-0.0007	0.0001
228	SLU 17	0	7.28	27.79	-0.1021	-0.0007	0.0001
228	SLU 18	0	8.38	31.65	-0.129	-0.0006	0.0001
228	SLU 19	0	8.38	31.63	-0.129	-0.0006	0.0001
228	SLU 20	0	8.13	30.83	-0.1208	-0.0007	0.0001
228	SLU 21	0	8.13	30.82	-0.1208	-0.0007	0.0001
228	SLU 22	0	7.46	28.27	-0.11	-0.0006	0.0001
228	SLU 23	0	7.45	28.25	-0.11	-0.0006	0.0001
228	SLU 24	0	7.34	27.95	-0.104	-0.0007	0.0001
228	SLU 25	0	7.33	27.93	-0.104	-0.0007	0.0001
228	SLU 26	0	7.2	27.44	-0.1018	-0.0007	0.0001
228	SLU 27	0	7.09	27.13	-0.0958	-0.0008	0.0001
228	SLU 28	0	7.08	27.12	-0.0958	-0.0008	0.0001
228	SLU 29	0	6.95	26.65	-0.0937	-0.0008	0.0001
228	SLU 30	0	6.95	26.63	-0.0937	-0.0008	0.0001
228	SLU 31	0	8.84	33.42	-0.1344	-0.0007	0.0001
228	SLU 32	0	8.73	33.11	-0.1284	-0.0008	0.0001
228	SLU 33	0	8.73	33.1	-0.1284	-0.0007	0.0001
228	SLU 34	0	8.59	32.6	-0.1263	-0.0007	0.0001
228	SLU 35	0	8.48	32.3	-0.1202	-0.0008	0.0001
228	SLU 36	0	8.48	32.28	-0.1202	-0.0008	0.0001
228	SLU 37	0	8.35	31.81	-0.1181	-0.0008	0.0001
228	SLU 38	0	8.35	31.8	-0.1181	-0.0008	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
228	SLU 39	0	9.45	35.65	-0.1449	-0.0007	0.0001
228	SLU 40	0	9.44	35.64	-0.1449	-0.0007	0.0001
228	SLU 41	0	9.2	34.84	-0.1367	-0.0008	0.0001
228	SLU 42	0	9.19	34.82	-0.1367	-0.0008	0.0001
228	SLU 43	0	7.95	30.17	-0.1168	-0.0006	0.0001
228	SLU 44	0	7.94	30.15	-0.1168	-0.0006	0.0001
228	SLU 45	0	7.83	29.85	-0.1108	-0.0007	0.0001
228	SLU 46	0	7.82	29.83	-0.1108	-0.0007	0.0001
228	SLU 47	0	7.69	29.34	-0.1086	-0.0007	0.0001
228	SLU 48	0	7.58	29.03	-0.1026	-0.0008	0.0001
228	SLU 49	0	7.57	29.02	-0.1026	-0.0008	0.0001
228	SLU 50	0	7.44	28.55	-0.1005	-0.0008	0.0001
228	SLU 51	0	7.44	28.54	-0.1005	-0.0008	0.0001
228	SLU 52	0	9.34	35.32	-0.1412	-0.0007	0.0001
228	SLU 53	0	9.22	35.01	-0.1352	-0.0008	0.0001
228	SLU 54	0	9.22	35	-0.1352	-0.0008	0.0001
228	SLU 55	0	9.08	34.5	-0.1331	-0.0007	0.0001
228	SLU 56	0	8.97	34.2	-0.127	-0.0008	0.0001
228	SLU 57	0	8.97	34.19	-0.127	-0.0008	0.0001
228	SLU 58	0	8.84	33.71	-0.1249	-0.0008	0.0001
228	SLU 59	0	8.84	33.7	-0.1249	-0.0008	0.0001
228	SLU 60	0	9.94	37.55	-0.1517	-0.0007	0.0001
228	SLU 61	0	9.93	37.54	-0.1517	-0.0007	0.0001
228	SLU 62	0	9.69	36.74	-0.1435	-0.0008	0.0001
228	SLU 63	0	9.68	36.73	-0.1435	-0.0008	0.0001
228	SLU 64	0	9.01	34.18	-0.1328	-0.0008	0.0001
228	SLU 65	0	9	34.16	-0.1328	-0.0007	0.0001
228	SLU 66	0	8.89	33.85	-0.1267	-0.0008	0.0001
228	SLU 67	0	8.89	33.84	-0.1267	-0.0008	0.0001
228	SLU 68	0	8.75	33.35	-0.1246	-0.0008	0.0001
228	SLU 69	0	8.64	33.04	-0.1185	-0.0009	0.0001
228	SLU 70	0	8.64	33.03	-0.1185	-0.0009	0.0001
228	SLU 71	0	8.51	32.55	-0.1164	-0.0009	0.0001
228	SLU 72	0	8.5	32.54	-0.1164	-0.0009	0.0001
228	SLU 73	0	10.4	39.32	-0.1572	-0.0008	0.0001
228	SLU 74	0	10.28	39.02	-0.1512	-0.0009	0.0001
228	SLU 75	0	10.28	39	-0.1512	-0.0009	0.0001
228	SLU 76	0	10.15	38.51	-0.149	-0.0008	0.0001
228	SLU 77	0.01	10.03	38.2	-0.143	-0.001	0.0001
228	SLU 78	0.01	10.03	38.19	-0.143	-0.0009	0.0001
228	SLU 79	0.01	9.9	37.72	-0.1408	-0.001	0.0001
228	SLU 80	0.01	9.9	37.71	-0.1408	-0.0009	0.0001
228	SLU 81	0	11	41.56	-0.1677	-0.0008	0.0001
228	SLU 82	0	11	41.54	-0.1677	-0.0008	0.0001
228	SLU 83	0	10.75	40.74	-0.1595	-0.0009	0.0001
228	SLU 84	0	10.75	40.73	-0.1595	-0.0009	0.0001
228	SLE RA 1	0	6.7	25.41	-0.0986	-0.0006	0.0001
228	SLE RA 2	0	6.69	25.4	-0.0986	-0.0005	0.0001
228	SLE RA 3	0	6.62	25.19	-0.0946	-0.0006	0.0001
228	SLE RA 4	0	6.62	25.18	-0.0946	-0.0006	0.0001
228	SLE RA 5	0	6.53	24.86	-0.0932	-0.0006	0.0001
228	SLE RA 6	0	6.45	24.65	-0.0891	-0.0007	0.0001
228	SLE RA 7	0	6.45	24.64	-0.0891	-0.0006	0.0001
228	SLE RA 8	0	6.36	24.33	-0.0877	-0.0007	0.0001
228	SLE RA 9	0	6.36	24.32	-0.0877	-0.0006	0.0001
228	SLE RA 10	0	7.62	28.84	-0.1149	-0.0006	0.0001
228	SLE RA 11	0	7.55	28.64	-0.1109	-0.0006	0.0001
228	SLE RA 12	0	7.54	28.63	-0.1109	-0.0006	0.0001
228	SLE RA 13	0	7.46	28.3	-0.1095	-0.0006	0.0001
228	SLE RA 14	0	7.38	28.09	-0.1054	-0.0007	0.0001
228	SLE RA 15	0	7.38	28.09	-0.1054	-0.0007	0.0001
228	SLE RA 16	0	7.29	27.77	-0.104	-0.0007	0.0001
228	SLE RA 17	0	7.29	27.76	-0.104	-0.0007	0.0001
228	SLE RA 18	0	8.02	30.33	-0.1219	-0.0006	0.0001
228	SLE RA 19	0	8.02	30.32	-0.1219	-0.0006	0.0001
228	SLE RA 20	0	7.86	29.79	-0.1164	-0.0007	0.0001
228	SLE RA 21	0	7.85	29.78	-0.1164	-0.0006	0.0001
228	SLE FR 1	0	6.7	25.41	-0.0986	-0.0006	0.0001
228	SLE FR 2	0	6.7	25.41	-0.0986	-0.0005	0.0001
228	SLE FR 3	0	6.63	25.2	-0.0964	-0.0006	0.0001
228	SLE FR 4	0	7.09	26.88	-0.1056	-0.0006	0.0001
228	SLE FR 5	0	7.03	26.67	-0.1034	-0.0006	0.0001
228	SLE FR 6	0	7.36	27.87	-0.1103	-0.0006	0.0001
228	SLE QP 1	0	6.7	25.41	-0.0986	-0.0006	0.0001
228	SLE QP 2	0	7.09	26.89	-0.1056	-0.0006	0.0001
228	SLD 1	-0.27	9.81	35.74	-0.1904	0.2544	-0.0393
228	SLD 2	-0.27	9.81	35.74	-0.1904	0.2544	-0.0393
228	SLD 3	-0.24	6.35	24.55	-0.0816	0.2331	-0.036
228	SLD 4	-0.24	6.35	24.55	-0.0816	0.2331	-0.036
228	SLD 5	-0.13	13.15	46.52	-0.2961	0.1082	-0.0169
228	SLD 6	-0.13	13.15	46.52	-0.2961	0.1082	-0.0169
228	SLD 7	-0.02	1.63	9.21	0.0666	0.0372	-0.0056
228	SLD 8	-0.02	1.63	9.21	0.0666	0.0372	-0.0056
228	SLD 9	0.03	12.56	44.56	-0.2778	-0.0384	0.0058
228	SLD 10	0.03	12.56	44.56	-0.2778	-0.0384	0.0058
228	SLD 11	0.13	1.03	7.26	0.0849	-0.1094	0.017
228	SLD 12	0.13	1.03	7.26	0.0849	-0.1094	0.017
228	SLD 13	0.25	7.83	29.23	-0.1296	-0.2342	0.0361
228	SLD 14	0.25	7.83	29.23	-0.1296	-0.2342	0.0361



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
228	SLD 15	0.28	4.38	18.03	-0.0208	-0.2555	0.0395
228	SLD 16	0.28	4.38	18.03	-0.0208	-0.2555	0.0395
228	SLV 1	-0.69	13.38	47.43	-0.3015	0.7681	-0.1181
228	SLV 2	-0.69	13.38	47.43	-0.3015	0.7681	-0.1181
228	SLV 3	-0.61	5.38	21.47	-0.0499	0.7104	-0.109
228	SLV 4	-0.61	5.38	21.47	-0.0499	0.7104	-0.109
228	SLV 5	-0.33	21.12	72.42	-0.5459	0.3175	-0.0492
228	SLV 6	-0.33	21.12	72.42	-0.5459	0.3175	-0.0492
228	SLV 7	-0.06	-5.56	-14.11	0.2927	0.1252	-0.0189
228	SLV 8	-0.06	-5.56	-14.11	0.2927	0.1252	-0.0189
228	SLV 9	0.06	19.75	67.88	-0.5039	-0.1263	0.019
228	SLV 10	0.06	19.75	67.88	-0.5039	-0.1263	0.019
228	SLV 11	0.34	-6.93	-18.64	0.3347	-0.3187	0.0493
228	SLV 12	0.34	-6.93	-18.64	0.3347	-0.3187	0.0493
228	SLV 13	0.62	8.81	32.31	-0.1613	-0.7115	0.1091
228	SLV 14	0.62	8.81	32.31	-0.1613	-0.7115	0.1091
228	SLV 15	0.7	0.81	6.35	0.0903	-0.7692	0.1182
228	SLV 16	0.7	0.81	6.35	0.0903	-0.7692	0.1182
229	SLU 1	-0.01	-2.86	56.75	0.1165	-0.0046	0
229	SLU 2	-0.03	-2.42	56.48	0.0969	-0.0225	0
229	SLU 3	-0.01	-3.01	58.18	0.1224	-0.0047	0
229	SLU 4	-0.02	-2.74	58.02	0.1106	-0.0155	0
229	SLU 5	-0.03	-2.51	57.19	0.1005	-0.0225	0
229	SLU 6	-0.01	-3.1	58.88	0.126	-0.0047	0
229	SLU 7	-0.02	-2.83	58.72	0.1142	-0.0155	0
229	SLU 8	-0.01	-3.05	58.15	0.1238	-0.0046	0
229	SLU 9	-0.02	-2.78	58	0.112	-0.0153	0
229	SLU 10	-0.03	-3.08	63.58	0.1229	-0.024	0
229	SLU 11	-0.01	-3.68	65.27	0.1484	-0.0062	0
229	SLU 12	-0.02	-3.41	65.11	0.1366	-0.017	0
229	SLU 13	-0.03	-3.17	64.28	0.1266	-0.024	0
229	SLU 14	-0.01	-3.77	65.97	0.1521	-0.0062	0
229	SLU 15	-0.02	-3.5	65.81	0.1403	-0.017	0
229	SLU 16	-0.01	-3.71	65.25	0.1498	-0.006	0
229	SLU 17	-0.02	-3.44	65.09	0.1381	-0.0168	0
229	SLU 18	-0.01	-3.81	66.88	0.1537	-0.0067	0
229	SLU 19	-0.02	-3.54	66.72	0.1419	-0.0174	0
229	SLU 20	-0.01	-3.9	67.58	0.1574	-0.0067	0
229	SLU 21	-0.02	-3.63	67.43	0.1456	-0.0174	0
229	SLU 22	-0.01	-3.5	63.6	0.1414	-0.0057	0
229	SLU 23	-0.03	-3.05	63.33	0.1218	-0.0237	0
229	SLU 24	-0.01	-3.64	65.03	0.1473	-0.0059	0
229	SLU 25	-0.02	-3.37	64.87	0.1355	-0.0167	0
229	SLU 26	-0.03	-3.14	64.03	0.1254	-0.0237	0
229	SLU 27	-0.01	-3.73	65.73	0.1509	-0.0059	0
229	SLU 28	-0.02	-3.46	65.57	0.1391	-0.0167	0
229	SLU 29	-0.01	-3.68	65	0.1487	-0.0057	0
229	SLU 30	-0.02	-3.41	64.84	0.1369	-0.0165	0
229	SLU 31	-0.03	-3.71	70.42	0.1478	-0.0252	0
229	SLU 32	-0.01	-4.31	72.12	0.1733	-0.0074	0
229	SLU 33	-0.02	-4.04	71.96	0.1615	-0.0181	0
229	SLU 34	-0.03	-3.8	71.13	0.1515	-0.0252	0
229	SLU 35	-0.01	-4.4	72.82	0.177	-0.0074	0
229	SLU 36	-0.02	-4.13	72.66	0.1652	-0.0181	0
229	SLU 37	-0.01	-4.34	72.1	0.1747	-0.0072	0
229	SLU 38	-0.02	-4.07	71.94	0.163	-0.018	0
229	SLU 39	-0.01	-4.44	73.73	0.1786	-0.0078	0
229	SLU 40	-0.02	-4.18	73.57	0.1668	-0.0186	0
229	SLU 41	-0.01	-4.54	74.43	0.1823	-0.0078	0
229	SLU 42	-0.02	-4.27	74.27	0.1705	-0.0186	0
229	SLU 43	-0.01	-3.51	71.43	0.1429	-0.0055	0
229	SLU 44	-0.03	-3.06	71.16	0.1233	-0.0235	0
229	SLU 45	-0.01	-3.65	72.85	0.1488	-0.0057	0
229	SLU 46	-0.02	-3.38	72.7	0.137	-0.0165	0
229	SLU 47	-0.03	-3.15	71.86	0.1269	-0.0235	0
229	SLU 48	-0.01	-3.74	73.56	0.1524	-0.0057	0
229	SLU 49	-0.02	-3.48	73.4	0.1406	-0.0165	0
229	SLU 50	-0.01	-3.69	72.83	0.1502	-0.0055	0
229	SLU 51	-0.02	-3.42	72.67	0.1384	-0.0163	0
229	SLU 52	-0.03	-3.72	78.25	0.1493	-0.025	0
229	SLU 53	-0.01	-4.32	79.95	0.1748	-0.0072	0
229	SLU 54	-0.02	-4.05	79.79	0.163	-0.0179	0
229	SLU 55	-0.03	-3.81	78.96	0.153	-0.025	0
229	SLU 56	-0.01	-4.41	80.65	0.1785	-0.0072	0
229	SLU 57	-0.02	-4.14	80.49	0.1667	-0.0179	0
229	SLU 58	-0.01	-4.35	79.92	0.1762	-0.007	0
229	SLU 59	-0.02	-4.08	79.77	0.1645	-0.0178	0
229	SLU 60	-0.01	-4.46	81.56	0.1801	-0.0076	0
229	SLU 61	-0.03	-4.19	81.4	0.1683	-0.0184	0
229	SLU 62	-0.01	-4.55	82.26	0.1838	-0.0076	0
229	SLU 63	-0.03	-4.28	82.1	0.172	-0.0184	0
229	SLU 64	-0.01	-4.14	78.27	0.1678	-0.0067	0
229	SLU 65	-0.03	-3.69	78.01	0.1482	-0.0247	0
229	SLU 66	-0.01	-4.28	79.7	0.1737	-0.0069	0
229	SLU 67	-0.02	-4.02	79.54	0.1619	-0.0176	0
229	SLU 68	-0.03	-3.78	78.71	0.1518	-0.0247	0
229	SLU 69	-0.01	-4.38	80.4	0.1773	-0.0069	0
229	SLU 70	-0.02	-4.11	80.25	0.1656	-0.0176	0
229	SLU 71	-0.01	-4.32	79.68	0.1751	-0.0067	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
229	SLU 72	-0.02	-4.05	79.52	0.1633	-0.0175	0
229	SLU 73	-0.03	-4.35	85.1	0.1742	-0.0261	0
229	SLU 74	-0.01	-4.95	86.79	0.1997	-0.0083	0
229	SLU 75	-0.03	-4.68	86.64	0.188	-0.0191	0
229	SLU 76	-0.03	-4.44	85.8	0.1779	-0.0261	0
229	SLU 77	-0.01	-5.04	87.5	0.2034	-0.0083	0
229	SLU 78	-0.03	-4.77	87.34	0.1916	-0.0191	0
229	SLU 79	-0.01	-4.98	86.77	0.2012	-0.0082	0
229	SLU 80	-0.03	-4.71	86.61	0.1894	-0.019	0
229	SLU 81	-0.01	-5.09	88.41	0.205	-0.0088	0
229	SLU 82	-0.03	-4.82	88.25	0.1932	-0.0196	0
229	SLU 83	-0.02	-5.18	89.11	0.2087	-0.0088	0
229	SLU 84	-0.03	-4.91	88.95	0.1969	-0.0196	0
229	SLE RA 1	-0.01	-3.04	58.71	0.1236	-0.0049	0
229	SLE RA 2	-0.02	-2.75	58.53	0.1105	-0.0169	0
229	SLE RA 3	-0.01	-3.14	59.66	0.1275	-0.005	0
229	SLE RA 4	-0.02	-2.96	59.55	0.1197	-0.0122	0
229	SLE RA 5	-0.02	-2.81	59	0.113	-0.0169	0
229	SLE RA 6	-0.01	-3.2	60.13	0.13	-0.005	0
229	SLE RA 7	-0.02	-3.02	60.02	0.1221	-0.0122	0
229	SLE RA 8	-0.01	-3.17	59.64	0.1285	-0.0049	0
229	SLE RA 9	-0.02	-2.99	59.54	0.1206	-0.0121	0
229	SLE RA 10	-0.02	-3.19	63.26	0.1279	-0.0179	0
229	SLE RA 11	-0.01	-3.59	64.39	0.1449	-0.006	0
229	SLE RA 12	-0.02	-3.41	64.28	0.137	-0.0132	0
229	SLE RA 13	-0.02	-3.25	63.73	0.1303	-0.0179	0
229	SLE RA 14	-0.01	-3.65	64.85	0.1473	-0.006	0
229	SLE RA 15	-0.02	-3.47	64.75	0.1395	-0.0132	0
229	SLE RA 16	-0.01	-3.61	64.37	0.1458	-0.0059	0
229	SLE RA 17	-0.02	-3.43	64.27	0.138	-0.0131	0
229	SLE RA 18	-0.01	-3.68	65.46	0.1484	-0.0063	0
229	SLE RA 19	-0.02	-3.5	65.35	0.1406	-0.0135	0
229	SLE RA 20	-0.01	-3.74	65.93	0.1509	-0.0063	0
229	SLE RA 21	-0.02	-3.56	65.82	0.143	-0.0135	0
229	SLE FR 1	-0.01	-3.04	58.71	0.1236	-0.0049	0
229	SLE FR 2	-0.01	-2.98	58.67	0.121	-0.0073	0
229	SLE FR 3	-0.01	-3.07	58.89	0.1246	-0.0049	0
229	SLE FR 4	-0.01	-3.17	60.7	0.1284	-0.0077	0
229	SLE FR 5	-0.01	-3.26	60.92	0.132	-0.0053	0
229	SLE FR 6	-0.01	-3.36	62.08	0.136	-0.0056	0
229	SLE QP 1	-0.01	-3.04	58.71	0.1236	-0.0049	0
229	SLE QP 2	-0.01	-3.23	60.73	0.1311	-0.0053	0
229	SLD 1	0.11	1.51	44.72	-0.0618	0.1535	-0.0001
229	SLD 2	0.11	1.51	44.72	-0.0618	0.1535	-0.0001
229	SLD 3	-0.01	-4	47.46	0.1678	0.0546	-0.0002
229	SLD 4	-0.01	-4	47.46	0.1678	0.0546	-0.0002
229	SLD 5	0.2	6.53	51.77	-0.275	0.1924	0
229	SLD 6	0.2	6.53	51.77	-0.275	0.1924	0
229	SLD 7	-0.18	-11.81	60.91	0.4903	-0.1374	-0.0001
229	SLD 8	-0.18	-11.81	60.91	0.4903	-0.1374	-0.0001
229	SLD 9	0.16	5.34	60.55	-0.2281	0.1267	0.0001
229	SLD 10	0.16	5.34	60.55	-0.2281	0.1267	0.0001
229	SLD 11	-0.22	-13	69.7	0.5371	-0.203	0
229	SLD 12	-0.22	-13	69.7	0.5371	-0.203	0
229	SLD 13	-0.01	-2.47	74	0.0943	-0.0653	0.0002
229	SLD 14	-0.01	-2.47	74	0.0943	-0.0653	0.0002
229	SLD 15	-0.13	-7.98	76.75	0.3239	-0.1642	0.0001
229	SLD 16	-0.13	-7.98	76.75	0.3239	-0.1642	0.0001
229	SLV 1	0.28	7.6	24.01	-0.3098	0.3831	-0.0003
229	SLV 2	0.28	7.6	24.01	-0.3098	0.3831	-0.0003
229	SLV 3	-0.01	-5.07	30.39	0.2185	0.1304	-0.0004
229	SLV 4	-0.01	-5.07	30.39	0.2185	0.1304	-0.0004
229	SLV 5	0.52	19.23	40.03	-0.8024	0.4945	0.0001
229	SLV 6	0.52	19.23	40.03	-0.8024	0.4945	0.0001
229	SLV 7	-0.45	-23	61.31	0.9585	-0.3479	-0.0003
229	SLV 8	-0.45	-23	61.31	0.9585	-0.3479	-0.0003
229	SLV 9	0.43	16.53	60.15	-0.6964	0.3373	0.0003
229	SLV 10	0.43	16.53	60.15	-0.6964	0.3373	0.0003
229	SLV 11	-0.54	-25.7	81.43	1.0645	-0.5052	-0.0001
229	SLV 12	-0.54	-25.7	81.43	1.0645	-0.5052	-0.0001
229	SLV 13	-0.01	-1.4	91.08	0.0436	-0.1411	0.0004
229	SLV 14	-0.01	-1.4	91.08	0.0436	-0.1411	0.0004
229	SLV 15	-0.3	-14.07	97.46	0.5719	-0.3938	0.0003
229	SLV 16	-0.3	-14.07	97.46	0.5719	-0.3938	0.0003
230	SLU 1	0	5.45	44.02	-0.262	-0.0024	0
230	SLU 2	0	5.46	43.51	-0.2629	-0.0016	0
230	SLU 3	0	5.55	45.41	-0.2626	-0.0025	0
230	SLU 4	0	5.56	45.1	-0.2631	-0.0021	0
230	SLU 5	0	5.5	44.43	-0.2603	-0.0017	0
230	SLU 6	0	5.6	46.33	-0.26	-0.0026	0
230	SLU 7	0	5.6	46.02	-0.2605	-0.0022	0
230	SLU 8	0	5.53	45.87	-0.2568	-0.0026	0
230	SLU 9	0	5.54	45.56	-0.2573	-0.0021	0
230	SLU 10	0	6.36	51.39	-0.3065	-0.0021	0
230	SLU 11	0	6.45	53.29	-0.3061	-0.003	0
230	SLU 12	0	6.46	52.98	-0.3067	-0.0026	0
230	SLU 13	0	6.4	52.31	-0.3038	-0.0022	0
230	SLU 14	0	6.49	54.21	-0.3035	-0.0031	0
230	SLU 15	0	6.5	53.9	-0.304	-0.0027	0



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
230	SLU 16	0	6.43	53.75	-0.3004	-0.0031	0
230	SLU 17	0	6.44	53.44	-0.3009	-0.0026	0
230	SLU 18	0	6.74	55.28	-0.3243	-0.0031	0
230	SLU 19	0	6.74	54.97	-0.3248	-0.0026	0
230	SLU 20	0	6.78	56.2	-0.3217	-0.0032	0
230	SLU 21	0	6.78	55.89	-0.3222	-0.0027	0
230	SLU 22	0	6.27	51.42	-0.2994	-0.0029	0
230	SLU 23	0	6.28	50.9	-0.3002	-0.0021	0
230	SLU 24	0	6.37	52.8	-0.2999	-0.003	0
230	SLU 25	0	6.37	52.49	-0.3004	-0.0026	0
230	SLU 26	0	6.32	51.83	-0.2976	-0.0022	0
230	SLU 27	0	6.41	53.72	-0.2973	-0.0031	0
230	SLU 28	0	6.42	53.42	-0.2978	-0.0027	0
230	SLU 29	0	6.35	53.26	-0.2941	-0.0031	0
230	SLU 30	0	6.35	52.95	-0.2946	-0.0026	0
230	SLU 31	0	7.17	58.78	-0.3438	-0.0026	0
230	SLU 32	0	7.27	60.68	-0.3435	-0.0035	0.0001
230	SLU 33	0	7.27	60.37	-0.344	-0.0031	0
230	SLU 34	0	7.22	59.7	-0.3412	-0.0027	0
230	SLU 35	0	7.31	61.6	-0.3408	-0.0036	0.0001
230	SLU 36	0	7.31	61.29	-0.3414	-0.0032	0
230	SLU 37	0	7.25	61.14	-0.3377	-0.0036	0.0001
230	SLU 38	0	7.25	60.83	-0.3382	-0.0031	0
230	SLU 39	0	7.55	62.67	-0.3616	-0.0036	0.0001
230	SLU 40	0	7.56	62.36	-0.3621	-0.0031	0
230	SLU 41	0	7.59	63.59	-0.359	-0.0037	0.0001
230	SLU 42	0	7.6	63.28	-0.3595	-0.0032	0
230	SLU 43	0	6.81	54.7	-0.3279	-0.0029	0
230	SLU 44	0	6.82	54.18	-0.3287	-0.0021	0
230	SLU 45	0	6.91	56.08	-0.3284	-0.0031	0
230	SLU 46	0	6.92	55.77	-0.3289	-0.0026	0
230	SLU 47	0	6.86	55.11	-0.3261	-0.0022	0
230	SLU 48	0	6.95	57.01	-0.3258	-0.0032	0
230	SLU 49	0	6.96	56.7	-0.3263	-0.0027	0
230	SLU 50	0	6.89	56.55	-0.3226	-0.0031	0
230	SLU 51	0	6.9	56.24	-0.3231	-0.0026	0
230	SLU 52	0	7.72	62.06	-0.3723	-0.0026	0
230	SLU 53	0	7.81	63.96	-0.372	-0.0036	0.0001
230	SLU 54	0	7.81	63.65	-0.3725	-0.0031	0
230	SLU 55	0	7.76	62.98	-0.3697	-0.0027	0
230	SLU 56	0	7.85	64.88	-0.3693	-0.0037	0.0001
230	SLU 57	0	7.85	64.57	-0.3699	-0.0032	0
230	SLU 58	0	7.79	64.42	-0.3662	-0.0036	0.0001
230	SLU 59	0	7.79	64.11	-0.3667	-0.0032	0
230	SLU 60	0	8.09	65.95	-0.3901	-0.0037	0.0001
230	SLU 61	0	8.1	65.64	-0.3906	-0.0032	0
230	SLU 62	0	8.13	66.87	-0.3875	-0.0038	0.0001
230	SLU 63	0	8.14	66.57	-0.388	-0.0033	0
230	SLU 64	0	7.63	62.09	-0.3652	-0.0034	0
230	SLU 65	0	7.63	61.57	-0.366	-0.0026	0
230	SLU 66	0	7.73	63.47	-0.3657	-0.0036	0.0001
230	SLU 67	0	7.73	63.16	-0.3662	-0.0031	0
230	SLU 68	0	7.67	62.5	-0.3634	-0.0027	0
230	SLU 69	0	7.77	64.4	-0.3631	-0.0037	0.0001
230	SLU 70	0	7.77	64.09	-0.3636	-0.0032	0
230	SLU 71	0	7.71	63.94	-0.3599	-0.0036	0.0001
230	SLU 72	0	7.71	63.63	-0.3604	-0.0031	0
230	SLU 73	0	8.53	69.45	-0.4096	-0.0031	0
230	SLU 74	0	8.63	71.35	-0.4093	-0.0041	0.0001
230	SLU 75	0	8.63	71.04	-0.4098	-0.0036	0.0001
230	SLU 76	0	8.57	70.38	-0.407	-0.0032	0
230	SLU 77	0	8.67	72.27	-0.4067	-0.0042	0.0001
230	SLU 78	0	8.67	71.97	-0.4072	-0.0037	0.0001
230	SLU 79	0	8.6	71.81	-0.4035	-0.0041	0.0001
230	SLU 80	0	8.61	71.51	-0.404	-0.0037	0.0001
230	SLU 81	0	8.91	73.34	-0.4274	-0.0041	0.0001
230	SLU 82	0	8.91	73.03	-0.4279	-0.0037	0.0001
230	SLU 83	0	8.95	74.27	-0.4248	-0.0042	0.0001
230	SLU 84	0	8.95	73.96	-0.4253	-0.0038	0.0001
230	SLE RA 1	0	5.69	46.14	-0.2727	-0.0025	0
230	SLE RA 2	0	5.69	45.79	-0.2733	-0.002	0
230	SLE RA 3	0	5.75	47.06	-0.2731	-0.0026	0
230	SLE RA 4	0	5.76	46.85	-0.2734	-0.0023	0
230	SLE RA 5	0	5.72	46.41	-0.2715	-0.0021	0
230	SLE RA 6	0	5.78	47.67	-0.2713	-0.0027	0
230	SLE RA 7	0	5.78	47.47	-0.2716	-0.0024	0
230	SLE RA 8	0	5.74	47.37	-0.2692	-0.0027	0
230	SLE RA 9	0	5.74	47.16	-0.2695	-0.0023	0
230	SLE RA 10	0	6.29	51.04	-0.3023	-0.0023	0
230	SLE RA 11	0	6.35	52.31	-0.3021	-0.003	0
230	SLE RA 12	0	6.36	52.1	-0.3024	-0.0026	0
230	SLE RA 13	0	6.32	51.66	-0.3006	-0.0024	0
230	SLE RA 14	0	6.38	52.93	-0.3004	-0.003	0
230	SLE RA 15	0	6.38	52.72	-0.3007	-0.0027	0
230	SLE RA 16	0	6.34	52.62	-0.2983	-0.003	0
230	SLE RA 17	0	6.34	52.41	-0.2986	-0.0027	0
230	SLE RA 18	0	6.54	53.64	-0.3142	-0.003	0
230	SLE RA 19	0	6.55	53.43	-0.3145	-0.0027	0
230	SLE RA 20	0	6.57	54.25	-0.3124	-0.0031	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
230	SLE RA 21	0	6.57	54.05	-0.3128	-0.0028	0
230	SLE FR 1	0	5.69	46.14	-0.2727	-0.0025	0
230	SLE FR 2	0	5.69	46.07	-0.2728	-0.0024	0
230	SLE FR 3	0	5.7	46.38	-0.272	-0.0025	0
230	SLE FR 4	0	5.94	48.32	-0.2853	-0.0026	0
230	SLE FR 5	0	5.95	48.63	-0.2844	-0.0027	0
230	SLE FR 6	0	6.11	49.89	-0.2934	-0.0028	0
230	SLE QP 1	0	5.69	46.14	-0.2727	-0.0025	0
230	SLE QP 2	0	5.94	48.39	-0.2851	-0.0027	0
230	SLD 1	0.11	9.01	58.11	-0.4833	0.1202	-0.0006
230	SLD 2	0.11	9.01	58.11	-0.4833	0.1202	-0.0006
230	SLD 3	0.15	5.81	48.15	-0.2683	0.1547	-0.001
230	SLD 4	0.15	5.81	48.15	-0.2683	0.1547	-0.001
230	SLD 5	-0.02	11.72	66.41	-0.6707	-0.0181	0.0005
230	SLD 6	-0.02	11.72	66.41	-0.6707	-0.0181	0.0005
230	SLD 7	0.1	1.05	33.21	0.046	0.0968	-0.001
230	SLD 8	0.1	1.05	33.21	0.046	0.0968	-0.001
230	SLD 9	-0.1	10.84	63.56	-0.6163	-0.1021	0.001
230	SLD 10	-0.1	10.84	63.56	-0.6163	-0.1021	0.001
230	SLD 11	0.02	0.17	30.36	0.1004	0.0127	-0.0005
230	SLD 12	0.02	0.17	30.36	0.1004	0.0127	-0.0005
230	SLD 13	-0.15	6.08	48.62	-0.302	-0.16	0.0011
230	SLD 14	-0.15	6.08	48.62	-0.302	-0.16	0.0011
230	SLD 15	-0.12	2.87	38.66	-0.0869	-0.1255	0.0006
230	SLD 16	-0.12	2.87	38.66	-0.0869	-0.1255	0.0006
230	SLV 1	0.29	13.03	70.89	-0.7429	0.3114	-0.0014
230	SLV 2	0.29	13.03	70.89	-0.7429	0.3114	-0.0014
230	SLV 3	0.38	5.69	48.05	-0.2496	0.3996	-0.0026
230	SLV 4	0.38	5.69	48.05	-0.2496	0.3996	-0.0026
230	SLV 5	-0.06	19.21	89.78	-1.1706	-0.0422	0.0013
230	SLV 6	-0.06	19.21	89.78	-1.1706	-0.0422	0.0013
230	SLV 7	0.26	-5.28	13.65	0.4736	0.2518	-0.0025
230	SLV 8	0.26	-5.28	13.65	0.4736	0.2518	-0.0025
230	SLV 9	-0.26	17.16	83.12	-1.0439	-0.2571	0.0026
230	SLV 10	-0.26	17.16	83.12	-1.0439	-0.2571	0.0026
230	SLV 11	0.05	-7.33	7	0.6003	0.0368	-0.0013
230	SLV 12	0.05	-7.33	7	0.6003	0.0368	-0.0013
230	SLV 13	-0.39	6.2	48.72	-0.3207	-0.4049	0.0027
230	SLV 14	-0.39	6.2	48.72	-0.3207	-0.4049	0.0027
230	SLV 15	-0.29	-1.15	25.88	0.1726	-0.3168	0.0015
230	SLV 16	-0.29	-1.15	25.88	0.1726	-0.3168	0.0015
231	SLU 1	0	5.18	47.82	-0.2377	0.0009	0
231	SLU 2	0	5.18	47.32	-0.2377	0.0003	0
231	SLU 3	0	5.41	49.96	-0.2486	0.001	0
231	SLU 4	0	5.41	49.66	-0.2486	0.0007	0
231	SLU 5	0	5.41	49.1	-0.2488	0.0005	0
231	SLU 6	0	5.64	51.75	-0.2597	0.0012	0
231	SLU 7	0	5.64	51.44	-0.2597	0.0008	0
231	SLU 8	0	5.63	51.39	-0.2598	0.0011	0
231	SLU 9	0	5.63	51.09	-0.2599	0.0008	0
231	SLU 10	0	5.9	56.05	-0.2695	0.0006	0
231	SLU 11	0	6.14	58.7	-0.2803	0.0013	0
231	SLU 12	0	6.14	58.39	-0.2804	0.0009	0
231	SLU 13	0	6.13	57.84	-0.2806	0.0007	0
231	SLU 14	0	6.36	60.48	-0.2914	0.0014	0
231	SLU 15	0	6.36	60.18	-0.2914	0.0011	0
231	SLU 16	0	6.36	60.13	-0.2916	0.0014	0
231	SLU 17	0	6.36	59.83	-0.2916	0.0011	0
231	SLU 18	0	6.21	60.3	-0.283	0.0012	0
231	SLU 19	0	6.21	60	-0.2831	0.0009	0
231	SLU 20	0	6.44	62.09	-0.2941	0.0014	0
231	SLU 21	0	6.44	61.79	-0.2941	0.001	0
231	SLU 22	0	5.93	56.19	-0.2712	0.0011	0
231	SLU 23	0	5.93	55.68	-0.2713	0.0006	0
231	SLU 24	0	6.16	58.33	-0.2821	0.0013	0
231	SLU 25	0	6.16	58.03	-0.2821	0.001	0
231	SLU 26	0	6.16	57.47	-0.2823	0.0007	0
231	SLU 27	0	6.39	60.11	-0.2932	0.0014	0
231	SLU 28	0	6.39	59.81	-0.2932	0.0011	0
231	SLU 29	0	6.39	59.76	-0.2934	0.0014	0
231	SLU 30	0	6.39	59.46	-0.2934	0.0011	0
231	SLU 31	0	6.66	64.42	-0.303	0.0008	0
231	SLU 32	0	6.89	67.06	-0.3138	0.0015	0
231	SLU 33	0	6.89	66.76	-0.3139	0.0012	0
231	SLU 34	0	6.89	66.21	-0.3141	0.001	0
231	SLU 35	0	7.12	68.85	-0.3249	0.0017	0
231	SLU 36	0	7.12	68.55	-0.3249	0.0013	0
231	SLU 37	0	7.11	68.5	-0.3251	0.0017	0
231	SLU 38	0	7.11	68.19	-0.3251	0.0013	0
231	SLU 39	0	6.97	68.67	-0.3166	0.0015	0
231	SLU 40	0	6.97	68.37	-0.3166	0.0012	0
231	SLU 41	0	7.2	70.45	-0.3276	0.0016	0
231	SLU 42	0	7.2	70.15	-0.3276	0.0013	0
231	SLU 43	0	6.47	59.3	-0.2975	0.001	0
231	SLU 44	0	6.47	58.8	-0.2976	0.0005	0
231	SLU 45	0	6.7	61.44	-0.3084	0.0012	0
231	SLU 46	0	6.7	61.14	-0.3084	0.0009	0
231	SLU 47	0	6.7	60.58	-0.3086	0.0006	0
231	SLU 48	0	6.93	63.23	-0.3195	0.0013	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
231	SLU 49	0	6.93	62.92	-0.3195	0.001	0
231	SLU 50	0	6.93	62.87	-0.3197	0.0013	0
231	SLU 51	0	6.93	62.57	-0.3197	0.001	0
231	SLU 52	0	7.2	67.53	-0.3293	0.0008	0
231	SLU 53	0	7.43	70.18	-0.3401	0.0014	0
231	SLU 54	0	7.43	69.87	-0.3402	0.0011	0
231	SLU 55	0	7.43	69.32	-0.3404	0.0009	0
231	SLU 56	0	7.66	71.96	-0.3512	0.0016	0
231	SLU 57	0	7.66	71.66	-0.3512	0.0013	0
231	SLU 58	0	7.65	71.61	-0.3514	0.0016	0
231	SLU 59	0	7.65	71.31	-0.3514	0.0012	0
231	SLU 60	0	7.51	71.78	-0.3429	0.0014	0
231	SLU 61	0	7.51	71.48	-0.3429	0.0011	0
231	SLU 62	0	7.74	73.57	-0.3539	0.0015	0
231	SLU 63	0	7.74	73.26	-0.354	0.0012	0
231	SLU 64	0	7.22	67.67	-0.331	0.0013	0
231	SLU 65	0	7.22	67.16	-0.3311	0.0008	0
231	SLU 66	0	7.46	69.81	-0.3419	0.0014	0
231	SLU 67	0	7.46	69.5	-0.3419	0.0011	0
231	SLU 68	0	7.45	68.95	-0.3421	0.0009	0
231	SLU 69	0	7.69	71.59	-0.353	0.0016	0
231	SLU 70	0	7.69	71.29	-0.353	0.0013	0
231	SLU 71	0	7.68	71.24	-0.3532	0.0016	0
231	SLU 72	0	7.68	70.94	-0.3532	0.0013	0
231	SLU 73	0	7.95	75.9	-0.3628	0.001	0
231	SLU 74	0	8.18	78.54	-0.3737	0.0017	0
231	SLU 75	0	8.18	78.24	-0.3737	0.0014	0
231	SLU 76	0	8.18	77.68	-0.3739	0.0012	0
231	SLU 77	0	8.41	80.33	-0.3847	0.0018	0
231	SLU 78	0	8.41	80.03	-0.3848	0.0015	0
231	SLU 79	0	8.41	79.97	-0.3849	0.0018	0
231	SLU 80	0	8.41	79.67	-0.3849	0.0015	0
231	SLU 81	0	8.26	80.15	-0.3764	0.0017	0
231	SLU 82	0	8.26	79.84	-0.3764	0.0013	0
231	SLU 83	0	8.49	81.93	-0.3874	0.0018	0
231	SLU 84	0	8.49	81.63	-0.3875	0.0015	0
231	SLE RA 1	0	5.39	50.21	-0.2473	0.0009	0
231	SLE RA 2	0	5.39	49.88	-0.2473	0.0006	0
231	SLE RA 3	0	5.55	51.64	-0.2545	0.001	0
231	SLE RA 4	0	5.55	51.44	-0.2546	0.0008	0
231	SLE RA 5	0	5.54	51.07	-0.2547	0.0007	0
231	SLE RA 6	0	5.7	52.83	-0.2619	0.0011	0
231	SLE RA 7	0	5.7	52.63	-0.2619	0.0009	0
231	SLE RA 8	0	5.7	52.59	-0.262	0.0011	0
231	SLE RA 9	0	5.7	52.39	-0.2621	0.0009	0
231	SLE RA 10	0	5.88	55.7	-0.2685	0.0008	0
231	SLE RA 11	0	6.03	57.46	-0.2757	0.0012	0
231	SLE RA 12	0	6.03	57.26	-0.2757	0.001	0
231	SLE RA 13	0	6.03	56.89	-0.2758	0.0008	0
231	SLE RA 14	0	6.18	58.65	-0.2831	0.0013	0
231	SLE RA 15	0	6.18	58.45	-0.2831	0.0011	0
231	SLE RA 16	0	6.18	58.42	-0.2832	0.0013	0
231	SLE RA 17	0	6.18	58.22	-0.2832	0.0011	0
231	SLE RA 18	0	6.08	58.53	-0.2775	0.0012	0
231	SLE RA 19	0	6.08	58.33	-0.2775	0.001	0
231	SLE RA 20	0	6.24	59.72	-0.2849	0.0013	0
231	SLE RA 21	0	6.24	59.52	-0.2849	0.0011	0
231	SLE FR 1	0	5.39	50.21	-0.2473	0.0009	0
231	SLE FR 2	0	5.39	50.15	-0.2473	0.0009	0
231	SLE FR 3	0	5.45	50.69	-0.2502	0.001	0
231	SLE FR 4	0	5.6	52.64	-0.2563	0.0009	0
231	SLE FR 5	0	5.66	53.19	-0.2593	0.0011	0
231	SLE FR 6	0	5.74	54.37	-0.2624	0.0011	0
231	SLE QP 1	0	5.39	50.21	-0.2473	0.0009	0
231	SLE QP 2	0	5.6	52.71	-0.2563	0.001	0
231	SLD 1	0.2	6.13	55.02	-0.2816	0.1991	0.0006
231	SLD 2	0.2	6.13	55.02	-0.2816	0.1991	0.0006
231	SLD 3	0.16	0.83	42.02	0.0054	0.1692	0.0005
231	SLD 4	0.16	0.83	42.02	0.0054	0.1692	0.0005
231	SLD 5	0.11	13.78	73.12	-0.6992	0.1058	0.0003
231	SLD 6	0.11	13.78	73.12	-0.6992	0.1058	0.0003
231	SLD 7	0	-3.86	29.79	0.2575	0.0062	0
231	SLD 8	0	-3.86	29.79	0.2575	0.0062	0
231	SLD 9	0	15.05	75.63	-0.7702	-0.0041	0
231	SLD 10	0	15.05	75.63	-0.7702	-0.0041	0
231	SLD 11	-0.1	-2.59	32.3	0.1865	-0.1037	-0.0003
231	SLD 12	-0.1	-2.59	32.3	0.1865	-0.1037	-0.0003
231	SLD 13	-0.16	10.36	63.39	-0.5181	-0.1672	-0.0005
231	SLD 14	-0.16	10.36	63.39	-0.5181	-0.1672	-0.0005
231	SLD 15	-0.19	5.07	50.39	-0.2311	-0.1971	-0.0006
231	SLD 16	-0.19	5.07	50.39	-0.2311	-0.1971	-0.0006
231	SLV 1	0.5	6.77	57.94	-0.3126	0.508	0.0016
231	SLV 2	0.5	6.77	57.94	-0.3126	0.508	0.0016
231	SLV 3	0.42	-5.41	27.95	0.3487	0.4315	0.0013
231	SLV 4	0.42	-5.41	27.95	0.3487	0.4315	0.0013
231	SLV 5	0.27	24.43	99.75	-1.2762	0.269	0.0009
231	SLV 6	0.27	24.43	99.75	-1.2762	0.269	0.0009
231	SLV 7	0	-16.19	-0.19	0.9281	0.0142	0
231	SLV 8	0	-16.19	-0.19	0.9281	0.0142	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
231	SLV 9	0	27.38	105.61	-1.4408	-0.0122	0
231	SLV 10	0	27.38	105.61	-1.4408	-0.0122	0
231	SLV 11	-0.27	-13.24	5.67	0.7635	-0.267	-0.0009
231	SLV 12	-0.27	-13.24	5.67	0.7635	-0.267	-0.0009
231	SLV 13	-0.41	16.61	77.46	-0.8614	-0.4295	-0.0013
231	SLV 14	-0.41	16.61	77.46	-0.8614	-0.4295	-0.0013
231	SLV 15	-0.49	4.42	47.48	-0.2001	-0.5059	-0.0016
231	SLV 16	-0.49	4.42	47.48	-0.2001	-0.5059	-0.0016
232	SLU 1	0	0.93	19.62	-0.1372	-0.0006	0
232	SLU 2	0	0.94	19.63	-0.1373	-0.0008	0
232	SLU 3	0	0.9	19.49	-0.1384	-0.0006	0
232	SLU 4	0	0.9	19.49	-0.1385	-0.0007	0
232	SLU 5	0	0.92	19.54	-0.1382	-0.0008	0
232	SLU 6	0	0.88	19.4	-0.1393	-0.0005	0
232	SLU 7	0	0.88	19.4	-0.1394	-0.0007	0
232	SLU 8	0	0.89	19.45	-0.139	-0.0005	0
232	SLU 9	0	0.9	19.45	-0.1391	-0.0006	0
232	SLU 10	0	1.33	27.14	-0.181	-0.001	0
232	SLU 11	0	1.3	27	-0.1822	-0.0007	0
232	SLU 12	0	1.3	27.01	-0.1822	-0.0009	0
232	SLU 13	0	1.32	27.06	-0.1819	-0.001	0
232	SLU 14	0	1.28	26.92	-0.1831	-0.0007	0
232	SLU 15	0	1.28	26.92	-0.1831	-0.0008	0
232	SLU 16	0	1.29	26.96	-0.1828	-0.0006	0
232	SLU 17	0	1.29	26.96	-0.1828	-0.0008	0
232	SLU 18	0	1.5	30.36	-0.1997	-0.0008	0
232	SLU 19	0	1.5	30.36	-0.1998	-0.001	0
232	SLU 20	0	1.48	30.27	-0.2006	-0.0008	0
232	SLU 21	0	1.48	30.27	-0.2007	-0.0009	0
232	SLU 22	0	1.19	25	-0.1705	-0.0007	0
232	SLU 23	0	1.2	25	-0.1706	-0.0009	0
232	SLU 24	0	1.16	24.86	-0.1717	-0.0006	0
232	SLU 25	0	1.16	24.87	-0.1717	-0.0008	0
232	SLU 26	0	1.18	24.92	-0.1715	-0.0009	0
232	SLU 27	0	1.14	24.78	-0.1726	-0.0006	0
232	SLU 28	0	1.14	24.78	-0.1726	-0.0007	0
232	SLU 29	0	1.15	24.82	-0.1723	-0.0005	0
232	SLU 30	0	1.16	24.82	-0.1723	-0.0007	0
232	SLU 31	0	1.59	32.52	-0.2143	-0.0011	0
232	SLU 32	0	1.56	32.38	-0.2155	-0.0008	0
232	SLU 33	0	1.56	32.38	-0.2155	-0.001	0
232	SLU 34	0	1.58	32.43	-0.2152	-0.001	0
232	SLU 35	0	1.54	32.29	-0.2164	-0.0008	0
232	SLU 36	0	1.54	32.29	-0.2164	-0.0009	0
232	SLU 37	0	1.55	32.34	-0.216	-0.0007	0
232	SLU 38	0	1.55	32.34	-0.2161	-0.0009	0
232	SLU 39	0	1.76	35.73	-0.233	-0.0009	0
232	SLU 40	0	1.76	35.74	-0.233	-0.0011	0
232	SLU 41	0	1.74	35.64	-0.2339	-0.0009	0
232	SLU 42	0	1.74	35.65	-0.2339	-0.001	0
232	SLU 43	0	1.12	23.67	-0.167	-0.0007	0
232	SLU 44	0	1.13	23.67	-0.1671	-0.001	0
232	SLU 45	0	1.09	23.53	-0.1682	-0.0007	0
232	SLU 46	0	1.09	23.54	-0.1682	-0.0009	0
232	SLU 47	0	1.11	23.59	-0.168	-0.0009	0
232	SLU 48	0	1.07	23.45	-0.1691	-0.0007	0
232	SLU 49	0	1.07	23.45	-0.1691	-0.0008	0
232	SLU 50	0	1.08	23.49	-0.1688	-0.0006	0
232	SLU 51	0	1.09	23.5	-0.1688	-0.0008	0
232	SLU 52	0	1.52	31.19	-0.2108	-0.0012	0
232	SLU 53	0	1.49	31.05	-0.212	-0.0009	0
232	SLU 54	0	1.49	31.05	-0.212	-0.001	0
232	SLU 55	0	1.51	31.1	-0.2117	-0.0011	0
232	SLU 56	0	1.47	30.96	-0.2128	-0.0008	0
232	SLU 57	0	1.47	30.96	-0.2129	-0.001	0
232	SLU 58	0	1.48	31.01	-0.2125	-0.0008	0
232	SLU 59	0	1.49	31.01	-0.2126	-0.0009	0
232	SLU 60	0	1.69	34.4	-0.2295	-0.001	0
232	SLU 61	0	1.69	34.41	-0.2295	-0.0011	0
232	SLU 62	0	1.67	34.32	-0.2304	-0.0009	0
232	SLU 63	0	1.68	34.32	-0.2304	-0.0011	0
232	SLU 64	0	1.38	29.04	-0.2003	-0.0008	0
232	SLU 65	0	1.39	29.05	-0.2003	-0.0011	0
232	SLU 66	0	1.35	28.91	-0.2015	-0.0008	0
232	SLU 67	0	1.35	28.91	-0.2015	-0.0009	0
232	SLU 68	0	1.37	28.96	-0.2012	-0.001	0
232	SLU 69	0	1.33	28.82	-0.2024	-0.0007	0
232	SLU 70	0	1.33	28.82	-0.2024	-0.0009	0
232	SLU 71	0	1.34	28.87	-0.2021	-0.0007	0
232	SLU 72	0	1.35	28.87	-0.2021	-0.0008	0
232	SLU 73	0	1.79	36.56	-0.2441	-0.0012	0
232	SLU 74	0	1.75	36.42	-0.2452	-0.001	0
232	SLU 75	0	1.75	36.43	-0.2453	-0.0011	0
232	SLU 76	0	1.77	36.47	-0.245	-0.0012	0
232	SLU 77	0	1.73	36.33	-0.2461	-0.0009	0
232	SLU 78	0	1.73	36.34	-0.2461	-0.0011	0
232	SLU 79	0	1.74	36.38	-0.2458	-0.0009	0
232	SLU 80	0	1.75	36.38	-0.2458	-0.001	0
232	SLU 81	0	1.95	39.78	-0.2628	-0.0011	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
232	SLU 82	0	1.95	39.78	-0.2628	-0.0012	0
232	SLU 83	0	1.93	39.69	-0.2637	-0.001	0
232	SLU 84	0	1.94	39.69	-0.2637	-0.0012	0
232	SLE RA 1	0	1.01	21.16	-0.1467	-0.0006	0
232	SLE RA 2	0	1.01	21.16	-0.1468	-0.0008	0
232	SLE RA 3	0	0.98	21.07	-0.1475	-0.0006	0
232	SLE RA 4	0	0.98	21.07	-0.1476	-0.0007	0
232	SLE RA 5	0	1	21.1	-0.1474	-0.0007	0
232	SLE RA 6	0	0.97	21.01	-0.1481	-0.0006	0
232	SLE RA 7	0	0.97	21.01	-0.1482	-0.0007	0
232	SLE RA 8	0	0.98	21.04	-0.1479	-0.0005	0
232	SLE RA 9	0	0.98	21.04	-0.148	-0.0006	0
232	SLE RA 10	0	1.27	26.17	-0.176	-0.0009	0
232	SLE RA 11	0	1.25	26.08	-0.1767	-0.0007	0
232	SLE RA 12	0	1.25	26.08	-0.1767	-0.0008	0
232	SLE RA 13	0	1.26	26.11	-0.1765	-0.0009	0
232	SLE RA 14	0	1.24	26.02	-0.1773	-0.0007	0
232	SLE RA 15	0	1.24	26.02	-0.1773	-0.0008	0
232	SLE RA 16	0	1.25	26.05	-0.1771	-0.0006	0
232	SLE RA 17	0	1.25	26.05	-0.1771	-0.0007	0
232	SLE RA 18	0	1.39	28.32	-0.1884	-0.0008	0
232	SLE RA 19	0	1.39	28.32	-0.1884	-0.0009	0
232	SLE RA 20	0	1.37	28.26	-0.189	-0.0007	0
232	SLE RA 21	0	1.37	28.26	-0.189	-0.0008	0
232	SLE FR 1	0	1.01	21.16	-0.1467	-0.0006	0
232	SLE FR 2	0	1.01	21.16	-0.1468	-0.0006	0
232	SLE FR 3	0	1	21.14	-0.147	-0.0006	0
232	SLE FR 4	0	1.12	23.31	-0.1593	-0.0007	0
232	SLE FR 5	0	1.12	23.28	-0.1595	-0.0006	0
232	SLE FR 6	0	1.2	24.74	-0.1676	-0.0007	0
232	SLE QP 1	0	1.01	21.16	-0.1467	-0.0006	0
232	SLE QP 2	0	1.12	23.31	-0.1592	-0.0007	0
232	SLD 1	0.17	1.79	30.96	-0.2066	0.2208	-0.0008
232	SLD 2	0.17	1.79	30.96	-0.2066	0.2208	-0.0008
232	SLD 3	0.18	-0.99	20.64	-0.0039	0.2302	-0.001
232	SLD 4	0.18	-0.99	20.64	-0.0039	0.2302	-0.001
232	SLD 5	0.03	5.53	41.26	-0.4809	0.0516	0
232	SLD 6	0.03	5.53	41.26	-0.4809	0.0516	0
232	SLD 7	0.07	-3.72	6.85	0.1948	0.0828	-0.0005
232	SLD 8	0.07	-3.72	6.85	0.1948	0.0828	-0.0005
232	SLD 9	-0.07	5.96	39.76	-0.5133	-0.0841	0.0006
232	SLD 10	-0.07	5.96	39.76	-0.5133	-0.0841	0.0006
232	SLD 11	-0.04	-3.29	5.35	0.1624	-0.0529	0
232	SLD 12	-0.04	-3.29	5.35	0.1624	-0.0529	0
232	SLD 13	-0.18	3.23	25.97	-0.3146	-0.2315	0.001
232	SLD 14	-0.18	3.23	25.97	-0.3146	-0.2315	0.001
232	SLD 15	-0.17	0.45	15.65	-0.1119	-0.2221	0.0008
232	SLD 16	-0.17	0.45	15.65	-0.1119	-0.2221	0.0008
232	SLV 1	0.43	2.71	41.06	-0.2716	0.5667	-0.002
232	SLV 2	0.43	2.71	41.06	-0.2716	0.5667	-0.002
232	SLV 3	0.45	-3.77	16.98	0.2013	0.5902	-0.0024
232	SLV 4	0.45	-3.77	16.98	0.2013	0.5902	-0.0024
232	SLV 5	0.09	11.42	65.15	-0.9102	0.1338	0
232	SLV 6	0.09	11.42	65.15	-0.9102	0.1338	0
232	SLV 7	0.17	-10.17	-15.11	0.6661	0.2123	-0.0013
232	SLV 8	0.17	-10.17	-15.11	0.6661	0.2123	-0.0013
232	SLV 9	-0.18	12.41	61.73	-0.9846	-0.2136	0.0013
232	SLV 10	-0.18	12.41	61.73	-0.9846	-0.2136	0.0013
232	SLV 11	-0.09	-9.18	-18.54	0.5917	-0.1352	0
232	SLV 12	-0.09	-9.18	-18.54	0.5917	-0.1352	0
232	SLV 13	-0.45	6.01	29.64	-0.5198	-0.5915	0.0024
232	SLV 14	-0.45	6.01	29.64	-0.5198	-0.5915	0.0024
232	SLV 15	-0.43	-0.47	5.56	-0.0469	-0.568	0.002
232	SLV 16	-0.43	-0.47	5.56	-0.0469	-0.568	0.002
233	SLU 1	0	7.9	39.09	-0.5095	-0.0018	0
233	SLU 2	0	7.89	39.05	-0.5091	-0.0017	0
233	SLU 3	0	7.83	38.84	-0.5078	-0.002	0
233	SLU 4	0	7.83	38.82	-0.5075	-0.002	0
233	SLU 5	0	7.66	38.08	-0.4964	-0.002	0
233	SLU 6	0	7.59	37.87	-0.495	-0.0023	0
233	SLU 7	0	7.59	37.84	-0.4948	-0.0023	0
233	SLU 8	0	7.43	37.14	-0.484	-0.0023	0
233	SLU 9	0	7.42	37.12	-0.4838	-0.0023	0
233	SLU 10	0	9.52	47.21	-0.6107	-0.0019	0
233	SLU 11	0	9.46	47	-0.6094	-0.0023	0
233	SLU 12	0	9.45	46.98	-0.6092	-0.0022	0
233	SLU 13	0	9.28	46.23	-0.598	-0.0022	0
233	SLU 14	0	9.22	46.02	-0.5967	-0.0025	0
233	SLU 15	0	9.22	46	-0.5965	-0.0025	0
233	SLU 16	0	9.05	45.3	-0.5857	-0.0025	0
233	SLU 17	0	9.05	45.27	-0.5854	-0.0025	0
233	SLU 18	0	10.22	50.75	-0.6547	-0.0021	0
233	SLU 19	0	10.22	50.72	-0.6545	-0.0021	0
233	SLU 20	0	9.98	49.77	-0.642	-0.0024	0
233	SLU 21	0	9.98	49.75	-0.6417	-0.0023	0
233	SLU 22	0	9.2	45.56	-0.5928	-0.0022	0
233	SLU 23	0	9.19	45.52	-0.5925	-0.0021	0
233	SLU 24	0	9.13	45.31	-0.5912	-0.0024	0
233	SLU 25	0	9.13	45.29	-0.5909	-0.0024	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
233	SLU 26	0	8.96	44.54	-0.5797	-0.0023	0
233	SLU 27	0	8.89	44.33	-0.5784	-0.0027	0
233	SLU 28	0	8.89	44.31	-0.5782	-0.0026	0
233	SLU 29	0	8.73	43.6	-0.5674	-0.0027	0
233	SLU 30	0	8.72	43.58	-0.5672	-0.0026	0
233	SLU 31	0	10.82	53.68	-0.6941	-0.0023	0
233	SLU 32	0	10.76	53.47	-0.6928	-0.0026	0
233	SLU 33	0	10.75	53.44	-0.6926	-0.0026	0
233	SLU 34	0	10.58	52.7	-0.6814	-0.0026	0
233	SLU 35	0	10.52	52.49	-0.6801	-0.0029	0
233	SLU 36	0	10.52	52.47	-0.6799	-0.0029	0
233	SLU 37	0	10.35	51.76	-0.669	-0.0029	0
233	SLU 38	0	10.35	51.74	-0.6688	-0.0029	0
233	SLU 39	0	11.52	57.21	-0.7381	-0.0025	0
233	SLU 40	0	11.52	57.19	-0.7378	-0.0024	0
233	SLU 41	0	11.28	56.24	-0.7253	-0.0028	0
233	SLU 42	0	11.28	56.21	-0.7251	-0.0027	0
233	SLU 43	0	9.82	48.6	-0.6337	-0.0022	0
233	SLU 44	0	9.82	48.57	-0.6333	-0.0021	0
233	SLU 45	0	9.76	48.35	-0.632	-0.0024	0
233	SLU 46	0	9.75	48.33	-0.6318	-0.0024	0
233	SLU 47	0	9.58	47.59	-0.6206	-0.0024	0
233	SLU 48	0	9.52	47.38	-0.6193	-0.0027	0
233	SLU 49	0	9.52	47.35	-0.6191	-0.0027	0
233	SLU 50	0	9.35	46.65	-0.6083	-0.0027	0
233	SLU 51	0	9.35	46.63	-0.608	-0.0027	0
233	SLU 52	0	11.44	56.72	-0.735	-0.0023	0
233	SLU 53	0	11.38	56.51	-0.7337	-0.0027	0
233	SLU 54	0	11.38	56.49	-0.7334	-0.0026	0
233	SLU 55	0	11.21	55.75	-0.7223	-0.0026	0
233	SLU 56	0	11.14	55.53	-0.7209	-0.0029	0
233	SLU 57	0	11.14	55.51	-0.7207	-0.0029	0
233	SLU 58	0	10.97	54.81	-0.7099	-0.0029	0
233	SLU 59	0	10.97	54.78	-0.7097	-0.0029	0
233	SLU 60	0	12.14	60.26	-0.7789	-0.0025	0
233	SLU 61	0	12.14	60.23	-0.7787	-0.0025	0
233	SLU 62	0	11.91	59.28	-0.7662	-0.0028	0
233	SLU 63	0	11.91	59.26	-0.766	-0.0027	0
233	SLU 64	0	11.12	55.07	-0.7171	-0.0026	0
233	SLU 65	0	11.12	55.03	-0.7167	-0.0025	0
233	SLU 66	0	11.05	54.82	-0.7154	-0.0028	0
233	SLU 67	0	11.05	54.8	-0.7152	-0.0028	0
233	SLU 68	0	10.88	54.05	-0.704	-0.0027	0
233	SLU 69	0	10.82	53.84	-0.7027	-0.0031	0
233	SLU 70	0	10.82	53.82	-0.7024	-0.003	0
233	SLU 71	0	10.65	53.12	-0.6916	-0.0031	0
233	SLU 72	0	10.65	53.09	-0.6914	-0.003	0
233	SLU 73	0	12.74	63.19	-0.8184	-0.0027	0
233	SLU 74	0	12.68	62.98	-0.8171	-0.003	0
233	SLU 75	0	12.68	62.95	-0.8168	-0.003	0
233	SLU 76	0	12.51	62.21	-0.8056	-0.003	0
233	SLU 77	0	12.44	62	-0.8043	-0.0033	0
233	SLU 78	0	12.44	61.98	-0.8041	-0.0033	0
233	SLU 79	0	12.27	61.27	-0.7933	-0.0033	0
233	SLU 80	0	12.27	61.25	-0.7931	-0.0033	0
233	SLU 81	0	13.44	66.72	-0.8623	-0.0029	0
233	SLU 82	0	13.44	66.7	-0.8621	-0.0028	0
233	SLU 83	0	13.21	65.75	-0.8496	-0.0032	0
233	SLU 84	0	13.2	65.72	-0.8494	-0.0031	0
233	SLE RA 1	0	8.27	40.94	-0.5333	-0.0019	0
233	SLE RA 2	0	8.27	40.91	-0.533	-0.0018	0
233	SLE RA 3	0	8.23	40.77	-0.5322	-0.0021	0
233	SLE RA 4	0	8.22	40.76	-0.532	-0.002	0
233	SLE RA 5	0	8.11	40.26	-0.5245	-0.002	0
233	SLE RA 6	0	8.07	40.12	-0.5237	-0.0022	0
233	SLE RA 7	0	8.07	40.11	-0.5235	-0.0022	0
233	SLE RA 8	0	7.96	39.64	-0.5163	-0.0022	0
233	SLE RA 9	0	7.95	39.62	-0.5162	-0.0022	0
233	SLE RA 10	0	9.35	46.35	-0.6008	-0.002	0
233	SLE RA 11	0	9.31	46.21	-0.5999	-0.0022	0
233	SLE RA 12	0	9.31	46.2	-0.5998	-0.0022	0
233	SLE RA 13	0	9.19	45.7	-0.5923	-0.0022	0
233	SLE RA 14	0	9.15	45.56	-0.5914	-0.0024	0
233	SLE RA 15	0	9.15	45.55	-0.5913	-0.0024	0
233	SLE RA 16	0	9.04	45.08	-0.5841	-0.0024	0
233	SLE RA 17	0	9.04	45.06	-0.5839	-0.0024	0
233	SLE RA 18	0	9.82	48.71	-0.6301	-0.0021	0
233	SLE RA 19	0	9.82	48.69	-0.63	-0.0021	0
233	SLE RA 20	0	9.66	48.06	-0.6216	-0.0023	0
233	SLE RA 21	0	9.66	48.04	-0.6215	-0.0023	0
233	SLE FR 1	0	8.27	40.94	-0.5333	-0.0019	0
233	SLE FR 2	0	8.27	40.94	-0.5332	-0.0019	0
233	SLE FR 3	0	8.21	40.68	-0.5299	-0.002	0
233	SLE FR 4	0	8.73	43.27	-0.5623	-0.0019	0
233	SLE FR 5	0	8.67	43.01	-0.5589	-0.002	0
233	SLE FR 6	0	9.04	44.82	-0.5817	-0.002	0
233	SLE QP 1	0	8.27	40.94	-0.5333	-0.0019	0
233	SLE QP 2	0	8.74	43.27	-0.5623	-0.0019	0
233	SLD 1	0.55	11.44	54.44	-0.7086	0.5088	0.0024



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
233	SLD 2	0.55	11.44	54.44	-0.7086	0.5088	0.0024
233	SLD 3	0.5	7.99	40.43	-0.5231	0.4694	0.0022
233	SLD 4	0.5	7.99	40.43	-0.5231	0.4694	0.0022
233	SLD 5	0.23	14.79	67.87	-0.8876	0.2111	0.001
233	SLD 6	0.23	14.79	67.87	-0.8876	0.2111	0.001
233	SLD 7	0.08	3.27	21.17	-0.2692	0.0796	0.0004
233	SLD 8	0.08	3.27	21.17	-0.2692	0.0796	0.0004
233	SLD 9	-0.08	14.2	65.37	-0.8555	-0.0835	-0.0004
233	SLD 10	-0.08	14.2	65.37	-0.8555	-0.0835	-0.0004
233	SLD 11	-0.24	2.68	18.67	-0.2371	-0.215	-0.001
233	SLD 12	-0.24	2.68	18.67	-0.2371	-0.215	-0.001
233	SLD 13	-0.51	9.48	46.11	-0.6016	-0.4733	-0.0022
233	SLD 14	-0.51	9.48	46.11	-0.6016	-0.4733	-0.0022
233	SLD 15	-0.55	6.03	32.1	-0.4161	-0.5127	-0.0024
233	SLD 16	-0.55	6.03	32.1	-0.4161	-0.5127	-0.0024
233	SLV 1	1.67	14.98	69.24	-0.8997	1.5587	0.0073
233	SLV 2	1.67	14.98	69.24	-0.8997	1.5587	0.0073
233	SLV 3	1.55	7.01	36.69	-0.4714	1.4505	0.0068
233	SLV 4	1.55	7.01	36.69	-0.4714	1.4505	0.0068
233	SLV 5	0.69	22.69	100.44	-1.3131	0.6304	0.003
233	SLV 6	0.69	22.69	100.44	-1.3131	0.6304	0.003
233	SLV 7	0.28	-3.87	-8.08	0.1145	0.2696	0.0012
233	SLV 8	0.28	-3.87	-8.08	0.1145	0.2696	0.0012
233	SLV 9	-0.28	21.34	94.62	-1.2392	-0.2735	-0.0012
233	SLV 10	-0.28	21.34	94.62	-1.2392	-0.2735	-0.0012
233	SLV 11	-0.69	-5.22	-13.9	0.1885	-0.6343	-0.003
233	SLV 12	-0.69	-5.22	-13.9	0.1885	-0.6343	-0.003
233	SLV 13	-1.55	10.46	49.85	-0.6532	-1.4544	-0.0068
233	SLV 14	-1.55	10.46	49.85	-0.6532	-1.4544	-0.0068
233	SLV 15	-1.67	2.49	17.3	-0.2249	-1.5626	-0.0073
233	SLV 16	-1.67	2.49	17.3	-0.2249	-1.5626	-0.0073
234	SLU 1	-0.2	-1.2	27.02	0.0507	-0.1324	-0.0001
234	SLU 2	-0.18	-0.64	28.1	0.0197	-0.115	0
234	SLU 3	-0.21	-1.23	27.81	0.0521	-0.137	-0.0001
234	SLU 4	-0.19	-0.89	28.46	0.0335	-0.1265	0
234	SLU 5	-0.18	-0.62	28.72	0.0188	-0.118	0
234	SLU 6	-0.21	-1.21	28.42	0.0513	-0.14	-0.0001
234	SLU 7	-0.2	-0.88	29.07	0.0327	-0.1295	0
234	SLU 8	-0.21	-1.17	28.25	0.049	-0.1385	-0.0001
234	SLU 9	-0.2	-0.83	28.9	0.0304	-0.128	0
234	SLU 10	-0.2	-0.99	30.3	0.0379	-0.1312	0
234	SLU 11	-0.23	-1.58	30	0.0703	-0.1531	-0.0001
234	SLU 12	-0.22	-1.25	30.65	0.0517	-0.1427	-0.0001
234	SLU 13	-0.21	-0.98	30.91	0.037	-0.1342	0
234	SLU 14	-0.23	-1.57	30.62	0.0695	-0.1561	-0.0001
234	SLU 15	-0.22	-1.24	31.26	0.0509	-0.1457	-0.0001
234	SLU 16	-0.23	-1.53	30.44	0.0672	-0.1546	-0.0001
234	SLU 17	-0.22	-1.19	31.09	0.0486	-0.1442	-0.0001
234	SLU 18	-0.23	-1.71	30.16	0.0767	-0.1555	-0.0001
234	SLU 19	-0.22	-1.37	30.81	0.0581	-0.1451	-0.0001
234	SLU 20	-0.24	-1.69	30.77	0.0758	-0.1586	-0.0001
234	SLU 21	-0.23	-1.36	31.42	0.0572	-0.1481	-0.0001
234	SLU 22	-0.22	-1.52	29.37	0.067	-0.1492	-0.0001
234	SLU 23	-0.2	-0.96	30.45	0.036	-0.1318	0
234	SLU 24	-0.23	-1.55	30.16	0.0684	-0.1537	-0.0001
234	SLU 25	-0.22	-1.22	30.81	0.0498	-0.1432	-0.0001
234	SLU 26	-0.21	-0.95	31.07	0.0351	-0.1348	0
234	SLU 27	-0.23	-1.54	30.77	0.0676	-0.1567	-0.0001
234	SLU 28	-0.22	-1.2	31.42	0.049	-0.1462	-0.0001
234	SLU 29	-0.23	-1.49	30.6	0.0653	-0.1552	-0.0001
234	SLU 30	-0.22	-1.16	31.25	0.0467	-0.1447	-0.0001
234	SLU 31	-0.23	-1.32	32.65	0.0542	-0.1479	0
234	SLU 32	-0.25	-1.91	32.35	0.0866	-0.1698	-0.0001
234	SLU 33	-0.24	-1.57	33	0.068	-0.1594	-0.0001
234	SLU 34	-0.23	-1.3	33.26	0.0534	-0.1509	0
234	SLU 35	-0.26	-1.9	32.96	0.0858	-0.1728	-0.0001
234	SLU 36	-0.25	-1.56	33.61	0.0672	-0.1624	-0.0001
234	SLU 37	-0.26	-1.85	32.79	0.0835	-0.1713	-0.0001
234	SLU 38	-0.24	-1.51	33.44	0.0649	-0.1609	-0.0001
234	SLU 39	-0.26	-2.03	32.51	0.093	-0.1723	-0.0001
234	SLU 40	-0.25	-1.69	33.16	0.0744	-0.1618	-0.0001
234	SLU 41	-0.26	-2.02	33.12	0.0922	-0.1753	-0.0001
234	SLU 42	-0.25	-1.68	33.77	0.0736	-0.1648	-0.0001
234	SLU 43	-0.25	-1.44	34.33	0.0603	-0.1664	-0.0001
234	SLU 44	-0.23	-0.88	35.41	0.0293	-0.149	0
234	SLU 45	-0.26	-1.48	35.11	0.0617	-0.171	-0.0001
234	SLU 46	-0.24	-1.14	35.76	0.0431	-0.1605	-0.0001
234	SLU 47	-0.23	-0.87	36.02	0.0284	-0.1521	0
234	SLU 48	-0.26	-1.46	35.72	0.0609	-0.174	-0.0001
234	SLU 49	-0.25	-1.13	36.37	0.0423	-0.1635	-0.0001
234	SLU 50	-0.26	-1.42	35.55	0.0586	-0.1725	-0.0001
234	SLU 51	-0.25	-1.08	36.2	0.04	-0.162	-0.0001
234	SLU 52	-0.25	-1.24	37.6	0.0475	-0.1652	-0.0001
234	SLU 53	-0.28	-1.83	37.3	0.0799	-0.1871	-0.0001
234	SLU 54	-0.27	-1.5	37.95	0.0613	-0.1767	-0.0001
234	SLU 55	-0.26	-1.23	38.21	0.0466	-0.1682	-0.0001
234	SLU 56	-0.28	-1.82	37.92	0.0791	-0.1901	-0.0001
234	SLU 57	-0.27	-1.48	38.57	0.0605	-0.1797	-0.0001
234	SLU 58	-0.28	-1.77	37.75	0.0768	-0.1886	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
234	SLU 59	-0.27	-1.44	38.39	0.0582	-0.1782	-0.0001
234	SLU 60	-0.28	-1.95	37.46	0.0863	-0.1896	-0.0001
234	SLU 61	-0.27	-1.62	38.11	0.0677	-0.1791	-0.0001
234	SLU 62	-0.29	-1.94	38.07	0.0854	-0.1926	-0.0001
234	SLU 63	-0.28	-1.6	38.72	0.0668	-0.1821	-0.0001
234	SLU 64	-0.27	-1.77	36.67	0.0766	-0.1832	-0.0001
234	SLU 65	-0.25	-1.21	37.75	0.0456	-0.1658	-0.0001
234	SLU 66	-0.28	-1.8	37.46	0.078	-0.1877	-0.0001
234	SLU 67	-0.27	-1.46	38.11	0.0594	-0.1772	-0.0001
234	SLU 68	-0.26	-1.19	38.37	0.0448	-0.1688	-0.0001
234	SLU 69	-0.29	-1.79	38.07	0.0772	-0.1907	-0.0001
234	SLU 70	-0.27	-1.45	38.72	0.0586	-0.1802	-0.0001
234	SLU 71	-0.28	-1.74	37.9	0.0749	-0.1892	-0.0001
234	SLU 72	-0.27	-1.4	38.55	0.0563	-0.1787	-0.0001
234	SLU 73	-0.28	-1.56	39.95	0.0638	-0.1819	-0.0001
234	SLU 74	-0.31	-2.16	39.65	0.0962	-0.2038	-0.0001
234	SLU 75	-0.29	-1.82	40.3	0.0776	-0.1934	-0.0001
234	SLU 76	-0.28	-1.55	40.56	0.063	-0.1849	-0.0001
234	SLU 77	-0.31	-2.14	40.27	0.0954	-0.2068	-0.0001
234	SLU 78	-0.3	-1.81	40.91	0.0768	-0.1964	-0.0001
234	SLU 79	-0.31	-2.1	40.09	0.0931	-0.2053	-0.0001
234	SLU 80	-0.3	-1.76	40.74	0.0745	-0.1949	-0.0001
234	SLU 81	-0.31	-2.28	39.81	0.1026	-0.2063	-0.0001
234	SLU 82	-0.3	-1.94	40.46	0.084	-0.1958	-0.0001
234	SLU 83	-0.31	-2.26	40.42	0.1018	-0.2093	-0.0001
234	SLU 84	-0.3	-1.93	41.07	0.0832	-0.1988	-0.0001
234	SLE RA 1	-0.21	-1.29	27.7	0.0553	-0.1372	-0.0001
234	SLE RA 2	-0.19	-0.91	28.41	0.0347	-0.1256	0
234	SLE RA 3	-0.21	-1.31	28.22	0.0563	-0.1402	-0.0001
234	SLE RA 4	-0.2	-1.09	28.65	0.0439	-0.1333	-0.0001
234	SLE RA 5	-0.2	-0.91	28.82	0.0341	-0.1276	0
234	SLE RA 6	-0.21	-1.3	28.63	0.0557	-0.1422	-0.0001
234	SLE RA 7	-0.21	-1.08	29.06	0.0433	-0.1353	-0.0001
234	SLE RA 8	-0.21	-1.27	28.51	0.0542	-0.1412	-0.0001
234	SLE RA 9	-0.2	-1.05	28.94	0.0418	-0.1343	-0.0001
234	SLE RA 10	-0.21	-1.15	29.88	0.0468	-0.1364	0
234	SLE RA 11	-0.23	-1.55	29.68	0.0684	-0.151	-0.0001
234	SLE RA 12	-0.22	-1.32	30.11	0.056	-0.144	-0.0001
234	SLE RA 13	-0.21	-1.14	30.29	0.0462	-0.1384	0
234	SLE RA 14	-0.23	-1.54	30.09	0.0679	-0.153	-0.0001
234	SLE RA 15	-0.22	-1.31	30.52	0.0555	-0.146	-0.0001
234	SLE RA 16	-0.23	-1.51	29.98	0.0664	-0.152	-0.0001
234	SLE RA 17	-0.22	-1.28	30.41	0.054	-0.1451	-0.0001
234	SLE RA 18	-0.23	-1.63	29.78	0.0727	-0.1526	-0.0001
234	SLE RA 19	-0.22	-1.4	30.22	0.0603	-0.1457	-0.0001
234	SLE RA 20	-0.23	-1.62	30.19	0.0721	-0.1546	-0.0001
234	SLE RA 21	-0.22	-1.4	30.63	0.0597	-0.1477	-0.0001
234	SLE FR 1	-0.21	-1.29	27.7	0.0553	-0.1372	-0.0001
234	SLE FR 2	-0.2	-1.21	27.84	0.0512	-0.1349	-0.0001
234	SLE FR 3	-0.21	-1.28	27.86	0.0551	-0.138	-0.0001
234	SLE FR 4	-0.21	-1.32	28.47	0.0564	-0.1395	-0.0001
234	SLE FR 5	-0.21	-1.39	28.49	0.0603	-0.1426	-0.0001
234	SLE FR 6	-0.22	-1.46	28.74	0.064	-0.1449	-0.0001
234	SLE QP 1	-0.21	-1.29	27.7	0.0553	-0.1372	-0.0001
234	SLE QP 2	-0.21	-1.39	28.32	0.0605	-0.1418	-0.0001
234	SLD 1	-0.43	-0.43	39.97	0.0061	-0.2434	0
234	SLD 2	-0.43	-0.43	39.97	0.0061	-0.2434	0
234	SLD 3	-0.33	-5.03	29.49	0.2626	-0.3247	0.0002
234	SLD 4	-0.33	-5.03	29.49	0.2626	-0.3247	0.0002
234	SLD 5	-0.42	5.86	47.71	-0.3448	-0.0491	-0.0003
234	SLD 6	-0.42	5.86	47.71	-0.3448	-0.0491	-0.0003
234	SLD 7	-0.1	-9.45	12.78	0.5102	-0.3199	0.0002
234	SLD 8	-0.1	-9.45	12.78	0.5102	-0.3199	0.0002
234	SLD 9	-0.32	6.67	43.86	-0.3891	0.0363	-0.0004
234	SLD 10	-0.32	6.67	43.86	-0.3891	0.0363	-0.0004
234	SLD 11	0	-8.64	8.94	0.4659	-0.2346	0.0001
234	SLD 12	0	-8.64	8.94	0.4659	-0.2346	0.0001
234	SLD 13	-0.09	2.25	27.15	-0.1415	0.041	-0.0003
234	SLD 14	-0.09	2.25	27.15	-0.1415	0.041	-0.0003
234	SLD 15	0.01	-2.35	16.67	0.115	-0.0403	-0.0002
234	SLD 16	0.01	-2.35	16.67	0.115	-0.0403	-0.0002
234	SLV 1	-0.73	0.83	55.09	-0.0659	-0.3743	0.0002
234	SLV 2	-0.73	0.83	55.09	-0.0659	-0.3743	0.0002
234	SLV 3	-0.49	-9.77	30.96	0.5263	-0.5823	0.0006
234	SLV 4	-0.49	-9.77	30.96	0.5263	-0.5823	0.0006
234	SLV 5	-0.74	15.36	72.95	-0.8756	0.1038	-0.0006
234	SLV 6	-0.74	15.36	72.95	-0.8756	0.1038	-0.0006
234	SLV 7	0.08	-19.99	-7.48	1.0985	-0.5893	0.0007
234	SLV 8	0.08	-19.99	-7.48	1.0985	-0.5893	0.0007
234	SLV 9	-0.5	17.21	64.13	-0.9774	0.3057	-0.0009
234	SLV 10	-0.5	17.21	64.13	-0.9774	0.3057	-0.0009
234	SLV 11	0.32	-18.14	-16.3	0.9967	-0.3875	0.0005
234	SLV 12	0.32	-18.14	-16.3	0.9967	-0.3875	0.0005
234	SLV 13	0.06	6.99	25.68	-0.4052	0.2986	-0.0007
234	SLV 14	0.06	6.99	25.68	-0.4052	0.2986	-0.0007
234	SLV 15	0.31	-3.61	1.55	0.187	0.0906	-0.0003
234	SLV 16	0.31	-3.61	1.55	0.187	0.0906	-0.0003
235	SLU 1	0	-3.05	55.6	0.1195	0.0041	0
235	SLU 2	-0.02	-2.56	54.91	0.0966	-0.0147	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
235	SLU 3	0	-3.19	56.92	0.1246	0.0044	0
235	SLU 4	-0.01	-2.9	56.51	0.1109	-0.0069	0
235	SLU 5	-0.02	-2.65	55.54	0.0994	-0.0144	0
235	SLU 6	0	-3.27	57.54	0.1274	0.0047	0
235	SLU 7	-0.01	-2.98	57.13	0.1137	-0.0066	0
235	SLU 8	0	-3.22	56.84	0.1251	0.0047	0
235	SLU 9	-0.01	-2.93	56.43	0.1114	-0.0066	0
235	SLU 10	-0.02	-3.2	61.64	0.1214	-0.0147	0
235	SLU 11	0	-3.83	63.64	0.1494	0.0045	0
235	SLU 12	-0.01	-3.54	63.24	0.1357	-0.0069	0
235	SLU 13	-0.02	-3.29	62.26	0.1242	-0.0144	0
235	SLU 14	0	-3.91	64.27	0.1522	0.0048	0
235	SLU 15	-0.01	-3.62	63.86	0.1385	-0.0066	0
235	SLU 16	0	-3.86	63.56	0.1499	0.0048	0
235	SLU 17	-0.01	-3.57	63.15	0.1362	-0.0065	0
235	SLU 18	0	-3.96	65.2	0.1549	0.0042	0
235	SLU 19	-0.01	-3.67	64.79	0.1411	-0.0071	0
235	SLU 20	0	-4.05	65.82	0.1577	0.0045	0
235	SLU 21	-0.01	-3.76	65.41	0.144	-0.0068	0
235	SLU 22	0	-3.66	62.09	0.1431	0.0044	0
235	SLU 23	-0.02	-3.18	61.41	0.1202	-0.0144	0
235	SLU 24	0	-3.8	63.42	0.1482	0.0047	0
235	SLU 25	-0.01	-3.51	63.01	0.1345	-0.0066	0
235	SLU 26	-0.02	-3.26	62.03	0.123	-0.0141	0
235	SLU 27	0	-3.89	64.04	0.151	0.005	0
235	SLU 28	-0.01	-3.6	63.63	0.1373	-0.0063	0
235	SLU 29	0	-3.83	63.33	0.1487	0.005	0
235	SLU 30	-0.01	-3.54	62.93	0.135	-0.0063	0
235	SLU 31	-0.02	-3.82	68.13	0.145	-0.0143	0
235	SLU 32	0	-4.44	70.14	0.173	0.0048	0
235	SLU 33	-0.01	-4.15	69.73	0.1593	-0.0065	0
235	SLU 34	-0.02	-3.9	68.76	0.1478	-0.014	0
235	SLU 35	0	-4.53	70.76	0.1758	0.0051	0
235	SLU 36	-0.01	-4.24	70.35	0.1621	-0.0062	0
235	SLU 37	0	-4.47	70.06	0.1735	0.0051	0
235	SLU 38	-0.01	-4.18	69.65	0.1598	-0.0062	0
235	SLU 39	0	-4.58	71.7	0.1785	0.0046	0
235	SLU 40	-0.01	-4.29	71.29	0.1647	-0.0067	0
235	SLU 41	0	-4.66	72.32	0.1813	0.0049	0
235	SLU 42	-0.01	-4.37	71.91	0.1676	-0.0064	0
235	SLU 43	0	-3.75	70.05	0.1472	0.0052	0
235	SLU 44	-0.02	-3.27	69.37	0.1243	-0.0136	0
235	SLU 45	0	-3.89	71.37	0.1524	0.0055	0
235	SLU 46	-0.01	-3.6	70.96	0.1387	-0.0058	0
235	SLU 47	-0.02	-3.35	69.99	0.1272	-0.0133	0
235	SLU 48	0	-3.98	71.99	0.1552	0.0058	0
235	SLU 49	-0.01	-3.69	71.58	0.1415	-0.0055	0
235	SLU 50	0	-3.92	71.29	0.1528	0.0058	0
235	SLU 51	-0.01	-3.63	70.88	0.1391	-0.0055	0
235	SLU 52	-0.02	-3.91	76.09	0.1491	-0.0135	0
235	SLU 53	0	-4.54	78.1	0.1771	0.0056	0
235	SLU 54	-0.01	-4.24	77.69	0.1634	-0.0057	0
235	SLU 55	-0.02	-3.99	76.71	0.1519	-0.0132	0
235	SLU 56	0	-4.62	78.72	0.18	0.0059	0
235	SLU 57	-0.01	-4.33	78.31	0.1662	-0.0054	0
235	SLU 58	0	-4.56	78.01	0.1776	0.0059	0
235	SLU 59	-0.01	-4.27	77.6	0.1639	-0.0054	0
235	SLU 60	0	-4.67	79.65	0.1826	0.0053	0
235	SLU 61	-0.01	-4.38	79.24	0.1689	-0.006	0
235	SLU 62	0	-4.75	80.27	0.1854	0.0056	0
235	SLU 63	-0.01	-4.46	79.86	0.1717	-0.0057	0
235	SLU 64	0	-4.37	76.54	0.1708	0.0056	0
235	SLU 65	-0.02	-3.88	75.86	0.1479	-0.0133	0
235	SLU 66	0	-4.51	77.87	0.176	0.0058	0
235	SLU 67	-0.01	-4.22	77.46	0.1623	-0.0055	0
235	SLU 68	-0.02	-3.97	76.48	0.1508	-0.013	0
235	SLU 69	0	-4.59	78.49	0.1788	0.0061	0
235	SLU 70	-0.01	-4.3	78.08	0.1651	-0.0052	0
235	SLU 71	0	-4.53	77.79	0.1764	0.0062	0
235	SLU 72	-0.01	-4.24	77.38	0.1627	-0.0051	0
235	SLU 73	-0.02	-4.52	82.59	0.1727	-0.0132	0
235	SLU 74	0	-5.15	84.59	0.2008	0.0059	0
235	SLU 75	-0.01	-4.86	84.18	0.187	-0.0054	0
235	SLU 76	-0.02	-4.61	83.21	0.1755	-0.0129	0
235	SLU 77	0	-5.23	85.21	0.2036	0.0062	0
235	SLU 78	-0.01	-4.94	84.8	0.1899	-0.0051	0
235	SLU 79	0	-5.17	84.51	0.2012	0.0062	0
235	SLU 80	-0.01	-4.88	84.1	0.1875	-0.0051	0
235	SLU 81	0	-5.28	86.15	0.2062	0.0057	0
235	SLU 82	-0.01	-4.99	85.74	0.1925	-0.0056	0
235	SLU 83	0	-5.36	86.77	0.209	0.006	0
235	SLU 84	-0.01	-5.07	86.36	0.1953	-0.0053	0
235	SLE RA 1	0	-3.22	57.45	0.1262	0.0042	0
235	SLE RA 2	-0.01	-2.9	57	0.111	-0.0084	0
235	SLE RA 3	0	-3.32	58.34	0.1296	0.0044	0
235	SLE RA 4	-0.01	-3.13	58.06	0.1205	-0.0032	0
235	SLE RA 5	-0.01	-2.96	57.41	0.1128	-0.0082	0
235	SLE RA 6	0	-3.37	58.75	0.1315	0.0046	0
235	SLE RA 7	-0.01	-3.18	58.48	0.1224	-0.003	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
235	SLE RA 8	0	-3.34	58.28	0.13	0.0046	0
235	SLE RA 9	-0.01	-3.14	58.01	0.1208	-0.0029	0
235	SLE RA 10	-0.01	-3.33	61.48	0.1275	-0.0083	0
235	SLE RA 11	0	-3.75	62.82	0.1462	0.0044	0
235	SLE RA 12	-0.01	-3.55	62.55	0.137	-0.0031	0
235	SLE RA 13	-0.01	-3.38	61.89	0.1294	-0.0081	0
235	SLE RA 14	0	-3.8	63.23	0.148	0.0046	0
235	SLE RA 15	-0.01	-3.61	62.96	0.1389	-0.0029	0
235	SLE RA 16	0	-3.76	62.76	0.1465	0.0047	0
235	SLE RA 17	-0.01	-3.57	62.49	0.1373	-0.0029	0
235	SLE RA 18	0	-3.83	63.86	0.1498	0.0043	0
235	SLE RA 19	-0.01	-3.64	63.58	0.1407	-0.0033	0
235	SLE RA 20	0	-3.89	64.27	0.1517	0.0045	0
235	SLE RA 21	-0.01	-3.7	64	0.1425	-0.0031	0
235	SLE FR 1	0	-3.22	57.45	0.1262	0.0042	0
235	SLE FR 2	0	-3.16	57.36	0.1232	0.0017	0
235	SLE FR 3	0	-3.25	57.62	0.127	0.0043	0
235	SLE FR 4	0	-3.34	59.28	0.1302	0.0017	0
235	SLE FR 5	0	-3.43	59.54	0.134	0.0043	0
235	SLE FR 6	0	-3.53	60.65	0.138	0.0042	0
235	SLE QP 1	0	-3.22	57.45	0.1262	0.0042	0
235	SLE QP 2	0	-3.41	59.37	0.1333	0.0042	0
235	SLD 1	0.2	1.05	44.21	-0.0509	0.2275	-0.0001
235	SLD 2	0.2	1.05	44.21	-0.0509	0.2275	-0.0001
235	SLD 3	0.09	-4.45	47.76	0.179	0.1195	-0.0001
235	SLD 4	0.09	-4.45	47.76	0.179	0.1195	-0.0001
235	SLD 5	0.23	6.26	49.43	-0.2706	0.2351	0
235	SLD 6	0.23	6.26	49.43	-0.2706	0.2351	0
235	SLD 7	-0.14	-12.05	61.29	0.4956	-0.1251	-0.0001
235	SLD 8	-0.14	-12.05	61.29	0.4956	-0.1251	-0.0001
235	SLD 9	0.14	5.24	57.46	-0.229	0.1335	0.0001
235	SLD 10	0.14	5.24	57.46	-0.229	0.1335	0.0001
235	SLD 11	-0.22	-13.08	69.32	0.5372	-0.2266	0
235	SLD 12	-0.22	-13.08	69.32	0.5372	-0.2266	0
235	SLD 13	-0.09	-2.36	70.98	0.0876	-0.111	0.0001
235	SLD 14	-0.09	-2.36	70.98	0.0876	-0.111	0.0001
235	SLD 15	-0.2	-7.86	74.54	0.3174	-0.219	0.0001
235	SLD 16	-0.2	-7.86	74.54	0.3174	-0.219	0.0001
235	SLV 1	0.48	6.78	24.56	-0.2879	0.5481	-0.0002
235	SLV 2	0.48	6.78	24.56	-0.2879	0.5481	-0.0002
235	SLV 3	0.21	-5.87	32.83	0.2409	0.2721	-0.0003
235	SLV 4	0.21	-5.87	32.83	0.2409	0.2721	-0.0003
235	SLV 5	0.57	18.84	36.37	-0.7951	0.5861	0
235	SLV 6	0.57	18.84	36.37	-0.7951	0.5861	0
235	SLV 7	-0.36	-23.33	63.97	0.9676	-0.3341	-0.0002
235	SLV 8	-0.36	-23.33	63.97	0.9676	-0.3341	-0.0002
235	SLV 9	0.36	16.52	54.78	-0.701	0.3426	0.0002
235	SLV 10	0.36	16.52	54.78	-0.701	0.3426	0.0002
235	SLV 11	-0.56	-25.65	82.38	1.0617	-0.5777	0
235	SLV 12	-0.56	-25.65	82.38	1.0617	-0.5777	0
235	SLV 13	-0.2	-0.94	85.91	0.0257	-0.2636	0.0003
235	SLV 14	-0.2	-0.94	85.91	0.0257	-0.2636	0.0003
235	SLV 15	-0.48	-13.59	94.19	0.5545	-0.5397	0.0002
235	SLV 16	-0.48	-13.59	94.19	0.5545	-0.5397	0.0002
236	SLU 1	0	3.59	43.69	-0.1343	-0.0023	0
236	SLU 2	0	3.66	43.14	-0.1373	-0.0015	0
236	SLU 3	0	3.53	45.43	-0.131	-0.0024	0
236	SLU 4	0	3.57	45.1	-0.1328	-0.002	0
236	SLU 5	0	3.55	44.44	-0.1321	-0.0016	0
236	SLU 6	0	3.42	46.74	-0.1258	-0.0025	0
236	SLU 7	0	3.46	46.41	-0.1276	-0.0021	0
236	SLU 8	0	3.37	46.31	-0.1239	-0.0024	0
236	SLU 9	0	3.41	45.98	-0.1256	-0.002	0
236	SLU 10	0	4.17	50.95	-0.1562	-0.002	0
236	SLU 11	0	4.03	53.25	-0.1499	-0.0028	0.0001
236	SLU 12	0	4.08	52.92	-0.1517	-0.0024	0
236	SLU 13	0	4.06	52.26	-0.151	-0.0021	0
236	SLU 14	0	3.92	54.56	-0.1447	-0.0029	0.0001
236	SLU 15	0	3.97	54.23	-0.1465	-0.0025	0
236	SLU 16	0	3.87	54.13	-0.1428	-0.0029	0.0001
236	SLU 17	0	3.92	53.79	-0.1446	-0.0025	0
236	SLU 18	0	4.31	54.86	-0.1613	-0.0029	0.0001
236	SLU 19	0	4.35	54.53	-0.1631	-0.0025	0
236	SLU 20	0	4.2	56.17	-0.1561	-0.003	0.0001
236	SLU 21	0	4.25	55.84	-0.1579	-0.0025	0
236	SLU 22	0	4	51.19	-0.1493	-0.0027	0
236	SLU 23	0	4.07	50.64	-0.1523	-0.002	0
236	SLU 24	0	3.94	52.93	-0.146	-0.0028	0
236	SLU 25	0	3.98	52.6	-0.1478	-0.0024	0
236	SLU 26	0	3.96	51.94	-0.147	-0.0021	0
236	SLU 27	0	3.83	54.24	-0.1408	-0.0029	0.0001
236	SLU 28	0	3.87	53.91	-0.1426	-0.0025	0
236	SLU 29	0	3.78	53.81	-0.1388	-0.0029	0.0001
236	SLU 30	0	3.82	53.48	-0.1406	-0.0025	0
236	SLU 31	0	4.58	58.45	-0.1712	-0.0024	0
236	SLU 32	0	4.44	60.75	-0.1649	-0.0033	0.0001
236	SLU 33	0	4.49	60.42	-0.1667	-0.0028	0
236	SLU 34	0	4.47	59.76	-0.166	-0.0025	0
236	SLU 35	0	4.33	62.06	-0.1597	-0.0034	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
236	SLU 36	0	4.38	61.73	-0.1615	-0.0029	0.0001
236	SLU 37	0	4.28	61.63	-0.1578	-0.0033	0.0001
236	SLU 38	0	4.33	61.29	-0.1595	-0.0029	0.0001
236	SLU 39	0	4.72	62.36	-0.1763	-0.0033	0.0001
236	SLU 40	0	4.76	62.03	-0.1781	-0.0029	0.0001
236	SLU 41	0	4.61	63.67	-0.1711	-0.0034	0.0001
236	SLU 42	0	4.66	63.34	-0.1729	-0.003	0.0001
236	SLU 43	0	4.52	54.23	-0.1694	-0.0028	0
236	SLU 44	0	4.6	53.67	-0.1724	-0.0021	0
236	SLU 45	0	4.46	55.97	-0.1662	-0.0029	0.0001
236	SLU 46	0	4.51	55.63	-0.168	-0.0025	0
236	SLU 47	0	4.49	54.98	-0.1672	-0.0022	0
236	SLU 48	0	4.35	57.28	-0.1609	-0.003	0.0001
236	SLU 49	0	4.4	56.94	-0.1627	-0.0026	0
236	SLU 50	0	4.3	56.84	-0.159	-0.003	0.0001
236	SLU 51	0	4.35	56.51	-0.1608	-0.0025	0
236	SLU 52	0	5.1	61.49	-0.1914	-0.0025	0
236	SLU 53	0	4.97	63.79	-0.1851	-0.0034	0.0001
236	SLU 54	0	5.01	63.45	-0.1869	-0.0029	0.0001
236	SLU 55	0	4.99	62.8	-0.1861	-0.0026	0
236	SLU 56	0	4.86	65.09	-0.1799	-0.0034	0.0001
236	SLU 57	0	4.9	64.76	-0.1817	-0.003	0.0001
236	SLU 58	0	4.81	64.66	-0.1779	-0.0034	0.0001
236	SLU 59	0	4.85	64.33	-0.1797	-0.003	0.0001
236	SLU 60	0	5.24	65.4	-0.1965	-0.0034	0.0001
236	SLU 61	0	5.29	65.06	-0.1983	-0.003	0.0001
236	SLU 62	0	5.13	66.7	-0.1913	-0.0035	0.0001
236	SLU 63	0	5.18	66.37	-0.193	-0.0031	0.0001
236	SLU 64	0	4.93	61.73	-0.1844	-0.0032	0.0001
236	SLU 65	0	5.01	61.17	-0.1874	-0.0025	0
236	SLU 66	0	4.87	63.47	-0.1811	-0.0034	0.0001
236	SLU 67	0	4.92	63.13	-0.1829	-0.0029	0.0001
236	SLU 68	0	4.9	62.48	-0.1822	-0.0026	0
236	SLU 69	0	4.76	64.78	-0.1759	-0.0034	0.0001
236	SLU 70	0	4.81	64.44	-0.1777	-0.003	0.0001
236	SLU 71	0	4.71	64.34	-0.174	-0.0034	0.0001
236	SLU 72	0	4.76	64.01	-0.1758	-0.003	0.0001
236	SLU 73	0	5.51	68.99	-0.2063	-0.0029	0.0001
236	SLU 74	0	5.38	71.29	-0.2001	-0.0038	0.0001
236	SLU 75	0	5.42	70.95	-0.2019	-0.0034	0.0001
236	SLU 76	0	5.4	70.3	-0.2011	-0.003	0.0001
236	SLU 77	0	5.27	72.59	-0.1948	-0.0039	0.0001
236	SLU 78	0	5.31	72.26	-0.1966	-0.0035	0.0001
236	SLU 79	0	5.22	72.16	-0.1929	-0.0038	0.0001
236	SLU 80	0	5.26	71.83	-0.1947	-0.0034	0.0001
236	SLU 81	0	5.65	72.9	-0.2115	-0.0039	0.0001
236	SLU 82	0	5.7	72.56	-0.2132	-0.0034	0.0001
236	SLU 83	0	5.54	74.2	-0.2062	-0.0039	0.0001
236	SLU 84	0	5.59	73.87	-0.208	-0.0035	0.0001
236	SLE RA 1	0	3.7	45.83	-0.1386	-0.0024	0
236	SLE RA 2	0	3.75	45.46	-0.1406	-0.0019	0
236	SLE RA 3	0	3.66	46.99	-0.1364	-0.0025	0
236	SLE RA 4	0	3.69	46.77	-0.1376	-0.0022	0
236	SLE RA 5	0	3.68	46.34	-0.1371	-0.002	0
236	SLE RA 6	0	3.59	47.87	-0.1329	-0.0025	0
236	SLE RA 7	0	3.62	47.64	-0.1341	-0.0022	0
236	SLE RA 8	0	3.56	47.58	-0.1316	-0.0025	0
236	SLE RA 9	0	3.59	47.36	-0.1328	-0.0022	0
236	SLE RA 10	0	4.09	50.68	-0.1532	-0.0022	0
236	SLE RA 11	0	4	52.21	-0.149	-0.0028	0
236	SLE RA 12	0	4.03	51.98	-0.1502	-0.0025	0
236	SLE RA 13	0	4.02	51.55	-0.1497	-0.0023	0
236	SLE RA 14	0	3.93	53.08	-0.1455	-0.0028	0.0001
236	SLE RA 15	0	3.96	52.86	-0.1467	-0.0025	0
236	SLE RA 16	0	3.9	52.79	-0.1442	-0.0028	0
236	SLE RA 17	0	3.93	52.57	-0.1454	-0.0025	0
236	SLE RA 18	0	4.18	53.28	-0.1566	-0.0028	0
236	SLE RA 19	0	4.22	53.06	-0.1578	-0.0025	0
236	SLE RA 20	0	4.11	54.15	-0.1531	-0.0029	0.0001
236	SLE RA 21	0	4.14	53.93	-0.1543	-0.0026	0
236	SLE FR 1	0	3.7	45.83	-0.1386	-0.0024	0
236	SLE FR 2	0	3.71	45.76	-0.139	-0.0023	0
236	SLE FR 3	0	3.67	46.18	-0.1372	-0.0024	0
236	SLE FR 4	0	3.86	47.99	-0.1444	-0.0024	0
236	SLE FR 5	0	3.82	48.42	-0.1426	-0.0025	0
236	SLE FR 6	0	3.94	49.56	-0.1476	-0.0026	0
236	SLE QP 1	0	3.7	45.83	-0.1386	-0.0024	0
236	SLE QP 2	0	3.85	48.07	-0.144	-0.0025	0
236	SLD 1	0.19	8.53	52.77	-0.3379	0.1808	-0.0032
236	SLD 2	0.19	8.53	52.77	-0.3379	0.1808	-0.0032
236	SLD 3	0.24	3.6	48.51	-0.1339	0.2256	-0.0041
236	SLD 4	0.24	3.6	48.51	-0.1339	0.2256	-0.0041
236	SLD 5	-0.01	12.72	55.95	-0.5116	-0.0155	0.0003
236	SLD 6	-0.01	12.72	55.95	-0.5116	-0.0155	0.0003
236	SLD 7	0.14	-3.69	41.73	0.1684	0.1339	-0.0024
236	SLD 8	0.14	-3.69	41.73	0.1684	0.1339	-0.0024
236	SLD 9	-0.14	11.39	54.4	-0.4564	-0.1389	0.0025
236	SLD 10	-0.14	11.39	54.4	-0.4564	-0.1389	0.0025
236	SLD 11	0.01	-5.02	40.19	0.2236	0.0105	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
236	SLD 12	0.01	-5.02	40.19	0.2236	0.0105	-0.0002
236	SLD 13	-0.24	4.09	47.62	-0.154	-0.2306	0.0041
236	SLD 14	-0.24	4.09	47.62	-0.154	-0.2306	0.0041
236	SLD 15	-0.19	-0.83	43.36	0.05	-0.1858	0.0033
236	SLD 16	-0.19	-0.83	43.36	0.05	-0.1858	0.0033
236	SLV 1	0.49	14.65	59.01	-0.5919	0.4672	-0.0083
236	SLV 2	0.49	14.65	59.01	-0.5919	0.4672	-0.0083
236	SLV 3	0.61	3.35	49.21	-0.1239	0.5821	-0.0104
236	SLV 4	0.61	3.35	49.21	-0.1239	0.5821	-0.0104
236	SLV 5	-0.03	24.22	66.21	-0.9881	-0.0358	0.0007
236	SLV 6	-0.03	24.22	66.21	-0.9881	-0.0358	0.0007
236	SLV 7	0.36	-13.43	33.55	0.5718	0.3471	-0.0063
236	SLV 8	0.36	-13.43	33.55	0.5718	0.3471	-0.0063
236	SLV 9	-0.36	21.13	62.58	-0.8597	-0.3521	0.0063
236	SLV 10	-0.36	21.13	62.58	-0.8597	-0.3521	0.0063
236	SLV 11	0.03	-16.53	29.93	0.7001	0.0308	-0.0006
236	SLV 12	0.03	-16.53	29.93	0.7001	0.0308	-0.0006
236	SLV 13	-0.61	4.34	46.93	-0.1641	-0.5871	0.0105
236	SLV 14	-0.61	4.34	46.93	-0.1641	-0.5871	0.0105
236	SLV 15	-0.49	-6.96	37.13	0.3039	-0.4722	0.0084
236	SLV 16	-0.49	-6.96	37.13	0.3039	-0.4722	0.0084
237	SLU 1	0	3.5	45.94	-0.1705	0.0003	0
237	SLU 2	0	3.53	45.48	-0.1716	-0.0002	0
237	SLU 3	0	3.68	47.84	-0.1809	0.0004	0
237	SLU 4	0	3.7	47.56	-0.1816	0.0001	0
237	SLU 5	0	3.75	46.95	-0.1837	-0.0001	0
237	SLU 6	0	3.9	49.3	-0.1929	0.0006	0
237	SLU 7	0	3.92	49.03	-0.1936	0.0003	0
237	SLU 8	0	3.92	48.87	-0.1945	0.0006	0
237	SLU 9	0	3.95	48.6	-0.1952	0.0003	0
237	SLU 10	0	3.89	53.88	-0.1923	-0.0001	0
237	SLU 11	0	4.04	56.24	-0.2016	0.0005	0
237	SLU 12	0	4.06	55.96	-0.2023	0.0002	0
237	SLU 13	0	4.11	55.35	-0.2044	0	0
237	SLU 14	0	4.26	57.7	-0.2136	0.0007	0
237	SLU 15	0	4.28	57.43	-0.2143	0.0004	0
237	SLU 16	0	4.28	57.27	-0.2152	0.0007	0
237	SLU 17	0	4.31	57	-0.2159	0.0004	0
237	SLU 18	0	4.01	57.94	-0.2001	0.0004	0
237	SLU 19	0	4.03	57.67	-0.2007	0.0001	0
237	SLU 20	0	4.22	59.41	-0.2121	0.0006	0
237	SLU 21	0	4.25	59.13	-0.2128	0.0003	0
237	SLU 22	0	3.93	53.91	-0.1945	0.0004	0
237	SLU 23	0	3.97	53.45	-0.1956	-0.0001	0
237	SLU 24	0	4.11	55.8	-0.2049	0.0006	0
237	SLU 25	0	4.14	55.53	-0.2056	0.0003	0
237	SLU 26	0	4.18	54.91	-0.2076	0.0001	0
237	SLU 27	0	4.33	57.27	-0.2169	0.0007	0
237	SLU 28	0	4.35	56.99	-0.2176	0.0004	0
237	SLU 29	0	4.36	56.84	-0.2185	0.0007	0
237	SLU 30	0	4.38	56.56	-0.2192	0.0004	0
237	SLU 31	0	4.33	61.85	-0.2163	0	0
237	SLU 32	0	4.47	64.2	-0.2256	0.0006	0
237	SLU 33	0	4.5	63.93	-0.2262	0.0003	0
237	SLU 34	0	4.54	63.31	-0.2283	0.0002	0
237	SLU 35	0	4.69	65.67	-0.2376	0.0008	0
237	SLU 36	0	4.71	65.39	-0.2383	0.0005	0
237	SLU 37	0	4.72	65.24	-0.2392	0.0008	0
237	SLU 38	0	4.74	64.96	-0.2399	0.0005	0
237	SLU 39	0	4.44	65.91	-0.224	0.0005	0
237	SLU 40	0	4.47	65.63	-0.2247	0.0002	0
237	SLU 41	0	4.66	67.38	-0.236	0.0007	0
237	SLU 42	0	4.68	67.1	-0.2367	0.0004	0
237	SLU 43	0	4.4	57	-0.2134	0.0003	0
237	SLU 44	0	4.43	56.54	-0.2146	-0.0002	0
237	SLU 45	0	4.58	58.89	-0.2238	0.0005	0
237	SLU 46	0	4.6	58.61	-0.2245	0.0002	0
237	SLU 47	0	4.65	58	-0.2266	0	0
237	SLU 48	0	4.8	60.35	-0.2358	0.0006	0
237	SLU 49	0	4.82	60.08	-0.2365	0.0003	0
237	SLU 50	0	4.82	59.93	-0.2374	0.0006	0
237	SLU 51	0	4.85	59.65	-0.2381	0.0003	0
237	SLU 52	0	4.79	64.93	-0.2353	-0.0001	0
237	SLU 53	0	4.94	67.29	-0.2445	0.0006	0
237	SLU 54	0	4.96	67.01	-0.2452	0.0003	0
237	SLU 55	0	5.01	66.4	-0.2473	0.0001	0
237	SLU 56	0	5.16	68.75	-0.2565	0.0007	0
237	SLU 57	0	5.18	68.48	-0.2572	0.0004	0
237	SLU 58	0	5.18	68.33	-0.2581	0.0007	0
237	SLU 59	0	5.21	68.05	-0.2588	0.0004	0
237	SLU 60	0	4.91	69	-0.243	0.0005	0
237	SLU 61	0	4.93	68.72	-0.2437	0.0002	0
237	SLU 62	0	5.12	70.46	-0.255	0.0006	0
237	SLU 63	0	5.15	70.18	-0.2557	0.0003	0
237	SLU 64	0	4.83	64.96	-0.2374	0.0005	0
237	SLU 65	0	4.87	64.5	-0.2386	0	0
237	SLU 66	0	5.01	66.86	-0.2478	0.0006	0
237	SLU 67	0	5.04	66.58	-0.2485	0.0003	0
237	SLU 68	0	5.08	65.97	-0.2506	0.0001	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
237	SLU 69	0	5.23	68.32	-0.2598	0.0008	0
237	SLU 70	0	5.25	68.04	-0.2605	0.0005	0
237	SLU 71	0	5.26	67.89	-0.2614	0.0008	0
237	SLU 72	0	5.28	67.62	-0.2621	0.0005	0
237	SLU 73	0	5.23	72.9	-0.2592	0	0
237	SLU 74	0	5.37	75.26	-0.2685	0.0007	0
237	SLU 75	0	5.4	74.98	-0.2692	0.0004	0
237	SLU 76	0	5.44	74.37	-0.2713	0.0002	0
237	SLU 77	0	5.59	76.72	-0.2805	0.0008	0
237	SLU 78	0	5.61	76.44	-0.2812	0.0005	0
237	SLU 79	0	5.62	76.29	-0.2821	0.0009	0
237	SLU 80	0	5.64	76.02	-0.2828	0.0006	0
237	SLU 81	0	5.34	76.96	-0.267	0.0006	0
237	SLU 82	0	5.37	76.69	-0.2677	0.0003	0
237	SLU 83	0	5.56	78.43	-0.279	0.0007	0
237	SLU 84	0	5.58	78.15	-0.2797	0.0004	0
237	SLE RA 1	0	3.62	48.22	-0.1773	0.0003	0
237	SLE RA 2	0	3.64	47.91	-0.1781	0	0
237	SLE RA 3	0	3.74	49.48	-0.1843	0.0004	0
237	SLE RA 4	0	3.76	49.3	-0.1847	0.0002	0
237	SLE RA 5	0	3.79	48.89	-0.1861	0.0001	0
237	SLE RA 6	0	3.89	50.46	-0.1923	0.0005	0
237	SLE RA 7	0	3.9	50.28	-0.1927	0.0003	0
237	SLE RA 8	0	3.9	50.17	-0.1934	0.0005	0
237	SLE RA 9	0	3.92	49.99	-0.1938	0.0003	0
237	SLE RA 10	0	3.88	53.51	-0.1919	0.0001	0
237	SLE RA 11	0	3.98	55.08	-0.1981	0.0005	0
237	SLE RA 12	0	4	54.9	-0.1985	0.0003	0
237	SLE RA 13	0	4.03	54.49	-0.1999	0.0002	0
237	SLE RA 14	0	4.13	56.06	-0.2061	0.0006	0
237	SLE RA 15	0	4.14	55.88	-0.2065	0.0004	0
237	SLE RA 16	0	4.14	55.77	-0.2072	0.0006	0
237	SLE RA 17	0	4.16	55.59	-0.2076	0.0004	0
237	SLE RA 18	0	3.96	56.22	-0.1971	0.0004	0
237	SLE RA 19	0	3.98	56.04	-0.1975	0.0002	0
237	SLE RA 20	0	4.1	57.2	-0.2051	0.0005	0
237	SLE RA 21	0	4.12	57.01	-0.2055	0.0003	0
237	SLE FR 1	0	3.62	48.22	-0.1773	0.0003	0
237	SLE FR 2	0	3.62	48.16	-0.1775	0.0003	0
237	SLE FR 3	0	3.68	48.61	-0.1805	0.0004	0
237	SLE FR 4	0	3.73	50.56	-0.1834	0.0003	0
237	SLE FR 5	0	3.78	51.01	-0.1865	0.0004	0
237	SLE FR 6	0	3.79	52.22	-0.1872	0.0004	0
237	SLE QP 1	0	3.62	48.22	-0.1773	0.0003	0
237	SLE QP 2	0	3.72	50.62	-0.1833	0.0004	0
237	SLD 1	0.28	4.4	55	-0.2217	0.2741	0.0001
237	SLD 2	0.28	4.4	55	-0.2217	0.2741	0.0001
237	SLD 3	0.25	-2.31	49.65	0.1049	0.2361	0.0001
237	SLD 4	0.25	-2.31	49.65	0.1049	0.2361	0.0001
237	SLD 5	0.14	14.1	60.05	-0.6902	0.1401	0
237	SLD 6	0.14	14.1	60.05	-0.6902	0.1401	0
237	SLD 7	0.02	-8.26	42.21	0.3986	0.0135	0
237	SLD 8	0.02	-8.26	42.21	0.3986	0.0135	0
237	SLD 9	-0.01	15.7	59.03	-0.7651	-0.0128	0
237	SLD 10	-0.01	15.7	59.03	-0.7651	-0.0128	0
237	SLD 11	-0.14	-6.65	41.19	0.3237	-0.1394	0
237	SLD 12	-0.14	-6.65	41.19	0.3237	-0.1394	0
237	SLD 13	-0.24	9.75	51.59	-0.4714	-0.2354	-0.0001
237	SLD 14	-0.24	9.75	51.59	-0.4714	-0.2354	-0.0001
237	SLD 15	-0.28	3.05	46.24	-0.1448	-0.2734	-0.0001
237	SLD 16	-0.28	3.05	46.24	-0.1448	-0.2734	-0.0001
237	SLV 1	0.73	5.23	60.83	-0.2693	0.7016	0.0001
237	SLV 2	0.73	5.23	60.83	-0.2693	0.7016	0.0001
237	SLV 3	0.63	-10.21	48.44	0.4824	0.6043	0.0002
237	SLV 4	0.63	-10.21	48.44	0.4824	0.6043	0.0002
237	SLV 5	0.37	27.59	72.48	-1.3492	0.3583	0
237	SLV 6	0.37	27.59	72.48	-1.3492	0.3583	0
237	SLV 7	0.04	-23.87	31.18	1.1566	0.034	0.0001
237	SLV 8	0.04	-23.87	31.18	1.1566	0.034	0.0001
237	SLV 9	-0.04	31.32	70.07	-1.5231	-0.0333	-0.0001
237	SLV 10	-0.04	31.32	70.07	-1.5231	-0.0333	-0.0001
237	SLV 11	-0.37	-20.14	28.77	0.9827	-0.3576	0
237	SLV 12	-0.37	-20.14	28.77	0.9827	-0.3576	0
237	SLV 13	-0.63	17.66	52.8	-0.849	-0.6036	-0.0002
237	SLV 14	-0.63	17.66	52.8	-0.849	-0.6036	-0.0002
237	SLV 15	-0.73	2.22	40.41	-0.0972	-0.7009	-0.0001
237	SLV 16	-0.73	2.22	40.41	-0.0972	-0.7009	-0.0001
238	SLU 1	0	-1.97	18.27	0.116	-0.0003	0
238	SLU 2	0	-1.96	18.27	0.1155	-0.0005	0
238	SLU 3	0	-2.08	18.2	0.1223	-0.0002	0
238	SLU 4	0	-2.08	18.2	0.122	-0.0004	0
238	SLU 5	0	-2.02	18.22	0.1193	-0.0004	0
238	SLU 6	0	-2.15	18.15	0.126	-0.0002	0
238	SLU 7	0	-2.14	18.15	0.1257	-0.0003	0
238	SLU 8	0	-2.1	18.17	0.1235	-0.0001	0
238	SLU 9	0	-2.1	18.17	0.1232	-0.0003	0
238	SLU 10	0	-2.29	24.82	0.1344	-0.0006	0
238	SLU 11	0	-2.41	24.75	0.1411	-0.0003	0
238	SLU 12	0	-2.4	24.75	0.1408	-0.0005	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
238	SLU 13	0	-2.35	24.77	0.1381	-0.0005	0
238	SLU 14	0	-2.48	24.7	0.1448	-0.0003	0
238	SLU 15	0	-2.47	24.7	0.1446	-0.0004	0
238	SLU 16	0	-2.43	24.72	0.1423	-0.0002	0
238	SLU 17	0	-2.42	24.72	0.142	-0.0004	0
238	SLU 18	0	-2.44	27.63	0.1429	-0.0004	0
238	SLU 19	0	-2.43	27.63	0.1426	-0.0005	0
238	SLU 20	0	-2.5	27.58	0.1466	-0.0003	0
238	SLU 21	0	-2.5	27.58	0.1464	-0.0005	0
238	SLU 22	0	-2.31	23	0.1357	-0.0003	0
238	SLU 23	0	-2.3	23	0.1352	-0.0005	0
238	SLU 24	0	-2.43	22.92	0.142	-0.0003	0
238	SLU 25	0	-2.42	22.93	0.1417	-0.0004	0
238	SLU 26	0	-2.37	22.95	0.1389	-0.0004	0
238	SLU 27	0	-2.5	22.87	0.1457	-0.0002	0
238	SLU 28	0	-2.49	22.87	0.1454	-0.0003	0
238	SLU 29	0	-2.45	22.9	0.1431	-0.0002	0
238	SLU 30	0	-2.44	22.9	0.1429	-0.0003	0
238	SLU 31	0	-2.63	29.55	0.154	-0.0006	0
238	SLU 32	0	-2.76	29.47	0.1608	-0.0004	0
238	SLU 33	0	-2.75	29.47	0.1605	-0.0005	0
238	SLU 34	0	-2.7	29.5	0.1578	-0.0005	0
238	SLU 35	0	-2.83	29.42	0.1645	-0.0003	0
238	SLU 36	0	-2.82	29.42	0.1643	-0.0004	0
238	SLU 37	0	-2.78	29.45	0.162	-0.0003	0
238	SLU 38	0	-2.77	29.45	0.1617	-0.0004	0
238	SLU 39	0	-2.78	32.35	0.1626	-0.0004	0
238	SLU 40	0	-2.78	32.35	0.1623	-0.0006	0
238	SLU 41	0	-2.85	32.3	0.1663	-0.0004	0
238	SLU 42	0	-2.85	32.3	0.166	-0.0005	0
238	SLU 43	0	-2.44	22.13	0.144	-0.0003	0
238	SLU 44	0	-2.43	22.13	0.1436	-0.0005	0
238	SLU 45	0	-2.55	22.06	0.1503	-0.0003	0
238	SLU 46	0	-2.55	22.06	0.15	-0.0004	0
238	SLU 47	0	-2.49	22.08	0.1473	-0.0005	0
238	SLU 48	0	-2.62	22.01	0.1541	-0.0002	0
238	SLU 49	0	-2.61	22.01	0.1538	-0.0004	0
238	SLU 50	0	-2.57	22.03	0.1515	-0.0002	0
238	SLU 51	0	-2.57	22.03	0.1512	-0.0003	0
238	SLU 52	0	-2.76	28.68	0.1624	-0.0006	0
238	SLU 53	0	-2.88	28.61	0.1692	-0.0004	0
238	SLU 54	0	-2.88	28.61	0.1689	-0.0005	0
238	SLU 55	0	-2.82	28.63	0.1661	-0.0006	0
238	SLU 56	0	-2.95	28.56	0.1729	-0.0003	0
238	SLU 57	0	-2.94	28.56	0.1726	-0.0005	0
238	SLU 58	0	-2.9	28.58	0.1703	-0.0003	0
238	SLU 59	0	-2.89	28.58	0.1701	-0.0004	0
238	SLU 60	0	-2.91	31.49	0.1709	-0.0005	0
238	SLU 61	0	-2.9	31.49	0.1707	-0.0006	0
238	SLU 62	0	-2.97	31.44	0.1747	-0.0004	0
238	SLU 63	0	-2.97	31.44	0.1744	-0.0005	0
238	SLU 64	0	-2.78	26.86	0.1637	-0.0004	0
238	SLU 65	0	-2.78	26.86	0.1633	-0.0006	0
238	SLU 66	0	-2.9	26.79	0.17	-0.0003	0
238	SLU 67	0	-2.9	26.79	0.1697	-0.0005	0
238	SLU 68	0	-2.84	26.81	0.167	-0.0005	0
238	SLU 69	0	-2.97	26.74	0.1737	-0.0003	0
238	SLU 70	0	-2.96	26.74	0.1735	-0.0004	0
238	SLU 71	0	-2.92	26.76	0.1712	-0.0002	0
238	SLU 72	0	-2.91	26.76	0.1709	-0.0004	0
238	SLU 73	0	-3.1	33.41	0.1821	-0.0007	0
238	SLU 74	0	-3.23	33.33	0.1888	-0.0004	0
238	SLU 75	0	-3.22	33.33	0.1886	-0.0006	0
238	SLU 76	0	-3.17	33.36	0.1858	-0.0006	0
238	SLU 77	0	-3.3	33.28	0.1926	-0.0004	0
238	SLU 78	0	-3.29	33.28	0.1923	-0.0005	0
238	SLU 79	0	-3.25	33.31	0.19	-0.0003	0
238	SLU 80	0	-3.24	33.31	0.1898	-0.0005	0
238	SLU 81	0	-3.25	36.21	0.1906	-0.0005	0
238	SLU 82	0	-3.25	36.21	0.1904	-0.0006	0
238	SLU 83	0	-3.32	36.16	0.1944	-0.0004	0
238	SLU 84	0	-3.32	36.16	0.1941	-0.0006	0
238	SLE RA 1	0	-2.07	19.62	0.1216	-0.0003	0
238	SLE RA 2	0	-2.06	19.62	0.1213	-0.0004	0
238	SLE RA 3	0	-2.14	19.57	0.1258	-0.0002	0
238	SLE RA 4	0	-2.14	19.57	0.1256	-0.0003	0
238	SLE RA 5	0	-2.1	19.59	0.1238	-0.0004	0
238	SLE RA 6	0	-2.19	19.54	0.1283	-0.0002	0
238	SLE RA 7	0	-2.18	19.54	0.1281	-0.0003	0
238	SLE RA 8	0	-2.16	19.55	0.1266	-0.0002	0
238	SLE RA 9	0	-2.15	19.55	0.1264	-0.0003	0
238	SLE RA 10	0	-2.28	23.99	0.1339	-0.0005	0
238	SLE RA 11	0	-2.36	23.94	0.1384	-0.0003	0
238	SLE RA 12	0	-2.36	23.94	0.1382	-0.0004	0
238	SLE RA 13	0	-2.32	23.95	0.1364	-0.0004	0
238	SLE RA 14	0	-2.41	23.91	0.1409	-0.0003	0
238	SLE RA 15	0	-2.4	23.91	0.1407	-0.0004	0
238	SLE RA 16	0	-2.37	23.92	0.1392	-0.0003	0
238	SLE RA 17	0	-2.37	23.92	0.139	-0.0003	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
238	SLE RA 18	0	-2.38	25.86	0.1396	-0.0004	0
238	SLE RA 19	0	-2.37	25.86	0.1394	-0.0004	0
238	SLE RA 20	0	-2.42	25.82	0.142	-0.0003	0
238	SLE RA 21	0	-2.42	25.82	0.1419	-0.0004	0
238	SLE FR 1	0	-2.07	19.62	0.1216	-0.0003	0
238	SLE FR 2	0	-2.06	19.62	0.1215	-0.0003	0
238	SLE FR 3	0	-2.08	19.61	0.1226	-0.0003	0
238	SLE FR 4	0	-2.16	21.49	0.1269	-0.0003	0
238	SLE FR 5	0	-2.18	21.48	0.128	-0.0003	0
238	SLE FR 6	0	-2.22	22.74	0.1306	-0.0003	0
238	SLE QP 1	0	-2.07	19.62	0.1216	-0.0003	0
238	SLE QP 2	0	-2.16	21.49	0.127	-0.0003	0
238	SLD 1	0.36	0.69	25.45	0.0202	0.3679	-0.006
238	SLD 2	0.36	0.69	25.45	0.0202	0.3679	-0.006
238	SLD 3	0.38	-3.1	20.11	0.1632	0.3797	-0.0063
238	SLD 4	0.38	-3.1	20.11	0.1632	0.3797	-0.0063
238	SLD 5	0.09	4.44	30.79	-0.1219	0.0923	-0.0014
238	SLD 6	0.09	4.44	30.79	-0.1219	0.0923	-0.0014
238	SLD 7	0.14	-8.19	12.97	0.3548	0.1315	-0.0023
238	SLD 8	0.14	-8.19	12.97	0.3548	0.1315	-0.0023
238	SLD 9	-0.14	3.87	30.02	-0.1008	-0.1321	0.0023
238	SLD 10	-0.14	3.87	30.02	-0.1008	-0.1321	0.0023
238	SLD 11	-0.09	-8.76	12.19	0.3759	-0.0929	0.0014
238	SLD 12	-0.09	-8.76	12.19	0.3759	-0.0929	0.0014
238	SLD 13	-0.38	-1.22	22.88	0.0908	-0.3802	0.0063
238	SLD 14	-0.38	-1.22	22.88	0.0908	-0.3802	0.0063
238	SLD 15	-0.36	-5.01	17.53	0.2338	-0.3685	0.0061
238	SLD 16	-0.36	-5.01	17.53	0.2338	-0.3685	0.0061
238	SLV 1	0.92	4.45	30.67	-0.1206	0.944	-0.0155
238	SLV 2	0.92	4.45	30.67	-0.1206	0.944	-0.0155
238	SLV 3	0.96	-4.38	18.2	0.2129	0.9736	-0.0161
238	SLV 4	0.96	-4.38	18.2	0.2129	0.9736	-0.0161
238	SLV 5	0.22	13.22	43.16	-0.453	0.2382	-0.0037
238	SLV 6	0.22	13.22	43.16	-0.453	0.2382	-0.0037
238	SLV 7	0.34	-16.22	1.59	0.6585	0.3367	-0.0058
238	SLV 8	0.34	-16.22	1.59	0.6585	0.3367	-0.0058
238	SLV 9	-0.34	11.9	41.39	-0.4045	-0.3373	0.0058
238	SLV 10	-0.34	11.9	41.39	-0.4045	-0.3373	0.0058
238	SLV 11	-0.22	-17.54	-0.18	0.707	-0.2388	0.0037
238	SLV 12	-0.22	-17.54	-0.18	0.707	-0.2388	0.0037
238	SLV 13	-0.96	0.06	24.78	0.0411	-0.9742	0.0161
238	SLV 14	-0.96	0.06	24.78	0.0411	-0.9742	0.0161
238	SLV 15	-0.93	-8.77	12.31	0.3746	-0.9446	0.0155
238	SLV 16	-0.93	-8.77	12.31	0.3746	-0.9446	0.0155
239	SLU 1	0	4.07	37.5	-0.0205	-0.0023	0
239	SLU 2	0	4.07	37.46	-0.0207	-0.0022	0
239	SLU 3	0	3.89	37.6	-0.0078	-0.0026	0
239	SLU 4	0	3.89	37.57	-0.0079	-0.0026	0
239	SLU 5	0	3.79	36.92	-0.0064	-0.0026	0
239	SLU 6	0	3.61	37.06	0.0065	-0.0029	0
239	SLU 7	0	3.61	37.03	0.0063	-0.0029	0
239	SLU 8	0	3.51	36.42	0.008	-0.003	0
239	SLU 9	0	3.51	36.4	0.0079	-0.0029	0
239	SLU 10	0	5	45.11	-0.0337	-0.0025	0
239	SLU 11	0	4.82	45.24	-0.0208	-0.0029	0
239	SLU 12	0	4.82	45.22	-0.0209	-0.0029	0
239	SLU 13	0	4.72	44.56	-0.0195	-0.0029	0
239	SLU 14	0	4.54	44.7	-0.0065	-0.0033	0
239	SLU 15	0	4.54	44.68	-0.0067	-0.0032	0
239	SLU 16	0	4.43	44.06	-0.005	-0.0033	0
239	SLU 17	0	4.44	44.04	-0.0051	-0.0033	0
239	SLU 18	0	5.39	48.42	-0.039	-0.0028	0
239	SLU 19	0	5.39	48.4	-0.0392	-0.0027	0
239	SLU 20	0	5.11	47.88	-0.0248	-0.0031	0
239	SLU 21	0	5.11	47.86	-0.0249	-0.0031	0
239	SLU 22	0	4.73	43.74	-0.0232	-0.0028	0
239	SLU 23	0	4.73	43.7	-0.0235	-0.0027	0
239	SLU 24	0	4.55	43.84	-0.0105	-0.0031	0
239	SLU 25	0	4.55	43.81	-0.0107	-0.0031	0
239	SLU 26	0	4.45	43.16	-0.0092	-0.003	0
239	SLU 27	0	4.27	43.3	0.0037	-0.0034	0
239	SLU 28	0	4.27	43.27	0.0036	-0.0034	0
239	SLU 29	0	4.17	42.66	0.0052	-0.0035	0
239	SLU 30	0	4.17	42.63	0.0051	-0.0034	0
239	SLU 31	0	5.65	51.35	-0.0365	-0.003	0
239	SLU 32	0	5.47	51.48	-0.0236	-0.0034	0
239	SLU 33	0	5.47	51.46	-0.0237	-0.0034	0
239	SLU 34	0	5.37	50.8	-0.0222	-0.0034	0
239	SLU 35	0	5.19	50.94	-0.0093	-0.0038	0
239	SLU 36	0	5.2	50.92	-0.0095	-0.0037	0
239	SLU 37	0	5.09	50.3	-0.0078	-0.0038	0
239	SLU 38	0	5.09	50.28	-0.0079	-0.0038	0
239	SLU 39	0	6.05	54.66	-0.0418	-0.0032	0
239	SLU 40	0	6.05	54.64	-0.042	-0.0032	0
239	SLU 41	0	5.77	54.12	-0.0276	-0.0036	0
239	SLU 42	0	5.77	54.09	-0.0277	-0.0035	0
239	SLU 43	0	5.07	46.61	-0.0256	-0.0028	0
239	SLU 44	0	5.07	46.57	-0.0259	-0.0027	0
239	SLU 45	0	4.89	46.71	-0.0129	-0.0031	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
239	SLU 46	0	4.89	46.69	-0.0131	-0.0031	0
239	SLU 47	0	4.79	46.03	-0.0116	-0.0031	0
239	SLU 48	0	4.61	46.17	0.0013	-0.0035	0
239	SLU 49	0	4.61	46.14	0.0012	-0.0034	0
239	SLU 50	0	4.51	45.53	0.0028	-0.0035	0
239	SLU 51	0	4.51	45.51	0.0027	-0.0034	0
239	SLU 52	0	5.99	54.22	-0.0389	-0.0031	0
239	SLU 53	0	5.81	54.35	-0.026	-0.0035	0
239	SLU 54	0	5.81	54.33	-0.0261	-0.0034	0
239	SLU 55	0	5.71	53.68	-0.0246	-0.0034	0
239	SLU 56	0	5.53	53.81	-0.0117	-0.0038	0
239	SLU 57	0	5.53	53.79	-0.0119	-0.0038	0
239	SLU 58	0	5.43	53.17	-0.0102	-0.0038	0
239	SLU 59	0	5.43	53.15	-0.0103	-0.0038	0
239	SLU 60	0	6.39	57.53	-0.0442	-0.0033	0
239	SLU 61	0	6.39	57.51	-0.0443	-0.0032	0
239	SLU 62	0	6.11	56.99	-0.03	-0.0036	0
239	SLU 63	0	6.11	56.97	-0.0301	-0.0036	0
239	SLU 64	0	5.72	52.85	-0.0284	-0.0033	0
239	SLU 65	0	5.72	52.81	-0.0286	-0.0032	0
239	SLU 66	0	5.55	52.95	-0.0157	-0.0036	0
239	SLU 67	0	5.55	52.92	-0.0159	-0.0036	0
239	SLU 68	0	5.44	52.27	-0.0144	-0.0036	0
239	SLU 69	0	5.27	52.41	-0.0015	-0.004	0
239	SLU 70	0	5.27	52.38	-0.0016	-0.0039	0
239	SLU 71	0	5.16	51.77	0	-0.004	0
239	SLU 72	0	5.16	51.75	-0.0001	-0.0039	0
239	SLU 73	0	6.65	60.46	-0.0416	-0.0035	0
239	SLU 74	0	6.47	60.59	-0.0287	-0.0039	0
239	SLU 75	0	6.47	60.57	-0.0289	-0.0039	0
239	SLU 76	0	6.37	59.91	-0.0274	-0.0039	0
239	SLU 77	0	6.19	60.05	-0.0145	-0.0043	0
239	SLU 78	0	6.19	60.03	-0.0146	-0.0043	0
239	SLU 79	0	6.09	59.41	-0.013	-0.0043	0
239	SLU 80	0	6.09	59.39	-0.0131	-0.0043	0
239	SLU 81	0	7.04	63.77	-0.047	-0.0038	0
239	SLU 82	0	7.04	63.75	-0.0471	-0.0037	0
239	SLU 83	0	6.76	63.23	-0.0328	-0.0041	0
239	SLU 84	0	6.76	63.21	-0.0329	-0.0041	0
239	SLE RA 1	0	4.26	39.28	-0.0213	-0.0024	0
239	SLE RA 2	0	4.26	39.26	-0.0214	-0.0024	0
239	SLE RA 3	0	4.14	39.35	-0.0128	-0.0026	0
239	SLE RA 4	0	4.14	39.33	-0.0129	-0.0026	0
239	SLE RA 5	0	4.07	38.9	-0.0119	-0.0026	0
239	SLE RA 6	0	3.95	38.99	-0.0033	-0.0029	0
239	SLE RA 7	0	3.95	38.97	-0.0034	-0.0028	0
239	SLE RA 8	0	3.89	38.56	-0.0023	-0.0029	0
239	SLE RA 9	0	3.89	38.55	-0.0024	-0.0028	0
239	SLE RA 10	0	4.87	44.35	-0.0301	-0.0026	0
239	SLE RA 11	0	4.76	44.44	-0.0215	-0.0029	0
239	SLE RA 12	0	4.76	44.43	-0.0215	-0.0028	0
239	SLE RA 13	0	4.69	43.99	-0.0206	-0.0028	0
239	SLE RA 14	0	4.57	44.08	-0.012	-0.0031	0
239	SLE RA 15	0	4.57	44.07	-0.0121	-0.0031	0
239	SLE RA 16	0	4.5	43.66	-0.011	-0.0031	0
239	SLE RA 17	0	4.5	43.64	-0.011	-0.0031	0
239	SLE RA 18	0	5.14	46.56	-0.0336	-0.0027	0
239	SLE RA 19	0	5.14	46.55	-0.0337	-0.0027	0
239	SLE RA 20	0	4.95	46.2	-0.0242	-0.003	0
239	SLE RA 21	0	4.95	46.19	-0.0242	-0.0029	0
239	SLE FR 1	0	4.26	39.28	-0.0213	-0.0024	0
239	SLE FR 2	0	4.26	39.28	-0.0213	-0.0024	0
239	SLE FR 3	0	4.18	39.14	-0.0175	-0.0025	0
239	SLE FR 4	0	4.52	41.46	-0.025	-0.0025	0
239	SLE FR 5	0	4.45	41.32	-0.0212	-0.0026	0
239	SLE FR 6	0	4.7	42.92	-0.0274	-0.0026	0
239	SLE QP 1	0	4.26	39.28	-0.0213	-0.0024	0
239	SLE QP 2	0	4.52	41.47	-0.025	-0.0025	0
239	SLD 1	0.31	7.55	48.6	-0.1688	0.4533	0.0001
239	SLD 2	0.31	7.55	48.6	-0.1688	0.4533	0.0001
239	SLD 3	0.29	3.66	39.79	0.0168	0.4209	0.0001
239	SLD 4	0.29	3.66	39.79	0.0168	0.4209	0.0001
239	SLD 5	0.13	11.34	56.98	-0.3496	0.1834	0.0001
239	SLD 6	0.13	11.34	56.98	-0.3496	0.1834	0.0001
239	SLD 7	0.05	-1.64	27.59	0.269	0.0753	0
239	SLD 8	0.05	-1.64	27.59	0.269	0.0753	0
239	SLD 9	-0.06	10.69	55.34	-0.3189	-0.0804	0
239	SLD 10	-0.06	10.69	55.34	-0.3189	-0.0804	0
239	SLD 11	-0.13	-2.29	25.96	0.2996	-0.1885	-0.0001
239	SLD 12	-0.13	-2.29	25.96	0.2996	-0.1885	-0.0001
239	SLD 13	-0.3	5.39	43.15	-0.0667	-0.4259	-0.0001
239	SLD 14	-0.3	5.39	43.15	-0.0667	-0.4259	-0.0001
239	SLD 15	-0.32	1.49	34.33	0.1188	-0.4584	-0.0001
239	SLD 16	-0.32	1.49	34.33	0.1188	-0.4584	-0.0001
239	SLV 1	0.97	11.49	58.1	-0.356	1.4023	0.0004
239	SLV 2	0.97	11.49	58.1	-0.356	1.4023	0.0004
239	SLV 3	0.91	2.51	37.58	0.0721	1.3121	0.0003
239	SLV 4	0.91	2.51	37.58	0.0721	1.3121	0.0003
239	SLV 5	0.38	20.22	77.58	-0.7735	0.5558	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
239	SLV 6	0.38	20.22	77.58	-0.7735	0.5558	0.0002
239	SLV 7	0.18	-9.69	9.18	0.6534	0.255	0.0001
239	SLV 8	0.18	-9.69	9.18	0.6534	0.255	0.0001
239	SLV 9	-0.18	18.74	73.76	-0.7033	-0.2601	-0.0001
239	SLV 10	-0.18	18.74	73.76	-0.7033	-0.2601	-0.0001
239	SLV 11	-0.39	-11.18	5.35	0.7235	-0.5608	-0.0002
239	SLV 12	-0.39	-11.18	5.35	0.7235	-0.5608	-0.0002
239	SLV 13	-0.91	6.53	45.35	-0.122	-1.3171	-0.0003
239	SLV 14	-0.91	6.53	45.35	-0.122	-1.3171	-0.0003
239	SLV 15	-0.98	-2.44	24.83	0.306	-1.4073	-0.0004
239	SLV 16	-0.98	-2.44	24.83	0.306	-1.4073	-0.0004
240	SLU 1	-0.15	-4.5	28.44	0.2162	-0.1233	0.0006
240	SLU 2	-0.14	-3.76	28.78	0.1805	-0.1065	0.0005
240	SLU 3	-0.16	-4.61	29.23	0.2213	-0.1274	0.0006
240	SLU 4	-0.15	-4.17	29.43	0.1998	-0.1173	0.0006
240	SLU 5	-0.14	-3.8	29.35	0.1815	-0.1092	0.0006
240	SLU 6	-0.16	-4.65	29.79	0.2223	-0.1301	0.0006
240	SLU 7	-0.15	-4.21	29.99	0.2009	-0.12	0.0006
240	SLU 8	-0.16	-4.56	29.57	0.2183	-0.1288	0.0006
240	SLU 9	-0.15	-4.12	29.78	0.1969	-0.1187	0.0006
240	SLU 10	-0.16	-4.5	31.3	0.2146	-0.1219	0.0006
240	SLU 11	-0.18	-5.35	31.75	0.2554	-0.1428	0.0007
240	SLU 12	-0.17	-4.91	31.95	0.2339	-0.1327	0.0007
240	SLU 13	-0.16	-4.53	31.87	0.2156	-0.1246	0.0006
240	SLU 14	-0.18	-5.38	32.31	0.2564	-0.1455	0.0007
240	SLU 15	-0.17	-4.94	32.51	0.235	-0.1354	0.0007
240	SLU 16	-0.18	-5.3	32.1	0.2524	-0.1441	0.0007
240	SLU 17	-0.17	-4.86	32.3	0.231	-0.134	0.0007
240	SLU 18	-0.18	-5.55	32.05	0.2649	-0.1453	0.0007
240	SLU 19	-0.17	-5.11	32.25	0.2435	-0.1352	0.0007
240	SLU 20	-0.19	-5.58	32.61	0.266	-0.148	0.0007
240	SLU 21	-0.18	-5.14	32.81	0.2445	-0.1379	0.0007
240	SLU 22	-0.17	-5.2	31.08	0.2487	-0.139	0.0007
240	SLU 23	-0.16	-4.46	31.41	0.2129	-0.1222	0.0006
240	SLU 24	-0.18	-5.32	31.86	0.2537	-0.143	0.0007
240	SLU 25	-0.17	-4.87	32.06	0.2323	-0.133	0.0007
240	SLU 26	-0.16	-4.5	31.98	0.214	-0.1249	0.0006
240	SLU 27	-0.18	-5.35	32.42	0.2548	-0.1457	0.0007
240	SLU 28	-0.17	-4.91	32.62	0.2333	-0.1357	0.0007
240	SLU 29	-0.18	-5.26	32.21	0.2507	-0.1444	0.0007
240	SLU 30	-0.17	-4.82	32.41	0.2293	-0.1343	0.0007
240	SLU 31	-0.18	-5.2	33.93	0.247	-0.1376	0.0007
240	SLU 32	-0.2	-6.05	34.38	0.2878	-0.1584	0.0008
240	SLU 33	-0.19	-5.61	34.58	0.2664	-0.1483	0.0007
240	SLU 34	-0.18	-5.23	34.5	0.2481	-0.1403	0.0007
240	SLU 35	-0.2	-6.08	34.94	0.2889	-0.1611	0.0008
240	SLU 36	-0.19	-5.64	35.15	0.2674	-0.151	0.0007
240	SLU 37	-0.2	-6	34.73	0.2849	-0.1598	0.0008
240	SLU 38	-0.19	-5.56	34.93	0.2634	-0.1497	0.0007
240	SLU 39	-0.2	-6.25	34.68	0.2974	-0.1609	0.0008
240	SLU 40	-0.19	-5.81	34.88	0.276	-0.1509	0.0007
240	SLU 41	-0.21	-6.28	35.24	0.2984	-0.1637	0.0008
240	SLU 42	-0.2	-5.84	35.45	0.277	-0.1536	0.0008
240	SLU 43	-0.19	-5.61	36.08	0.2699	-0.155	0.0007
240	SLU 44	-0.18	-4.87	36.41	0.2342	-0.1382	0.0007
240	SLU 45	-0.2	-5.72	36.86	0.275	-0.159	0.0008
240	SLU 46	-0.19	-5.28	37.06	0.2536	-0.1489	0.0007
240	SLU 47	-0.18	-4.9	36.98	0.2353	-0.1409	0.0007
240	SLU 48	-0.2	-5.76	37.42	0.2761	-0.1617	0.0008
240	SLU 49	-0.19	-5.31	37.62	0.2546	-0.1517	0.0008
240	SLU 50	-0.2	-5.67	37.2	0.272	-0.1604	0.0008
240	SLU 51	-0.19	-5.23	37.41	0.2506	-0.1503	0.0007
240	SLU 52	-0.2	-5.61	38.93	0.2683	-0.1535	0.0008
240	SLU 53	-0.22	-6.46	39.38	0.3091	-0.1744	0.0008
240	SLU 54	-0.21	-6.02	39.58	0.2877	-0.1643	0.0008
240	SLU 55	-0.2	-5.64	39.5	0.2694	-0.1562	0.0008
240	SLU 56	-0.22	-6.49	39.94	0.3102	-0.1771	0.0009
240	SLU 57	-0.21	-6.05	40.15	0.2887	-0.167	0.0008
240	SLU 58	-0.22	-6.41	39.73	0.3062	-0.1758	0.0008
240	SLU 59	-0.21	-5.97	39.93	0.2847	-0.1657	0.0008
240	SLU 60	-0.22	-6.66	39.68	0.3187	-0.1769	0.0009
240	SLU 61	-0.21	-6.22	39.88	0.2972	-0.1668	0.0008
240	SLU 62	-0.23	-6.69	40.24	0.3197	-0.1796	0.0009
240	SLU 63	-0.22	-6.25	40.45	0.2983	-0.1696	0.0008
240	SLU 64	-0.21	-6.31	38.71	0.3024	-0.1706	0.0008
240	SLU 65	-0.2	-5.57	39.04	0.2667	-0.1538	0.0008
240	SLU 66	-0.22	-6.43	39.49	0.3075	-0.1747	0.0008
240	SLU 67	-0.21	-5.98	39.69	0.286	-0.1646	0.0008
240	SLU 68	-0.2	-5.61	39.61	0.2677	-0.1565	0.0008
240	SLU 69	-0.22	-6.46	40.05	0.3085	-0.1774	0.0009
240	SLU 70	-0.21	-6.02	40.25	0.2871	-0.1673	0.0008
240	SLU 71	-0.22	-6.37	39.84	0.3045	-0.176	0.0009
240	SLU 72	-0.21	-5.93	40.04	0.283	-0.166	0.0008
240	SLU 73	-0.22	-6.31	41.57	0.3008	-0.1692	0.0008
240	SLU 74	-0.24	-7.16	42.01	0.3416	-0.19	0.0009
240	SLU 75	-0.23	-6.72	42.21	0.3201	-0.18	0.0009
240	SLU 76	-0.22	-6.34	42.13	0.3018	-0.1719	0.0009
240	SLU 77	-0.24	-7.19	42.57	0.3426	-0.1928	0.0009
240	SLU 78	-0.23	-6.75	42.78	0.3212	-0.1827	0.0009



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
240	SLU 79	-0.24	-7.11	42.36	0.3386	-0.1914	0.0009
240	SLU 80	-0.23	-6.67	42.56	0.3172	-0.1813	0.0009
240	SLU 81	-0.24	-7.36	42.31	0.3511	-0.1926	0.0009
240	SLU 82	-0.23	-6.92	42.51	0.3297	-0.1825	0.0009
240	SLU 83	-0.25	-7.39	42.88	0.3522	-0.1953	0.0009
240	SLU 84	-0.24	-6.95	43.08	0.3307	-0.1852	0.0009
240	SLE RA 1	-0.16	-4.7	29.2	0.2255	-0.1278	0.0006
240	SLE RA 2	-0.15	-4.21	29.42	0.2017	-0.1166	0.0006
240	SLE RA 3	-0.16	-4.78	29.72	0.2289	-0.1305	0.0006
240	SLE RA 4	-0.16	-4.48	29.85	0.2146	-0.1238	0.0006
240	SLE RA 5	-0.15	-4.23	29.8	0.2024	-0.1184	0.0006
240	SLE RA 6	-0.17	-4.8	30.09	0.2296	-0.1323	0.0006
240	SLE RA 7	-0.16	-4.5	30.23	0.2153	-0.1256	0.0006
240	SLE RA 8	-0.17	-4.74	29.95	0.2269	-0.1314	0.0006
240	SLE RA 9	-0.16	-4.45	30.08	0.2126	-0.1247	0.0006
240	SLE RA 10	-0.16	-4.7	31.1	0.2244	-0.1268	0.0006
240	SLE RA 11	-0.18	-5.27	31.4	0.2516	-0.1408	0.0007
240	SLE RA 12	-0.17	-4.97	31.53	0.2373	-0.134	0.0007
240	SLE RA 13	-0.17	-4.72	31.48	0.2251	-0.1287	0.0006
240	SLE RA 14	-0.18	-5.29	31.77	0.2523	-0.1426	0.0007
240	SLE RA 15	-0.17	-4.99	31.91	0.238	-0.1358	0.0007
240	SLE RA 16	-0.18	-5.23	31.63	0.2496	-0.1417	0.0007
240	SLE RA 17	-0.17	-4.94	31.77	0.2353	-0.1349	0.0007
240	SLE RA 18	-0.18	-5.4	31.6	0.258	-0.1424	0.0007
240	SLE RA 19	-0.17	-5.1	31.73	0.2437	-0.1357	0.0007
240	SLE RA 20	-0.18	-5.42	31.97	0.2587	-0.1442	0.0007
240	SLE RA 21	-0.18	-5.13	32.11	0.2444	-0.1375	0.0007
240	SLE FR 1	-0.16	-4.7	29.2	0.2255	-0.1278	0.0006
240	SLE FR 2	-0.16	-4.6	29.24	0.2207	-0.1256	0.0006
240	SLE FR 3	-0.16	-4.71	29.35	0.2258	-0.1285	0.0006
240	SLE FR 4	-0.16	-4.81	29.96	0.2305	-0.13	0.0006
240	SLE FR 5	-0.17	-4.92	30.07	0.2355	-0.1329	0.0006
240	SLE FR 6	-0.17	-5.05	30.4	0.2417	-0.1351	0.0007
240	SLE QP 1	-0.16	-4.7	29.2	0.2255	-0.1278	0.0006
240	SLE QP 2	-0.17	-4.91	29.92	0.2352	-0.1322	0.0006
240	SLD 1	-0.32	-4.05	38.83	0.195	0.0835	0.0011
240	SLD 2	-0.32	-4.05	38.83	0.195	0.0835	0.0011
240	SLD 3	-0.39	-9.86	34.18	0.4729	0.0035	0.0013
240	SLD 4	-0.39	-9.86	34.18	0.4729	0.0035	0.0013
240	SLD 5	-0.1	4.16	39.64	-0.1983	0.0538	0.0004
240	SLD 6	-0.1	4.16	39.64	-0.1983	0.0538	0.0004
240	SLD 7	-0.34	-15.21	24.15	0.7279	-0.2128	0.0012
240	SLD 8	-0.34	-15.21	24.15	0.7279	-0.2128	0.0012
240	SLD 9	0.01	5.39	35.68	-0.2575	-0.0516	0.0001
240	SLD 10	0.01	5.39	35.68	-0.2575	-0.0516	0.0001
240	SLD 11	-0.23	-13.98	20.2	0.6687	-0.3182	0.0009
240	SLD 12	-0.23	-13.98	20.2	0.6687	-0.3182	0.0009
240	SLD 13	0.06	0.04	25.65	-0.0024	-0.2679	0
240	SLD 14	0.06	0.04	25.65	-0.0024	-0.2679	0
240	SLD 15	-0.01	-5.77	21.01	0.2755	-0.3478	0.0002
240	SLD 16	-0.01	-5.77	21.01	0.2755	-0.3478	0.0002
240	SLV 1	-0.52	-2.91	50.39	0.1421	0.3911	0.0016
240	SLV 2	-0.52	-2.91	50.39	0.1421	0.3911	0.0016
240	SLV 3	-0.71	-16.32	39.65	0.7828	0.1866	0.0022
240	SLV 4	-0.71	-16.32	39.65	0.7828	0.1866	0.0022
240	SLV 5	0.01	16.04	52.34	-0.7645	0.335	0
240	SLV 6	0.01	16.04	52.34	-0.7645	0.335	0
240	SLV 7	-0.61	-28.68	16.56	1.3713	-0.3468	0.002
240	SLV 8	-0.61	-28.68	16.56	1.3713	-0.3468	0.002
240	SLV 9	0.28	18.86	43.28	-0.9008	0.0824	-0.0007
240	SLV 10	0.28	18.86	43.28	-0.9008	0.0824	-0.0007
240	SLV 11	-0.34	-25.86	7.5	1.235	-0.5994	0.0012
240	SLV 12	-0.34	-25.86	7.5	1.235	-0.5994	0.0012
240	SLV 13	0.38	6.5	20.18	-0.3123	-0.451	-0.0009
240	SLV 14	0.38	6.5	20.18	-0.3123	-0.451	-0.0009
240	SLV 15	0.19	-6.91	9.45	0.3284	-0.6555	-0.0003
240	SLV 16	0.19	-6.91	9.45	0.3284	-0.6555	-0.0003
241	SLU 1	0.01	-3.43	54.91	0.1401	0.0115	0
241	SLU 2	-0.01	-2.94	53.8	0.1183	-0.0065	0
241	SLU 3	0.01	-3.58	56.16	0.1462	0.0121	0
241	SLU 4	0	-3.28	55.49	0.1331	0.0013	0
241	SLU 5	0	-3.02	54.36	0.1219	-0.0059	0
241	SLU 6	0.01	-3.67	56.71	0.1498	0.0127	0
241	SLU 7	0	-3.37	56.04	0.1367	0.0019	0
241	SLU 8	0.01	-3.61	56.02	0.1473	0.0126	0
241	SLU 9	0	-3.31	55.35	0.1342	0.0018	0
241	SLU 10	0	-3.57	60.29	0.1435	-0.0051	0
241	SLU 11	0.01	-4.21	62.64	0.1714	0.0134	0
241	SLU 12	0	-3.91	61.98	0.1583	0.0027	0
241	SLU 13	0	-3.65	60.84	0.1471	-0.0046	0
241	SLU 14	0.01	-4.3	63.19	0.175	0.014	0
241	SLU 15	0	-4	62.53	0.1619	0.0033	0
241	SLU 16	0.01	-4.24	62.5	0.1725	0.014	0
241	SLU 17	0	-3.94	61.84	0.1594	0.0032	0
241	SLU 18	0.01	-4.33	64.18	0.1761	0.0134	0
241	SLU 19	0	-4.03	63.51	0.163	0.0026	0
241	SLU 20	0.01	-4.42	64.73	0.1797	0.014	0
241	SLU 21	0	-4.12	64.06	0.1666	0.0032	0
241	SLU 22	0.01	-4.05	61.17	0.1649	0.0131	0



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
241	SLU 23	0	-3.55	60.06	0.1431	-0.0049	0
241	SLU 24	0.01	-4.2	62.42	0.171	0.0137	0
241	SLU 25	0	-3.9	61.75	0.1579	0.0029	0
241	SLU 26	0	-3.64	60.62	0.1467	-0.0043	0
241	SLU 27	0.01	-4.29	62.97	0.1746	0.0143	0
241	SLU 28	0	-3.99	62.3	0.1615	0.0035	0
241	SLU 29	0.01	-4.22	62.28	0.172	0.0142	0
241	SLU 30	0	-3.93	61.61	0.159	0.0034	0
241	SLU 31	0	-4.18	66.55	0.1683	-0.0035	0
241	SLU 32	0.01	-4.83	68.9	0.1962	0.015	0
241	SLU 33	0	-4.53	68.24	0.1831	0.0043	0
241	SLU 34	0	-4.27	67.1	0.1719	-0.003	0
241	SLU 35	0.01	-4.92	69.45	0.1998	0.0156	0
241	SLU 36	0	-4.62	68.79	0.1867	0.0049	0
241	SLU 37	0.01	-4.85	68.76	0.1972	0.0156	0
241	SLU 38	0	-4.56	68.1	0.1842	0.0048	0
241	SLU 39	0.01	-4.95	70.44	0.2009	0.015	0
241	SLU 40	0	-4.65	69.77	0.1878	0.0042	0
241	SLU 41	0.01	-5.03	70.99	0.2044	0.0156	0
241	SLU 42	0	-4.74	70.32	0.1914	0.0048	0
241	SLU 43	0.01	-4.25	69.24	0.1736	0.0143	0
241	SLU 44	0	-3.75	68.13	0.1518	-0.0036	0
241	SLU 45	0.01	-4.4	70.49	0.1798	0.015	0
241	SLU 46	0	-4.1	69.82	0.1667	0.0042	0
241	SLU 47	0	-3.84	68.68	0.1554	-0.003	0
241	SLU 48	0.01	-4.49	71.04	0.1833	0.0156	0
241	SLU 49	0	-4.19	70.37	0.1703	0.0048	0
241	SLU 50	0.01	-4.42	70.35	0.1808	0.0155	0
241	SLU 51	0	-4.13	69.68	0.1677	0.0047	0
241	SLU 52	0	-4.38	74.62	0.177	-0.0023	0
241	SLU 53	0.01	-5.03	76.97	0.2049	0.0163	0
241	SLU 54	0	-4.73	76.31	0.1919	0.0056	0
241	SLU 55	0	-4.47	75.17	0.1806	-0.0017	0
241	SLU 56	0.01	-5.12	77.52	0.2085	0.0169	0
241	SLU 57	0.01	-4.82	76.86	0.1954	0.0061	0
241	SLU 58	0.01	-5.05	76.83	0.206	0.0169	0
241	SLU 59	0.01	-4.76	76.17	0.1929	0.0061	0
241	SLU 60	0.01	-5.15	78.51	0.2096	0.0163	0
241	SLU 61	0	-4.85	77.84	0.1966	0.0055	0
241	SLU 62	0.01	-5.23	79.06	0.2132	0.0169	0
241	SLU 63	0.01	-4.94	78.39	0.2001	0.0061	0
241	SLU 64	0.01	-4.86	75.5	0.1984	0.0159	0
241	SLU 65	0	-4.37	74.39	0.1766	-0.002	0
241	SLU 66	0.01	-5.01	76.75	0.2045	0.0166	0
241	SLU 67	0.01	-4.72	76.08	0.1915	0.0058	0
241	SLU 68	0	-4.46	74.94	0.1802	-0.0014	0
241	SLU 69	0.01	-5.1	77.3	0.2081	0.0172	0
241	SLU 70	0.01	-4.81	76.63	0.195	0.0064	0
241	SLU 71	0.01	-5.04	76.61	0.2056	0.0171	0
241	SLU 72	0.01	-4.74	75.94	0.1925	0.0063	0
241	SLU 73	0	-5	80.88	0.2018	-0.0007	0
241	SLU 74	0.02	-5.64	83.23	0.2297	0.0179	0
241	SLU 75	0.01	-5.35	82.57	0.2166	0.0072	0
241	SLU 76	0	-5.09	81.43	0.2054	-0.0001	0
241	SLU 77	0.02	-5.73	83.78	0.2333	0.0185	0
241	SLU 78	0.01	-5.44	83.12	0.2202	0.0077	0
241	SLU 79	0.02	-5.67	83.09	0.2308	0.0185	0
241	SLU 80	0.01	-5.37	82.42	0.2177	0.0077	0
241	SLU 81	0.02	-5.76	84.77	0.2344	0.0179	0
241	SLU 82	0.01	-5.47	84.1	0.2213	0.0071	0
241	SLU 83	0.02	-5.85	85.32	0.238	0.0185	0
241	SLU 84	0.01	-5.56	84.65	0.2249	0.0077	0
241	SLE RA 1	0.01	-3.61	56.7	0.1472	0.0119	0
241	SLE RA 2	0	-3.28	55.96	0.1327	-0.0001	0
241	SLE RA 3	0.01	-3.71	57.53	0.1513	0.0123	0
241	SLE RA 4	0	-3.51	57.09	0.1425	0.0052	0
241	SLE RA 5	0	-3.34	56.33	0.135	0.0003	0
241	SLE RA 6	0.01	-3.76	57.9	0.1536	0.0127	0
241	SLE RA 7	0	-3.57	57.46	0.1449	0.0055	0
241	SLE RA 8	0.01	-3.72	57.44	0.152	0.0127	0
241	SLE RA 9	0	-3.53	56.99	0.1432	0.0055	0
241	SLE RA 10	0	-3.7	60.29	0.1494	0.0008	0
241	SLE RA 11	0.01	-4.13	61.86	0.1681	0.0132	0
241	SLE RA 12	0.01	-3.93	61.41	0.1593	0.0061	0
241	SLE RA 13	0	-3.76	60.65	0.1518	0.0012	0
241	SLE RA 14	0.01	-4.19	62.22	0.1704	0.0136	0
241	SLE RA 15	0.01	-3.99	61.78	0.1617	0.0064	0
241	SLE RA 16	0.01	-4.14	61.76	0.1688	0.0136	0
241	SLE RA 17	0.01	-3.95	61.32	0.16	0.0064	0
241	SLE RA 18	0.01	-4.21	62.88	0.1712	0.0132	0
241	SLE RA 19	0.01	-4.01	62.44	0.1625	0.006	0
241	SLE RA 20	0.01	-4.26	63.25	0.1736	0.0136	0
241	SLE RA 21	0.01	-4.07	62.8	0.1648	0.0064	0
241	SLE FR 1	0.01	-3.61	56.7	0.1472	0.0119	0
241	SLE FR 2	0.01	-3.54	56.56	0.1443	0.0095	0
241	SLE FR 3	0.01	-3.63	56.85	0.1481	0.0121	0
241	SLE FR 4	0.01	-3.72	58.41	0.1515	0.0099	0
241	SLE FR 5	0.01	-3.81	58.7	0.1553	0.0125	0
241	SLE FR 6	0.01	-3.91	59.79	0.1592	0.0126	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
241	SLE QP 1	0.01	-3.61	56.7	0.1472	0.0119	0
241	SLE QP 2	0.01	-3.79	58.56	0.1544	0.0123	0
241	SLD 1	0.28	0.46	43.59	-0.0226	0.1723	-0.0001
241	SLD 2	0.28	0.46	43.59	-0.0226	0.1723	-0.0001
241	SLD 3	0.17	-5	48.04	0.206	0.2825	-0.0001
241	SLD 4	0.17	-5	48.04	0.206	0.2825	-0.0001
241	SLD 5	0.24	5.78	47.32	-0.2456	-0.1068	0
241	SLD 6	0.24	5.78	47.32	-0.2456	-0.1068	0
241	SLD 7	-0.1	-12.44	62.15	0.5167	0.2604	-0.0001
241	SLD 8	-0.1	-12.44	62.15	0.5167	0.2604	-0.0001
241	SLD 9	0.12	4.87	54.96	-0.2079	-0.2358	0
241	SLD 10	0.12	4.87	54.96	-0.2079	-0.2358	0
241	SLD 11	-0.22	-13.35	69.79	0.5543	0.1314	0
241	SLD 12	-0.22	-13.35	69.79	0.5543	0.1314	0
241	SLD 13	-0.15	-2.57	69.08	0.1027	-0.2579	0.0001
241	SLD 14	-0.15	-2.57	69.08	0.1027	-0.2579	0.0001
241	SLD 15	-0.25	-8.03	73.52	0.3314	-0.1477	0
241	SLD 16	-0.25	-8.03	73.52	0.3314	-0.1477	0
241	SLV 1	0.65	5.95	24.18	-0.2511	0.3875	-0.0001
241	SLV 2	0.65	5.95	24.18	-0.2511	0.3875	-0.0001
241	SLV 3	0.39	-6.64	34.52	0.2753	0.6691	-0.0002
241	SLV 4	0.39	-6.64	34.52	0.2753	0.6691	-0.0002
241	SLV 5	0.6	18.23	32.55	-0.7657	-0.3022	0
241	SLV 6	0.6	18.23	32.55	-0.7657	-0.3022	0
241	SLV 7	-0.27	-23.74	67.04	0.9891	0.6364	-0.0001
241	SLV 8	-0.27	-23.74	67.04	0.9891	0.6364	-0.0001
241	SLV 9	0.29	16.16	50.07	-0.6803	-0.6118	0.0001
241	SLV 10	0.29	16.16	50.07	-0.6803	-0.6118	0.0001
241	SLV 11	-0.58	-25.8	84.57	1.0745	0.3268	0
241	SLV 12	-0.58	-25.8	84.57	1.0745	0.3268	0
241	SLV 13	-0.37	-0.93	82.59	0.0335	-0.6445	0.0002
241	SLV 14	-0.37	-0.93	82.59	0.0335	-0.6445	0.0002
241	SLV 15	-0.63	-13.52	92.94	0.5599	-0.3629	0.0001
241	SLV 16	-0.63	-13.52	92.94	0.5599	-0.3629	0.0001
242	SLU 1	0	2.26	45.15	-0.0644	-0.0017	0
242	SLU 2	0	2.37	44.6	-0.0678	-0.0011	0
242	SLU 3	0	2.13	47.17	-0.0595	-0.0018	0
242	SLU 4	0	2.2	46.84	-0.0615	-0.0014	0
242	SLU 5	0	2.2	46.19	-0.0617	-0.0012	0
242	SLU 6	0	1.97	48.76	-0.0534	-0.0018	0
242	SLU 7	0	2.03	48.44	-0.0554	-0.0015	0
242	SLU 8	0	1.93	48.34	-0.0522	-0.0018	0
242	SLU 9	0	1.99	48.01	-0.0543	-0.0015	0
242	SLU 10	0	2.63	52.61	-0.0753	-0.0014	0
242	SLU 11	0	2.39	55.18	-0.0669	-0.0021	0
242	SLU 12	0	2.46	54.85	-0.069	-0.0017	0
242	SLU 13	0	2.46	54.2	-0.0692	-0.0015	0
242	SLU 14	0	2.23	56.77	-0.0608	-0.0021	0
242	SLU 15	0	2.29	56.44	-0.0629	-0.0018	0
242	SLU 16	0	2.19	56.34	-0.0597	-0.0021	0
242	SLU 17	0	2.25	56.01	-0.0617	-0.0018	0
242	SLU 18	0	2.63	56.58	-0.075	-0.0021	0
242	SLU 19	0	2.69	56.26	-0.0771	-0.0018	0
242	SLU 20	0	2.47	58.18	-0.0689	-0.0022	0
242	SLU 21	0	2.53	57.85	-0.071	-0.0018	0
242	SLU 22	0	2.43	52.94	-0.0684	-0.002	0
242	SLU 23	0	2.53	52.39	-0.0718	-0.0014	0
242	SLU 24	0	2.3	54.96	-0.0635	-0.0021	0
242	SLU 25	0	2.36	54.63	-0.0655	-0.0017	0
242	SLU 26	0	2.37	53.99	-0.0657	-0.0015	0
242	SLU 27	0	2.13	56.56	-0.0574	-0.0022	0
242	SLU 28	0	2.2	56.23	-0.0594	-0.0018	0
242	SLU 29	0	2.09	56.13	-0.0562	-0.0021	0
242	SLU 30	0	2.16	55.8	-0.0583	-0.0018	0
242	SLU 31	0	2.79	60.4	-0.0792	-0.0017	0
242	SLU 32	0	2.56	62.97	-0.0709	-0.0024	0
242	SLU 33	0	2.62	62.64	-0.0729	-0.002	0
242	SLU 34	0	2.62	61.99	-0.0731	-0.0018	0
242	SLU 35	0	2.39	64.56	-0.0648	-0.0025	0
242	SLU 36	0	2.45	64.23	-0.0668	-0.0021	0
242	SLU 37	0	2.35	64.13	-0.0637	-0.0024	0
242	SLU 38	0	2.42	63.81	-0.0657	-0.0021	0
242	SLU 39	0	2.79	64.38	-0.079	-0.0024	0
242	SLU 40	0	2.86	64.05	-0.0811	-0.0021	0
242	SLU 41	0	2.63	65.97	-0.0729	-0.0025	0
242	SLU 42	0	2.69	65.64	-0.075	-0.0021	0
242	SLU 43	0	2.88	56.02	-0.0824	-0.0021	0
242	SLU 44	0	2.99	55.47	-0.0858	-0.0015	0
242	SLU 45	0	2.76	58.04	-0.0775	-0.0022	0
242	SLU 46	0	2.82	57.71	-0.0795	-0.0018	0
242	SLU 47	0	2.82	57.07	-0.0797	-0.0016	0
242	SLU 48	0	2.59	59.64	-0.0714	-0.0022	0
242	SLU 49	0	2.65	59.31	-0.0734	-0.0019	0
242	SLU 50	0	2.55	59.21	-0.0702	-0.0022	0
242	SLU 51	0	2.62	58.88	-0.0723	-0.0019	0
242	SLU 52	0	3.25	63.48	-0.0932	-0.0018	0
242	SLU 53	0	3.01	66.05	-0.0849	-0.0025	0
242	SLU 54	0	3.08	65.72	-0.0869	-0.0021	0
242	SLU 55	0	3.08	65.07	-0.0871	-0.0019	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
242	SLU 56	0	2.85	67.64	-0.0788	-0.0025	0
242	SLU 57	0	2.91	67.31	-0.0808	-0.0022	0
242	SLU 58	0	2.81	67.21	-0.0776	-0.0025	0
242	SLU 59	0	2.87	66.89	-0.0797	-0.0022	0
242	SLU 60	0	3.25	67.46	-0.093	-0.0025	0
242	SLU 61	0	3.32	67.13	-0.095	-0.0022	0
242	SLU 62	0	3.09	69.05	-0.0869	-0.0026	0
242	SLU 63	0	3.15	68.72	-0.0889	-0.0022	0
242	SLU 64	0	3.05	63.81	-0.0864	-0.0024	0
242	SLU 65	0	3.15	63.26	-0.0898	-0.0018	0
242	SLU 66	0	2.92	65.83	-0.0814	-0.0025	0
242	SLU 67	0	2.98	65.51	-0.0835	-0.0021	0
242	SLU 68	0	2.99	64.86	-0.0837	-0.0019	0
242	SLU 69	0	2.75	67.43	-0.0753	-0.0026	0
242	SLU 70	0	2.82	67.1	-0.0774	-0.0022	0
242	SLU 71	0	2.72	67	-0.0742	-0.0025	0
242	SLU 72	0	2.78	66.67	-0.0762	-0.0022	0
242	SLU 73	0	3.41	71.27	-0.0972	-0.0021	0
242	SLU 74	0	3.18	73.84	-0.0889	-0.0028	0
242	SLU 75	0	3.24	73.51	-0.0909	-0.0024	0
242	SLU 76	0	3.25	72.86	-0.0911	-0.0022	0
242	SLU 77	0	3.01	75.44	-0.0828	-0.0029	0
242	SLU 78	0	3.08	75.11	-0.0848	-0.0025	0
242	SLU 79	0	2.98	75.01	-0.0816	-0.0028	0
242	SLU 80	0	3.04	74.68	-0.0837	-0.0025	0
242	SLU 81	0	3.42	75.25	-0.097	-0.0028	0
242	SLU 82	0	3.48	74.92	-0.099	-0.0025	0
242	SLU 83	0	3.25	76.84	-0.0909	-0.0029	0
242	SLU 84	0	3.31	76.51	-0.0929	-0.0025	0
242	SLE RA 1	0	2.31	47.37	-0.0656	-0.0018	0
242	SLE RA 2	0	2.38	47.01	-0.0678	-0.0014	0
242	SLE RA 3	0	2.22	48.72	-0.0623	-0.0018	0
242	SLE RA 4	0	2.27	48.5	-0.0636	-0.0016	0
242	SLE RA 5	0	2.27	48.07	-0.0638	-0.0014	0
242	SLE RA 6	0	2.11	49.78	-0.0582	-0.0019	0
242	SLE RA 7	0	2.15	49.57	-0.0596	-0.0016	0
242	SLE RA 8	0	2.09	49.5	-0.0574	-0.0019	0
242	SLE RA 9	0	2.13	49.28	-0.0588	-0.0016	0
242	SLE RA 10	0	2.55	52.35	-0.0728	-0.0016	0
242	SLE RA 11	0	2.4	54.06	-0.0672	-0.002	0
242	SLE RA 12	0	2.44	53.84	-0.0686	-0.0018	0
242	SLE RA 13	0	2.44	53.41	-0.0687	-0.0016	0
242	SLE RA 14	0	2.29	55.12	-0.0632	-0.0021	0
242	SLE RA 15	0	2.33	54.9	-0.0645	-0.0018	0
242	SLE RA 16	0	2.26	54.84	-0.0624	-0.0021	0
242	SLE RA 17	0	2.3	54.62	-0.0638	-0.0018	0
242	SLE RA 18	0	2.55	55	-0.0726	-0.0021	0
242	SLE RA 19	0	2.6	54.78	-0.074	-0.0018	0
242	SLE RA 20	0	2.44	56.06	-0.0686	-0.0021	0
242	SLE RA 21	0	2.49	55.84	-0.0699	-0.0019	0
242	SLE FR 1	0	2.31	47.37	-0.0656	-0.0018	0
242	SLE FR 2	0	2.32	47.3	-0.066	-0.0017	0
242	SLE FR 3	0	2.26	47.8	-0.0639	-0.0018	0
242	SLE FR 4	0	2.4	49.59	-0.0681	-0.0018	0
242	SLE FR 5	0	2.34	50.09	-0.0661	-0.0019	0
242	SLE FR 6	0	2.43	51.19	-0.0691	-0.0019	0
242	SLE QP 1	0	2.31	47.37	-0.0656	-0.0018	0
242	SLE QP 2	0	2.38	49.66	-0.0677	-0.0019	0
242	SLD 1	0.21	7.24	50.57	-0.224	0.2089	-0.0022
242	SLD 2	0.21	7.24	50.57	-0.224	0.2089	-0.0022
242	SLD 3	0.26	2.09	52.6	-0.0566	0.2592	-0.0028
242	SLD 4	0.26	2.09	52.6	-0.0566	0.2592	-0.0028
242	SLD 5	-0.01	11.65	46.86	-0.3685	-0.015	0.0001
242	SLD 6	-0.01	11.65	46.86	-0.3685	-0.015	0.0001
242	SLD 7	0.15	-5.52	53.61	0.1896	0.1528	-0.0016
242	SLD 8	0.15	-5.52	53.61	0.1896	0.1528	-0.0016
242	SLD 9	-0.15	10.28	45.71	-0.325	-0.1565	0.0017
242	SLD 10	-0.15	10.28	45.71	-0.325	-0.1565	0.0017
242	SLD 11	0.01	-6.89	52.46	0.2331	0.0112	-0.0001
242	SLD 12	0.01	-6.89	52.46	0.2331	0.0112	-0.0001
242	SLD 13	-0.26	2.67	46.72	-0.0788	-0.2629	0.0028
242	SLD 14	-0.26	2.67	46.72	-0.0788	-0.2629	0.0028
242	SLD 15	-0.21	-2.48	48.75	0.0886	-0.2126	0.0023
242	SLD 16	-0.21	-2.48	48.75	0.0886	-0.2126	0.0023
242	SLV 1	0.54	13.61	51.82	-0.4286	0.5384	-0.0058
242	SLV 2	0.54	13.61	51.82	-0.4286	0.5384	-0.0058
242	SLV 3	0.66	1.79	56.54	-0.0444	0.6674	-0.0071
242	SLV 4	0.66	1.79	56.54	-0.0444	0.6674	-0.0071
242	SLV 5	-0.03	23.68	43.14	-0.7586	-0.0355	0.0003
242	SLV 6	-0.03	23.68	43.14	-0.7586	-0.0355	0.0003
242	SLV 7	0.39	-15.73	58.89	0.5219	0.3946	-0.0042
242	SLV 8	0.39	-15.73	58.89	0.5219	0.3946	-0.0042
242	SLV 9	-0.39	20.49	40.43	-0.6573	-0.3983	0.0042
242	SLV 10	-0.39	20.49	40.43	-0.6573	-0.3983	0.0042
242	SLV 11	0.03	-18.92	56.18	0.6232	0.0318	-0.0003
242	SLV 12	0.03	-18.92	56.18	0.6232	0.0318	-0.0003
242	SLV 13	-0.67	2.98	42.78	-0.0909	-0.6711	0.0071
242	SLV 14	-0.67	2.98	42.78	-0.0909	-0.6711	0.0071
242	SLV 15	-0.54	-8.84	47.51	0.2932	-0.5421	0.0058



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
242	SLV 16	-0.54	-8.84	47.51	0.2932	-0.5421	0.0058
243	SLU 1	0	1.4	46.05	-0.0461	-0.0003	0
243	SLU 2	0	1.46	45.64	-0.0491	-0.0008	0
243	SLU 3	0	1.49	47.82	-0.0493	-0.0002	0
243	SLU 4	0	1.53	47.58	-0.0511	-0.0005	0
243	SLU 5	0	1.61	46.93	-0.0549	-0.0006	0
243	SLU 6	0	1.63	49.11	-0.0551	0	0
243	SLU 7	0	1.67	48.87	-0.0569	-0.0003	0
243	SLU 8	0	1.69	48.62	-0.0577	0	0
243	SLU 9	0	1.73	48.38	-0.0595	-0.0003	0
243	SLU 10	0	1.38	53.95	-0.0423	-0.0008	0
243	SLU 11	0	1.4	56.13	-0.0425	-0.0003	0
243	SLU 12	0	1.44	55.89	-0.0443	-0.0005	0
243	SLU 13	0	1.53	55.24	-0.048	-0.0007	0
243	SLU 14	0	1.55	57.42	-0.0483	-0.0001	0
243	SLU 15	0	1.59	57.17	-0.0501	-0.0004	0
243	SLU 16	0	1.6	56.93	-0.0508	-0.0001	0
243	SLU 17	0	1.64	56.69	-0.0526	-0.0004	0
243	SLU 18	0	1.27	57.92	-0.0363	-0.0004	0
243	SLU 19	0	1.32	57.67	-0.0381	-0.0007	0
243	SLU 20	0	1.42	59.2	-0.0421	-0.0003	0
243	SLU 21	0	1.46	58.96	-0.0439	-0.0005	0
243	SLU 22	0	1.42	53.9	-0.044	-0.0003	0
243	SLU 23	0	1.49	53.5	-0.047	-0.0008	0
243	SLU 24	0	1.51	55.67	-0.0472	-0.0002	0
243	SLU 25	0	1.55	55.43	-0.049	-0.0005	0
243	SLU 26	0	1.63	54.78	-0.0528	-0.0006	0
243	SLU 27	0	1.65	56.96	-0.053	-0.0001	0
243	SLU 28	0	1.69	56.72	-0.0548	-0.0003	0
243	SLU 29	0	1.71	56.48	-0.0556	0	0
243	SLU 30	0	1.75	56.23	-0.0574	-0.0003	0
243	SLU 31	0	1.4	61.8	-0.0402	-0.0008	0
243	SLU 32	0	1.42	63.98	-0.0404	-0.0003	0
243	SLU 33	0	1.47	63.74	-0.0422	-0.0005	0
243	SLU 34	0	1.55	63.09	-0.046	-0.0007	0
243	SLU 35	0	1.57	65.27	-0.0462	-0.0001	0
243	SLU 36	0	1.61	65.03	-0.048	-0.0004	0
243	SLU 37	0	1.62	64.78	-0.0488	-0.0001	0
243	SLU 38	0	1.66	64.54	-0.0506	-0.0004	0
243	SLU 39	0	1.3	65.77	-0.0342	-0.0004	0
243	SLU 40	0	1.34	65.53	-0.036	-0.0007	0
243	SLU 41	0	1.44	67.06	-0.04	-0.0003	0
243	SLU 42	0	1.48	66.81	-0.0418	-0.0005	0
243	SLU 43	0	1.81	57.17	-0.0606	-0.0004	0
243	SLU 44	0	1.88	56.77	-0.0636	-0.0009	0
243	SLU 45	0	1.9	58.95	-0.0639	-0.0003	0
243	SLU 46	0	1.94	58.7	-0.0657	-0.0006	0
243	SLU 47	0	2.02	58.05	-0.0694	-0.0007	0
243	SLU 48	0	2.04	60.23	-0.0697	-0.0001	0
243	SLU 49	0	2.08	59.99	-0.0715	-0.0004	0
243	SLU 50	0	2.1	59.75	-0.0722	-0.0001	0
243	SLU 51	0	2.14	59.5	-0.074	-0.0004	0
243	SLU 52	0	1.79	65.07	-0.0568	-0.0009	0
243	SLU 53	0	1.81	67.25	-0.057	-0.0004	0
243	SLU 54	0	1.86	67.01	-0.0588	-0.0006	0
243	SLU 55	0	1.94	66.36	-0.0626	-0.0008	0
243	SLU 56	0	1.96	68.54	-0.0628	-0.0002	0
243	SLU 57	0	2	68.3	-0.0646	-0.0005	0
243	SLU 58	0	2.01	68.05	-0.0654	-0.0002	0
243	SLU 59	0	2.05	67.81	-0.0672	-0.0004	0
243	SLU 60	0	1.69	69.04	-0.0509	-0.0005	0
243	SLU 61	0	1.73	68.8	-0.0527	-0.0008	0
243	SLU 62	0	1.83	70.33	-0.0567	-0.0004	0
243	SLU 63	0	1.87	70.08	-0.0585	-0.0006	0
243	SLU 64	0	1.83	65.02	-0.0586	-0.0004	0
243	SLU 65	0	1.9	64.62	-0.0615	-0.0009	0
243	SLU 66	0	1.92	66.8	-0.0618	-0.0003	0
243	SLU 67	0	1.96	66.55	-0.0636	-0.0006	0
243	SLU 68	0	2.04	65.91	-0.0673	-0.0007	0
243	SLU 69	0	2.06	68.08	-0.0676	-0.0001	0
243	SLU 70	0	2.11	67.84	-0.0694	-0.0004	0
243	SLU 71	0	2.12	67.6	-0.0701	-0.0001	0
243	SLU 72	0	2.16	67.36	-0.0719	-0.0004	0
243	SLU 73	0	1.81	72.93	-0.0547	-0.0009	0
243	SLU 74	0	1.83	75.1	-0.0549	-0.0004	0
243	SLU 75	0	1.88	74.86	-0.0567	-0.0006	0
243	SLU 76	0	1.96	74.21	-0.0605	-0.0008	0
243	SLU 77	0	1.98	76.39	-0.0607	-0.0002	0
243	SLU 78	0	2.02	76.15	-0.0625	-0.0005	0
243	SLU 79	0	2.03	75.91	-0.0633	-0.0002	0
243	SLU 80	0	2.08	75.66	-0.0651	-0.0005	0
243	SLU 81	0	1.71	76.89	-0.0488	-0.0005	0
243	SLU 82	0	1.75	76.65	-0.0506	-0.0008	0
243	SLU 83	0	1.85	78.18	-0.0546	-0.0004	0
243	SLU 84	0	1.89	77.94	-0.0564	-0.0006	0
243	SLE RA 1	0	1.4	48.29	-0.0455	-0.0003	0
243	SLE RA 2	0	1.45	48.02	-0.0475	-0.0006	0
243	SLE RA 3	0	1.46	49.48	-0.0477	-0.0002	0
243	SLE RA 4	0	1.49	49.31	-0.0489	-0.0004	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
243	SLE RA 5	0	1.54	48.88	-0.0514	-0.0005	0
243	SLE RA 6	0	1.56	50.33	-0.0515	-0.0001	0
243	SLE RA 7	0	1.59	50.17	-0.0527	-0.0003	0
243	SLE RA 8	0	1.59	50.01	-0.0532	-0.0001	0
243	SLE RA 9	0	1.62	49.85	-0.0544	-0.0003	0
243	SLE RA 10	0	1.39	53.56	-0.0429	-0.0007	0
243	SLE RA 11	0	1.41	55.01	-0.0431	-0.0003	0
243	SLE RA 12	0	1.43	54.85	-0.0443	-0.0005	0
243	SLE RA 13	0	1.49	54.42	-0.0468	-0.0006	0
243	SLE RA 14	0	1.5	55.87	-0.047	-0.0002	0
243	SLE RA 15	0	1.53	55.71	-0.0482	-0.0004	0
243	SLE RA 16	0	1.54	55.55	-0.0487	-0.0002	0
243	SLE RA 17	0	1.57	55.38	-0.0499	-0.0003	0
243	SLE RA 18	0	1.32	56.2	-0.039	-0.0004	0
243	SLE RA 19	0	1.35	56.04	-0.0402	-0.0006	0
243	SLE RA 20	0	1.42	57.06	-0.0429	-0.0003	0
243	SLE RA 21	0	1.45	56.9	-0.0441	-0.0005	0
243	SLE FR 1	0	1.4	48.29	-0.0455	-0.0003	0
243	SLE FR 2	0	1.41	48.24	-0.0459	-0.0004	0
243	SLE FR 3	0	1.44	48.64	-0.047	-0.0003	0
243	SLE FR 4	0	1.39	50.61	-0.044	-0.0004	0
243	SLE FR 5	0	1.42	51.01	-0.0451	-0.0003	0
243	SLE FR 6	0	1.36	52.25	-0.0423	-0.0004	0
243	SLE QP 1	0	1.4	48.29	-0.0455	-0.0003	0
243	SLE QP 2	0	1.38	50.67	-0.0436	-0.0004	0
243	SLD 1	0.3	1.96	50.9	-0.0675	0.2999	-0.0001
243	SLD 2	0.3	1.96	50.9	-0.0675	0.2999	-0.0001
243	SLD 3	0.26	-5.2	52.75	0.2563	0.2587	-0.0001
243	SLD 4	0.26	-5.2	52.75	0.2563	0.2587	-0.0001
243	SLD 5	0.15	12.4	47.93	-0.5417	0.1523	-0.0001
243	SLD 6	0.15	12.4	47.93	-0.5417	0.1523	-0.0001
243	SLD 7	0.02	-11.45	54.1	0.5374	0.0148	0
243	SLD 8	0.02	-11.45	54.1	0.5374	0.0148	0
243	SLD 9	-0.02	14.2	47.24	-0.6245	-0.0155	0
243	SLD 10	-0.02	14.2	47.24	-0.6245	-0.0155	0
243	SLD 11	-0.15	-9.65	53.4	0.4546	-0.153	0.0001
243	SLD 12	-0.15	-9.65	53.4	0.4546	-0.153	0.0001
243	SLD 13	-0.26	7.96	48.58	-0.3434	-0.2594	0.0001
243	SLD 14	-0.26	7.96	48.58	-0.3434	-0.2594	0.0001
243	SLD 15	-0.3	0.8	50.43	-0.0197	-0.3006	0.0001
243	SLD 16	-0.3	0.8	50.43	-0.0197	-0.3006	0.0001
243	SLV 1	0.77	2.66	51.24	-0.0963	0.7693	-0.0003
243	SLV 2	0.77	2.66	51.24	-0.0963	0.7693	-0.0003
243	SLV 3	0.67	-13.82	55.63	0.6492	0.6636	-0.0003
243	SLV 4	0.67	-13.82	55.63	0.6492	0.6636	-0.0003
243	SLV 5	0.39	26.75	44.19	-1.1901	0.3908	-0.0002
243	SLV 6	0.39	26.75	44.19	-1.1901	0.3908	-0.0002
243	SLV 7	0.04	-28.17	58.81	1.295	0.0386	0
243	SLV 8	0.04	-28.17	58.81	1.295	0.0386	0
243	SLV 9	-0.04	30.93	42.53	-1.3821	-0.0393	0
243	SLV 10	-0.04	30.93	42.53	-1.3821	-0.0393	0
243	SLV 11	-0.39	-24	57.14	1.103	-0.3915	0.0002
243	SLV 12	-0.39	-24	57.14	1.103	-0.3915	0.0002
243	SLV 13	-0.67	16.58	45.7	-0.7363	-0.6644	0.0003
243	SLV 14	-0.67	16.58	45.7	-0.7363	-0.6644	0.0003
243	SLV 15	-0.77	0.1	50.09	0.0092	-0.77	0.0003
243	SLV 16	-0.77	0.1	50.09	0.0092	-0.77	0.0003
244	SLU 1	0	-0.56	16.47	-0.0578	0	0
244	SLU 2	0	-0.55	16.47	-0.0577	-0.0001	0
244	SLU 3	0	-0.59	16.41	-0.06	0.0001	0
244	SLU 4	0	-0.58	16.41	-0.06	0	0
244	SLU 5	0	-0.57	16.43	-0.0592	-0.0001	0
244	SLU 6	0	-0.6	16.37	-0.0615	0.0001	0
244	SLU 7	0	-0.6	16.37	-0.0614	0	0
244	SLU 8	0	-0.58	16.39	-0.0607	0.0001	0
244	SLU 9	0	-0.58	16.39	-0.0607	0	0
244	SLU 10	0	-0.71	22.09	-0.0685	-0.0002	0
244	SLU 11	0	-0.75	22.03	-0.0708	0	0
244	SLU 12	0	-0.74	22.03	-0.0708	-0.0001	0
244	SLU 13	0	-0.73	22.05	-0.07	-0.0001	0
244	SLU 14	0	-0.76	21.99	-0.0723	0.0001	0
244	SLU 15	0	-0.76	21.99	-0.0722	0	0
244	SLU 16	0	-0.74	22.01	-0.0715	0.0001	0
244	SLU 17	0	-0.74	22.01	-0.0715	0	0
244	SLU 18	0	-0.79	24.5	-0.0732	0	0
244	SLU 19	0	-0.78	24.5	-0.0732	-0.0001	0
244	SLU 20	0	-0.8	24.46	-0.0747	0	0
244	SLU 21	0	-0.8	24.46	-0.0746	-0.0001	0
244	SLU 22	0	-0.7	20.53	-0.0679	0	0
244	SLU 23	0	-0.69	20.53	-0.0678	-0.0001	0
244	SLU 24	0	-0.73	20.47	-0.0701	0.0001	0
244	SLU 25	0	-0.72	20.47	-0.0701	0	0
244	SLU 26	0	-0.71	20.49	-0.0693	-0.0001	0
244	SLU 27	0	-0.74	20.43	-0.0716	0.0001	0
244	SLU 28	0	-0.74	20.43	-0.0715	0	0
244	SLU 29	0	-0.73	20.45	-0.0708	0.0001	0
244	SLU 30	0	-0.72	20.45	-0.0708	0	0
244	SLU 31	0	-0.85	26.15	-0.0786	-0.0002	0
244	SLU 32	0	-0.89	26.09	-0.0809	0	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
244	SLU 33	0	-0.88	26.09	-0.0809	-0.0001	0
244	SLU 34	0	-0.87	26.11	-0.0801	-0.0001	0
244	SLU 35	0	-0.9	26.05	-0.0824	0.0001	0
244	SLU 36	0	-0.9	26.05	-0.0823	0	0
244	SLU 37	0	-0.88	26.07	-0.0816	0.0001	0
244	SLU 38	0	-0.88	26.07	-0.0816	0	0
244	SLU 39	0	-0.93	28.56	-0.0833	0	0
244	SLU 40	0	-0.92	28.56	-0.0833	-0.0001	0
244	SLU 41	0	-0.94	28.52	-0.0848	0	0
244	SLU 42	0	-0.94	28.52	-0.0847	-0.0001	0
244	SLU 43	0	-0.68	20.02	-0.0717	0	0
244	SLU 44	0	-0.67	20.02	-0.0716	-0.0001	0
244	SLU 45	0	-0.7	19.96	-0.0739	0.0001	0
244	SLU 46	0	-0.7	19.96	-0.0738	0	0
244	SLU 47	0	-0.69	19.98	-0.0731	-0.0001	0
244	SLU 48	0	-0.72	19.92	-0.0753	0.0001	0
244	SLU 49	0	-0.72	19.92	-0.0753	0	0
244	SLU 50	0	-0.7	19.94	-0.0746	0.0001	0
244	SLU 51	0	-0.7	19.94	-0.0746	0	0
244	SLU 52	0	-0.83	25.64	-0.0824	-0.0002	0
244	SLU 53	0	-0.86	25.58	-0.0847	0	0
244	SLU 54	0	-0.86	25.58	-0.0846	-0.0001	0
244	SLU 55	0	-0.85	25.6	-0.0839	-0.0001	0
244	SLU 56	0	-0.88	25.54	-0.0861	0.0001	0
244	SLU 57	0	-0.88	25.54	-0.0861	0	0
244	SLU 58	0	-0.86	25.56	-0.0854	0.0001	0
244	SLU 59	0	-0.86	25.56	-0.0854	0	0
244	SLU 60	0	-0.91	28.05	-0.0871	0	0
244	SLU 61	0	-0.9	28.05	-0.087	-0.0001	0
244	SLU 62	0	-0.92	28.01	-0.0885	0	0
244	SLU 63	0	-0.92	28.01	-0.0885	-0.0001	0
244	SLU 64	0	-0.82	24.08	-0.0817	0	0
244	SLU 65	0	-0.81	24.08	-0.0817	-0.0001	0
244	SLU 66	0	-0.85	24.02	-0.084	0.0001	0
244	SLU 67	0	-0.84	24.02	-0.0839	0	0
244	SLU 68	0	-0.83	24.04	-0.0832	-0.0001	0
244	SLU 69	0	-0.86	23.98	-0.0854	0.0001	0
244	SLU 70	0	-0.86	23.98	-0.0854	0	0
244	SLU 71	0	-0.84	24	-0.0847	0.0001	0
244	SLU 72	0	-0.84	24	-0.0847	0	0
244	SLU 73	0	-0.97	29.7	-0.0925	-0.0002	0
244	SLU 74	0	-1.01	29.64	-0.0948	0	0
244	SLU 75	0	-1	29.64	-0.0947	-0.0001	0
244	SLU 76	0	-0.99	29.66	-0.094	-0.0001	0
244	SLU 77	0	-1.02	29.6	-0.0962	0.0001	0
244	SLU 78	0	-1.02	29.6	-0.0962	0	0
244	SLU 79	0	-1	29.62	-0.0955	0.0001	0
244	SLU 80	0	-1	29.62	-0.0954	0	0
244	SLU 81	0	-1.05	32.11	-0.0972	0	0
244	SLU 82	0	-1.04	32.11	-0.0971	-0.0001	0
244	SLU 83	0	-1.06	32.07	-0.0986	0	0
244	SLU 84	0	-1.06	32.07	-0.0986	-0.0001	0
244	SLE RA 1	0	-0.6	17.63	-0.0607	0	0
244	SLE RA 2	0	-0.6	17.63	-0.0606	-0.0001	0
244	SLE RA 3	0	-0.62	17.59	-0.0621	0	0
244	SLE RA 4	0	-0.61	17.59	-0.0621	0	0
244	SLE RA 5	0	-0.6	17.6	-0.0616	0	0
244	SLE RA 6	0	-0.63	17.56	-0.0631	0.0001	0
244	SLE RA 7	0	-0.62	17.56	-0.0631	0	0
244	SLE RA 8	0	-0.62	17.58	-0.0626	0.0001	0
244	SLE RA 9	0	-0.61	17.58	-0.0626	0	0
244	SLE RA 10	0	-0.7	21.38	-0.0678	-0.0001	0
244	SLE RA 11	0	-0.72	21.34	-0.0693	0	0
244	SLE RA 12	0	-0.72	21.34	-0.0693	0	0
244	SLE RA 13	0	-0.71	21.35	-0.0688	-0.0001	0
244	SLE RA 14	0	-0.73	21.31	-0.0703	0.0001	0
244	SLE RA 15	0	-0.73	21.31	-0.0703	0	0
244	SLE RA 16	0	-0.72	21.32	-0.0698	0.0001	0
244	SLE RA 17	0	-0.72	21.32	-0.0698	0	0
244	SLE RA 18	0	-0.75	22.98	-0.0709	0	0
244	SLE RA 19	0	-0.75	22.98	-0.0709	-0.0001	0
244	SLE RA 20	0	-0.76	22.96	-0.0719	0	0
244	SLE RA 21	0	-0.76	22.96	-0.0719	0	0
244	SLE FR 1	0	-0.6	17.63	-0.0607	0	0
244	SLE FR 2	0	-0.6	17.63	-0.0607	0	0
244	SLE FR 3	0	-0.6	17.62	-0.0611	0	0
244	SLE FR 4	0	-0.64	19.24	-0.0637	0	0
244	SLE FR 5	0	-0.65	19.22	-0.0641	0	0
244	SLE FR 6	0	-0.67	20.31	-0.0658	0	0
244	SLE QP 1	0	-0.6	17.63	-0.0607	0	0
244	SLE QP 2	0	-0.64	19.24	-0.0637	0	0
244	SLD 1	0.43	0.33	21.39	0.0329	0.448	-0.0049
244	SLD 2	0.43	0.33	21.39	0.0329	0.448	-0.0049
244	SLD 3	0.44	-3.79	18.49	-0.0919	0.4616	-0.0051
244	SLD 4	0.44	-3.79	18.49	-0.0919	0.4616	-0.0051
244	SLD 5	0.1	5.91	24.27	0.1545	0.1138	-0.0012
244	SLD 6	0.1	5.91	24.27	0.1545	0.1138	-0.0012
244	SLD 7	0.16	-7.85	14.63	-0.2615	0.1591	-0.0018
244	SLD 8	0.16	-7.85	14.63	-0.2615	0.1591	-0.0018



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
244	SLD 9	-0.16	6.56	23.85	0.134	-0.1591	0.0018
244	SLD 10	-0.16	6.56	23.85	0.134	-0.1591	0.0018
244	SLD 11	-0.1	-7.2	14.2	-0.282	-0.1138	0.0012
244	SLD 12	-0.1	-7.2	14.2	-0.282	-0.1138	0.0012
244	SLD 13	-0.44	2.51	19.98	-0.0356	-0.4615	0.0051
244	SLD 14	-0.44	2.51	19.98	-0.0356	-0.4615	0.0051
244	SLD 15	-0.43	-1.62	17.09	-0.1604	-0.4479	0.0049
244	SLD 16	-0.43	-1.62	17.09	-0.1604	-0.4479	0.0049
244	SLV 1	1.09	1.67	24.21	0.1607	1.1487	-0.0125
244	SLV 2	1.09	1.67	24.21	0.1607	1.1487	-0.0125
244	SLV 3	1.13	-7.95	17.47	-0.1305	1.183	-0.013
244	SLV 4	1.13	-7.95	17.47	-0.1305	1.183	-0.013
244	SLV 5	0.27	14.65	30.96	0.4453	0.2927	-0.0031
244	SLV 6	0.27	14.65	30.96	0.4453	0.2927	-0.0031
244	SLV 7	0.4	-17.44	8.48	-0.5255	0.4068	-0.0046
244	SLV 8	0.4	-17.44	8.48	-0.5255	0.4068	-0.0046
244	SLV 9	-0.4	16.15	30	0.398	-0.4068	0.0046
244	SLV 10	-0.4	16.15	30	0.398	-0.4068	0.0046
244	SLV 11	-0.26	-15.94	7.51	-0.5728	-0.2927	0.0031
244	SLV 12	-0.26	-15.94	7.51	-0.5728	-0.2927	0.0031
244	SLV 13	-1.13	6.67	21	0.003	-1.1829	0.013
244	SLV 14	-1.13	6.67	21	0.003	-1.1829	0.013
244	SLV 15	-1.09	-2.96	14.26	-0.2882	-1.1487	0.0125
244	SLV 16	-1.09	-2.96	14.26	-0.2882	-1.1487	0.0125
245	SLU 1	0	5.85	38.86	-0.3978	-0.0025	0
245	SLU 2	0	5.85	38.82	-0.3976	-0.0024	0
245	SLU 3	0	5.71	39.21	-0.3948	-0.0029	0
245	SLU 4	0	5.71	39.19	-0.3947	-0.0028	0
245	SLU 5	0	5.56	38.55	-0.3851	-0.0028	0
245	SLU 6	0	5.42	38.94	-0.3823	-0.0032	0
245	SLU 7	0	5.42	38.92	-0.3822	-0.0032	0
245	SLU 8	0	5.27	38.32	-0.3728	-0.0032	0
245	SLU 9	0	5.27	38.3	-0.3727	-0.0032	0
245	SLU 10	0	7.04	46.61	-0.4752	-0.0028	0
245	SLU 11	0	6.9	47	-0.4724	-0.0032	0
245	SLU 12	0	6.9	46.98	-0.4723	-0.0032	0
245	SLU 13	0	6.75	46.34	-0.4627	-0.0032	0
245	SLU 14	0	6.61	46.73	-0.4599	-0.0036	0
245	SLU 15	0	6.61	46.71	-0.4598	-0.0036	0
245	SLU 16	0	6.46	46.11	-0.4504	-0.0036	0
245	SLU 17	0	6.46	46.09	-0.4503	-0.0036	0
245	SLU 18	0	7.55	49.99	-0.5086	-0.003	0
245	SLU 19	0	7.55	49.96	-0.5085	-0.003	0
245	SLU 20	0	7.26	49.72	-0.4961	-0.0034	0
245	SLU 21	0	7.26	49.69	-0.496	-0.0034	0
245	SLU 22	0	6.77	45.37	-0.4614	-0.003	0
245	SLU 23	0	6.77	45.33	-0.4612	-0.003	0
245	SLU 24	0	6.63	45.72	-0.4584	-0.0034	0
245	SLU 25	0	6.63	45.7	-0.4582	-0.0034	0
245	SLU 26	0	6.48	45.06	-0.4487	-0.0033	0
245	SLU 27	0	6.34	45.45	-0.4459	-0.0038	0
245	SLU 28	0	6.34	45.43	-0.4458	-0.0037	0
245	SLU 29	0	6.19	44.83	-0.4364	-0.0038	0
245	SLU 30	0	6.19	44.8	-0.4363	-0.0037	0
245	SLU 31	0	7.96	53.12	-0.5388	-0.0034	0
245	SLU 32	0	7.82	53.51	-0.5359	-0.0038	0
245	SLU 33	0	7.82	53.48	-0.5358	-0.0037	0
245	SLU 34	0	7.67	52.85	-0.5263	-0.0037	0
245	SLU 35	0	7.53	53.24	-0.5234	-0.0042	0
245	SLU 36	0	7.53	53.21	-0.5233	-0.0041	0
245	SLU 37	0	7.38	52.61	-0.5139	-0.0042	0
245	SLU 38	0	7.38	52.59	-0.5138	-0.0041	0
245	SLU 39	0	8.47	56.49	-0.5722	-0.0036	0
245	SLU 40	0	8.47	56.47	-0.5721	-0.0036	0
245	SLU 41	0	8.18	56.22	-0.5597	-0.004	0
245	SLU 42	0	8.18	56.2	-0.5596	-0.0039	0
245	SLU 43	0	7.29	48.29	-0.4953	-0.0031	0
245	SLU 44	0	7.29	48.25	-0.4952	-0.003	0
245	SLU 45	0	7.15	48.64	-0.4923	-0.0034	0
245	SLU 46	0	7.15	48.62	-0.4922	-0.0034	0
245	SLU 47	0	7	47.98	-0.4827	-0.0034	0
245	SLU 48	0	6.86	48.37	-0.4798	-0.0038	0
245	SLU 49	0	6.86	48.35	-0.4797	-0.0038	0
245	SLU 50	0	6.71	47.75	-0.4703	-0.0038	0
245	SLU 51	0	6.71	47.73	-0.4702	-0.0038	0
245	SLU 52	0	8.48	56.04	-0.5727	-0.0034	0
245	SLU 53	0	8.34	56.43	-0.5699	-0.0038	0
245	SLU 54	0	8.34	56.41	-0.5698	-0.0038	0
245	SLU 55	0	8.19	55.77	-0.5602	-0.0038	0
245	SLU 56	0	8.05	56.16	-0.5574	-0.0042	0
245	SLU 57	0	8.05	56.14	-0.5573	-0.0041	0
245	SLU 58	0	7.9	55.54	-0.5479	-0.0042	0
245	SLU 59	0	7.9	55.52	-0.5478	-0.0042	0
245	SLU 60	0	8.99	59.42	-0.6062	-0.0036	0
245	SLU 61	0	8.99	59.39	-0.6061	-0.0036	0
245	SLU 62	0	8.7	59.15	-0.5937	-0.004	0
245	SLU 63	0	8.7	59.12	-0.5936	-0.0039	0
245	SLU 64	0	8.21	54.8	-0.5589	-0.0036	0
245	SLU 65	0	8.21	54.76	-0.5587	-0.0035	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
245	SLU 66	0	8.07	55.15	-0.5559	-0.004	0
245	SLU 67	0	8.07	55.12	-0.5558	-0.0039	0
245	SLU 68	0	7.92	54.49	-0.5462	-0.0039	0
245	SLU 69	0	7.78	54.88	-0.5434	-0.0043	0
245	SLU 70	0	7.78	54.85	-0.5433	-0.0043	0
245	SLU 71	0	7.63	54.26	-0.5339	-0.0043	0
245	SLU 72	0	7.63	54.23	-0.5338	-0.0043	0
245	SLU 73	0	9.4	62.54	-0.6363	-0.0039	0
245	SLU 74	0	9.26	62.93	-0.6335	-0.0043	0
245	SLU 75	0	9.26	62.91	-0.6334	-0.0043	0
245	SLU 76	0	9.11	62.27	-0.6238	-0.0043	0
245	SLU 77	0	8.97	62.66	-0.621	-0.0047	0
245	SLU 78	0	8.97	62.64	-0.6209	-0.0047	0
245	SLU 79	0	8.82	62.04	-0.6115	-0.0047	0
245	SLU 80	0	8.82	62.02	-0.6114	-0.0047	0
245	SLU 81	0	9.91	65.92	-0.6697	-0.0042	0
245	SLU 82	0	9.91	65.9	-0.6696	-0.0041	0
245	SLU 83	0	9.62	65.65	-0.6572	-0.0045	0
245	SLU 84	0	9.62	65.63	-0.6571	-0.0045	0
245	SLE RA 1	0	6.11	40.72	-0.416	-0.0026	0
245	SLE RA 2	0	6.11	40.7	-0.4158	-0.0026	0
245	SLE RA 3	0	6.02	40.96	-0.414	-0.0029	0
245	SLE RA 4	0	6.02	40.94	-0.4139	-0.0029	0
245	SLE RA 5	0	5.92	40.52	-0.4075	-0.0029	0
245	SLE RA 6	0	5.82	40.78	-0.4056	-0.0031	0
245	SLE RA 7	0	5.82	40.76	-0.4056	-0.0031	0
245	SLE RA 8	0	5.73	40.36	-0.3993	-0.0031	0
245	SLE RA 9	0	5.72	40.35	-0.3992	-0.0031	0
245	SLE RA 10	0	6.91	45.89	-0.4676	-0.0029	0
245	SLE RA 11	0	6.81	46.15	-0.4657	-0.0031	0
245	SLE RA 12	0	6.81	46.13	-0.4656	-0.0031	0
245	SLE RA 13	0	6.71	45.71	-0.4592	-0.0031	0
245	SLE RA 14	0	6.62	45.97	-0.4573	-0.0034	0
245	SLE RA 15	0	6.62	45.95	-0.4573	-0.0034	0
245	SLE RA 16	0	6.52	45.55	-0.451	-0.0034	0
245	SLE RA 17	0	6.52	45.54	-0.4509	-0.0034	0
245	SLE RA 18	0	7.25	48.14	-0.4898	-0.003	0
245	SLE RA 19	0	7.25	48.12	-0.4898	-0.003	0
245	SLE RA 20	0	7.06	47.96	-0.4815	-0.0033	0
245	SLE RA 21	0	7.06	47.94	-0.4814	-0.0032	0
245	SLE FR 1	0	6.11	40.72	-0.416	-0.0026	0
245	SLE FR 2	0	6.11	40.72	-0.4159	-0.0026	0
245	SLE FR 3	0	6.04	40.65	-0.4126	-0.0027	0
245	SLE FR 4	0	6.45	42.94	-0.4381	-0.0028	0
245	SLE FR 5	0	6.38	42.87	-0.4348	-0.0029	0
245	SLE FR 6	0	6.68	44.43	-0.4529	-0.0028	0
245	SLE QP 1	0	6.11	40.72	-0.416	-0.0026	0
245	SLE QP 2	0	6.45	42.95	-0.4381	-0.0028	0
245	SLD 1	0.24	9.68	43.96	-0.5816	0.3918	0
245	SLD 2	0.24	9.68	43.96	-0.5816	0.3918	0
245	SLD 3	0.23	5.54	38.14	-0.3985	0.3652	0
245	SLD 4	0.23	5.54	38.14	-0.3985	0.3652	0
245	SLD 5	0.1	13.7	52.08	-0.7588	0.156	0
245	SLD 6	0.1	13.7	52.08	-0.7588	0.156	0
245	SLD 7	0.04	-0.1	32.68	-0.1486	0.0672	0
245	SLD 8	0.04	-0.1	32.68	-0.1486	0.0672	0
245	SLD 9	-0.04	13.01	53.22	-0.7277	-0.0727	0
245	SLD 10	-0.04	13.01	53.22	-0.7277	-0.0727	0
245	SLD 11	-0.1	-0.79	33.81	-0.1174	-0.1615	0
245	SLD 12	-0.1	-0.79	33.81	-0.1174	-0.1615	0
245	SLD 13	-0.23	7.37	47.76	-0.4777	-0.3707	0
245	SLD 14	-0.23	7.37	47.76	-0.4777	-0.3707	0
245	SLD 15	-0.25	3.23	41.93	-0.2946	-0.3973	0
245	SLD 16	-0.25	3.23	41.93	-0.2946	-0.3973	0
245	SLV 1	0.74	13.87	45.28	-0.7677	1.2151	-0.0001
245	SLV 2	0.74	13.87	45.28	-0.7677	1.2151	-0.0001
245	SLV 3	0.69	4.34	31.72	-0.3462	1.1404	-0.0001
245	SLV 4	0.69	4.34	31.72	-0.3462	1.1404	-0.0001
245	SLV 5	0.29	23.13	64.21	-1.1762	0.4759	0
245	SLV 6	0.29	23.13	64.21	-1.1762	0.4759	0
245	SLV 7	0.14	-8.63	19.02	0.2287	0.2269	-0.0001
245	SLV 8	0.14	-8.63	19.02	0.2287	0.2269	-0.0001
245	SLV 9	-0.14	21.54	66.88	-1.1049	-0.2324	0.0001
245	SLV 10	-0.14	21.54	66.88	-1.1049	-0.2324	0.0001
245	SLV 11	-0.29	-10.22	21.69	0.3	-0.4814	0
245	SLV 12	-0.29	-10.22	21.69	0.3	-0.4814	0
245	SLV 13	-0.7	8.57	54.17	-0.53	-1.1459	0.0001
245	SLV 14	-0.7	8.57	54.17	-0.53	-1.1459	0.0001
245	SLV 15	-0.74	-0.96	40.62	-0.1086	-1.2206	0.0001
245	SLV 16	-0.74	-0.96	40.62	-0.1086	-1.2206	0.0001
246	SLU 1	-0.15	-6.3	27.87	0.2536	-0.1135	0.0006
246	SLU 2	-0.13	-5.47	27.87	0.217	-0.0986	0.0006
246	SLU 3	-0.15	-6.47	28.61	0.2607	-0.1172	0.0007
246	SLU 4	-0.14	-5.97	28.6	0.2387	-0.1082	0.0006
246	SLU 5	-0.14	-5.54	28.38	0.2196	-0.101	0.0006
246	SLU 6	-0.15	-6.53	29.12	0.2633	-0.1196	0.0007
246	SLU 7	-0.15	-6.04	29.11	0.2413	-0.1107	0.0006
246	SLU 8	-0.15	-6.43	28.9	0.2589	-0.1184	0.0007
246	SLU 9	-0.14	-5.93	28.89	0.2369	-0.1095	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
246	SLU 10	-0.15	-6.42	30.37	0.2568	-0.1129	0.0007
246	SLU 11	-0.17	-7.41	31.11	0.3005	-0.1315	0.0007
246	SLU 12	-0.16	-6.92	31.1	0.2785	-0.1225	0.0007
246	SLU 13	-0.15	-6.49	30.88	0.2595	-0.1153	0.0007
246	SLU 14	-0.17	-7.48	31.62	0.3031	-0.1339	0.0008
246	SLU 15	-0.16	-6.99	31.62	0.2812	-0.1249	0.0007
246	SLU 16	-0.17	-7.37	31.4	0.2987	-0.1327	0.0007
246	SLU 17	-0.16	-6.88	31.4	0.2768	-0.1237	0.0007
246	SLU 18	-0.17	-7.65	31.45	0.3105	-0.1339	0.0008
246	SLU 19	-0.16	-7.16	31.44	0.2885	-0.125	0.0007
246	SLU 20	-0.17	-7.72	31.96	0.3131	-0.1364	0.0008
246	SLU 21	-0.17	-7.22	31.96	0.2912	-0.1274	0.0007
246	SLU 22	-0.16	-7.21	30.46	0.2919	-0.1279	0.0007
246	SLU 23	-0.15	-6.39	30.45	0.2553	-0.113	0.0007
246	SLU 24	-0.17	-7.38	31.19	0.299	-0.1316	0.0007
246	SLU 25	-0.16	-6.89	31.19	0.277	-0.1226	0.0007
246	SLU 26	-0.15	-6.45	30.97	0.2579	-0.1154	0.0007
246	SLU 27	-0.17	-7.45	31.71	0.3016	-0.1341	0.0008
246	SLU 28	-0.16	-6.95	31.7	0.2797	-0.1251	0.0007
246	SLU 29	-0.17	-7.34	31.49	0.2972	-0.1329	0.0007
246	SLU 30	-0.16	-6.85	31.48	0.2752	-0.1239	0.0007
246	SLU 31	-0.17	-7.34	32.96	0.2951	-0.1273	0.0008
246	SLU 32	-0.19	-8.33	33.7	0.3388	-0.1459	0.0008
246	SLU 33	-0.18	-7.84	33.69	0.3168	-0.1369	0.0008
246	SLU 34	-0.17	-7.4	33.47	0.2978	-0.1297	0.0008
246	SLU 35	-0.19	-8.4	34.21	0.3415	-0.1484	0.0008
246	SLU 36	-0.18	-7.9	34.2	0.3195	-0.1394	0.0008
246	SLU 37	-0.19	-8.29	33.99	0.3371	-0.1472	0.0008
246	SLU 38	-0.18	-7.8	33.98	0.3151	-0.1382	0.0008
246	SLU 39	-0.19	-8.57	34.04	0.3488	-0.1484	0.0008
246	SLU 40	-0.18	-8.07	34.03	0.3268	-0.1394	0.0008
246	SLU 41	-0.19	-8.63	34.55	0.3515	-0.1508	0.0008
246	SLU 42	-0.19	-8.14	34.54	0.3295	-0.1418	0.0008
246	SLU 43	-0.18	-7.87	35.35	0.3165	-0.1426	0.0008
246	SLU 44	-0.17	-7.05	35.34	0.2799	-0.1277	0.0008
246	SLU 45	-0.19	-8.04	36.08	0.3236	-0.1463	0.0008
246	SLU 46	-0.18	-7.55	36.08	0.3016	-0.1373	0.0008
246	SLU 47	-0.17	-7.11	35.85	0.2826	-0.1301	0.0008
246	SLU 48	-0.19	-8.11	36.59	0.3262	-0.1487	0.0008
246	SLU 49	-0.18	-7.61	36.59	0.3043	-0.1398	0.0008
246	SLU 50	-0.19	-8	36.37	0.3218	-0.1475	0.0008
246	SLU 51	-0.18	-7.51	36.37	0.2999	-0.1386	0.0008
246	SLU 52	-0.19	-8	37.84	0.3197	-0.142	0.0008
246	SLU 53	-0.21	-8.99	38.58	0.3634	-0.1606	0.0009
246	SLU 54	-0.2	-8.5	38.58	0.3414	-0.1516	0.0009
246	SLU 55	-0.19	-8.06	38.36	0.3224	-0.1444	0.0008
246	SLU 56	-0.21	-9.06	39.1	0.3661	-0.163	0.0009
246	SLU 57	-0.2	-8.56	39.09	0.3441	-0.1541	0.0009
246	SLU 58	-0.21	-8.95	38.88	0.3617	-0.1618	0.0009
246	SLU 59	-0.2	-8.46	38.87	0.3397	-0.1529	0.0009
246	SLU 60	-0.21	-9.22	38.92	0.3734	-0.1631	0.0009
246	SLU 61	-0.2	-8.73	38.92	0.3514	-0.1541	0.0009
246	SLU 62	-0.21	-9.29	39.44	0.3761	-0.1655	0.0009
246	SLU 63	-0.2	-8.8	39.43	0.3541	-0.1565	0.0009
246	SLU 64	-0.2	-8.79	37.94	0.3548	-0.1571	0.0009
246	SLU 65	-0.19	-7.96	37.93	0.3182	-0.1421	0.0008
246	SLU 66	-0.21	-8.96	38.67	0.3619	-0.1607	0.0009
246	SLU 67	-0.2	-8.46	38.66	0.3399	-0.1517	0.0009
246	SLU 68	-0.19	-8.03	38.44	0.3209	-0.1446	0.0009
246	SLU 69	-0.21	-9.02	39.18	0.3646	-0.1632	0.0009
246	SLU 70	-0.2	-8.53	39.18	0.3426	-0.1542	0.0009
246	SLU 71	-0.21	-8.92	38.96	0.3601	-0.162	0.0009
246	SLU 72	-0.2	-8.42	38.96	0.3382	-0.153	0.0009
246	SLU 73	-0.21	-8.91	40.43	0.3581	-0.1564	0.0009
246	SLU 74	-0.22	-9.91	41.17	0.4017	-0.175	0.001
246	SLU 75	-0.22	-9.41	41.17	0.3798	-0.166	0.001
246	SLU 76	-0.21	-8.98	40.94	0.3607	-0.1588	0.0009
246	SLU 77	-0.23	-9.97	41.68	0.4044	-0.1775	0.001
246	SLU 78	-0.22	-9.48	41.68	0.3824	-0.1685	0.001
246	SLU 79	-0.23	-9.87	41.46	0.4	-0.1763	0.001
246	SLU 80	-0.22	-9.37	41.46	0.378	-0.1673	0.001
246	SLU 81	-0.23	-10.14	41.51	0.4117	-0.1775	0.001
246	SLU 82	-0.22	-9.65	41.51	0.3898	-0.1685	0.001
246	SLU 83	-0.23	-10.21	42.02	0.4144	-0.1799	0.001
246	SLU 84	-0.22	-9.71	42.02	0.3924	-0.171	0.001
246	SLE RA 1	-0.15	-6.56	28.61	0.2645	-0.1176	0.0007
246	SLE RA 2	-0.14	-6.01	28.61	0.2401	-0.1077	0.0006
246	SLE RA 3	-0.15	-6.67	29.1	0.2692	-0.1201	0.0007
246	SLE RA 4	-0.15	-6.34	29.1	0.2546	-0.1141	0.0007
246	SLE RA 5	-0.14	-6.05	28.95	0.2419	-0.1093	0.0006
246	SLE RA 6	-0.16	-6.72	29.44	0.271	-0.1217	0.0007
246	SLE RA 7	-0.15	-6.39	29.44	0.2564	-0.1157	0.0007
246	SLE RA 8	-0.15	-6.64	29.3	0.2681	-0.1209	0.0007
246	SLE RA 9	-0.15	-6.32	29.29	0.2534	-0.1149	0.0007
246	SLE RA 10	-0.15	-6.64	30.28	0.2667	-0.1172	0.0007
246	SLE RA 11	-0.17	-7.3	30.77	0.2958	-0.1296	0.0007
246	SLE RA 12	-0.16	-6.97	30.77	0.2812	-0.1236	0.0007
246	SLE RA 13	-0.16	-6.68	30.62	0.2684	-0.1188	0.0007
246	SLE RA 14	-0.17	-7.35	31.11	0.2976	-0.1312	0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
246	SLE RA 15	-0.16	-7.02	31.11	0.2829	-0.1253	0.0007
246	SLE RA 16	-0.17	-7.28	30.96	0.2946	-0.1304	0.0007
246	SLE RA 17	-0.16	-6.95	30.96	0.28	-0.1245	0.0007
246	SLE RA 18	-0.17	-7.46	31	0.3025	-0.1313	0.0007
246	SLE RA 19	-0.16	-7.13	30.99	0.2878	-0.1253	0.0007
246	SLE RA 20	-0.17	-7.5	31.34	0.3042	-0.1329	0.0007
246	SLE RA 21	-0.17	-7.17	31.33	0.2896	-0.1269	0.0007
246	SLE FR 1	-0.15	-6.56	28.61	0.2645	-0.1176	0.0007
246	SLE FR 2	-0.15	-6.45	28.61	0.2596	-0.1156	0.0007
246	SLE FR 3	-0.15	-6.58	28.75	0.2652	-0.1183	0.0007
246	SLE FR 4	-0.15	-6.72	29.33	0.271	-0.1197	0.0007
246	SLE FR 5	-0.16	-6.85	29.47	0.2766	-0.1224	0.0007
246	SLE FR 6	-0.16	-7.01	29.8	0.2835	-0.1244	0.0007
246	SLE QP 1	-0.15	-6.56	28.61	0.2645	-0.1176	0.0007
246	SLE QP 2	-0.16	-6.83	29.33	0.2759	-0.1217	0.0007
246	SLD 1	0.07	-6	34.86	0.2343	0.1055	0.0013
246	SLD 2	0.07	-6	34.86	0.2343	0.1055	0.0013
246	SLD 3	0	-12.51	37.06	0.5285	0.027	0.0016
246	SLD 4	0	-12.51	37.06	0.5285	0.027	0.0016
246	SLD 5	0.02	3.31	27.65	-0.1827	0.0655	0.0004
246	SLD 6	0.02	3.31	27.65	-0.1827	0.0655	0.0004
246	SLD 7	-0.21	-18.42	34.99	0.7978	-0.1962	0.0014
246	SLD 8	-0.21	-18.42	34.99	0.7978	-0.1962	0.0014
246	SLD 9	-0.1	4.76	23.67	-0.246	-0.0473	0
246	SLD 10	-0.1	4.76	23.67	-0.246	-0.0473	0
246	SLD 11	-0.33	-16.96	31.01	0.7345	-0.309	0.0009
246	SLD 12	-0.33	-16.96	31.01	0.7345	-0.309	0.0009
246	SLD 13	-0.32	-1.14	21.59	0.0233	-0.2705	-0.0002
246	SLD 14	-0.32	-1.14	21.59	0.0233	-0.2705	-0.0002
246	SLD 15	-0.39	-7.66	23.8	0.3175	-0.349	0.0001
246	SLD 16	-0.39	-7.66	23.8	0.3175	-0.349	0.0001
246	SLV 1	0.4	-4.88	41.95	0.1787	0.4309	0.0021
246	SLV 2	0.4	-4.88	41.95	0.1787	0.4309	0.0021
246	SLV 3	0.22	-19.95	47.13	0.8586	0.2311	0.0028
246	SLV 4	0.22	-19.95	47.13	0.8586	0.2311	0.0028
246	SLV 5	0.28	16.6	25.26	-0.7844	0.347	0
246	SLV 6	0.28	16.6	25.26	-0.7844	0.347	0
246	SLV 7	-0.31	-33.61	42.52	1.4819	-0.3188	0.0024
246	SLV 8	-0.31	-33.61	42.52	1.4819	-0.3188	0.0024
246	SLV 9	0	19.95	16.14	-0.9301	0.0754	-0.001
246	SLV 10	0	19.95	16.14	-0.9301	0.0754	-0.001
246	SLV 11	-0.59	-30.25	33.39	1.3363	-0.5905	0.0014
246	SLV 12	-0.59	-30.25	33.39	1.3363	-0.5905	0.0014
246	SLV 13	-0.53	6.29	11.53	-0.3068	-0.4746	-0.0014
246	SLV 14	-0.53	6.29	11.53	-0.3068	-0.4746	-0.0014
246	SLV 15	-0.71	-8.77	16.71	0.3731	-0.6743	-0.0007
246	SLV 16	-0.71	-8.77	16.71	0.3731	-0.6743	-0.0007
247	SLU 1	0.02	-3.93	54.49	0.1622	0.0169	0
247	SLU 2	0.01	-3.4	52.93	0.1372	0.0012	0
247	SLU 3	0.02	-4.09	55.66	0.168	0.0179	0
247	SLU 4	0.01	-3.76	54.73	0.153	0.0084	0
247	SLU 5	0.01	-3.48	53.42	0.1401	0.002	0
247	SLU 6	0.02	-4.17	56.15	0.1709	0.0187	0
247	SLU 7	0.01	-3.84	55.22	0.1559	0.0092	0
247	SLU 8	0.02	-4.1	55.47	0.168	0.0185	0
247	SLU 9	0.01	-3.78	54.54	0.153	0.0091	0
247	SLU 10	0.01	-4.03	59.27	0.1631	0.0035	0
247	SLU 11	0.02	-4.72	62	0.194	0.0202	0
247	SLU 12	0.01	-4.4	61.07	0.179	0.0107	0
247	SLU 13	0.01	-4.11	59.76	0.166	0.0043	0
247	SLU 14	0.02	-4.8	62.49	0.1969	0.021	0
247	SLU 15	0.01	-4.48	61.56	0.1819	0.0115	0
247	SLU 16	0.02	-4.73	61.8	0.194	0.0209	0
247	SLU 17	0.01	-4.41	60.87	0.179	0.0114	0
247	SLU 18	0.02	-4.84	63.54	0.1994	0.0202	0
247	SLU 19	0.01	-4.52	62.61	0.1843	0.0108	0
247	SLU 20	0.02	-4.92	64.03	0.2023	0.021	0
247	SLU 21	0.01	-4.6	63.1	0.1872	0.0116	0
247	SLU 22	0.02	-4.56	60.59	0.1877	0.0195	0
247	SLU 23	0.01	-4.03	59.03	0.1627	0.0037	0
247	SLU 24	0.02	-4.71	61.76	0.1935	0.0204	0
247	SLU 25	0.01	-4.39	60.83	0.1785	0.011	0
247	SLU 26	0.01	-4.11	59.52	0.1656	0.0045	0
247	SLU 27	0.02	-4.8	62.25	0.1964	0.0212	0
247	SLU 28	0.01	-4.47	61.32	0.1814	0.0118	0
247	SLU 29	0.02	-4.73	61.57	0.1935	0.0211	0
247	SLU 30	0.01	-4.4	60.63	0.1785	0.0116	0
247	SLU 31	0.01	-4.66	65.37	0.1887	0.006	0
247	SLU 32	0.02	-5.35	68.1	0.2195	0.0227	0
247	SLU 33	0.02	-5.03	67.16	0.2045	0.0133	0
247	SLU 34	0.01	-4.74	65.86	0.1916	0.0068	0
247	SLU 35	0.02	-5.43	68.59	0.2224	0.0235	0
247	SLU 36	0.02	-5.11	67.65	0.2074	0.0141	0
247	SLU 37	0.02	-5.36	67.9	0.2195	0.0234	0
247	SLU 38	0.02	-5.04	66.97	0.2045	0.014	0
247	SLU 39	0.02	-5.47	69.64	0.2249	0.0228	0
247	SLU 40	0.02	-5.15	68.7	0.2098	0.0133	0
247	SLU 41	0.02	-5.55	70.13	0.2278	0.0236	0
247	SLU 42	0.02	-5.23	69.19	0.2127	0.0141	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
247	SLU 43	0.02	-4.9	68.74	0.2022	0.0211	0
247	SLU 44	0.01	-4.36	67.19	0.1771	0.0054	0
247	SLU 45	0.02	-5.05	69.92	0.208	0.0221	0
247	SLU 46	0.02	-4.73	68.99	0.1929	0.0126	0
247	SLU 47	0.01	-4.44	67.68	0.18	0.0062	0
247	SLU 48	0.02	-5.13	70.41	0.2109	0.0229	0
247	SLU 49	0.02	-4.81	69.48	0.1958	0.0134	0
247	SLU 50	0.02	-5.06	69.72	0.208	0.0228	0
247	SLU 51	0.02	-4.74	68.79	0.1929	0.0133	0
247	SLU 52	0.01	-5	73.52	0.2031	0.0077	0
247	SLU 53	0.02	-5.69	76.25	0.2339	0.0244	0
247	SLU 54	0.02	-5.36	75.32	0.2189	0.0149	0
247	SLU 55	0.01	-5.08	74.01	0.206	0.0085	0
247	SLU 56	0.03	-5.77	76.74	0.2368	0.0252	0
247	SLU 57	0.02	-5.44	75.81	0.2218	0.0157	0
247	SLU 58	0.03	-5.7	76.06	0.2339	0.0251	0
247	SLU 59	0.02	-5.38	75.13	0.2189	0.0156	0
247	SLU 60	0.02	-5.81	77.79	0.2393	0.0244	0
247	SLU 61	0.02	-5.48	76.86	0.2242	0.015	0
247	SLU 62	0.03	-5.89	78.28	0.2422	0.0252	0
247	SLU 63	0.02	-5.57	77.35	0.2271	0.0158	0
247	SLU 64	0.02	-5.53	74.84	0.2277	0.0237	0
247	SLU 65	0.01	-4.99	73.29	0.2026	0.0079	0
247	SLU 66	0.02	-5.68	76.02	0.2335	0.0246	0
247	SLU 67	0.02	-5.36	75.09	0.2184	0.0152	0
247	SLU 68	0.01	-5.07	73.78	0.2055	0.0087	0
247	SLU 69	0.03	-5.76	76.51	0.2364	0.0254	0
247	SLU 70	0.02	-5.44	75.57	0.2213	0.016	0
247	SLU 71	0.03	-5.69	75.82	0.2335	0.0253	0
247	SLU 72	0.02	-5.37	74.89	0.2184	0.0158	0
247	SLU 73	0.01	-5.62	79.62	0.2286	0.0102	0
247	SLU 74	0.03	-6.31	82.35	0.2595	0.0269	0
247	SLU 75	0.02	-5.99	81.42	0.2444	0.0175	0
247	SLU 76	0.02	-5.71	80.11	0.2315	0.011	0
247	SLU 77	0.03	-6.4	82.84	0.2624	0.0277	0
247	SLU 78	0.02	-6.07	81.91	0.2473	0.0183	0
247	SLU 79	0.03	-6.33	82.16	0.2595	0.0276	0
247	SLU 80	0.02	-6	81.22	0.2444	0.0182	0
247	SLU 81	0.03	-6.44	83.89	0.2648	0.027	0
247	SLU 82	0.02	-6.11	82.96	0.2497	0.0175	0
247	SLU 83	0.03	-6.52	84.38	0.2677	0.0278	0
247	SLU 84	0.02	-6.19	83.45	0.2526	0.0183	0
247	SLE RA 1	0.02	-4.11	56.23	0.1695	0.0177	0
247	SLE RA 2	0.01	-3.75	55.19	0.1528	0.0072	0
247	SLE RA 3	0.02	-4.21	57.01	0.1734	0.0183	0
247	SLE RA 4	0.01	-4	56.39	0.1634	0.012	0
247	SLE RA 5	0.01	-3.81	55.52	0.1547	0.0077	0
247	SLE RA 6	0.02	-4.27	57.34	0.1753	0.0188	0
247	SLE RA 7	0.01	-4.05	56.72	0.1653	0.0125	0
247	SLE RA 8	0.02	-4.22	56.88	0.1734	0.0187	0
247	SLE RA 9	0.01	-4.01	56.26	0.1634	0.0124	0
247	SLE RA 10	0.01	-4.18	59.42	0.1701	0.0087	0
247	SLE RA 11	0.02	-4.64	61.24	0.1907	0.0198	0
247	SLE RA 12	0.02	-4.42	60.62	0.1807	0.0135	0
247	SLE RA 13	0.01	-4.23	59.74	0.1721	0.0092	0
247	SLE RA 14	0.02	-4.69	61.56	0.1926	0.0204	0
247	SLE RA 15	0.02	-4.48	60.94	0.1826	0.0141	0
247	SLE RA 16	0.02	-4.65	61.11	0.1907	0.0203	0
247	SLE RA 17	0.02	-4.43	60.49	0.1807	0.014	0
247	SLE RA 18	0.02	-4.72	62.26	0.1943	0.0199	0
247	SLE RA 19	0.02	-4.5	61.64	0.1842	0.0136	0
247	SLE RA 20	0.02	-4.77	62.59	0.1962	0.0204	0
247	SLE RA 21	0.02	-4.56	61.97	0.1862	0.0141	0
247	SLE FR 1	0.02	-4.11	56.23	0.1695	0.0177	0
247	SLE FR 2	0.02	-4.04	56.02	0.1662	0.0156	0
247	SLE FR 3	0.02	-4.14	56.36	0.1703	0.0179	0
247	SLE FR 4	0.02	-4.22	57.83	0.1736	0.0162	0
247	SLE FR 5	0.02	-4.32	58.17	0.1777	0.0185	0
247	SLE FR 6	0.02	-4.42	59.25	0.1819	0.0188	0
247	SLE QP 1	0.02	-4.11	56.23	0.1695	0.0177	0
247	SLE QP 2	0.02	-4.3	58.04	0.177	0.0183	0
247	SLD 1	0.21	-0.12	42.8	0.0014	0.1997	0
247	SLD 2	0.21	-0.12	42.8	0.0014	0.1997	0
247	SLD 3	0.31	-5.54	48.22	0.2288	0.3069	0
247	SLD 4	0.31	-5.54	48.22	0.2288	0.3069	0
247	SLD 5	-0.07	5.18	45.25	-0.2205	-0.0899	0
247	SLD 6	-0.07	5.18	45.25	-0.2205	-0.0899	0
247	SLD 7	0.25	-12.89	63.32	0.5373	0.2675	0
247	SLD 8	0.25	-12.89	63.32	0.5373	0.2675	0
247	SLD 9	-0.21	4.3	52.77	-0.1834	-0.2309	0
247	SLD 10	-0.21	4.3	52.77	-0.1834	-0.2309	0
247	SLD 11	0.1	-13.77	70.83	0.5744	0.1265	0
247	SLD 12	0.1	-13.77	70.83	0.5744	0.1265	0
247	SLD 13	-0.27	-3.05	67.86	0.1251	-0.2703	0
247	SLD 14	-0.27	-3.05	67.86	0.1251	-0.2703	0
247	SLD 15	-0.18	-8.47	73.28	0.3525	-0.1631	0
247	SLD 16	-0.18	-8.47	73.28	0.3525	-0.1631	0
247	SLV 1	0.48	5.28	23.03	-0.2253	0.4454	0
247	SLV 2	0.48	5.28	23.03	-0.2253	0.4454	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
247	SLV 3	0.72	-7.2	35.62	0.2977	0.7192	-0.0001
247	SLV 4	0.72	-7.2	35.62	0.2977	0.7192	-0.0001
247	SLV 5	-0.21	17.52	28.44	-0.737	-0.2688	0.0001
247	SLV 6	-0.21	17.52	28.44	-0.737	-0.2688	0.0001
247	SLV 7	0.6	-24.11	70.42	1.0065	0.6438	-0.0001
247	SLV 8	0.6	-24.11	70.42	1.0065	0.6438	-0.0001
247	SLV 9	-0.56	15.52	45.66	-0.6526	-0.6072	0.0001
247	SLV 10	-0.56	15.52	45.66	-0.6526	-0.6072	0.0001
247	SLV 11	0.25	-26.11	87.65	1.0909	0.3055	-0.0001
247	SLV 12	0.25	-26.11	87.65	1.0909	0.3055	-0.0001
247	SLV 13	-0.68	-1.39	80.46	0.0562	-0.6825	0
247	SLV 14	-0.68	-1.39	80.46	0.0562	-0.6825	0
247	SLV 15	-0.44	-13.87	93.05	0.5792	-0.4087	0
247	SLV 16	-0.44	-13.87	93.05	0.5792	-0.4087	0
248	SLU 1	0	1.9	46.82	-0.0518	-0.0007	0
248	SLU 2	0	2.01	46.29	-0.0552	-0.0002	0
248	SLU 3	0	1.74	49.1	-0.0457	-0.0007	0
248	SLU 4	0	1.8	48.78	-0.0478	-0.0004	0
248	SLU 5	0	1.81	48.14	-0.048	-0.0002	0
248	SLU 6	0	1.54	50.95	-0.0385	-0.0007	0
248	SLU 7	0	1.6	50.63	-0.0406	-0.0005	0
248	SLU 8	0	1.5	50.52	-0.0373	-0.0007	0
248	SLU 9	0	1.57	50.2	-0.0394	-0.0004	0
248	SLU 10	0	2.19	54.51	-0.0595	-0.0003	0
248	SLU 11	0	1.92	57.31	-0.05	-0.0008	0
248	SLU 12	0	1.98	57	-0.0521	-0.0006	0
248	SLU 13	0	1.99	56.36	-0.0523	-0.0003	0
248	SLU 14	0	1.72	59.16	-0.0428	-0.0008	0
248	SLU 15	0	1.79	58.85	-0.0448	-0.0006	0
248	SLU 16	0	1.68	58.73	-0.0416	-0.0008	0
248	SLU 17	0	1.75	58.42	-0.0437	-0.0005	0
248	SLU 18	0	2.15	58.56	-0.0579	-0.0009	0
248	SLU 19	0	2.22	58.24	-0.06	-0.0006	0
248	SLU 20	0	1.95	60.41	-0.0507	-0.0009	0
248	SLU 21	0	2.02	60.09	-0.0527	-0.0006	0
248	SLU 22	0	1.98	54.91	-0.0529	-0.0008	0
248	SLU 23	0	2.09	54.38	-0.0564	-0.0003	0
248	SLU 24	0	1.82	57.19	-0.0469	-0.0008	0
248	SLU 25	0	1.89	56.87	-0.0489	-0.0006	0
248	SLU 26	0	1.9	56.23	-0.0491	-0.0004	0
248	SLU 27	0	1.62	59.04	-0.0396	-0.0009	0
248	SLU 28	0	1.69	58.72	-0.0417	-0.0006	0
248	SLU 29	0	1.58	58.61	-0.0384	-0.0008	0
248	SLU 30	0	1.65	58.29	-0.0405	-0.0005	0
248	SLU 31	0	2.27	62.6	-0.0606	-0.0005	0
248	SLU 32	0	2	65.41	-0.0512	-0.001	0
248	SLU 33	0	2.07	65.09	-0.0532	-0.0007	0
248	SLU 34	0	2.08	64.45	-0.0534	-0.0005	0
248	SLU 35	0	1.8	67.26	-0.0439	-0.001	0
248	SLU 36	0	1.87	66.94	-0.046	-0.0007	0
248	SLU 37	0	1.76	66.83	-0.0427	-0.0009	0
248	SLU 38	0	1.83	66.51	-0.0448	-0.0007	0
248	SLU 39	0	2.24	66.65	-0.0591	-0.001	0
248	SLU 40	0	2.31	66.33	-0.0611	-0.0007	0
248	SLU 41	0	2.04	68.5	-0.0518	-0.001	0
248	SLU 42	0	2.11	68.18	-0.0539	-0.0007	0
248	SLU 43	0	2.44	58.09	-0.067	-0.0009	0
248	SLU 44	0	2.55	57.56	-0.0704	-0.0004	0
248	SLU 45	0	2.27	60.37	-0.0609	-0.0009	0
248	SLU 46	0	2.34	60.05	-0.063	-0.0006	0
248	SLU 47	0	2.35	59.41	-0.0632	-0.0004	0
248	SLU 48	0	2.08	62.22	-0.0537	-0.0009	0
248	SLU 49	0	2.14	61.9	-0.0557	-0.0006	0
248	SLU 50	0	2.04	61.78	-0.0525	-0.0009	0
248	SLU 51	0	2.11	61.47	-0.0545	-0.0006	0
248	SLU 52	0	2.73	65.77	-0.0747	-0.0005	0
248	SLU 53	0	2.46	68.58	-0.0652	-0.001	0
248	SLU 54	0	2.52	68.27	-0.0672	-0.0007	0
248	SLU 55	0	2.53	67.62	-0.0674	-0.0005	0
248	SLU 56	0	2.26	70.43	-0.0579	-0.001	0
248	SLU 57	0	2.33	70.12	-0.06	-0.0007	0
248	SLU 58	0	2.22	70	-0.0568	-0.001	0
248	SLU 59	0	2.29	69.69	-0.0588	-0.0007	0
248	SLU 60	0	2.69	69.83	-0.0731	-0.001	0
248	SLU 61	0	2.76	69.51	-0.0752	-0.0007	0
248	SLU 62	0	2.49	71.68	-0.0659	-0.001	0
248	SLU 63	0	2.56	71.36	-0.0679	-0.0008	0
248	SLU 64	0	2.52	66.18	-0.0681	-0.001	0
248	SLU 65	0	2.63	65.65	-0.0715	-0.0005	0
248	SLU 66	0	2.36	68.46	-0.062	-0.001	0
248	SLU 67	0	2.43	68.14	-0.0641	-0.0007	0
248	SLU 68	0	2.43	67.5	-0.0643	-0.0005	0
248	SLU 69	0	2.16	70.31	-0.0548	-0.001	0
248	SLU 70	0	2.23	69.99	-0.0568	-0.0007	0
248	SLU 71	0	2.12	69.88	-0.0536	-0.001	0
248	SLU 72	0	2.19	69.56	-0.0557	-0.0007	0
248	SLU 73	0	2.81	73.87	-0.0758	-0.0006	0
248	SLU 74	0	2.54	76.68	-0.0663	-0.0011	0
248	SLU 75	0	2.61	76.36	-0.0684	-0.0008	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
248	SLU 76	0	2.62	75.72	-0.0686	-0.0006	0
248	SLU 77	0	2.34	78.53	-0.0591	-0.0011	0
248	SLU 78	0	2.41	78.21	-0.0611	-0.0009	0
248	SLU 79	0	2.3	78.1	-0.0579	-0.0011	0
248	SLU 80	0	2.37	77.78	-0.0599	-0.0008	0
248	SLU 81	0	2.78	77.92	-0.0742	-0.0011	0
248	SLU 82	0	2.85	77.6	-0.0763	-0.0009	0
248	SLU 83	0	2.58	79.77	-0.067	-0.0012	0
248	SLU 84	0	2.65	79.45	-0.069	-0.0009	0
248	SLE RA 1	0	1.92	49.13	-0.0521	-0.0007	0
248	SLE RA 2	0	2	48.78	-0.0544	-0.0004	0
248	SLE RA 3	0	1.81	50.65	-0.0481	-0.0008	0
248	SLE RA 4	0	1.86	50.44	-0.0495	-0.0006	0
248	SLE RA 5	0	1.86	50.01	-0.0496	-0.0004	0
248	SLE RA 6	0	1.68	51.88	-0.0433	-0.0008	0
248	SLE RA 7	0	1.73	51.67	-0.0446	-0.0006	0
248	SLE RA 8	0	1.65	51.59	-0.0425	-0.0007	0
248	SLE RA 9	0	1.7	51.38	-0.0438	-0.0006	0
248	SLE RA 10	0	2.12	54.26	-0.0573	-0.0005	0
248	SLE RA 11	0	1.93	56.13	-0.0509	-0.0008	0
248	SLE RA 12	0	1.98	55.92	-0.0523	-0.0006	0
248	SLE RA 13	0	1.98	55.49	-0.0524	-0.0005	0
248	SLE RA 14	0	1.8	57.36	-0.0461	-0.0008	0
248	SLE RA 15	0	1.85	57.15	-0.0475	-0.0006	0
248	SLE RA 16	0	1.78	57.07	-0.0453	-0.0008	0
248	SLE RA 17	0	1.82	56.86	-0.0467	-0.0006	0
248	SLE RA 18	0	2.09	56.96	-0.0562	-0.0008	0
248	SLE RA 19	0	2.14	56.74	-0.0576	-0.0007	0
248	SLE RA 20	0	1.96	58.19	-0.0514	-0.0008	0
248	SLE RA 21	0	2	57.98	-0.0528	-0.0007	0
248	SLE FR 1	0	1.92	49.13	-0.0521	-0.0007	0
248	SLE FR 2	0	1.93	49.06	-0.0526	-0.0007	0
248	SLE FR 3	0	1.87	49.62	-0.0502	-0.0007	0
248	SLE FR 4	0	1.99	51.41	-0.0538	-0.0007	0
248	SLE FR 5	0	1.92	51.97	-0.0514	-0.0008	0
248	SLE FR 6	0	2.01	53.04	-0.0542	-0.0008	0
248	SLE QP 1	0	1.92	49.13	-0.0521	-0.0007	0
248	SLE QP 2	0	1.97	51.48	-0.0534	-0.0008	0
248	SLD 1	0.25	7.27	52.45	-0.2261	0.2097	-0.0013
248	SLD 2	0.25	7.27	52.45	-0.2261	0.2097	-0.0013
248	SLD 3	0.2	1.68	53.92	-0.0427	0.2598	-0.001
248	SLD 4	0.2	1.68	53.92	-0.0427	0.2598	-0.001
248	SLD 5	0.15	12.04	49.53	-0.3834	-0.0135	-0.0008
248	SLD 6	0.15	12.04	49.53	-0.3834	-0.0135	-0.0008
248	SLD 7	-0.01	-6.6	54.45	0.228	0.1533	0.0001
248	SLD 8	-0.01	-6.6	54.45	0.228	0.1533	0.0001
248	SLD 9	0.01	10.54	48.51	-0.3347	-0.1548	-0.0001
248	SLD 10	0.01	10.54	48.51	-0.3347	-0.1548	-0.0001
248	SLD 11	-0.15	-8.1	53.42	0.2767	0.012	0.0008
248	SLD 12	-0.15	-8.1	53.42	0.2767	0.012	0.0008
248	SLD 13	-0.2	2.27	49.03	-0.064	-0.2613	0.001
248	SLD 14	-0.2	2.27	49.03	-0.064	-0.2613	0.001
248	SLD 15	-0.25	-3.33	50.51	0.1194	-0.2113	0.0013
248	SLD 16	-0.25	-3.33	50.51	0.1194	-0.2113	0.0013
248	SLV 1	0.63	14.21	53.69	-0.4523	0.5388	-0.0033
248	SLV 2	0.63	14.21	53.69	-0.4523	0.5388	-0.0033
248	SLV 3	0.51	1.37	57.25	-0.0315	0.6672	-0.0027
248	SLV 4	0.51	1.37	57.25	-0.0315	0.6672	-0.0027
248	SLV 5	0.37	25.11	46.74	-0.8113	-0.0336	-0.0019
248	SLV 6	0.37	25.11	46.74	-0.8113	-0.0336	-0.0019
248	SLV 7	-0.03	-17.67	58.61	0.5915	0.3943	0.0002
248	SLV 8	-0.03	-17.67	58.61	0.5915	0.3943	0.0002
248	SLV 9	0.03	21.62	44.34	-0.6982	-0.3959	-0.0002
248	SLV 10	0.03	21.62	44.34	-0.6982	-0.3959	-0.0002
248	SLV 11	-0.38	-21.16	56.22	0.7046	0.0321	0.0019
248	SLV 12	-0.38	-21.16	56.22	0.7046	0.0321	0.0019
248	SLV 13	-0.51	2.57	45.7	-0.0752	-0.6687	0.0027
248	SLV 14	-0.51	2.57	45.7	-0.0752	-0.6687	0.0027
248	SLV 15	-0.63	-10.26	49.26	0.3456	-0.5403	0.0033
248	SLV 16	-0.63	-10.26	49.26	0.3456	-0.5403	0.0033
249	SLU 1	0	0.19	46.24	-0.0147	-0.0011	0
249	SLU 2	0	0.26	45.9	-0.0175	-0.0015	0
249	SLU 3	0	0.25	47.91	-0.0191	-0.001	0
249	SLU 4	0	0.3	47.71	-0.0207	-0.0012	0
249	SLU 5	0	0.4	47.04	-0.0253	-0.0013	0
249	SLU 6	0	0.39	49.05	-0.0269	-0.0009	0
249	SLU 7	0	0.43	48.84	-0.0285	-0.0011	0
249	SLU 8	0	0.46	48.51	-0.0304	-0.0008	0
249	SLU 9	0	0.5	48.31	-0.032	-0.001	0
249	SLU 10	0	-0.01	54.1	-0.0084	-0.0017	0
249	SLU 11	0	-0.03	56.12	-0.0101	-0.0013	0
249	SLU 12	0	0.02	55.91	-0.0117	-0.0015	0
249	SLU 13	0	0.12	55.24	-0.0163	-0.0016	0
249	SLU 14	0	0.11	57.25	-0.0179	-0.0011	0
249	SLU 15	0	0.16	57.05	-0.0195	-0.0013	0
249	SLU 16	0	0.18	56.72	-0.0214	-0.0011	0
249	SLU 17	0	0.23	56.51	-0.023	-0.0013	0
249	SLU 18	0	-0.21	57.96	-0.0019	-0.0015	0
249	SLU 19	0	-0.16	57.76	-0.0035	-0.0017	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
249	SLU 20	0	-0.07	59.1	-0.0097	-0.0013	0
249	SLU 21	0	-0.03	58.89	-0.0113	-0.0016	0
249	SLU 22	0	0.03	53.99	-0.0109	-0.0013	0
249	SLU 23	0	0.11	53.65	-0.0136	-0.0017	0
249	SLU 24	0	0.09	55.66	-0.0153	-0.0012	0
249	SLU 25	0	0.14	55.45	-0.0169	-0.0014	0
249	SLU 26	0	0.24	54.78	-0.0215	-0.0015	0
249	SLU 27	0	0.23	56.79	-0.0231	-0.001	0
249	SLU 28	0	0.28	56.59	-0.0247	-0.0012	0
249	SLU 29	0	0.3	56.26	-0.0265	-0.001	0
249	SLU 30	0	0.35	56.05	-0.0282	-0.0012	0
249	SLU 31	0	-0.17	61.85	-0.0046	-0.0019	0
249	SLU 32	0	-0.18	63.86	-0.0063	-0.0014	0
249	SLU 33	0	-0.14	63.66	-0.0079	-0.0017	0
249	SLU 34	0	-0.03	62.99	-0.0125	-0.0018	0
249	SLU 35	0	-0.04	65	-0.0141	-0.0013	0
249	SLU 36	0	0	64.79	-0.0157	-0.0015	0
249	SLU 37	0	0.03	64.46	-0.0175	-0.0012	0
249	SLU 38	0	0.07	64.26	-0.0192	-0.0015	0
249	SLU 39	0	-0.36	65.71	0.0019	-0.0017	0
249	SLU 40	0	-0.32	65.5	0.0003	-0.0019	0
249	SLU 41	0	-0.23	66.84	-0.0059	-0.0015	0
249	SLU 42	0	-0.18	66.64	-0.0075	-0.0017	0
249	SLU 43	0	0.29	57.46	-0.0205	-0.0014	0
249	SLU 44	0	0.37	57.12	-0.0232	-0.0018	0
249	SLU 45	0	0.36	59.13	-0.0248	-0.0013	0
249	SLU 46	0	0.41	58.93	-0.0264	-0.0015	0
249	SLU 47	0	0.51	58.25	-0.031	-0.0016	0
249	SLU 48	0	0.5	60.27	-0.0326	-0.0011	0
249	SLU 49	0	0.54	60.06	-0.0342	-0.0014	0
249	SLU 50	0	0.57	59.73	-0.0361	-0.0011	0
249	SLU 51	0	0.61	59.53	-0.0377	-0.0013	0
249	SLU 52	0	0.09	65.32	-0.0142	-0.002	0
249	SLU 53	0	0.08	67.34	-0.0158	-0.0016	0
249	SLU 54	0	0.13	67.13	-0.0174	-0.0018	0
249	SLU 55	0	0.23	66.46	-0.022	-0.0019	0
249	SLU 56	0	0.22	68.47	-0.0236	-0.0014	0
249	SLU 57	0	0.27	68.27	-0.0252	-0.0016	0
249	SLU 58	0	0.29	67.94	-0.0271	-0.0014	0
249	SLU 59	0	0.34	67.73	-0.0287	-0.0016	0
249	SLU 60	0	-0.1	69.18	-0.0076	-0.0018	0
249	SLU 61	0	-0.05	68.98	-0.0092	-0.002	0
249	SLU 62	0	0.04	70.32	-0.0154	-0.0016	0
249	SLU 63	0	0.08	70.11	-0.017	-0.0018	0
249	SLU 64	0	0.14	65.2	-0.0167	-0.0016	0
249	SLU 65	0	0.21	64.86	-0.0194	-0.0019	0
249	SLU 66	0	0.2	66.88	-0.021	-0.0015	0
249	SLU 67	0	0.25	66.67	-0.0226	-0.0017	0
249	SLU 68	0	0.35	66	-0.0272	-0.0018	0
249	SLU 69	0	0.34	68.01	-0.0288	-0.0013	0
249	SLU 70	0	0.39	67.81	-0.0304	-0.0015	0
249	SLU 71	0	0.41	67.48	-0.0323	-0.0013	0
249	SLU 72	0	0.46	67.27	-0.0339	-0.0015	0
249	SLU 73	0	-0.06	73.07	-0.0104	-0.0022	0
249	SLU 74	0	-0.07	75.08	-0.012	-0.0017	0
249	SLU 75	0	-0.03	74.88	-0.0136	-0.0019	0
249	SLU 76	0	0.07	74.2	-0.0182	-0.002	0
249	SLU 77	0	0.06	76.22	-0.0198	-0.0016	0
249	SLU 78	0	0.11	76.01	-0.0214	-0.0018	0
249	SLU 79	0	0.14	75.68	-0.0233	-0.0015	0
249	SLU 80	0	0.18	75.48	-0.0249	-0.0017	0
249	SLU 81	0	-0.26	76.93	-0.0038	-0.0019	0
249	SLU 82	0	-0.21	76.72	-0.0054	-0.0022	0
249	SLU 83	0	-0.12	78.06	-0.0116	-0.0018	0
249	SLU 84	0	-0.07	77.86	-0.0132	-0.002	0
249	SLE RA 1	0	0.14	48.45	-0.0137	-0.0012	0
249	SLE RA 2	0	0.19	48.23	-0.0155	-0.0014	0
249	SLE RA 3	0	0.18	49.57	-0.0165	-0.0011	0
249	SLE RA 4	0	0.21	49.43	-0.0176	-0.0012	0
249	SLE RA 5	0	0.28	48.98	-0.0207	-0.0013	0
249	SLE RA 6	0	0.28	50.33	-0.0218	-0.001	0
249	SLE RA 7	0	0.31	50.19	-0.0228	-0.0011	0
249	SLE RA 8	0	0.32	49.97	-0.0241	-0.001	0
249	SLE RA 9	0	0.35	49.83	-0.0251	-0.0011	0
249	SLE RA 10	0	0.01	53.7	-0.0095	-0.0016	0
249	SLE RA 11	0	0	55.04	-0.0105	-0.0013	0
249	SLE RA 12	0	0.03	54.9	-0.0116	-0.0014	0
249	SLE RA 13	0	0.1	54.45	-0.0147	-0.0015	0
249	SLE RA 14	0	0.09	55.8	-0.0157	-0.0012	0
249	SLE RA 15	0	0.12	55.66	-0.0168	-0.0013	0
249	SLE RA 16	0	0.14	55.44	-0.0181	-0.0011	0
249	SLE RA 17	0	0.17	55.3	-0.0191	-0.0013	0
249	SLE RA 18	0	-0.12	56.27	-0.0051	-0.0014	0
249	SLE RA 19	0	-0.09	56.13	-0.0062	-0.0016	0
249	SLE RA 20	0	-0.03	57.03	-0.0103	-0.0013	0
249	SLE RA 21	0	0	56.89	-0.0114	-0.0015	0
249	SLE FR 1	0	0.14	48.45	-0.0137	-0.0012	0
249	SLE FR 2	0	0.15	48.41	-0.014	-0.0012	0
249	SLE FR 3	0	0.18	48.76	-0.0157	-0.0011	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
249	SLE FR 4	0	0.07	50.75	-0.0114	-0.0013	0
249	SLE FR 5	0	0.1	51.1	-0.0132	-0.0012	0
249	SLE FR 6	0	0.01	52.36	-0.0094	-0.0013	0
249	SLE QP 1	0	0.14	48.45	-0.0137	-0.0012	0
249	SLE QP 2	0	0.06	50.8	-0.0111	-0.0012	0
249	SLD 1	0.29	0.7	51.08	-0.046	0.2918	-0.0001
249	SLD 2	0.29	0.7	51.08	-0.046	0.2918	-0.0001
249	SLD 3	0.25	-6.61	53.79	0.2938	0.2514	-0.0001
249	SLD 4	0.25	-6.61	53.79	0.2938	0.2514	-0.0001
249	SLD 5	0.15	11.34	46.77	-0.5368	0.1479	-0.0001
249	SLD 6	0.15	11.34	46.77	-0.5368	0.1479	-0.0001
249	SLD 7	0.01	-13.03	55.81	0.5956	0.0133	0
249	SLD 8	0.01	-13.03	55.81	0.5956	0.0133	0
249	SLD 9	-0.02	13.15	45.79	-0.6178	-0.0158	0
249	SLD 10	-0.02	13.15	45.79	-0.6178	-0.0158	0
249	SLD 11	-0.15	-11.22	54.83	0.5146	-0.1504	0.0001
249	SLD 12	-0.15	-11.22	54.83	0.5146	-0.1504	0.0001
249	SLD 13	-0.25	6.73	47.81	-0.3159	-0.2539	0.0001
249	SLD 14	-0.25	6.73	47.81	-0.3159	-0.2539	0.0001
249	SLD 15	-0.29	-0.58	50.52	0.0238	-0.2943	0.0001
249	SLD 16	-0.29	-0.58	50.52	0.0238	-0.2943	0.0001
249	SLV 1	0.75	1.48	51.49	-0.0888	0.7501	-0.0003
249	SLV 2	0.75	1.48	51.49	-0.0888	0.7501	-0.0003
249	SLV 3	0.65	-15.35	57.81	0.6931	0.6465	-0.0003
249	SLV 4	0.65	-15.35	57.81	0.6931	0.6465	-0.0003
249	SLV 5	0.38	26.01	41.43	-1.2202	0.3812	-0.0002
249	SLV 6	0.38	26.01	41.43	-1.2202	0.3812	-0.0002
249	SLV 7	0.04	-30.08	62.49	1.386	0.036	0
249	SLV 8	0.04	-30.08	62.49	1.386	0.036	0
249	SLV 9	-0.04	30.21	39.11	-1.4082	-0.0385	0
249	SLV 10	-0.04	30.21	39.11	-1.4082	-0.0385	0
249	SLV 11	-0.38	-25.89	60.17	1.1981	-0.3837	0.0002
249	SLV 12	-0.38	-25.89	60.17	1.1981	-0.3837	0.0002
249	SLV 13	-0.65	15.47	43.79	-0.7153	-0.649	0.0003
249	SLV 14	-0.65	15.47	43.79	-0.7153	-0.649	0.0003
249	SLV 15	-0.75	-1.36	50.1	0.0666	-0.7526	0.0003
249	SLV 16	-0.75	-1.36	50.1	0.0666	-0.7526	0.0003
250	SLU 1	0	-3.09	14.82	0.1679	0.0002	0
250	SLU 2	0	-3.08	14.82	0.1674	0.0001	0
250	SLU 3	0	-3.22	14.76	0.1753	0.0003	0
250	SLU 4	0	-3.21	14.76	0.175	0.0002	0
250	SLU 5	0	-3.15	14.78	0.1719	0.0001	0
250	SLU 6	0	-3.3	14.73	0.1798	0.0003	0
250	SLU 7	0	-3.29	14.73	0.1795	0.0002	0
250	SLU 8	0	-3.24	14.75	0.1769	0.0003	0
250	SLU 9	0	-3.24	14.75	0.1766	0.0002	0
250	SLU 10	0	-3.72	19.62	0.1992	0.0001	0
250	SLU 11	0	-3.86	19.57	0.2071	0.0003	0
250	SLU 12	0	-3.85	19.57	0.2068	0.0002	0
250	SLU 13	0	-3.79	19.59	0.2037	0.0002	0
250	SLU 14	0	-3.94	19.53	0.2116	0.0003	0
250	SLU 15	0	-3.93	19.53	0.2113	0.0002	0
250	SLU 16	0	-3.88	19.55	0.2087	0.0003	0
250	SLU 17	0	-3.88	19.55	0.2084	0.0003	0
250	SLU 18	0	-4	21.68	0.2133	0.0002	0
250	SLU 19	0	-4	21.68	0.213	0.0002	0
250	SLU 20	0	-4.08	21.65	0.2178	0.0003	0
250	SLU 21	0	-4.07	21.65	0.2175	0.0002	0
250	SLU 22	0	-3.68	18.29	0.1982	0.0003	0
250	SLU 23	0	-3.67	18.29	0.1977	0.0001	0
250	SLU 24	0	-3.81	18.23	0.2056	0.0003	0
250	SLU 25	0	-3.8	18.23	0.2053	0.0002	0
250	SLU 26	0	-3.75	18.25	0.2022	0.0002	0
250	SLU 27	0	-3.89	18.2	0.2101	0.0004	0
250	SLU 28	0	-3.88	18.2	0.2098	0.0003	0
250	SLU 29	0	-3.83	18.22	0.2072	0.0004	0
250	SLU 30	0	-3.83	18.22	0.2069	0.0003	0
250	SLU 31	0	-4.31	23.1	0.2295	0.0002	0
250	SLU 32	0	-4.45	23.04	0.2374	0.0003	0
250	SLU 33	0	-4.44	23.04	0.2371	0.0002	0
250	SLU 34	0	-4.39	23.06	0.234	0.0002	0
250	SLU 35	0	-4.53	23	0.2419	0.0004	0
250	SLU 36	0	-4.52	23.01	0.2416	0.0003	0
250	SLU 37	0	-4.47	23.02	0.239	0.0004	0
250	SLU 38	0	-4.47	23.02	0.2387	0.0003	0
250	SLU 39	0	-4.59	25.15	0.2436	0.0003	0
250	SLU 40	0	-4.59	25.16	0.2433	0.0002	0
250	SLU 41	0	-4.67	25.12	0.2481	0.0003	0
250	SLU 42	0	-4.66	25.12	0.2478	0.0003	0
250	SLU 43	0	-3.81	18.07	0.2079	0.0003	0
250	SLU 44	0	-3.8	18.07	0.2074	0.0001	0
250	SLU 45	0	-3.94	18.02	0.2153	0.0003	0
250	SLU 46	0	-3.94	18.02	0.215	0.0002	0
250	SLU 47	0	-3.88	18.04	0.2119	0.0002	0
250	SLU 48	0	-4.02	17.98	0.2198	0.0003	0
250	SLU 49	0	-4.01	17.98	0.2195	0.0003	0
250	SLU 50	0	-3.97	18	0.2169	0.0004	0
250	SLU 51	0	-3.96	18	0.2166	0.0003	0
250	SLU 52	0	-4.44	22.88	0.2392	0.0002	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
250	SLU 53	0	-4.58	22.83	0.2471	0.0003	0
250	SLU 54	0	-4.58	22.83	0.2468	0.0002	0
250	SLU 55	0	-4.52	22.84	0.2437	0.0002	0
250	SLU 56	0	-4.66	22.79	0.2516	0.0004	0
250	SLU 57	0	-4.65	22.79	0.2513	0.0003	0
250	SLU 58	0	-4.61	22.81	0.2487	0.0004	0
250	SLU 59	0	-4.6	22.81	0.2484	0.0003	0
250	SLU 60	0	-4.72	24.94	0.2533	0.0003	0
250	SLU 61	0	-4.72	24.94	0.253	0.0002	0
250	SLU 62	0	-4.8	24.9	0.2578	0.0003	0
250	SLU 63	0	-4.8	24.9	0.2575	0.0003	0
250	SLU 64	0	-4.4	21.54	0.2382	0.0003	0
250	SLU 65	0	-4.39	21.54	0.2377	0.0002	0
250	SLU 66	0	-4.53	21.49	0.2456	0.0004	0
250	SLU 67	0	-4.53	21.49	0.2453	0.0003	0
250	SLU 68	0	-4.47	21.51	0.2422	0.0002	0
250	SLU 69	0	-4.61	21.45	0.2501	0.0004	0
250	SLU 70	0	-4.6	21.45	0.2498	0.0003	0
250	SLU 71	0	-4.56	21.47	0.2472	0.0004	0
250	SLU 72	0	-4.55	21.47	0.2469	0.0003	0
250	SLU 73	0	-5.03	26.35	0.2694	0.0002	0
250	SLU 74	0	-5.17	26.3	0.2774	0.0004	0
250	SLU 75	0	-5.17	26.3	0.2771	0.0003	0
250	SLU 76	0	-5.11	26.31	0.274	0.0003	0
250	SLU 77	0	-5.25	26.26	0.2819	0.0004	0
250	SLU 78	0	-5.25	26.26	0.2816	0.0003	0
250	SLU 79	0	-5.2	26.28	0.279	0.0004	0
250	SLU 80	0	-5.19	26.28	0.2787	0.0004	0
250	SLU 81	0	-5.32	28.41	0.2836	0.0003	0
250	SLU 82	0	-5.31	28.41	0.2833	0.0003	0
250	SLU 83	0	-5.39	28.37	0.2881	0.0004	0
250	SLU 84	0	-5.39	28.37	0.2878	0.0003	0
250	SLE RA 1	0	-3.26	15.81	0.1766	0.0002	0
250	SLE RA 2	0	-3.25	15.81	0.1762	0.0002	0
250	SLE RA 3	0	-3.34	15.77	0.1815	0.0003	0
250	SLE RA 4	0	-3.34	15.77	0.1813	0.0002	0
250	SLE RA 5	0	-3.3	15.79	0.1792	0.0002	0
250	SLE RA 6	0	-3.4	15.75	0.1845	0.0003	0
250	SLE RA 7	0	-3.39	15.75	0.1843	0.0002	0
250	SLE RA 8	0	-3.36	15.76	0.1826	0.0003	0
250	SLE RA 9	0	-3.36	15.76	0.1824	0.0002	0
250	SLE RA 10	0	-3.68	19.01	0.1974	0.0002	0
250	SLE RA 11	0	-3.77	18.98	0.2027	0.0003	0
250	SLE RA 12	0	-3.77	18.98	0.2025	0.0002	0
250	SLE RA 13	0	-3.73	18.99	0.2004	0.0002	0
250	SLE RA 14	0	-3.82	18.95	0.2057	0.0003	0
250	SLE RA 15	0	-3.82	18.95	0.2055	0.0002	0
250	SLE RA 16	0	-3.79	18.97	0.2038	0.0003	0
250	SLE RA 17	0	-3.78	18.97	0.2035	0.0003	0
250	SLE RA 18	0	-3.87	20.39	0.2068	0.0002	0
250	SLE RA 19	0	-3.86	20.39	0.2066	0.0002	0
250	SLE RA 20	0	-3.92	20.36	0.2098	0.0003	0
250	SLE RA 21	0	-3.91	20.36	0.2096	0.0002	0
250	SLE FR 1	0	-3.26	15.81	0.1766	0.0002	0
250	SLE FR 2	0	-3.25	15.81	0.1765	0.0002	0
250	SLE FR 3	0	-3.28	15.8	0.1778	0.0002	0
250	SLE FR 4	0	-3.44	17.18	0.1856	0.0002	0
250	SLE FR 5	0	-3.46	17.17	0.1868	0.0003	0
250	SLE FR 6	0	-3.56	18.1	0.1917	0.0002	0
250	SLE QP 1	0	-3.26	15.81	0.1766	0.0002	0
250	SLE QP 2	0	-3.44	17.18	0.1856	0.0002	0
250	SLD 1	0.43	-0.04	18.18	0.0944	0.4663	-0.0019
250	SLD 2	0.43	-0.04	18.18	0.0944	0.4663	-0.0019
250	SLD 3	0.44	-4.56	16.85	0.2172	0.48	-0.0019
250	SLD 4	0.44	-4.56	16.85	0.2172	0.48	-0.0019
250	SLD 5	0.11	4.44	19.51	-0.028	0.1194	-0.0005
250	SLD 6	0.11	4.44	19.51	-0.028	0.1194	-0.0005
250	SLD 7	0.15	-10.64	15.06	0.3814	0.1648	-0.0007
250	SLD 8	0.15	-10.64	15.06	0.3814	0.1648	-0.0007
250	SLD 9	-0.15	3.76	19.31	-0.0101	-0.1643	0.0007
250	SLD 10	-0.15	3.76	19.31	-0.0101	-0.1643	0.0007
250	SLD 11	-0.11	-11.32	14.86	0.3992	-0.119	0.0005
250	SLD 12	-0.11	-11.32	14.86	0.3992	-0.119	0.0005
250	SLD 13	-0.44	-2.31	17.52	0.154	-0.4795	0.0019
250	SLD 14	-0.44	-2.31	17.52	0.154	-0.4795	0.0019
250	SLD 15	-0.43	-6.84	16.18	0.2768	-0.4659	0.0019
250	SLD 16	-0.43	-6.84	16.18	0.2768	-0.4659	0.0019
250	SLV 1	1.09	4.45	19.5	-0.0258	1.1954	-0.0048
250	SLV 2	1.09	4.45	19.5	-0.0258	1.1954	-0.0048
250	SLV 3	1.13	-6.1	16.39	0.2607	1.2299	-0.0049
250	SLV 4	1.13	-6.1	16.39	0.2607	1.2299	-0.0049
250	SLV 5	0.27	14.93	22.6	-0.3123	0.3065	-0.0012
250	SLV 6	0.27	14.93	22.6	-0.3123	0.3065	-0.0012
250	SLV 7	0.39	-20.24	12.22	0.6426	0.4214	-0.0017
250	SLV 8	0.39	-20.24	12.22	0.6426	0.4214	-0.0017
250	SLV 9	-0.39	13.36	22.14	-0.2714	-0.4209	0.0017
250	SLV 10	-0.39	13.36	22.14	-0.2714	-0.4209	0.0017
250	SLV 11	-0.27	-21.81	11.76	0.6836	-0.3061	0.0012
250	SLV 12	-0.27	-21.81	11.76	0.6836	-0.3061	0.0012



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
250	SLV 13	-1.13	-0.77	17.98	0.1106	-1.2294	0.0049
250	SLV 14	-1.13	-0.77	17.98	0.1106	-1.2294	0.0049
250	SLV 15	-1.09	-11.32	14.86	0.3971	-1.195	0.0048
250	SLV 16	-1.09	-11.32	14.86	0.3971	-1.195	0.0048
251	SLU 1	0	1.43	40.16	0.12	-0.0026	0
251	SLU 2	0	1.44	40.12	0.1196	-0.0025	0
251	SLU 3	0	1.16	40.71	0.1373	-0.003	0
251	SLU 4	0	1.16	40.69	0.1371	-0.0029	0
251	SLU 5	0	1.09	40.06	0.1367	-0.0029	0
251	SLU 6	0	0.81	40.65	0.1544	-0.0033	0
251	SLU 7	0	0.81	40.62	0.1542	-0.0033	0
251	SLU 8	0	0.73	40.03	0.1542	-0.0033	0
251	SLU 9	0	0.73	40.01	0.154	-0.0033	0
251	SLU 10	0	1.79	48.05	0.1365	-0.003	0
251	SLU 11	0	1.51	48.64	0.1541	-0.0034	0
251	SLU 12	0	1.52	48.62	0.1539	-0.0033	0
251	SLU 13	0	1.44	47.99	0.1536	-0.0033	0
251	SLU 14	0	1.16	48.57	0.1712	-0.0037	0
251	SLU 15	0	1.17	48.55	0.171	-0.0037	0
251	SLU 16	0	1.09	47.96	0.1711	-0.0038	0
251	SLU 17	0	1.09	47.94	0.1708	-0.0037	0
251	SLU 18	0	1.94	51.49	0.1441	-0.0032	0
251	SLU 19	0	1.95	51.47	0.1439	-0.0032	0
251	SLU 20	0	1.59	51.42	0.1612	-0.0036	0
251	SLU 21	0	1.59	51.4	0.161	-0.0035	0
251	SLU 22	0	1.58	46.9	0.1437	-0.0032	0
251	SLU 23	0	1.59	46.86	0.1434	-0.0031	0
251	SLU 24	0	1.31	47.45	0.161	-0.0035	0
251	SLU 25	0	1.31	47.43	0.1608	-0.0035	0
251	SLU 26	0	1.24	46.8	0.1605	-0.0035	0
251	SLU 27	0	0.96	47.39	0.1781	-0.0039	0
251	SLU 28	0	0.96	47.36	0.1779	-0.0039	0
251	SLU 29	0	0.88	46.77	0.178	-0.0039	0
251	SLU 30	0	0.89	46.75	0.1777	-0.0039	0
251	SLU 31	0	1.95	54.79	0.1602	-0.0035	0
251	SLU 32	0	1.67	55.38	0.1779	-0.0039	0
251	SLU 33	0	1.67	55.36	0.1777	-0.0039	0
251	SLU 34	0	1.6	54.73	0.1773	-0.0039	0
251	SLU 35	0	1.32	55.31	0.195	-0.0043	0
251	SLU 36	0	1.32	55.29	0.1948	-0.0043	0
251	SLU 37	0	1.24	54.7	0.1948	-0.0043	0
251	SLU 38	0	1.24	54.68	0.1946	-0.0043	0
251	SLU 39	0	2.09	58.23	0.1678	-0.0037	0
251	SLU 40	0	2.1	58.21	0.1676	-0.0037	0
251	SLU 41	0	1.74	58.16	0.1849	-0.0041	0
251	SLU 42	0	1.75	58.14	0.1847	-0.0041	0
251	SLU 43	0	1.81	49.9	0.1479	-0.0032	0
251	SLU 44	0	1.82	49.86	0.1475	-0.0031	0
251	SLU 45	0	1.54	50.45	0.1651	-0.0035	0
251	SLU 46	0	1.54	50.43	0.1649	-0.0035	0
251	SLU 47	0	1.47	49.79	0.1646	-0.0035	0
251	SLU 48	0	1.19	50.38	0.1822	-0.0039	0
251	SLU 49	0	1.19	50.36	0.182	-0.0039	0
251	SLU 50	0	1.11	49.77	0.1821	-0.0039	0
251	SLU 51	0	1.11	49.74	0.1818	-0.0039	0
251	SLU 52	0	2.17	57.79	0.1643	-0.0035	0
251	SLU 53	0	1.89	58.38	0.182	-0.004	0
251	SLU 54	0	1.89	58.36	0.1818	-0.0039	0
251	SLU 55	0	1.82	57.72	0.1815	-0.0039	0
251	SLU 56	0	1.54	58.31	0.1991	-0.0043	0
251	SLU 57	0	1.54	58.29	0.1989	-0.0043	0
251	SLU 58	0	1.47	57.7	0.1989	-0.0043	0
251	SLU 59	0	1.47	57.67	0.1987	-0.0043	0
251	SLU 60	0	2.32	61.23	0.1719	-0.0038	0
251	SLU 61	0	2.32	61.2	0.1717	-0.0037	0
251	SLU 62	0	1.97	61.16	0.189	-0.0041	0
251	SLU 63	0	1.97	61.14	0.1888	-0.0041	0
251	SLU 64	0	1.96	56.64	0.1716	-0.0037	0
251	SLU 65	0	1.97	56.6	0.1712	-0.0037	0
251	SLU 66	0	1.69	57.19	0.1889	-0.0041	0
251	SLU 67	0	1.69	57.17	0.1887	-0.0041	0
251	SLU 68	0	1.62	56.53	0.1883	-0.0041	0
251	SLU 69	0	1.34	57.12	0.206	-0.0045	0
251	SLU 70	0	1.34	57.1	0.2058	-0.0044	0
251	SLU 71	0	1.26	56.51	0.2058	-0.0045	0
251	SLU 72	0	1.26	56.48	0.2056	-0.0045	0
251	SLU 73	0	2.32	64.53	0.1881	-0.0041	0
251	SLU 74	0	2.04	65.12	0.2058	-0.0045	0
251	SLU 75	0	2.05	65.1	0.2055	-0.0045	0
251	SLU 76	0	1.97	64.46	0.2052	-0.0045	0
251	SLU 77	0	1.69	65.05	0.2229	-0.0049	0
251	SLU 78	0	1.7	65.03	0.2226	-0.0049	0
251	SLU 79	0	1.62	64.44	0.2227	-0.0049	0
251	SLU 80	0	1.62	64.41	0.2224	-0.0049	0
251	SLU 81	0	2.47	67.97	0.1957	-0.0043	0
251	SLU 82	0	2.47	67.94	0.1955	-0.0043	0
251	SLU 83	0	2.12	67.9	0.2128	-0.0047	0
251	SLU 84	0	2.12	67.88	0.2126	-0.0047	0
251	SLE RA 1	0	1.48	42.09	0.1268	-0.0028	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
251	SLE RA 2	0	1.48	42.06	0.1265	-0.0027	0
251	SLE RA 3	0	1.29	42.45	0.1383	-0.003	0
251	SLE RA 4	0	1.29	42.44	0.1382	-0.003	0
251	SLE RA 5	0	1.25	42.02	0.1379	-0.003	0
251	SLE RA 6	0	1.06	42.41	0.1497	-0.0032	0
251	SLE RA 7	0	1.06	42.39	0.1496	-0.0032	0
251	SLE RA 8	0	1.01	42	0.1496	-0.0032	0
251	SLE RA 9	0	1.01	41.98	0.1494	-0.0032	0
251	SLE RA 10	0	1.72	47.35	0.1378	-0.003	0
251	SLE RA 11	0	1.53	47.74	0.1495	-0.0033	0
251	SLE RA 12	0	1.53	47.72	0.1494	-0.0033	0
251	SLE RA 13	0	1.48	47.3	0.1492	-0.0032	0
251	SLE RA 14	0	1.3	47.7	0.1609	-0.0035	0
251	SLE RA 15	0	1.3	47.68	0.1608	-0.0035	0
251	SLE RA 16	0	1.25	47.29	0.1608	-0.0035	0
251	SLE RA 17	0	1.25	47.27	0.1607	-0.0035	0
251	SLE RA 18	0	1.82	49.64	0.1428	-0.0031	0
251	SLE RA 19	0	1.82	49.62	0.1427	-0.0031	0
251	SLE RA 20	0	1.58	49.59	0.1542	-0.0034	0
251	SLE RA 21	0	1.58	49.58	0.1541	-0.0034	0
251	SLE FR 1	0	1.48	42.09	0.1268	-0.0028	0
251	SLE FR 2	0	1.48	42.08	0.1267	-0.0027	0
251	SLE FR 3	0	1.38	42.07	0.1313	-0.0029	0
251	SLE FR 4	0	1.58	44.35	0.1316	-0.0029	0
251	SLE FR 5	0	1.48	44.33	0.1362	-0.003	0
251	SLE FR 6	0	1.65	45.86	0.1348	-0.003	0
251	SLE QP 1	0	1.48	42.09	0.1268	-0.0028	0
251	SLE QP 2	0	1.58	44.35	0.1316	-0.0029	0
251	SLD 1	0.21	5.14	44.87	-0.03	0.3358	0
251	SLD 2	0.21	5.14	44.87	-0.03	0.3358	0
251	SLD 3	0.19	0.55	41.25	0.1789	0.3133	0
251	SLD 4	0.19	0.55	41.25	0.1789	0.3133	0
251	SLD 5	0.09	9.59	50	-0.2337	0.1329	0
251	SLD 6	0.09	9.59	50	-0.2337	0.1329	0
251	SLD 7	0.03	-5.68	37.93	0.4627	0.0578	0
251	SLD 8	0.03	-5.68	37.93	0.4627	0.0578	0
251	SLD 9	-0.04	8.83	50.78	-0.1995	-0.0636	0
251	SLD 10	-0.04	8.83	50.78	-0.1995	-0.0636	0
251	SLD 11	-0.09	-6.44	38.7	0.4969	-0.1386	0
251	SLD 12	-0.09	-6.44	38.7	0.4969	-0.1386	0
251	SLD 13	-0.2	2.6	47.45	0.0843	-0.319	0
251	SLD 14	-0.2	2.6	47.45	0.0843	-0.319	0
251	SLD 15	-0.21	-1.98	43.83	0.2932	-0.3415	0
251	SLD 16	-0.21	-1.98	43.83	0.2932	-0.3415	0
251	SLV 1	0.63	9.75	45.54	-0.2403	1.0391	-0.0001
251	SLV 2	0.63	9.75	45.54	-0.2403	1.0391	-0.0001
251	SLV 3	0.58	-0.8	37.1	0.2417	0.976	-0.0001
251	SLV 4	0.58	-0.8	37.1	0.2417	0.976	-0.0001
251	SLV 5	0.25	20.04	57.5	-0.7109	0.4054	0
251	SLV 6	0.25	20.04	57.5	-0.7109	0.4054	0
251	SLV 7	0.11	-15.14	29.39	0.8956	0.1951	0
251	SLV 8	0.11	-15.14	29.39	0.8956	0.1951	0
251	SLV 9	-0.11	18.3	59.32	-0.6324	-0.2008	0
251	SLV 10	-0.11	18.3	59.32	-0.6324	-0.2008	0
251	SLV 11	-0.26	-16.88	31.21	0.9741	-0.4112	0
251	SLV 12	-0.26	-16.88	31.21	0.9741	-0.4112	0
251	SLV 13	-0.59	3.96	51.6	0.0215	-0.9817	0.0001
251	SLV 14	-0.59	3.96	51.6	0.0215	-0.9817	0.0001
251	SLV 15	-0.63	-6.59	43.17	0.5035	-1.0448	0.0001
251	SLV 16	-0.63	-6.59	43.17	0.5035	-1.0448	0.0001
252	SLU 1	-0.14	-7.93	26.31	0.3502	-0.1021	0.0006
252	SLU 2	-0.13	-7.02	26.08	0.309	-0.0895	0.0005
252	SLU 3	-0.14	-8.14	26.97	0.3588	-0.1053	0.0006
252	SLU 4	-0.14	-7.59	26.83	0.3341	-0.0978	0.0006
252	SLU 5	-0.13	-7.1	26.54	0.3122	-0.0917	0.0006
252	SLU 6	-0.14	-8.22	27.42	0.3619	-0.1075	0.0006
252	SLU 7	-0.14	-7.67	27.29	0.3372	-0.1	0.0006
252	SLU 8	-0.14	-8.1	27.21	0.3565	-0.1065	0.0006
252	SLU 9	-0.14	-7.55	27.08	0.3318	-0.099	0.0006
252	SLU 10	-0.14	-8.11	28.43	0.3565	-0.1024	0.0006
252	SLU 11	-0.16	-9.23	29.31	0.4063	-0.1182	0.0007
252	SLU 12	-0.15	-8.68	29.18	0.3816	-0.1107	0.0007
252	SLU 13	-0.15	-8.2	28.88	0.3597	-0.1046	0.0006
252	SLU 14	-0.16	-9.31	29.76	0.4095	-0.1204	0.0007
252	SLU 15	-0.16	-8.76	29.63	0.3847	-0.1129	0.0007
252	SLU 16	-0.16	-9.19	29.56	0.4041	-0.1194	0.0007
252	SLU 17	-0.15	-8.64	29.42	0.3793	-0.1119	0.0007
252	SLU 18	-0.16	-9.49	29.65	0.4181	-0.1205	0.0007
252	SLU 19	-0.15	-8.95	29.52	0.3934	-0.113	0.0007
252	SLU 20	-0.16	-9.58	30.11	0.4213	-0.1227	0.0007
252	SLU 21	-0.16	-9.03	29.97	0.3965	-0.1152	0.0007
252	SLU 22	-0.15	-9	28.72	0.3964	-0.115	0.0007
252	SLU 23	-0.14	-8.09	28.5	0.3552	-0.1025	0.0006
252	SLU 24	-0.16	-9.2	29.38	0.405	-0.1183	0.0007
252	SLU 25	-0.15	-8.65	29.25	0.3802	-0.1108	0.0007
252	SLU 26	-0.15	-8.17	28.95	0.3583	-0.1047	0.0006
252	SLU 27	-0.16	-9.28	29.83	0.4081	-0.1205	0.0007
252	SLU 28	-0.16	-8.74	29.7	0.3834	-0.113	0.0007
252	SLU 29	-0.16	-9.16	29.63	0.4027	-0.1194	0.0007





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
252	SLU 30	-0.15	-8.61	29.49	0.378	-0.1119	0.0007
252	SLU 31	-0.16	-9.18	30.84	0.4027	-0.1154	0.0007
252	SLU 32	-0.17	-10.29	31.72	0.4525	-0.1312	0.0008
252	SLU 33	-0.17	-9.75	31.59	0.4278	-0.1236	0.0007
252	SLU 34	-0.16	-9.26	31.29	0.4059	-0.1176	0.0007
252	SLU 35	-0.18	-10.38	32.17	0.4556	-0.1334	0.0008
252	SLU 36	-0.17	-9.83	32.04	0.4309	-0.1259	0.0007
252	SLU 37	-0.18	-10.25	31.97	0.4502	-0.1323	0.0008
252	SLU 38	-0.17	-9.71	31.83	0.4255	-0.1248	0.0007
252	SLU 39	-0.18	-10.56	32.06	0.4643	-0.1335	0.0008
252	SLU 40	-0.17	-10.01	31.93	0.4396	-0.1259	0.0007
252	SLU 41	-0.18	-10.64	32.52	0.4674	-0.1357	0.0008
252	SLU 42	-0.18	-10.09	32.38	0.4427	-0.1281	0.0008
252	SLU 43	-0.17	-9.95	33.37	0.4395	-0.1283	0.0007
252	SLU 44	-0.16	-9.04	33.15	0.3983	-0.1157	0.0007
252	SLU 45	-0.18	-10.15	34.03	0.448	-0.1315	0.0008
252	SLU 46	-0.17	-9.61	33.9	0.4233	-0.124	0.0007
252	SLU 47	-0.16	-9.12	33.6	0.4014	-0.1179	0.0007
252	SLU 48	-0.18	-10.23	34.49	0.4512	-0.1337	0.0008
252	SLU 49	-0.17	-9.69	34.35	0.4265	-0.1262	0.0007
252	SLU 50	-0.18	-10.11	34.28	0.4458	-0.1327	0.0008
252	SLU 51	-0.17	-9.56	34.15	0.421	-0.1251	0.0007
252	SLU 52	-0.18	-10.13	35.49	0.4458	-0.1286	0.0008
252	SLU 53	-0.19	-11.25	36.38	0.4955	-0.1444	0.0008
252	SLU 54	-0.19	-10.7	36.24	0.4708	-0.1369	0.0008
252	SLU 55	-0.18	-10.21	35.95	0.4489	-0.1308	0.0008
252	SLU 56	-0.2	-11.33	36.83	0.4987	-0.1466	0.0008
252	SLU 57	-0.19	-10.78	36.7	0.474	-0.1391	0.0008
252	SLU 58	-0.19	-11.2	36.62	0.4933	-0.1456	0.0008
252	SLU 59	-0.19	-10.66	36.49	0.4686	-0.138	0.0008
252	SLU 60	-0.2	-11.51	36.72	0.5074	-0.1467	0.0008
252	SLU 61	-0.19	-10.96	36.59	0.4826	-0.1392	0.0008
252	SLU 62	-0.2	-11.59	37.17	0.5105	-0.1489	0.0009
252	SLU 63	-0.19	-11.04	37.04	0.4858	-0.1414	0.0008
252	SLU 64	-0.19	-11.01	35.78	0.4857	-0.1412	0.0008
252	SLU 65	-0.18	-10.1	35.56	0.4444	-0.1287	0.0008
252	SLU 66	-0.19	-11.22	36.44	0.4942	-0.1445	0.0008
252	SLU 67	-0.19	-10.67	36.31	0.4695	-0.1369	0.0008
252	SLU 68	-0.18	-10.18	36.01	0.4476	-0.1309	0.0008
252	SLU 69	-0.2	-11.3	36.9	0.4974	-0.1467	0.0008
252	SLU 70	-0.19	-10.75	36.76	0.4726	-0.1391	0.0008
252	SLU 71	-0.19	-11.17	36.69	0.492	-0.1456	0.0008
252	SLU 72	-0.19	-10.63	36.56	0.4672	-0.1381	0.0008
252	SLU 73	-0.2	-11.19	37.9	0.4919	-0.1416	0.0008
252	SLU 74	-0.21	-12.31	38.79	0.5417	-0.1574	0.0009
252	SLU 75	-0.2	-11.76	38.65	0.517	-0.1498	0.0009
252	SLU 76	-0.2	-11.27	38.36	0.4951	-0.1438	0.0009
252	SLU 77	-0.21	-12.39	39.24	0.5449	-0.1596	0.0009
252	SLU 78	-0.21	-11.84	39.11	0.5201	-0.152	0.0009
252	SLU 79	-0.21	-12.27	39.03	0.5395	-0.1585	0.0009
252	SLU 80	-0.21	-11.72	38.9	0.5147	-0.151	0.0009
252	SLU 81	-0.21	-12.57	39.13	0.5535	-0.1596	0.0009
252	SLU 82	-0.21	-12.03	39	0.5288	-0.1521	0.0009
252	SLU 83	-0.22	-12.66	39.58	0.5567	-0.1618	0.0009
252	SLU 84	-0.21	-12.11	39.45	0.532	-0.1543	0.0009
252	SLE RA 1	-0.14	-8.24	27	0.3634	-0.1058	0.0006
252	SLE RA 2	-0.13	-7.63	26.85	0.3359	-0.0974	0.0006
252	SLE RA 3	-0.14	-8.37	27.44	0.3691	-0.108	0.0006
252	SLE RA 4	-0.14	-8.01	27.35	0.3526	-0.1029	0.0006
252	SLE RA 5	-0.14	-7.68	27.15	0.3381	-0.0989	0.0006
252	SLE RA 6	-0.15	-8.43	27.74	0.3712	-0.1094	0.0006
252	SLE RA 7	-0.14	-8.06	27.65	0.3548	-0.1044	0.0006
252	SLE RA 8	-0.15	-8.35	27.6	0.3676	-0.1087	0.0006
252	SLE RA 9	-0.14	-7.98	27.51	0.3511	-0.1037	0.0006
252	SLE RA 10	-0.15	-8.36	28.41	0.3676	-0.106	0.0006
252	SLE RA 11	-0.16	-9.1	29	0.4008	-0.1165	0.0007
252	SLE RA 12	-0.15	-8.74	28.91	0.3843	-0.1115	0.0007
252	SLE RA 13	-0.15	-8.41	28.71	0.3697	-0.1075	0.0006
252	SLE RA 14	-0.16	-9.16	29.3	0.4029	-0.118	0.0007
252	SLE RA 15	-0.15	-8.79	29.21	0.3864	-0.113	0.0007
252	SLE RA 16	-0.16	-9.07	29.16	0.3993	-0.1173	0.0007
252	SLE RA 17	-0.15	-8.71	29.07	0.3828	-0.1123	0.0007
252	SLE RA 18	-0.16	-9.28	29.23	0.4087	-0.1181	0.0007
252	SLE RA 19	-0.15	-8.91	29.14	0.3922	-0.113	0.0007
252	SLE RA 20	-0.16	-9.33	29.53	0.4108	-0.1195	0.0007
252	SLE RA 21	-0.16	-8.97	29.44	0.3943	-0.1145	0.0007
252	SLE FR 1	-0.14	-8.24	27	0.3634	-0.1058	0.0006
252	SLE FR 2	-0.14	-8.12	26.97	0.3579	-0.1041	0.0006
252	SLE FR 3	-0.14	-8.26	27.12	0.3643	-0.1064	0.0006
252	SLE FR 4	-0.14	-8.43	27.64	0.3715	-0.1078	0.0006
252	SLE FR 5	-0.15	-8.57	27.79	0.3778	-0.1101	0.0006
252	SLE FR 6	-0.15	-8.76	28.11	0.3861	-0.1119	0.0006
252	SLE QP 1	-0.14	-8.24	27	0.3634	-0.1058	0.0006
252	SLE QP 2	-0.15	-8.55	27.67	0.377	-0.1095	0.0006
252	SLD 1	0.07	-7.75	33.6	0.3439	0.11	0.0012
252	SLD 2	0.07	-7.75	33.6	0.3439	0.11	0.0012
252	SLD 3	0	-14.73	34.81	0.6523	0.0312	0.0015
252	SLD 4	0	-14.73	34.81	0.6523	0.0312	0.0015
252	SLD 5	0.04	2.26	27.61	-0.1006	0.0759	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
252	SLD 6	0.04	2.26	27.61	-0.1006	0.0759	0.0003
252	SLD 7	-0.22	-20.98	31.64	0.9272	-0.1868	0.0014
252	SLD 8	-0.22	-20.98	31.64	0.9272	-0.1868	0.0014
252	SLD 9	-0.07	3.88	23.69	-0.1732	-0.0322	-0.0001
252	SLD 10	-0.07	3.88	23.69	-0.1732	-0.0322	-0.0001
252	SLD 11	-0.33	-19.36	27.72	0.8546	-0.2948	0.001
252	SLD 12	-0.33	-19.36	27.72	0.8546	-0.2948	0.001
252	SLD 13	-0.29	-2.37	20.52	0.1018	-0.2502	-0.0002
252	SLD 14	-0.29	-2.37	20.52	0.1018	-0.2502	-0.0002
252	SLD 15	-0.36	-9.34	21.73	0.4101	-0.329	0.0001
252	SLD 16	-0.36	-9.34	21.73	0.4101	-0.329	0.0001
252	SLV 1	0.38	-6.69	41.18	0.3002	0.4244	0.0019
252	SLV 2	0.38	-6.69	41.18	0.3002	0.4244	0.0019
252	SLV 3	0.19	-22.79	44.15	1.0113	0.2258	0.0027
252	SLV 4	0.19	-22.79	44.15	1.0113	0.2258	0.0027
252	SLV 5	0.3	16.42	27.21	-0.7244	0.352	-0.0002
252	SLV 6	0.3	16.42	27.21	-0.7244	0.352	-0.0002
252	SLV 7	-0.33	-37.24	37.11	1.6457	-0.3102	0.0025
252	SLV 8	-0.33	-37.24	37.11	1.6457	-0.3102	0.0025
252	SLV 9	0.04	20.14	18.22	-0.8917	0.0913	-0.0012
252	SLV 10	0.04	20.14	18.22	-0.8917	0.0913	-0.0012
252	SLV 11	-0.59	-33.52	28.12	1.4784	-0.5709	0.0015
252	SLV 12	-0.59	-33.52	28.12	1.4784	-0.5709	0.0015
252	SLV 13	-0.48	5.7	11.18	-0.2573	-0.4447	-0.0014
252	SLV 14	-0.48	5.7	11.18	-0.2573	-0.4447	-0.0014
252	SLV 15	-0.67	-10.4	14.15	0.4538	-0.6434	-0.0006
252	SLV 16	-0.67	-10.4	14.15	0.4538	-0.6434	-0.0006
253	SLU 1	0.02	-4.61	54.3	0.1878	0.0194	0
253	SLU 2	0.01	-4.05	52.29	0.1627	0.0067	0
253	SLU 3	0.02	-4.78	55.42	0.1945	0.0205	0
253	SLU 4	0.02	-4.44	54.21	0.1794	0.0129	0
253	SLU 5	0.01	-4.13	52.72	0.1662	0.0076	0
253	SLU 6	0.02	-4.86	55.86	0.198	0.0214	0
253	SLU 7	0.02	-4.52	54.65	0.1829	0.0138	0
253	SLU 8	0.02	-4.79	55.17	0.1949	0.0213	0
253	SLU 9	0.02	-4.45	53.96	0.1798	0.0137	0
253	SLU 10	0.02	-4.7	58.55	0.1893	0.0095	0
253	SLU 11	0.03	-5.44	61.69	0.2211	0.0233	0
253	SLU 12	0.02	-5.09	60.48	0.206	0.0157	0
253	SLU 13	0.02	-4.79	58.99	0.1928	0.0105	0
253	SLU 14	0.03	-5.52	62.12	0.2246	0.0242	0
253	SLU 15	0.02	-5.18	60.91	0.2095	0.0166	0
253	SLU 16	0.03	-5.44	61.44	0.2215	0.0241	0
253	SLU 17	0.02	-5.1	60.23	0.2064	0.0165	0
253	SLU 18	0.03	-5.55	63.26	0.2258	0.0234	0
253	SLU 19	0.02	-5.21	62.05	0.2107	0.0158	0
253	SLU 20	0.03	-5.64	63.69	0.2294	0.0243	0
253	SLU 21	0.02	-5.3	62.48	0.2143	0.0167	0
253	SLU 22	0.02	-5.28	60.31	0.2147	0.0224	0
253	SLU 23	0.02	-4.71	58.3	0.1895	0.0098	0
253	SLU 24	0.03	-5.44	61.43	0.2213	0.0235	0
253	SLU 25	0.02	-5.1	60.22	0.2062	0.0159	0
253	SLU 26	0.02	-4.79	58.73	0.193	0.0107	0
253	SLU 27	0.03	-5.53	61.87	0.2248	0.0244	0
253	SLU 28	0.02	-5.19	60.66	0.2097	0.0168	0
253	SLU 29	0.03	-5.45	61.18	0.2217	0.0243	0
253	SLU 30	0.02	-5.11	59.97	0.2066	0.0167	0
253	SLU 31	0.02	-5.37	64.56	0.2161	0.0126	0
253	SLU 32	0.03	-6.1	67.7	0.2479	0.0263	0
253	SLU 33	0.02	-5.76	66.49	0.2328	0.0187	0
253	SLU 34	0.02	-5.45	65	0.2196	0.0135	0
253	SLU 35	0.03	-6.18	68.13	0.2514	0.0272	0
253	SLU 36	0.03	-5.84	66.92	0.2364	0.0197	0
253	SLU 37	0.03	-6.11	67.45	0.2483	0.0271	0
253	SLU 38	0.03	-5.77	66.24	0.2332	0.0195	0
253	SLU 39	0.03	-6.22	69.26	0.2527	0.0264	0
253	SLU 40	0.02	-5.87	68.06	0.2376	0.0188	0
253	SLU 41	0.03	-6.3	69.7	0.2562	0.0274	0
253	SLU 42	0.03	-5.96	68.49	0.2411	0.0198	0
253	SLU 43	0.03	-5.77	68.54	0.235	0.0241	0
253	SLU 44	0.02	-5.2	66.52	0.2098	0.0115	0
253	SLU 45	0.03	-5.93	69.65	0.2416	0.0252	0
253	SLU 46	0.02	-5.59	68.44	0.2265	0.0176	0
253	SLU 47	0.02	-5.29	66.95	0.2133	0.0124	0
253	SLU 48	0.03	-6.02	70.09	0.2452	0.0262	0
253	SLU 49	0.02	-5.68	68.88	0.2301	0.0186	0
253	SLU 50	0.03	-5.94	69.41	0.242	0.026	0
253	SLU 51	0.02	-5.6	68.2	0.2269	0.0184	0
253	SLU 52	0.02	-5.86	72.79	0.2364	0.0143	0
253	SLU 53	0.03	-6.59	75.92	0.2682	0.028	0
253	SLU 54	0.03	-6.25	74.71	0.2531	0.0204	0
253	SLU 55	0.02	-5.95	73.22	0.2399	0.0152	0
253	SLU 56	0.03	-6.68	76.35	0.2718	0.029	0
253	SLU 57	0.03	-6.34	75.15	0.2567	0.0214	0
253	SLU 58	0.03	-6.6	75.67	0.2686	0.0288	0
253	SLU 59	0.03	-6.26	74.46	0.2535	0.0212	0
253	SLU 60	0.03	-6.71	77.49	0.273	0.0281	0
253	SLU 61	0.03	-6.37	76.28	0.2579	0.0205	0
253	SLU 62	0.03	-6.8	77.92	0.2765	0.0291	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
253	SLU 63	0.03	-6.46	76.71	0.2614	0.0215	0
253	SLU 64	0.03	-6.43	74.54	0.2618	0.0272	0
253	SLU 65	0.02	-5.87	72.53	0.2366	0.0145	0
253	SLU 66	0.03	-6.6	75.66	0.2685	0.0283	0
253	SLU 67	0.03	-6.26	74.45	0.2534	0.0207	0
253	SLU 68	0.02	-5.95	72.96	0.2402	0.0155	0
253	SLU 69	0.03	-6.68	76.1	0.272	0.0292	0
253	SLU 70	0.03	-6.34	74.89	0.2569	0.0216	0
253	SLU 71	0.03	-6.61	75.41	0.2689	0.0291	0
253	SLU 72	0.03	-6.27	74.2	0.2538	0.0215	0
253	SLU 73	0.03	-6.52	78.79	0.2632	0.0173	0
253	SLU 74	0.03	-7.26	81.93	0.2951	0.0311	0
253	SLU 75	0.03	-6.91	80.72	0.28	0.0235	0
253	SLU 76	0.03	-6.61	79.23	0.2668	0.0183	0
253	SLU 77	0.04	-7.34	82.36	0.2986	0.032	0
253	SLU 78	0.03	-7	81.15	0.2835	0.0244	0
253	SLU 79	0.04	-7.26	81.68	0.2955	0.0319	0
253	SLU 80	0.03	-6.92	80.47	0.2804	0.0243	0
253	SLU 81	0.03	-7.37	83.5	0.2998	0.0312	0
253	SLU 82	0.03	-7.03	82.29	0.2847	0.0236	0
253	SLU 83	0.04	-7.46	83.93	0.3033	0.0321	0
253	SLU 84	0.03	-7.12	82.72	0.2882	0.0245	0
253	SLE RA 1	0.02	-4.8	56.02	0.1955	0.0202	0
253	SLE RA 2	0.02	-4.42	54.68	0.1787	0.0118	0
253	SLE RA 3	0.02	-4.91	56.77	0.1999	0.021	0
253	SLE RA 4	0.02	-4.69	55.96	0.1899	0.0159	0
253	SLE RA 5	0.02	-4.48	54.97	0.1811	0.0124	0
253	SLE RA 6	0.02	-4.97	57.06	0.2023	0.0216	0
253	SLE RA 7	0.02	-4.74	56.25	0.1922	0.0165	0
253	SLE RA 8	0.02	-4.92	56.6	0.2002	0.0215	0
253	SLE RA 9	0.02	-4.69	55.79	0.1901	0.0164	0
253	SLE RA 10	0.02	-4.86	58.85	0.1965	0.0137	0
253	SLE RA 11	0.03	-5.35	60.94	0.2177	0.0228	0
253	SLE RA 12	0.02	-5.12	60.14	0.2076	0.0178	0
253	SLE RA 13	0.02	-4.92	59.14	0.1988	0.0143	0
253	SLE RA 14	0.03	-5.41	61.23	0.22	0.0235	0
253	SLE RA 15	0.02	-5.18	60.43	0.21	0.0184	0
253	SLE RA 16	0.03	-5.36	60.78	0.2179	0.0234	0
253	SLE RA 17	0.02	-5.13	59.97	0.2079	0.0183	0
253	SLE RA 18	0.03	-5.43	61.99	0.2208	0.0229	0
253	SLE RA 19	0.02	-5.2	61.18	0.2108	0.0178	0
253	SLE RA 20	0.03	-5.49	62.28	0.2232	0.0235	0
253	SLE RA 21	0.02	-5.26	61.47	0.2131	0.0185	0
253	SLE FR 1	0.02	-4.8	56.02	0.1955	0.0202	0
253	SLE FR 2	0.02	-4.73	55.75	0.1921	0.0185	0
253	SLE FR 3	0.02	-4.83	56.14	0.1964	0.0205	0
253	SLE FR 4	0.02	-4.92	57.54	0.1997	0.0193	0
253	SLE FR 5	0.02	-5.01	57.93	0.204	0.0213	0
253	SLE FR 6	0.02	-5.12	59	0.2082	0.0216	0
253	SLE QP 1	0.02	-4.8	56.02	0.1955	0.0202	0
253	SLE QP 2	0.02	-4.99	57.81	0.2031	0.021	0
253	SLD 1	0.2	-0.8	41.83	0.0267	0.1952	0.0001
253	SLD 2	0.2	-0.8	41.83	0.0267	0.1952	0.0001
253	SLD 3	0.3	-6.16	48.32	0.2522	0.2963	0
253	SLD 4	0.3	-6.16	48.32	0.2522	0.2963	0
253	SLD 5	-0.06	4.4	43.18	-0.1918	-0.0801	0.0001
253	SLD 6	-0.06	4.4	43.18	-0.1918	-0.0801	0.0001
253	SLD 7	0.25	-13.48	64.8	0.5598	0.257	0
253	SLD 8	0.25	-13.48	64.8	0.5598	0.257	0
253	SLD 9	-0.2	3.49	50.82	-0.1536	-0.2149	0
253	SLD 10	-0.2	3.49	50.82	-0.1536	-0.2149	0
253	SLD 11	0.11	-14.38	72.44	0.598	0.1221	-0.0001
253	SLD 12	0.11	-14.38	72.44	0.598	0.1221	-0.0001
253	SLD 13	-0.25	-3.82	67.3	0.154	-0.2542	-0.0001
253	SLD 14	-0.25	-3.82	67.3	0.154	-0.2542	-0.0001
253	SLD 15	-0.16	-9.19	73.79	0.3795	-0.1531	-0.0001
253	SLD 16	-0.16	-9.19	73.79	0.3795	-0.1531	-0.0001
253	SLV 1	0.45	4.65	21.12	-0.2021	0.4318	0.0002
253	SLV 2	0.45	4.65	21.12	-0.2021	0.4318	0.0002
253	SLV 3	0.69	-7.7	36.17	0.317	0.6891	0.0001
253	SLV 4	0.69	-7.7	36.17	0.317	0.6891	0.0001
253	SLV 5	-0.21	16.64	23.98	-0.7058	-0.246	0.0002
253	SLV 6	-0.21	16.64	23.98	-0.7058	-0.246	0.0002
253	SLV 7	0.58	-24.54	74.14	1.0246	0.6117	-0.0001
253	SLV 8	0.58	-24.54	74.14	1.0246	0.6117	-0.0001
253	SLV 9	-0.53	14.56	41.48	-0.6184	-0.5696	0.0001
253	SLV 10	-0.53	14.56	41.48	-0.6184	-0.5696	0.0001
253	SLV 11	0.25	-26.62	91.64	1.112	0.288	-0.0002
253	SLV 12	0.25	-26.62	91.64	1.112	0.288	-0.0002
253	SLV 13	-0.64	-2.28	79.45	0.0892	-0.6471	-0.0001
253	SLV 14	-0.64	-2.28	79.45	0.0892	-0.6471	-0.0001
253	SLV 15	-0.4	-14.64	94.5	0.6083	-0.3898	-0.0002
253	SLV 16	-0.4	-14.64	94.5	0.6083	-0.3898	-0.0002
254	SLU 1	0	1.9	49.33	-0.054	0.0008	0
254	SLU 2	0	2.01	48.82	-0.0575	0.0011	0
254	SLU 3	0	1.74	51.89	-0.0485	0.0008	0
254	SLU 4	0	1.81	51.58	-0.0506	0.001	0
254	SLU 5	0	1.81	50.93	-0.0506	0.0012	0
254	SLU 6	0	1.53	54	-0.0416	0.0009	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
254	SLU 7	0	1.6	53.7	-0.0437	0.0011	0
254	SLU 8	0	1.49	53.56	-0.0403	0.0009	0
254	SLU 9	0	1.56	53.25	-0.0424	0.0011	0
254	SLU 10	0	2.22	57.39	-0.0638	0.0012	0
254	SLU 11	0	1.94	60.46	-0.0548	0.001	0
254	SLU 12	0	2.01	60.16	-0.0569	0.0012	0
254	SLU 13	0	2.01	59.51	-0.0569	0.0013	0
254	SLU 14	0	1.74	62.58	-0.0479	0.001	0
254	SLU 15	0	1.81	62.27	-0.05	0.0012	0
254	SLU 16	0	1.69	62.14	-0.0466	0.001	0
254	SLU 17	0	1.76	61.83	-0.0487	0.0012	0
254	SLU 18	0	2.19	61.58	-0.063	0.0009	0
254	SLU 19	0	2.26	61.27	-0.0651	0.0012	0
254	SLU 20	0	1.98	63.7	-0.0561	0.001	0
254	SLU 21	0	2.05	63.39	-0.0582	0.0012	0
254	SLU 22	0	2	57.86	-0.0565	0.0009	0
254	SLU 23	0	2.11	57.35	-0.06	0.0012	0
254	SLU 24	0	1.83	60.42	-0.051	0.001	0
254	SLU 25	0	1.9	60.12	-0.0531	0.0012	0
254	SLU 26	0	1.91	59.47	-0.0532	0.0013	0
254	SLU 27	0	1.63	62.54	-0.0442	0.001	0
254	SLU 28	0	1.7	62.23	-0.0463	0.0012	0
254	SLU 29	0	1.59	62.09	-0.0429	0.001	0
254	SLU 30	0	1.66	61.79	-0.045	0.0012	0
254	SLU 31	0	2.31	65.93	-0.0663	0.0014	0
254	SLU 32	0	2.04	69	-0.0573	0.0011	0
254	SLU 33	0	2.1	68.69	-0.0594	0.0013	0
254	SLU 34	0	2.11	68.05	-0.0595	0.0014	0
254	SLU 35	0	1.83	71.12	-0.0505	0.0012	0
254	SLU 36	0	1.9	70.81	-0.0526	0.0014	0
254	SLU 37	0	1.79	70.67	-0.0492	0.0012	0
254	SLU 38	0	1.86	70.37	-0.0513	0.0014	0
254	SLU 39	0	2.28	70.12	-0.0655	0.0011	0
254	SLU 40	0	2.35	69.81	-0.0676	0.0013	0
254	SLU 41	0	2.08	72.23	-0.0587	0.0012	0
254	SLU 42	0	2.15	71.93	-0.0608	0.0014	0
254	SLU 43	0	2.44	61.2	-0.0693	0.0009	0
254	SLU 44	0	2.55	60.69	-0.0728	0.0013	0
254	SLU 45	0	2.28	63.76	-0.0638	0.001	0
254	SLU 46	0	2.35	63.45	-0.0659	0.0012	0
254	SLU 47	0	2.35	62.8	-0.066	0.0013	0
254	SLU 48	0	2.07	65.87	-0.0569	0.0011	0
254	SLU 49	0	2.14	65.57	-0.059	0.0013	0
254	SLU 50	0	2.03	65.43	-0.0556	0.0011	0
254	SLU 51	0	2.1	65.12	-0.0577	0.0013	0
254	SLU 52	0	2.75	69.26	-0.0791	0.0014	0
254	SLU 53	0	2.48	72.33	-0.0701	0.0011	0
254	SLU 54	0	2.55	72.03	-0.0722	0.0013	0
254	SLU 55	0	2.55	71.38	-0.0723	0.0015	0
254	SLU 56	0	2.27	74.45	-0.0632	0.0012	0
254	SLU 57	0	2.34	74.14	-0.0654	0.0014	0
254	SLU 58	0	2.23	74.01	-0.0619	0.0012	0
254	SLU 59	0	2.3	73.7	-0.064	0.0014	0
254	SLU 60	0	2.73	73.45	-0.0783	0.0011	0
254	SLU 61	0	2.79	73.14	-0.0804	0.0013	0
254	SLU 62	0	2.52	75.57	-0.0715	0.0012	0
254	SLU 63	0	2.59	75.26	-0.0736	0.0014	0
254	SLU 64	0	2.53	69.73	-0.0718	0.0011	0
254	SLU 65	0	2.65	69.22	-0.0753	0.0014	0
254	SLU 66	0	2.37	72.29	-0.0663	0.0011	0
254	SLU 67	0	2.44	71.99	-0.0684	0.0013	0
254	SLU 68	0	2.44	71.34	-0.0685	0.0015	0
254	SLU 69	0	2.17	74.41	-0.0595	0.0012	0
254	SLU 70	0	2.24	74.1	-0.0616	0.0014	0
254	SLU 71	0	2.12	73.97	-0.0582	0.0012	0
254	SLU 72	0	2.19	73.66	-0.0603	0.0014	0
254	SLU 73	0	2.85	77.8	-0.0817	0.0016	0
254	SLU 74	0	2.57	80.87	-0.0726	0.0013	0
254	SLU 75	0	2.64	80.57	-0.0747	0.0015	0
254	SLU 76	0	2.64	79.92	-0.0748	0.0016	0
254	SLU 77	0	2.37	82.99	-0.0658	0.0013	0
254	SLU 78	0	2.44	82.68	-0.0679	0.0015	0
254	SLU 79	0	2.33	82.54	-0.0645	0.0013	0
254	SLU 80	0	2.39	82.24	-0.0666	0.0016	0
254	SLU 81	0	2.82	81.99	-0.0808	0.0013	0
254	SLU 82	0	2.89	81.68	-0.083	0.0015	0
254	SLU 83	0	2.62	84.1	-0.074	0.0013	0
254	SLU 84	0	2.69	83.8	-0.0761	0.0015	0
254	SLE RA 1	0	1.93	51.76	-0.0547	0.0008	0
254	SLE RA 2	0	2	51.42	-0.057	0.001	0
254	SLE RA 3	0	1.82	53.47	-0.051	0.0008	0
254	SLE RA 4	0	1.87	53.27	-0.0524	0.001	0
254	SLE RA 5	0	1.87	52.84	-0.0525	0.0011	0
254	SLE RA 6	0	1.68	54.88	-0.0465	0.0009	0
254	SLE RA 7	0	1.73	54.68	-0.0479	0.001	0
254	SLE RA 8	0	1.65	54.59	-0.0456	0.0009	0
254	SLE RA 9	0	1.7	54.38	-0.047	0.001	0
254	SLE RA 10	0	2.14	57.14	-0.0612	0.0011	0
254	SLE RA 11	0	1.95	59.19	-0.0552	0.0009	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
254	SLE RA 12	0	2	58.99	-0.0566	0.0011	0
254	SLE RA 13	0	2	58.55	-0.0567	0.0012	0
254	SLE RA 14	0	1.82	60.6	-0.0507	0.001	0
254	SLE RA 15	0	1.86	60.4	-0.0521	0.0011	0
254	SLE RA 16	0	1.79	60.3	-0.0498	0.001	0
254	SLE RA 17	0	1.84	60.1	-0.0512	0.0011	0
254	SLE RA 18	0	2.12	59.93	-0.0607	0.0009	0
254	SLE RA 19	0	2.17	59.73	-0.0621	0.0011	0
254	SLE RA 20	0	1.98	61.34	-0.0561	0.001	0
254	SLE RA 21	0	2.03	61.14	-0.0576	0.0011	0
254	SLE FR 1	0	1.93	51.76	-0.0547	0.0008	0
254	SLE FR 2	0	1.94	51.7	-0.0552	0.0008	0
254	SLE FR 3	0	1.87	52.33	-0.0529	0.0008	0
254	SLE FR 4	0	2	54.15	-0.057	0.0009	0
254	SLE FR 5	0	1.93	54.78	-0.0547	0.0009	0
254	SLE FR 6	0	2.02	55.85	-0.0577	0.0009	0
254	SLE QP 1	0	1.93	51.76	-0.0547	0.0008	0
254	SLE QP 2	0	1.98	54.22	-0.0565	0.0008	0
254	SLD 1	0.21	7.36	54.96	-0.2206	0.2367	-0.0005
254	SLD 2	0.21	7.36	54.96	-0.2206	0.2367	-0.0005
254	SLD 3	0.17	1.73	57.17	-0.0483	0.1914	-0.0004
254	SLD 4	0.17	1.73	57.17	-0.0483	0.1914	-0.0004
254	SLD 5	0.13	12.14	51.09	-0.3669	0.1402	-0.0003
254	SLD 6	0.13	12.14	51.09	-0.3669	0.1402	-0.0003
254	SLD 7	-0.01	-6.63	58.45	0.2072	-0.0106	0
254	SLD 8	-0.01	-6.63	58.45	0.2072	-0.0106	0
254	SLD 9	0.01	10.6	49.98	-0.3202	0.0123	0
254	SLD 10	0.01	10.6	49.98	-0.3202	0.0123	0
254	SLD 11	-0.12	-8.17	57.34	0.254	-0.1386	0.0003
254	SLD 12	-0.12	-8.17	57.34	0.254	-0.1386	0.0003
254	SLD 13	-0.17	2.24	51.26	-0.0647	-0.1897	0.0004
254	SLD 14	-0.17	2.24	51.26	-0.0647	-0.1897	0.0004
254	SLD 15	-0.21	-3.39	53.47	0.1076	-0.235	0.0005
254	SLD 16	-0.21	-3.39	53.47	0.1076	-0.235	0.0005
254	SLV 1	0.54	14.4	55.9	-0.4353	0.605	-0.0014
254	SLV 2	0.54	14.4	55.9	-0.4353	0.605	-0.0014
254	SLV 3	0.43	1.47	61.15	-0.04	0.4889	-0.0011
254	SLV 4	0.43	1.47	61.15	-0.04	0.4889	-0.0011
254	SLV 5	0.32	25.31	46.77	-0.7696	0.3581	-0.0008
254	SLV 6	0.32	25.31	46.77	-0.7696	0.3581	-0.0008
254	SLV 7	-0.03	-17.77	64.25	0.5479	-0.0288	0.0001
254	SLV 8	-0.03	-17.77	64.25	0.5479	-0.0288	0.0001
254	SLV 9	0.03	21.74	44.18	-0.6609	0.0304	-0.0001
254	SLV 10	0.03	21.74	44.18	-0.6609	0.0304	-0.0001
254	SLV 11	-0.32	-21.34	61.66	0.6566	-0.3564	0.0008
254	SLV 12	-0.32	-21.34	61.66	0.6566	-0.3564	0.0008
254	SLV 13	-0.43	2.5	47.28	-0.0729	-0.4872	0.0011
254	SLV 14	-0.43	2.5	47.28	-0.0729	-0.4872	0.0011
254	SLV 15	-0.53	-10.43	52.53	0.3223	-0.6033	0.0014
254	SLV 16	-0.53	-10.43	52.53	0.3223	-0.6033	0.0014
255	SLU 1	0	-1.87	46.69	0.0851	-0.0023	0
255	SLU 2	0	-1.78	46.4	0.0814	-0.0025	0
255	SLU 3	0	-1.89	48.27	0.0863	-0.0022	0
255	SLU 4	0	-1.84	48.1	0.0841	-0.0024	0
255	SLU 5	0	-1.72	47.4	0.0786	-0.0024	0
255	SLU 6	0	-1.82	49.27	0.0835	-0.002	0
255	SLU 7	0	-1.77	49.1	0.0813	-0.0022	0
255	SLU 8	0	-1.73	48.68	0.0795	-0.002	0
255	SLU 9	0	-1.68	48.51	0.0773	-0.0021	0
255	SLU 10	0	-2.41	54.58	0.1102	-0.003	0
255	SLU 11	0	-2.52	56.45	0.1151	-0.0027	0
255	SLU 12	0	-2.47	56.28	0.1129	-0.0028	0
255	SLU 13	0	-2.35	55.58	0.1074	-0.0029	0
255	SLU 14	0	-2.45	57.45	0.1123	-0.0025	0
255	SLU 15	0	-2.4	57.28	0.1101	-0.0027	0
255	SLU 16	0	-2.36	56.86	0.1082	-0.0025	0
255	SLU 17	0	-2.31	56.69	0.1061	-0.0026	0
255	SLU 18	0	-2.77	58.37	0.1262	-0.003	0
255	SLU 19	0	-2.71	58.2	0.124	-0.0031	0
255	SLU 20	0	-2.7	59.37	0.1234	-0.0028	0
255	SLU 21	0	-2.65	59.2	0.1212	-0.003	0
255	SLU 22	0	-2.37	54.4	0.1081	-0.0026	0
255	SLU 23	0	-2.28	54.11	0.1045	-0.0029	0
255	SLU 24	0	-2.39	55.99	0.1093	-0.0026	0
255	SLU 25	0	-2.34	55.81	0.1071	-0.0027	0
255	SLU 26	0	-2.22	55.11	0.1017	-0.0028	0
255	SLU 27	0	-2.32	56.98	0.1065	-0.0024	0
255	SLU 28	0	-2.27	56.81	0.1043	-0.0026	0
255	SLU 29	0	-2.23	56.39	0.1025	-0.0023	0
255	SLU 30	0	-2.18	56.22	0.1003	-0.0025	0
255	SLU 31	0	-2.91	62.29	0.1332	-0.0034	0
255	SLU 32	0	-3.02	64.17	0.1381	-0.0031	0
255	SLU 33	0	-2.97	63.99	0.1359	-0.0032	0
255	SLU 34	0	-2.84	63.29	0.1304	-0.0033	0
255	SLU 35	0	-2.95	65.16	0.1353	-0.0029	0
255	SLU 36	0	-2.9	64.99	0.1331	-0.0031	0
255	SLU 37	0	-2.86	64.57	0.1312	-0.0028	0
255	SLU 38	0	-2.81	64.4	0.1291	-0.003	0
255	SLU 39	0	-3.26	66.08	0.1492	-0.0033	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
255	SLU 40	0	-3.21	65.91	0.147	-0.0035	0
255	SLU 41	0	-3.2	67.08	0.1464	-0.0032	0
255	SLU 42	0	-3.15	66.91	0.1442	-0.0034	0
255	SLU 43	0	-2.26	58.05	0.1027	-0.0028	0
255	SLU 44	0	-2.17	57.76	0.0991	-0.0031	0
255	SLU 45	0	-2.28	59.64	0.1039	-0.0027	0
255	SLU 46	0	-2.23	59.46	0.1018	-0.0029	0
255	SLU 47	0	-2.11	58.76	0.0963	-0.0029	0
255	SLU 48	0	-2.21	60.63	0.1011	-0.0026	0
255	SLU 49	0	-2.16	60.46	0.099	-0.0028	0
255	SLU 50	0	-2.12	60.04	0.0971	-0.0025	0
255	SLU 51	0	-2.07	59.87	0.0949	-0.0027	0
255	SLU 52	0	-2.8	65.94	0.1278	-0.0036	0
255	SLU 53	0	-2.91	67.82	0.1327	-0.0032	0
255	SLU 54	0	-2.86	67.64	0.1305	-0.0034	0
255	SLU 55	0	-2.73	66.94	0.125	-0.0034	0
255	SLU 56	0	-2.84	68.81	0.1299	-0.0031	0
255	SLU 57	0	-2.79	68.64	0.1277	-0.0032	0
255	SLU 58	0	-2.75	68.22	0.1259	-0.003	0
255	SLU 59	0	-2.7	68.05	0.1237	-0.0032	0
255	SLU 60	0	-3.15	69.73	0.1438	-0.0035	0
255	SLU 61	0	-3.1	69.56	0.1416	-0.0037	0
255	SLU 62	0	-3.09	70.73	0.141	-0.0034	0
255	SLU 63	0	-3.04	70.56	0.1388	-0.0035	0
255	SLU 64	0	-2.76	65.76	0.1257	-0.0032	0
255	SLU 65	0	-2.67	65.47	0.1221	-0.0035	0
255	SLU 66	0	-2.78	67.35	0.1269	-0.0031	0
255	SLU 67	0	-2.73	67.18	0.1248	-0.0033	0
255	SLU 68	0	-2.6	66.47	0.1193	-0.0033	0
255	SLU 69	0	-2.71	68.34	0.1241	-0.003	0
255	SLU 70	0	-2.66	68.17	0.122	-0.0031	0
255	SLU 71	0	-2.62	67.75	0.1201	-0.0029	0
255	SLU 72	0	-2.57	67.58	0.1179	-0.0031	0
255	SLU 73	0	-3.3	73.65	0.1508	-0.0039	0
255	SLU 74	0	-3.41	75.53	0.1557	-0.0036	0
255	SLU 75	0	-3.35	75.36	0.1535	-0.0038	0
255	SLU 76	0	-3.23	74.65	0.148	-0.0038	0
255	SLU 77	0	-3.34	76.52	0.1529	-0.0035	0
255	SLU 78	0	-3.29	76.35	0.1507	-0.0036	0
255	SLU 79	0	-3.25	75.93	0.1489	-0.0034	0
255	SLU 80	0	-3.2	75.76	0.1467	-0.0035	0
255	SLU 81	0	-3.65	77.44	0.1668	-0.0039	0
255	SLU 82	0	-3.6	77.27	0.1646	-0.004	0
255	SLU 83	0	-3.59	78.44	0.164	-0.0037	0
255	SLU 84	0	-3.54	78.27	0.1618	-0.0039	0
255	SLE RA 1	0	-2.01	48.89	0.0916	-0.0024	0
255	SLE RA 2	0	-1.95	48.7	0.0892	-0.0025	0
255	SLE RA 3	0	-2.02	49.95	0.0925	-0.0023	0
255	SLE RA 4	0	-1.99	49.83	0.091	-0.0024	0
255	SLE RA 5	0	-1.91	49.36	0.0874	-0.0025	0
255	SLE RA 6	0	-1.98	50.61	0.0906	-0.0022	0
255	SLE RA 7	0	-1.95	50.5	0.0892	-0.0023	0
255	SLE RA 8	0	-1.92	50.22	0.0879	-0.0022	0
255	SLE RA 9	0	-1.89	50.1	0.0865	-0.0023	0
255	SLE RA 10	0	-2.37	54.15	0.1084	-0.0029	0
255	SLE RA 11	0	-2.44	55.4	0.1116	-0.0026	0
255	SLE RA 12	0	-2.41	55.29	0.1102	-0.0028	0
255	SLE RA 13	0	-2.33	54.82	0.1065	-0.0028	0
255	SLE RA 14	0	-2.4	56.07	0.1098	-0.0025	0
255	SLE RA 15	0	-2.36	55.95	0.1083	-0.0027	0
255	SLE RA 16	0	-2.34	55.67	0.1071	-0.0025	0
255	SLE RA 17	0	-2.31	55.56	0.1056	-0.0026	0
255	SLE RA 18	0	-2.61	56.68	0.119	-0.0028	0
255	SLE RA 19	0	-2.57	56.56	0.1176	-0.0029	0
255	SLE RA 20	0	-2.56	57.34	0.1172	-0.0027	0
255	SLE RA 21	0	-2.53	57.23	0.1157	-0.0028	0
255	SLE FR 1	0	-2.01	48.89	0.0916	-0.0024	0
255	SLE FR 2	0	-2	48.85	0.0912	-0.0024	0
255	SLE FR 3	0	-1.99	49.15	0.0909	-0.0023	0
255	SLE FR 4	0	-2.18	51.19	0.0994	-0.0025	0
255	SLE FR 5	0	-2.17	51.49	0.0991	-0.0025	0
255	SLE FR 6	0	-2.31	52.78	0.1053	-0.0026	0
255	SLE QP 1	0	-2.01	48.89	0.0916	-0.0024	0
255	SLE QP 2	0	-2.19	51.23	0.0999	-0.0025	0
255	SLD 1	0.26	-1.66	50.79	0.0759	0.2506	-0.0003
255	SLD 2	0.26	-1.66	50.79	0.0759	0.2506	-0.0003
255	SLD 3	0.22	-8.44	57.15	0.3948	0.2153	-0.0002
255	SLD 4	0.22	-8.44	57.15	0.3948	0.2153	-0.0002
255	SLD 5	0.13	8.25	41.45	-0.391	0.1269	-0.0001
255	SLD 6	0.13	8.25	41.45	-0.391	0.1269	-0.0001
255	SLD 7	0.01	-14.34	62.65	0.672	0.0094	0
255	SLD 8	0.01	-14.34	62.65	0.672	0.0094	0
255	SLD 9	-0.01	9.96	39.8	-0.4723	-0.0144	0
255	SLD 10	-0.01	9.96	39.8	-0.4723	-0.0144	0
255	SLD 11	-0.13	-12.63	61	0.5908	-0.1319	0.0001
255	SLD 12	-0.13	-12.63	61	0.5908	-0.1319	0.0001
255	SLD 13	-0.22	4.06	45.3	-0.1951	-0.2203	0.0002
255	SLD 14	-0.22	4.06	45.3	-0.1951	-0.2203	0.0002
255	SLD 15	-0.26	-2.71	51.66	0.1239	-0.2556	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
255	SLD 16	-0.26	-2.71	51.66	0.1239	-0.2556	0.0002
255	SLV 1	0.66	-1.03	50.31	0.0468	0.6463	-0.0006
255	SLV 2	0.66	-1.03	50.31	0.0468	0.6463	-0.0006
255	SLV 3	0.57	-16.63	64.99	0.7813	0.556	-0.0006
255	SLV 4	0.57	-16.63	64.99	0.7813	0.556	-0.0006
255	SLV 5	0.34	21.82	28.69	-1.03	0.3292	-0.0003
255	SLV 6	0.34	21.82	28.69	-1.03	0.3292	-0.0003
255	SLV 7	0.03	-30.19	77.62	1.4182	0.028	0
255	SLV 8	0.03	-30.19	77.62	1.4182	0.028	0
255	SLV 9	-0.03	25.81	24.84	-1.2185	-0.033	0
255	SLV 10	-0.03	25.81	24.84	-1.2185	-0.033	0
255	SLV 11	-0.34	-26.2	73.76	1.2297	-0.3342	0.0003
255	SLV 12	-0.34	-26.2	73.76	1.2297	-0.3342	0.0003
255	SLV 13	-0.57	12.25	37.47	-0.5816	-0.561	0.0005
255	SLV 14	-0.57	12.25	37.47	-0.5816	-0.561	0.0005
255	SLV 15	-0.67	-3.35	52.14	0.1529	-0.6513	0.0006
255	SLV 16	-0.67	-3.35	52.14	0.1529	-0.6513	0.0006
256	SLU 1	0	0.9	14.25	-0.1479	0.0004	0
256	SLU 2	0	0.9	14.25	-0.1475	0.0003	0
256	SLU 3	0	0.94	14.23	-0.1543	0.0004	0
256	SLU 4	0	0.94	14.23	-0.1541	0.0003	0
256	SLU 5	0	0.93	14.24	-0.1515	0.0003	0
256	SLU 6	0	0.97	14.22	-0.1583	0.0004	0
256	SLU 7	0	0.97	14.22	-0.1581	0.0004	0
256	SLU 8	0	0.96	14.23	-0.1559	0.0005	0
256	SLU 9	0	0.96	14.22	-0.1557	0.0004	0
256	SLU 10	0	1.01	18.53	-0.1747	0.0003	0
256	SLU 11	0	1.06	18.52	-0.1815	0.0005	0
256	SLU 12	0	1.06	18.52	-0.1813	0.0004	0
256	SLU 13	0	1.04	18.52	-0.1787	0.0004	0
256	SLU 14	0	1.09	18.51	-0.1855	0.0005	0
256	SLU 15	0	1.09	18.51	-0.1853	0.0004	0
256	SLU 16	0	1.07	18.51	-0.1831	0.0005	0
256	SLU 17	0	1.07	18.51	-0.1829	0.0004	0
256	SLU 18	0	1.06	20.37	-0.1867	0.0004	0
256	SLU 19	0	1.06	20.37	-0.1865	0.0004	0
256	SLU 20	0	1.09	20.36	-0.1907	0.0005	0
256	SLU 21	0	1.09	20.36	-0.1905	0.0004	0
256	SLU 22	0	1.03	17.38	-0.174	0.0004	0
256	SLU 23	0	1.03	17.38	-0.1736	0.0003	0
256	SLU 24	0	1.07	17.36	-0.1805	0.0005	0
256	SLU 25	0	1.07	17.36	-0.1802	0.0004	0
256	SLU 26	0	1.06	17.36	-0.1777	0.0004	0
256	SLU 27	0	1.1	17.35	-0.1845	0.0005	0
256	SLU 28	0	1.1	17.35	-0.1843	0.0005	0
256	SLU 29	0	1.09	17.35	-0.182	0.0005	0
256	SLU 30	0	1.09	17.35	-0.1818	0.0005	0
256	SLU 31	0	1.14	21.66	-0.2009	0.0004	0
256	SLU 32	0	1.19	21.65	-0.2077	0.0005	0
256	SLU 33	0	1.19	21.65	-0.2075	0.0005	0
256	SLU 34	0	1.17	21.65	-0.2049	0.0004	0
256	SLU 35	0	1.22	21.63	-0.2117	0.0006	0
256	SLU 36	0	1.22	21.63	-0.2115	0.0005	0
256	SLU 37	0	1.2	21.64	-0.2092	0.0006	0
256	SLU 38	0	1.2	21.64	-0.209	0.0005	0
256	SLU 39	0	1.19	23.5	-0.2129	0.0005	0
256	SLU 40	0	1.19	23.5	-0.2127	0.0005	0
256	SLU 41	0	1.22	23.49	-0.2169	0.0006	0
256	SLU 42	0	1.22	23.49	-0.2167	0.0005	0
256	SLU 43	0	1.13	17.45	-0.1833	0.0004	0
256	SLU 44	0	1.12	17.45	-0.1829	0.0004	0
256	SLU 45	0	1.17	17.44	-0.1897	0.0005	0
256	SLU 46	0	1.17	17.43	-0.1895	0.0004	0
256	SLU 47	0	1.15	17.44	-0.1869	0.0004	0
256	SLU 48	0	1.2	17.42	-0.1937	0.0005	0
256	SLU 49	0	1.2	17.42	-0.1935	0.0005	0
256	SLU 50	0	1.18	17.43	-0.1913	0.0005	0
256	SLU 51	0	1.18	17.43	-0.1911	0.0005	0
256	SLU 52	0	1.24	21.74	-0.2101	0.0004	0
256	SLU 53	0	1.28	21.72	-0.2169	0.0005	0
256	SLU 54	0	1.28	21.72	-0.2167	0.0005	0
256	SLU 55	0	1.27	21.73	-0.2141	0.0005	0
256	SLU 56	0	1.31	21.71	-0.2209	0.0006	0
256	SLU 57	0	1.31	21.71	-0.2207	0.0005	0
256	SLU 58	0	1.3	21.71	-0.2185	0.0006	0
256	SLU 59	0	1.3	21.71	-0.2183	0.0005	0
256	SLU 60	0	1.29	23.58	-0.2221	0.0005	0
256	SLU 61	0	1.29	23.58	-0.2219	0.0005	0
256	SLU 62	0	1.32	23.56	-0.2261	0.0006	0
256	SLU 63	0	1.32	23.56	-0.2259	0.0005	0
256	SLU 64	0	1.25	20.58	-0.2094	0.0005	0
256	SLU 65	0	1.25	20.58	-0.209	0.0004	0
256	SLU 66	0	1.3	20.56	-0.2159	0.0006	0
256	SLU 67	0	1.3	20.56	-0.2156	0.0005	0
256	SLU 68	0	1.28	20.57	-0.2131	0.0005	0
256	SLU 69	0	1.33	20.55	-0.2199	0.0006	0
256	SLU 70	0	1.33	20.55	-0.2197	0.0006	0
256	SLU 71	0	1.31	20.56	-0.2174	0.0006	0
256	SLU 72	0	1.31	20.55	-0.2172	0.0006	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
256	SLU 73	0	1.37	24.86	-0.2363	0.0005	0
256	SLU 74	0	1.41	24.85	-0.2431	0.0006	0
256	SLU 75	0	1.41	24.85	-0.2428	0.0006	0
256	SLU 76	0	1.4	24.85	-0.2403	0.0005	0
256	SLU 77	0	1.44	24.84	-0.2471	0.0007	0
256	SLU 78	0	1.44	24.84	-0.2469	0.0006	0
256	SLU 79	0	1.43	24.84	-0.2446	0.0007	0
256	SLU 80	0	1.43	24.84	-0.2444	0.0006	0
256	SLU 81	0	1.42	26.7	-0.2483	0.0006	0
256	SLU 82	0	1.42	26.7	-0.2481	0.0005	0
256	SLU 83	0	1.45	26.69	-0.2523	0.0006	0
256	SLU 84	0	1.45	26.69	-0.2521	0.0006	0
256	SLE RA 1	0	0.94	15.14	-0.1553	0.0004	0
256	SLE RA 2	0	0.94	15.14	-0.1551	0.0003	0
256	SLE RA 3	0	0.97	15.13	-0.1596	0.0004	0
256	SLE RA 4	0	0.97	15.13	-0.1595	0.0004	0
256	SLE RA 5	0	0.96	15.13	-0.1578	0.0004	0
256	SLE RA 6	0	0.99	15.12	-0.1623	0.0004	0
256	SLE RA 7	0	0.99	15.12	-0.1622	0.0004	0
256	SLE RA 8	0	0.98	15.13	-0.1607	0.0004	0
256	SLE RA 9	0	0.98	15.13	-0.1605	0.0004	0
256	SLE RA 10	0	1.01	18	-0.1732	0.0004	0
256	SLE RA 11	0	1.04	17.99	-0.1778	0.0004	0
256	SLE RA 12	0	1.04	17.99	-0.1776	0.0004	0
256	SLE RA 13	0	1.03	17.99	-0.1759	0.0004	0
256	SLE RA 14	0	1.06	17.98	-0.1804	0.0005	0
256	SLE RA 15	0	1.06	17.98	-0.1803	0.0004	0
256	SLE RA 16	0	1.05	17.98	-0.1788	0.0005	0
256	SLE RA 17	0	1.05	17.98	-0.1787	0.0004	0
256	SLE RA 18	0	1.05	19.23	-0.1812	0.0004	0
256	SLE RA 19	0	1.04	19.22	-0.1811	0.0004	0
256	SLE RA 20	0	1.06	19.22	-0.1839	0.0005	0
256	SLE RA 21	0	1.06	19.22	-0.1838	0.0004	0
256	SLE FR 1	0	0.94	15.14	-0.1553	0.0004	0
256	SLE FR 2	0	0.94	15.14	-0.1553	0.0004	0
256	SLE FR 3	0	0.94	15.14	-0.1564	0.0004	0
256	SLE FR 4	0	0.97	16.37	-0.1631	0.0004	0
256	SLE FR 5	0	0.98	16.36	-0.1642	0.0004	0
256	SLE FR 6	0	0.99	17.18	-0.1683	0.0004	0
256	SLE QP 1	0	0.94	15.14	-0.1553	0.0004	0
256	SLE QP 2	0	0.97	16.37	-0.1631	0.0004	0
256	SLD 1	0.38	2.11	16.68	-0.0627	0.4366	0.0001
256	SLD 2	0.38	2.11	16.68	-0.0627	0.4366	0.0001
256	SLD 3	0.39	-2.73	16.27	-0.1906	0.4494	0.0001
256	SLD 4	0.39	-2.73	16.27	-0.1906	0.4494	0.0001
256	SLD 5	0.1	8.65	17.09	0.0611	0.112	0
256	SLD 6	0.1	8.65	17.09	0.0611	0.112	0
256	SLD 7	0.13	-7.47	15.71	-0.3655	0.1544	0
256	SLD 8	0.13	-7.47	15.71	-0.3655	0.1544	0
256	SLD 9	-0.13	9.41	17.02	0.0393	-0.1536	0
256	SLD 10	-0.13	9.41	17.02	0.0393	-0.1536	0
256	SLD 11	-0.09	-6.71	15.65	-0.3873	-0.1112	0
256	SLD 12	-0.09	-6.71	15.65	-0.3873	-0.1112	0
256	SLD 13	-0.39	4.67	16.46	-0.1356	-0.4486	-0.0001
256	SLD 14	-0.39	4.67	16.46	-0.1356	-0.4486	-0.0001
256	SLD 15	-0.37	-0.17	16.05	-0.2635	-0.4358	-0.0001
256	SLD 16	-0.37	-0.17	16.05	-0.2635	-0.4358	-0.0001
256	SLV 1	0.96	3.67	17.11	0.0703	1.119	0.0001
256	SLV 2	0.96	3.67	17.11	0.0703	1.119	0.0001
256	SLV 3	0.99	-7.61	16.14	-0.2286	1.1515	0.0002
256	SLV 4	0.99	-7.61	16.14	-0.2286	1.1515	0.0002
256	SLV 5	0.24	18.9	18.06	0.3603	0.2868	0
256	SLV 6	0.24	18.9	18.06	0.3603	0.2868	0
256	SLV 7	0.34	-18.72	14.83	-0.6362	0.3949	0.0001
256	SLV 8	0.34	-18.72	14.83	-0.6362	0.3949	0.0001
256	SLV 9	-0.34	20.66	17.91	0.31	-0.3941	-0.0001
256	SLV 10	-0.34	20.66	17.91	0.31	-0.3941	-0.0001
256	SLV 11	-0.24	-16.96	14.67	-0.6865	-0.286	0
256	SLV 12	-0.24	-16.96	14.67	-0.6865	-0.286	0
256	SLV 13	-0.99	9.55	16.6	-0.0976	-1.1507	-0.0002
256	SLV 14	-0.99	9.55	16.6	-0.0976	-1.1507	-0.0002
256	SLV 15	-0.96	-1.73	15.63	-0.3965	-1.1182	-0.0001
256	SLV 16	-0.96	-1.73	15.63	-0.3965	-1.1182	-0.0001
257	SLU 1	0	3.78	41.91	-0.3467	-0.0026	0
257	SLU 2	0	3.78	41.88	-0.3467	-0.0025	0
257	SLU 3	0	3.55	42.65	-0.3418	-0.0029	0
257	SLU 4	0	3.55	42.62	-0.3418	-0.0029	0
257	SLU 5	0	3.42	41.98	-0.3325	-0.0029	0
257	SLU 6	0	3.19	42.75	-0.3276	-0.0033	0
257	SLU 7	0	3.19	42.73	-0.3276	-0.0032	0
257	SLU 8	0	3.06	42.12	-0.3184	-0.0033	0
257	SLU 9	0	3.06	42.1	-0.3184	-0.0032	0
257	SLU 10	0	4.5	50.03	-0.4116	-0.0029	0
257	SLU 11	0	4.27	50.8	-0.4067	-0.0033	0
257	SLU 12	0	4.27	50.78	-0.4067	-0.0033	0
257	SLU 13	0	4.14	50.14	-0.3974	-0.0033	0
257	SLU 14	0	3.92	50.91	-0.3925	-0.0037	0
257	SLU 15	0	3.92	50.88	-0.3925	-0.0037	0
257	SLU 16	0	3.78	50.28	-0.3833	-0.0037	0





Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
257	SLU 17	0	3.79	50.26	-0.3833	-0.0037	0
257	SLU 18	0	4.81	53.56	-0.4394	-0.0032	0
257	SLU 19	0	4.81	53.54	-0.4394	-0.0031	0
257	SLU 20	0	4.45	53.67	-0.4253	-0.0035	0
257	SLU 21	0	4.45	53.65	-0.4252	-0.0035	0
257	SLU 22	0	4.28	48.95	-0.3995	-0.0031	0
257	SLU 23	0	4.28	48.91	-0.3994	-0.0031	0
257	SLU 24	0	4.05	49.68	-0.3945	-0.0035	0
257	SLU 25	0	4.05	49.66	-0.3945	-0.0034	0
257	SLU 26	0	3.92	49.02	-0.3852	-0.0034	0
257	SLU 27	0	3.7	49.79	-0.3804	-0.0038	0
257	SLU 28	0	3.7	49.77	-0.3803	-0.0038	0
257	SLU 29	0	3.56	49.16	-0.3711	-0.0038	0
257	SLU 30	0	3.57	49.14	-0.3711	-0.0038	0
257	SLU 31	0	5	57.07	-0.4643	-0.0035	0
257	SLU 32	0	4.77	57.84	-0.4594	-0.0039	0
257	SLU 33	0	4.78	57.82	-0.4594	-0.0038	0
257	SLU 34	0	4.65	57.18	-0.4501	-0.0038	0
257	SLU 35	0	4.42	57.94	-0.4453	-0.0042	0
257	SLU 36	0	4.42	57.92	-0.4452	-0.0042	0
257	SLU 37	0	4.29	57.32	-0.436	-0.0042	0
257	SLU 38	0	4.29	57.3	-0.436	-0.0042	0
257	SLU 39	0	5.31	60.6	-0.4922	-0.0037	0
257	SLU 40	0	5.31	60.58	-0.4921	-0.0037	0
257	SLU 41	0	4.95	60.71	-0.478	-0.0041	0
257	SLU 42	0	4.95	60.69	-0.478	-0.004	0
257	SLU 43	0	4.74	52.08	-0.4327	-0.0031	0
257	SLU 44	0	4.74	52.04	-0.4326	-0.0031	0
257	SLU 45	0	4.51	52.81	-0.4277	-0.0035	0
257	SLU 46	0	4.51	52.78	-0.4277	-0.0035	0
257	SLU 47	0	4.38	52.14	-0.4185	-0.0035	0
257	SLU 48	0	4.15	52.91	-0.4136	-0.0038	0
257	SLU 49	0	4.16	52.89	-0.4135	-0.0038	0
257	SLU 50	0	4.02	52.29	-0.4044	-0.0038	0
257	SLU 51	0	4.02	52.26	-0.4043	-0.0038	0
257	SLU 52	0	5.46	60.19	-0.4975	-0.0035	0
257	SLU 53	0	5.23	60.96	-0.4926	-0.0039	0
257	SLU 54	0	5.23	60.94	-0.4926	-0.0039	0
257	SLU 55	0	5.1	60.3	-0.4833	-0.0039	0
257	SLU 56	0	4.88	61.07	-0.4785	-0.0043	0
257	SLU 57	0	4.88	61.04	-0.4784	-0.0042	0
257	SLU 58	0	4.74	60.44	-0.4692	-0.0043	0
257	SLU 59	0	4.75	60.42	-0.4692	-0.0042	0
257	SLU 60	0	5.77	63.73	-0.5254	-0.0037	0
257	SLU 61	0	5.77	63.7	-0.5253	-0.0037	0
257	SLU 62	0	5.41	63.83	-0.5112	-0.0041	0
257	SLU 63	0	5.41	63.81	-0.5112	-0.0041	0
257	SLU 64	0	5.24	59.11	-0.4854	-0.0037	0
257	SLU 65	0	5.24	59.08	-0.4853	-0.0036	0
257	SLU 66	0	5.01	59.84	-0.4805	-0.004	0
257	SLU 67	0	5.01	59.82	-0.4804	-0.004	0
257	SLU 68	0	4.88	59.18	-0.4712	-0.004	0
257	SLU 69	0	4.66	59.95	-0.4663	-0.0044	0
257	SLU 70	0	4.66	59.93	-0.4663	-0.0044	0
257	SLU 71	0	4.52	59.32	-0.4571	-0.0044	0
257	SLU 72	0	4.53	59.3	-0.457	-0.0044	0
257	SLU 73	0	5.96	67.23	-0.5502	-0.0041	0
257	SLU 74	0	5.74	68	-0.5454	-0.0044	0
257	SLU 75	0	5.74	67.98	-0.5453	-0.0044	0
257	SLU 76	0	5.61	67.34	-0.5361	-0.0044	0
257	SLU 77	0	5.38	68.1	-0.5312	-0.0048	0
257	SLU 78	0	5.38	68.08	-0.5312	-0.0048	0
257	SLU 79	0	5.25	67.48	-0.522	-0.0048	0
257	SLU 80	0	5.25	67.46	-0.5219	-0.0048	0
257	SLU 81	0	6.27	70.76	-0.5781	-0.0043	0
257	SLU 82	0	6.27	70.74	-0.5781	-0.0043	0
257	SLU 83	0	5.91	70.87	-0.5639	-0.0046	0
257	SLU 84	0	5.91	70.85	-0.5639	-0.0046	0
257	SLE RA 1	0	3.92	43.93	-0.3618	-0.0027	0
257	SLE RA 2	0	3.92	43.9	-0.3618	-0.0027	0
257	SLE RA 3	0	3.77	44.41	-0.3585	-0.0029	0
257	SLE RA 4	0	3.77	44.4	-0.3585	-0.0029	0
257	SLE RA 5	0	3.68	43.97	-0.3523	-0.0029	0
257	SLE RA 6	0	3.53	44.48	-0.3491	-0.0032	0
257	SLE RA 7	0	3.53	44.47	-0.349	-0.0032	0
257	SLE RA 8	0	3.44	44.07	-0.3429	-0.0032	0
257	SLE RA 9	0	3.44	44.05	-0.3429	-0.0032	0
257	SLE RA 10	0	4.4	49.34	-0.405	-0.003	0
257	SLE RA 11	0	4.25	49.85	-0.4018	-0.0032	0
257	SLE RA 12	0	4.25	49.83	-0.4017	-0.0032	0
257	SLE RA 13	0	4.16	49.41	-0.3956	-0.0032	0
257	SLE RA 14	0	4.01	49.92	-0.3923	-0.0035	0
257	SLE RA 15	0	4.01	49.9	-0.3923	-0.0034	0
257	SLE RA 16	0	3.92	49.5	-0.3862	-0.0035	0
257	SLE RA 17	0	3.93	49.49	-0.3862	-0.0034	0
257	SLE RA 18	0	4.61	51.69	-0.4236	-0.0031	0
257	SLE RA 19	0	4.61	51.68	-0.4236	-0.0031	0
257	SLE RA 20	0	4.37	51.76	-0.4142	-0.0033	0
257	SLE RA 21	0	4.37	51.75	-0.4141	-0.0033	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
257	SLE FR 1	0	3.92	43.93	-0.3618	-0.0027	0
257	SLE FR 2	0	3.92	43.92	-0.3618	-0.0027	0
257	SLE FR 3	0	3.82	43.95	-0.358	-0.0028	0
257	SLE FR 4	0	4.13	46.25	-0.3803	-0.0028	0
257	SLE FR 5	0	4.03	46.28	-0.3766	-0.0029	0
257	SLE FR 6	0	4.26	47.81	-0.3927	-0.0029	0
257	SLE QP 1	0	3.92	43.93	-0.3618	-0.0027	0
257	SLE QP 2	0	4.13	46.26	-0.3803	-0.0028	0
257	SLD 1	0.18	7.85	46.4	-0.5391	0.2791	0.0001
257	SLD 2	0.18	7.85	46.4	-0.5391	0.2791	0.0001
257	SLD 3	0.16	3.07	44.46	-0.3365	0.26	0
257	SLD 4	0.16	3.07	44.46	-0.3365	0.26	0
257	SLD 5	0.08	12.49	49.23	-0.7354	0.1109	0
257	SLD 6	0.08	12.49	49.23	-0.7354	0.1109	0
257	SLD 7	0.02	-3.43	42.78	-0.0598	0.0469	0
257	SLD 8	0.02	-3.43	42.78	-0.0598	0.0469	0
257	SLD 9	-0.03	11.68	49.73	-0.7009	-0.0526	0
257	SLD 10	-0.03	11.68	49.73	-0.7009	-0.0526	0
257	SLD 11	-0.08	-4.23	43.28	-0.0253	-0.1165	0
257	SLD 12	-0.08	-4.23	43.28	-0.0253	-0.1165	0
257	SLD 13	-0.17	5.18	48.05	-0.4242	-0.2656	0
257	SLD 14	-0.17	5.18	48.05	-0.4242	-0.2656	0
257	SLD 15	-0.18	0.4	46.11	-0.2215	-0.2848	0
257	SLD 16	-0.18	0.4	46.11	-0.2215	-0.2848	0
257	SLV 1	0.51	12.67	46.56	-0.7446	0.8586	0.0001
257	SLV 2	0.51	12.67	46.56	-0.7446	0.8586	0.0001
257	SLV 3	0.47	1.67	42.07	-0.2783	0.8053	0.0001
257	SLV 4	0.47	1.67	42.07	-0.2783	0.8053	0.0001
257	SLV 5	0.21	23.36	53.16	-1.1968	0.3365	0
257	SLV 6	0.21	23.36	53.16	-1.1968	0.3365	0
257	SLV 7	0.08	-13.29	38.19	0.3575	0.1587	0
257	SLV 8	0.08	-13.29	38.19	0.3575	0.1587	0
257	SLV 9	-0.08	21.54	54.32	-1.1181	-0.1644	0
257	SLV 10	-0.08	21.54	54.32	-1.1181	-0.1644	0
257	SLV 11	-0.22	-15.11	39.35	0.4361	-0.3422	0
257	SLV 12	-0.22	-15.11	39.35	0.4361	-0.3422	0
257	SLV 13	-0.48	6.58	50.44	-0.4824	-0.811	-0.0001
257	SLV 14	-0.48	6.58	50.44	-0.4824	-0.811	-0.0001
257	SLV 15	-0.52	-4.42	45.95	-0.0161	-0.8643	-0.0001
257	SLV 16	-0.52	-4.42	45.95	-0.0161	-0.8643	-0.0001
258	SLU 1	-0.12	-8.46	24.43	0.3348	-0.0851	0.0004
258	SLU 2	-0.11	-7.52	24.05	0.2948	-0.0754	0.0004
258	SLU 3	-0.12	-8.68	25.02	0.3436	-0.0878	0.0005
258	SLU 4	-0.12	-8.12	24.79	0.3196	-0.082	0.0004
258	SLU 5	-0.11	-7.62	24.45	0.2984	-0.0773	0.0004
258	SLU 6	-0.12	-8.77	25.42	0.3472	-0.0897	0.0005
258	SLU 7	-0.12	-8.21	25.19	0.3232	-0.0839	0.0004
258	SLU 8	-0.12	-8.64	25.23	0.342	-0.0888	0.0005
258	SLU 9	-0.12	-8.08	25	0.318	-0.083	0.0004
258	SLU 10	-0.12	-8.65	26.21	0.3406	-0.0862	0.0005
258	SLU 11	-0.13	-9.8	27.18	0.3894	-0.0986	0.0005
258	SLU 12	-0.13	-9.24	26.95	0.3654	-0.0928	0.0005
258	SLU 13	-0.13	-8.74	26.61	0.3442	-0.088	0.0005
258	SLU 14	-0.14	-9.89	27.58	0.393	-0.1004	0.0005
258	SLU 15	-0.13	-9.33	27.35	0.369	-0.0946	0.0005
258	SLU 16	-0.14	-9.77	27.39	0.3878	-0.0996	0.0005
258	SLU 17	-0.13	-9.2	27.16	0.3638	-0.0938	0.0005
258	SLU 18	-0.14	-10.06	27.52	0.4002	-0.1005	0.0005
258	SLU 19	-0.13	-9.5	27.29	0.3762	-0.0947	0.0005
258	SLU 20	-0.14	-10.16	27.91	0.4038	-0.1023	0.0005
258	SLU 21	-0.13	-9.59	27.69	0.3798	-0.0965	0.0005
258	SLU 22	-0.13	-9.56	26.64	0.3795	-0.0959	0.0005
258	SLU 23	-0.12	-8.62	26.26	0.3395	-0.0862	0.0005
258	SLU 24	-0.13	-9.78	27.23	0.3884	-0.0986	0.0005
258	SLU 25	-0.13	-9.22	27	0.3644	-0.0928	0.0005
258	SLU 26	-0.13	-8.72	26.66	0.3432	-0.0881	0.0005
258	SLU 27	-0.14	-9.87	27.63	0.392	-0.1004	0.0005
258	SLU 28	-0.13	-9.31	27.4	0.368	-0.0946	0.0005
258	SLU 29	-0.14	-9.74	27.44	0.3868	-0.0996	0.0005
258	SLU 30	-0.13	-9.18	27.21	0.3628	-0.0938	0.0005
258	SLU 31	-0.14	-9.75	28.42	0.3853	-0.097	0.0005
258	SLU 32	-0.15	-10.9	29.39	0.4341	-0.1093	0.0006
258	SLU 33	-0.14	-10.34	29.16	0.4101	-0.1035	0.0005
258	SLU 34	-0.14	-9.84	28.82	0.3889	-0.0988	0.0005
258	SLU 35	-0.15	-10.99	29.79	0.4378	-0.1112	0.0006
258	SLU 36	-0.15	-10.43	29.56	0.4138	-0.1054	0.0006
258	SLU 37	-0.15	-10.87	29.6	0.4326	-0.1104	0.0006
258	SLU 38	-0.15	-10.3	29.37	0.4086	-0.1045	0.0006
258	SLU 39	-0.15	-11.16	29.73	0.4449	-0.1113	0.0006
258	SLU 40	-0.15	-10.6	29.5	0.4209	-0.1054	0.0006
258	SLU 41	-0.15	-11.26	30.13	0.4485	-0.1131	0.0006
258	SLU 42	-0.15	-10.69	29.9	0.4245	-0.1073	0.0006
258	SLU 43	-0.15	-10.62	31	0.4199	-0.107	0.0005
258	SLU 44	-0.14	-9.69	30.62	0.3799	-0.0973	0.0005
258	SLU 45	-0.15	-10.84	31.59	0.4287	-0.1097	0.0006
258	SLU 46	-0.15	-10.28	31.36	0.4047	-0.1038	0.0006
258	SLU 47	-0.14	-9.78	31.02	0.3835	-0.0991	0.0005
258	SLU 48	-0.15	-10.93	31.99	0.4323	-0.1115	0.0006
258	SLU 49	-0.15	-10.37	31.76	0.4083	-0.1057	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
258	SLU 50	-0.15	-10.8	31.8	0.4271	-0.1107	0.0006
258	SLU 51	-0.15	-10.24	31.57	0.4031	-0.1049	0.0006
258	SLU 52	-0.15	-10.81	32.78	0.4256	-0.108	0.0006
258	SLU 53	-0.16	-11.96	33.75	0.4745	-0.1204	0.0006
258	SLU 54	-0.16	-11.4	33.52	0.4505	-0.1146	0.0006
258	SLU 55	-0.16	-10.9	33.18	0.4293	-0.1099	0.0006
258	SLU 56	-0.17	-12.05	34.15	0.4781	-0.1223	0.0006
258	SLU 57	-0.16	-11.49	33.92	0.4541	-0.1165	0.0006
258	SLU 58	-0.16	-11.93	33.96	0.4729	-0.1214	0.0006
258	SLU 59	-0.16	-11.37	33.73	0.4489	-0.1156	0.0006
258	SLU 60	-0.17	-12.23	34.09	0.4852	-0.1223	0.0006
258	SLU 61	-0.16	-11.66	33.86	0.4613	-0.1165	0.0006
258	SLU 62	-0.17	-12.32	34.48	0.4889	-0.1242	0.0006
258	SLU 63	-0.16	-11.76	34.26	0.4649	-0.1184	0.0006
258	SLU 64	-0.16	-11.72	33.21	0.4646	-0.1177	0.0006
258	SLU 65	-0.15	-10.79	32.83	0.4246	-0.1081	0.0006
258	SLU 66	-0.16	-11.94	33.8	0.4734	-0.1204	0.0006
258	SLU 67	-0.16	-11.38	33.57	0.4494	-0.1146	0.0006
258	SLU 68	-0.16	-10.88	33.23	0.4282	-0.1099	0.0006
258	SLU 69	-0.17	-12.03	34.2	0.4771	-0.1223	0.0006
258	SLU 70	-0.16	-11.47	33.97	0.4531	-0.1165	0.0006
258	SLU 71	-0.16	-11.9	34.01	0.4719	-0.1215	0.0006
258	SLU 72	-0.16	-11.34	33.78	0.4479	-0.1156	0.0006
258	SLU 73	-0.17	-11.91	34.99	0.4704	-0.1188	0.0006
258	SLU 74	-0.18	-13.06	35.96	0.5192	-0.1312	0.0007
258	SLU 75	-0.17	-12.5	35.73	0.4952	-0.1254	0.0007
258	SLU 76	-0.17	-12	35.39	0.474	-0.1207	0.0006
258	SLU 77	-0.18	-13.15	36.36	0.5228	-0.133	0.0007
258	SLU 78	-0.18	-12.59	36.13	0.4989	-0.1272	0.0007
258	SLU 79	-0.18	-13.03	36.17	0.5176	-0.1322	0.0007
258	SLU 80	-0.18	-12.47	35.94	0.4936	-0.1264	0.0007
258	SLU 81	-0.18	-13.33	36.3	0.53	-0.1331	0.0007
258	SLU 82	-0.18	-12.76	36.07	0.506	-0.1273	0.0007
258	SLU 83	-0.18	-13.42	36.7	0.5336	-0.135	0.0007
258	SLU 84	-0.18	-12.86	36.47	0.5096	-0.1291	0.0007
258	SLE RA 1	-0.12	-8.78	25.06	0.3476	-0.0882	0.0005
258	SLE RA 2	-0.12	-8.15	24.81	0.3209	-0.0817	0.0004
258	SLE RA 3	-0.12	-8.92	25.45	0.3534	-0.09	0.0005
258	SLE RA 4	-0.12	-8.55	25.3	0.3374	-0.0861	0.0005
258	SLE RA 5	-0.12	-8.21	25.07	0.3233	-0.083	0.0004
258	SLE RA 6	-0.12	-8.98	25.72	0.3559	-0.0912	0.0005
258	SLE RA 7	-0.12	-8.61	25.57	0.3399	-0.0874	0.0005
258	SLE RA 8	-0.12	-8.9	25.59	0.3524	-0.0907	0.0005
258	SLE RA 9	-0.12	-8.52	25.44	0.3364	-0.0868	0.0005
258	SLE RA 10	-0.12	-8.9	26.25	0.3514	-0.0889	0.0005
258	SLE RA 11	-0.13	-9.67	26.89	0.384	-0.0972	0.0005
258	SLE RA 12	-0.13	-9.3	26.74	0.368	-0.0933	0.0005
258	SLE RA 13	-0.13	-8.96	26.51	0.3538	-0.0901	0.0005
258	SLE RA 14	-0.13	-9.73	27.16	0.3864	-0.0984	0.0005
258	SLE RA 15	-0.13	-9.36	27.01	0.3704	-0.0945	0.0005
258	SLE RA 16	-0.13	-9.65	27.03	0.3829	-0.0978	0.0005
258	SLE RA 17	-0.13	-9.27	26.88	0.3669	-0.094	0.0005
258	SLE RA 18	-0.13	-9.84	27.12	0.3911	-0.0984	0.0005
258	SLE RA 19	-0.13	-9.47	26.97	0.3752	-0.0946	0.0005
258	SLE RA 20	-0.13	-9.91	27.38	0.3936	-0.0997	0.0005
258	SLE RA 21	-0.13	-9.53	27.23	0.3776	-0.0958	0.0005
258	SLE FR 1	-0.12	-8.78	25.06	0.3476	-0.0882	0.0005
258	SLE FR 2	-0.12	-8.65	25.01	0.3422	-0.0869	0.0004
258	SLE FR 3	-0.12	-8.8	25.17	0.3485	-0.0887	0.0005
258	SLE FR 4	-0.12	-8.97	25.63	0.3553	-0.09	0.0005
258	SLE FR 5	-0.12	-9.12	25.79	0.3616	-0.0918	0.0005
258	SLE FR 6	-0.13	-9.31	26.09	0.3693	-0.0933	0.0005
258	SLE QP 1	-0.12	-8.78	25.06	0.3476	-0.0882	0.0005
258	SLE QP 2	-0.12	-9.1	25.68	0.3606	-0.0913	0.0005
258	SLD 1	0.07	-8.15	31.57	0.3157	0.1028	0.0008
258	SLD 2	0.07	-8.15	31.57	0.3157	0.1028	0.0008
258	SLD 3	-0.03	-15.3	33.04	0.6272	0.0225	0.0011
258	SLD 4	-0.03	-15.3	33.04	0.6272	0.0225	0.0011
258	SLD 5	0.07	2.02	25.21	-0.1254	0.0888	0
258	SLD 6	0.07	2.02	25.21	-0.1254	0.0888	0
258	SLD 7	-0.23	-21.79	30.13	0.9131	-0.179	0.0012
258	SLD 8	-0.23	-21.79	30.13	0.9131	-0.179	0.0012
258	SLD 9	-0.01	3.6	21.23	-0.1919	-0.0036	-0.0003
258	SLD 10	-0.01	3.6	21.23	-0.1919	-0.0036	-0.0003
258	SLD 11	-0.32	-20.21	26.15	0.8466	-0.2713	0.0009
258	SLD 12	-0.32	-20.21	26.15	0.8466	-0.2713	0.0009
258	SLD 13	-0.22	-2.9	18.32	0.094	-0.2051	-0.0002
258	SLD 14	-0.22	-2.9	18.32	0.094	-0.2051	-0.0002
258	SLD 15	-0.31	-10.04	19.79	0.4056	-0.2854	0.0002
258	SLD 16	-0.31	-10.04	19.79	0.4056	-0.2854	0.0002
258	SLV 1	0.33	-6.9	39.09	0.2557	0.3807	0.0012
258	SLV 2	0.33	-6.9	39.09	0.2557	0.3807	0.0012
258	SLV 3	0.11	-23.41	42.61	0.976	0.1805	0.0021
258	SLV 4	0.11	-23.41	42.61	0.976	0.1805	0.0021
258	SLV 5	0.36	16.6	24.35	-0.7633	0.354	-0.0007
258	SLV 6	0.36	16.6	24.35	-0.7633	0.354	-0.0007
258	SLV 7	-0.4	-38.42	36.11	1.6377	-0.3135	0.0023
258	SLV 8	-0.4	-38.42	36.11	1.6377	-0.3135	0.0023
258	SLV 9	0.15	20.23	15.25	-0.9164	0.1309	-0.0014



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
258	SLV 10	0.15	20.23	15.25	-0.9164	0.1309	-0.0014
258	SLV 11	-0.61	-34.79	27.01	1.4845	-0.5366	0.0017
258	SLV 12	-0.61	-34.79	27.01	1.4845	-0.5366	0.0017
258	SLV 13	-0.35	5.21	8.75	-0.2547	-0.363	-0.0011
258	SLV 14	-0.35	5.21	8.75	-0.2547	-0.363	-0.0011
258	SLV 15	-0.58	-11.29	12.27	0.4656	-0.5633	-0.0002
258	SLV 16	-0.58	-11.29	12.27	0.4656	-0.5633	-0.0002
259	SLU 1	0.02	-5.64	54.21	0.2384	0.0173	0
259	SLU 2	0.02	-5	51.72	0.2088	0.0083	0
259	SLU 3	0.02	-5.82	55.28	0.2454	0.0183	0
259	SLU 4	0.02	-5.43	53.78	0.2276	0.0129	0
259	SLU 5	0.02	-5.08	52.1	0.2119	0.0092	0
259	SLU 6	0.02	-5.9	55.66	0.2485	0.0193	0
259	SLU 7	0.02	-5.52	54.17	0.2307	0.0139	0
259	SLU 8	0.02	-5.81	54.98	0.2446	0.0192	0
259	SLU 9	0.02	-5.42	53.48	0.2269	0.0138	0
259	SLU 10	0.02	-5.73	57.97	0.2399	0.0109	0
259	SLU 11	0.02	-6.55	61.53	0.2765	0.021	0
259	SLU 12	0.02	-6.16	60.04	0.2587	0.0156	0
259	SLU 13	0.02	-5.81	58.36	0.243	0.0119	0
259	SLU 14	0.02	-6.63	61.92	0.2796	0.0219	0
259	SLU 15	0.02	-6.25	60.42	0.2618	0.0165	0
259	SLU 16	0.02	-6.54	61.24	0.2757	0.0218	0
259	SLU 17	0.02	-6.15	59.74	0.258	0.0164	0
259	SLU 18	0.02	-6.68	63.15	0.2828	0.021	0
259	SLU 19	0.02	-6.3	61.65	0.2651	0.0156	0
259	SLU 20	0.02	-6.77	63.53	0.2859	0.022	0
259	SLU 21	0.02	-6.38	62.04	0.2682	0.0166	0
259	SLU 22	0.02	-6.38	60.18	0.2695	0.0202	0
259	SLU 23	0.02	-5.74	57.68	0.2399	0.0111	0
259	SLU 24	0.02	-6.55	61.24	0.2764	0.0212	0
259	SLU 25	0.02	-6.17	59.75	0.2587	0.0158	0
259	SLU 26	0.02	-5.82	58.07	0.243	0.0121	0
259	SLU 27	0.02	-6.64	61.63	0.2795	0.0222	0
259	SLU 28	0.02	-6.25	60.13	0.2618	0.0168	0
259	SLU 29	0.02	-6.55	60.94	0.2757	0.0221	0
259	SLU 30	0.02	-6.16	59.45	0.2579	0.0167	0
259	SLU 31	0.02	-6.47	63.94	0.271	0.0138	0
259	SLU 32	0.03	-7.28	67.5	0.3075	0.0239	0
259	SLU 33	0.02	-6.9	66	0.2898	0.0184	0
259	SLU 34	0.02	-6.55	64.32	0.2741	0.0147	0
259	SLU 35	0.03	-7.37	67.89	0.3106	0.0248	0
259	SLU 36	0.03	-6.98	66.39	0.2929	0.0194	0
259	SLU 37	0.03	-7.28	67.2	0.3068	0.0247	0
259	SLU 38	0.03	-6.89	65.71	0.289	0.0193	0
259	SLU 39	0.03	-7.42	69.12	0.3139	0.0239	0
259	SLU 40	0.02	-7.04	67.62	0.2962	0.0185	0
259	SLU 41	0.03	-7.51	69.5	0.317	0.0249	0
259	SLU 42	0.03	-7.12	68	0.2992	0.0195	0
259	SLU 43	0.02	-7.08	68.43	0.2993	0.0215	0
259	SLU 44	0.02	-6.44	65.93	0.2697	0.0125	0
259	SLU 45	0.02	-7.26	69.5	0.3063	0.0225	0
259	SLU 46	0.02	-6.87	68	0.2885	0.0171	0
259	SLU 47	0.02	-6.52	66.32	0.2728	0.0134	0
259	SLU 48	0.03	-7.34	69.88	0.3093	0.0235	0
259	SLU 49	0.02	-6.96	68.38	0.2916	0.0181	0
259	SLU 50	0.03	-7.25	69.2	0.3055	0.0234	0
259	SLU 51	0.02	-6.86	67.7	0.2877	0.018	0
259	SLU 52	0.02	-7.17	72.19	0.3008	0.0151	0
259	SLU 53	0.03	-7.99	75.75	0.3374	0.0252	0
259	SLU 54	0.03	-7.6	74.26	0.3196	0.0198	0
259	SLU 55	0.02	-7.25	72.58	0.3039	0.0161	0
259	SLU 56	0.03	-8.07	76.14	0.3404	0.0261	0
259	SLU 57	0.03	-7.69	74.64	0.3227	0.0207	0
259	SLU 58	0.03	-7.98	75.45	0.3366	0.026	0
259	SLU 59	0.03	-7.59	73.96	0.3188	0.0206	0
259	SLU 60	0.03	-8.12	77.37	0.3437	0.0252	0
259	SLU 61	0.03	-7.74	75.87	0.326	0.0198	0
259	SLU 62	0.03	-8.21	77.75	0.3468	0.0262	0
259	SLU 63	0.03	-7.82	76.25	0.3291	0.0208	0
259	SLU 64	0.03	-7.82	74.39	0.3304	0.0244	0
259	SLU 65	0.02	-7.18	71.9	0.3008	0.0153	0
259	SLU 66	0.03	-7.99	75.46	0.3373	0.0254	0
259	SLU 67	0.03	-7.61	73.97	0.3196	0.02	0
259	SLU 68	0.02	-7.26	72.28	0.3039	0.0163	0
259	SLU 69	0.03	-8.08	75.85	0.3404	0.0264	0
259	SLU 70	0.03	-7.69	74.35	0.3227	0.021	0
259	SLU 71	0.03	-7.99	75.16	0.3365	0.0263	0
259	SLU 72	0.03	-7.6	73.67	0.3188	0.0209	0
259	SLU 73	0.03	-7.91	78.16	0.3319	0.018	0
259	SLU 74	0.03	-8.72	81.72	0.3684	0.0281	0
259	SLU 75	0.03	-8.34	80.22	0.3507	0.0226	0
259	SLU 76	0.03	-7.99	78.54	0.335	0.0189	0
259	SLU 77	0.03	-8.81	82.1	0.3715	0.029	0
259	SLU 78	0.03	-8.42	80.61	0.3538	0.0236	0
259	SLU 79	0.03	-8.72	81.42	0.3676	0.0289	0
259	SLU 80	0.03	-8.33	79.92	0.3499	0.0235	0
259	SLU 81	0.03	-8.86	83.33	0.3748	0.0281	0
259	SLU 82	0.03	-8.48	81.84	0.357	0.0227	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
259	SLU 83	0.03	-8.94	83.72	0.3779	0.0291	0
259	SLU 84	0.03	-8.56	82.22	0.3601	0.0237	0
259	SLE RA 1	0.02	-5.85	55.92	0.2473	0.0181	0
259	SLE RA 2	0.02	-5.42	54.25	0.2276	0.0121	0
259	SLE RA 3	0.02	-5.97	56.63	0.2519	0.0188	0
259	SLE RA 4	0.02	-5.71	55.63	0.2401	0.0152	0
259	SLE RA 5	0.02	-5.48	54.51	0.2296	0.0127	0
259	SLE RA 6	0.02	-6.02	56.88	0.254	0.0194	0
259	SLE RA 7	0.02	-5.77	55.89	0.2422	0.0158	0
259	SLE RA 8	0.02	-5.96	56.43	0.2514	0.0194	0
259	SLE RA 9	0.02	-5.71	55.43	0.2396	0.0158	0
259	SLE RA 10	0.02	-5.91	58.42	0.2483	0.0139	0
259	SLE RA 11	0.02	-6.46	60.8	0.2727	0.0206	0
259	SLE RA 12	0.02	-6.2	59.8	0.2608	0.017	0
259	SLE RA 13	0.02	-5.97	58.68	0.2504	0.0145	0
259	SLE RA 14	0.02	-6.51	61.05	0.2747	0.0212	0
259	SLE RA 15	0.02	-6.25	60.06	0.2629	0.0176	0
259	SLE RA 16	0.02	-6.45	60.6	0.2721	0.0211	0
259	SLE RA 17	0.02	-6.19	59.6	0.2603	0.0175	0
259	SLE RA 18	0.02	-6.55	61.87	0.2769	0.0206	0
259	SLE RA 19	0.02	-6.29	60.88	0.2651	0.017	0
259	SLE RA 20	0.02	-6.6	62.13	0.279	0.0212	0
259	SLE RA 21	0.02	-6.35	61.13	0.2671	0.0176	0
259	SLE FR 1	0.02	-5.85	55.92	0.2473	0.0181	0
259	SLE FR 2	0.02	-5.77	55.58	0.2433	0.0169	0
259	SLE FR 3	0.02	-5.87	56.02	0.2481	0.0184	0
259	SLE FR 4	0.02	-5.98	57.37	0.2522	0.0177	0
259	SLE FR 5	0.02	-6.08	57.81	0.257	0.0191	0
259	SLE FR 6	0.02	-6.2	58.9	0.2621	0.0194	0
259	SLE QP 1	0.02	-5.85	55.92	0.2473	0.0181	0
259	SLE QP 2	0.02	-6.06	57.7	0.2562	0.0189	0
259	SLD 1	0.14	-1.8	40.53	0.0785	0.1594	0.0001
259	SLD 2	0.14	-1.8	40.53	0.0785	0.1594	0.0001
259	SLD 3	0.25	-7.07	48.21	0.3017	0.2531	0.0001
259	SLD 4	0.25	-7.07	48.21	0.3017	0.2531	0.0001
259	SLD 5	-0.1	3.21	40.91	-0.1356	-0.0812	0.0001
259	SLD 6	-0.1	3.21	40.91	-0.1356	-0.0812	0.0001
259	SLD 7	0.24	-14.36	66.5	0.6083	0.2313	-0.0001
259	SLD 8	0.24	-14.36	66.5	0.6083	0.2313	-0.0001
259	SLD 9	-0.2	2.24	48.91	-0.096	-0.1936	0
259	SLD 10	-0.2	2.24	48.91	-0.096	-0.1936	0
259	SLD 11	0.14	-15.34	74.5	0.648	0.1189	-0.0001
259	SLD 12	0.14	-15.34	74.5	0.648	0.1189	-0.0001
259	SLD 13	-0.2	-5.05	67.2	0.2107	-0.2154	-0.0001
259	SLD 14	-0.2	-5.05	67.2	0.2107	-0.2154	-0.0001
259	SLD 15	-0.1	-10.32	74.87	0.4339	-0.1216	-0.0001
259	SLD 16	-0.1	-10.32	74.87	0.4339	-0.1216	-0.0001
259	SLV 1	0.31	3.74	18.31	-0.152	0.3505	0.0003
259	SLV 2	0.31	3.74	18.31	-0.152	0.3505	0.0003
259	SLV 3	0.56	-8.4	36.08	0.3614	0.5872	0.0002
259	SLV 4	0.56	-8.4	36.08	0.3614	0.5872	0.0002
259	SLV 5	-0.28	15.3	18.93	-0.6449	-0.2407	0.0003
259	SLV 6	-0.28	15.3	18.93	-0.6449	-0.2407	0.0003
259	SLV 7	0.57	-25.18	78.17	1.0664	0.5484	-0.0001
259	SLV 8	0.57	-25.18	78.17	1.0664	0.5484	-0.0001
259	SLV 9	-0.53	13.06	37.23	-0.554	-0.5107	0.0001
259	SLV 10	-0.53	13.06	37.23	-0.554	-0.5107	0.0001
259	SLV 11	0.32	-27.42	96.48	1.1573	0.2784	-0.0003
259	SLV 12	0.32	-27.42	96.48	1.1573	0.2784	-0.0003
259	SLV 13	-0.52	-3.72	79.32	0.151	-0.5495	-0.0002
259	SLV 14	-0.52	-3.72	79.32	0.151	-0.5495	-0.0002
259	SLV 15	-0.27	-15.86	97.1	0.6644	-0.3128	-0.0003
259	SLV 16	-0.27	-15.86	97.1	0.6644	-0.3128	-0.0003
260	SLU 1	0	1.62	52.46	-0.0267	0.0026	0
260	SLU 2	0	1.73	51.96	-0.0299	0.0028	0
260	SLU 3	0.01	1.44	55.33	-0.0196	0.0028	0
260	SLU 4	0.01	1.51	55.03	-0.0216	0.0029	0
260	SLU 5	0.01	1.51	54.37	-0.0217	0.003	0
260	SLU 6	0.01	1.22	57.74	-0.0114	0.003	0
260	SLU 7	0.01	1.28	57.44	-0.0133	0.0031	0
260	SLU 8	0.01	1.18	57.27	-0.0103	0.0029	0
260	SLU 9	0.01	1.24	56.97	-0.0122	0.0031	0
260	SLU 10	0.01	1.88	61.01	-0.0301	0.0033	0
260	SLU 11	0.01	1.6	64.38	-0.0198	0.0032	0
260	SLU 12	0.01	1.66	64.08	-0.0217	0.0034	0
260	SLU 13	0.01	1.66	63.42	-0.0219	0.0034	0
260	SLU 14	0.01	1.37	66.79	-0.0116	0.0034	0
260	SLU 15	0.01	1.44	66.49	-0.0135	0.0035	0
260	SLU 16	0.01	1.33	66.32	-0.0105	0.0034	0
260	SLU 17	0.01	1.39	66.02	-0.0124	0.0035	0
260	SLU 18	0.01	1.84	65.39	-0.027	0.0032	0
260	SLU 19	0.01	1.9	65.09	-0.0289	0.0034	0
260	SLU 20	0.01	1.62	67.79	-0.0188	0.0034	0
260	SLU 21	0.01	1.68	67.49	-0.0207	0.0035	0
260	SLU 22	0.01	1.67	61.55	-0.0238	0.0031	0
260	SLU 23	0.01	1.78	61.05	-0.027	0.0033	0
260	SLU 24	0.01	1.49	64.42	-0.0167	0.0033	0
260	SLU 25	0.01	1.55	64.12	-0.0186	0.0034	0
260	SLU 26	0.01	1.55	63.46	-0.0187	0.0034	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
260	SLU 27	0.01	1.27	66.83	-0.0085	0.0034	0
260	SLU 28	0.01	1.33	66.53	-0.0104	0.0035	0
260	SLU 29	0.01	1.22	66.36	-0.0073	0.0034	0
260	SLU 30	0.01	1.29	66.06	-0.0093	0.0035	0
260	SLU 31	0.01	1.93	70.1	-0.0271	0.0037	0
260	SLU 32	0.01	1.64	73.47	-0.0168	0.0037	0
260	SLU 33	0.01	1.7	73.17	-0.0188	0.0038	0
260	SLU 34	0.01	1.7	72.51	-0.0189	0.0039	0
260	SLU 35	0.01	1.42	75.88	-0.0086	0.0039	0
260	SLU 36	0.01	1.48	75.58	-0.0106	0.004	0
260	SLU 37	0.01	1.37	75.41	-0.0075	0.0038	0
260	SLU 38	0.01	1.44	75.11	-0.0095	0.004	0
260	SLU 39	0.01	1.88	74.48	-0.024	0.0037	0
260	SLU 40	0.01	1.95	74.18	-0.0259	0.0038	0
260	SLU 41	0.01	1.66	76.88	-0.0158	0.0039	0
260	SLU 42	0.01	1.72	76.58	-0.0177	0.004	0
260	SLU 43	0.01	2.1	65.08	-0.0358	0.0032	0
260	SLU 44	0.01	2.2	64.58	-0.039	0.0034	0
260	SLU 45	0.01	1.92	67.96	-0.0287	0.0034	0
260	SLU 46	0.01	1.98	67.66	-0.0306	0.0035	0
260	SLU 47	0.01	1.98	66.99	-0.0308	0.0036	0
260	SLU 48	0.01	1.69	70.36	-0.0205	0.0036	0
260	SLU 49	0.01	1.76	70.06	-0.0224	0.0037	0
260	SLU 50	0.01	1.65	69.9	-0.0194	0.0036	0
260	SLU 51	0.01	1.71	69.6	-0.0213	0.0037	0
260	SLU 52	0.01	2.35	73.63	-0.0391	0.0039	0
260	SLU 53	0.01	2.07	77	-0.0289	0.0039	0
260	SLU 54	0.01	2.13	76.7	-0.0308	0.004	0
260	SLU 55	0.01	2.13	76.04	-0.0309	0.004	0
260	SLU 56	0.01	1.84	79.41	-0.0207	0.004	0
260	SLU 57	0.01	1.91	79.11	-0.0226	0.0041	0
260	SLU 58	0.01	1.8	78.94	-0.0195	0.004	0
260	SLU 59	0.01	1.86	78.64	-0.0215	0.0041	0
260	SLU 60	0.01	2.31	78.01	-0.036	0.0039	0
260	SLU 61	0.01	2.38	77.71	-0.0379	0.004	0
260	SLU 62	0.01	2.09	80.41	-0.0278	0.004	0
260	SLU 63	0.01	2.15	80.11	-0.0297	0.0041	0
260	SLU 64	0.01	2.14	74.17	-0.0328	0.0037	0
260	SLU 65	0.01	2.25	73.67	-0.036	0.0039	0
260	SLU 66	0.01	1.96	77.05	-0.0257	0.0039	0
260	SLU 67	0.01	2.03	76.75	-0.0276	0.004	0
260	SLU 68	0.01	2.02	76.08	-0.0278	0.0041	0
260	SLU 69	0.01	1.74	79.45	-0.0175	0.004	0
260	SLU 70	0.01	1.8	79.15	-0.0194	0.0042	0
260	SLU 71	0.01	1.69	78.99	-0.0164	0.004	0
260	SLU 72	0.01	1.76	78.69	-0.0183	0.0042	0
260	SLU 73	0.01	2.4	82.72	-0.0362	0.0043	0
260	SLU 74	0.01	2.11	86.09	-0.0259	0.0043	0
260	SLU 75	0.01	2.18	85.79	-0.0278	0.0044	0
260	SLU 76	0.01	2.17	85.13	-0.028	0.0045	0
260	SLU 77	0.01	1.89	88.5	-0.0177	0.0045	0
260	SLU 78	0.01	1.95	88.2	-0.0196	0.0046	0
260	SLU 79	0.01	1.84	88.03	-0.0166	0.0045	0
260	SLU 80	0.01	1.91	87.73	-0.0185	0.0046	0
260	SLU 81	0.01	2.36	87.1	-0.0331	0.0043	0
260	SLU 82	0.01	2.42	86.8	-0.035	0.0044	0
260	SLU 83	0.01	2.13	89.5	-0.0249	0.0045	0
260	SLU 84	0.01	2.2	89.2	-0.0268	0.0046	0
260	SLE RA 1	0.01	1.64	55.06	-0.0259	0.0027	0
260	SLE RA 2	0.01	1.71	54.72	-0.028	0.0029	0
260	SLE RA 3	0.01	1.52	56.97	-0.0211	0.0029	0
260	SLE RA 4	0.01	1.56	56.77	-0.0224	0.0029	0
260	SLE RA 5	0.01	1.56	56.33	-0.0225	0.003	0
260	SLE RA 6	0.01	1.37	58.58	-0.0157	0.003	0
260	SLE RA 7	0.01	1.41	58.38	-0.017	0.0031	0
260	SLE RA 8	0.01	1.34	58.27	-0.0149	0.003	0
260	SLE RA 9	0.01	1.38	58.07	-0.0162	0.0031	0
260	SLE RA 10	0.01	1.81	60.76	-0.0281	0.0032	0
260	SLE RA 11	0.01	1.62	63	-0.0213	0.0032	0
260	SLE RA 12	0.01	1.66	62.8	-0.0225	0.0032	0
260	SLE RA 13	0.01	1.66	62.36	-0.0227	0.0033	0
260	SLE RA 14	0.01	1.47	64.61	-0.0158	0.0033	0
260	SLE RA 15	0.01	1.51	64.41	-0.0171	0.0033	0
260	SLE RA 16	0.01	1.44	64.3	-0.0151	0.0033	0
260	SLE RA 17	0.01	1.48	64.1	-0.0163	0.0033	0
260	SLE RA 18	0.01	1.78	63.67	-0.0261	0.0032	0
260	SLE RA 19	0.01	1.82	63.47	-0.0273	0.0032	0
260	SLE RA 20	0.01	1.63	65.28	-0.0206	0.0033	0
260	SLE RA 21	0.01	1.67	65.08	-0.0219	0.0034	0
260	SLE FR 1	0.01	1.64	55.06	-0.0259	0.0027	0
260	SLE FR 2	0.01	1.65	54.99	-0.0263	0.0028	0
260	SLE FR 3	0.01	1.58	55.7	-0.0237	0.0028	0
260	SLE FR 4	0.01	1.69	57.58	-0.0264	0.0029	0
260	SLE FR 5	0.01	1.62	58.28	-0.0237	0.0029	0
260	SLE FR 6	0.01	1.71	59.37	-0.026	0.0029	0
260	SLE QP 1	0.01	1.64	55.06	-0.0259	0.0027	0
260	SLE QP 2	0.01	1.68	57.64	-0.0259	0.0029	0
260	SLD 1	0.17	7.13	58.15	-0.1926	0.1973	0.0001
260	SLD 2	0.17	7.13	58.15	-0.1926	0.1973	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
260	SLD 3	0.13	1.42	61.36	-0.0153	0.1602	0
260	SLD 4	0.13	1.42	61.36	-0.0153	0.1602	0
260	SLD 5	0.1	11.97	52.94	-0.3448	0.1174	0
260	SLD 6	0.1	11.97	52.94	-0.3448	0.1174	0
260	SLD 7	0	-7.05	63.62	0.2461	-0.0062	0
260	SLD 8	0	-7.05	63.62	0.2461	-0.0062	0
260	SLD 9	0.01	10.41	51.67	-0.298	0.0119	0
260	SLD 10	0.01	10.41	51.67	-0.298	0.0119	0
260	SLD 11	-0.09	-8.61	62.35	0.2929	-0.1117	0
260	SLD 12	-0.09	-8.61	62.35	0.2929	-0.1117	0
260	SLD 13	-0.12	1.94	53.93	-0.0366	-0.1544	-0.0001
260	SLD 14	-0.12	1.94	53.93	-0.0366	-0.1544	-0.0001
260	SLD 15	-0.15	-3.77	57.13	0.1407	-0.1915	-0.0001
260	SLD 16	-0.15	-3.77	57.13	0.1407	-0.1915	-0.0001
260	SLV 1	0.41	14.26	58.78	-0.4107	0.4996	0.0001
260	SLV 2	0.41	14.26	58.78	-0.4107	0.4996	0.0001
260	SLV 3	0.33	1.17	66.3	-0.0038	0.4046	0.0001
260	SLV 4	0.33	1.17	66.3	-0.0038	0.4046	0.0001
260	SLV 5	0.25	25.32	46.58	-0.7584	0.296	0.0001
260	SLV 6	0.25	25.32	46.58	-0.7584	0.296	0.0001
260	SLV 7	-0.02	-18.34	71.64	0.5977	-0.0208	0
260	SLV 8	-0.02	-18.34	71.64	0.5977	-0.0208	0
260	SLV 9	0.03	21.7	43.65	-0.6496	0.0265	0
260	SLV 10	0.03	21.7	43.65	-0.6496	0.0265	0
260	SLV 11	-0.24	-21.96	68.7	0.7065	-0.2903	-0.0001
260	SLV 12	-0.24	-21.96	68.7	0.7065	-0.2903	-0.0001
260	SLV 13	-0.32	2.19	48.99	-0.048	-0.3988	-0.0001
260	SLV 14	-0.32	2.19	48.99	-0.048	-0.3988	-0.0001
260	SLV 15	-0.4	-10.9	56.51	0.3588	-0.4939	-0.0002
260	SLV 16	-0.4	-10.9	56.51	0.3588	-0.4939	-0.0002
261	SLU 1	-0.01	-4.43	48.24	0.2244	-0.0038	0
261	SLU 2	-0.01	-4.35	47.98	0.2212	-0.004	0
261	SLU 3	-0.01	-4.53	49.76	0.2285	-0.0038	0
261	SLU 4	-0.01	-4.49	49.6	0.2265	-0.0039	0
261	SLU 5	-0.01	-4.35	48.8	0.2192	-0.0039	0
261	SLU 6	-0.01	-4.52	50.58	0.2265	-0.0037	0
261	SLU 7	-0.01	-4.48	50.43	0.2245	-0.0038	0
261	SLU 8	-0.01	-4.42	49.89	0.2204	-0.0036	0
261	SLU 9	-0.01	-4.37	49.73	0.2185	-0.0037	0
261	SLU 10	-0.01	-5.34	56.46	0.2696	-0.0048	0
261	SLU 11	-0.01	-5.51	58.24	0.2769	-0.0046	0
261	SLU 12	-0.01	-5.47	58.08	0.275	-0.0047	0
261	SLU 13	-0.01	-5.33	57.28	0.2676	-0.0046	0
261	SLU 14	-0.01	-5.51	59.06	0.2749	-0.0045	0
261	SLU 15	-0.01	-5.46	58.9	0.273	-0.0046	0
261	SLU 16	-0.01	-5.4	58.36	0.2689	-0.0044	0
261	SLU 17	-0.01	-5.35	58.21	0.2669	-0.0045	0
261	SLU 18	-0.01	-5.83	60.35	0.2936	-0.005	0
261	SLU 19	-0.01	-5.79	60.2	0.2917	-0.005	0
261	SLU 20	-0.01	-5.83	61.17	0.2916	-0.0048	0
261	SLU 21	-0.01	-5.78	61.02	0.2897	-0.0049	0
261	SLU 22	-0.01	-5.28	56.18	0.2663	-0.0045	0
261	SLU 23	-0.01	-5.21	55.92	0.263	-0.0046	0
261	SLU 24	-0.01	-5.39	57.7	0.2703	-0.0045	0
261	SLU 25	-0.01	-5.34	57.55	0.2684	-0.0046	0
261	SLU 26	-0.01	-5.2	56.75	0.261	-0.0045	0
261	SLU 27	-0.01	-5.38	58.53	0.2683	-0.0043	0
261	SLU 28	-0.01	-5.33	58.37	0.2664	-0.0044	0
261	SLU 29	-0.01	-5.27	57.83	0.2623	-0.0042	0
261	SLU 30	-0.01	-5.23	57.67	0.2603	-0.0043	0
261	SLU 31	-0.01	-6.19	64.4	0.3115	-0.0054	0
261	SLU 32	-0.01	-6.37	66.18	0.3188	-0.0053	0
261	SLU 33	-0.01	-6.32	66.03	0.3168	-0.0053	0
261	SLU 34	-0.01	-6.19	65.22	0.3095	-0.0053	0
261	SLU 35	-0.01	-6.36	67	0.3168	-0.0051	0
261	SLU 36	-0.01	-6.32	66.85	0.3148	-0.0052	0
261	SLU 37	-0.01	-6.25	66.31	0.3107	-0.005	0
261	SLU 38	-0.01	-6.21	66.15	0.3088	-0.0051	0
261	SLU 39	-0.01	-6.69	68.3	0.3355	-0.0056	0
261	SLU 40	-0.01	-6.64	68.14	0.3335	-0.0057	0
261	SLU 41	-0.01	-6.68	69.12	0.3335	-0.0055	0
261	SLU 42	-0.01	-6.64	68.96	0.3316	-0.0056	0
261	SLU 43	-0.01	-5.46	59.99	0.2774	-0.0047	0
261	SLU 44	-0.01	-5.39	59.73	0.2741	-0.0049	0
261	SLU 45	-0.01	-5.57	61.51	0.2814	-0.0047	0
261	SLU 46	-0.01	-5.52	61.35	0.2795	-0.0048	0
261	SLU 47	-0.01	-5.38	60.55	0.2721	-0.0048	0
261	SLU 48	-0.01	-5.56	62.33	0.2794	-0.0046	0
261	SLU 49	-0.01	-5.51	62.17	0.2775	-0.0047	0
261	SLU 50	-0.01	-5.45	61.63	0.2734	-0.0045	0
261	SLU 51	-0.01	-5.41	61.48	0.2714	-0.0046	0
261	SLU 52	-0.01	-6.37	68.21	0.3226	-0.0057	0
261	SLU 53	-0.01	-6.55	69.99	0.3299	-0.0055	0
261	SLU 54	-0.01	-6.5	69.83	0.3279	-0.0056	0
261	SLU 55	-0.01	-6.37	69.03	0.3206	-0.0056	0
261	SLU 56	-0.01	-6.54	70.81	0.3279	-0.0054	0
261	SLU 57	-0.01	-6.5	70.65	0.3259	-0.0055	0
261	SLU 58	-0.01	-6.43	70.11	0.3218	-0.0053	0
261	SLU 59	-0.01	-6.39	69.96	0.3199	-0.0054	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
261	SLU 60	-0.01	-6.87	72.1	0.3466	-0.0059	0
261	SLU 61	-0.01	-6.82	71.94	0.3447	-0.006	0
261	SLU 62	-0.01	-6.86	72.92	0.3446	-0.0058	0
261	SLU 63	-0.01	-6.82	72.77	0.3427	-0.0058	0
261	SLU 64	-0.01	-6.32	67.93	0.3192	-0.0054	0
261	SLU 65	-0.01	-6.24	67.67	0.316	-0.0055	0
261	SLU 66	-0.01	-6.42	69.45	0.3233	-0.0054	0
261	SLU 67	-0.01	-6.38	69.29	0.3213	-0.0055	0
261	SLU 68	-0.01	-6.24	68.49	0.314	-0.0054	0
261	SLU 69	-0.01	-6.41	70.27	0.3213	-0.0053	0
261	SLU 70	-0.01	-6.37	70.12	0.3193	-0.0054	0
261	SLU 71	-0.01	-6.31	69.58	0.3153	-0.0052	0
261	SLU 72	-0.01	-6.26	69.42	0.3133	-0.0053	0
261	SLU 73	-0.01	-7.23	76.15	0.3644	-0.0063	0
261	SLU 74	-0.01	-7.4	77.93	0.3717	-0.0062	0
261	SLU 75	-0.01	-7.36	77.77	0.3698	-0.0063	0
261	SLU 76	-0.01	-7.22	76.97	0.3625	-0.0062	0
261	SLU 77	-0.01	-7.4	78.75	0.3697	-0.0061	0
261	SLU 78	-0.01	-7.35	78.6	0.3678	-0.0062	0
261	SLU 79	-0.01	-7.29	78.06	0.3637	-0.006	0
261	SLU 80	-0.01	-7.24	77.9	0.3618	-0.006	0
261	SLU 81	-0.01	-7.72	80.04	0.3885	-0.0065	0
261	SLU 82	-0.01	-7.68	79.89	0.3865	-0.0066	0
261	SLU 83	-0.01	-7.72	80.87	0.3865	-0.0064	0
261	SLU 84	-0.01	-7.67	80.71	0.3845	-0.0065	0
261	SLE RA 1	-0.01	-4.67	50.51	0.2364	-0.004	0
261	SLE RA 2	-0.01	-4.62	50.34	0.2342	-0.0041	0
261	SLE RA 3	-0.01	-4.74	51.52	0.2391	-0.004	0
261	SLE RA 4	-0.01	-4.71	51.42	0.2378	-0.0041	0
261	SLE RA 5	-0.01	-4.62	50.88	0.2329	-0.004	0
261	SLE RA 6	-0.01	-4.74	52.07	0.2377	-0.0039	0
261	SLE RA 7	-0.01	-4.71	51.97	0.2364	-0.004	0
261	SLE RA 8	-0.01	-4.66	51.61	0.2337	-0.0039	0
261	SLE RA 9	-0.01	-4.63	51.5	0.2324	-0.0039	0
261	SLE RA 10	-0.01	-5.28	55.99	0.2665	-0.0046	0
261	SLE RA 11	-0.01	-5.4	57.17	0.2714	-0.0045	0
261	SLE RA 12	-0.01	-5.37	57.07	0.2701	-0.0046	0
261	SLE RA 13	-0.01	-5.27	56.54	0.2652	-0.0046	0
261	SLE RA 14	-0.01	-5.39	57.72	0.27	-0.0045	0
261	SLE RA 15	-0.01	-5.36	57.62	0.2687	-0.0045	0
261	SLE RA 16	-0.01	-5.32	57.26	0.266	-0.0044	0
261	SLE RA 17	-0.01	-5.29	57.15	0.2647	-0.0044	0
261	SLE RA 18	-0.01	-5.61	58.58	0.2825	-0.0048	0
261	SLE RA 19	-0.01	-5.58	58.48	0.2812	-0.0048	0
261	SLE RA 20	-0.01	-5.6	59.13	0.2812	-0.0047	0
261	SLE RA 21	-0.01	-5.57	59.03	0.2799	-0.0047	0
261	SLE FR 1	-0.01	-4.67	50.51	0.2364	-0.004	0
261	SLE FR 2	-0.01	-4.66	50.47	0.2359	-0.004	0
261	SLE FR 3	-0.01	-4.67	50.73	0.2358	-0.004	0
261	SLE FR 4	-0.01	-4.94	52.9	0.2498	-0.0043	0
261	SLE FR 5	-0.01	-4.95	53.15	0.2497	-0.0042	0
261	SLE FR 6	-0.01	-5.14	54.55	0.2594	-0.0044	0
261	SLE QP 1	-0.01	-4.67	50.51	0.2364	-0.004	0
261	SLE QP 2	-0.01	-4.95	52.93	0.2502	-0.0042	0
261	SLD 1	0.14	-4.47	51.44	0.2185	0.1632	-0.0005
261	SLD 2	0.14	-4.47	51.44	0.2185	0.1632	-0.0005
261	SLD 3	0.12	-10.06	65.32	0.5296	0.1394	-0.0004
261	SLD 4	0.12	-10.06	65.32	0.5296	0.1394	-0.0004
261	SLD 5	0.07	3.68	31.42	-0.2312	0.0821	-0.0003
261	SLD 6	0.07	3.68	31.42	-0.2312	0.0821	-0.0003
261	SLD 7	0	-14.97	77.71	0.8059	0.0028	0
261	SLD 8	0	-14.97	77.71	0.8059	0.0028	0
261	SLD 9	-0.01	5.07	28.16	-0.3055	-0.0113	0
261	SLD 10	-0.01	5.07	28.16	-0.3055	-0.0113	0
261	SLD 11	-0.08	-13.58	74.44	0.7316	-0.0905	0.0003
261	SLD 12	-0.08	-13.58	74.44	0.7316	-0.0905	0.0003
261	SLD 13	-0.13	0.16	40.54	-0.0292	-0.1479	0.0005
261	SLD 14	-0.13	0.16	40.54	-0.0292	-0.1479	0.0005
261	SLD 15	-0.16	-5.44	54.43	0.2819	-0.1717	0.0006
261	SLD 16	-0.16	-5.44	54.43	0.2819	-0.1717	0.0006
261	SLV 1	0.37	-3.87	49.62	0.1796	0.4241	-0.0013
261	SLV 2	0.37	-3.87	49.62	0.1796	0.4241	-0.0013
261	SLV 3	0.32	-16.76	81.6	0.8957	0.3632	-0.0012
261	SLV 4	0.32	-16.76	81.6	0.8957	0.3632	-0.0012
261	SLV 5	0.19	14.91	3.42	-0.8572	0.2166	-0.0007
261	SLV 6	0.19	14.91	3.42	-0.8572	0.2166	-0.0007
261	SLV 7	0.01	-28.03	110.05	1.53	0.0137	0
261	SLV 8	0.01	-28.03	110.05	1.53	0.0137	0
261	SLV 9	-0.02	18.12	-4.18	-1.0296	-0.0221	0.0001
261	SLV 10	-0.02	18.12	-4.18	-1.0296	-0.0221	0.0001
261	SLV 11	-0.21	-24.81	102.44	1.3576	-0.2251	0.0007
261	SLV 12	-0.21	-24.81	102.44	1.3576	-0.2251	0.0007
261	SLV 13	-0.33	6.85	24.26	-0.3953	-0.3717	0.0012
261	SLV 14	-0.33	6.85	24.26	-0.3953	-0.3717	0.0012
261	SLV 15	-0.39	-6.03	56.25	0.3208	-0.4326	0.0014
261	SLV 16	-0.39	-6.03	56.25	0.3208	-0.4326	0.0014
262	SLU 1	0	-2.64	13.59	0.2172	0.0004	0
262	SLU 2	0	-2.63	13.59	0.2166	0.0004	0
262	SLU 3	0	-2.75	13.59	0.2266	0.0005	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
262	SLU 4	0	-2.74	13.59	0.2262	0.0004	0
262	SLU 5	0	-2.7	13.59	0.2224	0.0004	0
262	SLU 6	0	-2.81	13.59	0.2324	0.0005	0
262	SLU 7	0	-2.81	13.59	0.232	0.0005	0
262	SLU 8	0	-2.77	13.59	0.2288	0.0005	0
262	SLU 9	0	-2.76	13.59	0.2284	0.0005	0
262	SLU 10	0	-3.18	17.4	0.2579	0.0004	0
262	SLU 11	0	-3.3	17.41	0.2679	0.0005	0
262	SLU 12	0	-3.29	17.41	0.2675	0.0005	0
262	SLU 13	0	-3.25	17.4	0.2637	0.0005	0
262	SLU 14	0	-3.36	17.41	0.2736	0.0006	0
262	SLU 15	0	-3.36	17.41	0.2733	0.0006	0
262	SLU 16	0	-3.32	17.4	0.27	0.0006	0
262	SLU 17	0	-3.32	17.4	0.2697	0.0006	0
262	SLU 18	0	-3.43	19.04	0.2762	0.0005	0
262	SLU 19	0	-3.42	19.04	0.2758	0.0005	0
262	SLU 20	0	-3.49	19.04	0.282	0.0006	0
262	SLU 21	0	-3.49	19.04	0.2816	0.0005	0
262	SLU 22	0	-3.14	16.39	0.2563	0.0005	0
262	SLU 23	0	-3.13	16.39	0.2557	0.0005	0
262	SLU 24	0	-3.25	16.4	0.2657	0.0006	0
262	SLU 25	0	-3.24	16.4	0.2653	0.0005	0
262	SLU 26	0	-3.2	16.39	0.2615	0.0005	0
262	SLU 27	0	-3.31	16.4	0.2715	0.0006	0
262	SLU 28	0	-3.31	16.4	0.2711	0.0006	0
262	SLU 29	0	-3.27	16.39	0.2678	0.0006	0
262	SLU 30	0	-3.27	16.39	0.2675	0.0006	0
262	SLU 31	0	-3.69	20.2	0.297	0.0005	0
262	SLU 32	0	-3.8	20.21	0.307	0.0006	0
262	SLU 33	0	-3.8	20.21	0.3066	0.0006	0
262	SLU 34	0	-3.75	20.21	0.3027	0.0006	0
262	SLU 35	0	-3.87	20.21	0.3127	0.0007	0
262	SLU 36	0	-3.86	20.21	0.3124	0.0006	0
262	SLU 37	0	-3.83	20.21	0.3091	0.0007	0
262	SLU 38	0	-3.82	20.21	0.3088	0.0007	0
262	SLU 39	0	-3.93	21.84	0.3153	0.0006	0
262	SLU 40	0	-3.93	21.84	0.3149	0.0006	0
262	SLU 41	0	-4	21.84	0.321	0.0007	0
262	SLU 42	0	-3.99	21.84	0.3207	0.0006	0
262	SLU 43	0	-3.26	16.7	0.269	0.0005	0
262	SLU 44	0	-3.25	16.7	0.2684	0.0005	0
262	SLU 45	0	-3.36	16.71	0.2784	0.0006	0
262	SLU 46	0	-3.36	16.71	0.278	0.0005	0
262	SLU 47	0	-3.32	16.7	0.2741	0.0005	0
262	SLU 48	0	-3.43	16.71	0.2841	0.0006	0
262	SLU 49	0	-3.42	16.71	0.2838	0.0006	0
262	SLU 50	0	-3.39	16.71	0.2805	0.0006	0
262	SLU 51	0	-3.38	16.7	0.2801	0.0006	0
262	SLU 52	0	-3.8	20.52	0.3096	0.0005	0
262	SLU 53	0	-3.92	20.52	0.3196	0.0006	0
262	SLU 54	0	-3.91	20.52	0.3193	0.0006	0
262	SLU 55	0	-3.87	20.52	0.3154	0.0006	0
262	SLU 56	0	-3.98	20.52	0.3254	0.0007	0
262	SLU 57	0	-3.98	20.52	0.325	0.0007	0
262	SLU 58	0	-3.94	20.52	0.3218	0.0007	0
262	SLU 59	0	-3.94	20.52	0.3214	0.0007	0
262	SLU 60	0	-4.05	22.15	0.3279	0.0006	0
262	SLU 61	0	-4.04	22.15	0.3276	0.0006	0
262	SLU 62	0	-4.11	22.15	0.3337	0.0007	0
262	SLU 63	0	-4.11	22.15	0.3333	0.0006	0
262	SLU 64	0	-3.76	19.51	0.3081	0.0006	0
262	SLU 65	0	-3.75	19.51	0.3075	0.0006	0
262	SLU 66	0	-3.87	19.51	0.3174	0.0007	0
262	SLU 67	0	-3.86	19.51	0.3171	0.0006	0
262	SLU 68	0	-3.82	19.51	0.3132	0.0006	0
262	SLU 69	0	-3.93	19.51	0.3232	0.0007	0
262	SLU 70	0	-3.93	19.51	0.3229	0.0007	0
262	SLU 71	0	-3.89	19.51	0.3196	0.0007	0
262	SLU 72	0	-3.89	19.51	0.3192	0.0007	0
262	SLU 73	0	-4.31	23.32	0.3487	0.0006	0
262	SLU 74	0	-4.42	23.33	0.3587	0.0007	0
262	SLU 75	0	-4.42	23.33	0.3584	0.0007	0
262	SLU 76	0	-4.37	23.32	0.3545	0.0007	0
262	SLU 77	0	-4.49	23.33	0.3645	0.0008	0
262	SLU 78	0	-4.48	23.33	0.3641	0.0007	0
262	SLU 79	0	-4.44	23.32	0.3609	0.0008	0
262	SLU 80	0	-4.44	23.32	0.3605	0.0008	0
262	SLU 81	0	-4.55	24.96	0.367	0.0007	0
262	SLU 82	0	-4.55	24.95	0.3667	0.0007	0
262	SLU 83	0	-4.62	24.96	0.3728	0.0008	0
262	SLU 84	0	-4.61	24.96	0.3724	0.0007	0
262	SLE RA 1	0	-2.78	14.39	0.2284	0.0005	0
262	SLE RA 2	0	-2.78	14.39	0.228	0.0004	0
262	SLE RA 3	0	-2.85	14.39	0.2346	0.0005	0
262	SLE RA 4	0	-2.85	14.39	0.2344	0.0005	0
262	SLE RA 5	0	-2.82	14.39	0.2318	0.0004	0
262	SLE RA 6	0	-2.9	14.39	0.2385	0.0005	0
262	SLE RA 7	0	-2.89	14.39	0.2382	0.0005	0
262	SLE RA 8	0	-2.87	14.39	0.2361	0.0005	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
262	SLE RA 9	0	-2.87	14.39	0.2358	0.0005	0
262	SLE RA 10	0	-3.15	16.93	0.2555	0.0005	0
262	SLE RA 11	0	-3.22	16.94	0.2622	0.0005	0
262	SLE RA 12	0	-3.22	16.93	0.2619	0.0005	0
262	SLE RA 13	0	-3.19	16.93	0.2593	0.0005	0
262	SLE RA 14	0	-3.27	16.94	0.266	0.0006	0
262	SLE RA 15	0	-3.26	16.94	0.2658	0.0005	0
262	SLE RA 16	0	-3.24	16.93	0.2636	0.0006	0
262	SLE RA 17	0	-3.24	16.93	0.2634	0.0005	0
262	SLE RA 18	0	-3.31	18.02	0.2677	0.0005	0
262	SLE RA 19	0	-3.31	18.02	0.2675	0.0005	0
262	SLE RA 20	0	-3.35	18.02	0.2715	0.0006	0
262	SLE RA 21	0	-3.35	18.02	0.2713	0.0005	0
262	SLE FR 1	0	-2.78	14.39	0.2284	0.0005	0
262	SLE FR 2	0	-2.78	14.39	0.2283	0.0004	0
262	SLE FR 3	0	-2.8	14.39	0.2299	0.0005	0
262	SLE FR 4	0	-2.94	15.48	0.2401	0.0005	0
262	SLE FR 5	0	-2.96	15.48	0.2417	0.0005	0
262	SLE FR 6	0	-3.05	16.21	0.248	0.0005	0
262	SLE QP 1	0	-2.78	14.39	0.2284	0.0005	0
262	SLE QP 2	0	-2.94	15.48	0.2402	0.0005	0
262	SLD 1	0.28	0.82	15.75	0.1412	0.3686	0.0008
262	SLD 2	0.28	0.82	15.75	0.1412	0.3686	0.0008
262	SLD 3	0.29	-4.19	15.38	0.2747	0.3802	0.0008
262	SLD 4	0.29	-4.19	15.38	0.2747	0.3802	0.0008
262	SLD 5	0.07	5.79	16.12	0.008	0.0933	0.0002
262	SLD 6	0.07	5.79	16.12	0.008	0.0933	0.0002
262	SLD 7	0.1	-10.91	14.89	0.453	0.132	0.0003
262	SLD 8	0.1	-10.91	14.89	0.453	0.132	0.0003
262	SLD 9	-0.1	5.03	16.07	0.0274	-0.1311	-0.0003
262	SLD 10	-0.1	5.03	16.07	0.0274	-0.1311	-0.0003
262	SLD 11	-0.07	-11.67	14.84	0.4723	-0.0923	-0.0002
262	SLD 12	-0.07	-11.67	14.84	0.4723	-0.0923	-0.0002
262	SLD 13	-0.29	-1.69	15.58	0.2056	-0.3793	-0.0008
262	SLD 14	-0.29	-1.69	15.58	0.2056	-0.3793	-0.0008
262	SLD 15	-0.28	-6.7	15.21	0.3391	-0.3676	-0.0008
262	SLD 16	-0.28	-6.7	15.21	0.3391	-0.3676	-0.0008
262	SLV 1	0.73	5.79	16.13	0.0108	0.9444	0.002
262	SLV 2	0.73	5.79	16.13	0.0108	0.9444	0.002
262	SLV 3	0.75	-5.91	15.25	0.3224	0.9741	0.0021
262	SLV 4	0.75	-5.91	15.25	0.3224	0.9741	0.0021
262	SLV 5	0.18	17.41	17.01	-0.3012	0.2386	0.0005
262	SLV 6	0.18	17.41	17.01	-0.3012	0.2386	0.0005
262	SLV 7	0.27	-21.56	14.08	0.7374	0.3376	0.0007
262	SLV 8	0.27	-21.56	14.08	0.7374	0.3376	0.0007
262	SLV 9	-0.26	15.68	16.88	-0.257	-0.3367	-0.0007
262	SLV 10	-0.26	15.68	16.88	-0.257	-0.3367	-0.0007
262	SLV 11	-0.18	-23.29	13.95	0.7815	-0.2377	-0.0005
262	SLV 12	-0.18	-23.29	13.95	0.7815	-0.2377	-0.0005
262	SLV 13	-0.75	0.03	15.71	0.1579	-0.9732	-0.0021
262	SLV 14	-0.75	0.03	15.71	0.1579	-0.9732	-0.0021
262	SLV 15	-0.73	-11.67	14.83	0.4695	-0.9435	-0.002
262	SLV 16	-0.73	-11.67	14.83	0.4695	-0.9435	-0.002
263	SLU 1	0	-1.96	42.72	0.3066	-0.0023	0
263	SLU 2	0	-1.95	42.68	0.3061	-0.0023	0
263	SLU 3	0	-2.36	43.58	0.3303	-0.0026	0
263	SLU 4	0	-2.35	43.55	0.33	-0.0026	0
263	SLU 5	0	-2.39	42.91	0.3271	-0.0026	0
263	SLU 6	0	-2.79	43.81	0.3513	-0.003	0
263	SLU 7	0	-2.79	43.79	0.351	-0.0029	0
263	SLU 8	0	-2.83	43.19	0.3486	-0.003	0
263	SLU 9	0	-2.82	43.16	0.3483	-0.0029	0
263	SLU 10	0	-2.33	50.86	0.3621	-0.0027	0
263	SLU 11	0	-2.74	51.75	0.3863	-0.003	0
263	SLU 12	0	-2.73	51.73	0.386	-0.003	0
263	SLU 13	0	-2.77	51.09	0.3831	-0.003	0
263	SLU 14	0	-3.17	51.99	0.4073	-0.0033	0
263	SLU 15	0	-3.17	51.97	0.407	-0.0033	0
263	SLU 16	0	-3.2	51.36	0.4047	-0.0033	0
263	SLU 17	0	-3.2	51.34	0.4044	-0.0033	0
263	SLU 18	0	-2.5	54.4	0.3867	-0.0029	0
263	SLU 19	0	-2.5	54.38	0.3863	-0.0029	0
263	SLU 20	0	-2.94	54.63	0.4077	-0.0032	0
263	SLU 21	0	-2.93	54.61	0.4074	-0.0032	0
263	SLU 22	0	-2.47	49.86	0.3657	-0.0028	0
263	SLU 23	0	-2.46	49.82	0.3652	-0.0028	0
263	SLU 24	0	-2.87	50.72	0.3894	-0.0031	0
263	SLU 25	0	-2.86	50.7	0.3891	-0.0031	0
263	SLU 26	0	-2.89	50.06	0.3863	-0.0031	0
263	SLU 27	0	-3.3	50.96	0.4105	-0.0034	0
263	SLU 28	0	-3.29	50.93	0.4101	-0.0034	0
263	SLU 29	0	-3.33	50.33	0.4078	-0.0035	0
263	SLU 30	0	-3.33	50.31	0.4075	-0.0034	0
263	SLU 31	0	-2.84	58	0.4213	-0.0032	0
263	SLU 32	0	-3.25	58.9	0.4455	-0.0035	0
263	SLU 33	0	-3.24	58.88	0.4452	-0.0035	0
263	SLU 34	0	-3.27	58.24	0.4423	-0.0035	0
263	SLU 35	0	-3.68	59.13	0.4665	-0.0038	0
263	SLU 36	0	-3.67	59.11	0.4662	-0.0038	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
263	SLU 37	0	-3.71	58.51	0.4638	-0.0038	0
263	SLU 38	0	-3.71	58.49	0.4635	-0.0038	0
263	SLU 39	0	-3.01	61.54	0.4458	-0.0034	0
263	SLU 40	0	-3.01	61.52	0.4455	-0.0034	0
263	SLU 41	0	-3.44	61.78	0.4668	-0.0037	0
263	SLU 42	0	-3.44	61.76	0.4665	-0.0037	0
263	SLU 43	0	-2.38	53.08	0.3783	-0.0029	0
263	SLU 44	0	-2.37	53.04	0.3778	-0.0028	0
263	SLU 45	0	-2.77	53.94	0.402	-0.0032	0
263	SLU 46	0	-2.77	53.92	0.4017	-0.0032	0
263	SLU 47	0	-2.8	53.28	0.3988	-0.0032	0
263	SLU 48	0	-3.2	54.18	0.423	-0.0035	0
263	SLU 49	0	-3.2	54.15	0.4227	-0.0035	0
263	SLU 50	0	-3.24	53.55	0.4203	-0.0035	0
263	SLU 51	0	-3.23	53.53	0.42	-0.0035	0
263	SLU 52	0	-2.75	61.22	0.4338	-0.0032	0
263	SLU 53	0	-3.15	62.12	0.458	-0.0036	0
263	SLU 54	0	-3.15	62.1	0.4577	-0.0035	0
263	SLU 55	0	-3.18	61.46	0.4548	-0.0035	0
263	SLU 56	0	-3.58	62.35	0.479	-0.0039	0
263	SLU 57	0	-3.58	62.33	0.4787	-0.0039	0
263	SLU 58	0	-3.62	61.73	0.4764	-0.0039	0
263	SLU 59	0	-3.61	61.71	0.4761	-0.0039	0
263	SLU 60	0	-2.92	64.76	0.4584	-0.0034	0
263	SLU 61	0	-2.91	64.74	0.458	-0.0034	0
263	SLU 62	0	-3.35	65	0.4794	-0.0037	0
263	SLU 63	0	-3.34	64.98	0.4791	-0.0037	0
263	SLU 64	0	-2.88	60.23	0.4374	-0.0034	0
263	SLU 65	0	-2.88	60.19	0.4369	-0.0033	0
263	SLU 66	0	-3.28	61.09	0.4611	-0.0037	0
263	SLU 67	0	-3.28	61.06	0.4608	-0.0037	0
263	SLU 68	0	-3.31	60.42	0.458	-0.0036	0
263	SLU 69	0	-3.71	61.32	0.4822	-0.004	0
263	SLU 70	0	-3.71	61.3	0.4818	-0.004	0
263	SLU 71	0	-3.75	60.7	0.4795	-0.004	0
263	SLU 72	0	-3.74	60.67	0.4792	-0.004	0
263	SLU 73	0	-3.26	68.37	0.493	-0.0037	0
263	SLU 74	0	-3.66	69.26	0.5172	-0.0041	0
263	SLU 75	0	-3.66	69.24	0.5169	-0.004	0
263	SLU 76	0	-3.69	68.6	0.514	-0.004	0
263	SLU 77	0	-4.09	69.5	0.5382	-0.0044	0
263	SLU 78	0	-4.09	69.48	0.5379	-0.0043	0
263	SLU 79	0	-4.13	68.87	0.5355	-0.0044	0
263	SLU 80	0	-4.12	68.85	0.5352	-0.0044	0
263	SLU 81	0	-3.43	71.91	0.5175	-0.0039	0
263	SLU 82	0	-3.42	71.89	0.5172	-0.0039	0
263	SLU 83	0	-3.86	72.14	0.5385	-0.0042	0
263	SLU 84	0	-3.85	72.12	0.5382	-0.0042	0
263	SLE RA 1	0	-2.11	44.76	0.3235	-0.0025	0
263	SLE RA 2	0	-2.1	44.73	0.3231	-0.0025	0
263	SLE RA 3	0	-2.37	45.33	0.3393	-0.0027	0
263	SLE RA 4	0	-2.37	45.32	0.3391	-0.0027	0
263	SLE RA 5	0	-2.39	44.89	0.3372	-0.0027	0
263	SLE RA 6	0	-2.66	45.49	0.3533	-0.0029	0
263	SLE RA 7	0	-2.66	45.47	0.3531	-0.0029	0
263	SLE RA 8	0	-2.68	45.07	0.3515	-0.0029	0
263	SLE RA 9	0	-2.68	45.06	0.3513	-0.0029	0
263	SLE RA 10	0	-2.35	50.18	0.3605	-0.0027	0
263	SLE RA 11	0	-2.62	50.78	0.3766	-0.0029	0
263	SLE RA 12	0	-2.62	50.77	0.3764	-0.0029	0
263	SLE RA 13	0	-2.64	50.34	0.3745	-0.0029	0
263	SLE RA 14	0	-2.91	50.94	0.3907	-0.0031	0
263	SLE RA 15	0	-2.91	50.92	0.3905	-0.0031	0
263	SLE RA 16	0	-2.94	50.52	0.3889	-0.0031	0
263	SLE RA 17	0	-2.93	50.51	0.3887	-0.0031	0
263	SLE RA 18	0	-2.47	52.55	0.3769	-0.0028	0
263	SLE RA 19	0	-2.47	52.53	0.3767	-0.0028	0
263	SLE RA 20	0	-2.76	52.7	0.3909	-0.0031	0
263	SLE RA 21	0	-2.75	52.69	0.3907	-0.003	0
263	SLE FR 1	0	-2.11	44.76	0.3235	-0.0025	0
263	SLE FR 2	0	-2.11	44.75	0.3234	-0.0025	0
263	SLE FR 3	0	-2.22	44.82	0.3291	-0.0026	0
263	SLE FR 4	0	-2.21	47.09	0.3394	-0.0026	0
263	SLE FR 5	0	-2.33	47.16	0.3451	-0.0027	0
263	SLE FR 6	0	-2.29	48.65	0.3502	-0.0027	0
263	SLE QP 1	0	-2.11	44.76	0.3235	-0.0025	0
263	SLE QP 2	0	-2.22	47.09	0.3395	-0.0026	0
263	SLD 1	0.14	1.82	46.04	0.1569	0.2189	0.0001
263	SLD 2	0.14	1.82	46.04	0.1569	0.2189	0.0001
263	SLD 3	0.12	-3.39	47.03	0.3936	0.203	0.0001
263	SLD 4	0.12	-3.39	47.03	0.3936	0.203	0.0001
263	SLD 5	0.06	6.89	45.28	-0.0744	0.088	0
263	SLD 6	0.06	6.89	45.28	-0.0744	0.088	0
263	SLD 7	0.01	-10.47	48.57	0.7148	0.035	0
263	SLD 8	0.01	-10.47	48.57	0.7148	0.035	0
263	SLD 9	-0.02	6.04	45.62	-0.0358	-0.0402	0
263	SLD 10	-0.02	6.04	45.62	-0.0358	-0.0402	0
263	SLD 11	-0.06	-11.33	48.9	0.7534	-0.0931	0
263	SLD 12	-0.06	-11.33	48.9	0.7534	-0.0931	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
263	SLD 13	-0.13	-1.04	47.16	0.2854	-0.2082	-0.0001
263	SLD 14	-0.13	-1.04	47.16	0.2854	-0.2082	-0.0001
263	SLD 15	-0.14	-6.25	48.14	0.5221	-0.2241	-0.0001
263	SLD 16	-0.14	-6.25	48.14	0.5221	-0.2241	-0.0001
263	SLV 1	0.38	7.07	44.64	-0.0815	0.6671	0.0001
263	SLV 2	0.38	7.07	44.64	-0.0815	0.6671	0.0001
263	SLV 3	0.34	-4.94	46.95	0.4655	0.6235	0.0001
263	SLV 4	0.34	-4.94	46.95	0.4655	0.6235	0.0001
263	SLV 5	0.17	18.78	42.86	-0.6165	0.2645	0.0001
263	SLV 6	0.17	18.78	42.86	-0.6165	0.2645	0.0001
263	SLV 7	0.05	-21.25	50.54	1.207	0.1191	0
263	SLV 8	0.05	-21.25	50.54	1.207	0.1191	0
263	SLV 9	-0.05	16.82	43.64	-0.528	-0.1242	0
263	SLV 10	-0.05	16.82	43.64	-0.528	-0.1242	0
263	SLV 11	-0.17	-23.22	51.33	1.2955	-0.2697	-0.0001
263	SLV 12	-0.17	-23.22	51.33	1.2955	-0.2697	-0.0001
263	SLV 13	-0.34	0.51	47.24	0.2135	-0.6287	-0.0001
263	SLV 14	-0.34	0.51	47.24	0.2135	-0.6287	-0.0001
263	SLV 15	-0.38	-11.5	49.55	0.7606	-0.6723	-0.0001
263	SLV 16	-0.38	-11.5	49.55	0.7606	-0.6723	-0.0001
264	SLU 1	-0.08	-9.41	22.62	0.414	-0.0608	0.0002
264	SLU 2	-0.07	-8.44	22.08	0.3704	-0.0542	0.0002
264	SLU 3	-0.08	-9.65	23.14	0.4238	-0.0627	0.0002
264	SLU 4	-0.08	-9.06	22.82	0.3977	-0.0587	0.0002
264	SLU 5	-0.08	-8.53	22.43	0.3744	-0.0555	0.0002
264	SLU 6	-0.08	-9.74	23.49	0.4278	-0.064	0.0002
264	SLU 7	-0.08	-9.16	23.17	0.4016	-0.0601	0.0002
264	SLU 8	-0.08	-9.6	23.32	0.4219	-0.0634	0.0002
264	SLU 9	-0.08	-9.02	23	0.3957	-0.0595	0.0002
264	SLU 10	-0.08	-9.6	24.09	0.4213	-0.0618	0.0002
264	SLU 11	-0.09	-10.81	25.15	0.4747	-0.0703	0.0002
264	SLU 12	-0.09	-10.22	24.83	0.4486	-0.0664	0.0002
264	SLU 13	-0.08	-9.7	24.45	0.4253	-0.0632	0.0002
264	SLU 14	-0.09	-10.9	25.5	0.4787	-0.0717	0.0002
264	SLU 15	-0.09	-10.32	25.18	0.4525	-0.0677	0.0002
264	SLU 16	-0.09	-10.77	25.33	0.4727	-0.0711	0.0002
264	SLU 17	-0.09	-10.18	25.01	0.4466	-0.0672	0.0002
264	SLU 18	-0.09	-11.07	25.49	0.4867	-0.0717	0.0002
264	SLU 19	-0.09	-10.49	25.17	0.4606	-0.0678	0.0002
264	SLU 20	-0.09	-11.17	25.84	0.4906	-0.073	0.0002
264	SLU 21	-0.09	-10.59	25.52	0.4645	-0.0691	0.0002
264	SLU 22	-0.09	-10.56	24.66	0.4641	-0.0684	0.0002
264	SLU 23	-0.08	-9.59	24.13	0.4205	-0.0618	0.0002
264	SLU 24	-0.09	-10.79	25.19	0.4739	-0.0703	0.0002
264	SLU 25	-0.09	-10.21	24.86	0.4478	-0.0664	0.0002
264	SLU 26	-0.08	-9.68	24.48	0.4244	-0.0632	0.0002
264	SLU 27	-0.09	-10.89	25.54	0.4779	-0.0717	0.0002
264	SLU 28	-0.09	-10.3	25.22	0.4517	-0.0677	0.0002
264	SLU 29	-0.09	-10.75	25.37	0.4719	-0.0711	0.0002
264	SLU 30	-0.09	-10.17	25.04	0.4458	-0.0672	0.0002
264	SLU 31	-0.09	-10.75	26.14	0.4714	-0.0695	0.0003
264	SLU 32	-0.1	-11.95	27.2	0.5248	-0.078	0.0003
264	SLU 33	-0.1	-11.37	26.88	0.4987	-0.074	0.0003
264	SLU 34	-0.09	-10.84	26.49	0.4753	-0.0708	0.0003
264	SLU 35	-0.1	-12.05	27.55	0.5287	-0.0793	0.0003
264	SLU 36	-0.1	-11.47	27.23	0.5026	-0.0754	0.0003
264	SLU 37	-0.1	-11.91	27.38	0.5228	-0.0788	0.0003
264	SLU 38	-0.1	-11.33	27.06	0.4967	-0.0748	0.0003
264	SLU 39	-0.1	-12.22	27.54	0.5368	-0.0794	0.0003
264	SLU 40	-0.1	-11.64	27.22	0.5106	-0.0754	0.0003
264	SLU 41	-0.1	-12.32	27.89	0.5407	-0.0807	0.0003
264	SLU 42	-0.1	-11.73	27.57	0.5146	-0.0768	0.0003
264	SLU 43	-0.1	-11.84	28.7	0.521	-0.0764	0.0003
264	SLU 44	-0.09	-10.87	28.16	0.4775	-0.0698	0.0003
264	SLU 45	-0.1	-12.08	29.22	0.5309	-0.0783	0.0003
264	SLU 46	-0.1	-11.49	28.9	0.5047	-0.0743	0.0003
264	SLU 47	-0.09	-10.97	28.51	0.4814	-0.0711	0.0003
264	SLU 48	-0.1	-12.17	29.57	0.5348	-0.0796	0.0003
264	SLU 49	-0.1	-11.59	29.25	0.5087	-0.0757	0.0003
264	SLU 50	-0.1	-12.04	29.4	0.5289	-0.079	0.0003
264	SLU 51	-0.1	-11.45	29.08	0.5027	-0.0751	0.0003
264	SLU 52	-0.1	-12.03	30.18	0.5283	-0.0774	0.0003
264	SLU 53	-0.11	-13.24	31.23	0.5818	-0.0859	0.0003
264	SLU 54	-0.11	-12.65	30.91	0.5556	-0.082	0.0003
264	SLU 55	-0.1	-12.13	30.53	0.5323	-0.0788	0.0003
264	SLU 56	-0.11	-13.33	31.59	0.5857	-0.0873	0.0003
264	SLU 57	-0.11	-12.75	31.26	0.5596	-0.0833	0.0003
264	SLU 58	-0.11	-13.2	31.41	0.5798	-0.0867	0.0003
264	SLU 59	-0.11	-12.61	31.09	0.5536	-0.0828	0.0003
264	SLU 60	-0.11	-13.51	31.58	0.5937	-0.0873	0.0003
264	SLU 61	-0.11	-12.92	31.25	0.5676	-0.0834	0.0003
264	SLU 62	-0.11	-13.6	31.93	0.5976	-0.0886	0.0003
264	SLU 63	-0.11	-13.02	31.61	0.5715	-0.0847	0.0003
264	SLU 64	-0.1	-12.99	30.75	0.5711	-0.084	0.0003
264	SLU 65	-0.1	-12.02	30.21	0.5275	-0.0774	0.0003
264	SLU 66	-0.11	-13.22	31.27	0.5809	-0.0859	0.0003
264	SLU 67	-0.11	-12.64	30.95	0.5548	-0.082	0.0003
264	SLU 68	-0.1	-12.11	30.56	0.5315	-0.0788	0.0003
264	SLU 69	-0.11	-13.32	31.62	0.5849	-0.0873	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
264	SLU 70	-0.11	-12.73	31.3	0.5587	-0.0833	0.0003
264	SLU 71	-0.11	-13.18	31.45	0.579	-0.0867	0.0003
264	SLU 72	-0.11	-12.6	31.13	0.5528	-0.0828	0.0003
264	SLU 73	-0.11	-13.18	32.23	0.5784	-0.0851	0.0003
264	SLU 74	-0.12	-14.39	33.28	0.6318	-0.0936	0.0003
264	SLU 75	-0.12	-13.8	32.96	0.6057	-0.0896	0.0003
264	SLU 76	-0.11	-13.27	32.58	0.5824	-0.0864	0.0003
264	SLU 77	-0.12	-14.48	33.63	0.6358	-0.0949	0.0003
264	SLU 78	-0.12	-13.9	33.31	0.6096	-0.091	0.0003
264	SLU 79	-0.12	-14.35	33.46	0.6299	-0.0944	0.0003
264	SLU 80	-0.12	-13.76	33.14	0.6037	-0.0904	0.0003
264	SLU 81	-0.12	-14.65	33.62	0.6438	-0.095	0.0003
264	SLU 82	-0.12	-14.07	33.3	0.6177	-0.091	0.0003
264	SLU 83	-0.12	-14.75	33.97	0.6477	-0.0963	0.0003
264	SLU 84	-0.12	-14.16	33.65	0.6216	-0.0924	0.0003
264	SLE RA 1	-0.08	-9.74	23.2	0.4283	-0.0629	0.0002
264	SLE RA 2	-0.08	-9.09	22.84	0.3993	-0.0586	0.0002
264	SLE RA 3	-0.08	-9.9	23.55	0.4349	-0.0642	0.0002
264	SLE RA 4	-0.08	-9.51	23.33	0.4174	-0.0616	0.0002
264	SLE RA 5	-0.08	-9.16	23.08	0.4019	-0.0595	0.0002
264	SLE RA 6	-0.08	-9.96	23.78	0.4375	-0.0651	0.0002
264	SLE RA 7	-0.08	-9.57	23.57	0.4201	-0.0625	0.0002
264	SLE RA 8	-0.08	-9.87	23.67	0.4335	-0.0647	0.0002
264	SLE RA 9	-0.08	-9.48	23.45	0.4161	-0.0621	0.0002
264	SLE RA 10	-0.08	-9.87	24.19	0.4332	-0.0637	0.0002
264	SLE RA 11	-0.09	-10.67	24.89	0.4688	-0.0693	0.0002
264	SLE RA 12	-0.09	-10.28	24.68	0.4514	-0.0667	0.0002
264	SLE RA 13	-0.08	-9.93	24.42	0.4358	-0.0646	0.0002
264	SLE RA 14	-0.09	-10.73	25.13	0.4714	-0.0702	0.0002
264	SLE RA 15	-0.09	-10.34	24.91	0.454	-0.0676	0.0002
264	SLE RA 16	-0.09	-10.64	25.01	0.4675	-0.0698	0.0002
264	SLE RA 17	-0.09	-10.25	24.8	0.45	-0.0672	0.0002
264	SLE RA 18	-0.09	-10.85	25.12	0.4768	-0.0702	0.0002
264	SLE RA 19	-0.09	-10.46	24.9	0.4593	-0.0676	0.0002
264	SLE RA 20	-0.09	-10.91	25.35	0.4794	-0.0711	0.0002
264	SLE RA 21	-0.09	-10.52	25.14	0.462	-0.0685	0.0002
264	SLE FR 1	-0.08	-9.74	23.2	0.4283	-0.0629	0.0002
264	SLE FR 2	-0.08	-9.61	23.13	0.4225	-0.0621	0.0002
264	SLE FR 3	-0.08	-9.77	23.29	0.4293	-0.0633	0.0002
264	SLE FR 4	-0.08	-9.94	23.7	0.437	-0.0643	0.0002
264	SLE FR 5	-0.08	-10.1	23.87	0.4439	-0.0655	0.0002
264	SLE FR 6	-0.08	-10.3	24.16	0.4525	-0.0666	0.0002
264	SLE QP 1	-0.08	-9.74	23.2	0.4283	-0.0629	0.0002
264	SLE QP 2	-0.08	-10.07	23.78	0.4428	-0.0651	0.0002
264	SLD 1	-0.11	-9.1	29.85	0.4062	0.0901	0.0002
264	SLD 2	-0.11	-9.1	29.85	0.4062	0.0901	0.0002
264	SLD 3	-0.23	-16.16	32.15	0.7137	0.0099	0.0006
264	SLD 4	-0.23	-16.16	32.15	0.7137	0.0099	0.0006
264	SLD 5	0.08	0.94	22.1	-0.0345	0.1031	-0.0004
264	SLD 6	0.08	0.94	22.1	-0.0345	0.1031	-0.0004
264	SLD 7	-0.3	-22.62	29.78	0.9904	-0.1643	0.001
264	SLD 8	-0.3	-22.62	29.78	0.9904	-0.1643	0.001
264	SLD 9	0.14	2.47	17.77	-0.1047	0.034	-0.0005
264	SLD 10	0.14	2.47	17.77	-0.1047	0.034	-0.0005
264	SLD 11	-0.25	-21.09	25.45	0.9201	-0.2334	0.0008
264	SLD 12	-0.25	-21.09	25.45	0.9201	-0.2334	0.0008
264	SLD 13	0.07	-3.98	15.4	0.172	-0.1402	-0.0002
264	SLD 14	0.07	-3.98	15.4	0.172	-0.1402	-0.0002
264	SLD 15	-0.05	-11.05	17.71	0.4795	-0.2204	0.0002
264	SLD 16	-0.05	-11.05	17.71	0.4795	-0.2204	0.0002
264	SLV 1	-0.16	-7.81	37.63	0.3586	0.3123	0.0003
264	SLV 2	-0.16	-7.81	37.63	0.3586	0.3123	0.0003
264	SLV 3	-0.44	-24.12	42.98	1.0669	0.1142	0.0012
264	SLV 4	-0.44	-24.12	42.98	1.0669	0.1142	0.0012
264	SLV 5	0.32	15.34	19.82	-0.6568	0.3485	-0.0012
264	SLV 6	0.32	15.34	19.82	-0.6568	0.3485	-0.0012
264	SLV 7	-0.62	-39.02	37.65	1.7044	-0.3117	0.002
264	SLV 8	-0.62	-39.02	37.65	1.7044	-0.3117	0.002
264	SLV 9	0.45	18.88	9.9	-0.8187	0.1815	-0.0016
264	SLV 10	0.45	18.88	9.9	-0.8187	0.1815	-0.0016
264	SLV 11	-0.49	-35.49	27.73	1.5424	-0.4787	0.0017
264	SLV 12	-0.49	-35.49	27.73	1.5424	-0.4787	0.0017
264	SLV 13	0.28	3.98	4.57	-0.1813	-0.2445	-0.0008
264	SLV 14	0.28	3.98	4.57	-0.1813	-0.2445	-0.0008
264	SLV 15	0	-12.33	9.92	0.5271	-0.4425	0.0002
264	SLV 16	0	-12.33	9.92	0.5271	-0.4425	0.0002
265	SLU 1	0.01	1.78	56.68	-0.0607	0.0045	0
265	SLU 2	0.01	1.88	56.18	-0.0638	0.0046	0
265	SLU 3	0.01	1.61	59.93	-0.0556	0.0048	0
265	SLU 4	0.01	1.68	59.63	-0.0575	0.0048	0
265	SLU 5	0.01	1.66	58.93	-0.057	0.0048	0
265	SLU 6	0.01	1.4	62.69	-0.0489	0.0051	0
265	SLU 7	0.01	1.46	62.38	-0.0507	0.0051	0
265	SLU 8	0.01	1.35	62.18	-0.0471	0.005	0
265	SLU 9	0.01	1.41	61.88	-0.049	0.0051	0
265	SLU 10	0.01	2.1	65.9	-0.0728	0.0053	0
265	SLU 11	0.01	1.83	69.66	-0.0646	0.0055	0
265	SLU 12	0.01	1.89	69.35	-0.0664	0.0056	0
265	SLU 13	0.01	1.88	68.65	-0.066	0.0056	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
265	SLU 14	0.01	1.62	72.41	-0.0578	0.0058	0
265	SLU 15	0.01	1.68	72.1	-0.0597	0.0058	0
265	SLU 16	0.01	1.57	71.91	-0.0561	0.0058	0
265	SLU 17	0.01	1.63	71.6	-0.0579	0.0058	0
265	SLU 18	0.01	2.09	70.57	-0.0735	0.0055	0
265	SLU 19	0.01	2.15	70.27	-0.0754	0.0056	0
265	SLU 20	0.01	1.88	73.32	-0.0667	0.0058	0
265	SLU 21	0.01	1.94	73.02	-0.0686	0.0058	0
265	SLU 22	0.01	1.88	66.53	-0.0655	0.0053	0
265	SLU 23	0.01	1.98	66.03	-0.0686	0.0053	0
265	SLU 24	0.01	1.72	69.78	-0.0604	0.0056	0
265	SLU 25	0.01	1.78	69.48	-0.0623	0.0056	0
265	SLU 26	0.01	1.77	68.78	-0.0618	0.0056	0
265	SLU 27	0.01	1.5	72.53	-0.0536	0.0058	0
265	SLU 28	0.01	1.56	72.23	-0.0555	0.0059	0
265	SLU 29	0.01	1.45	72.03	-0.0519	0.0058	0
265	SLU 30	0.01	1.51	71.73	-0.0538	0.0059	0
265	SLU 31	0.01	2.2	75.75	-0.0775	0.0061	0
265	SLU 32	0.01	1.93	79.5	-0.0694	0.0063	0
265	SLU 33	0.01	1.99	79.2	-0.0712	0.0063	0
265	SLU 34	0.01	1.98	78.5	-0.0707	0.0063	0
265	SLU 35	0.01	1.72	82.25	-0.0626	0.0066	0
265	SLU 36	0.01	1.78	81.95	-0.0644	0.0066	0
265	SLU 37	0.01	1.67	81.75	-0.0609	0.0065	0
265	SLU 38	0.01	1.73	81.45	-0.0627	0.0066	0
265	SLU 39	0.01	2.19	80.42	-0.0783	0.0063	0
265	SLU 40	0.01	2.25	80.12	-0.0801	0.0064	0
265	SLU 41	0.01	1.98	83.17	-0.0715	0.0066	0
265	SLU 42	0.01	2.04	82.87	-0.0734	0.0066	0
265	SLU 43	0.01	2.28	70.31	-0.0773	0.0056	0
265	SLU 44	0.01	2.38	69.81	-0.0804	0.0057	0
265	SLU 45	0.01	2.11	73.56	-0.0722	0.0059	0
265	SLU 46	0.01	2.17	73.26	-0.0741	0.0059	0
265	SLU 47	0.01	2.16	72.56	-0.0736	0.0059	0
265	SLU 48	0.01	1.9	76.31	-0.0654	0.0062	0
265	SLU 49	0.01	1.96	76.01	-0.0673	0.0062	0
265	SLU 50	0.01	1.85	75.81	-0.0637	0.0061	0
265	SLU 51	0.01	1.91	75.51	-0.0656	0.0062	0
265	SLU 52	0.01	2.6	79.53	-0.0893	0.0064	0
265	SLU 53	0.01	2.33	83.28	-0.0812	0.0066	0
265	SLU 54	0.01	2.39	82.98	-0.083	0.0067	0
265	SLU 55	0.01	2.38	82.28	-0.0825	0.0067	0
265	SLU 56	0.01	2.12	86.03	-0.0744	0.0069	0
265	SLU 57	0.01	2.18	85.73	-0.0762	0.0069	0
265	SLU 58	0.01	2.07	85.53	-0.0727	0.0068	0
265	SLU 59	0.01	2.13	85.23	-0.0745	0.0069	0
265	SLU 60	0.01	2.59	84.2	-0.0901	0.0066	0
265	SLU 61	0.01	2.65	83.9	-0.092	0.0067	0
265	SLU 62	0.01	2.37	86.95	-0.0833	0.0069	0
265	SLU 63	0.01	2.43	86.65	-0.0852	0.0069	0
265	SLU 64	0.01	2.38	80.16	-0.0821	0.0064	0
265	SLU 65	0.01	2.48	79.66	-0.0851	0.0064	0
265	SLU 66	0.01	2.22	83.41	-0.077	0.0067	0
265	SLU 67	0.01	2.28	83.11	-0.0788	0.0067	0
265	SLU 68	0.01	2.26	82.41	-0.0784	0.0067	0
265	SLU 69	0.01	2	86.16	-0.0702	0.0069	0
265	SLU 70	0.01	2.06	85.86	-0.072	0.007	0
265	SLU 71	0.01	1.95	85.66	-0.0685	0.0069	0
265	SLU 72	0.01	2.01	85.36	-0.0703	0.0069	0
265	SLU 73	0.01	2.7	89.38	-0.0941	0.0072	0
265	SLU 74	0.01	2.43	93.13	-0.086	0.0074	0
265	SLU 75	0.01	2.49	92.83	-0.0878	0.0074	0
265	SLU 76	0.01	2.48	92.13	-0.0873	0.0074	0
265	SLU 77	0.01	2.22	95.88	-0.0792	0.0077	0
265	SLU 78	0.01	2.28	95.58	-0.081	0.0077	0
265	SLU 79	0.01	2.17	95.38	-0.0775	0.0076	0
265	SLU 80	0.01	2.23	95.08	-0.0793	0.0077	0
265	SLU 81	0.01	2.69	94.05	-0.0949	0.0074	0
265	SLU 82	0.01	2.75	93.74	-0.0967	0.0074	0
265	SLU 83	0.01	2.48	96.8	-0.0881	0.0077	0
265	SLU 84	0.01	2.54	96.5	-0.0899	0.0077	0
265	SLE RA 1	0.01	1.81	59.5	-0.0621	0.0047	0
265	SLE RA 2	0.01	1.87	59.16	-0.0641	0.0048	0
265	SLE RA 3	0.01	1.7	61.66	-0.0587	0.0049	0
265	SLE RA 4	0.01	1.74	61.46	-0.0599	0.005	0
265	SLE RA 5	0.01	1.73	61	-0.0596	0.005	0
265	SLE RA 6	0.01	1.56	63.5	-0.0542	0.0051	0
265	SLE RA 7	0.01	1.6	63.3	-0.0554	0.0051	0
265	SLE RA 8	0.01	1.52	63.16	-0.053	0.0051	0
265	SLE RA 9	0.01	1.56	62.96	-0.0543	0.0051	0
265	SLE RA 10	0.01	2.02	65.64	-0.0701	0.0053	0
265	SLE RA 11	0.01	1.84	68.14	-0.0647	0.0054	0
265	SLE RA 12	0.01	1.88	67.94	-0.0659	0.0054	0
265	SLE RA 13	0.01	1.88	67.48	-0.0656	0.0054	0
265	SLE RA 14	0.01	1.7	69.98	-0.0602	0.0056	0
265	SLE RA 15	0.01	1.74	69.78	-0.0614	0.0056	0
265	SLE RA 16	0.01	1.67	69.65	-0.059	0.0056	0
265	SLE RA 17	0.01	1.71	69.44	-0.0602	0.0056	0
265	SLE RA 18	0.01	2.02	68.76	-0.0706	0.0054	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
265	SLE RA 19	0.01	2.06	68.55	-0.0719	0.0054	0
265	SLE RA 20	0.01	1.87	70.59	-0.0661	0.0056	0
265	SLE RA 21	0.01	1.91	70.39	-0.0673	0.0056	0
265	SLE FR 1	0.01	1.81	59.5	-0.0621	0.0047	0
265	SLE FR 2	0.01	1.82	59.43	-0.0625	0.0047	0
265	SLE FR 3	0.01	1.75	60.23	-0.0603	0.0048	0
265	SLE FR 4	0.01	1.88	62.21	-0.0651	0.0049	0
265	SLE FR 5	0.01	1.81	63.01	-0.0628	0.005	0
265	SLE FR 6	0.01	1.91	64.13	-0.0664	0.0051	0
265	SLE QP 1	0.01	1.81	59.5	-0.0621	0.0047	0
265	SLE QP 2	0.01	1.87	62.27	-0.0647	0.0049	0
265	SLD 1	0.1	7.21	62.62	-0.0675	0.1225	0.0002
265	SLD 2	0.1	7.21	62.62	-0.0675	0.1225	0.0002
265	SLD 3	0.12	1.72	66.95	0.1017	0.1495	0.0002
265	SLD 4	0.12	1.72	66.95	0.1017	0.1495	0.0002
265	SLD 5	0.01	11.79	55.81	-0.3221	-0.0008	0
265	SLD 6	0.01	11.79	55.81	-0.3221	-0.0008	0
265	SLD 7	0.07	-6.49	70.25	0.2418	0.0893	0.0001
265	SLD 8	0.07	-6.49	70.25	0.2418	0.0893	0.0001
265	SLD 9	-0.05	10.23	54.3	-0.3711	-0.0794	-0.0001
265	SLD 10	-0.05	10.23	54.3	-0.3711	-0.0794	-0.0001
265	SLD 11	0.01	-8.05	68.74	0.1928	0.0106	0
265	SLD 12	0.01	-8.05	68.74	0.1928	0.0106	0
265	SLD 13	-0.1	2.02	57.6	-0.231	-0.1396	-0.0002
265	SLD 14	-0.1	2.02	57.6	-0.231	-0.1396	-0.0002
265	SLD 15	-0.08	-3.47	61.93	-0.0618	-0.1126	-0.0001
265	SLD 16	-0.08	-3.47	61.93	-0.0618	-0.1126	-0.0001
265	SLV 1	0.23	14.19	63.02	-0.0689	0.303	0.0004
265	SLV 2	0.23	14.19	63.02	-0.0689	0.303	0.0004
265	SLV 3	0.27	1.6	73.13	0.3193	0.3721	0.0004
265	SLV 4	0.27	1.6	73.13	0.3193	0.3721	0.0004
265	SLV 5	0	24.66	47.17	-0.6547	-0.0104	0
265	SLV 6	0	24.66	47.17	-0.6547	-0.0104	0
265	SLV 7	0.16	-17.3	80.86	0.6393	0.2198	0.0003
265	SLV 8	0.16	-17.3	80.86	0.6393	0.2198	0.0003
265	SLV 9	-0.14	21.04	43.69	-0.7686	-0.21	-0.0003
265	SLV 10	-0.14	21.04	43.69	-0.7686	-0.21	-0.0003
265	SLV 11	0.02	-20.92	77.38	0.5254	0.0203	0
265	SLV 12	0.02	-20.92	77.38	0.5254	0.0203	0
265	SLV 13	-0.25	2.14	51.42	-0.4486	-0.3622	-0.0004
265	SLV 14	-0.25	2.14	51.42	-0.4486	-0.3622	-0.0004
265	SLV 15	-0.21	-10.45	61.52	-0.0604	-0.2931	-0.0003
265	SLV 16	-0.21	-10.45	61.52	-0.0604	-0.2931	-0.0003
266	SLU 1	0	-6.82	54.33	0.2747	0.0096	0
266	SLU 2	0.01	-6.11	51.33	0.2437	0.0044	0
266	SLU 3	0	-7.02	55.36	0.2825	0.0104	0
266	SLU 4	0.01	-6.59	53.56	0.2639	0.0073	0
266	SLU 5	0.01	-6.2	51.67	0.2472	0.0052	0
266	SLU 6	0.01	-7.11	55.7	0.2861	0.0112	0
266	SLU 7	0.01	-6.68	53.9	0.2675	0.0081	0
266	SLU 8	0.01	-7	55.01	0.2819	0.0112	0
266	SLU 9	0.01	-6.58	53.21	0.2633	0.0081	0
266	SLU 10	0.01	-6.94	57.65	0.2768	0.006	0
266	SLU 11	0.01	-7.84	61.68	0.3157	0.0121	0
266	SLU 12	0.01	-7.41	59.88	0.297	0.0089	0
266	SLU 13	0.01	-7.02	57.99	0.2804	0.0068	0
266	SLU 14	0.01	-7.93	62.02	0.3193	0.0128	0
266	SLU 15	0.01	-7.5	60.22	0.3006	0.0097	0
266	SLU 16	0.01	-7.82	61.33	0.315	0.0128	0
266	SLU 17	0.01	-7.4	59.53	0.2964	0.0097	0
266	SLU 18	0.01	-7.99	63.37	0.322	0.012	0
266	SLU 19	0.01	-7.57	61.56	0.3034	0.0088	0
266	SLU 20	0.01	-8.08	63.7	0.3256	0.0127	0
266	SLU 21	0.01	-7.66	61.9	0.307	0.0096	0
266	SLU 22	0.01	-7.65	60.32	0.3083	0.0115	0
266	SLU 23	0.01	-6.95	57.32	0.2772	0.0062	0
266	SLU 24	0.01	-7.85	61.35	0.3161	0.0123	0
266	SLU 25	0.01	-7.42	59.55	0.2975	0.0091	0
266	SLU 26	0.01	-7.04	57.66	0.2808	0.007	0
266	SLU 27	0.01	-7.94	61.69	0.3197	0.0131	0
266	SLU 28	0.01	-7.51	59.88	0.3011	0.0099	0
266	SLU 29	0.01	-7.83	61	0.3155	0.0131	0
266	SLU 30	0.01	-7.41	59.2	0.2968	0.0099	0
266	SLU 31	0.01	-7.77	63.64	0.3104	0.0079	0
266	SLU 32	0.01	-8.67	67.67	0.3493	0.0139	0
266	SLU 33	0.01	-8.24	65.87	0.3306	0.0108	0
266	SLU 34	0.01	-7.86	63.98	0.3139	0.0087	0
266	SLU 35	0.01	-8.76	68.01	0.3528	0.0147	0
266	SLU 36	0.01	-8.33	66.21	0.3342	0.0115	0
266	SLU 37	0.01	-8.65	67.32	0.3486	0.0147	0
266	SLU 38	0.01	-8.23	65.52	0.33	0.0115	0
266	SLU 39	0.01	-8.83	69.35	0.3556	0.0138	0
266	SLU 40	0.01	-8.4	67.55	0.337	0.0107	0
266	SLU 41	0.01	-8.92	69.69	0.3592	0.0146	0
266	SLU 42	0.01	-8.49	67.89	0.3406	0.0114	0
266	SLU 43	0.01	-8.58	68.58	0.3456	0.0119	0
266	SLU 44	0.01	-7.88	65.58	0.3146	0.0066	0
266	SLU 45	0.01	-8.78	69.61	0.3534	0.0127	0
266	SLU 46	0.01	-8.35	67.8	0.3348	0.0095	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
266	SLU 47	0.01	-7.97	65.92	0.3181	0.0074	0
266	SLU 48	0.01	-8.87	69.94	0.357	0.0135	0
266	SLU 49	0.01	-8.44	68.14	0.3384	0.0103	0
266	SLU 50	0.01	-8.76	69.26	0.3528	0.0135	0
266	SLU 51	0.01	-8.34	67.45	0.3342	0.0103	0
266	SLU 52	0.01	-8.7	71.9	0.3477	0.0083	0
266	SLU 53	0.01	-9.6	75.93	0.3866	0.0143	0
266	SLU 54	0.01	-9.17	74.13	0.3679	0.0112	0
266	SLU 55	0.01	-8.79	72.24	0.3513	0.0091	0
266	SLU 56	0.01	-9.69	76.27	0.3902	0.0151	0
266	SLU 57	0.01	-9.26	74.47	0.3715	0.012	0
266	SLU 58	0.01	-9.58	75.58	0.3859	0.0151	0
266	SLU 59	0.01	-9.16	73.78	0.3673	0.0119	0
266	SLU 60	0.01	-9.76	77.61	0.393	0.0142	0
266	SLU 61	0.01	-9.33	75.81	0.3743	0.0111	0
266	SLU 62	0.01	-9.85	77.95	0.3965	0.015	0
266	SLU 63	0.01	-9.42	76.15	0.3779	0.0119	0
266	SLU 64	0.01	-9.42	74.57	0.3792	0.0137	0
266	SLU 65	0.01	-8.71	71.57	0.3481	0.0085	0
266	SLU 66	0.01	-9.61	75.6	0.387	0.0145	0
266	SLU 67	0.01	-9.19	73.79	0.3684	0.0114	0
266	SLU 68	0.01	-8.8	71.9	0.3517	0.0093	0
266	SLU 69	0.01	-9.7	75.93	0.3906	0.0153	0
266	SLU 70	0.01	-9.28	74.13	0.372	0.0122	0
266	SLU 71	0.01	-9.6	75.24	0.3864	0.0153	0
266	SLU 72	0.01	-9.17	73.44	0.3677	0.0122	0
266	SLU 73	0.01	-9.53	77.89	0.3813	0.0101	0
266	SLU 74	0.01	-10.43	81.92	0.4202	0.0162	0
266	SLU 75	0.01	-10.01	80.12	0.4015	0.013	0
266	SLU 76	0.01	-9.62	78.23	0.3849	0.0109	0
266	SLU 77	0.01	-10.52	82.26	0.4237	0.017	0
266	SLU 78	0.01	-10.1	80.45	0.4051	0.0138	0
266	SLU 79	0.01	-10.42	81.57	0.4195	0.0169	0
266	SLU 80	0.01	-9.99	79.77	0.4009	0.0138	0
266	SLU 81	0.01	-10.59	83.6	0.4265	0.0161	0
266	SLU 82	0.01	-10.16	81.8	0.4079	0.0129	0
266	SLU 83	0.01	-10.68	83.94	0.4301	0.0169	0
266	SLU 84	0.01	-10.25	82.14	0.4115	0.0137	0
266	SLE RA 1	0	-7.06	56.04	0.2843	0.0102	0
266	SLE RA 2	0.01	-6.59	54.04	0.2636	0.0067	0
266	SLE RA 3	0.01	-7.19	56.73	0.2895	0.0107	0
266	SLE RA 4	0.01	-6.91	55.53	0.2771	0.0086	0
266	SLE RA 5	0.01	-6.65	54.27	0.266	0.0072	0
266	SLE RA 6	0.01	-7.25	56.95	0.2919	0.0112	0
266	SLE RA 7	0.01	-6.97	55.75	0.2795	0.0091	0
266	SLE RA 8	0.01	-7.18	56.5	0.2891	0.0112	0
266	SLE RA 9	0.01	-6.9	55.29	0.2767	0.0091	0
266	SLE RA 10	0.01	-7.14	58.26	0.2857	0.0078	0
266	SLE RA 11	0.01	-7.74	60.94	0.3116	0.0118	0
266	SLE RA 12	0.01	-7.45	59.74	0.2992	0.0097	0
266	SLE RA 13	0.01	-7.2	58.48	0.2881	0.0083	0
266	SLE RA 14	0.01	-7.8	61.17	0.314	0.0123	0
266	SLE RA 15	0.01	-7.51	59.97	0.3016	0.0102	0
266	SLE RA 16	0.01	-7.73	60.71	0.3112	0.0123	0
266	SLE RA 17	0.01	-7.44	59.51	0.2988	0.0102	0
266	SLE RA 18	0.01	-7.84	62.07	0.3159	0.0117	0
266	SLE RA 19	0.01	-7.56	60.87	0.3034	0.0096	0
266	SLE RA 20	0.01	-7.9	62.29	0.3183	0.0122	0
266	SLE RA 21	0.01	-7.62	61.09	0.3058	0.0101	0
266	SLE FR 1	0	-7.06	56.04	0.2843	0.0102	0
266	SLE FR 2	0	-6.97	55.64	0.2802	0.0095	0
266	SLE FR 3	0	-7.08	56.13	0.2853	0.0104	0
266	SLE FR 4	0.01	-7.2	57.45	0.2896	0.0099	0
266	SLE FR 5	0.01	-7.32	57.94	0.2947	0.0108	0
266	SLE FR 6	0.01	-7.45	59.06	0.3001	0.0109	0
266	SLE QP 1	0	-7.06	56.04	0.2843	0.0102	0
266	SLE QP 2	0.01	-7.29	57.85	0.2938	0.0106	0
266	SLD 1	0.04	-2.95	38.86	0.1107	0.1008	0.0001
266	SLD 2	0.04	-2.95	38.86	0.1107	0.1008	0.0001
266	SLD 3	0.17	-8.09	47.95	0.329	0.1855	0.0002
266	SLD 4	0.17	-8.09	47.95	0.329	0.1855	0.0002
266	SLD 5	-0.17	1.8	38.37	-0.0922	-0.0907	-0.0001
266	SLD 6	-0.17	1.8	38.37	-0.0922	-0.0907	-0.0001
266	SLD 7	0.24	-15.32	68.67	0.6354	0.1915	0.0002
266	SLD 8	0.24	-15.32	68.67	0.6354	0.1915	0.0002
266	SLD 9	-0.23	0.73	47.04	-0.0479	-0.1702	-0.0001
266	SLD 10	-0.23	0.73	47.04	-0.0479	-0.1702	-0.0001
266	SLD 11	0.18	-16.39	77.34	0.6798	0.112	0.0001
266	SLD 12	0.18	-16.39	77.34	0.6798	0.112	0.0001
266	SLD 13	-0.16	-6.5	67.75	0.2585	-0.1642	-0.0001
266	SLD 14	-0.16	-6.5	67.75	0.2585	-0.1642	-0.0001
266	SLD 15	-0.03	-11.64	76.84	0.4768	-0.0796	-0.0001
266	SLD 16	-0.03	-11.64	76.84	0.4768	-0.0796	-0.0001
266	SLV 1	0.08	2.71	14.32	-0.1277	0.2233	0.0002
266	SLV 2	0.08	2.71	14.32	-0.1277	0.2233	0.0002
266	SLV 3	0.39	-9.12	35.31	0.3746	0.4348	0.0004
266	SLV 4	0.39	-9.12	35.31	0.3746	0.4348	0.0004
266	SLV 5	-0.44	13.64	12.96	-0.5946	-0.2463	-0.0002
266	SLV 6	-0.44	13.64	12.96	-0.5946	-0.2463	-0.0002





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
266	SLV 7	0.59	-25.77	82.92	1.0799	0.4587	0.0004
266	SLV 8	0.59	-25.77	82.92	1.0799	0.4587	0.0004
266	SLV 9	-0.58	11.18	32.78	-0.4924	-0.4374	-0.0004
266	SLV 10	-0.58	11.18	32.78	-0.4924	-0.4374	-0.0004
266	SLV 11	0.45	-28.23	102.74	1.1821	0.2676	0.0002
266	SLV 12	0.45	-28.23	102.74	1.1821	0.2676	0.0002
266	SLV 13	-0.38	-5.47	80.39	0.2129	-0.4136	-0.0004
266	SLV 14	-0.38	-5.47	80.39	0.2129	-0.4136	-0.0004
266	SLV 15	-0.07	-17.3	101.38	0.7153	-0.2021	-0.0002
266	SLV 16	-0.07	-17.3	101.38	0.7153	-0.2021	-0.0002
267	SLU 1	-0.01	-7.09	28.2	0.167	-0.0025	-0.0004
267	SLU 2	-0.01	-7.03	28.04	0.165	-0.0025	-0.0004
267	SLU 3	-0.01	-7.3	29.03	0.1717	-0.0025	-0.0004
267	SLU 4	-0.01	-7.26	28.93	0.1705	-0.0025	-0.0004
267	SLU 5	-0.01	-7.11	28.4	0.1662	-0.0025	-0.0004
267	SLU 6	-0.01	-7.37	29.39	0.173	-0.0025	-0.0004
267	SLU 7	-0.01	-7.34	29.3	0.1718	-0.0025	-0.0004
267	SLU 8	-0.01	-7.24	28.93	0.1695	-0.0024	-0.0004
267	SLU 9	-0.01	-7.21	28.83	0.1683	-0.0024	-0.0004
267	SLU 10	-0.01	-8.39	33.12	0.1995	-0.003	-0.0005
267	SLU 11	-0.01	-8.65	34.11	0.2063	-0.003	-0.0005
267	SLU 12	-0.01	-8.62	34.01	0.2051	-0.003	-0.0005
267	SLU 13	-0.01	-8.46	33.48	0.2008	-0.003	-0.0005
267	SLU 14	-0.01	-8.73	34.47	0.2076	-0.003	-0.0005
267	SLU 15	-0.01	-8.69	34.37	0.2064	-0.003	-0.0005
267	SLU 16	-0.01	-8.6	34.01	0.2041	-0.0029	-0.0005
267	SLU 17	-0.01	-8.56	33.91	0.2029	-0.0029	-0.0005
267	SLU 18	-0.01	-9.03	35.46	0.2164	-0.0032	-0.0005
267	SLU 19	-0.01	-9	35.36	0.2152	-0.0032	-0.0005
267	SLU 20	-0.01	-9.11	35.82	0.2176	-0.0032	-0.0005
267	SLU 21	-0.01	-9.07	35.72	0.2164	-0.0032	-0.0005
267	SLU 22	-0.01	-8.33	32.91	0.198	-0.0029	-0.0005
267	SLU 23	-0.01	-8.27	32.74	0.196	-0.0029	-0.0005
267	SLU 24	-0.01	-8.54	33.74	0.2027	-0.003	-0.0005
267	SLU 25	-0.01	-8.5	33.64	0.2015	-0.003	-0.0005
267	SLU 26	-0.01	-8.34	33.11	0.1972	-0.0029	-0.0005
267	SLU 27	-0.01	-8.61	34.1	0.204	-0.0029	-0.0005
267	SLU 28	-0.01	-8.57	34	0.2028	-0.0029	-0.0005
267	SLU 29	-0.01	-8.48	33.64	0.2005	-0.0029	-0.0005
267	SLU 30	-0.01	-8.44	33.54	0.1993	-0.0029	-0.0005
267	SLU 31	-0.01	-9.63	37.82	0.2305	-0.0034	-0.0006
267	SLU 32	-0.01	-9.89	38.82	0.2373	-0.0035	-0.0006
267	SLU 33	-0.01	-9.86	38.72	0.2361	-0.0035	-0.0006
267	SLU 34	-0.01	-9.7	38.19	0.2318	-0.0034	-0.0006
267	SLU 35	-0.01	-9.97	39.18	0.2385	-0.0034	-0.0006
267	SLU 36	-0.01	-9.93	39.08	0.2373	-0.0034	-0.0006
267	SLU 37	-0.01	-9.84	38.72	0.235	-0.0034	-0.0006
267	SLU 38	-0.01	-9.8	38.62	0.2338	-0.0034	-0.0006
267	SLU 39	-0.01	-10.27	40.16	0.2473	-0.0037	-0.0006
267	SLU 40	-0.01	-10.23	40.06	0.2461	-0.0037	-0.0006
267	SLU 41	-0.01	-10.34	40.53	0.2486	-0.0036	-0.0006
267	SLU 42	-0.01	-10.31	40.43	0.2474	-0.0036	-0.0006
267	SLU 43	-0.01	-8.8	35.05	0.2064	-0.0031	-0.0005
267	SLU 44	-0.01	-8.74	34.88	0.2044	-0.0031	-0.0005
267	SLU 45	-0.01	-9	35.88	0.2112	-0.0031	-0.0005
267	SLU 46	-0.01	-8.96	35.78	0.21	-0.0031	-0.0005
267	SLU 47	-0.01	-8.81	35.25	0.2057	-0.0031	-0.0005
267	SLU 48	-0.01	-9.08	36.24	0.2125	-0.0031	-0.0005
267	SLU 49	-0.01	-9.04	36.14	0.2113	-0.0031	-0.0005
267	SLU 50	-0.01	-8.95	35.78	0.209	-0.003	-0.0005
267	SLU 51	-0.01	-8.91	35.68	0.2078	-0.003	-0.0005
267	SLU 52	-0.01	-10.09	39.96	0.239	-0.0036	-0.0006
267	SLU 53	-0.01	-10.36	40.95	0.2458	-0.0036	-0.0006
267	SLU 54	-0.01	-10.32	40.86	0.2446	-0.0036	-0.0006
267	SLU 55	-0.01	-10.17	40.33	0.2403	-0.0036	-0.0006
267	SLU 56	-0.01	-10.43	41.32	0.247	-0.0036	-0.0006
267	SLU 57	-0.01	-10.4	41.22	0.2458	-0.0036	-0.0006
267	SLU 58	-0.01	-10.3	40.86	0.2435	-0.0035	-0.0006
267	SLU 59	-0.01	-10.27	40.76	0.2423	-0.0035	-0.0006
267	SLU 60	-0.01	-10.74	42.3	0.2558	-0.0038	-0.0006
267	SLU 61	-0.01	-10.7	42.2	0.2546	-0.0038	-0.0006
267	SLU 62	-0.01	-10.81	42.67	0.2571	-0.0038	-0.0006
267	SLU 63	-0.01	-10.77	42.57	0.2559	-0.0038	-0.0006
267	SLU 64	-0.01	-10.03	39.76	0.2374	-0.0035	-0.0006
267	SLU 65	-0.01	-9.97	39.59	0.2354	-0.0035	-0.0006
267	SLU 66	-0.01	-10.24	40.58	0.2422	-0.0036	-0.0006
267	SLU 67	-0.01	-10.2	40.49	0.241	-0.0036	-0.0006
267	SLU 68	-0.01	-10.05	39.96	0.2367	-0.0035	-0.0006
267	SLU 69	-0.01	-10.31	40.95	0.2434	-0.0035	-0.0006
267	SLU 70	-0.01	-10.28	40.85	0.2422	-0.0035	-0.0006
267	SLU 71	-0.01	-10.18	40.49	0.2399	-0.0035	-0.0006
267	SLU 72	-0.01	-10.15	40.39	0.2387	-0.0035	-0.0006
267	SLU 73	-0.01	-11.33	44.67	0.27	-0.004	-0.0007
267	SLU 74	-0.01	-11.6	45.66	0.2768	-0.0041	-0.0007
267	SLU 75	-0.01	-11.56	45.56	0.2756	-0.0041	-0.0007
267	SLU 76	-0.01	-11.41	45.03	0.2713	-0.004	-0.0007
267	SLU 77	-0.01	-11.67	46.03	0.278	-0.004	-0.0007
267	SLU 78	-0.01	-11.63	45.93	0.2768	-0.004	-0.0007
267	SLU 79	-0.01	-11.54	45.56	0.2745	-0.004	-0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
267	SLU 80	-0.01	-11.5	45.46	0.2733	-0.004	-0.0007
267	SLU 81	-0.01	-11.97	47.01	0.2868	-0.0043	-0.0007
267	SLU 82	-0.01	-11.94	46.91	0.2856	-0.0043	-0.0007
267	SLU 83	-0.01	-12.05	47.38	0.2881	-0.0042	-0.0007
267	SLU 84	-0.01	-12.01	47.28	0.2869	-0.0042	-0.0007
267	SLE RA 1	-0.01	-7.45	29.55	0.1758	-0.0026	-0.0004
267	SLE RA 2	-0.01	-7.41	29.44	0.1745	-0.0026	-0.0004
267	SLE RA 3	-0.01	-7.58	30.1	0.179	-0.0026	-0.0004
267	SLE RA 4	-0.01	-7.56	30.03	0.1782	-0.0026	-0.0004
267	SLE RA 5	-0.01	-7.46	29.68	0.1753	-0.0026	-0.0004
267	SLE RA 6	-0.01	-7.63	30.34	0.1798	-0.0026	-0.0004
267	SLE RA 7	-0.01	-7.61	30.28	0.179	-0.0026	-0.0004
267	SLE RA 8	-0.01	-7.55	30.03	0.1775	-0.0026	-0.0004
267	SLE RA 9	-0.01	-7.52	29.97	0.1767	-0.0026	-0.0004
267	SLE RA 10	-0.01	-8.31	32.82	0.1975	-0.003	-0.0005
267	SLE RA 11	-0.01	-8.49	33.48	0.202	-0.003	-0.0005
267	SLE RA 12	-0.01	-8.46	33.42	0.2012	-0.003	-0.0005
267	SLE RA 13	-0.01	-8.36	33.07	0.1984	-0.0029	-0.0005
267	SLE RA 14	-0.01	-8.54	33.73	0.2029	-0.003	-0.0005
267	SLE RA 15	-0.01	-8.51	33.66	0.2021	-0.003	-0.0005
267	SLE RA 16	-0.01	-8.45	33.42	0.2006	-0.0029	-0.0005
267	SLE RA 17	-0.01	-8.43	33.35	0.1998	-0.0029	-0.0005
267	SLE RA 18	-0.01	-8.74	34.38	0.2087	-0.0031	-0.0005
267	SLE RA 19	-0.01	-8.71	34.32	0.2079	-0.0031	-0.0005
267	SLE RA 20	-0.01	-8.79	34.63	0.2096	-0.0031	-0.0005
267	SLE RA 21	-0.01	-8.76	34.56	0.2088	-0.0031	-0.0005
267	SLE FR 1	-0.01	-7.45	29.55	0.1758	-0.0026	-0.0004
267	SLE FR 2	-0.01	-7.44	29.52	0.1756	-0.0026	-0.0004
267	SLE FR 3	-0.01	-7.47	29.64	0.1762	-0.0026	-0.0004
267	SLE FR 4	-0.01	-7.83	30.98	0.1854	-0.0028	-0.0005
267	SLE FR 5	-0.01	-7.85	31.1	0.186	-0.0028	-0.0005
267	SLE FR 6	-0.01	-8.09	31.96	0.1923	-0.0029	-0.0005
267	SLE QP 1	-0.01	-7.45	29.55	0.1758	-0.0026	-0.0004
267	SLE QP 2	-0.01	-7.83	31	0.1857	-0.0028	-0.0005
267	SLD 1	-0.38	-7.39	29.55	0.1716	0.0332	0.0037
267	SLD 2	-0.38	-7.39	29.55	0.1716	0.0332	0.0037
267	SLD 3	-0.33	-12.02	42.7	0.3344	0.0279	0.0031
267	SLD 4	-0.33	-12.02	42.7	0.3344	0.0279	0.0031
267	SLD 5	-0.19	-0.67	10.62	-0.0654	0.016	0.0017
267	SLD 6	-0.19	-0.67	10.62	-0.0654	0.016	0.0017
267	SLD 7	-0.03	-16.12	54.46	0.4772	-0.0016	-0.0003
267	SLD 8	-0.03	-16.12	54.46	0.4772	-0.0016	-0.0003
267	SLD 9	0.01	0.45	7.54	-0.1058	-0.004	-0.0006
267	SLD 10	0.01	0.45	7.54	-0.1058	-0.004	-0.0006
267	SLD 11	0.18	-15	51.38	0.4368	-0.0216	-0.0026
267	SLD 12	0.18	-15	51.38	0.4368	-0.0216	-0.0026
267	SLD 13	0.31	-3.65	19.29	0.037	-0.0334	-0.004
267	SLD 14	0.31	-3.65	19.29	0.037	-0.0334	-0.004
267	SLD 15	0.36	-8.28	32.44	0.1998	-0.0387	-0.0046
267	SLD 16	0.36	-8.28	32.44	0.1998	-0.0387	-0.0046
267	SLV 1	-0.95	-6.84	27.77	0.1545	0.0869	0.0095
267	SLV 2	-0.95	-6.84	27.77	0.1545	0.0869	0.0095
267	SLV 3	-0.82	-17.51	58.06	0.5294	0.0735	0.008
267	SLV 4	-0.82	-17.51	58.06	0.5294	0.0735	0.008
267	SLV 5	-0.48	8.66	-15.91	-0.3923	0.0445	0.0048
267	SLV 6	-0.48	8.66	-15.91	-0.3923	0.0445	0.0048
267	SLV 7	-0.06	-26.93	85.05	0.8574	-0.0003	-0.0002
267	SLV 8	-0.06	-26.93	85.05	0.8574	-0.0003	-0.0002
267	SLV 9	0.04	11.26	-23.06	-0.486	-0.0053	-0.0007
267	SLV 10	0.04	11.26	-23.06	-0.486	-0.0053	-0.0007
267	SLV 11	0.47	-24.33	77.9	0.7637	-0.0501	-0.0057
267	SLV 12	0.47	-24.33	77.9	0.7637	-0.0501	-0.0057
267	SLV 13	0.81	1.84	3.94	-0.158	-0.0791	-0.0089
267	SLV 14	0.81	1.84	3.94	-0.158	-0.0791	-0.0089
267	SLV 15	0.94	-8.83	34.22	0.2169	-0.0925	-0.0104
267	SLV 16	0.94	-8.83	34.22	0.2169	-0.0925	-0.0104
268	SLU 1	0	3.02	15.1	-0.2431	0.0004	0
268	SLU 2	0	3.01	15.09	-0.2425	0.0003	0
268	SLU 3	0	3.17	15.22	-0.2541	0.0004	0
268	SLU 4	0	3.16	15.21	-0.2537	0.0004	0
268	SLU 5	0	3.1	15.16	-0.2492	0.0004	0
268	SLU 6	0	3.26	15.28	-0.2608	0.0005	0
268	SLU 7	0	3.25	15.28	-0.2604	0.0005	0
268	SLU 8	0	3.2	15.23	-0.2565	0.0005	0
268	SLU 9	0	3.19	15.23	-0.2561	0.0005	0
268	SLU 10	0	3.48	18.86	-0.2864	0.0004	0
268	SLU 11	0	3.64	18.99	-0.298	0.0005	0
268	SLU 12	0	3.63	18.98	-0.2976	0.0005	0
268	SLU 13	0	3.57	18.93	-0.2931	0.0005	0
268	SLU 14	0	3.73	19.05	-0.3047	0.0006	0
268	SLU 15	0	3.72	19.05	-0.3043	0.0005	0
268	SLU 16	0	3.67	19	-0.3005	0.0006	0
268	SLU 17	0	3.67	19	-0.3001	0.0005	0
268	SLU 18	0	3.69	20.49	-0.3059	0.0005	0
268	SLU 19	0	3.69	20.48	-0.3055	0.0004	0
268	SLU 20	0	3.78	20.55	-0.3126	0.0005	0
268	SLU 21	0	3.78	20.55	-0.3122	0.0005	0
268	SLU 22	0	3.51	17.98	-0.2858	0.0005	0
268	SLU 23	0	3.5	17.97	-0.2851	0.0004	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
268	SLU 24	0	3.66	18.1	-0.2967	0.0005	0
268	SLU 25	0	3.65	18.09	-0.2963	0.0005	0
268	SLU 26	0	3.59	18.04	-0.2918	0.0005	0
268	SLU 27	0	3.75	18.16	-0.3034	0.0006	0
268	SLU 28	0	3.74	18.16	-0.303	0.0006	0
268	SLU 29	0	3.69	18.11	-0.2992	0.0006	0
268	SLU 30	0	3.68	18.11	-0.2988	0.0006	0
268	SLU 31	0	3.97	21.74	-0.3291	0.0005	0
268	SLU 32	0	4.13	21.87	-0.3407	0.0006	0
268	SLU 33	0	4.13	21.86	-0.3403	0.0006	0
268	SLU 34	0	4.06	21.81	-0.3358	0.0006	0
268	SLU 35	0	4.22	21.93	-0.3474	0.0007	0
268	SLU 36	0	4.22	21.93	-0.347	0.0006	0
268	SLU 37	0	4.16	21.89	-0.3431	0.0007	0
268	SLU 38	0	4.16	21.88	-0.3427	0.0006	0
268	SLU 39	0	4.18	23.37	-0.3485	0.0006	0
268	SLU 40	0	4.18	23.36	-0.3481	0.0005	0
268	SLU 41	0	4.27	23.43	-0.3552	0.0006	0
268	SLU 42	0	4.27	23.43	-0.3548	0.0006	0
268	SLU 43	0	3.75	18.64	-0.3014	0.0005	0
268	SLU 44	0	3.75	18.63	-0.3008	0.0004	0
268	SLU 45	0	3.9	18.76	-0.3124	0.0005	0
268	SLU 46	0	3.9	18.75	-0.312	0.0005	0
268	SLU 47	0	3.84	18.7	-0.3075	0.0005	0
268	SLU 48	0	3.99	18.82	-0.3191	0.0006	0
268	SLU 49	0	3.99	18.82	-0.3187	0.0006	0
268	SLU 50	0	3.93	18.78	-0.3148	0.0006	0
268	SLU 51	0	3.93	18.77	-0.3144	0.0006	0
268	SLU 52	0	4.22	22.4	-0.3447	0.0005	0
268	SLU 53	0	4.38	22.53	-0.3563	0.0006	0
268	SLU 54	0	4.37	22.52	-0.3559	0.0006	0
268	SLU 55	0	4.31	22.47	-0.3514	0.0006	0
268	SLU 56	0	4.47	22.6	-0.363	0.0006	0
268	SLU 57	0	4.46	22.59	-0.3626	0.0006	0
268	SLU 58	0	4.41	22.55	-0.3588	0.0007	0
268	SLU 59	0	4.4	22.54	-0.3584	0.0006	0
268	SLU 60	0	4.43	24.03	-0.3642	0.0006	0
268	SLU 61	0	4.43	24.02	-0.3638	0.0005	0
268	SLU 62	0	4.52	24.09	-0.3709	0.0006	0
268	SLU 63	0	4.52	24.09	-0.3705	0.0006	0
268	SLU 64	0	4.25	21.52	-0.3441	0.0005	0
268	SLU 65	0	4.24	21.51	-0.3434	0.0005	0
268	SLU 66	0	4.39	21.64	-0.355	0.0006	0
268	SLU 67	0	4.39	21.63	-0.3546	0.0006	0
268	SLU 68	0	4.33	21.58	-0.3501	0.0006	0
268	SLU 69	0	4.48	21.71	-0.3617	0.0007	0
268	SLU 70	0	4.48	21.7	-0.3613	0.0006	0
268	SLU 71	0	4.43	21.66	-0.3575	0.0007	0
268	SLU 72	0	4.42	21.65	-0.3571	0.0007	0
268	SLU 73	0	4.71	25.28	-0.3874	0.0006	0
268	SLU 74	0	4.87	25.41	-0.399	0.0007	0
268	SLU 75	0	4.86	25.4	-0.3986	0.0006	0
268	SLU 76	0	4.8	25.35	-0.3941	0.0006	0
268	SLU 77	0	4.96	25.48	-0.4057	0.0007	0
268	SLU 78	0	4.95	25.47	-0.4053	0.0007	0
268	SLU 79	0	4.9	25.43	-0.4014	0.0007	0
268	SLU 80	0	4.89	25.42	-0.401	0.0007	0
268	SLU 81	0	4.92	26.91	-0.4068	0.0006	0
268	SLU 82	0	4.92	26.9	-0.4065	0.0006	0
268	SLU 83	0	5.01	26.98	-0.4135	0.0007	0
268	SLU 84	0	5.01	26.97	-0.4132	0.0007	0
268	SLE RA 1	0	3.16	15.92	-0.2553	0.0004	0
268	SLE RA 2	0	3.15	15.92	-0.2549	0.0004	0
268	SLE RA 3	0	3.26	16	-0.2626	0.0004	0
268	SLE RA 4	0	3.25	16	-0.2623	0.0004	0
268	SLE RA 5	0	3.21	15.96	-0.2593	0.0004	0
268	SLE RA 6	0	3.32	16.04	-0.2671	0.0005	0
268	SLE RA 7	0	3.31	16.04	-0.2668	0.0005	0
268	SLE RA 8	0	3.28	16.01	-0.2642	0.0005	0
268	SLE RA 9	0	3.27	16.01	-0.264	0.0005	0
268	SLE RA 10	0	3.47	18.43	-0.2842	0.0004	0
268	SLE RA 11	0	3.57	18.51	-0.2919	0.0005	0
268	SLE RA 12	0	3.57	18.51	-0.2916	0.0005	0
268	SLE RA 13	0	3.53	18.47	-0.2886	0.0005	0
268	SLE RA 14	0	3.63	18.56	-0.2964	0.0005	0
268	SLE RA 15	0	3.63	18.55	-0.2961	0.0005	0
268	SLE RA 16	0	3.59	18.53	-0.2935	0.0005	0
268	SLE RA 17	0	3.59	18.52	-0.2933	0.0005	0
268	SLE RA 18	0	3.61	19.51	-0.2971	0.0005	0
268	SLE RA 19	0	3.61	19.51	-0.2969	0.0004	0
268	SLE RA 20	0	3.67	19.56	-0.3016	0.0005	0
268	SLE RA 21	0	3.67	19.55	-0.3014	0.0005	0
268	SLE FR 1	0	3.16	15.92	-0.2553	0.0004	0
268	SLE FR 2	0	3.16	15.92	-0.2552	0.0004	0
268	SLE FR 3	0	3.18	15.94	-0.2571	0.0004	0
268	SLE FR 4	0	3.29	17	-0.2678	0.0004	0
268	SLE FR 5	0	3.32	17.02	-0.2696	0.0004	0
268	SLE FR 6	0	3.38	17.72	-0.2762	0.0004	0
268	SLE QP 1	0	3.16	15.92	-0.2553	0.0004	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
268	SLE QP 2	0	3.29	17	-0.2679	0.0004	0
268	SLD 1	0.16	-0.65	17.09	-0.1542	0.2732	0.0009
268	SLD 2	0.16	-0.65	17.09	-0.1542	0.2732	0.0009
268	SLD 3	0.17	4.48	16.4	-0.2974	0.2832	0.001
268	SLD 4	0.17	4.48	16.4	-0.2974	0.2832	0.001
268	SLD 5	0.03	-5.67	18.08	-0.0165	0.067	0.0002
268	SLD 6	0.03	-5.67	18.08	-0.0165	0.067	0.0002
268	SLD 7	0.07	11.42	15.77	-0.4939	0.1005	0.0004
268	SLD 8	0.07	11.42	15.77	-0.4939	0.1005	0.0004
268	SLD 9	-0.06	-4.84	18.23	-0.0418	-0.0997	-0.0004
268	SLD 10	-0.06	-4.84	18.23	-0.0418	-0.0997	-0.0004
268	SLD 11	-0.03	12.25	15.92	-0.5192	-0.0661	-0.0002
268	SLD 12	-0.03	12.25	15.92	-0.5192	-0.0661	-0.0002
268	SLD 13	-0.17	2.11	17.6	-0.2383	-0.2824	-0.001
268	SLD 14	-0.17	2.11	17.6	-0.2383	-0.2824	-0.001
268	SLD 15	-0.16	7.23	16.91	-0.3815	-0.2723	-0.0009
268	SLD 16	-0.16	7.23	16.91	-0.3815	-0.2723	-0.0009
268	SLV 1	0.41	-5.87	17.23	-0.0034	0.6996	0.0024
268	SLV 2	0.41	-5.87	17.23	-0.0034	0.6996	0.0024
268	SLV 3	0.43	6.11	15.62	-0.3383	0.7254	0.0025
268	SLV 4	0.43	6.11	15.62	-0.3383	0.7254	0.0025
268	SLV 5	0.09	-17.61	19.51	0.3194	0.1711	0.0005
268	SLV 6	0.09	-17.61	19.51	0.3194	0.1711	0.0005
268	SLV 7	0.17	22.3	14.14	-0.7969	0.257	0.0009
268	SLV 8	0.17	22.3	14.14	-0.7969	0.257	0.0009
268	SLV 9	-0.16	-15.71	19.86	0.2612	-0.2561	-0.0009
268	SLV 10	-0.16	-15.71	19.86	0.2612	-0.2561	-0.0009
268	SLV 11	-0.09	24.2	14.49	-0.8551	-0.1703	-0.0005
268	SLV 12	-0.09	24.2	14.49	-0.8551	-0.1703	-0.0005
268	SLV 13	-0.43	0.48	18.38	-0.1974	-0.7246	-0.0025
268	SLV 14	-0.43	0.48	18.38	-0.1974	-0.7246	-0.0025
268	SLV 15	-0.41	12.45	16.77	-0.5323	-0.6988	-0.0024
268	SLV 16	-0.41	12.45	16.77	-0.5323	-0.6988	-0.0024
269	SLU 1	0	0.83	43.6	-0.282	-0.0019	0
269	SLU 2	0	0.84	43.56	-0.282	-0.0018	0
269	SLU 3	0	0.51	44.58	-0.275	-0.0021	0
269	SLU 4	0	0.52	44.56	-0.275	-0.0021	0
269	SLU 5	0	0.42	43.92	-0.2663	-0.0021	0
269	SLU 6	0	0.09	44.94	-0.2594	-0.0023	0
269	SLU 7	0	0.1	44.92	-0.2594	-0.0023	0
269	SLU 8	0	0	44.31	-0.2506	-0.0024	0
269	SLU 9	0	0	44.28	-0.2506	-0.0023	0
269	SLU 10	0	0.91	51.75	-0.3308	-0.0021	0
269	SLU 11	0	0.58	52.77	-0.3239	-0.0024	0
269	SLU 12	0	0.58	52.75	-0.3239	-0.0024	0
269	SLU 13	0	0.49	52.1	-0.3152	-0.0024	0
269	SLU 14	0	0.16	53.12	-0.3082	-0.0026	0
269	SLU 15	0	0.16	53.1	-0.3082	-0.0026	0
269	SLU 16	0	0.06	52.49	-0.2995	-0.0026	0
269	SLU 17	0	0.07	52.47	-0.2995	-0.0026	0
269	SLU 18	0	0.93	55.29	-0.3517	-0.0023	0
269	SLU 19	0	0.93	55.27	-0.3518	-0.0023	0
269	SLU 20	0	0.51	55.65	-0.3361	-0.0025	0
269	SLU 21	0	0.52	55.63	-0.3361	-0.0025	0
269	SLU 22	0	0.76	50.84	-0.321	-0.0022	0
269	SLU 23	0	0.76	50.81	-0.321	-0.0022	0
269	SLU 24	0	0.44	51.83	-0.3141	-0.0025	0
269	SLU 25	0	0.44	51.8	-0.3141	-0.0025	0
269	SLU 26	0	0.34	51.16	-0.3053	-0.0025	0
269	SLU 27	0	0.02	52.18	-0.2984	-0.0027	0
269	SLU 28	0	0.02	52.16	-0.2984	-0.0027	0
269	SLU 29	0	-0.08	51.55	-0.2896	-0.0027	0
269	SLU 30	0	-0.08	51.53	-0.2897	-0.0027	0
269	SLU 31	0	0.83	58.99	-0.3699	-0.0025	0
269	SLU 32	0	0.5	60.01	-0.3629	-0.0028	0
269	SLU 33	0	0.51	59.99	-0.3629	-0.0028	0
269	SLU 34	0	0.41	59.35	-0.3542	-0.0028	0
269	SLU 35	0	0.08	60.37	-0.3472	-0.003	0
269	SLU 36	0	0.09	60.35	-0.3472	-0.003	0
269	SLU 37	0	-0.01	59.74	-0.3385	-0.003	0
269	SLU 38	0	-0.01	59.72	-0.3385	-0.003	0
269	SLU 39	0	0.85	62.54	-0.3908	-0.0027	0
269	SLU 40	0	0.86	62.52	-0.3908	-0.0027	0
269	SLU 41	0	0.44	62.89	-0.3751	-0.0029	0
269	SLU 42	0	0.44	62.87	-0.3751	-0.0029	0
269	SLU 43	0	1.11	54.19	-0.3532	-0.0023	0
269	SLU 44	0	1.12	54.16	-0.3532	-0.0023	0
269	SLU 45	0	0.79	55.18	-0.3463	-0.0025	0
269	SLU 46	0	0.79	55.16	-0.3463	-0.0025	0
269	SLU 47	0	0.7	54.51	-0.3375	-0.0025	0
269	SLU 48	0	0.37	55.53	-0.3306	-0.0028	0
269	SLU 49	0	0.37	55.51	-0.3306	-0.0028	0
269	SLU 50	0	0.27	54.9	-0.3218	-0.0028	0
269	SLU 51	0	0.28	54.88	-0.3219	-0.0028	0
269	SLU 52	0	1.18	62.35	-0.402	-0.0026	0
269	SLU 53	0	0.86	63.37	-0.3951	-0.0028	0
269	SLU 54	0	0.86	63.34	-0.3951	-0.0028	0
269	SLU 55	0	0.76	62.7	-0.3864	-0.0028	0
269	SLU 56	0	0.44	63.72	-0.3794	-0.0031	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
269	SLU 57	0	0.44	63.7	-0.3794	-0.0031	0
269	SLU 58	0	0.34	63.09	-0.3707	-0.0031	0
269	SLU 59	0	0.34	63.07	-0.3707	-0.0031	0
269	SLU 60	0	1.21	65.89	-0.423	-0.0027	0
269	SLU 61	0	1.21	65.87	-0.423	-0.0027	0
269	SLU 62	0	0.79	66.24	-0.4073	-0.003	0
269	SLU 63	0	0.79	66.22	-0.4073	-0.0029	0
269	SLU 64	0	1.03	61.44	-0.3922	-0.0027	0
269	SLU 65	0	1.04	61.4	-0.3922	-0.0027	0
269	SLU 66	0	0.71	62.42	-0.3853	-0.0029	0
269	SLU 67	0	0.71	62.4	-0.3853	-0.0029	0
269	SLU 68	0	0.62	61.76	-0.3766	-0.0029	0
269	SLU 69	0	0.29	62.78	-0.3696	-0.0032	0
269	SLU 70	0	0.3	62.75	-0.3696	-0.0032	0
269	SLU 71	0	0.2	62.15	-0.3609	-0.0032	0
269	SLU 72	0	0.2	62.12	-0.3609	-0.0032	0
269	SLU 73	0	1.11	69.59	-0.4411	-0.003	0
269	SLU 74	0	0.78	70.61	-0.4341	-0.0032	0
269	SLU 75	0	0.78	70.59	-0.4341	-0.0032	0
269	SLU 76	0	0.69	69.94	-0.4254	-0.0032	0
269	SLU 77	0	0.36	70.96	-0.4184	-0.0035	0
269	SLU 78	0	0.36	70.94	-0.4185	-0.0034	0
269	SLU 79	0	0.26	70.33	-0.4097	-0.0035	0
269	SLU 80	0	0.27	70.31	-0.4097	-0.0035	0
269	SLU 81	0	1.13	73.13	-0.462	-0.0031	0
269	SLU 82	0	1.13	73.11	-0.462	-0.0031	0
269	SLU 83	0	0.71	73.49	-0.4463	-0.0033	0
269	SLU 84	0	0.71	73.47	-0.4463	-0.0033	0
269	SLE RA 1	0	0.81	45.67	-0.2931	-0.002	0
269	SLE RA 2	0	0.82	45.64	-0.2931	-0.002	0
269	SLE RA 3	0	0.6	46.32	-0.2885	-0.0021	0
269	SLE RA 4	0	0.6	46.31	-0.2885	-0.0021	0
269	SLE RA 5	0	0.54	45.88	-0.2827	-0.0021	0
269	SLE RA 6	0	0.32	46.56	-0.278	-0.0023	0
269	SLE RA 7	0	0.32	46.55	-0.2781	-0.0023	0
269	SLE RA 8	0	0.25	46.14	-0.2722	-0.0023	0
269	SLE RA 9	0	0.26	46.13	-0.2722	-0.0023	0
269	SLE RA 10	0	0.86	51.1	-0.3257	-0.0022	0
269	SLE RA 11	0	0.64	51.78	-0.3211	-0.0023	0
269	SLE RA 12	0	0.65	51.77	-0.3211	-0.0023	0
269	SLE RA 13	0	0.58	51.34	-0.3152	-0.0023	0
269	SLE RA 14	0	0.36	52.02	-0.3106	-0.0025	0
269	SLE RA 15	0	0.37	52	-0.3106	-0.0025	0
269	SLE RA 16	0	0.3	51.6	-0.3048	-0.0025	0
269	SLE RA 17	0	0.3	51.58	-0.3048	-0.0025	0
269	SLE RA 18	0	0.88	53.47	-0.3396	-0.0023	0
269	SLE RA 19	0	0.88	53.45	-0.3396	-0.0022	0
269	SLE RA 20	0	0.6	53.7	-0.3292	-0.0024	0
269	SLE RA 21	0	0.6	53.69	-0.3292	-0.0024	0
269	SLE FR 1	0	0.81	45.67	-0.2931	-0.002	0
269	SLE FR 2	0	0.81	45.66	-0.2931	-0.002	0
269	SLE FR 3	0	0.7	45.76	-0.2889	-0.002	0
269	SLE FR 4	0	0.83	48	-0.3071	-0.0021	0
269	SLE FR 5	0	0.72	48.1	-0.3029	-0.0021	0
269	SLE FR 6	0	0.84	49.57	-0.3164	-0.0021	0
269	SLE QP 1	0	0.81	45.67	-0.2931	-0.002	0
269	SLE QP 2	0	0.83	48.01	-0.3071	-0.0021	0
269	SLD 1	0.09	4.89	46.74	-0.4766	0.1556	0.0001
269	SLD 2	0.09	4.89	46.74	-0.4766	0.1556	0.0001
269	SLD 3	0.08	-0.33	48.15	-0.2604	0.1434	0.0001
269	SLD 4	0.08	-0.33	48.15	-0.2604	0.1434	0.0001
269	SLD 5	0.04	9.97	45.48	-0.6859	0.0638	0
269	SLD 6	0.04	9.97	45.48	-0.6859	0.0638	0
269	SLD 7	0.01	-7.43	50.2	0.0349	0.0231	0
269	SLD 8	0.01	-7.43	50.2	0.0349	0.0231	0
269	SLD 9	-0.01	9.1	45.81	-0.6491	-0.0272	0
269	SLD 10	-0.01	9.1	45.81	-0.6491	-0.0272	0
269	SLD 11	-0.05	-8.31	50.54	0.0718	-0.0679	0
269	SLD 12	-0.05	-8.31	50.54	0.0718	-0.0679	0
269	SLD 13	-0.08	1.99	47.86	-0.3538	-0.1475	-0.0001
269	SLD 14	-0.08	1.99	47.86	-0.3538	-0.1475	-0.0001
269	SLD 15	-0.09	-3.23	49.28	-0.1375	-0.1598	-0.0001
269	SLD 16	-0.09	-3.23	49.28	-0.1375	-0.1598	-0.0001
269	SLV 1	0.24	10.17	45.02	-0.6959	0.4681	0.0002
269	SLV 2	0.24	10.17	45.02	-0.6959	0.4681	0.0002
269	SLV 3	0.21	-1.86	48.38	-0.1984	0.4351	0.0002
269	SLV 4	0.21	-1.86	48.38	-0.1984	0.4351	0.0002
269	SLV 5	0.11	21.88	42	-1.1783	0.1891	0.0001
269	SLV 6	0.11	21.88	42	-1.1783	0.1891	0.0001
269	SLV 7	0.02	-18.22	53.23	0.4801	0.079	0
269	SLV 8	0.02	-18.22	53.23	0.4801	0.079	0
269	SLV 9	-0.02	19.88	42.79	-1.0942	-0.0831	0
269	SLV 10	-0.02	19.88	42.79	-1.0942	-0.0831	0
269	SLV 11	-0.12	-20.21	54.01	0.5641	-0.1932	-0.0001
269	SLV 12	-0.12	-20.21	54.01	0.5641	-0.1932	-0.0001
269	SLV 13	-0.21	3.53	47.63	-0.4158	-0.4392	-0.0002
269	SLV 14	-0.21	3.53	47.63	-0.4158	-0.4392	-0.0002
269	SLV 15	-0.24	-8.5	51	0.0818	-0.4722	-0.0002
269	SLV 16	-0.24	-8.5	51	0.0818	-0.4722	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
270	SLU 1	-0.01	-9.3	21.35	0.3682	-0.0305	0
270	SLU 2	-0.02	-8.36	20.61	0.3281	-0.027	0
270	SLU 3	-0.01	-9.53	21.83	0.3774	-0.0315	0
270	SLU 4	-0.02	-8.96	21.39	0.3533	-0.0293	0
270	SLU 5	-0.02	-8.45	20.93	0.3319	-0.0276	0
270	SLU 6	-0.02	-9.62	22.15	0.3811	-0.0322	0
270	SLU 7	-0.02	-9.05	21.71	0.357	-0.03	0
270	SLU 8	-0.02	-9.49	21.99	0.3757	-0.0319	0
270	SLU 9	-0.02	-8.92	21.55	0.3516	-0.0298	0
270	SLU 10	-0.02	-9.46	22.6	0.373	-0.0308	0
270	SLU 11	-0.02	-10.63	23.82	0.4222	-0.0353	0
270	SLU 12	-0.02	-10.06	23.38	0.3981	-0.0331	0
270	SLU 13	-0.02	-9.55	22.92	0.3767	-0.0315	0
270	SLU 14	-0.02	-10.72	24.14	0.4259	-0.036	0
270	SLU 15	-0.02	-10.15	23.7	0.4019	-0.0338	0
270	SLU 16	-0.02	-10.59	23.98	0.4205	-0.0357	0
270	SLU 17	-0.02	-10.02	23.54	0.3965	-0.0336	0
270	SLU 18	-0.02	-10.87	24.19	0.4323	-0.036	0
270	SLU 19	-0.02	-10.3	23.75	0.4082	-0.0338	0
270	SLU 20	-0.02	-10.96	24.51	0.436	-0.0367	0
270	SLU 21	-0.02	-10.4	24.07	0.412	-0.0345	0
270	SLU 22	-0.02	-10.39	23.35	0.4126	-0.0343	0
270	SLU 23	-0.02	-9.45	22.61	0.3725	-0.0307	0
270	SLU 24	-0.02	-10.62	23.83	0.4217	-0.0353	0
270	SLU 25	-0.02	-10.05	23.39	0.3977	-0.0331	0
270	SLU 26	-0.02	-9.54	22.93	0.3763	-0.0314	0
270	SLU 27	-0.02	-10.71	24.15	0.4255	-0.0359	0
270	SLU 28	-0.02	-10.14	23.71	0.4014	-0.0338	0
270	SLU 29	-0.02	-10.58	23.99	0.4201	-0.0357	0
270	SLU 30	-0.02	-10.01	23.55	0.396	-0.0336	0
270	SLU 31	-0.02	-10.54	24.6	0.4174	-0.0346	0
270	SLU 32	-0.02	-11.71	25.82	0.4666	-0.0391	0
270	SLU 33	-0.02	-11.15	25.37	0.4425	-0.0369	0
270	SLU 34	-0.02	-10.64	24.92	0.4211	-0.0353	0
270	SLU 35	-0.02	-11.81	26.14	0.4703	-0.0398	0
270	SLU 36	-0.02	-11.24	25.69	0.4462	-0.0376	0
270	SLU 37	-0.02	-11.67	25.98	0.4649	-0.0395	0
270	SLU 38	-0.02	-11.11	25.53	0.4408	-0.0374	0
270	SLU 39	-0.02	-11.96	26.19	0.4767	-0.0398	0
270	SLU 40	-0.02	-11.39	25.75	0.4526	-0.0376	0
270	SLU 41	-0.02	-12.05	26.51	0.4804	-0.0405	0
270	SLU 42	-0.02	-11.49	26.07	0.4563	-0.0383	0
270	SLU 43	-0.02	-11.72	27.07	0.4635	-0.0384	0
270	SLU 44	-0.02	-10.77	26.34	0.4234	-0.0348	0
270	SLU 45	-0.02	-11.95	27.55	0.4726	-0.0393	0
270	SLU 46	-0.02	-11.38	27.11	0.4486	-0.0372	0
270	SLU 47	-0.02	-10.87	26.66	0.4271	-0.0355	0
270	SLU 48	-0.02	-12.04	27.87	0.4763	-0.04	0
270	SLU 49	-0.02	-11.47	27.43	0.4523	-0.0379	0
270	SLU 50	-0.02	-11.91	27.71	0.4709	-0.0398	0
270	SLU 51	-0.02	-11.34	27.27	0.4469	-0.0376	0
270	SLU 52	-0.02	-11.87	28.32	0.4682	-0.0386	0
270	SLU 53	-0.02	-13.04	29.54	0.5174	-0.0431	0
270	SLU 54	-0.02	-12.48	29.1	0.4934	-0.041	0
270	SLU 55	-0.02	-11.97	28.64	0.472	-0.0393	0
270	SLU 56	-0.02	-13.14	29.86	0.5212	-0.0438	0
270	SLU 57	-0.02	-12.57	29.42	0.4971	-0.0417	0
270	SLU 58	-0.02	-13	29.7	0.5158	-0.0436	0
270	SLU 59	-0.02	-12.44	29.26	0.4917	-0.0414	0
270	SLU 60	-0.02	-13.29	29.91	0.5275	-0.0438	0
270	SLU 61	-0.02	-12.72	29.47	0.5035	-0.0417	0
270	SLU 62	-0.02	-13.38	30.23	0.5313	-0.0445	0
270	SLU 63	-0.02	-12.81	29.79	0.5072	-0.0424	0
270	SLU 64	-0.02	-12.81	29.07	0.5079	-0.0422	0
270	SLU 65	-0.02	-11.86	28.33	0.4678	-0.0386	0
270	SLU 66	-0.02	-13.03	29.55	0.517	-0.0431	0
270	SLU 67	-0.02	-12.47	29.11	0.4929	-0.041	0
270	SLU 68	-0.02	-11.96	28.65	0.4715	-0.0393	0
270	SLU 69	-0.02	-13.13	29.87	0.5207	-0.0438	0
270	SLU 70	-0.02	-12.56	29.43	0.4967	-0.0417	0
270	SLU 71	-0.02	-12.99	29.71	0.5153	-0.0436	0
270	SLU 72	-0.02	-12.43	29.27	0.4913	-0.0414	0
270	SLU 73	-0.02	-12.96	30.32	0.5126	-0.0424	0
270	SLU 74	-0.02	-14.13	31.54	0.5618	-0.0469	-0.0001
270	SLU 75	-0.02	-13.57	31.09	0.5378	-0.0448	0
270	SLU 76	-0.02	-13.05	30.64	0.5163	-0.0431	0
270	SLU 77	-0.02	-14.22	31.86	0.5656	-0.0476	-0.0001
270	SLU 78	-0.02	-13.66	31.41	0.5415	-0.0455	0
270	SLU 79	-0.02	-14.09	31.7	0.5602	-0.0474	0
270	SLU 80	-0.02	-13.53	31.26	0.5361	-0.0452	0
270	SLU 81	-0.02	-14.38	31.91	0.5719	-0.0476	-0.0001
270	SLU 82	-0.02	-13.81	31.47	0.5479	-0.0455	0
270	SLU 83	-0.02	-14.47	32.23	0.5756	-0.0483	-0.0001
270	SLU 84	-0.02	-13.9	31.79	0.5516	-0.0462	0
270	SLE RA 1	-0.01	-9.61	21.92	0.3809	-0.0316	0
270	SLE RA 2	-0.02	-8.98	21.43	0.3542	-0.0292	0
270	SLE RA 3	-0.02	-9.76	22.24	0.387	-0.0322	0
270	SLE RA 4	-0.02	-9.39	21.95	0.371	-0.0308	0
270	SLE RA 5	-0.02	-9.05	21.64	0.3567	-0.0297	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
270	SLE RA 6	-0.02	-9.83	22.46	0.3895	-0.0327	0
270	SLE RA 7	-0.02	-9.45	22.16	0.3734	-0.0313	0
270	SLE RA 8	-0.02	-9.74	22.35	0.3859	-0.0325	0
270	SLE RA 9	-0.02	-9.36	22.05	0.3699	-0.0311	0
270	SLE RA 10	-0.02	-9.72	22.76	0.3841	-0.0318	0
270	SLE RA 11	-0.02	-10.5	23.57	0.4169	-0.0348	0
270	SLE RA 12	-0.02	-10.12	23.27	0.4008	-0.0333	0
270	SLE RA 13	-0.02	-9.78	22.97	0.3866	-0.0322	0
270	SLE RA 14	-0.02	-10.56	23.78	0.4194	-0.0352	0
270	SLE RA 15	-0.02	-10.18	23.49	0.4033	-0.0338	0
270	SLE RA 16	-0.02	-10.47	23.67	0.4158	-0.0351	0
270	SLE RA 17	-0.02	-10.09	23.38	0.3997	-0.0336	0
270	SLE RA 18	-0.02	-10.66	23.82	0.4236	-0.0352	0
270	SLE RA 19	-0.02	-10.28	23.52	0.4076	-0.0338	0
270	SLE RA 20	-0.02	-10.72	24.03	0.4261	-0.0357	0
270	SLE RA 21	-0.02	-10.34	23.73	0.4101	-0.0343	0
270	SLE FR 1	-0.01	-9.61	21.92	0.3809	-0.0316	0
270	SLE FR 2	-0.01	-9.49	21.82	0.3756	-0.0311	0
270	SLE FR 3	-0.01	-9.64	22.01	0.3819	-0.0318	0
270	SLE FR 4	-0.02	-9.8	22.39	0.3884	-0.0322	0
270	SLE FR 5	-0.02	-9.95	22.58	0.3947	-0.0329	0
270	SLE FR 6	-0.02	-10.14	22.87	0.4023	-0.0334	0
270	SLE QP 1	-0.01	-9.61	21.92	0.3809	-0.0316	0
270	SLE QP 2	-0.02	-9.93	22.49	0.3937	-0.0327	0
270	SLD 1	0.01	-8.79	29.64	0.3422	0.076	-0.0002
270	SLD 2	0.01	-8.79	29.64	0.3422	0.076	-0.0002
270	SLD 3	-0.12	-15.59	33.3	0.6404	0.0043	0.0002
270	SLD 4	-0.12	-15.59	33.3	0.6404	0.0043	0.0002
270	SLD 5	0.19	0.73	19.08	-0.074	0.1086	-0.0006
270	SLD 6	0.19	0.73	19.08	-0.074	0.1086	-0.0006
270	SLD 7	-0.24	-21.94	31.28	0.92	-0.1303	0.0005
270	SLD 8	-0.24	-21.94	31.28	0.92	-0.1303	0.0005
270	SLD 9	0.21	2.09	13.7	-0.1325	0.0649	-0.0006
270	SLD 10	0.21	2.09	13.7	-0.1325	0.0649	-0.0006
270	SLD 11	-0.22	-20.58	25.9	0.8614	-0.174	0.0005
270	SLD 12	-0.22	-20.58	25.9	0.8614	-0.174	0.0005
270	SLD 13	0.09	-4.26	11.68	0.147	-0.0697	-0.0002
270	SLD 14	0.09	-4.26	11.68	0.147	-0.0697	-0.0002
270	SLD 15	-0.04	-11.06	15.34	0.4452	-0.1414	0.0001
270	SLD 16	-0.04	-11.06	15.34	0.4452	-0.1414	0.0001
270	SLV 1	0.05	-7.3	38.86	0.2741	0.2313	-0.0004
270	SLV 2	0.05	-7.3	38.86	0.2741	0.2313	-0.0004
270	SLV 3	-0.27	-23.01	47.26	0.9633	0.0553	0.0005
270	SLV 4	-0.27	-23.01	47.26	0.9633	0.0553	0.0005
270	SLV 5	0.49	14.68	14.66	-0.6876	0.3133	-0.0014
270	SLV 6	0.49	14.68	14.66	-0.6876	0.3133	-0.0014
270	SLV 7	-0.57	-37.67	42.66	1.61	-0.2731	0.0014
270	SLV 8	-0.57	-37.67	42.66	1.61	-0.2731	0.0014
270	SLV 9	0.54	17.82	2.32	-0.8225	0.2077	-0.0014
270	SLV 10	0.54	17.82	2.32	-0.8225	0.2077	-0.0014
270	SLV 11	-0.52	-34.53	30.32	1.475	-0.3787	0.0013
270	SLV 12	-0.52	-34.53	30.32	1.475	-0.3787	0.0013
270	SLV 13	0.24	3.15	-2.27	-0.1759	-0.1208	-0.0005
270	SLV 14	0.24	3.15	-2.27	-0.1759	-0.1208	-0.0005
270	SLV 15	-0.08	-12.55	6.12	0.5134	-0.2967	0.0003
270	SLV 16	-0.08	-12.55	6.12	0.5134	-0.2967	0.0003
271	SLU 1	0.01	0.31	61.25	0.0375	0.0057	0
271	SLU 2	0.01	0.41	60.73	0.0344	0.0057	0
271	SLU 3	0.01	0.07	64.91	0.0481	0.0061	0
271	SLU 4	0.01	0.13	64.6	0.0463	0.0061	0
271	SLU 5	0.01	0.13	63.86	0.0456	0.006	0
271	SLU 6	0.01	-0.2	68.04	0.0594	0.0065	0
271	SLU 7	0.01	-0.14	67.73	0.0575	0.0064	0
271	SLU 8	0.01	-0.24	67.51	0.06	0.0064	0
271	SLU 9	0.01	-0.18	67.2	0.0581	0.0064	0
271	SLU 10	0.01	0.35	71.18	0.0452	0.0066	0
271	SLU 11	0.02	0.02	75.36	0.0589	0.007	0
271	SLU 12	0.02	0.08	75.05	0.0571	0.007	0
271	SLU 13	0.01	0.08	74.31	0.0564	0.0069	0
271	SLU 14	0.02	-0.25	78.49	0.0702	0.0074	0
271	SLU 15	0.02	-0.2	78.18	0.0683	0.0073	0
271	SLU 16	0.02	-0.29	77.96	0.0708	0.0073	0
271	SLU 17	0.02	-0.23	77.65	0.0689	0.0073	0
271	SLU 18	0.02	0.23	76.18	0.053	0.007	0
271	SLU 19	0.02	0.29	75.87	0.0511	0.007	0
271	SLU 20	0.02	-0.04	79.31	0.0642	0.0074	0
271	SLU 21	0.02	0.02	79	0.0623	0.0073	0
271	SLU 22	0.01	0.15	71.92	0.0516	0.0067	0
271	SLU 23	0.01	0.25	71.4	0.0485	0.0067	0
271	SLU 24	0.02	-0.09	75.59	0.0622	0.0071	0
271	SLU 25	0.02	-0.03	75.28	0.0603	0.0071	0
271	SLU 26	0.01	-0.03	74.53	0.0597	0.007	0
271	SLU 27	0.02	-0.36	78.72	0.0734	0.0074	0
271	SLU 28	0.02	-0.3	78.41	0.0716	0.0074	0
271	SLU 29	0.02	-0.4	78.18	0.0741	0.0074	0
271	SLU 30	0.02	-0.34	77.87	0.0722	0.0074	0
271	SLU 31	0.02	0.2	81.86	0.0593	0.0076	0
271	SLU 32	0.02	-0.14	86.04	0.073	0.008	0
271	SLU 33	0.02	-0.08	85.73	0.0711	0.008	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
271	SLU 34	0.02	-0.08	84.99	0.0705	0.0079	0
271	SLU 35	0.02	-0.41	89.17	0.0842	0.0083	0
271	SLU 36	0.02	-0.35	88.86	0.0824	0.0083	0
271	SLU 37	0.02	-0.45	88.63	0.0849	0.0083	0
271	SLU 38	0.02	-0.39	88.32	0.083	0.0083	0
271	SLU 39	0.02	0.08	86.85	0.0671	0.008	0
271	SLU 40	0.02	0.13	86.54	0.0652	0.008	0
271	SLU 41	0.02	-0.2	89.98	0.0783	0.0083	0
271	SLU 42	0.02	-0.14	89.67	0.0764	0.0083	0
271	SLU 43	0.02	0.46	75.96	0.044	0.0071	0
271	SLU 44	0.02	0.55	75.44	0.0408	0.0071	0
271	SLU 45	0.02	0.22	79.63	0.0546	0.0075	0
271	SLU 46	0.02	0.28	79.32	0.0527	0.0075	0
271	SLU 47	0.02	0.28	78.57	0.052	0.0074	0
271	SLU 48	0.02	-0.05	82.76	0.0658	0.0079	0
271	SLU 49	0.02	0	82.45	0.0639	0.0078	0
271	SLU 50	0.02	-0.09	82.22	0.0664	0.0078	0
271	SLU 51	0.02	-0.03	81.91	0.0645	0.0078	0
271	SLU 52	0.02	0.5	85.89	0.0516	0.008	0
271	SLU 53	0.02	0.17	90.08	0.0654	0.0084	0
271	SLU 54	0.02	0.23	89.77	0.0635	0.0084	0
271	SLU 55	0.02	0.23	89.02	0.0629	0.0083	0
271	SLU 56	0.02	-0.11	93.21	0.0766	0.0088	0
271	SLU 57	0.02	-0.05	92.9	0.0747	0.0087	0
271	SLU 58	0.02	-0.14	92.67	0.0772	0.0087	0
271	SLU 59	0.02	-0.08	92.36	0.0753	0.0087	0
271	SLU 60	0.02	0.38	90.89	0.0594	0.0084	0
271	SLU 61	0.02	0.44	90.58	0.0575	0.0084	0
271	SLU 62	0.02	0.11	94.02	0.0706	0.0088	0
271	SLU 63	0.02	0.17	93.71	0.0687	0.0087	0
271	SLU 64	0.02	0.3	86.64	0.058	0.0081	0
271	SLU 65	0.02	0.39	86.12	0.0549	0.0081	0
271	SLU 66	0.02	0.06	90.3	0.0686	0.0085	0
271	SLU 67	0.02	0.12	89.99	0.0668	0.0085	0
271	SLU 68	0.02	0.12	89.25	0.0661	0.0084	0
271	SLU 69	0.02	-0.21	93.43	0.0799	0.0088	0
271	SLU 70	0.02	-0.15	93.12	0.078	0.0088	0
271	SLU 71	0.02	-0.25	92.9	0.0805	0.0088	0
271	SLU 72	0.02	-0.19	92.59	0.0786	0.0088	0
271	SLU 73	0.02	0.34	96.57	0.0657	0.0089	0
271	SLU 74	0.02	0.01	100.75	0.0795	0.0094	0.0001
271	SLU 75	0.02	0.07	100.44	0.0776	0.0094	0.0001
271	SLU 76	0.02	0.07	99.7	0.0769	0.0093	0.0001
271	SLU 77	0.02	-0.26	103.88	0.0907	0.0097	0.0001
271	SLU 78	0.02	-0.21	103.57	0.0888	0.0097	0.0001
271	SLU 79	0.02	-0.3	103.35	0.0913	0.0097	0.0001
271	SLU 80	0.02	-0.24	103.04	0.0894	0.0097	0.0001
271	SLU 81	0.02	0.22	101.57	0.0735	0.0094	0.0001
271	SLU 82	0.02	0.28	101.25	0.0716	0.0093	0.0001
271	SLU 83	0.02	-0.05	104.7	0.0847	0.0097	0.0001
271	SLU 84	0.02	0.01	104.39	0.0828	0.0097	0.0001
271	SLE RA 1	0.01	0.26	64.3	0.0416	0.006	0
271	SLE RA 2	0.01	0.33	63.95	0.0395	0.006	0
271	SLE RA 3	0.01	0.11	66.74	0.0486	0.0063	0
271	SLE RA 4	0.01	0.14	66.53	0.0474	0.0063	0
271	SLE RA 5	0.01	0.15	66.04	0.0469	0.0062	0
271	SLE RA 6	0.01	-0.08	68.83	0.0561	0.0065	0
271	SLE RA 7	0.01	-0.04	68.62	0.0549	0.0065	0
271	SLE RA 8	0.01	-0.1	68.47	0.0565	0.0065	0
271	SLE RA 9	0.01	-0.06	68.26	0.0553	0.0065	0
271	SLE RA 10	0.01	0.29	70.92	0.0467	0.0066	0
271	SLE RA 11	0.01	0.07	73.71	0.0558	0.0069	0
271	SLE RA 12	0.01	0.11	73.5	0.0546	0.0069	0
271	SLE RA 13	0.01	0.11	73.01	0.0541	0.0068	0
271	SLE RA 14	0.02	-0.11	75.8	0.0633	0.0071	0
271	SLE RA 15	0.02	-0.07	75.59	0.0621	0.0071	0
271	SLE RA 16	0.02	-0.14	75.44	0.0637	0.0071	0
271	SLE RA 17	0.02	-0.1	75.23	0.0625	0.0071	0
271	SLE RA 18	0.01	0.21	74.25	0.0518	0.0069	0
271	SLE RA 19	0.01	0.25	74.04	0.0506	0.0068	0
271	SLE RA 20	0.02	0.03	76.34	0.0593	0.0071	0
271	SLE RA 21	0.02	0.07	76.13	0.0581	0.0071	0
271	SLE FR 1	0.01	0.26	64.3	0.0416	0.006	0
271	SLE FR 2	0.01	0.28	64.23	0.0411	0.006	0
271	SLE FR 3	0.01	0.19	65.13	0.0445	0.0061	0
271	SLE FR 4	0.01	0.26	67.21	0.0442	0.0063	0
271	SLE FR 5	0.01	0.18	68.12	0.0476	0.0064	0
271	SLE FR 6	0.01	0.24	69.27	0.0467	0.0064	0
271	SLE QP 1	0.01	0.26	64.3	0.0416	0.006	0
271	SLE QP 2	0.01	0.25	67.28	0.0446	0.0063	0
271	SLD 1	0.08	5.28	67.32	-0.1127	0.0863	0.0003
271	SLD 2	0.08	5.28	67.32	-0.1127	0.0863	0.0003
271	SLD 3	0.09	0.01	73.05	0.0576	0.1032	0.0003
271	SLD 4	0.09	0.01	73.05	0.0576	0.1032	0.0003
271	SLD 5	0.02	9.75	58.6	-0.2609	0.0046	0
271	SLD 6	0.02	9.75	58.6	-0.2609	0.0046	0
271	SLD 7	0.05	-7.81	77.71	0.3069	0.061	0.0002
271	SLD 8	0.05	-7.81	77.71	0.3069	0.061	0.0002
271	SLD 9	-0.03	8.31	56.86	-0.2176	-0.0484	-0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
271	SLD 10	-0.03	8.31	56.86	-0.2176	-0.0484	-0.0001
271	SLD 11	0.01	-9.25	75.97	0.3502	0.0079	0
271	SLD 12	0.01	-9.25	75.97	0.3502	0.0079	0
271	SLD 13	-0.06	0.49	61.52	0.0317	-0.0906	-0.0002
271	SLD 14	-0.06	0.49	61.52	0.0317	-0.0906	-0.0002
271	SLD 15	-0.05	-4.78	67.25	0.202	-0.0737	-0.0002
271	SLD 16	-0.05	-4.78	67.25	0.202	-0.0737	-0.0002
271	SLV 1	0.17	11.86	67.31	-0.3186	0.2053	0.0006
271	SLV 2	0.17	11.86	67.31	-0.3186	0.2053	0.0006
271	SLV 3	0.19	-0.23	80.63	0.0724	0.2483	0.0007
271	SLV 4	0.19	-0.23	80.63	0.0724	0.2483	0.0007
271	SLV 5	0.02	22.07	47.09	-0.6572	0.0007	0
271	SLV 6	0.02	22.07	47.09	-0.6572	0.0007	0
271	SLV 7	0.11	-18.23	91.49	0.6459	0.1441	0.0004
271	SLV 8	0.11	-18.23	91.49	0.6459	0.1441	0.0004
271	SLV 9	-0.08	18.73	43.08	-0.5566	-0.1316	-0.0003
271	SLV 10	-0.08	18.73	43.08	-0.5566	-0.1316	-0.0003
271	SLV 11	0.01	-21.57	87.48	0.7465	0.0118	0
271	SLV 12	0.01	-21.57	87.48	0.7465	0.0118	0
271	SLV 13	-0.17	0.73	53.94	0.0169	-0.2358	-0.0006
271	SLV 14	-0.17	0.73	53.94	0.0169	-0.2358	-0.0006
271	SLV 15	-0.14	-11.36	67.26	0.4078	-0.1927	-0.0005
271	SLV 16	-0.14	-11.36	67.26	0.4078	-0.1927	-0.0005
272	SLU 1	-0.03	-8.69	54.59	0.3782	-0.0028	0.0001
272	SLU 2	-0.03	-7.85	51.04	0.3396	-0.0048	0.0001
272	SLU 3	-0.03	-8.91	55.58	0.3874	-0.0025	0.0001
272	SLU 4	-0.03	-8.41	53.45	0.3643	-0.0036	0.0001
272	SLU 5	-0.03	-7.94	51.33	0.3432	-0.0043	0.0001
272	SLU 6	-0.03	-9	55.87	0.391	-0.002	0.0001
272	SLU 7	-0.03	-8.5	53.74	0.3678	-0.0032	0.0001
272	SLU 8	-0.03	-8.87	55.18	0.3854	-0.0019	0.0001
272	SLU 9	-0.03	-8.37	53.05	0.3622	-0.0031	0.0001
272	SLU 10	-0.03	-8.86	57.5	0.3848	-0.0049	0.0001
272	SLU 11	-0.03	-9.92	62.04	0.4325	-0.0027	0.0001
272	SLU 12	-0.03	-9.41	59.91	0.4094	-0.0038	0.0001
272	SLU 13	-0.03	-8.95	57.79	0.3883	-0.0045	0.0001
272	SLU 14	-0.03	-10.01	62.33	0.4361	-0.0022	0.0001
272	SLU 15	-0.03	-9.5	60.2	0.4129	-0.0034	0.0001
272	SLU 16	-0.03	-9.88	61.64	0.4305	-0.0021	0.0001
272	SLU 17	-0.03	-9.37	59.51	0.4073	-0.0033	0.0001
272	SLU 18	-0.04	-10.13	63.82	0.4427	-0.0031	0.0001
272	SLU 19	-0.03	-9.62	61.69	0.4195	-0.0042	0.0001
272	SLU 20	-0.04	-10.22	64.11	0.4462	-0.0026	0.0001
272	SLU 21	-0.03	-9.72	61.98	0.4231	-0.0038	0.0001
272	SLU 22	-0.03	-9.7	60.66	0.4228	-0.0027	0.0001
272	SLU 23	-0.03	-8.86	57.11	0.3842	-0.0047	0.0001
272	SLU 24	-0.03	-9.92	61.65	0.432	-0.0024	0.0001
272	SLU 25	-0.03	-9.42	59.52	0.4089	-0.0036	0.0001
272	SLU 26	-0.03	-8.95	57.4	0.3878	-0.0043	0.0001
272	SLU 27	-0.03	-10.01	61.94	0.4356	-0.002	0.0001
272	SLU 28	-0.03	-9.51	59.81	0.4124	-0.0031	0.0001
272	SLU 29	-0.03	-9.88	61.24	0.4299	-0.0018	0.0001
272	SLU 30	-0.03	-9.38	59.12	0.4068	-0.003	0.0001
272	SLU 31	-0.03	-9.87	63.57	0.4293	-0.0049	0.0001
272	SLU 32	-0.04	-10.93	68.11	0.4771	-0.0026	0.0001
272	SLU 33	-0.04	-10.42	65.98	0.454	-0.0038	0.0001
272	SLU 34	-0.03	-9.96	63.86	0.4329	-0.0045	0.0001
272	SLU 35	-0.04	-11.02	68.4	0.4807	-0.0022	0.0001
272	SLU 36	-0.04	-10.51	66.27	0.4575	-0.0033	0.0001
272	SLU 37	-0.04	-10.89	67.7	0.4751	-0.002	0.0001
272	SLU 38	-0.03	-10.38	65.58	0.4519	-0.0032	0.0001
272	SLU 39	-0.04	-11.14	69.89	0.4873	-0.003	0.0001
272	SLU 40	-0.04	-10.63	67.76	0.4641	-0.0042	0.0001
272	SLU 41	-0.04	-11.23	70.18	0.4908	-0.0026	0.0001
272	SLU 42	-0.04	-10.72	68.05	0.4677	-0.0037	0.0001
272	SLU 43	-0.04	-10.95	68.88	0.4764	-0.0036	0.0001
272	SLU 44	-0.03	-10.11	65.33	0.4378	-0.0056	0.0001
272	SLU 45	-0.04	-11.17	69.87	0.4856	-0.0033	0.0001
272	SLU 46	-0.04	-10.67	67.75	0.4624	-0.0045	0.0001
272	SLU 47	-0.03	-10.2	65.63	0.4414	-0.0051	0.0001
272	SLU 48	-0.04	-11.26	70.17	0.4892	-0.0029	0.0001
272	SLU 49	-0.04	-10.76	68.04	0.466	-0.004	0.0001
272	SLU 50	-0.04	-11.13	69.47	0.4835	-0.0027	0.0001
272	SLU 51	-0.04	-10.63	67.34	0.4604	-0.0039	0.0001
272	SLU 52	-0.04	-11.12	71.79	0.4829	-0.0058	0.0001
272	SLU 53	-0.04	-12.18	76.33	0.5307	-0.0035	0.0001
272	SLU 54	-0.04	-11.67	74.21	0.5076	-0.0047	0.0001
272	SLU 55	-0.04	-11.21	72.09	0.4865	-0.0053	0.0001
272	SLU 56	-0.04	-12.27	76.63	0.5343	-0.003	0.0001
272	SLU 57	-0.04	-11.76	74.5	0.5111	-0.0042	0.0001
272	SLU 58	-0.04	-12.14	75.93	0.5286	-0.0029	0.0001
272	SLU 59	-0.04	-11.64	73.8	0.5055	-0.0041	0.0001
272	SLU 60	-0.04	-12.39	78.11	0.5409	-0.0039	0.0001
272	SLU 61	-0.04	-11.88	75.98	0.5177	-0.0051	0.0001
272	SLU 62	-0.04	-12.48	78.41	0.5444	-0.0035	0.0001
272	SLU 63	-0.04	-11.98	76.28	0.5213	-0.0046	0.0001
272	SLU 64	-0.04	-11.96	74.95	0.521	-0.0036	0.0001
272	SLU 65	-0.04	-11.12	71.4	0.4824	-0.0056	0.0001
272	SLU 66	-0.04	-12.18	75.94	0.5302	-0.0033	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
272	SLU 67	-0.04	-11.68	73.81	0.507	-0.0044	0.0001
272	SLU 68	-0.04	-11.21	71.7	0.486	-0.0051	0.0001
272	SLU 69	-0.04	-12.27	76.24	0.5338	-0.0028	0.0001
272	SLU 70	-0.04	-11.77	74.11	0.5106	-0.004	0.0001
272	SLU 71	-0.04	-12.14	75.54	0.5281	-0.0027	0.0001
272	SLU 72	-0.04	-11.64	73.41	0.505	-0.0039	0.0001
272	SLU 73	-0.04	-12.13	77.86	0.5275	-0.0058	0.0001
272	SLU 74	-0.05	-13.19	82.4	0.5753	-0.0035	0.0001
272	SLU 75	-0.04	-12.68	80.27	0.5522	-0.0046	0.0001
272	SLU 76	-0.04	-12.22	78.16	0.5311	-0.0053	0.0001
272	SLU 77	-0.05	-13.28	82.7	0.5789	-0.003	0.0001
272	SLU 78	-0.04	-12.77	80.57	0.5557	-0.0042	0.0001
272	SLU 79	-0.05	-13.15	82	0.5732	-0.0029	0.0001
272	SLU 80	-0.04	-12.65	79.87	0.5501	-0.0041	0.0001
272	SLU 81	-0.05	-13.4	84.18	0.5855	-0.0039	0.0001
272	SLU 82	-0.04	-12.89	82.05	0.5623	-0.005	0.0001
272	SLU 83	-0.05	-13.49	84.48	0.589	-0.0034	0.0001
272	SLU 84	-0.04	-12.99	82.35	0.5659	-0.0046	0.0001
272	SLE RA 1	-0.03	-8.98	56.32	0.391	-0.0028	0.0001
272	SLE RA 2	-0.03	-8.42	53.96	0.3652	-0.0041	0.0001
272	SLE RA 3	-0.03	-9.12	56.98	0.3971	-0.0026	0.0001
272	SLE RA 4	-0.03	-8.79	55.56	0.3817	-0.0033	0.0001
272	SLE RA 5	-0.03	-8.48	54.15	0.3676	-0.0038	0.0001
272	SLE RA 6	-0.03	-9.19	57.18	0.3995	-0.0023	0.0001
272	SLE RA 7	-0.03	-8.85	55.76	0.384	-0.003	0.0001
272	SLE RA 8	-0.03	-9.1	56.71	0.3957	-0.0022	0.0001
272	SLE RA 9	-0.03	-8.76	55.29	0.3803	-0.003	0.0001
272	SLE RA 10	-0.03	-9.09	58.26	0.3953	-0.0042	0.0001
272	SLE RA 11	-0.03	-9.8	61.29	0.4272	-0.0027	0.0001
272	SLE RA 12	-0.03	-9.46	59.87	0.4117	-0.0035	0.0001
272	SLE RA 13	-0.03	-9.15	58.46	0.3977	-0.0039	0.0001
272	SLE RA 14	-0.03	-9.86	61.49	0.4295	-0.0024	0.0001
272	SLE RA 15	-0.03	-9.52	60.07	0.4141	-0.0032	0.0001
272	SLE RA 16	-0.03	-9.77	61.02	0.4258	-0.0023	0.0001
272	SLE RA 17	-0.03	-9.43	59.6	0.4104	-0.0031	0.0001
272	SLE RA 18	-0.04	-9.94	62.47	0.4339	-0.003	0.0001
272	SLE RA 19	-0.03	-9.6	61.05	0.4185	-0.0037	0.0001
272	SLE RA 20	-0.04	-10	62.67	0.4363	-0.0027	0.0001
272	SLE RA 21	-0.03	-9.66	61.25	0.4209	-0.0034	0.0001
272	SLE FR 1	-0.03	-8.98	56.32	0.391	-0.0028	0.0001
272	SLE FR 2	-0.03	-8.87	55.85	0.3858	-0.003	0.0001
272	SLE FR 3	-0.03	-9	56.4	0.3919	-0.0026	0.0001
272	SLE FR 4	-0.03	-9.15	57.69	0.3987	-0.0031	0.0001
272	SLE FR 5	-0.03	-9.29	58.25	0.4048	-0.0027	0.0001
272	SLE FR 6	-0.03	-9.46	59.4	0.4125	-0.0029	0.0001
272	SLE QP 1	-0.03	-8.98	56.32	0.391	-0.0028	0.0001
272	SLE QP 2	-0.03	-9.27	58.17	0.4039	-0.0028	0.0001
272	SLD 1	-0.07	-4.89	36.47	0.2223	0.0382	-0.0002
272	SLD 2	-0.07	-4.89	36.47	0.2223	0.0382	-0.0002
272	SLD 3	0.09	-9.88	47.31	0.4404	0.106	0.0001
272	SLD 4	0.09	-9.88	47.31	0.4404	0.106	0.0001
272	SLD 5	-0.28	-0.39	35.21	0.0186	-0.0933	-0.0003
272	SLD 6	-0.28	-0.39	35.21	0.0186	-0.0933	-0.0003
272	SLD 7	0.23	-17.01	71.35	0.7456	0.1326	0.0004
272	SLD 8	0.23	-17.01	71.35	0.7456	0.1326	0.0004
272	SLD 9	-0.3	-1.52	44.98	0.0622	-0.1383	-0.0002
272	SLD 10	-0.3	-1.52	44.98	0.0622	-0.1383	-0.0002
272	SLD 11	0.21	-18.14	81.12	0.7891	0.0877	0.0005
272	SLD 12	0.21	-18.14	81.12	0.7891	0.0877	0.0005
272	SLD 13	-0.15	-8.65	69.03	0.3673	-0.1117	0.0001
272	SLD 14	-0.15	-8.65	69.03	0.3673	-0.1117	0.0001
272	SLD 15	0	-13.64	79.87	0.5854	-0.0439	0.0003
272	SLD 16	0	-13.64	79.87	0.5854	-0.0439	0.0003
272	SLV 1	-0.12	0.82	8.51	-0.0131	0.0933	-0.0005
272	SLV 2	-0.12	0.82	8.51	-0.0131	0.0933	-0.0005
272	SLV 3	0.25	-10.65	33.47	0.4876	0.261	0
272	SLV 4	0.25	-10.65	33.47	0.4876	0.261	0
272	SLV 5	-0.63	11.15	5.43	-0.4805	-0.2283	-0.0009
272	SLV 6	-0.63	11.15	5.43	-0.4805	-0.2283	-0.0009
272	SLV 7	0.62	-27.07	88.6	1.1883	0.3307	0.0009
272	SLV 8	0.62	-27.07	88.6	1.1883	0.3307	0.0009
272	SLV 9	-0.69	8.54	27.73	-0.3805	-0.3363	-0.0007
272	SLV 10	-0.69	8.54	27.73	-0.3805	-0.3363	-0.0007
272	SLV 11	0.56	-29.68	110.91	1.2882	0.2227	0.0011
272	SLV 12	0.56	-29.68	110.91	1.2882	0.2227	0.0011
272	SLV 13	-0.32	-7.88	82.87	0.3202	-0.2667	0.0001
272	SLV 14	-0.32	-7.88	82.87	0.3202	-0.2667	0.0001
272	SLV 15	0.06	-19.35	107.82	0.8208	-0.099	0.0007
272	SLV 16	0.06	-19.35	107.82	0.8208	-0.099	0.0007
273	SLU 1	0	-1.72	15.77	0.244	0.0001	0
273	SLU 2	0	-1.72	15.75	0.2434	0.0001	0
273	SLU 3	0	-1.77	15.96	0.2539	0.0002	0
273	SLU 4	0	-1.77	15.95	0.2535	0.0002	0
273	SLU 5	0	-1.75	15.86	0.2495	0.0002	0
273	SLU 6	0	-1.8	16.07	0.2601	0.0003	0
273	SLU 7	0	-1.8	16.06	0.2597	0.0003	0
273	SLU 8	0	-1.78	15.99	0.2563	0.0003	0
273	SLU 9	0	-1.78	15.98	0.2559	0.0003	0
273	SLU 10	0	-2.18	19.31	0.2921	0.0001	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
273	SLU 11	0	-2.23	19.52	0.3027	0.0002	0
273	SLU 12	0	-2.23	19.51	0.3023	0.0002	0
273	SLU 13	0	-2.21	19.42	0.2983	0.0002	0
273	SLU 14	0	-2.26	19.63	0.3088	0.0003	0
273	SLU 15	0	-2.26	19.62	0.3085	0.0003	0
273	SLU 16	0	-2.25	19.55	0.3051	0.0003	0
273	SLU 17	0	-2.25	19.54	0.3047	0.0003	0
273	SLU 18	0	-2.39	20.85	0.3136	0.0002	0
273	SLU 19	0	-2.38	20.84	0.3133	0.0001	0
273	SLU 20	0	-2.42	20.96	0.3198	0.0002	0
273	SLU 21	0	-2.41	20.95	0.3194	0.0002	0
273	SLU 22	0	-2.1	18.57	0.2891	0.0002	0
273	SLU 23	0	-2.1	18.55	0.2884	0.0002	0
273	SLU 24	0	-2.15	18.76	0.299	0.0003	0
273	SLU 25	0	-2.15	18.75	0.2986	0.0002	0
273	SLU 26	0	-2.13	18.66	0.2946	0.0002	0
273	SLU 27	0	-2.18	18.87	0.3051	0.0003	0
273	SLU 28	0	-2.18	18.86	0.3048	0.0003	0
273	SLU 29	0	-2.16	18.79	0.3014	0.0004	0
273	SLU 30	0	-2.16	18.78	0.301	0.0003	0
273	SLU 31	0	-2.56	22.11	0.3372	0.0002	0
273	SLU 32	0	-2.61	22.32	0.3477	0.0003	0
273	SLU 33	0	-2.61	22.31	0.3474	0.0003	0
273	SLU 34	0	-2.59	22.22	0.3434	0.0003	0
273	SLU 35	0	-2.64	22.43	0.3539	0.0004	0
273	SLU 36	0	-2.64	22.42	0.3535	0.0003	0
273	SLU 37	0	-2.63	22.35	0.3501	0.0004	0
273	SLU 38	0	-2.62	22.34	0.3498	0.0004	0
273	SLU 39	0	-2.77	23.65	0.3587	0.0002	0
273	SLU 40	0	-2.76	23.64	0.3584	0.0002	0
273	SLU 41	0	-2.8	23.76	0.3649	0.0003	0
273	SLU 42	0	-2.79	23.75	0.3645	0.0003	0
273	SLU 43	0	-2.11	19.54	0.3017	0.0002	0
273	SLU 44	0	-2.11	19.52	0.3011	0.0001	0
273	SLU 45	0	-2.16	19.73	0.3116	0.0002	0
273	SLU 46	0	-2.15	19.72	0.3113	0.0002	0
273	SLU 47	0	-2.14	19.63	0.3073	0.0002	0
273	SLU 48	0	-2.19	19.84	0.3178	0.0003	0
273	SLU 49	0	-2.18	19.83	0.3174	0.0003	0
273	SLU 50	0	-2.17	19.76	0.314	0.0003	0
273	SLU 51	0	-2.17	19.75	0.3137	0.0003	0
273	SLU 52	0	-2.57	23.08	0.3499	0.0001	0
273	SLU 53	0	-2.62	23.29	0.3604	0.0002	0
273	SLU 54	0	-2.62	23.28	0.36	0.0002	0
273	SLU 55	0	-2.6	23.19	0.356	0.0002	0
273	SLU 56	0	-2.65	23.4	0.3666	0.0003	0
273	SLU 57	0	-2.65	23.39	0.3662	0.0003	0
273	SLU 58	0	-2.63	23.32	0.3628	0.0003	0
273	SLU 59	0	-2.63	23.31	0.3624	0.0003	0
273	SLU 60	0	-2.77	24.62	0.3714	0.0002	0
273	SLU 61	0	-2.77	24.61	0.371	0.0002	0
273	SLU 62	0	-2.8	24.73	0.3775	0.0003	0
273	SLU 63	0	-2.8	24.72	0.3772	0.0002	0
273	SLU 64	0	-2.49	22.34	0.3468	0.0002	0
273	SLU 65	0	-2.49	22.32	0.3462	0.0002	0
273	SLU 66	0	-2.54	22.53	0.3567	0.0003	0
273	SLU 67	0	-2.53	22.52	0.3563	0.0003	0
273	SLU 68	0	-2.52	22.43	0.3523	0.0003	0
273	SLU 69	0	-2.57	22.64	0.3629	0.0004	0
273	SLU 70	0	-2.56	22.63	0.3625	0.0004	0
273	SLU 71	0	-2.55	22.56	0.3591	0.0004	0
273	SLU 72	0	-2.55	22.55	0.3587	0.0004	0
273	SLU 73	0	-2.95	25.88	0.3949	0.0002	0
273	SLU 74	0	-3	26.09	0.4055	0.0003	0
273	SLU 75	0	-3	26.08	0.4051	0.0003	0
273	SLU 76	0	-2.98	25.99	0.4011	0.0003	0
273	SLU 77	0	-3.03	26.2	0.4116	0.0004	0
273	SLU 78	0	-3.03	26.19	0.4113	0.0004	0
273	SLU 79	0	-3.01	26.12	0.4079	0.0004	0
273	SLU 80	0	-3.01	26.11	0.4075	0.0004	0
273	SLU 81	0	-3.15	27.42	0.4165	0.0002	0
273	SLU 82	0	-3.15	27.41	0.4161	0.0002	0
273	SLU 83	0	-3.18	27.53	0.4226	0.0003	0
273	SLU 84	0	-3.18	27.52	0.4223	0.0003	0
273	SLE RA 1	0	-1.83	16.57	0.2569	0.0001	0
273	SLE RA 2	0	-1.83	16.56	0.2564	0.0001	0
273	SLE RA 3	0	-1.86	16.69	0.2635	0.0002	0
273	SLE RA 4	0	-1.86	16.69	0.2632	0.0002	0
273	SLE RA 5	0	-1.85	16.63	0.2606	0.0002	0
273	SLE RA 6	0	-1.88	16.77	0.2676	0.0003	0
273	SLE RA 7	0	-1.88	16.76	0.2673	0.0002	0
273	SLE RA 8	0	-1.87	16.71	0.2651	0.0003	0
273	SLE RA 9	0	-1.87	16.71	0.2648	0.0003	0
273	SLE RA 10	0	-2.14	18.93	0.289	0.0001	0
273	SLE RA 11	0	-2.17	19.07	0.296	0.0002	0
273	SLE RA 12	0	-2.17	19.06	0.2957	0.0002	0
273	SLE RA 13	0	-2.16	19	0.2931	0.0002	0
273	SLE RA 14	0	-2.19	19.14	0.3001	0.0003	0
273	SLE RA 15	0	-2.19	19.13	0.2998	0.0003	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
273	SLE RA 16	0	-2.18	19.09	0.2976	0.0003	0
273	SLE RA 17	0	-2.18	19.08	0.2973	0.0003	0
273	SLE RA 18	0	-2.27	19.96	0.3033	0.0002	0
273	SLE RA 19	0	-2.27	19.95	0.3031	0.0002	0
273	SLE RA 20	0	-2.29	20.03	0.3074	0.0002	0
273	SLE RA 21	0	-2.29	20.02	0.3072	0.0002	0
273	SLE FR 1	0	-1.83	16.57	0.2569	0.0001	0
273	SLE FR 2	0	-1.83	16.56	0.2568	0.0001	0
273	SLE FR 3	0	-1.84	16.6	0.2585	0.0002	0
273	SLE FR 4	0	-1.96	17.58	0.2707	0.0001	0
273	SLE FR 5	0	-1.97	17.61	0.2724	0.0002	0
273	SLE FR 6	0	-2.05	18.26	0.2801	0.0002	0
273	SLE QP 1	0	-1.83	16.57	0.2569	0.0001	0
273	SLE QP 2	0	-1.96	17.58	0.2708	0.0002	0
273	SLD 1	0.03	1.87	17.74	0.1596	0.1657	0.0004
273	SLD 2	0.03	1.87	17.74	0.1596	0.1657	0.0004
273	SLD 3	0.04	-3.23	16.64	0.3097	0.1732	0.0005
273	SLD 4	0.04	-3.23	16.64	0.3097	0.1732	0.0005
273	SLD 5	0	6.91	19.29	0.0099	0.0384	0
273	SLD 6	0	6.91	19.29	0.0099	0.0384	0
273	SLD 7	0.02	-10.07	15.64	0.51	0.0635	0.0002
273	SLD 8	0.02	-10.07	15.64	0.51	0.0635	0.0002
273	SLD 9	-0.02	6.14	19.52	0.0316	-0.0632	-0.0002
273	SLD 10	-0.02	6.14	19.52	0.0316	-0.0632	-0.0002
273	SLD 11	0	-10.84	15.87	0.5317	-0.0381	0
273	SLD 12	0	-10.84	15.87	0.5317	-0.0381	0
273	SLD 13	-0.04	-0.7	18.52	0.2319	-0.1729	-0.0005
273	SLD 14	-0.04	-0.7	18.52	0.2319	-0.1729	-0.0005
273	SLD 15	-0.03	-5.8	17.43	0.382	-0.1653	-0.0004
273	SLD 16	-0.03	-5.8	17.43	0.382	-0.1653	-0.0004
273	SLV 1	0.08	6.93	17.97	0.013	0.4241	0.001
273	SLV 2	0.08	6.93	17.97	0.013	0.4241	0.001
273	SLV 3	0.1	-4.96	15.43	0.3633	0.4433	0.0012
273	SLV 4	0.1	-4.96	15.43	0.3633	0.4433	0.0012
273	SLV 5	0	18.74	21.56	-0.3378	0.0981	0.0001
273	SLV 6	0	18.74	21.56	-0.3378	0.0981	0.0001
273	SLV 7	0.06	-20.9	13.08	0.8298	0.1623	0.0006
273	SLV 8	0.06	-20.9	13.08	0.8298	0.1623	0.0006
273	SLV 9	-0.05	16.97	22.09	-0.2882	-0.162	-0.0006
273	SLV 10	-0.05	16.97	22.09	-0.2882	-0.162	-0.0006
273	SLV 11	0	-22.67	13.61	0.8794	-0.0978	-0.0001
273	SLV 12	0	-22.67	13.61	0.8794	-0.0978	-0.0001
273	SLV 13	-0.1	1.03	19.74	0.1783	-0.443	-0.0012
273	SLV 14	-0.1	1.03	19.74	0.1783	-0.443	-0.0012
273	SLV 15	-0.08	-10.86	17.2	0.5286	-0.4238	-0.001
273	SLV 16	-0.08	-10.86	17.2	0.5286	-0.4238	-0.001
274	SLU 1	0	-7.02	42.7	0.5633	-0.0011	0
274	SLU 2	0	-7	42.66	0.5626	-0.0011	0
274	SLU 3	0	-7.57	43.75	0.5949	-0.0012	0
274	SLU 4	0	-7.56	43.73	0.5945	-0.0012	0
274	SLU 5	0	-7.52	43.11	0.5878	-0.0012	0
274	SLU 6	0	-8.08	44.19	0.6201	-0.0014	0
274	SLU 7	0	-8.07	44.17	0.6196	-0.0014	0
274	SLU 8	0	-8.04	43.59	0.6136	-0.0014	0
274	SLU 9	0	-8.03	43.57	0.6132	-0.0014	0
274	SLU 10	0	-8.43	50.49	0.6707	-0.0012	0
274	SLU 11	0	-8.99	51.58	0.703	-0.0014	0
274	SLU 12	0	-8.98	51.56	0.7026	-0.0014	0
274	SLU 13	0	-8.94	50.94	0.6958	-0.0014	0
274	SLU 14	0	-9.5	52.02	0.7281	-0.0015	0
274	SLU 15	0	-9.5	52	0.7277	-0.0015	0
274	SLU 16	0	-9.47	51.41	0.7216	-0.0015	0
274	SLU 17	0	-9.46	51.39	0.7212	-0.0015	0
274	SLU 18	0	-9.05	53.88	0.7177	-0.0013	0
274	SLU 19	0	-9.04	53.86	0.7173	-0.0013	0
274	SLU 20	0	-9.56	54.32	0.7428	-0.0014	0
274	SLU 21	0	-9.56	54.3	0.7424	-0.0014	0
274	SLU 22	0	-8.46	49.7	0.6696	-0.0013	0
274	SLU 23	0	-8.45	49.67	0.6689	-0.0013	0
274	SLU 24	0	-9.01	50.76	0.7012	-0.0014	0
274	SLU 25	0	-9.01	50.74	0.7007	-0.0014	0
274	SLU 26	0	-8.97	50.11	0.694	-0.0014	0
274	SLU 27	0	-9.53	51.2	0.7263	-0.0016	0
274	SLU 28	0	-9.52	51.18	0.7259	-0.0016	0
274	SLU 29	0	-9.49	50.59	0.7198	-0.0016	0
274	SLU 30	0	-9.48	50.57	0.7194	-0.0016	0
274	SLU 31	0	-9.88	57.5	0.7769	-0.0014	0
274	SLU 32	0	-10.44	58.59	0.8092	-0.0016	0
274	SLU 33	0	-10.43	58.57	0.8088	-0.0016	0
274	SLU 34	0	-10.39	57.94	0.8021	-0.0016	0
274	SLU 35	0	-10.95	59.03	0.8344	-0.0017	0
274	SLU 36	0	-10.95	59.01	0.834	-0.0017	0
274	SLU 37	0	-10.91	58.42	0.8279	-0.0018	0
274	SLU 38	0	-10.91	58.4	0.8275	-0.0018	0
274	SLU 39	0	-10.5	60.89	0.8239	-0.0015	0
274	SLU 40	0	-10.49	60.87	0.8235	-0.0015	0
274	SLU 41	0	-11.01	61.33	0.8491	-0.0016	0
274	SLU 42	0	-11.01	61.31	0.8487	-0.0016	0
274	SLU 43	0	-8.62	53.1	0.6959	-0.0013	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
274	SLU 44	0	-8.61	53.07	0.6952	-0.0013	0
274	SLU 45	0	-9.17	54.16	0.7275	-0.0015	0
274	SLU 46	0	-9.17	54.14	0.7271	-0.0015	0
274	SLU 47	0	-9.13	53.51	0.7203	-0.0015	0
274	SLU 48	0	-9.69	54.6	0.7526	-0.0016	0
274	SLU 49	0	-9.68	54.58	0.7522	-0.0016	0
274	SLU 50	0	-9.65	53.99	0.7462	-0.0016	0
274	SLU 51	0	-9.64	53.97	0.7457	-0.0016	0
274	SLU 52	0	-10.04	60.9	0.8032	-0.0014	0
274	SLU 53	0	-10.6	61.98	0.8355	-0.0016	0
274	SLU 54	0	-10.59	61.96	0.8351	-0.0016	0
274	SLU 55	0	-10.55	61.34	0.8284	-0.0016	0
274	SLU 56	0	-11.11	62.43	0.8607	-0.0018	0
274	SLU 57	0	-11.11	62.41	0.8603	-0.0018	0
274	SLU 58	0	-11.07	61.82	0.8542	-0.0018	0
274	SLU 59	0	-11.07	61.8	0.8538	-0.0018	0
274	SLU 60	0	-10.66	64.29	0.8502	-0.0015	0
274	SLU 61	0	-10.65	64.27	0.8498	-0.0015	0
274	SLU 62	0	-11.17	64.73	0.8754	-0.0017	0
274	SLU 63	0	-11.17	64.71	0.875	-0.0017	0
274	SLU 64	0	-10.07	60.11	0.8021	-0.0015	0
274	SLU 65	0	-10.06	60.08	0.8014	-0.0015	0
274	SLU 66	0	-10.62	61.16	0.8337	-0.0017	0
274	SLU 67	0	-10.62	61.14	0.8333	-0.0017	0
274	SLU 68	0	-10.57	60.52	0.8266	-0.0017	0
274	SLU 69	0	-11.14	61.61	0.8589	-0.0018	0
274	SLU 70	0	-11.13	61.59	0.8585	-0.0018	0
274	SLU 71	0	-11.1	61	0.8524	-0.0019	0
274	SLU 72	0	-11.09	60.98	0.852	-0.0019	0
274	SLU 73	0	-11.49	67.91	0.9095	-0.0017	0
274	SLU 74	0	-12.05	68.99	0.9418	-0.0018	0
274	SLU 75	0	-12.04	68.97	0.9414	-0.0018	0
274	SLU 76	0	-12	68.35	0.9346	-0.0018	0
274	SLU 77	0	-12.56	69.44	0.9669	-0.002	0
274	SLU 78	0	-12.55	69.42	0.9665	-0.002	0
274	SLU 79	0	-12.52	68.83	0.9605	-0.002	0
274	SLU 80	0	-12.52	68.81	0.9601	-0.002	0
274	SLU 81	0	-12.11	71.29	0.9565	-0.0017	0
274	SLU 82	0	-12.1	71.27	0.9561	-0.0017	0
274	SLU 83	0	-12.62	71.74	0.9816	-0.0019	0
274	SLU 84	0	-12.61	71.72	0.9812	-0.0019	0
274	SLE RA 1	0	-7.43	44.7	0.5937	-0.0011	0
274	SLE RA 2	0	-7.42	44.68	0.5932	-0.0011	0
274	SLE RA 3	0	-7.8	45.4	0.6147	-0.0012	0
274	SLE RA 4	0	-7.79	45.39	0.6145	-0.0012	0
274	SLE RA 5	0	-7.76	44.97	0.61	-0.0012	0
274	SLE RA 6	0	-8.14	45.7	0.6315	-0.0013	0
274	SLE RA 7	0	-8.13	45.68	0.6312	-0.0013	0
274	SLE RA 8	0	-8.11	45.29	0.6272	-0.0013	0
274	SLE RA 9	0	-8.11	45.28	0.6269	-0.0013	0
274	SLE RA 10	0	-8.37	49.9	0.6652	-0.0012	0
274	SLE RA 11	0	-8.75	50.62	0.6868	-0.0013	0
274	SLE RA 12	0	-8.74	50.61	0.6865	-0.0013	0
274	SLE RA 13	0	-8.71	50.19	0.682	-0.0013	0
274	SLE RA 14	0	-9.09	50.92	0.7035	-0.0014	0
274	SLE RA 15	0	-9.08	50.9	0.7033	-0.0014	0
274	SLE RA 16	0	-9.06	50.51	0.6992	-0.0014	0
274	SLE RA 17	0	-9.06	50.5	0.6989	-0.0014	0
274	SLE RA 18	0	-8.79	52.15	0.6966	-0.0013	0
274	SLE RA 19	0	-8.78	52.14	0.6963	-0.0013	0
274	SLE RA 20	0	-9.13	52.45	0.7133	-0.0014	0
274	SLE RA 21	0	-9.12	52.44	0.7131	-0.0014	0
274	SLE FR 1	0	-7.43	44.7	0.5937	-0.0011	0
274	SLE FR 2	0	-7.43	44.69	0.5936	-0.0011	0
274	SLE FR 3	0	-7.57	44.82	0.6004	-0.0012	0
274	SLE FR 4	0	-7.84	46.93	0.6244	-0.0012	0
274	SLE FR 5	0	-7.97	47.05	0.6312	-0.0012	0
274	SLE FR 6	0	-8.11	48.43	0.6451	-0.0012	0
274	SLE QP 1	0	-7.43	44.7	0.5937	-0.0011	0
274	SLE QP 2	0	-7.84	46.94	0.6245	-0.0012	0
274	SLD 1	-0.06	-3.46	45.06	0.4237	0.0939	0.0001
274	SLD 2	-0.06	-3.46	45.06	0.4237	0.0939	0.0001
274	SLD 3	-0.07	-9.13	47.3	0.685	0.0857	0.0001
274	SLD 4	-0.07	-9.13	47.3	0.685	0.0857	0.0001
274	SLD 5	-0.01	2.07	42.97	0.1681	0.0398	0
274	SLD 6	-0.01	2.07	42.97	0.1681	0.0398	0
274	SLD 7	-0.03	-16.82	50.45	1.0389	0.0125	0
274	SLD 8	-0.03	-16.82	50.45	1.0389	0.0125	0
274	SLD 9	0.03	1.15	43.42	0.2102	-0.0148	0
274	SLD 10	0.03	1.15	43.42	0.2102	-0.0148	0
274	SLD 11	0.01	-17.75	50.91	1.081	-0.0421	0
274	SLD 12	0.01	-17.75	50.91	1.081	-0.0421	0
274	SLD 13	0.07	-6.55	46.57	0.5641	-0.0881	-0.0001
274	SLD 14	0.07	-6.55	46.57	0.5641	-0.0881	-0.0001
274	SLD 15	0.06	-12.21	48.82	0.8253	-0.0963	-0.0001
274	SLD 16	0.06	-12.21	48.82	0.8253	-0.0963	-0.0001
274	SLV 1	-0.18	2.25	42.52	0.1603	0.2769	0.0003
274	SLV 2	-0.18	2.25	42.52	0.1603	0.2769	0.0003
274	SLV 3	-0.19	-10.85	47.83	0.7654	0.2551	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
274	SLV 4	-0.19	-10.85	47.83	0.7654	0.2551	0.0003
274	SLV 5	-0.02	15.05	37.56	-0.4325	0.1153	0.0001
274	SLV 6	-0.02	15.05	37.56	-0.4325	0.1153	0.0001
274	SLV 7	-0.09	-28.6	55.26	1.5846	0.0427	0
274	SLV 8	-0.09	-28.6	55.26	1.5846	0.0427	0
274	SLV 9	0.09	12.93	38.61	-0.3355	-0.045	0
274	SLV 10	0.09	12.93	38.61	-0.3355	-0.045	0
274	SLV 11	0.02	-30.72	56.32	1.6815	-0.1176	-0.0001
274	SLV 12	0.02	-30.72	56.32	1.6815	-0.1176	-0.0001
274	SLV 13	0.19	-4.83	46.04	0.4836	-0.2574	-0.0003
274	SLV 14	0.19	-4.83	46.04	0.4836	-0.2574	-0.0003
274	SLV 15	0.18	-17.92	51.35	1.0887	-0.2792	-0.0003
274	SLV 16	0.18	-17.92	51.35	1.0887	-0.2792	-0.0003
275	SLU 1	0.06	-9.68	22.68	0.4587	-0.0029	-0.0002
275	SLU 2	0.06	-8.75	21.52	0.4146	-0.0017	-0.0002
275	SLU 3	0.06	-9.9	23.2	0.4691	-0.0029	-0.0002
275	SLU 4	0.06	-9.34	22.5	0.4427	-0.0022	-0.0002
275	SLU 5	0.06	-8.84	21.86	0.419	-0.0017	-0.0002
275	SLU 6	0.06	-9.99	23.54	0.4735	-0.0029	-0.0002
275	SLU 7	0.06	-9.43	22.84	0.447	-0.0022	-0.0002
275	SLU 8	0.06	-9.85	23.36	0.4674	-0.0029	-0.0002
275	SLU 9	0.06	-9.3	22.66	0.4409	-0.0022	-0.0002
275	SLU 10	0.06	-9.81	23.88	0.4662	-0.0018	-0.0003
275	SLU 11	0.07	-10.96	25.56	0.5207	-0.0031	-0.0003
275	SLU 12	0.07	-10.4	24.86	0.4943	-0.0024	-0.0003
275	SLU 13	0.07	-9.9	24.22	0.4705	-0.0019	-0.0003
275	SLU 14	0.07	-11.04	25.9	0.5251	-0.0031	-0.0003
275	SLU 15	0.07	-10.49	25.2	0.4986	-0.0024	-0.0003
275	SLU 16	0.07	-10.91	25.73	0.5189	-0.0031	-0.0003
275	SLU 17	0.07	-10.36	25.03	0.4925	-0.0024	-0.0003
275	SLU 18	0.07	-11.19	26.06	0.5324	-0.0031	-0.0003
275	SLU 19	0.07	-10.64	25.36	0.5059	-0.0024	-0.0003
275	SLU 20	0.07	-11.28	26.4	0.5367	-0.0031	-0.0003
275	SLU 21	0.07	-10.72	25.7	0.5103	-0.0024	-0.0003
275	SLU 22	0.07	-10.73	25.02	0.5099	-0.003	-0.0003
275	SLU 23	0.06	-9.81	23.85	0.4658	-0.0018	-0.0003
275	SLU 24	0.07	-10.95	25.53	0.5203	-0.0031	-0.0003
275	SLU 25	0.07	-10.4	24.83	0.4939	-0.0024	-0.0003
275	SLU 26	0.07	-9.9	24.19	0.4701	-0.0019	-0.0003
275	SLU 27	0.07	-11.04	25.87	0.5247	-0.0031	-0.0003
275	SLU 28	0.07	-10.49	25.17	0.4982	-0.0024	-0.0003
275	SLU 29	0.07	-10.91	25.7	0.5185	-0.0031	-0.0003
275	SLU 30	0.07	-10.35	25	0.4921	-0.0024	-0.0003
275	SLU 31	0.07	-10.87	26.21	0.5174	-0.002	-0.0003
275	SLU 32	0.08	-12.01	27.89	0.5719	-0.0032	-0.0003
275	SLU 33	0.07	-11.46	27.19	0.5455	-0.0025	-0.0003
275	SLU 34	0.07	-10.96	26.55	0.5217	-0.002	-0.0003
275	SLU 35	0.08	-12.1	28.23	0.5762	-0.0033	-0.0003
275	SLU 36	0.08	-11.55	27.53	0.5498	-0.0026	-0.0003
275	SLU 37	0.08	-11.97	28.06	0.5701	-0.0032	-0.0003
275	SLU 38	0.08	-11.41	27.36	0.5437	-0.0025	-0.0003
275	SLU 39	0.08	-12.25	28.39	0.5835	-0.0033	-0.0003
275	SLU 40	0.08	-11.69	27.69	0.5571	-0.0025	-0.0003
275	SLU 41	0.08	-12.33	28.73	0.5879	-0.0033	-0.0003
275	SLU 42	0.08	-11.78	28.03	0.5614	-0.0026	-0.0003
275	SLU 43	0.07	-12.22	28.69	0.5787	-0.0037	-0.0003
275	SLU 44	0.07	-11.29	27.52	0.5347	-0.0025	-0.0003
275	SLU 45	0.08	-12.44	29.2	0.5892	-0.0037	-0.0003
275	SLU 46	0.07	-11.88	28.5	0.5628	-0.003	-0.0003
275	SLU 47	0.07	-11.38	27.86	0.539	-0.0025	-0.0003
275	SLU 48	0.08	-12.53	29.54	0.5935	-0.0038	-0.0003
275	SLU 49	0.08	-11.97	28.84	0.5671	-0.003	-0.0003
275	SLU 50	0.08	-12.39	29.37	0.5874	-0.0037	-0.0003
275	SLU 51	0.07	-11.84	28.67	0.561	-0.003	-0.0003
275	SLU 52	0.08	-12.35	29.88	0.5863	-0.0027	-0.0003
275	SLU 53	0.08	-13.5	31.56	0.6408	-0.0039	-0.0003
275	SLU 54	0.08	-12.94	30.86	0.6143	-0.0032	-0.0003
275	SLU 55	0.08	-12.44	30.22	0.5906	-0.0027	-0.0003
275	SLU 56	0.09	-13.59	31.9	0.6451	-0.0039	-0.0003
275	SLU 57	0.08	-13.03	31.2	0.6187	-0.0032	-0.0003
275	SLU 58	0.08	-13.45	31.73	0.639	-0.0039	-0.0003
275	SLU 59	0.08	-12.9	31.03	0.6126	-0.0032	-0.0003
275	SLU 60	0.09	-13.73	32.06	0.6524	-0.0039	-0.0003
275	SLU 61	0.08	-13.18	31.36	0.626	-0.0032	-0.0003
275	SLU 62	0.09	-13.82	32.4	0.6568	-0.0039	-0.0003
275	SLU 63	0.08	-13.26	31.7	0.6303	-0.0032	-0.0003
275	SLU 64	0.08	-13.27	31.02	0.6299	-0.0038	-0.0003
275	SLU 65	0.08	-12.35	29.85	0.5859	-0.0026	-0.0003
275	SLU 66	0.08	-13.49	31.54	0.6404	-0.0039	-0.0003
275	SLU 67	0.08	-12.94	30.83	0.6139	-0.0032	-0.0003
275	SLU 68	0.08	-12.44	30.19	0.5902	-0.0027	-0.0003
275	SLU 69	0.09	-13.58	31.88	0.6447	-0.0039	-0.0003
275	SLU 70	0.08	-13.03	31.18	0.6183	-0.0032	-0.0003
275	SLU 71	0.08	-13.45	31.7	0.6386	-0.0039	-0.0003
275	SLU 72	0.08	-12.9	31	0.6122	-0.0032	-0.0003
275	SLU 73	0.09	-13.41	32.22	0.6374	-0.0028	-0.0003
275	SLU 74	0.09	-14.55	33.9	0.692	-0.004	-0.0004
275	SLU 75	0.09	-14	33.2	0.6655	-0.0033	-0.0004
275	SLU 76	0.09	-13.5	32.56	0.6418	-0.0028	-0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
275	SLU 77	0.09	-14.64	34.24	0.6963	-0.0041	-0.0004
275	SLU 78	0.09	-14.09	33.54	0.6699	-0.0034	-0.0004
275	SLU 79	0.09	-14.51	34.06	0.6902	-0.0041	-0.0004
275	SLU 80	0.09	-13.95	33.36	0.6637	-0.0033	-0.0004
275	SLU 81	0.09	-14.79	34.4	0.7036	-0.0041	-0.0004
275	SLU 82	0.09	-14.23	33.69	0.6772	-0.0034	-0.0004
275	SLU 83	0.09	-14.87	34.74	0.7079	-0.0041	-0.0004
275	SLU 84	0.09	-14.32	34.03	0.6815	-0.0034	-0.0004
275	SLE RA 1	0.06	-9.98	23.35	0.4733	-0.0029	-0.0002
275	SLE RA 2	0.06	-9.36	22.57	0.4439	-0.0021	-0.0002
275	SLE RA 3	0.06	-10.13	23.69	0.4803	-0.0029	-0.0003
275	SLE RA 4	0.06	-9.76	23.23	0.4627	-0.0025	-0.0002
275	SLE RA 5	0.06	-9.42	22.8	0.4468	-0.0021	-0.0002
275	SLE RA 6	0.06	-10.18	23.92	0.4832	-0.003	-0.0003
275	SLE RA 7	0.06	-9.82	23.45	0.4655	-0.0025	-0.0003
275	SLE RA 8	0.06	-10.1	23.8	0.4791	-0.003	-0.0003
275	SLE RA 9	0.06	-9.73	23.34	0.4615	-0.0025	-0.0002
275	SLE RA 10	0.06	-10.07	24.15	0.4783	-0.0022	-0.0003
275	SLE RA 11	0.07	-10.83	25.27	0.5147	-0.0031	-0.0003
275	SLE RA 12	0.07	-10.46	24.8	0.497	-0.0026	-0.0003
275	SLE RA 13	0.07	-10.13	24.37	0.4812	-0.0023	-0.0003
275	SLE RA 14	0.07	-10.89	25.49	0.5176	-0.0031	-0.0003
275	SLE RA 15	0.07	-10.52	25.03	0.4999	-0.0026	-0.0003
275	SLE RA 16	0.07	-10.8	25.38	0.5135	-0.0031	-0.0003
275	SLE RA 17	0.07	-10.43	24.91	0.4958	-0.0026	-0.0003
275	SLE RA 18	0.07	-10.99	25.6	0.5224	-0.0031	-0.0003
275	SLE RA 19	0.07	-10.62	25.13	0.5048	-0.0026	-0.0003
275	SLE RA 20	0.07	-11.05	25.83	0.5253	-0.0031	-0.0003
275	SLE RA 21	0.07	-10.68	25.36	0.5077	-0.0026	-0.0003
275	SLE FR 1	0.06	-9.98	23.35	0.4733	-0.0029	-0.0002
275	SLE FR 2	0.06	-9.85	23.19	0.4674	-0.0028	-0.0002
275	SLE FR 3	0.06	-10	23.44	0.4745	-0.0029	-0.0002
275	SLE FR 4	0.06	-10.16	23.87	0.4822	-0.0028	-0.0003
275	SLE FR 5	0.06	-10.3	24.12	0.4892	-0.003	-0.0003
275	SLE FR 6	0.07	-10.48	24.47	0.4979	-0.003	-0.0003
275	SLE QP 1	0.06	-9.98	23.35	0.4733	-0.0029	-0.0002
275	SLE QP 2	0.06	-10.28	24.02	0.488	-0.003	-0.0003
275	SLD 1	0.07	-9.31	34.78	0.4498	0.0611	-0.0004
275	SLD 2	0.07	-9.31	34.78	0.4498	0.0611	-0.0004
275	SLD 3	0.17	-15.52	41.45	0.7395	0.0154	-0.0005
275	SLD 4	0.17	-15.52	41.45	0.7395	0.0154	-0.0005
275	SLD 5	-0.09	-0.56	17.13	0.0371	0.0855	-0.0002
275	SLD 6	-0.09	-0.56	17.13	0.0371	0.0855	-0.0002
275	SLD 7	0.25	-21.28	39.37	1.0029	-0.0667	-0.0004
275	SLD 8	0.25	-21.28	39.37	1.0029	-0.0667	-0.0004
275	SLD 9	-0.12	0.72	8.68	-0.0268	0.0608	-0.0001
275	SLD 10	-0.12	0.72	8.68	-0.0268	0.0608	-0.0001
275	SLD 11	0.22	-20	30.92	0.939	-0.0914	-0.0003
275	SLD 12	0.22	-20	30.92	0.939	-0.0914	-0.0003
275	SLD 13	-0.04	-5.04	6.6	0.2366	-0.0214	0
275	SLD 14	-0.04	-5.04	6.6	0.2366	-0.0214	0
275	SLD 15	0.06	-11.26	13.27	0.5263	-0.067	-0.0001
275	SLD 16	0.06	-11.26	13.27	0.5263	-0.067	-0.0001
275	SLV 1	0.06	-8.06	48.72	0.4016	0.151	-0.0006
275	SLV 2	0.06	-8.06	48.72	0.4016	0.151	-0.0006
275	SLV 3	0.31	-22.39	63.95	1.0676	0.0392	-0.0007
275	SLV 4	0.31	-22.39	63.95	1.0676	0.0392	-0.0007
275	SLV 5	-0.31	12.11	8.33	-0.548	0.2127	-0.0001
275	SLV 6	-0.31	12.11	8.33	-0.548	0.2127	-0.0001
275	SLV 7	0.51	-35.63	59.11	1.672	-0.1598	-0.0007
275	SLV 8	0.51	-35.63	59.11	1.672	-0.1598	-0.0007
275	SLV 9	-0.38	15.07	-11.06	-0.6959	0.1539	0.0001
275	SLV 10	-0.38	15.07	-11.06	-0.6959	0.1539	0.0001
275	SLV 11	0.44	-32.67	39.72	1.524	-0.2187	-0.0004
275	SLV 12	0.44	-32.67	39.72	1.524	-0.2187	-0.0004
275	SLV 13	-0.18	1.82	-15.9	-0.0915	-0.0452	0.0002
275	SLV 14	-0.18	1.82	-15.9	-0.0915	-0.0452	0.0002
275	SLV 15	0.07	-12.5	-0.67	0.5745	-0.1569	0.0001
275	SLV 16	0.07	-12.5	-0.67	0.5745	-0.1569	0.0001
276	SLU 1	0.01	-0.35	66.83	-0.0137	0.0054	0.0001
276	SLU 2	0.01	-0.25	66.28	-0.0167	0.0052	0.0001
276	SLU 3	0.02	-0.61	71	-0.0059	0.0057	0.0001
276	SLU 4	0.01	-0.55	70.67	-0.0077	0.0057	0.0001
276	SLU 5	0.01	-0.55	69.87	-0.0075	0.0056	0.0001
276	SLU 6	0.02	-0.91	74.59	0.0034	0.0061	0.0001
276	SLU 7	0.02	-0.85	74.26	0.0015	0.006	0.0001
276	SLU 8	0.02	-0.94	74.01	0.0049	0.0061	0.0001
276	SLU 9	0.02	-0.88	73.68	0.003	0.006	0.0001
276	SLU 10	0.02	-0.37	77.66	-0.0189	0.006	0.0001
276	SLU 11	0.02	-0.73	82.38	-0.0081	0.0065	0.0001
276	SLU 12	0.02	-0.67	82.05	-0.0099	0.0065	0.0001
276	SLU 13	0.02	-0.66	81.25	-0.0096	0.0064	0.0001
276	SLU 14	0.02	-1.02	85.97	0.0012	0.0069	0.0001
276	SLU 15	0.02	-0.97	85.64	-0.0006	0.0068	0.0001
276	SLU 16	0.02	-1.06	85.39	0.0027	0.0069	0.0001
276	SLU 17	0.02	-1	85.06	0.0009	0.0068	0.0001
276	SLU 18	0.02	-0.51	83.08	-0.0168	0.0065	0.0001
276	SLU 19	0.02	-0.45	82.75	-0.0186	0.0064	0.0001
276	SLU 20	0.02	-0.81	86.67	-0.0075	0.0069	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
276	SLU 21	0.02	-0.75	86.34	-0.0093	0.0068	0.0001
276	SLU 22	0.02	-0.58	78.54	-0.0112	0.0063	0.0001
276	SLU 23	0.02	-0.49	77.99	-0.0142	0.0061	0.0001
276	SLU 24	0.02	-0.84	82.71	-0.0034	0.0066	0.0001
276	SLU 25	0.02	-0.79	82.38	-0.0052	0.0066	0.0001
276	SLU 26	0.02	-0.78	81.58	-0.0049	0.0065	0.0001
276	SLU 27	0.02	-1.14	86.3	0.0059	0.007	0.0001
276	SLU 28	0.02	-1.08	85.98	0.0041	0.0069	0.0001
276	SLU 29	0.02	-1.18	85.72	0.0074	0.007	0.0001
276	SLU 30	0.02	-1.12	85.39	0.0056	0.0069	0.0001
276	SLU 31	0.02	-0.6	89.37	-0.0164	0.0069	0.0001
276	SLU 32	0.02	-0.96	94.09	-0.0056	0.0074	0.0001
276	SLU 33	0.02	-0.9	93.76	-0.0074	0.0073	0.0001
276	SLU 34	0.02	-0.9	92.96	-0.0071	0.0073	0.0001
276	SLU 35	0.02	-1.26	97.68	0.0037	0.0078	0.0001
276	SLU 36	0.02	-1.2	97.35	0.0019	0.0077	0.0001
276	SLU 37	0.02	-1.29	97.1	0.0052	0.0078	0.0001
276	SLU 38	0.02	-1.23	96.77	0.0034	0.0077	0.0001
276	SLU 39	0.02	-0.75	94.79	-0.0143	0.0074	0.0001
276	SLU 40	0.02	-0.69	94.46	-0.0161	0.0073	0.0001
276	SLU 41	0.02	-1.04	98.38	-0.005	0.0078	0.0001
276	SLU 42	0.02	-0.99	98.05	-0.0068	0.0077	0.0001
276	SLU 43	0.02	-0.37	82.86	-0.0187	0.0067	0.0001
276	SLU 44	0.02	-0.28	82.31	-0.0217	0.0065	0.0001
276	SLU 45	0.02	-0.63	87.03	-0.0109	0.0071	0.0001
276	SLU 46	0.02	-0.58	86.7	-0.0127	0.007	0.0001
276	SLU 47	0.02	-0.57	85.9	-0.0124	0.0069	0.0001
276	SLU 48	0.02	-0.93	90.62	-0.0016	0.0074	0.0001
276	SLU 49	0.02	-0.87	90.29	-0.0034	0.0073	0.0001
276	SLU 50	0.02	-0.97	90.04	-0.0001	0.0074	0.0001
276	SLU 51	0.02	-0.91	89.71	-0.0019	0.0073	0.0001
276	SLU 52	0.02	-0.39	93.69	-0.0239	0.0073	0.0001
276	SLU 53	0.02	-0.75	98.41	-0.0131	0.0078	0.0001
276	SLU 54	0.02	-0.69	98.08	-0.0149	0.0078	0.0001
276	SLU 55	0.02	-0.69	97.28	-0.0146	0.0077	0.0001
276	SLU 56	0.02	-1.05	102	-0.0038	0.0082	0.0001
276	SLU 57	0.02	-0.99	101.67	-0.0056	0.0081	0.0001
276	SLU 58	0.02	-1.08	101.42	-0.0023	0.0082	0.0001
276	SLU 59	0.02	-1.02	101.09	-0.0041	0.0081	0.0001
276	SLU 60	0.02	-0.54	99.11	-0.0218	0.0078	0.0001
276	SLU 61	0.02	-0.48	98.78	-0.0236	0.0077	0.0001
276	SLU 62	0.02	-0.83	102.7	-0.0125	0.0082	0.0001
276	SLU 63	0.02	-0.78	102.37	-0.0143	0.0081	0.0001
276	SLU 64	0.02	-0.6	94.57	-0.0162	0.0076	0.0001
276	SLU 65	0.02	-0.51	94.02	-0.0192	0.0074	0.0001
276	SLU 66	0.02	-0.87	98.74	-0.0084	0.0079	0.0001
276	SLU 67	0.02	-0.81	98.42	-0.0102	0.0079	0.0001
276	SLU 68	0.02	-0.81	97.62	-0.0099	0.0078	0.0001
276	SLU 69	0.02	-1.17	102.34	0.0009	0.0083	0.0001
276	SLU 70	0.02	-1.11	102.01	-0.0009	0.0082	0.0001
276	SLU 71	0.02	-1.2	101.75	0.0024	0.0083	0.0001
276	SLU 72	0.02	-1.14	101.43	0.0006	0.0082	0.0001
276	SLU 73	0.02	-0.63	105.4	-0.0214	0.0082	0.0001
276	SLU 74	0.02	-0.98	110.12	-0.0105	0.0087	0.0001
276	SLU 75	0.02	-0.93	109.79	-0.0124	0.0087	0.0001
276	SLU 76	0.02	-0.92	108.99	-0.0121	0.0086	0.0001
276	SLU 77	0.02	-1.28	113.71	-0.0013	0.0091	0.0001
276	SLU 78	0.02	-1.22	113.38	-0.0031	0.009	0.0001
276	SLU 79	0.02	-1.31	113.13	0.0002	0.0091	0.0001
276	SLU 80	0.02	-1.26	112.8	-0.0016	0.009	0.0001
276	SLU 81	0.02	-0.77	110.82	-0.0192	0.0087	0.0001
276	SLU 82	0.02	-0.71	110.49	-0.0211	0.0086	0.0001
276	SLU 83	0.02	-1.07	114.41	-0.01	0.0091	0.0001
276	SLU 84	0.02	-1.01	114.09	-0.0118	0.009	0.0001
276	SLE RA 1	0.01	-0.41	70.17	-0.013	0.0056	0.0001
276	SLE RA 2	0.01	-0.35	69.81	-0.015	0.0055	0.0001
276	SLE RA 3	0.02	-0.59	72.95	-0.0078	0.0059	0.0001
276	SLE RA 4	0.02	-0.55	72.74	-0.009	0.0058	0.0001
276	SLE RA 5	0.02	-0.55	72.2	-0.0088	0.0058	0.0001
276	SLE RA 6	0.02	-0.79	75.35	-0.0016	0.0061	0.0001
276	SLE RA 7	0.02	-0.75	75.13	-0.0028	0.0061	0.0001
276	SLE RA 8	0.02	-0.81	74.96	-0.0006	0.0061	0.0001
276	SLE RA 9	0.02	-0.77	74.74	-0.0018	0.006	0.0001
276	SLE RA 10	0.02	-0.43	77.39	-0.0164	0.0061	0.0001
276	SLE RA 11	0.02	-0.67	80.54	-0.0092	0.0064	0.0001
276	SLE RA 12	0.02	-0.63	80.32	-0.0104	0.0063	0.0001
276	SLE RA 13	0.02	-0.63	79.79	-0.0103	0.0063	0.0001
276	SLE RA 14	0.02	-0.86	82.93	-0.003	0.0066	0.0001
276	SLE RA 15	0.02	-0.83	82.71	-0.0043	0.0066	0.0001
276	SLE RA 16	0.02	-0.89	82.55	-0.002	0.0066	0.0001
276	SLE RA 17	0.02	-0.85	82.33	-0.0033	0.0066	0.0001
276	SLE RA 18	0.02	-0.52	81.01	-0.015	0.0064	0.0001
276	SLE RA 19	0.02	-0.49	80.79	-0.0163	0.0063	0.0001
276	SLE RA 20	0.02	-0.72	83.4	-0.0089	0.0066	0.0001
276	SLE RA 21	0.02	-0.68	83.18	-0.0101	0.0066	0.0001
276	SLE FR 1	0.01	-0.41	70.17	-0.013	0.0056	0.0001
276	SLE FR 2	0.01	-0.4	70.1	-0.0134	0.0056	0.0001
276	SLE FR 3	0.02	-0.49	71.13	-0.0105	0.0057	0.0001
276	SLE FR 4	0.02	-0.43	73.35	-0.014	0.0058	0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
276	SLE FR 5	0.02	-0.53	74.38	-0.0111	0.0059	0.0001
276	SLE FR 6	0.02	-0.47	75.59	-0.014	0.006	0.0001
276	SLE QP 1	0.01	-0.41	70.17	-0.013	0.0056	0.0001
276	SLE QP 2	0.02	-0.45	73.42	-0.0136	0.0059	0.0001
276	SLD 1	-0.06	-0.29	73.01	-0.0141	0.0596	-0.0005
276	SLD 2	-0.06	-0.29	73.01	-0.0141	0.0596	-0.0005
276	SLD 3	-0.05	-5.23	80.62	0.1512	0.0681	-0.0005
276	SLD 4	-0.05	-5.23	80.62	0.1512	0.0681	-0.0005
276	SLD 5	-0.02	7.08	61.75	-0.2646	0.0091	-0.0002
276	SLD 6	-0.02	7.08	61.75	-0.2646	0.0091	-0.0002
276	SLD 7	0.01	-9.36	87.13	0.2867	0.0374	0
276	SLD 8	0.01	-9.36	87.13	0.2867	0.0374	0
276	SLD 9	0.02	8.47	59.72	-0.3138	-0.0257	0.0001
276	SLD 10	0.02	8.47	59.72	-0.3138	-0.0257	0.0001
276	SLD 11	0.05	-7.97	85.09	0.2374	0.0026	0.0004
276	SLD 12	0.05	-7.97	85.09	0.2374	0.0026	0.0004
276	SLD 13	0.08	4.33	66.23	-0.1784	-0.0564	0.0006
276	SLD 14	0.08	4.33	66.23	-0.1784	-0.0564	0.0006
276	SLD 15	0.09	-0.6	73.84	-0.0131	-0.0479	0.0007
276	SLD 16	0.09	-0.6	73.84	-0.0131	-0.0479	0.0007
276	SLV 1	-0.16	-0.16	72.41	-0.0128	0.1333	-0.0014
276	SLV 2	-0.16	-0.16	72.41	-0.0128	0.1333	-0.0014
276	SLV 3	-0.14	-11.48	90.05	0.3666	0.1546	-0.0012
276	SLV 4	-0.14	-11.48	90.05	0.3666	0.1546	-0.0012
276	SLV 5	-0.08	16.81	46.37	-0.5888	0.0119	-0.0006
276	SLV 6	-0.08	16.81	46.37	-0.5888	0.0119	-0.0006
276	SLV 7	0.01	-20.92	105.16	0.6759	0.0827	0
276	SLV 8	0.01	-20.92	105.16	0.6759	0.0827	0
276	SLV 9	0.02	20.03	41.69	-0.7031	-0.071	0.0002
276	SLV 10	0.02	20.03	41.69	-0.7031	-0.071	0.0002
276	SLV 11	0.11	-17.7	100.48	0.5616	-0.0002	0.0008
276	SLV 12	0.11	-17.7	100.48	0.5616	-0.0002	0.0008
276	SLV 13	0.17	10.58	56.8	-0.3938	-0.1429	0.0014
276	SLV 14	0.17	10.58	56.8	-0.3938	-0.1429	0.0014
276	SLV 15	0.2	-0.73	74.44	-0.0144	-0.1216	0.0016
276	SLV 16	0.2	-0.73	74.44	-0.0144	-0.1216	0.0016
277	SLU 1	-0.07	3.53	25.06	-0.0344	-0.0059	0.0021
277	SLU 2	-0.07	3.54	25.06	-0.0347	-0.0059	0.0021
277	SLU 3	-0.08	3.6	25.63	-0.0339	-0.006	0.0021
277	SLU 4	-0.08	3.6	25.63	-0.0341	-0.006	0.0021
277	SLU 5	-0.08	3.55	25.31	-0.034	-0.0059	0.0021
277	SLU 6	-0.08	3.61	25.88	-0.0331	-0.006	0.0022
277	SLU 7	-0.08	3.62	25.88	-0.0333	-0.006	0.0022
277	SLU 8	-0.08	3.57	25.55	-0.0329	-0.0059	0.0021
277	SLU 9	-0.08	3.57	25.55	-0.0331	-0.0059	0.0021
277	SLU 10	-0.09	4.09	29.01	-0.0393	-0.0069	0.0025
277	SLU 11	-0.09	4.15	29.58	-0.0384	-0.007	0.0025
277	SLU 12	-0.09	4.15	29.58	-0.0386	-0.0071	0.0025
277	SLU 13	-0.09	4.1	29.25	-0.0385	-0.007	0.0025
277	SLU 14	-0.09	4.16	29.83	-0.0376	-0.0071	0.0025
277	SLU 15	-0.09	4.16	29.82	-0.0378	-0.0071	0.0025
277	SLU 16	-0.09	4.12	29.5	-0.0374	-0.007	0.0025
277	SLU 17	-0.09	4.12	29.5	-0.0376	-0.007	0.0025
277	SLU 18	-0.09	4.32	30.7	-0.0409	-0.0074	0.0026
277	SLU 19	-0.09	4.32	30.7	-0.0411	-0.0074	0.0026
277	SLU 20	-0.09	4.33	30.95	-0.0401	-0.0074	0.0026
277	SLU 21	-0.09	4.34	30.94	-0.0403	-0.0074	0.0026
277	SLU 22	-0.09	4.03	28.72	-0.0378	-0.0068	0.0024
277	SLU 23	-0.09	4.04	28.72	-0.0381	-0.0068	0.0024
277	SLU 24	-0.09	4.09	29.29	-0.0372	-0.0069	0.0025
277	SLU 25	-0.09	4.1	29.29	-0.0374	-0.007	0.0025
277	SLU 26	-0.09	4.05	28.97	-0.0373	-0.0069	0.0024
277	SLU 27	-0.09	4.11	29.54	-0.0365	-0.007	0.0025
277	SLU 28	-0.09	4.11	29.54	-0.0367	-0.007	0.0025
277	SLU 29	-0.09	4.06	29.21	-0.0363	-0.0069	0.0025
277	SLU 30	-0.09	4.07	29.21	-0.0364	-0.0069	0.0025
277	SLU 31	-0.1	4.59	32.67	-0.0426	-0.0079	0.0028
277	SLU 32	-0.1	4.64	33.24	-0.0417	-0.008	0.0028
277	SLU 33	-0.1	4.65	33.24	-0.0419	-0.008	0.0028
277	SLU 34	-0.1	4.6	32.91	-0.0418	-0.0079	0.0028
277	SLU 35	-0.1	4.66	33.49	-0.041	-0.008	0.0028
277	SLU 36	-0.1	4.66	33.48	-0.0412	-0.0081	0.0028
277	SLU 37	-0.1	4.61	33.16	-0.0408	-0.0079	0.0028
277	SLU 38	-0.1	4.62	33.16	-0.041	-0.008	0.0028
277	SLU 39	-0.1	4.82	34.36	-0.0442	-0.0084	0.0029
277	SLU 40	-0.1	4.82	34.36	-0.0444	-0.0084	0.0029
277	SLU 41	-0.11	4.83	34.61	-0.0435	-0.0084	0.0029
277	SLU 42	-0.11	4.84	34.6	-0.0436	-0.0084	0.003
277	SLU 43	-0.09	4.42	31.33	-0.0436	-0.0073	0.0026
277	SLU 44	-0.09	4.43	31.32	-0.0439	-0.0073	0.0026
277	SLU 45	-0.1	4.49	31.9	-0.0431	-0.0074	0.0027
277	SLU 46	-0.1	4.49	31.9	-0.0433	-0.0074	0.0027
277	SLU 47	-0.09	4.44	31.57	-0.0432	-0.0073	0.0026
277	SLU 48	-0.1	4.5	32.14	-0.0423	-0.0074	0.0027
277	SLU 49	-0.1	4.5	32.14	-0.0425	-0.0074	0.0027
277	SLU 50	-0.09	4.46	31.82	-0.0421	-0.0073	0.0026
277	SLU 51	-0.09	4.46	31.82	-0.0423	-0.0073	0.0026
277	SLU 52	-0.11	4.98	35.27	-0.0484	-0.0084	0.003
277	SLU 53	-0.11	5.03	35.84	-0.0476	-0.0085	0.003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
277	SLU 54	-0.11	5.04	35.84	-0.0478	-0.0085	0.003
277	SLU 55	-0.11	4.99	35.52	-0.0477	-0.0084	0.003
277	SLU 56	-0.11	5.05	36.09	-0.0468	-0.0085	0.003
277	SLU 57	-0.11	5.05	36.09	-0.047	-0.0085	0.003
277	SLU 58	-0.11	5.01	35.76	-0.0466	-0.0084	0.003
277	SLU 59	-0.11	5.01	35.76	-0.0468	-0.0084	0.003
277	SLU 60	-0.11	5.21	36.96	-0.05	-0.0088	0.0031
277	SLU 61	-0.11	5.21	36.96	-0.0502	-0.0088	0.0031
277	SLU 62	-0.11	5.22	37.21	-0.0493	-0.0088	0.0031
277	SLU 63	-0.11	5.23	37.21	-0.0495	-0.0088	0.0031
277	SLU 64	-0.11	4.92	34.99	-0.0469	-0.0082	0.0029
277	SLU 65	-0.11	4.93	34.98	-0.0473	-0.0083	0.0029
277	SLU 66	-0.11	4.98	35.56	-0.0464	-0.0084	0.003
277	SLU 67	-0.11	4.99	35.56	-0.0466	-0.0084	0.003
277	SLU 68	-0.11	4.94	35.23	-0.0465	-0.0083	0.003
277	SLU 69	-0.11	5	35.8	-0.0457	-0.0084	0.003
277	SLU 70	-0.11	5	35.8	-0.0458	-0.0084	0.003
277	SLU 71	-0.11	4.95	35.48	-0.0454	-0.0083	0.003
277	SLU 72	-0.11	4.96	35.48	-0.0456	-0.0083	0.003
277	SLU 73	-0.12	5.47	38.93	-0.0518	-0.0093	0.0033
277	SLU 74	-0.12	5.53	39.5	-0.0509	-0.0094	0.0033
277	SLU 75	-0.12	5.54	39.5	-0.0511	-0.0095	0.0033
277	SLU 76	-0.12	5.49	39.18	-0.051	-0.0094	0.0033
277	SLU 77	-0.12	5.55	39.75	-0.0502	-0.0095	0.0034
277	SLU 78	-0.12	5.55	39.75	-0.0504	-0.0095	0.0034
277	SLU 79	-0.12	5.5	39.42	-0.0499	-0.0094	0.0033
277	SLU 80	-0.12	5.51	39.42	-0.0501	-0.0094	0.0033
277	SLU 81	-0.12	5.71	40.62	-0.0534	-0.0098	0.0035
277	SLU 82	-0.12	5.71	40.62	-0.0536	-0.0098	0.0035
277	SLU 83	-0.12	5.72	40.87	-0.0526	-0.0098	0.0035
277	SLU 84	-0.12	5.72	40.87	-0.0528	-0.0098	0.0035
277	SLE RA 1	-0.08	3.68	26.11	-0.0354	-0.0061	0.0022
277	SLE RA 2	-0.08	3.68	26.11	-0.0356	-0.0061	0.0022
277	SLE RA 3	-0.08	3.72	26.49	-0.035	-0.0062	0.0022
277	SLE RA 4	-0.08	3.72	26.49	-0.0351	-0.0062	0.0022
277	SLE RA 5	-0.08	3.69	26.27	-0.0351	-0.0062	0.0022
277	SLE RA 6	-0.08	3.73	26.65	-0.0345	-0.0062	0.0022
277	SLE RA 7	-0.08	3.73	26.65	-0.0346	-0.0062	0.0022
277	SLE RA 8	-0.08	3.7	26.44	-0.0344	-0.0062	0.0022
277	SLE RA 9	-0.08	3.7	26.43	-0.0345	-0.0062	0.0022
277	SLE RA 10	-0.09	4.04	28.74	-0.0386	-0.0069	0.0024
277	SLE RA 11	-0.09	4.08	29.12	-0.038	-0.0069	0.0025
277	SLE RA 12	-0.09	4.09	29.12	-0.0382	-0.0069	0.0025
277	SLE RA 13	-0.09	4.06	28.9	-0.0381	-0.0069	0.0024
277	SLE RA 14	-0.09	4.09	29.28	-0.0375	-0.0069	0.0025
277	SLE RA 15	-0.09	4.1	29.28	-0.0377	-0.0069	0.0025
277	SLE RA 16	-0.09	4.06	29.07	-0.0374	-0.0069	0.0024
277	SLE RA 17	-0.09	4.07	29.07	-0.0375	-0.0069	0.0024
277	SLE RA 18	-0.09	4.2	29.87	-0.0397	-0.0072	0.0025
277	SLE RA 19	-0.09	4.2	29.87	-0.0398	-0.0072	0.0025
277	SLE RA 20	-0.09	4.21	30.03	-0.0392	-0.0072	0.0025
277	SLE RA 21	-0.09	4.21	30.03	-0.0393	-0.0072	0.0025
277	SLE FR 1	-0.08	3.68	26.11	-0.0354	-0.0061	0.0022
277	SLE FR 2	-0.08	3.68	26.11	-0.0354	-0.0061	0.0022
277	SLE FR 3	-0.08	3.68	26.17	-0.0352	-0.0061	0.0022
277	SLE FR 4	-0.08	3.83	27.24	-0.0367	-0.0064	0.0023
277	SLE FR 5	-0.08	3.84	27.3	-0.0365	-0.0064	0.0023
277	SLE FR 6	-0.08	3.94	27.99	-0.0375	-0.0066	0.0024
277	SLE QP 1	-0.08	3.68	26.11	-0.0354	-0.0061	0.0022
277	SLE QP 2	-0.08	3.83	27.24	-0.0367	-0.0064	0.0023
277	SLD 1	-0.06	4.05	26.99	-0.0518	-0.0016	0.0016
277	SLD 2	-0.06	4.05	26.99	-0.0518	-0.0016	0.0016
277	SLD 3	-0.08	2.77	22.41	0.0358	-0.0042	0.0023
277	SLD 4	-0.08	2.77	22.41	0.0358	-0.0042	0.0023
277	SLD 5	-0.04	5.85	34.11	-0.1742	-0.001	0.0011
277	SLD 6	-0.04	5.85	34.11	-0.1742	-0.001	0.0011
277	SLD 7	-0.12	1.56	18.84	0.1181	-0.0097	0.0033
277	SLD 8	-0.12	1.56	18.84	0.1181	-0.0097	0.0033
277	SLD 9	-0.05	6.1	35.63	-0.1914	-0.0031	0.0013
277	SLD 10	-0.05	6.1	35.63	-0.1914	-0.0031	0.0013
277	SLD 11	-0.13	1.81	20.36	0.1008	-0.0119	0.0035
277	SLD 12	-0.13	1.81	20.36	0.1008	-0.0119	0.0035
277	SLD 13	-0.08	4.9	32.06	-0.1092	-0.0087	0.0023
277	SLD 14	-0.08	4.9	32.06	-0.1092	-0.0087	0.0023
277	SLD 15	-0.11	3.61	27.48	-0.0215	-0.0113	0.003
277	SLD 16	-0.11	3.61	27.48	-0.0215	-0.0113	0.003
277	SLV 1	-0.02	4.34	26.64	-0.0718	0.0049	0.0006
277	SLV 2	-0.02	4.34	26.64	-0.0718	0.0049	0.0006
277	SLV 3	-0.08	1.35	15.89	0.1307	-0.0014	0.0022
277	SLV 4	-0.08	1.35	15.89	0.1307	-0.0014	0.0022
277	SLV 5	0.02	8.52	43.36	-0.3542	0.0066	-0.0007
277	SLV 6	0.02	8.52	43.36	-0.3542	0.0066	-0.0007
277	SLV 7	-0.17	-1.45	7.53	0.3205	-0.0145	0.0047
277	SLV 8	-0.17	-1.45	7.53	0.3205	-0.0145	0.0047
277	SLV 9	0.01	9.12	46.95	-0.3939	0.0016	-0.0001
277	SLV 10	0.01	9.12	46.95	-0.3939	0.0016	-0.0001
277	SLV 11	-0.19	-0.86	11.11	0.2809	-0.0194	0.0053
277	SLV 12	-0.19	-0.86	11.11	0.2809	-0.0194	0.0053
277	SLV 13	-0.08	6.32	38.58	-0.204	-0.0115	0.0024



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
277	SLV 14	-0.08	6.32	38.58	-0.204	-0.0115	0.0024
277	SLV 15	-0.14	3.33	27.83	-0.0016	-0.0178	0.004
277	SLV 16	-0.14	3.33	27.83	-0.0016	-0.0178	0.004
278	SLU 1	-0.09	-9.82	59.22	0.4397	-0.01	0.0004
278	SLU 2	-0.08	-8.93	54.72	0.3959	-0.0099	0.0004
278	SLU 3	-0.09	-10.05	60.28	0.4498	-0.01	0.0004
278	SLU 4	-0.08	-9.51	57.58	0.4235	-0.01	0.0004
278	SLU 5	-0.08	-9.02	55.01	0.3996	-0.0098	0.0004
278	SLU 6	-0.09	-10.13	60.56	0.4536	-0.0099	0.0004
278	SLU 7	-0.08	-9.6	57.86	0.4273	-0.0099	0.0004
278	SLU 8	-0.09	-9.99	59.79	0.4472	-0.0098	0.0004
278	SLU 9	-0.08	-9.46	57.09	0.4209	-0.0097	0.0004
278	SLU 10	-0.09	-10.06	61.94	0.4464	-0.0117	0.0005
278	SLU 11	-0.1	-11.17	67.49	0.5003	-0.0118	0.0005
278	SLU 12	-0.1	-10.64	64.79	0.474	-0.0117	0.0005
278	SLU 13	-0.09	-10.14	62.22	0.4502	-0.0116	0.0005
278	SLU 14	-0.1	-11.26	67.78	0.5041	-0.0117	0.0005
278	SLU 15	-0.1	-10.73	65.08	0.4778	-0.0116	0.0005
278	SLU 16	-0.1	-11.12	67.01	0.4977	-0.0115	0.0005
278	SLU 17	-0.1	-10.59	64.31	0.4715	-0.0115	0.0005
278	SLU 18	-0.1	-11.43	69.53	0.5119	-0.0125	0.0005
278	SLU 19	-0.1	-10.89	66.83	0.4856	-0.0125	0.0005
278	SLU 20	-0.1	-11.52	69.81	0.5156	-0.0124	0.0005
278	SLU 21	-0.1	-10.98	67.11	0.4894	-0.0123	0.0005
278	SLU 22	-0.1	-10.93	65.95	0.4896	-0.0114	0.0005
278	SLU 23	-0.09	-10.04	61.45	0.4458	-0.0113	0.0005
278	SLU 24	-0.1	-11.16	67	0.4997	-0.0114	0.0005
278	SLU 25	-0.09	-10.63	64.3	0.4735	-0.0114	0.0005
278	SLU 26	-0.09	-10.13	61.73	0.4496	-0.0112	0.0005
278	SLU 27	-0.1	-11.25	67.29	0.5035	-0.0113	0.0005
278	SLU 28	-0.1	-10.71	64.59	0.4772	-0.0113	0.0005
278	SLU 29	-0.1	-11.11	66.52	0.4972	-0.0112	0.0005
278	SLU 30	-0.09	-10.57	63.82	0.4709	-0.0111	0.0005
278	SLU 31	-0.1	-11.17	68.66	0.4964	-0.0131	0.0005
278	SLU 32	-0.11	-12.29	74.22	0.5503	-0.0132	0.0005
278	SLU 33	-0.11	-11.75	71.52	0.524	-0.0131	0.0005
278	SLU 34	-0.1	-11.26	68.95	0.5001	-0.013	0.0005
278	SLU 35	-0.11	-12.37	74.5	0.5541	-0.013	0.0005
278	SLU 36	-0.11	-11.84	71.8	0.5278	-0.013	0.0005
278	SLU 37	-0.11	-12.23	73.73	0.5477	-0.0129	0.0005
278	SLU 38	-0.11	-11.7	71.03	0.5214	-0.0129	0.0005
278	SLU 39	-0.11	-12.54	76.25	0.5618	-0.0139	0.0006
278	SLU 40	-0.11	-12.01	73.55	0.5355	-0.0138	0.0006
278	SLU 41	-0.11	-12.63	76.54	0.5656	-0.0138	0.0006
278	SLU 42	-0.11	-12.09	73.84	0.5393	-0.0137	0.0006
278	SLU 43	-0.11	-12.39	74.68	0.5544	-0.0125	0.0005
278	SLU 44	-0.1	-11.49	70.18	0.5106	-0.0125	0.0005
278	SLU 45	-0.11	-12.61	75.74	0.5646	-0.0126	0.0005
278	SLU 46	-0.11	-12.08	73.04	0.5383	-0.0125	0.0005
278	SLU 47	-0.1	-11.58	70.47	0.5144	-0.0123	0.0005
278	SLU 48	-0.11	-12.7	76.02	0.5683	-0.0124	0.0005
278	SLU 49	-0.11	-12.16	73.33	0.542	-0.0124	0.0005
278	SLU 50	-0.11	-12.56	75.25	0.562	-0.0123	0.0005
278	SLU 51	-0.11	-12.02	72.55	0.5357	-0.0123	0.0005
278	SLU 52	-0.11	-12.62	77.4	0.5612	-0.0142	0.0006
278	SLU 53	-0.12	-13.74	82.95	0.6151	-0.0143	0.0006
278	SLU 54	-0.12	-13.2	80.25	0.5888	-0.0143	0.0006
278	SLU 55	-0.11	-12.71	77.68	0.5649	-0.0141	0.0006
278	SLU 56	-0.12	-13.82	83.24	0.6189	-0.0142	0.0006
278	SLU 57	-0.12	-13.29	80.54	0.5926	-0.0141	0.0006
278	SLU 58	-0.12	-13.68	82.47	0.6125	-0.014	0.0006
278	SLU 59	-0.12	-13.15	79.77	0.5862	-0.014	0.0006
278	SLU 60	-0.12	-13.99	84.99	0.6266	-0.015	0.0006
278	SLU 61	-0.12	-13.46	82.29	0.6004	-0.015	0.0006
278	SLU 62	-0.13	-14.08	85.27	0.6304	-0.0149	0.0006
278	SLU 63	-0.12	-13.55	82.57	0.6041	-0.0149	0.0006
278	SLU 64	-0.12	-13.5	81.41	0.6044	-0.0139	0.0006
278	SLU 65	-0.11	-12.61	76.91	0.5606	-0.0139	0.0006
278	SLU 66	-0.12	-13.72	82.47	0.6145	-0.014	0.0006
278	SLU 67	-0.12	-13.19	79.77	0.5882	-0.0139	0.0006
278	SLU 68	-0.11	-12.69	77.19	0.5644	-0.0137	0.0006
278	SLU 69	-0.12	-13.81	82.75	0.6183	-0.0138	0.0006
278	SLU 70	-0.12	-13.28	80.05	0.592	-0.0138	0.0006
278	SLU 71	-0.12	-13.67	81.98	0.6119	-0.0137	0.0006
278	SLU 72	-0.12	-13.14	79.28	0.5856	-0.0136	0.0006
278	SLU 73	-0.12	-13.73	84.12	0.6111	-0.0156	0.0006
278	SLU 74	-0.13	-14.85	89.68	0.6651	-0.0157	0.0006
278	SLU 75	-0.13	-14.32	86.98	0.6388	-0.0157	0.0006
278	SLU 76	-0.13	-13.82	84.41	0.6149	-0.0155	0.0006
278	SLU 77	-0.13	-14.94	89.96	0.6688	-0.0156	0.0007
278	SLU 78	-0.13	-14.4	87.26	0.6425	-0.0155	0.0006
278	SLU 79	-0.13	-14.8	89.19	0.6625	-0.0154	0.0006
278	SLU 80	-0.13	-14.26	86.49	0.6362	-0.0154	0.0006
278	SLU 81	-0.14	-15.11	91.71	0.6766	-0.0164	0.0007
278	SLU 82	-0.13	-14.57	89.01	0.6503	-0.0164	0.0007
278	SLU 83	-0.14	-15.19	92	0.6804	-0.0163	0.0007
278	SLU 84	-0.13	-14.66	89.3	0.6541	-0.0162	0.0007
278	SLE RA 1	-0.09	-10.14	61.14	0.4539	-0.0104	0.0004
278	SLE RA 2	-0.08	-9.54	58.14	0.4247	-0.0104	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
278	SLE RA 3	-0.09	-10.29	61.85	0.4607	-0.0104	0.0004
278	SLE RA 4	-0.09	-9.93	60.05	0.4432	-0.0104	0.0004
278	SLE RA 5	-0.09	-9.6	58.33	0.4272	-0.0103	0.0004
278	SLE RA 6	-0.09	-10.35	62.04	0.4632	-0.0103	0.0004
278	SLE RA 7	-0.09	-9.99	60.24	0.4457	-0.0103	0.0004
278	SLE RA 8	-0.09	-10.25	61.52	0.459	-0.0102	0.0004
278	SLE RA 9	-0.09	-9.9	59.72	0.4414	-0.0102	0.0004
278	SLE RA 10	-0.09	-10.3	62.95	0.4584	-0.0115	0.0005
278	SLE RA 11	-0.1	-11.04	66.66	0.4944	-0.0116	0.0005
278	SLE RA 12	-0.1	-10.68	64.86	0.4769	-0.0116	0.0005
278	SLE RA 13	-0.09	-10.35	63.14	0.4609	-0.0114	0.0005
278	SLE RA 14	-0.1	-11.1	66.85	0.4969	-0.0115	0.0005
278	SLE RA 15	-0.1	-10.74	65.05	0.4794	-0.0115	0.0005
278	SLE RA 16	-0.1	-11	66.33	0.4927	-0.0114	0.0005
278	SLE RA 17	-0.1	-10.65	64.53	0.4751	-0.0114	0.0005
278	SLE RA 18	-0.1	-11.21	68.01	0.5021	-0.0121	0.0005
278	SLE RA 19	-0.1	-10.85	66.21	0.4846	-0.012	0.0005
278	SLE RA 20	-0.1	-11.27	68.2	0.5046	-0.012	0.0005
278	SLE RA 21	-0.1	-10.91	66.4	0.4871	-0.012	0.0005
278	SLE FR 1	-0.09	-10.14	61.14	0.4539	-0.0104	0.0004
278	SLE FR 2	-0.09	-10.02	60.54	0.4481	-0.0104	0.0004
278	SLE FR 3	-0.09	-10.16	61.22	0.4549	-0.0104	0.0004
278	SLE FR 4	-0.09	-10.34	62.61	0.4625	-0.0109	0.0005
278	SLE FR 5	-0.09	-10.48	63.28	0.4694	-0.0109	0.0005
278	SLE FR 6	-0.09	-10.67	64.58	0.478	-0.0112	0.0005
278	SLE QP 1	-0.09	-10.14	61.14	0.4539	-0.0104	0.0004
278	SLE QP 2	-0.09	-10.46	63.2	0.4684	-0.0109	0.0005
278	SLD 1	0.03	-6.57	35.57	0.2793	0.0095	-0.0001
278	SLD 2	0.03	-6.57	35.57	0.2793	0.0095	-0.0001
278	SLD 3	-0.08	-10.91	50.1	0.4926	0.0284	0.0001
278	SLD 4	-0.08	-10.91	50.1	0.4926	0.0284	0.0001
278	SLD 5	0.11	-2.71	32.88	0.088	-0.0336	-0.0001
278	SLD 6	0.11	-2.71	32.88	0.088	-0.0336	-0.0001
278	SLD 7	-0.26	-17.18	81.31	0.7993	0.0297	0.0007
278	SLD 8	-0.26	-17.18	81.31	0.7993	0.0297	0.0007
278	SLD 9	0.07	-3.74	45.1	0.1375	-0.0515	0.0002
278	SLD 10	0.07	-3.74	45.1	0.1375	-0.0515	0.0002
278	SLD 11	-0.3	-18.21	93.53	0.8487	0.0118	0.001
278	SLD 12	-0.3	-18.21	93.53	0.8487	0.0118	0.001
278	SLD 13	-0.1	-10.01	76.31	0.4441	-0.0502	0.0008
278	SLD 14	-0.1	-10.01	76.31	0.4441	-0.0502	0.0008
278	SLD 15	-0.21	-14.35	90.84	0.6575	-0.0313	0.001
278	SLD 16	-0.21	-14.35	90.84	0.6575	-0.0313	0.001
278	SLV 1	0.19	-1.49	0.1	0.0331	0.0351	-0.0009
278	SLV 2	0.19	-1.49	0.1	0.0331	0.0351	-0.0009
278	SLV 3	-0.08	-11.45	33.38	0.5221	0.0815	-0.0003
278	SLV 4	-0.08	-11.45	33.38	0.5221	0.0815	-0.0003
278	SLV 5	0.41	7.33	-6.21	-0.4038	-0.0675	-0.0009
278	SLV 6	0.41	7.33	-6.21	-0.4038	-0.0675	-0.0009
278	SLV 7	-0.5	-25.85	104.75	1.2261	0.0873	0.0011
278	SLV 8	-0.5	-25.85	104.75	1.2261	0.0873	0.0011
278	SLV 9	0.32	4.93	21.66	-0.2894	-0.1091	-0.0002
278	SLV 10	0.32	4.93	21.66	-0.2894	-0.1091	-0.0002
278	SLV 11	-0.59	-28.25	132.62	1.3406	0.0457	0.0018
278	SLV 12	-0.59	-28.25	132.62	1.3406	0.0457	0.0018
278	SLV 13	-0.11	-9.47	93.03	0.4147	-0.1033	0.0012
278	SLV 14	-0.11	-9.47	93.03	0.4147	-0.1033	0.0012
278	SLV 15	-0.38	-19.43	126.31	0.9036	-0.0569	0.0018
278	SLV 16	-0.38	-19.43	126.31	0.9036	-0.0569	0.0018
279	SLU 1	0	4.06	19.73	-0.3222	-0.0004	0
279	SLU 2	0	4.04	19.7	-0.3213	-0.0004	0
279	SLU 3	0	4.28	20.15	-0.3379	-0.0003	0
279	SLU 4	0	4.27	20.13	-0.3373	-0.0003	0
279	SLU 5	0	4.18	19.95	-0.3308	-0.0003	0
279	SLU 6	0	4.42	20.39	-0.3474	-0.0002	0
279	SLU 7	0	4.41	20.37	-0.3468	-0.0002	0
279	SLU 8	0	4.33	20.22	-0.3413	-0.0002	0
279	SLU 9	0	4.32	20.2	-0.3407	-0.0002	0
279	SLU 10	0	4.61	23.62	-0.3756	-0.0005	0
279	SLU 11	0	4.85	24.07	-0.3922	-0.0004	0
279	SLU 12	0	4.84	24.05	-0.3916	-0.0004	0
279	SLU 13	0	4.74	23.87	-0.3851	-0.0004	0
279	SLU 14	0	4.99	24.31	-0.4017	-0.0003	0
279	SLU 15	0	4.98	24.29	-0.4011	-0.0003	0
279	SLU 16	0	4.9	24.14	-0.3956	-0.0003	0
279	SLU 17	0	4.89	24.12	-0.395	-0.0003	0
279	SLU 18	0	4.86	25.33	-0.3998	-0.0005	0
279	SLU 19	0	4.85	25.31	-0.3993	-0.0006	0
279	SLU 20	0	5	25.57	-0.4094	-0.0004	0
279	SLU 21	0	4.99	25.56	-0.4088	-0.0005	0
279	SLU 22	0	4.69	23.01	-0.377	-0.0004	0
279	SLU 23	0	4.67	22.98	-0.376	-0.0005	0
279	SLU 24	0	4.92	23.43	-0.3926	-0.0004	0
279	SLU 25	0	4.91	23.41	-0.392	-0.0004	0
279	SLU 26	0	4.81	23.23	-0.3855	-0.0004	0
279	SLU 27	0	5.05	23.67	-0.4021	-0.0003	0
279	SLU 28	0	5.04	23.66	-0.4015	-0.0003	0
279	SLU 29	0	4.96	23.5	-0.396	-0.0003	0
279	SLU 30	0	4.96	23.48	-0.3955	-0.0003	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
279	SLU 31	0	5.24	26.9	-0.4303	-0.0006	0
279	SLU 32	0	5.48	27.35	-0.4469	-0.0005	0
279	SLU 33	0	5.47	27.33	-0.4463	-0.0005	0
279	SLU 34	0	5.38	27.15	-0.4399	-0.0005	0
279	SLU 35	0	5.62	27.59	-0.4564	-0.0004	0
279	SLU 36	0	5.61	27.57	-0.4559	-0.0004	0
279	SLU 37	0	5.53	27.42	-0.4504	-0.0003	0
279	SLU 38	0	5.52	27.4	-0.4498	-0.0004	0
279	SLU 39	0	5.49	28.61	-0.4546	-0.0006	0
279	SLU 40	0	5.49	28.59	-0.454	-0.0006	0
279	SLU 41	0	5.63	28.85	-0.4641	-0.0005	0
279	SLU 42	0	5.62	28.84	-0.4635	-0.0005	0
279	SLU 43	0	5.06	24.53	-0.4001	-0.0005	0
279	SLU 44	0	5.04	24.5	-0.3992	-0.0005	0
279	SLU 45	0	5.28	24.94	-0.4158	-0.0004	0
279	SLU 46	0	5.27	24.92	-0.4152	-0.0005	0
279	SLU 47	0	5.18	24.74	-0.4087	-0.0004	0
279	SLU 48	0	5.42	25.19	-0.4253	-0.0003	0
279	SLU 49	0	5.41	25.17	-0.4247	-0.0004	0
279	SLU 50	0	5.33	25.02	-0.4192	-0.0003	0
279	SLU 51	0	5.32	25	-0.4186	-0.0003	0
279	SLU 52	0	5.61	28.42	-0.4535	-0.0006	0
279	SLU 53	0	5.85	28.86	-0.4701	-0.0005	0
279	SLU 54	0	5.84	28.84	-0.4695	-0.0005	0
279	SLU 55	0	5.74	28.66	-0.463	-0.0005	0
279	SLU 56	0	5.99	29.11	-0.4796	-0.0004	0
279	SLU 57	0	5.98	29.09	-0.479	-0.0005	0
279	SLU 58	0	5.9	28.93	-0.4735	-0.0004	0
279	SLU 59	0	5.89	28.92	-0.473	-0.0004	0
279	SLU 60	0	5.86	30.12	-0.4777	-0.0006	0
279	SLU 61	0	5.85	30.11	-0.4772	-0.0007	0
279	SLU 62	0	6	30.37	-0.4873	-0.0006	0
279	SLU 63	0	5.99	30.35	-0.4867	-0.0006	0
279	SLU 64	0	5.69	27.81	-0.4549	-0.0006	0
279	SLU 65	0	5.67	27.78	-0.4539	-0.0006	0
279	SLU 66	0	5.92	28.22	-0.4705	-0.0005	0
279	SLU 67	0	5.91	28.2	-0.4699	-0.0005	0
279	SLU 68	0	5.81	28.02	-0.4634	-0.0005	0
279	SLU 69	0	6.05	28.47	-0.48	-0.0004	0
279	SLU 70	0	6.04	28.45	-0.4794	-0.0004	0
279	SLU 71	0	5.96	28.3	-0.474	-0.0004	0
279	SLU 72	0	5.96	28.28	-0.4734	-0.0004	0
279	SLU 73	0	6.24	31.7	-0.5082	-0.0007	0
279	SLU 74	0	6.48	32.14	-0.5248	-0.0006	0
279	SLU 75	0	6.47	32.12	-0.5242	-0.0006	0
279	SLU 76	0	6.38	31.94	-0.5178	-0.0006	0
279	SLU 77	0	6.62	32.39	-0.5343	-0.0005	0
279	SLU 78	0	6.61	32.37	-0.5338	-0.0005	0
279	SLU 79	0	6.53	32.22	-0.5283	-0.0005	0
279	SLU 80	0	6.52	32.2	-0.5277	-0.0005	0
279	SLU 81	0	6.49	33.4	-0.5325	-0.0007	0
279	SLU 82	0	6.49	33.39	-0.5319	-0.0007	0
279	SLU 83	0	6.63	33.65	-0.542	-0.0006	0
279	SLU 84	0	6.62	33.63	-0.5414	-0.0006	0
279	SLE RA 1	0	4.24	20.67	-0.3379	-0.0004	0
279	SLE RA 2	0	4.23	20.65	-0.3372	-0.0004	0
279	SLE RA 3	0	4.39	20.95	-0.3483	-0.0004	0
279	SLE RA 4	0	4.38	20.93	-0.3479	-0.0004	0
279	SLE RA 5	0	4.32	20.81	-0.3436	-0.0004	0
279	SLE RA 6	0	4.48	21.11	-0.3546	-0.0003	0
279	SLE RA 7	0	4.47	21.1	-0.3543	-0.0003	0
279	SLE RA 8	0	4.42	21	-0.3506	-0.0003	0
279	SLE RA 9	0	4.41	20.98	-0.3502	-0.0003	0
279	SLE RA 10	0	4.6	23.26	-0.3734	-0.0005	0
279	SLE RA 11	0	4.76	23.56	-0.3845	-0.0004	0
279	SLE RA 12	0	4.76	23.55	-0.3841	-0.0004	0
279	SLE RA 13	0	4.7	23.42	-0.3798	-0.0004	0
279	SLE RA 14	0	4.86	23.72	-0.3909	-0.0004	0
279	SLE RA 15	0	4.85	23.71	-0.3905	-0.0004	0
279	SLE RA 16	0	4.8	23.61	-0.3868	-0.0004	0
279	SLE RA 17	0	4.79	23.6	-0.3864	-0.0004	0
279	SLE RA 18	0	4.77	24.4	-0.3896	-0.0005	0
279	SLE RA 19	0	4.77	24.39	-0.3892	-0.0005	0
279	SLE RA 20	0	4.87	24.56	-0.396	-0.0004	0
279	SLE RA 21	0	4.86	24.55	-0.3956	-0.0004	0
279	SLE FR 1	0	4.24	20.67	-0.3379	-0.0004	0
279	SLE FR 2	0	4.23	20.66	-0.3377	-0.0004	0
279	SLE FR 3	0	4.27	20.73	-0.3404	-0.0004	0
279	SLE FR 4	0	4.4	21.78	-0.3533	-0.0004	0
279	SLE FR 5	0	4.43	21.85	-0.3559	-0.0004	0
279	SLE FR 6	0	4.51	22.53	-0.3637	-0.0005	0
279	SLE QP 1	0	4.24	20.67	-0.3379	-0.0004	0
279	SLE QP 2	0	4.4	21.79	-0.3534	-0.0004	0
279	SLD 1	-0.13	0.41	20.34	-0.2076	0.068	-0.0015
279	SLD 2	-0.13	0.41	20.34	-0.2076	0.068	-0.0015
279	SLD 3	-0.13	5.57	21.88	-0.3909	0.0721	-0.0014
279	SLD 4	-0.13	5.57	21.88	-0.3909	0.0721	-0.0014
279	SLD 5	-0.05	-4.63	19.02	-0.0317	0.0138	-0.0005
279	SLD 6	-0.05	-4.63	19.02	-0.0317	0.0138	-0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
279	SLD 7	-0.03	12.58	24.15	-0.6427	0.0276	-0.0004
279	SLD 8	-0.03	12.58	24.15	-0.6427	0.0276	-0.0004
279	SLD 9	0.03	-3.78	19.43	-0.0641	-0.0285	0.0003
279	SLD 10	0.03	-3.78	19.43	-0.0641	-0.0285	0.0003
279	SLD 11	0.04	13.42	24.56	-0.6751	-0.0147	0.0005
279	SLD 12	0.04	13.42	24.56	-0.6751	-0.0147	0.0005
279	SLD 13	0.13	3.23	21.7	-0.3158	-0.073	0.0013
279	SLD 14	0.13	3.23	21.7	-0.3158	-0.073	0.0013
279	SLD 15	0.13	8.39	23.24	-0.4991	-0.0689	0.0014
279	SLD 16	0.13	8.39	23.24	-0.4991	-0.0689	0.0014
279	SLV 1	-0.33	-4.87	18.48	-0.0142	0.1743	-0.0037
279	SLV 2	-0.33	-4.87	18.48	-0.0142	0.1743	-0.0037
279	SLV 3	-0.32	7.19	22.03	-0.4431	0.185	-0.0036
279	SLV 4	-0.32	7.19	22.03	-0.4431	0.185	-0.0036
279	SLV 5	-0.12	-16.68	15.41	0.3988	0.0359	-0.0013
279	SLV 6	-0.12	-16.68	15.41	0.3988	0.0359	-0.0013
279	SLV 7	-0.08	23.53	27.24	-1.0307	0.0713	-0.0009
279	SLV 8	-0.08	23.53	27.24	-1.0307	0.0713	-0.0009
279	SLV 9	0.08	-14.73	16.33	0.3239	-0.0722	0.0008
279	SLV 10	0.08	-14.73	16.33	0.3239	-0.0722	0.0008
279	SLV 11	0.11	25.47	28.16	-1.1056	-0.0368	0.0013
279	SLV 12	0.11	25.47	28.16	-1.1056	-0.0368	0.0013
279	SLV 13	0.32	1.61	21.55	-0.2637	-0.1859	0.0035
279	SLV 14	0.32	1.61	21.55	-0.2637	-0.1859	0.0035
279	SLV 15	0.33	13.67	25.1	-0.6926	-0.1752	0.0036
279	SLV 16	0.33	13.67	25.1	-0.6926	-0.1752	0.0036
280	SLU 1	0	-3.99	40.96	-0.1357	0.0001	0
280	SLU 2	0	-3.99	40.93	-0.1358	0.0001	0
280	SLU 3	0	-4.45	42.07	-0.1249	0	0
280	SLU 4	0	-4.44	42.05	-0.125	0	0
280	SLU 5	0	-4.47	41.46	-0.1183	0	0
280	SLU 6	0	-4.93	42.6	-0.1074	-0.0001	0
280	SLU 7	0	-4.93	42.58	-0.1075	-0.0001	0
280	SLU 8	0	-4.96	42.03	-0.1007	-0.0001	0
280	SLU 9	0	-4.95	42.01	-0.1008	-0.0001	0
280	SLU 10	0	-4.89	48.21	-0.1547	0.0001	0
280	SLU 11	0	-5.35	49.35	-0.1438	0.0001	0
280	SLU 12	0	-5.35	49.33	-0.1439	0.0001	0
280	SLU 13	0	-5.37	48.75	-0.1372	0	0
280	SLU 14	0	-5.84	49.88	-0.1263	0	0
280	SLU 15	0	-5.83	49.86	-0.1264	0	0
280	SLU 16	0	-5.86	49.31	-0.1196	-0.0001	0
280	SLU 17	0	-5.86	49.29	-0.1196	-0.0001	0
280	SLU 18	0	-5.29	51.37	-0.1627	0.0002	0
280	SLU 19	0	-5.28	51.35	-0.1627	0.0002	0
280	SLU 20	0	-5.77	51.9	-0.1452	0.0001	0
280	SLU 21	0	-5.76	51.88	-0.1452	0.0001	0
280	SLU 22	0	-4.94	47.57	-0.1482	0.0001	0
280	SLU 23	0	-4.93	47.54	-0.1483	0.0001	0
280	SLU 24	0	-5.4	48.68	-0.1374	0	0
280	SLU 25	0	-5.39	48.66	-0.1375	0	0
280	SLU 26	0	-5.42	48.07	-0.1308	0	0
280	SLU 27	0	-5.88	49.21	-0.1199	-0.0001	0
280	SLU 28	0	-5.87	49.19	-0.12	-0.0001	0
280	SLU 29	0	-5.91	48.64	-0.1132	-0.0001	0
280	SLU 30	0	-5.9	48.62	-0.1133	-0.0001	0
280	SLU 31	0	-5.84	54.82	-0.1672	0.0002	0
280	SLU 32	0	-6.3	55.96	-0.1563	0.0001	0
280	SLU 33	0	-6.3	55.94	-0.1564	0.0001	0
280	SLU 34	0	-6.32	55.36	-0.1497	0	0
280	SLU 35	0	-6.79	56.49	-0.1388	0	0
280	SLU 36	0	-6.78	56.48	-0.1389	0	0
280	SLU 37	0	-6.81	55.92	-0.1321	0	0
280	SLU 38	0	-6.81	55.9	-0.1321	-0.0001	0
280	SLU 39	0	-6.24	57.98	-0.1751	0.0002	0
280	SLU 40	0	-6.23	57.96	-0.1752	0.0002	0
280	SLU 41	0	-6.72	58.51	-0.1576	0.0001	0
280	SLU 42	0	-6.71	58.49	-0.1577	0.0001	0
280	SLU 43	0	-4.87	50.98	-0.1722	0.0001	0
280	SLU 44	0	-4.86	50.95	-0.1723	0.0001	0
280	SLU 45	0	-5.32	52.09	-0.1614	0	0
280	SLU 46	0	-5.32	52.07	-0.1615	0	0
280	SLU 47	0	-5.34	51.48	-0.1548	0	0
280	SLU 48	0	-5.8	52.62	-0.1439	-0.0001	0
280	SLU 49	0	-5.8	52.6	-0.1439	-0.0001	0
280	SLU 50	0	-5.83	52.05	-0.1371	-0.0001	0
280	SLU 51	0	-5.83	52.03	-0.1372	-0.0001	0
280	SLU 52	0	-5.76	58.23	-0.1911	0.0002	0
280	SLU 53	0	-6.23	59.37	-0.1802	0.0001	0
280	SLU 54	0	-6.22	59.35	-0.1803	0.0001	0
280	SLU 55	0	-6.25	58.77	-0.1736	0.0001	0
280	SLU 56	0	-6.71	59.9	-0.1627	0	0
280	SLU 57	0	-6.7	59.89	-0.1628	0	0
280	SLU 58	0	-6.74	59.33	-0.156	0	0
280	SLU 59	0	-6.73	59.31	-0.1561	0	0
280	SLU 60	0	-6.16	61.39	-0.1991	0.0002	0
280	SLU 61	0	-6.15	61.37	-0.1992	0.0002	0
280	SLU 62	0	-6.64	61.92	-0.1816	0.0001	0
280	SLU 63	0	-6.64	61.9	-0.1817	0.0001	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
280	SLU 64	0	-5.82	57.6	-0.1846	0.0001	0
280	SLU 65	0	-5.81	57.56	-0.1848	0.0001	0
280	SLU 66	0	-6.27	58.7	-0.1739	0	0
280	SLU 67	0	-6.27	58.68	-0.1739	0	0
280	SLU 68	0	-6.29	58.1	-0.1672	0	0
280	SLU 69	0	-6.75	59.23	-0.1564	-0.0001	0
280	SLU 70	0	-6.75	59.22	-0.1564	-0.0001	0
280	SLU 71	0	-6.78	58.66	-0.1496	-0.0001	0
280	SLU 72	0	-6.78	58.64	-0.1497	-0.0001	0
280	SLU 73	0	-6.71	64.85	-0.2036	0.0002	0
280	SLU 74	0	-7.18	65.98	-0.1927	0.0001	0
280	SLU 75	0	-7.17	65.97	-0.1928	0.0001	0
280	SLU 76	0	-7.19	65.38	-0.1861	0.0001	0
280	SLU 77	0	-7.66	66.52	-0.1752	0	0
280	SLU 78	0	-7.65	66.5	-0.1753	0	0
280	SLU 79	0	-7.69	65.94	-0.1685	0	0
280	SLU 80	0	-7.68	65.92	-0.1686	0	0
280	SLU 81	0	-7.11	68	-0.2116	0.0002	0
280	SLU 82	0	-7.1	67.98	-0.2117	0.0002	0
280	SLU 83	0	-7.59	68.53	-0.1941	0.0001	0
280	SLU 84	0	-7.59	68.51	-0.1942	0.0001	0
280	SLE RA 1	0	-4.26	42.85	-0.1393	0.0001	0
280	SLE RA 2	0	-4.26	42.83	-0.1394	0.0001	0
280	SLE RA 3	0	-4.57	43.59	-0.1321	0	0
280	SLE RA 4	0	-4.56	43.58	-0.1321	0	0
280	SLE RA 5	0	-4.58	43.19	-0.1277	0	0
280	SLE RA 6	0	-4.89	43.94	-0.1204	-0.0001	0
280	SLE RA 7	0	-4.89	43.93	-0.1205	-0.0001	0
280	SLE RA 8	0	-4.91	43.56	-0.1159	-0.0001	0
280	SLE RA 9	0	-4.9	43.55	-0.116	-0.0001	0
280	SLE RA 10	0	-4.86	47.68	-0.1519	0.0001	0
280	SLE RA 11	0	-5.17	48.44	-0.1447	0.0001	0
280	SLE RA 12	0	-5.17	48.43	-0.1447	0.0001	0
280	SLE RA 13	0	-5.18	48.04	-0.1403	0.0001	0
280	SLE RA 14	0	-5.49	48.8	-0.133	0	0
280	SLE RA 15	0	-5.49	48.79	-0.1331	0	0
280	SLE RA 16	0	-5.51	48.42	-0.1285	0	0
280	SLE RA 17	0	-5.51	48.4	-0.1286	0	0
280	SLE RA 18	0	-5.13	49.79	-0.1573	0.0001	0
280	SLE RA 19	0	-5.12	49.77	-0.1573	0.0001	0
280	SLE RA 20	0	-5.45	50.14	-0.1456	0.0001	0
280	SLE RA 21	0	-5.45	50.13	-0.1456	0.0001	0
280	SLE FR 1	0	-4.26	42.85	-0.1393	0.0001	0
280	SLE FR 2	0	-4.26	42.85	-0.1393	0.0001	0
280	SLE FR 3	0	-4.39	42.99	-0.1346	0	0
280	SLE FR 4	0	-4.52	44.93	-0.1447	0.0001	0
280	SLE FR 5	0	-4.65	45.07	-0.14	0.0001	0
280	SLE FR 6	0	-4.7	46.32	-0.1483	0.0001	0
280	SLE QP 1	0	-4.26	42.85	-0.1393	0.0001	0
280	SLE QP 2	0	-4.52	44.93	-0.1447	0.0001	0
280	SLD 1	-0.08	-0.27	42.28	-0.3199	0.0431	0.0001
280	SLD 2	-0.08	-0.27	42.28	-0.3199	0.0431	0.0001
280	SLD 3	-0.09	-5.75	45.49	-0.096	0.0387	0.0001
280	SLD 4	-0.09	-5.75	45.49	-0.096	0.0387	0.0001
280	SLD 5	-0.01	5.08	39.27	-0.5368	0.0198	0.0001
280	SLD 6	-0.01	5.08	39.27	-0.5368	0.0198	0.0001
280	SLD 7	-0.03	-13.22	49.97	0.2095	0.0049	0
280	SLD 8	-0.03	-13.22	49.97	0.2095	0.0049	0
280	SLD 9	0.04	4.17	39.89	-0.4988	-0.0047	0
280	SLD 10	0.04	4.17	39.89	-0.4988	-0.0047	0
280	SLD 11	0.02	-14.13	50.6	0.2474	-0.0196	-0.0001
280	SLD 12	0.02	-14.13	50.6	0.2474	-0.0196	-0.0001
280	SLD 13	0.09	-3.29	44.37	-0.1933	-0.0385	-0.0001
280	SLD 14	0.09	-3.29	44.37	-0.1933	-0.0385	-0.0001
280	SLD 15	0.09	-8.78	47.58	0.0306	-0.043	-0.0001
280	SLD 16	0.09	-8.78	47.58	0.0306	-0.043	-0.0001
280	SLV 1	-0.26	5.28	38.73	-0.5469	0.1219	0.0003
280	SLV 2	-0.26	5.28	38.73	-0.5469	0.1219	0.0003
280	SLV 3	-0.28	-7.39	46.28	-0.0314	0.1103	0.0003
280	SLV 4	-0.28	-7.39	46.28	-0.0314	0.1103	0.0003
280	SLV 5	-0.05	17.63	31.61	-1.0471	0.0543	0.0001
280	SLV 6	-0.05	17.63	31.61	-1.0471	0.0543	0.0001
280	SLV 7	-0.11	-24.6	56.79	0.6711	0.0155	0.0001
280	SLV 8	-0.11	-24.6	56.79	0.6711	0.0155	0.0001
280	SLV 9	0.11	15.55	33.07	-0.9604	-0.0153	-0.0001
280	SLV 10	0.11	15.55	33.07	-0.9604	-0.0153	-0.0001
280	SLV 11	0.05	-26.68	58.25	0.7578	-0.0541	-0.0001
280	SLV 12	0.05	-26.68	58.25	0.7578	-0.0541	-0.0001
280	SLV 13	0.28	-1.66	43.58	-0.2579	-0.1101	-0.0003
280	SLV 14	0.28	-1.66	43.58	-0.2579	-0.1101	-0.0003
280	SLV 15	0.26	-14.32	51.14	0.2576	-0.1217	-0.0003
280	SLV 16	0.26	-14.32	51.14	0.2576	-0.1217	-0.0003
281	SLU 1	2.22	-6.81	29.25	0.2261	0.0183	-0.0016
281	SLU 2	2.18	-6.22	27.35	0.2038	0.0208	-0.0014
281	SLU 3	2.29	-6.97	29.93	0.2314	0.0197	-0.0016
281	SLU 4	2.27	-6.61	28.79	0.218	0.0211	-0.0015
281	SLU 5	2.26	-6.29	27.79	0.206	0.0229	-0.0014
281	SLU 6	2.36	-7.04	30.38	0.2337	0.0218	-0.0016
281	SLU 7	2.34	-6.68	29.24	0.2203	0.0233	-0.0015



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
281	SLU 8	2.37	-6.96	30.15	0.2307	0.0226	-0.0016
281	SLU 9	2.34	-6.6	29	0.2173	0.0241	-0.0015
281	SLU 10	2.56	-6.97	30.79	0.2293	0.027	-0.0015
281	SLU 11	2.66	-7.72	33.38	0.257	0.0259	-0.0018
281	SLU 12	2.64	-7.36	32.24	0.2436	0.0273	-0.0016
281	SLU 13	2.63	-7.04	31.24	0.2316	0.0291	-0.0015
281	SLU 14	2.74	-7.79	33.83	0.2593	0.028	-0.0018
281	SLU 15	2.71	-7.44	32.68	0.2459	0.0295	-0.0016
281	SLU 16	2.74	-7.71	33.59	0.2563	0.0288	-0.0017
281	SLU 17	2.72	-7.36	32.45	0.2429	0.0303	-0.0016
281	SLU 18	2.76	-7.89	34.18	0.2627	0.0272	-0.0018
281	SLU 19	2.73	-7.53	33.03	0.2493	0.0286	-0.0017
281	SLU 20	2.83	-7.96	34.62	0.265	0.0293	-0.0018
281	SLU 21	2.8	-7.6	33.48	0.2516	0.0308	-0.0017
281	SLU 22	2.57	-7.56	32.62	0.2516	0.024	-0.0017
281	SLU 23	2.53	-6.96	30.71	0.2292	0.0264	-0.0015
281	SLU 24	2.64	-7.71	33.3	0.2568	0.0253	-0.0018
281	SLU 25	2.62	-7.36	32.16	0.2434	0.0268	-0.0016
281	SLU 26	2.6	-7.04	31.16	0.2314	0.0285	-0.0015
281	SLU 27	2.71	-7.79	33.75	0.2591	0.0274	-0.0018
281	SLU 28	2.69	-7.43	32.6	0.2457	0.0289	-0.0016
281	SLU 29	2.72	-7.71	33.51	0.2561	0.0282	-0.0017
281	SLU 30	2.69	-7.35	32.37	0.2427	0.0297	-0.0016
281	SLU 31	2.91	-7.72	34.16	0.2547	0.0326	-0.0017
281	SLU 32	3.01	-8.47	36.75	0.2824	0.0315	-0.0019
281	SLU 33	2.99	-8.11	35.6	0.269	0.0329	-0.0018
281	SLU 34	2.98	-7.79	34.61	0.257	0.0347	-0.0017
281	SLU 35	3.09	-8.54	37.19	0.2847	0.0336	-0.0019
281	SLU 36	3.06	-8.19	36.05	0.2713	0.0351	-0.0018
281	SLU 37	3.09	-8.46	36.96	0.2817	0.0344	-0.0019
281	SLU 38	3.07	-8.1	35.82	0.2683	0.0359	-0.0017
281	SLU 39	3.11	-8.63	37.54	0.2881	0.0328	-0.0019
281	SLU 40	3.08	-8.28	36.4	0.2747	0.0343	-0.0018
281	SLU 41	3.18	-8.71	37.99	0.2904	0.0349	-0.0019
281	SLU 42	3.15	-8.35	36.85	0.277	0.0364	-0.0018
281	SLU 43	2.77	-8.59	36.88	0.2853	0.0219	-0.002
281	SLU 44	2.73	-8	34.97	0.2629	0.0243	-0.0018
281	SLU 45	2.84	-8.75	37.56	0.2906	0.0232	-0.0021
281	SLU 46	2.82	-8.4	36.41	0.2771	0.0247	-0.0019
281	SLU 47	2.8	-8.08	35.42	0.2652	0.0265	-0.0018
281	SLU 48	2.91	-8.83	38	0.2929	0.0254	-0.0021
281	SLU 49	2.89	-8.47	36.86	0.2794	0.0268	-0.0019
281	SLU 50	2.92	-8.74	37.77	0.2899	0.0262	-0.002
281	SLU 51	2.89	-8.39	36.62	0.2764	0.0276	-0.0019
281	SLU 52	3.1	-8.76	38.42	0.2885	0.0305	-0.002
281	SLU 53	3.21	-9.51	41	0.3162	0.0294	-0.0022
281	SLU 54	3.19	-9.15	39.86	0.3027	0.0309	-0.0021
281	SLU 55	3.18	-8.83	38.86	0.2908	0.0327	-0.002
281	SLU 56	3.28	-9.58	41.45	0.3185	0.0316	-0.0022
281	SLU 57	3.26	-9.22	40.3	0.305	0.033	-0.0021
281	SLU 58	3.29	-9.5	41.22	0.3154	0.0324	-0.0022
281	SLU 59	3.26	-9.14	40.07	0.302	0.0338	-0.002
281	SLU 60	3.3	-9.67	41.8	0.3219	0.0308	-0.0022
281	SLU 61	3.28	-9.32	40.66	0.3084	0.0322	-0.0021
281	SLU 62	3.38	-9.75	42.25	0.3241	0.0329	-0.0022
281	SLU 63	3.35	-9.39	41.1	0.3107	0.0343	-0.0021
281	SLU 64	3.12	-9.34	40.24	0.3107	0.0275	-0.0022
281	SLU 65	3.08	-8.75	38.34	0.2883	0.03	-0.002
281	SLU 66	3.19	-9.5	40.92	0.316	0.0289	-0.0022
281	SLU 67	3.16	-9.14	39.78	0.3025	0.0303	-0.0021
281	SLU 68	3.15	-8.82	38.78	0.2906	0.0321	-0.002
281	SLU 69	3.26	-9.57	41.37	0.3183	0.031	-0.0022
281	SLU 70	3.24	-9.22	40.22	0.3048	0.0325	-0.0021
281	SLU 71	3.27	-9.49	41.14	0.3153	0.0318	-0.0022
281	SLU 72	3.24	-9.14	39.99	0.3018	0.0333	-0.002
281	SLU 73	3.45	-9.5	41.78	0.3139	0.0362	-0.0021
281	SLU 74	3.56	-10.25	44.37	0.3416	0.0351	-0.0023
281	SLU 75	3.54	-9.9	43.22	0.3281	0.0365	-0.0022
281	SLU 76	3.52	-9.58	42.23	0.3162	0.0383	-0.0021
281	SLU 77	3.63	-10.33	44.82	0.3439	0.0372	-0.0023
281	SLU 78	3.61	-9.97	43.67	0.3304	0.0387	-0.0022
281	SLU 79	3.64	-10.25	44.58	0.3409	0.038	-0.0023
281	SLU 80	3.61	-9.89	43.44	0.3274	0.0395	-0.0022
281	SLU 81	3.65	-10.42	45.17	0.3473	0.0364	-0.0024
281	SLU 82	3.63	-10.06	44.02	0.3338	0.0378	-0.0022
281	SLU 83	3.72	-10.49	45.61	0.3495	0.0385	-0.0024
281	SLU 84	3.7	-10.14	44.47	0.3361	0.04	-0.0022
281	SLE RA 1	2.32	-7.02	30.22	0.2334	0.0199	-0.0016
281	SLE RA 2	2.3	-6.63	28.94	0.2185	0.0216	-0.0015
281	SLE RA 3	2.37	-7.13	30.67	0.2369	0.0208	-0.0017
281	SLE RA 4	2.35	-6.89	29.91	0.228	0.0218	-0.0016
281	SLE RA 5	2.35	-6.68	29.24	0.22	0.023	-0.0015
281	SLE RA 6	2.42	-7.18	30.97	0.2385	0.0223	-0.0017
281	SLE RA 7	2.4	-6.94	30.2	0.2295	0.0232	-0.0016
281	SLE RA 8	2.42	-7.12	30.81	0.2365	0.0228	-0.0016
281	SLE RA 9	2.4	-6.88	30.05	0.2275	0.0238	-0.0016
281	SLE RA 10	2.55	-7.13	31.24	0.2355	0.0257	-0.0016
281	SLE RA 11	2.62	-7.63	32.97	0.254	0.025	-0.0017
281	SLE RA 12	2.6	-7.39	32.2	0.245	0.0259	-0.0017





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
281	SLE RA 13	2.59	-7.18	31.54	0.2371	0.0271	-0.0016
281	SLE RA 14	2.67	-7.68	33.26	0.2555	0.0264	-0.0017
281	SLE RA 15	2.65	-7.44	32.5	0.2466	0.0274	-0.0017
281	SLE RA 16	2.67	-7.62	33.11	0.2535	0.0269	-0.0017
281	SLE RA 17	2.65	-7.39	32.35	0.2446	0.0279	-0.0016
281	SLE RA 18	2.68	-7.74	33.5	0.2578	0.0258	-0.0018
281	SLE RA 19	2.66	-7.5	32.74	0.2488	0.0268	-0.0017
281	SLE RA 20	2.73	-7.79	33.8	0.2593	0.0273	-0.0018
281	SLE RA 21	2.71	-7.55	33.03	0.2503	0.0282	-0.0017
281	SLE FR 1	2.32	-7.02	30.22	0.2334	0.0199	-0.0016
281	SLE FR 2	2.32	-6.94	29.96	0.2304	0.0203	-0.0016
281	SLE FR 3	2.34	-7.04	30.34	0.234	0.0205	-0.0016
281	SLE FR 4	2.42	-7.16	30.95	0.2377	0.022	-0.0017
281	SLE FR 5	2.45	-7.26	31.32	0.2413	0.0223	-0.0017
281	SLE FR 6	2.5	-7.38	31.86	0.2456	0.0229	-0.0017
281	SLE QP 1	2.32	-7.02	30.22	0.2334	0.0199	-0.0016
281	SLE QP 2	2.43	-7.24	31.2	0.2407	0.0217	-0.0017
281	SLD 1	8.5	-7.2	48.46	0.216	0.2553	0.0012
281	SLD 2	8.5	-7.2	48.46	0.216	0.2553	0.0012
281	SLD 3	9.02	-11.12	60.35	0.3735	0.2801	-0.0003
281	SLD 4	9.02	-11.12	60.35	0.3735	0.2801	-0.0003
281	SLD 5	3.47	-1.29	18.35	-0.0055	0.0542	0.0014
281	SLD 6	3.47	-1.29	18.35	-0.0055	0.0542	0.0014
281	SLD 7	5.19	-14.34	57.97	0.5194	0.1369	-0.0035
281	SLD 8	5.19	-14.34	57.97	0.5194	0.1369	-0.0035
281	SLD 9	-0.33	-0.14	4.43	-0.038	-0.0935	0.0001
281	SLD 10	-0.33	-0.14	4.43	-0.038	-0.0935	0.0001
281	SLD 11	1.39	-13.18	44.05	0.487	-0.0107	-0.0048
281	SLD 12	1.39	-13.18	44.05	0.487	-0.0107	-0.0048
281	SLD 13	-4.16	-3.36	2.05	0.1079	-0.2367	-0.0031
281	SLD 14	-4.16	-3.36	2.05	0.1079	-0.2367	-0.0031
281	SLD 15	-3.64	-7.27	13.94	0.2654	-0.2119	-0.0046
281	SLD 16	-3.64	-7.27	13.94	0.2654	-0.2119	-0.0046
281	SLV 1	16.36	-7.17	70.85	0.1837	0.5571	0.005
281	SLV 2	16.36	-7.17	70.85	0.1837	0.5571	0.005
281	SLV 3	17.56	-16.15	98.01	0.5472	0.6164	0.0016
281	SLV 4	17.56	-16.15	98.01	0.5472	0.6164	0.0016
281	SLV 5	4.79	6.41	1.91	-0.3276	0.0924	0.0055
281	SLV 6	4.79	6.41	1.91	-0.3276	0.0924	0.0055
281	SLV 7	8.79	-23.54	92.44	0.8839	0.2901	-0.0059
281	SLV 8	8.79	-23.54	92.44	0.8839	0.2901	-0.0059
281	SLV 9	-3.93	9.07	-30.03	-0.4024	-0.2467	0.0025
281	SLV 10	-3.93	9.07	-30.03	-0.4024	-0.2467	0.0025
281	SLV 11	0.07	-20.89	60.5	0.809	-0.0489	-0.0089
281	SLV 12	0.07	-20.89	60.5	0.809	-0.0489	-0.0089
281	SLV 13	-12.7	1.68	-35.61	-0.0657	-0.573	-0.0049
281	SLV 14	-12.7	1.68	-35.61	-0.0657	-0.573	-0.0049
281	SLV 15	-11.5	-7.31	-8.45	0.2977	-0.5137	-0.0084
281	SLV 16	-11.5	-7.31	-8.45	0.2977	-0.5137	-0.0084
282	SLU 1	1.11	-0.08	20.55	0.0114	0.1319	0.0002
282	SLU 2	1.27	-0.07	19.46	0.0085	0.1324	0.0002
282	SLU 3	1.18	-0.08	20.95	0.0116	0.1371	0.0002
282	SLU 4	1.27	-0.08	20.29	0.0098	0.1374	0.0002
282	SLU 5	1.36	-0.07	19.71	0.0086	0.1379	0.0002
282	SLU 6	1.27	-0.08	21.2	0.0117	0.1426	0.0002
282	SLU 7	1.36	-0.08	20.55	0.0099	0.1429	0.0002
282	SLU 8	1.3	-0.08	21.06	0.0116	0.1429	0.0002
282	SLU 9	1.39	-0.08	20.41	0.0099	0.1433	0.0002
282	SLU 10	1.64	-0.08	21.91	0.01	0.1595	0.0002
282	SLU 11	1.55	-0.09	23.4	0.0131	0.1641	0.0002
282	SLU 12	1.64	-0.09	22.75	0.0113	0.1645	0.0002
282	SLU 13	1.73	-0.08	22.17	0.0101	0.165	0.0002
282	SLU 14	1.64	-0.09	23.66	0.0132	0.1697	0.0002
282	SLU 15	1.74	-0.09	23.01	0.0114	0.17	0.0002
282	SLU 16	1.67	-0.09	23.52	0.0131	0.17	0.0002
282	SLU 17	1.77	-0.09	22.86	0.0114	0.1703	0.0002
282	SLU 18	1.65	-0.09	24.06	0.0135	0.1706	0.0002
282	SLU 19	1.74	-0.09	23.4	0.0118	0.1709	0.0002
282	SLU 20	1.74	-0.09	24.31	0.0137	0.1761	0.0002
282	SLU 21	1.83	-0.09	23.66	0.0119	0.1764	0.0002
282	SLU 22	1.45	-0.09	22.92	0.0127	0.1569	0.0002
282	SLU 23	1.6	-0.08	21.83	0.0098	0.1575	0.0002
282	SLU 24	1.51	-0.09	23.32	0.0129	0.1621	0.0002
282	SLU 25	1.6	-0.09	22.66	0.0111	0.1624	0.0002
282	SLU 26	1.69	-0.08	22.08	0.0099	0.163	0.0002
282	SLU 27	1.6	-0.09	23.57	0.013	0.1676	0.0002
282	SLU 28	1.7	-0.09	22.92	0.0112	0.1679	0.0002
282	SLU 29	1.63	-0.09	23.43	0.0129	0.168	0.0002
282	SLU 30	1.73	-0.09	22.78	0.0112	0.1683	0.0002
282	SLU 31	1.97	-0.09	24.28	0.0113	0.1845	0.0002
282	SLU 32	1.88	-0.1	25.77	0.0143	0.1892	0.0003
282	SLU 33	1.97	-0.1	25.12	0.0126	0.1895	0.0003
282	SLU 34	2.07	-0.09	24.54	0.0114	0.19	0.0003
282	SLU 35	1.98	-0.1	26.03	0.0145	0.1947	0.0003
282	SLU 36	2.07	-0.1	25.38	0.0127	0.195	0.0003
282	SLU 37	2.01	-0.1	25.89	0.0144	0.195	0.0003
282	SLU 38	2.1	-0.1	25.23	0.0127	0.1953	0.0003
282	SLU 39	1.98	-0.1	26.43	0.0148	0.1956	0.0003
282	SLU 40	2.07	-0.1	25.77	0.0131	0.1959	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
282	SLU 41	2.07	-0.1	26.68	0.0149	0.2011	0.0003
282	SLU 42	2.16	-0.1	26.03	0.0132	0.2014	0.0003
282	SLU 43	1.34	-0.1	25.9	0.0144	0.1629	0.0003
282	SLU 44	1.49	-0.09	24.81	0.0115	0.1634	0.0002
282	SLU 45	1.4	-0.1	26.3	0.0145	0.1681	0.0003
282	SLU 46	1.49	-0.1	25.64	0.0128	0.1684	0.0003
282	SLU 47	1.58	-0.09	25.07	0.0116	0.1689	0.0003
282	SLU 48	1.49	-0.1	26.56	0.0147	0.1736	0.0003
282	SLU 49	1.59	-0.1	25.9	0.0129	0.1739	0.0003
282	SLU 50	1.52	-0.1	26.41	0.0146	0.1739	0.0003
282	SLU 51	1.61	-0.1	25.76	0.0129	0.1742	0.0003
282	SLU 52	1.86	-0.1	27.27	0.013	0.1905	0.0003
282	SLU 53	1.77	-0.11	28.76	0.016	0.1951	0.0003
282	SLU 54	1.86	-0.11	28.1	0.0143	0.1954	0.0003
282	SLU 55	1.96	-0.1	27.52	0.0131	0.196	0.0003
282	SLU 56	1.87	-0.11	29.01	0.0161	0.2007	0.0003
282	SLU 57	1.96	-0.11	28.36	0.0144	0.201	0.0003
282	SLU 58	1.9	-0.11	28.87	0.0161	0.201	0.0003
282	SLU 59	1.99	-0.11	28.21	0.0144	0.2013	0.0003
282	SLU 60	1.87	-0.11	29.41	0.0165	0.2016	0.0003
282	SLU 61	1.96	-0.11	28.75	0.0148	0.2019	0.0003
282	SLU 62	1.96	-0.11	29.66	0.0166	0.2071	0.0003
282	SLU 63	2.05	-0.11	29.01	0.0149	0.2074	0.0003
282	SLU 64	1.67	-0.11	28.27	0.0157	0.1879	0.0003
282	SLU 65	1.82	-0.1	27.18	0.0128	0.1884	0.0003
282	SLU 66	1.73	-0.11	28.67	0.0158	0.1931	0.0003
282	SLU 67	1.82	-0.11	28.01	0.0141	0.1934	0.0003
282	SLU 68	1.91	-0.1	27.44	0.0129	0.194	0.0003
282	SLU 69	1.82	-0.11	28.93	0.0159	0.1986	0.0003
282	SLU 70	1.92	-0.11	28.27	0.0142	0.1989	0.0003
282	SLU 71	1.85	-0.11	28.78	0.0159	0.199	0.0003
282	SLU 72	1.95	-0.11	28.13	0.0142	0.1993	0.0003
282	SLU 73	2.19	-0.11	29.64	0.0142	0.2155	0.0003
282	SLU 74	2.1	-0.12	31.13	0.0173	0.2202	0.0003
282	SLU 75	2.2	-0.12	30.47	0.0156	0.2205	0.0003
282	SLU 76	2.29	-0.11	29.89	0.0144	0.221	0.0003
282	SLU 77	2.2	-0.12	31.38	0.0174	0.2257	0.0003
282	SLU 78	2.29	-0.12	30.73	0.0157	0.226	0.0003
282	SLU 79	2.23	-0.12	31.24	0.0174	0.226	0.0003
282	SLU 80	2.32	-0.12	30.59	0.0156	0.2263	0.0003
282	SLU 81	2.2	-0.12	31.78	0.0178	0.2266	0.0003
282	SLU 82	2.29	-0.12	31.12	0.0161	0.2269	0.0003
282	SLU 83	2.29	-0.12	32.03	0.0179	0.2321	0.0003
282	SLU 84	2.38	-0.12	31.38	0.0162	0.2324	0.0003
282	SLE RA 1	1.21	-0.08	21.22	0.0118	0.1391	0.0002
282	SLE RA 2	1.31	-0.08	20.5	0.0098	0.1394	0.0002
282	SLE RA 3	1.25	-0.08	21.49	0.0119	0.1425	0.0002
282	SLE RA 4	1.31	-0.08	21.06	0.0107	0.1427	0.0002
282	SLE RA 5	1.37	-0.08	20.67	0.0099	0.1431	0.0002
282	SLE RA 6	1.31	-0.08	21.66	0.012	0.1462	0.0002
282	SLE RA 7	1.38	-0.08	21.23	0.0108	0.1464	0.0002
282	SLE RA 8	1.33	-0.08	21.57	0.0119	0.1464	0.0002
282	SLE RA 9	1.4	-0.08	21.13	0.0108	0.1466	0.0002
282	SLE RA 10	1.56	-0.08	22.14	0.0108	0.1574	0.0002
282	SLE RA 11	1.5	-0.09	23.13	0.0129	0.1605	0.0002
282	SLE RA 12	1.56	-0.09	22.69	0.0117	0.1608	0.0002
282	SLE RA 13	1.62	-0.08	22.31	0.0109	0.1611	0.0002
282	SLE RA 14	1.56	-0.09	23.3	0.013	0.1642	0.0002
282	SLE RA 15	1.62	-0.09	22.86	0.0118	0.1644	0.0002
282	SLE RA 16	1.58	-0.09	23.2	0.0129	0.1645	0.0002
282	SLE RA 17	1.64	-0.09	22.77	0.0118	0.1647	0.0002
282	SLE RA 18	1.56	-0.09	23.56	0.0132	0.1648	0.0002
282	SLE RA 19	1.63	-0.09	23.13	0.012	0.165	0.0002
282	SLE RA 20	1.63	-0.09	23.73	0.0133	0.1685	0.0002
282	SLE RA 21	1.69	-0.09	23.3	0.0121	0.1687	0.0002
282	SLE FR 1	1.21	-0.08	21.22	0.0118	0.1391	0.0002
282	SLE FR 2	1.23	-0.08	21.08	0.0114	0.1391	0.0002
282	SLE FR 3	1.23	-0.08	21.29	0.0118	0.1405	0.0002
282	SLE FR 4	1.34	-0.08	21.78	0.0118	0.1469	0.0002
282	SLE FR 5	1.34	-0.08	21.99	0.0122	0.1483	0.0002
282	SLE FR 6	1.39	-0.09	22.39	0.0125	0.1519	0.0002
282	SLE QP 1	1.21	-0.08	21.22	0.0118	0.1391	0.0002
282	SLE QP 2	1.32	-0.08	21.93	0.0122	0.1468	0.0002
282	SLD 1	10.18	-0.12	30.62	-0.0401	0.5906	0.0004
282	SLD 2	10.18	-0.12	30.62	-0.0401	0.5906	0.0004
282	SLD 3	11.34	-0.16	37.25	0.016	0.6247	0.0004
282	SLD 4	11.34	-0.16	37.25	0.016	0.6247	0.0004
282	SLD 5	2.2	-0.04	14.47	-0.0885	0.2282	0.0002
282	SLD 6	2.2	-0.04	14.47	-0.0885	0.2282	0.0002
282	SLD 7	6.09	-0.16	36.58	0.0984	0.3419	0.0004
282	SLD 8	6.09	-0.16	36.58	0.0984	0.3419	0.0004
282	SLD 9	-3.46	-0.01	7.27	-0.0739	-0.0484	0.0001
282	SLD 10	-3.46	-0.01	7.27	-0.0739	-0.0484	0.0001
282	SLD 11	0.43	-0.12	29.38	0.1129	0.0654	0.0003
282	SLD 12	0.43	-0.12	29.38	0.1129	0.0654	0.0003
282	SLD 13	-8.71	-0.01	6.6	0.0084	-0.3312	0
282	SLD 14	-8.71	-0.01	6.6	0.0084	-0.3312	0
282	SLD 15	-7.55	-0.04	13.23	0.0645	-0.297	0.0001
282	SLD 16	-7.55	-0.04	13.23	0.0645	-0.297	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
282	SLV 1	21.65	-0.18	41.9	-0.1156	1.1643	0.0005
282	SLV 2	21.65	-0.18	41.9	-0.1156	1.1643	0.0005
282	SLV 3	24.35	-0.26	57.05	0.0208	1.2448	0.0007
282	SLV 4	24.35	-0.26	57.05	0.0208	1.2448	0.0007
282	SLV 5	3.31	0.01	4.94	-0.233	0.33	0.0001
282	SLV 6	3.31	0.01	4.94	-0.233	0.33	0.0001
282	SLV 7	12.33	-0.26	55.44	0.2217	0.5983	0.0006
282	SLV 8	12.33	-0.26	55.44	0.2217	0.5983	0.0006
282	SLV 9	-9.7	0.09	-11.59	-0.1972	-0.3047	-0.0002
282	SLV 10	-9.7	0.09	-11.59	-0.1972	-0.3047	-0.0002
282	SLV 11	-0.68	-0.18	38.91	0.2574	-0.0364	0.0004
282	SLV 12	-0.68	-0.18	38.91	0.2574	-0.0364	0.0004
282	SLV 13	-21.72	0.1	-13.2	0.0036	-0.9513	-0.0003
282	SLV 14	-21.72	0.1	-13.2	0.0036	-0.9513	-0.0003
282	SLV 15	-19.02	0.01	1.95	0.1401	-0.8708	-0.0001
282	SLV 16	-19.02	0.01	1.95	0.1401	-0.8708	-0.0001
283	SLU 1	0.23	0.01	17.55	-0.0185	-0.0325	0
283	SLU 2	0.36	0.01	16.93	-0.021	-0.0264	0
283	SLU 3	0.29	0.01	17.82	-0.0192	-0.0307	0
283	SLU 4	0.37	0.01	17.45	-0.0208	-0.0271	0
283	SLU 5	0.46	0.01	17.09	-0.0213	-0.0228	0
283	SLU 6	0.39	0.01	17.98	-0.0196	-0.027	0
283	SLU 7	0.46	0.01	17.61	-0.0211	-0.0234	0
283	SLU 8	0.42	0.01	17.88	-0.0192	-0.0251	0
283	SLU 9	0.5	0.01	17.5	-0.0207	-0.0215	0
283	SLU 10	0.6	0.01	19.12	-0.023	-0.0233	0
283	SLU 11	0.53	0.01	20.01	-0.0212	-0.0275	0
283	SLU 12	0.61	0.01	19.64	-0.0227	-0.0239	0
283	SLU 13	0.69	0.01	19.28	-0.0233	-0.0196	0
283	SLU 14	0.62	0.01	20.17	-0.0216	-0.0238	0
283	SLU 15	0.7	0.01	19.8	-0.0231	-0.0202	0
283	SLU 16	0.66	0.01	20.07	-0.0211	-0.0219	0
283	SLU 17	0.73	0.01	19.69	-0.0226	-0.0183	0
283	SLU 18	0.57	0.01	20.68	-0.0213	-0.0279	0
283	SLU 19	0.65	0.01	20.31	-0.0228	-0.0243	0
283	SLU 20	0.66	0.01	20.85	-0.0216	-0.0242	0
283	SLU 21	0.74	0.01	20.47	-0.0231	-0.0206	0
283	SLU 22	0.44	0.01	19.61	-0.0208	-0.0297	0
283	SLU 23	0.57	0.01	18.99	-0.0233	-0.0236	0
283	SLU 24	0.5	0.01	19.88	-0.0216	-0.0279	0
283	SLU 25	0.58	0.01	19.51	-0.0231	-0.0243	0
283	SLU 26	0.67	0.01	19.15	-0.0237	-0.0199	0
283	SLU 27	0.6	0.01	20.05	-0.022	-0.0242	0
283	SLU 28	0.68	0.01	19.67	-0.0235	-0.0206	0
283	SLU 29	0.63	0.01	19.94	-0.0215	-0.0223	0
283	SLU 30	0.71	0.01	19.56	-0.023	-0.0187	0
283	SLU 31	0.81	0.01	21.18	-0.0253	-0.0204	0
283	SLU 32	0.74	0.01	22.07	-0.0236	-0.0247	0
283	SLU 33	0.82	0.01	21.7	-0.0251	-0.0211	0
283	SLU 34	0.9	0.01	21.34	-0.0257	-0.0168	0
283	SLU 35	0.83	0.01	22.24	-0.0239	-0.021	0
283	SLU 36	0.91	0.01	21.86	-0.0255	-0.0174	0
283	SLU 37	0.87	0.01	22.13	-0.0235	-0.0191	0
283	SLU 38	0.95	0.01	21.76	-0.025	-0.0155	0
283	SLU 39	0.78	0.01	22.74	-0.0236	-0.0251	0
283	SLU 40	0.86	0.01	22.37	-0.0252	-0.0215	0
283	SLU 41	0.87	0.01	22.91	-0.024	-0.0214	0
283	SLU 42	0.95	0.01	22.53	-0.0255	-0.0178	0
283	SLU 43	0.23	0.01	22.11	-0.0232	-0.0432	0
283	SLU 44	0.36	0.01	21.49	-0.0257	-0.0372	0
283	SLU 45	0.29	0.01	22.38	-0.024	-0.0414	0
283	SLU 46	0.37	0.01	22	-0.0255	-0.0378	0
283	SLU 47	0.45	0.01	21.65	-0.0261	-0.0335	0
283	SLU 48	0.38	0.01	22.54	-0.0243	-0.0377	0
283	SLU 49	0.46	0.01	22.17	-0.0258	-0.0341	0
283	SLU 50	0.42	0.01	22.44	-0.0239	-0.0358	0
283	SLU 51	0.49	0.01	22.06	-0.0254	-0.0322	0
283	SLU 52	0.59	0.02	23.68	-0.0277	-0.034	0
283	SLU 53	0.52	0.01	24.57	-0.0259	-0.0382	0
283	SLU 54	0.6	0.01	24.2	-0.0275	-0.0346	0
283	SLU 55	0.69	0.02	23.84	-0.028	-0.0303	0
283	SLU 56	0.62	0.01	24.73	-0.0263	-0.0345	0
283	SLU 57	0.7	0.01	24.36	-0.0278	-0.0309	0
283	SLU 58	0.65	0.01	24.63	-0.0259	-0.0326	0
283	SLU 59	0.73	0.01	24.25	-0.0274	-0.029	0
283	SLU 60	0.56	0.01	25.24	-0.026	-0.0386	0
283	SLU 61	0.64	0.01	24.87	-0.0275	-0.035	0
283	SLU 62	0.66	0.01	25.41	-0.0263	-0.035	0
283	SLU 63	0.74	0.01	25.03	-0.0279	-0.0313	0
283	SLU 64	0.44	0.01	24.17	-0.0255	-0.0404	0
283	SLU 65	0.57	0.02	23.55	-0.0281	-0.0343	0
283	SLU 66	0.5	0.01	24.44	-0.0263	-0.0386	0
283	SLU 67	0.58	0.01	24.07	-0.0279	-0.035	0
283	SLU 68	0.66	0.02	23.71	-0.0284	-0.0307	0
283	SLU 69	0.59	0.01	24.6	-0.0267	-0.0349	0
283	SLU 70	0.67	0.01	24.23	-0.0282	-0.0313	0
283	SLU 71	0.63	0.01	24.5	-0.0262	-0.033	0
283	SLU 72	0.71	0.01	24.12	-0.0278	-0.0294	0
283	SLU 73	0.81	0.02	25.74	-0.03	-0.0311	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
283	SLU 74	0.74	0.01	26.63	-0.0283	-0.0354	0
283	SLU 75	0.81	0.02	26.26	-0.0298	-0.0318	0
283	SLU 76	0.9	0.02	25.9	-0.0304	-0.0275	0
283	SLU 77	0.83	0.01	26.8	-0.0287	-0.0317	0
283	SLU 78	0.91	0.02	26.42	-0.0302	-0.0281	0
283	SLU 79	0.86	0.01	26.69	-0.0282	-0.0298	0
283	SLU 80	0.94	0.02	26.31	-0.0297	-0.0262	0
283	SLU 81	0.78	0.01	27.3	-0.0284	-0.0358	0
283	SLU 82	0.85	0.01	26.93	-0.0299	-0.0322	0
283	SLU 83	0.87	0.01	27.47	-0.0287	-0.0321	0
283	SLU 84	0.95	0.02	27.09	-0.0302	-0.0285	0
283	SLE RA 1	0.29	0.01	18.14	-0.0191	-0.0317	0
283	SLE RA 2	0.38	0.01	17.72	-0.0208	-0.0277	0
283	SLE RA 3	0.33	0.01	18.32	-0.0197	-0.0305	0
283	SLE RA 4	0.38	0.01	18.07	-0.0207	-0.0281	0
283	SLE RA 5	0.44	0.01	17.83	-0.021	-0.0252	0
283	SLE RA 6	0.39	0.01	18.43	-0.0199	-0.028	0
283	SLE RA 7	0.45	0.01	18.18	-0.0209	-0.0256	0
283	SLE RA 8	0.42	0.01	18.36	-0.0196	-0.0268	0
283	SLE RA 9	0.47	0.01	18.11	-0.0206	-0.0244	0
283	SLE RA 10	0.54	0.01	19.18	-0.0221	-0.0255	0
283	SLE RA 11	0.49	0.01	19.78	-0.021	-0.0284	0
283	SLE RA 12	0.54	0.01	19.53	-0.022	-0.0259	0
283	SLE RA 13	0.6	0.01	19.29	-0.0224	-0.0231	0
283	SLE RA 14	0.55	0.01	19.89	-0.0212	-0.0259	0
283	SLE RA 15	0.6	0.01	19.64	-0.0222	-0.0235	0
283	SLE RA 16	0.57	0.01	19.82	-0.0209	-0.0246	0
283	SLE RA 17	0.63	0.01	19.57	-0.0219	-0.0222	0
283	SLE RA 18	0.52	0.01	20.23	-0.021	-0.0286	0
283	SLE RA 19	0.57	0.01	19.98	-0.022	-0.0262	0
283	SLE RA 20	0.58	0.01	20.34	-0.0212	-0.0262	0
283	SLE RA 21	0.63	0.01	20.09	-0.0223	-0.0238	0
283	SLE FR 1	0.29	0.01	18.14	-0.0191	-0.0317	0
283	SLE FR 2	0.31	0.01	18.06	-0.0195	-0.0309	0
283	SLE FR 3	0.32	0.01	18.19	-0.0192	-0.0307	0
283	SLE FR 4	0.38	0.01	18.68	-0.02	-0.03	0
283	SLE FR 5	0.38	0.01	18.81	-0.0198	-0.0298	0
283	SLE FR 6	0.4	0.01	19.19	-0.0201	-0.0302	0
283	SLE QP 1	0.29	0.01	18.14	-0.0191	-0.0317	0
283	SLE QP 2	0.36	0.01	18.77	-0.0197	-0.0308	0
283	SLD 1	10.47	0.12	22.2	-0.1148	0.4249	0.0002
283	SLD 2	10.47	0.12	22.2	-0.1148	0.4249	0.0002
283	SLD 3	11.41	0.05	26.04	-0.001	0.4639	0
283	SLD 4	11.41	0.05	26.04	-0.001	0.4639	0
283	SLD 5	1.98	0.15	13.97	-0.2209	0.0468	0.0003
283	SLD 6	1.98	0.15	13.97	-0.2209	0.0468	0.0003
283	SLD 7	5.09	-0.09	26.78	0.1585	0.1768	-0.0002
283	SLD 8	5.09	-0.09	26.78	0.1585	0.1768	-0.0002
283	SLD 9	-4.37	0.11	10.76	-0.1979	-0.2383	0.0003
283	SLD 10	-4.37	0.11	10.76	-0.1979	-0.2383	0.0003
283	SLD 11	-1.26	-0.13	23.57	0.1815	-0.1083	-0.0003
283	SLD 12	-1.26	-0.13	23.57	0.1815	-0.1083	-0.0003
283	SLD 13	-10.69	-0.03	11.49	-0.0384	-0.5254	0
283	SLD 14	-10.69	-0.03	11.49	-0.0384	-0.5254	0
283	SLD 15	-9.75	-0.1	15.34	0.0755	-0.4864	-0.0001
283	SLD 16	-9.75	-0.1	15.34	0.0755	-0.4864	-0.0001
283	SLV 1	23.58	0.28	26.64	-0.2534	1.0155	0.0004
283	SLV 2	23.58	0.28	26.64	-0.2534	1.0155	0.0004
283	SLV 3	25.74	0.1	35.48	0.0244	1.1059	0
283	SLV 4	25.74	0.1	35.48	0.0244	1.1059	0
283	SLV 5	4.05	0.36	7.74	-0.5112	0.1459	0.0008
283	SLV 6	4.05	0.36	7.74	-0.5112	0.1459	0.0008
283	SLV 7	11.25	-0.23	37.17	0.415	0.4474	-0.0006
283	SLV 8	11.25	-0.23	37.17	0.415	0.4474	-0.0006
283	SLV 9	-10.53	0.25	0.36	-0.4544	-0.509	0.0007
283	SLV 10	-10.53	0.25	0.36	-0.4544	-0.509	0.0007
283	SLV 11	-3.33	-0.34	29.8	0.4719	-0.2074	-0.0007
283	SLV 12	-3.33	-0.34	29.8	0.4719	-0.2074	-0.0007
283	SLV 13	-25.02	-0.08	2.06	-0.0638	-1.1674	0.0001
283	SLV 14	-25.02	-0.08	2.06	-0.0638	-1.1674	0.0001
283	SLV 15	-22.86	-0.26	10.89	0.214	-1.077	-0.0004
283	SLV 16	-22.86	-0.26	10.89	0.214	-1.077	-0.0004
284	SLU 1	1.02	0.06	16.97	-0.0478	0.0927	0
284	SLU 2	1.07	0.07	16.56	-0.0499	0.0921	0
284	SLU 3	1.12	0.07	17.19	-0.0496	0.0983	0
284	SLU 4	1.15	0.07	16.94	-0.0508	0.098	0
284	SLU 5	1.19	0.07	16.69	-0.0508	0.098	0
284	SLU 6	1.24	0.07	17.31	-0.0504	0.1042	0
284	SLU 7	1.27	0.07	17.07	-0.0517	0.1039	0
284	SLU 8	1.26	0.07	17.22	-0.0495	0.1045	0
284	SLU 9	1.29	0.07	16.97	-0.0508	0.1041	0
284	SLU 10	1.39	0.07	18.8	-0.0555	0.1122	0
284	SLU 11	1.44	0.07	19.42	-0.0551	0.1184	0
284	SLU 12	1.47	0.08	19.18	-0.0564	0.118	0
284	SLU 13	1.51	0.07	18.92	-0.0563	0.1181	0
284	SLU 14	1.56	0.08	19.54	-0.056	0.1243	0
284	SLU 15	1.58	0.08	19.3	-0.0572	0.1239	0
284	SLU 16	1.57	0.07	19.45	-0.055	0.1245	0
284	SLU 17	1.6	0.08	19.21	-0.0563	0.1242	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
284	SLU 18	1.47	0.07	20.16	-0.0557	0.1213	0
284	SLU 19	1.5	0.08	19.92	-0.057	0.121	0
284	SLU 20	1.59	0.08	20.28	-0.0566	0.1272	0
284	SLU 21	1.62	0.08	20.04	-0.0578	0.1269	0
284	SLU 22	1.33	0.07	19.03	-0.0539	0.1122	0
284	SLU 23	1.38	0.07	18.62	-0.056	0.1117	0
284	SLU 24	1.43	0.07	19.25	-0.0557	0.1178	0
284	SLU 25	1.46	0.08	19	-0.057	0.1175	0
284	SLU 26	1.5	0.08	18.75	-0.0569	0.1176	0
284	SLU 27	1.55	0.08	19.37	-0.0565	0.1237	0
284	SLU 28	1.58	0.08	19.13	-0.0578	0.1234	0
284	SLU 29	1.57	0.07	19.28	-0.0556	0.124	0
284	SLU 30	1.6	0.08	19.03	-0.0569	0.1237	0
284	SLU 31	1.69	0.08	20.86	-0.0616	0.1317	0
284	SLU 32	1.74	0.08	21.48	-0.0612	0.1379	0
284	SLU 33	1.77	0.08	21.24	-0.0625	0.1376	0
284	SLU 34	1.81	0.08	20.98	-0.0624	0.1376	0
284	SLU 35	1.86	0.08	21.6	-0.0621	0.1438	0
284	SLU 36	1.89	0.08	21.36	-0.0634	0.1435	0
284	SLU 37	1.88	0.08	21.51	-0.0612	0.1441	0
284	SLU 38	1.91	0.08	21.27	-0.0624	0.1437	0
284	SLU 39	1.78	0.08	22.22	-0.0619	0.1409	0
284	SLU 40	1.81	0.08	21.98	-0.0631	0.1405	0
284	SLU 41	1.9	0.08	22.34	-0.0627	0.1468	0
284	SLU 42	1.93	0.09	22.1	-0.064	0.1464	0
284	SLU 43	1.22	0.08	21.35	-0.06	0.1138	0
284	SLU 44	1.27	0.08	20.95	-0.0621	0.1132	0
284	SLU 45	1.32	0.08	21.57	-0.0618	0.1194	0
284	SLU 46	1.35	0.08	21.33	-0.0631	0.1191	0
284	SLU 47	1.39	0.08	21.07	-0.063	0.1191	0
284	SLU 48	1.44	0.08	21.69	-0.0626	0.1253	0
284	SLU 49	1.47	0.09	21.45	-0.0639	0.125	0
284	SLU 50	1.46	0.08	21.6	-0.0617	0.1256	0
284	SLU 51	1.49	0.08	21.36	-0.063	0.1252	0
284	SLU 52	1.59	0.09	23.18	-0.0677	0.1333	0
284	SLU 53	1.64	0.09	23.8	-0.0674	0.1395	0
284	SLU 54	1.67	0.09	23.56	-0.0686	0.1391	0
284	SLU 55	1.71	0.09	23.31	-0.0685	0.1392	0
284	SLU 56	1.76	0.09	23.93	-0.0682	0.1454	0
284	SLU 57	1.79	0.09	23.68	-0.0695	0.145	0
284	SLU 58	1.78	0.09	23.83	-0.0673	0.1456	0
284	SLU 59	1.81	0.09	23.59	-0.0685	0.1453	0
284	SLU 60	1.67	0.09	24.54	-0.068	0.1424	0
284	SLU 61	1.7	0.09	24.3	-0.0692	0.1421	0
284	SLU 62	1.79	0.09	24.67	-0.0688	0.1483	0
284	SLU 63	1.82	0.09	24.42	-0.0701	0.148	0
284	SLU 64	1.53	0.09	23.41	-0.0662	0.1333	0
284	SLU 65	1.58	0.09	23.01	-0.0683	0.1328	0
284	SLU 66	1.63	0.09	23.63	-0.0679	0.1389	0
284	SLU 67	1.66	0.09	23.39	-0.0692	0.1386	0
284	SLU 68	1.7	0.09	23.13	-0.0691	0.1387	0
284	SLU 69	1.75	0.09	23.75	-0.0688	0.1448	0
284	SLU 70	1.78	0.09	23.51	-0.07	0.1445	0
284	SLU 71	1.77	0.09	23.66	-0.0678	0.1451	0
284	SLU 72	1.8	0.09	23.42	-0.0691	0.1448	0
284	SLU 73	1.89	0.1	25.24	-0.0738	0.1528	0
284	SLU 74	1.94	0.1	25.86	-0.0735	0.159	0
284	SLU 75	1.97	0.1	25.62	-0.0747	0.1587	0
284	SLU 76	2.01	0.1	25.37	-0.0747	0.1587	0
284	SLU 77	2.06	0.1	25.99	-0.0743	0.1649	0
284	SLU 78	2.09	0.1	25.74	-0.0756	0.1646	0
284	SLU 79	2.08	0.1	25.89	-0.0734	0.1652	0
284	SLU 80	2.11	0.1	25.65	-0.0747	0.1648	0
284	SLU 81	1.98	0.1	26.6	-0.0741	0.162	0
284	SLU 82	2.01	0.1	26.36	-0.0754	0.1616	0
284	SLU 83	2.1	0.1	26.73	-0.0749	0.1679	0
284	SLU 84	2.13	0.1	26.48	-0.0762	0.1675	0
284	SLE RA 1	1.11	0.07	17.56	-0.0495	0.0982	0
284	SLE RA 2	1.14	0.07	17.29	-0.051	0.0979	0
284	SLE RA 3	1.18	0.07	17.7	-0.0507	0.102	0
284	SLE RA 4	1.2	0.07	17.54	-0.0516	0.1018	0
284	SLE RA 5	1.22	0.07	17.37	-0.0515	0.1018	0
284	SLE RA 6	1.26	0.07	17.79	-0.0513	0.1059	0
284	SLE RA 7	1.28	0.07	17.62	-0.0521	0.1057	0
284	SLE RA 8	1.27	0.07	17.72	-0.0507	0.1061	0
284	SLE RA 9	1.29	0.07	17.56	-0.0515	0.1059	0
284	SLE RA 10	1.35	0.07	18.78	-0.0547	0.1113	0
284	SLE RA 11	1.39	0.07	19.19	-0.0544	0.1154	0
284	SLE RA 12	1.41	0.07	19.03	-0.0553	0.1152	0
284	SLE RA 13	1.43	0.07	18.86	-0.0552	0.1152	0
284	SLE RA 14	1.47	0.07	19.27	-0.055	0.1193	0
284	SLE RA 15	1.48	0.07	19.11	-0.0558	0.1191	0
284	SLE RA 16	1.48	0.07	19.21	-0.0544	0.1195	0
284	SLE RA 17	1.5	0.07	19.05	-0.0552	0.1193	0
284	SLE RA 18	1.41	0.07	19.68	-0.0548	0.1174	0
284	SLE RA 19	1.43	0.07	19.52	-0.0557	0.1171	0
284	SLE RA 20	1.49	0.07	19.77	-0.0554	0.1213	0
284	SLE RA 21	1.51	0.08	19.61	-0.0562	0.1211	0
284	SLE FR 1	1.11	0.07	17.56	-0.0495	0.0982	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
284	SLE FR 2	1.12	0.07	17.5	-0.0498	0.0982	0
284	SLE FR 3	1.14	0.07	17.59	-0.0498	0.0998	0
284	SLE FR 4	1.21	0.07	18.14	-0.0514	0.1039	0
284	SLE FR 5	1.23	0.07	18.23	-0.0514	0.1056	0
284	SLE FR 6	1.26	0.07	18.62	-0.0522	0.1078	0
284	SLE QP 1	1.11	0.07	17.56	-0.0495	0.0982	0
284	SLE QP 2	1.2	0.07	18.2	-0.0511	0.104	0
284	SLD 1	12.43	0.21	18.83	-0.1835	0.5998	0.0001
284	SLD 2	12.43	0.21	18.83	-0.1835	0.5998	0.0001
284	SLD 3	13.27	0.06	21.97	-0.0066	0.6368	0
284	SLD 4	13.27	0.06	21.97	-0.0066	0.6368	0
284	SLD 5	3.29	0.35	13.63	-0.3591	0.1966	0.0003
284	SLD 6	3.29	0.35	13.63	-0.3591	0.1966	0.0003
284	SLD 7	6.1	-0.17	24.09	0.2305	0.3199	-0.0002
284	SLD 8	6.1	-0.17	24.09	0.2305	0.3199	-0.0002
284	SLD 9	-3.7	0.31	12.3	-0.3328	-0.112	0.0002
284	SLD 10	-3.7	0.31	12.3	-0.3328	-0.112	0.0002
284	SLD 11	-0.89	-0.21	22.76	0.2569	0.0113	-0.0003
284	SLD 12	-0.89	-0.21	22.76	0.2569	0.0113	-0.0003
284	SLD 13	-10.87	0.08	14.42	-0.0956	-0.4288	0
284	SLD 14	-10.87	0.08	14.42	-0.0956	-0.4288	0
284	SLD 15	-10.03	-0.08	17.56	0.0813	-0.3918	-0.0001
284	SLD 16	-10.03	-0.08	17.56	0.0813	-0.3918	-0.0001
284	SLV 1	26.97	0.42	19.6	-0.3767	1.2412	0.0003
284	SLV 2	26.97	0.42	19.6	-0.3767	1.2412	0.0003
284	SLV 3	28.94	0.05	27	0.0552	1.3281	0
284	SLV 4	28.94	0.05	27	0.0552	1.3281	0
284	SLV 5	5.94	0.75	7.4	-0.8038	0.3133	0.0006
284	SLV 6	5.94	0.75	7.4	-0.8038	0.3133	0.0006
284	SLV 7	12.51	-0.51	32.06	0.6358	0.603	-0.0006
284	SLV 8	12.51	-0.51	32.06	0.6358	0.603	-0.0006
284	SLV 9	-10.11	0.65	4.34	-0.738	-0.395	0.0006
284	SLV 10	-10.11	0.65	4.34	-0.738	-0.395	0.0006
284	SLV 11	-3.54	-0.61	28.99	0.7016	-0.1054	-0.0006
284	SLV 12	-3.54	-0.61	28.99	0.7016	-0.1054	-0.0006
284	SLV 13	-26.54	0.09	9.39	-0.1574	-1.1201	0
284	SLV 14	-26.54	0.09	9.39	-0.1574	-1.1201	0
284	SLV 15	-24.57	-0.29	16.79	0.2745	-1.0332	-0.0003
284	SLV 16	-24.57	-0.29	16.79	0.2745	-1.0332	-0.0003
285	SLU 1	0.11	0.1	17.04	-0.0737	-0.0418	0
285	SLU 2	0.15	0.1	16.77	-0.0754	-0.0389	0
285	SLU 3	0.2	0.1	17.24	-0.0763	-0.0387	0
285	SLU 4	0.23	0.1	17.08	-0.0773	-0.0369	0
285	SLU 5	0.27	0.1	16.88	-0.0766	-0.0342	0
285	SLU 6	0.33	0.11	17.35	-0.0776	-0.0339	0
285	SLU 7	0.35	0.11	17.19	-0.0786	-0.0322	0
285	SLU 8	0.35	0.1	17.26	-0.0762	-0.0323	0
285	SLU 9	0.38	0.11	17.1	-0.0772	-0.0306	0
285	SLU 10	0.29	0.11	19.1	-0.0843	-0.0402	0
285	SLU 11	0.34	0.12	19.57	-0.0852	-0.04	0
285	SLU 12	0.37	0.12	19.41	-0.0862	-0.0382	0
285	SLU 13	0.41	0.12	19.21	-0.0856	-0.0355	0
285	SLU 14	0.46	0.12	19.68	-0.0865	-0.0352	0
285	SLU 15	0.49	0.12	19.52	-0.0875	-0.0335	0
285	SLU 16	0.49	0.12	19.59	-0.0852	-0.0336	0
285	SLU 17	0.52	0.12	19.43	-0.0862	-0.0319	0
285	SLU 18	0.3	0.12	20.37	-0.0864	-0.0437	0
285	SLU 19	0.33	0.12	20.21	-0.0874	-0.0419	0
285	SLU 20	0.42	0.12	20.48	-0.0877	-0.0389	0
285	SLU 21	0.45	0.12	20.32	-0.0887	-0.0372	0
285	SLU 22	0.27	0.11	19.17	-0.0833	-0.0416	0
285	SLU 23	0.31	0.11	18.9	-0.085	-0.0387	0
285	SLU 24	0.37	0.12	19.37	-0.0859	-0.0385	0
285	SLU 25	0.39	0.12	19.21	-0.0869	-0.0367	0
285	SLU 26	0.43	0.12	19.01	-0.0862	-0.034	0
285	SLU 27	0.49	0.12	19.48	-0.0872	-0.0337	0
285	SLU 28	0.52	0.12	19.32	-0.0882	-0.032	0
285	SLU 29	0.51	0.12	19.39	-0.0859	-0.0321	0
285	SLU 30	0.54	0.12	19.23	-0.0869	-0.0304	0
285	SLU 31	0.45	0.13	21.23	-0.0939	-0.04	0
285	SLU 32	0.5	0.13	21.7	-0.0949	-0.0397	0
285	SLU 33	0.53	0.13	21.54	-0.0959	-0.038	0
285	SLU 34	0.57	0.13	21.34	-0.0952	-0.0352	0
285	SLU 35	0.63	0.13	21.82	-0.0961	-0.035	0
285	SLU 36	0.65	0.13	21.65	-0.0971	-0.0332	0
285	SLU 37	0.65	0.13	21.72	-0.0948	-0.0334	0
285	SLU 38	0.68	0.13	21.56	-0.0958	-0.0316	0
285	SLU 39	0.46	0.13	22.5	-0.0961	-0.0434	0
285	SLU 40	0.49	0.13	22.34	-0.0971	-0.0417	0
285	SLU 41	0.59	0.13	22.61	-0.0973	-0.0387	0
285	SLU 42	0.61	0.13	22.45	-0.0983	-0.0369	0
285	SLU 43	0.08	0.13	21.42	-0.0925	-0.0545	0
285	SLU 44	0.13	0.13	21.15	-0.0942	-0.0516	0
285	SLU 45	0.18	0.13	21.62	-0.0951	-0.0513	0
285	SLU 46	0.21	0.13	21.46	-0.0961	-0.0496	0
285	SLU 47	0.25	0.13	21.26	-0.0954	-0.0468	0
285	SLU 48	0.3	0.13	21.73	-0.0964	-0.0466	0
285	SLU 49	0.33	0.13	21.57	-0.0974	-0.0448	0
285	SLU 50	0.33	0.13	21.64	-0.0951	-0.045	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
285	SLU 51	0.35	0.13	21.48	-0.0961	-0.0432	0
285	SLU 52	0.26	0.14	23.48	-0.1031	-0.0528	0
285	SLU 53	0.32	0.14	23.95	-0.1041	-0.0526	0
285	SLU 54	0.34	0.14	23.79	-0.1051	-0.0508	0
285	SLU 55	0.39	0.14	23.59	-0.1044	-0.0481	0
285	SLU 56	0.44	0.14	24.06	-0.1053	-0.0478	0
285	SLU 57	0.47	0.14	23.9	-0.1063	-0.0461	0
285	SLU 58	0.46	0.14	23.97	-0.104	-0.0462	0
285	SLU 59	0.49	0.14	23.81	-0.105	-0.0445	0
285	SLU 60	0.28	0.14	24.75	-0.1053	-0.0563	0
285	SLU 61	0.31	0.14	24.59	-0.1063	-0.0545	0
285	SLU 62	0.4	0.14	24.86	-0.1065	-0.0515	0
285	SLU 63	0.43	0.15	24.7	-0.1075	-0.0498	0
285	SLU 64	0.24	0.14	23.55	-0.1021	-0.0543	0
285	SLU 65	0.29	0.14	23.28	-0.1038	-0.0513	0
285	SLU 66	0.34	0.14	23.75	-0.1047	-0.0511	0
285	SLU 67	0.37	0.14	23.59	-0.1057	-0.0494	0
285	SLU 68	0.41	0.14	23.39	-0.1051	-0.0466	0
285	SLU 69	0.46	0.14	23.86	-0.106	-0.0463	0
285	SLU 70	0.49	0.15	23.7	-0.107	-0.0446	0
285	SLU 71	0.49	0.14	23.77	-0.1047	-0.0447	0
285	SLU 72	0.52	0.14	23.61	-0.1057	-0.043	0
285	SLU 73	0.43	0.15	25.61	-0.1127	-0.0526	0
285	SLU 74	0.48	0.15	26.08	-0.1137	-0.0524	0
285	SLU 75	0.51	0.16	25.92	-0.1147	-0.0506	0
285	SLU 76	0.55	0.15	25.72	-0.114	-0.0479	0
285	SLU 77	0.6	0.16	26.2	-0.115	-0.0476	0
285	SLU 78	0.63	0.16	26.03	-0.116	-0.0459	0
285	SLU 79	0.63	0.15	26.1	-0.1136	-0.046	0
285	SLU 80	0.65	0.16	25.94	-0.1146	-0.0443	0
285	SLU 81	0.44	0.16	26.88	-0.1149	-0.0561	0
285	SLU 82	0.47	0.16	26.72	-0.1159	-0.0543	0
285	SLU 83	0.56	0.16	26.99	-0.1161	-0.0513	0
285	SLU 84	0.59	0.16	26.83	-0.1171	-0.0496	0
285	SLE RA 1	0.15	0.1	17.65	-0.0764	-0.0418	0
285	SLE RA 2	0.18	0.1	17.46	-0.0775	-0.0398	0
285	SLE RA 3	0.22	0.11	17.78	-0.0782	-0.0397	0
285	SLE RA 4	0.24	0.11	17.67	-0.0789	-0.0385	0
285	SLE RA 5	0.26	0.11	17.54	-0.0784	-0.0367	0
285	SLE RA 6	0.3	0.11	17.85	-0.079	-0.0365	0
285	SLE RA 7	0.32	0.11	17.75	-0.0797	-0.0353	0
285	SLE RA 8	0.31	0.11	17.79	-0.0781	-0.0354	0
285	SLE RA 9	0.33	0.11	17.69	-0.0788	-0.0343	0
285	SLE RA 10	0.27	0.11	19.02	-0.0835	-0.0407	0
285	SLE RA 11	0.31	0.11	19.34	-0.0841	-0.0405	0
285	SLE RA 12	0.33	0.11	19.23	-0.0848	-0.0394	0
285	SLE RA 13	0.36	0.11	19.09	-0.0844	-0.0375	0
285	SLE RA 14	0.39	0.12	19.41	-0.085	-0.0374	0
285	SLE RA 15	0.41	0.12	19.3	-0.0857	-0.0362	0
285	SLE RA 16	0.41	0.11	19.35	-0.0841	-0.0363	0
285	SLE RA 17	0.42	0.12	19.24	-0.0848	-0.0351	0
285	SLE RA 18	0.28	0.12	19.87	-0.0849	-0.043	0
285	SLE RA 19	0.3	0.12	19.76	-0.0856	-0.0418	0
285	SLE RA 20	0.36	0.12	19.94	-0.0858	-0.0398	0
285	SLE RA 21	0.38	0.12	19.83	-0.0865	-0.0387	0
285	SLE FR 1	0.15	0.1	17.65	-0.0764	-0.0418	0
285	SLE FR 2	0.16	0.1	17.61	-0.0767	-0.0414	0
285	SLE FR 3	0.18	0.1	17.68	-0.0768	-0.0405	0
285	SLE FR 4	0.2	0.11	18.28	-0.0792	-0.0418	0
285	SLE FR 5	0.22	0.11	18.34	-0.0793	-0.0409	0
285	SLE FR 6	0.22	0.11	18.76	-0.0807	-0.0424	0
285	SLE QP 1	0.15	0.1	17.65	-0.0764	-0.0418	0
285	SLE QP 2	0.19	0.11	18.31	-0.079	-0.0421	0
285	SLD 1	12.59	0.28	17.65	-0.2405	0.5062	0.0002
285	SLD 2	12.59	0.28	17.65	-0.2405	0.5062	0.0002
285	SLD 3	13.47	0.05	20.96	-0.0083	0.5422	0
285	SLD 4	13.47	0.05	20.96	-0.0083	0.5422	0
285	SLD 5	2.58	0.51	13.08	-0.4797	0.0677	0.0004
285	SLD 6	2.58	0.51	13.08	-0.4797	0.0677	0.0004
285	SLD 7	5.51	-0.25	24.14	0.2945	0.1878	-0.0003
285	SLD 8	5.51	-0.25	24.14	0.2945	0.1878	-0.0003
285	SLD 9	-5.13	0.47	12.48	-0.4524	-0.2721	0.0004
285	SLD 10	-5.13	0.47	12.48	-0.4524	-0.2721	0.0004
285	SLD 11	-2.2	-0.29	23.55	0.3217	-0.152	-0.0003
285	SLD 12	-2.2	-0.29	23.55	0.3217	-0.152	-0.0003
285	SLD 13	-13.09	0.16	15.66	-0.1497	-0.6265	0.0001
285	SLD 14	-13.09	0.16	15.66	-0.1497	-0.6265	0.0001
285	SLD 15	-12.21	-0.07	18.98	0.0826	-0.5905	-0.0001
285	SLD 16	-12.21	-0.07	18.98	0.0826	-0.5905	-0.0001
285	SLV 1	28.64	0.53	16.71	-0.476	1.2163	0.0004
285	SLV 2	28.64	0.53	16.71	-0.476	1.2163	0.0004
285	SLV 3	30.71	-0.02	24.7	0.091	1.3004	-0.0001
285	SLV 4	30.71	-0.02	24.7	0.091	1.3004	-0.0001
285	SLV 5	5.6	1.08	5.7	-1.058	0.2078	0.0009
285	SLV 6	5.6	1.08	5.7	-1.058	0.2078	0.0009
285	SLV 7	12.48	-0.78	32.36	0.8319	0.4882	-0.0008
285	SLV 8	12.48	-0.78	32.36	0.8319	0.4882	-0.0008
285	SLV 9	-12.09	0.99	4.27	-0.9899	-0.5725	0.0008
285	SLV 10	-12.09	0.99	4.27	-0.9899	-0.5725	0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
285	SLV 11	-5.22	-0.86	30.92	0.9	-0.292	-0.0008
285	SLV 12	-5.22	-0.86	30.92	0.9	-0.292	-0.0008
285	SLV 13	-30.33	0.24	11.92	-0.249	-1.3847	0.0002
285	SLV 14	-30.33	0.24	11.92	-0.249	-1.3847	0.0002
285	SLV 15	-28.26	-0.32	19.92	0.318	-1.3006	-0.0003
285	SLV 16	-28.26	-0.32	19.92	0.318	-1.3006	-0.0003
286	SLU 1	1.21	0.13	17.62	-0.0971	0.0933	0.0002
286	SLU 2	1.2	0.13	17.44	-0.0983	0.0914	0.0002
286	SLU 3	1.35	0.13	17.84	-0.1005	0.1007	0.0002
286	SLU 4	1.35	0.13	17.73	-0.1012	0.0995	0.0002
286	SLU 5	1.35	0.13	17.56	-0.1	0.0984	0.0002
286	SLU 6	1.5	0.13	17.96	-0.1021	0.1078	0.0002
286	SLU 7	1.5	0.13	17.86	-0.1029	0.1066	0.0002
286	SLU 8	1.51	0.13	17.86	-0.1004	0.1075	0.0002
286	SLU 9	1.5	0.13	17.76	-0.1012	0.1063	0.0002
286	SLU 10	1.47	0.14	19.93	-0.1107	0.1089	0.0002
286	SLU 11	1.62	0.15	20.33	-0.1128	0.1182	0.0002
286	SLU 12	1.62	0.15	20.22	-0.1136	0.1171	0.0002
286	SLU 13	1.62	0.15	20.05	-0.1123	0.116	0.0002
286	SLU 14	1.77	0.15	20.45	-0.1145	0.1253	0.0002
286	SLU 15	1.77	0.15	20.34	-0.1152	0.1241	0.0002
286	SLU 16	1.78	0.15	20.35	-0.1127	0.125	0.0002
286	SLU 17	1.77	0.15	20.25	-0.1135	0.1238	0.0002
286	SLU 18	1.59	0.15	21.18	-0.1147	0.1184	0.0002
286	SLU 19	1.59	0.15	21.07	-0.1154	0.1172	0.0002
286	SLU 20	1.74	0.15	21.3	-0.1163	0.1254	0.0002
286	SLU 21	1.74	0.15	21.19	-0.1171	0.1242	0.0002
286	SLU 22	1.51	0.14	19.89	-0.1101	0.1122	0.0002
286	SLU 23	1.51	0.14	19.71	-0.1113	0.1103	0.0002
286	SLU 24	1.66	0.15	20.11	-0.1135	0.1196	0.0002
286	SLU 25	1.65	0.15	20.01	-0.1142	0.1184	0.0002
286	SLU 26	1.66	0.15	19.83	-0.113	0.1173	0.0002
286	SLU 27	1.81	0.15	20.23	-0.1152	0.1267	0.0002
286	SLU 28	1.8	0.15	20.13	-0.1159	0.1255	0.0002
286	SLU 29	1.81	0.15	20.14	-0.1134	0.1263	0.0002
286	SLU 30	1.81	0.15	20.03	-0.1142	0.1252	0.0002
286	SLU 31	1.77	0.16	22.2	-0.1237	0.1278	0.0002
286	SLU 32	1.93	0.16	22.6	-0.1258	0.1371	0.0002
286	SLU 33	1.92	0.16	22.49	-0.1266	0.1359	0.0002
286	SLU 34	1.92	0.16	22.32	-0.1253	0.1348	0.0002
286	SLU 35	2.08	0.17	22.72	-0.1275	0.1442	0.0002
286	SLU 36	2.07	0.17	22.62	-0.1282	0.143	0.0002
286	SLU 37	2.08	0.16	22.62	-0.1258	0.1439	0.0002
286	SLU 38	2.08	0.16	22.52	-0.1265	0.1427	0.0002
286	SLU 39	1.9	0.17	23.45	-0.1277	0.1373	0.0002
286	SLU 40	1.89	0.17	23.34	-0.1285	0.1361	0.0002
286	SLU 41	2.05	0.17	23.57	-0.1294	0.1443	0.0002
286	SLU 42	2.04	0.17	23.46	-0.1301	0.1431	0.0002
286	SLU 43	1.47	0.16	22.13	-0.1217	0.1149	0.0002
286	SLU 44	1.46	0.16	21.95	-0.123	0.1129	0.0002
286	SLU 45	1.61	0.16	22.35	-0.1251	0.1222	0.0002
286	SLU 46	1.61	0.16	22.24	-0.1259	0.1211	0.0002
286	SLU 47	1.61	0.16	22.07	-0.1246	0.12	0.0002
286	SLU 48	1.76	0.17	22.47	-0.1268	0.1293	0.0002
286	SLU 49	1.76	0.17	22.36	-0.1275	0.1281	0.0002
286	SLU 50	1.77	0.16	22.37	-0.1251	0.129	0.0002
286	SLU 51	1.76	0.16	22.26	-0.1258	0.1278	0.0002
286	SLU 52	1.73	0.18	24.44	-0.1353	0.1304	0.0002
286	SLU 53	1.88	0.18	24.84	-0.1374	0.1398	0.0003
286	SLU 54	1.87	0.18	24.73	-0.1382	0.1386	0.0003
286	SLU 55	1.88	0.18	24.56	-0.137	0.1375	0.0003
286	SLU 56	2.03	0.18	24.96	-0.1391	0.1468	0.0003
286	SLU 57	2.02	0.18	24.85	-0.1399	0.1456	0.0003
286	SLU 58	2.03	0.18	24.86	-0.1374	0.1465	0.0003
286	SLU 59	2.03	0.18	24.75	-0.1381	0.1453	0.0003
286	SLU 60	1.85	0.18	25.68	-0.1393	0.1399	0.0003
286	SLU 61	1.84	0.18	25.58	-0.1401	0.1387	0.0003
286	SLU 62	2	0.18	25.8	-0.141	0.1469	0.0003
286	SLU 63	1.99	0.18	25.7	-0.1418	0.1458	0.0003
286	SLU 64	1.77	0.18	24.4	-0.1347	0.1337	0.0002
286	SLU 65	1.76	0.18	24.22	-0.136	0.1318	0.0003
286	SLU 66	1.92	0.18	24.62	-0.1381	0.1411	0.0003
286	SLU 67	1.91	0.18	24.51	-0.1389	0.1399	0.0003
286	SLU 68	1.91	0.18	24.34	-0.1377	0.1388	0.0003
286	SLU 69	2.07	0.18	24.74	-0.1398	0.1482	0.0003
286	SLU 70	2.06	0.18	24.63	-0.1406	0.147	0.0003
286	SLU 71	2.07	0.18	24.64	-0.1381	0.1479	0.0003
286	SLU 72	2.07	0.18	24.54	-0.1388	0.1467	0.0003
286	SLU 73	2.03	0.19	26.71	-0.1483	0.1493	0.0003
286	SLU 74	2.18	0.2	27.11	-0.1505	0.1586	0.0003
286	SLU 75	2.18	0.2	27	-0.1512	0.1575	0.0003
286	SLU 76	2.18	0.19	26.83	-0.15	0.1564	0.0003
286	SLU 77	2.34	0.2	27.23	-0.1521	0.1657	0.0003
286	SLU 78	2.33	0.2	27.12	-0.1529	0.1645	0.0003
286	SLU 79	2.34	0.2	27.13	-0.1504	0.1654	0.0003
286	SLU 80	2.33	0.2	27.02	-0.1512	0.1642	0.0003
286	SLU 81	2.15	0.2	27.95	-0.1523	0.1588	0.0003
286	SLU 82	2.15	0.2	27.85	-0.1531	0.1576	0.0003
286	SLU 83	2.3	0.2	28.08	-0.154	0.1658	0.0003





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
286	SLU 84	2.3	0.2	27.97	-0.1548	0.1647	0.0003
286	SLE RA 1	1.3	0.13	18.27	-0.1008	0.0987	0.0002
286	SLE RA 2	1.29	0.13	18.15	-0.1016	0.0974	0.0002
286	SLE RA 3	1.39	0.13	18.42	-0.1031	0.1036	0.0002
286	SLE RA 4	1.39	0.14	18.34	-0.1036	0.1029	0.0002
286	SLE RA 5	1.39	0.13	18.23	-0.1027	0.1021	0.0002
286	SLE RA 6	1.49	0.14	18.5	-0.1042	0.1084	0.0002
286	SLE RA 7	1.49	0.14	18.43	-0.1047	0.1076	0.0002
286	SLE RA 8	1.5	0.14	18.43	-0.103	0.1081	0.0002
286	SLE RA 9	1.49	0.14	18.36	-0.1035	0.1074	0.0002
286	SLE RA 10	1.47	0.14	19.81	-0.1098	0.1091	0.0002
286	SLE RA 11	1.57	0.15	20.08	-0.1113	0.1153	0.0002
286	SLE RA 12	1.57	0.15	20	-0.1118	0.1145	0.0002
286	SLE RA 13	1.57	0.14	19.89	-0.111	0.1138	0.0002
286	SLE RA 14	1.67	0.15	20.16	-0.1124	0.12	0.0002
286	SLE RA 15	1.67	0.15	20.09	-0.1129	0.1193	0.0002
286	SLE RA 16	1.67	0.15	20.09	-0.1112	0.1198	0.0002
286	SLE RA 17	1.67	0.15	20.02	-0.1117	0.119	0.0002
286	SLE RA 18	1.55	0.15	20.64	-0.1125	0.1154	0.0002
286	SLE RA 19	1.55	0.15	20.57	-0.113	0.1146	0.0002
286	SLE RA 20	1.65	0.15	20.72	-0.1136	0.1201	0.0002
286	SLE RA 21	1.65	0.15	20.65	-0.1141	0.1193	0.0002
286	SLE FR 1	1.3	0.13	18.27	-0.1008	0.0987	0.0002
286	SLE FR 2	1.29	0.13	18.25	-0.1009	0.0985	0.0002
286	SLE FR 3	1.34	0.13	18.3	-0.1012	0.1006	0.0002
286	SLE FR 4	1.37	0.14	18.96	-0.1045	0.1035	0.0002
286	SLE FR 5	1.41	0.14	19.01	-0.1047	0.1056	0.0002
286	SLE FR 6	1.42	0.14	19.45	-0.1067	0.1071	0.0002
286	SLE QP 1	1.3	0.13	18.27	-0.1008	0.0987	0.0002
286	SLE QP 2	1.37	0.14	18.98	-0.1043	0.1037	0.0002
286	SLD 1	14.54	0.33	16.35	-0.2851	0.6703	0.0005
286	SLD 2	14.54	0.33	16.35	-0.2851	0.6703	0.0005
286	SLD 3	15.53	0.05	20	-0.0142	0.7163	0.0001
286	SLD 4	15.53	0.05	20	-0.0142	0.7163	0.0001
286	SLD 5	3.82	0.62	12.66	-0.5695	0.204	0.0009
286	SLD 6	3.82	0.62	12.66	-0.5695	0.204	0.0009
286	SLD 7	7.13	-0.31	24.82	0.3337	0.3572	-0.0005
286	SLD 8	7.13	-0.31	24.82	0.3337	0.3572	-0.0005
286	SLD 9	-4.38	0.58	13.14	-0.5423	-0.1498	0.0008
286	SLD 10	-4.38	0.58	13.14	-0.5423	-0.1498	0.0008
286	SLD 11	-1.07	-0.34	25.3	0.3609	0.0035	-0.0005
286	SLD 12	-1.07	-0.34	25.3	0.3609	0.0035	-0.0005
286	SLD 13	-12.79	0.22	17.96	-0.1944	-0.5088	0.0003
286	SLD 14	-12.79	0.22	17.96	-0.1944	-0.5088	0.0003
286	SLD 15	-11.8	-0.06	21.61	0.0765	-0.4628	-0.0001
286	SLD 16	-11.8	-0.06	21.61	0.0765	-0.4628	-0.0001
286	SLV 1	31.57	0.61	12.57	-0.5478	1.4028	0.0008
286	SLV 2	31.57	0.61	12.57	-0.5478	1.4028	0.0008
286	SLV 3	33.91	-0.07	21.43	0.1136	1.5111	-0.0001
286	SLV 4	33.91	-0.07	21.43	0.1136	1.5111	-0.0001
286	SLV 5	6.88	1.31	3.63	-1.2406	0.3292	0.0019
286	SLV 6	6.88	1.31	3.63	-1.2406	0.3292	0.0019
286	SLV 7	14.68	-0.96	33.14	0.9643	0.6902	-0.0014
286	SLV 8	14.68	-0.96	33.14	0.9643	0.6902	-0.0014
286	SLV 9	-11.94	1.23	4.82	-1.1729	-0.4828	0.0018
286	SLV 10	-11.94	1.23	4.82	-1.1729	-0.4828	0.0018
286	SLV 11	-4.14	-1.03	34.33	1.032	-0.1217	-0.0015
286	SLV 12	-4.14	-1.03	34.33	1.032	-0.1217	-0.0015
286	SLV 13	-31.17	0.34	16.54	-0.3222	-1.3036	0.0005
286	SLV 14	-31.17	0.34	16.54	-0.3222	-1.3036	0.0005
286	SLV 15	-28.83	-0.33	25.39	0.3392	-1.1953	-0.0005
286	SLV 16	-28.83	-0.33	25.39	0.3392	-1.1953	-0.0005
287	SLU 1	0.96	0.16	19.08	-0.1204	-0.0122	0.0005
287	SLU 2	0.95	0.16	18.95	-0.1213	-0.0119	0.0005
287	SLU 3	1.11	0.16	19.36	-0.1246	-0.0071	0.0005
287	SLU 4	1.11	0.16	19.28	-0.1251	-0.0069	0.0005
287	SLU 5	1.1	0.16	19.11	-0.1234	-0.006	0.0005
287	SLU 6	1.27	0.17	19.51	-0.1267	-0.0013	0.0005
287	SLU 7	1.26	0.17	19.44	-0.1272	-0.0011	0.0005
287	SLU 8	1.27	0.16	19.39	-0.1245	-0.0005	0.0005
287	SLU 9	1.26	0.16	19.32	-0.1251	-0.0003	0.0005
287	SLU 10	1.16	0.18	21.72	-0.1374	-0.0113	0.0006
287	SLU 11	1.32	0.18	22.12	-0.1407	-0.0066	0.0006
287	SLU 12	1.32	0.18	22.05	-0.1413	-0.0064	0.0006
287	SLU 13	1.32	0.18	21.88	-0.1395	-0.0055	0.0006
287	SLU 14	1.48	0.19	22.28	-0.1428	-0.0007	0.0006
287	SLU 15	1.47	0.19	22.2	-0.1433	-0.0005	0.0006
287	SLU 16	1.48	0.19	22.16	-0.1407	0.0001	0.0006
287	SLU 17	1.47	0.19	22.08	-0.1412	0.0003	0.0006
287	SLU 18	1.26	0.19	23.03	-0.1434	-0.0114	0.0006
287	SLU 19	1.25	0.19	22.96	-0.144	-0.0112	0.0006
287	SLU 20	1.41	0.19	23.19	-0.1455	-0.0056	0.0006
287	SLU 21	1.41	0.19	23.11	-0.1461	-0.0054	0.0006
287	SLU 22	1.22	0.18	21.62	-0.1371	-0.0089	0.0006
287	SLU 23	1.21	0.18	21.49	-0.138	-0.0086	0.0006
287	SLU 24	1.38	0.19	21.89	-0.1413	-0.0039	0.0006
287	SLU 25	1.37	0.19	21.82	-0.1418	-0.0037	0.0006
287	SLU 26	1.37	0.18	21.65	-0.1401	-0.0028	0.0006
287	SLU 27	1.53	0.19	22.05	-0.1434	0.002	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
287	SLU 28	1.52	0.19	21.97	-0.1439	0.0022	0.0006
287	SLU 29	1.53	0.19	21.93	-0.1413	0.0028	0.0006
287	SLU 30	1.53	0.19	21.85	-0.1418	0.003	0.0006
287	SLU 31	1.43	0.2	24.26	-0.1542	-0.0081	0.0007
287	SLU 32	1.59	0.21	24.66	-0.1574	-0.0033	0.0007
287	SLU 33	1.58	0.21	24.58	-0.158	-0.0031	0.0007
287	SLU 34	1.58	0.2	24.41	-0.1562	-0.0022	0.0007
287	SLU 35	1.74	0.21	24.81	-0.1595	0.0025	0.0007
287	SLU 36	1.74	0.21	24.74	-0.16	0.0027	0.0007
287	SLU 37	1.74	0.21	24.7	-0.1574	0.0033	0.0007
287	SLU 38	1.74	0.21	24.62	-0.1579	0.0035	0.0007
287	SLU 39	1.52	0.21	25.57	-0.1601	-0.0082	0.0007
287	SLU 40	1.52	0.21	25.49	-0.1607	-0.008	0.0007
287	SLU 41	1.68	0.21	25.73	-0.1622	-0.0023	0.0007
287	SLU 42	1.67	0.21	25.65	-0.1628	-0.0021	0.0007
287	SLU 43	1.16	0.2	23.94	-0.1508	-0.017	0.0006
287	SLU 44	1.15	0.2	23.81	-0.1517	-0.0166	0.0006
287	SLU 45	1.31	0.2	24.21	-0.155	-0.0119	0.0007
287	SLU 46	1.3	0.2	24.14	-0.1555	-0.0117	0.0007
287	SLU 47	1.3	0.2	23.97	-0.1538	-0.0108	0.0006
287	SLU 48	1.46	0.21	24.37	-0.1571	-0.006	0.0007
287	SLU 49	1.46	0.21	24.29	-0.1576	-0.0058	0.0007
287	SLU 50	1.46	0.2	24.25	-0.1549	-0.0052	0.0007
287	SLU 51	1.46	0.2	24.17	-0.1555	-0.005	0.0007
287	SLU 52	1.36	0.22	26.58	-0.1678	-0.0161	0.0007
287	SLU 53	1.52	0.22	26.98	-0.1711	-0.0114	0.0007
287	SLU 54	1.51	0.22	26.9	-0.1716	-0.0112	0.0007
287	SLU 55	1.51	0.22	26.73	-0.1699	-0.0102	0.0007
287	SLU 56	1.67	0.23	27.13	-0.1732	-0.0055	0.0007
287	SLU 57	1.67	0.23	27.06	-0.1737	-0.0053	0.0007
287	SLU 58	1.68	0.23	27.01	-0.1711	-0.0047	0.0007
287	SLU 59	1.67	0.23	26.94	-0.1716	-0.0045	0.0007
287	SLU 60	1.46	0.23	27.89	-0.1738	-0.0162	0.0007
287	SLU 61	1.45	0.23	27.81	-0.1744	-0.016	0.0007
287	SLU 62	1.61	0.23	28.04	-0.1759	-0.0103	0.0007
287	SLU 63	1.61	0.23	27.97	-0.1764	-0.0101	0.0007
287	SLU 64	1.42	0.22	26.47	-0.1675	-0.0137	0.0007
287	SLU 65	1.41	0.22	26.35	-0.1684	-0.0134	0.0007
287	SLU 66	1.57	0.23	26.75	-0.1717	-0.0086	0.0007
287	SLU 67	1.57	0.23	26.67	-0.1722	-0.0085	0.0007
287	SLU 68	1.57	0.22	26.5	-0.1705	-0.0075	0.0007
287	SLU 69	1.73	0.23	26.9	-0.1738	-0.0028	0.0007
287	SLU 70	1.72	0.23	26.83	-0.1743	-0.0026	0.0007
287	SLU 71	1.73	0.23	26.79	-0.1717	-0.002	0.0007
287	SLU 72	1.72	0.23	26.71	-0.1722	-0.0018	0.0007
287	SLU 73	1.62	0.24	29.11	-0.1845	-0.0129	0.0008
287	SLU 74	1.78	0.25	29.51	-0.1878	-0.0081	0.0008
287	SLU 75	1.78	0.25	29.44	-0.1884	-0.0079	0.0008
287	SLU 76	1.78	0.24	29.27	-0.1866	-0.007	0.0008
287	SLU 77	1.94	0.25	29.67	-0.1899	-0.0022	0.0008
287	SLU 78	1.93	0.25	29.59	-0.1904	-0.0021	0.0008
287	SLU 79	1.94	0.25	29.55	-0.1878	-0.0014	0.0008
287	SLU 80	1.93	0.25	29.47	-0.1883	-0.0013	0.0008
287	SLU 81	1.72	0.25	30.42	-0.1905	-0.0129	0.0008
287	SLU 82	1.72	0.25	30.35	-0.1911	-0.0127	0.0008
287	SLU 83	1.88	0.25	30.58	-0.1926	-0.0071	0.0008
287	SLU 84	1.87	0.25	30.5	-0.1932	-0.0069	0.0008
287	SLE RA 1	1.03	0.16	19.81	-0.1252	-0.0113	0.0005
287	SLE RA 2	1.03	0.16	19.72	-0.1258	-0.011	0.0005
287	SLE RA 3	1.14	0.17	19.99	-0.128	-0.0079	0.0005
287	SLE RA 4	1.13	0.17	19.94	-0.1283	-0.0078	0.0005
287	SLE RA 5	1.13	0.17	19.83	-0.1272	-0.0071	0.0005
287	SLE RA 6	1.24	0.17	20.09	-0.1293	-0.004	0.0006
287	SLE RA 7	1.24	0.17	20.04	-0.1297	-0.0038	0.0006
287	SLE RA 8	1.24	0.17	20.01	-0.1279	-0.0034	0.0005
287	SLE RA 9	1.24	0.17	19.96	-0.1283	-0.0033	0.0005
287	SLE RA 10	1.17	0.18	21.57	-0.1365	-0.0107	0.0006
287	SLE RA 11	1.28	0.18	21.83	-0.1387	-0.0075	0.0006
287	SLE RA 12	1.27	0.18	21.78	-0.1391	-0.0074	0.0006
287	SLE RA 13	1.27	0.18	21.67	-0.1379	-0.0068	0.0006
287	SLE RA 14	1.38	0.18	21.94	-0.1401	-0.0036	0.0006
287	SLE RA 15	1.38	0.18	21.89	-0.1405	-0.0035	0.0006
287	SLE RA 16	1.38	0.18	21.86	-0.1387	-0.0031	0.0006
287	SLE RA 17	1.38	0.18	21.81	-0.1391	-0.003	0.0006
287	SLE RA 18	1.24	0.18	22.44	-0.1405	-0.0107	0.0006
287	SLE RA 19	1.23	0.18	22.39	-0.1409	-0.0106	0.0006
287	SLE RA 20	1.34	0.19	22.54	-0.1419	-0.0068	0.0006
287	SLE RA 21	1.33	0.19	22.49	-0.1423	-0.0067	0.0006
287	SLE FR 1	1.03	0.16	19.81	-0.1252	-0.0113	0.0005
287	SLE FR 2	1.03	0.16	19.79	-0.1253	-0.0112	0.0005
287	SLE FR 3	1.08	0.17	19.85	-0.1257	-0.0097	0.0005
287	SLE FR 4	1.09	0.17	20.58	-0.1299	-0.0111	0.0006
287	SLE FR 5	1.14	0.17	20.64	-0.1303	-0.0095	0.0006
287	SLE FR 6	1.13	0.17	21.12	-0.1329	-0.011	0.0006
287	SLE QP 1	1.03	0.16	19.81	-0.1252	-0.0113	0.0005
287	SLE QP 2	1.09	0.17	20.6	-0.1298	-0.0111	0.0006
287	SLD 1	14.9	0.37	20.02	-0.3185	0.593	0.0011
287	SLD 2	14.9	0.37	20.02	-0.3185	0.593	0.0011
287	SLD 3	15.89	0.07	23.78	-0.0305	0.6333	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
287	SLD 4	15.89	0.07	23.78	-0.0305	0.6333	0.0003
287	SLD 5	3.72	0.69	14.72	-0.6232	0.109	0.002
287	SLD 6	3.72	0.69	14.72	-0.6232	0.109	0.002
287	SLD 7	7.05	-0.32	27.26	0.3368	0.2433	-0.0008
287	SLD 8	7.05	-0.32	27.26	0.3368	0.2433	-0.0008
287	SLD 9	-4.86	0.66	13.94	-0.5964	-0.2655	0.0019
287	SLD 10	-4.86	0.66	13.94	-0.5964	-0.2655	0.0019
287	SLD 11	-1.53	-0.35	26.47	0.3636	-0.1312	-0.0009
287	SLD 12	-1.53	-0.35	26.47	0.3636	-0.1312	-0.0009
287	SLD 13	-13.7	0.27	17.41	-0.2291	-0.6555	0.0008
287	SLD 14	-13.7	0.27	17.41	-0.2291	-0.6555	0.0008
287	SLD 15	-12.71	-0.03	21.17	0.0589	-0.6152	0
287	SLD 16	-12.71	-0.03	21.17	0.0589	-0.6152	0
287	SLV 1	32.74	0.66	19.09	-0.5916	1.3744	0.0019
287	SLV 2	32.74	0.66	19.09	-0.5916	1.3744	0.0019
287	SLV 3	35.1	-0.07	28.23	0.1114	1.4694	-0.0002
287	SLV 4	35.1	-0.07	28.23	0.1114	1.4694	-0.0002
287	SLV 5	7.02	1.43	6.28	-1.3346	0.2605	0.0041
287	SLV 6	7.02	1.43	6.28	-1.3346	0.2605	0.0041
287	SLV 7	14.86	-1.01	36.75	1.0088	0.5771	-0.0028
287	SLV 8	14.86	-1.01	36.75	1.0088	0.5771	-0.0028
287	SLV 9	-12.67	1.36	4.44	-1.2684	-0.5993	0.0039
287	SLV 10	-12.67	1.36	4.44	-1.2684	-0.5993	0.0039
287	SLV 11	-4.83	-1.09	34.91	1.075	-0.2827	-0.003
287	SLV 12	-4.83	-1.09	34.91	1.075	-0.2827	-0.003
287	SLV 13	-32.91	0.41	12.96	-0.371	-1.4916	0.0013
287	SLV 14	-32.91	0.41	12.96	-0.371	-1.4916	0.0013
287	SLV 15	-30.55	-0.32	22.1	0.332	-1.3966	-0.0008
287	SLV 16	-30.55	-0.32	22.1	0.332	-1.3966	-0.0008
288	SLU 1	2.63	0.2	21.67	-0.1438	0.1439	0.0009
288	SLU 2	2.59	0.2	21.58	-0.1444	0.1415	0.0009
288	SLU 3	2.83	0.21	22.04	-0.1487	0.1536	0.001
288	SLU 4	2.81	0.21	21.98	-0.1491	0.1522	0.001
288	SLU 5	2.77	0.2	21.79	-0.1469	0.1496	0.001
288	SLU 6	3.01	0.21	22.25	-0.1512	0.1617	0.001
288	SLU 7	2.99	0.21	22.19	-0.1515	0.1603	0.001
288	SLU 8	2.98	0.21	22.09	-0.1487	0.1601	0.001
288	SLU 9	2.96	0.21	22.04	-0.1491	0.1586	0.001
288	SLU 10	3.05	0.23	24.81	-0.1646	0.1658	0.0011
288	SLU 11	3.29	0.24	25.27	-0.1689	0.1779	0.0011
288	SLU 12	3.27	0.23	25.21	-0.1693	0.1765	0.0011
288	SLU 13	3.22	0.23	25.02	-0.1671	0.1739	0.0011
288	SLU 14	3.46	0.24	25.47	-0.1714	0.186	0.0011
288	SLU 15	3.44	0.24	25.42	-0.1718	0.1845	0.0011
288	SLU 16	3.44	0.24	25.32	-0.1689	0.1843	0.0011
288	SLU 17	3.41	0.24	25.26	-0.1693	0.1829	0.0011
288	SLU 18	3.28	0.24	26.28	-0.1726	0.1786	0.0011
288	SLU 19	3.26	0.24	26.23	-0.173	0.1772	0.0011
288	SLU 20	3.45	0.24	26.49	-0.1751	0.1867	0.0012
288	SLU 21	3.43	0.24	26.44	-0.1755	0.1852	0.0012
288	SLU 22	3.13	0.23	24.65	-0.1644	0.1702	0.0011
288	SLU 23	3.1	0.23	24.56	-0.165	0.1678	0.0011
288	SLU 24	3.34	0.24	25.02	-0.1693	0.18	0.0011
288	SLU 25	3.32	0.24	24.97	-0.1697	0.1785	0.0011
288	SLU 26	3.27	0.23	24.77	-0.1675	0.1759	0.0011
288	SLU 27	3.51	0.24	25.23	-0.1718	0.188	0.0011
288	SLU 28	3.49	0.24	25.17	-0.1722	0.1866	0.0011
288	SLU 29	3.49	0.24	25.07	-0.1693	0.1864	0.0011
288	SLU 30	3.46	0.24	25.02	-0.1697	0.1849	0.0011
288	SLU 31	3.55	0.26	27.79	-0.1852	0.1921	0.0012
288	SLU 32	3.79	0.26	28.25	-0.1895	0.2043	0.0013
288	SLU 33	3.77	0.26	28.19	-0.1899	0.2028	0.0012
288	SLU 34	3.73	0.26	28	-0.1877	0.2002	0.0012
288	SLU 35	3.97	0.27	28.45	-0.192	0.2123	0.0013
288	SLU 36	3.95	0.27	28.4	-0.1924	0.2109	0.0013
288	SLU 37	3.94	0.26	28.3	-0.1895	0.2107	0.0013
288	SLU 38	3.92	0.26	28.25	-0.1899	0.2092	0.0013
288	SLU 39	3.79	0.27	29.26	-0.1933	0.2049	0.0013
288	SLU 40	3.76	0.27	29.21	-0.1936	0.2035	0.0013
288	SLU 41	3.96	0.27	29.47	-0.1957	0.213	0.0013
288	SLU 42	3.94	0.27	29.42	-0.1961	0.2116	0.0013
288	SLU 43	3.24	0.25	27.15	-0.1798	0.1781	0.0012
288	SLU 44	3.21	0.25	27.06	-0.1804	0.1756	0.0012
288	SLU 45	3.45	0.26	27.52	-0.1848	0.1878	0.0012
288	SLU 46	3.42	0.26	27.46	-0.1851	0.1863	0.0012
288	SLU 47	3.38	0.25	27.27	-0.1829	0.1837	0.0012
288	SLU 48	3.62	0.26	27.73	-0.1872	0.1958	0.0012
288	SLU 49	3.6	0.26	27.67	-0.1876	0.1944	0.0012
288	SLU 50	3.59	0.26	27.57	-0.1848	0.1942	0.0012
288	SLU 51	3.57	0.26	27.52	-0.1851	0.1928	0.0012
288	SLU 52	3.66	0.28	30.29	-0.2007	0.1999	0.0013
288	SLU 53	3.9	0.29	30.75	-0.205	0.2121	0.0014
288	SLU 54	3.88	0.29	30.69	-0.2053	0.2106	0.0013
288	SLU 55	3.84	0.28	30.5	-0.2031	0.208	0.0013
288	SLU 56	4.08	0.29	30.95	-0.2075	0.2201	0.0014
288	SLU 57	4.06	0.29	30.9	-0.2078	0.2187	0.0014
288	SLU 58	4.05	0.29	30.8	-0.205	0.2185	0.0014
288	SLU 59	4.03	0.29	30.74	-0.2054	0.217	0.0014
288	SLU 60	3.89	0.29	31.76	-0.2087	0.2128	0.0014



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
288	SLU 61	3.87	0.29	31.71	-0.2091	0.2113	0.0014
288	SLU 62	4.07	0.29	31.97	-0.2112	0.2208	0.0014
288	SLU 63	4.05	0.29	31.92	-0.2115	0.2194	0.0014
288	SLU 64	3.75	0.28	30.13	-0.2005	0.2044	0.0013
288	SLU 65	3.71	0.28	30.04	-0.2011	0.202	0.0013
288	SLU 66	3.95	0.29	30.5	-0.2054	0.2141	0.0014
288	SLU 67	3.93	0.29	30.45	-0.2057	0.2127	0.0014
288	SLU 68	3.89	0.28	30.25	-0.2035	0.2101	0.0013
288	SLU 69	4.13	0.29	30.71	-0.2079	0.2222	0.0014
288	SLU 70	4.11	0.29	30.65	-0.2082	0.2207	0.0014
288	SLU 71	4.1	0.29	30.55	-0.2054	0.2205	0.0014
288	SLU 72	4.08	0.29	30.5	-0.2058	0.2191	0.0014
288	SLU 73	4.17	0.31	33.27	-0.2213	0.2263	0.0015
288	SLU 74	4.41	0.31	33.73	-0.2256	0.2384	0.0015
288	SLU 75	4.39	0.31	33.67	-0.226	0.2369	0.0015
288	SLU 76	4.34	0.31	33.48	-0.2237	0.2343	0.0015
288	SLU 77	4.58	0.32	33.93	-0.2281	0.2465	0.0015
288	SLU 78	4.56	0.32	33.88	-0.2284	0.245	0.0015
288	SLU 79	4.56	0.31	33.78	-0.2256	0.2448	0.0015
288	SLU 80	4.53	0.31	33.72	-0.226	0.2434	0.0015
288	SLU 81	4.4	0.32	34.74	-0.2293	0.2391	0.0015
288	SLU 82	4.38	0.32	34.69	-0.2297	0.2376	0.0015
288	SLU 83	4.58	0.32	34.95	-0.2318	0.2472	0.0015
288	SLU 84	4.55	0.32	34.9	-0.2322	0.2457	0.0015
288	SLE RA 1	2.77	0.21	22.52	-0.1497	0.1514	0.001
288	SLE RA 2	2.75	0.21	22.46	-0.1501	0.1498	0.001
288	SLE RA 3	2.91	0.21	22.77	-0.153	0.1579	0.001
288	SLE RA 4	2.89	0.21	22.73	-0.1532	0.1569	0.001
288	SLE RA 5	2.86	0.21	22.6	-0.1517	0.1552	0.001
288	SLE RA 6	3.03	0.22	22.91	-0.1546	0.1633	0.001
288	SLE RA 7	3.01	0.22	22.87	-0.1548	0.1623	0.001
288	SLE RA 8	3.01	0.21	22.8	-0.153	0.1622	0.001
288	SLE RA 9	2.99	0.21	22.77	-0.1532	0.1612	0.001
288	SLE RA 10	3.05	0.23	24.62	-0.1635	0.166	0.0011
288	SLE RA 11	3.21	0.23	24.92	-0.1664	0.1741	0.0011
288	SLE RA 12	3.2	0.23	24.88	-0.1667	0.1731	0.0011
288	SLE RA 13	3.17	0.23	24.76	-0.1652	0.1714	0.0011
288	SLE RA 14	3.33	0.23	25.06	-0.1681	0.1795	0.0011
288	SLE RA 15	3.31	0.23	25.02	-0.1683	0.1785	0.0011
288	SLE RA 16	3.31	0.23	24.95	-0.1664	0.1784	0.0011
288	SLE RA 17	3.3	0.23	24.92	-0.1667	0.1774	0.0011
288	SLE RA 18	3.21	0.23	25.6	-0.1689	0.1746	0.0011
288	SLE RA 19	3.19	0.23	25.56	-0.1692	0.1736	0.0011
288	SLE RA 20	3.32	0.24	25.74	-0.1706	0.18	0.0011
288	SLE RA 21	3.31	0.24	25.7	-0.1708	0.179	0.0011
288	SLE FR 1	2.77	0.21	22.52	-0.1497	0.1514	0.001
288	SLE FR 2	2.77	0.21	22.51	-0.1497	0.1511	0.001
288	SLE FR 3	2.82	0.21	22.58	-0.1503	0.1536	0.001
288	SLE FR 4	2.9	0.22	23.43	-0.1555	0.1581	0.001
288	SLE FR 5	2.95	0.22	23.5	-0.1561	0.1605	0.001
288	SLE FR 6	2.99	0.22	24.06	-0.1593	0.163	0.001
288	SLE QP 1	2.77	0.21	22.52	-0.1497	0.1514	0.001
288	SLE QP 2	2.9	0.22	23.45	-0.1554	0.1584	0.001
288	SLD 1	16.43	0.12	23.94	-0.3396	0.7374	0.0006
288	SLD 2	16.43	0.12	23.94	-0.3396	0.7374	0.0006
288	SLD 3	17.51	0.41	27.45	-0.0585	0.7888	0.0018
288	SLD 4	17.51	0.41	27.45	-0.0585	0.7888	0.0018
288	SLD 5	5.32	-0.25	18.27	-0.637	0.2542	-0.0009
288	SLD 6	5.32	-0.25	18.27	-0.637	0.2542	-0.0009
288	SLD 7	8.92	0.72	29.97	0.2999	0.4254	0.0031
288	SLD 8	8.92	0.72	29.97	0.2999	0.4254	0.0031
288	SLD 9	-3.12	-0.28	16.92	-0.6108	-0.1086	-0.001
288	SLD 10	-3.12	-0.28	16.92	-0.6108	-0.1086	-0.001
288	SLD 11	0.48	0.69	28.62	0.3261	0.0626	0.003
288	SLD 12	0.48	0.69	28.62	0.3261	0.0626	0.003
288	SLD 13	-11.71	0.02	19.44	-0.2524	-0.472	0.0002
288	SLD 14	-11.71	0.02	19.44	-0.2524	-0.472	0.0002
288	SLD 15	-10.63	0.31	22.95	0.0287	-0.4206	0.0014
288	SLD 16	-10.63	0.31	22.95	0.0287	-0.4206	0.0014
288	SLV 1	33.91	-0.02	24.37	-0.6048	1.4854	0.0001
288	SLV 2	33.91	-0.02	24.37	-0.6048	1.4854	0.0001
288	SLV 3	36.47	0.69	32.89	0.0813	1.6068	0.003
288	SLV 4	36.47	0.69	32.89	0.0813	1.6068	0.003
288	SLV 5	8.34	-0.93	10.81	-1.3309	0.3722	-0.0037
288	SLV 6	8.34	-0.93	10.81	-1.3309	0.3722	-0.0037
288	SLV 7	16.84	1.44	39.2	0.9562	0.7771	0.006
288	SLV 8	16.84	1.44	39.2	0.9562	0.7771	0.006
288	SLV 9	-11.04	-1	7.69	-1.2671	-0.4604	-0.004
288	SLV 10	-11.04	-1	7.69	-1.2671	-0.4604	-0.004
288	SLV 11	-2.53	1.37	36.08	1.02	-0.0555	0.0057
288	SLV 12	-2.53	1.37	36.08	1.02	-0.0555	0.0057
288	SLV 13	-30.66	-0.26	14	-0.3922	-1.2901	-0.0009
288	SLV 14	-30.66	-0.26	14	-0.3922	-1.2901	-0.0009
288	SLV 15	-28.11	0.45	22.52	0.294	-1.1686	0.002
288	SLV 16	-28.11	0.45	22.52	0.294	-1.1686	0.002
289	SLU 1	2.52	0.24	25.61	-0.1623	0.0362	0.0012
289	SLU 2	2.48	0.24	25.55	-0.1626	0.0348	0.0012
289	SLU 3	2.72	0.25	26.1	-0.1678	0.0426	0.0013
289	SLU 4	2.7	0.25	26.06	-0.168	0.0418	0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
289	SLU 5	2.65	0.25	25.82	-0.1654	0.0409	0.0012
289	SLU 6	2.89	0.26	26.38	-0.1706	0.0487	0.0013
289	SLU 7	2.86	0.26	26.34	-0.1707	0.0479	0.0013
289	SLU 8	2.85	0.25	26.16	-0.1678	0.0484	0.0013
289	SLU 9	2.83	0.25	26.12	-0.168	0.0475	0.0013
289	SLU 10	2.9	0.28	29.45	-0.1864	0.0406	0.0014
289	SLU 11	3.14	0.29	30.01	-0.1916	0.0484	0.0014
289	SLU 12	3.11	0.29	29.97	-0.1917	0.0476	0.0014
289	SLU 13	3.06	0.28	29.72	-0.1891	0.0467	0.0014
289	SLU 14	3.3	0.29	30.28	-0.1943	0.0545	0.0015
289	SLU 15	3.28	0.29	30.24	-0.1945	0.0537	0.0015
289	SLU 16	3.27	0.29	30.06	-0.1916	0.0541	0.0014
289	SLU 17	3.24	0.29	30.02	-0.1918	0.0533	0.0014
289	SLU 18	3.11	0.29	31.19	-0.1962	0.0444	0.0015
289	SLU 19	3.09	0.29	31.15	-0.1964	0.0436	0.0015
289	SLU 20	3.28	0.3	31.46	-0.199	0.0505	0.0015
289	SLU 21	3.25	0.3	31.42	-0.1992	0.0497	0.0015
289	SLU 22	2.99	0.28	29.24	-0.1862	0.045	0.0014
289	SLU 23	2.95	0.28	29.17	-0.1865	0.0436	0.0014
289	SLU 24	3.19	0.29	29.73	-0.1917	0.0515	0.0014
289	SLU 25	3.17	0.29	29.68	-0.1919	0.0506	0.0014
289	SLU 26	3.12	0.28	29.44	-0.1893	0.0497	0.0014
289	SLU 27	3.36	0.29	30	-0.1945	0.0575	0.0015
289	SLU 28	3.33	0.29	29.96	-0.1947	0.0567	0.0015
289	SLU 29	3.32	0.29	29.78	-0.1917	0.0572	0.0014
289	SLU 30	3.3	0.29	29.74	-0.1919	0.0564	0.0014
289	SLU 31	3.37	0.31	33.07	-0.2103	0.0494	0.0016
289	SLU 32	3.61	0.32	33.63	-0.2155	0.0572	0.0016
289	SLU 33	3.58	0.32	33.59	-0.2156	0.0564	0.0016
289	SLU 34	3.53	0.32	33.34	-0.213	0.0555	0.0016
289	SLU 35	3.77	0.33	33.9	-0.2182	0.0633	0.0017
289	SLU 36	3.75	0.33	33.86	-0.2184	0.0625	0.0016
289	SLU 37	3.74	0.32	33.68	-0.2155	0.0629	0.0016
289	SLU 38	3.71	0.32	33.64	-0.2157	0.0621	0.0016
289	SLU 39	3.58	0.33	34.81	-0.2201	0.0532	0.0017
289	SLU 40	3.56	0.33	34.77	-0.2203	0.0524	0.0017
289	SLU 41	3.75	0.34	35.08	-0.2229	0.0593	0.0017
289	SLU 42	3.72	0.34	35.04	-0.2231	0.0585	0.0017
289	SLU 43	3.12	0.3	32.05	-0.2028	0.044	0.0015
289	SLU 44	3.08	0.3	31.99	-0.2031	0.0426	0.0015
289	SLU 45	3.32	0.31	32.55	-0.2083	0.0505	0.0016
289	SLU 46	3.29	0.31	32.5	-0.2085	0.0496	0.0016
289	SLU 47	3.25	0.31	32.26	-0.2059	0.0487	0.0015
289	SLU 48	3.48	0.32	32.82	-0.211	0.0566	0.0016
289	SLU 49	3.46	0.32	32.78	-0.2112	0.0557	0.0016
289	SLU 50	3.45	0.31	32.6	-0.2083	0.0562	0.0016
289	SLU 51	3.43	0.31	32.56	-0.2085	0.0554	0.0016
289	SLU 52	3.49	0.34	35.89	-0.2268	0.0484	0.0017
289	SLU 53	3.73	0.35	36.45	-0.232	0.0562	0.0017
289	SLU 54	3.71	0.35	36.41	-0.2322	0.0554	0.0017
289	SLU 55	3.66	0.34	36.16	-0.2296	0.0545	0.0017
289	SLU 56	3.9	0.35	36.72	-0.2348	0.0623	0.0018
289	SLU 57	3.87	0.35	36.68	-0.235	0.0615	0.0018
289	SLU 58	3.86	0.35	36.5	-0.2321	0.0619	0.0018
289	SLU 59	3.84	0.35	36.46	-0.2323	0.0611	0.0017
289	SLU 60	3.71	0.36	37.63	-0.2367	0.0522	0.0018
289	SLU 61	3.69	0.35	37.59	-0.2369	0.0514	0.0018
289	SLU 62	3.87	0.36	37.9	-0.2395	0.0583	0.0018
289	SLU 63	3.85	0.36	37.86	-0.2397	0.0575	0.0018
289	SLU 64	3.59	0.34	35.68	-0.2267	0.0528	0.0017
289	SLU 65	3.55	0.34	35.61	-0.227	0.0514	0.0017
289	SLU 66	3.79	0.35	36.17	-0.2322	0.0593	0.0017
289	SLU 67	3.76	0.35	36.13	-0.2324	0.0585	0.0017
289	SLU 68	3.72	0.34	35.88	-0.2298	0.0575	0.0017
289	SLU 69	3.95	0.35	36.44	-0.2349	0.0654	0.0018
289	SLU 70	3.93	0.35	36.4	-0.2351	0.0646	0.0018
289	SLU 71	3.92	0.35	36.22	-0.2322	0.065	0.0018
289	SLU 72	3.9	0.35	36.18	-0.2324	0.0642	0.0018
289	SLU 73	3.96	0.38	39.51	-0.2508	0.0572	0.0019
289	SLU 74	4.2	0.38	40.07	-0.2559	0.065	0.0019
289	SLU 75	4.18	0.38	40.03	-0.2561	0.0642	0.0019
289	SLU 76	4.13	0.38	39.79	-0.2535	0.0633	0.0019
289	SLU 77	4.37	0.39	40.34	-0.2587	0.0711	0.002
289	SLU 78	4.34	0.39	40.3	-0.2589	0.0703	0.002
289	SLU 79	4.33	0.39	40.13	-0.256	0.0708	0.0019
289	SLU 80	4.31	0.39	40.09	-0.2562	0.0699	0.0019
289	SLU 81	4.18	0.39	41.25	-0.2606	0.061	0.002
289	SLU 82	4.16	0.39	41.21	-0.2608	0.0602	0.002
289	SLU 83	4.34	0.4	41.53	-0.2634	0.0671	0.002
289	SLU 84	4.32	0.4	41.48	-0.2636	0.0663	0.002
289	SLE RA 1	2.66	0.25	26.65	-0.1691	0.0387	0.0013
289	SLE RA 2	2.63	0.25	26.6	-0.1693	0.0378	0.0013
289	SLE RA 3	2.79	0.26	26.97	-0.1728	0.043	0.0013
289	SLE RA 4	2.77	0.26	26.95	-0.1729	0.0424	0.0013
289	SLE RA 5	2.74	0.26	26.78	-0.1712	0.0418	0.0013
289	SLE RA 6	2.9	0.26	27.16	-0.1746	0.0471	0.0013
289	SLE RA 7	2.88	0.26	27.13	-0.1748	0.0465	0.0013
289	SLE RA 8	2.88	0.26	27.01	-0.1728	0.0468	0.0013
289	SLE RA 9	2.86	0.26	26.98	-0.1729	0.0463	0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
289	SLE RA 10	2.91	0.28	29.2	-0.1852	0.0416	0.0014
289	SLE RA 11	3.07	0.28	29.58	-0.1886	0.0468	0.0014
289	SLE RA 12	3.05	0.28	29.55	-0.1887	0.0463	0.0014
289	SLE RA 13	3.02	0.28	29.39	-0.187	0.0457	0.0014
289	SLE RA 14	3.18	0.29	29.76	-0.1905	0.0509	0.0014
289	SLE RA 15	3.16	0.29	29.73	-0.1906	0.0504	0.0014
289	SLE RA 16	3.15	0.28	29.61	-0.1887	0.0507	0.0014
289	SLE RA 17	3.14	0.28	29.59	-0.1888	0.0501	0.0014
289	SLE RA 18	3.05	0.29	30.36	-0.1917	0.0442	0.0014
289	SLE RA 19	3.04	0.29	30.34	-0.1919	0.0436	0.0014
289	SLE RA 20	3.16	0.29	30.55	-0.1936	0.0482	0.0015
289	SLE RA 21	3.15	0.29	30.52	-0.1937	0.0477	0.0015
289	SLE FR 1	2.66	0.25	26.65	-0.1691	0.0387	0.0013
289	SLE FR 2	2.65	0.25	26.64	-0.1692	0.0385	0.0013
289	SLE FR 3	2.7	0.26	26.72	-0.1698	0.0403	0.0013
289	SLE FR 4	2.77	0.26	27.75	-0.1759	0.0401	0.0013
289	SLE FR 5	2.82	0.27	27.84	-0.1766	0.042	0.0013
289	SLE FR 6	2.85	0.27	28.51	-0.1804	0.0414	0.0014
289	SLE QP 1	2.66	0.25	26.65	-0.1691	0.0387	0.0013
289	SLE QP 2	2.78	0.26	27.76	-0.1759	0.0403	0.0013
289	SLD 1	15.94	0.19	29.19	-0.3427	0.626	0.001
289	SLD 2	15.94	0.19	29.19	-0.3427	0.626	0.001
289	SLD 3	16.94	0.44	32.08	-0.0922	0.6668	0.0021
289	SLD 4	16.94	0.44	32.08	-0.0922	0.6668	0.0021
289	SLD 5	5.2	-0.14	23.81	-0.6057	0.1542	-0.0003
289	SLD 6	5.2	-0.14	23.81	-0.6057	0.1542	-0.0003
289	SLD 7	8.55	0.7	33.44	0.229	0.2901	0.0031
289	SLD 8	8.55	0.7	33.44	0.229	0.2901	0.0031
289	SLD 9	-3	-0.17	22.08	-0.5808	-0.2095	-0.0005
289	SLD 10	-3	-0.17	22.08	-0.5808	-0.2095	-0.0005
289	SLD 11	0.35	0.67	31.72	0.2539	-0.0735	0.003
289	SLD 12	0.35	0.67	31.72	0.2539	-0.0735	0.003
289	SLD 13	-11.39	0.09	23.45	-0.2596	-0.5861	0.0006
289	SLD 14	-11.39	0.09	23.45	-0.2596	-0.5861	0.0006
289	SLD 15	-10.38	0.34	26.34	-0.0091	-0.5454	0.0016
289	SLD 16	-10.38	0.34	26.34	-0.0091	-0.5454	0.0016
289	SLV 1	32.94	0.07	30.86	-0.5816	1.383	0.0006
289	SLV 2	32.94	0.07	30.86	-0.5816	1.383	0.0006
289	SLV 3	35.32	0.68	37.85	0.0297	1.4797	0.0032
289	SLV 4	35.32	0.68	37.85	0.0297	1.4797	0.0032
289	SLV 5	8.21	-0.72	18.1	-1.2247	0.2965	-0.0028
289	SLV 6	8.21	-0.72	18.1	-1.2247	0.2965	-0.0028
289	SLV 7	16.15	1.32	41.39	0.8129	0.6188	0.0057
289	SLV 8	16.15	1.32	41.39	0.8129	0.6188	0.0057
289	SLV 9	-10.6	-0.79	14.14	-1.1647	-0.5381	-0.0031
289	SLV 10	-10.6	-0.79	14.14	-1.1647	-0.5381	-0.0031
289	SLV 11	-2.66	1.25	37.43	0.8729	-0.2158	0.0054
289	SLV 12	-2.66	1.25	37.43	0.8729	-0.2158	0.0054
289	SLV 13	-29.77	-0.16	17.68	-0.3815	-1.399	-0.0005
289	SLV 14	-29.77	-0.16	17.68	-0.3815	-1.399	-0.0005
289	SLV 15	-27.39	0.46	24.66	0.2298	-1.3023	0.002
289	SLV 16	-27.39	0.46	24.66	0.2298	-1.3023	0.002
290	SLU 1	4.08	0.27	30.95	-0.1673	0.2021	0.0012
290	SLU 2	4.03	0.27	30.9	-0.1674	0.1995	0.0012
290	SLU 3	4.33	0.28	31.59	-0.1729	0.2134	0.0012
290	SLU 4	4.3	0.28	31.56	-0.1729	0.2119	0.0012
290	SLU 5	4.21	0.27	31.24	-0.1702	0.2077	0.0012
290	SLU 6	4.5	0.28	31.94	-0.1757	0.2216	0.0013
290	SLU 7	4.47	0.28	31.91	-0.1757	0.2201	0.0013
290	SLU 8	4.43	0.28	31.64	-0.1729	0.2184	0.0012
290	SLU 9	4.4	0.28	31.6	-0.1729	0.2168	0.0012
290	SLU 10	4.67	0.31	35.69	-0.1927	0.2315	0.0014
290	SLU 11	4.96	0.32	36.39	-0.1982	0.2454	0.0014
290	SLU 12	4.93	0.32	36.36	-0.1983	0.2439	0.0014
290	SLU 13	4.85	0.31	36.04	-0.1955	0.2396	0.0014
290	SLU 14	5.14	0.32	36.73	-0.201	0.2535	0.0015
290	SLU 15	5.11	0.32	36.7	-0.2011	0.252	0.0014
290	SLU 16	5.07	0.32	36.43	-0.1982	0.2503	0.0014
290	SLU 17	5.04	0.32	36.4	-0.1983	0.2488	0.0014
290	SLU 18	5	0.33	37.8	-0.2035	0.2477	0.0015
290	SLU 19	4.97	0.32	37.77	-0.2035	0.2462	0.0015
290	SLU 20	5.17	0.33	38.14	-0.2063	0.2558	0.0015
290	SLU 21	5.14	0.33	38.11	-0.2063	0.2543	0.0015
290	SLU 22	4.78	0.31	35.42	-0.1925	0.2362	0.0014
290	SLU 23	4.73	0.31	35.37	-0.1925	0.2337	0.0014
290	SLU 24	5.02	0.32	36.06	-0.1981	0.2476	0.0014
290	SLU 25	4.99	0.32	36.03	-0.1981	0.2461	0.0014
290	SLU 26	4.9	0.31	35.71	-0.1953	0.2419	0.0014
290	SLU 27	5.19	0.32	36.41	-0.2009	0.2558	0.0015
290	SLU 28	5.16	0.32	36.38	-0.2009	0.2542	0.0014
290	SLU 29	5.13	0.32	36.1	-0.1981	0.2525	0.0014
290	SLU 30	5.1	0.32	36.07	-0.1981	0.251	0.0014
290	SLU 31	5.37	0.35	40.16	-0.2179	0.2657	0.0016
290	SLU 32	5.66	0.36	40.86	-0.2234	0.2795	0.0016
290	SLU 33	5.63	0.36	40.83	-0.2234	0.278	0.0016
290	SLU 34	5.54	0.35	40.51	-0.2207	0.2738	0.0016
290	SLU 35	5.83	0.36	41.2	-0.2262	0.2877	0.0016
290	SLU 36	5.8	0.36	41.17	-0.2262	0.2862	0.0016
290	SLU 37	5.77	0.36	40.9	-0.2234	0.2845	0.0016



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
290	SLU 38	5.74	0.36	40.87	-0.2235	0.283	0.0016
290	SLU 39	5.69	0.37	42.27	-0.2287	0.2818	0.0017
290	SLU 40	5.66	0.37	42.24	-0.2287	0.2803	0.0016
290	SLU 41	5.86	0.37	42.61	-0.2315	0.29	0.0017
290	SLU 42	5.84	0.37	42.58	-0.2315	0.2885	0.0017
290	SLU 43	5.07	0.33	38.7	-0.2089	0.251	0.0015
290	SLU 44	5.02	0.33	38.65	-0.2089	0.2484	0.0015
290	SLU 45	5.31	0.34	39.35	-0.2144	0.2623	0.0015
290	SLU 46	5.28	0.34	39.32	-0.2145	0.2608	0.0015
290	SLU 47	5.2	0.34	38.99	-0.2117	0.2566	0.0015
290	SLU 48	5.49	0.35	39.69	-0.2172	0.2705	0.0016
290	SLU 49	5.46	0.35	39.66	-0.2173	0.269	0.0016
290	SLU 50	5.42	0.34	39.39	-0.2145	0.2673	0.0015
290	SLU 51	5.39	0.34	39.36	-0.2145	0.2658	0.0015
290	SLU 52	5.66	0.37	43.44	-0.2343	0.2804	0.0017
290	SLU 53	5.95	0.38	44.14	-0.2398	0.2943	0.0017
290	SLU 54	5.92	0.38	44.11	-0.2398	0.2928	0.0017
290	SLU 55	5.84	0.38	43.79	-0.2371	0.2885	0.0017
290	SLU 56	6.13	0.39	44.49	-0.2426	0.3024	0.0017
290	SLU 57	6.1	0.39	44.46	-0.2426	0.3009	0.0017
290	SLU 58	6.06	0.38	44.18	-0.2398	0.2992	0.0017
290	SLU 59	6.03	0.38	44.15	-0.2398	0.2977	0.0017
290	SLU 60	5.99	0.39	45.55	-0.2451	0.2966	0.0018
290	SLU 61	5.96	0.39	45.52	-0.2451	0.2951	0.0018
290	SLU 62	6.16	0.4	45.9	-0.2479	0.3047	0.0018
290	SLU 63	6.13	0.4	45.86	-0.2479	0.3032	0.0018
290	SLU 64	5.76	0.37	43.17	-0.234	0.2851	0.0017
290	SLU 65	5.71	0.37	43.12	-0.2341	0.2826	0.0017
290	SLU 66	6.01	0.38	43.82	-0.2396	0.2965	0.0017
290	SLU 67	5.98	0.38	43.78	-0.2397	0.295	0.0017
290	SLU 68	5.89	0.38	43.46	-0.2369	0.2908	0.0017
290	SLU 69	6.18	0.39	44.16	-0.2424	0.3047	0.0017
290	SLU 70	6.15	0.39	44.13	-0.2425	0.3031	0.0017
290	SLU 71	6.11	0.38	43.86	-0.2396	0.3014	0.0017
290	SLU 72	6.08	0.38	43.83	-0.2397	0.2999	0.0017
290	SLU 73	6.35	0.41	47.91	-0.2594	0.3146	0.0019
290	SLU 74	6.64	0.42	48.61	-0.265	0.3284	0.0019
290	SLU 75	6.62	0.42	48.58	-0.265	0.3269	0.0019
290	SLU 76	6.53	0.42	48.26	-0.2622	0.3227	0.0019
290	SLU 77	6.82	0.43	48.96	-0.2678	0.3366	0.0019
290	SLU 78	6.79	0.43	48.92	-0.2678	0.3351	0.0019
290	SLU 79	6.75	0.42	48.65	-0.265	0.3334	0.0019
290	SLU 80	6.72	0.42	48.62	-0.265	0.3319	0.0019
290	SLU 81	6.68	0.43	50.02	-0.2702	0.3308	0.0019
290	SLU 82	6.65	0.43	49.99	-0.2703	0.3292	0.0019
290	SLU 83	6.85	0.44	50.36	-0.273	0.3389	0.002
290	SLU 84	6.82	0.44	50.33	-0.2731	0.3374	0.002
290	SLE RA 1	4.28	0.28	32.22	-0.1745	0.2118	0.0013
290	SLE RA 2	4.25	0.28	32.19	-0.1745	0.2101	0.0013
290	SLE RA 3	4.44	0.28	32.66	-0.1782	0.2194	0.0013
290	SLE RA 4	4.42	0.28	32.64	-0.1782	0.2184	0.0013
290	SLE RA 5	4.37	0.28	32.42	-0.1764	0.2156	0.0013
290	SLE RA 6	4.56	0.29	32.89	-0.1801	0.2248	0.0013
290	SLE RA 7	4.54	0.29	32.86	-0.1801	0.2238	0.0013
290	SLE RA 8	4.51	0.29	32.68	-0.1782	0.2227	0.0013
290	SLE RA 9	4.49	0.28	32.66	-0.1783	0.2217	0.0013
290	SLE RA 10	4.68	0.31	35.39	-0.1914	0.2314	0.0014
290	SLE RA 11	4.87	0.31	35.85	-0.1951	0.2407	0.0014
290	SLE RA 12	4.85	0.31	35.83	-0.1951	0.2397	0.0014
290	SLE RA 13	4.79	0.31	35.62	-0.1933	0.2369	0.0014
290	SLE RA 14	4.99	0.32	36.08	-0.197	0.2461	0.0014
290	SLE RA 15	4.97	0.31	36.06	-0.197	0.2451	0.0014
290	SLE RA 16	4.94	0.31	35.88	-0.1951	0.244	0.0014
290	SLE RA 17	4.92	0.31	35.86	-0.1952	0.243	0.0014
290	SLE RA 18	4.89	0.32	36.79	-0.1986	0.2422	0.0014
290	SLE RA 19	4.87	0.32	36.77	-0.1987	0.2412	0.0014
290	SLE RA 20	5.01	0.32	37.02	-0.2005	0.2477	0.0014
290	SLE RA 21	4.99	0.32	37	-0.2005	0.2467	0.0014
290	SLE FR 1	4.28	0.28	32.22	-0.1745	0.2118	0.0013
290	SLE FR 2	4.28	0.28	32.22	-0.1745	0.2115	0.0013
290	SLE FR 3	4.33	0.28	32.32	-0.1752	0.214	0.0013
290	SLE FR 4	4.46	0.29	33.59	-0.1817	0.2206	0.0013
290	SLE FR 5	4.51	0.29	33.69	-0.1825	0.2231	0.0013
290	SLE FR 6	4.59	0.3	34.51	-0.1866	0.227	0.0013
290	SLE QP 1	4.28	0.28	32.22	-0.1745	0.2118	0.0013
290	SLE QP 2	4.46	0.29	33.59	-0.1817	0.2209	0.0013
290	SLD 1	16.63	0.25	35.26	-0.1197	0.7484	0.0012
290	SLD 2	16.63	0.25	35.26	-0.1197	0.7484	0.0012
290	SLD 3	17.68	0.43	37.38	-0.3192	0.8016	0.0018
290	SLD 4	17.68	0.43	37.38	-0.3192	0.8016	0.0018
290	SLD 5	6.52	0.01	30.89	0.1395	0.2984	0.0003
290	SLD 6	6.52	0.01	30.89	0.1395	0.2984	0.0003
290	SLD 7	10.03	0.6	37.94	-0.5256	0.4759	0.0024
290	SLD 8	10.03	0.6	37.94	-0.5256	0.4759	0.0024
290	SLD 9	-1.1	-0.02	29.25	0.1622	-0.034	0.0002
290	SLD 10	-1.1	-0.02	29.25	0.1622	-0.034	0.0002
290	SLD 11	2.41	0.57	36.3	-0.503	0.1434	0.0023
290	SLD 12	2.41	0.57	36.3	-0.503	0.1434	0.0023
290	SLD 13	-8.75	0.15	29.81	-0.0442	-0.3597	0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
290	SLD 14	-8.75	0.15	29.81	-0.0442	-0.3597	0.0008
290	SLD 15	-7.7	0.33	31.93	-0.2438	-0.3065	0.0014
290	SLD 16	-7.7	0.33	31.93	-0.2438	-0.3065	0.0014
290	SLV 1	32.33	0.18	37.33	-0.0279	1.4287	0.0011
290	SLV 2	32.33	0.18	37.33	-0.0279	1.4287	0.0011
290	SLV 3	34.84	0.62	42.38	-0.515	1.5557	0.0026
290	SLV 4	34.84	0.62	42.38	-0.515	1.5557	0.0026
290	SLV 5	9.02	-0.4	27.05	0.6031	0.3906	-0.0011
290	SLV 6	9.02	-0.4	27.05	0.6031	0.3906	-0.0011
290	SLV 7	17.38	1.05	43.9	-1.0204	0.814	0.004
290	SLV 8	17.38	1.05	43.9	-1.0204	0.814	0.004
290	SLV 9	-8.45	-0.47	23.29	0.657	-0.3721	-0.0014
290	SLV 10	-8.45	-0.47	23.29	0.657	-0.3721	-0.0014
290	SLV 11	-0.09	0.98	40.14	-0.9666	0.0512	0.0037
290	SLV 12	-0.09	0.98	40.14	-0.9666	0.0512	0.0037
290	SLV 13	-25.91	-0.04	24.81	0.1515	-1.1138	0
290	SLV 14	-25.91	-0.04	24.81	0.1515	-1.1138	0
290	SLV 15	-23.4	0.4	29.86	-0.3355	-0.9868	0.0016
290	SLV 16	-23.4	0.4	29.86	-0.3355	-0.9868	0.0016
291	SLU 1	2.85	0.25	37.47	-0.1513	0.0294	0.0008
291	SLU 2	2.81	0.25	37.43	-0.1512	0.0274	0.0008
291	SLU 3	3.05	0.26	38.3	-0.1562	0.0352	0.0009
291	SLU 4	3.02	0.26	38.27	-0.1561	0.034	0.0009
291	SLU 5	2.95	0.25	37.84	-0.1536	0.0322	0.0009
291	SLU 6	3.19	0.26	38.71	-0.1586	0.04	0.0009
291	SLU 7	3.16	0.26	38.68	-0.1585	0.0388	0.0009
291	SLU 8	3.14	0.26	38.3	-0.1561	0.0391	0.0009
291	SLU 9	3.11	0.26	38.27	-0.156	0.0379	0.0009
291	SLU 10	3.21	0.29	43.29	-0.1748	0.0292	0.001
291	SLU 11	3.45	0.3	44.16	-0.1797	0.0369	0.001
291	SLU 12	3.42	0.29	44.13	-0.1797	0.0357	0.001
291	SLU 13	3.35	0.29	43.71	-0.1772	0.034	0.001
291	SLU 14	3.59	0.3	44.57	-0.1821	0.0418	0.001
291	SLU 15	3.57	0.3	44.55	-0.1821	0.0406	0.001
291	SLU 16	3.54	0.3	44.16	-0.1796	0.0408	0.001
291	SLU 17	3.51	0.29	44.14	-0.1796	0.0396	0.001
291	SLU 18	3.43	0.3	45.85	-0.185	0.0319	0.001
291	SLU 19	3.4	0.3	45.82	-0.1849	0.0307	0.001
291	SLU 20	3.57	0.31	46.26	-0.1874	0.0368	0.0011
291	SLU 21	3.54	0.31	46.23	-0.1873	0.0356	0.0011
291	SLU 22	3.32	0.29	42.95	-0.1744	0.0348	0.001
291	SLU 23	3.27	0.29	42.91	-0.1743	0.0328	0.001
291	SLU 24	3.52	0.29	43.77	-0.1793	0.0405	0.001
291	SLU 25	3.49	0.29	43.75	-0.1793	0.0393	0.001
291	SLU 26	3.42	0.29	43.32	-0.1767	0.0376	0.001
291	SLU 27	3.66	0.3	44.18	-0.1817	0.0454	0.001
291	SLU 28	3.63	0.3	44.16	-0.1817	0.0442	0.001
291	SLU 29	3.6	0.29	43.77	-0.1792	0.0444	0.001
291	SLU 30	3.58	0.29	43.75	-0.1792	0.0432	0.001
291	SLU 31	3.68	0.32	48.77	-0.1979	0.0345	0.0011
291	SLU 32	3.92	0.33	49.63	-0.2029	0.0423	0.0011
291	SLU 33	3.89	0.33	49.61	-0.2028	0.0411	0.0011
291	SLU 34	3.82	0.33	49.18	-0.2003	0.0394	0.0011
291	SLU 35	4.06	0.34	50.05	-0.2053	0.0471	0.0012
291	SLU 36	4.03	0.34	50.02	-0.2052	0.0459	0.0012
291	SLU 37	4.01	0.33	49.64	-0.2028	0.0462	0.0011
291	SLU 38	3.98	0.33	49.61	-0.2027	0.045	0.0011
291	SLU 39	3.9	0.34	51.32	-0.2081	0.0373	0.0012
291	SLU 40	3.87	0.34	51.3	-0.2081	0.0361	0.0012
291	SLU 41	4.04	0.35	51.73	-0.2105	0.0421	0.0012
291	SLU 42	4.01	0.35	51.71	-0.2105	0.0409	0.0012
291	SLU 43	3.55	0.31	46.84	-0.1887	0.0364	0.0011
291	SLU 44	3.5	0.31	46.79	-0.1886	0.0344	0.001
291	SLU 45	3.75	0.32	47.66	-0.1936	0.0421	0.0011
291	SLU 46	3.72	0.32	47.63	-0.1935	0.0409	0.0011
291	SLU 47	3.64	0.31	47.21	-0.191	0.0392	0.0011
291	SLU 48	3.89	0.32	48.07	-0.196	0.047	0.0011
291	SLU 49	3.86	0.32	48.05	-0.1959	0.0458	0.0011
291	SLU 50	3.83	0.32	47.66	-0.1935	0.046	0.0011
291	SLU 51	3.8	0.32	47.64	-0.1934	0.0448	0.0011
291	SLU 52	3.9	0.35	52.66	-0.2122	0.0361	0.0012
291	SLU 53	4.15	0.36	53.52	-0.2172	0.0439	0.0012
291	SLU 54	4.12	0.36	53.5	-0.2171	0.0427	0.0012
291	SLU 55	4.04	0.35	53.07	-0.2146	0.041	0.0012
291	SLU 56	4.29	0.36	53.93	-0.2196	0.0487	0.0012
291	SLU 57	4.26	0.36	53.91	-0.2195	0.0475	0.0012
291	SLU 58	4.23	0.36	53.52	-0.2171	0.0478	0.0012
291	SLU 59	4.2	0.36	53.5	-0.217	0.0466	0.0012
291	SLU 60	4.12	0.36	55.21	-0.2224	0.0389	0.0012
291	SLU 61	4.1	0.36	55.19	-0.2223	0.0377	0.0012
291	SLU 62	4.27	0.37	55.62	-0.2248	0.0437	0.0013
291	SLU 63	4.24	0.37	55.6	-0.2247	0.0425	0.0013
291	SLU 64	4.02	0.35	52.31	-0.2118	0.0417	0.0012
291	SLU 65	3.97	0.35	52.27	-0.2118	0.0397	0.0012
291	SLU 66	4.22	0.36	53.14	-0.2167	0.0475	0.0012
291	SLU 67	4.19	0.35	53.11	-0.2167	0.0463	0.0012
291	SLU 68	4.11	0.35	52.68	-0.2142	0.0446	0.0012
291	SLU 69	4.36	0.36	53.55	-0.2191	0.0523	0.0012
291	SLU 70	4.33	0.36	53.52	-0.2191	0.0511	0.0012





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
291	SLU 71	4.3	0.36	53.14	-0.2167	0.0514	0.0012
291	SLU 72	4.27	0.36	53.11	-0.2166	0.0502	0.0012
291	SLU 73	4.37	0.39	58.13	-0.2354	0.0415	0.0013
291	SLU 74	4.62	0.39	59	-0.2403	0.0493	0.0013
291	SLU 75	4.59	0.39	58.97	-0.2403	0.0481	0.0013
291	SLU 76	4.51	0.39	58.55	-0.2378	0.0463	0.0013
291	SLU 77	4.76	0.4	59.41	-0.2427	0.0541	0.0014
291	SLU 78	4.73	0.4	59.39	-0.2427	0.0529	0.0014
291	SLU 79	4.7	0.4	59	-0.2402	0.0532	0.0014
291	SLU 80	4.67	0.39	58.98	-0.2402	0.052	0.0013
291	SLU 81	4.59	0.4	60.69	-0.2455	0.0443	0.0014
291	SLU 82	4.56	0.4	60.66	-0.2455	0.0431	0.0014
291	SLU 83	4.73	0.41	61.1	-0.2479	0.0491	0.0014
291	SLU 84	4.71	0.41	61.07	-0.2479	0.0479	0.0014
291	SLE RA 1	2.99	0.26	39.04	-0.1579	0.0309	0.0009
291	SLE RA 2	2.96	0.26	39.01	-0.1578	0.0296	0.0009
291	SLE RA 3	3.12	0.26	39.59	-0.1611	0.0348	0.0009
291	SLE RA 4	3.1	0.26	39.57	-0.1611	0.034	0.0009
291	SLE RA 5	3.05	0.26	39.28	-0.1594	0.0328	0.0009
291	SLE RA 6	3.21	0.27	39.86	-0.1627	0.038	0.0009
291	SLE RA 7	3.19	0.27	39.84	-0.1627	0.0372	0.0009
291	SLE RA 8	3.18	0.26	39.59	-0.1611	0.0374	0.0009
291	SLE RA 9	3.16	0.26	39.57	-0.161	0.0366	0.0009
291	SLE RA 10	3.22	0.28	42.92	-0.1735	0.0308	0.001
291	SLE RA 11	3.39	0.29	43.49	-0.1769	0.036	0.001
291	SLE RA 12	3.37	0.29	43.48	-0.1768	0.0352	0.001
291	SLE RA 13	3.32	0.29	43.19	-0.1751	0.034	0.001
291	SLE RA 14	3.48	0.29	43.77	-0.1785	0.0392	0.001
291	SLE RA 15	3.46	0.29	43.75	-0.1784	0.0384	0.001
291	SLE RA 16	3.44	0.29	43.5	-0.1768	0.0386	0.001
291	SLE RA 17	3.42	0.29	43.48	-0.1768	0.0378	0.001
291	SLE RA 18	3.37	0.3	44.62	-0.1803	0.0326	0.001
291	SLE RA 19	3.35	0.3	44.6	-0.1803	0.0318	0.001
291	SLE RA 20	3.47	0.3	44.89	-0.1819	0.0358	0.001
291	SLE RA 21	3.45	0.3	44.88	-0.1819	0.035	0.001
291	SLE FR 1	2.99	0.26	39.04	-0.1579	0.0309	0.0009
291	SLE FR 2	2.98	0.26	39.03	-0.1579	0.0307	0.0009
291	SLE FR 3	3.03	0.26	39.15	-0.1585	0.0322	0.0009
291	SLE FR 4	3.1	0.27	40.71	-0.1646	0.0312	0.0009
291	SLE FR 5	3.14	0.27	40.82	-0.1653	0.0327	0.0009
291	SLE FR 6	3.18	0.28	41.83	-0.1691	0.0318	0.0009
291	SLE QP 1	2.99	0.26	39.04	-0.1579	0.0309	0.0009
291	SLE QP 2	3.1	0.27	40.71	-0.1646	0.0314	0.0009
291	SLD 1	14.58	0.27	38.11	-0.128	0.5498	0.001
291	SLD 2	14.58	0.27	38.11	-0.128	0.5498	0.001
291	SLD 3	15.52	0.35	39.95	-0.2646	0.5887	0.0012
291	SLD 4	15.52	0.35	39.95	-0.2646	0.5887	0.0012
291	SLD 5	5.13	0.14	37.14	0.0536	0.1279	0.0007
291	SLD 6	5.13	0.14	37.14	0.0536	0.1279	0.0007
291	SLD 7	8.25	0.43	43.28	-0.4018	0.2576	0.0012
291	SLD 8	8.25	0.43	43.28	-0.4018	0.2576	0.0012
291	SLD 9	-2.04	0.11	38.14	0.0726	-0.1948	0.0006
291	SLD 10	-2.04	0.11	38.14	0.0726	-0.1948	0.0006
291	SLD 11	1.08	0.4	44.28	-0.3828	-0.065	0.0011
291	SLD 12	1.08	0.4	44.28	-0.3828	-0.065	0.0011
291	SLD 13	-9.32	0.19	41.47	-0.0646	-0.5258	0.0007
291	SLD 14	-9.32	0.19	41.47	-0.0646	-0.5258	0.0007
291	SLD 15	-8.38	0.27	43.31	-0.2012	-0.4869	0.0008
291	SLD 16	-8.38	0.27	43.31	-0.2012	-0.4869	0.0008
291	SLV 1	29.39	0.26	34.63	-0.0726	1.2189	0.0011
291	SLV 2	29.39	0.26	34.63	-0.0726	1.2189	0.0011
291	SLV 3	31.64	0.47	38.98	-0.406	1.3118	0.0015
291	SLV 4	31.64	0.47	38.98	-0.406	1.3118	0.0015
291	SLV 5	7.59	-0.05	32.29	0.3687	0.2467	0.0004
291	SLV 6	7.59	-0.05	32.29	0.3687	0.2467	0.0004
291	SLV 7	15.06	0.65	46.79	-0.7427	0.5565	0.0017
291	SLV 8	15.06	0.65	46.79	-0.7427	0.5565	0.0017
291	SLV 9	-8.86	-0.11	34.63	0.4135	-0.4936	0.0002
291	SLV 10	-8.86	-0.11	34.63	0.4135	-0.4936	0.0002
291	SLV 11	-1.39	0.59	49.13	-0.6979	-0.1839	0.0014
291	SLV 12	-1.39	0.59	49.13	-0.6979	-0.1839	0.0014
291	SLV 13	-25.43	0.07	42.44	0.0768	-1.249	0.0004
291	SLV 14	-25.43	0.07	42.44	0.0768	-1.249	0.0004
291	SLV 15	-23.19	0.28	46.79	-0.2566	-1.1561	0.0007
291	SLV 16	-23.19	0.28	46.79	-0.2566	-1.1561	0.0007
292	SLU 1	2.74	0.19	44.69	-0.1146	0.1414	0.0004
292	SLU 2	2.69	0.19	44.66	-0.1145	0.139	0.0004
292	SLU 3	2.93	0.2	45.69	-0.1181	0.151	0.0004
292	SLU 4	2.9	0.2	45.68	-0.118	0.1496	0.0004
292	SLU 5	2.82	0.19	45.13	-0.1161	0.1456	0.0004
292	SLU 6	3.06	0.2	46.16	-0.1197	0.1576	0.0004
292	SLU 7	3.03	0.2	46.15	-0.1196	0.1562	0.0004
292	SLU 8	3	0.2	45.63	-0.1178	0.1545	0.0004
292	SLU 9	2.97	0.2	45.61	-0.1178	0.1531	0.0004
292	SLU 10	3.06	0.22	51.69	-0.1329	0.1592	0.0005
292	SLU 11	3.3	0.23	52.72	-0.1364	0.1712	0.0005
292	SLU 12	3.27	0.23	52.7	-0.1364	0.1698	0.0005
292	SLU 13	3.19	0.22	52.16	-0.1345	0.1658	0.0005
292	SLU 14	3.43	0.23	53.19	-0.138	0.1778	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
292	SLU 15	3.4	0.23	53.17	-0.138	0.1764	0.0005
292	SLU 16	3.37	0.23	52.66	-0.1362	0.1747	0.0005
292	SLU 17	3.34	0.23	52.64	-0.1361	0.1732	0.0005
292	SLU 18	3.26	0.24	54.73	-0.1408	0.1702	0.0005
292	SLU 19	3.23	0.24	54.71	-0.1408	0.1688	0.0005
292	SLU 20	3.39	0.24	55.2	-0.1424	0.1768	0.0005
292	SLU 21	3.36	0.24	55.18	-0.1424	0.1753	0.0005
292	SLU 22	3.18	0.22	51.26	-0.1323	0.1649	0.0005
292	SLU 23	3.13	0.22	51.23	-0.1322	0.1625	0.0005
292	SLU 24	3.37	0.23	52.26	-0.1358	0.1745	0.0005
292	SLU 25	3.34	0.23	52.24	-0.1358	0.1731	0.0005
292	SLU 26	3.26	0.22	51.7	-0.1338	0.1691	0.0005
292	SLU 27	3.5	0.23	52.73	-0.1374	0.1811	0.0005
292	SLU 28	3.47	0.23	52.72	-0.1374	0.1797	0.0005
292	SLU 29	3.44	0.23	52.2	-0.1355	0.178	0.0005
292	SLU 30	3.41	0.23	52.18	-0.1355	0.1766	0.0005
292	SLU 31	3.5	0.25	58.25	-0.1506	0.1827	0.0005
292	SLU 32	3.74	0.26	59.29	-0.1542	0.1947	0.0005
292	SLU 33	3.71	0.26	59.27	-0.1541	0.1933	0.0005
292	SLU 34	3.63	0.25	58.73	-0.1522	0.1893	0.0005
292	SLU 35	3.87	0.26	59.76	-0.1558	0.2013	0.0006
292	SLU 36	3.84	0.26	59.74	-0.1557	0.1999	0.0006
292	SLU 37	3.81	0.26	59.22	-0.1539	0.1982	0.0005
292	SLU 38	3.78	0.26	59.21	-0.1538	0.1967	0.0005
292	SLU 39	3.71	0.27	61.29	-0.1585	0.1937	0.0006
292	SLU 40	3.68	0.27	61.28	-0.1585	0.1923	0.0006
292	SLU 41	3.84	0.27	61.76	-0.1601	0.2003	0.0006
292	SLU 42	3.81	0.27	61.75	-0.1601	0.1988	0.0006
292	SLU 43	3.4	0.24	55.84	-0.1429	0.1757	0.0005
292	SLU 44	3.36	0.24	55.81	-0.1428	0.1734	0.0005
292	SLU 45	3.6	0.24	56.85	-0.1464	0.1854	0.0005
292	SLU 46	3.57	0.24	56.83	-0.1464	0.184	0.0005
292	SLU 47	3.49	0.24	56.28	-0.1444	0.1799	0.0005
292	SLU 48	3.73	0.25	57.32	-0.148	0.192	0.0005
292	SLU 49	3.7	0.25	57.3	-0.148	0.1905	0.0005
292	SLU 50	3.67	0.24	56.78	-0.1461	0.1888	0.0005
292	SLU 51	3.64	0.24	56.77	-0.1461	0.1874	0.0005
292	SLU 52	3.73	0.27	62.84	-0.1612	0.1936	0.0006
292	SLU 53	3.97	0.27	63.88	-0.1648	0.2056	0.0006
292	SLU 54	3.94	0.27	63.86	-0.1647	0.2042	0.0006
292	SLU 55	3.86	0.27	63.31	-0.1628	0.2001	0.0006
292	SLU 56	4.1	0.28	64.35	-0.1664	0.2121	0.0006
292	SLU 57	4.07	0.28	64.33	-0.1663	0.2107	0.0006
292	SLU 58	4.04	0.27	63.81	-0.1645	0.209	0.0006
292	SLU 59	4.01	0.27	63.79	-0.1644	0.2076	0.0006
292	SLU 60	3.93	0.28	65.88	-0.1691	0.2046	0.0006
292	SLU 61	3.9	0.28	65.86	-0.1691	0.2032	0.0006
292	SLU 62	4.06	0.29	66.35	-0.1707	0.2111	0.0006
292	SLU 63	4.03	0.28	66.33	-0.1707	0.2097	0.0006
292	SLU 64	3.85	0.27	62.41	-0.1607	0.1992	0.0006
292	SLU 65	3.8	0.27	62.38	-0.1605	0.1969	0.0006
292	SLU 66	4.04	0.27	63.42	-0.1641	0.2089	0.0006
292	SLU 67	4.01	0.27	63.4	-0.1641	0.2075	0.0006
292	SLU 68	3.93	0.27	62.85	-0.1621	0.2034	0.0006
292	SLU 69	4.17	0.28	63.89	-0.1657	0.2155	0.0006
292	SLU 70	4.14	0.28	63.87	-0.1657	0.214	0.0006
292	SLU 71	4.11	0.27	63.35	-0.1639	0.2123	0.0006
292	SLU 72	4.08	0.27	63.34	-0.1638	0.2109	0.0006
292	SLU 73	4.17	0.3	69.41	-0.1789	0.2171	0.0006
292	SLU 74	4.41	0.31	70.44	-0.1825	0.2291	0.0006
292	SLU 75	4.38	0.3	70.43	-0.1824	0.2277	0.0006
292	SLU 76	4.3	0.3	69.88	-0.1805	0.2236	0.0006
292	SLU 77	4.54	0.31	70.91	-0.1841	0.2356	0.0007
292	SLU 78	4.51	0.31	70.9	-0.184	0.2342	0.0006
292	SLU 79	4.48	0.3	70.38	-0.1822	0.2325	0.0006
292	SLU 80	4.45	0.3	70.36	-0.1821	0.2311	0.0006
292	SLU 81	4.37	0.31	72.45	-0.1869	0.2281	0.0007
292	SLU 82	4.35	0.31	72.43	-0.1868	0.2267	0.0007
292	SLU 83	4.51	0.32	72.92	-0.1885	0.2346	0.0007
292	SLU 84	4.48	0.32	72.9	-0.1884	0.2332	0.0007
292	SLE RA 1	2.86	0.2	46.56	-0.1197	0.1481	0.0004
292	SLE RA 2	2.83	0.2	46.55	-0.1196	0.1465	0.0004
292	SLE RA 3	2.99	0.2	47.23	-0.122	0.1545	0.0004
292	SLE RA 4	2.97	0.2	47.22	-0.122	0.1536	0.0004
292	SLE RA 5	2.92	0.2	46.86	-0.1207	0.1509	0.0004
292	SLE RA 6	3.08	0.2	47.55	-0.1231	0.1589	0.0004
292	SLE RA 7	3.06	0.2	47.54	-0.123	0.158	0.0004
292	SLE RA 8	3.04	0.2	47.19	-0.1218	0.1568	0.0004
292	SLE RA 9	3.02	0.2	47.18	-0.1218	0.1559	0.0004
292	SLE RA 10	3.08	0.22	51.23	-0.1318	0.16	0.0005
292	SLE RA 11	3.24	0.22	51.92	-0.1342	0.168	0.0005
292	SLE RA 12	3.22	0.22	51.91	-0.1342	0.1671	0.0005
292	SLE RA 13	3.16	0.22	51.54	-0.1329	0.1643	0.0005
292	SLE RA 14	3.33	0.23	52.23	-0.1353	0.1724	0.0005
292	SLE RA 15	3.31	0.23	52.22	-0.1353	0.1714	0.0005
292	SLE RA 16	3.28	0.22	51.88	-0.134	0.1703	0.0005
292	SLE RA 17	3.26	0.22	51.87	-0.134	0.1693	0.0005
292	SLE RA 18	3.21	0.23	53.26	-0.1372	0.1673	0.0005
292	SLE RA 19	3.19	0.23	53.25	-0.1371	0.1664	0.0005



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
292	SLE RA 20	3.3	0.23	53.57	-0.1382	0.1717	0.0005
292	SLE RA 21	3.28	0.23	53.56	-0.1382	0.1707	0.0005
292	SLE FR 1	2.86	0.2	46.56	-0.1197	0.1481	0.0004
292	SLE FR 2	2.86	0.2	46.56	-0.1197	0.1478	0.0004
292	SLE FR 3	2.9	0.2	46.69	-0.1201	0.1498	0.0004
292	SLE FR 4	2.96	0.21	48.57	-0.1249	0.1535	0.0004
292	SLE FR 5	3	0.21	48.7	-0.1254	0.1556	0.0004
292	SLE FR 6	3.04	0.21	49.91	-0.1284	0.1577	0.0005
292	SLE QP 1	2.86	0.2	46.56	-0.1197	0.1481	0.0004
292	SLE QP 2	2.97	0.21	48.57	-0.1249	0.1539	0.0004
292	SLD 1	13.75	0.16	45.37	-0.1115	0.629	0.0004
292	SLD 2	13.75	0.16	45.37	-0.1115	0.629	0.0004
292	SLD 3	14.81	0.18	48.45	-0.1873	0.6851	0.0007
292	SLD 4	14.81	0.18	48.45	-0.1873	0.6851	0.0007
292	SLD 5	4.59	0.16	42.95	-0.0059	0.2114	0.0001
292	SLD 6	4.59	0.16	42.95	-0.0059	0.2114	0.0001
292	SLD 7	8.13	0.24	53.2	-0.2586	0.3982	0.0008
292	SLD 8	8.13	0.24	53.2	-0.2586	0.3982	0.0008
292	SLD 9	-2.2	0.18	43.94	0.0087	-0.0905	0
292	SLD 10	-2.2	0.18	43.94	0.0087	-0.0905	0
292	SLD 11	1.34	0.26	54.2	-0.2439	0.0963	0.0008
292	SLD 12	1.34	0.26	54.2	-0.2439	0.0963	0.0008
292	SLD 13	-8.87	0.23	48.69	-0.0626	-0.3773	0.0002
292	SLD 14	-8.87	0.23	48.69	-0.0626	-0.3773	0.0002
292	SLD 15	-7.81	0.26	51.77	-0.1384	-0.3213	0.0005
292	SLD 16	-7.81	0.26	51.77	-0.1384	-0.3213	0.0005
292	SLV 1	27.64	0.09	40.83	-0.0897	1.2405	0.0004
292	SLV 2	27.64	0.09	40.83	-0.0897	1.2405	0.0004
292	SLV 3	30.17	0.15	48.2	-0.2746	1.3758	0.0009
292	SLV 4	30.17	0.15	48.2	-0.2746	1.3758	0.0009
292	SLV 5	6.53	0.09	35.06	0.1661	0.2748	-0.0004
292	SLV 6	6.53	0.09	35.06	0.1661	0.2748	-0.0004
292	SLV 7	14.97	0.27	59.65	-0.4502	0.7255	0.0014
292	SLV 8	14.97	0.27	59.65	-0.4502	0.7255	0.0014
292	SLV 9	-9.03	0.14	37.5	0.2004	-0.4178	-0.0005
292	SLV 10	-9.03	0.14	37.5	0.2004	-0.4178	-0.0005
292	SLV 11	-0.6	0.33	62.08	-0.4159	0.0329	0.0013
292	SLV 12	-0.6	0.33	62.08	-0.4159	0.0329	0.0013
292	SLV 13	-24.24	0.27	48.94	0.0247	-1.068	-0.0001
292	SLV 14	-24.24	0.27	48.94	0.0247	-1.068	-0.0001
292	SLV 15	-21.71	0.32	56.32	-0.1602	-0.9328	0.0005
292	SLV 16	-21.71	0.32	56.32	-0.1602	-0.9328	0.0005
293	SLU 1	-1.43	0.18	53.17	-0.0609	-0.1807	0.0012
293	SLU 2	-1.47	0.18	53.17	-0.0609	-0.1825	0.0012
293	SLU 3	-1.37	0.18	54.34	-0.0625	-0.1809	0.0012
293	SLU 4	-1.39	0.18	54.34	-0.0625	-0.182	0.0012
293	SLU 5	-1.41	0.18	53.66	-0.0615	-0.1812	0.0012
293	SLU 6	-1.31	0.18	54.83	-0.0631	-0.1796	0.0012
293	SLU 7	-1.34	0.18	54.83	-0.0631	-0.1807	0.0012
293	SLU 8	-1.32	0.18	54.16	-0.0621	-0.1781	0.0012
293	SLU 9	-1.34	0.18	54.16	-0.0621	-0.1792	0.0012
293	SLU 10	-1.78	0.21	61.57	-0.0707	-0.2161	0.0014
293	SLU 11	-1.68	0.21	62.74	-0.0723	-0.2145	0.0014
293	SLU 12	-1.7	0.21	62.74	-0.0723	-0.2156	0.0014
293	SLU 13	-1.73	0.21	62.07	-0.0713	-0.2148	0.0014
293	SLU 14	-1.63	0.21	63.24	-0.073	-0.2132	0.0014
293	SLU 15	-1.65	0.21	63.24	-0.0729	-0.2143	0.0014
293	SLU 16	-1.63	0.21	62.56	-0.072	-0.2117	0.0014
293	SLU 17	-1.66	0.21	62.56	-0.072	-0.2128	0.0014
293	SLU 18	-1.87	0.22	65.18	-0.075	-0.2286	0.0015
293	SLU 19	-1.9	0.22	65.18	-0.0749	-0.2297	0.0015
293	SLU 20	-1.82	0.22	65.67	-0.0756	-0.2273	0.0015
293	SLU 21	-1.84	0.22	65.67	-0.0756	-0.2284	0.0015
293	SLU 22	-1.65	0.21	60.99	-0.0702	-0.2089	0.0014
293	SLU 23	-1.69	0.21	60.99	-0.0702	-0.2107	0.0014
293	SLU 24	-1.59	0.21	62.16	-0.0718	-0.2091	0.0014
293	SLU 25	-1.61	0.21	62.16	-0.0718	-0.2102	0.0014
293	SLU 26	-1.63	0.21	61.48	-0.0708	-0.2094	0.0014
293	SLU 27	-1.53	0.21	62.65	-0.0724	-0.2078	0.0014
293	SLU 28	-1.56	0.21	62.65	-0.0724	-0.2089	0.0014
293	SLU 29	-1.54	0.21	61.97	-0.0714	-0.2063	0.0014
293	SLU 30	-1.56	0.21	61.97	-0.0714	-0.2074	0.0014
293	SLU 31	-2	0.24	69.39	-0.08	-0.2443	0.0016
293	SLU 32	-1.9	0.24	70.56	-0.0816	-0.2427	0.0016
293	SLU 33	-1.92	0.24	70.56	-0.0816	-0.2438	0.0016
293	SLU 34	-1.95	0.24	69.88	-0.0806	-0.243	0.0016
293	SLU 35	-1.85	0.24	71.05	-0.0823	-0.2414	0.0016
293	SLU 36	-1.87	0.24	71.05	-0.0822	-0.2425	0.0016
293	SLU 37	-1.85	0.24	70.38	-0.0813	-0.2399	0.0016
293	SLU 38	-1.88	0.24	70.37	-0.0812	-0.241	0.0016
293	SLU 39	-2.09	0.25	72.99	-0.0843	-0.2568	0.0016
293	SLU 40	-2.12	0.25	72.99	-0.0842	-0.2579	0.0016
293	SLU 41	-2.04	0.25	73.48	-0.0849	-0.2555	0.0017
293	SLU 42	-2.06	0.25	73.48	-0.0848	-0.2566	0.0017
293	SLU 43	-1.78	0.22	66.44	-0.076	-0.2252	0.0015
293	SLU 44	-1.82	0.22	66.44	-0.076	-0.227	0.0015
293	SLU 45	-1.72	0.23	67.61	-0.0776	-0.2254	0.0015
293	SLU 46	-1.74	0.23	67.61	-0.0776	-0.2266	0.0015
293	SLU 47	-1.77	0.22	66.93	-0.0766	-0.2258	0.0015



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
293	SLU 48	-1.67	0.23	68.1	-0.0782	-0.2242	0.0015
293	SLU 49	-1.69	0.23	68.1	-0.0782	-0.2253	0.0015
293	SLU 50	-1.67	0.22	67.43	-0.0772	-0.2226	0.0015
293	SLU 51	-1.7	0.22	67.43	-0.0772	-0.2237	0.0015
293	SLU 52	-2.13	0.25	74.85	-0.0858	-0.2606	0.0017
293	SLU 53	-2.03	0.26	76.02	-0.0874	-0.259	0.0017
293	SLU 54	-2.06	0.26	76.02	-0.0874	-0.2601	0.0017
293	SLU 55	-2.08	0.25	75.34	-0.0864	-0.2593	0.0017
293	SLU 56	-1.98	0.26	76.51	-0.088	-0.2577	0.0017
293	SLU 57	-2	0.26	76.51	-0.088	-0.2588	0.0017
293	SLU 58	-1.99	0.25	75.83	-0.0871	-0.2562	0.0017
293	SLU 59	-2.01	0.25	75.83	-0.087	-0.2573	0.0017
293	SLU 60	-2.23	0.27	78.45	-0.09	-0.2731	0.0018
293	SLU 61	-2.25	0.27	78.45	-0.09	-0.2743	0.0018
293	SLU 62	-2.17	0.27	78.94	-0.0907	-0.2719	0.0018
293	SLU 63	-2.2	0.27	78.94	-0.0906	-0.273	0.0018
293	SLU 64	-2	0.25	74.26	-0.0853	-0.2534	0.0017
293	SLU 65	-2.04	0.25	74.26	-0.0852	-0.2552	0.0017
293	SLU 66	-1.94	0.25	75.43	-0.0869	-0.2536	0.0017
293	SLU 67	-1.96	0.25	75.43	-0.0869	-0.2547	0.0017
293	SLU 68	-1.99	0.25	74.75	-0.0859	-0.254	0.0017
293	SLU 69	-1.89	0.25	75.92	-0.0875	-0.2524	0.0017
293	SLU 70	-1.91	0.25	75.92	-0.0875	-0.2535	0.0017
293	SLU 71	-1.89	0.25	75.24	-0.0865	-0.2508	0.0017
293	SLU 72	-1.92	0.25	75.24	-0.0865	-0.2519	0.0017
293	SLU 73	-2.35	0.28	82.66	-0.0951	-0.2888	0.0019
293	SLU 74	-2.25	0.28	83.83	-0.0967	-0.2872	0.0019
293	SLU 75	-2.28	0.28	83.83	-0.0967	-0.2883	0.0019
293	SLU 76	-2.3	0.28	83.15	-0.0957	-0.2875	0.0019
293	SLU 77	-2.2	0.28	84.32	-0.0973	-0.2859	0.0019
293	SLU 78	-2.22	0.28	84.32	-0.0973	-0.287	0.0019
293	SLU 79	-2.21	0.28	83.65	-0.0964	-0.2844	0.0019
293	SLU 80	-2.23	0.28	83.65	-0.0963	-0.2855	0.0019
293	SLU 81	-2.45	0.29	86.26	-0.0993	-0.3013	0.002
293	SLU 82	-2.47	0.29	86.26	-0.0993	-0.3024	0.002
293	SLU 83	-2.39	0.29	86.76	-0.1	-0.3001	0.002
293	SLU 84	-2.42	0.29	86.76	-0.0999	-0.3012	0.002
293	SLE RA 1	-1.49	0.19	55.4	-0.0636	-0.1887	0.0013
293	SLE RA 2	-1.52	0.19	55.4	-0.0635	-0.1899	0.0013
293	SLE RA 3	-1.45	0.19	56.18	-0.0646	-0.1889	0.0013
293	SLE RA 4	-1.47	0.19	56.18	-0.0646	-0.1896	0.0013
293	SLE RA 5	-1.48	0.19	55.73	-0.0639	-0.1891	0.0013
293	SLE RA 6	-1.41	0.19	56.51	-0.065	-0.188	0.0013
293	SLE RA 7	-1.43	0.19	56.51	-0.065	-0.1888	0.0013
293	SLE RA 8	-1.42	0.19	56.06	-0.0644	-0.187	0.0013
293	SLE RA 9	-1.44	0.19	56.06	-0.0644	-0.1877	0.0013
293	SLE RA 10	-1.73	0.21	61.01	-0.0701	-0.2123	0.0014
293	SLE RA 11	-1.66	0.21	61.79	-0.0712	-0.2113	0.0014
293	SLE RA 12	-1.67	0.21	61.79	-0.0712	-0.212	0.0014
293	SLE RA 13	-1.69	0.21	61.33	-0.0705	-0.2115	0.0014
293	SLE RA 14	-1.62	0.21	62.11	-0.0716	-0.2104	0.0014
293	SLE RA 15	-1.64	0.21	62.11	-0.0716	-0.2111	0.0014
293	SLE RA 16	-1.63	0.21	61.66	-0.0709	-0.2094	0.0014
293	SLE RA 17	-1.64	0.21	61.66	-0.0709	-0.2101	0.0014
293	SLE RA 18	-1.79	0.22	63.41	-0.0729	-0.2207	0.0014
293	SLE RA 19	-1.8	0.22	63.41	-0.0729	-0.2214	0.0014
293	SLE RA 20	-1.75	0.22	63.74	-0.0733	-0.2198	0.0014
293	SLE RA 21	-1.77	0.22	63.74	-0.0733	-0.2206	0.0014
293	SLE FR 1	-1.49	0.19	55.4	-0.0636	-0.1887	0.0013
293	SLE FR 2	-1.5	0.19	55.4	-0.0636	-0.189	0.0013
293	SLE FR 3	-1.48	0.19	55.54	-0.0637	-0.1884	0.0013
293	SLE FR 4	-1.59	0.2	57.8	-0.0664	-0.1986	0.0013
293	SLE FR 5	-1.57	0.2	57.94	-0.0665	-0.198	0.0013
293	SLE FR 6	-1.64	0.2	59.41	-0.0682	-0.2047	0.0013
293	SLE QP 1	-1.49	0.19	55.4	-0.0636	-0.1887	0.0013
293	SLE QP 2	-1.58	0.2	57.8	-0.0664	-0.1983	0.0013
293	SLD 1	7.99	0.28	55.56	-0.102	0.2807	0.0019
293	SLD 2	7.99	0.28	55.56	-0.102	0.2807	0.0019
293	SLD 3	9.24	0.23	49.03	-0.0675	0.3391	0.0015
293	SLD 4	9.24	0.23	49.03	-0.0675	0.3391	0.0015
293	SLD 5	-0.61	0.3	67.02	-0.1293	-0.1432	0.0022
293	SLD 6	-0.61	0.3	67.02	-0.1293	-0.1432	0.0022
293	SLD 7	3.56	0.13	45.28	-0.0145	0.0515	0.0007
293	SLD 8	3.56	0.13	45.28	-0.0145	0.0515	0.0007
293	SLD 9	-6.72	0.26	70.33	-0.1182	-0.4481	0.002
293	SLD 10	-6.72	0.26	70.33	-0.1182	-0.4481	0.002
293	SLD 11	-2.55	0.09	48.59	-0.0035	-0.2534	0.0004
293	SLD 12	-2.55	0.09	48.59	-0.0035	-0.2534	0.0004
293	SLD 13	-12.4	0.16	66.58	-0.0652	-0.7357	0.0012
293	SLD 14	-12.4	0.16	66.58	-0.0652	-0.7357	0.0012
293	SLD 15	-11.15	0.11	60.05	-0.0308	-0.6773	0.0007
293	SLD 16	-11.15	0.11	60.05	-0.0308	-0.6773	0.0007
293	SLV 1	20.35	0.39	52.69	-0.1503	0.8996	0.0027
293	SLV 2	20.35	0.39	52.69	-0.1503	0.8996	0.0027
293	SLV 3	23.24	0.28	37.05	-0.0672	1.0354	0.0016
293	SLV 4	23.24	0.28	37.05	-0.0672	1.0354	0.0016
293	SLV 5	0.61	0.43	79.99	-0.2176	-0.0749	0.0034
293	SLV 6	0.61	0.43	79.99	-0.2176	-0.0749	0.0034
293	SLV 7	10.26	0.04	27.86	0.0594	0.3778	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
293	SLV 8	10.26	0.04	27.86	0.0594	0.3778	-0.0002
293	SLV 9	-13.42	0.35	87.75	-0.1921	-0.7744	0.0028
293	SLV 10	-13.42	0.35	87.75	-0.1921	-0.7744	0.0028
293	SLV 11	-3.77	-0.04	35.62	0.0848	-0.3217	-0.0007
293	SLV 12	-3.77	-0.04	35.62	0.0848	-0.3217	-0.0007
293	SLV 13	-26.4	0.11	78.56	-0.0655	-1.432	0.001
293	SLV 14	-26.4	0.11	78.56	-0.0655	-1.432	0.001
293	SLV 15	-23.51	0	62.92	0.0176	-1.2962	-0.0001
293	SLV 16	-23.51	0	62.92	0.0176	-1.2962	-0.0001
295	SLU 1	-6.48	1.88	78.02	6.0595	1.3288	-0.465
295	SLU 2	-6.5	1.89	78.05	6.0567	1.3284	-0.4653
295	SLU 3	-6.57	1.88	79.73	6.2104	1.3585	-0.474
295	SLU 4	-6.58	1.89	79.74	6.2087	1.3583	-0.4741
295	SLU 5	-6.52	1.86	78.7	6.1238	1.339	-0.4672
295	SLU 6	-6.58	1.84	80.38	6.2774	1.3692	-0.4758
295	SLU 7	-6.6	1.85	80.4	6.2757	1.369	-0.476
295	SLU 8	-6.51	1.81	79.33	6.1936	1.35	-0.4688
295	SLU 9	-6.52	1.82	79.34	6.1919	1.3498	-0.4689
295	SLU 10	-7.57	2.14	90.45	7.0292	1.535	-0.5374
295	SLU 11	-7.64	2.13	92.13	7.1828	1.5652	-0.5461
295	SLU 12	-7.65	2.14	92.15	7.1811	1.565	-0.5462
295	SLU 13	-7.58	2.11	91.11	7.0962	1.5457	-0.5393
295	SLU 14	-7.65	2.1	92.79	7.2498	1.5758	-0.548
295	SLU 15	-7.67	2.1	92.8	7.2482	1.5756	-0.5481
295	SLU 16	-7.58	2.06	91.74	7.166	1.5567	-0.5409
295	SLU 17	-7.59	2.07	91.75	7.1643	1.5565	-0.5411
295	SLU 18	-8	2.24	95.75	7.4487	1.624	-0.568
295	SLU 19	-8.02	2.25	95.76	7.4471	1.6237	-0.5682
295	SLU 20	-8.02	2.21	96.4	7.5158	1.6346	-0.5699
295	SLU 21	-8.03	2.21	96.41	7.5141	1.6344	-0.5701
295	SLU 22	-7.43	2.09	89.51	6.9704	1.5209	-0.531
295	SLU 23	-7.45	2.1	89.53	6.9677	1.5206	-0.5313
295	SLU 24	-7.52	2.09	91.21	7.1213	1.5507	-0.54
295	SLU 25	-7.53	2.09	91.23	7.1196	1.5505	-0.5401
295	SLU 26	-7.47	2.06	90.18	7.0347	1.5312	-0.5332
295	SLU 27	-7.53	2.05	91.87	7.1883	1.5614	-0.5419
295	SLU 28	-7.55	2.06	91.88	7.1866	1.5611	-0.542
295	SLU 29	-7.46	2.02	90.81	7.1045	1.5422	-0.5348
295	SLU 30	-7.48	2.02	90.83	7.1028	1.542	-0.535
295	SLU 31	-8.52	2.35	101.94	7.9401	1.7272	-0.6034
295	SLU 32	-8.59	2.34	103.62	8.0937	1.7574	-0.6121
295	SLU 33	-8.6	2.35	103.63	8.0921	1.7571	-0.6122
295	SLU 34	-8.54	2.32	102.59	8.0071	1.7379	-0.6053
295	SLU 35	-8.6	2.31	104.27	8.1608	1.768	-0.614
295	SLU 36	-8.62	2.31	104.29	8.1591	1.7678	-0.6141
295	SLU 37	-8.53	2.27	103.22	8.0769	1.7489	-0.6069
295	SLU 38	-8.54	2.28	103.23	8.0753	1.7487	-0.6071
295	SLU 39	-8.95	2.45	107.23	8.3597	1.8161	-0.6341
295	SLU 40	-8.97	2.46	107.24	8.358	1.8159	-0.6342
295	SLU 41	-8.97	2.42	107.88	8.4267	1.8268	-0.636
295	SLU 42	-8.98	2.42	107.9	8.425	1.8266	-0.6361
295	SLU 43	-8.09	2.38	97.49	7.5651	1.6615	-0.5819
295	SLU 44	-8.12	2.38	97.52	7.5623	1.6611	-0.5822
295	SLU 45	-8.18	2.37	99.2	7.7159	1.6913	-0.5908
295	SLU 46	-8.2	2.38	99.21	7.7142	1.691	-0.591
295	SLU 47	-8.13	2.35	98.17	7.6293	1.6718	-0.584
295	SLU 48	-8.2	2.34	99.85	7.7829	1.7019	-0.5927
295	SLU 49	-8.21	2.34	99.87	7.7813	1.7017	-0.5929
295	SLU 50	-8.13	2.31	98.8	7.6991	1.6828	-0.5857
295	SLU 51	-8.14	2.31	98.81	7.6974	1.6826	-0.5858
295	SLU 52	-9.18	2.64	109.92	8.5347	1.8678	-0.6543
295	SLU 53	-9.25	2.63	111.6	8.6884	1.8979	-0.6629
295	SLU 54	-9.27	2.63	111.62	8.6867	1.8977	-0.6631
295	SLU 55	-9.2	2.6	110.58	8.6018	1.8784	-0.6562
295	SLU 56	-9.27	2.59	112.26	8.7554	1.9085	-0.6648
295	SLU 57	-9.28	2.6	112.27	8.7537	1.9083	-0.665
295	SLU 58	-9.2	2.56	111.2	8.6716	1.8894	-0.6578
295	SLU 59	-9.21	2.56	111.22	8.6699	1.8892	-0.6579
295	SLU 60	-9.62	2.74	115.21	8.9543	1.9567	-0.6849
295	SLU 61	-9.63	2.74	115.23	8.9526	1.9565	-0.6851
295	SLU 62	-9.64	2.7	115.87	9.0213	1.9673	-0.6868
295	SLU 63	-9.65	2.71	115.88	9.0196	1.9671	-0.687
295	SLU 64	-9.05	2.58	108.98	8.476	1.8537	-0.6479
295	SLU 65	-9.07	2.59	109	8.4732	1.8533	-0.6482
295	SLU 66	-9.14	2.58	110.68	8.6268	1.8834	-0.6568
295	SLU 67	-9.15	2.59	110.7	8.6251	1.8832	-0.657
295	SLU 68	-9.08	2.56	109.65	8.5402	1.864	-0.6501
295	SLU 69	-9.15	2.55	111.33	8.6938	1.8941	-0.6587
295	SLU 70	-9.17	2.55	111.35	8.6922	1.8939	-0.6589
295	SLU 71	-9.08	2.51	110.28	8.61	1.875	-0.6517
295	SLU 72	-9.09	2.52	110.3	8.6084	1.8747	-0.6518
295	SLU 73	-10.14	2.85	121.41	9.4456	2.06	-0.7203
295	SLU 74	-10.2	2.83	123.09	9.5993	2.0901	-0.729
295	SLU 75	-10.22	2.84	123.1	9.5976	2.0899	-0.7291
295	SLU 76	-10.15	2.81	122.06	9.5127	2.0706	-0.7222
295	SLU 77	-10.22	2.8	123.74	9.6663	2.1007	-0.7308
295	SLU 78	-10.23	2.8	123.76	9.6646	2.1005	-0.731
295	SLU 79	-10.15	2.77	122.69	9.5825	2.0816	-0.7238
295	SLU 80	-10.16	2.77	122.7	9.5808	2.0814	-0.724



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
295	SLU 81	-10.57	2.95	126.7	9.8652	2.1489	-0.7509
295	SLU 82	-10.59	2.95	126.71	9.8635	2.1487	-0.7511
295	SLU 83	-10.59	2.91	127.35	9.9322	2.1595	-0.7528
295	SLU 84	-10.6	2.91	127.37	9.9305	2.1593	-0.753
295	SLE RA 1	-6.75	1.94	81.3	6.3198	1.3837	-0.4839
295	SLE RA 2	-6.76	1.95	81.32	6.3179	1.3834	-0.4841
295	SLE RA 3	-6.81	1.94	82.44	6.4203	1.4035	-0.4898
295	SLE RA 4	-6.82	1.94	82.45	6.4192	1.4034	-0.4899
295	SLE RA 5	-6.77	1.92	81.76	6.3626	1.3905	-0.4853
295	SLE RA 6	-6.82	1.92	82.88	6.465	1.4106	-0.4911
295	SLE RA 7	-6.83	1.92	82.89	6.4639	1.4105	-0.4912
295	SLE RA 8	-6.77	1.9	82.18	6.4091	1.3979	-0.4864
295	SLE RA 9	-6.78	1.9	82.18	6.408	1.3977	-0.4865
295	SLE RA 10	-7.48	2.12	89.59	6.9662	1.5212	-0.5321
295	SLE RA 11	-7.52	2.11	90.71	7.0686	1.5413	-0.5379
295	SLE RA 12	-7.53	2.11	90.72	7.0675	1.5411	-0.538
295	SLE RA 13	-7.49	2.09	90.03	7.0109	1.5283	-0.5334
295	SLE RA 14	-7.53	2.09	91.15	7.1133	1.5484	-0.5392
295	SLE RA 15	-7.54	2.09	91.16	7.1122	1.5482	-0.5393
295	SLE RA 16	-7.48	2.06	90.45	7.0574	1.5356	-0.5345
295	SLE RA 17	-7.49	2.07	90.46	7.0563	1.5355	-0.5346
295	SLE RA 18	-7.77	2.18	93.12	7.2459	1.5805	-0.5526
295	SLE RA 19	-7.78	2.19	93.13	7.2448	1.5803	-0.5527
295	SLE RA 20	-7.78	2.16	93.55	7.2906	1.5876	-0.5538
295	SLE RA 21	-7.79	2.16	93.56	7.2895	1.5874	-0.5539
295	SLE FR 1	-6.75	1.94	81.3	6.3198	1.3837	-0.4839
295	SLE FR 2	-6.75	1.94	81.31	6.3194	1.3836	-0.4839
295	SLE FR 3	-6.75	1.93	81.48	6.3377	1.3865	-0.4844
295	SLE FR 4	-7.06	2.02	84.85	6.5973	1.4427	-0.5045
295	SLE FR 5	-7.06	2.01	85.02	6.6155	1.4455	-0.505
295	SLE FR 6	-7.26	2.06	87.21	6.7829	1.4821	-0.5182
295	SLE QP 1	-6.75	1.94	81.3	6.3198	1.3837	-0.4839
295	SLE QP 2	-7.05	2.01	84.85	6.5976	1.4427	-0.5045
295	SLD 1	-2.22	6.63	78.81	5.3109	1.8537	-0.7629
295	SLD 2	-2.22	6.63	78.81	5.3109	1.8537	-0.7629
295	SLD 3	-1.02	3.73	68.53	5.94	1.5814	-0.5845
295	SLD 4	-1.02	3.73	68.53	5.94	1.5814	-0.5845
295	SLD 5	-7.42	7.81	98.62	5.2575	1.9789	-0.8526
295	SLD 6	-7.42	7.81	98.62	5.2575	1.9789	-0.8526
295	SLD 7	-3.43	-1.88	64.37	7.3544	1.0714	-0.2579
295	SLD 8	-3.43	-1.88	64.37	7.3544	1.0714	-0.2579
295	SLD 9	-10.68	5.91	105.33	5.8408	1.814	-0.751
295	SLD 10	-10.68	5.91	105.33	5.8408	1.814	-0.751
295	SLD 11	-6.69	-3.78	71.08	7.9378	0.9065	-0.1564
295	SLD 12	-6.69	-3.78	71.08	7.9378	0.9065	-0.1564
295	SLD 13	-13.09	0.3	101.16	7.2553	1.304	-0.4244
295	SLD 14	-13.09	0.3	101.16	7.2553	1.304	-0.4244
295	SLD 15	-11.89	-2.61	90.89	7.8844	1.0317	-0.246
295	SLD 16	-11.89	-2.61	90.89	7.8844	1.0317	-0.246
295	SLV 1	3.97	12.61	71.12	3.6165	2.3927	-1.1
295	SLV 2	3.97	12.61	71.12	3.6165	2.3927	-1.1
295	SLV 3	6.89	5.89	46.38	5.0822	1.7503	-0.6822
295	SLV 4	6.89	5.89	46.38	5.0822	1.7503	-0.6822
295	SLV 5	-8.16	15.39	118.25	3.4803	2.702	-1.3168
295	SLV 6	-8.16	15.39	118.25	3.4803	2.702	-1.3168
295	SLV 7	1.54	-7.02	35.79	8.3659	0.5607	0.0759
295	SLV 8	1.54	-7.02	35.79	8.3659	0.5607	0.0759
295	SLV 9	-15.65	11.05	133.91	4.8293	2.3247	-1.0849
295	SLV 10	-15.65	11.05	133.91	4.8293	2.3247	-1.0849
295	SLV 11	-5.95	-11.36	51.45	9.7149	0.1834	0.3078
295	SLV 12	-5.95	-11.36	51.45	9.7149	0.1834	0.3078
295	SLV 13	-20.99	-1.86	123.31	8.1131	1.1351	-0.3268
295	SLV 14	-20.99	-1.86	123.31	8.1131	1.1351	-0.3268
295	SLV 15	-18.08	-8.58	98.58	9.5788	0.4927	0.091
295	SLV 16	-18.08	-8.58	98.58	9.5788	0.4927	0.091
296	SLU 1	3.58	0.4	13.91	-0.235	0.0847	0.0381
296	SLU 2	3.6	0.39	14.01	-0.2309	0.0854	0.0375
296	SLU 3	3.74	0.42	14.55	-0.2498	0.0884	0.0405
296	SLU 4	3.75	0.42	14.61	-0.2473	0.0888	0.0401
296	SLU 5	3.77	0.41	14.67	-0.2432	0.0894	0.0394
296	SLU 6	3.91	0.44	15.2	-0.262	0.0924	0.0425
296	SLU 7	3.92	0.44	15.27	-0.2596	0.0928	0.0421
296	SLU 8	3.91	0.44	15.22	-0.2596	0.0926	0.0421
296	SLU 9	3.93	0.43	15.28	-0.2571	0.0931	0.0417
296	SLU 10	4.24	0.45	16.4	-0.2692	0.101	0.0437
296	SLU 11	4.37	0.49	16.94	-0.2881	0.104	0.0467
296	SLU 12	4.39	0.48	17	-0.2856	0.1044	0.0463
296	SLU 13	4.4	0.48	17.06	-0.2815	0.105	0.0457
296	SLU 14	4.54	0.51	17.59	-0.3003	0.108	0.0487
296	SLU 15	4.56	0.5	17.66	-0.2979	0.1084	0.0483
296	SLU 16	4.55	0.5	17.61	-0.2979	0.1082	0.0483
296	SLU 17	4.56	0.5	17.67	-0.2954	0.1087	0.0479
296	SLU 18	4.49	0.49	17.32	-0.2897	0.107	0.047
296	SLU 19	4.5	0.49	17.38	-0.2873	0.1074	0.0466
296	SLU 20	4.65	0.51	17.98	-0.302	0.1109	0.049
296	SLU 21	4.67	0.51	18.04	-0.2996	0.1114	0.0486
296	SLU 22	4.16	0.47	16.13	-0.2755	0.0988	0.0447
296	SLU 23	4.18	0.46	16.23	-0.2714	0.0995	0.044
296	SLU 24	4.32	0.49	16.77	-0.2903	0.1025	0.0471



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
296	SLU 25	4.33	0.49	16.83	-0.2878	0.1029	0.0467
296	SLU 26	4.35	0.48	16.89	-0.2837	0.1035	0.046
296	SLU 27	4.49	0.51	17.43	-0.3025	0.1064	0.0491
296	SLU 28	4.5	0.51	17.49	-0.3001	0.1069	0.0487
296	SLU 29	4.5	0.51	17.44	-0.3001	0.1067	0.0487
296	SLU 30	4.51	0.5	17.5	-0.2976	0.1071	0.0483
296	SLU 31	4.82	0.52	18.62	-0.3097	0.1151	0.0503
296	SLU 32	4.96	0.56	19.16	-0.3286	0.1181	0.0533
296	SLU 33	4.97	0.55	19.22	-0.3261	0.1185	0.0529
296	SLU 34	4.99	0.54	19.28	-0.322	0.1191	0.0523
296	SLU 35	5.12	0.58	19.82	-0.3408	0.122	0.0553
296	SLU 36	5.14	0.57	19.88	-0.3384	0.1225	0.0549
296	SLU 37	5.13	0.57	19.83	-0.3384	0.1223	0.0549
296	SLU 38	5.15	0.57	19.89	-0.3359	0.1227	0.0545
296	SLU 39	5.07	0.56	19.54	-0.3302	0.121	0.0536
296	SLU 40	5.08	0.56	19.61	-0.3278	0.1215	0.0532
296	SLU 41	5.24	0.58	20.2	-0.3425	0.125	0.0556
296	SLU 42	5.25	0.58	20.26	-0.3401	0.1255	0.0552
296	SLU 43	4.45	0.49	17.32	-0.2917	0.1053	0.0473
296	SLU 44	4.47	0.48	17.42	-0.2875	0.106	0.0466
296	SLU 45	4.61	0.52	17.96	-0.3064	0.109	0.0497
296	SLU 46	4.63	0.51	18.02	-0.3039	0.1094	0.0493
296	SLU 47	4.64	0.51	18.08	-0.2998	0.1099	0.0486
296	SLU 48	4.78	0.54	18.61	-0.3187	0.1129	0.0517
296	SLU 49	4.79	0.53	18.68	-0.3162	0.1134	0.0513
296	SLU 50	4.79	0.53	18.63	-0.3162	0.1132	0.0513
296	SLU 51	4.8	0.53	18.69	-0.3137	0.1136	0.0509
296	SLU 52	5.11	0.55	19.81	-0.3258	0.1216	0.0529
296	SLU 53	5.25	0.58	20.35	-0.3447	0.1246	0.0559
296	SLU 54	5.26	0.58	20.41	-0.3422	0.125	0.0555
296	SLU 55	5.28	0.57	20.47	-0.3381	0.1255	0.0549
296	SLU 56	5.42	0.6	21	-0.357	0.1285	0.0579
296	SLU 57	5.43	0.6	21.07	-0.3545	0.129	0.0575
296	SLU 58	5.42	0.6	21.02	-0.3545	0.1288	0.0575
296	SLU 59	5.44	0.6	21.08	-0.3521	0.1292	0.0571
296	SLU 60	5.36	0.59	20.73	-0.3464	0.1275	0.0562
296	SLU 61	5.37	0.58	20.79	-0.3439	0.128	0.0558
296	SLU 62	5.53	0.61	21.39	-0.3587	0.1315	0.0582
296	SLU 63	5.54	0.6	21.45	-0.3562	0.1319	0.0578
296	SLU 64	5.03	0.56	19.54	-0.3322	0.1193	0.0539
296	SLU 65	5.06	0.55	19.64	-0.328	0.12	0.0532
296	SLU 66	5.19	0.59	20.18	-0.3469	0.123	0.0563
296	SLU 67	5.21	0.58	20.24	-0.3444	0.1235	0.0559
296	SLU 68	5.22	0.57	20.3	-0.3403	0.124	0.0552
296	SLU 69	5.36	0.61	20.84	-0.3592	0.127	0.0583
296	SLU 70	5.38	0.6	20.9	-0.3567	0.1274	0.0579
296	SLU 71	5.37	0.6	20.85	-0.3567	0.1273	0.0579
296	SLU 72	5.38	0.6	20.91	-0.3542	0.1277	0.0575
296	SLU 73	5.69	0.62	22.03	-0.3663	0.1357	0.0594
296	SLU 74	5.83	0.65	22.57	-0.3852	0.1386	0.0625
296	SLU 75	5.84	0.65	22.63	-0.3827	0.1391	0.0621
296	SLU 76	5.86	0.64	22.69	-0.3786	0.1396	0.0614
296	SLU 77	6	0.67	23.23	-0.3975	0.1426	0.0645
296	SLU 78	6.01	0.67	23.29	-0.395	0.143	0.0641
296	SLU 79	6	0.67	23.24	-0.395	0.1429	0.0641
296	SLU 80	6.02	0.66	23.3	-0.3925	0.1433	0.0637
296	SLU 81	5.94	0.65	22.95	-0.3869	0.1416	0.0628
296	SLU 82	5.96	0.65	23.02	-0.3844	0.1421	0.0624
296	SLU 83	6.11	0.68	23.61	-0.3992	0.1456	0.0648
296	SLU 84	6.12	0.67	23.67	-0.3967	0.146	0.0644
296	SLE RA 1	3.74	0.42	14.54	-0.2466	0.0887	0.04
296	SLE RA 2	3.76	0.41	14.61	-0.2438	0.0892	0.0396
296	SLE RA 3	3.85	0.43	14.97	-0.2564	0.0912	0.0416
296	SLE RA 4	3.86	0.43	15.01	-0.2548	0.0915	0.0413
296	SLE RA 5	3.87	0.43	15.05	-0.252	0.0918	0.0409
296	SLE RA 6	3.96	0.45	15.41	-0.2646	0.0938	0.0429
296	SLE RA 7	3.97	0.44	15.45	-0.263	0.0941	0.0427
296	SLE RA 8	3.97	0.44	15.41	-0.263	0.094	0.0427
296	SLE RA 9	3.98	0.44	15.46	-0.2613	0.0943	0.0424
296	SLE RA 10	4.18	0.46	16.2	-0.2694	0.0996	0.0437
296	SLE RA 11	4.27	0.48	16.56	-0.282	0.1016	0.0457
296	SLE RA 12	4.28	0.47	16.61	-0.2803	0.1019	0.0455
296	SLE RA 13	4.29	0.47	16.64	-0.2776	0.1022	0.045
296	SLE RA 14	4.39	0.49	17	-0.2901	0.1042	0.0471
296	SLE RA 15	4.4	0.49	17.04	-0.2885	0.1045	0.0468
296	SLE RA 16	4.39	0.49	17.01	-0.2885	0.1044	0.0468
296	SLE RA 17	4.4	0.49	17.05	-0.2869	0.1047	0.0465
296	SLE RA 18	4.35	0.48	16.82	-0.2831	0.1036	0.0459
296	SLE RA 19	4.36	0.48	16.86	-0.2814	0.1038	0.0457
296	SLE RA 20	4.46	0.49	17.26	-0.2913	0.1062	0.0473
296	SLE RA 21	4.47	0.49	17.3	-0.2896	0.1065	0.047
296	SLE FR 1	3.74	0.42	14.54	-0.2466	0.0887	0.04
296	SLE FR 2	3.75	0.42	14.55	-0.246	0.0888	0.0399
296	SLE FR 3	3.79	0.42	14.72	-0.2499	0.0898	0.0405
296	SLE FR 4	3.93	0.43	15.24	-0.257	0.0933	0.0417
296	SLE FR 5	3.97	0.44	15.4	-0.2608	0.0942	0.0423
296	SLE FR 6	4.05	0.45	15.68	-0.2648	0.0961	0.043
296	SLE QP 1	3.74	0.42	14.54	-0.2466	0.0887	0.04
296	SLE QP 2	3.92	0.44	15.22	-0.2575	0.0932	0.0418



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
296	SLD 1	10.9	0.15	38.57	-0.2056	0.2994	0.0326
296	SLD 2	10.9	0.15	38.57	-0.2056	0.2994	0.0326
296	SLD 3	9.66	0.55	33.26	-0.2508	0.267	0.0416
296	SLD 4	9.66	0.55	33.26	-0.2508	0.267	0.0416
296	SLD 5	7.89	-0.26	30.29	-0.1734	0.2041	0.0254
296	SLD 6	7.89	-0.26	30.29	-0.1734	0.2041	0.0254
296	SLD 7	3.77	1.08	12.57	-0.3241	0.0962	0.0553
296	SLD 8	3.77	1.08	12.57	-0.3241	0.0962	0.0553
296	SLD 9	4.08	-0.21	17.88	-0.191	0.0901	0.0282
296	SLD 10	4.08	-0.21	17.88	-0.191	0.0901	0.0282
296	SLD 11	-0.04	1.13	0.16	-0.3417	-0.0178	0.0581
296	SLD 12	-0.04	1.13	0.16	-0.3417	-0.0178	0.0581
296	SLD 13	-1.81	0.32	-2.81	-0.2643	-0.0807	0.042
296	SLD 14	-1.81	0.32	-2.81	-0.2643	-0.0807	0.042
296	SLD 15	-3.05	0.72	-8.13	-0.3095	-0.113	0.051
296	SLD 16	-3.05	0.72	-8.13	-0.3095	-0.113	0.051
296	SLV 1	19.99	-0.26	69.16	-0.1345	0.5677	0.0199
296	SLV 2	19.99	-0.26	69.16	-0.1345	0.5677	0.0199
296	SLV 3	16.98	0.73	56.15	-0.2447	0.4894	0.0419
296	SLV 4	16.98	0.73	56.15	-0.2447	0.4894	0.0419
296	SLV 5	13.31	-1.28	51.14	-0.0537	0.3542	0.0019
296	SLV 6	13.31	-1.28	51.14	-0.0537	0.3542	0.0019
296	SLV 7	3.28	2.03	7.77	-0.4207	0.0933	0.0752
296	SLV 8	3.28	2.03	7.77	-0.4207	0.0933	0.0752
296	SLV 9	4.57	-1.16	22.68	-0.0944	0.093	0.0084
296	SLV 10	4.57	-1.16	22.68	-0.0944	0.093	0.0084
296	SLV 11	-5.46	2.15	-20.69	-0.4614	-0.1679	0.0817
296	SLV 12	-5.46	2.15	-20.69	-0.4614	-0.1679	0.0817
296	SLV 13	-9.13	0.14	-25.7	-0.2704	-0.3031	0.0417
296	SLV 14	-9.13	0.14	-25.7	-0.2704	-0.3031	0.0417
296	SLV 15	-12.14	1.13	-38.71	-0.3805	-0.3814	0.0636
296	SLV 16	-12.14	1.13	-38.71	-0.3805	-0.3814	0.0636
297	SLU 1	2.25	0.64	24.15	-0.4249	0.1065	-0.0014
297	SLU 2	2.25	0.63	24.24	-0.4175	0.1074	-0.0014
297	SLU 3	2.34	0.68	25.21	-0.4514	0.1118	-0.0015
297	SLU 4	2.34	0.68	25.26	-0.447	0.1123	-0.0015
297	SLU 5	2.36	0.67	25.27	-0.4396	0.1138	-0.0014
297	SLU 6	2.45	0.72	26.24	-0.4735	0.1182	-0.0016
297	SLU 7	2.45	0.71	26.29	-0.4691	0.1187	-0.0015
297	SLU 8	2.47	0.71	26.21	-0.4691	0.1193	-0.0015
297	SLU 9	2.47	0.7	26.27	-0.4646	0.1199	-0.0015
297	SLU 10	2.68	0.74	28.26	-0.4863	0.1282	-0.0016
297	SLU 11	2.77	0.79	29.22	-0.5203	0.1326	-0.0017
297	SLU 12	2.77	0.78	29.28	-0.5158	0.1331	-0.0017
297	SLU 13	2.78	0.77	29.29	-0.5084	0.1346	-0.0017
297	SLU 14	2.87	0.82	30.25	-0.5424	0.139	-0.0018
297	SLU 15	2.88	0.82	30.31	-0.5379	0.1395	-0.0018
297	SLU 16	2.89	0.82	30.23	-0.5379	0.1401	-0.0018
297	SLU 17	2.89	0.81	30.28	-0.5335	0.1406	-0.0018
297	SLU 18	2.85	0.79	29.89	-0.5232	0.1362	-0.0017
297	SLU 19	2.86	0.79	29.95	-0.5188	0.1367	-0.0017
297	SLU 20	2.96	0.83	30.92	-0.5453	0.1426	-0.0018
297	SLU 21	2.96	0.82	30.98	-0.5409	0.1431	-0.0018
297	SLU 22	2.62	0.75	27.89	-0.4977	0.1251	-0.0016
297	SLU 23	2.63	0.74	27.98	-0.4904	0.1259	-0.0016
297	SLU 24	2.71	0.79	28.94	-0.5243	0.1304	-0.0017
297	SLU 25	2.72	0.79	29	-0.5199	0.1309	-0.0017
297	SLU 26	2.73	0.78	29.01	-0.5125	0.1323	-0.0017
297	SLU 27	2.82	0.83	29.97	-0.5464	0.1368	-0.0018
297	SLU 28	2.83	0.82	30.03	-0.542	0.1373	-0.0018
297	SLU 29	2.84	0.82	29.95	-0.5419	0.1379	-0.0018
297	SLU 30	2.84	0.81	30.01	-0.5375	0.1384	-0.0018
297	SLU 31	3.05	0.85	32	-0.5592	0.1467	-0.0018
297	SLU 32	3.14	0.9	32.96	-0.5931	0.1511	-0.002
297	SLU 33	3.14	0.89	33.02	-0.5887	0.1516	-0.0019
297	SLU 34	3.16	0.88	33.03	-0.5813	0.1531	-0.0019
297	SLU 35	3.25	0.93	33.99	-0.6152	0.1575	-0.002
297	SLU 36	3.25	0.93	34.05	-0.6108	0.1581	-0.002
297	SLU 37	3.26	0.93	33.97	-0.6108	0.1586	-0.002
297	SLU 38	3.26	0.92	34.02	-0.6064	0.1592	-0.002
297	SLU 39	3.23	0.9	33.63	-0.5961	0.1547	-0.002
297	SLU 40	3.23	0.9	33.68	-0.5917	0.1552	-0.002
297	SLU 41	3.34	0.94	34.66	-0.6182	0.1611	-0.002
297	SLU 42	3.34	0.93	34.71	-0.6138	0.1617	-0.002
297	SLU 43	2.8	0.8	30.12	-0.5273	0.1321	-0.0017
297	SLU 44	2.8	0.79	30.21	-0.52	0.133	-0.0017
297	SLU 45	2.89	0.84	31.17	-0.5539	0.1374	-0.0018
297	SLU 46	2.89	0.83	31.22	-0.5495	0.1379	-0.0018
297	SLU 47	2.91	0.82	31.24	-0.5421	0.1394	-0.0018
297	SLU 48	3	0.87	32.2	-0.576	0.1438	-0.0019
297	SLU 49	3	0.87	32.25	-0.5716	0.1443	-0.0019
297	SLU 50	3.01	0.87	32.18	-0.5715	0.1449	-0.0019
297	SLU 51	3.01	0.86	32.23	-0.5671	0.1455	-0.0019
297	SLU 52	3.22	0.89	34.22	-0.5888	0.1538	-0.0019
297	SLU 53	3.31	0.94	35.19	-0.6227	0.1582	-0.0021
297	SLU 54	3.31	0.94	35.24	-0.6183	0.1587	-0.002
297	SLU 55	3.33	0.93	35.25	-0.6109	0.1602	-0.002
297	SLU 56	3.42	0.98	36.22	-0.6448	0.1646	-0.0021
297	SLU 57	3.42	0.97	36.27	-0.6404	0.1651	-0.0021





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
297	SLU 58	3.44	0.97	36.19	-0.6404	0.1657	-0.0021
297	SLU 59	3.44	0.96	36.25	-0.636	0.1662	-0.0021
297	SLU 60	3.4	0.95	35.85	-0.6257	0.1618	-0.0021
297	SLU 61	3.4	0.94	35.91	-0.6213	0.1623	-0.0021
297	SLU 62	3.51	0.98	36.88	-0.6478	0.1682	-0.0021
297	SLU 63	3.51	0.98	36.94	-0.6434	0.1687	-0.0021
297	SLU 64	3.17	0.91	33.85	-0.6002	0.1507	-0.002
297	SLU 65	3.17	0.9	33.95	-0.5928	0.1515	-0.002
297	SLU 66	3.26	0.95	34.91	-0.6268	0.156	-0.0021
297	SLU 67	3.26	0.94	34.96	-0.6223	0.1565	-0.0021
297	SLU 68	3.28	0.93	34.98	-0.6149	0.1579	-0.002
297	SLU 69	3.37	0.98	35.94	-0.6489	0.1624	-0.0021
297	SLU 70	3.37	0.98	35.99	-0.6444	0.1629	-0.0021
297	SLU 71	3.39	0.98	35.92	-0.6444	0.1635	-0.0021
297	SLU 72	3.39	0.97	35.97	-0.64	0.164	-0.0021
297	SLU 73	3.6	1	37.96	-0.6617	0.1723	-0.0022
297	SLU 74	3.69	1.05	38.92	-0.6956	0.1767	-0.0023
297	SLU 75	3.69	1.05	38.98	-0.6912	0.1772	-0.0023
297	SLU 76	3.7	1.04	38.99	-0.6838	0.1787	-0.0023
297	SLU 77	3.79	1.09	39.95	-0.7177	0.1831	-0.0024
297	SLU 78	3.8	1.08	40.01	-0.7133	0.1837	-0.0024
297	SLU 79	3.81	1.08	39.93	-0.7133	0.1842	-0.0024
297	SLU 80	3.81	1.07	39.99	-0.7088	0.1848	-0.0023
297	SLU 81	3.77	1.06	39.59	-0.6986	0.1803	-0.0023
297	SLU 82	3.78	1.05	39.65	-0.6942	0.1808	-0.0023
297	SLU 83	3.88	1.09	40.62	-0.7207	0.1867	-0.0024
297	SLU 84	3.88	1.09	40.68	-0.7163	0.1873	-0.0024
297	SLE RA 1	2.36	0.68	25.22	-0.4457	0.1118	-0.0015
297	SLE RA 2	2.36	0.67	25.28	-0.4408	0.1124	-0.0015
297	SLE RA 3	2.42	0.7	25.92	-0.4634	0.1153	-0.0015
297	SLE RA 4	2.42	0.7	25.96	-0.4604	0.1157	-0.0015
297	SLE RA 5	2.43	0.69	25.97	-0.4555	0.1167	-0.0015
297	SLE RA 6	2.49	0.72	26.61	-0.4781	0.1196	-0.0016
297	SLE RA 7	2.49	0.72	26.65	-0.4752	0.12	-0.0016
297	SLE RA 8	2.5	0.72	26.59	-0.4751	0.1204	-0.0016
297	SLE RA 9	2.5	0.72	26.63	-0.4722	0.1207	-0.0016
297	SLE RA 10	2.64	0.74	27.96	-0.4867	0.1262	-0.0016
297	SLE RA 11	2.7	0.77	28.6	-0.5093	0.1292	-0.0017
297	SLE RA 12	2.7	0.77	28.64	-0.5063	0.1295	-0.0017
297	SLE RA 13	2.71	0.76	28.65	-0.5014	0.1305	-0.0017
297	SLE RA 14	2.77	0.79	29.29	-0.524	0.1335	-0.0017
297	SLE RA 15	2.77	0.79	29.32	-0.5211	0.1338	-0.0017
297	SLE RA 16	2.78	0.79	29.27	-0.5211	0.1342	-0.0017
297	SLE RA 17	2.78	0.79	29.31	-0.5181	0.1346	-0.0017
297	SLE RA 18	2.76	0.78	29.05	-0.5113	0.1316	-0.0017
297	SLE RA 19	2.76	0.77	29.08	-0.5083	0.1319	-0.0017
297	SLE RA 20	2.83	0.8	29.73	-0.526	0.1359	-0.0017
297	SLE RA 21	2.83	0.79	29.77	-0.523	0.1362	-0.0017
297	SLE FR 1	2.36	0.68	25.22	-0.4457	0.1118	-0.0015
297	SLE FR 2	2.36	0.67	25.23	-0.4447	0.1119	-0.0015
297	SLE FR 3	2.38	0.68	25.5	-0.4516	0.1135	-0.0015
297	SLE FR 4	2.48	0.7	26.38	-0.4644	0.1179	-0.0015
297	SLE FR 5	2.51	0.71	26.64	-0.4712	0.1195	-0.0016
297	SLE FR 6	2.56	0.73	27.13	-0.4785	0.1217	-0.0016
297	SLE QP 1	2.36	0.68	25.22	-0.4457	0.1118	-0.0015
297	SLE QP 2	2.48	0.71	26.37	-0.4654	0.1178	-0.0015
297	SLD 1	9.36	0.57	54.75	-0.3611	0.5235	-0.0012
297	SLD 2	9.36	0.57	54.75	-0.3611	0.5235	-0.0012
297	SLD 3	8.34	0.67	47.42	-0.4481	0.4685	-0.0014
297	SLD 4	8.34	0.67	47.42	-0.4481	0.4685	-0.0014
297	SLD 5	6.08	0.51	46	-0.3022	0.323	-0.0011
297	SLD 6	6.08	0.51	46	-0.3022	0.323	-0.0011
297	SLD 7	2.7	0.85	21.56	-0.5921	0.1395	-0.0019
297	SLD 8	2.7	0.85	21.56	-0.5921	0.1395	-0.0019
297	SLD 9	2.26	0.56	31.17	-0.3386	0.096	-0.0012
297	SLD 10	2.26	0.56	31.17	-0.3386	0.096	-0.0012
297	SLD 11	-1.13	0.9	6.73	-0.6286	-0.0875	-0.002
297	SLD 12	-1.13	0.9	6.73	-0.6286	-0.0875	-0.002
297	SLD 13	-3.39	0.74	5.32	-0.4827	-0.233	-0.0016
297	SLD 14	-3.39	0.74	5.32	-0.4827	-0.233	-0.0016
297	SLD 15	-4.41	0.84	-2.01	-0.5696	-0.288	-0.0019
297	SLD 16	-4.41	0.84	-2.01	-0.5696	-0.288	-0.0019
297	SLV 1	18.29	0.39	92	-0.2203	1.0503	-0.0007
297	SLV 2	18.29	0.39	92	-0.2203	1.0503	-0.0007
297	SLV 3	15.87	0.63	74.07	-0.4281	0.9187	-0.0013
297	SLV 4	15.87	0.63	74.07	-0.4281	0.9187	-0.0013
297	SLV 5	10.89	0.24	73.26	-0.0767	0.5971	-0.0004
297	SLV 6	10.89	0.24	73.26	-0.0767	0.5971	-0.0004
297	SLV 7	2.83	1.06	13.48	-0.7693	0.1584	-0.0024
297	SLV 8	2.83	1.06	13.48	-0.7693	0.1584	-0.0024
297	SLV 9	2.13	0.35	39.26	-0.1614	0.0771	-0.0007
297	SLV 10	2.13	0.35	39.26	-0.1614	0.0771	-0.0007
297	SLV 11	-5.94	1.17	-20.52	-0.854	-0.3616	-0.0027
297	SLV 12	-5.94	1.17	-20.52	-0.854	-0.3616	-0.0027
297	SLV 13	-10.92	0.78	-21.33	-0.5027	-0.6832	-0.0018
297	SLV 14	-10.92	0.78	-21.33	-0.5027	-0.6832	-0.0018
297	SLV 15	-13.34	1.02	-39.27	-0.7104	-0.8148	-0.0024
297	SLV 16	-13.34	1.02	-39.27	-0.7104	-0.8148	-0.0024
298	SLU 1	0.89	0.39	23.87	-0.3448	0.0377	0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
298	SLU 2	0.89	0.39	23.83	-0.3388	0.0385	0.0007
298	SLU 3	0.92	0.42	24.82	-0.3662	0.0389	0.0007
298	SLU 4	0.92	0.41	24.8	-0.3626	0.0394	0.0007
298	SLU 5	0.94	0.41	24.71	-0.3566	0.0409	0.0007
298	SLU 6	0.97	0.44	25.7	-0.384	0.0412	0.0008
298	SLU 7	0.97	0.43	25.68	-0.3804	0.0418	0.0008
298	SLU 8	0.99	0.43	25.63	-0.3803	0.0423	0.0008
298	SLU 9	0.99	0.43	25.61	-0.3767	0.0428	0.0008
298	SLU 10	1.09	0.45	27.7	-0.3941	0.0473	0.0008
298	SLU 11	1.11	0.48	28.68	-0.4215	0.0477	0.0009
298	SLU 12	1.12	0.48	28.66	-0.4179	0.0482	0.0009
298	SLU 13	1.14	0.47	28.58	-0.4118	0.0497	0.0008
298	SLU 14	1.16	0.5	29.57	-0.4392	0.05	0.0009
298	SLU 15	1.17	0.5	29.54	-0.4357	0.0506	0.0009
298	SLU 16	1.19	0.5	29.5	-0.4356	0.0511	0.0009
298	SLU 17	1.19	0.49	29.48	-0.432	0.0517	0.0009
298	SLU 18	1.17	0.48	29.39	-0.4237	0.0502	0.0009
298	SLU 19	1.17	0.48	29.37	-0.4202	0.0508	0.0009
298	SLU 20	1.22	0.5	30.27	-0.4415	0.0526	0.0009
298	SLU 21	1.23	0.5	30.25	-0.4379	0.0531	0.0009
298	SLU 22	1.04	0.46	27.45	-0.4034	0.0446	0.0008
298	SLU 23	1.05	0.45	27.41	-0.3974	0.0454	0.0008
298	SLU 24	1.07	0.48	28.4	-0.4248	0.0458	0.0009
298	SLU 25	1.07	0.48	28.38	-0.4213	0.0463	0.0009
298	SLU 26	1.1	0.47	28.29	-0.4152	0.0478	0.0008
298	SLU 27	1.12	0.5	29.28	-0.4426	0.0481	0.0009
298	SLU 28	1.12	0.5	29.26	-0.439	0.0487	0.0009
298	SLU 29	1.14	0.5	29.21	-0.4389	0.0492	0.0009
298	SLU 30	1.15	0.5	29.19	-0.4353	0.0497	0.0009
298	SLU 31	1.25	0.51	31.28	-0.4527	0.0542	0.0009
298	SLU 32	1.27	0.55	32.26	-0.4801	0.0546	0.001
298	SLU 33	1.27	0.54	32.24	-0.4765	0.0552	0.001
298	SLU 34	1.3	0.54	32.16	-0.4705	0.0566	0.001
298	SLU 35	1.32	0.57	33.15	-0.4979	0.0569	0.001
298	SLU 36	1.32	0.56	33.12	-0.4943	0.0575	0.001
298	SLU 37	1.34	0.56	33.08	-0.4942	0.058	0.001
298	SLU 38	1.35	0.56	33.06	-0.4906	0.0586	0.001
298	SLU 39	1.33	0.55	32.97	-0.4824	0.0571	0.001
298	SLU 40	1.33	0.54	32.95	-0.4788	0.0577	0.001
298	SLU 41	1.38	0.57	33.85	-0.5001	0.0595	0.001
298	SLU 42	1.38	0.57	33.83	-0.4965	0.06	0.001
298	SLU 43	1.1	0.49	29.8	-0.4281	0.0466	0.0009
298	SLU 44	1.11	0.48	29.76	-0.4221	0.0475	0.0009
298	SLU 45	1.13	0.51	30.75	-0.4495	0.0478	0.0009
298	SLU 46	1.13	0.51	30.73	-0.446	0.0484	0.0009
298	SLU 47	1.16	0.5	30.65	-0.4399	0.0498	0.0009
298	SLU 48	1.18	0.53	31.63	-0.4673	0.0502	0.001
298	SLU 49	1.18	0.53	31.61	-0.4637	0.0507	0.0009
298	SLU 50	1.2	0.53	31.56	-0.4636	0.0512	0.0009
298	SLU 51	1.21	0.52	31.54	-0.4601	0.0518	0.0009
298	SLU 52	1.3	0.54	33.63	-0.4774	0.0563	0.001
298	SLU 53	1.33	0.57	34.62	-0.5048	0.0566	0.001
298	SLU 54	1.33	0.57	34.59	-0.5012	0.0572	0.001
298	SLU 55	1.36	0.56	34.51	-0.4952	0.0586	0.001
298	SLU 56	1.38	0.6	35.5	-0.5226	0.059	0.0011
298	SLU 57	1.38	0.59	35.48	-0.519	0.0595	0.0011
298	SLU 58	1.4	0.59	35.43	-0.5189	0.0601	0.0011
298	SLU 59	1.4	0.59	35.41	-0.5153	0.0606	0.0011
298	SLU 60	1.38	0.58	35.32	-0.5071	0.0592	0.001
298	SLU 61	1.39	0.57	35.3	-0.5035	0.0597	0.001
298	SLU 62	1.44	0.6	36.2	-0.5248	0.0615	0.0011
298	SLU 63	1.44	0.59	36.18	-0.5212	0.062	0.0011
298	SLU 64	1.26	0.55	33.38	-0.4867	0.0535	0.001
298	SLU 65	1.26	0.55	33.34	-0.4808	0.0544	0.001
298	SLU 66	1.28	0.58	34.33	-0.5082	0.0547	0.001
298	SLU 67	1.29	0.57	34.31	-0.5046	0.0553	0.001
298	SLU 68	1.31	0.57	34.23	-0.4985	0.0567	0.001
298	SLU 69	1.33	0.6	35.21	-0.5259	0.0571	0.0011
298	SLU 70	1.34	0.59	35.19	-0.5224	0.0576	0.0011
298	SLU 71	1.36	0.6	35.14	-0.5222	0.0581	0.0011
298	SLU 72	1.36	0.59	35.12	-0.5187	0.0587	0.0011
298	SLU 73	1.46	0.61	37.21	-0.536	0.0632	0.0011
298	SLU 74	1.48	0.64	38.2	-0.5634	0.0636	0.0012
298	SLU 75	1.48	0.64	38.17	-0.5599	0.0641	0.0011
298	SLU 76	1.51	0.63	38.09	-0.5538	0.0655	0.0011
298	SLU 77	1.53	0.66	39.08	-0.5812	0.0659	0.0012
298	SLU 78	1.54	0.66	39.06	-0.5776	0.0664	0.0012
298	SLU 79	1.56	0.66	39.01	-0.5775	0.067	0.0012
298	SLU 80	1.56	0.65	38.99	-0.5739	0.0675	0.0012
298	SLU 81	1.54	0.64	38.9	-0.5657	0.0661	0.0012
298	SLU 82	1.54	0.64	38.88	-0.5621	0.0666	0.0011
298	SLU 83	1.59	0.66	39.78	-0.5834	0.0684	0.0012
298	SLU 84	1.59	0.66	39.76	-0.5799	0.0689	0.0012
298	SLE RA 1	0.93	0.41	24.89	-0.3615	0.0396	0.0007
298	SLE RA 2	0.94	0.41	24.87	-0.3576	0.0402	0.0007
298	SLE RA 3	0.95	0.43	25.52	-0.3758	0.0405	0.0008
298	SLE RA 4	0.95	0.43	25.51	-0.3734	0.0408	0.0008
298	SLE RA 5	0.97	0.42	25.45	-0.3694	0.0418	0.0008
298	SLE RA 6	0.98	0.44	26.11	-0.3877	0.042	0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
298	SLE RA 7	0.99	0.44	26.1	-0.3853	0.0424	0.0008
298	SLE RA 8	1	0.44	26.07	-0.3852	0.0427	0.0008
298	SLE RA 9	1	0.44	26.05	-0.3828	0.0431	0.0008
298	SLE RA 10	1.07	0.45	27.44	-0.3944	0.0461	0.0008
298	SLE RA 11	1.08	0.47	28.1	-0.4127	0.0463	0.0008
298	SLE RA 12	1.08	0.47	28.09	-0.4103	0.0467	0.0008
298	SLE RA 13	1.1	0.46	28.03	-0.4062	0.0476	0.0008
298	SLE RA 14	1.12	0.48	28.69	-0.4245	0.0479	0.0009
298	SLE RA 15	1.12	0.48	28.67	-0.4221	0.0482	0.0009
298	SLE RA 16	1.13	0.48	28.64	-0.422	0.0486	0.0009
298	SLE RA 17	1.13	0.48	28.63	-0.4197	0.049	0.0009
298	SLE RA 18	1.12	0.47	28.57	-0.4142	0.048	0.0008
298	SLE RA 19	1.12	0.47	28.56	-0.4118	0.0484	0.0008
298	SLE RA 20	1.16	0.49	29.16	-0.426	0.0496	0.0009
298	SLE RA 21	1.16	0.48	29.15	-0.4236	0.0499	0.0009
298	SLE FR 1	0.93	0.41	24.89	-0.3615	0.0396	0.0007
298	SLE FR 2	0.93	0.41	24.89	-0.3607	0.0397	0.0007
298	SLE FR 3	0.95	0.42	25.13	-0.3663	0.0402	0.0007
298	SLE FR 4	0.99	0.43	25.99	-0.3765	0.0423	0.0008
298	SLE FR 5	1	0.44	26.23	-0.382	0.0428	0.0008
298	SLE FR 6	1.03	0.44	26.73	-0.3878	0.0438	0.0008
298	SLE QP 1	0.93	0.41	24.89	-0.3615	0.0396	0.0007
298	SLE QP 2	0.99	0.43	26	-0.3773	0.0421	0.0008
298	SLD 1	8.8	0.26	37.22	-0.2283	0.4096	0.0008
298	SLD 2	8.8	0.26	37.22	-0.2283	0.4096	0.0008
298	SLD 3	7.53	0.45	41.54	-0.3964	0.3574	0.0009
298	SLD 4	7.53	0.45	41.54	-0.3964	0.3574	0.0009
298	SLD 5	5.26	0.1	22.8	-0.0778	0.2316	0.0005
298	SLD 6	5.26	0.1	22.8	-0.0778	0.2316	0.0005
298	SLD 7	1.02	0.72	37.22	-0.6379	0.0575	0.001
298	SLD 8	1.02	0.72	37.22	-0.6379	0.0575	0.001
298	SLD 9	0.95	0.14	14.77	-0.1168	0.0268	0.0005
298	SLD 10	0.95	0.14	14.77	-0.1168	0.0268	0.0005
298	SLD 11	-3.28	0.76	29.19	-0.6768	-0.1473	0.001
298	SLD 12	-3.28	0.76	29.19	-0.6768	-0.1473	0.001
298	SLD 13	-5.55	0.41	10.45	-0.3583	-0.2731	0.0006
298	SLD 14	-5.55	0.41	10.45	-0.3583	-0.2731	0.0006
298	SLD 15	-6.83	0.6	14.77	-0.5263	-0.3253	0.0008
298	SLD 16	-6.83	0.6	14.77	-0.5263	-0.3253	0.0008
298	SLV 1	18.95	0.03	51.46	-0.0199	0.8863	0.0008
298	SLV 2	18.95	0.03	51.46	-0.0199	0.8863	0.0008
298	SLV 3	15.91	0.48	61.95	-0.4279	0.7618	0.0011
298	SLV 4	15.91	0.48	61.95	-0.4279	0.7618	0.0011
298	SLV 5	10.99	-0.37	17.73	0.3489	0.4842	0.0002
298	SLV 6	10.99	-0.37	17.73	0.3489	0.4842	0.0002
298	SLV 7	0.85	1.13	52.69	-1.0114	0.0693	0.0014
298	SLV 8	0.85	1.13	52.69	-1.0114	0.0693	0.0014
298	SLV 9	1.12	-0.27	-0.7	0.2568	0.015	0.0001
298	SLV 10	1.12	-0.27	-0.7	0.2568	0.015	0.0001
298	SLV 11	-9.01	1.23	34.26	-1.1035	-0.3999	0.0013
298	SLV 12	-9.01	1.23	34.26	-1.1035	-0.3999	0.0013
298	SLV 13	-13.93	0.38	-9.96	-0.3267	-0.6775	0.0004
298	SLV 14	-13.93	0.38	-9.96	-0.3267	-0.6775	0.0004
298	SLV 15	-16.97	0.83	0.53	-0.7348	-0.802	0.0008
298	SLV 16	-16.97	0.83	0.53	-0.7348	-0.802	0.0008
299	SLU 1	-0.42	0.32	23.98	-0.2804	-0.0178	0.0008
299	SLU 2	-0.42	0.31	23.84	-0.2754	-0.0172	0.0008
299	SLU 3	-0.44	0.34	24.86	-0.2976	-0.0179	0.0008
299	SLU 4	-0.44	0.33	24.77	-0.2946	-0.0175	0.0008
299	SLU 5	-0.4	0.33	24.62	-0.2896	-0.0154	0.0008
299	SLU 6	-0.42	0.35	25.64	-0.3118	-0.0161	0.0009
299	SLU 7	-0.42	0.35	25.55	-0.3088	-0.0157	0.0008
299	SLU 8	-0.38	0.35	25.54	-0.3088	-0.0142	0.0009
299	SLU 9	-0.38	0.34	25.45	-0.3058	-0.0138	0.0008
299	SLU 10	-0.45	0.36	27.66	-0.3195	-0.0186	0.0009
299	SLU 11	-0.48	0.38	28.68	-0.3418	-0.0193	0.0009
299	SLU 12	-0.48	0.38	28.6	-0.3388	-0.0189	0.0009
299	SLU 13	-0.44	0.38	28.44	-0.3337	-0.0168	0.0009
299	SLU 14	-0.46	0.4	29.46	-0.356	-0.0175	0.001
299	SLU 15	-0.46	0.4	29.38	-0.353	-0.0171	0.001
299	SLU 16	-0.42	0.4	29.37	-0.353	-0.0156	0.001
299	SLU 17	-0.42	0.39	29.28	-0.35	-0.0152	0.001
299	SLU 18	-0.48	0.39	29.45	-0.3435	-0.0198	0.0009
299	SLU 19	-0.47	0.38	29.36	-0.3405	-0.0194	0.0009
299	SLU 20	-0.46	0.4	30.23	-0.3577	-0.018	0.001
299	SLU 21	-0.45	0.4	30.14	-0.3547	-0.0176	0.001
299	SLU 22	-0.48	0.37	27.5	-0.3274	-0.0199	0.0009
299	SLU 23	-0.48	0.36	27.35	-0.3224	-0.0193	0.0009
299	SLU 24	-0.5	0.39	28.37	-0.3446	-0.02	0.0009
299	SLU 25	-0.5	0.38	28.29	-0.3416	-0.0196	0.0009
299	SLU 26	-0.46	0.38	28.13	-0.3366	-0.0175	0.0009
299	SLU 27	-0.48	0.4	29.15	-0.3588	-0.0182	0.001
299	SLU 28	-0.48	0.4	29.07	-0.3559	-0.0178	0.001
299	SLU 29	-0.45	0.4	29.06	-0.3558	-0.0163	0.001
299	SLU 30	-0.44	0.4	28.97	-0.3528	-0.0159	0.001
299	SLU 31	-0.52	0.41	31.18	-0.3666	-0.0206	0.001
299	SLU 32	-0.54	0.44	32.2	-0.3888	-0.0214	0.0011
299	SLU 33	-0.54	0.43	32.11	-0.3858	-0.021	0.0011
299	SLU 34	-0.5	0.43	31.96	-0.3808	-0.0188	0.001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
299	SLU 35	-0.52	0.45	32.98	-0.403	-0.0196	0.0011
299	SLU 36	-0.52	0.45	32.89	-0.4	-0.0192	0.0011
299	SLU 37	-0.48	0.45	32.88	-0.4	-0.0177	0.0011
299	SLU 38	-0.48	0.45	32.79	-0.397	-0.0173	0.0011
299	SLU 39	-0.54	0.44	32.96	-0.3905	-0.0219	0.0011
299	SLU 40	-0.53	0.44	32.88	-0.3875	-0.0215	0.0011
299	SLU 41	-0.52	0.46	33.74	-0.4047	-0.0201	0.0011
299	SLU 42	-0.52	0.45	33.65	-0.4017	-0.0197	0.0011
299	SLU 43	-0.53	0.39	29.97	-0.3484	-0.0225	0.001
299	SLU 44	-0.52	0.39	29.83	-0.3434	-0.0218	0.0009
299	SLU 45	-0.54	0.41	30.85	-0.3656	-0.0226	0.001
299	SLU 46	-0.54	0.41	30.76	-0.3626	-0.0222	0.001
299	SLU 47	-0.5	0.4	30.61	-0.3576	-0.02	0.001
299	SLU 48	-0.53	0.43	31.63	-0.3798	-0.0208	0.001
299	SLU 49	-0.52	0.42	31.54	-0.3768	-0.0204	0.001
299	SLU 50	-0.49	0.42	31.53	-0.3768	-0.0189	0.001
299	SLU 51	-0.49	0.42	31.44	-0.3738	-0.0185	0.001
299	SLU 52	-0.56	0.44	33.65	-0.3875	-0.0232	0.0011
299	SLU 53	-0.58	0.46	34.67	-0.4098	-0.0239	0.0011
299	SLU 54	-0.58	0.46	34.59	-0.4068	-0.0235	0.0011
299	SLU 55	-0.54	0.45	34.43	-0.4017	-0.0214	0.0011
299	SLU 56	-0.56	0.48	35.45	-0.424	-0.0221	0.0012
299	SLU 57	-0.56	0.47	35.37	-0.421	-0.0217	0.0012
299	SLU 58	-0.53	0.47	35.35	-0.4209	-0.0202	0.0012
299	SLU 59	-0.52	0.47	35.27	-0.4179	-0.0198	0.0011
299	SLU 60	-0.58	0.46	35.44	-0.4115	-0.0244	0.0011
299	SLU 61	-0.58	0.46	35.35	-0.4085	-0.024	0.0011
299	SLU 62	-0.56	0.48	36.22	-0.4257	-0.0226	0.0012
299	SLU 63	-0.56	0.48	36.13	-0.4227	-0.0222	0.0012
299	SLU 64	-0.59	0.45	33.49	-0.3954	-0.0246	0.0011
299	SLU 65	-0.58	0.44	33.34	-0.3904	-0.0239	0.0011
299	SLU 66	-0.61	0.46	34.36	-0.4126	-0.0246	0.0011
299	SLU 67	-0.6	0.46	34.28	-0.4096	-0.0243	0.0011
299	SLU 68	-0.56	0.46	34.12	-0.4046	-0.0221	0.0011
299	SLU 69	-0.59	0.48	35.14	-0.4268	-0.0228	0.0012
299	SLU 70	-0.59	0.48	35.05	-0.4238	-0.0224	0.0012
299	SLU 71	-0.55	0.48	35.04	-0.4238	-0.0209	0.0012
299	SLU 72	-0.55	0.47	34.96	-0.4208	-0.0206	0.0012
299	SLU 73	-0.62	0.49	37.17	-0.4345	-0.0253	0.0012
299	SLU 74	-0.64	0.51	38.19	-0.4568	-0.026	0.0013
299	SLU 75	-0.64	0.51	38.1	-0.4538	-0.0256	0.0012
299	SLU 76	-0.6	0.5	37.95	-0.4488	-0.0235	0.0012
299	SLU 77	-0.63	0.53	38.97	-0.471	-0.0242	0.0013
299	SLU 78	-0.62	0.53	38.88	-0.468	-0.0238	0.0013
299	SLU 79	-0.59	0.53	38.87	-0.468	-0.0223	0.0013
299	SLU 80	-0.59	0.52	38.78	-0.465	-0.0219	0.0013
299	SLU 81	-0.64	0.52	38.95	-0.4585	-0.0265	0.0013
299	SLU 82	-0.64	0.51	38.86	-0.4555	-0.0261	0.0012
299	SLU 83	-0.62	0.53	39.73	-0.4727	-0.0247	0.0013
299	SLU 84	-0.62	0.53	39.64	-0.4697	-0.0243	0.0013
299	SLE RA 1	-0.44	0.33	24.99	-0.2938	-0.0184	0.0008
299	SLE RA 2	-0.43	0.33	24.89	-0.2905	-0.018	0.0008
299	SLE RA 3	-0.45	0.34	25.57	-0.3053	-0.0185	0.0008
299	SLE RA 4	-0.45	0.34	25.51	-0.3033	-0.0182	0.0008
299	SLE RA 5	-0.42	0.34	25.41	-0.2999	-0.0168	0.0008
299	SLE RA 6	-0.44	0.35	26.09	-0.3148	-0.0173	0.0009
299	SLE RA 7	-0.44	0.35	26.03	-0.3128	-0.017	0.0009
299	SLE RA 8	-0.41	0.35	26.02	-0.3127	-0.016	0.0009
299	SLE RA 9	-0.41	0.35	25.97	-0.3107	-0.0158	0.0009
299	SLE RA 10	-0.46	0.36	27.44	-0.3199	-0.0189	0.0009
299	SLE RA 11	-0.48	0.38	28.12	-0.3348	-0.0194	0.0009
299	SLE RA 12	-0.47	0.37	28.06	-0.3328	-0.0191	0.0009
299	SLE RA 13	-0.45	0.37	27.96	-0.3294	-0.0177	0.0009
299	SLE RA 14	-0.46	0.39	28.64	-0.3442	-0.0182	0.0009
299	SLE RA 15	-0.46	0.39	28.58	-0.3422	-0.0179	0.0009
299	SLE RA 16	-0.44	0.39	28.58	-0.3422	-0.0169	0.0009
299	SLE RA 17	-0.44	0.38	28.52	-0.3402	-0.0167	0.0009
299	SLE RA 18	-0.47	0.38	28.63	-0.3359	-0.0197	0.0009
299	SLE RA 19	-0.47	0.38	28.57	-0.3339	-0.0195	0.0009
299	SLE RA 20	-0.46	0.39	29.15	-0.3453	-0.0185	0.0009
299	SLE RA 21	-0.46	0.39	29.09	-0.3433	-0.0183	0.0009
299	SLE FR 1	-0.44	0.33	24.99	-0.2938	-0.0184	0.0008
299	SLE FR 2	-0.44	0.33	24.97	-0.2931	-0.0183	0.0008
299	SLE FR 3	-0.43	0.34	25.19	-0.2976	-0.018	0.0008
299	SLE FR 4	-0.45	0.34	26.06	-0.3058	-0.0187	0.0008
299	SLE FR 5	-0.44	0.35	26.29	-0.3102	-0.0183	0.0009
299	SLE FR 6	-0.46	0.35	26.81	-0.3148	-0.0191	0.0009
299	SLE QP 1	-0.44	0.33	24.99	-0.2938	-0.0184	0.0008
299	SLE QP 2	-0.45	0.35	26.08	-0.3064	-0.0188	0.0008
299	SLD 1	8.83	0.15	31.67	-0.1191	0.424	0.0007
299	SLD 2	8.83	0.15	31.67	-0.1191	0.424	0.0007
299	SLD 3	7.4	0.39	34.12	-0.3537	0.3633	0.0013
299	SLD 4	7.4	0.39	34.12	-0.3537	0.3633	0.0013
299	SLD 5	4.49	-0.08	24.04	0.1055	0.206	-0.0001
299	SLD 6	4.49	-0.08	24.04	0.1055	0.206	-0.0001
299	SLD 7	-0.25	0.73	32.21	-0.6764	0.0038	0.0018
299	SLD 8	-0.25	0.73	32.21	-0.6764	0.0038	0.0018
299	SLD 9	-0.65	-0.04	19.94	0.0635	-0.0414	-0.0001
299	SLD 10	-0.65	-0.04	19.94	0.0635	-0.0414	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
299	SLD 11	-5.39	0.77	28.12	-0.7184	-0.2437	0.0017
299	SLD 12	-5.39	0.77	28.12	-0.7184	-0.2437	0.0017
299	SLD 13	-8.3	0.3	18.03	-0.2592	-0.4009	0.0004
299	SLD 14	-8.3	0.3	18.03	-0.2592	-0.4009	0.0004
299	SLD 15	-9.72	0.54	20.49	-0.4937	-0.4616	0.001
299	SLD 16	-9.72	0.54	20.49	-0.4937	-0.4616	0.001
299	SLV 1	20.87	-0.13	38.86	0.1475	0.9983	0.0005
299	SLV 2	20.87	-0.13	38.86	0.1475	0.9983	0.0005
299	SLV 3	17.47	0.46	44.61	-0.4247	0.8538	0.0019
299	SLV 4	17.47	0.46	44.61	-0.4247	0.8538	0.0019
299	SLV 5	11.1	-0.7	21.19	0.6975	0.5054	-0.0013
299	SLV 6	11.1	-0.7	21.19	0.6975	0.5054	-0.0013
299	SLV 7	-0.23	1.28	40.35	-1.2097	0.0239	0.0033
299	SLV 8	-0.23	1.28	40.35	-1.2097	0.0239	0.0033
299	SLV 9	-0.67	-0.59	11.8	0.5968	-0.0615	-0.0016
299	SLV 10	-0.67	-0.59	11.8	0.5968	-0.0615	-0.0016
299	SLV 11	-11.99	1.39	30.96	-1.3104	-0.543	0.003
299	SLV 12	-11.99	1.39	30.96	-1.3104	-0.543	0.003
299	SLV 13	-18.37	0.23	7.55	-0.1882	-0.8914	-0.0002
299	SLV 14	-18.37	0.23	7.55	-0.1882	-0.8914	-0.0002
299	SLV 15	-21.76	0.82	13.3	-0.7603	-1.0359	0.0011
299	SLV 16	-21.76	0.82	13.3	-0.7603	-1.0359	0.0011
300	SLU 1	-1.37	0.27	23.62	-0.2307	-0.0573	0.0007
300	SLU 2	-1.37	0.26	23.38	-0.2262	-0.0566	0.0007
300	SLU 3	-1.43	0.28	24.41	-0.2446	-0.06	0.0008
300	SLU 4	-1.43	0.28	24.27	-0.2419	-0.0595	0.0008
300	SLU 5	-1.39	0.28	24.05	-0.2376	-0.0574	0.0007
300	SLU 6	-1.45	0.3	25.09	-0.2559	-0.0607	0.0008
300	SLU 7	-1.45	0.29	24.94	-0.2533	-0.0603	0.0008
300	SLU 8	-1.41	0.29	24.97	-0.2534	-0.0588	0.0008
300	SLU 9	-1.41	0.29	24.83	-0.2507	-0.0584	0.0008
300	SLU 10	-1.6	0.3	27.09	-0.2616	-0.0657	0.0008
300	SLU 11	-1.66	0.32	28.12	-0.28	-0.0691	0.0009
300	SLU 12	-1.66	0.32	27.97	-0.2773	-0.0686	0.0009
300	SLU 13	-1.62	0.32	27.76	-0.273	-0.0665	0.0009
300	SLU 14	-1.68	0.34	28.79	-0.2913	-0.0698	0.0009
300	SLU 15	-1.68	0.33	28.65	-0.2887	-0.0694	0.0009
300	SLU 16	-1.64	0.34	28.68	-0.2887	-0.0679	0.0009
300	SLU 17	-1.63	0.33	28.54	-0.2861	-0.0675	0.0009
300	SLU 18	-1.7	0.33	28.92	-0.2812	-0.0703	0.0009
300	SLU 19	-1.7	0.32	28.77	-0.2786	-0.0699	0.0009
300	SLU 20	-1.72	0.34	29.59	-0.2926	-0.0711	0.0009
300	SLU 21	-1.71	0.34	29.45	-0.2899	-0.0707	0.0009
300	SLU 22	-1.61	0.31	27	-0.2685	-0.0669	0.0008
300	SLU 23	-1.6	0.31	26.76	-0.264	-0.0662	0.0008
300	SLU 24	-1.67	0.33	27.79	-0.2824	-0.0695	0.0009
300	SLU 25	-1.67	0.32	27.64	-0.2798	-0.0691	0.0009
300	SLU 26	-1.62	0.32	27.43	-0.2754	-0.0669	0.0009
300	SLU 27	-1.69	0.34	28.46	-0.2938	-0.0703	0.0009
300	SLU 28	-1.69	0.34	28.32	-0.2911	-0.0698	0.0009
300	SLU 29	-1.64	0.34	28.35	-0.2912	-0.0684	0.0009
300	SLU 30	-1.64	0.33	28.21	-0.2885	-0.0679	0.0009
300	SLU 31	-1.83	0.35	30.46	-0.2994	-0.0753	0.0009
300	SLU 32	-1.9	0.37	31.5	-0.3178	-0.0786	0.001
300	SLU 33	-1.9	0.37	31.35	-0.3152	-0.0782	0.001
300	SLU 34	-1.85	0.36	31.14	-0.3108	-0.076	0.001
300	SLU 35	-1.92	0.38	32.17	-0.3292	-0.0794	0.001
300	SLU 36	-1.91	0.38	32.03	-0.3265	-0.0789	0.001
300	SLU 37	-1.87	0.38	32.06	-0.3266	-0.0775	0.001
300	SLU 38	-1.87	0.38	31.91	-0.3239	-0.077	0.001
300	SLU 39	-1.93	0.37	32.3	-0.3191	-0.0799	0.001
300	SLU 40	-1.93	0.37	32.15	-0.3164	-0.0794	0.001
300	SLU 41	-1.95	0.38	32.97	-0.3304	-0.0806	0.001
300	SLU 42	-1.95	0.38	32.83	-0.3277	-0.0802	0.001
300	SLU 43	-1.7	0.33	29.55	-0.2869	-0.0713	0.0009
300	SLU 44	-1.7	0.33	29.31	-0.2824	-0.0705	0.0009
300	SLU 45	-1.77	0.35	30.34	-0.3008	-0.0739	0.0009
300	SLU 46	-1.76	0.35	30.19	-0.2982	-0.0735	0.0009
300	SLU 47	-1.72	0.34	29.98	-0.2938	-0.0713	0.0009
300	SLU 48	-1.78	0.36	31.01	-0.3122	-0.0747	0.001
300	SLU 49	-1.78	0.36	30.87	-0.3095	-0.0742	0.001
300	SLU 50	-1.74	0.36	30.9	-0.3096	-0.0728	0.001
300	SLU 51	-1.74	0.36	30.76	-0.3069	-0.0723	0.001
300	SLU 52	-1.93	0.37	33.02	-0.3178	-0.0796	0.001
300	SLU 53	-1.99	0.39	34.05	-0.3362	-0.083	0.0011
300	SLU 54	-1.99	0.39	33.9	-0.3335	-0.0826	0.001
300	SLU 55	-1.95	0.38	33.69	-0.3292	-0.0804	0.001
300	SLU 56	-2.01	0.4	34.72	-0.3476	-0.0838	0.0011
300	SLU 57	-2.01	0.4	34.58	-0.3449	-0.0833	0.0011
300	SLU 58	-1.97	0.4	34.61	-0.345	-0.0819	0.0011
300	SLU 59	-1.97	0.4	34.46	-0.3423	-0.0814	0.0011
300	SLU 60	-2.03	0.39	34.85	-0.3374	-0.0843	0.0011
300	SLU 61	-2.03	0.39	34.7	-0.3348	-0.0838	0.001
300	SLU 62	-2.05	0.4	35.52	-0.3488	-0.085	0.0011
300	SLU 63	-2.05	0.4	35.38	-0.3461	-0.0846	0.0011
300	SLU 64	-1.94	0.38	32.93	-0.3247	-0.0808	0.001
300	SLU 65	-1.94	0.37	32.68	-0.3203	-0.0801	0.001
300	SLU 66	-2	0.39	33.72	-0.3387	-0.0835	0.0011
300	SLU 67	-2	0.39	33.57	-0.336	-0.083	0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
300	SLU 68	-1.95	0.38	33.36	-0.3316	-0.0808	0.001
300	SLU 69	-2.02	0.41	34.39	-0.35	-0.0842	0.0011
300	SLU 70	-2.02	0.4	34.25	-0.3473	-0.0838	0.0011
300	SLU 71	-1.97	0.4	34.28	-0.3474	-0.0823	0.0011
300	SLU 72	-1.97	0.4	34.13	-0.3447	-0.0819	0.0011
300	SLU 73	-2.16	0.41	36.39	-0.3557	-0.0892	0.0011
300	SLU 74	-2.23	0.43	37.42	-0.3741	-0.0926	0.0012
300	SLU 75	-2.23	0.43	37.28	-0.3714	-0.0921	0.0012
300	SLU 76	-2.18	0.43	37.07	-0.367	-0.0899	0.0011
300	SLU 77	-2.25	0.45	38.1	-0.3854	-0.0933	0.0012
300	SLU 78	-2.25	0.44	37.95	-0.3827	-0.0929	0.0012
300	SLU 79	-2.2	0.44	37.99	-0.3828	-0.0914	0.0012
300	SLU 80	-2.2	0.44	37.84	-0.3801	-0.091	0.0012
300	SLU 81	-2.26	0.43	38.22	-0.3753	-0.0938	0.0012
300	SLU 82	-2.26	0.43	38.08	-0.3726	-0.0934	0.0012
300	SLU 83	-2.28	0.45	38.9	-0.3866	-0.0946	0.0012
300	SLU 84	-2.28	0.44	38.75	-0.384	-0.0941	0.0012
300	SLE RA 1	-1.44	0.28	24.59	-0.2415	-0.0601	0.0008
300	SLE RA 2	-1.44	0.28	24.42	-0.2385	-0.0596	0.0007
300	SLE RA 3	-1.48	0.29	25.11	-0.2508	-0.0618	0.0008
300	SLE RA 4	-1.48	0.29	25.02	-0.249	-0.0615	0.0008
300	SLE RA 5	-1.45	0.29	24.88	-0.2461	-0.0601	0.0008
300	SLE RA 6	-1.49	0.3	25.56	-0.2583	-0.0623	0.0008
300	SLE RA 7	-1.49	0.3	25.47	-0.2565	-0.062	0.0008
300	SLE RA 8	-1.46	0.3	25.49	-0.2566	-0.0611	0.0008
300	SLE RA 9	-1.46	0.3	25.39	-0.2548	-0.0608	0.0008
300	SLE RA 10	-1.59	0.3	26.9	-0.2621	-0.0657	0.0008
300	SLE RA 11	-1.63	0.32	27.58	-0.2744	-0.0679	0.0009
300	SLE RA 12	-1.63	0.32	27.49	-0.2726	-0.0676	0.0009
300	SLE RA 13	-1.6	0.31	27.35	-0.2697	-0.0661	0.0008
300	SLE RA 14	-1.64	0.33	28.03	-0.2819	-0.0684	0.0009
300	SLE RA 15	-1.64	0.32	27.94	-0.2801	-0.0681	0.0009
300	SLE RA 16	-1.62	0.33	27.96	-0.2802	-0.0671	0.0009
300	SLE RA 17	-1.61	0.32	27.86	-0.2784	-0.0668	0.0009
300	SLE RA 18	-1.66	0.32	28.12	-0.2752	-0.0687	0.0009
300	SLE RA 19	-1.66	0.32	28.02	-0.2734	-0.0684	0.0009
300	SLE RA 20	-1.67	0.33	28.57	-0.2827	-0.0692	0.0009
300	SLE RA 21	-1.67	0.33	28.47	-0.281	-0.0689	0.0009
300	SLE FR 1	-1.44	0.28	24.59	-0.2415	-0.0601	0.0008
300	SLE FR 2	-1.44	0.28	24.55	-0.2409	-0.06	0.0008
300	SLE FR 3	-1.44	0.28	24.77	-0.2445	-0.0603	0.0008
300	SLE FR 4	-1.5	0.29	25.61	-0.251	-0.0626	0.0008
300	SLE FR 5	-1.51	0.3	25.83	-0.2546	-0.0629	0.0008
300	SLE FR 6	-1.55	0.3	26.35	-0.2583	-0.0644	0.0008
300	SLE QP 1	-1.44	0.28	24.59	-0.2415	-0.0601	0.0008
300	SLE QP 2	-1.5	0.29	25.65	-0.2516	-0.0627	0.0008
300	SLD 1	9.05	0.07	26.95	-0.0341	0.4079	0.0002
300	SLD 2	9.05	0.07	26.95	-0.0341	0.4079	0.0002
300	SLD 3	7.6	0.36	29.49	-0.3185	0.3464	0.001
300	SLD 4	7.6	0.36	29.49	-0.3185	0.3464	0.001
300	SLD 5	3.86	-0.21	22.18	0.245	0.1717	-0.0006
300	SLD 6	3.86	-0.21	22.18	0.245	0.1717	-0.0006
300	SLD 7	-0.97	0.75	30.65	-0.703	-0.0332	0.0021
300	SLD 8	-0.97	0.75	30.65	-0.703	-0.0332	0.0021
300	SLD 9	-2.04	-0.16	20.64	0.1998	-0.0922	-0.0005
300	SLD 10	-2.04	-0.16	20.64	0.1998	-0.0922	-0.0005
300	SLD 11	-6.87	0.8	29.11	-0.7482	-0.2971	0.0022
300	SLD 12	-6.87	0.8	29.11	-0.7482	-0.2971	0.0022
300	SLD 13	-10.61	0.23	21.8	-0.1846	-0.4718	0.0006
300	SLD 14	-10.61	0.23	21.8	-0.1846	-0.4718	0.0006
300	SLD 15	-12.06	0.52	24.34	-0.469	-0.5332	0.0014
300	SLD 16	-12.06	0.52	24.34	-0.469	-0.5332	0.0014
300	SLV 1	22.73	-0.25	28.59	0.278	1.0179	-0.0007
300	SLV 2	22.73	-0.25	28.59	0.278	1.0179	-0.0007
300	SLV 3	19.29	0.45	34.57	-0.4167	0.8718	0.0012
300	SLV 4	19.29	0.45	34.57	-0.4167	0.8718	0.0012
300	SLV 5	10.99	-0.94	17.47	0.961	0.4831	-0.0026
300	SLV 6	10.99	-0.94	17.47	0.961	0.4831	-0.0026
300	SLV 7	-0.49	1.41	37.39	-1.3548	-0.004	0.0039
300	SLV 8	-0.49	1.41	37.39	-1.3548	-0.004	0.0039
300	SLV 9	-2.52	-0.82	13.91	0.8516	-0.1214	-0.0023
300	SLV 10	-2.52	-0.82	13.91	0.8516	-0.1214	-0.0023
300	SLV 11	-14	1.52	33.82	-1.4641	-0.6084	0.0042
300	SLV 12	-14	1.52	33.82	-1.4641	-0.6084	0.0042
300	SLV 13	-22.29	0.13	16.72	-0.0864	-0.9971	0.0003
300	SLV 14	-22.29	0.13	16.72	-0.0864	-0.9971	0.0003
300	SLV 15	-25.74	0.84	22.7	-0.7812	-1.1432	0.0023
300	SLV 16	-25.74	0.84	22.7	-0.7812	-1.1432	0.0023
301	SLU 1	-1.86	0.22	23.04	-0.1896	-0.0781	0.0006
301	SLU 2	-1.88	0.22	22.7	-0.1854	-0.0786	0.0006
301	SLU 3	-1.93	0.24	23.74	-0.2007	-0.0805	0.0006
301	SLU 4	-1.95	0.23	23.54	-0.1981	-0.0808	0.0006
301	SLU 5	-1.9	0.23	23.27	-0.1942	-0.0786	0.0006
301	SLU 6	-1.96	0.25	24.32	-0.2095	-0.0805	0.0007
301	SLU 7	-1.97	0.24	24.11	-0.207	-0.0808	0.0007
301	SLU 8	-1.9	0.24	24.19	-0.2073	-0.0781	0.0007
301	SLU 9	-1.92	0.24	23.98	-0.2048	-0.0784	0.0006
301	SLU 10	-2.23	0.25	26.24	-0.2134	-0.0931	0.0007
301	SLU 11	-2.28	0.27	27.28	-0.2287	-0.095	0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
301	SLU 12	-2.29	0.26	27.08	-0.2262	-0.0953	0.0007
301	SLU 13	-2.25	0.26	26.81	-0.2223	-0.093	0.0007
301	SLU 14	-2.3	0.28	27.86	-0.2375	-0.0949	0.0007
301	SLU 15	-2.32	0.27	27.65	-0.235	-0.0952	0.0007
301	SLU 16	-2.25	0.28	27.73	-0.2353	-0.0925	0.0007
301	SLU 17	-2.26	0.27	27.53	-0.2328	-0.0928	0.0007
301	SLU 18	-2.35	0.27	28.1	-0.2296	-0.0988	0.0007
301	SLU 19	-2.37	0.27	27.9	-0.2271	-0.0991	0.0007
301	SLU 20	-2.38	0.28	28.68	-0.2385	-0.0987	0.0008
301	SLU 21	-2.39	0.28	28.47	-0.2359	-0.099	0.0007
301	SLU 22	-2.19	0.26	26.24	-0.2197	-0.0917	0.0007
301	SLU 23	-2.21	0.25	25.9	-0.2155	-0.0922	0.0007
301	SLU 24	-2.27	0.27	26.94	-0.2308	-0.0941	0.0007
301	SLU 25	-2.28	0.27	26.73	-0.2282	-0.0944	0.0007
301	SLU 26	-2.24	0.26	26.47	-0.2243	-0.0922	0.0007
301	SLU 27	-2.29	0.28	27.51	-0.2396	-0.0941	0.0008
301	SLU 28	-2.3	0.28	27.31	-0.2371	-0.0944	0.0007
301	SLU 29	-2.24	0.28	27.39	-0.2374	-0.0917	0.0007
301	SLU 30	-2.25	0.27	27.18	-0.2349	-0.092	0.0007
301	SLU 31	-2.56	0.28	29.44	-0.2435	-0.1067	0.0008
301	SLU 32	-2.61	0.3	30.48	-0.2588	-0.1085	0.0008
301	SLU 33	-2.63	0.3	30.27	-0.2563	-0.1088	0.0008
301	SLU 34	-2.58	0.29	30.01	-0.2524	-0.1066	0.0008
301	SLU 35	-2.64	0.31	31.05	-0.2676	-0.1085	0.0008
301	SLU 36	-2.65	0.31	30.85	-0.2651	-0.1088	0.0008
301	SLU 37	-2.59	0.31	30.93	-0.2654	-0.1061	0.0008
301	SLU 38	-2.6	0.31	30.72	-0.2629	-0.1064	0.0008
301	SLU 39	-2.69	0.3	31.3	-0.2597	-0.1124	0.0008
301	SLU 40	-2.7	0.3	31.09	-0.2572	-0.1127	0.0008
301	SLU 41	-2.71	0.31	31.87	-0.2686	-0.1123	0.0008
301	SLU 42	-2.73	0.31	31.67	-0.266	-0.1126	0.0008
301	SLU 43	-2.3	0.28	28.86	-0.2361	-0.0969	0.0007
301	SLU 44	-2.32	0.27	28.52	-0.232	-0.0974	0.0007
301	SLU 45	-2.38	0.29	29.56	-0.2472	-0.0993	0.0008
301	SLU 46	-2.39	0.29	29.35	-0.2447	-0.0996	0.0008
301	SLU 47	-2.35	0.28	29.09	-0.2408	-0.0974	0.0008
301	SLU 48	-2.4	0.3	30.13	-0.2561	-0.0993	0.0008
301	SLU 49	-2.41	0.3	29.93	-0.2535	-0.0996	0.0008
301	SLU 50	-2.35	0.3	30.01	-0.2538	-0.0968	0.0008
301	SLU 51	-2.36	0.29	29.8	-0.2513	-0.0971	0.0008
301	SLU 52	-2.67	0.3	32.06	-0.26	-0.1119	0.0008
301	SLU 53	-2.72	0.32	33.1	-0.2752	-0.1137	0.0009
301	SLU 54	-2.74	0.32	32.89	-0.2727	-0.114	0.0009
301	SLU 55	-2.69	0.31	32.63	-0.2688	-0.1118	0.0008
301	SLU 56	-2.75	0.33	33.67	-0.2841	-0.1137	0.0009
301	SLU 57	-2.76	0.33	33.47	-0.2816	-0.114	0.0009
301	SLU 58	-2.69	0.33	33.55	-0.2818	-0.1113	0.0009
301	SLU 59	-2.71	0.33	33.34	-0.2793	-0.1116	0.0009
301	SLU 60	-2.8	0.32	33.92	-0.2762	-0.1176	0.0009
301	SLU 61	-2.81	0.32	33.71	-0.2737	-0.1179	0.0009
301	SLU 62	-2.82	0.33	34.49	-0.285	-0.1175	0.0009
301	SLU 63	-2.83	0.33	34.29	-0.2825	-0.1178	0.0009
301	SLU 64	-2.64	0.31	32.06	-0.2663	-0.1105	0.0008
301	SLU 65	-2.66	0.31	31.71	-0.2621	-0.111	0.0008
301	SLU 66	-2.71	0.33	32.76	-0.2773	-0.1129	0.0009
301	SLU 67	-2.72	0.32	32.55	-0.2748	-0.1132	0.0009
301	SLU 68	-2.68	0.32	32.29	-0.2709	-0.111	0.0009
301	SLU 69	-2.73	0.34	33.33	-0.2862	-0.1129	0.0009
301	SLU 70	-2.75	0.33	33.12	-0.2836	-0.1132	0.0009
301	SLU 71	-2.68	0.33	33.21	-0.2839	-0.1104	0.0009
301	SLU 72	-2.7	0.33	33	-0.2814	-0.1107	0.0009
301	SLU 73	-3	0.34	35.25	-0.2901	-0.1255	0.0009
301	SLU 74	-3.06	0.36	36.3	-0.3053	-0.1273	0.001
301	SLU 75	-3.07	0.35	36.09	-0.3028	-0.1276	0.001
301	SLU 76	-3.03	0.35	35.83	-0.2989	-0.1254	0.0009
301	SLU 77	-3.08	0.37	36.87	-0.3142	-0.1273	0.001
301	SLU 78	-3.09	0.36	36.66	-0.3117	-0.1276	0.001
301	SLU 79	-3.03	0.37	36.75	-0.312	-0.1249	0.001
301	SLU 80	-3.04	0.36	36.54	-0.3094	-0.1252	0.001
301	SLU 81	-3.13	0.36	37.12	-0.3063	-0.1311	0.001
301	SLU 82	-3.15	0.35	36.91	-0.3038	-0.1314	0.001
301	SLU 83	-3.16	0.37	37.69	-0.3151	-0.1311	0.001
301	SLU 84	-3.17	0.37	37.48	-0.3126	-0.1314	0.001
301	SLE RA 1	-1.95	0.23	23.96	-0.1982	-0.082	0.0006
301	SLE RA 2	-1.97	0.23	23.73	-0.1954	-0.0824	0.0006
301	SLE RA 3	-2	0.24	24.42	-0.2056	-0.0836	0.0006
301	SLE RA 4	-2.01	0.24	24.28	-0.2039	-0.0838	0.0006
301	SLE RA 5	-1.98	0.24	24.11	-0.2013	-0.0823	0.0006
301	SLE RA 6	-2.02	0.25	24.8	-0.2115	-0.0836	0.0007
301	SLE RA 7	-2.03	0.25	24.67	-0.2098	-0.0838	0.0007
301	SLE RA 8	-1.99	0.25	24.72	-0.21	-0.082	0.0007
301	SLE RA 9	-1.99	0.24	24.58	-0.2083	-0.0822	0.0007
301	SLE RA 10	-2.2	0.25	26.09	-0.2141	-0.092	0.0007
301	SLE RA 11	-2.24	0.26	26.78	-0.2242	-0.0932	0.0007
301	SLE RA 12	-2.24	0.26	26.65	-0.2226	-0.0934	0.0007
301	SLE RA 13	-2.22	0.26	26.47	-0.22	-0.092	0.0007
301	SLE RA 14	-2.25	0.27	27.17	-0.2301	-0.0932	0.0007
301	SLE RA 15	-2.26	0.27	27.03	-0.2285	-0.0934	0.0007
301	SLE RA 16	-2.22	0.27	27.08	-0.2287	-0.0916	0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
301	SLE RA 17	-2.22	0.27	26.94	-0.227	-0.0918	0.0007
301	SLE RA 18	-2.29	0.26	27.33	-0.2249	-0.0958	0.0007
301	SLE RA 19	-2.29	0.26	27.19	-0.2232	-0.096	0.0007
301	SLE RA 20	-2.3	0.27	27.71	-0.2308	-0.0957	0.0007
301	SLE RA 21	-2.31	0.27	27.57	-0.2291	-0.0959	0.0007
301	SLE FR 1	-1.95	0.23	23.96	-0.1982	-0.082	0.0006
301	SLE FR 2	-1.96	0.23	23.91	-0.1976	-0.0821	0.0006
301	SLE FR 3	-1.96	0.24	24.11	-0.2006	-0.082	0.0006
301	SLE FR 4	-2.06	0.24	24.92	-0.2056	-0.0862	0.0006
301	SLE FR 5	-2.06	0.24	25.12	-0.2086	-0.0861	0.0007
301	SLE FR 6	-2.12	0.25	25.64	-0.2115	-0.0889	0.0007
301	SLE QP 1	-1.95	0.23	23.96	-0.1982	-0.082	0.0006
301	SLE QP 2	-2.05	0.24	24.97	-0.2062	-0.0862	0.0007
301	SLD 1	10.06	0	24.05	0.0319	0.464	0
301	SLD 2	10.06	0	24.05	0.0319	0.464	0
301	SLD 3	8.53	0.32	27.61	-0.2853	0.396	0.0008
301	SLD 4	8.53	0.32	27.61	-0.2853	0.396	0.0008
301	SLD 5	3.89	-0.32	19.28	0.3463	0.1821	-0.0008
301	SLD 6	3.89	-0.32	19.28	0.3463	0.1821	-0.0008
301	SLD 7	-1.19	0.75	31.17	-0.7111	-0.0447	0.002
301	SLD 8	-1.19	0.75	31.17	-0.7111	-0.0447	0.002
301	SLD 9	-2.91	-0.27	18.77	0.2987	-0.1276	-0.0007
301	SLD 10	-2.91	-0.27	18.77	0.2987	-0.1276	-0.0007
301	SLD 11	-8	0.8	30.66	-0.7587	-0.3544	0.0021
301	SLD 12	-8	0.8	30.66	-0.7587	-0.3544	0.0021
301	SLD 13	-12.64	0.17	22.33	-0.1271	-0.5683	0.0005
301	SLD 14	-12.64	0.17	22.33	-0.1271	-0.5683	0.0005
301	SLD 15	-14.16	0.49	25.89	-0.4443	-0.6363	0.0013
301	SLD 16	-14.16	0.49	25.89	-0.4443	-0.6363	0.0013
301	SLV 1	25.75	-0.35	22.74	0.3752	1.1771	-0.0009
301	SLV 2	25.75	-0.35	22.74	0.3752	1.1771	-0.0009
301	SLV 3	22.13	0.43	31.31	-0.4001	1.0156	0.0011
301	SLV 4	22.13	0.43	31.31	-0.4001	1.0156	0.0011
301	SLV 5	11.78	-1.12	11.3	1.1442	0.5377	-0.0029
301	SLV 6	11.78	-1.12	11.3	1.1442	0.5377	-0.0029
301	SLV 7	-0.29	1.48	39.88	-1.4404	-0.0005	0.0039
301	SLV 8	-0.29	1.48	39.88	-1.4404	-0.0005	0.0039
301	SLV 9	-3.82	-1	10.06	1.028	-0.1718	-0.0026
301	SLV 10	-3.82	-1	10.06	1.028	-0.1718	-0.0026
301	SLV 11	-15.88	1.61	38.64	-1.5566	-0.71	0.0042
301	SLV 12	-15.88	1.61	38.64	-1.5566	-0.71	0.0042
301	SLV 13	-26.24	0.05	18.62	-0.0122	-1.1879	0.0002
301	SLV 14	-26.24	0.05	18.62	-0.0122	-1.1879	0.0002
301	SLV 15	-29.85	0.84	27.2	-0.7876	-1.3494	0.0022
301	SLV 16	-29.85	0.84	27.2	-0.7876	-1.3494	0.0022
302	SLU 1	-1.81	0.19	22.67	-0.157	-0.0787	0.0005
302	SLU 2	-1.87	0.18	22.2	-0.1529	-0.0804	0.0005
302	SLU 3	-1.89	0.2	23.28	-0.1657	-0.0823	0.0005
302	SLU 4	-1.93	0.19	23	-0.1632	-0.0833	0.0005
302	SLU 5	-1.9	0.19	22.68	-0.1596	-0.082	0.0005
302	SLU 6	-1.92	0.2	23.76	-0.1724	-0.0838	0.0006
302	SLU 7	-1.96	0.2	23.48	-0.1699	-0.0848	0.0005
302	SLU 8	-1.88	0.2	23.63	-0.1704	-0.0818	0.0005
302	SLU 9	-1.91	0.2	23.35	-0.1679	-0.0828	0.0005
302	SLU 10	-2.24	0.2	25.59	-0.1749	-0.0959	0.0006
302	SLU 11	-2.26	0.22	26.68	-0.1878	-0.0977	0.0006
302	SLU 12	-2.3	0.22	26.39	-0.1852	-0.0987	0.0006
302	SLU 13	-2.27	0.21	26.07	-0.1816	-0.0974	0.0006
302	SLU 14	-2.3	0.23	27.16	-0.1945	-0.0992	0.0006
302	SLU 15	-2.33	0.23	26.87	-0.1919	-0.1003	0.0006
302	SLU 16	-2.25	0.23	27.02	-0.1925	-0.0972	0.0006
302	SLU 17	-2.28	0.22	26.74	-0.19	-0.0982	0.0006
302	SLU 18	-2.34	0.22	27.52	-0.1886	-0.1008	0.0006
302	SLU 19	-2.38	0.22	27.24	-0.1861	-0.1018	0.0006
302	SLU 20	-2.37	0.23	28	-0.1953	-0.1023	0.0006
302	SLU 21	-2.41	0.23	27.72	-0.1928	-0.1033	0.0006
302	SLU 22	-2.16	0.21	25.71	-0.1809	-0.0935	0.0006
302	SLU 23	-2.22	0.21	25.24	-0.1767	-0.0953	0.0006
302	SLU 24	-2.24	0.22	26.32	-0.1895	-0.0971	0.0006
302	SLU 25	-2.28	0.22	26.04	-0.187	-0.0981	0.0006
302	SLU 26	-2.26	0.21	25.72	-0.1834	-0.0968	0.0006
302	SLU 27	-2.28	0.23	26.8	-0.1962	-0.0986	0.0006
302	SLU 28	-2.31	0.23	26.52	-0.1937	-0.0996	0.0006
302	SLU 29	-2.23	0.23	26.67	-0.1942	-0.0966	0.0006
302	SLU 30	-2.27	0.22	26.38	-0.1917	-0.0976	0.0006
302	SLU 31	-2.59	0.23	28.63	-0.1988	-0.1107	0.0006
302	SLU 32	-2.61	0.25	29.72	-0.2116	-0.1125	0.0007
302	SLU 33	-2.65	0.24	29.43	-0.2091	-0.1136	0.0007
302	SLU 34	-2.63	0.24	29.11	-0.2055	-0.1122	0.0007
302	SLU 35	-2.65	0.26	30.19	-0.2183	-0.114	0.0007
302	SLU 36	-2.68	0.25	29.91	-0.2158	-0.1151	0.0007
302	SLU 37	-2.6	0.25	30.06	-0.2163	-0.112	0.0007
302	SLU 38	-2.64	0.25	29.78	-0.2138	-0.113	0.0007
302	SLU 39	-2.69	0.25	30.56	-0.2124	-0.1156	0.0007
302	SLU 40	-2.73	0.25	30.27	-0.2099	-0.1166	0.0007
302	SLU 41	-2.73	0.26	31.04	-0.2191	-0.1171	0.0007
302	SLU 42	-2.76	0.25	30.75	-0.2166	-0.1181	0.0007
302	SLU 43	-2.23	0.23	28.43	-0.196	-0.0972	0.0006
302	SLU 44	-2.29	0.23	27.96	-0.1918	-0.099	0.0006





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
302	SLU 45	-2.31	0.24	29.04	-0.2046	-0.1008	0.0007
302	SLU 46	-2.35	0.24	28.76	-0.2021	-0.1018	0.0006
302	SLU 47	-2.33	0.23	28.44	-0.1985	-0.1005	0.0006
302	SLU 48	-2.35	0.25	29.52	-0.2113	-0.1023	0.0007
302	SLU 49	-2.38	0.25	29.24	-0.2088	-0.1034	0.0007
302	SLU 50	-2.3	0.25	29.39	-0.2094	-0.1003	0.0007
302	SLU 51	-2.34	0.24	29.11	-0.2069	-0.1013	0.0007
302	SLU 52	-2.66	0.25	31.35	-0.2139	-0.1144	0.0007
302	SLU 53	-2.68	0.27	32.44	-0.2267	-0.1162	0.0007
302	SLU 54	-2.72	0.26	32.15	-0.2242	-0.1173	0.0007
302	SLU 55	-2.7	0.26	31.83	-0.2206	-0.1159	0.0007
302	SLU 56	-2.72	0.27	32.92	-0.2334	-0.1177	0.0008
302	SLU 57	-2.75	0.27	32.63	-0.2309	-0.1188	0.0007
302	SLU 58	-2.67	0.27	32.78	-0.2315	-0.1157	0.0007
302	SLU 59	-2.71	0.27	32.5	-0.2289	-0.1168	0.0007
302	SLU 60	-2.76	0.27	33.28	-0.2275	-0.1193	0.0007
302	SLU 61	-2.8	0.26	33	-0.225	-0.1203	0.0007
302	SLU 62	-2.8	0.28	33.76	-0.2342	-0.1208	0.0008
302	SLU 63	-2.83	0.27	33.48	-0.2317	-0.1219	0.0007
302	SLU 64	-2.58	0.26	31.47	-0.2198	-0.112	0.0007
302	SLU 65	-2.64	0.25	31	-0.2156	-0.1138	0.0007
302	SLU 66	-2.66	0.27	32.08	-0.2284	-0.1156	0.0007
302	SLU 67	-2.7	0.27	31.8	-0.2259	-0.1166	0.0007
302	SLU 68	-2.68	0.26	31.48	-0.2223	-0.1153	0.0007
302	SLU 69	-2.7	0.28	32.56	-0.2351	-0.1171	0.0008
302	SLU 70	-2.74	0.27	32.28	-0.2326	-0.1182	0.0007
302	SLU 71	-2.65	0.27	32.43	-0.2332	-0.1151	0.0007
302	SLU 72	-2.69	0.27	32.14	-0.2307	-0.1161	0.0007
302	SLU 73	-3.02	0.28	34.39	-0.2377	-0.1292	0.0008
302	SLU 74	-3.04	0.29	35.47	-0.2505	-0.131	0.0008
302	SLU 75	-3.07	0.29	35.19	-0.248	-0.1321	0.0008
302	SLU 76	-3.05	0.29	34.87	-0.2444	-0.1307	0.0008
302	SLU 77	-3.07	0.3	35.95	-0.2572	-0.1326	0.0008
302	SLU 78	-3.11	0.3	35.67	-0.2547	-0.1336	0.0008
302	SLU 79	-3.02	0.3	35.82	-0.2553	-0.1305	0.0008
302	SLU 80	-3.06	0.3	35.54	-0.2528	-0.1316	0.0008
302	SLU 81	-3.11	0.3	36.32	-0.2513	-0.1341	0.0008
302	SLU 82	-3.15	0.29	36.03	-0.2488	-0.1351	0.0008
302	SLU 83	-3.15	0.3	36.8	-0.258	-0.1356	0.0008
302	SLU 84	-3.18	0.3	36.51	-0.2555	-0.1367	0.0008
302	SLE RA 1	-1.91	0.19	23.54	-0.1638	-0.0829	0.0005
302	SLE RA 2	-1.95	0.19	23.22	-0.1611	-0.0841	0.0005
302	SLE RA 3	-1.96	0.2	23.95	-0.1696	-0.0853	0.0005
302	SLE RA 4	-1.99	0.2	23.76	-0.1679	-0.086	0.0005
302	SLE RA 5	-1.97	0.19	23.54	-0.1655	-0.0851	0.0005
302	SLE RA 6	-1.99	0.21	24.27	-0.1741	-0.0863	0.0006
302	SLE RA 7	-2.01	0.2	24.08	-0.1724	-0.087	0.0006
302	SLE RA 8	-1.96	0.2	24.18	-0.1728	-0.085	0.0006
302	SLE RA 9	-1.98	0.2	23.99	-0.1711	-0.0857	0.0005
302	SLE RA 10	-2.2	0.21	25.49	-0.1758	-0.0944	0.0006
302	SLE RA 11	-2.21	0.22	26.21	-0.1843	-0.0956	0.0006
302	SLE RA 12	-2.24	0.21	26.02	-0.1827	-0.0963	0.0006
302	SLE RA 13	-2.22	0.21	25.81	-0.1802	-0.0954	0.0006
302	SLE RA 14	-2.23	0.22	26.53	-0.1888	-0.0966	0.0006
302	SLE RA 15	-2.26	0.22	26.34	-0.1871	-0.0973	0.0006
302	SLE RA 16	-2.2	0.22	26.44	-0.1875	-0.0953	0.0006
302	SLE RA 17	-2.23	0.22	26.25	-0.1858	-0.096	0.0006
302	SLE RA 18	-2.26	0.22	26.77	-0.1849	-0.0976	0.0006
302	SLE RA 19	-2.29	0.22	26.58	-0.1832	-0.0983	0.0006
302	SLE RA 20	-2.29	0.22	27.09	-0.1893	-0.0987	0.0006
302	SLE RA 21	-2.31	0.22	26.9	-0.1877	-0.0993	0.0006
302	SLE FR 1	-1.91	0.19	23.54	-0.1638	-0.0829	0.0005
302	SLE FR 2	-1.92	0.19	23.48	-0.1633	-0.0832	0.0005
302	SLE FR 3	-1.92	0.2	23.67	-0.1656	-0.0833	0.0005
302	SLE FR 4	-2.02	0.2	24.45	-0.1696	-0.0876	0.0005
302	SLE FR 5	-2.03	0.2	24.64	-0.1719	-0.0877	0.0006
302	SLE FR 6	-2.09	0.21	25.15	-0.1744	-0.0903	0.0006
302	SLE QP 1	-1.91	0.19	23.54	-0.1638	-0.0829	0.0005
302	SLE QP 2	-2.02	0.2	24.51	-0.1702	-0.0873	0.0005
302	SLD 1	10.94	-0.05	20.88	-0.254	0.4795	-0.0001
302	SLD 2	10.94	-0.05	20.88	-0.254	0.4795	-0.0001
302	SLD 3	9.38	0.28	25.22	0.0771	0.4101	0.0007
302	SLD 4	9.38	0.28	25.22	0.0771	0.4101	0.0007
302	SLD 5	4.25	-0.38	16.83	-0.6974	0.1879	-0.0009
302	SLD 6	4.25	-0.38	16.83	-0.6974	0.1879	-0.0009
302	SLD 7	-0.97	0.73	31.31	0.4061	-0.0433	0.0018
302	SLD 8	-0.97	0.73	31.31	0.4061	-0.0433	0.0018
302	SLD 9	-3.06	-0.33	17.71	-0.7464	-0.1314	-0.0008
302	SLD 10	-3.06	-0.33	17.71	-0.7464	-0.1314	-0.0008
302	SLD 11	-8.28	0.78	32.18	0.3571	-0.3626	0.002
302	SLD 12	-8.28	0.78	32.18	0.3571	-0.3626	0.002
302	SLD 13	-13.41	0.12	23.79	-0.4174	-0.5848	0.0004
302	SLD 14	-13.41	0.12	23.79	-0.4174	-0.5848	0.0004
302	SLD 15	-14.98	0.46	28.13	-0.0863	-0.6541	0.0012
302	SLD 16	-14.98	0.46	28.13	-0.0863	-0.6541	0.0012
302	SLV 1	27.74	-0.42	15.88	-0.3748	1.2142	-0.001
302	SLV 2	27.74	-0.42	15.88	-0.3748	1.2142	-0.001
302	SLV 3	24.02	0.4	26.38	0.4346	1.0493	0.001
302	SLV 4	24.02	0.4	26.38	0.4346	1.0493	0.001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
302	SLV 5	12.54	-1.22	5.99	-1.4591	0.5533	-0.0029
302	SLV 6	12.54	-1.22	5.99	-1.4591	0.5533	-0.0029
302	SLV 7	0.16	1.5	40.99	1.2389	0.0035	0.0037
302	SLV 8	0.16	1.5	40.99	1.2389	0.0035	0.0037
302	SLV 9	-4.2	-1.1	8.02	-1.5792	-0.1782	-0.0026
302	SLV 10	-4.2	-1.1	8.02	-1.5792	-0.1782	-0.0026
302	SLV 11	-16.58	1.62	43.02	1.1188	-0.728	0.004
302	SLV 12	-16.58	1.62	43.02	1.1188	-0.728	0.004
302	SLV 13	-28.06	0.01	22.64	-0.7749	-1.224	0.0001
302	SLV 14	-28.06	0.01	22.64	-0.7749	-1.224	0.0001
302	SLV 15	-31.77	0.82	33.14	0.0345	-1.3889	0.0021
302	SLV 16	-31.77	0.82	33.14	0.0345	-1.3889	0.0021
303	SLU 1	-1.27	0.17	23.04	-0.1336	-0.0595	0.0004
303	SLU 2	-1.39	0.16	22.39	-0.1293	-0.064	0.0004
303	SLU 3	-1.32	0.17	23.59	-0.1404	-0.0612	0.0004
303	SLU 4	-1.4	0.17	23.2	-0.1378	-0.0639	0.0004
303	SLU 5	-1.41	0.16	22.79	-0.1343	-0.0637	0.0004
303	SLU 6	-1.34	0.18	23.99	-0.1453	-0.0609	0.0004
303	SLU 7	-1.42	0.18	23.6	-0.1427	-0.0637	0.0004
303	SLU 8	-1.3	0.18	23.84	-0.1436	-0.059	0.0004
303	SLU 9	-1.37	0.17	23.45	-0.141	-0.0617	0.0004
303	SLU 10	-1.72	0.18	25.75	-0.1471	-0.0785	0.0004
303	SLU 11	-1.65	0.2	26.95	-0.1581	-0.0757	0.0005
303	SLU 12	-1.72	0.19	26.56	-0.1555	-0.0784	0.0005
303	SLU 13	-1.73	0.19	26.15	-0.1521	-0.0782	0.0005
303	SLU 14	-1.66	0.2	27.35	-0.1631	-0.0754	0.0005
303	SLU 15	-1.74	0.2	26.96	-0.1605	-0.0782	0.0005
303	SLU 16	-1.62	0.2	27.2	-0.1614	-0.0734	0.0005
303	SLU 17	-1.7	0.19	26.81	-0.1588	-0.0762	0.0005
303	SLU 18	-1.73	0.2	27.84	-0.159	-0.0802	0.0005
303	SLU 19	-1.81	0.19	27.45	-0.1564	-0.0829	0.0005
303	SLU 20	-1.75	0.2	28.24	-0.164	-0.0799	0.0005
303	SLU 21	-1.82	0.2	27.85	-0.1614	-0.0826	0.0005
303	SLU 22	-1.56	0.19	26.02	-0.1528	-0.0722	0.0005
303	SLU 23	-1.69	0.18	25.38	-0.1485	-0.0767	0.0004
303	SLU 24	-1.62	0.2	26.57	-0.1596	-0.0739	0.0005
303	SLU 25	-1.69	0.19	26.19	-0.157	-0.0767	0.0005
303	SLU 26	-1.7	0.19	25.78	-0.1535	-0.0765	0.0005
303	SLU 27	-1.63	0.2	26.98	-0.1645	-0.0737	0.0005
303	SLU 28	-1.71	0.2	26.59	-0.1619	-0.0764	0.0005
303	SLU 29	-1.59	0.2	26.83	-0.1628	-0.0717	0.0005
303	SLU 30	-1.67	0.2	26.44	-0.1602	-0.0744	0.0005
303	SLU 31	-2.01	0.2	28.73	-0.1663	-0.0912	0.0005
303	SLU 32	-1.94	0.22	29.93	-0.1773	-0.0884	0.0005
303	SLU 33	-2.02	0.21	29.54	-0.1747	-0.0911	0.0005
303	SLU 34	-2.02	0.21	29.14	-0.1712	-0.091	0.0005
303	SLU 35	-1.96	0.22	30.33	-0.1823	-0.0882	0.0005
303	SLU 36	-2.03	0.22	29.94	-0.1797	-0.0909	0.0005
303	SLU 37	-1.92	0.22	30.18	-0.1806	-0.0862	0.0005
303	SLU 38	-1.99	0.22	29.8	-0.178	-0.0889	0.0005
303	SLU 39	-2.02	0.22	30.82	-0.1782	-0.0929	0.0005
303	SLU 40	-2.1	0.22	30.43	-0.1756	-0.0956	0.0005
303	SLU 41	-2.04	0.23	31.22	-0.1832	-0.0926	0.0005
303	SLU 42	-2.11	0.22	30.83	-0.1806	-0.0954	0.0005
303	SLU 43	-1.55	0.21	28.93	-0.1671	-0.0729	0.0005
303	SLU 44	-1.67	0.2	28.28	-0.1628	-0.0775	0.0005
303	SLU 45	-1.61	0.22	29.48	-0.1739	-0.0747	0.0005
303	SLU 46	-1.68	0.21	29.09	-0.1713	-0.0774	0.0005
303	SLU 47	-1.69	0.21	28.68	-0.1678	-0.0772	0.0005
303	SLU 48	-1.62	0.22	29.88	-0.1789	-0.0744	0.0005
303	SLU 49	-1.7	0.22	29.49	-0.1763	-0.0771	0.0005
303	SLU 50	-1.58	0.22	29.73	-0.1771	-0.0724	0.0005
303	SLU 51	-1.66	0.22	29.34	-0.1745	-0.0751	0.0005
303	SLU 52	-2	0.22	31.64	-0.1806	-0.092	0.0005
303	SLU 53	-1.93	0.24	32.84	-0.1916	-0.0892	0.0006
303	SLU 54	-2	0.23	32.45	-0.1891	-0.0919	0.0006
303	SLU 55	-2.01	0.23	32.04	-0.1856	-0.0917	0.0006
303	SLU 56	-1.94	0.24	33.24	-0.1966	-0.0889	0.0006
303	SLU 57	-2.02	0.24	32.85	-0.194	-0.0916	0.0006
303	SLU 58	-1.9	0.24	33.09	-0.1949	-0.0869	0.0006
303	SLU 59	-1.98	0.24	32.7	-0.1923	-0.0896	0.0006
303	SLU 60	-2.01	0.24	33.73	-0.1925	-0.0936	0.0006
303	SLU 61	-2.09	0.23	33.34	-0.1899	-0.0964	0.0006
303	SLU 62	-2.03	0.24	34.13	-0.1975	-0.0934	0.0006
303	SLU 63	-2.1	0.24	33.74	-0.1949	-0.0961	0.0006
303	SLU 64	-1.84	0.23	31.91	-0.1863	-0.0857	0.0006
303	SLU 65	-1.97	0.22	31.27	-0.182	-0.0902	0.0005
303	SLU 66	-1.9	0.24	32.46	-0.1931	-0.0874	0.0006
303	SLU 67	-1.97	0.23	32.07	-0.1905	-0.0901	0.0006
303	SLU 68	-1.98	0.23	31.67	-0.187	-0.09	0.0006
303	SLU 69	-1.91	0.24	32.86	-0.198	-0.0872	0.0006
303	SLU 70	-1.99	0.24	32.48	-0.1954	-0.0899	0.0006
303	SLU 71	-1.87	0.24	32.71	-0.1963	-0.0852	0.0006
303	SLU 72	-1.95	0.24	32.33	-0.1937	-0.0879	0.0006
303	SLU 73	-2.29	0.25	34.62	-0.1998	-0.1047	0.0006
303	SLU 74	-2.22	0.26	35.82	-0.2108	-0.1019	0.0006
303	SLU 75	-2.3	0.26	35.43	-0.2082	-0.1046	0.0006
303	SLU 76	-2.31	0.25	35.02	-0.2048	-0.1044	0.0006
303	SLU 77	-2.24	0.27	36.22	-0.2158	-0.1016	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
303	SLU 78	-2.31	0.26	35.83	-0.2132	-0.1044	0.0006
303	SLU 79	-2.2	0.26	36.07	-0.2141	-0.0997	0.0006
303	SLU 80	-2.27	0.26	35.68	-0.2115	-0.1024	0.0006
303	SLU 81	-2.3	0.26	36.71	-0.2117	-0.1064	0.0006
303	SLU 82	-2.38	0.26	36.32	-0.2091	-0.1091	0.0006
303	SLU 83	-2.32	0.27	37.11	-0.2167	-0.1061	0.0006
303	SLU 84	-2.39	0.26	36.72	-0.2141	-0.1088	0.0006
303	SLE RA 1	-1.35	0.17	23.89	-0.1391	-0.0631	0.0004
303	SLE RA 2	-1.44	0.17	23.46	-0.1362	-0.0661	0.0004
303	SLE RA 3	-1.39	0.18	24.26	-0.1436	-0.0643	0.0004
303	SLE RA 4	-1.44	0.18	24	-0.1419	-0.0661	0.0004
303	SLE RA 5	-1.45	0.17	23.73	-0.1395	-0.066	0.0004
303	SLE RA 6	-1.4	0.18	24.53	-0.1469	-0.0641	0.0004
303	SLE RA 7	-1.45	0.18	24.27	-0.1452	-0.0659	0.0004
303	SLE RA 8	-1.37	0.18	24.43	-0.1458	-0.0628	0.0004
303	SLE RA 9	-1.42	0.18	24.17	-0.144	-0.0646	0.0004
303	SLE RA 10	-1.65	0.18	25.7	-0.1481	-0.0758	0.0004
303	SLE RA 11	-1.61	0.19	26.5	-0.1555	-0.0739	0.0005
303	SLE RA 12	-1.66	0.19	26.24	-0.1537	-0.0757	0.0005
303	SLE RA 13	-1.66	0.19	25.97	-0.1514	-0.0756	0.0005
303	SLE RA 14	-1.62	0.2	26.77	-0.1588	-0.0737	0.0005
303	SLE RA 15	-1.67	0.19	26.51	-0.157	-0.0756	0.0005
303	SLE RA 16	-1.59	0.19	26.67	-0.1576	-0.0724	0.0005
303	SLE RA 17	-1.64	0.19	26.41	-0.1559	-0.0742	0.0005
303	SLE RA 18	-1.66	0.19	27.09	-0.156	-0.0769	0.0005
303	SLE RA 19	-1.71	0.19	26.83	-0.1543	-0.0787	0.0005
303	SLE RA 20	-1.67	0.2	27.36	-0.1594	-0.0767	0.0005
303	SLE RA 21	-1.72	0.19	27.1	-0.1576	-0.0785	0.0005
303	SLE FR 1	-1.35	0.17	23.89	-0.1391	-0.0631	0.0004
303	SLE FR 2	-1.37	0.17	23.81	-0.1385	-0.0637	0.0004
303	SLE FR 3	-1.36	0.17	24	-0.1404	-0.063	0.0004
303	SLE FR 4	-1.46	0.18	24.77	-0.1436	-0.0679	0.0004
303	SLE FR 5	-1.45	0.18	24.96	-0.1455	-0.0672	0.0004
303	SLE FR 6	-1.51	0.18	25.49	-0.1476	-0.07	0.0004
303	SLE QP 1	-1.35	0.17	23.89	-0.1391	-0.0631	0.0004
303	SLE QP 2	-1.44	0.18	24.85	-0.1442	-0.0672	0.0004
303	SLD 1	11.93	-0.07	20.7	-0.2254	0.5292	-0.0001
303	SLD 2	11.93	-0.07	20.7	-0.2254	0.5292	-0.0001
303	SLD 3	10.34	0.25	25.38	0.099	0.4585	0.0006
303	SLD 4	10.34	0.25	25.38	0.099	0.4585	0.0006
303	SLD 5	4.98	-0.39	16.51	-0.6606	0.2188	-0.0007
303	SLD 6	4.98	-0.39	16.51	-0.6606	0.2188	-0.0007
303	SLD 7	-0.32	0.7	32.11	0.4208	-0.0167	0.0015
303	SLD 8	-0.32	0.7	32.11	0.4208	-0.0167	0.0015
303	SLD 9	-2.57	-0.34	17.59	-0.7092	-0.1178	-0.0006
303	SLD 10	-2.57	-0.34	17.59	-0.7092	-0.1178	-0.0006
303	SLD 11	-7.87	0.75	33.2	0.3722	-0.3533	0.0016
303	SLD 12	-7.87	0.75	33.2	0.3722	-0.3533	0.0016
303	SLD 13	-13.23	0.1	24.33	-0.3874	-0.593	0.0003
303	SLD 14	-13.23	0.1	24.33	-0.3874	-0.593	0.0003
303	SLD 15	-14.82	0.43	29.01	-0.063	-0.6637	0.0009
303	SLD 16	-14.82	0.43	29.01	-0.063	-0.6637	0.0009
303	SLV 1	29.26	-0.44	15.03	-0.3416	1.3022	-0.0008
303	SLV 2	29.26	-0.44	15.03	-0.3416	1.3022	-0.0008
303	SLV 3	25.49	0.36	26.33	0.4516	1.1348	0.0008
303	SLV 4	25.49	0.36	26.33	0.4516	1.1348	0.0008
303	SLV 5	13.49	-1.21	4.76	-1.4065	0.5975	-0.0024
303	SLV 6	13.49	-1.21	4.76	-1.4065	0.5975	-0.0024
303	SLV 7	0.92	1.44	42.44	1.2376	0.0394	0.003
303	SLV 8	0.92	1.44	42.44	1.2376	0.0394	0.003
303	SLV 9	-3.81	-1.08	7.27	-1.526	-0.1739	-0.0021
303	SLV 10	-3.81	-1.08	7.27	-1.526	-0.1739	-0.0021
303	SLV 11	-16.38	1.57	44.94	1.1181	-0.732	0.0032
303	SLV 12	-16.38	1.57	44.94	1.1181	-0.732	0.0032
303	SLV 13	-28.38	0	23.37	-0.74	-1.2693	0.0001
303	SLV 14	-28.38	0	23.37	-0.74	-1.2693	0.0001
303	SLV 15	-32.15	0.79	34.68	0.0532	-1.4367	0.0017
303	SLV 16	-32.15	0.79	34.68	0.0532	-1.4367	0.0017
304	SLU 1	-0.62	0.16	24.49	-0.1167	-0.0408	0.0003
304	SLU 2	-0.81	0.15	23.59	-0.1124	-0.0475	0.0003
304	SLU 3	-0.66	0.17	25.01	-0.1221	-0.0431	0.0004
304	SLU 4	-0.77	0.16	24.47	-0.1194	-0.0472	0.0004
304	SLU 5	-0.82	0.16	23.93	-0.1161	-0.0486	0.0003
304	SLU 6	-0.67	0.17	25.35	-0.1258	-0.0442	0.0004
304	SLU 7	-0.79	0.17	24.81	-0.1231	-0.0482	0.0004
304	SLU 8	-0.65	0.17	25.17	-0.1242	-0.043	0.0004
304	SLU 9	-0.76	0.17	24.63	-0.1215	-0.047	0.0004
304	SLU 10	-1.06	0.17	27.07	-0.1272	-0.0601	0.0004
304	SLU 11	-0.91	0.19	28.49	-0.1369	-0.0557	0.0004
304	SLU 12	-1.03	0.18	27.95	-0.1343	-0.0597	0.0004
304	SLU 13	-1.08	0.18	27.41	-0.1309	-0.0612	0.0004
304	SLU 14	-0.93	0.19	28.83	-0.1406	-0.0568	0.0004
304	SLU 15	-1.04	0.19	28.29	-0.138	-0.0608	0.0004
304	SLU 16	-0.9	0.19	28.65	-0.139	-0.0556	0.0004
304	SLU 17	-1.02	0.19	28.11	-0.1364	-0.0596	0.0004
304	SLU 18	-0.98	0.19	29.46	-0.1379	-0.0588	0.0004
304	SLU 19	-1.1	0.19	28.92	-0.1353	-0.0628	0.0004
304	SLU 20	-1	0.19	29.8	-0.1416	-0.0599	0.0004
304	SLU 21	-1.11	0.19	29.26	-0.139	-0.0639	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
304	SLU 22	-0.84	0.18	27.57	-0.1327	-0.052	0.0004
304	SLU 23	-1.03	0.17	26.67	-0.1283	-0.0587	0.0004
304	SLU 24	-0.88	0.19	28.09	-0.138	-0.0543	0.0004
304	SLU 25	-0.99	0.18	27.55	-0.1354	-0.0583	0.0004
304	SLU 26	-1.04	0.18	27.01	-0.132	-0.0597	0.0004
304	SLU 27	-0.89	0.19	28.43	-0.1417	-0.0554	0.0004
304	SLU 28	-1.01	0.19	27.89	-0.1391	-0.0594	0.0004
304	SLU 29	-0.87	0.19	28.25	-0.1401	-0.0541	0.0004
304	SLU 30	-0.98	0.19	27.71	-0.1375	-0.0581	0.0004
304	SLU 31	-1.28	0.19	30.15	-0.1431	-0.0712	0.0004
304	SLU 32	-1.13	0.21	31.57	-0.1528	-0.0669	0.0005
304	SLU 33	-1.25	0.2	31.03	-0.1502	-0.0709	0.0004
304	SLU 34	-1.3	0.2	30.49	-0.1468	-0.0723	0.0004
304	SLU 35	-1.15	0.21	31.91	-0.1565	-0.068	0.0005
304	SLU 36	-1.26	0.21	31.37	-0.1539	-0.072	0.0005
304	SLU 37	-1.12	0.21	31.73	-0.1549	-0.0667	0.0005
304	SLU 38	-1.24	0.21	31.19	-0.1523	-0.0707	0.0004
304	SLU 39	-1.2	0.21	32.54	-0.1538	-0.07	0.0005
304	SLU 40	-1.32	0.21	32	-0.1512	-0.074	0.0004
304	SLU 41	-1.22	0.22	32.88	-0.1576	-0.071	0.0005
304	SLU 42	-1.33	0.21	32.34	-0.1549	-0.075	0.0005
304	SLU 43	-0.73	0.2	30.78	-0.1463	-0.0492	0.0004
304	SLU 44	-0.92	0.19	29.88	-0.1419	-0.0559	0.0004
304	SLU 45	-0.77	0.21	31.3	-0.1516	-0.0516	0.0005
304	SLU 46	-0.88	0.2	30.76	-0.149	-0.0556	0.0004
304	SLU 47	-0.93	0.2	30.22	-0.1456	-0.057	0.0004
304	SLU 48	-0.78	0.21	31.64	-0.1553	-0.0526	0.0005
304	SLU 49	-0.9	0.21	31.1	-0.1527	-0.0567	0.0005
304	SLU 50	-0.76	0.21	31.46	-0.1537	-0.0514	0.0005
304	SLU 51	-0.87	0.21	30.92	-0.1511	-0.0554	0.0004
304	SLU 52	-1.17	0.21	33.36	-0.1567	-0.0685	0.0005
304	SLU 53	-1.02	0.23	34.78	-0.1664	-0.0642	0.0005
304	SLU 54	-1.14	0.22	34.24	-0.1638	-0.0682	0.0005
304	SLU 55	-1.19	0.22	33.7	-0.1605	-0.0696	0.0005
304	SLU 56	-1.04	0.23	35.12	-0.1702	-0.0652	0.0005
304	SLU 57	-1.15	0.23	34.58	-0.1675	-0.0692	0.0005
304	SLU 58	-1.01	0.23	34.94	-0.1685	-0.064	0.0005
304	SLU 59	-1.13	0.23	34.4	-0.1659	-0.068	0.0005
304	SLU 60	-1.09	0.23	35.75	-0.1675	-0.0672	0.0005
304	SLU 61	-1.21	0.23	35.21	-0.1648	-0.0712	0.0005
304	SLU 62	-1.11	0.24	36.09	-0.1712	-0.0683	0.0005
304	SLU 63	-1.22	0.23	35.55	-0.1686	-0.0723	0.0005
304	SLU 64	-0.95	0.22	33.86	-0.1622	-0.0604	0.0005
304	SLU 65	-1.14	0.22	32.96	-0.1578	-0.0671	0.0005
304	SLU 66	-0.99	0.23	34.38	-0.1675	-0.0627	0.0005
304	SLU 67	-1.1	0.23	33.84	-0.1649	-0.0667	0.0005
304	SLU 68	-1.15	0.22	33.3	-0.1616	-0.0682	0.0005
304	SLU 69	-1	0.24	34.72	-0.1713	-0.0638	0.0005
304	SLU 70	-1.12	0.23	34.18	-0.1686	-0.0678	0.0005
304	SLU 71	-0.98	0.23	34.54	-0.1697	-0.0626	0.0005
304	SLU 72	-1.09	0.23	34	-0.167	-0.0666	0.0005
304	SLU 73	-1.39	0.24	36.44	-0.1727	-0.0797	0.0005
304	SLU 74	-1.24	0.25	37.86	-0.1824	-0.0753	0.0005
304	SLU 75	-1.36	0.25	37.32	-0.1797	-0.0793	0.0005
304	SLU 76	-1.41	0.24	36.78	-0.1764	-0.0807	0.0005
304	SLU 77	-1.26	0.26	38.2	-0.1861	-0.0764	0.0006
304	SLU 78	-1.37	0.25	37.66	-0.1835	-0.0804	0.0005
304	SLU 79	-1.23	0.25	38.02	-0.1845	-0.0751	0.0005
304	SLU 80	-1.35	0.25	37.48	-0.1819	-0.0792	0.0005
304	SLU 81	-1.31	0.25	38.83	-0.1834	-0.0784	0.0005
304	SLU 82	-1.43	0.25	38.29	-0.1808	-0.0824	0.0005
304	SLU 83	-1.33	0.26	39.17	-0.1871	-0.0795	0.0006
304	SLU 84	-1.44	0.25	38.63	-0.1845	-0.0835	0.0005
304	SLE RA 1	-0.68	0.17	25.37	-0.1213	-0.044	0.0004
304	SLE RA 2	-0.81	0.16	24.77	-0.1184	-0.0485	0.0003
304	SLE RA 3	-0.71	0.17	25.71	-0.1248	-0.0456	0.0004
304	SLE RA 4	-0.78	0.17	25.36	-0.1231	-0.0482	0.0004
304	SLE RA 5	-0.82	0.17	25	-0.1208	-0.0492	0.0004
304	SLE RA 6	-0.72	0.18	25.94	-0.1273	-0.0463	0.0004
304	SLE RA 7	-0.79	0.17	25.58	-0.1256	-0.0489	0.0004
304	SLE RA 8	-0.7	0.17	25.82	-0.1262	-0.0455	0.0004
304	SLE RA 9	-0.78	0.17	25.46	-0.1245	-0.0481	0.0004
304	SLE RA 10	-0.98	0.18	27.09	-0.1283	-0.0569	0.0004
304	SLE RA 11	-0.88	0.19	28.03	-0.1347	-0.0539	0.0004
304	SLE RA 12	-0.95	0.18	27.68	-0.133	-0.0566	0.0004
304	SLE RA 13	-0.99	0.18	27.32	-0.1307	-0.0576	0.0004
304	SLE RA 14	-0.89	0.19	28.26	-0.1372	-0.0547	0.0004
304	SLE RA 15	-0.96	0.19	27.9	-0.1354	-0.0573	0.0004
304	SLE RA 16	-0.87	0.19	28.14	-0.1361	-0.0538	0.0004
304	SLE RA 17	-0.95	0.18	27.78	-0.1344	-0.0565	0.0004
304	SLE RA 18	-0.92	0.19	28.68	-0.1354	-0.056	0.0004
304	SLE RA 19	-1	0.18	28.32	-0.1337	-0.0587	0.0004
304	SLE RA 20	-0.93	0.19	28.91	-0.1379	-0.0567	0.0004
304	SLE RA 21	-1.01	0.19	28.55	-0.1361	-0.0594	0.0004
304	SLE FR 1	-0.68	0.17	25.37	-0.1213	-0.044	0.0004
304	SLE FR 2	-0.7	0.17	25.25	-0.1207	-0.0449	0.0004
304	SLE FR 3	-0.68	0.17	25.46	-0.1223	-0.0443	0.0004
304	SLE FR 4	-0.78	0.17	26.24	-0.1249	-0.0485	0.0004
304	SLE FR 5	-0.76	0.17	26.45	-0.1265	-0.0479	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
304	SLE FR 6	-0.8	0.18	27.02	-0.1283	-0.05	0.0004
304	SLE QP 1	-0.68	0.17	25.37	-0.1213	-0.044	0.0004
304	SLE QP 2	-0.75	0.17	26.36	-0.1255	-0.0476	0.0004
304	SLD 1	10.54	-0.06	21.63	-0.1972	0.5162	0
304	SLD 2	10.54	-0.06	21.63	-0.1972	0.5162	0
304	SLD 3	12.11	0.23	26.32	0.1002	0.4474	0.0005
304	SLD 4	12.11	0.23	26.32	0.1002	0.4474	0.0005
304	SLD 5	0.25	-0.34	17.82	-0.598	0.2258	-0.0004
304	SLD 6	0.25	-0.34	17.82	-0.598	0.2258	-0.0004
304	SLD 7	5.49	0.64	33.47	0.3931	-0.0034	0.0011
304	SLD 8	5.49	0.64	33.47	0.3931	-0.0034	0.0011
304	SLD 9	-6.99	-0.29	19.25	-0.6442	-0.0918	-0.0003
304	SLD 10	-6.99	-0.29	19.25	-0.6442	-0.0918	-0.0003
304	SLD 11	-1.76	0.69	34.9	0.3469	-0.321	0.0012
304	SLD 12	-1.76	0.69	34.9	0.3469	-0.321	0.0012
304	SLD 13	-13.61	0.11	26.4	-0.3512	-0.5426	0.0003
304	SLD 14	-13.61	0.11	26.4	-0.3512	-0.5426	0.0003
304	SLD 15	-12.04	0.41	31.09	-0.0539	-0.6114	0.0007
304	SLD 16	-12.04	0.41	31.09	-0.0539	-0.6114	0.0007
304	SLV 1	25.07	-0.4	15.31	-0.2991	1.2474	-0.0005
304	SLV 2	25.07	-0.4	15.31	-0.2991	1.2474	-0.0005
304	SLV 3	28.8	0.32	26.55	0.4279	1.0841	0.0006
304	SLV 4	28.8	0.32	26.55	0.4279	1.0841	0.0006
304	SLV 5	1.35	-1.09	5.99	-1.2802	0.5886	-0.0016
304	SLV 6	1.35	-1.09	5.99	-1.2802	0.5886	-0.0016
304	SLV 7	13.76	1.31	43.47	1.1432	0.0442	0.0021
304	SLV 8	13.76	1.31	43.47	1.1432	0.0442	0.0021
304	SLV 9	-15.26	-0.96	9.26	-1.3942	-0.1394	-0.0013
304	SLV 10	-15.26	-0.96	9.26	-1.3942	-0.1394	-0.0013
304	SLV 11	-2.85	1.44	46.73	1.0292	-0.6838	0.0023
304	SLV 12	-2.85	1.44	46.73	1.0292	-0.6838	0.0023
304	SLV 13	-30.3	0.02	26.18	-0.679	-1.1793	0.0002
304	SLV 14	-30.3	0.02	26.18	-0.679	-1.1793	0.0002
304	SLV 15	-26.58	0.74	37.42	0.048	-1.3426	0.0013
304	SLV 16	-26.58	0.74	37.42	0.048	-1.3426	0.0013
305	SLU 1	-0.05	0.16	27.13	-0.0999	-0.0165	0.0002
305	SLU 2	-0.31	0.15	25.9	-0.096	-0.026	0.0002
305	SLU 3	-0.06	0.16	27.65	-0.1041	-0.0165	0.0002
305	SLU 4	-0.21	0.16	26.91	-0.1017	-0.0222	0.0002
305	SLU 5	-0.3	0.15	26.2	-0.0988	-0.0251	0.0002
305	SLU 6	-0.06	0.17	27.95	-0.1068	-0.0156	0.0002
305	SLU 7	-0.21	0.16	27.21	-0.1045	-0.0213	0.0002
305	SLU 8	-0.04	0.16	27.72	-0.1054	-0.0146	0.0002
305	SLU 9	-0.2	0.16	26.98	-0.1031	-0.0203	0.0002
305	SLU 10	-0.52	0.17	29.67	-0.1083	-0.0369	0.0002
305	SLU 11	-0.27	0.18	31.42	-0.1164	-0.0274	0.0003
305	SLU 12	-0.43	0.18	30.68	-0.1141	-0.0331	0.0002
305	SLU 13	-0.52	0.17	29.96	-0.1111	-0.0359	0.0002
305	SLU 14	-0.27	0.18	31.71	-0.1192	-0.0264	0.0003
305	SLU 15	-0.42	0.18	30.98	-0.1168	-0.0322	0.0003
305	SLU 16	-0.26	0.18	31.49	-0.1177	-0.0255	0.0003
305	SLU 17	-0.41	0.18	30.75	-0.1154	-0.0312	0.0003
305	SLU 18	-0.35	0.18	32.51	-0.1175	-0.032	0.0003
305	SLU 19	-0.51	0.18	31.77	-0.1152	-0.0377	0.0003
305	SLU 20	-0.35	0.19	32.8	-0.1203	-0.031	0.0003
305	SLU 21	-0.5	0.18	32.07	-0.1179	-0.0368	0.0003
305	SLU 22	-0.21	0.18	30.46	-0.1131	-0.0245	0.0002
305	SLU 23	-0.46	0.17	29.24	-0.1091	-0.0341	0.0002
305	SLU 24	-0.22	0.18	30.99	-0.1172	-0.0246	0.0003
305	SLU 25	-0.37	0.18	30.25	-0.1149	-0.0303	0.0003
305	SLU 26	-0.46	0.17	29.54	-0.1119	-0.0331	0.0002
305	SLU 27	-0.21	0.19	31.28	-0.12	-0.0237	0.0003
305	SLU 28	-0.37	0.18	30.55	-0.1176	-0.0294	0.0003
305	SLU 29	-0.2	0.18	31.06	-0.1186	-0.0227	0.0003
305	SLU 30	-0.36	0.18	30.32	-0.1162	-0.0284	0.0003
305	SLU 31	-0.68	0.19	33.01	-0.1215	-0.0449	0.0003
305	SLU 32	-0.43	0.2	34.75	-0.1296	-0.0354	0.0003
305	SLU 33	-0.58	0.2	34.02	-0.1272	-0.0412	0.0003
305	SLU 34	-0.67	0.19	33.3	-0.1242	-0.044	0.0003
305	SLU 35	-0.43	0.2	35.05	-0.1323	-0.0345	0.0003
305	SLU 36	-0.58	0.2	34.32	-0.13	-0.0402	0.0003
305	SLU 37	-0.41	0.2	34.82	-0.1309	-0.0335	0.0003
305	SLU 38	-0.57	0.2	34.09	-0.1285	-0.0393	0.0003
305	SLU 39	-0.51	0.2	35.85	-0.1307	-0.04	0.0003
305	SLU 40	-0.66	0.2	35.11	-0.1283	-0.0458	0.0003
305	SLU 41	-0.51	0.21	36.14	-0.1334	-0.0391	0.0003
305	SLU 42	-0.66	0.2	35.41	-0.1311	-0.0448	0.0003
305	SLU 43	-0.01	0.2	34.12	-0.1254	-0.0187	0.0003
305	SLU 44	-0.27	0.19	32.89	-0.1215	-0.0282	0.0003
305	SLU 45	-0.02	0.2	34.64	-0.1296	-0.0187	0.0003
305	SLU 46	-0.17	0.2	33.91	-0.1272	-0.0244	0.0003
305	SLU 47	-0.26	0.19	33.19	-0.1242	-0.0273	0.0003
305	SLU 48	-0.02	0.2	34.94	-0.1323	-0.0178	0.0003
305	SLU 49	-0.17	0.2	34.2	-0.13	-0.0235	0.0003
305	SLU 50	0	0.2	34.71	-0.1309	-0.0168	0.0003
305	SLU 51	-0.16	0.2	33.98	-0.1285	-0.0225	0.0003
305	SLU 52	-0.48	0.21	36.66	-0.1338	-0.039	0.0003
305	SLU 53	-0.23	0.22	38.41	-0.1419	-0.0296	0.0003
305	SLU 54	-0.39	0.22	37.67	-0.1395	-0.0353	0.0003



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
305	SLU 55	-0.48	0.21	36.96	-0.1365	-0.0381	0.0003
305	SLU 56	-0.23	0.22	38.71	-0.1446	-0.0286	0.0003
305	SLU 57	-0.38	0.22	37.97	-0.1423	-0.0343	0.0003
305	SLU 58	-0.22	0.22	38.48	-0.1432	-0.0276	0.0003
305	SLU 59	-0.37	0.22	37.74	-0.1409	-0.0334	0.0003
305	SLU 60	-0.31	0.22	39.5	-0.143	-0.0342	0.0003
305	SLU 61	-0.47	0.22	38.77	-0.1406	-0.0399	0.0003
305	SLU 62	-0.31	0.23	39.8	-0.1457	-0.0332	0.0003
305	SLU 63	-0.46	0.22	39.06	-0.1434	-0.0389	0.0003
305	SLU 64	-0.17	0.22	37.46	-0.1385	-0.0267	0.0003
305	SLU 65	-0.42	0.21	36.23	-0.1346	-0.0363	0.0003
305	SLU 66	-0.18	0.22	37.98	-0.1427	-0.0268	0.0003
305	SLU 67	-0.33	0.22	37.25	-0.1404	-0.0325	0.0003
305	SLU 68	-0.42	0.21	36.53	-0.1374	-0.0353	0.0003
305	SLU 69	-0.17	0.22	38.28	-0.1455	-0.0258	0.0003
305	SLU 70	-0.33	0.22	37.54	-0.1431	-0.0316	0.0003
305	SLU 71	-0.16	0.22	38.05	-0.144	-0.0249	0.0003
305	SLU 72	-0.32	0.22	37.31	-0.1417	-0.0306	0.0003
305	SLU 73	-0.64	0.23	40	-0.1469	-0.0471	0.0003
305	SLU 74	-0.39	0.24	41.75	-0.155	-0.0376	0.0003
305	SLU 75	-0.54	0.24	41.01	-0.1527	-0.0433	0.0003
305	SLU 76	-0.63	0.23	40.3	-0.1497	-0.0462	0.0003
305	SLU 77	-0.39	0.24	42.04	-0.1578	-0.0367	0.0003
305	SLU 78	-0.54	0.24	41.31	-0.1554	-0.0424	0.0003
305	SLU 79	-0.37	0.24	41.82	-0.1564	-0.0357	0.0003
305	SLU 80	-0.53	0.24	41.08	-0.154	-0.0414	0.0003
305	SLU 81	-0.47	0.24	42.84	-0.1561	-0.0422	0.0003
305	SLU 82	-0.62	0.24	42.1	-0.1538	-0.0479	0.0003
305	SLU 83	-0.47	0.25	43.14	-0.1589	-0.0413	0.0004
305	SLU 84	-0.62	0.24	42.4	-0.1565	-0.047	0.0003
305	SLE RA 1	-0.09	0.16	28.08	-0.1037	-0.0188	0.0002
305	SLE RA 2	-0.27	0.16	27.26	-0.1011	-0.0251	0.0002
305	SLE RA 3	-0.1	0.17	28.43	-0.1065	-0.0188	0.0002
305	SLE RA 4	-0.2	0.16	27.94	-0.1049	-0.0226	0.0002
305	SLE RA 5	-0.26	0.16	27.46	-0.1029	-0.0245	0.0002
305	SLE RA 6	-0.1	0.17	28.63	-0.1083	-0.0182	0.0002
305	SLE RA 7	-0.2	0.16	28.14	-0.1067	-0.022	0.0002
305	SLE RA 8	-0.09	0.17	28.47	-0.1073	-0.0175	0.0002
305	SLE RA 9	-0.19	0.16	27.98	-0.1058	-0.0213	0.0002
305	SLE RA 10	-0.41	0.17	29.77	-0.1093	-0.0324	0.0002
305	SLE RA 11	-0.24	0.18	30.94	-0.1147	-0.026	0.0003
305	SLE RA 12	-0.35	0.17	30.45	-0.1131	-0.0299	0.0002
305	SLE RA 13	-0.41	0.17	29.97	-0.1111	-0.0317	0.0002
305	SLE RA 14	-0.24	0.18	31.14	-0.1165	-0.0254	0.0003
305	SLE RA 15	-0.34	0.18	30.65	-0.1149	-0.0292	0.0003
305	SLE RA 16	-0.23	0.18	30.99	-0.1156	-0.0248	0.0003
305	SLE RA 17	-0.33	0.18	30.5	-0.114	-0.0286	0.0003
305	SLE RA 18	-0.3	0.18	31.67	-0.1154	-0.0291	0.0003
305	SLE RA 19	-0.4	0.18	31.18	-0.1138	-0.0329	0.0002
305	SLE RA 20	-0.29	0.18	31.86	-0.1172	-0.0285	0.0003
305	SLE RA 21	-0.4	0.18	31.37	-0.1157	-0.0323	0.0003
305	SLE FR 1	-0.09	0.16	28.08	-0.1037	-0.0188	0.0002
305	SLE FR 2	-0.13	0.16	27.92	-0.1032	-0.02	0.0002
305	SLE FR 3	-0.09	0.16	28.16	-0.1044	-0.0185	0.0002
305	SLE FR 4	-0.19	0.17	28.99	-0.1067	-0.0232	0.0002
305	SLE FR 5	-0.15	0.17	29.24	-0.1079	-0.0216	0.0002
305	SLE FR 6	-0.19	0.17	29.87	-0.1095	-0.0239	0.0002
305	SLE QP 1	-0.09	0.16	28.08	-0.1037	-0.0188	0.0002
305	SLE QP 2	-0.15	0.17	29.16	-0.1072	-0.0219	0.0002
305	SLD 1	10.43	-0.04	22.88	-0.1633	0.458	0.0001
305	SLD 2	10.43	-0.04	22.88	-0.1633	0.458	0.0001
305	SLD 3	11.93	0.2	27.6	0.0887	0.5228	0.0002
305	SLD 4	11.93	0.2	27.6	0.0887	0.5228	0.0002
305	SLD 5	0.74	-0.26	20.1	-0.5063	0.0237	0
305	SLD 6	0.74	-0.26	20.1	-0.5063	0.0237	0
305	SLD 7	5.75	0.54	35.86	0.3338	0.2399	0.0005
305	SLD 8	5.75	0.54	35.86	0.3338	0.2399	0.0005
305	SLD 9	-6.06	-0.21	22.45	-0.5482	-0.2836	0
305	SLD 10	-6.06	-0.21	22.45	-0.5482	-0.2836	0
305	SLD 11	-1.05	0.59	38.21	0.2919	-0.0675	0.0005
305	SLD 12	-1.05	0.59	38.21	0.2919	-0.0675	0.0005
305	SLD 13	-12.24	0.13	30.71	-0.3031	-0.5666	0.0003
305	SLD 14	-12.24	0.13	30.71	-0.3031	-0.5666	0.0003
305	SLD 15	-10.74	0.37	35.44	-0.0511	-0.5017	0.0004
305	SLD 16	-10.74	0.37	35.44	-0.0511	-0.5017	0.0004
305	SLV 1	24.06	-0.33	14.69	-0.2423	1.0762	-0.0002
305	SLV 2	24.06	-0.33	14.69	-0.2423	1.0762	-0.0002
305	SLV 3	27.61	0.26	25.81	0.374	1.2289	0.0002
305	SLV 4	27.61	0.26	25.81	0.374	1.2289	0.0002
305	SLV 5	1.73	-0.87	7.94	-1.0824	0.0759	-0.0004
305	SLV 6	1.73	-0.87	7.94	-1.0824	0.0759	-0.0004
305	SLV 7	13.56	1.08	45.03	0.9718	0.585	0.0008
305	SLV 8	13.56	1.08	45.03	0.9718	0.585	0.0008
305	SLV 9	-13.87	-0.75	13.29	-1.1862	-0.6287	-0.0003
305	SLV 10	-13.87	-0.75	13.29	-1.1862	-0.6287	-0.0003
305	SLV 11	-2.04	1.21	50.37	0.868	-0.1197	0.0009
305	SLV 12	-2.04	1.21	50.37	0.868	-0.1197	0.0009
305	SLV 13	-27.92	0.07	32.5	-0.5884	-1.2727	0.0003
305	SLV 14	-27.92	0.07	32.5	-0.5884	-1.2727	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
305	SLV 15	-24.37	0.66	43.63	0.0279	-1.1199	0.0007
305	SLV 16	-24.37	0.66	43.63	0.0279	-1.1199	0.0007
306	SLU 1	-0.11	0.13	30.77	-0.0762	-0.0307	0.0001
306	SLU 2	-0.39	0.12	29.13	-0.0736	-0.0404	0.0001
306	SLU 3	-0.12	0.13	31.32	-0.0792	-0.0321	0.0001
306	SLU 4	-0.29	0.13	30.34	-0.0776	-0.0379	0.0001
306	SLU 5	-0.4	0.12	29.39	-0.0754	-0.0412	0.0001
306	SLU 6	-0.13	0.13	31.58	-0.0811	-0.0329	0.0001
306	SLU 7	-0.3	0.13	30.6	-0.0795	-0.0387	0.0001
306	SLU 8	-0.13	0.13	31.29	-0.08	-0.0324	0.0001
306	SLU 9	-0.3	0.13	30.3	-0.0784	-0.0382	0.0001
306	SLU 10	-0.65	0.14	33.3	-0.0828	-0.0548	0.0001
306	SLU 11	-0.38	0.15	35.49	-0.0884	-0.0465	0.0001
306	SLU 12	-0.55	0.14	34.51	-0.0868	-0.0523	0.0001
306	SLU 13	-0.66	0.14	33.56	-0.0847	-0.0556	0.0001
306	SLU 14	-0.39	0.15	35.75	-0.0903	-0.0473	0.0001
306	SLU 15	-0.56	0.15	34.77	-0.0887	-0.0531	0.0001
306	SLU 16	-0.39	0.15	35.46	-0.0892	-0.0468	0.0001
306	SLU 17	-0.56	0.14	34.48	-0.0876	-0.0526	0.0001
306	SLU 18	-0.48	0.15	36.73	-0.0894	-0.0513	0.0001
306	SLU 19	-0.65	0.14	35.75	-0.0878	-0.0571	0.0001
306	SLU 20	-0.49	0.15	36.99	-0.0913	-0.0521	0.0001
306	SLU 21	-0.66	0.15	36.01	-0.0897	-0.0579	0.0001
306	SLU 22	-0.3	0.14	34.48	-0.086	-0.042	0.0001
306	SLU 23	-0.58	0.14	32.85	-0.0833	-0.0517	0.0001
306	SLU 24	-0.31	0.15	35.04	-0.089	-0.0434	0.0001
306	SLU 25	-0.48	0.14	34.06	-0.0874	-0.0492	0.0001
306	SLU 26	-0.59	0.14	33.11	-0.0852	-0.0525	0.0001
306	SLU 27	-0.32	0.15	35.3	-0.0909	-0.0442	0.0001
306	SLU 28	-0.49	0.15	34.32	-0.0893	-0.05	0.0001
306	SLU 29	-0.31	0.15	35	-0.0898	-0.0437	0.0001
306	SLU 30	-0.48	0.14	34.02	-0.0882	-0.0495	0.0001
306	SLU 31	-0.84	0.15	37.02	-0.0926	-0.066	0.0001
306	SLU 32	-0.57	0.16	39.21	-0.0982	-0.0577	0.0001
306	SLU 33	-0.74	0.16	38.23	-0.0966	-0.0635	0.0001
306	SLU 34	-0.85	0.15	37.28	-0.0944	-0.0669	0.0001
306	SLU 35	-0.58	0.16	39.47	-0.1001	-0.0586	0.0001
306	SLU 36	-0.75	0.16	38.49	-0.0985	-0.0644	0.0001
306	SLU 37	-0.57	0.16	39.18	-0.099	-0.0581	0.0001
306	SLU 38	-0.74	0.16	38.2	-0.0974	-0.0639	0.0001
306	SLU 39	-0.67	0.16	40.45	-0.0992	-0.0625	0.0001
306	SLU 40	-0.84	0.16	39.46	-0.0976	-0.0683	0.0001
306	SLU 41	-0.68	0.17	40.71	-0.1011	-0.0634	0.0001
306	SLU 42	-0.85	0.16	39.72	-0.0995	-0.0692	0.0001
306	SLU 43	-0.08	0.16	38.72	-0.0957	-0.0361	0.0001
306	SLU 44	-0.36	0.15	37.08	-0.0931	-0.0457	0.0001
306	SLU 45	-0.09	0.16	39.27	-0.0987	-0.0374	0.0001
306	SLU 46	-0.26	0.16	38.29	-0.0971	-0.0432	0.0001
306	SLU 47	-0.37	0.16	37.34	-0.0949	-0.0466	0.0001
306	SLU 48	-0.1	0.17	39.53	-0.1006	-0.0383	0.0001
306	SLU 49	-0.27	0.16	38.55	-0.099	-0.0441	0.0001
306	SLU 50	-0.09	0.16	39.24	-0.0995	-0.0378	0.0001
306	SLU 51	-0.26	0.16	38.26	-0.0979	-0.0436	0.0001
306	SLU 52	-0.62	0.17	41.26	-0.1023	-0.0601	0.0001
306	SLU 53	-0.35	0.18	43.45	-0.1079	-0.0518	0.0001
306	SLU 54	-0.52	0.17	42.47	-0.1063	-0.0576	0.0001
306	SLU 55	-0.63	0.17	41.52	-0.1042	-0.061	0.0001
306	SLU 56	-0.36	0.18	43.71	-0.1098	-0.0527	0.0001
306	SLU 57	-0.53	0.18	42.73	-0.1082	-0.0585	0.0001
306	SLU 58	-0.35	0.18	43.41	-0.1087	-0.0522	0.0001
306	SLU 59	-0.53	0.18	42.43	-0.1071	-0.058	0.0001
306	SLU 60	-0.45	0.18	44.68	-0.1089	-0.0566	0.0001
306	SLU 61	-0.62	0.18	43.7	-0.1073	-0.0624	0.0001
306	SLU 62	-0.46	0.18	44.94	-0.1108	-0.0575	0.0001
306	SLU 63	-0.63	0.18	43.96	-0.1092	-0.0633	0.0001
306	SLU 64	-0.26	0.17	42.44	-0.1055	-0.0473	0.0001
306	SLU 65	-0.55	0.17	40.8	-0.1029	-0.057	0.0001
306	SLU 66	-0.28	0.18	42.99	-0.1085	-0.0487	0.0001
306	SLU 67	-0.45	0.18	42.01	-0.1069	-0.0545	0.0001
306	SLU 68	-0.56	0.17	41.06	-0.1047	-0.0579	0.0001
306	SLU 69	-0.28	0.18	43.25	-0.1104	-0.0496	0.0001
306	SLU 70	-0.46	0.18	42.27	-0.1088	-0.0554	0.0001
306	SLU 71	-0.28	0.18	42.96	-0.1093	-0.0491	0.0001
306	SLU 72	-0.45	0.18	41.98	-0.1077	-0.0549	0.0001
306	SLU 73	-0.81	0.18	44.97	-0.1121	-0.0714	0.0001
306	SLU 74	-0.54	0.19	47.17	-0.1177	-0.0631	0.0001
306	SLU 75	-0.71	0.19	46.18	-0.1161	-0.0689	0.0001
306	SLU 76	-0.82	0.19	45.23	-0.114	-0.0722	0.0001
306	SLU 77	-0.55	0.2	47.43	-0.1196	-0.064	0.0001
306	SLU 78	-0.72	0.19	46.44	-0.118	-0.0697	0.0001
306	SLU 79	-0.54	0.2	47.13	-0.1185	-0.0634	0.0001
306	SLU 80	-0.71	0.19	46.15	-0.1169	-0.0692	0.0001
306	SLU 81	-0.64	0.2	48.4	-0.1187	-0.0679	0.0001
306	SLU 82	-0.81	0.19	47.42	-0.1171	-0.0737	0.0001
306	SLU 83	-0.64	0.2	48.66	-0.1206	-0.0688	0.0001
306	SLU 84	-0.82	0.2	47.68	-0.119	-0.0745	0.0001
306	SLE RA 1	-0.16	0.13	31.83	-0.079	-0.0339	0.0001
306	SLE RA 2	-0.35	0.13	30.74	-0.0772	-0.0404	0.0001
306	SLE RA 3	-0.17	0.13	32.2	-0.081	-0.0349	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
306	SLE RA 4	-0.28	0.13	31.54	-0.0799	-0.0387	0.0001
306	SLE RA 5	-0.36	0.13	30.91	-0.0785	-0.041	0.0001
306	SLE RA 6	-0.18	0.14	32.37	-0.0823	-0.0354	0.0001
306	SLE RA 7	-0.29	0.13	31.72	-0.0812	-0.0393	0.0001
306	SLE RA 8	-0.17	0.13	32.17	-0.0815	-0.0351	0.0001
306	SLE RA 9	-0.29	0.13	31.52	-0.0805	-0.0389	0.0001
306	SLE RA 10	-0.53	0.14	33.52	-0.0834	-0.05	0.0001
306	SLE RA 11	-0.34	0.14	34.98	-0.0872	-0.0444	0.0001
306	SLE RA 12	-0.46	0.14	34.33	-0.0861	-0.0483	0.0001
306	SLE RA 13	-0.53	0.14	33.69	-0.0846	-0.0505	0.0001
306	SLE RA 14	-0.35	0.15	35.15	-0.0884	-0.045	0.0001
306	SLE RA 15	-0.46	0.14	34.5	-0.0873	-0.0489	0.0001
306	SLE RA 16	-0.35	0.14	34.96	-0.0877	-0.0447	0.0001
306	SLE RA 17	-0.46	0.14	34.3	-0.0866	-0.0485	0.0001
306	SLE RA 18	-0.41	0.15	35.8	-0.0878	-0.0476	0.0001
306	SLE RA 19	-0.52	0.14	35.15	-0.0867	-0.0515	0.0001
306	SLE RA 20	-0.42	0.15	35.98	-0.0891	-0.0482	0.0001
306	SLE RA 21	-0.53	0.14	35.32	-0.088	-0.0521	0.0001
306	SLE FR 1	-0.16	0.13	31.83	-0.079	-0.0339	0.0001
306	SLE FR 2	-0.2	0.13	31.61	-0.0787	-0.0352	0.0001
306	SLE FR 3	-0.16	0.13	31.9	-0.0795	-0.0342	0.0001
306	SLE FR 4	-0.27	0.13	32.8	-0.0813	-0.0393	0.0001
306	SLE FR 5	-0.24	0.14	33.09	-0.0822	-0.0383	0.0001
306	SLE FR 6	-0.29	0.14	33.82	-0.0834	-0.0408	0.0001
306	SLE QP 1	-0.16	0.13	31.83	-0.079	-0.0339	0.0001
306	SLE QP 2	-0.24	0.14	33.02	-0.0817	-0.0381	0.0001
306	SLD 1	9.36	-0.03	23.58	-0.1177	0.3941	0.0001
306	SLD 2	9.36	-0.03	23.58	-0.1177	0.3941	0.0001
306	SLD 3	10.78	0.14	28.84	0.0758	0.4545	0.0002
306	SLD 4	10.78	0.14	28.84	0.0758	0.4545	0.0002
306	SLD 5	0.48	-0.17	22.21	-0.386	-0.0001	0
306	SLD 6	0.48	-0.17	22.21	-0.386	-0.0001	0
306	SLD 7	5.23	0.39	39.74	0.2591	0.2014	0.0002
306	SLD 8	5.23	0.39	39.74	0.2591	0.2014	0.0002
306	SLD 9	-5.71	-0.12	26.3	-0.4224	-0.2775	0
306	SLD 10	-5.71	-0.12	26.3	-0.4224	-0.2775	0
306	SLD 11	-0.95	0.44	43.83	0.2227	-0.076	0.0002
306	SLD 12	-0.95	0.44	43.83	0.2227	-0.076	0.0002
306	SLD 13	-11.25	0.13	37.2	-0.2391	-0.5306	0
306	SLD 14	-11.25	0.13	37.2	-0.2391	-0.5306	0
306	SLD 15	-9.83	0.3	42.46	-0.0456	-0.4702	0
306	SLD 16	-9.83	0.3	42.46	-0.0456	-0.4702	0
306	SLV 1	21.72	-0.27	11.42	-0.1676	0.9508	0.0002
306	SLV 2	21.72	-0.27	11.42	-0.1676	0.9508	0.0002
306	SLV 3	25.08	0.14	23.58	0.3056	1.0934	0.0004
306	SLV 4	25.08	0.14	23.58	0.3056	1.0934	0.0004
306	SLV 5	1.26	-0.62	8.1	-0.8253	0.0423	-0.0001
306	SLV 6	1.26	-0.62	8.1	-0.8253	0.0423	-0.0001
306	SLV 7	12.45	0.77	48.63	0.7524	0.5177	0.0004
306	SLV 8	12.45	0.77	48.63	0.7524	0.5177	0.0004
306	SLV 9	-12.92	-0.5	17.41	-0.9157	-0.5938	-0.0002
306	SLV 10	-12.92	-0.5	17.41	-0.9157	-0.5938	-0.0002
306	SLV 11	-1.73	0.89	57.95	0.662	-0.1184	0.0003
306	SLV 12	-1.73	0.89	57.95	0.662	-0.1184	0.0003
306	SLV 13	-25.55	0.13	42.46	-0.469	-1.1695	-0.0002
306	SLV 14	-25.55	0.13	42.46	-0.469	-1.1695	-0.0002
306	SLV 15	-22.19	0.54	54.62	0.0043	-1.0269	0
306	SLV 16	-22.19	0.54	54.62	0.0043	-1.0269	0
307	SLU 1	-0.82	0.07	35.16	-0.0428	-0.0564	0
307	SLU 2	-1.08	0.06	33.03	-0.0422	-0.0653	0
307	SLU 3	-0.83	0.07	35.76	-0.0445	-0.0566	0
307	SLU 4	-0.99	0.07	34.49	-0.0441	-0.0619	0
307	SLU 5	-1.08	0.07	33.26	-0.0432	-0.0646	0
307	SLU 6	-0.83	0.07	35.99	-0.0455	-0.0558	0
307	SLU 7	-0.99	0.07	34.72	-0.0451	-0.0612	0
307	SLU 8	-0.82	0.07	35.61	-0.0448	-0.055	0
307	SLU 9	-0.98	0.07	34.34	-0.0445	-0.0603	0
307	SLU 10	-1.47	0.07	37.7	-0.0473	-0.0842	0
307	SLU 11	-1.22	0.07	40.43	-0.0495	-0.0755	0
307	SLU 12	-1.37	0.07	39.16	-0.0492	-0.0808	0
307	SLU 13	-1.47	0.07	37.93	-0.0483	-0.0835	0
307	SLU 14	-1.22	0.08	40.66	-0.0505	-0.0747	0
307	SLU 15	-1.37	0.08	39.38	-0.0502	-0.0801	0
307	SLU 16	-1.21	0.08	40.28	-0.0499	-0.0739	0
307	SLU 17	-1.37	0.07	39.01	-0.0495	-0.0792	0
307	SLU 18	-1.37	0.08	41.83	-0.0501	-0.0834	0
307	SLU 19	-1.53	0.08	40.56	-0.0497	-0.0888	0
307	SLU 20	-1.37	0.08	42.06	-0.0511	-0.0827	0
307	SLU 21	-1.53	0.08	40.78	-0.0507	-0.088	0
307	SLU 22	-1.1	0.07	39.35	-0.0482	-0.0705	0
307	SLU 23	-1.36	0.07	37.22	-0.0476	-0.0794	0
307	SLU 24	-1.11	0.08	39.95	-0.0499	-0.0707	0
307	SLU 25	-1.27	0.07	38.68	-0.0495	-0.076	0
307	SLU 26	-1.36	0.07	37.45	-0.0486	-0.0787	0
307	SLU 27	-1.11	0.08	40.18	-0.0509	-0.0699	0
307	SLU 28	-1.27	0.08	38.9	-0.0505	-0.0753	0
307	SLU 29	-1.11	0.08	39.8	-0.0502	-0.0691	0
307	SLU 30	-1.26	0.07	38.53	-0.0499	-0.0744	0
307	SLU 31	-1.75	0.08	41.89	-0.0527	-0.0983	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
307	SLU 32	-1.5	0.08	44.62	-0.0549	-0.0896	0
307	SLU 33	-1.65	0.08	43.35	-0.0546	-0.0949	0
307	SLU 34	-1.75	0.08	42.12	-0.0537	-0.0976	0
307	SLU 35	-1.5	0.08	44.85	-0.0559	-0.0888	0
307	SLU 36	-1.65	0.08	43.57	-0.0555	-0.0942	0
307	SLU 37	-1.49	0.08	44.47	-0.0553	-0.088	0
307	SLU 38	-1.65	0.08	43.2	-0.0549	-0.0933	0
307	SLU 39	-1.66	0.08	46.02	-0.0555	-0.0975	0
307	SLU 40	-1.81	0.08	44.74	-0.0551	-0.1029	0
307	SLU 41	-1.66	0.09	46.24	-0.0565	-0.0968	0
307	SLU 42	-1.81	0.08	44.97	-0.0561	-0.1021	0
307	SLU 43	-0.97	0.08	44.27	-0.0538	-0.0685	0.0001
307	SLU 44	-1.23	0.08	42.15	-0.0532	-0.0774	0
307	SLU 45	-0.98	0.08	44.87	-0.0555	-0.0687	0.0001
307	SLU 46	-1.14	0.08	43.6	-0.0551	-0.074	0.0001
307	SLU 47	-1.23	0.08	42.37	-0.0542	-0.0767	0
307	SLU 48	-0.98	0.09	45.1	-0.0565	-0.0679	0.0001
307	SLU 49	-1.14	0.08	43.83	-0.0561	-0.0733	0.0001
307	SLU 50	-0.98	0.08	44.72	-0.0558	-0.0671	0.0001
307	SLU 51	-1.13	0.08	43.45	-0.0555	-0.0724	0
307	SLU 52	-1.62	0.09	46.82	-0.0583	-0.0963	0.0001
307	SLU 53	-1.37	0.09	49.54	-0.0605	-0.0876	0.0001
307	SLU 54	-1.52	0.09	48.27	-0.0602	-0.0929	0.0001
307	SLU 55	-1.62	0.09	47.04	-0.0593	-0.0956	0.0001
307	SLU 56	-1.37	0.09	49.77	-0.0615	-0.0868	0.0001
307	SLU 57	-1.52	0.09	48.5	-0.0612	-0.0922	0.0001
307	SLU 58	-1.36	0.09	49.39	-0.0609	-0.086	0.0001
307	SLU 59	-1.52	0.09	48.12	-0.0605	-0.0913	0.0001
307	SLU 60	-1.52	0.09	50.94	-0.0611	-0.0955	0.0001
307	SLU 61	-1.68	0.09	49.67	-0.0607	-0.1009	0.0001
307	SLU 62	-1.53	0.09	51.17	-0.0621	-0.0948	0.0001
307	SLU 63	-1.68	0.09	49.89	-0.0617	-0.1001	0.0001
307	SLU 64	-1.25	0.09	48.46	-0.0592	-0.0826	0.0001
307	SLU 65	-1.51	0.09	46.34	-0.0586	-0.0915	0.0001
307	SLU 66	-1.26	0.09	49.06	-0.0609	-0.0828	0.0001
307	SLU 67	-1.42	0.09	47.79	-0.0605	-0.0881	0.0001
307	SLU 68	-1.52	0.09	46.56	-0.0596	-0.0908	0.0001
307	SLU 69	-1.26	0.09	49.29	-0.0619	-0.082	0.0001
307	SLU 70	-1.42	0.09	48.02	-0.0615	-0.0874	0.0001
307	SLU 71	-1.26	0.09	48.91	-0.0612	-0.0812	0.0001
307	SLU 72	-1.41	0.09	47.64	-0.0609	-0.0865	0.0001
307	SLU 73	-1.9	0.1	51	-0.0637	-0.1104	0.0001
307	SLU 74	-1.65	0.1	53.73	-0.0659	-0.1017	0.0001
307	SLU 75	-1.8	0.1	52.46	-0.0656	-0.107	0.0001
307	SLU 76	-1.9	0.1	51.23	-0.0647	-0.1097	0.0001
307	SLU 77	-1.65	0.1	53.96	-0.0669	-0.1009	0.0001
307	SLU 78	-1.81	0.1	52.69	-0.0666	-0.1063	0.0001
307	SLU 79	-1.64	0.1	53.58	-0.0663	-0.1001	0.0001
307	SLU 80	-1.8	0.1	52.31	-0.0659	-0.1054	0.0001
307	SLU 81	-1.81	0.1	55.13	-0.0665	-0.1096	0.0001
307	SLU 82	-1.96	0.1	53.86	-0.0661	-0.115	0.0001
307	SLU 83	-1.81	0.1	55.36	-0.0675	-0.1089	0.0001
307	SLU 84	-1.96	0.1	54.08	-0.0671	-0.1142	0.0001
307	SLE RA 1	-0.9	0.07	36.36	-0.0444	-0.0605	0
307	SLE RA 2	-1.08	0.07	34.94	-0.044	-0.0664	0
307	SLE RA 3	-0.91	0.07	36.76	-0.0455	-0.0605	0
307	SLE RA 4	-1.01	0.07	35.91	-0.0452	-0.0641	0
307	SLE RA 5	-1.08	0.07	35.09	-0.0446	-0.0659	0
307	SLE RA 6	-0.91	0.07	36.91	-0.0461	-0.0601	0
307	SLE RA 7	-1.01	0.07	36.06	-0.0459	-0.0636	0
307	SLE RA 8	-0.9	0.07	36.66	-0.0457	-0.0595	0
307	SLE RA 9	-1.01	0.07	35.81	-0.0455	-0.063	0
307	SLE RA 10	-1.33	0.07	38.05	-0.0473	-0.079	0
307	SLE RA 11	-1.17	0.07	39.87	-0.0488	-0.0732	0
307	SLE RA 12	-1.27	0.07	39.02	-0.0486	-0.0767	0
307	SLE RA 13	-1.33	0.07	38.2	-0.048	-0.0785	0
307	SLE RA 14	-1.17	0.07	40.02	-0.0495	-0.0727	0
307	SLE RA 15	-1.27	0.07	39.17	-0.0493	-0.0762	0
307	SLE RA 16	-1.16	0.07	39.77	-0.0491	-0.0721	0
307	SLE RA 17	-1.27	0.07	38.92	-0.0488	-0.0756	0
307	SLE RA 18	-1.27	0.07	40.8	-0.0492	-0.0785	0
307	SLE RA 19	-1.37	0.07	39.95	-0.0489	-0.082	0
307	SLE RA 20	-1.27	0.08	40.95	-0.0499	-0.078	0
307	SLE RA 21	-1.38	0.08	40.1	-0.0496	-0.0815	0
307	SLE FR 1	-0.9	0.07	36.36	-0.0444	-0.0605	0
307	SLE FR 2	-0.94	0.07	36.07	-0.0443	-0.0616	0
307	SLE FR 3	-0.9	0.07	36.42	-0.0446	-0.0603	0
307	SLE FR 4	-1.05	0.07	37.41	-0.0457	-0.067	0
307	SLE FR 5	-1.01	0.07	37.75	-0.0461	-0.0657	0
307	SLE FR 6	-1.09	0.07	38.58	-0.0468	-0.0695	0
307	SLE QP 1	-0.9	0.07	36.36	-0.0444	-0.0605	0
307	SLE QP 2	-1.01	0.07	37.69	-0.0458	-0.0659	0
307	SLD 1	7.98	-0.08	23.13	-0.061	0.3543	0.0001
307	SLD 2	7.98	-0.08	23.13	-0.061	0.3543	0.0001
307	SLD 3	9.3	0.03	29.69	0.0696	0.4109	0.0002
307	SLD 4	9.3	0.03	29.69	0.0696	0.4109	0.0002
307	SLD 5	-0.31	-0.13	23.38	-0.2485	-0.0256	-0.0001
307	SLD 6	-0.31	-0.13	23.38	-0.2485	-0.0256	-0.0001
307	SLD 7	4.07	0.22	45.23	0.1869	0.1629	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
307	SLD 8	4.07	0.22	45.23	0.1869	0.1629	0.0003
307	SLD 9	-6.1	-0.08	30.15	-0.2786	-0.2947	-0.0002
307	SLD 10	-6.1	-0.08	30.15	-0.2786	-0.2947	-0.0002
307	SLD 11	-1.72	0.27	52	0.1569	-0.1061	0.0002
307	SLD 12	-1.72	0.27	52	0.1569	-0.1061	0.0002
307	SLD 13	-11.33	0.11	45.69	-0.1613	-0.5426	-0.0001
307	SLD 14	-11.33	0.11	45.69	-0.1613	-0.5426	-0.0001
307	SLD 15	-10.01	0.22	52.25	-0.0306	-0.486	0
307	SLD 16	-10.01	0.22	52.25	-0.0306	-0.486	0
307	SLV 1	19.59	-0.29	4.42	-0.0815	0.896	0.0001
307	SLV 2	19.59	-0.29	4.42	-0.0815	0.896	0.0001
307	SLV 3	22.67	-0.03	19.49	0.2382	1.0285	0.0004
307	SLV 4	22.67	-0.03	19.49	0.2382	1.0285	0.0004
307	SLV 5	0.5	-0.43	4.85	-0.5414	0.0218	-0.0004
307	SLV 6	0.5	-0.43	4.85	-0.5414	0.0218	-0.0004
307	SLV 7	10.76	0.43	55.09	0.5243	0.4633	0.0006
307	SLV 8	10.76	0.43	55.09	0.5243	0.4633	0.0006
307	SLV 9	-12.79	-0.29	20.29	-0.6159	-0.5951	-0.0006
307	SLV 10	-12.79	-0.29	20.29	-0.6159	-0.5951	-0.0006
307	SLV 11	-2.52	0.56	70.53	0.4498	-0.1535	0.0005
307	SLV 12	-2.52	0.56	70.53	0.4498	-0.1535	0.0005
307	SLV 13	-24.7	0.17	55.89	-0.3299	-1.1602	-0.0004
307	SLV 14	-24.7	0.17	55.89	-0.3299	-1.1602	-0.0004
307	SLV 15	-21.62	0.43	70.96	-0.0102	-1.0278	0
307	SLV 16	-21.62	0.43	70.96	-0.0102	-1.0278	0
308	SLU 1	-2.88	-0.04	40.94	0	-0.1707	0
308	SLU 2	-2.98	-0.03	38.27	-0.002	-0.1712	0
308	SLU 3	-2.93	-0.04	41.62	-0.0003	-0.1739	0
308	SLU 4	-2.99	-0.04	40.02	-0.0015	-0.1742	0
308	SLU 5	-3	-0.03	38.47	-0.0022	-0.1726	0
308	SLU 6	-2.95	-0.04	41.82	-0.0005	-0.1753	0
308	SLU 7	-3.01	-0.04	40.22	-0.0017	-0.1757	0
308	SLU 8	-2.93	-0.04	41.33	-0.0004	-0.1735	0
308	SLU 9	-2.98	-0.04	39.73	-0.0016	-0.1738	0
308	SLU 10	-3.62	-0.04	43.67	-0.0018	-0.2056	0
308	SLU 11	-3.57	-0.05	47.02	-0.0001	-0.2083	0
308	SLU 12	-3.63	-0.04	45.42	-0.0013	-0.2086	0
308	SLU 13	-3.64	-0.04	43.87	-0.002	-0.207	0
308	SLU 14	-3.6	-0.05	47.22	-0.0003	-0.2097	0
308	SLU 15	-3.65	-0.04	45.62	-0.0015	-0.21	0
308	SLU 16	-3.57	-0.05	46.74	-0.0003	-0.2079	0
308	SLU 17	-3.63	-0.04	45.14	-0.0014	-0.2082	0
308	SLU 18	-3.8	-0.05	48.66	0.0002	-0.2198	0
308	SLU 19	-3.86	-0.04	47.06	-0.0009	-0.2201	0
308	SLU 20	-3.82	-0.05	48.86	0	-0.2212	0
308	SLU 21	-3.88	-0.05	47.26	-0.0011	-0.2215	0
308	SLU 22	-3.4	-0.05	45.81	-0.0001	-0.1993	0
308	SLU 23	-3.5	-0.04	43.14	-0.002	-0.1998	0
308	SLU 24	-3.45	-0.05	46.49	-0.0003	-0.2025	0
308	SLU 25	-3.51	-0.04	44.89	-0.0015	-0.2029	0
308	SLU 26	-3.52	-0.04	43.34	-0.0022	-0.2012	0
308	SLU 27	-3.47	-0.05	46.69	-0.0005	-0.204	0
308	SLU 28	-3.53	-0.04	45.09	-0.0017	-0.2043	0
308	SLU 29	-3.44	-0.05	46.2	-0.0005	-0.2021	0
308	SLU 30	-3.5	-0.04	44.6	-0.0017	-0.2024	0
308	SLU 31	-4.14	-0.04	48.55	-0.0018	-0.2342	0
308	SLU 32	-4.09	-0.05	51.9	-0.0001	-0.2369	0
308	SLU 33	-4.15	-0.05	50.3	-0.0013	-0.2372	0
308	SLU 34	-4.16	-0.04	48.75	-0.002	-0.2356	0
308	SLU 35	-4.11	-0.05	52.1	-0.0003	-0.2383	0
308	SLU 36	-4.17	-0.05	50.5	-0.0015	-0.2387	0
308	SLU 37	-4.09	-0.05	51.61	-0.0003	-0.2365	0
308	SLU 38	-4.14	-0.05	50.01	-0.0015	-0.2368	0
308	SLU 39	-4.32	-0.05	53.53	0.0002	-0.2484	0
308	SLU 40	-4.38	-0.05	51.93	-0.001	-0.2487	0
308	SLU 41	-4.34	-0.06	53.73	0	-0.2498	0
308	SLU 42	-4.4	-0.05	52.13	-0.0012	-0.2501	0
308	SLU 43	-3.57	-0.05	51.55	0	-0.2121	0
308	SLU 44	-3.67	-0.04	48.88	-0.002	-0.2126	0
308	SLU 45	-3.62	-0.05	52.23	-0.0003	-0.2153	0
308	SLU 46	-3.68	-0.05	50.63	-0.0014	-0.2156	0
308	SLU 47	-3.69	-0.04	49.08	-0.0022	-0.214	0
308	SLU 48	-3.64	-0.05	52.43	-0.0005	-0.2167	0
308	SLU 49	-3.7	-0.05	50.83	-0.0017	-0.217	0
308	SLU 50	-3.61	-0.05	51.94	-0.0004	-0.2149	0
308	SLU 51	-3.67	-0.05	50.34	-0.0016	-0.2152	0
308	SLU 52	-4.31	-0.05	54.28	-0.0018	-0.247	0
308	SLU 53	-4.26	-0.06	57.63	-0.0001	-0.2497	0
308	SLU 54	-4.32	-0.05	56.03	-0.0013	-0.25	0
308	SLU 55	-4.33	-0.05	54.48	-0.002	-0.2484	0
308	SLU 56	-4.28	-0.06	57.83	-0.0003	-0.2511	0
308	SLU 57	-4.34	-0.05	56.23	-0.0015	-0.2514	0
308	SLU 58	-4.26	-0.06	57.35	-0.0003	-0.2493	0
308	SLU 59	-4.31	-0.05	55.75	-0.0014	-0.2496	0
308	SLU 60	-4.49	-0.06	59.27	0.0002	-0.2612	0
308	SLU 61	-4.55	-0.05	57.67	-0.0009	-0.2615	0
308	SLU 62	-4.51	-0.06	59.47	0	-0.2626	0
308	SLU 63	-4.57	-0.06	57.87	-0.0011	-0.2629	0
308	SLU 64	-4.09	-0.06	56.42	-0.0001	-0.2407	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
308	SLU 65	-4.18	-0.05	53.75	-0.002	-0.2412	0
308	SLU 66	-4.14	-0.06	57.1	-0.003	-0.2439	0
308	SLU 67	-4.2	-0.05	55.5	-0.0015	-0.2442	0
308	SLU 68	-4.21	-0.05	53.95	-0.0022	-0.2426	0
308	SLU 69	-4.16	-0.06	57.3	-0.0005	-0.2453	0
308	SLU 70	-4.22	-0.05	55.7	-0.0017	-0.2457	0
308	SLU 71	-4.13	-0.06	56.81	-0.0005	-0.2435	0
308	SLU 72	-4.19	-0.05	55.21	-0.0017	-0.2438	0
308	SLU 73	-4.83	-0.05	59.16	-0.0018	-0.2756	0
308	SLU 74	-4.78	-0.06	62.51	-0.0001	-0.2783	0
308	SLU 75	-4.84	-0.06	60.91	-0.0013	-0.2786	0
308	SLU 76	-4.85	-0.06	59.36	-0.002	-0.277	0
308	SLU 77	-4.8	-0.07	62.71	-0.0003	-0.2797	0
308	SLU 78	-4.86	-0.06	61.11	-0.0015	-0.28	0
308	SLU 79	-4.77	-0.06	62.22	-0.0003	-0.2779	0
308	SLU 80	-4.83	-0.06	60.62	-0.0015	-0.2782	0
308	SLU 81	-5.01	-0.07	64.14	0.0002	-0.2898	0
308	SLU 82	-5.06	-0.06	62.54	-0.001	-0.2901	0
308	SLU 83	-5.03	-0.07	64.34	0	-0.2912	0
308	SLU 84	-5.08	-0.06	62.74	-0.0012	-0.2915	0
308	SLE RA 1	-3.03	-0.04	42.33	0	-0.1788	0
308	SLE RA 2	-3.1	-0.04	40.55	-0.0014	-0.1792	0
308	SLE RA 3	-3.06	-0.04	42.78	-0.0002	-0.181	0
308	SLE RA 4	-3.1	-0.04	41.72	-0.001	-0.1812	0
308	SLE RA 5	-3.11	-0.04	40.68	-0.0015	-0.1801	0
308	SLE RA 6	-3.08	-0.04	42.92	-0.0003	-0.182	0
308	SLE RA 7	-3.12	-0.04	41.85	-0.0011	-0.1822	0
308	SLE RA 8	-3.06	-0.04	42.59	-0.0003	-0.1807	0
308	SLE RA 9	-3.1	-0.04	41.53	-0.0011	-0.1809	0
308	SLE RA 10	-3.52	-0.04	44.15	-0.0012	-0.2021	0
308	SLE RA 11	-3.49	-0.05	46.39	-0.0001	-0.2039	0
308	SLE RA 12	-3.53	-0.04	45.32	-0.0009	-0.2041	0
308	SLE RA 13	-3.54	-0.04	44.29	-0.0014	-0.2031	0
308	SLE RA 14	-3.51	-0.05	46.52	-0.0002	-0.2049	0
308	SLE RA 15	-3.54	-0.04	45.45	-0.001	-0.2051	0
308	SLE RA 16	-3.49	-0.05	46.2	-0.0002	-0.2037	0
308	SLE RA 17	-3.53	-0.04	45.13	-0.001	-0.2039	0
308	SLE RA 18	-3.64	-0.05	47.48	0.0001	-0.2116	0
308	SLE RA 19	-3.68	-0.04	46.41	-0.0006	-0.2118	0
308	SLE RA 20	-3.66	-0.05	47.61	0	-0.2125	0
308	SLE RA 21	-3.7	-0.05	46.54	-0.0008	-0.2127	0
308	SLE FR 1	-3.03	-0.04	42.33	0	-0.1788	0
308	SLE FR 2	-3.04	-0.04	41.97	-0.0003	-0.1789	0
308	SLE FR 3	-3.04	-0.04	42.38	-0.0001	-0.1792	0
308	SLE FR 4	-3.23	-0.04	43.52	-0.0003	-0.1887	0
308	SLE FR 5	-3.22	-0.04	43.93	0	-0.189	0
308	SLE FR 6	-3.34	-0.05	44.9	0	-0.1952	0
308	SLE QP 1	-3.03	-0.04	42.33	0	-0.1788	0
308	SLE QP 2	-3.21	-0.04	43.87	0	-0.1887	0
308	SLD 1	4.99	-0.11	20.26	-0.002	0.2802	-0.0001
308	SLD 2	4.99	-0.11	20.26	-0.002	0.2802	-0.0001
308	SLD 3	6.1	-0.22	28.86	0.0689	0.2252	-0.0007
308	SLD 4	6.1	-0.22	28.86	0.0689	0.2252	-0.0007
308	SLD 5	-2.44	0.11	23.73	-0.1081	0.0354	0.0009
308	SLD 6	-2.44	0.11	23.73	-0.1081	0.0354	0.0009
308	SLD 7	1.27	-0.27	52.42	0.1282	-0.1479	-0.0011
308	SLD 8	1.27	-0.27	52.42	0.1282	-0.1479	-0.0011
308	SLD 9	-7.7	0.18	35.32	-0.1281	-0.2294	0.0011
308	SLD 10	-7.7	0.18	35.32	-0.1281	-0.2294	0.0011
308	SLD 11	-3.99	-0.2	64.01	0.1081	-0.4128	-0.0009
308	SLD 12	-3.99	-0.2	64.01	0.1081	-0.4128	-0.0009
308	SLD 13	-12.53	0.13	58.88	-0.0688	-0.6025	0.0006
308	SLD 14	-12.53	0.13	58.88	-0.0688	-0.6025	0.0006
308	SLD 15	-11.42	0.02	67.49	0.002	-0.6576	0
308	SLD 16	-11.42	0.02	67.49	0.002	-0.6576	0
308	SLV 1	15.55	-0.2	-10.13	-0.0042	0.8878	-0.0002
308	SLV 2	15.55	-0.2	-10.13	-0.0042	0.8878	-0.0002
308	SLV 3	18.17	-0.48	9.69	0.1692	0.7572	-0.0016
308	SLV 4	18.17	-0.48	9.69	0.1692	0.7572	-0.0016
308	SLV 5	-1.57	0.33	-2.39	-0.2643	0.3323	0.0021
308	SLV 6	-1.57	0.33	-2.39	-0.2643	0.3323	0.0021
308	SLV 7	7.18	-0.6	63.68	0.3138	-0.103	-0.0027
308	SLV 8	7.18	-0.6	63.68	0.3138	-0.103	-0.0027
308	SLV 9	-13.61	0.51	24.06	-0.3138	-0.2744	0.0027
308	SLV 10	-13.61	0.51	24.06	-0.3138	-0.2744	0.0027
308	SLV 11	-4.86	-0.42	90.14	0.2643	-0.7096	-0.0022
308	SLV 12	-4.86	-0.42	90.14	0.2643	-0.7096	-0.0022
308	SLV 13	-24.6	0.39	78.05	-0.1692	-1.1345	0.0016
308	SLV 14	-24.6	0.39	78.05	-0.1692	-1.1345	0.0016
308	SLV 15	-21.98	0.11	97.87	0.0042	-1.2651	0.0001
308	SLV 16	-21.98	0.11	97.87	0.0042	-1.2651	0.0001
310	SLU 1	0.01	-4.54	72.1	0.2241	0.0022	0.0001
310	SLU 2	0.01	-4.43	71.51	0.2197	0.002	0.0001
310	SLU 3	0.01	-5.04	76.82	0.2465	0.0024	0.0001
310	SLU 4	0.01	-4.97	76.46	0.2439	0.0023	0.0001
310	SLU 5	0.01	-4.92	75.61	0.2411	0.0022	0.0001
310	SLU 6	0.01	-5.52	80.92	0.2679	0.0026	0.0001
310	SLU 7	0.01	-5.46	80.56	0.2653	0.0025	0.0001
310	SLU 8	0.01	-5.51	80.3	0.2669	0.0027	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
310	SLU 9	0.01	-5.45	79.95	0.2642	0.0025	0.0001
310	SLU 10	0.01	-5.3	83.75	0.2631	0.0022	0.0001
310	SLU 11	0.01	-5.9	89.06	0.2899	0.0026	0.0001
310	SLU 12	0.01	-5.84	88.7	0.2873	0.0025	0.0001
310	SLU 13	0.01	-5.78	87.85	0.2845	0.0025	0.0001
310	SLU 14	0.01	-6.39	93.16	0.3113	0.0029	0.0001
310	SLU 15	0.01	-6.32	92.8	0.3086	0.0027	0.0001
310	SLU 16	0.01	-6.38	92.54	0.3102	0.0029	0.0001
310	SLU 17	0.01	-6.31	92.19	0.3076	0.0028	0.0001
310	SLU 18	0.01	-5.78	89.58	0.2861	0.0025	0.0001
310	SLU 19	0.01	-5.71	89.23	0.2834	0.0024	0.0001
310	SLU 20	0.01	-6.26	93.68	0.3074	0.0028	0.0001
310	SLU 21	0.01	-6.2	93.33	0.3048	0.0026	0.0001
310	SLU 22	0.01	-5.52	84.82	0.2716	0.0025	0.0001
310	SLU 23	0.01	-5.41	84.23	0.2672	0.0023	0.0001
310	SLU 24	0.01	-6.02	89.54	0.294	0.0027	0.0001
310	SLU 25	0.01	-5.95	89.18	0.2914	0.0026	0.0001
310	SLU 26	0.01	-5.89	88.33	0.2886	0.0026	0.0001
310	SLU 27	0.01	-6.5	93.64	0.3154	0.003	0.0001
310	SLU 28	0.01	-6.44	93.28	0.3128	0.0028	0.0001
310	SLU 29	0.01	-6.49	93.02	0.3144	0.003	0.0001
310	SLU 30	0.01	-6.42	92.67	0.3118	0.0029	0.0001
310	SLU 31	0.01	-6.28	96.47	0.3106	0.0026	0.0001
310	SLU 32	0.01	-6.88	101.77	0.3374	0.003	0.0001
310	SLU 33	0.01	-6.82	101.42	0.3348	0.0028	0.0001
310	SLU 34	0.01	-6.76	100.57	0.332	0.0028	0.0001
310	SLU 35	0.02	-7.37	105.88	0.3588	0.0032	0.0001
310	SLU 36	0.02	-7.3	105.52	0.3562	0.0031	0.0001
310	SLU 37	0.02	-7.36	105.26	0.3578	0.0032	0.0001
310	SLU 38	0.02	-7.29	104.91	0.3551	0.0031	0.0001
310	SLU 39	0.01	-6.76	102.3	0.3336	0.0029	0.0001
310	SLU 40	0.01	-6.69	101.95	0.331	0.0027	0.0001
310	SLU 41	0.02	-7.24	106.4	0.355	0.0031	0.0001
310	SLU 42	0.02	-7.18	106.05	0.3523	0.003	0.0001
310	SLU 43	0.01	-5.56	89.37	0.275	0.0027	0.0001
310	SLU 44	0.01	-5.45	88.78	0.2707	0.0026	0.0001
310	SLU 45	0.01	-6.06	94.09	0.2974	0.0029	0.0001
310	SLU 46	0.01	-6	93.73	0.2948	0.0028	0.0001
310	SLU 47	0.01	-5.94	92.88	0.292	0.0028	0.0001
310	SLU 48	0.01	-6.55	98.19	0.3188	0.0032	0.0001
310	SLU 49	0.01	-6.48	97.83	0.3162	0.0031	0.0001
310	SLU 50	0.01	-6.54	97.57	0.3178	0.0032	0.0001
310	SLU 51	0.01	-6.47	97.22	0.3152	0.0031	0.0001
310	SLU 52	0.01	-6.32	101.02	0.314	0.0028	0.0001
310	SLU 53	0.02	-6.93	106.33	0.3408	0.0032	0.0001
310	SLU 54	0.02	-6.86	105.97	0.3382	0.0031	0.0001
310	SLU 55	0.02	-6.81	105.12	0.3354	0.003	0.0001
310	SLU 56	0.02	-7.42	110.43	0.3622	0.0034	0.0002
310	SLU 57	0.02	-7.35	110.07	0.3596	0.0033	0.0001
310	SLU 58	0.02	-7.41	109.81	0.3612	0.0034	0.0002
310	SLU 59	0.02	-7.34	109.46	0.3586	0.0033	0.0001
310	SLU 60	0.02	-6.8	106.85	0.337	0.0031	0.0001
310	SLU 61	0.02	-6.74	106.5	0.3344	0.003	0.0001
310	SLU 62	0.02	-7.29	110.95	0.3584	0.0033	0.0002
310	SLU 63	0.02	-7.22	110.6	0.3558	0.0032	0.0001
310	SLU 64	0.02	-6.54	102.09	0.3226	0.0031	0.0001
310	SLU 65	0.01	-6.43	101.5	0.3182	0.0029	0.0001
310	SLU 66	0.02	-7.04	106.81	0.345	0.0033	0.0001
310	SLU 67	0.02	-6.97	106.45	0.3423	0.0032	0.0001
310	SLU 68	0.02	-6.92	105.6	0.3396	0.0031	0.0001
310	SLU 69	0.02	-7.53	110.91	0.3663	0.0035	0.0002
310	SLU 70	0.02	-7.46	110.55	0.3637	0.0034	0.0002
310	SLU 71	0.02	-7.52	110.29	0.3653	0.0035	0.0002
310	SLU 72	0.02	-7.45	109.94	0.3627	0.0034	0.0002
310	SLU 73	0.02	-7.3	113.74	0.3616	0.0031	0.0001
310	SLU 74	0.02	-7.91	119.04	0.3883	0.0035	0.0002
310	SLU 75	0.02	-7.84	118.69	0.3857	0.0034	0.0002
310	SLU 76	0.02	-7.79	117.84	0.3829	0.0033	0.0002
310	SLU 77	0.02	-8.4	123.15	0.4097	0.0037	0.0002
310	SLU 78	0.02	-8.33	122.79	0.4071	0.0036	0.0002
310	SLU 79	0.02	-8.38	122.53	0.4087	0.0038	0.0002
310	SLU 80	0.02	-8.32	122.18	0.4061	0.0036	0.0002
310	SLU 81	0.02	-7.78	119.57	0.3845	0.0034	0.0002
310	SLU 82	0.02	-7.72	119.22	0.3819	0.0033	0.0002
310	SLU 83	0.02	-8.27	123.67	0.4059	0.0036	0.0002
310	SLU 84	0.02	-8.2	123.32	0.4033	0.0035	0.0002
310	SLE RA 1	0.01	-4.82	75.74	0.2377	0.0023	0.0001
310	SLE RA 2	0.01	-4.75	75.34	0.2348	0.0022	0.0001
310	SLE RA 3	0.01	-5.15	78.88	0.2526	0.0024	0.0001
310	SLE RA 4	0.01	-5.11	78.64	0.2509	0.0023	0.0001
310	SLE RA 5	0.01	-5.07	78.08	0.249	0.0023	0.0001
310	SLE RA 6	0.01	-5.47	81.61	0.2669	0.0026	0.0001
310	SLE RA 7	0.01	-5.43	81.38	0.2651	0.0025	0.0001
310	SLE RA 8	0.01	-5.47	81.2	0.2662	0.0026	0.0001
310	SLE RA 9	0.01	-5.42	80.97	0.2644	0.0025	0.0001
310	SLE RA 10	0.01	-5.32	83.5	0.2637	0.0023	0.0001
310	SLE RA 11	0.01	-5.73	87.04	0.2815	0.0026	0.0001
310	SLE RA 12	0.01	-5.68	86.8	0.2798	0.0025	0.0001
310	SLE RA 13	0.01	-5.65	86.24	0.2779	0.0025	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
310	SLE RA 14	0.01	-6.05	89.77	0.2958	0.0027	0.0001
310	SLE RA 15	0.01	-6.01	89.54	0.294	0.0027	0.0001
310	SLE RA 16	0.01	-6.05	89.36	0.2951	0.0028	0.0001
310	SLE RA 17	0.01	-6	89.13	0.2934	0.0027	0.0001
310	SLE RA 18	0.01	-5.64	87.39	0.279	0.0025	0.0001
310	SLE RA 19	0.01	-5.6	87.16	0.2772	0.0024	0.0001
310	SLE RA 20	0.01	-5.97	90.13	0.2932	0.0027	0.0001
310	SLE RA 21	0.01	-5.92	89.89	0.2915	0.0026	0.0001
310	SLE FR 1	0.01	-4.82	75.74	0.2377	0.0023	0.0001
310	SLE FR 2	0.01	-4.8	75.66	0.2371	0.0023	0.0001
310	SLE FR 3	0.01	-4.95	76.83	0.2434	0.0024	0.0001
310	SLE FR 4	0.01	-5.05	79.15	0.2495	0.0023	0.0001
310	SLE FR 5	0.01	-5.2	80.33	0.2558	0.0024	0.0001
310	SLE FR 6	0.01	-5.23	81.56	0.2583	0.0024	0.0001
310	SLE QP 1	0.01	-4.82	75.74	0.2377	0.0023	0.0001
310	SLE QP 2	0.01	-5.07	79.23	0.2501	0.0024	0.0001
310	SLD 1	-0.09	-4.62	77.96	0.2278	-0.0529	-0.0016
310	SLD 2	-0.09	-4.62	77.96	0.2278	-0.0529	-0.0016
310	SLD 3	-0.07	-9.34	88.26	0.4124	-0.0474	-0.0014
310	SLD 4	-0.07	-9.34	88.26	0.4124	-0.0474	-0.0014
310	SLD 5	-0.04	2.22	63.23	-0.0365	-0.0225	-0.0008
310	SLD 6	-0.04	2.22	63.23	-0.0365	-0.0225	-0.0008
310	SLD 7	0.01	-13.5	97.56	0.5787	-0.0043	0.0001
310	SLD 8	0.01	-13.5	97.56	0.5787	-0.0043	0.0001
310	SLD 9	0.01	3.37	60.91	-0.0786	0.009	0.0002
310	SLD 10	0.01	3.37	60.91	-0.0786	0.009	0.0002
310	SLD 11	0.06	-12.35	95.24	0.5367	0.0272	0.001
310	SLD 12	0.06	-12.35	95.24	0.5367	0.0272	0.001
310	SLD 13	0.1	-0.79	70.21	0.0877	0.0521	0.0016
310	SLD 14	0.1	-0.79	70.21	0.0877	0.0521	0.0016
310	SLD 15	0.11	-5.51	80.51	0.2723	0.0576	0.0019
310	SLD 16	0.11	-5.51	80.51	0.2723	0.0576	0.0019
310	SLV 1	-0.23	-4.1	76.25	0.2008	-0.1257	-0.0041
310	SLV 2	-0.23	-4.1	76.25	0.2008	-0.1257	-0.0041
310	SLV 3	-0.19	-14.92	100.05	0.6244	-0.1123	-0.0035
310	SLV 4	-0.19	-14.92	100.05	0.6244	-0.1123	-0.0035
310	SLV 5	-0.12	11.64	42.25	-0.4072	-0.0563	-0.0022
310	SLV 6	-0.12	11.64	42.25	-0.4072	-0.0563	-0.0022
310	SLV 7	0.01	-24.44	121.56	1.0049	-0.0118	0
310	SLV 8	0.01	-24.44	121.56	1.0049	-0.0118	0
310	SLV 9	0.01	14.31	36.9	-0.5048	0.0165	0.0002
310	SLV 10	0.01	14.31	36.9	-0.5048	0.0165	0.0002
310	SLV 11	0.14	-21.77	116.21	0.9074	0.061	0.0024
310	SLV 12	0.14	-21.77	116.21	0.9074	0.061	0.0024
310	SLV 13	0.21	4.79	58.42	-0.1243	0.1171	0.0037
310	SLV 14	0.21	4.79	58.42	-0.1243	0.1171	0.0037
310	SLV 15	0.25	-6.04	82.21	0.2993	0.1304	0.0043
310	SLV 16	0.25	-6.04	82.21	0.2993	0.1304	0.0043
312	SLU 1	-6	-11.29	62.91	-5.2697	-0.1395	-1.3576
312	SLU 2	-5.73	-10.34	58.12	-4.9403	-0.1357	-1.2965
312	SLU 3	-6.1	-11.51	64.01	-5.3546	-0.1414	-1.379
312	SLU 4	-5.93	-10.94	61.14	-5.157	-0.1391	-1.3424
312	SLU 5	-5.75	-10.41	58.41	-4.9604	-0.1358	-1.3015
312	SLU 6	-6.12	-11.58	64.3	-5.3747	-0.1415	-1.384
312	SLU 7	-5.95	-11.01	61.42	-5.1771	-0.1392	-1.3474
312	SLU 8	-6.05	-11.43	63.48	-5.3098	-0.1398	-1.3675
312	SLU 9	-5.88	-10.86	60.61	-5.1122	-0.1375	-1.3309
312	SLU 10	-6.65	-11.73	66.2	-5.6596	-0.1599	-1.5051
312	SLU 11	-7.02	-12.9	72.09	-6.0739	-0.1657	-1.5876
312	SLU 12	-6.86	-12.33	69.22	-5.8763	-0.1633	-1.551
312	SLU 13	-6.68	-11.8	66.49	-5.6797	-0.1601	-1.5101
312	SLU 14	-7.04	-12.97	72.38	-6.0939	-0.1658	-1.5926
312	SLU 15	-6.88	-12.4	69.5	-5.8963	-0.1635	-1.556
312	SLU 16	-6.97	-12.82	71.56	-6.0291	-0.1641	-1.5761
312	SLU 17	-6.81	-12.25	68.69	-5.8315	-0.1617	-1.5395
312	SLU 18	-7.33	-13.28	74.45	-6.2972	-0.1742	-1.6556
312	SLU 19	-7.16	-12.7	71.58	-6.0996	-0.1719	-1.619
312	SLU 20	-7.35	-13.35	74.74	-6.3173	-0.1744	-1.6606
312	SLU 21	-7.18	-12.77	71.87	-6.1197	-0.172	-1.6239
312	SLU 22	-6.81	-12.61	70.33	-5.9126	-0.1599	-1.5388
312	SLU 23	-6.53	-11.65	65.54	-5.5833	-0.156	-1.4778
312	SLU 24	-6.9	-12.83	71.43	-5.9976	-0.1618	-1.5602
312	SLU 25	-6.74	-12.26	68.56	-5.8	-0.1594	-1.5236
312	SLU 26	-6.55	-11.72	65.83	-5.6034	-0.1562	-1.4828
312	SLU 27	-6.92	-12.9	71.71	-6.0176	-0.1619	-1.5652
312	SLU 28	-6.76	-12.33	68.84	-5.82	-0.1596	-1.5286
312	SLU 29	-6.85	-12.74	70.9	-5.9528	-0.1602	-1.5488
312	SLU 30	-6.69	-12.17	68.03	-5.7552	-0.1578	-1.5122
312	SLU 31	-7.46	-13.04	73.62	-6.3025	-0.1803	-1.6864
312	SLU 32	-7.83	-14.22	79.51	-6.7168	-0.186	-1.7688
312	SLU 33	-7.66	-13.65	76.64	-6.5192	-0.1837	-1.7322
312	SLU 34	-7.48	-13.11	73.91	-6.3226	-0.1804	-1.6914
312	SLU 35	-7.85	-14.29	79.79	-6.7369	-0.1862	-1.7738
312	SLU 36	-7.68	-13.72	76.92	-6.5393	-0.1838	-1.7372
312	SLU 37	-7.78	-14.13	78.98	-6.672	-0.1844	-1.7574
312	SLU 38	-7.61	-13.56	76.11	-6.4744	-0.1821	-1.7208
312	SLU 39	-8.13	-14.59	81.87	-6.9401	-0.1946	-1.8368
312	SLU 40	-7.96	-14.02	79	-6.7425	-0.1923	-1.8002
312	SLU 41	-8.15	-14.66	82.16	-6.9602	-0.1947	-1.8418



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
312	SLU 42	-7.99	-14.09	79.29	-6.7626	-0.1924	-1.8052
312	SLU 43	-7.53	-14.23	79.24	-6.6301	-0.1744	-1.7027
312	SLU 44	-7.25	-13.27	74.45	-6.3008	-0.1705	-1.6417
312	SLU 45	-7.62	-14.45	80.34	-6.7151	-0.1763	-1.7241
312	SLU 46	-7.46	-13.88	77.47	-6.5175	-0.1739	-1.6875
312	SLU 47	-7.27	-13.34	74.74	-6.3209	-0.1707	-1.6467
312	SLU 48	-7.64	-14.52	80.62	-6.7352	-0.1764	-1.7291
312	SLU 49	-7.48	-13.95	77.75	-6.5376	-0.1741	-1.6925
312	SLU 50	-7.57	-14.37	79.81	-6.6703	-0.1747	-1.7127
312	SLU 51	-7.41	-13.79	76.94	-6.4727	-0.1723	-1.6761
312	SLU 52	-8.18	-14.66	82.53	-7.0201	-0.1948	-1.8503
312	SLU 53	-8.55	-15.84	88.42	-7.4343	-0.2006	-1.9327
312	SLU 54	-8.38	-15.27	85.55	-7.2367	-0.1982	-1.8961
312	SLU 55	-8.2	-14.73	82.82	-7.0401	-0.1949	-1.8553
312	SLU 56	-8.57	-15.91	88.7	-7.4544	-0.2007	-1.9377
312	SLU 57	-8.4	-15.34	85.83	-7.2568	-0.1983	-1.9011
312	SLU 58	-8.5	-15.76	87.89	-7.3896	-0.199	-1.9213
312	SLU 59	-8.33	-15.18	85.02	-7.192	-0.1966	-1.8847
312	SLU 60	-8.85	-16.21	90.78	-7.6576	-0.2091	-2.0007
312	SLU 61	-8.69	-15.64	87.91	-7.46	-0.2068	-1.9641
312	SLU 62	-8.87	-16.28	91.07	-7.6777	-0.2092	-2.0057
312	SLU 63	-8.71	-15.71	88.2	-7.4801	-0.2069	-1.9691
312	SLU 64	-8.33	-15.54	86.66	-7.2731	-0.1948	-1.8839
312	SLU 65	-8.06	-14.59	81.87	-6.9438	-0.1909	-1.8229
312	SLU 66	-8.42	-15.77	87.76	-7.358	-0.1966	-1.9053
312	SLU 67	-8.26	-15.19	84.89	-7.1604	-0.1943	-1.8687
312	SLU 68	-8.08	-14.66	82.16	-6.9638	-0.191	-1.8279
312	SLU 69	-8.45	-15.83	88.04	-7.3781	-0.1968	-1.9103
312	SLU 70	-8.28	-15.26	85.17	-7.1805	-0.1944	-1.8737
312	SLU 71	-8.37	-15.68	87.23	-7.3133	-0.195	-1.8939
312	SLU 72	-8.21	-15.11	84.36	-7.1157	-0.1927	-1.8573
312	SLU 73	-8.98	-15.98	89.95	-7.663	-0.2152	-2.0315
312	SLU 74	-9.35	-17.15	95.84	-8.0773	-0.2209	-2.1139
312	SLU 75	-9.19	-16.58	92.97	-7.8797	-0.2186	-2.0773
312	SLU 76	-9.01	-16.05	90.24	-7.6831	-0.2153	-2.0365
312	SLU 77	-9.37	-17.22	96.12	-8.0974	-0.221	-2.1189
312	SLU 78	-9.21	-16.65	93.25	-7.8998	-0.2187	-2.0823
312	SLU 79	-9.3	-17.07	95.31	-8.0325	-0.2193	-2.1025
312	SLU 80	-9.14	-16.5	92.44	-7.8349	-0.217	-2.0659
312	SLU 81	-9.65	-17.53	98.2	-8.3006	-0.2295	-2.1819
312	SLU 82	-9.49	-16.95	95.33	-8.103	-0.2272	-2.1453
312	SLU 83	-9.68	-17.6	98.48	-8.3207	-0.2296	-2.1869
312	SLU 84	-9.51	-17.02	95.61	-8.1231	-0.2273	-2.1503
312	SLE RA 1	-6.23	-11.67	65.03	-5.4534	-0.1454	-1.4093
312	SLE RA 2	-6.05	-11.03	61.84	-5.2338	-0.1428	-1.3687
312	SLE RA 3	-6.29	-11.82	65.76	-5.51	-0.1466	-1.4236
312	SLE RA 4	-6.18	-11.43	63.85	-5.3783	-0.145	-1.3992
312	SLE RA 5	-6.06	-11.08	62.03	-5.2472	-0.1429	-1.372
312	SLE RA 6	-6.31	-11.86	65.95	-5.5234	-0.1467	-1.4269
312	SLE RA 7	-6.2	-11.48	64.04	-5.3917	-0.1451	-1.4025
312	SLE RA 8	-6.26	-11.76	65.41	-5.4802	-0.1455	-1.416
312	SLE RA 9	-6.15	-11.38	63.49	-5.3484	-0.144	-1.3916
312	SLE RA 10	-6.67	-11.96	67.23	-5.7133	-0.159	-1.5077
312	SLE RA 11	-6.91	-12.74	71.15	-5.9895	-0.1628	-1.5627
312	SLE RA 12	-6.8	-12.36	69.24	-5.8578	-0.1612	-1.5383
312	SLE RA 13	-6.68	-12	67.42	-5.7267	-0.159	-1.5111
312	SLE RA 14	-6.93	-12.79	71.34	-6.0029	-0.1629	-1.566
312	SLE RA 15	-6.82	-12.41	69.43	-5.8712	-0.1613	-1.5416
312	SLE RA 16	-6.88	-12.68	70.8	-5.9597	-0.1617	-1.5551
312	SLE RA 17	-6.77	-12.3	68.88	-5.8279	-0.1602	-1.5307
312	SLE RA 18	-7.11	-12.99	72.72	-6.1384	-0.1685	-1.608
312	SLE RA 19	-7	-12.61	70.81	-6.0066	-0.1669	-1.5836
312	SLE RA 20	-7.13	-13.04	72.91	-6.1518	-0.1686	-1.6113
312	SLE RA 21	-7.02	-12.65	71	-6.02	-0.167	-1.5869
312	SLE FR 1	-6.23	-11.67	65.03	-5.4534	-0.1454	-1.4093
312	SLE FR 2	-6.19	-11.54	64.39	-5.4095	-0.1448	-1.4012
312	SLE FR 3	-6.24	-11.68	65.1	-5.4587	-0.1454	-1.4107
312	SLE FR 4	-6.46	-11.94	66.7	-5.615	-0.1518	-1.4608
312	SLE FR 5	-6.5	-12.08	67.41	-5.6642	-0.1523	-1.4703
312	SLE FR 6	-6.67	-12.33	68.88	-5.7959	-0.1569	-1.5087
312	SLE QP 1	-6.23	-11.67	65.03	-5.4534	-0.1454	-1.4093
312	SLE QP 2	-6.5	-12.06	67.34	-5.6589	-0.1523	-1.4689
312	SLD 1	1.03	-6.95	29.8	-1.4477	0.1152	0.2218
312	SLD 2	1.03	-6.95	29.8	-1.4477	0.1152	0.2218
312	SLD 3	-0.21	-10.62	45.99	-2.5951	0.0811	-0.0728
312	SLD 4	-0.21	-10.62	45.99	-2.5951	0.0811	-0.0728
312	SLD 5	-2.36	-4.97	31.52	-2.6552	-0.0202	-0.5149
312	SLD 6	-2.36	-4.97	31.52	-2.6552	-0.0202	-0.5149
312	SLD 7	-6.49	-17.19	85.48	-6.48	-0.1341	-1.4969
312	SLD 8	-6.49	-17.19	85.48	-6.48	-0.1341	-1.4969
312	SLD 9	-6.5	-6.94	49.19	-4.8377	-0.1705	-1.441
312	SLD 10	-6.5	-6.94	49.19	-4.8377	-0.1705	-1.441
312	SLD 11	-10.63	-19.15	103.15	-8.6625	-0.2844	-2.423
312	SLD 12	-10.63	-19.15	103.15	-8.6625	-0.2844	-2.423
312	SLD 13	-12.78	-13.51	88.68	-8.7227	-0.3857	-2.8651
312	SLD 14	-12.78	-13.51	88.68	-8.7227	-0.3857	-2.8651
312	SLD 15	-14.02	-17.17	104.87	-9.8701	-0.4198	-3.1597
312	SLD 16	-14.02	-17.17	104.87	-9.8701	-0.4198	-3.1597
312	SLV 1	10.75	-0.41	-18.37	3.9828	0.4618	2.4073



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
312	SLV 2	10.75	-0.41	-18.37	3.9828	0.4618	2.4073
312	SLV 3	7.84	-8.78	18.7	1.3226	0.3804	1.7176
312	SLV 4	7.84	-8.78	18.7	1.3226	0.3804	1.7176
312	SLV 5	3.09	4.12	-14.6	1.2683	0.1554	0.7399
312	SLV 6	3.09	4.12	-14.6	1.2683	0.1554	0.7399
312	SLV 7	-6.6	-23.76	108.97	-7.5991	-0.116	-1.559
312	SLV 8	-6.6	-23.76	108.97	-7.5991	-0.116	-1.559
312	SLV 9	-6.39	-0.36	25.7	-3.7187	-0.1886	-1.3789
312	SLV 10	-6.39	-0.36	25.7	-3.7187	-0.1886	-1.3789
312	SLV 11	-16.08	-28.24	149.27	-12.586	-0.46	-3.6778
312	SLV 12	-16.08	-28.24	149.27	-12.586	-0.46	-3.6778
312	SLV 13	-20.83	-15.35	115.97	-12.6403	-0.685	-4.6555
312	SLV 14	-20.83	-15.35	115.97	-12.6403	-0.685	-4.6555
312	SLV 15	-23.74	-23.71	153.04	-15.3005	-0.7664	-5.3451
312	SLV 16	-23.74	-23.71	153.04	-15.3005	-0.7664	-5.3451
313	SLU 1	0.2	0.22	35.95	-0.0438	0.0193	0.0002
313	SLU 2	0.2	0.22	35.95	-0.0443	0.0192	0.0003
313	SLU 3	0.2	0.18	36.72	-0.0425	0.0199	0.0003
313	SLU 4	0.2	0.18	36.72	-0.0428	0.0198	0.0003
313	SLU 5	0.2	0.17	36.21	-0.0419	0.0194	0.0003
313	SLU 6	0.21	0.12	36.98	-0.0401	0.0201	0.0003
313	SLU 7	0.21	0.12	36.98	-0.0404	0.0201	0.0003
313	SLU 8	0.2	0.1	36.46	-0.0391	0.0197	0.0003
313	SLU 9	0.2	0.11	36.46	-0.0393	0.0197	0.0003
313	SLU 10	0.23	0.2	41.61	-0.0489	0.0223	0.0003
313	SLU 11	0.24	0.16	42.37	-0.0471	0.023	0.0003
313	SLU 12	0.24	0.16	42.38	-0.0474	0.0229	0.0003
313	SLU 13	0.23	0.15	41.86	-0.0466	0.0225	0.0003
313	SLU 14	0.24	0.1	42.63	-0.0448	0.0232	0.0003
313	SLU 15	0.24	0.1	42.63	-0.045	0.0232	0.0003
313	SLU 16	0.24	0.08	42.11	-0.0437	0.0228	0.0003
313	SLU 17	0.24	0.09	42.11	-0.044	0.0228	0.0003
313	SLU 18	0.25	0.19	44.02	-0.0505	0.0237	0.0003
313	SLU 19	0.24	0.19	44.03	-0.0507	0.0237	0.0003
313	SLU 20	0.25	0.13	44.28	-0.0481	0.0239	0.0003
313	SLU 21	0.25	0.14	44.28	-0.0484	0.0239	0.0003
313	SLU 22	0.23	0.17	41.18	-0.0467	0.0223	0.0003
313	SLU 23	0.23	0.18	41.19	-0.0472	0.0222	0.0003
313	SLU 24	0.24	0.13	41.96	-0.0454	0.0229	0.0003
313	SLU 25	0.24	0.13	41.96	-0.0457	0.0228	0.0003
313	SLU 26	0.23	0.12	41.44	-0.0448	0.0224	0.0003
313	SLU 27	0.24	0.07	42.21	-0.043	0.0231	0.0003
313	SLU 28	0.24	0.07	42.21	-0.0433	0.0231	0.0003
313	SLU 29	0.23	0.06	41.69	-0.042	0.0227	0.0003
313	SLU 30	0.23	0.06	41.69	-0.0423	0.0227	0.0003
313	SLU 31	0.26	0.16	46.84	-0.0519	0.0253	0.0003
313	SLU 32	0.27	0.11	47.61	-0.0501	0.026	0.0003
313	SLU 33	0.27	0.11	47.61	-0.0503	0.0259	0.0003
313	SLU 34	0.26	0.1	47.09	-0.0495	0.0255	0.0003
313	SLU 35	0.27	0.05	47.86	-0.0477	0.0262	0.0003
313	SLU 36	0.27	0.05	47.86	-0.048	0.0262	0.0003
313	SLU 37	0.27	0.04	47.34	-0.0467	0.0258	0.0003
313	SLU 38	0.27	0.04	47.35	-0.0469	0.0258	0.0003
313	SLU 39	0.28	0.14	49.26	-0.0534	0.0267	0.0003
313	SLU 40	0.28	0.15	49.26	-0.0537	0.0267	0.0003
313	SLU 41	0.28	0.08	49.51	-0.051	0.0269	0.0003
313	SLU 42	0.28	0.09	49.51	-0.0513	0.0269	0.0003
313	SLU 43	0.25	0.3	44.94	-0.056	0.024	0.0003
313	SLU 44	0.25	0.31	44.94	-0.0564	0.024	0.0003
313	SLU 45	0.25	0.26	45.71	-0.0546	0.0246	0.0003
313	SLU 46	0.25	0.26	45.72	-0.0549	0.0246	0.0003
313	SLU 47	0.25	0.25	45.2	-0.054	0.0242	0.0003
313	SLU 48	0.26	0.2	45.97	-0.0522	0.0249	0.0003
313	SLU 49	0.26	0.2	45.97	-0.0525	0.0248	0.0003
313	SLU 50	0.25	0.18	45.45	-0.0512	0.0245	0.0003
313	SLU 51	0.25	0.19	45.45	-0.0515	0.0244	0.0003
313	SLU 52	0.28	0.29	50.6	-0.0611	0.0271	0.0003
313	SLU 53	0.29	0.24	51.36	-0.0593	0.0277	0.0004
313	SLU 54	0.29	0.24	51.37	-0.0596	0.0277	0.0004
313	SLU 55	0.28	0.23	50.85	-0.0587	0.0273	0.0004
313	SLU 56	0.29	0.18	51.62	-0.0569	0.028	0.0004
313	SLU 57	0.29	0.18	51.62	-0.0572	0.0279	0.0004
313	SLU 58	0.29	0.16	51.1	-0.0559	0.0276	0.0004
313	SLU 59	0.29	0.17	51.1	-0.0561	0.0275	0.0004
313	SLU 60	0.29	0.27	53.01	-0.0626	0.0285	0.0004
313	SLU 61	0.29	0.27	53.02	-0.0629	0.0284	0.0004
313	SLU 62	0.3	0.21	53.27	-0.0602	0.0287	0.0004
313	SLU 63	0.3	0.22	53.27	-0.0605	0.0286	0.0004
313	SLU 64	0.28	0.25	50.17	-0.0589	0.027	0.0003
313	SLU 65	0.28	0.26	50.18	-0.0593	0.027	0.0003
313	SLU 66	0.28	0.21	50.95	-0.0575	0.0276	0.0003
313	SLU 67	0.28	0.21	50.95	-0.0578	0.0276	0.0004
313	SLU 68	0.28	0.2	50.43	-0.057	0.0272	0.0003
313	SLU 69	0.29	0.15	51.2	-0.0552	0.0279	0.0004
313	SLU 70	0.29	0.16	51.2	-0.0555	0.0278	0.0004
313	SLU 71	0.28	0.14	50.68	-0.0541	0.0275	0.0003
313	SLU 72	0.28	0.14	50.69	-0.0544	0.0274	0.0003
313	SLU 73	0.31	0.24	55.83	-0.064	0.0301	0.0004
313	SLU 74	0.32	0.19	56.6	-0.0622	0.0307	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
313	SLU 75	0.32	0.19	56.6	-0.0625	0.0307	0.0004
313	SLU 76	0.31	0.18	56.08	-0.0616	0.0303	0.0004
313	SLU 77	0.32	0.13	56.85	-0.0598	0.031	0.0004
313	SLU 78	0.32	0.14	56.86	-0.0601	0.0309	0.0004
313	SLU 79	0.32	0.12	56.33	-0.0588	0.0306	0.0004
313	SLU 80	0.32	0.12	56.34	-0.0591	0.0305	0.0004
313	SLU 81	0.32	0.22	58.25	-0.0655	0.0314	0.0004
313	SLU 82	0.32	0.23	58.25	-0.0658	0.0314	0.0004
313	SLU 83	0.33	0.17	58.5	-0.0632	0.0317	0.0004
313	SLU 84	0.33	0.17	58.51	-0.0634	0.0316	0.0004
313	SLE RA 1	0.21	0.21	37.44	-0.0446	0.0201	0.0003
313	SLE RA 2	0.21	0.21	37.45	-0.045	0.0201	0.0003
313	SLE RA 3	0.21	0.18	37.96	-0.0438	0.0205	0.0003
313	SLE RA 4	0.21	0.18	37.96	-0.0439	0.0205	0.0003
313	SLE RA 5	0.21	0.17	37.62	-0.0434	0.0202	0.0003
313	SLE RA 6	0.21	0.14	38.13	-0.0422	0.0207	0.0003
313	SLE RA 7	0.21	0.14	38.13	-0.0424	0.0207	0.0003
313	SLE RA 8	0.21	0.13	37.78	-0.0415	0.0204	0.0003
313	SLE RA 9	0.21	0.13	37.79	-0.0417	0.0204	0.0003
313	SLE RA 10	0.23	0.2	41.22	-0.0481	0.0222	0.0003
313	SLE RA 11	0.23	0.16	41.73	-0.0469	0.0226	0.0003
313	SLE RA 12	0.23	0.17	41.73	-0.0471	0.0226	0.0003
313	SLE RA 13	0.23	0.16	41.39	-0.0465	0.0223	0.0003
313	SLE RA 14	0.23	0.12	41.9	-0.0453	0.0227	0.0003
313	SLE RA 15	0.23	0.13	41.9	-0.0455	0.0227	0.0003
313	SLE RA 16	0.23	0.11	41.55	-0.0446	0.0225	0.0003
313	SLE RA 17	0.23	0.12	41.55	-0.0448	0.0225	0.0003
313	SLE RA 18	0.24	0.19	42.83	-0.0491	0.0231	0.0003
313	SLE RA 19	0.24	0.19	42.83	-0.0493	0.0231	0.0003
313	SLE RA 20	0.24	0.15	43	-0.0475	0.0232	0.0003
313	SLE RA 21	0.24	0.15	43	-0.0477	0.0232	0.0003
313	SLE FR 1	0.21	0.21	37.44	-0.0446	0.0201	0.0003
313	SLE FR 2	0.21	0.21	37.45	-0.0447	0.0201	0.0003
313	SLE FR 3	0.21	0.19	37.51	-0.044	0.0202	0.0003
313	SLE FR 4	0.22	0.2	39.06	-0.046	0.021	0.0003
313	SLE FR 5	0.22	0.18	39.13	-0.0453	0.0211	0.0003
313	SLE FR 6	0.22	0.2	40.14	-0.0469	0.0216	0.0003
313	SLE QP 1	0.21	0.21	37.44	-0.0446	0.0201	0.0003
313	SLE QP 2	0.22	0.2	39.06	-0.046	0.021	0.0003
313	SLD 1	0.28	6.21	35.75	-0.3377	0.0396	0.0005
313	SLD 2	0.28	6.21	35.75	-0.3377	0.0396	0.0005
313	SLD 3	0.34	3.16	38.69	-0.1381	0.0442	0.0003
313	SLD 4	0.34	3.16	38.69	-0.1381	0.0442	0.0003
313	SLD 5	0.14	6.64	33.6	-0.4363	0.0196	0.0006
313	SLD 6	0.14	6.64	33.6	-0.4363	0.0196	0.0006
313	SLD 7	0.35	-3.55	43.41	0.2292	0.0349	0
313	SLD 8	0.35	-3.55	43.41	0.2292	0.0349	0
313	SLD 9	0.08	3.95	34.71	-0.3211	0.0071	0.0005
313	SLD 10	0.08	3.95	34.71	-0.3211	0.0071	0.0005
313	SLD 11	0.29	-6.24	44.52	0.3443	0.0224	0
313	SLD 12	0.29	-6.24	44.52	0.3443	0.0224	0
313	SLD 13	0.09	-2.76	39.43	0.0461	-0.0022	0.0002
313	SLD 14	0.09	-2.76	39.43	0.0461	-0.0022	0.0002
313	SLD 15	0.15	-5.82	42.37	0.2458	0.0024	0.0001
313	SLD 16	0.15	-5.82	42.37	0.2458	0.0024	0.0001
313	SLV 1	0.36	13.99	31.03	-0.7152	0.0633	0.0008
313	SLV 2	0.36	13.99	31.03	-0.7152	0.0633	0.0008
313	SLV 3	0.51	6.92	38.14	-0.2532	0.0745	0.0004
313	SLV 4	0.51	6.92	38.14	-0.2532	0.0745	0.0004
313	SLV 5	0.03	15.05	25.87	-0.9474	0.0168	0.001
313	SLV 6	0.03	15.05	25.87	-0.9474	0.0168	0.001
313	SLV 7	0.53	-8.5	49.57	0.5925	0.054	-0.0003
313	SLV 8	0.53	-8.5	49.57	0.5925	0.054	-0.0003
313	SLV 9	-0.1	8.9	28.55	-0.6844	-0.012	0.0008
313	SLV 10	-0.1	8.9	28.55	-0.6844	-0.012	0.0008
313	SLV 11	0.4	-14.66	52.25	0.8554	0.0253	-0.0005
313	SLV 12	0.4	-14.66	52.25	0.8554	0.0253	-0.0005
313	SLV 13	-0.08	-6.52	39.98	0.1613	-0.0325	0.0001
313	SLV 14	-0.08	-6.52	39.98	0.1613	-0.0325	0.0001
313	SLV 15	0.07	-13.59	47.09	0.6232	-0.0213	-0.0002
313	SLV 16	0.07	-13.59	47.09	0.6232	-0.0213	-0.0002
314	SLU 1	0	-3.98	20.87	0.6428	-0.0012	-0.0001
314	SLU 2	0	-3.98	20.83	0.6412	-0.0012	-0.0001
314	SLU 3	0	-4.08	21.39	0.6679	-0.0012	-0.0001
314	SLU 4	0	-4.07	21.37	0.667	-0.0012	-0.0001
314	SLU 5	0	-4.04	21.14	0.6567	-0.0011	-0.0001
314	SLU 6	0	-4.13	21.7	0.6834	-0.0011	0
314	SLU 7	0	-4.13	21.68	0.6825	-0.0011	0
314	SLU 8	0	-4.1	21.49	0.6738	-0.0011	0
314	SLU 9	0	-4.1	21.47	0.6729	-0.0011	0
314	SLU 10	-0.01	-4.96	24.53	0.7677	-0.0015	-0.0001
314	SLU 11	-0.01	-5.06	25.09	0.7945	-0.0014	-0.0001
314	SLU 12	-0.01	-5.05	25.07	0.7935	-0.0014	-0.0001
314	SLU 13	-0.01	-5.02	24.84	0.7833	-0.0014	-0.0001
314	SLU 14	-0.01	-5.12	25.4	0.81	-0.0014	-0.0001
314	SLU 15	-0.01	-5.11	25.38	0.809	-0.0014	-0.0001
314	SLU 16	0	-5.08	25.19	0.8003	-0.0013	-0.0001
314	SLU 17	0	-5.08	25.16	0.7994	-0.0013	-0.0001
314	SLU 18	-0.01	-5.39	26.15	0.8236	-0.0015	-0.0001





Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
314	SLU 19	-0.01	-5.38	26.13	0.8226	-0.0016	-0.0001
314	SLU 20	-0.01	-5.44	26.46	0.8391	-0.0015	-0.0001
314	SLU 21	-0.01	-5.44	26.44	0.8381	-0.0015	-0.0001
314	SLU 22	-0.01	-4.79	24.09	0.7594	-0.0014	-0.0001
314	SLU 23	-0.01	-4.78	24.06	0.7578	-0.0014	-0.0001
314	SLU 24	-0.01	-4.88	24.62	0.7845	-0.0014	-0.0001
314	SLU 25	-0.01	-4.88	24.59	0.7836	-0.0014	-0.0001
314	SLU 26	0	-4.84	24.37	0.7733	-0.0013	-0.0001
314	SLU 27	0	-4.94	24.93	0.8	-0.0013	-0.0001
314	SLU 28	0	-4.94	24.9	0.7991	-0.0013	-0.0001
314	SLU 29	0	-4.91	24.71	0.7904	-0.0013	-0.0001
314	SLU 30	0	-4.9	24.69	0.7894	-0.0013	-0.0001
314	SLU 31	-0.01	-5.77	27.76	0.8843	-0.0016	-0.0001
314	SLU 32	-0.01	-5.86	28.32	0.9111	-0.0016	-0.0001
314	SLU 33	-0.01	-5.86	28.29	0.9101	-0.0016	-0.0001
314	SLU 34	-0.01	-5.82	28.06	0.8998	-0.0016	-0.0001
314	SLU 35	-0.01	-5.92	28.62	0.9266	-0.0016	-0.0001
314	SLU 36	-0.01	-5.92	28.6	0.9256	-0.0016	-0.0001
314	SLU 37	-0.01	-5.89	28.41	0.9169	-0.0015	-0.0001
314	SLU 38	-0.01	-5.88	28.39	0.916	-0.0015	-0.0001
314	SLU 39	-0.01	-6.19	29.38	0.9401	-0.0017	-0.0001
314	SLU 40	-0.01	-6.19	29.36	0.9392	-0.0017	-0.0001
314	SLU 41	-0.01	-6.25	29.69	0.9556	-0.0017	-0.0001
314	SLU 42	-0.01	-6.25	29.66	0.9547	-0.0017	-0.0001
314	SLU 43	-0.01	-4.9	26.03	0.7956	-0.0015	-0.0001
314	SLU 44	-0.01	-4.9	25.99	0.7941	-0.0015	-0.0001
314	SLU 45	-0.01	-4.99	26.55	0.8208	-0.0015	-0.0001
314	SLU 46	-0.01	-4.99	26.53	0.8198	-0.0015	-0.0001
314	SLU 47	-0.01	-4.95	26.3	0.8096	-0.0014	-0.0001
314	SLU 48	-0.01	-5.05	26.86	0.8363	-0.0014	-0.0001
314	SLU 49	-0.01	-5.05	26.84	0.8354	-0.0014	-0.0001
314	SLU 50	-0.01	-5.02	26.64	0.8267	-0.0014	-0.0001
314	SLU 51	-0.01	-5.01	26.62	0.8257	-0.0014	-0.0001
314	SLU 52	-0.01	-5.88	29.69	0.9206	-0.0017	-0.0001
314	SLU 53	-0.01	-5.98	30.25	0.9473	-0.0017	-0.0001
314	SLU 54	-0.01	-5.97	30.23	0.9464	-0.0017	-0.0001
314	SLU 55	-0.01	-5.94	30	0.9361	-0.0017	-0.0001
314	SLU 56	-0.01	-6.03	30.56	0.9628	-0.0017	-0.0001
314	SLU 57	-0.01	-6.03	30.53	0.9619	-0.0017	-0.0001
314	SLU 58	-0.01	-6	30.34	0.9532	-0.0016	-0.0001
314	SLU 59	-0.01	-6	30.32	0.9523	-0.0016	-0.0001
314	SLU 60	-0.01	-6.3	31.31	0.9764	-0.0018	-0.0001
314	SLU 61	-0.01	-6.3	31.29	0.9755	-0.0018	-0.0001
314	SLU 62	-0.01	-6.36	31.62	0.9919	-0.0018	-0.0001
314	SLU 63	-0.01	-6.36	31.6	0.991	-0.0018	-0.0001
314	SLU 64	-0.01	-5.71	29.25	0.9122	-0.0017	-0.0001
314	SLU 65	-0.01	-5.7	29.21	0.9107	-0.0017	-0.0001
314	SLU 66	-0.01	-5.8	29.77	0.9374	-0.0017	-0.0001
314	SLU 67	-0.01	-5.8	29.75	0.9364	-0.0017	-0.0001
314	SLU 68	-0.01	-5.76	29.52	0.9262	-0.0016	-0.0001
314	SLU 69	-0.01	-5.86	30.08	0.9529	-0.0016	-0.0001
314	SLU 70	-0.01	-5.86	30.06	0.9519	-0.0016	-0.0001
314	SLU 71	-0.01	-5.82	29.87	0.9432	-0.0016	-0.0001
314	SLU 72	-0.01	-5.82	29.85	0.9423	-0.0016	-0.0001
314	SLU 73	-0.01	-6.68	32.91	1.0372	-0.0019	-0.0001
314	SLU 74	-0.01	-6.78	33.47	1.0639	-0.0019	-0.0001
314	SLU 75	-0.01	-6.78	33.45	1.063	-0.0019	-0.0001
314	SLU 76	-0.01	-6.74	33.22	1.0527	-0.0019	-0.0001
314	SLU 77	-0.01	-6.84	33.78	1.0794	-0.0019	-0.0001
314	SLU 78	-0.01	-6.84	33.76	1.0785	-0.0019	-0.0001
314	SLU 79	-0.01	-6.81	33.57	1.0698	-0.0018	-0.0001
314	SLU 80	-0.01	-6.8	33.54	1.0688	-0.0018	-0.0001
314	SLU 81	-0.01	-7.11	34.53	1.093	-0.002	-0.0001
314	SLU 82	-0.01	-7.11	34.51	1.0921	-0.002	-0.0001
314	SLU 83	-0.01	-7.17	34.84	1.1085	-0.002	-0.0001
314	SLU 84	-0.01	-7.17	34.82	1.1076	-0.002	-0.0001
314	SLE RA 1	0	-4.21	21.79	0.6761	-0.0012	-0.0001
314	SLE RA 2	0	-4.21	21.77	0.675	-0.0013	-0.0001
314	SLE RA 3	0	-4.28	22.14	0.6929	-0.0012	-0.0001
314	SLE RA 4	0	-4.27	22.13	0.6922	-0.0012	-0.0001
314	SLE RA 5	0	-4.25	21.97	0.6854	-0.0012	-0.0001
314	SLE RA 6	0	-4.31	22.35	0.7032	-0.0012	-0.0001
314	SLE RA 7	0	-4.31	22.33	0.7026	-0.0012	-0.0001
314	SLE RA 8	0	-4.29	22.2	0.6968	-0.0012	-0.0001
314	SLE RA 9	0	-4.29	22.19	0.6961	-0.0012	-0.0001
314	SLE RA 10	-0.01	-4.86	24.23	0.7594	-0.0014	-0.0001
314	SLE RA 11	-0.01	-4.93	24.61	0.7772	-0.0014	-0.0001
314	SLE RA 12	-0.01	-4.93	24.59	0.7766	-0.0014	-0.0001
314	SLE RA 13	-0.01	-4.9	24.44	0.7697	-0.0014	-0.0001
314	SLE RA 14	-0.01	-4.97	24.81	0.7876	-0.0014	-0.0001
314	SLE RA 15	-0.01	-4.97	24.8	0.7869	-0.0014	-0.0001
314	SLE RA 16	0	-4.95	24.67	0.7811	-0.0013	-0.0001
314	SLE RA 17	0	-4.94	24.65	0.7805	-0.0013	-0.0001
314	SLE RA 18	-0.01	-5.15	25.31	0.7966	-0.0015	-0.0001
314	SLE RA 19	-0.01	-5.15	25.3	0.796	-0.0015	-0.0001
314	SLE RA 20	-0.01	-5.19	25.52	0.8069	-0.0014	-0.0001
314	SLE RA 21	-0.01	-5.19	25.51	0.8063	-0.0015	-0.0001
314	SLE FR 1	0	-4.21	21.79	0.6761	-0.0012	-0.0001
314	SLE FR 2	0	-4.21	21.79	0.6759	-0.0012	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
314	SLE FR 3	0	-4.23	21.87	0.6802	-0.0012	-0.0001
314	SLE FR 4	0	-4.49	22.84	0.712	-0.0013	-0.0001
314	SLE FR 5	0	-4.51	22.93	0.7164	-0.0013	-0.0001
314	SLE FR 6	-0.01	-4.68	23.55	0.7363	-0.0014	-0.0001
314	SLE QP 1	0	-4.21	21.79	0.6761	-0.0012	-0.0001
314	SLE QP 2	0	-4.49	22.85	0.7122	-0.0013	-0.0001
314	SLD 1	-0.13	-0.96	20.64	0.5436	0.0158	-0.0055
314	SLD 2	-0.13	-0.96	20.64	0.5436	0.0158	-0.0055
314	SLD 3	-0.13	-5.69	23.24	0.7699	0.0174	-0.0053
314	SLD 4	-0.13	-5.69	23.24	0.7699	0.0174	-0.0053
314	SLD 5	-0.05	3.74	18.24	0.3184	0.0013	-0.002
314	SLD 6	-0.05	3.74	18.24	0.3184	0.0013	-0.002
314	SLD 7	-0.04	-12.03	26.91	1.0728	0.0068	-0.0013
314	SLD 8	-0.04	-12.03	26.91	1.0728	0.0068	-0.0013
314	SLD 9	0.03	3.04	18.78	0.3517	-0.0094	0.0012
314	SLD 10	0.03	3.04	18.78	0.3517	-0.0094	0.0012
314	SLD 11	0.04	-12.73	27.46	1.1061	-0.004	0.0019
314	SLD 12	0.04	-12.73	27.46	1.1061	-0.004	0.0019
314	SLD 13	0.12	-3.3	22.46	0.6546	-0.0201	0.0052
314	SLD 14	0.12	-3.3	22.46	0.6546	-0.0201	0.0052
314	SLD 15	0.12	-8.03	25.06	0.8809	-0.0184	0.0054
314	SLD 16	0.12	-8.03	25.06	0.8809	-0.0184	0.0054
314	SLV 1	-0.34	3.71	17.79	0.3216	0.0414	-0.0141
314	SLV 2	-0.34	3.71	17.79	0.3216	0.0414	-0.0141
314	SLV 3	-0.33	-7.33	23.8	0.8503	0.0456	-0.0136
314	SLV 4	-0.33	-7.33	23.8	0.8503	0.0456	-0.0136
314	SLV 5	-0.12	14.71	12.21	-0.2067	0.0051	-0.0051
314	SLV 6	-0.12	14.71	12.21	-0.2067	0.0051	-0.0051
314	SLV 7	-0.09	-22.09	32.25	1.5554	0.0191	-0.0033
314	SLV 8	-0.09	-22.09	32.25	1.5554	0.0191	-0.0033
314	SLV 9	0.08	13.1	13.44	-0.1309	-0.0217	0.0032
314	SLV 10	0.08	13.1	13.44	-0.1309	-0.0217	0.0032
314	SLV 11	0.11	-23.7	33.49	1.6312	-0.0078	0.005
314	SLV 12	0.11	-23.7	33.49	1.6312	-0.0078	0.005
314	SLV 13	0.32	-1.66	21.9	0.5742	-0.0482	0.0134
314	SLV 14	0.32	-1.66	21.9	0.5742	-0.0482	0.0134
314	SLV 15	0.33	-12.7	27.91	1.1028	-0.044	0.014
314	SLV 16	0.33	-12.7	27.91	1.1028	-0.044	0.014
315	SLU 1	0.01	-13.47	37.93	0.8505	0.0015	0
315	SLU 2	0.01	-13.46	37.9	0.8496	0.0015	0
315	SLU 3	0.01	-14.2	39.08	0.8904	0.0014	0
315	SLU 4	0.01	-14.19	39.06	0.8899	0.0014	0
315	SLU 5	0.01	-14.04	38.54	0.8788	0.0014	0
315	SLU 6	0.01	-14.78	39.72	0.9196	0.0013	0
315	SLU 7	0.01	-14.78	39.71	0.9191	0.0013	0
315	SLU 8	0.01	-14.65	39.21	0.9089	0.0013	0
315	SLU 9	0.01	-14.64	39.2	0.9084	0.0013	0
315	SLU 10	0.01	-16.1	44.37	1.0116	0.0018	0
315	SLU 11	0.01	-16.84	45.56	1.0524	0.0018	0
315	SLU 12	0.01	-16.83	45.54	1.0519	0.0018	0
315	SLU 13	0.01	-16.68	45.02	1.0408	0.0017	0
315	SLU 14	0.01	-17.42	46.2	1.0816	0.0017	0
315	SLU 15	0.01	-17.41	46.18	1.0811	0.0017	0
315	SLU 16	0.01	-17.29	45.69	1.0708	0.0016	0
315	SLU 17	0.01	-17.28	45.67	1.0703	0.0016	0
315	SLU 18	0.01	-17.24	47.18	1.0818	0.002	0
315	SLU 19	0.01	-17.24	47.16	1.0813	0.0019	0
315	SLU 20	0.01	-17.83	47.82	1.111	0.0019	0
315	SLU 21	0.01	-17.82	47.8	1.1105	0.0019	0
315	SLU 22	0.01	-16.02	43.92	1.0059	0.0017	0
315	SLU 23	0.01	-16.01	43.89	1.0051	0.0017	0
315	SLU 24	0.01	-16.75	45.07	1.0459	0.0017	0
315	SLU 25	0.01	-16.74	45.06	1.0454	0.0017	0
315	SLU 26	0.01	-16.6	44.54	1.0343	0.0016	0
315	SLU 27	0.01	-17.33	45.72	1.0751	0.0016	0
315	SLU 28	0.01	-17.33	45.7	1.0746	0.0016	0
315	SLU 29	0.01	-17.2	45.21	1.0643	0.0016	0
315	SLU 30	0.01	-17.19	45.19	1.0638	0.0015	0
315	SLU 31	0.01	-18.65	50.37	1.167	0.0021	0
315	SLU 32	0.01	-19.39	51.55	1.2079	0.002	0
315	SLU 33	0.01	-19.38	51.53	1.2074	0.002	0
315	SLU 34	0.01	-19.23	51.01	1.1962	0.002	0
315	SLU 35	0.01	-19.97	52.19	1.2371	0.0019	0
315	SLU 36	0.01	-19.96	52.17	1.2366	0.0019	0
315	SLU 37	0.01	-19.84	51.68	1.2263	0.0019	0
315	SLU 38	0.01	-19.83	51.67	1.2258	0.0019	0
315	SLU 39	0.01	-19.79	53.17	1.2373	0.0022	0
315	SLU 40	0.01	-19.79	53.16	1.2368	0.0022	0
315	SLU 41	0.01	-20.38	53.82	1.2665	0.0021	0
315	SLU 42	0.01	-20.37	53.8	1.266	0.0021	0
315	SLU 43	0.01	-16.64	47.25	1.0523	0.0018	0
315	SLU 44	0.01	-16.63	47.22	1.0514	0.0018	0
315	SLU 45	0.01	-17.36	48.4	1.0923	0.0018	0
315	SLU 46	0.01	-17.36	48.39	1.0918	0.0018	0
315	SLU 47	0.01	-17.21	47.87	1.0806	0.0017	0
315	SLU 48	0.01	-17.95	49.05	1.1215	0.0017	0
315	SLU 49	0.01	-17.94	49.03	1.121	0.0017	0
315	SLU 50	0.01	-17.81	48.54	1.1107	0.0016	0
315	SLU 51	0.01	-17.81	48.52	1.1102	0.0016	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
315	SLU 52	0.01	-19.27	53.7	1.2134	0.0021	0
315	SLU 53	0.01	-20	54.88	1.2542	0.0021	0
315	SLU 54	0.01	-20	54.86	1.2537	0.0021	0
315	SLU 55	0.01	-19.85	54.34	1.2426	0.0021	0
315	SLU 56	0.01	-20.59	55.52	1.2834	0.002	0
315	SLU 57	0.01	-20.58	55.51	1.2829	0.002	0
315	SLU 58	0.01	-20.45	55.01	1.2727	0.002	0
315	SLU 59	0.01	-20.45	55	1.2721	0.002	0
315	SLU 60	0.01	-20.41	56.5	1.2837	0.0023	0
315	SLU 61	0.01	-20.4	56.49	1.2832	0.0023	0
315	SLU 62	0.01	-21	57.15	1.3129	0.0022	0
315	SLU 63	0.01	-20.99	57.13	1.3124	0.0022	0
315	SLU 64	0.01	-19.19	53.25	1.2078	0.0021	0
315	SLU 65	0.01	-19.18	53.22	1.2069	0.0021	0
315	SLU 66	0.01	-19.92	54.4	1.2478	0.002	0
315	SLU 67	0.01	-19.91	54.38	1.2472	0.002	0
315	SLU 68	0.01	-19.76	53.86	1.2361	0.002	0
315	SLU 69	0.01	-20.5	55.04	1.277	0.002	0
315	SLU 70	0.01	-20.49	55.02	1.2764	0.0019	0
315	SLU 71	0.01	-20.36	54.53	1.2662	0.0019	0
315	SLU 72	0.01	-20.36	54.51	1.2657	0.0019	0
315	SLU 73	0.01	-21.82	59.69	1.3689	0.0024	0
315	SLU 74	0.01	-22.55	60.87	1.4097	0.0024	0
315	SLU 75	0.01	-22.55	60.86	1.4092	0.0024	0
315	SLU 76	0.01	-22.4	60.33	1.3981	0.0023	0
315	SLU 77	0.01	-23.14	61.52	1.4389	0.0023	0
315	SLU 78	0.01	-23.13	61.5	1.4384	0.0023	0
315	SLU 79	0.01	-23	61.01	1.4281	0.0022	0
315	SLU 80	0.01	-23	60.99	1.4276	0.0022	0
315	SLU 81	0.01	-22.96	62.5	1.4391	0.0026	0
315	SLU 82	0.01	-22.95	62.48	1.4386	0.0026	0
315	SLU 83	0.01	-23.55	63.14	1.4683	0.0025	0
315	SLU 84	0.01	-23.54	63.12	1.4678	0.0025	0
315	SLE RA 1	0.01	-14.2	39.64	0.8949	0.0015	0
315	SLE RA 2	0.01	-14.19	39.62	0.8943	0.0015	0
315	SLE RA 3	0.01	-14.68	40.41	0.9215	0.0015	0
315	SLE RA 4	0.01	-14.68	40.4	0.9212	0.0015	0
315	SLE RA 5	0.01	-14.58	40.05	0.9138	0.0015	0
315	SLE RA 6	0.01	-15.08	40.84	0.941	0.0015	0
315	SLE RA 7	0.01	-15.07	40.83	0.9407	0.0015	0
315	SLE RA 8	0.01	-14.98	40.5	0.9338	0.0014	0
315	SLE RA 9	0.01	-14.98	40.49	0.9335	0.0014	0
315	SLE RA 10	0.01	-15.95	43.94	1.0023	0.0018	0
315	SLE RA 11	0.01	-16.44	44.73	1.0295	0.0017	0
315	SLE RA 12	0.01	-16.44	44.71	1.0292	0.0017	0
315	SLE RA 13	0.01	-16.34	44.37	1.0218	0.0017	0
315	SLE RA 14	0.01	-16.84	45.15	1.049	0.0017	0
315	SLE RA 15	0.01	-16.83	45.14	1.0486	0.0017	0
315	SLE RA 16	0.01	-16.74	44.81	1.0418	0.0017	0
315	SLE RA 17	0.01	-16.74	44.8	1.0415	0.0017	0
315	SLE RA 18	0.01	-16.72	45.81	1.0491	0.0019	0
315	SLE RA 19	0.01	-16.71	45.8	1.0488	0.0019	0
315	SLE RA 20	0.01	-17.11	46.24	1.0686	0.0018	0
315	SLE RA 21	0.01	-17.1	46.22	1.0683	0.0018	0
315	SLE FR 1	0.01	-14.2	39.64	0.8949	0.0015	0
315	SLE FR 2	0.01	-14.2	39.64	0.8948	0.0015	0
315	SLE FR 3	0.01	-14.36	39.81	0.9027	0.0015	0
315	SLE FR 4	0.01	-14.95	41.49	0.941	0.0016	0
315	SLE FR 5	0.01	-15.11	41.66	0.949	0.0016	0
315	SLE FR 6	0.01	-15.46	42.72	0.972	0.0017	0
315	SLE QP 1	0.01	-14.2	39.64	0.8949	0.0015	0
315	SLE QP 2	0.01	-14.96	41.49	0.9412	0.0016	0
315	SLD 1	-0.06	-10.4	37.78	0.7243	0.0152	-0.0002
315	SLD 2	-0.06	-10.4	37.78	0.7243	0.0152	-0.0002
315	SLD 3	-0.07	-16.32	42.34	1.0066	0.0133	-0.0002
315	SLD 4	-0.07	-16.32	42.34	1.0066	0.0133	-0.0002
315	SLD 5	-0.01	-4.62	33.47	0.4479	0.0085	-0.0001
315	SLD 6	-0.01	-4.62	33.47	0.4479	0.0085	-0.0001
315	SLD 7	-0.02	-24.34	48.66	1.389	0.0023	-0.0001
315	SLD 8	-0.02	-24.34	48.66	1.389	0.0023	-0.0001
315	SLD 9	0.04	-5.58	34.33	0.4933	0.001	0
315	SLD 10	0.04	-5.58	34.33	0.4933	0.001	0
315	SLD 11	0.02	-25.29	49.51	1.4345	-0.0053	0
315	SLD 12	0.02	-25.29	49.51	1.4345	-0.0053	0
315	SLD 13	0.08	-13.6	40.64	0.8757	-0.01	0.0001
315	SLD 14	0.08	-13.6	40.64	0.8757	-0.01	0.0001
315	SLD 15	0.08	-19.51	45.2	1.1581	-0.0119	0.0002
315	SLD 16	0.08	-19.51	45.2	1.1581	-0.0119	0.0002
315	SLV 1	-0.21	-4.43	32.84	0.4384	0.0365	-0.0005
315	SLV 2	-0.21	-4.43	32.84	0.4384	0.0365	-0.0005
315	SLV 3	-0.23	-18.13	43.49	1.0939	0.0317	-0.0005
315	SLV 4	-0.23	-18.13	43.49	1.0939	0.0317	-0.0005
315	SLV 5	-0.04	8.98	22.75	-0.204	0.0194	-0.0002
315	SLV 6	-0.04	8.98	22.75	-0.204	0.0194	-0.0002
315	SLV 7	-0.09	-36.69	58.24	1.9813	0.0034	-0.0001
315	SLV 8	-0.09	-36.69	58.24	1.9813	0.0034	-0.0001
315	SLV 9	0.1	6.78	24.74	-0.099	-0.0001	0.0001
315	SLV 10	0.1	6.78	24.74	-0.099	-0.0001	0.0001
315	SLV 11	0.05	-38.9	60.24	2.0863	-0.0162	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
315	SLV 12	0.05	-38.9	60.24	2.0863	-0.0162	0.0002
315	SLV 13	0.24	-11.79	39.5	0.7884	-0.0285	0.0005
315	SLV 14	0.24	-11.79	39.5	0.7884	-0.0285	0.0005
315	SLV 15	0.23	-25.49	50.14	1.444	-0.0333	0.0005
315	SLV 16	0.23	-25.49	50.14	1.444	-0.0333	0.0005
316	SLU 1	0.18	-2.82	36.86	0.2107	0.0297	-0.0001
316	SLU 2	0.18	-2.81	36.86	0.2102	0.0297	-0.0001
316	SLU 3	0.19	-2.95	37.65	0.2188	0.0304	-0.0001
316	SLU 4	0.19	-2.95	37.65	0.2185	0.0304	-0.0001
316	SLU 5	0.18	-2.91	37.08	0.2153	0.0298	-0.0001
316	SLU 6	0.19	-3.05	37.87	0.2239	0.0305	-0.0001
316	SLU 7	0.19	-3.05	37.87	0.2236	0.0305	-0.0001
316	SLU 8	0.18	-3.02	37.3	0.2208	0.03	-0.0001
316	SLU 9	0.18	-3.02	37.3	0.2205	0.03	-0.0001
316	SLU 10	0.21	-3.32	42.65	0.2469	0.0345	-0.0001
316	SLU 11	0.22	-3.46	43.44	0.2556	0.0352	-0.0001
316	SLU 12	0.22	-3.46	43.44	0.2553	0.0352	-0.0001
316	SLU 13	0.21	-3.42	42.87	0.252	0.0347	-0.0001
316	SLU 14	0.22	-3.56	43.67	0.2606	0.0354	-0.0001
316	SLU 15	0.22	-3.56	43.66	0.2603	0.0354	-0.0001
316	SLU 16	0.21	-3.53	43.1	0.2576	0.0348	-0.0001
316	SLU 17	0.21	-3.53	43.09	0.2573	0.0348	-0.0001
316	SLU 18	0.22	-3.55	45.13	0.2632	0.0366	-0.0001
316	SLU 19	0.22	-3.54	45.13	0.2629	0.0366	-0.0001
316	SLU 20	0.23	-3.65	45.36	0.2683	0.0368	-0.0001
316	SLU 21	0.23	-3.64	45.35	0.268	0.0367	-0.0001
316	SLU 22	0.21	-3.34	42.23	0.2471	0.0342	-0.0001
316	SLU 23	0.21	-3.33	42.23	0.2466	0.0342	-0.0001
316	SLU 24	0.21	-3.47	43.03	0.2552	0.0349	-0.0001
316	SLU 25	0.21	-3.46	43.02	0.2549	0.0349	-0.0001
316	SLU 26	0.21	-3.43	42.45	0.2517	0.0343	-0.0001
316	SLU 27	0.22	-3.57	43.25	0.2603	0.035	-0.0001
316	SLU 28	0.22	-3.56	43.24	0.26	0.035	-0.0001
316	SLU 29	0.21	-3.54	42.68	0.2572	0.0345	-0.0001
316	SLU 30	0.21	-3.53	42.67	0.2569	0.0345	-0.0001
316	SLU 31	0.24	-3.84	48.02	0.2833	0.039	-0.0001
316	SLU 32	0.24	-3.98	48.82	0.292	0.0397	-0.0001
316	SLU 33	0.24	-3.97	48.81	0.2917	0.0397	-0.0001
316	SLU 34	0.24	-3.94	48.24	0.2884	0.0392	-0.0001
316	SLU 35	0.25	-4.08	49.04	0.297	0.0399	-0.0001
316	SLU 36	0.25	-4.07	49.04	0.2967	0.0398	-0.0001
316	SLU 37	0.24	-4.05	48.47	0.294	0.0393	-0.0001
316	SLU 38	0.24	-4.04	48.46	0.2937	0.0393	-0.0001
316	SLU 39	0.25	-4.06	50.51	0.2996	0.0411	-0.0001
316	SLU 40	0.25	-4.06	50.5	0.2993	0.0411	-0.0001
316	SLU 41	0.25	-4.16	50.73	0.3047	0.0412	-0.0001
316	SLU 42	0.25	-4.16	50.73	0.3044	0.0412	-0.0001
316	SLU 43	0.23	-3.49	46.08	0.2614	0.0371	-0.0001
316	SLU 44	0.23	-3.48	46.07	0.2609	0.0371	-0.0001
316	SLU 45	0.23	-3.62	46.87	0.2696	0.0378	-0.0001
316	SLU 46	0.23	-3.62	46.87	0.2692	0.0378	-0.0001
316	SLU 47	0.23	-3.58	46.29	0.266	0.0372	-0.0001
316	SLU 48	0.23	-3.73	47.09	0.2746	0.0379	-0.0001
316	SLU 49	0.23	-3.72	47.09	0.2743	0.0379	-0.0001
316	SLU 50	0.23	-3.69	46.52	0.2716	0.0373	-0.0001
316	SLU 51	0.23	-3.69	46.52	0.2713	0.0373	-0.0001
316	SLU 52	0.26	-3.99	51.86	0.2977	0.0419	-0.0001
316	SLU 53	0.26	-4.13	52.66	0.3063	0.0426	-0.0001
316	SLU 54	0.26	-4.13	52.66	0.306	0.0426	-0.0001
316	SLU 55	0.26	-4.09	52.08	0.3027	0.042	-0.0001
316	SLU 56	0.26	-4.23	52.88	0.3114	0.0427	-0.0001
316	SLU 57	0.26	-4.23	52.88	0.3111	0.0427	-0.0001
316	SLU 58	0.26	-4.2	52.31	0.3083	0.0422	-0.0001
316	SLU 59	0.26	-4.2	52.31	0.308	0.0422	-0.0001
316	SLU 60	0.27	-4.22	54.35	0.3139	0.044	-0.0001
316	SLU 61	0.27	-4.21	54.35	0.3136	0.044	-0.0001
316	SLU 62	0.27	-4.32	54.57	0.319	0.0441	-0.0001
316	SLU 63	0.27	-4.31	54.57	0.3187	0.0441	-0.0001
316	SLU 64	0.26	-4.01	51.45	0.2978	0.0416	-0.0001
316	SLU 65	0.25	-4	51.44	0.2973	0.0416	-0.0001
316	SLU 66	0.26	-4.14	52.24	0.3059	0.0423	-0.0001
316	SLU 67	0.26	-4.13	52.24	0.3056	0.0422	-0.0001
316	SLU 68	0.26	-4.1	51.67	0.3024	0.0417	-0.0001
316	SLU 69	0.26	-4.24	52.46	0.311	0.0424	-0.0001
316	SLU 70	0.26	-4.23	52.46	0.3107	0.0424	-0.0001
316	SLU 71	0.26	-4.21	51.89	0.308	0.0418	-0.0001
316	SLU 72	0.26	-4.2	51.89	0.3077	0.0418	-0.0001
316	SLU 73	0.28	-4.51	57.24	0.3341	0.0464	-0.0001
316	SLU 74	0.29	-4.65	58.03	0.3427	0.0471	-0.0001
316	SLU 75	0.29	-4.64	58.03	0.3424	0.0471	-0.0001
316	SLU 76	0.29	-4.61	57.46	0.3391	0.0465	-0.0001
316	SLU 77	0.29	-4.75	58.25	0.3478	0.0472	-0.0001
316	SLU 78	0.29	-4.74	58.25	0.3475	0.0472	-0.0001
316	SLU 79	0.29	-4.72	57.68	0.3447	0.0467	-0.0001
316	SLU 80	0.29	-4.71	57.68	0.3444	0.0467	-0.0001
316	SLU 81	0.3	-4.73	59.72	0.3503	0.0485	-0.0001
316	SLU 82	0.3	-4.73	59.72	0.35	0.0485	-0.0001
316	SLU 83	0.3	-4.83	59.94	0.3554	0.0486	-0.0001
316	SLU 84	0.3	-4.83	59.94	0.3551	0.0486	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
316	SLE RA 1	0.19	-2.97	38.4	0.2211	0.031	-0.0001
316	SLE RA 2	0.19	-2.96	38.39	0.2208	0.031	-0.0001
316	SLE RA 3	0.19	-3.06	38.92	0.2265	0.0314	-0.0001
316	SLE RA 4	0.19	-3.05	38.92	0.2263	0.0314	-0.0001
316	SLE RA 5	0.19	-3.03	38.54	0.2241	0.0311	-0.0001
316	SLE RA 6	0.19	-3.12	39.07	0.2299	0.0315	-0.0001
316	SLE RA 7	0.19	-3.12	39.07	0.2297	0.0315	-0.0001
316	SLE RA 8	0.19	-3.1	38.69	0.2279	0.0312	-0.0001
316	SLE RA 9	0.19	-3.1	38.69	0.2276	0.0312	-0.0001
316	SLE RA 10	0.21	-3.3	42.25	0.2453	0.0342	-0.0001
316	SLE RA 11	0.21	-3.4	42.78	0.251	0.0347	-0.0001
316	SLE RA 12	0.21	-3.39	42.78	0.2508	0.0347	-0.0001
316	SLE RA 13	0.21	-3.37	42.4	0.2486	0.0343	-0.0001
316	SLE RA 14	0.21	-3.46	42.93	0.2544	0.0348	-0.0001
316	SLE RA 15	0.21	-3.46	42.93	0.2542	0.0348	-0.0001
316	SLE RA 16	0.21	-3.44	42.55	0.2524	0.0344	-0.0001
316	SLE RA 17	0.21	-3.44	42.55	0.2521	0.0344	-0.0001
316	SLE RA 18	0.22	-3.45	43.91	0.2561	0.0356	-0.0001
316	SLE RA 19	0.22	-3.45	43.91	0.2559	0.0356	-0.0001
316	SLE RA 20	0.22	-3.52	44.06	0.2595	0.0357	-0.0001
316	SLE RA 21	0.22	-3.52	44.06	0.2593	0.0357	-0.0001
316	SLE FR 1	0.19	-2.97	38.4	0.2211	0.031	-0.0001
316	SLE FR 2	0.19	-2.97	38.39	0.221	0.031	-0.0001
316	SLE FR 3	0.19	-3	38.45	0.2224	0.031	-0.0001
316	SLE FR 4	0.2	-3.11	40.05	0.2315	0.0324	-0.0001
316	SLE FR 5	0.2	-3.14	40.11	0.2329	0.0324	-0.0001
316	SLE FR 6	0.2	-3.21	41.15	0.2386	0.0333	-0.0001
316	SLE QP 1	0.19	-2.97	38.4	0.2211	0.031	-0.0001
316	SLE QP 2	0.2	-3.11	40.05	0.2316	0.0324	-0.0001
316	SLD 1	0.24	3.22	32.51	-0.0737	0.0496	0
316	SLD 2	0.24	3.22	32.51	-0.0737	0.0496	0
316	SLD 3	0.27	-0.27	38.71	0.1463	0.0542	-0.0002
316	SLD 4	0.27	-0.27	38.71	0.1463	0.0542	-0.0002
316	SLD 5	0.17	4.08	28.39	-0.1936	0.0306	0.0001
316	SLD 6	0.17	4.08	28.39	-0.1936	0.0306	0.0001
316	SLD 7	0.26	-7.55	49.05	0.5396	0.0458	-0.0003
316	SLD 8	0.26	-7.55	49.05	0.5396	0.0458	-0.0003
316	SLD 9	0.13	1.32	31.05	-0.0764	0.0189	0.0002
316	SLD 10	0.13	1.32	31.05	-0.0764	0.0189	0.0002
316	SLD 11	0.23	-10.31	51.71	0.6568	0.0341	-0.0002
316	SLD 12	0.23	-10.31	51.71	0.6568	0.0341	-0.0002
316	SLD 13	0.13	-5.96	41.39	0.3169	0.0106	0.0001
316	SLD 14	0.13	-5.96	41.39	0.3169	0.0106	0.0001
316	SLD 15	0.16	-9.45	47.59	0.5369	0.0151	-0.0001
316	SLD 16	0.16	-9.45	47.59	0.5369	0.0151	-0.0001
316	SLV 1	0.29	11.41	22.66	-0.4691	0.0715	0
316	SLV 2	0.29	11.41	22.66	-0.4691	0.0715	0
316	SLV 3	0.36	3.35	36.92	0.0399	0.0826	-0.0003
316	SLV 4	0.36	3.35	36.92	0.0399	0.0826	-0.0003
316	SLV 5	0.12	13.46	13.2	-0.7505	0.0273	0.0004
316	SLV 6	0.12	13.46	13.2	-0.7505	0.0273	0.0004
316	SLV 7	0.35	-13.39	60.74	0.946	0.0643	-0.0006
316	SLV 8	0.35	-13.39	60.74	0.946	0.0643	-0.0006
316	SLV 9	0.05	7.16	19.36	-0.4828	0.0004	0.0005
316	SLV 10	0.05	7.16	19.36	-0.4828	0.0004	0.0005
316	SLV 11	0.28	-19.69	66.9	1.2137	0.0375	-0.0005
316	SLV 12	0.28	-19.69	66.9	1.2137	0.0375	-0.0005
316	SLV 13	0.04	-9.58	43.18	0.4233	-0.0179	0.0002
316	SLV 14	0.04	-9.58	43.18	0.4233	-0.0179	0.0002
316	SLV 15	0.11	-17.63	57.44	0.9323	-0.0068	-0.0001
316	SLV 16	0.11	-17.63	57.44	0.9323	-0.0068	-0.0001
317	SLU 1	0	-6.72	81.14	0.2893	-0.0036	-0.0001
317	SLU 2	0	-6.61	80.44	0.2834	-0.0038	-0.0001
317	SLU 3	0	-7.3	86.78	0.3198	-0.0038	-0.0001
317	SLU 4	0	-7.23	86.36	0.3162	-0.0039	-0.0001
317	SLU 5	0	-7.16	85.41	0.3133	-0.0039	-0.0001
317	SLU 6	0	-7.85	91.75	0.3497	-0.0038	-0.0001
317	SLU 7	0	-7.78	91.33	0.3461	-0.0039	-0.0001
317	SLU 8	0	-7.82	91.08	0.3491	-0.0037	-0.0001
317	SLU 9	0	-7.75	90.66	0.3456	-0.0038	-0.0001
317	SLU 10	0	-7.78	94.23	0.3302	-0.0046	-0.0001
317	SLU 11	0	-8.47	100.57	0.3666	-0.0045	-0.0001
317	SLU 12	0	-8.4	100.15	0.3631	-0.0046	-0.0001
317	SLU 13	0	-8.33	99.2	0.3601	-0.0046	-0.0001
317	SLU 14	0	-9.02	105.53	0.3965	-0.0045	-0.0001
317	SLU 15	0	-8.95	105.11	0.393	-0.0047	-0.0001
317	SLU 16	0	-8.99	104.87	0.396	-0.0044	-0.0001
317	SLU 17	0	-8.92	104.45	0.3924	-0.0046	-0.0001
317	SLU 18	0	-8.39	100.84	0.3562	-0.0047	-0.0001
317	SLU 19	0	-8.32	100.42	0.3527	-0.0048	-0.0001
317	SLU 20	0	-8.94	105.81	0.3862	-0.0047	-0.0001
317	SLU 21	0	-8.87	105.39	0.3826	-0.0049	-0.0001
317	SLU 22	0	-8	95.64	0.3452	-0.0043	-0.0001
317	SLU 23	0	-7.89	94.94	0.3392	-0.0045	-0.0001
317	SLU 24	0	-8.59	101.28	0.3756	-0.0044	-0.0001
317	SLU 25	0	-8.52	100.86	0.372	-0.0046	-0.0001
317	SLU 26	0	-8.44	99.91	0.3691	-0.0045	-0.0001
317	SLU 27	0	-9.14	106.25	0.4055	-0.0045	-0.0001
317	SLU 28	0	-9.07	105.83	0.402	-0.0046	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
317	SLU 29	0	-9.1	105.58	0.405	-0.0044	-0.0001
317	SLU 30	0	-9.04	105.16	0.4014	-0.0045	-0.0001
317	SLU 31	0	-9.06	108.73	0.3861	-0.0053	-0.0001
317	SLU 32	0	-9.76	115.07	0.4225	-0.0052	-0.0001
317	SLU 33	0	-9.69	114.65	0.4189	-0.0053	-0.0001
317	SLU 34	0	-9.61	113.7	0.416	-0.0053	-0.0001
317	SLU 35	0	-10.31	120.03	0.4524	-0.0052	-0.0001
317	SLU 36	0	-10.24	119.61	0.4488	-0.0053	-0.0001
317	SLU 37	0	-10.27	119.37	0.4518	-0.0051	-0.0001
317	SLU 38	0	-10.21	118.95	0.4483	-0.0052	-0.0001
317	SLU 39	0	-9.67	115.34	0.4121	-0.0054	-0.0001
317	SLU 40	0	-9.61	114.92	0.4085	-0.0055	-0.0001
317	SLU 41	0	-10.22	120.31	0.442	-0.0054	-0.0001
317	SLU 42	0	-10.16	119.89	0.4384	-0.0055	-0.0001
317	SLU 43	0	-8.29	100.52	0.357	-0.0045	-0.0001
317	SLU 44	0	-8.18	99.81	0.351	-0.0047	-0.0001
317	SLU 45	0	-8.88	106.15	0.3874	-0.0046	-0.0001
317	SLU 46	0	-8.81	105.73	0.3839	-0.0047	-0.0001
317	SLU 47	0	-8.73	104.78	0.3809	-0.0047	-0.0001
317	SLU 48	0	-9.43	111.12	0.4173	-0.0046	-0.0001
317	SLU 49	0	-9.36	110.7	0.4138	-0.0048	-0.0001
317	SLU 50	0	-9.39	110.45	0.4168	-0.0045	-0.0001
317	SLU 51	0	-9.33	110.03	0.4132	-0.0046	-0.0001
317	SLU 52	0	-9.35	113.6	0.3979	-0.0054	-0.0001
317	SLU 53	0	-10.04	119.94	0.4343	-0.0054	-0.0001
317	SLU 54	0	-9.98	119.52	0.4307	-0.0055	-0.0001
317	SLU 55	0	-9.9	118.57	0.4278	-0.0055	-0.0001
317	SLU 56	0	-10.59	124.91	0.4642	-0.0054	-0.0001
317	SLU 57	0	-10.53	124.49	0.4606	-0.0055	-0.0001
317	SLU 58	0	-10.56	124.24	0.4636	-0.0053	-0.0001
317	SLU 59	0	-10.49	123.82	0.4601	-0.0054	-0.0001
317	SLU 60	0	-9.96	120.21	0.4239	-0.0056	-0.0001
317	SLU 61	0	-9.9	119.79	0.4203	-0.0057	-0.0001
317	SLU 62	0	-10.51	125.18	0.4538	-0.0056	-0.0001
317	SLU 63	0	-10.45	124.76	0.4502	-0.0057	-0.0001
317	SLU 64	0	-9.58	115.02	0.4128	-0.0052	-0.0001
317	SLU 65	0	-9.47	114.31	0.4069	-0.0054	-0.0001
317	SLU 66	0	-10.16	120.65	0.4433	-0.0053	-0.0001
317	SLU 67	0	-10.1	120.23	0.4397	-0.0054	-0.0001
317	SLU 68	0	-10.02	119.28	0.4368	-0.0054	-0.0001
317	SLU 69	0	-10.71	125.62	0.4732	-0.0053	-0.0001
317	SLU 70	0	-10.64	125.2	0.4696	-0.0054	-0.0001
317	SLU 71	0	-10.68	124.95	0.4726	-0.0052	-0.0001
317	SLU 72	0	-10.61	124.53	0.4691	-0.0053	-0.0001
317	SLU 73	0	-10.64	128.1	0.4537	-0.0061	-0.0001
317	SLU 74	0	-11.33	134.44	0.4901	-0.0061	-0.0001
317	SLU 75	0	-11.26	134.02	0.4865	-0.0062	-0.0001
317	SLU 76	0	-11.19	133.07	0.4836	-0.0061	-0.0001
317	SLU 77	0	-11.88	139.41	0.52	-0.0061	-0.0001
317	SLU 78	0	-11.81	138.99	0.5165	-0.0062	-0.0001
317	SLU 79	0	-11.85	138.74	0.5195	-0.006	-0.0001
317	SLU 80	0	-11.78	138.32	0.5159	-0.0061	-0.0001
317	SLU 81	0	-11.25	134.71	0.4797	-0.0062	-0.0001
317	SLU 82	0	-11.18	134.29	0.4762	-0.0064	-0.0001
317	SLU 83	0	-11.8	139.68	0.5096	-0.0063	-0.0001
317	SLU 84	0	-11.73	139.26	0.5061	-0.0064	-0.0001
317	SLE RA 1	0	-7.08	85.29	0.3053	-0.0038	-0.0001
317	SLE RA 2	0	-7.01	84.82	0.3013	-0.004	-0.0001
317	SLE RA 3	0	-7.47	89.04	0.3256	-0.0039	-0.0001
317	SLE RA 4	0	-7.43	88.76	0.3232	-0.004	-0.0001
317	SLE RA 5	0	-7.38	88.13	0.3213	-0.004	-0.0001
317	SLE RA 6	0	-7.84	92.35	0.3455	-0.0039	-0.0001
317	SLE RA 7	0	-7.8	92.07	0.3431	-0.004	-0.0001
317	SLE RA 8	0	-7.82	91.91	0.3452	-0.0038	-0.0001
317	SLE RA 9	0	-7.77	91.63	0.3428	-0.0039	-0.0001
317	SLE RA 10	0	-7.79	94.01	0.3325	-0.0045	-0.0001
317	SLE RA 11	0	-8.25	98.23	0.3568	-0.0044	-0.0001
317	SLE RA 12	0	-8.21	97.95	0.3544	-0.0045	-0.0001
317	SLE RA 13	0	-8.16	97.32	0.3525	-0.0045	-0.0001
317	SLE RA 14	0	-8.62	101.55	0.3767	-0.0044	-0.0001
317	SLE RA 15	0	-8.58	101.27	0.3744	-0.0045	-0.0001
317	SLE RA 16	0	-8.6	101.1	0.3764	-0.0044	-0.0001
317	SLE RA 17	0	-8.55	100.82	0.374	-0.0044	-0.0001
317	SLE RA 18	0	-8.2	98.42	0.3499	-0.0045	-0.0001
317	SLE RA 19	0	-8.15	98.14	0.3475	-0.0046	-0.0001
317	SLE RA 20	0	-8.56	101.73	0.3698	-0.0046	-0.0001
317	SLE RA 21	0	-8.52	101.45	0.3675	-0.0046	-0.0001
317	SLE FR 1	0	-7.08	85.29	0.3053	-0.0038	-0.0001
317	SLE FR 2	0	-7.07	85.19	0.3045	-0.0038	-0.0001
317	SLE FR 3	0	-7.23	86.61	0.3132	-0.0038	-0.0001
317	SLE FR 4	0	-7.4	89.13	0.3179	-0.0041	-0.0001
317	SLE FR 5	0	-7.57	90.55	0.3266	-0.004	-0.0001
317	SLE FR 6	0	-7.64	91.85	0.3276	-0.0042	-0.0001
317	SLE QP 1	0	-7.08	85.29	0.3053	-0.0038	-0.0001
317	SLE QP 2	0	-7.42	89.23	0.3187	-0.004	-0.0001
317	SLD 1	-0.14	-7	86.46	0.3047	-0.0764	-0.0013
317	SLD 2	-0.14	-7	86.46	0.3047	-0.0764	-0.0013
317	SLD 3	-0.12	-10.81	102.19	0.5473	-0.0669	-0.0011
317	SLD 4	-0.12	-10.81	102.19	0.5473	-0.0669	-0.0011



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
317	SLD 5	-0.08	-1.51	64.53	-0.0535	-0.0402	-0.0008
317	SLD 6	-0.08	-1.51	64.53	-0.0535	-0.0402	-0.0008
317	SLD 7	0	-14.22	116.98	0.7552	-0.0084	-0.0001
317	SLD 8	0	-14.22	116.98	0.7552	-0.0084	-0.0001
317	SLD 9	0	-0.62	61.47	-0.1179	0.0004	-0.0001
317	SLD 10	0	-0.62	61.47	-0.1179	0.0004	-0.0001
317	SLD 11	0.07	-13.33	113.92	0.6908	0.0321	0.0006
317	SLD 12	0.07	-13.33	113.92	0.6908	0.0321	0.0006
317	SLD 13	0.11	-4.02	76.26	0.09	0.0588	0.0009
317	SLD 14	0.11	-4.02	76.26	0.09	0.0588	0.0009
317	SLD 15	0.13	-7.84	91.99	0.3326	0.0683	0.0011
317	SLD 16	0.13	-7.84	91.99	0.3326	0.0683	0.0011
317	SLV 1	-0.34	-6.5	82.86	0.2891	-0.1773	-0.0031
317	SLV 2	-0.34	-6.5	82.86	0.2891	-0.1773	-0.0031
317	SLV 3	-0.28	-15.25	119.11	0.8457	-0.1532	-0.0026
317	SLV 4	-0.28	-15.25	119.11	0.8457	-0.1532	-0.0026
317	SLV 5	-0.19	6.13	32.34	-0.5343	-0.0926	-0.0018
317	SLV 6	-0.19	6.13	32.34	-0.5343	-0.0926	-0.0018
317	SLV 7	0	-23.04	153.16	1.3209	-0.0122	0
317	SLV 8	0	-23.04	153.16	1.3209	-0.0122	0
317	SLV 9	0	8.2	25.29	-0.6836	0.0042	-0.0002
317	SLV 10	0	8.2	25.29	-0.6836	0.0042	-0.0002
317	SLV 11	0.18	-20.96	146.11	1.1716	0.0845	0.0017
317	SLV 12	0.18	-20.96	146.11	1.1716	0.0845	0.0017
317	SLV 13	0.28	0.41	59.35	-0.2084	0.1452	0.0024
317	SLV 14	0.28	0.41	59.35	-0.2084	0.1452	0.0024
317	SLV 15	0.33	-8.34	95.59	0.3482	0.1692	0.0029
317	SLV 16	0.33	-8.34	95.59	0.3482	0.1692	0.0029
318	SLU 1	8.35	-6.28	53.41	0.0515	0.2627	0.0002
318	SLU 2	8.36	-6.27	53.39	0.0512	0.2629	0.0002
318	SLU 3	8.47	-6.45	54.53	0.0539	0.2662	0.0001
318	SLU 4	8.47	-6.44	54.52	0.0537	0.2663	0.0001
318	SLU 5	8.33	-6.35	53.65	0.0531	0.2614	0.0001
318	SLU 6	8.44	-6.52	54.78	0.0557	0.2647	0.0001
318	SLU 7	8.45	-6.51	54.78	0.0556	0.2648	0.0001
318	SLU 8	8.29	-6.42	53.92	0.0552	0.2598	0.0001
318	SLU 9	8.3	-6.42	53.91	0.055	0.2599	0.0001
318	SLU 10	9.65	-7.29	61.74	0.0603	0.3045	0.0002
318	SLU 11	9.76	-7.47	62.88	0.0629	0.3078	0.0001
318	SLU 12	9.77	-7.46	62.87	0.0628	0.3079	0.0002
318	SLU 13	9.62	-7.36	62	0.0621	0.303	0.0001
318	SLU 14	9.74	-7.54	63.13	0.0648	0.3063	0.0001
318	SLU 15	9.74	-7.53	63.13	0.0646	0.3064	0.0001
318	SLU 16	9.59	-7.44	62.27	0.0643	0.3014	0.0001
318	SLU 17	9.59	-7.44	62.26	0.0641	0.3015	0.0001
318	SLU 18	10.2	-7.74	65.33	0.0644	0.3221	0.0002
318	SLU 19	10.2	-7.73	65.32	0.0643	0.3222	0.0002
318	SLU 20	10.17	-7.81	65.59	0.0663	0.3207	0.0001
318	SLU 21	10.17	-7.8	65.58	0.0661	0.3208	0.0001
318	SLU 22	9.51	-7.25	61.15	0.0607	0.2997	0.0002
318	SLU 23	9.52	-7.24	61.14	0.0604	0.2999	0.0002
318	SLU 24	9.63	-7.41	62.27	0.0631	0.3032	0.0001
318	SLU 25	9.63	-7.41	62.26	0.0629	0.3034	0.0001
318	SLU 26	9.49	-7.31	61.39	0.0623	0.2985	0.0001
318	SLU 27	9.6	-7.48	62.53	0.0649	0.3018	0.0001
318	SLU 28	9.61	-7.48	62.52	0.0648	0.3019	0.0001
318	SLU 29	9.45	-7.39	61.66	0.0644	0.2968	0
318	SLU 30	9.46	-7.39	61.65	0.0643	0.297	0.0001
318	SLU 31	10.81	-8.26	69.48	0.0695	0.3416	0.0002
318	SLU 32	10.93	-8.43	70.62	0.0722	0.3448	0.0001
318	SLU 33	10.93	-8.43	70.61	0.072	0.345	0.0001
318	SLU 34	10.78	-8.33	69.74	0.0714	0.3401	0.0001
318	SLU 35	10.9	-8.5	70.88	0.074	0.3434	0.0001
318	SLU 36	10.9	-8.5	70.87	0.0739	0.3435	0.0001
318	SLU 37	10.75	-8.41	70.01	0.0735	0.3385	0.0001
318	SLU 38	10.75	-8.4	70	0.0733	0.3386	0.0001
318	SLU 39	11.36	-8.7	73.08	0.0737	0.3592	0.0002
318	SLU 40	11.36	-8.7	73.07	0.0735	0.3593	0.0002
318	SLU 41	11.33	-8.77	73.33	0.0755	0.3577	0.0001
318	SLU 42	11.33	-8.77	73.32	0.0754	0.3579	0.0001
318	SLU 43	10.46	-7.83	66.77	0.0638	0.3287	0.0002
318	SLU 44	10.46	-7.83	66.76	0.0635	0.329	0.0003
318	SLU 45	10.58	-8	67.9	0.0661	0.3322	0.0002
318	SLU 46	10.58	-8	67.89	0.066	0.3324	0.0002
318	SLU 47	10.43	-7.9	67.01	0.0653	0.3275	0.0002
318	SLU 48	10.55	-8.07	68.15	0.068	0.3308	0.0001
318	SLU 49	10.55	-8.07	68.14	0.0678	0.3309	0.0001
318	SLU 50	10.4	-7.98	67.28	0.0675	0.3259	0.0001
318	SLU 51	10.4	-7.97	67.27	0.0673	0.326	0.0001
318	SLU 52	11.76	-8.85	75.11	0.0726	0.3706	0.0003
318	SLU 53	11.87	-9.02	76.25	0.0752	0.3739	0.0002
318	SLU 54	11.87	-9.02	76.24	0.0751	0.374	0.0002
318	SLU 55	11.73	-8.92	75.36	0.0744	0.3691	0.0002
318	SLU 56	11.84	-9.09	76.5	0.0771	0.3724	0.0002
318	SLU 57	11.85	-9.09	76.49	0.0769	0.3725	0.0002
318	SLU 58	11.7	-9	75.63	0.0766	0.3675	0.0001
318	SLU 59	11.7	-8.99	75.62	0.0764	0.3676	0.0001
318	SLU 60	12.31	-9.29	78.7	0.0767	0.3882	0.0003
318	SLU 61	12.31	-9.29	78.69	0.0766	0.3883	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
318	SLU 62	12.28	-9.36	78.96	0.0786	0.3867	0.0002
318	SLU 63	12.28	-9.36	78.95	0.0784	0.3869	0.0002
318	SLU 64	11.62	-8.8	74.52	0.073	0.3658	0.0002
318	SLU 65	11.62	-8.79	74.5	0.0727	0.366	0.0002
318	SLU 66	11.74	-8.97	75.64	0.0754	0.3693	0.0002
318	SLU 67	11.74	-8.96	75.63	0.0752	0.3694	0.0002
318	SLU 68	11.59	-8.86	74.76	0.0746	0.3646	0.0002
318	SLU 69	11.71	-9.04	75.89	0.0772	0.3679	0.0001
318	SLU 70	11.71	-9.03	75.89	0.0771	0.368	0.0001
318	SLU 71	11.56	-8.94	75.03	0.0767	0.3629	0.0001
318	SLU 72	11.56	-8.94	75.02	0.0765	0.3631	0.0001
318	SLU 73	12.92	-9.81	82.85	0.0818	0.4076	0.0002
318	SLU 74	13.03	-9.98	83.99	0.0844	0.4109	0.0002
318	SLU 75	13.04	-9.98	83.98	0.0843	0.4111	0.0002
318	SLU 76	12.89	-9.88	83.11	0.0836	0.4062	0.0002
318	SLU 77	13	-10.06	84.24	0.0863	0.4095	0.0001
318	SLU 78	13.01	-10.05	84.24	0.0861	0.4096	0.0001
318	SLU 79	12.86	-9.96	83.38	0.0858	0.4045	0.0001
318	SLU 80	12.86	-9.96	83.37	0.0856	0.4047	0.0001
318	SLU 81	13.47	-10.26	86.44	0.0859	0.4253	0.0002
318	SLU 82	13.47	-10.25	86.44	0.0858	0.4254	0.0002
318	SLU 83	13.44	-10.33	86.7	0.0878	0.4238	0.0002
318	SLU 84	13.44	-10.32	86.69	0.0876	0.4239	0.0002
318	SLE RA 1	8.68	-6.56	55.62	0.0541	0.2733	0.0002
318	SLE RA 2	8.69	-6.55	55.61	0.0539	0.2734	0.0002
318	SLE RA 3	8.76	-6.67	56.37	0.0557	0.2756	0.0001
318	SLE RA 4	8.76	-6.66	56.36	0.0556	0.2757	0.0001
318	SLE RA 5	8.67	-6.6	55.78	0.0552	0.2724	0.0001
318	SLE RA 6	8.74	-6.72	56.54	0.0569	0.2746	0.0001
318	SLE RA 7	8.75	-6.71	56.53	0.0568	0.2747	0.0001
318	SLE RA 8	8.64	-6.65	55.96	0.0566	0.2713	0.0001
318	SLE RA 9	8.65	-6.65	55.95	0.0565	0.2714	0.0001
318	SLE RA 10	9.55	-7.23	61.17	0.06	0.3011	0.0002
318	SLE RA 11	9.62	-7.35	61.93	0.0617	0.3033	0.0002
318	SLE RA 12	9.63	-7.34	61.93	0.0616	0.3034	0.0002
318	SLE RA 13	9.53	-7.28	61.34	0.0612	0.3002	0.0001
318	SLE RA 14	9.61	-7.39	62.1	0.063	0.3024	0.0001
318	SLE RA 15	9.61	-7.39	62.1	0.0629	0.3024	0.0001
318	SLE RA 16	9.51	-7.33	61.52	0.0626	0.2991	0.0001
318	SLE RA 17	9.51	-7.33	61.52	0.0625	0.2991	0.0001
318	SLE RA 18	9.91	-7.53	63.57	0.0627	0.3129	0.0002
318	SLE RA 19	9.92	-7.52	63.56	0.0626	0.313	0.0002
318	SLE RA 20	9.9	-7.57	63.74	0.064	0.3119	0.0001
318	SLE RA 21	9.9	-7.57	63.73	0.0639	0.312	0.0001
318	SLE FR 1	8.68	-6.56	55.62	0.0541	0.2733	0.0002
318	SLE FR 2	8.68	-6.56	55.62	0.0541	0.2733	0.0002
318	SLE FR 3	8.67	-6.58	55.69	0.0546	0.2729	0.0002
318	SLE FR 4	9.05	-6.85	58	0.0567	0.2852	0.0002
318	SLE FR 5	9.04	-6.87	58.07	0.0572	0.2848	0.0002
318	SLE FR 6	9.3	-7.04	59.59	0.0584	0.2931	0.0002
318	SLE QP 1	8.68	-6.56	55.62	0.0541	0.2733	0.0002
318	SLE QP 2	9.05	-6.85	58	0.0567	0.2851	0.0002
318	SLD 1	14.15	-3.49	60.8	-0.1049	0.4928	0.0045
318	SLD 2	14.15	-3.49	60.8	-0.1049	0.4928	0.0045
318	SLD 3	14.9	-6.85	76.34	0.0128	0.5151	0.0024
318	SLD 4	14.9	-6.85	76.34	0.0128	0.5151	0.0024
318	SLD 5	9.45	-0.74	35.27	-0.1704	0.3136	0.0047
318	SLD 6	9.45	-0.74	35.27	-0.1704	0.3136	0.0047
318	SLD 7	11.94	-11.95	87.08	0.2221	0.3879	-0.0024
318	SLD 8	11.94	-11.95	87.08	0.2221	0.3879	-0.0024
318	SLD 9	6.16	-1.75	28.93	-0.1087	0.1823	0.0028
318	SLD 10	6.16	-1.75	28.93	-0.1087	0.1823	0.0028
318	SLD 11	8.66	-12.96	80.74	0.2838	0.2567	-0.0044
318	SLD 12	8.66	-12.96	80.74	0.2838	0.2567	-0.0044
318	SLD 13	3.2	-6.85	39.67	0.1006	0.0552	-0.002
318	SLD 14	3.2	-6.85	39.67	0.1006	0.0552	-0.002
318	SLD 15	3.95	-10.21	55.21	0.2183	0.0775	-0.0042
318	SLD 16	3.95	-10.21	55.21	0.2183	0.0775	-0.0042
318	SLV 1	20.73	0.88	64.4	-0.3141	0.7595	0.0102
318	SLV 2	20.73	0.88	64.4	-0.3141	0.7595	0.0102
318	SLV 3	22.46	-6.88	100.27	-0.0418	0.8129	0.0052
318	SLV 4	22.46	-6.88	100.27	-0.0418	0.8129	0.0052
318	SLV 5	9.92	7.24	5.53	-0.4674	0.3464	0.0107
318	SLV 6	9.92	7.24	5.53	-0.4674	0.3464	0.0107
318	SLV 7	15.71	-18.63	125.08	0.44	0.5245	-0.0059
318	SLV 8	15.71	-18.63	125.08	0.44	0.5245	-0.0059
318	SLV 9	2.39	4.93	-9.07	-0.3266	0.0458	0.0062
318	SLV 10	2.39	4.93	-9.07	-0.3266	0.0458	0.0062
318	SLV 11	8.18	-20.94	110.48	0.5808	0.2238	-0.0104
318	SLV 12	8.18	-20.94	110.48	0.5808	0.2238	-0.0104
318	SLV 13	-4.36	-6.81	15.74	0.1552	-0.2426	-0.0049
318	SLV 14	-4.36	-6.81	15.74	0.1552	-0.2426	-0.0049
318	SLV 15	-2.62	-14.57	51.6	0.4275	-0.1892	-0.0099
318	SLV 16	-2.62	-14.57	51.6	0.4275	-0.1892	-0.0099
319	SLU 1	3.35	-0.05	51.04	-0.0419	0.1276	0.0003
319	SLU 2	3.36	-0.05	51.03	-0.0419	0.128	0.0003
319	SLU 3	3.29	-0.05	52.13	-0.0432	0.124	0.0003
319	SLU 4	3.3	-0.05	52.12	-0.0432	0.1243	0.0003
319	SLU 5	3.23	-0.05	51.32	-0.0425	0.1212	0.0003





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
319	SLU 6	3.16	-0.05	52.42	-0.0438	0.1172	0.0003
319	SLU 7	3.17	-0.05	52.41	-0.0438	0.1174	0.0003
319	SLU 8	3.08	-0.05	51.62	-0.0431	0.1139	0.0003
319	SLU 9	3.09	-0.05	51.62	-0.0431	0.1142	0.0003
319	SLU 10	3.85	-0.05	58.7	-0.0491	0.1476	0.0003
319	SLU 11	3.79	-0.05	59.8	-0.0505	0.1436	0.0003
319	SLU 12	3.79	-0.05	59.8	-0.0505	0.1439	0.0003
319	SLU 13	3.72	-0.05	59	-0.0497	0.1408	0.0003
319	SLU 14	3.65	-0.05	60.09	-0.0511	0.1368	0.0003
319	SLU 15	3.66	-0.05	60.09	-0.0511	0.137	0.0003
319	SLU 16	3.57	-0.05	59.3	-0.0503	0.1335	0.0003
319	SLU 17	3.58	-0.05	59.29	-0.0503	0.1338	0.0003
319	SLU 18	4.05	-0.06	62	-0.0522	0.1556	0.0003
319	SLU 19	4.06	-0.06	62	-0.0522	0.1558	0.0003
319	SLU 20	3.92	-0.06	62.29	-0.0528	0.1488	0.0003
319	SLU 21	3.92	-0.06	62.29	-0.0528	0.149	0.0003
319	SLU 22	3.71	-0.05	58.2	-0.0488	0.1411	0.0003
319	SLU 23	3.72	-0.05	58.19	-0.0488	0.1415	0.0003
319	SLU 24	3.66	-0.05	59.29	-0.0501	0.1375	0.0003
319	SLU 25	3.66	-0.05	59.28	-0.0501	0.1377	0.0003
319	SLU 26	3.59	-0.05	58.48	-0.0494	0.1346	0.0003
319	SLU 27	3.52	-0.05	59.58	-0.0507	0.1307	0.0003
319	SLU 28	3.53	-0.05	59.57	-0.0507	0.1309	0.0003
319	SLU 29	3.45	-0.05	58.78	-0.05	0.1274	0.0003
319	SLU 30	3.45	-0.05	58.78	-0.05	0.1276	0.0003
319	SLU 31	4.21	-0.06	65.86	-0.056	0.1611	0.0004
319	SLU 32	4.15	-0.06	66.96	-0.0574	0.1571	0.0004
319	SLU 33	4.15	-0.06	66.95	-0.0574	0.1573	0.0004
319	SLU 34	4.08	-0.06	66.15	-0.0566	0.1542	0.0003
319	SLU 35	4.01	-0.06	67.25	-0.058	0.1503	0.0004
319	SLU 36	4.02	-0.06	67.25	-0.058	0.1505	0.0004
319	SLU 37	3.94	-0.06	66.46	-0.0572	0.147	0.0003
319	SLU 38	3.94	-0.06	66.45	-0.0572	0.1472	0.0003
319	SLU 39	4.41	-0.06	69.16	-0.0591	0.1691	0.0004
319	SLU 40	4.42	-0.06	69.15	-0.0591	0.1693	0.0004
319	SLU 41	4.28	-0.06	69.45	-0.0597	0.1622	0.0004
319	SLU 42	4.29	-0.06	69.45	-0.0597	0.1625	0.0004
319	SLU 43	4.23	-0.06	63.9	-0.0521	0.1613	0.0003
319	SLU 44	4.24	-0.06	63.89	-0.0521	0.1617	0.0003
319	SLU 45	4.17	-0.06	64.98	-0.0534	0.1577	0.0003
319	SLU 46	4.18	-0.06	64.98	-0.0534	0.1579	0.0003
319	SLU 47	4.11	-0.06	64.18	-0.0527	0.1548	0.0003
319	SLU 48	4.04	-0.06	65.28	-0.054	0.1509	0.0003
319	SLU 49	4.05	-0.06	65.27	-0.054	0.1511	0.0003
319	SLU 50	3.96	-0.06	64.48	-0.0533	0.1476	0.0003
319	SLU 51	3.97	-0.06	64.47	-0.0533	0.1478	0.0003
319	SLU 52	4.73	-0.06	71.56	-0.0593	0.1813	0.0004
319	SLU 53	4.67	-0.06	72.66	-0.0607	0.1773	0.0004
319	SLU 54	4.67	-0.06	72.65	-0.0607	0.1775	0.0004
319	SLU 55	4.6	-0.06	71.85	-0.0599	0.1744	0.0004
319	SLU 56	4.53	-0.07	72.95	-0.0613	0.1705	0.0004
319	SLU 57	4.54	-0.07	72.95	-0.0613	0.1707	0.0004
319	SLU 58	4.45	-0.06	72.15	-0.0605	0.1672	0.0004
319	SLU 59	4.46	-0.06	72.15	-0.0605	0.1674	0.0004
319	SLU 60	4.93	-0.07	74.86	-0.0624	0.1893	0.0004
319	SLU 61	4.94	-0.07	74.85	-0.0624	0.1895	0.0004
319	SLU 62	4.8	-0.07	75.15	-0.063	0.1824	0.0004
319	SLU 63	4.8	-0.07	75.14	-0.063	0.1827	0.0004
319	SLU 64	4.59	-0.06	71.05	-0.059	0.1748	0.0004
319	SLU 65	4.6	-0.06	71.04	-0.059	0.1751	0.0004
319	SLU 66	4.54	-0.06	72.14	-0.0603	0.1712	0.0004
319	SLU 67	4.54	-0.06	72.14	-0.0603	0.1714	0.0004
319	SLU 68	4.47	-0.06	71.34	-0.0596	0.1683	0.0004
319	SLU 69	4.4	-0.06	72.44	-0.0609	0.1643	0.0004
319	SLU 70	4.41	-0.06	72.43	-0.0609	0.1646	0.0004
319	SLU 71	4.33	-0.06	71.64	-0.0602	0.1611	0.0004
319	SLU 72	4.33	-0.06	71.63	-0.0602	0.1613	0.0004
319	SLU 73	5.09	-0.07	78.72	-0.0662	0.1947	0.0004
319	SLU 74	5.03	-0.07	79.82	-0.0676	0.1908	0.0004
319	SLU 75	5.03	-0.07	79.81	-0.0676	0.191	0.0004
319	SLU 76	4.96	-0.07	79.01	-0.0668	0.1879	0.0004
319	SLU 77	4.9	-0.07	80.11	-0.0682	0.1839	0.0004
319	SLU 78	4.9	-0.07	80.1	-0.0682	0.1842	0.0004
319	SLU 79	4.82	-0.07	79.31	-0.0674	0.1807	0.0004
319	SLU 80	4.82	-0.07	79.31	-0.0674	0.1809	0.0004
319	SLU 81	5.3	-0.07	82.02	-0.0693	0.2028	0.0004
319	SLU 82	5.3	-0.07	82.01	-0.0693	0.203	0.0004
319	SLU 83	5.16	-0.07	82.31	-0.0699	0.1959	0.0004
319	SLU 84	5.17	-0.07	82.3	-0.0699	0.1961	0.0004
319	SLE RA 1	3.45	-0.05	53.08	-0.0439	0.1315	0.0003
319	SLE RA 2	3.46	-0.05	53.08	-0.0439	0.1317	0.0003
319	SLE RA 3	3.42	-0.05	53.81	-0.0448	0.1291	0.0003
319	SLE RA 4	3.42	-0.05	53.81	-0.0448	0.1292	0.0003
319	SLE RA 5	3.37	-0.05	53.27	-0.0443	0.1272	0.0003
319	SLE RA 6	3.33	-0.05	54	-0.0452	0.1245	0.0003
319	SLE RA 7	3.33	-0.05	54	-0.0452	0.1247	0.0003
319	SLE RA 8	3.28	-0.05	53.47	-0.0447	0.1224	0.0003
319	SLE RA 9	3.28	-0.05	53.47	-0.0447	0.1225	0.0003
319	SLE RA 10	3.79	-0.05	58.19	-0.0487	0.1448	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
319	SLE RA 11	3.74	-0.05	58.93	-0.0496	0.1421	0.0003
319	SLE RA 12	3.75	-0.05	58.92	-0.0496	0.1423	0.0003
319	SLE RA 13	3.7	-0.05	58.39	-0.0491	0.1402	0.0003
319	SLE RA 14	3.65	-0.05	59.12	-0.05	0.1376	0.0003
319	SLE RA 15	3.66	-0.05	59.12	-0.05	0.1377	0.0003
319	SLE RA 16	3.6	-0.05	58.59	-0.0495	0.1354	0.0003
319	SLE RA 17	3.61	-0.05	58.59	-0.0495	0.1356	0.0003
319	SLE RA 18	3.92	-0.05	60.39	-0.0507	0.1501	0.0003
319	SLE RA 19	3.93	-0.05	60.39	-0.0507	0.1503	0.0003
319	SLE RA 20	3.83	-0.05	60.59	-0.0511	0.1456	0.0003
319	SLE RA 21	3.84	-0.05	60.58	-0.0511	0.1457	0.0003
319	SLE FR 1	3.45	-0.05	53.08	-0.0439	0.1315	0.0003
319	SLE FR 2	3.46	-0.05	53.08	-0.0439	0.1315	0.0003
319	SLE FR 3	3.42	-0.05	53.16	-0.044	0.1297	0.0003
319	SLE FR 4	3.6	-0.05	55.27	-0.0459	0.1371	0.0003
319	SLE FR 5	3.56	-0.05	55.35	-0.0461	0.1353	0.0003
319	SLE FR 6	3.69	-0.05	56.74	-0.0473	0.1408	0.0003
319	SLE QP 1	3.45	-0.05	53.08	-0.0439	0.1315	0.0003
319	SLE QP 2	3.59	-0.05	55.28	-0.0459	0.1371	0.0003
319	SLD 1	13.48	0	57.34	-0.071	0.5662	0.0003
319	SLD 2	13.48	0	57.34	-0.071	0.5662	0.0003
319	SLD 3	11.43	-0.04	69.67	-0.0452	0.5106	0.0004
319	SLD 4	11.43	-0.04	69.67	-0.0452	0.5106	0.0004
319	SLD 5	9.67	0.03	37.2	-0.0925	0.3501	0.0001
319	SLD 6	9.67	0.03	37.2	-0.0925	0.3501	0.0001
319	SLD 7	2.84	-0.11	78.29	-0.0066	0.1648	0.0005
319	SLD 8	2.84	-0.11	78.29	-0.0066	0.1648	0.0005
319	SLD 9	4.35	0.01	32.27	-0.0852	0.1093	0
319	SLD 10	4.35	0.01	32.27	-0.0852	0.1093	0
319	SLD 11	-2.48	-0.13	73.35	0.0007	-0.076	0.0005
319	SLD 12	-2.48	-0.13	73.35	0.0007	-0.076	0.0005
319	SLD 13	-4.25	-0.06	40.88	-0.0466	-0.2365	0.0002
319	SLD 14	-4.25	-0.06	40.88	-0.0466	-0.2365	0.0002
319	SLD 15	-6.3	-0.1	53.21	-0.0209	-0.2921	0.0003
319	SLD 16	-6.3	-0.1	53.21	-0.0209	-0.2921	0.0003
319	SLV 1	26.28	0.07	60.01	-0.104	1.1215	0.0002
319	SLV 2	26.28	0.07	60.01	-0.104	1.1215	0.0002
319	SLV 3	21.5	-0.03	88.47	-0.0437	0.9911	0.0006
319	SLV 4	21.5	-0.03	88.47	-0.0437	0.9911	0.0006
319	SLV 5	17.66	0.14	13.54	-0.1549	0.6302	-0.0002
319	SLV 6	17.66	0.14	13.54	-0.1549	0.6302	-0.0002
319	SLV 7	1.71	-0.2	108.39	0.0463	0.1955	0.0009
319	SLV 8	1.71	-0.2	108.39	0.0463	0.1955	0.0009
319	SLV 9	5.48	0.1	2.16	-0.1382	0.0787	-0.0003
319	SLV 10	5.48	0.1	2.16	-0.1382	0.0787	-0.0003
319	SLV 11	-10.47	-0.24	97.01	0.0631	-0.356	0.0008
319	SLV 12	-10.47	-0.24	97.01	0.0631	-0.356	0.0008
319	SLV 13	-14.31	-0.07	22.09	-0.0482	-0.7169	0
319	SLV 14	-14.31	-0.07	22.09	-0.0482	-0.7169	0
319	SLV 15	-19.1	-0.17	50.54	0.0122	-0.8473	0.0003
319	SLV 16	-19.1	-0.17	50.54	0.0122	-0.8473	0.0003
320	SLU 1	3.11	0.14	42.23	-0.1239	0.2485	0
320	SLU 2	3.11	0.14	42.22	-0.1238	0.2488	0
320	SLU 3	3.06	0.14	43.15	-0.1277	0.2496	0
320	SLU 4	3.06	0.14	43.14	-0.1277	0.2498	0
320	SLU 5	2.98	0.14	42.53	-0.1255	0.2443	0
320	SLU 6	2.93	0.14	43.45	-0.1294	0.245	0
320	SLU 7	2.93	0.14	43.45	-0.1294	0.2452	0
320	SLU 8	2.85	0.14	42.84	-0.1273	0.2394	0
320	SLU 9	2.85	0.14	42.84	-0.1273	0.2396	0
320	SLU 10	3.64	0.16	48.25	-0.1452	0.2911	0
320	SLU 11	3.58	0.16	49.17	-0.149	0.2918	0
320	SLU 12	3.59	0.16	49.17	-0.149	0.292	0
320	SLU 13	3.51	0.16	48.55	-0.1469	0.2866	0
320	SLU 14	3.45	0.17	49.48	-0.1507	0.2873	0
320	SLU 15	3.46	0.17	49.48	-0.1507	0.2875	0
320	SLU 16	3.37	0.16	48.87	-0.1486	0.2817	0
320	SLU 17	3.37	0.16	48.86	-0.1486	0.2819	0
320	SLU 18	3.85	0.17	50.84	-0.1543	0.3089	0
320	SLU 19	3.86	0.17	50.83	-0.1543	0.3091	0
320	SLU 20	3.72	0.17	51.14	-0.156	0.3043	0
320	SLU 21	3.73	0.17	51.14	-0.156	0.3045	0
320	SLU 22	3.5	0.16	47.89	-0.1442	0.2843	0
320	SLU 23	3.51	0.16	47.88	-0.1442	0.2846	0
320	SLU 24	3.45	0.16	48.81	-0.1481	0.2853	0
320	SLU 25	3.46	0.16	48.81	-0.148	0.2855	0
320	SLU 26	3.38	0.16	48.19	-0.1459	0.28	0
320	SLU 27	3.32	0.16	49.12	-0.1498	0.2808	0
320	SLU 28	3.33	0.16	49.11	-0.1497	0.281	0
320	SLU 29	3.24	0.16	48.5	-0.1476	0.2751	0
320	SLU 30	3.25	0.16	48.5	-0.1476	0.2753	0
320	SLU 31	4.03	0.18	53.91	-0.1655	0.3269	0
320	SLU 32	3.98	0.19	54.84	-0.1694	0.3276	0
320	SLU 33	3.98	0.19	54.83	-0.1694	0.3278	0
320	SLU 34	3.9	0.18	54.22	-0.1672	0.3223	0
320	SLU 35	3.85	0.19	55.14	-0.1711	0.323	0
320	SLU 36	3.85	0.19	55.14	-0.1711	0.3232	0
320	SLU 37	3.77	0.19	54.53	-0.169	0.3174	0
320	SLU 38	3.77	0.19	54.52	-0.1689	0.3176	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
320	SLU 39	4.25	0.19	56.5	-0.1747	0.3447	0.0001
320	SLU 40	4.25	0.19	56.49	-0.1747	0.3449	0.0001
320	SLU 41	4.12	0.19	56.8	-0.1764	0.3401	0.0001
320	SLU 42	4.12	0.19	56.8	-0.1764	0.3403	0.0001
320	SLU 43	3.9	0.17	52.95	-0.154	0.3108	0
320	SLU 44	3.91	0.17	52.95	-0.154	0.3111	0
320	SLU 45	3.85	0.17	53.88	-0.1579	0.3118	0
320	SLU 46	3.86	0.17	53.87	-0.1579	0.312	0
320	SLU 47	3.78	0.17	53.25	-0.1557	0.3066	0
320	SLU 48	3.72	0.18	54.18	-0.1596	0.3073	0
320	SLU 49	3.73	0.18	54.18	-0.1596	0.3075	0
320	SLU 50	3.64	0.17	53.57	-0.1574	0.3017	0
320	SLU 51	3.65	0.17	53.56	-0.1574	0.3019	0
320	SLU 52	4.43	0.19	58.97	-0.1754	0.3534	0.0001
320	SLU 53	4.38	0.2	59.9	-0.1792	0.3541	0
320	SLU 54	4.38	0.2	59.9	-0.1792	0.3543	0
320	SLU 55	4.3	0.2	59.28	-0.1771	0.3489	0
320	SLU 56	4.25	0.2	60.21	-0.1809	0.3496	0
320	SLU 57	4.25	0.2	60.2	-0.1809	0.3498	0
320	SLU 58	4.17	0.2	59.59	-0.1788	0.344	0
320	SLU 59	4.17	0.2	59.59	-0.1788	0.3442	0
320	SLU 60	4.65	0.2	61.56	-0.1845	0.3712	0.0001
320	SLU 61	4.65	0.2	61.56	-0.1845	0.3714	0.0001
320	SLU 62	4.52	0.21	61.87	-0.1862	0.3666	0.0001
320	SLU 63	4.52	0.21	61.87	-0.1862	0.3668	0.0001
320	SLU 64	4.3	0.19	58.62	-0.1744	0.3466	0
320	SLU 65	4.31	0.19	58.61	-0.1744	0.3469	0
320	SLU 66	4.25	0.2	59.54	-0.1782	0.3476	0
320	SLU 67	4.25	0.2	59.53	-0.1782	0.3478	0
320	SLU 68	4.18	0.19	58.92	-0.1761	0.3423	0
320	SLU 69	4.12	0.2	59.84	-0.1799	0.343	0
320	SLU 70	4.13	0.2	59.84	-0.1799	0.3432	0
320	SLU 71	4.04	0.2	59.23	-0.1778	0.3374	0
320	SLU 72	4.04	0.2	59.23	-0.1778	0.3376	0
320	SLU 73	4.83	0.22	64.64	-0.1957	0.3892	0.0001
320	SLU 74	4.77	0.22	65.56	-0.1996	0.3899	0.0001
320	SLU 75	4.78	0.22	65.56	-0.1996	0.3901	0.0001
320	SLU 76	4.7	0.22	64.94	-0.1974	0.3846	0.0001
320	SLU 77	4.64	0.22	65.87	-0.2013	0.3853	0.0001
320	SLU 78	4.65	0.22	65.87	-0.2013	0.3855	0.0001
320	SLU 79	4.56	0.22	65.26	-0.1991	0.3797	0.0001
320	SLU 80	4.57	0.22	65.25	-0.1991	0.3799	0.0001
320	SLU 81	5.05	0.23	67.23	-0.2049	0.407	0.0001
320	SLU 82	5.05	0.23	67.22	-0.2049	0.4072	0.0001
320	SLU 83	4.92	0.23	67.53	-0.2066	0.4024	0.0001
320	SLU 84	4.92	0.23	67.53	-0.2066	0.4026	0.0001
320	SLE RA 1	3.22	0.14	43.85	-0.1297	0.2587	0
320	SLE RA 2	3.22	0.14	43.84	-0.1297	0.259	0
320	SLE RA 3	3.19	0.15	44.46	-0.1322	0.2594	0
320	SLE RA 4	3.19	0.15	44.46	-0.1322	0.2596	0
320	SLE RA 5	3.14	0.14	44.05	-0.1308	0.2559	0
320	SLE RA 6	3.1	0.15	44.66	-0.1334	0.2564	0
320	SLE RA 7	3.1	0.15	44.66	-0.1334	0.2565	0
320	SLE RA 8	3.05	0.15	44.25	-0.1319	0.2526	0
320	SLE RA 9	3.05	0.15	44.25	-0.1319	0.2528	0
320	SLE RA 10	3.57	0.16	47.86	-0.1439	0.2871	0
320	SLE RA 11	3.54	0.16	48.48	-0.1465	0.2876	0
320	SLE RA 12	3.54	0.16	48.47	-0.1465	0.2877	0
320	SLE RA 13	3.49	0.16	48.06	-0.145	0.2841	0
320	SLE RA 14	3.45	0.16	48.68	-0.1476	0.2846	0
320	SLE RA 15	3.45	0.16	48.68	-0.1476	0.2847	0
320	SLE RA 16	3.4	0.16	48.27	-0.1462	0.2808	0
320	SLE RA 17	3.4	0.16	48.27	-0.1462	0.281	0
320	SLE RA 18	3.72	0.17	49.58	-0.15	0.299	0
320	SLE RA 19	3.72	0.17	49.58	-0.15	0.2991	0
320	SLE RA 20	3.63	0.17	49.79	-0.1511	0.296	0
320	SLE RA 21	3.63	0.17	49.79	-0.1511	0.2961	0
320	SLE FR 1	3.22	0.14	43.85	-0.1297	0.2587	0
320	SLE FR 2	3.22	0.14	43.84	-0.1297	0.2588	0
320	SLE FR 3	3.18	0.14	43.93	-0.1301	0.2575	0
320	SLE FR 4	3.37	0.15	45.57	-0.1358	0.2709	0
320	SLE FR 5	3.33	0.15	45.65	-0.1362	0.2696	0
320	SLE FR 6	3.47	0.15	46.72	-0.1398	0.2789	0
320	SLE QP 1	3.22	0.14	43.85	-0.1297	0.2587	0
320	SLE QP 2	3.37	0.15	45.57	-0.1358	0.2708	0
320	SLD 1	13.18	0.15	37.19	-0.1066	0.7001	0.0001
320	SLD 2	13.18	0.15	37.19	-0.1066	0.7001	0.0001
320	SLD 3	11.74	0.18	44.99	-0.1341	0.6529	0.0001
320	SLD 4	11.74	0.18	44.99	-0.1341	0.6529	0.0001
320	SLD 5	8.5	0.1	31.22	-0.0853	0.4712	0.0002
320	SLD 6	8.5	0.1	31.22	-0.0853	0.4712	0.0002
320	SLD 7	3.69	0.21	57.23	-0.1771	0.3138	-0.0001
320	SLD 8	3.69	0.21	57.23	-0.1771	0.3138	-0.0001
320	SLD 9	3.05	0.09	33.91	-0.0945	0.2278	0.0002
320	SLD 10	3.05	0.09	33.91	-0.0945	0.2278	0.0002
320	SLD 11	-1.76	0.2	59.91	-0.1863	0.0704	-0.0001
320	SLD 12	-1.76	0.2	59.91	-0.1863	0.0704	-0.0001
320	SLD 13	-5	0.12	46.14	-0.1374	-0.1113	0
320	SLD 14	-5	0.12	46.14	-0.1374	-0.1113	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
320	SLD 15	-6.44	0.15	53.95	-0.1649	-0.1585	-0.0001
320	SLD 16	-6.44	0.15	53.95	-0.1649	-0.1585	-0.0001
320	SLV 1	25.87	0.15	26.22	-0.0667	1.2555	0.0003
320	SLV 2	25.87	0.15	26.22	-0.0667	1.2555	0.0003
320	SLV 3	22.49	0.22	44.22	-0.1318	1.1443	0.0001
320	SLV 4	22.49	0.22	44.22	-0.1318	1.1443	0.0001
320	SLV 5	15.24	0.04	12.46	-0.0163	0.735	0.0004
320	SLV 6	15.24	0.04	12.46	-0.0163	0.735	0.0004
320	SLV 7	3.98	0.28	72.47	-0.2333	0.3641	-0.0003
320	SLV 8	3.98	0.28	72.47	-0.2333	0.3641	-0.0003
320	SLV 9	2.75	0.02	18.67	-0.0382	0.1775	0.0003
320	SLV 10	2.75	0.02	18.67	-0.0382	0.1775	0.0003
320	SLV 11	-8.5	0.26	78.67	-0.2552	-0.1934	-0.0004
320	SLV 12	-8.5	0.26	78.67	-0.2552	-0.1934	-0.0004
320	SLV 13	-15.76	0.08	46.91	-0.1397	-0.6027	0
320	SLV 14	-15.76	0.08	46.91	-0.1397	-0.6027	0
320	SLV 15	-19.13	0.15	64.91	-0.2048	-0.7139	-0.0002
320	SLV 16	-19.13	0.15	64.91	-0.2048	-0.7139	-0.0002
321	SLU 1	0.98	0.27	36	-0.1973	-0.0001	-0.0003
321	SLU 2	0.98	0.27	35.99	-0.1973	0.0002	-0.0003
321	SLU 3	0.87	0.28	36.8	-0.2034	-0.0064	-0.0003
321	SLU 4	0.87	0.28	36.8	-0.2034	-0.0062	-0.0003
321	SLU 5	0.82	0.28	36.31	-0.2	-0.0078	-0.0003
321	SLU 6	0.71	0.29	37.12	-0.2061	-0.0144	-0.0003
321	SLU 7	0.71	0.29	37.11	-0.2061	-0.0142	-0.0003
321	SLU 8	0.65	0.28	36.63	-0.2027	-0.0161	-0.0003
321	SLU 9	0.66	0.28	36.63	-0.2027	-0.0159	-0.0003
321	SLU 10	1.23	0.32	40.86	-0.2314	-0.0043	-0.0003
321	SLU 11	1.11	0.33	41.67	-0.2375	-0.0023	-0.0003
321	SLU 12	1.12	0.33	41.67	-0.2375	-0.0022	-0.0003
321	SLU 13	1.07	0.33	41.18	-0.2341	-0.0037	-0.0003
321	SLU 14	0.95	0.33	41.99	-0.2402	-0.0103	-0.0003
321	SLU 15	0.95	0.33	41.99	-0.2402	-0.0102	-0.0003
321	SLU 16	0.9	0.33	41.51	-0.2368	-0.012	-0.0003
321	SLU 17	0.9	0.33	41.5	-0.2368	-0.0119	-0.0003
321	SLU 18	1.33	0.34	42.96	-0.246	0.0057	-0.0003
321	SLU 19	1.33	0.34	42.96	-0.246	0.0059	-0.0003
321	SLU 20	1.16	0.35	43.28	-0.2487	-0.0023	-0.0003
321	SLU 21	1.17	0.35	43.27	-0.2487	-0.0021	-0.0003
321	SLU 22	1.09	0.32	40.61	-0.2298	-0.0016	-0.0003
321	SLU 23	1.1	0.32	40.6	-0.2297	-0.0013	-0.0003
321	SLU 24	0.98	0.33	41.42	-0.2359	-0.0079	-0.0003
321	SLU 25	0.99	0.33	41.41	-0.2359	-0.0077	-0.0003
321	SLU 26	0.94	0.32	40.92	-0.2325	-0.0093	-0.0003
321	SLU 27	0.82	0.33	41.73	-0.2386	-0.0159	-0.0003
321	SLU 28	0.83	0.33	41.73	-0.2386	-0.0157	-0.0003
321	SLU 29	0.77	0.33	41.25	-0.2352	-0.0176	-0.0003
321	SLU 30	0.77	0.33	41.24	-0.2352	-0.0174	-0.0003
321	SLU 31	1.34	0.37	45.48	-0.2638	0.0027	-0.0004
321	SLU 32	1.23	0.38	46.29	-0.27	-0.0039	-0.0004
321	SLU 33	1.23	0.37	46.28	-0.27	-0.0037	-0.0004
321	SLU 34	1.18	0.37	45.79	-0.2666	-0.0053	-0.0004
321	SLU 35	1.07	0.38	46.61	-0.2727	-0.0119	-0.0004
321	SLU 36	1.07	0.38	46.6	-0.2727	-0.0117	-0.0004
321	SLU 37	1.01	0.37	46.12	-0.2693	-0.0136	-0.0004
321	SLU 38	1.02	0.37	46.12	-0.2693	-0.0134	-0.0004
321	SLU 39	1.44	0.39	47.57	-0.2785	0.0042	-0.0004
321	SLU 40	1.45	0.39	47.57	-0.2785	0.0044	-0.0004
321	SLU 41	1.28	0.39	47.89	-0.2812	-0.0038	-0.0004
321	SLU 42	1.28	0.39	47.89	-0.2812	-0.0037	-0.0004
321	SLU 43	1.23	0.34	45.22	-0.2453	0.0005	-0.0003
321	SLU 44	1.24	0.34	45.21	-0.2453	0.0007	-0.0003
321	SLU 45	1.12	0.35	46.02	-0.2515	-0.0059	-0.0003
321	SLU 46	1.13	0.35	46.01	-0.2514	-0.0057	-0.0003
321	SLU 47	1.07	0.35	45.53	-0.248	-0.0073	-0.0003
321	SLU 48	0.96	0.35	46.34	-0.2542	-0.0139	-0.0004
321	SLU 49	0.96	0.35	46.33	-0.2542	-0.0137	-0.0004
321	SLU 50	0.9	0.35	45.85	-0.2508	-0.0156	-0.0003
321	SLU 51	0.91	0.35	45.85	-0.2507	-0.0154	-0.0003
321	SLU 52	1.48	0.39	50.08	-0.2794	0.0048	-0.0004
321	SLU 53	1.37	0.4	50.89	-0.2856	-0.0018	-0.0004
321	SLU 54	1.37	0.4	50.89	-0.2855	-0.0016	-0.0004
321	SLU 55	1.32	0.39	50.4	-0.2821	-0.0032	-0.0004
321	SLU 56	1.2	0.4	51.21	-0.2883	-0.0098	-0.0004
321	SLU 57	1.21	0.4	51.21	-0.2883	-0.0097	-0.0004
321	SLU 58	1.15	0.4	50.72	-0.2849	-0.0115	-0.0004
321	SLU 59	1.15	0.4	50.72	-0.2849	-0.0113	-0.0004
321	SLU 60	1.58	0.41	52.18	-0.2941	0.0062	-0.0004
321	SLU 61	1.58	0.41	52.17	-0.294	0.0064	-0.0004
321	SLU 62	1.42	0.41	52.5	-0.2968	-0.0018	-0.0004
321	SLU 63	1.42	0.41	52.49	-0.2968	-0.0016	-0.0004
321	SLU 64	1.35	0.39	49.83	-0.2778	-0.0011	-0.0004
321	SLU 65	1.35	0.39	49.82	-0.2778	-0.0008	-0.0004
321	SLU 66	1.24	0.4	50.63	-0.2839	-0.0074	-0.0004
321	SLU 67	1.24	0.4	50.63	-0.2839	-0.0072	-0.0004
321	SLU 68	1.19	0.39	50.14	-0.2805	-0.0088	-0.0004
321	SLU 69	1.07	0.4	50.95	-0.2867	-0.0154	-0.0004
321	SLU 70	1.08	0.4	50.95	-0.2866	-0.0152	-0.0004
321	SLU 71	1.02	0.39	50.46	-0.2833	-0.0171	-0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
321	SLU 72	1.03	0.39	50.46	-0.2832	-0.0169	-0.0004
321	SLU 73	1.6	0.43	54.7	-0.3119	0.0033	-0.0004
321	SLU 74	1.48	0.44	55.51	-0.318	-0.0034	-0.0004
321	SLU 75	1.49	0.44	55.5	-0.318	-0.0032	-0.0004
321	SLU 76	1.43	0.44	55.01	-0.3146	-0.0048	-0.0004
321	SLU 77	1.32	0.45	55.82	-0.3208	-0.0114	-0.0004
321	SLU 78	1.32	0.45	55.82	-0.3207	-0.0112	-0.0004
321	SLU 79	1.27	0.44	55.34	-0.3174	-0.0131	-0.0004
321	SLU 80	1.27	0.44	55.33	-0.3173	-0.0129	-0.0004
321	SLU 81	1.7	0.45	56.79	-0.3265	0.0047	-0.0004
321	SLU 82	1.7	0.45	56.79	-0.3265	0.0049	-0.0004
321	SLU 83	1.53	0.46	57.11	-0.3293	-0.0033	-0.0005
321	SLU 84	1.54	0.46	57.1	-0.3292	-0.0031	-0.0005
321	SLE RA 1	1.01	0.29	37.32	-0.2066	-0.0005	-0.0003
321	SLE RA 2	1.02	0.29	37.31	-0.2065	-0.0003	-0.0003
321	SLE RA 3	0.94	0.29	37.85	-0.2107	-0.0047	-0.0003
321	SLE RA 4	0.94	0.29	37.85	-0.2106	-0.0046	-0.0003
321	SLE RA 5	0.91	0.29	37.52	-0.2084	-0.0056	-0.0003
321	SLE RA 6	0.83	0.3	38.06	-0.2125	-0.01	-0.0003
321	SLE RA 7	0.83	0.3	38.06	-0.2124	-0.0099	-0.0003
321	SLE RA 8	0.79	0.29	37.74	-0.2102	-0.0112	-0.0003
321	SLE RA 9	0.8	0.29	37.74	-0.2102	-0.0111	-0.0003
321	SLE RA 10	1.18	0.32	40.56	-0.2293	0.0024	-0.0003
321	SLE RA 11	1.1	0.32	41.1	-0.2334	-0.002	-0.0003
321	SLE RA 12	1.1	0.32	41.1	-0.2334	-0.0019	-0.0003
321	SLE RA 13	1.07	0.32	40.77	-0.2311	-0.0029	-0.0003
321	SLE RA 14	0.99	0.33	41.31	-0.2352	-0.0073	-0.0003
321	SLE RA 15	0.99	0.33	41.31	-0.2352	-0.0072	-0.0003
321	SLE RA 16	0.96	0.32	40.99	-0.2329	-0.0085	-0.0003
321	SLE RA 17	0.96	0.32	40.99	-0.2329	-0.0084	-0.0003
321	SLE RA 18	1.24	0.33	41.96	-0.2391	0.0034	-0.0003
321	SLE RA 19	1.25	0.33	41.95	-0.239	0.0035	-0.0003
321	SLE RA 20	1.13	0.33	42.17	-0.2409	-0.002	-0.0003
321	SLE RA 21	1.14	0.33	42.17	-0.2408	-0.0019	-0.0003
321	SLE FR 1	1.01	0.29	37.32	-0.2066	-0.0005	-0.0003
321	SLE FR 2	1.01	0.29	37.32	-0.2066	-0.0005	-0.0003
321	SLE FR 3	0.97	0.29	37.4	-0.2073	-0.0026	-0.0003
321	SLE FR 4	1.08	0.3	38.71	-0.2163	0.0007	-0.0003
321	SLE FR 5	1.04	0.3	38.79	-0.217	-0.0015	-0.0003
321	SLE FR 6	1.13	0.31	39.64	-0.2228	0.0014	-0.0003
321	SLE QP 1	1.01	0.29	37.32	-0.2066	-0.0005	-0.0003
321	SLE QP 2	1.08	0.3	38.71	-0.2163	0.0007	-0.0003
321	SLD 1	11.21	0.26	33.66	-0.176	0.4426	-0.0002
321	SLD 2	11.21	0.26	33.66	-0.176	0.4426	-0.0002
321	SLD 3	10.1	0.29	39.26	-0.2106	0.3988	-0.0003
321	SLD 4	10.1	0.29	39.26	-0.2106	0.3988	-0.0003
321	SLD 5	5.79	0.24	28.7	-0.1518	0.1997	-0.0002
321	SLD 6	5.79	0.24	28.7	-0.1518	0.1997	-0.0002
321	SLD 7	2.11	0.35	47.37	-0.267	0.0536	-0.0004
321	SLD 8	2.11	0.35	47.37	-0.267	0.0536	-0.0004
321	SLD 9	0.05	0.25	30.05	-0.1656	-0.0523	-0.0002
321	SLD 10	0.05	0.25	30.05	-0.1656	-0.0523	-0.0002
321	SLD 11	-3.63	0.37	48.72	-0.2808	-0.1984	-0.0004
321	SLD 12	-3.63	0.37	48.72	-0.2808	-0.1984	-0.0004
321	SLD 13	-7.94	0.31	38.16	-0.2221	-0.3974	-0.0003
321	SLD 14	-7.94	0.31	38.16	-0.2221	-0.3974	-0.0003
321	SLD 15	-9.05	0.34	43.76	-0.2566	-0.4413	-0.0004
321	SLD 16	-9.05	0.34	43.76	-0.2566	-0.4413	-0.0004
321	SLV 1	24.31	0.2	27.02	-0.1199	1.0141	-0.0001
321	SLV 2	24.31	0.2	27.02	-0.1199	1.0141	-0.0001
321	SLV 3	21.73	0.28	39.94	-0.2015	0.9117	-0.0002
321	SLV 4	21.73	0.28	39.94	-0.2015	0.9117	-0.0002
321	SLV 5	11.96	0.14	15.62	-0.0635	0.4599	0
321	SLV 6	11.96	0.14	15.62	-0.0635	0.4599	0
321	SLV 7	3.36	0.42	58.66	-0.3358	0.1187	-0.0005
321	SLV 8	3.36	0.42	58.66	-0.3358	0.1187	-0.0005
321	SLV 9	-1.2	0.18	18.75	-0.0969	-0.1174	-0.0001
321	SLV 10	-1.2	0.18	18.75	-0.0969	-0.1174	-0.0001
321	SLV 11	-9.8	0.46	61.8	-0.3691	-0.4586	-0.0006
321	SLV 12	-9.8	0.46	61.8	-0.3691	-0.4586	-0.0006
321	SLV 13	-19.56	0.32	37.48	-0.2311	-0.9104	-0.0004
321	SLV 14	-19.56	0.32	37.48	-0.2311	-0.9104	-0.0004
321	SLV 15	-22.14	0.4	50.4	-0.3128	-1.0128	-0.0005
321	SLV 16	-22.14	0.4	50.4	-0.3128	-1.0128	-0.0005
322	SLU 1	3.18	0.34	30.91	-0.2459	0.2233	-0.0007
322	SLU 2	3.19	0.34	30.9	-0.2459	0.2236	-0.0007
322	SLU 3	3.13	0.36	31.61	-0.2536	0.2235	-0.0007
322	SLU 4	3.14	0.35	31.61	-0.2536	0.2237	-0.0007
322	SLU 5	3.04	0.35	31.22	-0.2494	0.218	-0.0007
322	SLU 6	2.98	0.36	31.93	-0.2571	0.2179	-0.0007
322	SLU 7	2.99	0.36	31.93	-0.2571	0.2181	-0.0007
322	SLU 8	2.88	0.35	31.55	-0.2529	0.2121	-0.0007
322	SLU 9	2.89	0.35	31.54	-0.2528	0.2122	-0.0007
322	SLU 10	3.87	0.4	34.88	-0.2886	0.2673	-0.0008
322	SLU 11	3.81	0.41	35.59	-0.2963	0.2672	-0.0008
322	SLU 12	3.81	0.41	35.58	-0.2963	0.2673	-0.0008
322	SLU 13	3.72	0.41	35.19	-0.2921	0.2617	-0.0008
322	SLU 14	3.66	0.42	35.91	-0.2998	0.2615	-0.0008
322	SLU 15	3.67	0.42	35.9	-0.2998	0.2617	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
322	SLU 16	3.56	0.41	35.52	-0.2956	0.2557	-0.0008
322	SLU 17	3.57	0.41	35.51	-0.2955	0.2559	-0.0008
322	SLU 18	4.15	0.43	36.59	-0.3069	0.2857	-0.0008
322	SLU 19	4.15	0.43	36.58	-0.3069	0.2859	-0.0008
322	SLU 20	4	0.43	36.91	-0.3104	0.2801	-0.0008
322	SLU 21	4.01	0.43	36.9	-0.3104	0.2802	-0.0008
322	SLU 22	3.7	0.4	34.7	-0.2866	0.2594	-0.0008
322	SLU 23	3.71	0.4	34.69	-0.2865	0.2597	-0.0008
322	SLU 24	3.65	0.41	35.4	-0.2943	0.2596	-0.0008
322	SLU 25	3.65	0.41	35.4	-0.2943	0.2598	-0.0008
322	SLU 26	3.56	0.41	35	-0.29	0.2541	-0.0008
322	SLU 27	3.5	0.42	35.72	-0.2977	0.2539	-0.0008
322	SLU 28	3.51	0.42	35.71	-0.2977	0.2541	-0.0008
322	SLU 29	3.4	0.41	35.33	-0.2935	0.2481	-0.0008
322	SLU 30	3.41	0.41	35.33	-0.2935	0.2483	-0.0008
322	SLU 31	4.38	0.46	38.66	-0.3292	0.3034	-0.0009
322	SLU 32	4.33	0.47	39.38	-0.337	0.3032	-0.0009
322	SLU 33	4.33	0.47	39.37	-0.337	0.3034	-0.0009
322	SLU 34	4.24	0.46	38.98	-0.3327	0.2977	-0.0009
322	SLU 35	4.18	0.48	39.69	-0.3404	0.2976	-0.0009
322	SLU 36	4.18	0.48	39.69	-0.3404	0.2978	-0.0009
322	SLU 37	4.08	0.47	39.31	-0.3362	0.2918	-0.0009
322	SLU 38	4.08	0.47	39.3	-0.3362	0.292	-0.0009
322	SLU 39	4.67	0.49	40.38	-0.3476	0.3218	-0.0009
322	SLU 40	4.67	0.49	40.37	-0.3476	0.322	-0.0009
322	SLU 41	4.52	0.49	40.69	-0.351	0.3161	-0.0009
322	SLU 42	4.52	0.49	40.69	-0.351	0.3163	-0.0009
322	SLU 43	3.96	0.43	38.89	-0.3058	0.278	-0.0008
322	SLU 44	3.97	0.43	38.88	-0.3057	0.2783	-0.0008
322	SLU 45	3.91	0.44	39.59	-0.3135	0.2782	-0.0008
322	SLU 46	3.91	0.44	39.58	-0.3135	0.2783	-0.0008
322	SLU 47	3.82	0.43	39.19	-0.3092	0.2726	-0.0008
322	SLU 48	3.76	0.44	39.91	-0.317	0.2725	-0.0008
322	SLU 49	3.76	0.44	39.9	-0.3169	0.2727	-0.0008
322	SLU 50	3.66	0.44	39.52	-0.3127	0.2667	-0.0008
322	SLU 51	3.67	0.44	39.51	-0.3127	0.2669	-0.0008
322	SLU 52	4.64	0.49	42.85	-0.3484	0.3219	-0.0009
322	SLU 53	4.59	0.5	43.57	-0.3562	0.3218	-0.001
322	SLU 54	4.59	0.5	43.56	-0.3562	0.322	-0.001
322	SLU 55	4.49	0.49	43.17	-0.3519	0.3163	-0.0009
322	SLU 56	4.44	0.5	43.88	-0.3597	0.3162	-0.001
322	SLU 57	4.44	0.5	43.88	-0.3596	0.3163	-0.001
322	SLU 58	4.34	0.5	43.5	-0.3554	0.3104	-0.0009
322	SLU 59	4.34	0.5	43.49	-0.3554	0.3105	-0.0009
322	SLU 60	4.93	0.51	44.57	-0.3668	0.3404	-0.001
322	SLU 61	4.93	0.51	44.56	-0.3668	0.3405	-0.001
322	SLU 62	4.78	0.52	44.88	-0.3703	0.3347	-0.001
322	SLU 63	4.78	0.52	44.88	-0.3702	0.3349	-0.001
322	SLU 64	4.48	0.49	42.67	-0.3464	0.3141	-0.0009
322	SLU 65	4.48	0.49	42.66	-0.3464	0.3143	-0.0009
322	SLU 66	4.43	0.5	43.38	-0.3541	0.3142	-0.0009
322	SLU 67	4.43	0.5	43.37	-0.3541	0.3144	-0.0009
322	SLU 68	4.33	0.49	42.98	-0.3499	0.3087	-0.0009
322	SLU 69	4.28	0.5	43.69	-0.3576	0.3086	-0.001
322	SLU 70	4.28	0.5	43.69	-0.3576	0.3088	-0.001
322	SLU 71	4.18	0.49	43.31	-0.3534	0.3028	-0.0009
322	SLU 72	4.18	0.49	43.3	-0.3533	0.303	-0.0009
322	SLU 73	5.16	0.54	46.64	-0.3891	0.358	-0.001
322	SLU 74	5.11	0.55	47.35	-0.3968	0.3579	-0.0011
322	SLU 75	5.11	0.55	47.35	-0.3968	0.3581	-0.0011
322	SLU 76	5.01	0.55	46.96	-0.3925	0.3524	-0.001
322	SLU 77	4.96	0.56	47.67	-0.4003	0.3522	-0.0011
322	SLU 78	4.96	0.56	47.66	-0.4003	0.3524	-0.0011
322	SLU 79	4.86	0.55	47.28	-0.3961	0.3464	-0.0011
322	SLU 80	4.86	0.55	47.28	-0.396	0.3466	-0.0011
322	SLU 81	5.45	0.57	48.35	-0.4074	0.3764	-0.0011
322	SLU 82	5.45	0.57	48.35	-0.4074	0.3766	-0.0011
322	SLU 83	5.3	0.57	48.67	-0.4109	0.3708	-0.0011
322	SLU 84	5.3	0.57	48.66	-0.4109	0.371	-0.0011
322	SLE RA 1	3.33	0.36	31.99	-0.2576	0.2337	-0.0007
322	SLE RA 2	3.33	0.36	31.99	-0.2575	0.2338	-0.0007
322	SLE RA 3	3.3	0.37	32.46	-0.2627	0.2338	-0.0007
322	SLE RA 4	3.3	0.37	32.46	-0.2627	0.2339	-0.0007
322	SLE RA 5	3.24	0.36	32.2	-0.2598	0.2301	-0.0007
322	SLE RA 6	3.2	0.37	32.67	-0.265	0.23	-0.0007
322	SLE RA 7	3.2	0.37	32.67	-0.265	0.2301	-0.0007
322	SLE RA 8	3.13	0.37	32.42	-0.2622	0.2261	-0.0007
322	SLE RA 9	3.13	0.37	32.41	-0.2622	0.2263	-0.0007
322	SLE RA 10	3.79	0.4	34.64	-0.286	0.2629	-0.0008
322	SLE RA 11	3.75	0.41	35.11	-0.2912	0.2629	-0.0008
322	SLE RA 12	3.75	0.41	35.11	-0.2911	0.263	-0.0008
322	SLE RA 13	3.69	0.4	34.85	-0.2883	0.2592	-0.0008
322	SLE RA 14	3.65	0.41	35.32	-0.2935	0.2591	-0.0008
322	SLE RA 15	3.65	0.41	35.32	-0.2934	0.2592	-0.0008
322	SLE RA 16	3.58	0.41	35.07	-0.2906	0.2552	-0.0008
322	SLE RA 17	3.59	0.41	35.06	-0.2906	0.2554	-0.0008
322	SLE RA 18	3.98	0.42	35.78	-0.2982	0.2752	-0.0008
322	SLE RA 19	3.98	0.42	35.78	-0.2982	0.2753	-0.0008
322	SLE RA 20	3.88	0.42	35.99	-0.3005	0.2715	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
322	SLE RA 21	3.88	0.42	35.99	-0.3005	0.2716	-0.0008
322	SLE FR 1	3.33	0.36	31.99	-0.2576	0.2337	-0.0007
322	SLE FR 2	3.33	0.36	31.99	-0.2576	0.2337	-0.0007
322	SLE FR 3	3.29	0.36	32.08	-0.2585	0.2321	-0.0007
322	SLE FR 4	3.52	0.38	33.13	-0.2698	0.2462	-0.0007
322	SLE FR 5	3.48	0.38	33.21	-0.2707	0.2446	-0.0007
322	SLE FR 6	3.65	0.39	33.89	-0.2779	0.2544	-0.0007
322	SLE QP 1	3.33	0.36	31.99	-0.2576	0.2337	-0.0007
322	SLE QP 2	3.52	0.38	33.13	-0.2698	0.2461	-0.0007
322	SLD 1	14.35	0.32	29.79	-0.2181	0.7222	-0.0006
322	SLD 2	14.35	0.32	29.79	-0.2181	0.7222	-0.0006
322	SLD 3	13.59	0.36	34.02	-0.2611	0.6911	-0.0007
322	SLD 4	13.59	0.36	34.02	-0.2611	0.6911	-0.0007
322	SLD 5	7.92	0.3	25.71	-0.1891	0.436	-0.0006
322	SLD 6	7.92	0.3	25.71	-0.1891	0.436	-0.0006
322	SLD 7	5.39	0.44	39.82	-0.3323	0.3325	-0.0008
322	SLD 8	5.39	0.44	39.82	-0.3323	0.3325	-0.0008
322	SLD 9	1.66	0.32	26.44	-0.2072	0.1597	-0.0006
322	SLD 10	1.66	0.32	26.44	-0.2072	0.1597	-0.0006
322	SLD 11	-0.88	0.46	40.55	-0.3504	0.0562	-0.0009
322	SLD 12	-0.88	0.46	40.55	-0.3504	0.0562	-0.0009
322	SLD 13	-6.54	0.39	32.23	-0.2785	-0.1989	-0.0008
322	SLD 14	-6.54	0.39	32.23	-0.2785	-0.1989	-0.0008
322	SLD 15	-7.3	0.44	36.47	-0.3214	-0.2299	-0.0008
322	SLD 16	-7.3	0.44	36.47	-0.3214	-0.2299	-0.0008
322	SLV 1	28.34	0.24	25.4	-0.1454	1.3376	-0.0004
322	SLV 2	28.34	0.24	25.4	-0.1454	1.3376	-0.0004
322	SLV 3	26.56	0.34	35.15	-0.2467	1.2643	-0.0006
322	SLV 4	26.56	0.34	35.15	-0.2467	1.2643	-0.0006
322	SLV 5	13.67	0.18	16.01	-0.0788	0.6847	-0.0003
322	SLV 6	13.67	0.18	16.01	-0.0788	0.6847	-0.0003
322	SLV 7	7.73	0.52	48.53	-0.4165	0.4405	-0.001
322	SLV 8	7.73	0.52	48.53	-0.4165	0.4405	-0.001
322	SLV 9	-0.68	0.23	17.73	-0.123	0.0518	-0.0005
322	SLV 10	-0.68	0.23	17.73	-0.123	0.0518	-0.0005
322	SLV 11	-6.62	0.57	50.25	-0.4607	-0.1925	-0.0011
322	SLV 12	-6.62	0.57	50.25	-0.4607	-0.1925	-0.0011
322	SLV 13	-19.51	0.41	31.11	-0.2928	-0.7721	-0.0008
322	SLV 14	-19.51	0.41	31.11	-0.2928	-0.7721	-0.0008
322	SLV 15	-21.3	0.52	40.86	-0.3941	-0.8454	-0.001
322	SLV 16	-21.3	0.52	40.86	-0.3941	-0.8454	-0.001
323	SLU 1	3.72	0.36	28.06	-0.2685	0.1194	-0.001
323	SLU 2	3.73	0.36	28.05	-0.2685	0.1196	-0.001
323	SLU 3	3.68	0.37	28.71	-0.277	0.1162	-0.0011
323	SLU 4	3.68	0.37	28.7	-0.277	0.1163	-0.0011
323	SLU 5	3.57	0.37	28.36	-0.2724	0.1122	-0.001
323	SLU 6	3.52	0.38	29.02	-0.2809	0.1087	-0.0011
323	SLU 7	3.53	0.38	29.02	-0.2809	0.1089	-0.0011
323	SLU 8	3.41	0.37	28.69	-0.2763	0.1045	-0.0011
323	SLU 9	3.41	0.37	28.68	-0.2763	0.1047	-0.0011
323	SLU 10	4.56	0.42	31.55	-0.3153	0.1486	-0.0012
323	SLU 11	4.51	0.44	32.21	-0.3239	0.1451	-0.0012
323	SLU 12	4.51	0.44	32.2	-0.3239	0.1453	-0.0012
323	SLU 13	4.4	0.43	31.87	-0.3192	0.1412	-0.0012
323	SLU 14	4.35	0.44	32.53	-0.3278	0.1377	-0.0012
323	SLU 15	4.36	0.44	32.52	-0.3277	0.1379	-0.0012
323	SLU 16	4.24	0.43	32.2	-0.3232	0.1335	-0.0012
323	SLU 17	4.24	0.43	32.19	-0.3231	0.1336	-0.0012
323	SLU 18	4.91	0.45	33.06	-0.3355	0.1608	-0.0013
323	SLU 19	4.91	0.45	33.06	-0.3354	0.1609	-0.0013
323	SLU 20	4.75	0.46	33.38	-0.3394	0.1533	-0.0013
323	SLU 21	4.75	0.46	33.37	-0.3393	0.1535	-0.0013
323	SLU 22	4.37	0.42	31.4	-0.3131	0.1405	-0.0012
323	SLU 23	4.37	0.42	31.39	-0.313	0.1408	-0.0012
323	SLU 24	4.32	0.43	32.05	-0.3216	0.1373	-0.0012
323	SLU 25	4.33	0.43	32.05	-0.3216	0.1375	-0.0012
323	SLU 26	4.22	0.43	31.71	-0.3169	0.1334	-0.0012
323	SLU 27	4.17	0.44	32.37	-0.3255	0.1299	-0.0012
323	SLU 28	4.17	0.44	32.36	-0.3254	0.13	-0.0012
323	SLU 29	4.06	0.43	32.04	-0.3209	0.1257	-0.0012
323	SLU 30	4.06	0.43	32.03	-0.3208	0.1258	-0.0012
323	SLU 31	5.2	0.48	34.9	-0.3599	0.1697	-0.0014
323	SLU 32	5.15	0.5	35.56	-0.3685	0.1663	-0.0014
323	SLU 33	5.16	0.5	35.55	-0.3684	0.1664	-0.0014
323	SLU 34	5.05	0.49	35.21	-0.3638	0.1623	-0.0014
323	SLU 35	5	0.5	35.87	-0.3723	0.1588	-0.0014
323	SLU 36	5	0.5	35.87	-0.3723	0.159	-0.0014
323	SLU 37	4.89	0.49	35.54	-0.3677	0.1546	-0.0014
323	SLU 38	4.89	0.49	35.53	-0.3677	0.1548	-0.0014
323	SLU 39	5.55	0.51	36.41	-0.3801	0.1819	-0.0014
323	SLU 40	5.56	0.51	36.4	-0.38	0.1821	-0.0014
323	SLU 41	5.4	0.52	36.73	-0.3839	0.1745	-0.0015
323	SLU 42	5.4	0.52	36.72	-0.3839	0.1746	-0.0015
323	SLU 43	4.62	0.45	35.33	-0.3338	0.1479	-0.0013
323	SLU 44	4.62	0.45	35.31	-0.3338	0.1482	-0.0013
323	SLU 45	4.57	0.46	35.98	-0.3423	0.1447	-0.0013
323	SLU 46	4.58	0.46	35.97	-0.3423	0.1449	-0.0013
323	SLU 47	4.47	0.45	35.63	-0.3376	0.1408	-0.0013
323	SLU 48	4.42	0.47	36.29	-0.3462	0.1373	-0.0013



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
323	SLU 49	4.42	0.47	36.29	-0.3462	0.1375	-0.0013
323	SLU 50	4.31	0.46	35.96	-0.3416	0.1331	-0.0013
323	SLU 51	4.31	0.46	35.95	-0.3415	0.1332	-0.0013
323	SLU 52	5.45	0.51	38.82	-0.3806	0.1772	-0.0014
323	SLU 53	5.4	0.52	39.48	-0.3892	0.1737	-0.0015
323	SLU 54	5.41	0.52	39.47	-0.3891	0.1739	-0.0015
323	SLU 55	5.3	0.52	39.14	-0.3845	0.1697	-0.0015
323	SLU 56	5.25	0.53	39.8	-0.3931	0.1663	-0.0015
323	SLU 57	5.25	0.53	39.79	-0.393	0.1664	-0.0015
323	SLU 58	5.14	0.52	39.47	-0.3884	0.162	-0.0015
323	SLU 59	5.14	0.52	39.46	-0.3884	0.1622	-0.0015
323	SLU 60	5.8	0.54	40.33	-0.4008	0.1893	-0.0015
323	SLU 61	5.8	0.54	40.33	-0.4007	0.1895	-0.0015
323	SLU 62	5.65	0.54	40.65	-0.4046	0.1819	-0.0015
323	SLU 63	5.65	0.54	40.64	-0.4046	0.182	-0.0015
323	SLU 64	5.26	0.51	38.67	-0.3784	0.1691	-0.0014
323	SLU 65	5.27	0.51	38.66	-0.3783	0.1694	-0.0014
323	SLU 66	5.22	0.52	39.32	-0.3869	0.1659	-0.0015
323	SLU 67	5.22	0.52	39.32	-0.3869	0.166	-0.0015
323	SLU 68	5.11	0.51	38.98	-0.3822	0.1619	-0.0015
323	SLU 69	5.06	0.53	39.64	-0.3908	0.1585	-0.0015
323	SLU 70	5.07	0.53	39.63	-0.3907	0.1586	-0.0015
323	SLU 71	4.95	0.52	39.31	-0.3862	0.1542	-0.0015
323	SLU 72	4.95	0.52	39.3	-0.3861	0.1544	-0.0015
323	SLU 73	6.1	0.57	42.17	-0.4252	0.1983	-0.0016
323	SLU 74	6.05	0.58	42.83	-0.4337	0.1948	-0.0017
323	SLU 75	6.05	0.58	42.82	-0.4337	0.195	-0.0016
323	SLU 76	5.94	0.58	42.48	-0.4291	0.1909	-0.0016
323	SLU 77	5.89	0.59	43.14	-0.4376	0.1874	-0.0017
323	SLU 78	5.9	0.59	43.14	-0.4376	0.1876	-0.0017
323	SLU 79	5.78	0.58	42.81	-0.433	0.1832	-0.0016
323	SLU 80	5.78	0.58	42.8	-0.433	0.1833	-0.0016
323	SLU 81	6.45	0.6	43.68	-0.4453	0.2105	-0.0017
323	SLU 82	6.45	0.6	43.67	-0.4453	0.2106	-0.0017
323	SLU 83	6.29	0.6	44	-0.4492	0.203	-0.0017
323	SLU 84	6.3	0.6	43.99	-0.4492	0.2032	-0.0017
323	SLE RA 1	3.9	0.38	29.01	-0.2813	0.1254	-0.0011
323	SLE RA 2	3.91	0.38	29.01	-0.2812	0.1256	-0.0011
323	SLE RA 3	3.88	0.39	29.45	-0.2869	0.1233	-0.0011
323	SLE RA 4	3.88	0.39	29.44	-0.2869	0.1234	-0.0011
323	SLE RA 5	3.81	0.38	29.22	-0.2838	0.1206	-0.0011
323	SLE RA 6	3.77	0.39	29.66	-0.2895	0.1183	-0.0011
323	SLE RA 7	3.78	0.39	29.65	-0.2895	0.1184	-0.0011
323	SLE RA 8	3.7	0.39	29.44	-0.2865	0.1155	-0.0011
323	SLE RA 9	3.7	0.39	29.43	-0.2864	0.1156	-0.0011
323	SLE RA 10	4.46	0.42	31.34	-0.3125	0.1449	-0.0012
323	SLE RA 11	4.43	0.43	31.78	-0.3182	0.1426	-0.0012
323	SLE RA 12	4.43	0.43	31.78	-0.3181	0.1427	-0.0012
323	SLE RA 13	4.36	0.42	31.55	-0.3151	0.1399	-0.0012
323	SLE RA 14	4.33	0.43	31.99	-0.3208	0.1376	-0.0012
323	SLE RA 15	4.33	0.43	31.99	-0.3207	0.1377	-0.0012
323	SLE RA 16	4.25	0.43	31.77	-0.3177	0.1348	-0.0012
323	SLE RA 17	4.25	0.43	31.77	-0.3177	0.1349	-0.0012
323	SLE RA 18	4.7	0.44	32.35	-0.3259	0.153	-0.0012
323	SLE RA 19	4.7	0.44	32.35	-0.3259	0.1531	-0.0012
323	SLE RA 20	4.59	0.44	32.56	-0.3285	0.148	-0.0012
323	SLE RA 21	4.59	0.44	32.56	-0.3285	0.1482	-0.0012
323	SLE FR 1	3.9	0.38	29.01	-0.2813	0.1254	-0.0011
323	SLE FR 2	3.91	0.38	29.01	-0.2813	0.1255	-0.0011
323	SLE FR 3	3.86	0.38	29.1	-0.2823	0.1234	-0.0011
323	SLE FR 4	4.14	0.4	30.01	-0.2947	0.1337	-0.0011
323	SLE FR 5	4.1	0.4	30.1	-0.2957	0.1317	-0.0011
323	SLE FR 6	4.3	0.41	30.68	-0.3036	0.1392	-0.0012
323	SLE QP 1	3.9	0.38	29.01	-0.2813	0.1254	-0.0011
323	SLE QP 2	4.14	0.4	30.01	-0.2947	0.1337	-0.0011
323	SLD 1	15.69	0.33	27.35	-0.2344	0.6318	-0.0009
323	SLD 2	15.69	0.33	27.35	-0.2344	0.6318	-0.0009
323	SLD 3	15.03	0.38	30.81	-0.2841	0.6046	-0.0011
323	SLD 4	15.03	0.38	30.81	-0.2841	0.6046	-0.0011
323	SLD 5	8.61	0.3	23.96	-0.2012	0.3245	-0.0009
323	SLD 6	8.61	0.3	23.96	-0.2012	0.3245	-0.0009
323	SLD 7	6.41	0.47	35.51	-0.3669	0.2336	-0.0013
323	SLD 8	6.41	0.47	35.51	-0.3669	0.2336	-0.0013
323	SLD 9	1.88	0.32	24.52	-0.2224	0.0338	-0.001
323	SLD 10	1.88	0.32	24.52	-0.2224	0.0338	-0.001
323	SLD 11	-0.32	0.5	36.07	-0.3881	-0.0571	-0.0014
323	SLD 12	-0.32	0.5	36.07	-0.3881	-0.0571	-0.0014
323	SLD 13	-6.75	0.41	29.22	-0.3052	-0.3372	-0.0012
323	SLD 14	-6.75	0.41	29.22	-0.3052	-0.3372	-0.0012
323	SLD 15	-7.41	0.47	32.68	-0.3549	-0.3644	-0.0013
323	SLD 16	-7.41	0.47	32.68	-0.3549	-0.3644	-0.0013
323	SLV 1	30.62	0.23	23.82	-0.1485	1.2756	-0.0007
323	SLV 2	30.62	0.23	23.82	-0.1485	1.2756	-0.0007
323	SLV 3	29.06	0.36	31.81	-0.2655	1.2115	-0.001
323	SLV 4	29.06	0.36	31.81	-0.2655	1.2115	-0.001
323	SLV 5	14.44	0.16	16.04	-0.0734	0.5735	-0.0006
323	SLV 6	14.44	0.16	16.04	-0.0734	0.5735	-0.0006
323	SLV 7	9.26	0.57	42.67	-0.4634	0.3598	-0.0015
323	SLV 8	9.26	0.57	42.67	-0.4634	0.3598	-0.0015





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
323	SLV 9	-0.98	0.22	17.36	-0.126	-0.0924	-0.0007
323	SLV 10	-0.98	0.22	17.36	-0.126	-0.0924	-0.0007
323	SLV 11	-6.16	0.63	43.99	-0.516	-0.3061	-0.0017
323	SLV 12	-6.16	0.63	43.99	-0.516	-0.3061	-0.0017
323	SLV 13	-20.78	0.44	28.22	-0.3238	-0.9441	-0.0013
323	SLV 14	-20.78	0.44	28.22	-0.3238	-0.9441	-0.0013
323	SLV 15	-22.33	0.56	36.21	-0.4408	-1.0082	-0.0016
323	SLV 16	-22.33	0.56	36.21	-0.4408	-1.0082	-0.0016
324	SLU 1	6.63	0.36	27.3	-0.2706	0.3288	-0.0012
324	SLU 2	6.64	0.36	27.29	-0.2705	0.329	-0.0012
324	SLU 3	6.68	0.37	27.94	-0.2792	0.3318	-0.0012
324	SLU 4	6.68	0.37	27.94	-0.2792	0.332	-0.0012
324	SLU 5	6.52	0.36	27.61	-0.2745	0.3242	-0.0012
324	SLU 6	6.56	0.37	28.27	-0.2832	0.327	-0.0012
324	SLU 7	6.56	0.37	28.26	-0.2832	0.3271	-0.0012
324	SLU 8	6.39	0.37	27.95	-0.2785	0.3191	-0.0012
324	SLU 9	6.39	0.37	27.94	-0.2785	0.3192	-0.0012
324	SLU 10	8	0.42	30.72	-0.318	0.3945	-0.0014
324	SLU 11	8.04	0.43	31.38	-0.3267	0.3973	-0.0014
324	SLU 12	8.04	0.43	31.37	-0.3267	0.3975	-0.0014
324	SLU 13	7.88	0.42	31.04	-0.322	0.3897	-0.0014
324	SLU 14	7.92	0.43	31.7	-0.3307	0.3925	-0.0014
324	SLU 15	7.92	0.43	31.69	-0.3306	0.3926	-0.0014
324	SLU 16	7.75	0.43	31.38	-0.326	0.3846	-0.0014
324	SLU 17	7.75	0.43	31.37	-0.326	0.3847	-0.0014
324	SLU 18	8.58	0.44	32.2	-0.3384	0.4223	-0.0015
324	SLU 19	8.58	0.44	32.19	-0.3384	0.4225	-0.0015
324	SLU 20	8.46	0.45	32.53	-0.3424	0.4175	-0.0015
324	SLU 21	8.46	0.45	32.52	-0.3423	0.4176	-0.0015
324	SLU 22	7.78	0.41	30.57	-0.3157	0.3846	-0.0014
324	SLU 23	7.78	0.41	30.55	-0.3156	0.3849	-0.0014
324	SLU 24	7.82	0.43	31.21	-0.3244	0.3877	-0.0014
324	SLU 25	7.82	0.43	31.2	-0.3243	0.3878	-0.0014
324	SLU 26	7.66	0.42	30.88	-0.3196	0.38	-0.0014
324	SLU 27	7.7	0.43	31.54	-0.3283	0.3828	-0.0014
324	SLU 28	7.7	0.43	31.53	-0.3283	0.383	-0.0014
324	SLU 29	7.53	0.42	31.22	-0.3237	0.3749	-0.0014
324	SLU 30	7.54	0.42	31.21	-0.3236	0.3751	-0.0014
324	SLU 31	9.14	0.48	33.99	-0.3631	0.4504	-0.0016
324	SLU 32	9.18	0.49	34.64	-0.3718	0.4532	-0.0016
324	SLU 33	9.18	0.49	34.64	-0.3718	0.4533	-0.0016
324	SLU 34	9.02	0.48	34.31	-0.3671	0.4455	-0.0016
324	SLU 35	9.06	0.49	34.97	-0.3758	0.4483	-0.0016
324	SLU 36	9.06	0.49	34.96	-0.3757	0.4484	-0.0016
324	SLU 37	8.89	0.49	34.65	-0.3711	0.4404	-0.0016
324	SLU 38	8.9	0.49	34.64	-0.3711	0.4406	-0.0016
324	SLU 39	9.72	0.5	35.47	-0.3835	0.4782	-0.0016
324	SLU 40	9.72	0.5	35.46	-0.3835	0.4783	-0.0016
324	SLU 41	9.6	0.51	35.79	-0.3875	0.4733	-0.0017
324	SLU 42	9.6	0.51	35.79	-0.3875	0.4735	-0.0017
324	SLU 43	8.23	0.44	34.37	-0.3363	0.4083	-0.0014
324	SLU 44	8.24	0.44	34.36	-0.3362	0.4085	-0.0014
324	SLU 45	8.28	0.45	35.01	-0.345	0.4113	-0.0015
324	SLU 46	8.28	0.45	35.01	-0.3449	0.4115	-0.0015
324	SLU 47	8.11	0.45	34.68	-0.3402	0.4037	-0.0015
324	SLU 48	8.15	0.46	35.34	-0.3489	0.4065	-0.0015
324	SLU 49	8.16	0.46	35.33	-0.3489	0.4066	-0.0015
324	SLU 50	7.99	0.45	35.02	-0.3443	0.3986	-0.0015
324	SLU 51	7.99	0.45	35.01	-0.3442	0.3987	-0.0015
324	SLU 52	9.6	0.5	37.79	-0.3837	0.474	-0.0016
324	SLU 53	9.64	0.52	38.45	-0.3924	0.4768	-0.0017
324	SLU 54	9.64	0.52	38.44	-0.3924	0.4769	-0.0017
324	SLU 55	9.48	0.51	38.11	-0.3877	0.4691	-0.0017
324	SLU 56	9.51	0.52	38.77	-0.3964	0.4719	-0.0017
324	SLU 57	9.52	0.52	38.76	-0.3963	0.4721	-0.0017
324	SLU 58	9.35	0.51	38.45	-0.3917	0.464	-0.0017
324	SLU 59	9.35	0.51	38.44	-0.3917	0.4642	-0.0017
324	SLU 60	10.17	0.53	39.27	-0.4041	0.5018	-0.0017
324	SLU 61	10.18	0.53	39.26	-0.4041	0.502	-0.0017
324	SLU 62	10.05	0.54	39.6	-0.4081	0.497	-0.0018
324	SLU 63	10.06	0.54	39.59	-0.4081	0.4971	-0.0018
324	SLU 64	9.37	0.5	37.64	-0.3814	0.4641	-0.0016
324	SLU 65	9.38	0.5	37.62	-0.3813	0.4644	-0.0016
324	SLU 66	9.42	0.51	38.28	-0.3901	0.4672	-0.0017
324	SLU 67	9.42	0.51	38.27	-0.39	0.4673	-0.0017
324	SLU 68	9.26	0.51	37.95	-0.3853	0.4595	-0.0017
324	SLU 69	9.3	0.52	38.61	-0.394	0.4623	-0.0017
324	SLU 70	9.3	0.52	38.6	-0.394	0.4625	-0.0017
324	SLU 71	9.13	0.51	38.29	-0.3894	0.4544	-0.0017
324	SLU 72	9.13	0.51	38.28	-0.3893	0.4546	-0.0017
324	SLU 73	10.74	0.56	41.05	-0.4288	0.5298	-0.0018
324	SLU 74	10.78	0.57	41.71	-0.4375	0.5327	-0.0019
324	SLU 75	10.78	0.57	41.71	-0.4375	0.5328	-0.0019
324	SLU 76	10.62	0.57	41.38	-0.4328	0.525	-0.0019
324	SLU 77	10.66	0.58	42.04	-0.4415	0.5278	-0.0019
324	SLU 78	10.66	0.58	42.03	-0.4415	0.5279	-0.0019
324	SLU 79	10.49	0.57	41.72	-0.4368	0.5199	-0.0019
324	SLU 80	10.49	0.57	41.71	-0.4368	0.52	-0.0019
324	SLU 81	11.32	0.59	42.54	-0.4493	0.5577	-0.0019



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
324	SLU 82	11.32	0.59	42.53	-0.4492	0.5578	-0.0019
324	SLU 83	11.2	0.6	42.86	-0.4532	0.5528	-0.0019
324	SLU 84	11.2	0.6	42.86	-0.4532	0.553	-0.0019
324	SLE RA 1	6.96	0.37	28.23	-0.2835	0.3447	-0.0012
324	SLE RA 2	6.96	0.37	28.22	-0.2834	0.3449	-0.0012
324	SLE RA 3	6.99	0.38	28.66	-0.2893	0.3468	-0.0012
324	SLE RA 4	6.99	0.38	28.66	-0.2892	0.3469	-0.0012
324	SLE RA 5	6.88	0.38	28.44	-0.2861	0.3417	-0.0012
324	SLE RA 6	6.91	0.38	28.88	-0.2919	0.3435	-0.0013
324	SLE RA 7	6.91	0.38	28.87	-0.2919	0.3436	-0.0013
324	SLE RA 8	6.8	0.38	28.67	-0.2888	0.3383	-0.0012
324	SLE RA 9	6.8	0.38	28.66	-0.2888	0.3384	-0.0012
324	SLE RA 10	7.87	0.41	30.51	-0.3151	0.3886	-0.0014
324	SLE RA 11	7.9	0.42	30.95	-0.3209	0.3904	-0.0014
324	SLE RA 12	7.9	0.42	30.95	-0.3209	0.3905	-0.0014
324	SLE RA 13	7.79	0.42	30.73	-0.3177	0.3853	-0.0014
324	SLE RA 14	7.82	0.42	31.17	-0.3235	0.3872	-0.0014
324	SLE RA 15	7.82	0.42	31.16	-0.3235	0.3873	-0.0014
324	SLE RA 16	7.7	0.42	30.95	-0.3204	0.3819	-0.0014
324	SLE RA 17	7.71	0.42	30.95	-0.3204	0.382	-0.0014
324	SLE RA 18	8.26	0.43	31.5	-0.3287	0.4071	-0.0014
324	SLE RA 19	8.26	0.43	31.5	-0.3287	0.4072	-0.0014
324	SLE RA 20	8.17	0.44	31.72	-0.3314	0.4039	-0.0014
324	SLE RA 21	8.18	0.44	31.71	-0.3313	0.404	-0.0014
324	SLE FR 1	6.96	0.37	28.23	-0.2835	0.3447	-0.0012
324	SLE FR 2	6.96	0.37	28.23	-0.2835	0.3448	-0.0012
324	SLE FR 3	6.93	0.37	28.32	-0.2846	0.3435	-0.0012
324	SLE FR 4	7.35	0.39	29.21	-0.297	0.3635	-0.0013
324	SLE FR 5	7.32	0.39	29.3	-0.2981	0.3622	-0.0013
324	SLE FR 6	7.61	0.4	29.87	-0.3061	0.3759	-0.0013
324	SLE QP 1	6.96	0.37	28.23	-0.2835	0.3447	-0.0012
324	SLE QP 2	7.35	0.39	29.21	-0.2971	0.3635	-0.0013
324	SLD 1	18.75	0.32	26.49	-0.2322	0.8575	-0.001
324	SLD 2	18.75	0.32	26.49	-0.2322	0.8575	-0.001
324	SLD 3	19.57	0.37	29.61	-0.2845	0.8955	-0.0012
324	SLD 4	19.57	0.37	29.61	-0.2845	0.8955	-0.0012
324	SLD 5	9.53	0.28	23.65	-0.1983	0.454	-0.0009
324	SLD 6	9.53	0.28	23.65	-0.1983	0.454	-0.0009
324	SLD 7	12.25	0.47	34.08	-0.3726	0.5807	-0.0015
324	SLD 8	12.25	0.47	34.08	-0.3726	0.5807	-0.0015
324	SLD 9	2.45	0.31	24.35	-0.2215	0.1462	-0.001
324	SLD 10	2.45	0.31	24.35	-0.2215	0.1462	-0.001
324	SLD 11	5.16	0.5	34.77	-0.3958	0.2729	-0.0016
324	SLD 12	5.16	0.5	34.77	-0.3958	0.2729	-0.0016
324	SLD 13	-4.87	0.41	28.81	-0.3097	-0.1686	-0.0013
324	SLD 14	-4.87	0.41	28.81	-0.3097	-0.1686	-0.0013
324	SLD 15	-4.06	0.46	31.94	-0.3619	-0.1306	-0.0015
324	SLD 16	-4.06	0.46	31.94	-0.3619	-0.1306	-0.0015
324	SLV 1	33.44	0.21	22.86	-0.1375	1.4936	-0.0007
324	SLV 2	33.44	0.21	22.86	-0.1375	1.4936	-0.0007
324	SLV 3	35.36	0.35	30.08	-0.2606	1.5834	-0.0011
324	SLV 4	35.36	0.35	30.08	-0.2606	1.5834	-0.0011
324	SLV 5	12.25	0.13	16.36	-0.0626	0.5662	-0.0005
324	SLV 6	12.25	0.13	16.36	-0.0626	0.5662	-0.0005
324	SLV 7	18.68	0.58	40.42	-0.4727	0.8657	-0.0019
324	SLV 8	18.68	0.58	40.42	-0.4727	0.8657	-0.0019
324	SLV 9	-3.98	0.2	18	-0.1214	-0.1388	-0.0007
324	SLV 10	-3.98	0.2	18	-0.1214	-0.1388	-0.0007
324	SLV 11	2.45	0.65	42.07	-0.5315	0.1607	-0.0021
324	SLV 12	2.45	0.65	42.07	-0.5315	0.1607	-0.0021
324	SLV 13	-20.67	0.43	28.34	-0.3336	-0.8565	-0.0014
324	SLV 14	-20.67	0.43	28.34	-0.3336	-0.8565	-0.0014
324	SLV 15	-18.74	0.57	35.56	-0.4566	-0.7667	-0.0019
324	SLV 16	-18.74	0.57	35.56	-0.4566	-0.7667	-0.0019
325	SLU 1	7.71	0.34	28.98	-0.2554	0.2903	-0.0012
325	SLU 2	7.71	0.34	28.97	-0.2553	0.2905	-0.0012
325	SLU 3	7.79	0.35	29.69	-0.2636	0.2925	-0.0012
325	SLU 4	7.79	0.35	29.68	-0.2635	0.2926	-0.0012
325	SLU 5	7.61	0.35	29.33	-0.2591	0.2855	-0.0012
325	SLU 6	7.69	0.36	30.05	-0.2673	0.2876	-0.0013
325	SLU 7	7.7	0.36	30.04	-0.2672	0.2877	-0.0013
325	SLU 8	7.51	0.35	29.7	-0.2629	0.2804	-0.0012
325	SLU 9	7.52	0.35	29.69	-0.2628	0.2805	-0.0012
325	SLU 10	9.28	0.4	32.77	-0.3004	0.3509	-0.0014
325	SLU 11	9.36	0.41	33.49	-0.3086	0.3529	-0.0015
325	SLU 12	9.36	0.41	33.48	-0.3085	0.353	-0.0015
325	SLU 13	9.18	0.41	33.13	-0.3041	0.3459	-0.0014
325	SLU 14	9.26	0.42	33.85	-0.3123	0.3479	-0.0015
325	SLU 15	9.27	0.42	33.84	-0.3123	0.348	-0.0015
325	SLU 16	9.08	0.41	33.5	-0.3079	0.3408	-0.0015
325	SLU 17	9.08	0.41	33.49	-0.3078	0.3409	-0.0015
325	SLU 18	9.95	0.43	34.41	-0.3198	0.3766	-0.0015
325	SLU 19	9.95	0.43	34.4	-0.3197	0.3767	-0.0015
325	SLU 20	9.85	0.43	34.77	-0.3235	0.3716	-0.0015
325	SLU 21	9.85	0.43	34.76	-0.3234	0.3717	-0.0015
325	SLU 22	9.05	0.4	32.58	-0.2982	0.341	-0.0014
325	SLU 23	9.05	0.4	32.57	-0.2981	0.3412	-0.0014
325	SLU 24	9.13	0.41	33.29	-0.3063	0.3432	-0.0014
325	SLU 25	9.13	0.41	33.28	-0.3062	0.3433	-0.0014



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
325	SLU 26	8.95	0.4	32.93	-0.3018	0.3363	-0.0014
325	SLU 27	9.03	0.41	33.65	-0.31	0.3383	-0.0015
325	SLU 28	9.04	0.41	33.64	-0.31	0.3384	-0.0015
325	SLU 29	8.85	0.41	33.3	-0.3056	0.3311	-0.0014
325	SLU 30	8.85	0.41	33.29	-0.3055	0.3312	-0.0014
325	SLU 31	10.62	0.46	36.37	-0.3431	0.4016	-0.0016
325	SLU 32	10.7	0.47	37.09	-0.3513	0.4036	-0.0017
325	SLU 33	10.7	0.47	37.08	-0.3513	0.4037	-0.0017
325	SLU 34	10.52	0.46	36.72	-0.3468	0.3966	-0.0016
325	SLU 35	10.6	0.47	37.45	-0.355	0.3986	-0.0017
325	SLU 36	10.6	0.47	37.44	-0.355	0.3987	-0.0017
325	SLU 37	10.42	0.47	37.1	-0.3506	0.3915	-0.0017
325	SLU 38	10.42	0.47	37.09	-0.3506	0.3916	-0.0017
325	SLU 39	11.29	0.48	38.01	-0.3625	0.4273	-0.0017
325	SLU 40	11.29	0.48	38	-0.3624	0.4274	-0.0017
325	SLU 41	11.19	0.49	38.37	-0.3662	0.4223	-0.0017
325	SLU 42	11.19	0.49	38.36	-0.3661	0.4224	-0.0017
325	SLU 43	9.56	0.42	36.45	-0.3174	0.3601	-0.0015
325	SLU 44	9.57	0.42	36.43	-0.3173	0.3602	-0.0015
325	SLU 45	9.65	0.43	37.16	-0.3256	0.3622	-0.0015
325	SLU 46	9.65	0.43	37.15	-0.3255	0.3623	-0.0015
325	SLU 47	9.47	0.43	36.79	-0.321	0.3553	-0.0015
325	SLU 48	9.55	0.44	37.51	-0.3293	0.3573	-0.0016
325	SLU 49	9.55	0.44	37.5	-0.3292	0.3574	-0.0016
325	SLU 50	9.37	0.43	37.16	-0.3249	0.3501	-0.0015
325	SLU 51	9.37	0.43	37.15	-0.3248	0.3502	-0.0015
325	SLU 52	11.13	0.48	40.23	-0.3624	0.4206	-0.0017
325	SLU 53	11.22	0.49	40.95	-0.3706	0.4226	-0.0018
325	SLU 54	11.22	0.49	40.94	-0.3705	0.4227	-0.0018
325	SLU 55	11.04	0.49	40.59	-0.3661	0.4156	-0.0017
325	SLU 56	11.12	0.5	41.31	-0.3743	0.4176	-0.0018
325	SLU 57	11.12	0.5	41.3	-0.3742	0.4177	-0.0018
325	SLU 58	10.94	0.49	40.96	-0.3699	0.4105	-0.0017
325	SLU 59	10.94	0.49	40.95	-0.3698	0.4106	-0.0017
325	SLU 60	11.8	0.51	41.87	-0.3817	0.4463	-0.0018
325	SLU 61	11.81	0.51	41.86	-0.3817	0.4464	-0.0018
325	SLU 62	11.71	0.51	42.23	-0.3855	0.4413	-0.0018
325	SLU 63	11.71	0.51	42.22	-0.3854	0.4414	-0.0018
325	SLU 64	10.9	0.48	40.04	-0.3601	0.4108	-0.0017
325	SLU 65	10.9	0.48	40.03	-0.3601	0.4109	-0.0017
325	SLU 66	10.98	0.49	40.75	-0.3683	0.4129	-0.0017
325	SLU 67	10.99	0.49	40.74	-0.3682	0.413	-0.0017
325	SLU 68	10.81	0.48	40.39	-0.3638	0.406	-0.0017
325	SLU 69	10.89	0.5	41.11	-0.372	0.408	-0.0018
325	SLU 70	10.89	0.5	41.1	-0.3719	0.4081	-0.0018
325	SLU 71	10.7	0.49	40.76	-0.3676	0.4008	-0.0017
325	SLU 72	10.71	0.49	40.75	-0.3675	0.4009	-0.0017
325	SLU 73	12.47	0.54	43.83	-0.4051	0.4713	-0.0019
325	SLU 74	12.55	0.55	44.55	-0.4133	0.4733	-0.002
325	SLU 75	12.56	0.55	44.54	-0.4133	0.4734	-0.002
325	SLU 76	12.38	0.54	44.19	-0.4088	0.4663	-0.0019
325	SLU 77	12.46	0.56	44.91	-0.417	0.4683	-0.002
325	SLU 78	12.46	0.56	44.9	-0.417	0.4684	-0.002
325	SLU 79	12.27	0.55	44.56	-0.4126	0.4612	-0.0019
325	SLU 80	12.28	0.55	44.55	-0.4125	0.4613	-0.0019
325	SLU 81	13.14	0.57	45.47	-0.4245	0.497	-0.002
325	SLU 82	13.14	0.57	45.46	-0.4244	0.4971	-0.002
325	SLU 83	13.04	0.57	45.83	-0.4282	0.492	-0.002
325	SLU 84	13.05	0.57	45.82	-0.4281	0.4921	-0.002
325	SLE RA 1	8.09	0.36	30.01	-0.2676	0.3048	-0.0013
325	SLE RA 2	8.09	0.36	30	-0.2676	0.3049	-0.0013
325	SLE RA 3	8.15	0.36	30.49	-0.2731	0.3063	-0.0013
325	SLE RA 4	8.15	0.36	30.48	-0.273	0.3063	-0.0013
325	SLE RA 5	8.03	0.36	30.24	-0.2701	0.3016	-0.0013
325	SLE RA 6	8.08	0.37	30.72	-0.2755	0.303	-0.0013
325	SLE RA 7	8.08	0.37	30.72	-0.2755	0.303	-0.0013
325	SLE RA 8	7.96	0.36	30.49	-0.2726	0.2982	-0.0013
325	SLE RA 9	7.96	0.36	30.48	-0.2726	0.2983	-0.0013
325	SLE RA 10	9.14	0.4	32.53	-0.2976	0.3452	-0.0014
325	SLE RA 11	9.19	0.4	33.02	-0.3031	0.3465	-0.0014
325	SLE RA 12	9.19	0.4	33.01	-0.3031	0.3466	-0.0014
325	SLE RA 13	9.07	0.4	32.77	-0.3001	0.3419	-0.0014
325	SLE RA 14	9.13	0.41	33.26	-0.3056	0.3432	-0.0014
325	SLE RA 15	9.13	0.41	33.25	-0.3055	0.3433	-0.0014
325	SLE RA 16	9.01	0.4	33.02	-0.3026	0.3384	-0.0014
325	SLE RA 17	9.01	0.4	33.02	-0.3026	0.3385	-0.0014
325	SLE RA 18	9.59	0.41	33.63	-0.3105	0.3623	-0.0015
325	SLE RA 19	9.59	0.41	33.62	-0.3105	0.3624	-0.0015
325	SLE RA 20	9.52	0.42	33.87	-0.313	0.359	-0.0015
325	SLE RA 21	9.52	0.42	33.86	-0.313	0.3591	-0.0015
325	SLE FR 1	8.09	0.36	30.01	-0.2676	0.3048	-0.0013
325	SLE FR 2	8.09	0.36	30.01	-0.2676	0.3048	-0.0013
325	SLE FR 3	8.06	0.36	30.11	-0.2686	0.3035	-0.0013
325	SLE FR 4	8.54	0.37	31.1	-0.2805	0.3221	-0.0013
325	SLE FR 5	8.51	0.38	31.19	-0.2815	0.3207	-0.0013
325	SLE FR 6	8.84	0.39	31.82	-0.2891	0.3336	-0.0014
325	SLE QP 1	8.09	0.36	30.01	-0.2676	0.3048	-0.0013
325	SLE QP 2	8.54	0.37	31.1	-0.2805	0.3221	-0.0013
325	SID 1	19.89	0.3	31.6	-0.2146	0.8118	-0.001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
325	SLD 2	19.89	0.3	31.6	-0.2146	0.8118	-0.001
325	SLD 3	20.87	0.35	34.78	-0.2641	0.851	-0.0013
325	SLD 4	20.87	0.35	34.78	-0.2641	0.851	-0.0013
325	SLD 5	10.47	0.27	26.42	-0.1856	0.4096	-0.0009
325	SLD 6	10.47	0.27	26.42	-0.1856	0.4096	-0.0009
325	SLD 7	13.72	0.45	37.03	-0.3507	0.5402	-0.0016
325	SLD 8	13.72	0.45	37.03	-0.3507	0.5402	-0.0016
325	SLD 9	3.36	0.3	25.17	-0.2103	0.104	-0.001
325	SLD 10	3.36	0.3	25.17	-0.2103	0.104	-0.001
325	SLD 11	6.61	0.48	35.77	-0.3754	0.2346	-0.0017
325	SLD 12	6.61	0.48	35.77	-0.3754	0.2346	-0.0017
325	SLD 13	-3.79	0.39	27.41	-0.2969	-0.2069	-0.0014
325	SLD 14	-3.79	0.39	27.41	-0.2969	-0.2069	-0.0014
325	SLD 15	-2.81	0.45	30.59	-0.3464	-0.1677	-0.0016
325	SLD 16	-2.81	0.45	30.59	-0.3464	-0.1677	-0.0016
325	SLV 1	34.51	0.19	32.27	-0.1152	1.4425	-0.0006
325	SLV 2	34.51	0.19	32.27	-0.1152	1.4425	-0.0006
325	SLV 3	36.81	0.32	39.64	-0.2319	1.5351	-0.0011
325	SLV 4	36.81	0.32	39.64	-0.2319	1.5351	-0.0011
325	SLV 5	12.83	0.12	20.27	-0.054	0.5179	-0.0004
325	SLV 6	12.83	0.12	20.27	-0.054	0.5179	-0.0004
325	SLV 7	20.52	0.56	44.84	-0.4428	0.8263	-0.002
325	SLV 8	20.52	0.56	44.84	-0.4428	0.8263	-0.002
325	SLV 9	-3.44	0.19	17.35	-0.1182	-0.1822	-0.0007
325	SLV 10	-3.44	0.19	17.35	-0.1182	-0.1822	-0.0007
325	SLV 11	4.25	0.63	41.92	-0.507	0.1263	-0.0023
325	SLV 12	4.25	0.63	41.92	-0.507	0.1263	-0.0023
325	SLV 13	-19.74	0.43	22.55	-0.3292	-0.8909	-0.0015
325	SLV 14	-19.74	0.43	22.55	-0.3292	-0.8909	-0.0015
325	SLV 15	-17.43	0.56	29.92	-0.4458	-0.7984	-0.002
325	SLV 16	-17.43	0.56	29.92	-0.4458	-0.7984	-0.002
326	SLU 1	9.32	0.3	32.28	-0.2195	0.4098	-0.001
326	SLU 2	9.33	0.3	32.26	-0.2194	0.4099	-0.001
326	SLU 3	9.47	0.31	33.11	-0.2264	0.4162	-0.001
326	SLU 4	9.48	0.31	33.1	-0.2264	0.4163	-0.001
326	SLU 5	9.27	0.3	32.69	-0.2225	0.4074	-0.001
326	SLU 6	9.42	0.31	33.54	-0.2294	0.4137	-0.0011
326	SLU 7	9.42	0.31	33.53	-0.2294	0.4138	-0.0011
326	SLU 8	9.22	0.31	33.13	-0.2256	0.4047	-0.001
326	SLU 9	9.22	0.31	33.12	-0.2256	0.4048	-0.001
326	SLU 10	11.17	0.35	36.72	-0.2582	0.4904	-0.0012
326	SLU 11	11.32	0.36	37.56	-0.2652	0.4967	-0.0012
326	SLU 12	11.32	0.36	37.55	-0.2652	0.4968	-0.0012
326	SLU 13	11.12	0.36	37.14	-0.2613	0.4878	-0.0012
326	SLU 14	11.27	0.37	37.99	-0.2682	0.4942	-0.0012
326	SLU 15	11.27	0.37	37.98	-0.2682	0.4943	-0.0012
326	SLU 16	11.06	0.36	37.59	-0.2644	0.4852	-0.0012
326	SLU 17	11.06	0.36	37.57	-0.2644	0.4853	-0.0012
326	SLU 18	11.96	0.37	38.64	-0.2749	0.5248	-0.0013
326	SLU 19	11.97	0.37	38.63	-0.2749	0.5248	-0.0013
326	SLU 20	11.91	0.38	39.07	-0.278	0.5222	-0.0013
326	SLU 21	11.91	0.38	39.06	-0.2779	0.5223	-0.0013
326	SLU 22	10.94	0.35	36.48	-0.2562	0.4801	-0.0012
326	SLU 23	10.94	0.35	36.46	-0.2562	0.4802	-0.0012
326	SLU 24	11.09	0.36	37.31	-0.2631	0.4866	-0.0012
326	SLU 25	11.09	0.36	37.3	-0.2631	0.4866	-0.0012
326	SLU 26	10.88	0.35	36.89	-0.2592	0.4777	-0.0012
326	SLU 27	11.03	0.36	37.74	-0.2662	0.484	-0.0012
326	SLU 28	11.03	0.36	37.73	-0.2661	0.4841	-0.0012
326	SLU 29	10.83	0.36	37.34	-0.2623	0.4751	-0.0012
326	SLU 30	10.83	0.36	37.32	-0.2623	0.4751	-0.0012
326	SLU 31	12.79	0.4	40.92	-0.295	0.5607	-0.0014
326	SLU 32	12.93	0.41	41.77	-0.3019	0.5671	-0.0014
326	SLU 33	12.94	0.41	41.76	-0.3019	0.5671	-0.0014
326	SLU 34	12.73	0.41	41.34	-0.298	0.5582	-0.0014
326	SLU 35	12.88	0.42	42.19	-0.305	0.5645	-0.0014
326	SLU 36	12.88	0.42	42.18	-0.3049	0.5646	-0.0014
326	SLU 37	12.68	0.41	41.79	-0.3011	0.5555	-0.0014
326	SLU 38	12.68	0.41	41.78	-0.3011	0.5556	-0.0014
326	SLU 39	13.58	0.42	42.84	-0.3117	0.5951	-0.0014
326	SLU 40	13.58	0.42	42.83	-0.3116	0.5952	-0.0014
326	SLU 41	13.52	0.43	43.27	-0.3147	0.5926	-0.0015
326	SLU 42	13.52	0.43	43.26	-0.3147	0.5926	-0.0015
326	SLU 43	11.57	0.37	40.52	-0.2728	0.5086	-0.0013
326	SLU 44	11.57	0.37	40.5	-0.2727	0.5087	-0.0013
326	SLU 45	11.72	0.38	41.35	-0.2797	0.5151	-0.0013
326	SLU 46	11.72	0.38	41.34	-0.2796	0.5151	-0.0013
326	SLU 47	11.52	0.38	40.93	-0.2757	0.5062	-0.0013
326	SLU 48	11.66	0.38	41.78	-0.2827	0.5125	-0.0013
326	SLU 49	11.67	0.38	41.77	-0.2827	0.5126	-0.0013
326	SLU 50	11.46	0.38	41.38	-0.2789	0.5035	-0.0013
326	SLU 51	11.46	0.38	41.36	-0.2788	0.5036	-0.0013
326	SLU 52	13.42	0.42	44.96	-0.3115	0.5892	-0.0014
326	SLU 53	13.57	0.43	45.81	-0.3185	0.5955	-0.0015
326	SLU 54	13.57	0.43	45.8	-0.3184	0.5956	-0.0015
326	SLU 55	13.36	0.43	45.38	-0.3145	0.5867	-0.0015
326	SLU 56	13.51	0.44	46.23	-0.3215	0.593	-0.0015
326	SLU 57	13.51	0.44	46.22	-0.3215	0.5931	-0.0015
326	SLU 58	13.31	0.43	45.83	-0.3177	0.584	-0.0015



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
326	SLU 59	13.31	0.43	45.82	-0.3176	0.5841	-0.0015
326	SLU 60	14.21	0.45	46.88	-0.3282	0.6236	-0.0015
326	SLU 61	14.21	0.45	46.87	-0.3282	0.6237	-0.0015
326	SLU 62	14.15	0.45	47.31	-0.3313	0.621	-0.0015
326	SLU 63	14.16	0.45	47.3	-0.3312	0.6211	-0.0015
326	SLU 64	13.18	0.42	44.73	-0.3095	0.5789	-0.0014
326	SLU 65	13.18	0.42	44.71	-0.3094	0.5791	-0.0014
326	SLU 66	13.33	0.43	45.56	-0.3164	0.5854	-0.0015
326	SLU 67	13.33	0.43	45.55	-0.3163	0.5855	-0.0015
326	SLU 68	13.13	0.43	45.13	-0.3125	0.5765	-0.0014
326	SLU 69	13.28	0.43	45.98	-0.3194	0.5829	-0.0015
326	SLU 70	13.28	0.43	45.97	-0.3194	0.5829	-0.0015
326	SLU 71	13.07	0.43	45.58	-0.3156	0.5739	-0.0015
326	SLU 72	13.07	0.43	45.57	-0.3155	0.5739	-0.0015
326	SLU 73	15.03	0.47	49.16	-0.3482	0.6595	-0.0016
326	SLU 74	15.18	0.48	50.01	-0.3552	0.6659	-0.0016
326	SLU 75	15.18	0.48	50	-0.3552	0.6659	-0.0016
326	SLU 76	14.98	0.48	49.59	-0.3513	0.657	-0.0016
326	SLU 77	15.12	0.49	50.44	-0.3582	0.6633	-0.0017
326	SLU 78	15.13	0.49	50.43	-0.3582	0.6634	-0.0017
326	SLU 79	14.92	0.48	50.03	-0.3544	0.6544	-0.0016
326	SLU 80	14.92	0.48	50.02	-0.3543	0.6544	-0.0016
326	SLU 81	15.82	0.5	51.09	-0.3649	0.6939	-0.0017
326	SLU 82	15.82	0.5	51.08	-0.3649	0.694	-0.0017
326	SLU 83	15.77	0.5	51.51	-0.368	0.6914	-0.0017
326	SLU 84	15.77	0.5	51.5	-0.3679	0.6915	-0.0017
326	SLE RA 1	9.79	0.31	33.48	-0.23	0.4299	-0.0011
326	SLE RA 2	9.79	0.31	33.47	-0.23	0.43	-0.0011
326	SLE RA 3	9.88	0.32	34.03	-0.2346	0.4342	-0.0011
326	SLE RA 4	9.89	0.32	34.03	-0.2346	0.4342	-0.0011
326	SLE RA 5	9.75	0.32	33.75	-0.232	0.4283	-0.0011
326	SLE RA 6	9.85	0.32	34.32	-0.2366	0.4325	-0.0011
326	SLE RA 7	9.85	0.32	34.31	-0.2366	0.4325	-0.0011
326	SLE RA 8	9.71	0.32	34.05	-0.2341	0.4265	-0.0011
326	SLE RA 9	9.71	0.32	34.04	-0.234	0.4265	-0.0011
326	SLE RA 10	11.02	0.35	36.44	-0.2558	0.4836	-0.0012
326	SLE RA 11	11.12	0.35	37	-0.2605	0.4878	-0.0012
326	SLE RA 12	11.12	0.35	37	-0.2604	0.4879	-0.0012
326	SLE RA 13	10.98	0.35	36.72	-0.2579	0.4819	-0.0012
326	SLE RA 14	11.08	0.36	37.29	-0.2625	0.4862	-0.0012
326	SLE RA 15	11.08	0.36	37.28	-0.2625	0.4862	-0.0012
326	SLE RA 16	10.94	0.35	37.02	-0.2599	0.4802	-0.0012
326	SLE RA 17	10.95	0.35	37.01	-0.2599	0.4802	-0.0012
326	SLE RA 18	11.55	0.36	37.72	-0.267	0.5065	-0.0012
326	SLE RA 19	11.55	0.36	37.71	-0.2669	0.5066	-0.0012
326	SLE RA 20	11.51	0.37	38.01	-0.269	0.5048	-0.0012
326	SLE RA 21	11.51	0.37	38	-0.269	0.5049	-0.0012
326	SLE FR 1	9.79	0.31	33.48	-0.23	0.4299	-0.0011
326	SLE FR 2	9.79	0.31	33.48	-0.23	0.4299	-0.0011
326	SLE FR 3	9.77	0.31	33.59	-0.2308	0.4292	-0.0011
326	SLE FR 4	10.31	0.33	34.75	-0.2411	0.4529	-0.0011
326	SLE FR 5	10.3	0.33	34.87	-0.2419	0.4522	-0.0011
326	SLE FR 6	10.67	0.34	35.6	-0.2485	0.4682	-0.0011
326	SLE QP 1	9.79	0.31	33.48	-0.23	0.4299	-0.0011
326	SLE QP 2	10.31	0.33	34.75	-0.2411	0.4529	-0.0011
326	SLD 1	21.23	0.25	35.97	-0.1771	0.9288	-0.0008
326	SLD 2	21.23	0.25	35.97	-0.1771	0.9288	-0.0008
326	SLD 3	22.43	0.3	39.51	-0.2191	0.9806	-0.001
326	SLD 4	22.43	0.3	39.51	-0.2191	0.9806	-0.001
326	SLD 5	11.76	0.23	29.74	-0.1581	0.5171	-0.0007
326	SLD 6	11.76	0.23	29.74	-0.1581	0.5171	-0.0007
326	SLD 7	15.78	0.39	41.56	-0.2983	0.6897	-0.0014
326	SLD 8	15.78	0.39	41.56	-0.2983	0.6897	-0.0014
326	SLD 9	4.85	0.27	27.95	-0.1839	0.216	-0.0009
326	SLD 10	4.85	0.27	27.95	-0.1839	0.216	-0.0009
326	SLD 11	8.87	0.42	39.77	-0.3241	0.3886	-0.0015
326	SLD 12	8.87	0.42	39.77	-0.3241	0.3886	-0.0015
326	SLD 13	-1.81	0.36	29.99	-0.2631	-0.0748	-0.0012
326	SLD 14	-1.81	0.36	29.99	-0.2631	-0.0748	-0.0012
326	SLD 15	-0.6	0.41	33.54	-0.3051	-0.0231	-0.0014
326	SLD 16	-0.6	0.41	33.54	-0.3051	-0.0231	-0.0014
326	SLV 1	35.28	0.13	37.53	-0.0762	1.5413	-0.0004
326	SLV 2	35.28	0.13	37.53	-0.0762	1.5413	-0.0004
326	SLV 3	38.12	0.24	45.77	-0.1755	1.6634	-0.0008
326	SLV 4	38.12	0.24	45.77	-0.1755	1.6634	-0.0008
326	SLV 5	13.49	0.1	23.09	-0.0411	0.5942	-0.0002
326	SLV 6	13.49	0.1	23.09	-0.0411	0.5942	-0.0002
326	SLV 7	22.97	0.47	50.55	-0.3719	1.0012	-0.0017
326	SLV 8	22.97	0.47	50.55	-0.3719	1.0012	-0.0017
326	SLV 9	-2.34	0.19	18.96	-0.1102	-0.0954	-0.0005
326	SLV 10	-2.34	0.19	18.96	-0.1102	-0.0954	-0.0005
326	SLV 11	7.14	0.56	46.41	-0.4411	0.3115	-0.002
326	SLV 12	7.14	0.56	46.41	-0.4411	0.3115	-0.002
326	SLV 13	-17.49	0.42	23.74	-0.3067	-0.7576	-0.0014
326	SLV 14	-17.49	0.42	23.74	-0.3067	-0.7576	-0.0014
326	SLV 15	-14.65	0.53	31.98	-0.406	-0.6355	-0.0018
326	SLV 16	-14.65	0.53	31.98	-0.406	-0.6355	-0.0018
327	SLU 1	9.03	0.2	36.7	-0.1578	0.3479	-0.0007
327	SLU 2	9.03	0.2	36.68	-0.1578	0.3479	-0.0007



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
327	SLU 3	9.19	0.2	37.71	-0.1625	0.3533	-0.0007
327	SLU 4	9.19	0.2	37.69	-0.1625	0.3534	-0.0007
327	SLU 5	9	0.2	37.21	-0.1597	0.3457	-0.0007
327	SLU 6	9.16	0.21	38.24	-0.1644	0.3511	-0.0007
327	SLU 7	9.16	0.21	38.23	-0.1644	0.3511	-0.0007
327	SLU 8	8.97	0.2	37.77	-0.1616	0.3435	-0.0007
327	SLU 9	8.97	0.2	37.75	-0.1616	0.3435	-0.0007
327	SLU 10	10.83	0.23	41.98	-0.1856	0.4179	-0.0008
327	SLU 11	10.99	0.24	43.01	-0.1904	0.4233	-0.0008
327	SLU 12	10.99	0.24	43	-0.1904	0.4233	-0.0008
327	SLU 13	10.8	0.24	42.52	-0.1875	0.4157	-0.0008
327	SLU 14	10.96	0.24	43.54	-0.1923	0.4211	-0.0009
327	SLU 15	10.96	0.24	43.53	-0.1923	0.4211	-0.0009
327	SLU 16	10.76	0.24	43.07	-0.1895	0.4135	-0.0008
327	SLU 17	10.77	0.24	43.06	-0.1895	0.4135	-0.0008
327	SLU 18	11.6	0.25	44.28	-0.1976	0.4479	-0.0009
327	SLU 19	11.6	0.25	44.26	-0.1976	0.4479	-0.0009
327	SLU 20	11.56	0.25	44.81	-0.1995	0.4457	-0.0009
327	SLU 21	11.57	0.25	44.8	-0.1995	0.4457	-0.0009
327	SLU 22	10.6	0.23	41.7	-0.1841	0.4087	-0.0008
327	SLU 23	10.61	0.23	41.68	-0.184	0.4087	-0.0008
327	SLU 24	10.77	0.24	42.71	-0.1888	0.4141	-0.0008
327	SLU 25	10.77	0.24	42.69	-0.1888	0.4141	-0.0008
327	SLU 26	10.57	0.23	42.21	-0.186	0.4065	-0.0008
327	SLU 27	10.74	0.24	43.24	-0.1907	0.4119	-0.0009
327	SLU 28	10.74	0.24	43.23	-0.1907	0.4119	-0.0009
327	SLU 29	10.54	0.24	42.77	-0.1879	0.4043	-0.0008
327	SLU 30	10.54	0.24	42.76	-0.1879	0.4043	-0.0008
327	SLU 31	12.4	0.27	46.99	-0.2119	0.4787	-0.0009
327	SLU 32	12.56	0.27	48.01	-0.2167	0.4841	-0.001
327	SLU 33	12.56	0.27	48	-0.2167	0.4841	-0.001
327	SLU 34	12.37	0.27	47.52	-0.2138	0.4765	-0.001
327	SLU 35	12.53	0.27	48.55	-0.2186	0.4819	-0.001
327	SLU 36	12.53	0.27	48.53	-0.2186	0.4819	-0.001
327	SLU 37	12.34	0.27	48.08	-0.2158	0.4742	-0.001
327	SLU 38	12.34	0.27	48.06	-0.2157	0.4743	-0.001
327	SLU 39	13.17	0.28	49.28	-0.2239	0.5086	-0.001
327	SLU 40	13.17	0.28	49.27	-0.2239	0.5087	-0.001
327	SLU 41	13.14	0.28	49.82	-0.2258	0.5064	-0.001
327	SLU 42	13.14	0.28	49.8	-0.2258	0.5065	-0.001
327	SLU 43	11.2	0.25	45.99	-0.1961	0.4314	-0.0009
327	SLU 44	11.2	0.25	45.97	-0.1961	0.4315	-0.0009
327	SLU 45	11.36	0.25	47	-0.2009	0.4369	-0.0009
327	SLU 46	11.36	0.25	46.99	-0.2008	0.4369	-0.0009
327	SLU 47	11.17	0.25	46.51	-0.198	0.4293	-0.0009
327	SLU 48	11.33	0.25	47.53	-0.2028	0.4347	-0.0009
327	SLU 49	11.33	0.25	47.52	-0.2027	0.4347	-0.0009
327	SLU 50	11.14	0.25	47.06	-0.1999	0.427	-0.0009
327	SLU 51	11.14	0.25	47.05	-0.1999	0.4271	-0.0009
327	SLU 52	13	0.28	51.28	-0.224	0.5015	-0.001
327	SLU 53	13.16	0.29	52.3	-0.2287	0.5069	-0.001
327	SLU 54	13.16	0.29	52.29	-0.2287	0.5069	-0.001
327	SLU 55	12.97	0.28	51.81	-0.2259	0.4993	-0.001
327	SLU 56	13.13	0.29	52.84	-0.2306	0.5046	-0.001
327	SLU 57	13.13	0.29	52.83	-0.2306	0.5047	-0.001
327	SLU 58	12.93	0.29	52.37	-0.2278	0.497	-0.001
327	SLU 59	12.93	0.29	52.35	-0.2278	0.497	-0.001
327	SLU 60	13.77	0.3	53.57	-0.2359	0.5314	-0.0011
327	SLU 61	13.77	0.3	53.56	-0.2359	0.5314	-0.0011
327	SLU 62	13.73	0.3	54.11	-0.2378	0.5292	-0.0011
327	SLU 63	13.73	0.3	54.09	-0.2378	0.5292	-0.0011
327	SLU 64	12.77	0.28	51	-0.2224	0.4922	-0.001
327	SLU 65	12.77	0.28	50.97	-0.2224	0.4922	-0.001
327	SLU 66	12.94	0.28	52	-0.2272	0.4976	-0.001
327	SLU 67	12.94	0.28	51.99	-0.2271	0.4977	-0.001
327	SLU 68	12.74	0.28	51.51	-0.2243	0.49	-0.001
327	SLU 69	12.91	0.29	52.54	-0.2291	0.4954	-0.001
327	SLU 70	12.91	0.29	52.52	-0.229	0.4954	-0.001
327	SLU 71	12.71	0.28	52.07	-0.2262	0.4878	-0.001
327	SLU 72	12.71	0.28	52.05	-0.2262	0.4878	-0.001
327	SLU 73	14.57	0.31	56.28	-0.2502	0.5622	-0.0011
327	SLU 74	14.73	0.32	57.31	-0.255	0.5676	-0.0011
327	SLU 75	14.73	0.32	57.29	-0.255	0.5676	-0.0011
327	SLU 76	14.54	0.32	56.81	-0.2521	0.56	-0.0011
327	SLU 77	14.7	0.32	57.84	-0.2569	0.5654	-0.0011
327	SLU 78	14.7	0.32	57.83	-0.2569	0.5654	-0.0011
327	SLU 79	14.51	0.32	57.37	-0.2541	0.5578	-0.0011
327	SLU 80	14.51	0.32	57.36	-0.2541	0.5578	-0.0011
327	SLU 81	15.34	0.33	58.58	-0.2622	0.5922	-0.0012
327	SLU 82	15.34	0.33	58.56	-0.2622	0.5922	-0.0012
327	SLU 83	15.31	0.33	59.11	-0.2641	0.59	-0.0012
327	SLU 84	15.31	0.33	59.1	-0.2641	0.59	-0.0012
327	SLE RA 1	9.48	0.21	38.13	-0.1653	0.3653	-0.0007
327	SLE RA 2	9.48	0.21	38.11	-0.1653	0.3653	-0.0007
327	SLE RA 3	9.59	0.21	38.8	-0.1685	0.3689	-0.0008
327	SLE RA 4	9.59	0.21	38.79	-0.1685	0.3689	-0.0008
327	SLE RA 5	9.46	0.21	38.47	-0.1666	0.3638	-0.0007
327	SLE RA 6	9.57	0.21	39.16	-0.1697	0.3674	-0.0008
327	SLE RA 7	9.57	0.21	39.15	-0.1697	0.3674	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
327	SLE RA 8	9.44	0.21	38.84	-0.1679	0.3623	-0.0008
327	SLE RA 9	9.44	0.21	38.83	-0.1678	0.3623	-0.0008
327	SLE RA 10	10.68	0.23	41.65	-0.1839	0.4119	-0.0008
327	SLE RA 11	10.79	0.23	42.34	-0.187	0.4155	-0.0008
327	SLE RA 12	10.79	0.23	42.33	-0.187	0.4156	-0.0008
327	SLE RA 13	10.66	0.23	42.01	-0.1851	0.4105	-0.0008
327	SLE RA 14	10.76	0.24	42.69	-0.1883	0.4141	-0.0008
327	SLE RA 15	10.76	0.24	42.68	-0.1883	0.4141	-0.0008
327	SLE RA 16	10.64	0.23	42.38	-0.1864	0.409	-0.0008
327	SLE RA 17	10.64	0.23	42.37	-0.1864	0.409	-0.0008
327	SLE RA 18	11.19	0.24	43.18	-0.1919	0.4319	-0.0009
327	SLE RA 19	11.19	0.24	43.17	-0.1918	0.4319	-0.0009
327	SLE RA 20	11.17	0.24	43.54	-0.1931	0.4304	-0.0009
327	SLE RA 21	11.17	0.24	43.53	-0.1931	0.4305	-0.0009
327	SLE FR 1	9.48	0.21	38.13	-0.1653	0.3653	-0.0007
327	SLE FR 2	9.48	0.21	38.13	-0.1653	0.3653	-0.0007
327	SLE FR 3	9.47	0.21	38.27	-0.1658	0.3647	-0.0007
327	SLE FR 4	9.99	0.22	39.64	-0.1733	0.3853	-0.0008
327	SLE FR 5	9.99	0.22	39.79	-0.1738	0.3847	-0.0008
327	SLE FR 6	10.34	0.22	40.66	-0.1786	0.3986	-0.0008
327	SLE QP 1	9.48	0.21	38.13	-0.1653	0.3653	-0.0007
327	SLE QP 2	9.99	0.22	39.64	-0.1733	0.3853	-0.0008
327	SLD 1	20.24	0.14	40.91	-0.1141	0.8296	-0.0005
327	SLD 2	20.24	0.14	40.91	-0.1141	0.8296	-0.0005
327	SLD 3	21.56	0.17	45.12	-0.1461	0.8817	-0.0007
327	SLD 4	21.56	0.17	45.12	-0.1461	0.8817	-0.0007
327	SLD 5	11.07	0.14	33.65	-0.107	0.4395	-0.0005
327	SLD 6	11.07	0.14	33.65	-0.107	0.4395	-0.0005
327	SLD 7	15.46	0.26	47.67	-0.2137	0.6132	-0.001
327	SLD 8	15.46	0.26	47.67	-0.2137	0.6132	-0.001
327	SLD 9	4.53	0.18	31.62	-0.1329	0.1573	-0.0006
327	SLD 10	4.53	0.18	31.62	-0.1329	0.1573	-0.0006
327	SLD 11	8.91	0.3	45.64	-0.2396	0.331	-0.0011
327	SLD 12	8.91	0.3	45.64	-0.2396	0.331	-0.0011
327	SLD 13	-1.57	0.26	34.17	-0.2004	-0.1111	-0.0009
327	SLD 14	-1.57	0.26	34.17	-0.2004	-0.1111	-0.0009
327	SLD 15	-0.25	0.3	38.38	-0.2324	-0.059	-0.001
327	SLD 16	-0.25	0.3	38.38	-0.2324	-0.059	-0.001
327	SLV 1	33.43	-0.01	42.51	-0.0167	1.4016	-0.0001
327	SLV 2	33.43	-0.01	42.51	-0.0167	1.4016	-0.0001
327	SLV 3	36.53	0.08	52.3	-0.0924	1.5241	-0.0004
327	SLV 4	36.53	0.08	52.3	-0.0924	1.5241	-0.0004
327	SLV 5	12.33	0.02	25.66	-0.0115	0.5043	-0.0001
327	SLV 6	12.33	0.02	25.66	-0.0115	0.5043	-0.0001
327	SLV 7	22.65	0.3	58.29	-0.2638	0.9128	-0.0012
327	SLV 8	22.65	0.3	58.29	-0.2638	0.9128	-0.0012
327	SLV 9	-2.66	0.13	21	-0.0827	-0.1422	-0.0004
327	SLV 10	-2.66	0.13	21	-0.0827	-0.1422	-0.0004
327	SLV 11	7.66	0.41	53.63	-0.3351	0.2662	-0.0015
327	SLV 12	7.66	0.41	53.63	-0.3351	0.2662	-0.0015
327	SLV 13	-16.54	0.36	26.99	-0.2542	-0.7536	-0.0011
327	SLV 14	-16.54	0.36	26.99	-0.2542	-0.7536	-0.0011
327	SLV 15	-13.44	0.44	36.78	-0.3299	-0.631	-0.0014
327	SLV 16	-13.44	0.44	36.78	-0.3299	-0.631	-0.0014
328	SLU 1	8.6	0.02	41.4	-0.0738	0.3592	-0.0001
328	SLU 2	8.6	0.02	41.37	-0.0738	0.3592	-0.0001
328	SLU 3	8.77	0.02	42.61	-0.0756	0.3655	-0.0001
328	SLU 4	8.77	0.02	42.59	-0.0756	0.3655	-0.0001
328	SLU 5	8.59	0.02	42.05	-0.0741	0.3578	-0.0001
328	SLU 6	8.76	0.02	43.29	-0.0759	0.3642	-0.0001
328	SLU 7	8.76	0.02	43.27	-0.0759	0.3642	-0.0001
328	SLU 8	8.58	0.02	42.75	-0.0745	0.3565	-0.0001
328	SLU 9	8.58	0.02	42.74	-0.0745	0.3565	-0.0001
328	SLU 10	10.31	0.02	47.58	-0.0866	0.43	-0.0002
328	SLU 11	10.48	0.02	48.82	-0.0884	0.4364	-0.0002
328	SLU 12	10.48	0.02	48.81	-0.0884	0.4364	-0.0002
328	SLU 13	10.3	0.02	48.26	-0.087	0.4287	-0.0002
328	SLU 14	10.47	0.02	49.5	-0.0888	0.4351	-0.0002
328	SLU 15	10.47	0.02	49.49	-0.0888	0.4351	-0.0002
328	SLU 16	10.29	0.02	48.97	-0.0873	0.4274	-0.0002
328	SLU 17	10.29	0.02	48.95	-0.0873	0.4274	-0.0002
328	SLU 18	11.04	0.02	50.27	-0.0921	0.4604	-0.0002
328	SLU 19	11.04	0.02	50.26	-0.0921	0.4604	-0.0002
328	SLU 20	11.03	0.02	50.95	-0.0925	0.4591	-0.0002
328	SLU 21	11.03	0.02	50.93	-0.0925	0.4591	-0.0002
328	SLU 22	10.11	0.02	47.26	-0.0858	0.4214	-0.0002
328	SLU 23	10.11	0.02	47.24	-0.0858	0.4214	-0.0002
328	SLU 24	10.27	0.02	48.48	-0.0876	0.4278	-0.0002
328	SLU 25	10.27	0.02	48.46	-0.0876	0.4278	-0.0002
328	SLU 26	10.09	0.02	47.92	-0.0861	0.4201	-0.0002
328	SLU 27	10.26	0.02	49.16	-0.0879	0.4264	-0.0002
328	SLU 28	10.26	0.02	49.14	-0.0879	0.4264	-0.0002
328	SLU 29	10.08	0.02	48.62	-0.0865	0.4188	-0.0002
328	SLU 30	10.08	0.02	48.61	-0.0865	0.4188	-0.0002
328	SLU 31	11.81	0.02	53.45	-0.0986	0.4923	-0.0002
328	SLU 32	11.98	0.02	54.69	-0.1004	0.4986	-0.0002
328	SLU 33	11.98	0.02	54.68	-0.1004	0.4986	-0.0002
328	SLU 34	11.8	0.02	54.13	-0.099	0.491	-0.0002
328	SLU 35	11.97	0.02	55.37	-0.1007	0.4973	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
328	SLU 36	11.97	0.02	55.35	-0.1007	0.4973	-0.0002
328	SLU 37	11.79	0.02	54.84	-0.0993	0.4897	-0.0002
328	SLU 38	11.79	0.02	54.82	-0.0993	0.4897	-0.0002
328	SLU 39	12.54	0.03	56.14	-0.1041	0.5227	-0.0002
328	SLU 40	12.54	0.03	56.12	-0.1041	0.5227	-0.0002
328	SLU 41	12.53	0.02	56.82	-0.1044	0.5214	-0.0002
328	SLU 42	12.53	0.02	56.8	-0.1045	0.5214	-0.0002
328	SLU 43	10.67	0.02	51.8	-0.0918	0.4456	-0.0002
328	SLU 44	10.67	0.02	51.77	-0.0918	0.4456	-0.0002
328	SLU 45	10.83	0.02	53.02	-0.0936	0.4519	-0.0002
328	SLU 46	10.83	0.02	53	-0.0936	0.4519	-0.0002
328	SLU 47	10.65	0.02	52.45	-0.0922	0.4442	-0.0002
328	SLU 48	10.82	0.02	53.7	-0.0939	0.4506	-0.0002
328	SLU 49	10.82	0.02	53.68	-0.0939	0.4506	-0.0002
328	SLU 50	10.64	0.02	53.16	-0.0925	0.4429	-0.0002
328	SLU 51	10.64	0.02	53.14	-0.0925	0.4429	-0.0002
328	SLU 52	12.37	0.03	57.99	-0.1046	0.5165	-0.0002
328	SLU 53	12.54	0.03	59.23	-0.1064	0.5228	-0.0002
328	SLU 54	12.54	0.03	59.21	-0.1064	0.5228	-0.0002
328	SLU 55	12.36	0.03	58.67	-0.105	0.5151	-0.0002
328	SLU 56	12.53	0.03	59.91	-0.1068	0.5215	-0.0002
328	SLU 57	12.53	0.03	59.89	-0.1068	0.5215	-0.0002
328	SLU 58	12.35	0.03	59.38	-0.1053	0.5138	-0.0002
328	SLU 59	12.35	0.03	59.36	-0.1053	0.5138	-0.0002
328	SLU 60	13.1	0.03	60.68	-0.1101	0.5468	-0.0002
328	SLU 61	13.1	0.03	60.66	-0.1101	0.5468	-0.0002
328	SLU 62	13.09	0.03	61.36	-0.1105	0.5455	-0.0002
328	SLU 63	13.09	0.03	61.34	-0.1105	0.5455	-0.0002
328	SLU 64	12.17	0.03	57.67	-0.1038	0.5078	-0.0002
328	SLU 65	12.17	0.03	57.64	-0.1038	0.5078	-0.0002
328	SLU 66	12.34	0.03	58.89	-0.1056	0.5142	-0.0002
328	SLU 67	12.34	0.03	58.87	-0.1056	0.5142	-0.0002
328	SLU 68	12.16	0.03	58.32	-0.1041	0.5065	-0.0002
328	SLU 69	12.33	0.03	59.57	-0.1059	0.5128	-0.0002
328	SLU 70	12.33	0.03	59.55	-0.1059	0.5128	-0.0002
328	SLU 71	12.15	0.02	59.03	-0.1045	0.5052	-0.0002
328	SLU 72	12.15	0.02	59.01	-0.1045	0.5052	-0.0002
328	SLU 73	13.88	0.03	63.86	-0.1166	0.5787	-0.0002
328	SLU 74	14.05	0.03	65.1	-0.1184	0.5851	-0.0002
328	SLU 75	14.05	0.03	65.08	-0.1184	0.5851	-0.0002
328	SLU 76	13.87	0.03	64.54	-0.117	0.5774	-0.0002
328	SLU 77	14.04	0.03	65.78	-0.1188	0.5837	-0.0002
328	SLU 78	14.03	0.03	65.76	-0.1188	0.5837	-0.0002
328	SLU 79	13.86	0.03	65.24	-0.1173	0.5761	-0.0002
328	SLU 80	13.86	0.03	65.23	-0.1173	0.5761	-0.0002
328	SLU 81	14.61	0.03	66.55	-0.1221	0.6091	-0.0002
328	SLU 82	14.61	0.03	66.53	-0.1221	0.6091	-0.0002
328	SLU 83	14.6	0.03	67.23	-0.1225	0.6078	-0.0002
328	SLU 84	14.6	0.03	67.21	-0.1225	0.6078	-0.0002
328	SLE RA 1	9.03	0.02	43.07	-0.0772	0.3769	-0.0001
328	SLE RA 2	9.03	0.02	43.05	-0.0772	0.3769	-0.0001
328	SLE RA 3	9.14	0.02	43.88	-0.0784	0.3812	-0.0001
328	SLE RA 4	9.14	0.02	43.87	-0.0784	0.3812	-0.0001
328	SLE RA 5	9.02	0.02	43.51	-0.0774	0.3761	-0.0001
328	SLE RA 6	9.14	0.02	44.34	-0.0786	0.3803	-0.0001
328	SLE RA 7	9.14	0.02	44.32	-0.0786	0.3803	-0.0001
328	SLE RA 8	9.02	0.02	43.98	-0.0777	0.3752	-0.0001
328	SLE RA 9	9.02	0.02	43.97	-0.0777	0.3752	-0.0001
328	SLE RA 10	10.17	0.02	47.2	-0.0858	0.4242	-0.0002
328	SLE RA 11	10.28	0.02	48.03	-0.0869	0.4284	-0.0002
328	SLE RA 12	10.28	0.02	48.01	-0.087	0.4284	-0.0002
328	SLE RA 13	10.16	0.02	47.65	-0.086	0.4233	-0.0002
328	SLE RA 14	10.27	0.02	48.48	-0.0872	0.4276	-0.0002
328	SLE RA 15	10.27	0.02	48.47	-0.0872	0.4276	-0.0002
328	SLE RA 16	10.16	0.02	48.12	-0.0862	0.4224	-0.0002
328	SLE RA 17	10.15	0.02	48.11	-0.0862	0.4224	-0.0002
328	SLE RA 18	10.66	0.02	48.99	-0.0894	0.4445	-0.0002
328	SLE RA 19	10.66	0.02	48.98	-0.0894	0.4445	-0.0002
328	SLE RA 20	10.65	0.02	49.44	-0.0897	0.4436	-0.0002
328	SLE RA 21	10.65	0.02	49.43	-0.0897	0.4436	-0.0002
328	SLE FR 1	9.03	0.02	43.07	-0.0772	0.3769	-0.0001
328	SLE FR 2	9.03	0.02	43.07	-0.0772	0.3769	-0.0001
328	SLE FR 3	9.03	0.02	43.25	-0.0773	0.3766	-0.0001
328	SLE FR 4	9.52	0.02	44.84	-0.0809	0.3972	-0.0002
328	SLE FR 5	9.52	0.02	45.03	-0.081	0.3968	-0.0002
328	SLE FR 6	9.84	0.02	46.03	-0.0833	0.4107	-0.0002
328	SLE QP 1	9.03	0.02	43.07	-0.0772	0.3769	-0.0001
328	SLE QP 2	9.52	0.02	44.85	-0.0809	0.3972	-0.0002
328	SLD 1	19.25	-0.06	45.5	-0.0314	0.8266	0.0001
328	SLD 2	19.25	-0.06	45.5	-0.0314	0.8266	0.0001
328	SLD 3	20.69	-0.04	50.69	-0.0541	0.8826	-0.0001
328	SLD 4	20.69	-0.04	50.69	-0.0541	0.8826	-0.0001
328	SLD 5	10.26	-0.04	37.17	-0.0316	0.4411	0.0001
328	SLD 6	10.26	-0.04	37.17	-0.0316	0.4411	0.0001
328	SLD 7	15.05	0.04	54.48	-0.1073	0.6277	-0.0003
328	SLD 8	15.05	0.04	54.48	-0.1073	0.6277	-0.0003
328	SLD 9	3.99	0	35.22	-0.0545	0.1667	0
328	SLD 10	3.99	0	35.22	-0.0545	0.1667	0
328	SLD 11	8.78	0.08	52.53	-0.1301	0.3533	-0.0004





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
328	SLD 12	8.78	0.08	52.53	-0.1301	0.3533	-0.0004
328	SLD 13	-1.65	0.08	39.01	-0.1076	-0.0882	-0.0002
328	SLD 14	-1.65	0.08	39.01	-0.1076	-0.0882	-0.0002
328	SLD 15	-0.21	0.1	44.2	-0.1303	-0.0322	-0.0004
328	SLD 16	-0.21	0.1	44.2	-0.1303	-0.0322	-0.0004
328	SLV 1	31.78	-0.21	46.28	0.0527	1.3794	0.0004
328	SLV 2	31.78	-0.21	46.28	0.0527	1.3794	0.0004
328	SLV 3	35.15	-0.15	58.37	-0.0008	1.5109	0.0001
328	SLV 4	35.15	-0.15	58.37	-0.0008	1.5109	0.0001
328	SLV 5	11.08	-0.14	26.94	0.0403	0.4924	0.0005
328	SLV 6	11.08	-0.14	26.94	0.0403	0.4924	0.0005
328	SLV 7	22.32	0.05	67.25	-0.138	0.9308	-0.0006
328	SLV 8	22.32	0.05	67.25	-0.138	0.9308	-0.0006
328	SLV 9	-3.29	-0.01	22.45	-0.0237	-0.1364	0.0003
328	SLV 10	-3.29	-0.01	22.45	-0.0237	-0.1364	0.0003
328	SLV 11	7.96	0.18	62.76	-0.2021	0.302	-0.0008
328	SLV 12	7.96	0.18	62.76	-0.2021	0.302	-0.0008
328	SLV 13	-16.11	0.19	31.32	-0.1609	-0.7165	-0.0004
328	SLV 14	-16.11	0.19	31.32	-0.1609	-0.7165	-0.0004
328	SLV 15	-12.74	0.25	43.42	-0.2144	-0.585	-0.0007
328	SLV 16	-12.74	0.25	43.42	-0.2144	-0.585	-0.0007
329	SLU 1	6.96	-0.22	47.01	0.0087	0.2519	-0.0003
329	SLU 2	6.96	-0.22	46.97	0.0086	0.2519	-0.0003
329	SLU 3	7.1	-0.23	48.52	0.0099	0.2556	-0.0003
329	SLU 4	7.1	-0.23	48.5	0.0099	0.2556	-0.0003
329	SLU 5	6.95	-0.22	47.89	0.01	0.25	-0.0003
329	SLU 6	7.09	-0.23	49.43	0.0113	0.2537	-0.0003
329	SLU 7	7.09	-0.23	49.41	0.0113	0.2537	-0.0003
329	SLU 8	6.95	-0.23	48.84	0.0115	0.2482	-0.0003
329	SLU 9	6.95	-0.23	48.81	0.0114	0.2482	-0.0003
329	SLU 10	8.37	-0.26	54.29	0.0106	0.3033	-0.0004
329	SLU 11	8.5	-0.27	55.84	0.0119	0.3071	-0.0004
329	SLU 12	8.5	-0.27	55.82	0.0119	0.307	-0.0004
329	SLU 13	8.36	-0.26	55.2	0.012	0.3015	-0.0004
329	SLU 14	8.5	-0.27	56.75	0.0133	0.3052	-0.0004
329	SLU 15	8.5	-0.27	56.73	0.0133	0.3052	-0.0004
329	SLU 16	8.35	-0.27	56.15	0.0135	0.2996	-0.0004
329	SLU 17	8.35	-0.27	56.13	0.0134	0.2996	-0.0004
329	SLU 18	8.97	-0.27	57.46	0.0115	0.3254	-0.0004
329	SLU 19	8.97	-0.27	57.44	0.0115	0.3254	-0.0004
329	SLU 20	8.96	-0.28	58.37	0.0129	0.3236	-0.0004
329	SLU 21	8.96	-0.28	58.35	0.0129	0.3235	-0.0004
329	SLU 22	8.19	-0.26	53.94	0.0108	0.2963	-0.0004
329	SLU 23	8.19	-0.25	53.91	0.0107	0.2963	-0.0004
329	SLU 24	8.33	-0.26	55.46	0.012	0.3	-0.0004
329	SLU 25	8.33	-0.26	55.44	0.012	0.3	-0.0004
329	SLU 26	8.19	-0.26	54.82	0.0121	0.2944	-0.0004
329	SLU 27	8.32	-0.27	56.37	0.0134	0.2981	-0.0004
329	SLU 28	8.32	-0.27	56.35	0.0134	0.2981	-0.0004
329	SLU 29	8.18	-0.27	55.77	0.0136	0.2926	-0.0004
329	SLU 30	8.18	-0.27	55.75	0.0136	0.2925	-0.0004
329	SLU 31	9.6	-0.3	61.22	0.0127	0.3477	-0.0004
329	SLU 32	9.74	-0.3	62.77	0.014	0.3515	-0.0004
329	SLU 33	9.74	-0.3	62.75	0.014	0.3514	-0.0004
329	SLU 34	9.59	-0.3	62.14	0.0141	0.3459	-0.0004
329	SLU 35	9.73	-0.31	63.68	0.0154	0.3496	-0.0004
329	SLU 36	9.73	-0.31	63.66	0.0154	0.3496	-0.0004
329	SLU 37	9.59	-0.31	63.08	0.0156	0.344	-0.0004
329	SLU 38	9.59	-0.31	63.06	0.0156	0.344	-0.0004
329	SLU 39	10.2	-0.31	64.39	0.0137	0.3698	-0.0004
329	SLU 40	10.2	-0.31	64.37	0.0136	0.3698	-0.0004
329	SLU 41	10.2	-0.32	65.31	0.0151	0.3679	-0.0005
329	SLU 42	10.19	-0.32	65.29	0.015	0.3679	-0.0005
329	SLU 43	8.63	-0.27	58.74	0.0105	0.3123	-0.0004
329	SLU 44	8.63	-0.27	58.7	0.0105	0.3122	-0.0004
329	SLU 45	8.76	-0.28	60.25	0.0118	0.316	-0.0004
329	SLU 46	8.76	-0.28	60.23	0.0117	0.3159	-0.0004
329	SLU 47	8.62	-0.27	59.61	0.0119	0.3104	-0.0004
329	SLU 48	8.76	-0.28	61.16	0.0132	0.3141	-0.0004
329	SLU 49	8.76	-0.28	61.14	0.0131	0.3141	-0.0004
329	SLU 50	8.61	-0.28	60.56	0.0133	0.3085	-0.0004
329	SLU 51	8.61	-0.28	60.54	0.0133	0.3085	-0.0004
329	SLU 52	10.03	-0.31	66.02	0.0125	0.3637	-0.0004
329	SLU 53	10.17	-0.32	67.56	0.0138	0.3674	-0.0005
329	SLU 54	10.17	-0.32	67.54	0.0137	0.3674	-0.0004
329	SLU 55	10.02	-0.31	66.93	0.0139	0.3618	-0.0004
329	SLU 56	10.16	-0.32	68.48	0.0152	0.3655	-0.0005
329	SLU 57	10.16	-0.32	68.45	0.0151	0.3655	-0.0005
329	SLU 58	10.02	-0.32	67.88	0.0153	0.36	-0.0005
329	SLU 59	10.02	-0.32	67.85	0.0153	0.36	-0.0005
329	SLU 60	10.63	-0.33	69.19	0.0134	0.3858	-0.0005
329	SLU 61	10.63	-0.33	69.16	0.0133	0.3858	-0.0005
329	SLU 62	10.63	-0.33	70.1	0.0148	0.3839	-0.0005
329	SLU 63	10.63	-0.33	70.08	0.0147	0.3839	-0.0005
329	SLU 64	9.86	-0.31	65.67	0.0127	0.3566	-0.0004
329	SLU 65	9.86	-0.31	65.63	0.0126	0.3566	-0.0004
329	SLU 66	10	-0.32	67.18	0.0139	0.3603	-0.0004
329	SLU 67	10	-0.32	67.16	0.0139	0.3603	-0.0004
329	SLU 68	9.85	-0.31	66.55	0.014	0.3548	-0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
329	SLU 69	9.99	-0.32	68.09	0.0153	0.3585	-0.0005
329	SLU 70	9.99	-0.32	68.07	0.0153	0.3585	-0.0005
329	SLU 71	9.85	-0.32	67.5	0.0155	0.3529	-0.0005
329	SLU 72	9.85	-0.32	67.47	0.0154	0.3529	-0.0005
329	SLU 73	11.26	-0.35	72.95	0.0146	0.4081	-0.0005
329	SLU 74	11.4	-0.36	74.5	0.0159	0.4118	-0.0005
329	SLU 75	11.4	-0.36	74.48	0.0159	0.4118	-0.0005
329	SLU 76	11.26	-0.35	73.86	0.016	0.4062	-0.0005
329	SLU 77	11.4	-0.36	75.41	0.0173	0.4099	-0.0005
329	SLU 78	11.39	-0.36	75.39	0.0173	0.4099	-0.0005
329	SLU 79	11.25	-0.36	74.81	0.0175	0.4044	-0.0005
329	SLU 80	11.25	-0.36	74.79	0.0174	0.4044	-0.0005
329	SLU 81	11.87	-0.36	76.12	0.0155	0.4302	-0.0005
329	SLU 82	11.87	-0.36	76.1	0.0155	0.4301	-0.0005
329	SLU 83	11.86	-0.37	77.03	0.0169	0.4283	-0.0005
329	SLU 84	11.86	-0.37	77.01	0.0169	0.4283	-0.0005
329	SLE RA 1	7.31	-0.23	48.99	0.0093	0.2646	-0.0003
329	SLE RA 2	7.31	-0.23	48.97	0.0092	0.2646	-0.0003
329	SLE RA 3	7.41	-0.23	50	0.0101	0.2671	-0.0003
329	SLE RA 4	7.4	-0.23	49.99	0.0101	0.267	-0.0003
329	SLE RA 5	7.31	-0.23	49.58	0.0102	0.2633	-0.0003
329	SLE RA 6	7.4	-0.24	50.61	0.011	0.2658	-0.0003
329	SLE RA 7	7.4	-0.24	50.59	0.011	0.2658	-0.0003
329	SLE RA 8	7.3	-0.24	50.21	0.0111	0.2621	-0.0003
329	SLE RA 9	7.3	-0.24	50.19	0.0111	0.2621	-0.0003
329	SLE RA 10	8.25	-0.25	53.84	0.0106	0.2989	-0.0004
329	SLE RA 11	8.34	-0.26	54.88	0.0114	0.3014	-0.0004
329	SLE RA 12	8.34	-0.26	54.86	0.0114	0.3013	-0.0004
329	SLE RA 13	8.25	-0.26	54.45	0.0115	0.2976	-0.0004
329	SLE RA 14	8.34	-0.27	55.48	0.0124	0.3001	-0.0004
329	SLE RA 15	8.34	-0.27	55.47	0.0123	0.3001	-0.0004
329	SLE RA 16	8.24	-0.26	55.09	0.0125	0.2964	-0.0004
329	SLE RA 17	8.24	-0.26	55.07	0.0124	0.2964	-0.0004
329	SLE RA 18	8.65	-0.27	55.96	0.0112	0.3136	-0.0004
329	SLE RA 19	8.65	-0.27	55.94	0.0112	0.3136	-0.0004
329	SLE RA 20	8.65	-0.27	56.57	0.0121	0.3124	-0.0004
329	SLE RA 21	8.65	-0.27	56.55	0.0121	0.3123	-0.0004
329	SLE FR 1	7.31	-0.23	48.99	0.0093	0.2646	-0.0003
329	SLE FR 2	7.31	-0.23	48.99	0.0093	0.2646	-0.0003
329	SLE FR 3	7.31	-0.23	49.24	0.0096	0.2641	-0.0003
329	SLE FR 4	7.72	-0.24	51.08	0.0098	0.2793	-0.0003
329	SLE FR 5	7.71	-0.24	51.33	0.0102	0.2788	-0.0003
329	SLE FR 6	7.98	-0.25	52.48	0.0102	0.2891	-0.0003
329	SLE QP 1	7.31	-0.23	48.99	0.0093	0.2646	-0.0003
329	SLE QP 2	7.72	-0.24	51.08	0.0098	0.2793	-0.0003
329	SLD 1	16.96	-0.27	44.6	0.0233	0.6804	-0.0001
329	SLD 2	16.96	-0.27	44.6	0.0233	0.6804	-0.0001
329	SLD 3	18.48	-0.31	51.7	0.0439	0.733	-0.0002
329	SLD 4	18.48	-0.31	51.7	0.0439	0.733	-0.0002
329	SLD 5	8.18	-0.2	38.36	-0.0174	0.3198	-0.0001
329	SLD 6	8.18	-0.2	38.36	-0.0174	0.3198	-0.0001
329	SLD 7	13.26	-0.31	62.04	0.0514	0.4952	-0.0005
329	SLD 8	13.26	-0.31	62.04	0.0514	0.4952	-0.0005
329	SLD 9	2.17	-0.17	40.12	-0.0317	0.0634	-0.0002
329	SLD 10	2.17	-0.17	40.12	-0.0317	0.0634	-0.0002
329	SLD 11	7.25	-0.28	63.8	0.0371	0.2388	-0.0006
329	SLD 12	7.25	-0.28	63.8	0.0371	0.2388	-0.0006
329	SLD 13	-3.05	-0.17	50.46	-0.0243	-0.1744	-0.0004
329	SLD 14	-3.05	-0.17	50.46	-0.0243	-0.1744	-0.0004
329	SLD 15	-1.53	-0.2	57.56	-0.0036	-0.1218	-0.0006
329	SLD 16	-1.53	-0.2	57.56	-0.0036	-0.1218	-0.0006
329	SLV 1	28.87	-0.35	36.04	0.0528	1.1972	0.0003
329	SLV 2	28.87	-0.35	36.04	0.0528	1.1972	0.0003
329	SLV 3	32.43	-0.43	52.57	0.1007	1.3204	0
329	SLV 4	32.43	-0.43	52.57	0.1007	1.3204	0
329	SLV 5	8.66	-0.15	21.49	-0.0499	0.3678	0.0003
329	SLV 6	8.66	-0.15	21.49	-0.0499	0.3678	0.0003
329	SLV 7	20.53	-0.42	76.6	0.1097	0.7785	-0.0007
329	SLV 8	20.53	-0.42	76.6	0.1097	0.7785	-0.0007
329	SLV 9	-5.1	-0.06	25.56	-0.0901	-0.2199	0
329	SLV 10	-5.1	-0.06	25.56	-0.0901	-0.2199	0
329	SLV 11	6.77	-0.33	80.67	0.0696	0.1908	-0.001
329	SLV 12	6.77	-0.33	80.67	0.0696	0.1908	-0.001
329	SLV 13	-17	-0.05	49.59	-0.081	-0.7618	-0.0007
329	SLV 14	-17	-0.05	49.59	-0.081	-0.7618	-0.0007
329	SLV 15	-13.44	-0.13	66.12	-0.0332	-0.6386	-0.001
329	SLV 16	-13.44	-0.13	66.12	-0.0332	-0.6386	-0.001
330	SLU 1	3.08	-7.61	71.94	0.1315	0.1387	0.0001
330	SLU 2	3.08	-7.6	71.88	0.1313	0.1387	0.0001
330	SLU 3	3.04	-8.02	74.47	0.1439	0.137	0.0001
330	SLU 4	3.04	-8.01	74.44	0.1438	0.137	0.0001
330	SLU 5	2.95	-7.94	73.52	0.1443	0.1329	0.0001
330	SLU 6	2.9	-8.36	76.11	0.1569	0.1312	0.0001
330	SLU 7	2.9	-8.35	76.08	0.1568	0.1312	0.0001
330	SLU 8	2.81	-8.3	75.23	0.1575	0.1271	0.0001
330	SLU 9	2.81	-8.29	75.19	0.1574	0.1271	0.0001
330	SLU 10	3.72	-9.02	83.53	0.1576	0.1673	0.0002
330	SLU 11	3.68	-9.43	86.13	0.1703	0.1655	0.0002
330	SLU 12	3.68	-9.43	86.09	0.1701	0.1655	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
330	SLU 13	3.59	-9.36	85.18	0.1706	0.1614	0.0002
330	SLU 14	3.54	-9.78	87.77	0.1832	0.1597	0.0001
330	SLU 15	3.54	-9.77	87.73	0.1831	0.1597	0.0001
330	SLU 16	3.45	-9.71	86.88	0.1838	0.1556	0.0001
330	SLU 17	3.45	-9.71	86.84	0.1837	0.1556	0.0001
330	SLU 18	3.99	-9.63	88.59	0.1691	0.1794	0.0002
330	SLU 19	3.99	-9.63	88.55	0.169	0.1794	0.0002
330	SLU 20	3.86	-9.97	90.23	0.1821	0.1736	0.0002
330	SLU 21	3.86	-9.97	90.2	0.182	0.1736	0.0002
330	SLU 22	3.58	-8.98	83.01	0.1588	0.1613	0.0002
330	SLU 23	3.58	-8.97	82.95	0.1586	0.1614	0.0002
330	SLU 24	3.54	-9.39	85.54	0.1712	0.1597	0.0001
330	SLU 25	3.54	-9.38	85.51	0.1711	0.1597	0.0002
330	SLU 26	3.45	-9.32	84.6	0.1716	0.1556	0.0001
330	SLU 27	3.41	-9.73	87.19	0.1842	0.1538	0.0001
330	SLU 28	3.41	-9.73	87.15	0.1841	0.1539	0.0001
330	SLU 29	3.32	-9.67	86.3	0.1848	0.1497	0.0001
330	SLU 30	3.32	-9.66	86.26	0.1846	0.1497	0.0001
330	SLU 31	4.22	-10.39	94.61	0.1849	0.1899	0.0002
330	SLU 32	4.18	-10.81	97.2	0.1975	0.1882	0.0002
330	SLU 33	4.18	-10.8	97.16	0.1974	0.1882	0.0002
330	SLU 34	4.09	-10.73	96.25	0.1979	0.1841	0.0002
330	SLU 35	4.05	-11.15	98.84	0.2105	0.1823	0.0002
330	SLU 36	4.05	-11.15	98.8	0.2104	0.1824	0.0002
330	SLU 37	3.95	-11.09	97.95	0.2111	0.1782	0.0002
330	SLU 38	3.96	-11.08	97.92	0.211	0.1782	0.0002
330	SLU 39	4.5	-11.01	99.66	0.1964	0.202	0.0002
330	SLU 40	4.5	-11	99.62	0.1963	0.2021	0.0002
330	SLU 41	4.36	-11.35	101.3	0.2094	0.1962	0.0002
330	SLU 42	4.36	-11.34	101.27	0.2093	0.1963	0.0002
330	SLU 43	3.83	-9.42	89.73	0.1616	0.1725	0.0002
330	SLU 44	3.83	-9.41	89.67	0.1614	0.1726	0.0002
330	SLU 45	3.79	-9.83	92.26	0.174	0.1709	0.0002
330	SLU 46	3.79	-9.82	92.22	0.1739	0.1709	0.0002
330	SLU 47	3.7	-9.75	91.31	0.1744	0.1668	0.0002
330	SLU 48	3.65	-10.17	93.9	0.187	0.165	0.0001
330	SLU 49	3.66	-10.17	93.87	0.1869	0.1651	0.0002
330	SLU 50	3.56	-10.11	93.01	0.1876	0.1609	0.0001
330	SLU 51	3.56	-10.1	92.98	0.1875	0.1609	0.0001
330	SLU 52	4.47	-10.83	101.32	0.1878	0.2011	0.0002
330	SLU 53	4.43	-11.24	103.91	0.2004	0.1994	0.0002
330	SLU 54	4.43	-11.24	103.88	0.2002	0.1994	0.0002
330	SLU 55	4.34	-11.17	102.96	0.2007	0.1953	0.0002
330	SLU 56	4.29	-11.59	105.55	0.2133	0.1935	0.0002
330	SLU 57	4.29	-11.58	105.52	0.2132	0.1936	0.0002
330	SLU 58	4.2	-11.52	104.67	0.2139	0.1894	0.0002
330	SLU 59	4.2	-11.52	104.63	0.2138	0.1894	0.0002
330	SLU 60	4.74	-11.44	106.38	0.1993	0.2133	0.0002
330	SLU 61	4.74	-11.44	106.34	0.1991	0.2133	0.0002
330	SLU 62	4.61	-11.79	108.02	0.2122	0.2074	0.0002
330	SLU 63	4.61	-11.78	107.98	0.2121	0.2075	0.0002
330	SLU 64	4.33	-10.79	100.8	0.1889	0.1952	0.0002
330	SLU 65	4.34	-10.78	100.74	0.1887	0.1952	0.0002
330	SLU 66	4.29	-11.2	103.33	0.2013	0.1935	0.0002
330	SLU 67	4.29	-11.2	103.29	0.2012	0.1935	0.0002
330	SLU 68	4.2	-11.13	102.38	0.2017	0.1894	0.0002
330	SLU 69	4.16	-11.54	104.97	0.2143	0.1877	0.0002
330	SLU 70	4.16	-11.54	104.94	0.2142	0.1877	0.0002
330	SLU 71	4.07	-11.48	104.08	0.2149	0.1835	0.0002
330	SLU 72	4.07	-11.48	104.05	0.2147	0.1836	0.0002
330	SLU 73	4.97	-12.2	112.39	0.215	0.2237	0.0002
330	SLU 74	4.93	-12.62	114.98	0.2276	0.222	0.0002
330	SLU 75	4.93	-12.61	114.95	0.2275	0.222	0.0002
330	SLU 76	4.84	-12.54	114.03	0.228	0.2179	0.0002
330	SLU 77	4.8	-12.96	116.63	0.2406	0.2162	0.0002
330	SLU 78	4.8	-12.96	116.59	0.2405	0.2162	0.0002
330	SLU 79	4.71	-12.9	115.74	0.2412	0.212	0.0002
330	SLU 80	4.71	-12.89	115.7	0.2411	0.2121	0.0002
330	SLU 81	5.25	-12.82	117.45	0.2265	0.2359	0.0002
330	SLU 82	5.25	-12.81	117.41	0.2264	0.2359	0.0002
330	SLU 83	5.11	-13.16	119.09	0.2395	0.2301	0.0002
330	SLU 84	5.11	-13.16	119.05	0.2394	0.2301	0.0002
330	SLE RA 1	3.22	-8	75.1	0.1393	0.1452	0.0001
330	SLE RA 2	3.22	-7.99	75.06	0.1392	0.1452	0.0001
330	SLE RA 3	3.2	-8.27	76.79	0.1476	0.144	0.0001
330	SLE RA 4	3.2	-8.27	76.77	0.1475	0.1441	0.0001
330	SLE RA 5	3.13	-8.22	76.16	0.1478	0.1413	0.0001
330	SLE RA 6	3.11	-8.5	77.89	0.1562	0.1402	0.0001
330	SLE RA 7	3.11	-8.5	77.86	0.1562	0.1402	0.0001
330	SLE RA 8	3.04	-8.46	77.29	0.1566	0.1374	0.0001
330	SLE RA 9	3.05	-8.46	77.27	0.1565	0.1374	0.0001
330	SLE RA 10	3.65	-8.94	82.83	0.1567	0.1642	0.0002
330	SLE RA 11	3.62	-9.22	84.56	0.1651	0.163	0.0002
330	SLE RA 12	3.62	-9.21	84.54	0.1651	0.1631	0.0002
330	SLE RA 13	3.56	-9.17	83.93	0.1654	0.1603	0.0002
330	SLE RA 14	3.53	-9.45	85.66	0.1738	0.1592	0.0001
330	SLE RA 15	3.53	-9.44	85.63	0.1737	0.1592	0.0001
330	SLE RA 16	3.47	-9.4	85.06	0.1742	0.1564	0.0001
330	SLE RA 17	3.47	-9.4	85.04	0.1741	0.1564	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
330	SLE RA 18	3.83	-9.35	86.2	0.1644	0.1723	0.0002
330	SLE RA 19	3.83	-9.35	86.18	0.1643	0.1723	0.0002
330	SLE RA 20	3.74	-9.58	87.3	0.1731	0.1684	0.0002
330	SLE RA 21	3.74	-9.57	87.27	0.173	0.1684	0.0002
330	SLE FR 1	3.22	-8	75.1	0.1393	0.1452	0.0001
330	SLE FR 2	3.22	-8	75.1	0.1393	0.1452	0.0001
330	SLE FR 3	3.19	-8.09	75.54	0.1428	0.1436	0.0001
330	SLE FR 4	3.41	-8.4	78.43	0.1468	0.1533	0.0001
330	SLE FR 5	3.37	-8.5	78.87	0.1503	0.1518	0.0001
330	SLE FR 6	3.53	-8.67	80.65	0.1519	0.1587	0.0002
330	SLE QP 1	3.22	-8	75.1	0.1393	0.1452	0.0001
330	SLE QP 2	3.41	-8.4	78.43	0.1468	0.1533	0.0001
330	SLD 1	13.61	-5.76	67.74	0.0355	0.6016	0.0009
330	SLD 2	13.61	-5.76	67.74	0.0355	0.6016	0.0009
330	SLD 3	13	-9.18	81.07	0.1789	0.5745	0.0008
330	SLD 4	13	-9.18	81.07	0.1789	0.5745	0.0008
330	SLD 5	7.4	-2.42	55.01	-0.104	0.329	0.0004
330	SLD 6	7.4	-2.42	55.01	-0.104	0.329	0.0004
330	SLD 7	5.35	-13.83	99.44	0.3739	0.2385	0.0003
330	SLD 8	5.35	-13.83	99.44	0.3739	0.2385	0.0003
330	SLD 9	1.46	-2.98	57.42	-0.0802	0.0681	0
330	SLD 10	1.46	-2.98	57.42	-0.0802	0.0681	0
330	SLD 11	-0.59	-14.39	101.86	0.3977	-0.0224	-0.0001
330	SLD 12	-0.59	-14.39	101.86	0.3977	-0.0224	-0.0001
330	SLD 13	-6.19	-7.63	75.8	0.1148	-0.2679	-0.0005
330	SLD 14	-6.19	-7.63	75.8	0.1148	-0.2679	-0.0005
330	SLD 15	-6.8	-11.05	89.13	0.2582	-0.295	-0.0006
330	SLD 16	-6.8	-11.05	89.13	0.2582	-0.295	-0.0006
330	SLV 1	26.82	-2.28	53.6	-0.1096	1.1816	0.0018
330	SLV 2	26.82	-2.28	53.6	-0.1096	1.1816	0.0018
330	SLV 3	25.36	-10.21	84.58	0.2213	1.1174	0.0017
330	SLV 4	25.36	-10.21	84.58	0.2213	1.1174	0.0017
330	SLV 5	12.64	5.45	23.99	-0.4319	0.5591	0.0008
330	SLV 6	12.64	5.45	23.99	-0.4319	0.5591	0.0008
330	SLV 7	7.78	-20.96	127.27	0.671	0.3452	0.0004
330	SLV 8	7.78	-20.96	127.27	0.671	0.3452	0.0004
330	SLV 9	-0.97	4.15	29.6	-0.3773	-0.0386	-0.0001
330	SLV 10	-0.97	4.15	29.6	-0.3773	-0.0386	-0.0001
330	SLV 11	-5.83	-22.26	132.88	0.7256	-0.2525	-0.0005
330	SLV 12	-5.83	-22.26	132.88	0.7256	-0.2525	-0.0005
330	SLV 13	-18.55	-6.6	72.29	0.0724	-0.8108	-0.0014
330	SLV 14	-18.55	-6.6	72.29	0.0724	-0.8108	-0.0014
330	SLV 15	-20.01	-14.53	103.27	0.4033	-0.875	-0.0015
330	SLV 16	-20.01	-14.53	103.27	0.4033	-0.875	-0.0015
331	SLU 1	-1.18	-0.21	46.71	0.0051	-0.0281	0.0007
331	SLU 2	-1.18	-0.21	46.67	0.0051	-0.028	0.0007
331	SLU 3	-1.41	-0.22	48.24	0.0061	-0.0367	0.0007
331	SLU 4	-1.41	-0.22	48.22	0.0061	-0.0366	0.0007
331	SLU 5	-1.44	-0.21	47.61	0.0064	-0.0383	0.0007
331	SLU 6	-1.67	-0.22	49.19	0.0074	-0.0469	0.0008
331	SLU 7	-1.67	-0.22	49.16	0.0074	-0.0469	0.0008
331	SLU 8	-1.71	-0.22	48.6	0.0076	-0.0486	0.0007
331	SLU 9	-1.71	-0.22	48.57	0.0076	-0.0485	0.0007
331	SLU 10	-1.37	-0.24	53.94	0.0061	-0.0315	0.0008
331	SLU 11	-1.6	-0.25	55.51	0.0071	-0.0402	0.0009
331	SLU 12	-1.6	-0.25	55.49	0.0071	-0.0401	0.0009
331	SLU 13	-1.63	-0.25	54.88	0.0073	-0.0418	0.0009
331	SLU 14	-1.87	-0.26	56.46	0.0084	-0.0505	0.0009
331	SLU 15	-1.86	-0.26	56.43	0.0084	-0.0504	0.0009
331	SLU 16	-1.9	-0.26	55.87	0.0086	-0.0521	0.0009
331	SLU 17	-1.9	-0.26	55.84	0.0086	-0.0521	0.0009
331	SLU 18	-1.45	-0.26	57.1	0.0065	-0.0332	0.0009
331	SLU 19	-1.45	-0.26	57.07	0.0065	-0.0331	0.0009
331	SLU 20	-1.72	-0.27	58.04	0.0077	-0.0434	0.0009
331	SLU 21	-1.71	-0.27	58.02	0.0078	-0.0433	0.0009
331	SLU 22	-1.46	-0.24	53.62	0.0064	-0.0358	0.0008
331	SLU 23	-1.46	-0.24	53.58	0.0064	-0.0357	0.0008
331	SLU 24	-1.69	-0.25	55.15	0.0074	-0.0443	0.0009
331	SLU 25	-1.69	-0.25	55.12	0.0074	-0.0443	0.0009
331	SLU 26	-1.72	-0.25	54.52	0.0076	-0.0459	0.0009
331	SLU 27	-1.96	-0.26	56.09	0.0086	-0.0546	0.0009
331	SLU 28	-1.96	-0.26	56.07	0.0087	-0.0545	0.0009
331	SLU 29	-1.99	-0.26	55.5	0.0089	-0.0563	0.0009
331	SLU 30	-1.99	-0.26	55.48	0.0089	-0.0562	0.0009
331	SLU 31	-1.65	-0.28	60.85	0.0074	-0.0392	0.001
331	SLU 32	-1.88	-0.29	62.42	0.0084	-0.0479	0.001
331	SLU 33	-1.88	-0.29	62.4	0.0084	-0.0478	0.001
331	SLU 34	-1.92	-0.29	61.79	0.0086	-0.0494	0.001
331	SLU 35	-2.15	-0.3	63.36	0.0096	-0.0581	0.001
331	SLU 36	-2.15	-0.3	63.34	0.0096	-0.058	0.001
331	SLU 37	-2.18	-0.29	62.78	0.0098	-0.0598	0.001
331	SLU 38	-2.18	-0.29	62.75	0.0099	-0.0597	0.001
331	SLU 39	-1.74	-0.3	64	0.0078	-0.0408	0.001
331	SLU 40	-1.73	-0.3	63.98	0.0078	-0.0407	0.001
331	SLU 41	-2	-0.3	64.95	0.009	-0.0511	0.001
331	SLU 42	-2	-0.3	64.92	0.009	-0.051	0.001
331	SLU 43	-1.44	-0.26	58.35	0.0062	-0.0339	0.0009
331	SLU 44	-1.43	-0.26	58.31	0.0062	-0.0338	0.0009
331	SLU 45	-1.67	-0.27	59.89	0.0072	-0.0425	0.0009



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
331	SLU 46	-1.66	-0.27	59.86	0.0072	-0.0424	0.0009
331	SLU 47	-1.7	-0.26	59.26	0.0074	-0.0441	0.0009
331	SLU 48	-1.93	-0.27	60.83	0.0085	-0.0527	0.0009
331	SLU 49	-1.93	-0.27	60.81	0.0085	-0.0527	0.0009
331	SLU 50	-1.97	-0.27	60.24	0.0087	-0.0544	0.0009
331	SLU 51	-1.96	-0.27	60.22	0.0087	-0.0544	0.0009
331	SLU 52	-1.62	-0.29	65.58	0.0072	-0.0373	0.001
331	SLU 53	-1.86	-0.3	67.16	0.0082	-0.046	0.001
331	SLU 54	-1.85	-0.3	67.13	0.0082	-0.0459	0.001
331	SLU 55	-1.89	-0.3	66.53	0.0084	-0.0476	0.001
331	SLU 56	-2.12	-0.31	68.1	0.0094	-0.0563	0.0011
331	SLU 57	-2.12	-0.31	68.08	0.0095	-0.0562	0.0011
331	SLU 58	-2.16	-0.31	67.51	0.0097	-0.058	0.0011
331	SLU 59	-2.15	-0.31	67.49	0.0097	-0.0579	0.0011
331	SLU 60	-1.71	-0.31	68.74	0.0076	-0.039	0.0011
331	SLU 61	-1.71	-0.31	68.72	0.0076	-0.0389	0.0011
331	SLU 62	-1.97	-0.32	69.68	0.0088	-0.0492	0.0011
331	SLU 63	-1.97	-0.32	69.66	0.0088	-0.0491	0.0011
331	SLU 64	-1.72	-0.29	65.26	0.0074	-0.0416	0.001
331	SLU 65	-1.72	-0.29	65.22	0.0075	-0.0415	0.001
331	SLU 66	-1.95	-0.3	66.79	0.0085	-0.0502	0.001
331	SLU 67	-1.95	-0.3	66.77	0.0085	-0.0501	0.001
331	SLU 68	-1.98	-0.3	66.16	0.0087	-0.0517	0.001
331	SLU 69	-2.21	-0.31	67.74	0.0097	-0.0604	0.0011
331	SLU 70	-2.21	-0.31	67.71	0.0097	-0.0603	0.0011
331	SLU 71	-2.25	-0.31	67.15	0.01	-0.0621	0.001
331	SLU 72	-2.25	-0.31	67.12	0.01	-0.062	0.001
331	SLU 73	-1.91	-0.33	72.49	0.0084	-0.045	0.0011
331	SLU 74	-2.14	-0.34	74.06	0.0095	-0.0537	0.0012
331	SLU 75	-2.14	-0.34	74.04	0.0095	-0.0536	0.0012
331	SLU 76	-2.17	-0.34	73.44	0.0097	-0.0552	0.0012
331	SLU 77	-2.41	-0.35	75.01	0.0107	-0.0639	0.0012
331	SLU 78	-2.4	-0.35	74.98	0.0107	-0.0639	0.0012
331	SLU 79	-2.44	-0.34	74.42	0.0109	-0.0656	0.0012
331	SLU 80	-2.44	-0.34	74.4	0.011	-0.0655	0.0012
331	SLU 81	-1.99	-0.35	75.65	0.0088	-0.0466	0.0012
331	SLU 82	-1.99	-0.35	75.62	0.0089	-0.0466	0.0012
331	SLU 83	-2.26	-0.35	76.59	0.0101	-0.0569	0.0012
331	SLU 84	-2.25	-0.35	76.57	0.0101	-0.0568	0.0012
331	SLE RA 1	-1.26	-0.22	48.68	0.0054	-0.0303	0.0007
331	SLE RA 2	-1.26	-0.22	48.65	0.0055	-0.0302	0.0007
331	SLE RA 3	-1.41	-0.22	49.7	0.0061	-0.036	0.0008
331	SLE RA 4	-1.41	-0.22	49.69	0.0061	-0.036	0.0008
331	SLE RA 5	-1.43	-0.22	49.28	0.0063	-0.0371	0.0008
331	SLE RA 6	-1.59	-0.23	50.33	0.007	-0.0429	0.0008
331	SLE RA 7	-1.59	-0.23	50.32	0.007	-0.0428	0.0008
331	SLE RA 8	-1.61	-0.23	49.94	0.0071	-0.044	0.0008
331	SLE RA 9	-1.61	-0.23	49.93	0.0071	-0.0439	0.0008
331	SLE RA 10	-1.38	-0.24	53.5	0.0061	-0.0326	0.0008
331	SLE RA 11	-1.54	-0.25	54.55	0.0068	-0.0384	0.0009
331	SLE RA 12	-1.54	-0.25	54.54	0.0068	-0.0383	0.0009
331	SLE RA 13	-1.56	-0.25	54.13	0.007	-0.0394	0.0008
331	SLE RA 14	-1.72	-0.25	55.18	0.0076	-0.0452	0.0009
331	SLE RA 15	-1.72	-0.25	55.16	0.0076	-0.0452	0.0009
331	SLE RA 16	-1.74	-0.25	54.79	0.0078	-0.0463	0.0009
331	SLE RA 17	-1.74	-0.25	54.77	0.0078	-0.0463	0.0009
331	SLE RA 18	-1.44	-0.25	55.61	0.0064	-0.0337	0.0009
331	SLE RA 19	-1.44	-0.25	55.59	0.0064	-0.0336	0.0009
331	SLE RA 20	-1.62	-0.26	56.24	0.0072	-0.0405	0.0009
331	SLE RA 21	-1.62	-0.26	56.22	0.0072	-0.0405	0.0009
331	SLE FR 1	-1.26	-0.22	48.68	0.0054	-0.0303	0.0007
331	SLE FR 2	-1.26	-0.22	48.68	0.0054	-0.0303	0.0007
331	SLE FR 3	-1.33	-0.22	48.93	0.0058	-0.0331	0.0007
331	SLE FR 4	-1.31	-0.23	50.75	0.0057	-0.0313	0.0008
331	SLE FR 5	-1.39	-0.23	51.01	0.0061	-0.0341	0.0008
331	SLE FR 6	-1.35	-0.24	52.14	0.0059	-0.032	0.0008
331	SLE QP 1	-1.26	-0.22	48.68	0.0054	-0.0303	0.0007
331	SLE QP 2	-1.31	-0.23	50.76	0.0057	-0.0313	0.0008
331	SLD 1	8.92	-0.16	45.23	-0.0274	0.4005	0.0008
331	SLD 2	8.92	-0.16	45.23	-0.0274	0.4005	0.0008
331	SLD 3	7.75	-0.19	52.24	-0.0083	0.3603	0.001
331	SLD 4	7.75	-0.19	52.24	-0.0083	0.3603	0.001
331	SLD 5	3.53	-0.16	38.47	-0.0332	0.1592	0.0005
331	SLD 6	3.53	-0.16	38.47	-0.0332	0.1592	0.0005
331	SLD 7	-0.37	-0.27	61.83	0.0305	0.0252	0.0011
331	SLD 8	-0.37	-0.27	61.83	0.0305	0.0252	0.0011
331	SLD 9	-2.26	-0.19	39.69	-0.019	-0.0879	0.0004
331	SLD 10	-2.26	-0.19	39.69	-0.019	-0.0879	0.0004
331	SLD 11	-6.16	-0.3	63.05	0.0447	-0.2218	0.0011
331	SLD 12	-6.16	-0.3	63.05	0.0447	-0.2218	0.0011
331	SLD 13	-10.38	-0.27	49.28	0.0198	-0.423	0.0006
331	SLD 14	-10.38	-0.27	49.28	0.0198	-0.423	0.0006
331	SLD 15	-11.55	-0.3	56.29	0.0389	-0.4632	0.0008
331	SLD 16	-11.55	-0.3	56.29	0.0389	-0.4632	0.0008
331	SLV 1	22.15	-0.04	37.89	-0.0828	0.9592	0.0008
331	SLV 2	22.15	-0.04	37.89	-0.0828	0.9592	0.0008
331	SLV 3	19.43	-0.12	54.2	-0.0386	0.8653	0.0013
331	SLV 4	19.43	-0.12	54.2	-0.0386	0.8653	0.0013
331	SLV 5	9.86	-0.05	22.17	-0.088	0.4083	0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
331	SLV 6	9.86	-0.05	22.17	-0.088	0.4083	0.0001
331	SLV 7	0.77	-0.32	76.52	0.0596	0.0952	0.0016
331	SLV 8	0.77	-0.32	76.52	0.0596	0.0952	0.0016
331	SLV 9	-3.4	-0.14	25	-0.0482	-0.1578	-0.0001
331	SLV 10	-3.4	-0.14	25	-0.0482	-0.1578	-0.0001
331	SLV 11	-12.49	-0.41	79.35	0.0995	-0.471	0.0015
331	SLV 12	-12.49	-0.41	79.35	0.0995	-0.471	0.0015
331	SLV 13	-22.06	-0.34	47.32	0.05	-0.9279	0.0003
331	SLV 14	-22.06	-0.34	47.32	0.05	-0.9279	0.0003
331	SLV 15	-24.78	-0.42	63.63	0.0943	-1.0219	0.0007
331	SLV 16	-24.78	-0.42	63.63	0.0943	-1.0219	0.0007
332	SLU 1	-2.37	0.04	41.59	-0.0811	-0.0707	0
332	SLU 2	-2.37	0.04	41.56	-0.0809	-0.0706	0
332	SLU 3	-2.62	0.04	42.88	-0.0833	-0.0802	0
332	SLU 4	-2.62	0.04	42.85	-0.0832	-0.0801	0
332	SLU 5	-2.63	0.04	42.31	-0.0816	-0.0809	0
332	SLU 6	-2.88	0.04	43.63	-0.0839	-0.0905	0
332	SLU 7	-2.88	0.04	43.61	-0.0838	-0.0904	0
332	SLU 8	-2.89	0.04	43.11	-0.0823	-0.0913	0
332	SLU 9	-2.89	0.04	43.08	-0.0822	-0.0912	0
332	SLU 10	-2.78	0.05	47.81	-0.0958	-0.0822	0
332	SLU 11	-3.03	0.05	49.13	-0.0982	-0.0918	0
332	SLU 12	-3.03	0.05	49.11	-0.0981	-0.0918	0
332	SLU 13	-3.04	0.05	48.57	-0.0965	-0.0926	0
332	SLU 14	-3.29	0.05	49.89	-0.0989	-0.1022	0
332	SLU 15	-3.29	0.05	49.87	-0.0988	-0.1021	0
332	SLU 16	-3.3	0.05	49.36	-0.0973	-0.103	0
332	SLU 17	-3.3	0.05	49.34	-0.0972	-0.1029	0
332	SLU 18	-2.95	0.05	50.53	-0.1024	-0.0874	0
332	SLU 19	-2.95	0.05	50.51	-0.1023	-0.0873	0
332	SLU 20	-3.22	0.05	51.29	-0.103	-0.0977	0
332	SLU 21	-3.21	0.05	51.27	-0.1029	-0.0976	0
332	SLU 22	-2.85	0.05	47.53	-0.0948	-0.0857	0
332	SLU 23	-2.85	0.05	47.49	-0.0947	-0.0856	0
332	SLU 24	-3.1	0.05	48.81	-0.0971	-0.0952	0
332	SLU 25	-3.1	0.05	48.79	-0.097	-0.0951	0
332	SLU 26	-3.11	0.05	48.25	-0.0953	-0.0959	0
332	SLU 27	-3.36	0.05	49.57	-0.0977	-0.1055	0
332	SLU 28	-3.36	0.05	49.55	-0.0976	-0.1055	0
332	SLU 29	-3.37	0.05	49.04	-0.0961	-0.1064	0
332	SLU 30	-3.37	0.05	49.02	-0.096	-0.1063	0
332	SLU 31	-3.26	0.06	53.75	-0.1096	-0.0973	0
332	SLU 32	-3.51	0.06	55.07	-0.112	-0.1069	0
332	SLU 33	-3.51	0.06	55.05	-0.1119	-0.1068	0
332	SLU 34	-3.52	0.06	54.5	-0.1103	-0.1076	0
332	SLU 35	-3.77	0.06	55.83	-0.1126	-0.1172	0
332	SLU 36	-3.77	0.06	55.8	-0.1125	-0.1171	0
332	SLU 37	-3.78	0.06	55.3	-0.111	-0.118	0
332	SLU 38	-3.78	0.06	55.28	-0.1109	-0.118	0
332	SLU 39	-3.44	0.06	56.47	-0.1162	-0.1024	0
332	SLU 40	-3.44	0.06	56.44	-0.1161	-0.1023	0
332	SLU 41	-3.7	0.06	57.22	-0.1168	-0.1127	0
332	SLU 42	-3.7	0.06	57.2	-0.1167	-0.1127	0
332	SLU 43	-2.91	0.05	52.04	-0.1007	-0.0867	0
332	SLU 44	-2.91	0.05	52	-0.1005	-0.0866	0
332	SLU 45	-3.17	0.05	53.32	-0.1029	-0.0962	0
332	SLU 46	-3.16	0.05	53.3	-0.1028	-0.0961	0
332	SLU 47	-3.17	0.05	52.76	-0.1012	-0.0969	0
332	SLU 48	-3.43	0.05	54.08	-0.1035	-0.1065	0
332	SLU 49	-3.43	0.05	54.05	-0.1034	-0.1064	0
332	SLU 50	-3.44	0.05	53.55	-0.1019	-0.1074	0
332	SLU 51	-3.43	0.05	53.53	-0.1019	-0.1073	0
332	SLU 52	-3.32	0.06	58.26	-0.1155	-0.0983	0
332	SLU 53	-3.58	0.06	59.58	-0.1178	-0.1079	0
332	SLU 54	-3.57	0.06	59.55	-0.1177	-0.1078	0
332	SLU 55	-3.58	0.06	59.01	-0.1161	-0.1086	0
332	SLU 56	-3.84	0.06	60.33	-0.1185	-0.1182	0
332	SLU 57	-3.84	0.06	60.31	-0.1184	-0.1181	0
332	SLU 58	-3.85	0.06	59.81	-0.1169	-0.119	0
332	SLU 59	-3.85	0.06	59.78	-0.1168	-0.119	0
332	SLU 60	-3.5	0.06	60.97	-0.122	-0.1034	0
332	SLU 61	-3.5	0.06	60.95	-0.1219	-0.1033	0
332	SLU 62	-3.76	0.06	61.73	-0.1226	-0.1137	0
332	SLU 63	-3.76	0.06	61.71	-0.1225	-0.1137	0
332	SLU 64	-3.4	0.06	57.97	-0.1144	-0.1018	0
332	SLU 65	-3.39	0.06	57.93	-0.1143	-0.1016	0
332	SLU 66	-3.65	0.06	59.26	-0.1167	-0.1112	0
332	SLU 67	-3.65	0.06	59.23	-0.1166	-0.1112	0
332	SLU 68	-3.65	0.06	58.69	-0.1149	-0.112	0
332	SLU 69	-3.91	0.06	60.01	-0.1173	-0.1216	0
332	SLU 70	-3.91	0.06	59.99	-0.1172	-0.1215	0
332	SLU 71	-3.92	0.06	59.49	-0.1157	-0.1224	0
332	SLU 72	-3.92	0.06	59.46	-0.1156	-0.1223	0
332	SLU 73	-3.8	0.07	64.19	-0.1292	-0.1133	0
332	SLU 74	-4.06	0.07	65.51	-0.1316	-0.1229	0
332	SLU 75	-4.06	0.07	65.49	-0.1315	-0.1229	0
332	SLU 76	-4.06	0.07	64.95	-0.1299	-0.1236	0
332	SLU 77	-4.32	0.07	66.27	-0.1322	-0.1332	0
332	SLU 78	-4.32	0.07	66.25	-0.1321	-0.1332	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
332	SLU 79	-4.33	0.07	65.74	-0.1306	-0.1341	0
332	SLU 80	-4.33	0.07	65.72	-0.1305	-0.134	0
332	SLU 81	-3.98	0.07	66.91	-0.1358	-0.1184	0
332	SLU 82	-3.98	0.07	66.89	-0.1357	-0.1184	0
332	SLU 83	-4.24	0.07	67.67	-0.1364	-0.1288	0
332	SLU 84	-4.24	0.07	67.64	-0.1363	-0.1287	0
332	SLE RA 1	-2.51	0.04	43.29	-0.085	-0.075	0
332	SLE RA 2	-2.5	0.04	43.26	-0.0849	-0.0749	0
332	SLE RA 3	-2.67	0.05	44.15	-0.0865	-0.0813	0
332	SLE RA 4	-2.67	0.05	44.13	-0.0864	-0.0812	0
332	SLE RA 5	-2.68	0.04	43.77	-0.0853	-0.0818	0
332	SLE RA 6	-2.85	0.05	44.65	-0.0869	-0.0882	0
332	SLE RA 7	-2.85	0.05	44.63	-0.0869	-0.0881	0
332	SLE RA 8	-2.85	0.04	44.3	-0.0859	-0.0887	0
332	SLE RA 9	-2.85	0.04	44.28	-0.0858	-0.0887	0
332	SLE RA 10	-2.78	0.05	47.44	-0.0949	-0.0827	0
332	SLE RA 11	-2.95	0.05	48.32	-0.0964	-0.0891	0
332	SLE RA 12	-2.95	0.05	48.3	-0.0964	-0.089	0
332	SLE RA 13	-2.95	0.05	47.94	-0.0953	-0.0896	0
332	SLE RA 14	-3.12	0.05	48.82	-0.0969	-0.096	0
332	SLE RA 15	-3.12	0.05	48.81	-0.0968	-0.0959	0
332	SLE RA 16	-3.13	0.05	48.47	-0.0958	-0.0965	0
332	SLE RA 17	-3.13	0.05	48.45	-0.0957	-0.0965	0
332	SLE RA 18	-2.9	0.05	49.25	-0.0992	-0.0861	0
332	SLE RA 19	-2.9	0.05	49.23	-0.0992	-0.086	0
332	SLE RA 20	-3.07	0.05	49.75	-0.0996	-0.093	0
332	SLE RA 21	-3.07	0.05	49.74	-0.0996	-0.0929	0
332	SLE FR 1	-2.51	0.04	43.29	-0.085	-0.075	0
332	SLE FR 2	-2.51	0.04	43.28	-0.085	-0.075	0
332	SLE FR 3	-2.58	0.04	43.49	-0.0852	-0.0777	0
332	SLE FR 4	-2.62	0.05	45.07	-0.0893	-0.0783	0
332	SLE FR 5	-2.69	0.05	45.28	-0.0894	-0.0811	0
332	SLE FR 6	-2.7	0.05	46.27	-0.0921	-0.0805	0
332	SLE QP 1	-2.51	0.04	43.29	-0.085	-0.075	0
332	SLE QP 2	-2.62	0.05	45.08	-0.0893	-0.0783	0
332	SLD 1	7.72	0.13	40.77	-0.1347	0.374	-0.0001
332	SLD 2	7.72	0.13	40.77	-0.1347	0.374	-0.0001
332	SLD 3	6.66	0.11	45.9	-0.1164	0.335	-0.0002
332	SLD 4	6.66	0.11	45.9	-0.1164	0.335	-0.0002
332	SLD 5	2.09	0.1	36	-0.1307	0.1165	0.0002
332	SLD 6	2.09	0.1	36	-0.1307	0.1165	0.0002
332	SLD 7	-1.44	0.03	53.11	-0.0696	-0.0134	-0.0002
332	SLD 8	-1.44	0.03	53.11	-0.0696	-0.0134	-0.0002
332	SLD 9	-3.8	0.06	37.04	-0.1089	-0.1432	0.0003
332	SLD 10	-3.8	0.06	37.04	-0.1089	-0.1432	0.0003
332	SLD 11	-7.33	-0.01	54.16	-0.0479	-0.2731	-0.0001
332	SLD 12	-7.33	-0.01	54.16	-0.0479	-0.2731	-0.0001
332	SLD 13	-11.91	-0.01	44.25	-0.0622	-0.4916	0.0003
332	SLD 14	-11.91	-0.01	44.25	-0.0622	-0.4916	0.0003
332	SLD 15	-12.97	-0.04	49.39	-0.0438	-0.5306	0.0002
332	SLD 16	-12.97	-0.04	49.39	-0.0438	-0.5306	0.0002
332	SLV 1	21.11	0.27	35.02	-0.2136	0.9591	-0.0004
332	SLV 2	21.11	0.27	35.02	-0.2136	0.9591	-0.0004
332	SLV 3	18.63	0.22	46.98	-0.1707	0.8677	-0.0006
332	SLV 4	18.63	0.22	46.98	-0.1707	0.8677	-0.0006
332	SLV 5	8.26	0.19	23.93	-0.1916	0.3716	0.0003
332	SLV 6	8.26	0.19	23.93	-0.1916	0.3716	0.0003
332	SLV 7	-0.01	0.02	63.78	-0.0487	0.0668	-0.0006
332	SLV 8	-0.01	0.02	63.78	-0.0487	0.0668	-0.0006
332	SLV 9	-5.24	0.07	26.37	-0.1298	-0.2234	0.0006
332	SLV 10	-5.24	0.07	26.37	-0.1298	-0.2234	0.0006
332	SLV 11	-13.51	-0.1	66.23	0.013	-0.5282	-0.0003
332	SLV 12	-13.51	-0.1	66.23	0.013	-0.5282	-0.0003
332	SLV 13	-23.88	-0.13	43.17	-0.0078	-1.0243	0.0007
332	SLV 14	-23.88	-0.13	43.17	-0.0078	-1.0243	0.0007
332	SLV 15	-26.36	-0.18	55.13	0.035	-1.1158	0.0004
332	SLV 16	-26.36	-0.18	55.13	0.035	-1.1158	0.0004
333	SLU 1	-3.31	0.24	37.31	-0.169	-0.1264	-0.0007
333	SLU 2	-3.31	0.24	37.28	-0.1687	-0.1263	-0.0007
333	SLU 3	-3.58	0.25	38.42	-0.1744	-0.1373	-0.0007
333	SLU 4	-3.58	0.24	38.4	-0.1742	-0.1373	-0.0007
333	SLU 5	-3.57	0.24	37.92	-0.1711	-0.137	-0.0007
333	SLU 6	-3.84	0.25	39.06	-0.1768	-0.148	-0.0007
333	SLU 7	-3.84	0.25	39.04	-0.1766	-0.148	-0.0007
333	SLU 8	-3.83	0.24	38.6	-0.1737	-0.1478	-0.0007
333	SLU 9	-3.83	0.24	38.58	-0.1735	-0.1478	-0.0007
333	SLU 10	-3.89	0.28	42.71	-0.1998	-0.1479	-0.0008
333	SLU 11	-4.16	0.29	43.85	-0.2055	-0.1589	-0.0008
333	SLU 12	-4.15	0.29	43.83	-0.2053	-0.1588	-0.0008
333	SLU 13	-4.14	0.28	43.35	-0.2021	-0.1586	-0.0008
333	SLU 14	-4.41	0.29	44.49	-0.2078	-0.1696	-0.0008
333	SLU 15	-4.41	0.29	44.47	-0.2077	-0.1696	-0.0008
333	SLU 16	-4.4	0.29	44.03	-0.2048	-0.1694	-0.0008
333	SLU 17	-4.4	0.29	44.01	-0.2046	-0.1693	-0.0008
333	SLU 18	-4.13	0.3	45.07	-0.2134	-0.1572	-0.0009
333	SLU 19	-4.13	0.3	45.05	-0.2132	-0.1572	-0.0009
333	SLU 20	-4.39	0.3	45.71	-0.2157	-0.1679	-0.0009
333	SLU 21	-4.39	0.3	45.69	-0.2156	-0.1679	-0.0009
333	SLU 22	-3.94	0.28	42.47	-0.198	-0.1505	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
333	SLU 23	-3.94	0.28	42.43	-0.1978	-0.1504	-0.0008
333	SLU 24	-4.21	0.29	43.57	-0.2034	-0.1615	-0.0008
333	SLU 25	-4.21	0.29	43.55	-0.2033	-0.1614	-0.0008
333	SLU 26	-4.2	0.28	43.07	-0.2001	-0.1612	-0.0008
333	SLU 27	-4.47	0.29	44.22	-0.2058	-0.1722	-0.0008
333	SLU 28	-4.47	0.29	44.19	-0.2056	-0.1721	-0.0008
333	SLU 29	-4.46	0.29	43.75	-0.2027	-0.172	-0.0008
333	SLU 30	-4.46	0.28	43.73	-0.2026	-0.1719	-0.0008
333	SLU 31	-4.52	0.32	47.86	-0.2288	-0.172	-0.0009
333	SLU 32	-4.79	0.33	49	-0.2345	-0.1831	-0.001
333	SLU 33	-4.79	0.33	48.98	-0.2344	-0.183	-0.001
333	SLU 34	-4.77	0.32	48.5	-0.2312	-0.1827	-0.0009
333	SLU 35	-5.04	0.33	49.64	-0.2369	-0.1938	-0.001
333	SLU 36	-5.04	0.33	49.62	-0.2367	-0.1937	-0.001
333	SLU 37	-5.03	0.33	49.18	-0.2338	-0.1936	-0.001
333	SLU 38	-5.03	0.33	49.16	-0.2336	-0.1935	-0.001
333	SLU 39	-4.76	0.34	50.22	-0.2424	-0.1814	-0.001
333	SLU 40	-4.76	0.34	50.2	-0.2423	-0.1813	-0.001
333	SLU 41	-5.02	0.34	50.86	-0.2448	-0.1921	-0.001
333	SLU 42	-5.02	0.34	50.84	-0.2446	-0.192	-0.001
333	SLU 43	-4.09	0.29	46.74	-0.2098	-0.156	-0.0008
333	SLU 44	-4.09	0.29	46.71	-0.2095	-0.1559	-0.0008
333	SLU 45	-4.36	0.3	47.85	-0.2152	-0.1669	-0.0009
333	SLU 46	-4.36	0.3	47.83	-0.215	-0.1669	-0.0009
333	SLU 47	-4.34	0.3	47.35	-0.2118	-0.1666	-0.0009
333	SLU 48	-4.62	0.31	48.49	-0.2175	-0.1777	-0.0009
333	SLU 49	-4.61	0.31	48.47	-0.2173	-0.1776	-0.0009
333	SLU 50	-4.6	0.3	48.03	-0.2144	-0.1774	-0.0009
333	SLU 51	-4.6	0.3	48.01	-0.2143	-0.1774	-0.0009
333	SLU 52	-4.66	0.34	52.13	-0.2405	-0.1775	-0.001
333	SLU 53	-4.93	0.35	53.28	-0.2462	-0.1885	-0.001
333	SLU 54	-4.93	0.35	53.26	-0.2461	-0.1885	-0.001
333	SLU 55	-4.92	0.34	52.78	-0.2429	-0.1882	-0.001
333	SLU 56	-5.19	0.35	53.92	-0.2486	-0.1992	-0.001
333	SLU 57	-5.19	0.35	53.9	-0.2484	-0.1992	-0.001
333	SLU 58	-5.18	0.35	53.46	-0.2455	-0.199	-0.001
333	SLU 59	-5.18	0.34	53.43	-0.2454	-0.199	-0.001
333	SLU 60	-4.91	0.36	54.5	-0.2541	-0.1868	-0.001
333	SLU 61	-4.91	0.36	54.48	-0.254	-0.1868	-0.001
333	SLU 62	-5.17	0.36	55.14	-0.2565	-0.1976	-0.001
333	SLU 63	-5.17	0.36	55.12	-0.2563	-0.1975	-0.001
333	SLU 64	-4.72	0.34	51.89	-0.2388	-0.1802	-0.001
333	SLU 65	-4.72	0.33	51.86	-0.2385	-0.1801	-0.001
333	SLU 66	-4.99	0.34	53	-0.2442	-0.1911	-0.001
333	SLU 67	-4.99	0.34	52.98	-0.244	-0.191	-0.001
333	SLU 68	-4.98	0.34	52.5	-0.2409	-0.1908	-0.001
333	SLU 69	-5.25	0.35	53.64	-0.2465	-0.2018	-0.001
333	SLU 70	-5.24	0.35	53.62	-0.2464	-0.2018	-0.001
333	SLU 71	-5.24	0.34	53.18	-0.2435	-0.2016	-0.001
333	SLU 72	-5.23	0.34	53.16	-0.2433	-0.2015	-0.001
333	SLU 73	-5.29	0.38	57.29	-0.2696	-0.2017	-0.0011
333	SLU 74	-5.56	0.39	58.43	-0.2753	-0.2127	-0.0011
333	SLU 75	-5.56	0.39	58.41	-0.2751	-0.2126	-0.0011
333	SLU 76	-5.55	0.38	57.93	-0.2719	-0.2124	-0.0011
333	SLU 77	-5.82	0.39	59.07	-0.2776	-0.2234	-0.0011
333	SLU 78	-5.82	0.39	59.05	-0.2775	-0.2234	-0.0011
333	SLU 79	-5.81	0.39	58.61	-0.2746	-0.2232	-0.0011
333	SLU 80	-5.81	0.39	58.59	-0.2744	-0.2231	-0.0011
333	SLU 81	-5.54	0.4	59.65	-0.2832	-0.211	-0.0011
333	SLU 82	-5.54	0.4	59.63	-0.283	-0.2109	-0.0011
333	SLU 83	-5.8	0.4	60.29	-0.2855	-0.2217	-0.0012
333	SLU 84	-5.8	0.4	60.27	-0.2854	-0.2217	-0.0012
333	SLE RA 1	-3.49	0.25	38.79	-0.1773	-0.1333	-0.0007
333	SLE RA 2	-3.49	0.25	38.76	-0.1771	-0.1332	-0.0007
333	SLE RA 3	-3.67	0.25	39.52	-0.1809	-0.1406	-0.0007
333	SLE RA 4	-3.67	0.25	39.51	-0.1808	-0.1405	-0.0007
333	SLE RA 5	-3.66	0.25	39.19	-0.1787	-0.1404	-0.0007
333	SLE RA 6	-3.84	0.26	39.95	-0.1825	-0.1477	-0.0007
333	SLE RA 7	-3.84	0.26	39.94	-0.1824	-0.1477	-0.0007
333	SLE RA 8	-3.84	0.25	39.64	-0.1804	-0.1476	-0.0007
333	SLE RA 9	-3.83	0.25	39.63	-0.1803	-0.1475	-0.0007
333	SLE RA 10	-3.87	0.28	42.38	-0.1978	-0.1476	-0.0008
333	SLE RA 11	-4.05	0.28	43.14	-0.2016	-0.155	-0.0008
333	SLE RA 12	-4.05	0.28	43.13	-0.2015	-0.1549	-0.0008
333	SLE RA 13	-4.05	0.28	42.81	-0.1994	-0.1548	-0.0008
333	SLE RA 14	-4.23	0.29	43.57	-0.2032	-0.1621	-0.0008
333	SLE RA 15	-4.23	0.29	43.56	-0.2031	-0.1621	-0.0008
333	SLE RA 16	-4.22	0.28	43.26	-0.2011	-0.162	-0.0008
333	SLE RA 17	-4.22	0.28	43.25	-0.201	-0.1619	-0.0008
333	SLE RA 18	-4.04	0.29	43.96	-0.2069	-0.1538	-0.0008
333	SLE RA 19	-4.04	0.29	43.94	-0.2068	-0.1538	-0.0008
333	SLE RA 20	-4.21	0.29	44.38	-0.2085	-0.161	-0.0008
333	SLE RA 21	-4.21	0.29	44.37	-0.2084	-0.1609	-0.0008
333	SLE FR 1	-3.49	0.25	38.79	-0.1773	-0.1333	-0.0007
333	SLE FR 2	-3.49	0.25	38.78	-0.1773	-0.1333	-0.0007
333	SLE FR 3	-3.56	0.25	38.96	-0.1779	-0.1361	-0.0007
333	SLE FR 4	-3.66	0.26	40.33	-0.1861	-0.1394	-0.0008
333	SLE FR 5	-3.73	0.26	40.51	-0.1868	-0.1423	-0.0008
333	SLE FR 6	-3.77	0.27	41.37	-0.1921	-0.1436	-0.0008





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
333	SLE QP 1	-3.49	0.25	38.79	-0.1773	-0.1333	-0.0007
333	SLE QP 2	-3.66	0.26	40.34	-0.1862	-0.1394	-0.0008
333	SLD 1	6.76	0.31	36.1	-0.2127	0.3065	-0.001
333	SLD 2	6.76	0.31	36.1	-0.2127	0.3065	-0.001
333	SLD 3	5.76	0.34	40.26	-0.2383	0.266	-0.0011
333	SLD 4	5.76	0.34	40.26	-0.2383	0.266	-0.0011
333	SLD 5	0.98	0.24	32.77	-0.1554	0.0557	-0.0006
333	SLD 6	0.98	0.24	32.77	-0.1554	0.0557	-0.0006
333	SLD 7	-2.35	0.32	46.61	-0.2406	-0.0792	-0.001
333	SLD 8	-2.35	0.32	46.61	-0.2406	-0.0792	-0.001
333	SLD 9	-4.96	0.2	34.06	-0.1318	-0.1997	-0.0005
333	SLD 10	-4.96	0.2	34.06	-0.1318	-0.1997	-0.0005
333	SLD 11	-8.3	0.28	47.91	-0.217	-0.3346	-0.0009
333	SLD 12	-8.3	0.28	47.91	-0.217	-0.3346	-0.0009
333	SLD 13	-13.07	0.19	40.42	-0.1341	-0.5449	-0.0004
333	SLD 14	-13.07	0.19	40.42	-0.1341	-0.5449	-0.0004
333	SLD 15	-14.07	0.21	44.57	-0.1596	-0.5854	-0.0005
333	SLD 16	-14.07	0.21	44.57	-0.1596	-0.5854	-0.0005
333	SLV 1	20.24	0.41	30.5	-0.2675	0.8838	-0.0013
333	SLV 2	20.24	0.41	30.5	-0.2675	0.8838	-0.0013
333	SLV 3	17.88	0.47	40.17	-0.3274	0.7885	-0.0016
333	SLV 4	17.88	0.47	40.17	-0.3274	0.7885	-0.0016
333	SLV 5	7.08	0.21	22.73	-0.1196	0.312	-0.0005
333	SLV 6	7.08	0.21	22.73	-0.1196	0.312	-0.0005
333	SLV 7	-0.76	0.41	54.94	-0.3195	-0.0056	-0.0014
333	SLV 8	-0.76	0.41	54.94	-0.3195	-0.0056	-0.0014
333	SLV 9	-6.55	0.11	25.73	-0.0529	-0.2733	-0.0001
333	SLV 10	-6.55	0.11	25.73	-0.0529	-0.2733	-0.0001
333	SLV 11	-14.39	0.31	57.95	-0.2527	-0.5909	-0.001
333	SLV 12	-14.39	0.31	57.95	-0.2527	-0.5909	-0.001
333	SLV 13	-25.2	0.06	40.51	-0.045	-1.0674	0.0001
333	SLV 14	-25.2	0.06	40.51	-0.045	-1.0674	0.0001
333	SLV 15	-27.55	0.11	50.17	-0.1049	-1.1627	-0.0002
333	SLV 16	-27.55	0.11	50.17	-0.1049	-1.1627	-0.0002
334	SLU 1	-3.32	0.35	33.23	-0.2327	-0.1175	-0.0016
334	SLU 2	-3.32	0.35	33.19	-0.2323	-0.1175	-0.0016
334	SLU 3	-3.57	0.36	34.18	-0.2405	-0.1275	-0.0016
334	SLU 4	-3.57	0.36	34.16	-0.2403	-0.1275	-0.0016
334	SLU 5	-3.56	0.35	33.74	-0.236	-0.1272	-0.0016
334	SLU 6	-3.81	0.36	34.73	-0.2442	-0.1372	-0.0016
334	SLU 7	-3.81	0.36	34.71	-0.244	-0.1372	-0.0016
334	SLU 8	-3.8	0.36	34.33	-0.2401	-0.137	-0.0016
334	SLU 9	-3.8	0.36	34.31	-0.2398	-0.137	-0.0016
334	SLU 10	-3.88	0.41	37.85	-0.2752	-0.1372	-0.0018
334	SLU 11	-4.14	0.42	38.84	-0.2833	-0.1472	-0.0019
334	SLU 12	-4.14	0.42	38.82	-0.2831	-0.1472	-0.0019
334	SLU 13	-4.12	0.41	38.4	-0.2788	-0.147	-0.0019
334	SLU 14	-4.38	0.43	39.39	-0.287	-0.157	-0.0019
334	SLU 15	-4.38	0.43	39.37	-0.2868	-0.157	-0.0019
334	SLU 16	-4.36	0.42	38.99	-0.2829	-0.1568	-0.0019
334	SLU 17	-4.36	0.42	38.97	-0.2826	-0.1568	-0.0019
334	SLU 18	-4.13	0.44	39.88	-0.2939	-0.1457	-0.002
334	SLU 19	-4.13	0.44	39.86	-0.2936	-0.1457	-0.002
334	SLU 20	-4.37	0.44	40.43	-0.2975	-0.1555	-0.002
334	SLU 21	-4.37	0.44	40.41	-0.2973	-0.1555	-0.002
334	SLU 22	-3.94	0.41	37.65	-0.2729	-0.1397	-0.0018
334	SLU 23	-3.94	0.41	37.62	-0.2725	-0.1397	-0.0018
334	SLU 24	-4.19	0.42	38.61	-0.2807	-0.1497	-0.0019
334	SLU 25	-4.19	0.42	38.59	-0.2804	-0.1497	-0.0019
334	SLU 26	-4.18	0.41	38.17	-0.2762	-0.1495	-0.0018
334	SLU 27	-4.43	0.42	39.16	-0.2843	-0.1595	-0.0019
334	SLU 28	-4.43	0.42	39.14	-0.2841	-0.1595	-0.0019
334	SLU 29	-4.42	0.42	38.75	-0.2802	-0.1593	-0.0019
334	SLU 30	-4.42	0.42	38.73	-0.28	-0.1592	-0.0019
334	SLU 31	-4.5	0.47	42.28	-0.3153	-0.1594	-0.0021
334	SLU 32	-4.76	0.48	43.27	-0.3235	-0.1694	-0.0022
334	SLU 33	-4.76	0.48	43.24	-0.3232	-0.1694	-0.0022
334	SLU 34	-4.74	0.47	42.83	-0.319	-0.1692	-0.0021
334	SLU 35	-5	0.49	43.82	-0.3271	-0.1792	-0.0022
334	SLU 36	-5	0.49	43.79	-0.3269	-0.1792	-0.0022
334	SLU 37	-4.98	0.48	43.41	-0.323	-0.179	-0.0022
334	SLU 38	-4.98	0.48	43.39	-0.3228	-0.179	-0.0022
334	SLU 39	-4.75	0.5	44.31	-0.334	-0.1679	-0.0022
334	SLU 40	-4.75	0.5	44.29	-0.3338	-0.1679	-0.0022
334	SLU 41	-4.99	0.5	44.86	-0.3377	-0.1777	-0.0023
334	SLU 42	-4.99	0.5	44.84	-0.3375	-0.1777	-0.0023
334	SLU 43	-4.1	0.43	41.68	-0.2888	-0.1451	-0.0019
334	SLU 44	-4.1	0.43	41.64	-0.2884	-0.1451	-0.0019
334	SLU 45	-4.36	0.44	42.63	-0.2966	-0.1551	-0.002
334	SLU 46	-4.35	0.44	42.61	-0.2963	-0.1551	-0.002
334	SLU 47	-4.34	0.43	42.19	-0.2921	-0.1549	-0.002
334	SLU 48	-4.6	0.45	43.18	-0.3002	-0.1649	-0.002
334	SLU 49	-4.59	0.45	43.16	-0.3	-0.1649	-0.002
334	SLU 50	-4.58	0.44	42.78	-0.2961	-0.1647	-0.002
334	SLU 51	-4.58	0.44	42.76	-0.2959	-0.1646	-0.002
334	SLU 52	-4.67	0.49	46.3	-0.3312	-0.1648	-0.0022
334	SLU 53	-4.92	0.5	47.29	-0.3394	-0.1748	-0.0023
334	SLU 54	-4.92	0.5	47.27	-0.3391	-0.1748	-0.0023
334	SLU 55	-4.91	0.5	46.85	-0.3349	-0.1746	-0.0022



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
334	SLU 56	-5.16	0.51	47.84	-0.343	-0.1846	-0.0023
334	SLU 57	-5.16	0.51	47.82	-0.3428	-0.1846	-0.0023
334	SLU 58	-5.15	0.5	47.44	-0.3389	-0.1844	-0.0023
334	SLU 59	-5.15	0.5	47.42	-0.3387	-0.1844	-0.0023
334	SLU 60	-4.91	0.52	48.34	-0.3499	-0.1733	-0.0023
334	SLU 61	-4.91	0.52	48.31	-0.3497	-0.1733	-0.0023
334	SLU 62	-5.15	0.53	48.89	-0.3536	-0.1831	-0.0024
334	SLU 63	-5.15	0.53	48.86	-0.3534	-0.1831	-0.0024
334	SLU 64	-4.72	0.49	46.11	-0.3289	-0.1673	-0.0022
334	SLU 65	-4.72	0.49	46.07	-0.3286	-0.1673	-0.0022
334	SLU 66	-4.97	0.5	47.06	-0.3367	-0.1773	-0.0023
334	SLU 67	-4.97	0.5	47.04	-0.3365	-0.1773	-0.0023
334	SLU 68	-4.96	0.49	46.62	-0.3322	-0.1771	-0.0022
334	SLU 69	-5.21	0.51	47.61	-0.3404	-0.1871	-0.0023
334	SLU 70	-5.21	0.51	47.59	-0.3402	-0.1871	-0.0023
334	SLU 71	-5.2	0.5	47.21	-0.3363	-0.1869	-0.0023
334	SLU 72	-5.2	0.5	47.18	-0.336	-0.1869	-0.0023
334	SLU 73	-5.29	0.55	50.73	-0.3714	-0.187	-0.0025
334	SLU 74	-5.54	0.56	51.72	-0.3795	-0.1971	-0.0025
334	SLU 75	-5.54	0.56	51.7	-0.3793	-0.197	-0.0025
334	SLU 76	-5.53	0.56	51.28	-0.375	-0.1968	-0.0025
334	SLU 77	-5.78	0.57	52.27	-0.3832	-0.2068	-0.0026
334	SLU 78	-5.78	0.57	52.25	-0.383	-0.2068	-0.0026
334	SLU 79	-5.77	0.56	51.86	-0.3791	-0.2066	-0.0025
334	SLU 80	-5.77	0.56	51.84	-0.3788	-0.2066	-0.0025
334	SLU 81	-5.53	0.58	52.76	-0.3901	-0.1955	-0.0026
334	SLU 82	-5.53	0.58	52.74	-0.3899	-0.1955	-0.0026
334	SLU 83	-5.77	0.59	53.31	-0.3938	-0.2053	-0.0026
334	SLU 84	-5.77	0.59	53.29	-0.3935	-0.2053	-0.0026
334	SLE RA 1	-3.49	0.36	34.49	-0.2442	-0.1238	-0.0016
334	SLE RA 2	-3.49	0.36	34.47	-0.2439	-0.1238	-0.0016
334	SLE RA 3	-3.66	0.37	35.13	-0.2494	-0.1305	-0.0017
334	SLE RA 4	-3.66	0.37	35.11	-0.2492	-0.1305	-0.0017
334	SLE RA 5	-3.65	0.37	34.84	-0.2464	-0.1303	-0.0016
334	SLE RA 6	-3.82	0.37	35.5	-0.2518	-0.137	-0.0017
334	SLE RA 7	-3.82	0.37	35.48	-0.2517	-0.137	-0.0017
334	SLE RA 8	-3.81	0.37	35.23	-0.2491	-0.1369	-0.0017
334	SLE RA 9	-3.81	0.37	35.21	-0.2489	-0.1369	-0.0017
334	SLE RA 10	-3.87	0.41	37.58	-0.2725	-0.137	-0.0018
334	SLE RA 11	-4.04	0.41	38.23	-0.2779	-0.1436	-0.0019
334	SLE RA 12	-4.04	0.41	38.22	-0.2778	-0.1436	-0.0019
334	SLE RA 13	-4.03	0.41	37.94	-0.2749	-0.1435	-0.0018
334	SLE RA 14	-4.2	0.42	38.6	-0.2804	-0.1502	-0.0019
334	SLE RA 15	-4.2	0.42	38.59	-0.2802	-0.1502	-0.0019
334	SLE RA 16	-4.19	0.41	38.33	-0.2776	-0.15	-0.0019
334	SLE RA 17	-4.19	0.41	38.32	-0.2775	-0.15	-0.0019
334	SLE RA 18	-4.03	0.42	38.93	-0.285	-0.1426	-0.0019
334	SLE RA 19	-4.03	0.42	38.92	-0.2848	-0.1426	-0.0019
334	SLE RA 20	-4.19	0.43	39.3	-0.2874	-0.1491	-0.0019
334	SLE RA 21	-4.19	0.43	39.28	-0.2873	-0.1491	-0.0019
334	SLE FR 1	-3.49	0.36	34.49	-0.2442	-0.1238	-0.0016
334	SLE FR 2	-3.49	0.36	34.49	-0.2442	-0.1238	-0.0016
334	SLE FR 3	-3.56	0.36	34.64	-0.2452	-0.1264	-0.0016
334	SLE FR 4	-3.66	0.38	35.82	-0.2564	-0.1295	-0.0017
334	SLE FR 5	-3.72	0.38	35.97	-0.2574	-0.1321	-0.0017
334	SLE FR 6	-3.76	0.39	36.71	-0.2646	-0.1332	-0.0018
334	SLE QP 1	-3.49	0.36	34.49	-0.2442	-0.1238	-0.0016
334	SLE QP 2	-3.66	0.38	35.82	-0.2564	-0.1295	-0.0017
334	SLD 1	7.29	0.41	31.55	-0.2754	0.352	-0.0019
334	SLD 2	7.29	0.41	31.55	-0.2754	0.352	-0.0019
334	SLD 3	6.38	0.44	35.01	-0.3115	0.3153	-0.0021
334	SLD 4	6.38	0.44	35.01	-0.3115	0.3153	-0.0021
334	SLD 5	1.01	0.35	29.29	-0.2073	0.0705	-0.0016
334	SLD 6	1.01	0.35	29.29	-0.2073	0.0705	-0.0016
334	SLD 7	-2.03	0.45	40.83	-0.3278	-0.0515	-0.002
334	SLD 8	-2.03	0.45	40.83	-0.3278	-0.0515	-0.002
334	SLD 9	-5.29	0.32	30.82	-0.1851	-0.2074	-0.0014
334	SLD 10	-5.29	0.32	30.82	-0.1851	-0.2074	-0.0014
334	SLD 11	-8.32	0.42	42.36	-0.3056	-0.3294	-0.0019
334	SLD 12	-8.32	0.42	42.36	-0.3056	-0.3294	-0.0019
334	SLD 13	-13.7	0.32	36.64	-0.2013	-0.5743	-0.0014
334	SLD 14	-13.7	0.32	36.64	-0.2013	-0.5743	-0.0014
334	SLD 15	-14.61	0.35	40.1	-0.2375	-0.6109	-0.0015
334	SLD 16	-14.61	0.35	40.1	-0.2375	-0.6109	-0.0015
334	SLV 1	21.47	0.48	25.92	-0.3181	0.9748	-0.0023
334	SLV 2	21.47	0.48	25.92	-0.3181	0.9748	-0.0023
334	SLV 3	19.32	0.55	33.97	-0.4029	0.8888	-0.0026
334	SLV 4	19.32	0.55	33.97	-0.4029	0.8888	-0.0026
334	SLV 5	7.13	0.3	20.65	-0.1462	0.3323	-0.0014
334	SLV 6	7.13	0.3	20.65	-0.1462	0.3323	-0.0014
334	SLV 7	-0.02	0.54	47.47	-0.4291	0.0456	-0.0025
334	SLV 8	-0.02	0.54	47.47	-0.4291	0.0456	-0.0025
334	SLV 9	-7.3	0.22	24.18	-0.0838	-0.3045	-0.0009
334	SLV 10	-7.3	0.22	24.18	-0.0838	-0.3045	-0.0009
334	SLV 11	-14.44	0.46	51	-0.3667	-0.5912	-0.0021
334	SLV 12	-14.44	0.46	51	-0.3667	-0.5912	-0.0021
334	SLV 13	-26.63	0.21	37.68	-0.1099	-1.1477	-0.0008
334	SLV 14	-26.63	0.21	37.68	-0.1099	-1.1477	-0.0008
334	SLV 15	-28.78	0.28	45.73	-0.1948	-1.2337	-0.0011



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
334	SLV 16	-28.78	0.28	45.73	-0.1948	-1.2337	-0.0011
335	SLU 1	-2.8	0.38	29.73	-0.268	-0.1116	-0.0023
335	SLU 2	-2.8	0.38	29.69	-0.2675	-0.1117	-0.0023
335	SLU 3	-3.02	0.39	30.55	-0.2772	-0.1212	-0.0024
335	SLU 4	-3.02	0.39	30.53	-0.2769	-0.1212	-0.0024
335	SLU 5	-3.01	0.39	30.17	-0.2721	-0.121	-0.0023
335	SLU 6	-3.24	0.4	31.03	-0.2818	-0.1305	-0.0024
335	SLU 7	-3.24	0.4	31.01	-0.2815	-0.1306	-0.0024
335	SLU 8	-3.23	0.39	30.68	-0.2771	-0.1303	-0.0024
335	SLU 9	-3.23	0.39	30.65	-0.2768	-0.1303	-0.0024
335	SLU 10	-3.26	0.45	33.71	-0.3168	-0.1298	-0.0027
335	SLU 11	-3.48	0.46	34.57	-0.3266	-0.1393	-0.0028
335	SLU 12	-3.48	0.46	34.55	-0.3263	-0.1394	-0.0028
335	SLU 13	-3.47	0.46	34.18	-0.3214	-0.1391	-0.0028
335	SLU 14	-3.7	0.47	35.04	-0.3311	-0.1486	-0.0029
335	SLU 15	-3.7	0.47	35.02	-0.3309	-0.1487	-0.0028
335	SLU 16	-3.69	0.46	34.69	-0.3265	-0.1484	-0.0028
335	SLU 17	-3.69	0.46	34.67	-0.3262	-0.1484	-0.0028
335	SLU 18	-3.45	0.48	35.47	-0.3385	-0.1375	-0.0029
335	SLU 19	-3.45	0.48	35.45	-0.3382	-0.1376	-0.0029
335	SLU 20	-3.67	0.49	35.94	-0.343	-0.1469	-0.003
335	SLU 21	-3.67	0.49	35.92	-0.3428	-0.1469	-0.003
335	SLU 22	-3.31	0.44	33.55	-0.3144	-0.1323	-0.0027
335	SLU 23	-3.31	0.44	33.51	-0.3139	-0.1324	-0.0027
335	SLU 24	-3.54	0.46	34.37	-0.3236	-0.1419	-0.0028
335	SLU 25	-3.54	0.46	34.35	-0.3233	-0.1419	-0.0028
335	SLU 26	-3.53	0.45	33.98	-0.3185	-0.1417	-0.0027
335	SLU 27	-3.75	0.46	34.84	-0.3282	-0.1512	-0.0028
335	SLU 28	-3.76	0.46	34.82	-0.3279	-0.1512	-0.0028
335	SLU 29	-3.75	0.46	34.49	-0.3235	-0.151	-0.0028
335	SLU 30	-3.75	0.46	34.47	-0.3232	-0.151	-0.0028
335	SLU 31	-3.77	0.51	37.53	-0.3632	-0.1505	-0.0031
335	SLU 32	-4	0.53	38.38	-0.373	-0.16	-0.0032
335	SLU 33	-4	0.53	38.36	-0.3727	-0.16	-0.0032
335	SLU 34	-3.99	0.52	38	-0.3678	-0.1598	-0.0032
335	SLU 35	-4.21	0.53	38.86	-0.3775	-0.1693	-0.0033
335	SLU 36	-4.21	0.53	38.84	-0.3773	-0.1694	-0.0032
335	SLU 37	-4.21	0.53	38.51	-0.3729	-0.1691	-0.0032
335	SLU 38	-4.21	0.53	38.49	-0.3726	-0.1691	-0.0032
335	SLU 39	-3.97	0.54	39.28	-0.3849	-0.1582	-0.0033
335	SLU 40	-3.97	0.54	39.26	-0.3846	-0.1582	-0.0033
335	SLU 41	-4.18	0.55	39.75	-0.3894	-0.1675	-0.0034
335	SLU 42	-4.19	0.55	39.73	-0.3892	-0.1676	-0.0033
335	SLU 43	-3.46	0.47	37.34	-0.3325	-0.138	-0.0029
335	SLU 44	-3.46	0.47	37.3	-0.332	-0.1381	-0.0029
335	SLU 45	-3.68	0.48	38.16	-0.3417	-0.1476	-0.0029
335	SLU 46	-3.68	0.48	38.14	-0.3414	-0.1476	-0.0029
335	SLU 47	-3.68	0.48	37.78	-0.3366	-0.1474	-0.0029
335	SLU 48	-3.9	0.49	38.64	-0.3463	-0.1569	-0.003
335	SLU 49	-3.9	0.49	38.62	-0.346	-0.1569	-0.003
335	SLU 50	-3.89	0.48	38.29	-0.3416	-0.1567	-0.0029
335	SLU 51	-3.89	0.48	38.26	-0.3413	-0.1567	-0.0029
335	SLU 52	-3.92	0.54	41.32	-0.3813	-0.1562	-0.0033
335	SLU 53	-4.14	0.55	42.18	-0.3911	-0.1657	-0.0034
335	SLU 54	-4.14	0.55	42.16	-0.3908	-0.1657	-0.0034
335	SLU 55	-4.14	0.55	41.79	-0.3859	-0.1655	-0.0033
335	SLU 56	-4.36	0.56	42.65	-0.3956	-0.175	-0.0034
335	SLU 57	-4.36	0.56	42.63	-0.3953	-0.1751	-0.0034
335	SLU 58	-4.35	0.55	42.3	-0.3909	-0.1748	-0.0034
335	SLU 59	-4.35	0.55	42.28	-0.3907	-0.1748	-0.0034
335	SLU 60	-4.11	0.57	43.08	-0.4029	-0.1639	-0.0035
335	SLU 61	-4.11	0.57	43.06	-0.4027	-0.1639	-0.0035
335	SLU 62	-4.33	0.58	43.55	-0.4075	-0.1732	-0.0035
335	SLU 63	-4.33	0.58	43.53	-0.4072	-0.1733	-0.0035
335	SLU 64	-3.97	0.54	41.16	-0.3789	-0.1587	-0.0033
335	SLU 65	-3.97	0.54	41.12	-0.3784	-0.1588	-0.0033
335	SLU 66	-4.2	0.55	41.98	-0.3881	-0.1683	-0.0033
335	SLU 67	-4.2	0.55	41.96	-0.3878	-0.1683	-0.0033
335	SLU 68	-4.19	0.54	41.59	-0.383	-0.1681	-0.0033
335	SLU 69	-4.42	0.56	42.45	-0.3927	-0.1776	-0.0034
335	SLU 70	-4.42	0.56	42.43	-0.3924	-0.1776	-0.0034
335	SLU 71	-4.41	0.55	42.1	-0.388	-0.1774	-0.0033
335	SLU 72	-4.41	0.55	42.08	-0.3877	-0.1774	-0.0033
335	SLU 73	-4.43	0.61	45.14	-0.4277	-0.1769	-0.0037
335	SLU 74	-4.66	0.62	46	-0.4375	-0.1864	-0.0038
335	SLU 75	-4.66	0.62	45.97	-0.4372	-0.1864	-0.0038
335	SLU 76	-4.65	0.61	45.61	-0.4323	-0.1862	-0.0037
335	SLU 77	-4.88	0.63	46.47	-0.442	-0.1957	-0.0038
335	SLU 78	-4.88	0.63	46.45	-0.4417	-0.1958	-0.0038
335	SLU 79	-4.87	0.62	46.12	-0.4373	-0.1955	-0.0038
335	SLU 80	-4.87	0.62	46.1	-0.4371	-0.1955	-0.0038
335	SLU 81	-4.63	0.64	46.89	-0.4493	-0.1846	-0.0039
335	SLU 82	-4.63	0.64	46.87	-0.4491	-0.1846	-0.0039
335	SLU 83	-4.85	0.64	47.37	-0.4539	-0.1939	-0.0039
335	SLU 84	-4.85	0.64	47.34	-0.4536	-0.194	-0.0039
335	SLE RA 1	-2.94	0.4	30.82	-0.2812	-0.1175	-0.0024
335	SLE RA 2	-2.94	0.4	30.8	-0.2809	-0.1176	-0.0024
335	SLE RA 3	-3.09	0.41	31.37	-0.2874	-0.1239	-0.0025
335	SLE RA 4	-3.09	0.41	31.35	-0.2872	-0.1239	-0.0025



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
335	SLE RA 5	-3.09	0.4	31.11	-0.284	-0.1238	-0.0024
335	SLE RA 6	-3.24	0.41	31.68	-0.2904	-0.1301	-0.0025
335	SLE RA 7	-3.24	0.41	31.67	-0.2903	-0.1301	-0.0025
335	SLE RA 8	-3.23	0.41	31.45	-0.2873	-0.13	-0.0025
335	SLE RA 9	-3.23	0.41	31.44	-0.2871	-0.13	-0.0025
335	SLE RA 10	-3.25	0.44	33.47	-0.3138	-0.1297	-0.0027
335	SLE RA 11	-3.4	0.45	34.05	-0.3203	-0.136	-0.0028
335	SLE RA 12	-3.4	0.45	34.03	-0.3201	-0.136	-0.0028
335	SLE RA 13	-3.39	0.45	33.79	-0.3169	-0.1359	-0.0027
335	SLE RA 14	-3.54	0.46	34.36	-0.3233	-0.1422	-0.0028
335	SLE RA 15	-3.55	0.46	34.35	-0.3232	-0.1422	-0.0028
335	SLE RA 16	-3.54	0.45	34.13	-0.3202	-0.1421	-0.0028
335	SLE RA 17	-3.54	0.45	34.11	-0.32	-0.1421	-0.0028
335	SLE RA 18	-3.38	0.46	34.64	-0.3282	-0.1348	-0.0028
335	SLE RA 19	-3.38	0.46	34.63	-0.328	-0.1348	-0.0028
335	SLE RA 20	-3.53	0.47	34.96	-0.3313	-0.141	-0.0029
335	SLE RA 21	-3.53	0.47	34.95	-0.3311	-0.141	-0.0028
335	SLE FR 1	-2.94	0.4	30.82	-0.2812	-0.1175	-0.0024
335	SLE FR 2	-2.94	0.4	30.82	-0.2812	-0.1175	-0.0024
335	SLE FR 3	-3	0.4	30.95	-0.2824	-0.12	-0.0024
335	SLE FR 4	-3.07	0.42	31.96	-0.2953	-0.1227	-0.0025
335	SLE FR 5	-3.13	0.42	32.09	-0.2965	-0.1252	-0.0026
335	SLE FR 6	-3.16	0.43	32.73	-0.3047	-0.1262	-0.0026
335	SLE QP 1	-2.94	0.4	30.82	-0.2812	-0.1175	-0.0024
335	SLE QP 2	-3.07	0.42	31.97	-0.2953	-0.1227	-0.0025
335	SLD 1	8.36	0.43	28.04	-0.3055	0.3687	-0.0027
335	SLD 2	8.36	0.43	28.04	-0.3055	0.3687	-0.0027
335	SLD 3	7.52	0.47	31	-0.3527	0.3332	-0.0029
335	SLD 4	7.52	0.47	31	-0.3527	0.3332	-0.0029
335	SLD 5	1.63	0.36	26.31	-0.2269	0.0785	-0.0023
335	SLD 6	1.63	0.36	26.31	-0.2269	0.0785	-0.0023
335	SLD 7	-1.17	0.5	36.15	-0.384	-0.0397	-0.003
335	SLD 8	-1.17	0.5	36.15	-0.384	-0.0397	-0.003
335	SLD 9	-4.98	0.34	27.78	-0.2066	-0.2057	-0.0021
335	SLD 10	-4.98	0.34	27.78	-0.2066	-0.2057	-0.0021
335	SLD 11	-7.78	0.48	37.62	-0.3638	-0.3239	-0.0028
335	SLD 12	-7.78	0.48	37.62	-0.3638	-0.3239	-0.0028
335	SLD 13	-13.67	0.36	32.94	-0.238	-0.5786	-0.0022
335	SLD 14	-13.67	0.36	32.94	-0.238	-0.5786	-0.0022
335	SLD 15	-14.51	0.4	35.89	-0.2851	-0.6141	-0.0024
335	SLD 16	-14.51	0.4	35.89	-0.2851	-0.6141	-0.0024
335	SLV 1	23.15	0.47	22.89	-0.3337	1.0045	-0.003
335	SLV 2	23.15	0.47	22.89	-0.3337	1.0045	-0.003
335	SLV 3	21.18	0.56	29.75	-0.4443	0.9209	-0.0035
335	SLV 4	21.18	0.56	29.75	-0.4443	0.9209	-0.0035
335	SLV 5	7.79	0.29	18.85	-0.139	0.3422	-0.0019
335	SLV 6	7.79	0.29	18.85	-0.139	0.3422	-0.0019
335	SLV 7	1.2	0.61	41.7	-0.5078	0.0637	-0.0036
335	SLV 8	1.2	0.61	41.7	-0.5078	0.0637	-0.0036
335	SLV 9	-7.35	0.23	22.24	-0.0828	-0.3091	-0.0015
335	SLV 10	-7.35	0.23	22.24	-0.0828	-0.3091	-0.0015
335	SLV 11	-13.94	0.55	45.08	-0.4516	-0.5876	-0.0032
335	SLV 12	-13.94	0.55	45.08	-0.4516	-0.5876	-0.0032
335	SLV 13	-27.32	0.27	34.19	-0.1463	-1.1663	-0.0016
335	SLV 14	-27.32	0.27	34.19	-0.1463	-1.1663	-0.0016
335	SLV 15	-29.3	0.37	41.04	-0.257	-1.2499	-0.0021
335	SLV 16	-29.3	0.37	41.04	-0.257	-1.2499	-0.0021
336	SLU 1	-1.47	0.38	27.33	-0.2833	-0.0483	-0.0028
336	SLU 2	-1.48	0.37	27.29	-0.2828	-0.0485	-0.0028
336	SLU 3	-1.64	0.39	28.06	-0.2934	-0.055	-0.0029
336	SLU 4	-1.65	0.39	28.04	-0.2931	-0.0551	-0.0029
336	SLU 5	-1.66	0.38	27.71	-0.288	-0.0558	-0.0029
336	SLU 6	-1.82	0.4	28.48	-0.2986	-0.0623	-0.003
336	SLU 7	-1.83	0.4	28.45	-0.2983	-0.0624	-0.003
336	SLU 8	-1.83	0.39	28.16	-0.2937	-0.063	-0.0029
336	SLU 9	-1.83	0.39	28.14	-0.2934	-0.0631	-0.0029
336	SLU 10	-1.69	0.44	30.88	-0.3351	-0.0549	-0.0033
336	SLU 11	-1.85	0.46	31.65	-0.3457	-0.0614	-0.0034
336	SLU 12	-1.86	0.46	31.63	-0.3454	-0.0615	-0.0034
336	SLU 13	-1.87	0.45	31.3	-0.3403	-0.0623	-0.0034
336	SLU 14	-2.03	0.47	32.07	-0.3509	-0.0688	-0.0035
336	SLU 15	-2.04	0.46	32.04	-0.3506	-0.0689	-0.0035
336	SLU 16	-2.04	0.46	31.75	-0.346	-0.0694	-0.0034
336	SLU 17	-2.05	0.46	31.73	-0.3457	-0.0696	-0.0034
336	SLU 18	-1.78	0.47	32.45	-0.358	-0.0575	-0.0035
336	SLU 19	-1.78	0.47	32.43	-0.3577	-0.0576	-0.0035
336	SLU 20	-1.96	0.48	32.87	-0.3632	-0.0648	-0.0036
336	SLU 21	-1.96	0.48	32.85	-0.3629	-0.065	-0.0036
336	SLU 22	-1.75	0.44	30.73	-0.3326	-0.0577	-0.0033
336	SLU 23	-1.76	0.44	30.7	-0.3321	-0.058	-0.0033
336	SLU 24	-1.92	0.45	31.46	-0.3427	-0.0644	-0.0034
336	SLU 25	-1.93	0.45	31.44	-0.3424	-0.0646	-0.0034
336	SLU 26	-1.94	0.45	31.11	-0.3373	-0.0653	-0.0033
336	SLU 27	-2.1	0.46	31.88	-0.3479	-0.0718	-0.0034
336	SLU 28	-2.1	0.46	31.86	-0.3476	-0.0719	-0.0034
336	SLU 29	-2.11	0.45	31.56	-0.343	-0.0725	-0.0034
336	SLU 30	-2.11	0.45	31.54	-0.3427	-0.0726	-0.0034
336	SLU 31	-1.97	0.51	34.28	-0.3844	-0.0644	-0.0038
336	SLU 32	-2.13	0.52	35.05	-0.395	-0.0709	-0.0039



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
336	SLU 33	-2.14	0.52	35.03	-0.3947	-0.071	-0.0039
336	SLU 34	-2.15	0.52	34.7	-0.3896	-0.0718	-0.0039
336	SLU 35	-2.31	0.53	35.47	-0.4002	-0.0782	-0.004
336	SLU 36	-2.32	0.53	35.45	-0.3999	-0.0784	-0.004
336	SLU 37	-2.32	0.52	35.15	-0.3953	-0.0789	-0.0039
336	SLU 38	-2.33	0.52	35.13	-0.395	-0.079	-0.0039
336	SLU 39	-2.06	0.54	35.86	-0.4073	-0.067	-0.004
336	SLU 40	-2.06	0.54	35.84	-0.407	-0.0671	-0.004
336	SLU 41	-2.23	0.55	36.28	-0.4125	-0.0743	-0.0041
336	SLU 42	-2.24	0.55	36.25	-0.4122	-0.0744	-0.0041
336	SLU 43	-1.82	0.47	34.36	-0.3514	-0.0595	-0.0035
336	SLU 44	-1.82	0.47	34.32	-0.3509	-0.0597	-0.0035
336	SLU 45	-1.99	0.48	35.09	-0.3615	-0.0662	-0.0036
336	SLU 46	-1.99	0.48	35.07	-0.3612	-0.0663	-0.0036
336	SLU 47	-2	0.47	34.74	-0.3561	-0.0671	-0.0035
336	SLU 48	-2.17	0.49	35.51	-0.3667	-0.0735	-0.0036
336	SLU 49	-2.17	0.49	35.49	-0.3664	-0.0737	-0.0036
336	SLU 50	-2.18	0.48	35.19	-0.3618	-0.0742	-0.0036
336	SLU 51	-2.18	0.48	35.17	-0.3615	-0.0743	-0.0036
336	SLU 52	-2.04	0.53	37.91	-0.4032	-0.0662	-0.004
336	SLU 53	-2.2	0.55	38.68	-0.4138	-0.0726	-0.0041
336	SLU 54	-2.2	0.55	38.66	-0.4135	-0.0728	-0.0041
336	SLU 55	-2.22	0.54	38.33	-0.4084	-0.0735	-0.004
336	SLU 56	-2.38	0.56	39.1	-0.419	-0.08	-0.0042
336	SLU 57	-2.38	0.56	39.07	-0.4187	-0.0801	-0.0042
336	SLU 58	-2.39	0.55	38.78	-0.4141	-0.0807	-0.0041
336	SLU 59	-2.39	0.55	38.76	-0.4138	-0.0808	-0.0041
336	SLU 60	-2.12	0.56	39.49	-0.4262	-0.0687	-0.0042
336	SLU 61	-2.12	0.56	39.46	-0.4258	-0.0688	-0.0042
336	SLU 62	-2.3	0.57	39.9	-0.4313	-0.0761	-0.0043
336	SLU 63	-2.3	0.57	39.88	-0.431	-0.0762	-0.0043
336	SLU 64	-2.1	0.53	37.76	-0.4007	-0.069	-0.004
336	SLU 65	-2.1	0.53	37.73	-0.4002	-0.0692	-0.004
336	SLU 66	-2.27	0.54	38.5	-0.4108	-0.0757	-0.0041
336	SLU 67	-2.27	0.54	38.47	-0.4105	-0.0758	-0.0041
336	SLU 68	-2.28	0.54	38.14	-0.4054	-0.0765	-0.004
336	SLU 69	-2.45	0.55	38.91	-0.416	-0.083	-0.0041
336	SLU 70	-2.45	0.55	38.89	-0.4157	-0.0832	-0.0041
336	SLU 71	-2.46	0.55	38.6	-0.4111	-0.0837	-0.0041
336	SLU 72	-2.46	0.54	38.57	-0.4108	-0.0838	-0.0041
336	SLU 73	-2.32	0.6	41.32	-0.4525	-0.0756	-0.0045
336	SLU 74	-2.48	0.61	42.08	-0.4631	-0.0821	-0.0046
336	SLU 75	-2.48	0.61	42.06	-0.4628	-0.0822	-0.0046
336	SLU 76	-2.5	0.61	41.73	-0.4577	-0.083	-0.0045
336	SLU 77	-2.66	0.62	42.5	-0.4683	-0.0895	-0.0046
336	SLU 78	-2.66	0.62	42.48	-0.468	-0.0896	-0.0046
336	SLU 79	-2.67	0.61	42.18	-0.4634	-0.0901	-0.0046
336	SLU 80	-2.67	0.61	42.16	-0.4631	-0.0903	-0.0046
336	SLU 81	-2.4	0.63	42.89	-0.4754	-0.0782	-0.0047
336	SLU 82	-2.4	0.63	42.87	-0.4751	-0.0783	-0.0047
336	SLU 83	-2.58	0.64	43.31	-0.4806	-0.0855	-0.0048
336	SLU 84	-2.58	0.64	43.28	-0.4803	-0.0857	-0.0048
336	SLE RA 1	-1.55	0.39	28.3	-0.2974	-0.051	-0.0029
336	SLE RA 2	-1.56	0.39	28.28	-0.2971	-0.0511	-0.0029
336	SLE RA 3	-1.67	0.4	28.79	-0.3041	-0.0554	-0.003
336	SLE RA 4	-1.67	0.4	28.77	-0.3039	-0.0555	-0.003
336	SLE RA 5	-1.68	0.4	28.55	-0.3005	-0.056	-0.003
336	SLE RA 6	-1.79	0.41	29.07	-0.3076	-0.0603	-0.003
336	SLE RA 7	-1.79	0.41	29.05	-0.3074	-0.0604	-0.003
336	SLE RA 8	-1.79	0.4	28.86	-0.3043	-0.0608	-0.003
336	SLE RA 9	-1.79	0.4	28.84	-0.3041	-0.0609	-0.003
336	SLE RA 10	-1.7	0.44	30.67	-0.3319	-0.0554	-0.0033
336	SLE RA 11	-1.81	0.45	31.18	-0.339	-0.0597	-0.0034
336	SLE RA 12	-1.81	0.45	31.17	-0.3388	-0.0598	-0.0034
336	SLE RA 13	-1.82	0.44	30.95	-0.3354	-0.0603	-0.0033
336	SLE RA 14	-1.93	0.45	31.46	-0.3425	-0.0646	-0.0034
336	SLE RA 15	-1.93	0.45	31.44	-0.3423	-0.0647	-0.0034
336	SLE RA 16	-1.93	0.45	31.25	-0.3392	-0.0651	-0.0034
336	SLE RA 17	-1.94	0.45	31.23	-0.339	-0.0652	-0.0034
336	SLE RA 18	-1.75	0.46	31.72	-0.3472	-0.0571	-0.0034
336	SLE RA 19	-1.76	0.46	31.7	-0.347	-0.0572	-0.0034
336	SLE RA 20	-1.87	0.46	32	-0.3507	-0.062	-0.0035
336	SLE RA 21	-1.88	0.46	31.98	-0.3505	-0.0621	-0.0035
336	SLE FR 1	-1.55	0.39	28.3	-0.2974	-0.051	-0.0029
336	SLE FR 2	-1.55	0.39	28.3	-0.2973	-0.051	-0.0029
336	SLE FR 3	-1.6	0.4	28.41	-0.2988	-0.0529	-0.003
336	SLE FR 4	-1.61	0.41	29.32	-0.3123	-0.0528	-0.0031
336	SLE FR 5	-1.66	0.42	29.44	-0.3137	-0.0548	-0.0031
336	SLE FR 6	-1.65	0.43	30.01	-0.3223	-0.054	-0.0032
336	SLE QP 1	-1.55	0.39	28.3	-0.2974	-0.051	-0.0029
336	SLE QP 2	-1.61	0.41	29.33	-0.3124	-0.0528	-0.0031
336	SLD 1	10.45	0.42	26.31	-0.3173	0.477	-0.0031
336	SLD 2	10.45	0.42	26.31	-0.3173	0.477	-0.0031
336	SLD 3	9.69	0.47	28.89	-0.3729	0.4454	-0.0035
336	SLD 4	9.69	0.47	28.89	-0.3729	0.4454	-0.0035
336	SLD 5	3.16	0.33	24.51	-0.2296	0.154	-0.0026
336	SLD 6	3.16	0.33	24.51	-0.2296	0.154	-0.0026
336	SLD 7	0.63	0.51	33.11	-0.4147	0.0488	-0.0037
336	SLD 8	0.63	0.51	33.11	-0.4147	0.0488	-0.0037



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
336	SLD 9	-3.86	0.32	25.54	-0.21	-0.1544	-0.0025
336	SLD 10	-3.86	0.32	25.54	-0.21	-0.1544	-0.0025
336	SLD 11	-6.38	0.49	34.14	-0.3951	-0.2596	-0.0036
336	SLD 12	-6.38	0.49	34.14	-0.3951	-0.2596	-0.0036
336	SLD 13	-12.92	0.36	29.76	-0.2519	-0.551	-0.0027
336	SLD 14	-12.92	0.36	29.76	-0.2519	-0.551	-0.0027
336	SLD 15	-13.68	0.41	32.34	-0.3074	-0.5826	-0.003
336	SLD 16	-13.68	0.41	32.34	-0.3074	-0.5826	-0.003
336	SLV 1	26.06	0.43	22.33	-0.3357	1.1619	-0.0033
336	SLV 2	26.06	0.43	22.33	-0.3357	1.1619	-0.0033
336	SLV 3	24.28	0.55	28.32	-0.466	1.088	-0.0041
336	SLV 4	24.28	0.55	28.32	-0.466	1.088	-0.0041
336	SLV 5	9.39	0.23	18.15	-0.1218	0.4237	-0.0019
336	SLV 6	9.39	0.23	18.15	-0.1218	0.4237	-0.0019
336	SLV 7	3.45	0.64	38.1	-0.556	0.1774	-0.0046
336	SLV 8	3.45	0.64	38.1	-0.556	0.1774	-0.0046
336	SLV 9	-6.68	0.18	20.55	-0.0687	-0.283	-0.0016
336	SLV 10	-6.68	0.18	20.55	-0.0687	-0.283	-0.0016
336	SLV 11	-12.61	0.6	40.5	-0.5029	-0.5293	-0.0043
336	SLV 12	-12.61	0.6	40.5	-0.5029	-0.5293	-0.0043
336	SLV 13	-27.5	0.28	30.33	-0.1588	-1.1936	-0.0021
336	SLV 14	-27.5	0.28	30.33	-0.1588	-1.1936	-0.0021
336	SLV 15	-29.28	0.4	36.32	-0.289	-1.2675	-0.0029
336	SLV 16	-29.28	0.4	36.32	-0.289	-1.2675	-0.0029
337	SLU 1	-0.13	0.38	26.29	-0.2907	-0.0111	-0.003
337	SLU 2	-0.14	0.38	26.25	-0.2901	-0.0115	-0.003
337	SLU 3	-0.25	0.39	26.97	-0.3014	-0.0165	-0.0032
337	SLU 4	-0.25	0.39	26.95	-0.3011	-0.0167	-0.0032
337	SLU 5	-0.28	0.38	26.63	-0.2958	-0.018	-0.0031
337	SLU 6	-0.39	0.4	27.36	-0.3071	-0.023	-0.0032
337	SLU 7	-0.4	0.4	27.33	-0.3067	-0.0232	-0.0032
337	SLU 8	-0.42	0.39	27.05	-0.3021	-0.0241	-0.0032
337	SLU 9	-0.42	0.39	27.03	-0.3017	-0.0243	-0.0032
337	SLU 10	-0.1	0.45	29.67	-0.344	-0.0109	-0.0036
337	SLU 11	-0.21	0.46	30.4	-0.3552	-0.016	-0.0037
337	SLU 12	-0.22	0.46	30.37	-0.3549	-0.0162	-0.0037
337	SLU 13	-0.25	0.45	30.05	-0.3496	-0.0174	-0.0037
337	SLU 14	-0.35	0.47	30.78	-0.3609	-0.0225	-0.0038
337	SLU 15	-0.36	0.47	30.75	-0.3606	-0.0227	-0.0038
337	SLU 16	-0.38	0.46	30.47	-0.3559	-0.0236	-0.0037
337	SLU 17	-0.39	0.46	30.45	-0.3556	-0.0238	-0.0037
337	SLU 18	-0.08	0.48	31.18	-0.3676	-0.0104	-0.0039
337	SLU 19	-0.08	0.48	31.15	-0.3673	-0.0105	-0.0039
337	SLU 20	-0.22	0.48	31.56	-0.3733	-0.0168	-0.0039
337	SLU 21	-0.23	0.48	31.53	-0.3729	-0.017	-0.0039
337	SLU 22	-0.18	0.44	29.52	-0.3415	-0.0141	-0.0036
337	SLU 23	-0.18	0.44	29.48	-0.3409	-0.0144	-0.0036
337	SLU 24	-0.29	0.46	30.21	-0.3522	-0.0194	-0.0037
337	SLU 25	-0.3	0.46	30.18	-0.3518	-0.0196	-0.0037
337	SLU 26	-0.33	0.45	29.86	-0.3466	-0.0209	-0.0036
337	SLU 27	-0.43	0.46	30.59	-0.3579	-0.0259	-0.0038
337	SLU 28	-0.44	0.46	30.57	-0.3575	-0.0261	-0.0038
337	SLU 29	-0.46	0.46	30.28	-0.3529	-0.027	-0.0037
337	SLU 30	-0.47	0.46	30.26	-0.3525	-0.0272	-0.0037
337	SLU 31	-0.15	0.51	32.9	-0.3947	-0.0138	-0.0041
337	SLU 32	-0.25	0.53	33.63	-0.406	-0.0189	-0.0043
337	SLU 33	-0.26	0.53	33.6	-0.4057	-0.0191	-0.0043
337	SLU 34	-0.29	0.52	33.28	-0.4004	-0.0203	-0.0042
337	SLU 35	-0.4	0.53	34.01	-0.4117	-0.0254	-0.0043
337	SLU 36	-0.4	0.53	33.99	-0.4113	-0.0256	-0.0043
337	SLU 37	-0.42	0.53	33.71	-0.4067	-0.0265	-0.0043
337	SLU 38	-0.43	0.53	33.68	-0.4063	-0.0267	-0.0043
337	SLU 39	-0.12	0.54	34.41	-0.4184	-0.0133	-0.0044
337	SLU 40	-0.13	0.54	34.38	-0.418	-0.0135	-0.0044
337	SLU 41	-0.27	0.55	34.79	-0.4241	-0.0198	-0.0044
337	SLU 42	-0.27	0.55	34.77	-0.4237	-0.0199	-0.0044
337	SLU 43	-0.16	0.47	33.07	-0.3605	-0.0135	-0.0038
337	SLU 44	-0.17	0.47	33.03	-0.36	-0.0138	-0.0038
337	SLU 45	-0.27	0.48	33.75	-0.3712	-0.0189	-0.0039
337	SLU 46	-0.28	0.48	33.73	-0.3709	-0.0191	-0.0039
337	SLU 47	-0.31	0.47	33.41	-0.3656	-0.0203	-0.0038
337	SLU 48	-0.42	0.49	34.14	-0.3769	-0.0254	-0.004
337	SLU 49	-0.42	0.49	34.11	-0.3766	-0.0255	-0.004
337	SLU 50	-0.44	0.48	33.83	-0.3719	-0.0265	-0.0039
337	SLU 51	-0.45	0.48	33.81	-0.3716	-0.0267	-0.0039
337	SLU 52	-0.13	0.54	36.45	-0.4138	-0.0133	-0.0043
337	SLU 53	-0.24	0.55	37.17	-0.4251	-0.0183	-0.0045
337	SLU 54	-0.24	0.55	37.15	-0.4247	-0.0185	-0.0045
337	SLU 55	-0.27	0.54	36.83	-0.4195	-0.0197	-0.0044
337	SLU 56	-0.38	0.56	37.56	-0.4307	-0.0248	-0.0045
337	SLU 57	-0.38	0.56	37.53	-0.4304	-0.025	-0.0045
337	SLU 58	-0.41	0.55	37.25	-0.4257	-0.0259	-0.0045
337	SLU 59	-0.41	0.55	37.23	-0.4254	-0.0261	-0.0045
337	SLU 60	-0.11	0.57	37.95	-0.4374	-0.0127	-0.0046
337	SLU 61	-0.11	0.57	37.93	-0.4371	-0.0129	-0.0046
337	SLU 62	-0.25	0.57	38.34	-0.4431	-0.0192	-0.0046
337	SLU 63	-0.25	0.57	38.31	-0.4428	-0.0194	-0.0046
337	SLU 64	-0.2	0.53	36.3	-0.4113	-0.0164	-0.0043
337	SLU 65	-0.21	0.53	36.26	-0.4107	-0.0167	-0.0043



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
337	SLU 66	-0.32	0.55	36.99	-0.422	-0.0218	-0.0044
337	SLU 67	-0.32	0.55	36.96	-0.4217	-0.022	-0.0044
337	SLU 68	-0.35	0.54	36.64	-0.4164	-0.0232	-0.0044
337	SLU 69	-0.46	0.55	37.37	-0.4277	-0.0283	-0.0045
337	SLU 70	-0.46	0.55	37.34	-0.4273	-0.0285	-0.0045
337	SLU 71	-0.49	0.55	37.06	-0.4227	-0.0294	-0.0044
337	SLU 72	-0.49	0.55	37.04	-0.4223	-0.0296	-0.0044
337	SLU 73	-0.17	0.6	39.68	-0.4645	-0.0162	-0.0049
337	SLU 74	-0.28	0.62	40.41	-0.4758	-0.0212	-0.005
337	SLU 75	-0.28	0.62	40.38	-0.4755	-0.0214	-0.005
337	SLU 76	-0.32	0.61	40.06	-0.4702	-0.0227	-0.0049
337	SLU 77	-0.42	0.62	40.79	-0.4815	-0.0277	-0.0051
337	SLU 78	-0.43	0.62	40.76	-0.4812	-0.0279	-0.005
337	SLU 79	-0.45	0.62	40.48	-0.4765	-0.0288	-0.005
337	SLU 80	-0.45	0.62	40.46	-0.4762	-0.029	-0.005
337	SLU 81	-0.15	0.63	41.19	-0.4882	-0.0156	-0.0051
337	SLU 82	-0.15	0.63	41.16	-0.4879	-0.0158	-0.0051
337	SLU 83	-0.29	0.64	41.57	-0.4939	-0.0221	-0.0052
337	SLU 84	-0.3	0.64	41.54	-0.4935	-0.0223	-0.0052
337	SLE RA 1	-0.15	0.4	27.21	-0.3052	-0.012	-0.0032
337	SLE RA 2	-0.15	0.39	27.18	-0.3048	-0.0122	-0.0032
337	SLE RA 3	-0.22	0.4	27.67	-0.3124	-0.0156	-0.0033
337	SLE RA 4	-0.23	0.4	27.65	-0.3121	-0.0157	-0.0033
337	SLE RA 5	-0.25	0.4	27.44	-0.3086	-0.0165	-0.0032
337	SLE RA 6	-0.32	0.41	27.92	-0.3162	-0.0199	-0.0033
337	SLE RA 7	-0.32	0.41	27.91	-0.3159	-0.02	-0.0033
337	SLE RA 8	-0.34	0.41	27.72	-0.3128	-0.0206	-0.0033
337	SLE RA 9	-0.34	0.41	27.71	-0.3126	-0.0208	-0.0033
337	SLE RA 10	-0.13	0.44	29.47	-0.3407	-0.0118	-0.0036
337	SLE RA 11	-0.2	0.45	29.95	-0.3482	-0.0152	-0.0037
337	SLE RA 12	-0.2	0.45	29.93	-0.348	-0.0153	-0.0037
337	SLE RA 13	-0.22	0.45	29.72	-0.3445	-0.0161	-0.0036
337	SLE RA 14	-0.29	0.46	30.21	-0.352	-0.0195	-0.0037
337	SLE RA 15	-0.3	0.46	30.19	-0.3518	-0.0196	-0.0037
337	SLE RA 16	-0.31	0.45	30	-0.3487	-0.0203	-0.0037
337	SLE RA 17	-0.31	0.45	29.99	-0.3485	-0.0204	-0.0037
337	SLE RA 18	-0.11	0.46	30.47	-0.3565	-0.0114	-0.0037
337	SLE RA 19	-0.11	0.46	30.45	-0.3563	-0.0116	-0.0037
337	SLE RA 20	-0.21	0.47	30.72	-0.3603	-0.0158	-0.0038
337	SLE RA 21	-0.21	0.47	30.71	-0.3601	-0.0159	-0.0038
337	SLE FR 1	-0.15	0.4	27.21	-0.3052	-0.012	-0.0032
337	SLE FR 2	-0.15	0.4	27.21	-0.3052	-0.012	-0.0032
337	SLE FR 3	-0.18	0.4	27.31	-0.3068	-0.0137	-0.0032
337	SLE FR 4	-0.14	0.42	28.18	-0.3205	-0.0119	-0.0034
337	SLE FR 5	-0.17	0.42	28.29	-0.3221	-0.0135	-0.0034
337	SLE FR 6	-0.13	0.43	28.84	-0.3309	-0.0117	-0.0035
337	SLE QP 1	-0.15	0.4	27.21	-0.3052	-0.012	-0.0032
337	SLE QP 2	-0.14	0.42	28.19	-0.3206	-0.0118	-0.0034
337	SLD 1	12.02	0.36	26.19	-0.3265	0.5091	-0.0029
337	SLD 2	12.02	0.36	26.19	-0.3265	0.5091	-0.0029
337	SLD 3	11.3	0.42	28.5	-0.3852	0.4781	-0.0033
337	SLD 4	11.3	0.42	28.5	-0.3852	0.4781	-0.0033
337	SLD 5	4.6	0.31	24.08	-0.2333	0.1915	-0.0026
337	SLD 6	4.6	0.31	24.08	-0.2333	0.1915	-0.0026
337	SLD 7	2.21	0.51	31.79	-0.4291	0.0881	-0.004
337	SLD 8	2.21	0.51	31.79	-0.4291	0.0881	-0.004
337	SLD 9	-2.48	0.33	24.59	-0.2121	-0.1117	-0.0027
337	SLD 10	-2.48	0.33	24.59	-0.2121	-0.1117	-0.0027
337	SLD 11	-4.87	0.52	32.29	-0.408	-0.2151	-0.0042
337	SLD 12	-4.87	0.52	32.29	-0.408	-0.2151	-0.0042
337	SLD 13	-11.57	0.42	27.87	-0.256	-0.5017	-0.0034
337	SLD 14	-11.57	0.42	27.87	-0.256	-0.5017	-0.0034
337	SLD 15	-12.29	0.47	30.19	-0.3148	-0.5327	-0.0038
337	SLD 16	-12.29	0.47	30.19	-0.3148	-0.5327	-0.0038
337	SLV 1	27.73	0.27	23.47	-0.3439	1.1827	-0.0022
337	SLV 2	27.73	0.27	23.47	-0.3439	1.1827	-0.0022
337	SLV 3	26.05	0.41	28.81	-0.4817	1.1099	-0.0033
337	SLV 4	26.05	0.41	28.81	-0.4817	1.1099	-0.0033
337	SLV 5	10.78	0.16	18.66	-0.1186	0.457	-0.0015
337	SLV 6	10.78	0.16	18.66	-0.1186	0.457	-0.0015
337	SLV 7	5.17	0.62	36.49	-0.5779	0.2142	-0.0049
337	SLV 8	5.17	0.62	36.49	-0.5779	0.2142	-0.0049
337	SLV 9	-5.44	0.21	19.89	-0.0633	-0.2378	-0.0018
337	SLV 10	-5.44	0.21	19.89	-0.0633	-0.2378	-0.0018
337	SLV 11	-11.05	0.67	37.72	-0.5226	-0.4807	-0.0053
337	SLV 12	-11.05	0.67	37.72	-0.5226	-0.4807	-0.0053
337	SLV 13	-26.32	0.42	27.56	-0.1596	-1.1335	-0.0035
337	SLV 14	-26.32	0.42	27.56	-0.1596	-1.1335	-0.0035
337	SLV 15	-28	0.56	32.91	-0.2974	-1.2064	-0.0045
337	SLV 16	-28	0.56	32.91	-0.2974	-1.2064	-0.0045
338	SLU 1	1.33	0.4	26.7	-0.2947	0.0603	-0.0033
338	SLU 2	1.32	0.4	26.65	-0.2941	0.0598	-0.0033
338	SLU 3	1.29	0.41	27.39	-0.3059	0.0585	-0.0034
338	SLU 4	1.28	0.41	27.37	-0.3055	0.0582	-0.0034
338	SLU 5	1.23	0.41	27.03	-0.3002	0.056	-0.0033
338	SLU 6	1.19	0.42	27.77	-0.3119	0.0548	-0.0035
338	SLU 7	1.19	0.42	27.75	-0.3115	0.0545	-0.0035
338	SLU 8	1.15	0.42	27.46	-0.3069	0.0527	-0.0034
338	SLU 9	1.14	0.41	27.43	-0.3065	0.0524	-0.0034



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
338	SLU 10	1.63	0.47	30.18	-0.3488	0.0734	-0.0039
338	SLU 11	1.59	0.49	30.92	-0.3606	0.0721	-0.004
338	SLU 12	1.59	0.49	30.89	-0.3602	0.0718	-0.004
338	SLU 13	1.54	0.48	30.56	-0.3549	0.0696	-0.004
338	SLU 14	1.5	0.5	31.3	-0.3666	0.0684	-0.0041
338	SLU 15	1.49	0.5	31.27	-0.3662	0.068	-0.0041
338	SLU 16	1.45	0.49	30.98	-0.3616	0.0663	-0.004
338	SLU 17	1.45	0.49	30.96	-0.3612	0.066	-0.004
338	SLU 18	1.77	0.5	31.74	-0.3729	0.0797	-0.0042
338	SLU 19	1.77	0.5	31.71	-0.3725	0.0794	-0.0042
338	SLU 20	1.68	0.51	32.12	-0.379	0.0759	-0.0042
338	SLU 21	1.67	0.51	32.09	-0.3786	0.0756	-0.0042
338	SLU 22	1.55	0.47	30.01	-0.3464	0.0702	-0.0039
338	SLU 23	1.54	0.47	29.97	-0.3458	0.0696	-0.0039
338	SLU 24	1.5	0.48	30.71	-0.3575	0.0684	-0.004
338	SLU 25	1.5	0.48	30.68	-0.3572	0.0681	-0.004
338	SLU 26	1.45	0.48	30.35	-0.3518	0.0659	-0.0039
338	SLU 27	1.41	0.49	31.09	-0.3636	0.0646	-0.0041
338	SLU 28	1.4	0.49	31.06	-0.3632	0.0643	-0.0041
338	SLU 29	1.37	0.49	30.77	-0.3585	0.0626	-0.004
338	SLU 30	1.36	0.48	30.74	-0.3582	0.0623	-0.004
338	SLU 31	1.85	0.54	33.49	-0.4005	0.0832	-0.0045
338	SLU 32	1.81	0.56	34.23	-0.4122	0.082	-0.0046
338	SLU 33	1.8	0.56	34.21	-0.4119	0.0817	-0.0046
338	SLU 34	1.75	0.55	33.87	-0.4065	0.0794	-0.0045
338	SLU 35	1.72	0.57	34.61	-0.4183	0.0782	-0.0047
338	SLU 36	1.71	0.57	34.59	-0.4179	0.0779	-0.0047
338	SLU 37	1.67	0.56	34.3	-0.4133	0.0762	-0.0046
338	SLU 38	1.66	0.56	34.27	-0.4129	0.0759	-0.0046
338	SLU 39	1.99	0.57	35.05	-0.4246	0.0896	-0.0047
338	SLU 40	1.98	0.57	35.02	-0.4242	0.0892	-0.0047
338	SLU 41	1.9	0.58	35.43	-0.4306	0.0858	-0.0048
338	SLU 42	1.89	0.58	35.4	-0.4303	0.0855	-0.0048
338	SLU 43	1.66	0.49	33.57	-0.3654	0.075	-0.0041
338	SLU 44	1.65	0.49	33.53	-0.3648	0.0745	-0.0041
338	SLU 45	1.61	0.51	34.27	-0.3766	0.0733	-0.0042
338	SLU 46	1.61	0.51	34.24	-0.3762	0.073	-0.0042
338	SLU 47	1.56	0.5	33.91	-0.3709	0.0707	-0.0041
338	SLU 48	1.52	0.52	34.65	-0.3826	0.0695	-0.0043
338	SLU 49	1.51	0.52	34.62	-0.3822	0.0692	-0.0043
338	SLU 50	1.47	0.51	34.33	-0.3776	0.0675	-0.0042
338	SLU 51	1.47	0.51	34.3	-0.3772	0.0672	-0.0042
338	SLU 52	1.96	0.57	37.05	-0.4195	0.0881	-0.0047
338	SLU 53	1.92	0.58	37.79	-0.4313	0.0868	-0.0048
338	SLU 54	1.91	0.58	37.77	-0.4309	0.0865	-0.0048
338	SLU 55	1.86	0.58	37.43	-0.4256	0.0843	-0.0047
338	SLU 56	1.83	0.59	38.17	-0.4373	0.0831	-0.0049
338	SLU 57	1.82	0.59	38.14	-0.437	0.0828	-0.0049
338	SLU 58	1.78	0.58	37.86	-0.4323	0.081	-0.0048
338	SLU 59	1.77	0.58	37.83	-0.4319	0.0807	-0.0048
338	SLU 60	2.1	0.6	38.61	-0.4436	0.0944	-0.0049
338	SLU 61	2.09	0.6	38.58	-0.4432	0.0941	-0.0049
338	SLU 62	2.01	0.61	38.99	-0.4497	0.0906	-0.005
338	SLU 63	2	0.61	38.96	-0.4493	0.0903	-0.005
338	SLU 64	1.88	0.56	36.89	-0.4171	0.0849	-0.0047
338	SLU 65	1.87	0.56	36.84	-0.4165	0.0844	-0.0046
338	SLU 66	1.83	0.58	37.58	-0.4282	0.0831	-0.0048
338	SLU 67	1.82	0.58	37.55	-0.4279	0.0828	-0.0048
338	SLU 68	1.77	0.57	37.22	-0.4225	0.0806	-0.0047
338	SLU 69	1.74	0.59	37.96	-0.4343	0.0793	-0.0048
338	SLU 70	1.73	0.59	37.93	-0.4339	0.079	-0.0048
338	SLU 71	1.69	0.58	37.64	-0.4292	0.0773	-0.0048
338	SLU 72	1.68	0.58	37.62	-0.4289	0.077	-0.0048
338	SLU 73	2.17	0.64	40.37	-0.4712	0.0979	-0.0053
338	SLU 74	2.14	0.65	41.11	-0.4829	0.0967	-0.0054
338	SLU 75	2.13	0.65	41.08	-0.4826	0.0964	-0.0054
338	SLU 76	2.08	0.65	40.75	-0.4773	0.0942	-0.0053
338	SLU 77	2.04	0.66	41.49	-0.489	0.0929	-0.0055
338	SLU 78	2.04	0.66	41.46	-0.4886	0.0926	-0.0055
338	SLU 79	2	0.65	41.17	-0.484	0.0909	-0.0054
338	SLU 80	1.99	0.65	41.14	-0.4836	0.0906	-0.0054
338	SLU 81	2.32	0.67	41.92	-0.4953	0.1043	-0.0055
338	SLU 82	2.31	0.67	41.9	-0.4949	0.104	-0.0055
338	SLU 83	2.22	0.68	42.3	-0.5013	0.1005	-0.0056
338	SLU 84	2.22	0.68	42.28	-0.501	0.1002	-0.0056
338	SLE RA 1	1.4	0.42	27.65	-0.3095	0.0631	-0.0035
338	SLE RA 2	1.39	0.42	27.61	-0.3091	0.0628	-0.0034
338	SLE RA 3	1.37	0.43	28.11	-0.3169	0.0619	-0.0035
338	SLE RA 4	1.36	0.43	28.09	-0.3167	0.0617	-0.0035
338	SLE RA 5	1.33	0.42	27.87	-0.3131	0.0603	-0.0035
338	SLE RA 6	1.3	0.43	28.36	-0.321	0.0594	-0.0036
338	SLE RA 7	1.3	0.43	28.34	-0.3207	0.0592	-0.0036
338	SLE RA 8	1.27	0.43	28.15	-0.3176	0.0581	-0.0035
338	SLE RA 9	1.27	0.43	28.13	-0.3173	0.0579	-0.0035
338	SLE RA 10	1.59	0.47	29.97	-0.3455	0.0718	-0.0039
338	SLE RA 11	1.57	0.48	30.46	-0.3534	0.071	-0.0039
338	SLE RA 12	1.56	0.48	30.44	-0.3531	0.0708	-0.0039
338	SLE RA 13	1.53	0.47	30.22	-0.3496	0.0693	-0.0039
338	SLE RA 14	1.51	0.48	30.71	-0.3574	0.0685	-0.004





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
338	SLE RA 15	1.5	0.48	30.69	-0.3572	0.0683	-0.004
338	SLE RA 16	1.48	0.48	30.5	-0.3541	0.0671	-0.004
338	SLE RA 17	1.47	0.48	30.48	-0.3538	0.0669	-0.0039
338	SLE RA 18	1.69	0.49	31	-0.3616	0.0761	-0.004
338	SLE RA 19	1.68	0.49	30.99	-0.3614	0.0758	-0.004
338	SLE RA 20	1.63	0.49	31.26	-0.3657	0.0735	-0.0041
338	SLE RA 21	1.62	0.49	31.24	-0.3654	0.0733	-0.0041
338	SLE FR 1	1.4	0.42	27.65	-0.3095	0.0631	-0.0035
338	SLE FR 2	1.4	0.42	27.64	-0.3094	0.063	-0.0035
338	SLE FR 3	1.37	0.42	27.75	-0.3111	0.0621	-0.0035
338	SLE FR 4	1.48	0.44	28.65	-0.325	0.0669	-0.0036
338	SLE FR 5	1.46	0.44	28.75	-0.3268	0.066	-0.0036
338	SLE FR 6	1.54	0.45	29.32	-0.3356	0.0696	-0.0037
338	SLE QP 1	1.4	0.42	27.65	-0.3095	0.0631	-0.0035
338	SLE QP 2	1.48	0.44	28.65	-0.3251	0.067	-0.0036
338	SLD 1	13.57	0.37	28.73	-0.2568	0.6007	-0.0031
338	SLD 2	13.57	0.37	28.73	-0.2568	0.6007	-0.0031
338	SLD 3	12.89	0.43	30.87	-0.3125	0.572	-0.0035
338	SLD 4	12.89	0.43	30.87	-0.3125	0.572	-0.0035
338	SLD 5	6.14	0.33	25.44	-0.2201	0.2706	-0.0028
338	SLD 6	6.14	0.33	25.44	-0.2201	0.2706	-0.0028
338	SLD 7	3.88	0.52	32.56	-0.4059	0.175	-0.0043
338	SLD 8	3.88	0.52	32.56	-0.4059	0.175	-0.0043
338	SLD 9	-0.91	0.36	24.75	-0.2444	-0.041	-0.003
338	SLD 10	-0.91	0.36	24.75	-0.2444	-0.041	-0.003
338	SLD 11	-3.17	0.54	31.87	-0.4302	-0.1366	-0.0045
338	SLD 12	-3.17	0.54	31.87	-0.4302	-0.1366	-0.0045
338	SLD 13	-9.93	0.45	26.44	-0.3378	-0.438	-0.0037
338	SLD 14	-9.93	0.45	26.44	-0.3378	-0.438	-0.0037
338	SLD 15	-10.61	0.51	28.57	-0.3935	-0.4667	-0.0042
338	SLD 16	-10.61	0.51	28.57	-0.3935	-0.4667	-0.0042
338	SLV 1	29.21	0.28	28.93	-0.1561	1.2906	-0.0023
338	SLV 2	29.21	0.28	28.93	-0.1561	1.2906	-0.0023
338	SLV 3	27.62	0.41	33.86	-0.2867	1.2238	-0.0033
338	SLV 4	27.62	0.41	33.86	-0.2867	1.2238	-0.0033
338	SLV 5	12.21	0.19	21.26	-0.0764	0.5355	-0.0016
338	SLV 6	12.21	0.19	21.26	-0.0764	0.5355	-0.0016
338	SLV 7	6.91	0.63	37.69	-0.5116	0.3126	-0.0051
338	SLV 8	6.91	0.63	37.69	-0.5116	0.3126	-0.0051
338	SLV 9	-3.94	0.25	19.61	-0.1386	-0.1786	-0.0021
338	SLV 10	-3.94	0.25	19.61	-0.1386	-0.1786	-0.0021
338	SLV 11	-9.24	0.68	36.05	-0.5739	-0.4015	-0.0056
338	SLV 12	-9.24	0.68	36.05	-0.5739	-0.4015	-0.0056
338	SLV 13	-24.65	0.47	23.45	-0.3636	-1.0898	-0.0039
338	SLV 14	-24.65	0.47	23.45	-0.3636	-1.0898	-0.0039
338	SLV 15	-26.24	0.6	28.38	-0.4941	-1.1566	-0.005
338	SLV 16	-26.24	0.6	28.38	-0.4941	-1.1566	-0.005
339	SLU 1	2.05	0.42	28.18	-0.2887	0.0697	-0.0032
339	SLU 2	2.04	0.42	28.12	-0.2881	0.0692	-0.0032
339	SLU 3	2.04	0.44	28.92	-0.2998	0.0682	-0.0034
339	SLU 4	2.03	0.44	28.89	-0.2994	0.0679	-0.0034
339	SLU 5	1.98	0.43	28.53	-0.2942	0.0657	-0.0033
339	SLU 6	1.98	0.45	29.32	-0.3059	0.0648	-0.0034
339	SLU 7	1.97	0.45	29.29	-0.3056	0.0645	-0.0034
339	SLU 8	1.93	0.44	28.98	-0.301	0.0629	-0.0034
339	SLU 9	1.92	0.44	28.95	-0.3006	0.0626	-0.0034
339	SLU 10	2.48	0.5	31.96	-0.3418	0.0845	-0.0038
339	SLU 11	2.48	0.52	32.75	-0.3535	0.0836	-0.004
339	SLU 12	2.47	0.52	32.72	-0.3531	0.0832	-0.004
339	SLU 13	2.42	0.51	32.36	-0.3479	0.0811	-0.0039
339	SLU 14	2.42	0.53	33.16	-0.3597	0.0802	-0.004
339	SLU 15	2.41	0.52	33.13	-0.3593	0.0798	-0.004
339	SLU 16	2.37	0.52	32.82	-0.3547	0.0782	-0.004
339	SLU 17	2.36	0.52	32.78	-0.3543	0.0779	-0.004
339	SLU 18	2.68	0.53	33.65	-0.3655	0.0916	-0.0041
339	SLU 19	2.67	0.53	33.62	-0.3651	0.0913	-0.0041
339	SLU 20	2.62	0.54	34.06	-0.3716	0.0882	-0.0042
339	SLU 21	2.61	0.54	34.02	-0.3712	0.0879	-0.0042
339	SLU 22	2.4	0.5	31.76	-0.3395	0.0812	-0.0038
339	SLU 23	2.39	0.49	31.71	-0.3389	0.0807	-0.0038
339	SLU 24	2.39	0.51	32.51	-0.3506	0.0798	-0.0039
339	SLU 25	2.38	0.51	32.47	-0.3502	0.0795	-0.0039
339	SLU 26	2.33	0.5	32.11	-0.345	0.0773	-0.0039
339	SLU 27	2.33	0.52	32.91	-0.3567	0.0764	-0.004
339	SLU 28	2.32	0.52	32.88	-0.3563	0.0761	-0.004
339	SLU 29	2.28	0.51	32.57	-0.3518	0.0744	-0.004
339	SLU 30	2.27	0.51	32.54	-0.3514	0.0741	-0.004
339	SLU 31	2.83	0.57	35.54	-0.3926	0.096	-0.0044
339	SLU 32	2.83	0.59	36.34	-0.4043	0.0951	-0.0045
339	SLU 33	2.82	0.59	36.31	-0.4039	0.0948	-0.0045
339	SLU 34	2.76	0.58	35.95	-0.3987	0.0926	-0.0045
339	SLU 35	2.77	0.6	36.74	-0.4104	0.0917	-0.0046
339	SLU 36	2.76	0.6	36.71	-0.41	0.0914	-0.0046
339	SLU 37	2.72	0.59	36.4	-0.4055	0.0897	-0.0046
339	SLU 38	2.71	0.59	36.37	-0.4051	0.0894	-0.0046
339	SLU 39	3.03	0.61	37.24	-0.4162	0.1031	-0.0047
339	SLU 40	3.02	0.61	37.21	-0.4158	0.1028	-0.0047
339	SLU 41	2.97	0.62	37.64	-0.4224	0.0997	-0.0047
339	SLU 42	2.96	0.62	37.61	-0.422	0.0994	-0.0047



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
339	SLU 43	2.55	0.52	35.4	-0.358	0.0866	-0.004
339	SLU 44	2.53	0.52	35.35	-0.3573	0.0861	-0.004
339	SLU 45	2.54	0.54	36.14	-0.369	0.0852	-0.0041
339	SLU 46	2.53	0.54	36.11	-0.3686	0.0849	-0.0041
339	SLU 47	2.47	0.53	35.75	-0.3634	0.0827	-0.0041
339	SLU 48	2.48	0.55	36.55	-0.3752	0.0818	-0.0042
339	SLU 49	2.47	0.55	36.52	-0.3748	0.0815	-0.0042
339	SLU 50	2.42	0.54	36.21	-0.3702	0.0798	-0.0042
339	SLU 51	2.42	0.54	36.18	-0.3698	0.0795	-0.0042
339	SLU 52	2.97	0.6	39.18	-0.411	0.1014	-0.0046
339	SLU 53	2.98	0.62	39.98	-0.4228	0.1005	-0.0047
339	SLU 54	2.97	0.62	39.95	-0.4224	0.1002	-0.0047
339	SLU 55	2.91	0.61	39.58	-0.4172	0.098	-0.0047
339	SLU 56	2.92	0.63	40.38	-0.4289	0.0971	-0.0048
339	SLU 57	2.91	0.63	40.35	-0.4285	0.0968	-0.0048
339	SLU 58	2.86	0.62	40.04	-0.4239	0.0952	-0.0048
339	SLU 59	2.86	0.62	40.01	-0.4235	0.0948	-0.0048
339	SLU 60	3.18	0.63	40.88	-0.4347	0.1085	-0.0049
339	SLU 61	3.17	0.63	40.84	-0.4343	0.1082	-0.0049
339	SLU 62	3.11	0.64	41.28	-0.4408	0.1051	-0.005
339	SLU 63	3.11	0.64	41.25	-0.4404	0.1048	-0.0049
339	SLU 64	2.9	0.6	38.98	-0.4087	0.0982	-0.0046
339	SLU 65	2.88	0.6	38.93	-0.4081	0.0976	-0.0046
339	SLU 66	2.89	0.61	39.73	-0.4198	0.0967	-0.0047
339	SLU 67	2.88	0.61	39.7	-0.4194	0.0964	-0.0047
339	SLU 68	2.82	0.6	39.34	-0.4142	0.0942	-0.0047
339	SLU 69	2.83	0.62	40.13	-0.4259	0.0933	-0.0048
339	SLU 70	2.82	0.62	40.1	-0.4255	0.093	-0.0048
339	SLU 71	2.77	0.61	39.79	-0.421	0.0914	-0.0047
339	SLU 72	2.77	0.61	39.76	-0.4206	0.091	-0.0047
339	SLU 73	3.32	0.67	42.77	-0.4618	0.113	-0.0052
339	SLU 74	3.33	0.69	43.56	-0.4735	0.1121	-0.0053
339	SLU 75	3.32	0.69	43.53	-0.4731	0.1117	-0.0053
339	SLU 76	3.26	0.68	43.17	-0.4679	0.1096	-0.0053
339	SLU 77	3.26	0.7	43.97	-0.4796	0.1087	-0.0054
339	SLU 78	3.26	0.7	43.93	-0.4793	0.1083	-0.0054
339	SLU 79	3.21	0.69	43.63	-0.4747	0.1067	-0.0053
339	SLU 80	3.2	0.69	43.59	-0.4743	0.1064	-0.0053
339	SLU 81	3.52	0.71	44.46	-0.4855	0.1201	-0.0055
339	SLU 82	3.52	0.71	44.43	-0.4851	0.1198	-0.0054
339	SLU 83	3.46	0.72	44.86	-0.4916	0.1167	-0.0055
339	SLU 84	3.45	0.72	44.83	-0.4912	0.1163	-0.0055
339	SLE RA 1	2.15	0.44	29.2	-0.3032	0.073	-0.0034
339	SLE RA 2	2.14	0.44	29.17	-0.3028	0.0726	-0.0034
339	SLE RA 3	2.14	0.45	29.7	-0.3106	0.072	-0.0035
339	SLE RA 4	2.14	0.45	29.68	-0.3104	0.0718	-0.0035
339	SLE RA 5	2.1	0.45	29.43	-0.3069	0.0704	-0.0034
339	SLE RA 6	2.1	0.46	29.97	-0.3147	0.0697	-0.0035
339	SLE RA 7	2.1	0.46	29.94	-0.3145	0.0695	-0.0035
339	SLE RA 8	2.07	0.45	29.74	-0.3114	0.0684	-0.0035
339	SLE RA 9	2.06	0.45	29.72	-0.3112	0.0682	-0.0035
339	SLE RA 10	2.44	0.49	31.72	-0.3386	0.0828	-0.0038
339	SLE RA 11	2.44	0.51	32.25	-0.3464	0.0822	-0.0039
339	SLE RA 12	2.43	0.51	32.23	-0.3462	0.082	-0.0039
339	SLE RA 13	2.39	0.5	31.99	-0.3427	0.0806	-0.0039
339	SLE RA 14	2.4	0.51	32.52	-0.3505	0.08	-0.0039
339	SLE RA 15	2.39	0.51	32.5	-0.3503	0.0798	-0.0039
339	SLE RA 16	2.36	0.51	32.29	-0.3472	0.0787	-0.0039
339	SLE RA 17	2.36	0.51	32.27	-0.347	0.0784	-0.0039
339	SLE RA 18	2.57	0.52	32.85	-0.3544	0.0876	-0.004
339	SLE RA 19	2.56	0.52	32.83	-0.3541	0.0874	-0.004
339	SLE RA 20	2.53	0.52	33.12	-0.3585	0.0853	-0.004
339	SLE RA 21	2.52	0.52	33.1	-0.3582	0.0851	-0.004
339	SLE FR 1	2.15	0.44	29.2	-0.3032	0.073	-0.0034
339	SLE FR 2	2.15	0.44	29.19	-0.3032	0.0729	-0.0034
339	SLE FR 3	2.14	0.44	29.31	-0.3049	0.0721	-0.0034
339	SLE FR 4	2.28	0.46	30.29	-0.3185	0.0773	-0.0036
339	SLE FR 5	2.26	0.47	30.4	-0.3202	0.0765	-0.0036
339	SLE FR 6	2.36	0.48	31.03	-0.3288	0.0803	-0.0037
339	SLE QP 1	2.15	0.44	29.2	-0.3032	0.073	-0.0034
339	SLE QP 2	2.28	0.46	30.3	-0.3186	0.0774	-0.0036
339	SLD 1	13.78	0.39	31.04	-0.2475	0.575	-0.003
339	SLD 2	13.78	0.39	31.04	-0.2475	0.575	-0.003
339	SLD 3	13.09	0.44	33.09	-0.2947	0.5454	-0.0034
339	SLD 4	13.09	0.44	33.09	-0.2947	0.5454	-0.0034
339	SLD 5	6.77	0.37	27.4	-0.2256	0.2715	-0.0028
339	SLD 6	6.77	0.37	27.4	-0.2256	0.2715	-0.0028
339	SLD 7	4.48	0.52	34.25	-0.383	0.1729	-0.0041
339	SLD 8	4.48	0.52	34.25	-0.383	0.1729	-0.0041
339	SLD 9	0.08	0.41	26.34	-0.2541	-0.0182	-0.0031
339	SLD 10	0.08	0.41	26.34	-0.2541	-0.0182	-0.0031
339	SLD 11	-2.22	0.56	33.19	-0.4115	-0.1168	-0.0043
339	SLD 12	-2.22	0.56	33.19	-0.4115	-0.1168	-0.0043
339	SLD 13	-8.53	0.49	27.5	-0.3425	-0.3907	-0.0038
339	SLD 14	-8.53	0.49	27.5	-0.3425	-0.3907	-0.0038
339	SLD 15	-9.22	0.54	29.56	-0.3897	-0.4203	-0.0042
339	SLD 16	-9.22	0.54	29.56	-0.3897	-0.4203	-0.0042
339	SLV 1	28.65	0.28	32.07	-0.1427	1.2185	-0.0021
339	SLV 2	28.65	0.28	32.07	-0.1427	1.2185	-0.0021



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
339	SLV 3	27.04	0.39	36.8	-0.2532	1.1493	-0.003
339	SLV 4	27.04	0.39	36.8	-0.2532	1.1493	-0.003
339	SLV 5	12.63	0.25	23.66	-0.0982	0.5247	-0.0018
339	SLV 6	12.63	0.25	23.66	-0.0982	0.5247	-0.0018
339	SLV 7	7.26	0.6	39.41	-0.4666	0.294	-0.0047
339	SLV 8	7.26	0.6	39.41	-0.4666	0.294	-0.0047
339	SLV 9	-2.71	0.33	21.18	-0.1706	-0.1393	-0.0024
339	SLV 10	-2.71	0.33	21.18	-0.1706	-0.1393	-0.0024
339	SLV 11	-8.08	0.68	36.93	-0.539	-0.3699	-0.0053
339	SLV 12	-8.08	0.68	36.93	-0.539	-0.3699	-0.0053
339	SLV 13	-22.48	0.54	23.8	-0.384	-0.9946	-0.0042
339	SLV 14	-22.48	0.54	23.8	-0.384	-0.9946	-0.0042
339	SLV 15	-24.09	0.65	28.52	-0.4945	-1.0638	-0.005
339	SLV 16	-24.09	0.65	28.52	-0.4945	-1.0638	-0.005
340	SLU 1	2.47	0.4	30.35	-0.259	0.1072	-0.0028
340	SLU 2	2.45	0.4	30.29	-0.2585	0.1065	-0.0028
340	SLU 3	2.49	0.41	31.18	-0.269	0.1085	-0.0029
340	SLU 4	2.48	0.41	31.15	-0.2687	0.1081	-0.0029
340	SLU 5	2.43	0.41	30.75	-0.264	0.1056	-0.0028
340	SLU 6	2.47	0.42	31.64	-0.2746	0.1077	-0.003
340	SLU 7	2.46	0.42	31.6	-0.2742	0.1072	-0.003
340	SLU 8	2.42	0.42	31.26	-0.2701	0.1054	-0.0029
340	SLU 9	2.41	0.42	31.23	-0.2698	0.105	-0.0029
340	SLU 10	2.97	0.47	34.57	-0.3067	0.1286	-0.0033
340	SLU 11	3.01	0.49	35.46	-0.3173	0.1307	-0.0034
340	SLU 12	3	0.49	35.43	-0.317	0.1303	-0.0034
340	SLU 13	2.94	0.48	35.03	-0.3123	0.1278	-0.0034
340	SLU 14	2.98	0.5	35.92	-0.3228	0.1298	-0.0035
340	SLU 15	2.97	0.5	35.88	-0.3225	0.1294	-0.0035
340	SLU 16	2.93	0.49	35.54	-0.3184	0.1276	-0.0034
340	SLU 17	2.92	0.49	35.51	-0.318	0.1272	-0.0034
340	SLU 18	3.2	0.51	36.47	-0.328	0.1388	-0.0035
340	SLU 19	3.2	0.5	36.43	-0.3276	0.1384	-0.0035
340	SLU 20	3.18	0.51	36.92	-0.3335	0.1379	-0.0036
340	SLU 21	3.17	0.51	36.89	-0.3332	0.1375	-0.0036
340	SLU 22	2.9	0.47	34.34	-0.3046	0.1259	-0.0033
340	SLU 23	2.88	0.47	34.28	-0.304	0.1252	-0.0033
340	SLU 24	2.93	0.48	35.17	-0.3146	0.1273	-0.0034
340	SLU 25	2.92	0.48	35.14	-0.3143	0.1268	-0.0034
340	SLU 26	2.86	0.48	34.74	-0.3096	0.1243	-0.0033
340	SLU 27	2.9	0.49	35.63	-0.3202	0.1264	-0.0034
340	SLU 28	2.89	0.49	35.59	-0.3198	0.126	-0.0034
340	SLU 29	2.85	0.49	35.25	-0.3157	0.1241	-0.0034
340	SLU 30	2.84	0.49	35.22	-0.3154	0.1237	-0.0034
340	SLU 31	3.4	0.54	38.56	-0.3523	0.1474	-0.0038
340	SLU 32	3.44	0.56	39.45	-0.3629	0.1494	-0.0039
340	SLU 33	3.43	0.56	39.42	-0.3625	0.149	-0.0039
340	SLU 34	3.37	0.55	39.02	-0.3578	0.1465	-0.0038
340	SLU 35	3.42	0.57	39.91	-0.3684	0.1485	-0.004
340	SLU 36	3.41	0.57	39.87	-0.3681	0.1481	-0.004
340	SLU 37	3.37	0.56	39.53	-0.364	0.1463	-0.0039
340	SLU 38	3.36	0.56	39.5	-0.3636	0.1459	-0.0039
340	SLU 39	3.64	0.58	40.46	-0.3736	0.1575	-0.004
340	SLU 40	3.63	0.58	40.42	-0.3732	0.1571	-0.004
340	SLU 41	3.61	0.58	40.91	-0.3791	0.1567	-0.0041
340	SLU 42	3.6	0.58	40.88	-0.3788	0.1563	-0.0041
340	SLU 43	3.06	0.49	38.09	-0.3211	0.1329	-0.0035
340	SLU 44	3.04	0.49	38.03	-0.3205	0.1322	-0.0034
340	SLU 45	3.08	0.51	38.92	-0.3311	0.1343	-0.0036
340	SLU 46	3.08	0.51	38.88	-0.3308	0.1338	-0.0036
340	SLU 47	3.02	0.5	38.49	-0.3261	0.1313	-0.0035
340	SLU 48	3.06	0.52	39.38	-0.3367	0.1334	-0.0036
340	SLU 49	3.05	0.52	39.34	-0.3363	0.133	-0.0036
340	SLU 50	3.01	0.51	39	-0.3322	0.1311	-0.0036
340	SLU 51	3	0.51	38.97	-0.3318	0.1307	-0.0036
340	SLU 52	3.56	0.57	42.31	-0.3688	0.1544	-0.004
340	SLU 53	3.6	0.58	43.2	-0.3794	0.1564	-0.0041
340	SLU 54	3.59	0.58	43.16	-0.379	0.156	-0.0041
340	SLU 55	3.53	0.58	42.77	-0.3743	0.1535	-0.004
340	SLU 56	3.58	0.59	43.66	-0.3849	0.1555	-0.0041
340	SLU 57	3.57	0.59	43.62	-0.3846	0.1551	-0.0041
340	SLU 58	3.52	0.59	43.28	-0.3805	0.1533	-0.0041
340	SLU 59	3.51	0.59	43.24	-0.3801	0.1529	-0.0041
340	SLU 60	3.8	0.6	44.2	-0.3901	0.1645	-0.0042
340	SLU 61	3.79	0.6	44.17	-0.3897	0.1641	-0.0042
340	SLU 62	3.77	0.61	44.66	-0.3956	0.1637	-0.0043
340	SLU 63	3.76	0.61	44.62	-0.3952	0.1633	-0.0042
340	SLU 64	3.49	0.56	42.08	-0.3667	0.1516	-0.0039
340	SLU 65	3.48	0.56	42.02	-0.3661	0.1509	-0.0039
340	SLU 66	3.52	0.58	42.91	-0.3767	0.153	-0.0041
340	SLU 67	3.51	0.58	42.88	-0.3764	0.1526	-0.004
340	SLU 68	3.45	0.57	42.48	-0.3717	0.1501	-0.004
340	SLU 69	3.49	0.59	43.37	-0.3823	0.1521	-0.0041
340	SLU 70	3.48	0.59	43.33	-0.3819	0.1517	-0.0041
340	SLU 71	3.44	0.58	42.99	-0.3778	0.1499	-0.0041
340	SLU 72	3.43	0.58	42.96	-0.3774	0.1495	-0.0041
340	SLU 73	3.99	0.64	46.3	-0.4144	0.1731	-0.0045
340	SLU 74	4.03	0.65	47.19	-0.425	0.1751	-0.0046
340	SLU 75	4.02	0.65	47.16	-0.4246	0.1747	-0.0046



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
340	SLU 76	3.97	0.65	46.76	-0.4199	0.1722	-0.0045
340	SLU 77	4.01	0.66	47.65	-0.4305	0.1743	-0.0046
340	SLU 78	4	0.66	47.61	-0.4302	0.1738	-0.0046
340	SLU 79	3.96	0.66	47.27	-0.426	0.172	-0.0046
340	SLU 80	3.95	0.66	47.24	-0.4257	0.1716	-0.0046
340	SLU 81	4.23	0.67	48.2	-0.4357	0.1833	-0.0047
340	SLU 82	4.22	0.67	48.16	-0.4353	0.1829	-0.0047
340	SLU 83	4.2	0.68	48.65	-0.4412	0.1824	-0.0047
340	SLU 84	4.19	0.68	48.61	-0.4408	0.182	-0.0047
340	SLE RA 1	2.59	0.42	31.49	-0.2721	0.1125	-0.0029
340	SLE RA 2	2.58	0.42	31.45	-0.2717	0.1121	-0.0029
340	SLE RA 3	2.61	0.43	32.05	-0.2787	0.1134	-0.003
340	SLE RA 4	2.6	0.43	32.02	-0.2785	0.1132	-0.003
340	SLE RA 5	2.56	0.42	31.76	-0.2754	0.1115	-0.003
340	SLE RA 6	2.59	0.44	32.35	-0.2824	0.1128	-0.003
340	SLE RA 7	2.58	0.43	32.33	-0.2822	0.1126	-0.003
340	SLE RA 8	2.56	0.43	32.1	-0.2794	0.1113	-0.003
340	SLE RA 9	2.55	0.43	32.08	-0.2792	0.1111	-0.003
340	SLE RA 10	2.92	0.47	34.31	-0.3039	0.1268	-0.0033
340	SLE RA 11	2.95	0.48	34.9	-0.3109	0.1282	-0.0033
340	SLE RA 12	2.95	0.48	34.88	-0.3107	0.1279	-0.0033
340	SLE RA 13	2.91	0.47	34.61	-0.3075	0.1262	-0.0033
340	SLE RA 14	2.94	0.48	35.2	-0.3146	0.1276	-0.0034
340	SLE RA 15	2.93	0.48	35.18	-0.3144	0.1273	-0.0034
340	SLE RA 16	2.9	0.48	34.95	-0.3116	0.1261	-0.0034
340	SLE RA 17	2.89	0.48	34.93	-0.3114	0.1258	-0.0033
340	SLE RA 18	3.08	0.49	35.57	-0.318	0.1336	-0.0034
340	SLE RA 19	3.08	0.49	35.55	-0.3178	0.1333	-0.0034
340	SLE RA 20	3.07	0.5	35.87	-0.3217	0.133	-0.0035
340	SLE RA 21	3.06	0.5	35.85	-0.3215	0.1328	-0.0035
340	SLE FR 1	2.59	0.42	31.49	-0.2721	0.1125	-0.0029
340	SLE FR 2	2.59	0.42	31.49	-0.272	0.1124	-0.0029
340	SLE FR 3	2.58	0.42	31.62	-0.2735	0.1123	-0.0029
340	SLE FR 4	2.74	0.44	32.71	-0.2858	0.1188	-0.0031
340	SLE FR 5	2.73	0.44	32.84	-0.2873	0.1186	-0.0031
340	SLE FR 6	2.84	0.45	33.53	-0.2951	0.1231	-0.0032
340	SLE QP 1	2.59	0.42	31.49	-0.2721	0.1125	-0.0029
340	SLE QP 2	2.74	0.44	32.72	-0.2859	0.1188	-0.0031
340	SLD 1	13.86	0.35	33.55	-0.2131	0.612	-0.0025
340	SLD 2	13.86	0.35	33.55	-0.2131	0.612	-0.0025
340	SLD 3	13.15	0.39	35.65	-0.2487	0.5826	-0.0027
340	SLD 4	13.15	0.39	35.65	-0.2487	0.5826	-0.0027
340	SLD 5	7.15	0.36	29.79	-0.21	0.3113	-0.0025
340	SLD 6	7.15	0.36	29.79	-0.21	0.3113	-0.0025
340	SLD 7	4.78	0.48	36.78	-0.3287	0.2135	-0.0034
340	SLD 8	4.78	0.48	36.78	-0.3287	0.2135	-0.0034
340	SLD 9	0.69	0.41	28.66	-0.243	0.0242	-0.0028
340	SLD 10	0.69	0.41	28.66	-0.243	0.0242	-0.0028
340	SLD 11	-1.68	0.52	35.65	-0.3617	-0.0736	-0.0036
340	SLD 12	-1.68	0.52	35.65	-0.3617	-0.0736	-0.0036
340	SLD 13	-7.67	0.49	29.78	-0.323	-0.3449	-0.0034
340	SLD 14	-7.67	0.49	29.78	-0.323	-0.3449	-0.0034
340	SLD 15	-8.38	0.53	31.88	-0.3586	-0.3743	-0.0037
340	SLD 16	-8.38	0.53	31.88	-0.3586	-0.3743	-0.0037
340	SLV 1	28.24	0.22	34.72	-0.1047	1.2495	-0.0016
340	SLV 2	28.24	0.22	34.72	-0.1047	1.2495	-0.0016
340	SLV 3	26.59	0.3	39.53	-0.1879	1.1812	-0.0022
340	SLV 4	26.59	0.3	39.53	-0.1879	1.1812	-0.0022
340	SLV 5	12.9	0.25	26.03	-0.1053	0.5617	-0.0017
340	SLV 6	12.9	0.25	26.03	-0.1053	0.5617	-0.0017
340	SLV 7	7.38	0.52	42.05	-0.3827	0.3339	-0.0037
340	SLV 8	7.38	0.52	42.05	-0.3827	0.3339	-0.0037
340	SLV 9	-1.9	0.36	23.38	-0.189	-0.0962	-0.0024
340	SLV 10	-1.9	0.36	23.38	-0.189	-0.0962	-0.0024
340	SLV 11	-7.43	0.63	39.4	-0.4664	-0.324	-0.0044
340	SLV 12	-7.43	0.63	39.4	-0.4664	-0.324	-0.0044
340	SLV 13	-21.11	0.58	25.9	-0.3838	-0.9435	-0.004
340	SLV 14	-21.11	0.58	25.9	-0.3838	-0.9435	-0.004
340	SLV 15	-22.77	0.66	30.71	-0.467	-1.0118	-0.0046
340	SLV 16	-22.77	0.66	30.71	-0.467	-1.0118	-0.0046
341	SLU 1	1.75	0.29	32.51	-0.1961	0.0529	-0.0018
341	SLU 2	1.74	0.29	32.44	-0.1957	0.0523	-0.0018
341	SLU 3	1.76	0.3	33.43	-0.2036	0.052	-0.0018
341	SLU 4	1.75	0.3	33.39	-0.2034	0.0516	-0.0018
341	SLU 5	1.71	0.29	32.96	-0.1998	0.0502	-0.0018
341	SLU 6	1.73	0.3	33.95	-0.2077	0.0499	-0.0019
341	SLU 7	1.72	0.3	33.91	-0.2075	0.0495	-0.0019
341	SLU 8	1.7	0.3	33.54	-0.2043	0.0487	-0.0018
341	SLU 9	1.69	0.3	33.5	-0.2041	0.0484	-0.0018
341	SLU 10	2.12	0.34	37.18	-0.2323	0.0644	-0.0021
341	SLU 11	2.14	0.35	38.17	-0.2402	0.0641	-0.0022
341	SLU 12	2.13	0.35	38.13	-0.24	0.0637	-0.0022
341	SLU 13	2.09	0.35	37.7	-0.2364	0.0623	-0.0021
341	SLU 14	2.12	0.36	38.68	-0.2443	0.062	-0.0022
341	SLU 15	2.11	0.36	38.64	-0.2441	0.0617	-0.0022
341	SLU 16	2.08	0.35	38.28	-0.2409	0.0608	-0.0022
341	SLU 17	2.07	0.35	38.24	-0.2406	0.0605	-0.0022
341	SLU 18	2.3	0.36	39.28	-0.2484	0.0702	-0.0022
341	SLU 19	2.29	0.36	39.24	-0.2481	0.0698	-0.0022



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
341	SLU 20	2.27	0.37	39.79	-0.2525	0.0681	-0.0023
341	SLU 21	2.26	0.37	39.75	-0.2522	0.0678	-0.0023
341	SLU 22	2.06	0.34	36.92	-0.2306	0.0622	-0.0021
341	SLU 23	2.05	0.34	36.85	-0.2302	0.0616	-0.0021
341	SLU 24	2.07	0.35	37.84	-0.2382	0.0612	-0.0021
341	SLU 25	2.06	0.35	37.8	-0.2379	0.0609	-0.0021
341	SLU 26	2.02	0.34	37.37	-0.2343	0.0595	-0.0021
341	SLU 27	2.05	0.36	38.35	-0.2423	0.0592	-0.0022
341	SLU 28	2.04	0.35	38.31	-0.242	0.0588	-0.0022
341	SLU 29	2.01	0.35	37.95	-0.2388	0.058	-0.0022
341	SLU 30	2	0.35	37.91	-0.2386	0.0576	-0.0022
341	SLU 31	2.43	0.39	41.59	-0.2668	0.0737	-0.0024
341	SLU 32	2.46	0.4	42.57	-0.2747	0.0734	-0.0025
341	SLU 33	2.45	0.4	42.53	-0.2745	0.073	-0.0025
341	SLU 34	2.41	0.4	42.1	-0.2709	0.0716	-0.0024
341	SLU 35	2.43	0.41	43.09	-0.2788	0.0713	-0.0025
341	SLU 36	2.42	0.41	43.05	-0.2786	0.0709	-0.0025
341	SLU 37	2.4	0.4	42.68	-0.2754	0.0701	-0.0025
341	SLU 38	2.39	0.4	42.64	-0.2751	0.0698	-0.0025
341	SLU 39	2.61	0.42	43.68	-0.2829	0.0795	-0.0025
341	SLU 40	2.61	0.41	43.64	-0.2826	0.0791	-0.0025
341	SLU 41	2.59	0.42	44.2	-0.287	0.0774	-0.0026
341	SLU 42	2.58	0.42	44.16	-0.2867	0.077	-0.0026
341	SLU 43	2.17	0.36	40.75	-0.2431	0.0656	-0.0022
341	SLU 44	2.15	0.36	40.69	-0.2427	0.065	-0.0022
341	SLU 45	2.18	0.37	41.67	-0.2506	0.0646	-0.0023
341	SLU 46	2.17	0.37	41.63	-0.2504	0.0643	-0.0023
341	SLU 47	2.13	0.36	41.2	-0.2468	0.0629	-0.0022
341	SLU 48	2.15	0.37	42.19	-0.2547	0.0626	-0.0023
341	SLU 49	2.14	0.37	42.15	-0.2545	0.0622	-0.0023
341	SLU 50	2.11	0.37	41.78	-0.2513	0.0614	-0.0023
341	SLU 51	2.11	0.37	41.74	-0.2511	0.0611	-0.0023
341	SLU 52	2.54	0.41	45.42	-0.2793	0.0771	-0.0025
341	SLU 53	2.56	0.42	46.41	-0.2872	0.0768	-0.0026
341	SLU 54	2.55	0.42	46.37	-0.287	0.0764	-0.0026
341	SLU 55	2.51	0.42	45.94	-0.2834	0.075	-0.0026
341	SLU 56	2.53	0.43	46.93	-0.2913	0.0747	-0.0026
341	SLU 57	2.52	0.43	46.88	-0.2911	0.0743	-0.0026
341	SLU 58	2.5	0.42	46.52	-0.2879	0.0735	-0.0026
341	SLU 59	2.49	0.42	46.48	-0.2876	0.0732	-0.0026
341	SLU 60	2.72	0.43	47.52	-0.2954	0.0829	-0.0027
341	SLU 61	2.71	0.43	47.48	-0.2951	0.0825	-0.0027
341	SLU 62	2.69	0.44	48.03	-0.2995	0.0808	-0.0027
341	SLU 63	2.68	0.44	47.99	-0.2992	0.0804	-0.0027
341	SLU 64	2.48	0.41	45.16	-0.2776	0.0748	-0.0025
341	SLU 65	2.47	0.41	45.09	-0.2772	0.0743	-0.0025
341	SLU 66	2.49	0.42	46.08	-0.2852	0.0739	-0.0026
341	SLU 67	2.48	0.42	46.04	-0.2849	0.0736	-0.0026
341	SLU 68	2.44	0.41	45.61	-0.2813	0.0722	-0.0025
341	SLU 69	2.46	0.42	46.6	-0.2893	0.0718	-0.0026
341	SLU 70	2.45	0.42	46.55	-0.289	0.0715	-0.0026
341	SLU 71	2.43	0.42	46.19	-0.2858	0.0707	-0.0026
341	SLU 72	2.42	0.42	46.15	-0.2856	0.0703	-0.0026
341	SLU 73	2.85	0.46	49.83	-0.3138	0.0864	-0.0028
341	SLU 74	2.87	0.47	50.82	-0.3217	0.086	-0.0029
341	SLU 75	2.87	0.47	50.78	-0.3215	0.0857	-0.0029
341	SLU 76	2.83	0.47	50.34	-0.3179	0.0843	-0.0029
341	SLU 77	2.85	0.48	51.33	-0.3258	0.084	-0.0029
341	SLU 78	2.84	0.48	51.29	-0.3256	0.0836	-0.0029
341	SLU 79	2.81	0.47	50.93	-0.3224	0.0828	-0.0029
341	SLU 80	2.8	0.47	50.89	-0.3221	0.0824	-0.0029
341	SLU 81	3.03	0.48	51.93	-0.3299	0.0921	-0.003
341	SLU 82	3.02	0.48	51.89	-0.3296	0.0918	-0.003
341	SLU 83	3	0.49	52.44	-0.334	0.0901	-0.003
341	SLU 84	3	0.49	52.4	-0.3337	0.0897	-0.003
341	SLE RA 1	1.84	0.3	33.77	-0.206	0.0555	-0.0019
341	SLE RA 2	1.83	0.3	33.72	-0.2057	0.0552	-0.0019
341	SLE RA 3	1.85	0.31	34.38	-0.211	0.0549	-0.0019
341	SLE RA 4	1.84	0.31	34.36	-0.2108	0.0547	-0.0019
341	SLE RA 5	1.81	0.31	34.07	-0.2084	0.0538	-0.0019
341	SLE RA 6	1.83	0.31	34.73	-0.2137	0.0535	-0.0019
341	SLE RA 7	1.82	0.31	34.7	-0.2136	0.0533	-0.0019
341	SLE RA 8	1.8	0.31	34.46	-0.2114	0.0527	-0.0019
341	SLE RA 9	1.8	0.31	34.43	-0.2113	0.0525	-0.0019
341	SLE RA 10	2.09	0.34	36.88	-0.2301	0.0632	-0.0021
341	SLE RA 11	2.1	0.35	37.54	-0.2354	0.063	-0.0021
341	SLE RA 12	2.1	0.35	37.51	-0.2352	0.0628	-0.0021
341	SLE RA 13	2.07	0.34	37.23	-0.2328	0.0618	-0.0021
341	SLE RA 14	2.08	0.35	37.88	-0.2381	0.0616	-0.0021
341	SLE RA 15	2.08	0.35	37.86	-0.2379	0.0614	-0.0021
341	SLE RA 16	2.06	0.35	37.61	-0.2358	0.0608	-0.0021
341	SLE RA 17	2.05	0.35	37.59	-0.2357	0.0606	-0.0021
341	SLE RA 18	2.21	0.35	38.28	-0.2408	0.0671	-0.0022
341	SLE RA 19	2.2	0.35	38.25	-0.2406	0.0668	-0.0022
341	SLE RA 20	2.19	0.36	38.62	-0.2436	0.0657	-0.0022
341	SLE RA 21	2.18	0.36	38.6	-0.2434	0.0655	-0.0022
341	SLE FR 1	1.84	0.3	33.77	-0.206	0.0555	-0.0019
341	SLE FR 2	1.84	0.3	33.76	-0.2059	0.0555	-0.0019
341	SLE FR 3	1.83	0.3	33.91	-0.2071	0.055	-0.0019



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
341	SLE FR 4	1.95	0.32	35.11	-0.2164	0.0589	-0.0019
341	SLE FR 5	1.94	0.32	35.26	-0.2175	0.0584	-0.002
341	SLE FR 6	2.02	0.33	36.02	-0.2234	0.0613	-0.002
341	SLE QP 1	1.84	0.3	33.77	-0.206	0.0555	-0.0019
341	SLE QP 2	1.95	0.32	35.12	-0.2164	0.059	-0.002
341	SLD 1	12.65	0.21	35.51	-0.1445	0.5218	-0.0014
341	SLD 2	12.65	0.21	35.51	-0.1445	0.5218	-0.0014
341	SLD 3	11.87	0.23	37.82	-0.1686	0.4896	-0.0016
341	SLD 4	11.87	0.23	37.82	-0.1686	0.4896	-0.0016
341	SLD 5	6.34	0.24	31.73	-0.1583	0.2467	-0.0015
341	SLD 6	6.34	0.24	31.73	-0.1583	0.2467	-0.0015
341	SLD 7	3.75	0.34	39.44	-0.2387	0.1393	-0.0021
341	SLD 8	3.75	0.34	39.44	-0.2387	0.1393	-0.0021
341	SLD 9	0.15	0.3	30.81	-0.1942	-0.0213	-0.0018
341	SLD 10	0.15	0.3	30.81	-0.1942	-0.0213	-0.0018
341	SLD 11	-2.44	0.4	38.51	-0.2746	-0.1287	-0.0024
341	SLD 12	-2.44	0.4	38.51	-0.2746	-0.1287	-0.0024
341	SLD 13	-7.97	0.4	32.43	-0.2643	-0.3716	-0.0023
341	SLD 14	-7.97	0.4	32.43	-0.2643	-0.3716	-0.0023
341	SLD 15	-8.75	0.43	34.74	-0.2884	-0.4038	-0.0025
341	SLD 16	-8.75	0.43	34.74	-0.2884	-0.4038	-0.0025
341	SLV 1	26.48	0.04	36.11	-0.0359	1.1205	-0.0005
341	SLV 2	26.48	0.04	36.11	-0.0359	1.1205	-0.0005
341	SLV 3	24.67	0.1	41.39	-0.0921	1.0452	-0.0009
341	SLV 4	24.67	0.1	41.39	-0.0921	1.0452	-0.0009
341	SLV 5	12.06	0.13	27.4	-0.077	0.4916	-0.0009
341	SLV 6	12.06	0.13	27.4	-0.077	0.4916	-0.0009
341	SLV 7	6.02	0.36	45.02	-0.2644	0.2407	-0.0022
341	SLV 8	6.02	0.36	45.02	-0.2644	0.2407	-0.0022
341	SLV 9	-2.12	0.28	25.23	-0.1685	-0.1227	-0.0017
341	SLV 10	-2.12	0.28	25.23	-0.1685	-0.1227	-0.0017
341	SLV 11	-8.16	0.51	42.84	-0.3559	-0.3737	-0.003
341	SLV 12	-8.16	0.51	42.84	-0.3559	-0.3737	-0.003
341	SLV 13	-20.77	0.53	28.85	-0.3407	-0.9272	-0.003
341	SLV 14	-20.77	0.53	28.85	-0.3407	-0.9272	-0.003
341	SLV 15	-22.58	0.6	34.14	-0.397	-1.0025	-0.0034
341	SLV 16	-22.58	0.6	34.14	-0.397	-1.0025	-0.0034
342	SLU 1	0.98	0.08	34.3	-0.1065	0.0459	-0.0006
342	SLU 2	0.97	0.08	34.23	-0.1063	0.0452	-0.0006
342	SLU 3	0.98	0.08	35.3	-0.1105	0.046	-0.0006
342	SLU 4	0.97	0.08	35.26	-0.1103	0.0457	-0.0006
342	SLU 5	0.95	0.08	34.8	-0.1083	0.0446	-0.0006
342	SLU 6	0.96	0.08	35.88	-0.1125	0.0454	-0.0006
342	SLU 7	0.95	0.08	35.83	-0.1124	0.0451	-0.0006
342	SLU 8	0.94	0.08	35.45	-0.1106	0.0446	-0.0006
342	SLU 9	0.93	0.08	35.41	-0.1104	0.0443	-0.0006
342	SLU 10	1.2	0.09	39.37	-0.1261	0.0555	-0.0007
342	SLU 11	1.21	0.09	40.45	-0.1303	0.0563	-0.0007
342	SLU 12	1.21	0.09	40.4	-0.1302	0.0559	-0.0007
342	SLU 13	1.18	0.09	39.95	-0.1281	0.0549	-0.0007
342	SLU 14	1.19	0.09	41.02	-0.1323	0.0557	-0.0007
342	SLU 15	1.18	0.09	40.98	-0.1322	0.0553	-0.0007
342	SLU 16	1.18	0.09	40.6	-0.1304	0.0549	-0.0007
342	SLU 17	1.17	0.09	40.55	-0.1303	0.0545	-0.0007
342	SLU 18	1.32	0.1	41.65	-0.1348	0.0605	-0.0007
342	SLU 19	1.31	0.1	41.6	-0.1347	0.0601	-0.0007
342	SLU 20	1.3	0.1	42.22	-0.1369	0.0599	-0.0008
342	SLU 21	1.29	0.1	42.18	-0.1367	0.0595	-0.0008
342	SLU 22	1.17	0.09	39.07	-0.1252	0.0542	-0.0007
342	SLU 23	1.16	0.09	39	-0.125	0.0536	-0.0007
342	SLU 24	1.16	0.09	40.08	-0.1291	0.0544	-0.0007
342	SLU 25	1.16	0.09	40.03	-0.129	0.054	-0.0007
342	SLU 26	1.13	0.09	39.58	-0.127	0.053	-0.0007
342	SLU 27	1.14	0.09	40.65	-0.1312	0.0538	-0.0007
342	SLU 28	1.13	0.09	40.61	-0.131	0.0534	-0.0007
342	SLU 29	1.13	0.09	40.23	-0.1292	0.053	-0.0007
342	SLU 30	1.12	0.09	40.18	-0.1291	0.0526	-0.0007
342	SLU 31	1.39	0.1	44.14	-0.1448	0.0639	-0.0008
342	SLU 32	1.4	0.11	45.22	-0.149	0.0647	-0.0008
342	SLU 33	1.39	0.11	45.18	-0.1488	0.0643	-0.0008
342	SLU 34	1.37	0.11	44.72	-0.1468	0.0632	-0.0008
342	SLU 35	1.38	0.11	45.8	-0.151	0.064	-0.0008
342	SLU 36	1.37	0.11	45.75	-0.1509	0.0637	-0.0008
342	SLU 37	1.36	0.11	45.37	-0.1491	0.0632	-0.0008
342	SLU 38	1.35	0.11	45.33	-0.149	0.0629	-0.0008
342	SLU 39	1.51	0.11	46.42	-0.1535	0.0689	-0.0008
342	SLU 40	1.5	0.11	46.38	-0.1534	0.0685	-0.0008
342	SLU 41	1.48	0.11	47	-0.1555	0.0682	-0.0009
342	SLU 42	1.47	0.11	46.95	-0.1554	0.0679	-0.0009
342	SLU 43	1.21	0.1	42.95	-0.132	0.0567	-0.0007
342	SLU 44	1.2	0.1	42.88	-0.1318	0.0561	-0.0007
342	SLU 45	1.21	0.1	43.96	-0.136	0.0569	-0.0008
342	SLU 46	1.2	0.1	43.91	-0.1359	0.0566	-0.0008
342	SLU 47	1.18	0.1	43.46	-0.1339	0.0555	-0.0007
342	SLU 48	1.19	0.1	44.53	-0.138	0.0563	-0.0008
342	SLU 49	1.18	0.1	44.49	-0.1379	0.0559	-0.0008
342	SLU 50	1.17	0.1	44.11	-0.1361	0.0555	-0.0008
342	SLU 51	1.16	0.1	44.06	-0.136	0.0551	-0.0008
342	SLU 52	1.44	0.11	48.02	-0.1517	0.0664	-0.0008



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
342	SLU 53	1.44	0.11	49.1	-0.1558	0.0672	-0.0009
342	SLU 54	1.44	0.11	49.06	-0.1557	0.0668	-0.0009
342	SLU 55	1.41	0.11	48.6	-0.1537	0.0657	-0.0008
342	SLU 56	1.42	0.11	49.68	-0.1579	0.0665	-0.0009
342	SLU 57	1.41	0.11	49.63	-0.1577	0.0662	-0.0009
342	SLU 58	1.41	0.11	49.25	-0.1559	0.0657	-0.0009
342	SLU 59	1.4	0.11	49.2	-0.1558	0.0654	-0.0009
342	SLU 60	1.55	0.12	50.3	-0.1604	0.0714	-0.0009
342	SLU 61	1.54	0.12	50.26	-0.1602	0.071	-0.0009
342	SLU 62	1.53	0.12	50.88	-0.1624	0.0707	-0.0009
342	SLU 63	1.52	0.12	50.83	-0.1623	0.0704	-0.0009
342	SLU 64	1.4	0.11	47.73	-0.1507	0.0651	-0.0008
342	SLU 65	1.39	0.11	47.65	-0.1505	0.0645	-0.0008
342	SLU 66	1.4	0.11	48.73	-0.1547	0.0653	-0.0009
342	SLU 67	1.39	0.11	48.69	-0.1546	0.0649	-0.0009
342	SLU 68	1.36	0.11	48.23	-0.1525	0.0639	-0.0008
342	SLU 69	1.37	0.11	49.31	-0.1567	0.0647	-0.0009
342	SLU 70	1.37	0.11	49.26	-0.1566	0.0643	-0.0009
342	SLU 71	1.36	0.11	48.88	-0.1548	0.0639	-0.0009
342	SLU 72	1.35	0.11	48.84	-0.1547	0.0635	-0.0009
342	SLU 73	1.62	0.12	52.8	-0.1703	0.0747	-0.0009
342	SLU 74	1.63	0.13	53.87	-0.1745	0.0755	-0.001
342	SLU 75	1.62	0.13	53.83	-0.1744	0.0752	-0.001
342	SLU 76	1.6	0.12	53.37	-0.1724	0.0741	-0.001
342	SLU 77	1.61	0.13	54.45	-0.1766	0.0749	-0.001
342	SLU 78	1.6	0.13	54.41	-0.1764	0.0746	-0.001
342	SLU 79	1.59	0.12	54.02	-0.1746	0.0741	-0.001
342	SLU 80	1.58	0.12	53.98	-0.1745	0.0738	-0.001
342	SLU 81	1.74	0.13	55.08	-0.1791	0.0797	-0.001
342	SLU 82	1.73	0.13	55.03	-0.1789	0.0794	-0.001
342	SLU 83	1.71	0.13	55.65	-0.1811	0.0791	-0.001
342	SLU 84	1.71	0.13	55.61	-0.181	0.0788	-0.001
342	SLE RA 1	1.04	0.08	35.66	-0.1118	0.0483	-0.0006
342	SLE RA 2	1.03	0.08	35.62	-0.1117	0.0478	-0.0006
342	SLE RA 3	1.03	0.08	36.33	-0.1145	0.0484	-0.0006
342	SLE RA 4	1.03	0.08	36.3	-0.1144	0.0481	-0.0006
342	SLE RA 5	1.01	0.08	36	-0.113	0.0474	-0.0006
342	SLE RA 6	1.02	0.08	36.72	-0.1158	0.048	-0.0006
342	SLE RA 7	1.01	0.08	36.69	-0.1157	0.0477	-0.0006
342	SLE RA 8	1.01	0.08	36.43	-0.1145	0.0474	-0.0006
342	SLE RA 9	1	0.08	36.4	-0.1145	0.0472	-0.0006
342	SLE RA 10	1.18	0.09	39.04	-0.1249	0.0547	-0.0007
342	SLE RA 11	1.19	0.09	39.76	-0.1277	0.0552	-0.0007
342	SLE RA 12	1.18	0.09	39.73	-0.1276	0.0549	-0.0007
342	SLE RA 13	1.17	0.09	39.43	-0.1263	0.0543	-0.0007
342	SLE RA 14	1.18	0.09	40.15	-0.1291	0.0548	-0.0007
342	SLE RA 15	1.17	0.09	40.12	-0.129	0.0545	-0.0007
342	SLE RA 16	1.16	0.09	39.86	-0.1278	0.0543	-0.0007
342	SLE RA 17	1.16	0.09	39.83	-0.1277	0.054	-0.0007
342	SLE RA 18	1.26	0.09	40.56	-0.1307	0.058	-0.0007
342	SLE RA 19	1.25	0.09	40.53	-0.1306	0.0578	-0.0007
342	SLE RA 20	1.25	0.1	40.95	-0.1321	0.0576	-0.0007
342	SLE RA 21	1.24	0.1	40.92	-0.132	0.0573	-0.0007
342	SLE FR 1	1.04	0.08	35.66	-0.1118	0.0483	-0.0006
342	SLE FR 2	1.03	0.08	35.65	-0.1118	0.0482	-0.0006
342	SLE FR 3	1.03	0.08	35.82	-0.1124	0.0481	-0.0006
342	SLE FR 4	1.1	0.09	37.12	-0.1175	0.0511	-0.0006
342	SLE FR 5	1.1	0.09	37.29	-0.118	0.051	-0.0007
342	SLE FR 6	1.15	0.09	38.11	-0.1213	0.0531	-0.0007
342	SLE QP 1	1.04	0.08	35.66	-0.1118	0.0483	-0.0006
342	SLE QP 2	1.1	0.09	37.13	-0.1175	0.0512	-0.0006
342	SLD 1	10.92	-0.04	36.82	-0.0533	0.485	-0.0002
342	SLD 2	10.92	-0.04	36.82	-0.0533	0.485	-0.0002
342	SLD 3	11.78	-0.01	39.62	-0.0696	0.5175	-0.0004
342	SLD 4	11.78	-0.01	39.62	-0.0696	0.5175	-0.0004
342	SLD 5	2.74	0	32.79	-0.0735	0.1319	-0.0003
342	SLD 6	2.74	0	32.79	-0.0735	0.1319	-0.0003
342	SLD 7	5.61	0.1	42.13	-0.1279	0.2405	-0.0008
342	SLD 8	5.61	0.1	42.13	-0.1279	0.2405	-0.0008
342	SLD 9	-3.41	0.07	32.14	-0.1072	-0.1381	-0.0005
342	SLD 10	-3.41	0.07	32.14	-0.1072	-0.1381	-0.0005
342	SLD 11	-0.53	0.17	41.47	-0.1615	-0.0296	-0.001
342	SLD 12	-0.53	0.17	41.47	-0.1615	-0.0296	-0.001
342	SLD 13	-9.57	0.18	34.64	-0.1654	-0.4152	-0.0009
342	SLD 14	-9.57	0.18	34.64	-0.1654	-0.4152	-0.0009
342	SLD 15	-8.71	0.21	37.44	-0.1817	-0.3826	-0.0011
342	SLD 16	-8.71	0.21	37.44	-0.1817	-0.3826	-0.0011
342	SLV 1	23.57	-0.24	36.51	0.0442	1.0447	0.0004
342	SLV 2	23.57	-0.24	36.51	0.0442	1.0447	0.0004
342	SLV 3	25.59	-0.17	42.92	0.0064	1.1206	0.0001
342	SLV 4	25.59	-0.17	42.92	0.0064	1.1206	0.0001
342	SLV 5	4.79	-0.12	27.23	-0.0116	0.2341	0.0002
342	SLV 6	4.79	-0.12	27.23	-0.0116	0.2341	0.0002
342	SLV 7	11.51	0.11	48.59	-0.1377	0.4872	-0.0009
342	SLV 8	11.51	0.11	48.59	-0.1377	0.4872	-0.0009
342	SLV 9	-9.3	0.06	25.68	-0.0973	-0.3848	-0.0004
342	SLV 10	-9.3	0.06	25.68	-0.0973	-0.3848	-0.0004
342	SLV 11	-2.58	0.29	47.04	-0.2234	-0.1317	-0.0015
342	SLV 12	-2.58	0.29	47.04	-0.2234	-0.1317	-0.0015



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
342	SLV 13	-23.38	0.34	31.35	-0.2414	-1.0183	-0.0014
342	SLV 14	-23.38	0.34	31.35	-0.2414	-1.0183	-0.0014
342	SLV 15	-21.37	0.41	37.76	-0.2792	-0.9423	-0.0017
342	SLV 16	-21.37	0.41	37.76	-0.2792	-0.9423	-0.0017
343	SLU 1	-0.61	-0.13	35.46	-0.0255	-0.0416	-0.0001
343	SLU 2	-0.62	-0.13	35.39	-0.0255	-0.042	-0.0001
343	SLU 3	-0.68	-0.14	36.52	-0.0264	-0.0454	-0.0001
343	SLU 4	-0.68	-0.14	36.47	-0.0264	-0.0456	-0.0001
343	SLU 5	-0.68	-0.14	36.01	-0.0258	-0.0451	-0.0001
343	SLU 6	-0.73	-0.14	37.14	-0.0268	-0.0484	-0.0001
343	SLU 7	-0.74	-0.14	37.09	-0.0268	-0.0487	-0.0001
343	SLU 8	-0.72	-0.14	36.7	-0.0262	-0.0477	-0.0001
343	SLU 9	-0.72	-0.14	36.66	-0.0262	-0.048	-0.0001
343	SLU 10	-0.7	-0.16	40.85	-0.03	-0.0487	-0.0001
343	SLU 11	-0.75	-0.17	41.99	-0.031	-0.052	-0.0001
343	SLU 12	-0.76	-0.17	41.94	-0.031	-0.0523	-0.0001
343	SLU 13	-0.75	-0.16	41.47	-0.0304	-0.0517	-0.0001
343	SLU 14	-0.81	-0.17	42.6	-0.0314	-0.0551	-0.0001
343	SLU 15	-0.81	-0.17	42.56	-0.0313	-0.0553	-0.0001
343	SLU 16	-0.79	-0.17	42.17	-0.0308	-0.0544	-0.0001
343	SLU 17	-0.8	-0.17	42.12	-0.0307	-0.0546	-0.0001
343	SLU 18	-0.72	-0.17	43.27	-0.032	-0.0511	-0.0001
343	SLU 19	-0.72	-0.17	43.23	-0.032	-0.0514	-0.0001
343	SLU 20	-0.77	-0.18	43.89	-0.0324	-0.0542	-0.0001
343	SLU 21	-0.78	-0.17	43.85	-0.0324	-0.0544	-0.0001
343	SLU 22	-0.71	-0.16	40.51	-0.0299	-0.0492	-0.0001
343	SLU 23	-0.72	-0.16	40.44	-0.0299	-0.0496	-0.0001
343	SLU 24	-0.78	-0.16	41.57	-0.0309	-0.0529	-0.0001
343	SLU 25	-0.79	-0.16	41.52	-0.0308	-0.0532	-0.0001
343	SLU 26	-0.78	-0.16	41.06	-0.0302	-0.0526	-0.0001
343	SLU 27	-0.83	-0.17	42.19	-0.0312	-0.056	-0.0001
343	SLU 28	-0.84	-0.17	42.14	-0.0312	-0.0562	-0.0001
343	SLU 29	-0.82	-0.17	41.75	-0.0306	-0.0552	-0.0001
343	SLU 30	-0.83	-0.17	41.71	-0.0306	-0.0555	-0.0001
343	SLU 31	-0.8	-0.18	45.9	-0.0345	-0.0562	-0.0001
343	SLU 32	-0.85	-0.19	47.03	-0.0354	-0.0596	-0.0001
343	SLU 33	-0.86	-0.19	46.99	-0.0354	-0.0598	-0.0001
343	SLU 34	-0.85	-0.19	46.52	-0.0348	-0.0593	-0.0001
343	SLU 35	-0.91	-0.19	47.65	-0.0358	-0.0626	-0.0001
343	SLU 36	-0.91	-0.19	47.61	-0.0358	-0.0629	-0.0001
343	SLU 37	-0.89	-0.19	47.22	-0.0352	-0.0619	-0.0001
343	SLU 38	-0.9	-0.19	47.17	-0.0352	-0.0621	-0.0001
343	SLU 39	-0.82	-0.2	48.32	-0.0365	-0.0587	-0.0001
343	SLU 40	-0.83	-0.2	48.28	-0.0364	-0.0589	-0.0001
343	SLU 41	-0.87	-0.2	48.94	-0.0368	-0.0617	-0.0001
343	SLU 42	-0.88	-0.2	48.9	-0.0368	-0.062	-0.0001
343	SLU 43	-0.76	-0.17	44.37	-0.0316	-0.0515	-0.0001
343	SLU 44	-0.77	-0.17	44.3	-0.0316	-0.052	-0.0001
343	SLU 45	-0.83	-0.17	45.43	-0.0326	-0.0553	-0.0001
343	SLU 46	-0.83	-0.17	45.38	-0.0326	-0.0555	-0.0001
343	SLU 47	-0.82	-0.17	44.91	-0.032	-0.055	-0.0001
343	SLU 48	-0.88	-0.18	46.05	-0.0329	-0.0583	-0.0001
343	SLU 49	-0.89	-0.18	46	-0.0329	-0.0586	-0.0001
343	SLU 50	-0.87	-0.17	45.61	-0.0323	-0.0576	-0.0001
343	SLU 51	-0.87	-0.17	45.56	-0.0323	-0.0579	-0.0001
343	SLU 52	-0.84	-0.19	49.76	-0.0362	-0.0586	-0.0001
343	SLU 53	-0.9	-0.2	50.89	-0.0371	-0.0619	-0.0001
343	SLU 54	-0.91	-0.2	50.85	-0.0371	-0.0622	-0.0001
343	SLU 55	-0.9	-0.2	50.38	-0.0365	-0.0616	-0.0001
343	SLU 56	-0.95	-0.2	51.51	-0.0375	-0.065	-0.0001
343	SLU 57	-0.96	-0.2	51.47	-0.0375	-0.0652	-0.0001
343	SLU 58	-0.94	-0.2	51.08	-0.0369	-0.0643	-0.0001
343	SLU 59	-0.95	-0.2	51.03	-0.0369	-0.0645	-0.0001
343	SLU 60	-0.87	-0.2	52.18	-0.0382	-0.061	-0.0001
343	SLU 61	-0.87	-0.2	52.14	-0.0381	-0.0613	-0.0001
343	SLU 62	-0.92	-0.21	52.8	-0.0385	-0.0641	-0.0001
343	SLU 63	-0.93	-0.21	52.76	-0.0385	-0.0643	-0.0001
343	SLU 64	-0.86	-0.19	49.42	-0.0361	-0.0591	-0.0001
343	SLU 65	-0.87	-0.19	49.34	-0.036	-0.0595	-0.0001
343	SLU 66	-0.93	-0.2	50.48	-0.037	-0.0628	-0.0001
343	SLU 67	-0.93	-0.2	50.43	-0.037	-0.0631	-0.0001
343	SLU 68	-0.93	-0.19	49.96	-0.0364	-0.0625	-0.0001
343	SLU 69	-0.98	-0.2	51.09	-0.0373	-0.0659	-0.0001
343	SLU 70	-0.99	-0.2	51.05	-0.0373	-0.0661	-0.0001
343	SLU 71	-0.97	-0.2	50.66	-0.0368	-0.0652	-0.0001
343	SLU 72	-0.97	-0.2	50.61	-0.0367	-0.0654	-0.0001
343	SLU 73	-0.95	-0.22	54.81	-0.0406	-0.0661	-0.0001
343	SLU 74	-1	-0.22	55.94	-0.0416	-0.0695	-0.0001
343	SLU 75	-1.01	-0.22	55.9	-0.0415	-0.0697	-0.0001
343	SLU 76	-1	-0.22	55.43	-0.0409	-0.0692	-0.0001
343	SLU 77	-1.06	-0.23	56.56	-0.0419	-0.0725	-0.0001
343	SLU 78	-1.06	-0.23	56.52	-0.0419	-0.0728	-0.0001
343	SLU 79	-1.04	-0.22	56.13	-0.0413	-0.0718	-0.0001
343	SLU 80	-1.05	-0.22	56.08	-0.0413	-0.0721	-0.0001
343	SLU 81	-0.97	-0.23	57.23	-0.0426	-0.0686	-0.0001
343	SLU 82	-0.97	-0.23	57.19	-0.0426	-0.0688	-0.0001
343	SLU 83	-1.02	-0.23	57.85	-0.0429	-0.0716	-0.0001
343	SLU 84	-1.03	-0.23	57.8	-0.0429	-0.0719	-0.0001
343	SLE RA 1	-0.64	-0.14	36.91	-0.0268	-0.0438	-0.0001





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
343	SLE RA 2	-0.65	-0.14	36.86	-0.0267	-0.0441	-0.0001
343	SLE RA 3	-0.68	-0.14	37.61	-0.0274	-0.0463	-0.0001
343	SLE RA 4	-0.69	-0.14	37.58	-0.0274	-0.0465	-0.0001
343	SLE RA 5	-0.68	-0.14	37.27	-0.027	-0.0461	-0.0001
343	SLE RA 6	-0.72	-0.15	38.02	-0.0276	-0.0483	-0.0001
343	SLE RA 7	-0.72	-0.15	37.99	-0.0276	-0.0485	-0.0001
343	SLE RA 8	-0.71	-0.15	37.73	-0.0272	-0.0478	-0.0001
343	SLE RA 9	-0.72	-0.15	37.7	-0.0272	-0.048	-0.0001
343	SLE RA 10	-0.7	-0.16	40.5	-0.0298	-0.0485	-0.0001
343	SLE RA 11	-0.73	-0.16	41.25	-0.0304	-0.0507	-0.0001
343	SLE RA 12	-0.74	-0.16	41.22	-0.0304	-0.0509	-0.0001
343	SLE RA 13	-0.73	-0.16	40.91	-0.03	-0.0505	-0.0001
343	SLE RA 14	-0.77	-0.16	41.67	-0.0307	-0.0527	-0.0001
343	SLE RA 15	-0.77	-0.16	41.64	-0.0307	-0.0529	-0.0001
343	SLE RA 16	-0.76	-0.16	41.38	-0.0303	-0.0523	-0.0001
343	SLE RA 17	-0.77	-0.16	41.35	-0.0303	-0.0524	-0.0001
343	SLE RA 18	-0.71	-0.17	42.11	-0.0311	-0.0501	-0.0001
343	SLE RA 19	-0.72	-0.17	42.08	-0.0311	-0.0503	-0.0001
343	SLE RA 20	-0.75	-0.17	42.53	-0.0314	-0.0521	-0.0001
343	SLE RA 21	-0.75	-0.17	42.5	-0.0313	-0.0523	-0.0001
343	SLE FR 1	-0.64	-0.14	36.91	-0.0268	-0.0438	-0.0001
343	SLE FR 2	-0.64	-0.14	36.9	-0.0268	-0.0438	-0.0001
343	SLE FR 3	-0.65	-0.14	37.07	-0.0269	-0.0446	-0.0001
343	SLE FR 4	-0.66	-0.15	38.46	-0.0281	-0.0457	-0.0001
343	SLE FR 5	-0.68	-0.15	38.63	-0.0282	-0.0465	-0.0001
343	SLE FR 6	-0.68	-0.15	39.51	-0.0289	-0.047	-0.0001
343	SLE QP 1	-0.64	-0.14	36.91	-0.0268	-0.0438	-0.0001
343	SLE QP 2	-0.66	-0.15	38.47	-0.0281	-0.0457	-0.0001
343	SLD 1	8.99	-0.21	35.23	0.0159	0.4083	0.0003
343	SLD 2	8.99	-0.21	35.23	0.0159	0.4083	0.0003
343	SLD 3	10.02	-0.25	39.28	-0.0002	0.3716	0.0002
343	SLD 4	10.02	-0.25	39.28	-0.0002	0.3716	0.0002
343	SLD 5	0.67	-0.11	31.35	0.0095	0.1462	0.0002
343	SLD 6	0.67	-0.11	31.35	0.0095	0.1462	0.0002
343	SLD 7	4.1	-0.24	44.86	-0.0441	0.0238	-0.0001
343	SLD 8	4.1	-0.24	44.86	-0.0441	0.0238	-0.0001
343	SLD 9	-5.43	-0.06	32.08	-0.012	-0.1152	0
343	SLD 10	-5.43	-0.06	32.08	-0.012	-0.1152	0
343	SLD 11	-1.99	-0.19	45.58	-0.0657	-0.2376	-0.0003
343	SLD 12	-1.99	-0.19	45.58	-0.0657	-0.2376	-0.0003
343	SLD 13	-11.34	-0.05	37.65	-0.0559	-0.463	-0.0003
343	SLD 14	-11.34	-0.05	37.65	-0.0559	-0.463	-0.0003
343	SLD 15	-10.31	-0.08	41.7	-0.072	-0.4997	-0.0004
343	SLD 16	-10.31	-0.08	41.7	-0.072	-0.4997	-0.0004
343	SLV 1	21.43	-0.32	31.05	0.0821	0.9957	0.0008
343	SLV 2	21.43	-0.32	31.05	0.0821	0.9957	0.0008
343	SLV 3	23.84	-0.41	40.36	0.0449	0.9098	0.0006
343	SLV 4	23.84	-0.41	40.36	0.0449	0.9098	0.0006
343	SLV 5	2.32	-0.07	22.12	0.0613	0.3969	0.0005
343	SLV 6	2.32	-0.07	22.12	0.0613	0.3969	0.0005
343	SLV 7	10.34	-0.36	53.16	-0.0626	0.1108	-0.0001
343	SLV 8	10.34	-0.36	53.16	-0.0626	0.1108	-0.0001
343	SLV 9	-11.66	0.06	23.78	0.0064	-0.2022	0
343	SLV 10	-11.66	0.06	23.78	0.0064	-0.2022	0
343	SLV 11	-3.64	-0.23	54.82	-0.1175	-0.4883	-0.0006
343	SLV 12	-3.64	-0.23	54.82	-0.1175	-0.4883	-0.0006
343	SLV 13	-25.16	0.11	36.58	-0.1011	-1.0012	-0.0008
343	SLV 14	-25.16	0.11	36.58	-0.1011	-1.0012	-0.0008
343	SLV 15	-22.76	0.02	45.89	-0.1382	-1.087	-0.0009
343	SLV 16	-22.76	0.02	45.89	-0.1382	-1.087	-0.0009
344	SLU 1	-2.12	-0.86	48.61	-0.1006	-0.0826	-0.0001
344	SLU 2	-2.13	-0.86	48.51	-0.1002	-0.0831	-0.0001
344	SLU 3	-2.22	-0.82	50.03	-0.1075	-0.0865	-0.0001
344	SLU 4	-2.22	-0.83	49.96	-0.1073	-0.0868	-0.0001
344	SLU 5	-2.19	-0.84	49.35	-0.1045	-0.0855	-0.0001
344	SLU 6	-2.28	-0.8	50.87	-0.1118	-0.0889	-0.0001
344	SLU 7	-2.29	-0.8	50.81	-0.1115	-0.0892	-0.0001
344	SLU 8	-2.25	-0.81	50.31	-0.1092	-0.0875	-0.0001
344	SLU 9	-2.25	-0.82	50.24	-0.1089	-0.0877	-0.0001
344	SLU 10	-2.56	-1.09	56.29	-0.1151	-0.1002	-0.0002
344	SLU 11	-2.65	-1.05	57.81	-0.1224	-0.1036	-0.0002
344	SLU 12	-2.66	-1.06	57.75	-0.1222	-0.1039	-0.0002
344	SLU 13	-2.63	-1.07	57.14	-0.1194	-0.1026	-0.0002
344	SLU 14	-2.72	-1.03	58.66	-0.1267	-0.106	-0.0002
344	SLU 15	-2.72	-1.03	58.59	-0.1265	-0.1063	-0.0002
344	SLU 16	-2.68	-1.04	58.09	-0.1241	-0.1046	-0.0002
344	SLU 17	-2.69	-1.05	58.03	-0.1238	-0.1048	-0.0002
344	SLU 18	-2.74	-1.19	59.73	-0.1219	-0.1071	-0.0002
344	SLU 19	-2.74	-1.19	59.66	-0.1217	-0.1073	-0.0002
344	SLU 20	-2.8	-1.17	60.57	-0.1262	-0.1095	-0.0002
344	SLU 21	-2.81	-1.17	60.51	-0.126	-0.1097	-0.0002
344	SLU 22	-2.52	-1	55.7	-0.1181	-0.0985	-0.0002
344	SLU 23	-2.53	-1	55.59	-0.1177	-0.0989	-0.0002
344	SLU 24	-2.62	-0.96	57.11	-0.125	-0.1023	-0.0002
344	SLU 25	-2.63	-0.96	57.05	-0.1248	-0.1026	-0.0002
344	SLU 26	-2.6	-0.98	56.44	-0.122	-0.1013	-0.0002
344	SLU 27	-2.69	-0.94	57.96	-0.1293	-0.1048	-0.0002
344	SLU 28	-2.69	-0.94	57.9	-0.129	-0.105	-0.0002
344	SLU 29	-2.65	-0.95	57.39	-0.1266	-0.1033	-0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
344	SLU 30	-2.66	-0.95	57.33	-0.1264	-0.1036	-0.0002
344	SLU 31	-2.96	-1.23	63.38	-0.1326	-0.116	-0.0002
344	SLU 32	-3.06	-1.19	64.9	-0.1399	-0.1194	-0.0002
344	SLU 33	-3.06	-1.19	64.83	-0.1397	-0.1197	-0.0002
344	SLU 34	-3.03	-1.2	64.22	-0.1369	-0.1184	-0.0002
344	SLU 35	-3.12	-1.17	65.74	-0.1442	-0.1218	-0.0002
344	SLU 36	-3.13	-1.17	65.68	-0.144	-0.1221	-0.0002
344	SLU 37	-3.08	-1.18	65.18	-0.1416	-0.1204	-0.0002
344	SLU 38	-3.09	-1.18	65.11	-0.1413	-0.1206	-0.0002
344	SLU 39	-3.14	-1.32	66.81	-0.1394	-0.1229	-0.0002
344	SLU 40	-3.15	-1.33	66.75	-0.1392	-0.1231	-0.0002
344	SLU 41	-3.2	-1.3	67.66	-0.1437	-0.1253	-0.0002
344	SLU 42	-3.21	-1.3	67.6	-0.1434	-0.1256	-0.0002
344	SLU 43	-2.61	-1.07	60.76	-0.1248	-0.102	-0.0002
344	SLU 44	-2.62	-1.07	60.66	-0.1244	-0.1024	-0.0002
344	SLU 45	-2.72	-1.04	62.18	-0.1317	-0.1059	-0.0002
344	SLU 46	-2.72	-1.04	62.12	-0.1315	-0.1061	-0.0002
344	SLU 47	-2.69	-1.05	61.51	-0.1287	-0.1049	-0.0002
344	SLU 48	-2.78	-1.01	63.03	-0.136	-0.1083	-0.0002
344	SLU 49	-2.79	-1.01	62.96	-0.1357	-0.1086	-0.0002
344	SLU 50	-2.74	-1.03	62.46	-0.1333	-0.1068	-0.0002
344	SLU 51	-2.75	-1.03	62.4	-0.1331	-0.1071	-0.0002
344	SLU 52	-3.06	-1.3	68.44	-0.1393	-0.1195	-0.0002
344	SLU 53	-3.15	-1.27	69.96	-0.1466	-0.123	-0.0002
344	SLU 54	-3.16	-1.27	69.9	-0.1464	-0.1232	-0.0002
344	SLU 55	-3.12	-1.28	69.29	-0.1436	-0.122	-0.0002
344	SLU 56	-3.21	-1.24	70.81	-0.1509	-0.1254	-0.0002
344	SLU 57	-3.22	-1.24	70.75	-0.1507	-0.1256	-0.0002
344	SLU 58	-3.18	-1.26	70.24	-0.1483	-0.1239	-0.0002
344	SLU 59	-3.18	-1.26	70.18	-0.148	-0.1242	-0.0002
344	SLU 60	-3.23	-1.4	71.88	-0.1461	-0.1264	-0.0002
344	SLU 61	-3.24	-1.4	71.82	-0.1459	-0.1267	-0.0002
344	SLU 62	-3.3	-1.38	72.73	-0.1504	-0.1288	-0.0002
344	SLU 63	-3.3	-1.38	72.66	-0.1501	-0.1291	-0.0002
344	SLU 64	-3.02	-1.21	67.85	-0.1423	-0.1178	-0.0002
344	SLU 65	-3.03	-1.21	67.75	-0.1419	-0.1183	-0.0002
344	SLU 66	-3.12	-1.17	69.27	-0.1492	-0.1217	-0.0002
344	SLU 67	-3.13	-1.17	69.2	-0.1489	-0.122	-0.0002
344	SLU 68	-3.09	-1.19	68.59	-0.1461	-0.1207	-0.0002
344	SLU 69	-3.18	-1.15	70.12	-0.1535	-0.1241	-0.0002
344	SLU 70	-3.19	-1.15	70.05	-0.1532	-0.1244	-0.0002
344	SLU 71	-3.15	-1.16	69.55	-0.1508	-0.1227	-0.0002
344	SLU 72	-3.15	-1.16	69.48	-0.1506	-0.1229	-0.0002
344	SLU 73	-3.46	-1.44	75.53	-0.1568	-0.1354	-0.0002
344	SLU 74	-3.55	-1.4	77.05	-0.1641	-0.1388	-0.0002
344	SLU 75	-3.56	-1.4	76.99	-0.1639	-0.1391	-0.0002
344	SLU 76	-3.53	-1.42	76.38	-0.1611	-0.1378	-0.0002
344	SLU 77	-3.62	-1.38	77.9	-0.1684	-0.1412	-0.0002
344	SLU 78	-3.62	-1.38	77.83	-0.1681	-0.1415	-0.0002
344	SLU 79	-3.58	-1.39	77.33	-0.1658	-0.1398	-0.0002
344	SLU 80	-3.59	-1.39	77.27	-0.1655	-0.14	-0.0002
344	SLU 81	-3.64	-1.54	78.97	-0.1636	-0.1423	-0.0002
344	SLU 82	-3.64	-1.54	78.91	-0.1634	-0.1425	-0.0002
344	SLU 83	-3.7	-1.51	79.82	-0.1679	-0.1447	-0.0002
344	SLU 84	-3.71	-1.51	79.75	-0.1676	-0.1449	-0.0002
344	SLE RA 1	-2.23	-0.9	50.63	-0.1056	-0.0872	-0.0001
344	SLE RA 2	-2.24	-0.9	50.57	-0.1053	-0.0875	-0.0001
344	SLE RA 3	-2.3	-0.88	51.58	-0.1102	-0.0897	-0.0001
344	SLE RA 4	-2.3	-0.88	51.54	-0.11	-0.0899	-0.0001
344	SLE RA 5	-2.28	-0.88	51.13	-0.1082	-0.0891	-0.0001
344	SLE RA 6	-2.34	-0.86	52.14	-0.1131	-0.0914	-0.0001
344	SLE RA 7	-2.35	-0.86	52.1	-0.1129	-0.0915	-0.0001
344	SLE RA 8	-2.32	-0.87	51.77	-0.1113	-0.0904	-0.0001
344	SLE RA 9	-2.32	-0.87	51.72	-0.1111	-0.0906	-0.0001
344	SLE RA 10	-2.53	-1.05	55.75	-0.1153	-0.0989	-0.0002
344	SLE RA 11	-2.59	-1.03	56.77	-0.1202	-0.1011	-0.0002
344	SLE RA 12	-2.59	-1.03	56.73	-0.12	-0.1013	-0.0002
344	SLE RA 13	-2.57	-1.04	56.32	-0.1181	-0.1005	-0.0002
344	SLE RA 14	-2.63	-1.01	57.33	-0.123	-0.1027	-0.0002
344	SLE RA 15	-2.64	-1.01	57.29	-0.1228	-0.1029	-0.0002
344	SLE RA 16	-2.61	-1.02	56.95	-0.1213	-0.1018	-0.0002
344	SLE RA 17	-2.61	-1.02	56.91	-0.1211	-0.102	-0.0002
344	SLE RA 18	-2.65	-1.12	58.05	-0.1198	-0.1034	-0.0002
344	SLE RA 19	-2.65	-1.12	58	-0.1197	-0.1036	-0.0002
344	SLE RA 20	-2.69	-1.1	58.61	-0.1227	-0.1051	-0.0002
344	SLE RA 21	-2.69	-1.1	58.57	-0.1225	-0.1052	-0.0002
344	SLE FR 1	-2.23	-0.9	50.63	-0.1056	-0.0872	-0.0001
344	SLE FR 2	-2.23	-0.9	50.62	-0.1055	-0.0872	-0.0001
344	SLE FR 3	-2.25	-0.89	50.86	-0.1067	-0.0878	-0.0001
344	SLE FR 4	-2.36	-0.96	52.84	-0.1098	-0.0921	-0.0001
344	SLE FR 5	-2.37	-0.96	53.08	-0.111	-0.0927	-0.0001
344	SLE FR 6	-2.44	-1.01	54.34	-0.1127	-0.0953	-0.0002
344	SLE QP 1	-2.23	-0.9	50.63	-0.1056	-0.0872	-0.0001
344	SLE QP 2	-2.36	-0.96	52.86	-0.1099	-0.092	-0.0001
344	SLD 1	8.45	-1.69	45.97	-0.0047	0.3788	0.0006
344	SLD 2	8.45	-1.69	45.97	-0.0047	0.3788	0.0006
344	SLD 3	7.89	1.23	54.52	-0.1416	0.3543	0.0007
344	SLD 4	7.89	1.23	54.52	-0.1416	0.3543	0.0007
344	SLD 5	1.73	-5.62	37.84	0.1292	0.0863	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
344	SLD 6	1.73	-5.62	37.84	0.1292	0.0863	0
344	SLD 7	-0.13	4.13	66.31	-0.3269	0.0047	0.0002
344	SLD 8	-0.13	4.13	66.31	-0.3269	0.0047	0.0002
344	SLD 9	-4.58	-6.06	39.41	0.1072	-0.1888	-0.0005
344	SLD 10	-4.58	-6.06	39.41	0.1072	-0.1888	-0.0005
344	SLD 11	-6.45	3.69	67.88	-0.349	-0.2704	-0.0003
344	SLD 12	-6.45	3.69	67.88	-0.349	-0.2704	-0.0003
344	SLD 13	-12.61	-3.16	51.2	-0.0782	-0.5384	-0.001
344	SLD 14	-12.61	-3.16	51.2	-0.0782	-0.5384	-0.001
344	SLD 15	-13.16	-0.24	59.74	-0.215	-0.5629	-0.0009
344	SLD 16	-13.16	-0.24	59.74	-0.215	-0.5629	-0.0009
344	SLV 1	22.41	-2.69	37.09	0.1346	0.987	0.0017
344	SLV 2	22.41	-2.69	37.09	0.1346	0.987	0.0017
344	SLV 3	21.12	4.14	56.83	-0.1852	0.9303	0.0018
344	SLV 4	21.12	4.14	56.83	-0.1852	0.9303	0.0018
344	SLV 5	7.04	-11.83	18.19	0.4484	0.3177	0.0002
344	SLV 6	7.04	-11.83	18.19	0.4484	0.3177	0.0002
344	SLV 7	2.72	10.91	83.99	-0.6174	0.1286	0.0006
344	SLV 8	2.72	10.91	83.99	-0.6174	0.1286	0.0006
344	SLV 9	-7.44	-12.84	21.72	0.3977	-0.3127	-0.0009
344	SLV 10	-7.44	-12.84	21.72	0.3977	-0.3127	-0.0009
344	SLV 11	-11.75	9.9	87.53	-0.6682	-0.5018	-0.0005
344	SLV 12	-11.75	9.9	87.53	-0.6682	-0.5018	-0.0005
344	SLV 13	-25.83	-6.06	48.88	-0.0346	-1.1144	-0.0021
344	SLV 14	-25.83	-6.06	48.88	-0.0346	-1.1144	-0.0021
344	SLV 15	-27.13	0.76	68.63	-0.3543	-1.1711	-0.002
344	SLV 16	-27.13	0.76	68.63	-0.3543	-1.1711	-0.002
345	SLU 1	-4.06	-0.14	37.23	-0.0259	-0.1678	0.0002
345	SLU 2	-4.06	-0.14	37.15	-0.0257	-0.1681	0.0002
345	SLU 3	-4.22	-0.15	38.39	-0.0277	-0.1753	0.0002
345	SLU 4	-4.23	-0.15	38.34	-0.0276	-0.1755	0.0002
345	SLU 5	-4.16	-0.14	37.86	-0.0271	-0.1728	0.0002
345	SLU 6	-4.32	-0.15	39.11	-0.0291	-0.18	0.0003
345	SLU 7	-4.33	-0.15	39.05	-0.029	-0.1802	0.0003
345	SLU 8	-4.26	-0.15	38.66	-0.0287	-0.1772	0.0003
345	SLU 9	-4.26	-0.15	38.61	-0.0286	-0.1774	0.0002
345	SLU 10	-4.93	-0.17	42.89	-0.0303	-0.2036	0.0003
345	SLU 11	-5.09	-0.17	44.13	-0.0322	-0.2108	0.0003
345	SLU 12	-5.1	-0.17	44.08	-0.0321	-0.211	0.0003
345	SLU 13	-5.03	-0.17	43.6	-0.0317	-0.2083	0.0003
345	SLU 14	-5.19	-0.18	44.85	-0.0336	-0.2155	0.0003
345	SLU 15	-5.2	-0.18	44.79	-0.0335	-0.2157	0.0003
345	SLU 16	-5.13	-0.17	44.4	-0.0332	-0.2128	0.0003
345	SLU 17	-5.13	-0.17	44.35	-0.0331	-0.2129	0.0003
345	SLU 18	-5.3	-0.18	45.43	-0.0323	-0.2185	0.0003
345	SLU 19	-5.3	-0.18	45.38	-0.0323	-0.2187	0.0003
345	SLU 20	-5.4	-0.18	46.15	-0.0337	-0.2233	0.0003
345	SLU 21	-5.4	-0.18	46.09	-0.0337	-0.2234	0.0003
345	SLU 22	-4.84	-0.17	42.56	-0.0307	-0.2002	0.0003
345	SLU 23	-4.85	-0.17	42.47	-0.0306	-0.2005	0.0003
345	SLU 24	-5.01	-0.17	43.72	-0.0325	-0.2077	0.0003
345	SLU 25	-5.01	-0.17	43.67	-0.0324	-0.2079	0.0003
345	SLU 26	-4.95	-0.17	43.19	-0.032	-0.2052	0.0003
345	SLU 27	-5.11	-0.17	44.43	-0.0339	-0.2124	0.0003
345	SLU 28	-5.11	-0.17	44.38	-0.0338	-0.2126	0.0003
345	SLU 29	-5.04	-0.17	43.98	-0.0335	-0.2097	0.0003
345	SLU 30	-5.05	-0.17	43.93	-0.0334	-0.2098	0.0003
345	SLU 31	-5.72	-0.19	48.22	-0.0351	-0.236	0.0003
345	SLU 32	-5.88	-0.2	49.46	-0.037	-0.2432	0.0003
345	SLU 33	-5.88	-0.2	49.41	-0.037	-0.2434	0.0003
345	SLU 34	-5.82	-0.2	48.93	-0.0365	-0.2408	0.0003
345	SLU 35	-5.98	-0.2	50.17	-0.0384	-0.2479	0.0003
345	SLU 36	-5.98	-0.2	50.12	-0.0383	-0.2481	0.0003
345	SLU 37	-5.91	-0.2	49.73	-0.038	-0.2452	0.0003
345	SLU 38	-5.92	-0.2	49.67	-0.0379	-0.2454	0.0003
345	SLU 39	-6.08	-0.2	50.76	-0.0372	-0.251	0.0003
345	SLU 40	-6.09	-0.2	50.71	-0.0371	-0.2511	0.0003
345	SLU 41	-6.19	-0.21	51.47	-0.0386	-0.2557	0.0004
345	SLU 42	-6.19	-0.21	51.42	-0.0385	-0.2559	0.0004
345	SLU 43	-5	-0.17	46.58	-0.032	-0.2071	0.0003
345	SLU 44	-5.01	-0.17	46.49	-0.0318	-0.2073	0.0003
345	SLU 45	-5.17	-0.18	47.74	-0.0338	-0.2145	0.0003
345	SLU 46	-5.17	-0.18	47.68	-0.0337	-0.2147	0.0003
345	SLU 47	-5.11	-0.18	47.2	-0.0332	-0.2121	0.0003
345	SLU 48	-5.27	-0.18	48.45	-0.0352	-0.2192	0.0003
345	SLU 49	-5.27	-0.18	48.4	-0.0351	-0.2194	0.0003
345	SLU 50	-5.2	-0.18	48	-0.0348	-0.2165	0.0003
345	SLU 51	-5.21	-0.18	47.95	-0.0347	-0.2167	0.0003
345	SLU 52	-5.88	-0.2	52.23	-0.0364	-0.2429	0.0003
345	SLU 53	-6.04	-0.21	53.48	-0.0383	-0.25	0.0004
345	SLU 54	-6.04	-0.21	53.43	-0.0382	-0.2502	0.0004
345	SLU 55	-5.98	-0.2	52.94	-0.0378	-0.2476	0.0004
345	SLU 56	-6.14	-0.21	54.19	-0.0397	-0.2547	0.0004
345	SLU 57	-6.15	-0.21	54.14	-0.0396	-0.2549	0.0004
345	SLU 58	-6.07	-0.21	53.74	-0.0393	-0.252	0.0004
345	SLU 59	-6.08	-0.21	53.69	-0.0392	-0.2522	0.0004
345	SLU 60	-6.25	-0.21	54.78	-0.0385	-0.2578	0.0004
345	SLU 61	-6.25	-0.21	54.73	-0.0384	-0.258	0.0004
345	SLU 62	-6.35	-0.22	55.49	-0.0399	-0.2625	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
345	SLU 63	-6.35	-0.22	55.44	-0.0398	-0.2627	0.0004
345	SLU 64	-5.79	-0.2	51.9	-0.0368	-0.2395	0.0003
345	SLU 65	-5.8	-0.2	51.82	-0.0367	-0.2398	0.0003
345	SLU 66	-5.95	-0.2	53.06	-0.0386	-0.2469	0.0003
345	SLU 67	-5.96	-0.2	53.01	-0.0385	-0.2471	0.0003
345	SLU 68	-5.9	-0.2	52.53	-0.0381	-0.2445	0.0003
345	SLU 69	-6.06	-0.21	53.78	-0.04	-0.2516	0.0004
345	SLU 70	-6.06	-0.21	53.72	-0.0399	-0.2518	0.0004
345	SLU 71	-5.99	-0.21	53.33	-0.0396	-0.2489	0.0004
345	SLU 72	-5.99	-0.2	53.28	-0.0395	-0.2491	0.0003
345	SLU 73	-6.67	-0.23	57.56	-0.0412	-0.2753	0.0004
345	SLU 74	-6.83	-0.23	58.8	-0.0431	-0.2824	0.0004
345	SLU 75	-6.83	-0.23	58.75	-0.0431	-0.2826	0.0004
345	SLU 76	-6.77	-0.23	58.27	-0.0426	-0.28	0.0004
345	SLU 77	-6.93	-0.23	59.52	-0.0445	-0.2872	0.0004
345	SLU 78	-6.93	-0.23	59.47	-0.0445	-0.2873	0.0004
345	SLU 79	-6.86	-0.23	59.07	-0.0441	-0.2844	0.0004
345	SLU 80	-6.86	-0.23	59.02	-0.0441	-0.2846	0.0004
345	SLU 81	-7.03	-0.24	60.1	-0.0433	-0.2902	0.0004
345	SLU 82	-7.04	-0.24	60.05	-0.0432	-0.2904	0.0004
345	SLU 83	-7.13	-0.24	60.82	-0.0447	-0.2949	0.0004
345	SLU 84	-7.14	-0.24	60.77	-0.0446	-0.2951	0.0004
345	SLE RA 1	-4.28	-0.15	38.75	-0.0273	-0.1771	0.0003
345	SLE RA 2	-4.28	-0.15	38.7	-0.0272	-0.1773	0.0003
345	SLE RA 3	-4.39	-0.15	39.53	-0.0285	-0.1821	0.0003
345	SLE RA 4	-4.39	-0.15	39.49	-0.0284	-0.1822	0.0003
345	SLE RA 5	-4.35	-0.15	39.17	-0.0281	-0.1804	0.0003
345	SLE RA 6	-4.46	-0.15	40	-0.0294	-0.1852	0.0003
345	SLE RA 7	-4.46	-0.15	39.97	-0.0293	-0.1853	0.0003
345	SLE RA 8	-4.41	-0.15	39.7	-0.0291	-0.1834	0.0003
345	SLE RA 9	-4.42	-0.15	39.67	-0.0291	-0.1835	0.0003
345	SLE RA 10	-4.87	-0.17	42.52	-0.0302	-0.201	0.0003
345	SLE RA 11	-4.97	-0.17	43.36	-0.0315	-0.2057	0.0003
345	SLE RA 12	-4.97	-0.17	43.32	-0.0314	-0.2058	0.0003
345	SLE RA 13	-4.93	-0.17	43	-0.0311	-0.2041	0.0003
345	SLE RA 14	-5.04	-0.17	43.83	-0.0324	-0.2089	0.0003
345	SLE RA 15	-5.04	-0.17	43.8	-0.0324	-0.209	0.0003
345	SLE RA 16	-4.99	-0.17	43.53	-0.0321	-0.207	0.0003
345	SLE RA 17	-5	-0.17	43.5	-0.0321	-0.2072	0.0003
345	SLE RA 18	-5.11	-0.17	44.22	-0.0316	-0.2109	0.0003
345	SLE RA 19	-5.11	-0.17	44.19	-0.0315	-0.211	0.0003
345	SLE RA 20	-5.18	-0.18	44.7	-0.0325	-0.214	0.0003
345	SLE RA 21	-5.18	-0.18	44.66	-0.0324	-0.2142	0.0003
345	SLE FR 1	-4.28	-0.15	38.75	-0.0273	-0.1771	0.0003
345	SLE FR 2	-4.28	-0.15	38.74	-0.0272	-0.1771	0.0003
345	SLE FR 3	-4.31	-0.15	38.94	-0.0276	-0.1783	0.0003
345	SLE FR 4	-4.53	-0.16	40.38	-0.0285	-0.1873	0.0003
345	SLE FR 5	-4.56	-0.16	40.58	-0.0289	-0.1885	0.0003
345	SLE FR 6	-4.69	-0.16	41.49	-0.0294	-0.194	0.0003
345	SLE QP 1	-4.28	-0.15	38.75	-0.0273	-0.1771	0.0003
345	SLE QP 2	-4.53	-0.16	40.39	-0.0285	-0.1872	0.0003
345	SLD 1	6.76	-0.05	35.52	-0.0587	0.2879	0.0004
345	SLD 2	6.76	-0.05	35.52	-0.0587	0.2879	0.0004
345	SLD 3	5.8	-0.09	39.74	-0.0773	0.2548	0.0005
345	SLD 4	5.8	-0.09	39.74	-0.0773	0.2548	0.0005
345	SLD 5	0.32	-0.07	32.53	-0.0093	0.0055	0.0002
345	SLD 6	0.32	-0.07	32.53	-0.0093	0.0055	0.0002
345	SLD 7	-2.89	-0.19	46.6	-0.0714	-0.1048	0.0005
345	SLD 8	-2.89	-0.19	46.6	-0.0714	-0.1048	0.0005
345	SLD 9	-6.16	-0.12	34.19	0.0144	-0.2696	0
345	SLD 10	-6.16	-0.12	34.19	0.0144	-0.2696	0
345	SLD 11	-9.38	-0.25	48.26	-0.0478	-0.38	0.0004
345	SLD 12	-9.38	-0.25	48.26	-0.0478	-0.38	0.0004
345	SLD 13	-14.85	-0.23	41.05	0.0203	-0.6293	0
345	SLD 14	-14.85	-0.23	41.05	0.0203	-0.6293	0
345	SLD 15	-15.82	-0.26	45.27	0.0016	-0.6624	0.0001
345	SLD 16	-15.82	-0.26	45.27	0.0016	-0.6624	0.0001
345	SLV 1	21.34	0.12	29.28	-0.1068	0.9015	0.0007
345	SLV 2	21.34	0.12	29.28	-0.1068	0.9015	0.0007
345	SLV 3	19.1	0.03	38.97	-0.1511	0.8248	0.0009
345	SLV 4	19.1	0.03	38.97	-0.1511	0.8248	0.0009
345	SLV 5	6.63	0.06	22.35	0.0152	0.2557	0
345	SLV 6	6.63	0.06	22.35	0.0152	0.2557	0
345	SLV 7	-0.83	-0.24	54.67	-0.1325	0.0001	0.0008
345	SLV 8	-0.83	-0.24	54.67	-0.1325	0.0001	0.0008
345	SLV 9	-8.22	-0.07	26.11	0.0755	-0.3745	-0.0003
345	SLV 10	-8.22	-0.07	26.11	0.0755	-0.3745	-0.0003
345	SLV 11	-15.68	-0.37	58.44	-0.0723	-0.6302	0.0005
345	SLV 12	-15.68	-0.37	58.44	-0.0723	-0.6302	0.0005
345	SLV 13	-28.16	-0.34	41.82	0.094	-1.1993	-0.0004
345	SLV 14	-28.16	-0.34	41.82	0.094	-1.1993	-0.0004
345	SLV 15	-30.4	-0.43	51.51	0.0497	-1.276	-0.0001
345	SLV 16	-30.4	-0.43	51.51	0.0497	-1.276	-0.0001
346	SLU 1	-5.71	0.07	35.61	-0.1105	-0.2303	0.0003
346	SLU 2	-5.72	0.07	35.53	-0.11	-0.2306	0.0003
346	SLU 3	-5.93	0.08	36.76	-0.1163	-0.2391	0.0003
346	SLU 4	-5.94	0.08	36.7	-0.1161	-0.2392	0.0003
346	SLU 5	-5.84	0.08	36.24	-0.1143	-0.2354	0.0003
346	SLU 6	-6.05	0.08	37.47	-0.1206	-0.2439	0.0003



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
346	SLU 7	-6.06	0.08	37.42	-0.1203	-0.244	0.0003
346	SLU 8	-5.96	0.08	37.05	-0.119	-0.2399	0.0003
346	SLU 9	-5.96	0.08	37	-0.1187	-0.2401	0.0003
346	SLU 10	-6.91	0.09	40.86	-0.1304	-0.2787	0.0004
346	SLU 11	-7.13	0.09	42.09	-0.1367	-0.2872	0.0004
346	SLU 12	-7.13	0.09	42.04	-0.1364	-0.2874	0.0004
346	SLU 13	-7.04	0.09	41.58	-0.1346	-0.2835	0.0004
346	SLU 14	-7.25	0.1	42.81	-0.141	-0.292	0.0004
346	SLU 15	-7.25	0.1	42.76	-0.1407	-0.2922	0.0004
346	SLU 16	-7.15	0.09	42.38	-0.1393	-0.288	0.0004
346	SLU 17	-7.16	0.09	42.33	-0.1391	-0.2882	0.0004
346	SLU 18	-7.42	0.09	43.24	-0.1396	-0.2991	0.0004
346	SLU 19	-7.42	0.09	43.18	-0.1393	-0.2992	0.0004
346	SLU 20	-7.54	0.1	43.95	-0.1438	-0.3039	0.0004
346	SLU 21	-7.55	0.1	43.9	-0.1436	-0.304	0.0004
346	SLU 22	-6.79	0.09	40.61	-0.1305	-0.2738	0.0004
346	SLU 23	-6.8	0.09	40.53	-0.1301	-0.2741	0.0004
346	SLU 24	-7.01	0.09	41.76	-0.1364	-0.2826	0.0004
346	SLU 25	-7.02	0.09	41.71	-0.1362	-0.2828	0.0004
346	SLU 26	-6.92	0.09	41.25	-0.1344	-0.2789	0.0004
346	SLU 27	-7.14	0.1	42.47	-0.1407	-0.2874	0.0004
346	SLU 28	-7.14	0.1	42.42	-0.1404	-0.2876	0.0004
346	SLU 29	-7.04	0.09	42.05	-0.139	-0.2834	0.0004
346	SLU 30	-7.04	0.09	42	-0.1388	-0.2836	0.0004
346	SLU 31	-7.99	0.1	45.86	-0.1505	-0.3222	0.0004
346	SLU 32	-8.21	0.11	47.09	-0.1568	-0.3308	0.0004
346	SLU 33	-8.21	0.11	47.04	-0.1565	-0.3309	0.0004
346	SLU 34	-8.12	0.1	46.58	-0.1547	-0.327	0.0004
346	SLU 35	-8.33	0.11	47.81	-0.161	-0.3355	0.0005
346	SLU 36	-8.34	0.11	47.76	-0.1608	-0.3357	0.0005
346	SLU 37	-8.23	0.11	47.39	-0.1594	-0.3316	0.0005
346	SLU 38	-8.24	0.11	47.33	-0.1591	-0.3317	0.0005
346	SLU 39	-8.5	0.11	48.24	-0.1596	-0.3426	0.0005
346	SLU 40	-8.5	0.11	48.19	-0.1594	-0.3427	0.0005
346	SLU 41	-8.62	0.11	48.95	-0.1639	-0.3474	0.0005
346	SLU 42	-8.63	0.11	48.9	-0.1636	-0.3475	0.0005
346	SLU 43	-7.05	0.09	44.58	-0.1367	-0.2845	0.0004
346	SLU 44	-7.06	0.09	44.5	-0.1363	-0.2847	0.0004
346	SLU 45	-7.27	0.1	45.72	-0.1426	-0.2933	0.0004
346	SLU 46	-7.28	0.1	45.67	-0.1423	-0.2934	0.0004
346	SLU 47	-7.18	0.1	45.21	-0.1405	-0.2895	0.0004
346	SLU 48	-7.4	0.1	46.44	-0.1468	-0.2981	0.0004
346	SLU 49	-7.4	0.1	46.39	-0.1466	-0.2982	0.0004
346	SLU 50	-7.3	0.1	46.02	-0.1452	-0.2941	0.0004
346	SLU 51	-7.3	0.1	45.97	-0.145	-0.2942	0.0004
346	SLU 52	-8.25	0.11	49.83	-0.1567	-0.3329	0.0004
346	SLU 53	-8.47	0.11	51.06	-0.163	-0.3414	0.0005
346	SLU 54	-8.47	0.11	51.01	-0.1627	-0.3416	0.0005
346	SLU 55	-8.38	0.11	50.55	-0.1609	-0.3377	0.0005
346	SLU 56	-8.59	0.11	51.78	-0.1672	-0.3462	0.0005
346	SLU 57	-8.6	0.11	51.73	-0.167	-0.3463	0.0005
346	SLU 58	-8.5	0.11	51.35	-0.1656	-0.3422	0.0005
346	SLU 59	-8.5	0.11	51.3	-0.1653	-0.3424	0.0005
346	SLU 60	-8.76	0.11	52.2	-0.1658	-0.3532	0.0005
346	SLU 61	-8.77	0.11	52.15	-0.1656	-0.3534	0.0005
346	SLU 62	-8.89	0.11	52.92	-0.1701	-0.358	0.0005
346	SLU 63	-8.89	0.11	52.87	-0.1698	-0.3582	0.0005
346	SLU 64	-8.14	0.11	49.58	-0.1568	-0.328	0.0004
346	SLU 65	-8.14	0.11	49.5	-0.1564	-0.3282	0.0004
346	SLU 66	-8.36	0.11	50.73	-0.1627	-0.3368	0.0005
346	SLU 67	-8.36	0.11	50.67	-0.1624	-0.3369	0.0005
346	SLU 68	-8.26	0.11	50.21	-0.1606	-0.333	0.0005
346	SLU 69	-8.48	0.11	51.44	-0.1669	-0.3416	0.0005
346	SLU 70	-8.48	0.11	51.39	-0.1667	-0.3417	0.0005
346	SLU 71	-8.38	0.11	51.02	-0.1653	-0.3376	0.0005
346	SLU 72	-8.38	0.11	50.97	-0.165	-0.3377	0.0005
346	SLU 73	-9.34	0.12	54.83	-0.1767	-0.3764	0.0005
346	SLU 74	-9.55	0.12	56.06	-0.183	-0.3849	0.0005
346	SLU 75	-9.56	0.12	56.01	-0.1828	-0.3851	0.0005
346	SLU 76	-9.46	0.12	55.55	-0.181	-0.3812	0.0005
346	SLU 77	-9.68	0.13	56.78	-0.1873	-0.3897	0.0005
346	SLU 78	-9.68	0.13	56.73	-0.187	-0.3899	0.0005
346	SLU 79	-9.58	0.13	56.35	-0.1857	-0.3857	0.0005
346	SLU 80	-9.58	0.13	56.3	-0.1854	-0.3859	0.0005
346	SLU 81	-9.84	0.13	57.21	-0.1859	-0.3968	0.0005
346	SLU 82	-9.85	0.13	57.15	-0.1856	-0.3969	0.0005
346	SLU 83	-9.97	0.13	57.92	-0.1902	-0.4016	0.0005
346	SLU 84	-9.97	0.13	57.87	-0.1899	-0.4017	0.0005
346	SLE RA 1	-6.02	0.08	37.04	-0.1162	-0.2427	0.0003
346	SLE RA 2	-6.02	0.08	36.98	-0.1159	-0.2429	0.0003
346	SLE RA 3	-6.17	0.08	37.8	-0.1201	-0.2486	0.0003
346	SLE RA 4	-6.17	0.08	37.77	-0.1199	-0.2487	0.0003
346	SLE RA 5	-6.11	0.08	37.46	-0.1187	-0.2461	0.0003
346	SLE RA 6	-6.25	0.08	38.28	-0.123	-0.2518	0.0004
346	SLE RA 7	-6.25	0.08	38.25	-0.1228	-0.2519	0.0004
346	SLE RA 8	-6.18	0.08	38	-0.1219	-0.2491	0.0003
346	SLE RA 9	-6.19	0.08	37.96	-0.1217	-0.2492	0.0003
346	SLE RA 10	-6.82	0.09	40.54	-0.1295	-0.275	0.0004
346	SLE RA 11	-6.96	0.09	41.36	-0.1337	-0.2807	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
346	SLE RA 12	-6.97	0.09	41.33	-0.1335	-0.2808	0.0004
346	SLE RA 13	-6.9	0.09	41.02	-0.1323	-0.2782	0.0004
346	SLE RA 14	-7.05	0.09	41.84	-0.1365	-0.2839	0.0004
346	SLE RA 15	-7.05	0.09	41.81	-0.1364	-0.284	0.0004
346	SLE RA 16	-6.98	0.09	41.56	-0.1354	-0.2812	0.0004
346	SLE RA 17	-6.98	0.09	41.52	-0.1353	-0.2813	0.0004
346	SLE RA 18	-7.16	0.09	42.12	-0.1356	-0.2886	0.0004
346	SLE RA 19	-7.16	0.09	42.09	-0.1354	-0.2887	0.0004
346	SLE RA 20	-7.24	0.09	42.6	-0.1384	-0.2918	0.0004
346	SLE RA 21	-7.24	0.09	42.57	-0.1383	-0.2919	0.0004
346	SLE FR 1	-6.02	0.08	37.04	-0.1162	-0.2427	0.0003
346	SLE FR 2	-6.02	0.08	37.03	-0.1162	-0.2428	0.0003
346	SLE FR 3	-6.05	0.08	37.23	-0.1173	-0.244	0.0003
346	SLE FR 4	-6.36	0.08	38.55	-0.122	-0.2565	0.0003
346	SLE FR 5	-6.39	0.08	38.76	-0.1232	-0.2578	0.0004
346	SLE FR 6	-6.59	0.08	39.58	-0.1259	-0.2657	0.0004
346	SLE QP 1	-6.02	0.08	37.04	-0.1162	-0.2427	0.0003
346	SLE QP 2	-6.36	0.08	38.57	-0.122	-0.2565	0.0003
346	SLD 1	5.36	0.19	33.42	-0.1726	0.2492	0.0004
346	SLD 2	5.36	0.19	33.42	-0.1726	0.2492	0.0004
346	SLD 3	4.51	0.21	36.36	-0.1946	0.2161	0.0005
346	SLD 4	4.51	0.21	36.36	-0.1946	0.2161	0.0005
346	SLD 5	-1.56	0.07	32.56	-0.1038	-0.0546	0.0002
346	SLD 6	-1.56	0.07	32.56	-0.1038	-0.0546	0.0002
346	SLD 7	-4.38	0.17	42.36	-0.1772	-0.1649	0.0006
346	SLD 8	-4.38	0.17	42.36	-0.1772	-0.1649	0.0006
346	SLD 9	-8.34	0	34.77	-0.0669	-0.3481	0.0001
346	SLD 10	-8.34	0	34.77	-0.0669	-0.3481	0.0001
346	SLD 11	-11.16	0.1	44.57	-0.1403	-0.4584	0.0005
346	SLD 12	-11.16	0.1	44.57	-0.1403	-0.4584	0.0005
346	SLD 13	-17.23	-0.05	40.77	-0.0495	-0.7291	0.0002
346	SLD 14	-17.23	-0.05	40.77	-0.0495	-0.7291	0.0002
346	SLD 15	-18.08	-0.02	43.71	-0.0715	-0.7622	0.0003
346	SLD 16	-18.08	-0.02	43.71	-0.0715	-0.7622	0.0003
346	SLV 1	20.48	0.35	26.8	-0.2516	0.9021	0.0004
346	SLV 2	20.48	0.35	26.8	-0.2516	0.9021	0.0004
346	SLV 3	18.52	0.42	33.52	-0.3045	0.8254	0.0007
346	SLV 4	18.52	0.42	33.52	-0.3045	0.8254	0.0007
346	SLV 5	4.67	0.06	24.85	-0.0807	0.2074	0
346	SLV 6	4.67	0.06	24.85	-0.0807	0.2074	0
346	SLV 7	-1.87	0.29	47.23	-0.2569	-0.0482	0.0008
346	SLV 8	-1.87	0.29	47.23	-0.2569	-0.0482	0.0008
346	SLV 9	-10.85	-0.12	29.9	0.0129	-0.4648	-0.0001
346	SLV 10	-10.85	-0.12	29.9	0.0129	-0.4648	-0.0001
346	SLV 11	-17.39	0.11	52.28	-0.1633	-0.7204	0.0007
346	SLV 12	-17.39	0.11	52.28	-0.1633	-0.7204	0.0007
346	SLV 13	-31.25	-0.25	43.61	0.0604	-1.3384	0
346	SLV 14	-31.25	-0.25	43.61	0.0604	-1.3384	0
346	SLV 15	-33.21	-0.18	50.33	0.0076	-1.4151	0.0003
346	SLV 16	-33.21	-0.18	50.33	0.0076	-1.4151	0.0003
347	SLU 1	-7.05	0.27	33.11	-0.2006	-0.2905	0.0004
347	SLU 2	-7.05	0.27	33.02	-0.1998	-0.2906	0.0004
347	SLU 3	-7.32	0.28	34.19	-0.2109	-0.3022	0.0004
347	SLU 4	-7.32	0.28	34.14	-0.2104	-0.3023	0.0004
347	SLU 5	-7.2	0.28	33.72	-0.2072	-0.2972	0.0004
347	SLU 6	-7.47	0.29	34.89	-0.2183	-0.3088	0.0004
347	SLU 7	-7.47	0.29	34.84	-0.2178	-0.3089	0.0004
347	SLU 8	-7.34	0.29	34.5	-0.2153	-0.3037	0.0004
347	SLU 9	-7.35	0.29	34.45	-0.2149	-0.3038	0.0004
347	SLU 10	-8.5	0.32	37.82	-0.2369	-0.3505	0.0005
347	SLU 11	-8.77	0.33	38.99	-0.248	-0.362	0.0005
347	SLU 12	-8.77	0.33	38.94	-0.2475	-0.3621	0.0005
347	SLU 13	-8.65	0.33	38.52	-0.2443	-0.3571	0.0005
347	SLU 14	-8.92	0.34	39.68	-0.2554	-0.3686	0.0005
347	SLU 15	-8.92	0.34	39.63	-0.2549	-0.3687	0.0005
347	SLU 16	-8.8	0.34	39.3	-0.2524	-0.3635	0.0005
347	SLU 17	-8.8	0.34	39.25	-0.252	-0.3636	0.0005
347	SLU 18	-9.12	0.34	39.96	-0.2536	-0.3759	0.0005
347	SLU 19	-9.12	0.34	39.91	-0.2531	-0.376	0.0005
347	SLU 20	-9.27	0.35	40.66	-0.2609	-0.3825	0.0005
347	SLU 21	-9.27	0.35	40.61	-0.2605	-0.3826	0.0005
347	SLU 22	-8.36	0.32	37.64	-0.2369	-0.3449	0.0005
347	SLU 23	-8.37	0.32	37.56	-0.2361	-0.3451	0.0005
347	SLU 24	-8.64	0.33	38.72	-0.2472	-0.3566	0.0005
347	SLU 25	-8.64	0.33	38.67	-0.2468	-0.3568	0.0005
347	SLU 26	-8.52	0.32	38.26	-0.2435	-0.3517	0.0005
347	SLU 27	-8.78	0.34	39.42	-0.2546	-0.3632	0.0005
347	SLU 28	-8.79	0.34	39.37	-0.2541	-0.3634	0.0005
347	SLU 29	-8.66	0.33	39.04	-0.2517	-0.3581	0.0005
347	SLU 30	-8.66	0.33	38.99	-0.2512	-0.3583	0.0005
347	SLU 31	-9.82	0.37	42.35	-0.2732	-0.4049	0.0005
347	SLU 32	-10.09	0.38	43.52	-0.2843	-0.4165	0.0006
347	SLU 33	-10.09	0.38	43.47	-0.2838	-0.4166	0.0006
347	SLU 34	-9.97	0.37	43.05	-0.2806	-0.4115	0.0005
347	SLU 35	-10.24	0.39	44.22	-0.2917	-0.4231	0.0006
347	SLU 36	-10.24	0.39	44.17	-0.2912	-0.4232	0.0006
347	SLU 37	-10.11	0.38	43.83	-0.2887	-0.418	0.0006
347	SLU 38	-10.12	0.38	43.78	-0.2883	-0.4181	0.0006
347	SLU 39	-10.44	0.39	44.49	-0.2899	-0.4304	0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
347	SLU 40	-10.44	0.39	44.44	-0.2894	-0.4305	0.0006
347	SLU 41	-10.59	0.4	45.19	-0.2973	-0.437	0.0006
347	SLU 42	-10.59	0.4	45.14	-0.2968	-0.4371	0.0006
347	SLU 43	-8.71	0.33	41.48	-0.2483	-0.3589	0.0005
347	SLU 44	-8.71	0.33	41.4	-0.2475	-0.3591	0.0005
347	SLU 45	-8.98	0.35	42.57	-0.2586	-0.3706	0.0005
347	SLU 46	-8.98	0.34	42.52	-0.2581	-0.3707	0.0005
347	SLU 47	-8.86	0.34	42.1	-0.2549	-0.3657	0.0005
347	SLU 48	-9.13	0.35	43.27	-0.266	-0.3772	0.0005
347	SLU 49	-9.13	0.35	43.22	-0.2655	-0.3773	0.0005
347	SLU 50	-9.01	0.35	42.88	-0.263	-0.3721	0.0005
347	SLU 51	-9.01	0.35	42.83	-0.2626	-0.3722	0.0005
347	SLU 52	-10.16	0.38	46.2	-0.2846	-0.4189	0.0006
347	SLU 53	-10.43	0.4	47.36	-0.2957	-0.4304	0.0006
347	SLU 54	-10.44	0.39	47.31	-0.2952	-0.4305	0.0006
347	SLU 55	-10.31	0.39	46.9	-0.292	-0.4255	0.0006
347	SLU 56	-10.58	0.4	48.06	-0.3031	-0.437	0.0006
347	SLU 57	-10.58	0.4	48.01	-0.3026	-0.4371	0.0006
347	SLU 58	-10.46	0.4	47.68	-0.3001	-0.4319	0.0006
347	SLU 59	-10.46	0.4	47.63	-0.2997	-0.432	0.0006
347	SLU 60	-10.78	0.4	48.34	-0.3013	-0.4444	0.0006
347	SLU 61	-10.79	0.4	48.29	-0.3008	-0.4445	0.0006
347	SLU 62	-10.93	0.41	49.03	-0.3087	-0.451	0.0006
347	SLU 63	-10.93	0.41	48.98	-0.3082	-0.4511	0.0006
347	SLU 64	-10.03	0.38	46.02	-0.2846	-0.4134	0.0006
347	SLU 65	-10.03	0.38	45.93	-0.2839	-0.4136	0.0006
347	SLU 66	-10.3	0.39	47.1	-0.2949	-0.4251	0.0006
347	SLU 67	-10.3	0.39	47.05	-0.2945	-0.4252	0.0006
347	SLU 68	-10.18	0.39	46.63	-0.2912	-0.4202	0.0006
347	SLU 69	-10.45	0.4	47.8	-0.3023	-0.4317	0.0006
347	SLU 70	-10.45	0.4	47.75	-0.3018	-0.4318	0.0006
347	SLU 71	-10.32	0.4	47.41	-0.2994	-0.4266	0.0006
347	SLU 72	-10.33	0.4	47.36	-0.2989	-0.4267	0.0006
347	SLU 73	-11.48	0.43	50.73	-0.3209	-0.4734	0.0006
347	SLU 74	-11.75	0.44	51.9	-0.332	-0.4849	0.0006
347	SLU 75	-11.75	0.44	51.85	-0.3316	-0.485	0.0006
347	SLU 76	-11.63	0.44	51.43	-0.3283	-0.48	0.0006
347	SLU 77	-11.9	0.45	52.59	-0.3394	-0.4915	0.0007
347	SLU 78	-11.9	0.45	52.55	-0.3389	-0.4916	0.0007
347	SLU 79	-11.78	0.45	52.21	-0.3365	-0.4864	0.0007
347	SLU 80	-11.78	0.45	52.16	-0.336	-0.4865	0.0007
347	SLU 81	-12.1	0.45	52.87	-0.3376	-0.4989	0.0007
347	SLU 82	-12.1	0.45	52.82	-0.3371	-0.499	0.0007
347	SLU 83	-12.25	0.46	53.57	-0.345	-0.5055	0.0007
347	SLU 84	-12.25	0.46	53.52	-0.3445	-0.5056	0.0007
347	SLE RA 1	-7.42	0.28	34.4	-0.211	-0.306	0.0004
347	SLE RA 2	-7.43	0.28	34.35	-0.2104	-0.3062	0.0004
347	SLE RA 3	-7.6	0.29	35.12	-0.2178	-0.3138	0.0004
347	SLE RA 4	-7.61	0.29	35.09	-0.2175	-0.3139	0.0004
347	SLE RA 5	-7.52	0.29	34.81	-0.2154	-0.3106	0.0004
347	SLE RA 6	-7.7	0.3	35.59	-0.2228	-0.3182	0.0004
347	SLE RA 7	-7.7	0.3	35.56	-0.2224	-0.3183	0.0004
347	SLE RA 8	-7.62	0.29	35.33	-0.2208	-0.3148	0.0004
347	SLE RA 9	-7.62	0.29	35.3	-0.2205	-0.3149	0.0004
347	SLE RA 10	-8.39	0.31	37.54	-0.2352	-0.346	0.0005
347	SLE RA 11	-8.57	0.32	38.32	-0.2426	-0.3537	0.0005
347	SLE RA 12	-8.57	0.32	38.29	-0.2423	-0.3538	0.0005
347	SLE RA 13	-8.49	0.32	38.01	-0.2401	-0.3504	0.0005
347	SLE RA 14	-8.67	0.33	38.79	-0.2475	-0.3581	0.0005
347	SLE RA 15	-8.67	0.33	38.75	-0.2472	-0.3582	0.0005
347	SLE RA 16	-8.59	0.33	38.53	-0.2455	-0.3547	0.0005
347	SLE RA 17	-8.59	0.33	38.5	-0.2452	-0.3548	0.0005
347	SLE RA 18	-8.81	0.33	38.97	-0.2463	-0.363	0.0005
347	SLE RA 19	-8.81	0.33	38.94	-0.246	-0.3631	0.0005
347	SLE RA 20	-8.9	0.34	39.43	-0.2512	-0.3674	0.0005
347	SLE RA 21	-8.91	0.34	39.4	-0.2509	-0.3675	0.0005
347	SLE FR 1	-7.42	0.28	34.4	-0.211	-0.306	0.0004
347	SLE FR 2	-7.42	0.28	34.39	-0.2109	-0.3061	0.0004
347	SLE FR 3	-7.46	0.28	34.59	-0.2129	-0.3078	0.0004
347	SLE FR 4	-7.84	0.3	35.76	-0.2215	-0.3231	0.0004
347	SLE FR 5	-7.88	0.3	35.96	-0.2235	-0.3249	0.0004
347	SLE FR 6	-8.11	0.31	36.68	-0.2286	-0.3345	0.0004
347	SLE QP 1	-7.42	0.28	34.4	-0.211	-0.306	0.0004
347	SLE QP 2	-7.84	0.3	35.77	-0.2216	-0.3231	0.0004
347	SLD 1	4.3	0.38	30.39	-0.2713	0.1945	0.0005
347	SLD 2	4.3	0.38	30.39	-0.2713	0.1945	0.0005
347	SLD 3	3.53	0.41	32.85	-0.3046	0.1637	0.0006
347	SLD 4	3.53	0.41	32.85	-0.3046	0.1637	0.0006
347	SLD 5	-3.03	0.27	30.42	-0.1859	-0.1211	0.0003
347	SLD 6	-3.03	0.27	30.42	-0.1859	-0.1211	0.0003
347	SLD 7	-5.59	0.38	38.63	-0.297	-0.2238	0.0006
347	SLD 8	-5.59	0.38	38.63	-0.297	-0.2238	0.0006
347	SLD 9	-10.09	0.21	32.91	-0.1461	-0.4224	0.0003
347	SLD 10	-10.09	0.21	32.91	-0.1461	-0.4224	0.0003
347	SLD 11	-12.64	0.32	41.13	-0.2572	-0.5251	0.0006
347	SLD 12	-12.64	0.32	41.13	-0.2572	-0.5251	0.0006
347	SLD 13	-19.21	0.18	38.69	-0.1385	-0.8099	0.0003
347	SLD 14	-19.21	0.18	38.69	-0.1385	-0.8099	0.0003
347	SLD 15	-19.97	0.21	41.16	-0.1718	-0.8407	0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
347	SLD 16	-19.97	0.21	41.16	-0.1718	-0.8407	0.0004
347	SLV 1	19.96	0.51	23.44	-0.349	0.8625	0.0005
347	SLV 2	19.96	0.51	23.44	-0.349	0.8625	0.0005
347	SLV 3	18.19	0.59	29.07	-0.4281	0.7912	0.0007
347	SLV 4	18.19	0.59	29.07	-0.4281	0.7912	0.0007
347	SLV 5	3.19	0.23	23.55	-0.1399	0.1407	0.0001
347	SLV 6	3.19	0.23	23.55	-0.1399	0.1407	0.0001
347	SLV 7	-2.72	0.51	42.29	-0.4034	-0.0969	0.0009
347	SLV 8	-2.72	0.51	42.29	-0.4034	-0.0969	0.0009
347	SLV 9	-12.95	0.08	29.26	-0.0397	-0.5493	0
347	SLV 10	-12.95	0.08	29.26	-0.0397	-0.5493	0
347	SLV 11	-18.87	0.36	48	-0.3032	-0.7869	0.0007
347	SLV 12	-18.87	0.36	48	-0.3032	-0.7869	0.0007
347	SLV 13	-33.86	0	42.48	-0.015	-1.4374	0.0001
347	SLV 14	-33.86	0	42.48	-0.015	-1.4374	0.0001
347	SLV 15	-35.64	0.08	48.1	-0.0941	-1.5087	0.0003
347	SLV 16	-35.64	0.08	48.1	-0.0941	-1.5087	0.0003
348	SLU 1	-7.57	0.35	30.16	-0.263	-0.3061	0.0003
348	SLU 2	-7.57	0.35	30.08	-0.262	-0.3063	0.0003
348	SLU 3	-7.84	0.37	31.17	-0.2767	-0.3171	0.0003
348	SLU 4	-7.85	0.37	31.12	-0.2761	-0.3173	0.0003
348	SLU 5	-7.71	0.37	30.76	-0.2719	-0.3118	0.0003
348	SLU 6	-7.99	0.38	31.84	-0.2866	-0.3226	0.0003
348	SLU 7	-7.99	0.38	31.79	-0.2859	-0.3228	0.0003
348	SLU 8	-7.85	0.38	31.51	-0.2828	-0.3171	0.0003
348	SLU 9	-7.85	0.38	31.46	-0.2821	-0.3172	0.0003
348	SLU 10	-9.12	0.42	34.27	-0.3105	-0.3689	0.0003
348	SLU 11	-9.39	0.44	35.35	-0.3253	-0.3797	0.0003
348	SLU 12	-9.4	0.44	35.31	-0.3246	-0.3799	0.0003
348	SLU 13	-9.26	0.43	34.94	-0.3204	-0.3744	0.0003
348	SLU 14	-9.53	0.45	36.03	-0.3351	-0.3853	0.0003
348	SLU 15	-9.54	0.45	35.98	-0.3345	-0.3854	0.0003
348	SLU 16	-9.4	0.44	35.7	-0.3313	-0.3797	0.0003
348	SLU 17	-9.4	0.44	35.65	-0.3307	-0.3799	0.0003
348	SLU 18	-9.78	0.45	36.14	-0.3324	-0.3955	0.0003
348	SLU 19	-9.78	0.45	36.09	-0.3318	-0.3957	0.0003
348	SLU 20	-9.92	0.46	36.82	-0.3423	-0.401	0.0004
348	SLU 21	-9.92	0.46	36.77	-0.3417	-0.4012	0.0004
348	SLU 22	-8.97	0.42	34.16	-0.3107	-0.3627	0.0003
348	SLU 23	-8.97	0.42	34.08	-0.3096	-0.3629	0.0003
348	SLU 24	-9.25	0.44	35.17	-0.3243	-0.3737	0.0003
348	SLU 25	-9.25	0.44	35.12	-0.3237	-0.3739	0.0003
348	SLU 26	-9.11	0.43	34.75	-0.3195	-0.3684	0.0003
348	SLU 27	-9.39	0.45	35.84	-0.3342	-0.3792	0.0003
348	SLU 28	-9.39	0.45	35.79	-0.3336	-0.3794	0.0003
348	SLU 29	-9.25	0.44	35.51	-0.3304	-0.3737	0.0003
348	SLU 30	-9.25	0.44	35.46	-0.3298	-0.3738	0.0003
348	SLU 31	-10.52	0.48	38.27	-0.3582	-0.4255	0.0004
348	SLU 32	-10.8	0.5	39.35	-0.3729	-0.4363	0.0004
348	SLU 33	-10.8	0.5	39.3	-0.3723	-0.4365	0.0004
348	SLU 34	-10.66	0.5	38.94	-0.3681	-0.431	0.0004
348	SLU 35	-10.94	0.51	40.02	-0.3828	-0.4419	0.0004
348	SLU 36	-10.94	0.51	39.98	-0.3821	-0.442	0.0004
348	SLU 37	-10.8	0.51	39.69	-0.379	-0.4363	0.0004
348	SLU 38	-10.8	0.51	39.64	-0.3784	-0.4365	0.0004
348	SLU 39	-11.18	0.51	40.14	-0.3801	-0.4521	0.0004
348	SLU 40	-11.18	0.51	40.09	-0.3794	-0.4523	0.0004
348	SLU 41	-11.32	0.52	40.81	-0.3899	-0.4576	0.0004
348	SLU 42	-11.33	0.52	40.76	-0.3893	-0.4578	0.0004
348	SLU 43	-9.36	0.44	37.84	-0.3256	-0.3785	0.0003
348	SLU 44	-9.36	0.44	37.76	-0.3246	-0.3787	0.0003
348	SLU 45	-9.63	0.46	38.85	-0.3393	-0.3895	0.0004
348	SLU 46	-9.64	0.46	38.8	-0.3386	-0.3897	0.0003
348	SLU 47	-9.5	0.45	38.44	-0.3344	-0.3842	0.0003
348	SLU 48	-9.78	0.47	39.52	-0.3491	-0.3951	0.0004
348	SLU 49	-9.78	0.47	39.47	-0.3485	-0.3952	0.0004
348	SLU 50	-9.64	0.46	39.19	-0.3453	-0.3895	0.0004
348	SLU 51	-9.64	0.46	39.14	-0.3447	-0.3897	0.0004
348	SLU 52	-10.91	0.5	41.95	-0.3731	-0.4413	0.0004
348	SLU 53	-11.18	0.52	43.03	-0.3878	-0.4522	0.0004
348	SLU 54	-11.19	0.52	42.99	-0.3872	-0.4523	0.0004
348	SLU 55	-11.05	0.52	42.62	-0.383	-0.4469	0.0004
348	SLU 56	-11.32	0.53	43.71	-0.3977	-0.4577	0.0004
348	SLU 57	-11.33	0.53	43.66	-0.3971	-0.4578	0.0004
348	SLU 58	-11.19	0.53	43.37	-0.3939	-0.4521	0.0004
348	SLU 59	-11.19	0.53	43.33	-0.3933	-0.4523	0.0004
348	SLU 60	-11.57	0.53	43.82	-0.395	-0.4679	0.0004
348	SLU 61	-11.57	0.53	43.77	-0.3944	-0.4681	0.0004
348	SLU 62	-11.71	0.55	44.49	-0.4049	-0.4734	0.0004
348	SLU 63	-11.71	0.54	44.45	-0.4042	-0.4736	0.0004
348	SLU 64	-10.76	0.5	41.84	-0.3733	-0.4351	0.0004
348	SLU 65	-10.76	0.5	41.76	-0.3722	-0.4353	0.0004
348	SLU 66	-11.04	0.52	42.84	-0.3869	-0.4461	0.0004
348	SLU 67	-11.04	0.52	42.8	-0.3863	-0.4463	0.0004
348	SLU 68	-10.9	0.51	42.43	-0.3821	-0.4408	0.0004
348	SLU 69	-11.18	0.53	43.52	-0.3968	-0.4517	0.0004
348	SLU 70	-11.18	0.53	43.47	-0.3962	-0.4518	0.0004
348	SLU 71	-11.04	0.53	43.19	-0.393	-0.4461	0.0004
348	SLU 72	-11.04	0.53	43.14	-0.3924	-0.4463	0.0004





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
348	SLU 73	-12.31	0.57	45.94	-0.4208	-0.4979	0.0004
348	SLU 74	-12.58	0.59	47.03	-0.4355	-0.5088	0.0004
348	SLU 75	-12.59	0.59	46.98	-0.4348	-0.5089	0.0004
348	SLU 76	-12.45	0.58	46.62	-0.4306	-0.5035	0.0004
348	SLU 77	-12.73	0.6	47.7	-0.4454	-0.5143	0.0005
348	SLU 78	-12.73	0.6	47.66	-0.4447	-0.5144	0.0005
348	SLU 79	-12.59	0.59	47.37	-0.4416	-0.5087	0.0005
348	SLU 80	-12.59	0.59	47.32	-0.4409	-0.5089	0.0005
348	SLU 81	-12.97	0.6	47.82	-0.4426	-0.5245	0.0005
348	SLU 82	-12.97	0.6	47.77	-0.442	-0.5247	0.0005
348	SLU 83	-13.11	0.61	48.49	-0.4525	-0.53	0.0005
348	SLU 84	-13.11	0.61	48.44	-0.4519	-0.5302	0.0005
348	SLE RA 1	-7.97	0.37	31.31	-0.2766	-0.3222	0.0003
348	SLE RA 2	-7.97	0.37	31.25	-0.2759	-0.3224	0.0003
348	SLE RA 3	-8.15	0.38	31.98	-0.2858	-0.3296	0.0003
348	SLE RA 4	-8.15	0.38	31.94	-0.2853	-0.3297	0.0003
348	SLE RA 5	-8.06	0.38	31.7	-0.2825	-0.3261	0.0003
348	SLE RA 6	-8.25	0.39	32.42	-0.2923	-0.3333	0.0003
348	SLE RA 7	-8.25	0.39	32.39	-0.2919	-0.3334	0.0003
348	SLE RA 8	-8.16	0.39	32.2	-0.2898	-0.3296	0.0003
348	SLE RA 9	-8.16	0.39	32.17	-0.2894	-0.3297	0.0003
348	SLE RA 10	-9	0.42	34.04	-0.3083	-0.3641	0.0003
348	SLE RA 11	-9.19	0.43	34.77	-0.3181	-0.3714	0.0003
348	SLE RA 12	-9.19	0.43	34.73	-0.3177	-0.3715	0.0003
348	SLE RA 13	-9.1	0.42	34.49	-0.3149	-0.3678	0.0003
348	SLE RA 14	-9.28	0.44	35.21	-0.3247	-0.375	0.0003
348	SLE RA 15	-9.28	0.44	35.18	-0.3243	-0.3751	0.0003
348	SLE RA 16	-9.19	0.43	34.99	-0.3222	-0.3713	0.0003
348	SLE RA 17	-9.19	0.43	34.96	-0.3218	-0.3714	0.0003
348	SLE RA 18	-9.44	0.44	35.29	-0.3229	-0.3819	0.0003
348	SLE RA 19	-9.44	0.43	35.26	-0.3225	-0.382	0.0003
348	SLE RA 20	-9.54	0.44	35.74	-0.3295	-0.3855	0.0003
348	SLE RA 21	-9.54	0.44	35.71	-0.3291	-0.3856	0.0003
348	SLE FR 1	-7.97	0.37	31.31	-0.2766	-0.3222	0.0003
348	SLE FR 2	-7.97	0.37	31.3	-0.2765	-0.3223	0.0003
348	SLE FR 3	-8	0.38	31.49	-0.2793	-0.3237	0.0003
348	SLE FR 4	-8.41	0.39	32.49	-0.2904	-0.3401	0.0003
348	SLE FR 5	-8.45	0.4	32.68	-0.2932	-0.3416	0.0003
348	SLE FR 6	-8.7	0.4	33.3	-0.2998	-0.352	0.0003
348	SLE QP 1	-7.97	0.37	31.31	-0.2766	-0.3222	0.0003
348	SLE QP 2	-8.41	0.39	32.5	-0.2905	-0.3401	0.0003
348	SLD 1	4.2	0.29	27.3	-0.3301	0.2052	0.0003
348	SLD 2	4.2	0.29	27.3	-0.3301	0.2052	0.0003
348	SLD 3	3.47	0.34	29.56	-0.3764	0.1739	0.0004
348	SLD 4	3.47	0.34	29.56	-0.3764	0.1739	0.0004
348	SLD 5	-3.52	0.29	27.51	-0.2322	-0.1289	0.0002
348	SLD 6	-3.52	0.29	27.51	-0.2322	-0.1289	0.0002
348	SLD 7	-5.95	0.45	35.05	-0.3865	-0.2335	0.0005
348	SLD 8	-5.95	0.45	35.05	-0.3865	-0.2335	0.0005
348	SLD 9	-10.87	0.33	29.96	-0.1945	-0.4467	0.0001
348	SLD 10	-10.87	0.33	29.96	-0.1945	-0.4467	0.0001
348	SLD 11	-13.3	0.49	37.49	-0.3489	-0.5513	0.0004
348	SLD 12	-13.3	0.49	37.49	-0.3489	-0.5513	0.0004
348	SLD 13	-20.29	0.44	35.45	-0.2046	-0.8541	0.0002
348	SLD 14	-20.29	0.44	35.45	-0.2046	-0.8541	0.0002
348	SLD 15	-21.02	0.49	37.71	-0.2509	-0.8855	0.0003
348	SLD 16	-21.02	0.49	37.71	-0.2509	-0.8855	0.0003
348	SLV 1	20.48	0.14	20.57	-0.392	0.9091	0.0004
348	SLV 2	20.48	0.14	20.57	-0.392	0.9091	0.0004
348	SLV 3	18.79	0.26	25.73	-0.501	0.8366	0.0006
348	SLV 4	18.79	0.26	25.73	-0.501	0.8366	0.0006
348	SLV 5	2.81	0.15	21.1	-0.1556	0.1447	0
348	SLV 6	2.81	0.15	21.1	-0.1556	0.1447	0
348	SLV 7	-2.81	0.52	38.29	-0.5191	-0.0971	0.0007
348	SLV 8	-2.81	0.52	38.29	-0.5191	-0.0971	0.0007
348	SLV 9	-14.01	0.26	26.71	-0.062	-0.5831	-0.0001
348	SLV 10	-14.01	0.26	26.71	-0.062	-0.5831	-0.0001
348	SLV 11	-19.63	0.64	43.9	-0.4255	-0.8249	0.0006
348	SLV 12	-19.63	0.64	43.9	-0.4255	-0.8249	0.0006
348	SLV 13	-35.61	0.53	39.27	-0.08	-1.5168	0
348	SLV 14	-35.61	0.53	39.27	-0.08	-1.5168	0
348	SLV 15	-37.3	0.64	44.43	-0.1891	-1.5894	0.0002
348	SLV 16	-37.3	0.64	44.43	-0.1891	-1.5894	0.0002
349	SLU 1	-7.47	0.37	27.47	-0.2996	-0.3177	0.0001
349	SLU 2	-7.47	0.37	27.39	-0.2984	-0.318	0.0001
349	SLU 3	-7.74	0.39	28.41	-0.3157	-0.3299	0.0002
349	SLU 4	-7.74	0.39	28.36	-0.3149	-0.33	0.0002
349	SLU 5	-7.61	0.38	28.05	-0.3102	-0.3242	0.0002
349	SLU 6	-7.87	0.4	29.07	-0.3275	-0.3361	0.0002
349	SLU 7	-7.88	0.4	29.02	-0.3267	-0.3362	0.0002
349	SLU 8	-7.73	0.4	28.79	-0.3233	-0.3301	0.0002
349	SLU 9	-7.74	0.4	28.74	-0.3226	-0.3303	0.0002
349	SLU 10	-9	0.44	31.01	-0.3535	-0.3829	0.0002
349	SLU 11	-9.26	0.46	32.04	-0.3708	-0.3947	0.0002
349	SLU 12	-9.27	0.46	31.99	-0.37	-0.3949	0.0002
349	SLU 13	-9.13	0.45	31.67	-0.3653	-0.3891	0.0002
349	SLU 14	-9.4	0.47	32.69	-0.3826	-0.4009	0.0002
349	SLU 15	-9.4	0.47	32.65	-0.3819	-0.4011	0.0002
349	SLU 16	-9.26	0.47	32.41	-0.3785	-0.395	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
349	SLU 17	-9.26	0.47	32.37	-0.3777	-0.3952	0.0002
349	SLU 18	-9.65	0.47	32.65	-0.3784	-0.4104	0.0002
349	SLU 19	-9.65	0.47	32.6	-0.3776	-0.4105	0.0002
349	SLU 20	-9.78	0.48	33.31	-0.3903	-0.4166	0.0002
349	SLU 21	-9.78	0.48	33.26	-0.3895	-0.4168	0.0002
349	SLU 22	-8.84	0.44	30.98	-0.354	-0.3766	0.0002
349	SLU 23	-8.85	0.44	30.9	-0.3528	-0.3768	0.0002
349	SLU 24	-9.12	0.46	31.92	-0.3701	-0.3887	0.0002
349	SLU 25	-9.12	0.46	31.87	-0.3693	-0.3889	0.0002
349	SLU 26	-8.99	0.45	31.56	-0.3646	-0.383	0.0002
349	SLU 27	-9.25	0.47	32.58	-0.3819	-0.3949	0.0002
349	SLU 28	-9.26	0.47	32.53	-0.3811	-0.3951	0.0002
349	SLU 29	-9.11	0.46	32.29	-0.3777	-0.389	0.0002
349	SLU 30	-9.12	0.46	32.25	-0.377	-0.3891	0.0002
349	SLU 31	-10.38	0.5	34.52	-0.4079	-0.4417	0.0002
349	SLU 32	-10.64	0.52	35.54	-0.4252	-0.4536	0.0002
349	SLU 33	-10.65	0.52	35.49	-0.4244	-0.4537	0.0002
349	SLU 34	-10.51	0.52	35.18	-0.4197	-0.4479	0.0002
349	SLU 35	-10.78	0.54	36.2	-0.437	-0.4598	0.0002
349	SLU 36	-10.78	0.54	36.15	-0.4363	-0.4599	0.0002
349	SLU 37	-10.64	0.53	35.92	-0.4329	-0.4538	0.0002
349	SLU 38	-10.64	0.53	35.87	-0.4321	-0.454	0.0002
349	SLU 39	-11.02	0.54	36.15	-0.4328	-0.4692	0.0002
349	SLU 40	-11.03	0.53	36.1	-0.432	-0.4694	0.0002
349	SLU 41	-11.16	0.55	36.81	-0.4447	-0.4754	0.0002
349	SLU 42	-11.16	0.55	36.76	-0.4439	-0.4756	0.0002
349	SLU 43	-9.23	0.46	34.51	-0.3709	-0.3929	0.0002
349	SLU 44	-9.24	0.46	34.43	-0.3696	-0.3932	0.0002
349	SLU 45	-9.51	0.48	35.45	-0.3869	-0.405	0.0002
349	SLU 46	-9.51	0.48	35.4	-0.3861	-0.4052	0.0002
349	SLU 47	-9.37	0.47	35.09	-0.3814	-0.3994	0.0002
349	SLU 48	-9.64	0.49	36.11	-0.3987	-0.4112	0.0002
349	SLU 49	-9.64	0.49	36.06	-0.398	-0.4114	0.0002
349	SLU 50	-9.5	0.49	35.83	-0.3946	-0.4053	0.0002
349	SLU 51	-9.51	0.49	35.78	-0.3938	-0.4055	0.0002
349	SLU 52	-10.77	0.53	38.05	-0.4247	-0.458	0.0002
349	SLU 53	-11.03	0.55	39.08	-0.442	-0.4699	0.0002
349	SLU 54	-11.04	0.55	39.03	-0.4413	-0.47	0.0002
349	SLU 55	-10.9	0.54	38.71	-0.4366	-0.4642	0.0002
349	SLU 56	-11.17	0.56	39.73	-0.4539	-0.4761	0.0002
349	SLU 57	-11.17	0.56	39.69	-0.4531	-0.4763	0.0002
349	SLU 58	-11.03	0.55	39.45	-0.4497	-0.4701	0.0002
349	SLU 59	-11.03	0.55	39.41	-0.4489	-0.4703	0.0002
349	SLU 60	-11.41	0.56	39.69	-0.4497	-0.4855	0.0002
349	SLU 61	-11.42	0.56	39.64	-0.4489	-0.4857	0.0002
349	SLU 62	-11.55	0.57	40.35	-0.4615	-0.4917	0.0002
349	SLU 63	-11.55	0.57	40.3	-0.4607	-0.4919	0.0002
349	SLU 64	-10.61	0.53	38.02	-0.4253	-0.4517	0.0002
349	SLU 65	-10.62	0.52	37.94	-0.424	-0.452	0.0002
349	SLU 66	-10.88	0.54	38.96	-0.4413	-0.4638	0.0002
349	SLU 67	-10.89	0.54	38.91	-0.4405	-0.464	0.0002
349	SLU 68	-10.75	0.54	38.6	-0.4358	-0.4582	0.0002
349	SLU 69	-11.02	0.56	39.62	-0.4531	-0.4701	0.0002
349	SLU 70	-11.02	0.56	39.57	-0.4524	-0.4702	0.0002
349	SLU 71	-10.88	0.55	39.33	-0.449	-0.4641	0.0002
349	SLU 72	-10.88	0.55	39.29	-0.4482	-0.4643	0.0002
349	SLU 73	-12.14	0.59	41.56	-0.4791	-0.5168	0.0002
349	SLU 74	-12.41	0.61	42.58	-0.4964	-0.5287	0.0002
349	SLU 75	-12.41	0.61	42.53	-0.4957	-0.5289	0.0002
349	SLU 76	-12.28	0.61	42.22	-0.491	-0.5231	0.0002
349	SLU 77	-12.54	0.63	43.24	-0.5083	-0.5349	0.0003
349	SLU 78	-12.55	0.63	43.19	-0.5075	-0.5351	0.0003
349	SLU 79	-12.4	0.62	42.96	-0.5041	-0.529	0.0003
349	SLU 80	-12.41	0.62	42.91	-0.5033	-0.5292	0.0003
349	SLU 81	-12.79	0.62	43.19	-0.5041	-0.5444	0.0003
349	SLU 82	-12.79	0.62	43.14	-0.5033	-0.5445	0.0003
349	SLU 83	-12.92	0.64	43.85	-0.5159	-0.5506	0.0003
349	SLU 84	-12.93	0.64	43.8	-0.5151	-0.5507	0.0003
349	SLE RA 1	-7.86	0.39	28.47	-0.3152	-0.3345	0.0002
349	SLE RA 2	-7.86	0.39	28.42	-0.3143	-0.3347	0.0002
349	SLE RA 3	-8.04	0.4	29.1	-0.3259	-0.3426	0.0002
349	SLE RA 4	-8.04	0.4	29.07	-0.3253	-0.3427	0.0002
349	SLE RA 5	-7.95	0.4	28.86	-0.3222	-0.3389	0.0002
349	SLE RA 6	-8.13	0.41	29.54	-0.3338	-0.3468	0.0002
349	SLE RA 7	-8.13	0.41	29.51	-0.3332	-0.3469	0.0002
349	SLE RA 8	-8.04	0.41	29.35	-0.331	-0.3428	0.0002
349	SLE RA 9	-8.04	0.41	29.32	-0.3305	-0.3429	0.0002
349	SLE RA 10	-8.88	0.43	30.84	-0.3511	-0.378	0.0002
349	SLE RA 11	-9.06	0.45	31.52	-0.3626	-0.3859	0.0002
349	SLE RA 12	-9.06	0.45	31.48	-0.3621	-0.386	0.0002
349	SLE RA 13	-8.97	0.44	31.27	-0.359	-0.3821	0.0002
349	SLE RA 14	-9.15	0.46	31.95	-0.3705	-0.39	0.0002
349	SLE RA 15	-9.15	0.46	31.92	-0.37	-0.3901	0.0002
349	SLE RA 16	-9.05	0.45	31.77	-0.3677	-0.3861	0.0002
349	SLE RA 17	-9.06	0.45	31.74	-0.3672	-0.3862	0.0002
349	SLE RA 18	-9.31	0.45	31.92	-0.3677	-0.3963	0.0002
349	SLE RA 19	-9.32	0.45	31.89	-0.3672	-0.3964	0.0002
349	SLE RA 20	-9.4	0.46	32.36	-0.3756	-0.4004	0.0002
349	SLE RA 21	-9.4	0.46	32.33	-0.3751	-0.4006	0.0002



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
349	SLE FR 1	-7.86	0.39	28.47	-0.3152	-0.3345	0.0002
349	SLE FR 2	-7.86	0.39	28.46	-0.315	-0.3346	0.0002
349	SLE FR 3	-7.9	0.39	28.65	-0.3183	-0.3362	0.0002
349	SLE FR 4	-8.3	0.41	29.5	-0.3308	-0.3531	0.0002
349	SLE FR 5	-8.33	0.41	29.68	-0.3341	-0.3547	0.0002
349	SLE FR 6	-8.59	0.42	30.2	-0.3414	-0.3654	0.0002
349	SLE QP 1	-7.86	0.39	28.47	-0.3152	-0.3345	0.0002
349	SLE QP 2	-8.3	0.41	29.51	-0.3309	-0.3531	0.0002
349	SLD 1	4.19	0.32	24.72	-0.2454	0.1795	0.0001
349	SLD 2	4.19	0.32	24.72	-0.2454	0.1795	0.0001
349	SLD 3	3.53	0.38	26.9	-0.3017	0.1521	0.0001
349	SLD 4	3.53	0.38	26.9	-0.3017	0.1521	0.0001
349	SLD 5	-3.55	0.29	24.76	-0.2199	-0.1516	0.0001
349	SLD 6	-3.55	0.29	24.76	-0.2199	-0.1516	0.0001
349	SLD 7	-5.74	0.49	32.03	-0.4076	-0.2432	0.0002
349	SLD 8	-5.74	0.49	32.03	-0.4076	-0.2432	0.0002
349	SLD 9	-10.85	0.33	26.98	-0.2543	-0.4629	0.0001
349	SLD 10	-10.85	0.33	26.98	-0.2543	-0.4629	0.0001
349	SLD 11	-13.04	0.53	34.25	-0.442	-0.5545	0.0003
349	SLD 12	-13.04	0.53	34.25	-0.442	-0.5545	0.0003
349	SLD 13	-20.12	0.44	32.12	-0.3602	-0.8582	0.0002
349	SLD 14	-20.12	0.44	32.12	-0.3602	-0.8582	0.0002
349	SLD 15	-20.78	0.5	34.3	-0.4165	-0.8857	0.0002
349	SLD 16	-20.78	0.5	34.3	-0.4165	-0.8857	0.0002
349	SLV 1	20.3	0.19	18.52	-0.1241	0.8669	0
349	SLV 2	20.3	0.19	18.52	-0.1241	0.8669	0
349	SLV 3	18.78	0.33	23.5	-0.2563	0.8033	0.0001
349	SLV 4	18.78	0.33	23.5	-0.2563	0.8033	0.0001
349	SLV 5	2.59	0.12	18.66	-0.0684	0.1093	-0.0001
349	SLV 6	2.59	0.12	18.66	-0.0684	0.1093	-0.0001
349	SLV 7	-2.48	0.6	35.26	-0.5091	-0.1025	0.0004
349	SLV 8	-2.48	0.6	35.26	-0.5091	-0.1025	0.0004
349	SLV 9	-14.12	0.22	23.76	-0.1528	-0.6036	0
349	SLV 10	-14.12	0.22	23.76	-0.1528	-0.6036	0
349	SLV 11	-19.18	0.69	40.36	-0.5935	-0.8154	0.0004
349	SLV 12	-19.18	0.69	40.36	-0.5935	-0.8154	0.0004
349	SLV 13	-35.37	0.49	35.52	-0.4056	-1.5095	0.0002
349	SLV 14	-35.37	0.49	35.52	-0.4056	-1.5095	0.0002
349	SLV 15	-36.89	0.63	40.5	-0.5378	-1.573	0.0004
349	SLV 16	-36.89	0.63	40.5	-0.5378	-1.573	0.0004
350	SLU 1	-6.53	0.37	25.9	-0.326	-0.2678	-0.0001
350	SLU 2	-6.54	0.37	25.82	-0.3245	-0.2682	-0.0001
350	SLU 3	-6.75	0.39	26.82	-0.3441	-0.2769	-0.0001
350	SLU 4	-6.76	0.39	26.78	-0.3432	-0.2771	-0.0001
350	SLU 5	-6.64	0.39	26.49	-0.3382	-0.2722	-0.0001
350	SLU 6	-6.85	0.41	27.5	-0.3579	-0.2809	-0.0001
350	SLU 7	-6.86	0.41	27.45	-0.357	-0.2811	-0.0001
350	SLU 8	-6.73	0.4	27.25	-0.3535	-0.2759	-0.0001
350	SLU 9	-6.74	0.4	27.2	-0.3526	-0.2761	-0.0001
350	SLU 10	-7.86	0.44	29.1	-0.3841	-0.3222	-0.0001
350	SLU 11	-8.08	0.46	30.1	-0.4038	-0.3309	-0.0001
350	SLU 12	-8.08	0.46	30.06	-0.4029	-0.3311	-0.0001
350	SLU 13	-7.96	0.45	29.77	-0.3979	-0.3262	-0.0001
350	SLU 14	-8.18	0.48	30.78	-0.4176	-0.3349	-0.0001
350	SLU 15	-8.18	0.47	30.73	-0.4166	-0.3351	-0.0001
350	SLU 16	-8.06	0.47	30.53	-0.4132	-0.3299	-0.0001
350	SLU 17	-8.06	0.47	30.48	-0.4123	-0.3301	-0.0001
350	SLU 18	-8.42	0.47	30.59	-0.4112	-0.345	-0.0001
350	SLU 19	-8.43	0.47	30.54	-0.4103	-0.3452	-0.0001
350	SLU 20	-8.52	0.48	31.26	-0.425	-0.349	-0.0001
350	SLU 21	-8.53	0.48	31.21	-0.4241	-0.3493	-0.0001
350	SLU 22	-7.72	0.44	29.12	-0.3853	-0.3164	-0.0001
350	SLU 23	-7.73	0.44	29.04	-0.3838	-0.3168	-0.0001
350	SLU 24	-7.95	0.46	30.04	-0.4035	-0.3254	-0.0001
350	SLU 25	-7.95	0.46	29.99	-0.4025	-0.3257	-0.0001
350	SLU 26	-7.83	0.45	29.71	-0.3976	-0.3208	-0.0001
350	SLU 27	-8.05	0.47	30.72	-0.4172	-0.3295	-0.0001
350	SLU 28	-8.05	0.47	30.67	-0.4163	-0.3297	-0.0001
350	SLU 29	-7.92	0.47	30.47	-0.4129	-0.3245	-0.0001
350	SLU 30	-7.93	0.47	30.42	-0.412	-0.3247	-0.0001
350	SLU 31	-9.05	0.51	32.32	-0.4435	-0.3708	-0.0001
350	SLU 32	-9.27	0.53	33.32	-0.4631	-0.3795	-0.0001
350	SLU 33	-9.27	0.53	33.27	-0.4622	-0.3797	-0.0001
350	SLU 34	-9.15	0.52	32.99	-0.4573	-0.3748	-0.0001
350	SLU 35	-9.37	0.54	34	-0.4769	-0.3835	-0.0001
350	SLU 36	-9.38	0.54	33.95	-0.476	-0.3837	-0.0001
350	SLU 37	-9.25	0.54	33.75	-0.4726	-0.3785	-0.0001
350	SLU 38	-9.25	0.54	33.7	-0.4716	-0.3787	-0.0001
350	SLU 39	-9.61	0.54	33.8	-0.4706	-0.3936	-0.0001
350	SLU 40	-9.62	0.54	33.76	-0.4697	-0.3938	-0.0001
350	SLU 41	-9.71	0.55	34.48	-0.4844	-0.3976	-0.0001
350	SLU 42	-9.72	0.55	34.43	-0.4834	-0.3979	-0.0001
350	SLU 43	-8.08	0.46	32.57	-0.4034	-0.3315	-0.0001
350	SLU 44	-8.09	0.46	32.49	-0.4019	-0.3318	-0.0001
350	SLU 45	-8.31	0.48	33.49	-0.4216	-0.3405	-0.0001
350	SLU 46	-8.31	0.48	33.44	-0.4206	-0.3408	-0.0001
350	SLU 47	-8.19	0.47	33.16	-0.4157	-0.3359	-0.0001
350	SLU 48	-8.41	0.5	34.17	-0.4353	-0.3446	-0.0001
350	SLU 49	-8.41	0.49	34.12	-0.4344	-0.3448	-0.0001



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
350	SLU 50	-8.28	0.49	33.92	-0.431	-0.3395	-0.0001
350	SLU 51	-8.29	0.49	33.87	-0.4301	-0.3398	-0.0001
350	SLU 52	-9.41	0.53	35.77	-0.4616	-0.3859	-0.0001
350	SLU 53	-9.63	0.55	36.77	-0.4812	-0.3946	-0.0001
350	SLU 54	-9.63	0.55	36.72	-0.4803	-0.3948	-0.0001
350	SLU 55	-9.51	0.54	36.44	-0.4754	-0.3899	-0.0001
350	SLU 56	-9.73	0.56	37.45	-0.495	-0.3986	-0.0001
350	SLU 57	-9.74	0.56	37.4	-0.4941	-0.3988	-0.0001
350	SLU 58	-9.61	0.56	37.2	-0.4907	-0.3936	-0.0001
350	SLU 59	-9.61	0.56	37.15	-0.4897	-0.3938	-0.0001
350	SLU 60	-9.97	0.56	37.26	-0.4887	-0.4087	-0.0001
350	SLU 61	-9.98	0.56	37.21	-0.4878	-0.4089	-0.0001
350	SLU 62	-10.07	0.57	37.93	-0.5025	-0.4127	-0.0001
350	SLU 63	-10.08	0.57	37.88	-0.5016	-0.4129	-0.0001
350	SLU 64	-9.27	0.53	35.79	-0.4628	-0.3801	-0.0001
350	SLU 65	-9.28	0.53	35.7	-0.4612	-0.3804	-0.0001
350	SLU 66	-9.5	0.55	36.71	-0.4809	-0.3891	-0.0001
350	SLU 67	-9.5	0.55	36.66	-0.48	-0.3894	-0.0001
350	SLU 68	-9.38	0.54	36.38	-0.475	-0.3845	-0.0001
350	SLU 69	-9.6	0.56	37.38	-0.4947	-0.3932	-0.0001
350	SLU 70	-9.6	0.56	37.33	-0.4938	-0.3934	-0.0001
350	SLU 71	-9.47	0.56	37.13	-0.4903	-0.3881	-0.0001
350	SLU 72	-9.48	0.56	37.09	-0.4894	-0.3884	-0.0001
350	SLU 73	-10.6	0.59	38.98	-0.5209	-0.4345	-0.0001
350	SLU 74	-10.82	0.62	39.99	-0.5406	-0.4432	-0.0001
350	SLU 75	-10.83	0.61	39.94	-0.5397	-0.4434	-0.0001
350	SLU 76	-10.7	0.61	39.66	-0.5347	-0.4385	-0.0001
350	SLU 77	-10.92	0.63	40.66	-0.5544	-0.4472	-0.0001
350	SLU 78	-10.93	0.63	40.61	-0.5534	-0.4474	-0.0001
350	SLU 79	-10.8	0.63	40.42	-0.55	-0.4422	-0.0001
350	SLU 80	-10.8	0.62	40.37	-0.5491	-0.4424	-0.0001
350	SLU 81	-11.16	0.62	40.47	-0.548	-0.4573	-0.0001
350	SLU 82	-11.17	0.62	40.42	-0.5471	-0.4575	-0.0001
350	SLU 83	-11.26	0.64	41.15	-0.5618	-0.4613	-0.0001
350	SLU 84	-11.27	0.64	41.1	-0.5609	-0.4615	-0.0001
350	SLE RA 1	-6.87	0.39	26.82	-0.3429	-0.2817	-0.0001
350	SLE RA 2	-6.88	0.39	26.77	-0.3419	-0.2819	-0.0001
350	SLE RA 3	-7.02	0.4	27.44	-0.355	-0.2877	-0.0001
350	SLE RA 4	-7.02	0.4	27.4	-0.3544	-0.2879	-0.0001
350	SLE RA 5	-6.94	0.4	27.22	-0.3511	-0.2846	-0.0001
350	SLE RA 6	-7.09	0.41	27.89	-0.3642	-0.2904	-0.0001
350	SLE RA 7	-7.09	0.41	27.85	-0.3636	-0.2906	-0.0001
350	SLE RA 8	-7	0.41	27.72	-0.3613	-0.2871	-0.0001
350	SLE RA 9	-7.01	0.41	27.69	-0.3607	-0.2872	-0.0001
350	SLE RA 10	-7.76	0.44	28.95	-0.3817	-0.318	-0.0001
350	SLE RA 11	-7.9	0.45	29.62	-0.3948	-0.3237	-0.0001
350	SLE RA 12	-7.91	0.45	29.59	-0.3942	-0.3239	-0.0001
350	SLE RA 13	-7.83	0.45	29.4	-0.3909	-0.3206	-0.0001
350	SLE RA 14	-7.97	0.46	30.07	-0.404	-0.3264	-0.0001
350	SLE RA 15	-7.97	0.46	30.04	-0.4034	-0.3266	-0.0001
350	SLE RA 16	-7.89	0.46	29.91	-0.4011	-0.3231	-0.0001
350	SLE RA 17	-7.89	0.46	29.87	-0.4005	-0.3232	-0.0001
350	SLE RA 18	-8.13	0.46	29.94	-0.3998	-0.3332	-0.0001
350	SLE RA 19	-8.13	0.46	29.91	-0.3992	-0.3333	-0.0001
350	SLE RA 20	-8.2	0.47	30.39	-0.409	-0.3358	-0.0001
350	SLE RA 21	-8.2	0.47	30.36	-0.4084	-0.336	-0.0001
350	SLE FR 1	-6.87	0.39	26.82	-0.3429	-0.2817	-0.0001
350	SLE FR 2	-6.87	0.39	26.81	-0.3427	-0.2817	-0.0001
350	SLE FR 3	-6.9	0.39	27	-0.3466	-0.2828	-0.0001
350	SLE FR 4	-7.25	0.41	27.75	-0.3598	-0.2972	-0.0001
350	SLE FR 5	-7.28	0.41	27.94	-0.3637	-0.2982	-0.0001
350	SLE FR 6	-7.5	0.42	28.38	-0.3714	-0.3074	-0.0001
350	SLE QP 1	-6.87	0.39	26.82	-0.3429	-0.2817	-0.0001
350	SLE QP 2	-7.25	0.41	27.76	-0.36	-0.2971	-0.0001
350	SLD 1	3.99	0.32	23	-0.2773	0.223	0
350	SLD 2	3.99	0.32	23	-0.2773	0.223	0
350	SLD 3	4.6	0.39	25.13	-0.3373	0.1959	-0.0001
350	SLD 4	4.6	0.39	25.13	-0.3373	0.1959	-0.0001
350	SLD 5	-4.79	0.28	23.1	-0.2442	-0.1	0
350	SLD 6	-4.79	0.28	23.1	-0.2442	-0.1	0
350	SLD 7	-2.78	0.51	30.2	-0.4441	-0.1903	-0.0001
350	SLD 8	-2.78	0.51	30.2	-0.4441	-0.1903	-0.0001
350	SLD 9	-11.72	0.32	25.32	-0.2759	-0.4039	0
350	SLD 10	-11.72	0.32	25.32	-0.2759	-0.4039	0
350	SLD 11	-9.7	0.54	32.41	-0.4757	-0.4943	-0.0001
350	SLD 12	-9.7	0.54	32.41	-0.4757	-0.4943	-0.0001
350	SLD 13	-19.1	0.43	30.39	-0.3827	-0.7902	-0.0001
350	SLD 14	-19.1	0.43	30.39	-0.3827	-0.7902	-0.0001
350	SLD 15	-18.49	0.5	32.52	-0.4427	-0.8173	-0.0001
350	SLD 16	-18.49	0.5	32.52	-0.4427	-0.8173	-0.0001
350	SLV 1	18.49	0.2	16.86	-0.1619	0.8947	0
350	SLV 2	18.49	0.2	16.86	-0.1619	0.8947	0
350	SLV 3	19.89	0.35	21.71	-0.3026	0.8319	-0.0001
350	SLV 4	19.89	0.35	21.71	-0.3026	0.8319	-0.0001
350	SLV 5	-1.65	0.11	17.13	-0.0872	0.1556	0
350	SLV 6	-1.65	0.11	17.13	-0.0872	0.1556	0
350	SLV 7	3.02	0.63	33.3	-0.5561	-0.0536	-0.0001
350	SLV 8	3.02	0.63	33.3	-0.5561	-0.0536	-0.0001
350	SLV 9	-17.52	0.19	22.21	-0.1638	-0.5407	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
350	SLV 10	-17.52	0.19	22.21	-0.1638	-0.5407	0
350	SLV 11	-12.85	0.71	38.39	-0.6328	-0.7498	-0.0002
350	SLV 12	-12.85	0.71	38.39	-0.6328	-0.7498	-0.0002
350	SLV 13	-34.39	0.47	33.81	-0.4174	-1.4262	-0.0001
350	SLV 14	-34.39	0.47	33.81	-0.4174	-1.4262	-0.0001
350	SLV 15	-32.99	0.62	38.66	-0.5581	-1.4889	-0.0001
350	SLV 16	-32.99	0.62	38.66	-0.5581	-1.4889	-0.0001
351	SLU 1	-5.93	0.39	25.69	-0.3558	-0.2722	-0.0002
351	SLU 2	-5.94	0.39	25.61	-0.354	-0.2725	-0.0002
351	SLU 3	-6.14	0.41	26.65	-0.3764	-0.2823	-0.0002
351	SLU 4	-6.14	0.41	26.6	-0.3753	-0.2825	-0.0002
351	SLU 5	-6.03	0.41	26.33	-0.37	-0.2774	-0.0002
351	SLU 6	-6.23	0.43	27.37	-0.3924	-0.2872	-0.0003
351	SLU 7	-6.24	0.43	27.32	-0.3913	-0.2874	-0.0003
351	SLU 8	-6.12	0.42	27.13	-0.3879	-0.282	-0.0003
351	SLU 9	-6.12	0.42	27.08	-0.3868	-0.2822	-0.0003
351	SLU 10	-7.11	0.46	28.82	-0.4187	-0.3265	-0.0003
351	SLU 11	-7.31	0.48	29.86	-0.4411	-0.3363	-0.0003
351	SLU 12	-7.32	0.48	29.81	-0.44	-0.3365	-0.0003
351	SLU 13	-7.21	0.48	29.54	-0.4348	-0.3314	-0.0003
351	SLU 14	-7.41	0.5	30.58	-0.4572	-0.3412	-0.0003
351	SLU 15	-7.41	0.5	30.53	-0.4561	-0.3414	-0.0003
351	SLU 16	-7.29	0.5	30.34	-0.4526	-0.3361	-0.0003
351	SLU 17	-7.3	0.49	30.29	-0.4515	-0.3362	-0.0003
351	SLU 18	-7.61	0.49	30.28	-0.4483	-0.3494	-0.0003
351	SLU 19	-7.61	0.49	30.23	-0.4472	-0.3495	-0.0003
351	SLU 20	-7.7	0.51	31	-0.4643	-0.3543	-0.0003
351	SLU 21	-7.71	0.51	30.95	-0.4632	-0.3545	-0.0003
351	SLU 22	-6.99	0.46	28.87	-0.4207	-0.3212	-0.0003
351	SLU 23	-7	0.46	28.78	-0.4189	-0.3215	-0.0003
351	SLU 24	-7.2	0.48	29.83	-0.4413	-0.3313	-0.0003
351	SLU 25	-7.2	0.48	29.78	-0.4402	-0.3315	-0.0003
351	SLU 26	-7.09	0.48	29.5	-0.4349	-0.3264	-0.0003
351	SLU 27	-7.29	0.5	30.55	-0.4573	-0.3362	-0.0003
351	SLU 28	-7.3	0.5	30.5	-0.4562	-0.3364	-0.0003
351	SLU 29	-7.18	0.5	30.31	-0.4528	-0.331	-0.0003
351	SLU 30	-7.18	0.49	30.26	-0.4517	-0.3312	-0.0003
351	SLU 31	-8.17	0.53	31.99	-0.4836	-0.3755	-0.0003
351	SLU 32	-8.37	0.55	33.04	-0.5061	-0.3853	-0.0003
351	SLU 33	-8.38	0.55	32.99	-0.505	-0.3855	-0.0003
351	SLU 34	-8.27	0.55	32.71	-0.4997	-0.3804	-0.0003
351	SLU 35	-8.47	0.57	33.76	-0.5221	-0.3902	-0.0003
351	SLU 36	-8.47	0.57	33.71	-0.521	-0.3904	-0.0003
351	SLU 37	-8.36	0.57	33.52	-0.5175	-0.3851	-0.0003
351	SLU 38	-8.36	0.57	33.47	-0.5165	-0.3852	-0.0003
351	SLU 39	-8.67	0.56	33.45	-0.5132	-0.3984	-0.0003
351	SLU 40	-8.67	0.56	33.4	-0.5121	-0.3986	-0.0003
351	SLU 41	-8.77	0.58	34.17	-0.5293	-0.4033	-0.0003
351	SLU 42	-8.77	0.58	34.12	-0.5282	-0.4035	-0.0003
351	SLU 43	-7.34	0.48	32.31	-0.4403	-0.3371	-0.0003
351	SLU 44	-7.35	0.48	32.22	-0.4384	-0.3373	-0.0003
351	SLU 45	-7.55	0.51	33.27	-0.4609	-0.3471	-0.0003
351	SLU 46	-7.56	0.5	33.22	-0.4598	-0.3473	-0.0003
351	SLU 47	-7.45	0.5	32.94	-0.4545	-0.3423	-0.0003
351	SLU 48	-7.65	0.52	33.99	-0.4769	-0.3521	-0.0003
351	SLU 49	-7.65	0.52	33.94	-0.4758	-0.3522	-0.0003
351	SLU 50	-7.53	0.52	33.75	-0.4723	-0.3469	-0.0003
351	SLU 51	-7.54	0.52	33.7	-0.4713	-0.3471	-0.0003
351	SLU 52	-8.53	0.55	35.43	-0.5032	-0.3914	-0.0003
351	SLU 53	-8.73	0.58	36.48	-0.5256	-0.4012	-0.0003
351	SLU 54	-8.73	0.58	36.43	-0.5245	-0.4013	-0.0003
351	SLU 55	-8.62	0.57	36.15	-0.5192	-0.3963	-0.0003
351	SLU 56	-8.82	0.59	37.2	-0.5417	-0.4061	-0.0004
351	SLU 57	-8.83	0.59	37.15	-0.5406	-0.4063	-0.0004
351	SLU 58	-8.71	0.59	36.96	-0.5371	-0.4009	-0.0003
351	SLU 59	-8.71	0.59	36.91	-0.536	-0.4011	-0.0003
351	SLU 60	-9.02	0.58	36.89	-0.5328	-0.4142	-0.0003
351	SLU 61	-9.03	0.58	36.84	-0.5317	-0.4144	-0.0003
351	SLU 62	-9.12	0.6	37.61	-0.5488	-0.4192	-0.0004
351	SLU 63	-9.12	0.6	37.56	-0.5477	-0.4193	-0.0004
351	SLU 64	-8.41	0.55	35.49	-0.5052	-0.3861	-0.0003
351	SLU 65	-8.41	0.55	35.4	-0.5034	-0.3863	-0.0003
351	SLU 66	-8.61	0.58	36.44	-0.5258	-0.3961	-0.0003
351	SLU 67	-8.62	0.58	36.39	-0.5247	-0.3963	-0.0003
351	SLU 68	-8.51	0.57	36.12	-0.5194	-0.3913	-0.0003
351	SLU 69	-8.71	0.59	37.16	-0.5418	-0.4011	-0.0004
351	SLU 70	-8.71	0.59	37.11	-0.5407	-0.4012	-0.0004
351	SLU 71	-8.59	0.59	36.93	-0.5373	-0.3959	-0.0003
351	SLU 72	-8.6	0.59	36.88	-0.5362	-0.3961	-0.0003
351	SLU 73	-9.59	0.62	38.61	-0.5681	-0.4404	-0.0004
351	SLU 74	-9.79	0.65	39.65	-0.5905	-0.4502	-0.0004
351	SLU 75	-9.79	0.65	39.6	-0.5894	-0.4503	-0.0004
351	SLU 76	-9.68	0.64	39.33	-0.5842	-0.4453	-0.0004
351	SLU 77	-9.88	0.66	40.37	-0.6066	-0.4551	-0.0004
351	SLU 78	-9.89	0.66	40.32	-0.6055	-0.4553	-0.0004
351	SLU 79	-9.77	0.66	40.14	-0.602	-0.4499	-0.0004
351	SLU 80	-9.78	0.66	40.09	-0.6009	-0.4501	-0.0004
351	SLU 81	-10.09	0.66	40.07	-0.5977	-0.4632	-0.0004
351	SLU 82	-10.09	0.65	40.02	-0.5966	-0.4634	-0.0004



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
351	SLU 83	-10.18	0.67	40.79	-0.6137	-0.4682	-0.0004
351	SLU 84	-10.18	0.67	40.74	-0.6127	-0.4683	-0.0004
351	SLE RA 1	-6.23	0.41	26.6	-0.3743	-0.2862	-0.0002
351	SLE RA 2	-6.24	0.41	26.54	-0.3731	-0.2864	-0.0002
351	SLE RA 3	-6.37	0.43	27.24	-0.3881	-0.2929	-0.0003
351	SLE RA 4	-6.37	0.42	27.2	-0.3873	-0.293	-0.0003
351	SLE RA 5	-6.3	0.42	27.02	-0.3838	-0.2897	-0.0003
351	SLE RA 6	-6.43	0.44	27.72	-0.3988	-0.2962	-0.0003
351	SLE RA 7	-6.44	0.44	27.68	-0.398	-0.2963	-0.0003
351	SLE RA 8	-6.36	0.43	27.56	-0.3957	-0.2928	-0.0003
351	SLE RA 9	-6.36	0.43	27.53	-0.395	-0.2929	-0.0003
351	SLE RA 10	-7.02	0.46	28.68	-0.4163	-0.3224	-0.0003
351	SLE RA 11	-7.15	0.47	29.38	-0.4312	-0.3289	-0.0003
351	SLE RA 12	-7.16	0.47	29.34	-0.4305	-0.3291	-0.0003
351	SLE RA 13	-7.08	0.47	29.16	-0.427	-0.3257	-0.0003
351	SLE RA 14	-7.22	0.48	29.86	-0.4419	-0.3322	-0.0003
351	SLE RA 15	-7.22	0.48	29.82	-0.4412	-0.3323	-0.0003
351	SLE RA 16	-7.14	0.48	29.7	-0.4389	-0.3288	-0.0003
351	SLE RA 17	-7.15	0.48	29.67	-0.4382	-0.3289	-0.0003
351	SLE RA 18	-7.35	0.48	29.66	-0.436	-0.3377	-0.0003
351	SLE RA 19	-7.36	0.48	29.62	-0.4353	-0.3378	-0.0003
351	SLE RA 20	-7.42	0.49	30.14	-0.4467	-0.3409	-0.0003
351	SLE RA 21	-7.42	0.49	30.1	-0.446	-0.341	-0.0003
351	SLE FR 1	-6.23	0.41	26.6	-0.3743	-0.2862	-0.0002
351	SLE FR 2	-6.23	0.41	26.59	-0.3741	-0.2862	-0.0002
351	SLE FR 3	-6.26	0.42	26.79	-0.3786	-0.2875	-0.0002
351	SLE FR 4	-6.57	0.43	27.5	-0.3926	-0.3017	-0.0003
351	SLE FR 5	-6.59	0.44	27.71	-0.3971	-0.303	-0.0003
351	SLE FR 6	-6.79	0.44	28.13	-0.4052	-0.3119	-0.0003
351	SLE QP 1	-6.23	0.41	26.6	-0.3743	-0.2862	-0.0002
351	SLE QP 2	-6.57	0.43	27.52	-0.3928	-0.3016	-0.0003
351	SLD 1	3.25	0.35	21.48	-0.4132	0.1507	-0.0002
351	SLD 2	3.25	0.35	21.48	-0.4132	0.1507	-0.0002
351	SLD 3	3.78	0.41	23.53	-0.4691	0.1276	-0.0002
351	SLD 4	3.78	0.41	23.53	-0.4691	0.1276	-0.0002
351	SLD 5	-4.42	0.31	22.6	-0.3142	-0.1309	-0.0002
351	SLD 6	-4.42	0.31	22.6	-0.3142	-0.1309	-0.0002
351	SLD 7	-2.67	0.52	29.42	-0.5004	-0.2079	-0.0003
351	SLD 8	-2.67	0.52	29.42	-0.5004	-0.2079	-0.0003
351	SLD 9	-10.47	0.34	25.61	-0.2853	-0.3954	-0.0002
351	SLD 10	-10.47	0.34	25.61	-0.2853	-0.3954	-0.0002
351	SLD 11	-8.72	0.55	32.43	-0.4715	-0.4724	-0.0003
351	SLD 12	-8.72	0.55	32.43	-0.4715	-0.4724	-0.0003
351	SLD 13	-16.92	0.45	31.5	-0.3166	-0.7309	-0.0003
351	SLD 14	-16.92	0.45	31.5	-0.3166	-0.7309	-0.0003
351	SLD 15	-16.39	0.52	33.55	-0.3725	-0.754	-0.0003
351	SLD 16	-16.39	0.52	33.55	-0.3725	-0.754	-0.0003
351	SLV 1	15.93	0.23	13.72	-0.4433	0.7348	-0.0001
351	SLV 2	15.93	0.23	13.72	-0.4433	0.7348	-0.0001
351	SLV 3	17.15	0.38	18.37	-0.5745	0.6813	-0.0002
351	SLV 4	17.15	0.38	18.37	-0.5745	0.6813	-0.0002
351	SLV 5	-1.67	0.15	16.33	-0.209	0.0904	-0.0001
351	SLV 6	-1.67	0.15	16.33	-0.209	0.0904	-0.0001
351	SLV 7	2.39	0.64	31.82	-0.6463	-0.0879	-0.0004
351	SLV 8	2.39	0.64	31.82	-0.6463	-0.0879	-0.0004
351	SLV 9	-15.53	0.22	23.21	-0.1394	-0.5153	-0.0001
351	SLV 10	-15.53	0.22	23.21	-0.1394	-0.5153	-0.0001
351	SLV 11	-11.47	0.71	38.7	-0.5767	-0.6937	-0.0004
351	SLV 12	-11.47	0.71	38.7	-0.5767	-0.6937	-0.0004
351	SLV 13	-30.28	0.48	36.66	-0.2112	-1.2845	-0.0003
351	SLV 14	-30.28	0.48	36.66	-0.2112	-1.2845	-0.0003
351	SLV 15	-29.06	0.63	41.31	-0.3424	-1.3381	-0.0004
351	SLV 16	-29.06	0.63	41.31	-0.3424	-1.3381	-0.0004
352	SLU 1	-5.12	0.43	26.99	-0.3958	-0.2148	-0.0005
352	SLU 2	-5.12	0.43	26.91	-0.3936	-0.215	-0.0004
352	SLU 3	-5.29	0.45	28.04	-0.4195	-0.2219	-0.0005
352	SLU 4	-5.29	0.45	27.99	-0.4181	-0.222	-0.0005
352	SLU 5	-5.2	0.45	27.7	-0.4124	-0.2184	-0.0005
352	SLU 6	-5.37	0.47	28.84	-0.4382	-0.2253	-0.0005
352	SLU 7	-5.38	0.47	28.79	-0.4369	-0.2255	-0.0005
352	SLU 8	-5.28	0.47	28.58	-0.4334	-0.2216	-0.0005
352	SLU 9	-5.29	0.47	28.53	-0.432	-0.2218	-0.0005
352	SLU 10	-6.08	0.5	30.37	-0.4652	-0.255	-0.0005
352	SLU 11	-6.25	0.53	31.5	-0.4911	-0.2619	-0.0006
352	SLU 12	-6.25	0.53	31.45	-0.4898	-0.262	-0.0006
352	SLU 13	-6.16	0.52	31.16	-0.484	-0.2584	-0.0006
352	SLU 14	-6.33	0.55	32.3	-0.5099	-0.2653	-0.0006
352	SLU 15	-6.33	0.55	32.24	-0.5086	-0.2654	-0.0006
352	SLU 16	-6.24	0.55	32.04	-0.505	-0.2616	-0.0006
352	SLU 17	-6.24	0.54	31.99	-0.5037	-0.2617	-0.0006
352	SLU 18	-6.48	0.54	31.93	-0.4981	-0.2719	-0.0006
352	SLU 19	-6.49	0.54	31.88	-0.4968	-0.272	-0.0006
352	SLU 20	-6.57	0.56	32.73	-0.5169	-0.2753	-0.0006
352	SLU 21	-6.57	0.56	32.68	-0.5156	-0.2754	-0.0006
352	SLU 22	-5.99	0.51	30.42	-0.4681	-0.2511	-0.0005
352	SLU 23	-5.99	0.5	30.33	-0.4659	-0.2513	-0.0005
352	SLU 24	-6.16	0.53	31.47	-0.4918	-0.2582	-0.0006
352	SLU 25	-6.16	0.53	31.42	-0.4905	-0.2584	-0.0006
352	SLU 26	-6.07	0.52	31.13	-0.4847	-0.2548	-0.0006



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
352	SLU 27	-6.24	0.55	32.26	-0.5106	-0.2617	-0.0006
352	SLU 28	-6.25	0.55	32.21	-0.5092	-0.2618	-0.0006
352	SLU 29	-6.15	0.55	32	-0.5057	-0.258	-0.0006
352	SLU 30	-6.16	0.54	31.95	-0.5044	-0.2581	-0.0006
352	SLU 31	-6.95	0.58	33.79	-0.5376	-0.2913	-0.0006
352	SLU 32	-7.12	0.61	34.93	-0.5634	-0.2982	-0.0006
352	SLU 33	-7.12	0.61	34.88	-0.5621	-0.2983	-0.0006
352	SLU 34	-7.03	0.6	34.59	-0.5564	-0.2947	-0.0006
352	SLU 35	-7.2	0.63	35.72	-0.5822	-0.3016	-0.0007
352	SLU 36	-7.2	0.63	35.67	-0.5809	-0.3017	-0.0007
352	SLU 37	-7.11	0.62	35.46	-0.5773	-0.2979	-0.0007
352	SLU 38	-7.11	0.62	35.41	-0.576	-0.298	-0.0007
352	SLU 39	-7.36	0.62	35.36	-0.5705	-0.3082	-0.0007
352	SLU 40	-7.36	0.61	35.31	-0.5691	-0.3083	-0.0007
352	SLU 41	-7.44	0.64	36.15	-0.5892	-0.3116	-0.0007
352	SLU 42	-7.44	0.63	36.1	-0.5879	-0.3117	-0.0007
352	SLU 43	-6.35	0.53	33.92	-0.4897	-0.2668	-0.0006
352	SLU 44	-6.36	0.53	33.83	-0.4875	-0.267	-0.0006
352	SLU 45	-6.53	0.55	34.97	-0.5134	-0.2739	-0.0006
352	SLU 46	-6.53	0.55	34.92	-0.5121	-0.274	-0.0006
352	SLU 47	-6.44	0.55	34.62	-0.5063	-0.2704	-0.0006
352	SLU 48	-6.61	0.57	35.76	-0.5322	-0.2773	-0.0006
352	SLU 49	-6.61	0.57	35.71	-0.5309	-0.2774	-0.0006
352	SLU 50	-6.52	0.57	35.5	-0.5273	-0.2736	-0.0006
352	SLU 51	-6.52	0.57	35.45	-0.526	-0.2737	-0.0006
352	SLU 52	-7.32	0.6	37.29	-0.5592	-0.3069	-0.0006
352	SLU 53	-7.48	0.63	38.43	-0.585	-0.3138	-0.0007
352	SLU 54	-7.49	0.63	38.38	-0.5837	-0.314	-0.0007
352	SLU 55	-7.4	0.62	38.08	-0.578	-0.3104	-0.0007
352	SLU 56	-7.57	0.65	39.22	-0.6038	-0.3173	-0.0007
352	SLU 57	-7.57	0.65	39.17	-0.6025	-0.3174	-0.0007
352	SLU 58	-7.48	0.65	38.96	-0.5989	-0.3136	-0.0007
352	SLU 59	-7.48	0.65	38.91	-0.5976	-0.3137	-0.0007
352	SLU 60	-7.72	0.64	38.86	-0.5921	-0.3239	-0.0007
352	SLU 61	-7.72	0.64	38.81	-0.5908	-0.324	-0.0007
352	SLU 62	-7.8	0.66	39.65	-0.6109	-0.3273	-0.0007
352	SLU 63	-7.81	0.66	39.6	-0.6095	-0.3274	-0.0007
352	SLU 64	-7.22	0.61	37.34	-0.5621	-0.3031	-0.0006
352	SLU 65	-7.23	0.6	37.26	-0.5599	-0.3033	-0.0006
352	SLU 66	-7.4	0.63	38.39	-0.5857	-0.3102	-0.0007
352	SLU 67	-7.4	0.63	38.34	-0.5844	-0.3104	-0.0007
352	SLU 68	-7.31	0.63	38.05	-0.5787	-0.3067	-0.0007
352	SLU 69	-7.48	0.65	39.19	-0.6045	-0.3136	-0.0007
352	SLU 70	-7.48	0.65	39.14	-0.6032	-0.3138	-0.0007
352	SLU 71	-7.39	0.65	38.93	-0.5996	-0.31	-0.0007
352	SLU 72	-7.39	0.65	38.88	-0.5983	-0.3101	-0.0007
352	SLU 73	-8.19	0.68	40.72	-0.6315	-0.3433	-0.0007
352	SLU 74	-8.35	0.71	41.85	-0.6574	-0.3502	-0.0008
352	SLU 75	-8.36	0.71	41.8	-0.656	-0.3503	-0.0007
352	SLU 76	-8.27	0.7	41.51	-0.6503	-0.3467	-0.0007
352	SLU 77	-8.44	0.73	42.65	-0.6761	-0.3536	-0.0008
352	SLU 78	-8.44	0.73	42.59	-0.6748	-0.3537	-0.0008
352	SLU 79	-8.35	0.72	42.39	-0.6713	-0.3499	-0.0008
352	SLU 80	-8.35	0.72	42.34	-0.6699	-0.35	-0.0008
352	SLU 81	-8.59	0.72	42.28	-0.6644	-0.3602	-0.0008
352	SLU 82	-8.59	0.72	42.23	-0.6631	-0.3603	-0.0008
352	SLU 83	-8.67	0.74	43.08	-0.6832	-0.3636	-0.0008
352	SLU 84	-8.68	0.74	43.03	-0.6819	-0.3637	-0.0008
352	SLE RA 1	-5.37	0.45	27.97	-0.4165	-0.2252	-0.0005
352	SLE RA 2	-5.37	0.45	27.92	-0.415	-0.2253	-0.0005
352	SLE RA 3	-5.48	0.47	28.67	-0.4322	-0.2299	-0.0005
352	SLE RA 4	-5.48	0.47	28.64	-0.4314	-0.23	-0.0005
352	SLE RA 5	-5.42	0.46	28.44	-0.4275	-0.2276	-0.0005
352	SLE RA 6	-5.54	0.48	29.2	-0.4448	-0.2322	-0.0005
352	SLE RA 7	-5.54	0.48	29.17	-0.4439	-0.2323	-0.0005
352	SLE RA 8	-5.48	0.48	29.03	-0.4415	-0.2297	-0.0005
352	SLE RA 9	-5.48	0.48	28.99	-0.4406	-0.2298	-0.0005
352	SLE RA 10	-6.01	0.5	30.22	-0.4628	-0.252	-0.0005
352	SLE RA 11	-6.12	0.52	30.98	-0.48	-0.2566	-0.0005
352	SLE RA 12	-6.12	0.52	30.94	-0.4791	-0.2566	-0.0005
352	SLE RA 13	-6.06	0.51	30.75	-0.4753	-0.2542	-0.0005
352	SLE RA 14	-6.17	0.53	31.51	-0.4925	-0.2588	-0.0006
352	SLE RA 15	-6.18	0.53	31.47	-0.4916	-0.2589	-0.0006
352	SLE RA 16	-6.11	0.53	31.33	-0.4893	-0.2564	-0.0006
352	SLE RA 17	-6.12	0.53	31.3	-0.4884	-0.2565	-0.0006
352	SLE RA 18	-6.28	0.52	31.27	-0.4847	-0.2632	-0.0006
352	SLE RA 19	-6.28	0.52	31.23	-0.4838	-0.2633	-0.0006
352	SLE RA 20	-6.33	0.54	31.79	-0.4972	-0.2655	-0.0006
352	SLE RA 21	-6.33	0.54	31.76	-0.4963	-0.2656	-0.0006
352	SLE FR 1	-5.37	0.45	27.97	-0.4165	-0.2252	-0.0005
352	SLE FR 2	-5.37	0.45	27.96	-0.4162	-0.2252	-0.0005
352	SLE FR 3	-5.39	0.46	28.18	-0.4215	-0.2261	-0.0005
352	SLE FR 4	-5.64	0.47	28.95	-0.4366	-0.2366	-0.0005
352	SLE FR 5	-5.66	0.48	29.17	-0.4419	-0.2375	-0.0005
352	SLE FR 6	-5.82	0.49	29.62	-0.4506	-0.2442	-0.0005
352	SLE QP 1	-5.37	0.45	27.97	-0.4165	-0.2252	-0.0005
352	SLE QP 2	-5.64	0.47	28.96	-0.4369	-0.2366	-0.0005
352	SLD 1	2.72	0.4	19.55	-0.4573	0.1527	-0.0004
352	SLD 2	2.72	0.4	19.55	-0.4573	0.1527	-0.0004



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
352	SLD 3	3.19	0.45	21.51	-0.5026	0.1733	-0.0004
352	SLD 4	3.19	0.45	21.51	-0.5026	0.1733	-0.0004
352	SLD 5	-3.84	0.37	23.16	-0.3744	-0.1511	-0.0004
352	SLD 6	-3.84	0.37	23.16	-0.3744	-0.1511	-0.0004
352	SLD 7	-2.28	0.54	29.71	-0.5253	-0.0823	-0.0006
352	SLD 8	-2.28	0.54	29.71	-0.5253	-0.0823	-0.0006
352	SLD 9	-8.99	0.4	28.22	-0.3486	-0.3909	-0.0004
352	SLD 10	-8.99	0.4	28.22	-0.3486	-0.3909	-0.0004
352	SLD 11	-7.44	0.57	34.77	-0.4995	-0.3221	-0.0006
352	SLD 12	-7.44	0.57	34.77	-0.4995	-0.3221	-0.0006
352	SLD 13	-14.47	0.5	36.41	-0.3713	-0.6465	-0.0006
352	SLD 14	-14.47	0.5	36.41	-0.3713	-0.6465	-0.0006
352	SLD 15	-14	0.55	38.38	-0.4166	-0.6259	-0.0006
352	SLD 16	-14	0.55	38.38	-0.4166	-0.6259	-0.0006
352	SLV 1	13.52	0.3	7.44	-0.4863	0.6553	-0.0003
352	SLV 2	13.52	0.3	7.44	-0.4863	0.6553	-0.0003
352	SLV 3	14.6	0.42	11.88	-0.5932	0.7029	-0.0004
352	SLV 4	14.6	0.42	11.88	-0.5932	0.7029	-0.0004
352	SLV 5	-1.53	0.24	15.77	-0.2897	-0.0413	-0.0002
352	SLV 6	-1.53	0.24	15.77	-0.2897	-0.0413	-0.0002
352	SLV 7	2.07	0.64	30.58	-0.6459	0.1175	-0.0006
352	SLV 8	2.07	0.64	30.58	-0.6459	0.1175	-0.0006
352	SLV 9	-13.34	0.31	27.34	-0.228	-0.5907	-0.0004
352	SLV 10	-13.34	0.31	27.34	-0.228	-0.5907	-0.0004
352	SLV 11	-9.75	0.7	42.15	-0.5842	-0.4319	-0.0008
352	SLV 12	-9.75	0.7	42.15	-0.5842	-0.4319	-0.0008
352	SLV 13	-25.87	0.53	46.04	-0.2807	-1.1761	-0.0006
352	SLV 14	-25.87	0.53	46.04	-0.2807	-1.1761	-0.0006
352	SLV 15	-24.8	0.65	50.48	-0.3876	-1.1284	-0.0007
352	SLV 16	-24.8	0.65	50.48	-0.3876	-1.1284	-0.0007
353	SLU 1	-5.56	0.5	29.5	-0.4529	-0.2702	-0.0005
353	SLU 2	-5.56	0.5	29.42	-0.4502	-0.2701	-0.0005
353	SLU 3	-5.76	0.53	30.69	-0.4806	-0.2807	-0.0005
353	SLU 4	-5.76	0.53	30.64	-0.479	-0.2806	-0.0005
353	SLU 5	-5.67	0.52	30.3	-0.4725	-0.2761	-0.0005
353	SLU 6	-5.88	0.56	31.57	-0.5029	-0.2866	-0.0006
353	SLU 7	-5.88	0.56	31.52	-0.5013	-0.2866	-0.0006
353	SLU 8	-5.79	0.55	31.26	-0.4975	-0.2821	-0.0006
353	SLU 9	-5.79	0.55	31.21	-0.4959	-0.2821	-0.0006
353	SLU 10	-6.53	0.59	33.4	-0.5318	-0.3185	-0.0006
353	SLU 11	-6.74	0.62	34.66	-0.5622	-0.3291	-0.0006
353	SLU 12	-6.73	0.62	34.61	-0.5606	-0.3291	-0.0006
353	SLU 13	-6.64	0.61	34.28	-0.5541	-0.3245	-0.0006
353	SLU 14	-6.85	0.65	35.54	-0.5845	-0.3351	-0.0006
353	SLU 15	-6.85	0.65	35.49	-0.5829	-0.335	-0.0006
353	SLU 16	-6.76	0.64	35.24	-0.579	-0.3306	-0.0006
353	SLU 17	-6.76	0.64	35.19	-0.5774	-0.3305	-0.0006
353	SLU 18	-6.95	0.63	35.18	-0.5694	-0.3394	-0.0006
353	SLU 19	-6.95	0.63	35.13	-0.5678	-0.3393	-0.0006
353	SLU 20	-7.06	0.66	36.06	-0.5917	-0.3454	-0.0007
353	SLU 21	-7.06	0.65	36.01	-0.5901	-0.3453	-0.0007
353	SLU 22	-6.46	0.59	33.41	-0.5357	-0.3151	-0.0006
353	SLU 23	-6.46	0.59	33.33	-0.533	-0.3151	-0.0006
353	SLU 24	-6.67	0.62	34.6	-0.5634	-0.3256	-0.0006
353	SLU 25	-6.66	0.62	34.55	-0.5618	-0.3256	-0.0006
353	SLU 26	-6.57	0.62	34.21	-0.5553	-0.321	-0.0006
353	SLU 27	-6.78	0.65	35.48	-0.5857	-0.3316	-0.0007
353	SLU 28	-6.78	0.65	35.43	-0.5841	-0.3316	-0.0006
353	SLU 29	-6.69	0.64	35.18	-0.5803	-0.3271	-0.0006
353	SLU 30	-6.69	0.64	35.13	-0.5787	-0.327	-0.0006
353	SLU 31	-7.43	0.68	37.31	-0.6146	-0.3635	-0.0007
353	SLU 32	-7.64	0.71	38.58	-0.645	-0.3741	-0.0007
353	SLU 33	-7.64	0.71	38.53	-0.6434	-0.374	-0.0007
353	SLU 34	-7.55	0.71	38.19	-0.6369	-0.3695	-0.0007
353	SLU 35	-7.75	0.74	39.46	-0.6673	-0.3801	-0.0007
353	SLU 36	-7.75	0.74	39.41	-0.6657	-0.38	-0.0007
353	SLU 37	-7.66	0.73	39.15	-0.6618	-0.3755	-0.0007
353	SLU 38	-7.66	0.73	39.1	-0.6602	-0.3755	-0.0007
353	SLU 39	-7.85	0.72	39.09	-0.6522	-0.3844	-0.0007
353	SLU 40	-7.85	0.72	39.04	-0.6506	-0.3843	-0.0007
353	SLU 41	-7.97	0.75	39.97	-0.6745	-0.3903	-0.0008
353	SLU 42	-7.96	0.75	39.93	-0.6729	-0.3903	-0.0007
353	SLU 43	-6.92	0.62	37.01	-0.5604	-0.3358	-0.0006
353	SLU 44	-6.91	0.62	36.93	-0.5577	-0.3357	-0.0006
353	SLU 45	-7.12	0.65	38.2	-0.5881	-0.3463	-0.0007
353	SLU 46	-7.12	0.65	38.15	-0.5865	-0.3462	-0.0007
353	SLU 47	-7.03	0.64	37.81	-0.58	-0.3417	-0.0006
353	SLU 48	-7.24	0.68	39.08	-0.6104	-0.3523	-0.0007
353	SLU 49	-7.24	0.67	39.03	-0.6088	-0.3522	-0.0007
353	SLU 50	-7.15	0.67	38.77	-0.605	-0.3477	-0.0007
353	SLU 51	-7.15	0.67	38.72	-0.6034	-0.3477	-0.0007
353	SLU 52	-7.89	0.71	40.9	-0.6392	-0.3842	-0.0007
353	SLU 53	-8.09	0.74	42.17	-0.6696	-0.3948	-0.0007
353	SLU 54	-8.09	0.74	42.12	-0.668	-0.3947	-0.0007
353	SLU 55	-8	0.73	41.79	-0.6615	-0.3901	-0.0007
353	SLU 56	-8.21	0.77	43.05	-0.6919	-0.4007	-0.0008
353	SLU 57	-8.21	0.77	43	-0.6903	-0.4007	-0.0008
353	SLU 58	-8.12	0.76	42.75	-0.6865	-0.3962	-0.0008
353	SLU 59	-8.12	0.76	42.7	-0.6849	-0.3962	-0.0008





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
353	SLU 60	-8.31	0.75	42.69	-0.6768	-0.405	-0.0008
353	SLU 61	-8.3	0.75	42.64	-0.6752	-0.405	-0.0008
353	SLU 62	-8.42	0.77	43.57	-0.6991	-0.411	-0.0008
353	SLU 63	-8.42	0.77	43.52	-0.6976	-0.4109	-0.0008
353	SLU 64	-7.82	0.71	40.92	-0.6432	-0.3808	-0.0007
353	SLU 65	-7.82	0.71	40.84	-0.6405	-0.3807	-0.0007
353	SLU 66	-8.02	0.74	42.11	-0.6709	-0.3913	-0.0007
353	SLU 67	-8.02	0.74	42.06	-0.6693	-0.3912	-0.0007
353	SLU 68	-7.93	0.73	41.72	-0.6628	-0.3867	-0.0007
353	SLU 69	-8.14	0.77	42.99	-0.6932	-0.3972	-0.0008
353	SLU 70	-8.14	0.77	42.94	-0.6916	-0.3972	-0.0008
353	SLU 71	-8.05	0.76	42.69	-0.6878	-0.3927	-0.0008
353	SLU 72	-8.05	0.76	42.64	-0.6862	-0.3927	-0.0008
353	SLU 73	-8.79	0.8	44.82	-0.722	-0.4291	-0.0008
353	SLU 74	-9	0.83	46.09	-0.7524	-0.4397	-0.0008
353	SLU 75	-8.99	0.83	46.04	-0.7508	-0.4397	-0.0008
353	SLU 76	-8.9	0.82	45.7	-0.7444	-0.4351	-0.0008
353	SLU 77	-9.11	0.86	46.97	-0.7747	-0.4457	-0.0009
353	SLU 78	-9.11	0.86	46.92	-0.7732	-0.4456	-0.0009
353	SLU 79	-9.02	0.85	46.66	-0.7693	-0.4412	-0.0009
353	SLU 80	-9.02	0.85	46.61	-0.7677	-0.4411	-0.0009
353	SLU 81	-9.21	0.84	46.6	-0.7596	-0.45	-0.0008
353	SLU 82	-9.21	0.84	46.55	-0.7581	-0.4499	-0.0008
353	SLU 83	-9.32	0.87	47.48	-0.782	-0.456	-0.0009
353	SLU 84	-9.32	0.86	47.43	-0.7804	-0.4559	-0.0009
353	SLE RA 1	-5.82	0.53	30.62	-0.4765	-0.283	-0.0005
353	SLE RA 2	-5.81	0.53	30.56	-0.4748	-0.283	-0.0005
353	SLE RA 3	-5.95	0.55	31.41	-0.495	-0.29	-0.0006
353	SLE RA 4	-5.95	0.55	31.38	-0.494	-0.29	-0.0005
353	SLE RA 5	-5.89	0.54	31.15	-0.4896	-0.2869	-0.0005
353	SLE RA 6	-6.03	0.57	32	-0.5099	-0.294	-0.0006
353	SLE RA 7	-6.03	0.56	31.96	-0.5088	-0.294	-0.0006
353	SLE RA 8	-5.97	0.56	31.79	-0.5063	-0.291	-0.0006
353	SLE RA 9	-5.97	0.56	31.76	-0.5052	-0.2909	-0.0006
353	SLE RA 10	-6.46	0.59	33.22	-0.5291	-0.3153	-0.0006
353	SLE RA 11	-6.6	0.61	34.06	-0.5494	-0.3223	-0.0006
353	SLE RA 12	-6.6	0.61	34.03	-0.5483	-0.3223	-0.0006
353	SLE RA 13	-6.54	0.6	33.8	-0.544	-0.3192	-0.0006
353	SLE RA 14	-6.68	0.63	34.65	-0.5643	-0.3263	-0.0006
353	SLE RA 15	-6.68	0.62	34.62	-0.5632	-0.3263	-0.0006
353	SLE RA 16	-6.62	0.62	34.44	-0.5606	-0.3233	-0.0006
353	SLE RA 17	-6.62	0.62	34.41	-0.5596	-0.3232	-0.0006
353	SLE RA 18	-6.74	0.61	34.41	-0.5542	-0.3292	-0.0006
353	SLE RA 19	-6.74	0.61	34.37	-0.5531	-0.3291	-0.0006
353	SLE RA 20	-6.82	0.63	34.99	-0.5691	-0.3331	-0.0006
353	SLE RA 21	-6.82	0.63	34.96	-0.568	-0.3331	-0.0006
353	SLE FR 1	-5.82	0.53	30.62	-0.4765	-0.283	-0.0005
353	SLE FR 2	-5.82	0.53	30.61	-0.4762	-0.283	-0.0005
353	SLE FR 3	-5.85	0.53	30.85	-0.4825	-0.2846	-0.0005
353	SLE FR 4	-6.09	0.55	31.75	-0.4995	-0.2968	-0.0006
353	SLE FR 5	-6.12	0.56	31.99	-0.5058	-0.2985	-0.0006
353	SLE FR 6	-6.28	0.57	32.51	-0.5154	-0.3061	-0.0006
353	SLE QP 1	-5.82	0.53	30.62	-0.4765	-0.283	-0.0005
353	SLE QP 2	-6.09	0.55	31.76	-0.4998	-0.2969	-0.0006
353	SLD 1	1.24	0.58	16.31	-0.5186	0.0486	-0.0005
353	SLD 2	1.24	0.58	16.31	-0.5186	0.0486	-0.0005
353	SLD 3	0.79	0.62	18.33	-0.5538	0.0286	-0.0005
353	SLD 4	0.79	0.62	18.33	-0.5538	0.0286	-0.0005
353	SLD 5	-3.21	0.5	24.05	-0.452	-0.163	-0.0005
353	SLD 6	-3.21	0.5	24.05	-0.452	-0.163	-0.0005
353	SLD 7	-4.71	0.63	30.8	-0.5695	-0.2294	-0.0006
353	SLD 8	-4.71	0.63	30.8	-0.5695	-0.2294	-0.0006
353	SLD 9	-7.48	0.48	32.71	-0.4302	-0.3643	-0.0005
353	SLD 10	-7.48	0.48	32.71	-0.4302	-0.3643	-0.0005
353	SLD 11	-8.97	0.6	39.46	-0.5477	-0.4307	-0.0006
353	SLD 12	-8.97	0.6	39.46	-0.5477	-0.4307	-0.0006
353	SLD 13	-12.98	0.49	45.18	-0.4458	-0.6224	-0.0006
353	SLD 14	-12.98	0.49	45.18	-0.4458	-0.6224	-0.0006
353	SLD 15	-13.43	0.53	47.21	-0.4811	-0.6423	-0.0006
353	SLD 16	-13.43	0.53	47.21	-0.4811	-0.6423	-0.0006
353	SLV 1	10.71	0.61	-3.58	-0.5443	0.4946	-0.0004
353	SLV 2	10.71	0.61	-3.58	-0.5443	0.4946	-0.0004
353	SLV 3	9.68	0.7	1	-0.6289	0.4485	-0.0005
353	SLV 4	9.68	0.7	1	-0.6289	0.4485	-0.0005
353	SLV 5	0.52	0.43	14.21	-0.3848	0.0105	-0.0003
353	SLV 6	0.52	0.43	14.21	-0.3848	0.0105	-0.0003
353	SLV 7	-2.94	0.73	29.48	-0.6669	-0.1431	-0.0007
353	SLV 8	-2.94	0.73	29.48	-0.6669	-0.1431	-0.0007
353	SLV 9	-9.25	0.37	34.04	-0.3328	-0.4506	-0.0004
353	SLV 10	-9.25	0.37	34.04	-0.3328	-0.4506	-0.0004
353	SLV 11	-12.71	0.67	49.3	-0.6148	-0.6042	-0.0008
353	SLV 12	-12.71	0.67	49.3	-0.6148	-0.6042	-0.0008
353	SLV 13	-21.86	0.41	62.51	-0.3708	-1.0423	-0.0007
353	SLV 14	-21.86	0.41	62.51	-0.3708	-1.0423	-0.0007
353	SLV 15	-22.9	0.5	67.09	-0.4554	-1.0883	-0.0008
353	SLV 16	-22.9	0.5	67.09	-0.4554	-1.0883	-0.0008
354	SLU 1	-5.68	0.76	35.25	-0.5244	-0.2781	0.002
354	SLU 2	-5.68	0.75	35.17	-0.5212	-0.2778	0.002
354	SLU 3	-5.9	0.81	36.69	-0.5571	-0.2886	0.0022



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
354	SLU 4	-5.9	0.8	36.64	-0.5552	-0.2884	0.0022
354	SLU 5	-5.82	0.79	36.2	-0.5477	-0.2845	0.0021
354	SLU 6	-6.04	0.84	37.73	-0.5836	-0.2952	0.0023
354	SLU 7	-6.03	0.84	37.68	-0.5817	-0.2951	0.0023
354	SLU 8	-5.96	0.84	37.32	-0.5774	-0.2915	0.0023
354	SLU 9	-5.96	0.83	37.27	-0.5755	-0.2913	0.0022
354	SLU 10	-6.59	0.89	40.26	-0.6151	-0.3225	0.0024
354	SLU 11	-6.81	0.94	41.79	-0.6511	-0.3333	0.0025
354	SLU 12	-6.8	0.94	41.74	-0.6491	-0.3331	0.0025
354	SLU 13	-6.72	0.93	41.3	-0.6417	-0.3292	0.0025
354	SLU 14	-6.95	0.98	42.82	-0.6776	-0.34	0.0026
354	SLU 15	-6.94	0.98	42.77	-0.6757	-0.3398	0.0026
354	SLU 16	-6.87	0.97	42.41	-0.6714	-0.3362	0.0026
354	SLU 17	-6.86	0.97	42.37	-0.6695	-0.336	0.0026
354	SLU 18	-6.98	0.95	42.52	-0.6586	-0.342	0.0026
354	SLU 19	-6.98	0.95	42.48	-0.6567	-0.3418	0.0026
354	SLU 20	-7.12	0.99	43.56	-0.6851	-0.3487	0.0027
354	SLU 21	-7.12	0.99	43.51	-0.6832	-0.3485	0.0027
354	SLU 22	-6.55	0.9	40.2	-0.6202	-0.3204	0.0024
354	SLU 23	-6.54	0.89	40.12	-0.617	-0.3201	0.0024
354	SLU 24	-6.76	0.94	41.64	-0.653	-0.3309	0.0025
354	SLU 25	-6.76	0.94	41.6	-0.651	-0.3307	0.0025
354	SLU 26	-6.68	0.93	41.16	-0.6436	-0.3268	0.0025
354	SLU 27	-6.9	0.98	42.68	-0.6795	-0.3376	0.0026
354	SLU 28	-6.89	0.98	42.63	-0.6776	-0.3374	0.0026
354	SLU 29	-6.82	0.97	42.27	-0.6733	-0.3338	0.0026
354	SLU 30	-6.82	0.97	42.22	-0.6714	-0.3336	0.0026
354	SLU 31	-7.45	1.03	45.21	-0.711	-0.3648	0.0028
354	SLU 32	-7.67	1.08	46.74	-0.7469	-0.3756	0.0029
354	SLU 33	-7.66	1.08	46.69	-0.745	-0.3754	0.0029
354	SLU 34	-7.58	1.07	46.25	-0.7375	-0.3715	0.0029
354	SLU 35	-7.81	1.12	47.77	-0.7734	-0.3823	0.003
354	SLU 36	-7.8	1.12	47.73	-0.7715	-0.3821	0.003
354	SLU 37	-7.73	1.11	47.37	-0.7673	-0.3785	0.003
354	SLU 38	-7.72	1.11	47.32	-0.7653	-0.3783	0.003
354	SLU 39	-7.84	1.09	47.48	-0.7545	-0.3843	0.0029
354	SLU 40	-7.84	1.09	47.43	-0.7525	-0.3841	0.0029
354	SLU 41	-7.98	1.13	48.51	-0.781	-0.391	0.003
354	SLU 42	-7.98	1.13	48.47	-0.7791	-0.3908	0.003
354	SLU 43	-7.1	0.94	44.12	-0.6488	-0.347	0.0025
354	SLU 44	-7.09	0.93	44.04	-0.6456	-0.3467	0.0025
354	SLU 45	-7.31	0.99	45.57	-0.6816	-0.3575	0.0027
354	SLU 46	-7.31	0.98	45.52	-0.6796	-0.3573	0.0026
354	SLU 47	-7.23	0.97	45.08	-0.6722	-0.3534	0.0026
354	SLU 48	-7.45	1.02	46.6	-0.7081	-0.3642	0.0028
354	SLU 49	-7.44	1.02	46.55	-0.7062	-0.364	0.0028
354	SLU 50	-7.37	1.02	46.19	-0.7019	-0.3604	0.0027
354	SLU 51	-7.37	1.01	46.15	-0.7	-0.3602	0.0027
354	SLU 52	-8	1.07	49.14	-0.7396	-0.3914	0.0029
354	SLU 53	-8.22	1.12	50.66	-0.7755	-0.4022	0.003
354	SLU 54	-8.21	1.12	50.61	-0.7736	-0.402	0.003
354	SLU 55	-8.13	1.11	50.17	-0.7661	-0.3981	0.003
354	SLU 56	-8.36	1.16	51.7	-0.802	-0.4089	0.0031
354	SLU 57	-8.35	1.16	51.65	-0.8001	-0.4087	0.0031
354	SLU 58	-8.28	1.15	51.29	-0.7959	-0.4051	0.0031
354	SLU 59	-8.27	1.15	51.24	-0.7939	-0.4049	0.0031
354	SLU 60	-8.39	1.13	51.4	-0.7831	-0.4109	0.003
354	SLU 61	-8.39	1.13	51.35	-0.7811	-0.4107	0.003
354	SLU 62	-8.53	1.17	52.44	-0.8096	-0.4176	0.0032
354	SLU 63	-8.53	1.17	52.39	-0.8077	-0.4174	0.0031
354	SLU 64	-7.96	1.08	49.07	-0.7447	-0.3893	0.0029
354	SLU 65	-7.95	1.07	48.99	-0.7415	-0.389	0.0029
354	SLU 66	-8.17	1.12	50.52	-0.7774	-0.3998	0.003
354	SLU 67	-8.17	1.12	50.47	-0.7755	-0.3996	0.003
354	SLU 68	-8.09	1.11	50.03	-0.768	-0.3957	0.003
354	SLU 69	-8.31	1.16	51.56	-0.8039	-0.4065	0.0031
354	SLU 70	-8.3	1.16	51.51	-0.802	-0.4063	0.0031
354	SLU 71	-8.23	1.15	51.15	-0.7978	-0.4027	0.0031
354	SLU 72	-8.23	1.15	51.1	-0.7958	-0.4025	0.0031
354	SLU 73	-8.86	1.21	54.09	-0.8354	-0.4337	0.0032
354	SLU 74	-9.08	1.26	55.61	-0.8714	-0.4445	0.0034
354	SLU 75	-9.08	1.26	55.57	-0.8694	-0.4443	0.0034
354	SLU 76	-8.99	1.25	55.13	-0.862	-0.4404	0.0034
354	SLU 77	-9.22	1.3	56.65	-0.8979	-0.4512	0.0035
354	SLU 78	-9.21	1.3	56.6	-0.896	-0.451	0.0035
354	SLU 79	-9.14	1.29	56.24	-0.8917	-0.4474	0.0035
354	SLU 80	-9.13	1.29	56.19	-0.8898	-0.4472	0.0035
354	SLU 81	-9.25	1.27	56.35	-0.8789	-0.4532	0.0034
354	SLU 82	-9.25	1.27	56.3	-0.877	-0.453	0.0034
354	SLU 83	-9.39	1.31	57.39	-0.9054	-0.4599	0.0035
354	SLU 84	-9.39	1.31	57.34	-0.9035	-0.4597	0.0035
354	SLE RA 1	-5.93	0.8	36.66	-0.5518	-0.2902	0.0021
354	SLE RA 2	-5.93	0.79	36.61	-0.5496	-0.29	0.0021
354	SLE RA 3	-6.07	0.83	37.62	-0.5736	-0.2972	0.0022
354	SLE RA 4	-6.07	0.83	37.59	-0.5723	-0.297	0.0022
354	SLE RA 5	-6.02	0.82	37.3	-0.5673	-0.2944	0.0022
354	SLE RA 6	-6.17	0.86	38.32	-0.5913	-0.3016	0.0023
354	SLE RA 7	-6.16	0.85	38.28	-0.59	-0.3015	0.0023
354	SLE RA 8	-6.11	0.85	38.04	-0.5871	-0.2991	0.0023



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
354	SLE RA 9	-6.11	0.85	38.01	-0.5859	-0.299	0.0023
354	SLE RA 10	-6.53	0.89	40	-0.6123	-0.3198	0.0024
354	SLE RA 11	-6.68	0.92	41.02	-0.6362	-0.327	0.0025
354	SLE RA 12	-6.68	0.92	40.99	-0.6349	-0.3269	0.0025
354	SLE RA 13	-6.62	0.91	40.69	-0.63	-0.3243	0.0025
354	SLE RA 14	-6.77	0.95	41.71	-0.6539	-0.3314	0.0025
354	SLE RA 15	-6.77	0.94	41.68	-0.6526	-0.3313	0.0025
354	SLE RA 16	-6.72	0.94	41.44	-0.6498	-0.3289	0.0025
354	SLE RA 17	-6.72	0.94	41.41	-0.6485	-0.3288	0.0025
354	SLE RA 18	-6.8	0.93	41.51	-0.6413	-0.3328	0.0025
354	SLE RA 19	-6.79	0.93	41.48	-0.64	-0.3327	0.0025
354	SLE RA 20	-6.89	0.95	42.2	-0.6589	-0.3372	0.0026
354	SLE RA 21	-6.88	0.95	42.17	-0.6577	-0.3371	0.0026
354	SLE FR 1	-5.93	0.8	36.66	-0.5518	-0.2902	0.0021
354	SLE FR 2	-5.93	0.8	36.65	-0.5513	-0.2901	0.0021
354	SLE FR 3	-5.97	0.81	36.94	-0.5589	-0.2919	0.0022
354	SLE FR 4	-6.19	0.84	38.11	-0.5782	-0.3029	0.0022
354	SLE FR 5	-6.23	0.85	38.39	-0.5857	-0.3047	0.0023
354	SLE FR 6	-6.36	0.86	39.09	-0.5965	-0.3115	0.0023
354	SLE QP 1	-5.93	0.8	36.66	-0.5518	-0.2902	0.0021
354	SLE QP 2	-6.19	0.84	38.12	-0.5786	-0.3029	0.0023
354	SLD 1	0.23	0.83	11.52	-0.5822	0.0609	0.0022
354	SLD 2	0.23	0.83	11.52	-0.5822	0.0609	0.0022
354	SLD 3	-0.17	0.91	13.99	-0.6303	0.0402	0.0025
354	SLD 4	-0.17	0.91	13.99	-0.6303	0.0402	0.0025
354	SLD 5	-3.65	0.72	26.39	-0.5068	-0.1624	0.0018
354	SLD 6	-3.65	0.72	26.39	-0.5068	-0.1624	0.0018
354	SLD 7	-4.99	0.98	34.62	-0.667	-0.2313	0.0027
354	SLD 8	-4.99	0.98	34.62	-0.667	-0.2313	0.0027
354	SLD 9	-7.39	0.7	41.61	-0.4903	-0.3745	0.0018
354	SLD 10	-7.39	0.7	41.61	-0.4903	-0.3745	0.0018
354	SLD 11	-8.73	0.96	49.84	-0.6504	-0.4435	0.0027
354	SLD 12	-8.73	0.96	49.84	-0.6504	-0.4435	0.0027
354	SLD 13	-12.21	0.76	62.25	-0.527	-0.6461	0.002
354	SLD 14	-12.21	0.76	62.25	-0.527	-0.6461	0.002
354	SLD 15	-12.61	0.84	64.72	-0.575	-0.6668	0.0023
354	SLD 16	-12.61	0.84	64.72	-0.575	-0.6668	0.0023
354	SLV 1	8.53	0.83	-22.78	-0.5868	0.5308	0.0022
354	SLV 2	8.53	0.83	-22.78	-0.5868	0.5308	0.0022
354	SLV 3	7.61	1.02	-17.14	-0.7025	0.4835	0.0028
354	SLV 4	7.61	1.02	-17.14	-0.7025	0.4835	0.0028
354	SLV 5	-0.38	0.55	11.3	-0.4057	0.0188	0.0013
354	SLV 6	-0.38	0.55	11.3	-0.4057	0.0188	0.0013
354	SLV 7	-3.44	1.17	30.09	-0.7912	-0.1386	0.0034
354	SLV 8	-3.44	1.17	30.09	-0.7912	-0.1386	0.0034
354	SLV 9	-8.94	0.5	46.14	-0.366	-0.4673	0.0011
354	SLV 10	-8.94	0.5	46.14	-0.366	-0.4673	0.0011
354	SLV 11	-12	1.12	64.94	-0.7516	-0.6247	0.0032
354	SLV 12	-12	1.12	64.94	-0.7516	-0.6247	0.0032
354	SLV 13	-19.99	0.66	93.37	-0.4548	-1.0894	0.0017
354	SLV 14	-19.99	0.66	93.37	-0.4548	-1.0894	0.0017
354	SLV 15	-20.91	0.84	99.01	-0.5704	-1.1367	0.0023
354	SLV 16	-20.91	0.84	99.01	-0.5704	-1.1367	0.0023
355	SLU 1	-6.77	0.37	23.74	-0.277	-0.2034	-0.0418
355	SLU 2	-6.76	0.37	23.69	-0.2752	-0.2031	-0.0415
355	SLU 3	-7.05	0.4	24.71	-0.2944	-0.2117	-0.0445
355	SLU 4	-7.04	0.4	24.69	-0.2934	-0.2116	-0.0443
355	SLU 5	-6.95	0.39	24.37	-0.2894	-0.2085	-0.0437
355	SLU 6	-7.23	0.42	25.39	-0.3087	-0.2172	-0.0466
355	SLU 7	-7.23	0.42	25.37	-0.3076	-0.217	-0.0464
355	SLU 8	-7.14	0.41	25.1	-0.3054	-0.2143	-0.0461
355	SLU 9	-7.14	0.41	25.07	-0.3044	-0.2141	-0.046
355	SLU 10	-7.82	0.44	27.3	-0.3246	-0.2364	-0.049
355	SLU 11	-8.11	0.46	28.32	-0.3439	-0.2451	-0.0519
355	SLU 12	-8.1	0.46	28.29	-0.3428	-0.2449	-0.0517
355	SLU 13	-8.01	0.46	27.98	-0.3389	-0.2419	-0.0512
355	SLU 14	-8.3	0.48	29	-0.3581	-0.2505	-0.0541
355	SLU 15	-8.29	0.48	28.97	-0.3571	-0.2504	-0.0539
355	SLU 16	-8.21	0.48	28.7	-0.3549	-0.2476	-0.0536
355	SLU 17	-8.2	0.48	28.68	-0.3538	-0.2474	-0.0534
355	SLU 18	-8.29	0.47	28.89	-0.3476	-0.251	-0.0525
355	SLU 19	-8.28	0.47	28.86	-0.3465	-0.2508	-0.0523
355	SLU 20	-8.47	0.49	29.57	-0.3618	-0.2564	-0.0546
355	SLU 21	-8.47	0.49	29.54	-0.3608	-0.2563	-0.0545
355	SLU 22	-7.79	0.44	27.21	-0.3276	-0.235	-0.0494
355	SLU 23	-7.78	0.44	27.17	-0.3258	-0.2347	-0.0492
355	SLU 24	-8.06	0.47	28.19	-0.345	-0.2434	-0.0521
355	SLU 25	-8.06	0.46	28.16	-0.344	-0.2432	-0.0519
355	SLU 26	-7.96	0.46	27.85	-0.34	-0.2402	-0.0513
355	SLU 27	-8.25	0.49	28.87	-0.3593	-0.2489	-0.0542
355	SLU 28	-8.24	0.49	28.84	-0.3582	-0.2487	-0.0541
355	SLU 29	-8.16	0.48	28.57	-0.356	-0.246	-0.0538
355	SLU 30	-8.15	0.48	28.54	-0.355	-0.2458	-0.0536
355	SLU 31	-8.84	0.5	30.77	-0.3752	-0.2681	-0.0566
355	SLU 32	-9.12	0.53	31.79	-0.3945	-0.2767	-0.0595
355	SLU 33	-9.12	0.53	31.77	-0.3934	-0.2766	-0.0594
355	SLU 34	-9.02	0.53	31.45	-0.3895	-0.2735	-0.0588
355	SLU 35	-9.31	0.55	32.48	-0.4087	-0.2822	-0.0617
355	SLU 36	-9.3	0.55	32.45	-0.4076	-0.282	-0.0615



Nodo Ind.	Cont. N.br.	Reazione a traslazione			Reazione a rotazione		
		x	y	z	x	y	z
355	SLU 37	-9.22	0.55	32.18	-0.4055	-0.2793	-0.0612
355	SLU 38	-9.22	0.55	32.15	-0.4044	-0.2791	-0.0611
355	SLU 39	-9.3	0.54	32.36	-0.3982	-0.2826	-0.0601
355	SLU 40	-9.3	0.53	32.34	-0.3971	-0.2825	-0.0599
355	SLU 41	-9.49	0.56	33.04	-0.4124	-0.2881	-0.0622
355	SLU 42	-9.48	0.55	33.02	-0.4114	-0.2879	-0.0621
355	SLU 43	-8.45	0.46	29.66	-0.3427	-0.2535	-0.0517
355	SLU 44	-8.44	0.46	29.62	-0.3409	-0.2532	-0.0515
355	SLU 45	-8.73	0.49	30.64	-0.3602	-0.2619	-0.0544
355	SLU 46	-8.72	0.49	30.62	-0.3591	-0.2617	-0.0542
355	SLU 47	-8.63	0.48	30.3	-0.3552	-0.2587	-0.0536
355	SLU 48	-8.92	0.51	31.32	-0.3744	-0.2674	-0.0565
355	SLU 49	-8.91	0.51	31.3	-0.3734	-0.2672	-0.0564
355	SLU 50	-8.83	0.5	31.02	-0.3712	-0.2644	-0.056
355	SLU 51	-8.82	0.5	31	-0.3701	-0.2643	-0.0559
355	SLU 52	-9.5	0.53	33.23	-0.3904	-0.2865	-0.0589
355	SLU 53	-9.79	0.55	34.25	-0.4096	-0.2952	-0.0618
355	SLU 54	-9.78	0.55	34.22	-0.4086	-0.295	-0.0617
355	SLU 55	-9.69	0.55	33.91	-0.4046	-0.292	-0.0611
355	SLU 56	-9.98	0.57	34.93	-0.4238	-0.3007	-0.064
355	SLU 57	-9.97	0.57	34.9	-0.4228	-0.3005	-0.0638
355	SLU 58	-9.89	0.57	34.63	-0.4206	-0.2978	-0.0635
355	SLU 59	-9.88	0.57	34.6	-0.4196	-0.2976	-0.0633
355	SLU 60	-9.97	0.56	34.82	-0.4133	-0.3011	-0.0624
355	SLU 61	-9.96	0.55	34.79	-0.4123	-0.3009	-0.0622
355	SLU 62	-10.16	0.58	35.5	-0.4276	-0.3066	-0.0645
355	SLU 63	-10.15	0.58	35.47	-0.4265	-0.3064	-0.0644
355	SLU 64	-9.47	0.53	33.14	-0.3933	-0.2852	-0.0594
355	SLU 65	-9.46	0.53	33.09	-0.3915	-0.2849	-0.0591
355	SLU 66	-9.75	0.56	34.12	-0.4108	-0.2936	-0.062
355	SLU 67	-9.74	0.55	34.09	-0.4097	-0.2934	-0.0618
355	SLU 68	-9.65	0.55	33.77	-0.4058	-0.2904	-0.0613
355	SLU 69	-9.93	0.58	34.8	-0.425	-0.299	-0.0642
355	SLU 70	-9.93	0.57	34.77	-0.424	-0.2989	-0.064
355	SLU 71	-9.84	0.57	34.5	-0.4218	-0.2961	-0.0637
355	SLU 72	-9.84	0.57	34.47	-0.4207	-0.2959	-0.0635
355	SLU 73	-10.52	0.59	36.7	-0.441	-0.3182	-0.0666
355	SLU 74	-10.81	0.62	37.72	-0.4602	-0.3269	-0.0695
355	SLU 75	-10.8	0.62	37.7	-0.4592	-0.3267	-0.0693
355	SLU 76	-10.71	0.61	37.38	-0.4552	-0.3237	-0.0687
355	SLU 77	-10.99	0.64	38.4	-0.4744	-0.3323	-0.0716
355	SLU 78	-10.99	0.64	38.38	-0.4734	-0.3322	-0.0715
355	SLU 79	-10.9	0.64	38.11	-0.4712	-0.3294	-0.0711
355	SLU 80	-10.9	0.64	38.08	-0.4702	-0.3293	-0.071
355	SLU 81	-10.99	0.62	38.29	-0.4639	-0.3328	-0.07
355	SLU 82	-10.98	0.62	38.26	-0.4629	-0.3326	-0.0699
355	SLU 83	-11.17	0.64	38.97	-0.4782	-0.3382	-0.0722
355	SLU 84	-11.17	0.64	38.94	-0.4771	-0.3381	-0.072
355	SLE RA 1	-7.06	0.39	24.73	-0.2914	-0.2124	-0.044
355	SLE RA 2	-7.05	0.39	24.7	-0.2902	-0.2122	-0.0438
355	SLE RA 3	-7.25	0.41	25.38	-0.3031	-0.218	-0.0457
355	SLE RA 4	-7.24	0.41	25.36	-0.3024	-0.2179	-0.0456
355	SLE RA 5	-7.18	0.41	25.15	-0.2997	-0.2159	-0.0452
355	SLE RA 6	-7.37	0.42	25.83	-0.3126	-0.2216	-0.0472
355	SLE RA 7	-7.37	0.42	25.82	-0.3119	-0.2215	-0.0471
355	SLE RA 8	-7.31	0.42	25.63	-0.3104	-0.2197	-0.0469
355	SLE RA 9	-7.31	0.42	25.62	-0.3097	-0.2196	-0.0468
355	SLE RA 10	-7.76	0.44	27.1	-0.3232	-0.2344	-0.0488
355	SLE RA 11	-7.95	0.45	27.78	-0.336	-0.2402	-0.0507
355	SLE RA 12	-7.95	0.45	27.77	-0.3353	-0.2401	-0.0506
355	SLE RA 13	-7.89	0.45	27.56	-0.3327	-0.2381	-0.0502
355	SLE RA 14	-8.08	0.47	28.24	-0.3455	-0.2439	-0.0522
355	SLE RA 15	-8.07	0.47	28.22	-0.3448	-0.2437	-0.0521
355	SLE RA 16	-8.02	0.46	28.04	-0.3434	-0.2419	-0.0518
355	SLE RA 17	-8.01	0.46	28.02	-0.3427	-0.2418	-0.0517
355	SLE RA 18	-8.07	0.46	28.16	-0.3385	-0.2441	-0.0511
355	SLE RA 19	-8.07	0.45	28.14	-0.3378	-0.244	-0.051
355	SLE RA 20	-8.2	0.47	28.62	-0.348	-0.2478	-0.0525
355	SLE RA 21	-8.19	0.47	28.6	-0.3473	-0.2477	-0.0524
355	SLE FR 1	-7.06	0.39	24.73	-0.2914	-0.2124	-0.044
355	SLE FR 2	-7.06	0.39	24.72	-0.2912	-0.2124	-0.0439
355	SLE FR 3	-7.11	0.4	24.91	-0.2952	-0.2139	-0.0446
355	SLE FR 4	-7.36	0.41	25.75	-0.3053	-0.2219	-0.0461
355	SLE FR 5	-7.41	0.42	25.94	-0.3093	-0.2234	-0.0467
355	SLE FR 6	-7.57	0.42	26.45	-0.315	-0.2283	-0.0475
355	SLE QP 1	-7.06	0.39	24.73	-0.2914	-0.2124	-0.044
355	SLE QP 2	-7.36	0.41	25.76	-0.3055	-0.2219	-0.0461
355	SLD 1	-0.9	0.38	4.07	-0.2973	-0.0218	-0.0444
355	SLD 2	-0.9	0.38	4.07	-0.2973	-0.0218	-0.0444
355	SLD 3	-1.33	0.52	5.75	-0.3344	-0.0339	-0.0507
355	SLD 4	-1.33	0.52	5.75	-0.3344	-0.0339	-0.0507
355	SLD 5	-4.77	0.19	16.7	-0.2468	-0.1436	-0.0361
355	SLD 6	-4.77	0.19	16.7	-0.2468	-0.1436	-0.0361
355	SLD 7	-6.21	0.66	22.31	-0.3705	-0.1838	-0.057
355	SLD 8	-6.21	0.66	22.31	-0.3705	-0.1838	-0.057
355	SLD 9	-8.52	0.16	29.21	-0.2406	-0.2601	-0.0353
355	SLD 10	-8.52	0.16	29.21	-0.2406	-0.2601	-0.0353
355	SLD 11	-9.96	0.64	34.82	-0.3643	-0.3003	-0.0561
355	SLD 12	-9.96	0.64	34.82	-0.3643	-0.3003	-0.0561



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
355	SLD 13	-13.39	0.3	45.77	-0.2767	-0.41	-0.0415
355	SLD 14	-13.39	0.3	45.77	-0.2767	-0.41	-0.0415
355	SLD 15	-13.83	0.44	47.45	-0.3138	-0.4221	-0.0478
355	SLD 16	-13.83	0.44	47.45	-0.3138	-0.4221	-0.0478
355	SLV 1	7.43	0.34	-23.91	-0.2863	0.2364	-0.0422
355	SLV 2	7.43	0.34	-23.91	-0.2863	0.2364	-0.0422
355	SLV 3	6.45	0.68	-20.05	-0.3749	0.2088	-0.0571
355	SLV 4	6.45	0.68	-20.05	-0.3749	0.2088	-0.0571
355	SLV 5	-1.43	-0.12	5	-0.1655	-0.0427	-0.0224
355	SLV 6	-1.43	-0.12	5	-0.1655	-0.0427	-0.0224
355	SLV 7	-4.71	1	17.87	-0.4606	-0.1345	-0.0719
355	SLV 8	-4.71	1	17.87	-0.4606	-0.1345	-0.0719
355	SLV 9	-10.02	-0.18	33.65	-0.1504	-0.3094	-0.0203
355	SLV 10	-10.02	-0.18	33.65	-0.1504	-0.3094	-0.0203
355	SLV 11	-13.29	0.94	46.52	-0.4456	-0.4012	-0.0698
355	SLV 12	-13.29	0.94	46.52	-0.4456	-0.4012	-0.0698
355	SLV 13	-21.17	0.15	71.57	-0.2362	-0.6527	-0.0351
355	SLV 14	-21.17	0.15	71.57	-0.2362	-0.6527	-0.0351
355	SLV 15	-22.16	0.48	75.43	-0.3247	-0.6802	-0.05
355	SLV 16	-22.16	0.48	75.43	-0.3247	-0.6802	-0.05
356	SLU 1	-0.02	-13.02	49.75	0.383	-0.0046	-0.0008
356	SLU 2	-0.02	-12.88	49.29	0.3787	-0.0047	-0.0008
356	SLU 3	-0.02	-14.01	53.38	0.4127	-0.0048	-0.0008
356	SLU 4	-0.02	-13.92	53.1	0.4101	-0.0049	-0.0008
356	SLU 5	-0.02	-13.77	52.52	0.4056	-0.0048	-0.0008
356	SLU 6	-0.02	-14.9	56.61	0.4395	-0.0049	-0.0009
356	SLU 7	-0.02	-14.81	56.33	0.4369	-0.005	-0.0009
356	SLU 8	-0.02	-14.8	56.22	0.4366	-0.0049	-0.0008
356	SLU 9	-0.02	-14.72	55.94	0.4341	-0.0049	-0.0009
356	SLU 10	-0.02	-15.14	57.78	0.4466	-0.0055	-0.0009
356	SLU 11	-0.03	-16.27	61.87	0.4806	-0.0056	-0.001
356	SLU 12	-0.03	-16.18	61.59	0.478	-0.0057	-0.001
356	SLU 13	-0.03	-16.03	61.02	0.4735	-0.0056	-0.001
356	SLU 14	-0.03	-17.16	65.11	0.5074	-0.0058	-0.001
356	SLU 15	-0.03	-17.07	64.83	0.5048	-0.0058	-0.001
356	SLU 16	-0.03	-17.06	64.71	0.5046	-0.0057	-0.001
356	SLU 17	-0.03	-16.98	64.44	0.502	-0.0058	-0.001
356	SLU 18	-0.03	-16.25	61.89	0.48	-0.0058	-0.001
356	SLU 19	-0.03	-16.17	61.61	0.4775	-0.0058	-0.001
356	SLU 20	-0.03	-17.14	65.12	0.5068	-0.0059	-0.001
356	SLU 21	-0.03	-17.06	64.84	0.5043	-0.006	-0.001
356	SLU 22	-0.02	-15.43	58.76	0.4552	-0.0054	-0.0009
356	SLU 23	-0.02	-15.29	58.3	0.4509	-0.0055	-0.0009
356	SLU 24	-0.03	-16.41	62.39	0.4848	-0.0056	-0.001
356	SLU 25	-0.03	-16.33	62.11	0.4823	-0.0057	-0.001
356	SLU 26	-0.03	-16.18	61.53	0.4777	-0.0056	-0.001
356	SLU 27	-0.03	-17.3	65.62	0.5116	-0.0058	-0.001
356	SLU 28	-0.03	-17.22	65.35	0.5091	-0.0058	-0.001
356	SLU 29	-0.03	-17.21	65.23	0.5088	-0.0057	-0.001
356	SLU 30	-0.03	-17.12	64.95	0.5062	-0.0057	-0.001
356	SLU 31	-0.03	-17.55	66.79	0.5188	-0.0063	-0.0011
356	SLU 32	-0.03	-18.68	70.88	0.5527	-0.0065	-0.0011
356	SLU 33	-0.03	-18.59	70.6	0.5502	-0.0065	-0.0011
356	SLU 34	-0.03	-18.44	70.03	0.5456	-0.0065	-0.0011
356	SLU 35	-0.03	-19.57	74.12	0.5796	-0.0066	-0.0011
356	SLU 36	-0.03	-19.48	73.84	0.577	-0.0067	-0.0012
356	SLU 37	-0.03	-19.47	73.73	0.5767	-0.0065	-0.0011
356	SLU 38	-0.03	-19.39	73.45	0.5741	-0.0066	-0.0011
356	SLU 39	-0.03	-18.66	70.9	0.5522	-0.0066	-0.0011
356	SLU 40	-0.03	-18.57	70.62	0.5496	-0.0066	-0.0011
356	SLU 41	-0.03	-19.55	74.13	0.579	-0.0067	-0.0012
356	SLU 42	-0.03	-19.46	73.85	0.5764	-0.0068	-0.0012
356	SLU 43	-0.03	-16.1	61.59	0.4732	-0.0057	-0.001
356	SLU 44	-0.03	-15.96	61.13	0.4689	-0.0058	-0.001
356	SLU 45	-0.03	-17.09	65.21	0.5028	-0.0059	-0.001
356	SLU 46	-0.03	-17	64.94	0.5003	-0.006	-0.001
356	SLU 47	-0.03	-16.85	64.36	0.4957	-0.0059	-0.001
356	SLU 48	-0.03	-17.98	68.45	0.5297	-0.006	-0.001
356	SLU 49	-0.03	-17.89	68.17	0.5271	-0.0061	-0.0011
356	SLU 50	-0.03	-17.88	68.06	0.5268	-0.0059	-0.001
356	SLU 51	-0.03	-17.8	67.78	0.5242	-0.006	-0.001
356	SLU 52	-0.03	-18.22	69.62	0.5368	-0.0066	-0.0011
356	SLU 53	-0.03	-19.35	73.71	0.5707	-0.0067	-0.0012
356	SLU 54	-0.03	-19.26	73.43	0.5682	-0.0068	-0.0012
356	SLU 55	-0.03	-19.11	72.85	0.5636	-0.0067	-0.0012
356	SLU 56	-0.03	-20.24	76.94	0.5976	-0.0069	-0.0012
356	SLU 57	-0.03	-20.15	76.66	0.595	-0.0069	-0.0012
356	SLU 58	-0.03	-20.14	76.55	0.5947	-0.0068	-0.0012
356	SLU 59	-0.03	-20.06	76.27	0.5922	-0.0068	-0.0012
356	SLU 60	-0.03	-19.33	73.72	0.5702	-0.0069	-0.0012
356	SLU 61	-0.03	-19.25	73.44	0.5676	-0.0069	-0.0012
356	SLU 62	-0.03	-20.22	76.96	0.597	-0.007	-0.0012
356	SLU 63	-0.03	-20.14	76.68	0.5944	-0.0071	-0.0012
356	SLU 64	-0.03	-18.51	70.6	0.5453	-0.0065	-0.0011
356	SLU 65	-0.03	-18.37	70.14	0.5411	-0.0066	-0.0011
356	SLU 66	-0.03	-19.49	74.23	0.575	-0.0067	-0.0012
356	SLU 67	-0.03	-19.41	73.95	0.5724	-0.0068	-0.0012
356	SLU 68	-0.03	-19.26	73.37	0.5679	-0.0067	-0.0012
356	SLU 69	-0.03	-20.38	77.46	0.6018	-0.0069	-0.0012



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
356	SLU 70	-0.03	-20.3	77.18	0.5992	-0.0069	-0.0012
356	SLU 71	-0.03	-20.29	77.07	0.599	-0.0068	-0.0012
356	SLU 72	-0.03	-20.2	76.79	0.5964	-0.0068	-0.0012
356	SLU 73	-0.03	-20.63	78.63	0.609	-0.0074	-0.0013
356	SLU 74	-0.03	-21.76	82.72	0.6429	-0.0076	-0.0013
356	SLU 75	-0.03	-21.67	82.44	0.6403	-0.0076	-0.0013
356	SLU 76	-0.03	-21.52	81.86	0.6358	-0.0076	-0.0013
356	SLU 77	-0.04	-22.65	85.95	0.6697	-0.0077	-0.0013
356	SLU 78	-0.04	-22.56	85.67	0.6672	-0.0078	-0.0013
356	SLU 79	-0.04	-22.55	85.56	0.6669	-0.0076	-0.0013
356	SLU 80	-0.04	-22.47	85.28	0.6643	-0.0077	-0.0013
356	SLU 81	-0.04	-21.74	82.73	0.6423	-0.0077	-0.0013
356	SLU 82	-0.04	-21.65	82.45	0.6398	-0.0077	-0.0013
356	SLU 83	-0.04	-22.63	85.97	0.6692	-0.0078	-0.0014
356	SLU 84	-0.04	-22.54	85.69	0.6666	-0.0079	-0.0014
356	SLE RA 1	-0.02	-13.71	52.33	0.4036	-0.0048	-0.0008
356	SLE RA 2	-0.02	-13.61	52.02	0.4008	-0.0049	-0.0008
356	SLE RA 3	-0.02	-14.36	54.74	0.4234	-0.005	-0.0009
356	SLE RA 4	-0.02	-14.31	54.56	0.4217	-0.005	-0.0009
356	SLE RA 5	-0.02	-14.21	54.17	0.4187	-0.005	-0.0009
356	SLE RA 6	-0.02	-14.96	56.9	0.4413	-0.0051	-0.0009
356	SLE RA 7	-0.02	-14.9	56.72	0.4396	-0.0051	-0.0009
356	SLE RA 8	-0.02	-14.89	56.64	0.4394	-0.005	-0.0009
356	SLE RA 9	-0.02	-14.84	56.45	0.4377	-0.005	-0.0009
356	SLE RA 10	-0.02	-15.12	57.68	0.446	-0.0054	-0.0009
356	SLE RA 11	-0.03	-15.87	60.41	0.4687	-0.0055	-0.001
356	SLE RA 12	-0.03	-15.82	60.22	0.467	-0.0056	-0.001
356	SLE RA 13	-0.03	-15.72	59.84	0.4639	-0.0055	-0.001
356	SLE RA 14	-0.03	-16.47	62.56	0.4866	-0.0056	-0.001
356	SLE RA 15	-0.03	-16.41	62.38	0.4848	-0.0057	-0.001
356	SLE RA 16	-0.03	-16.4	62.3	0.4847	-0.0056	-0.001
356	SLE RA 17	-0.03	-16.35	62.12	0.4829	-0.0056	-0.001
356	SLE RA 18	-0.03	-15.86	60.42	0.4683	-0.0056	-0.001
356	SLE RA 19	-0.03	-15.81	60.23	0.4666	-0.0056	-0.001
356	SLE RA 20	-0.03	-16.45	62.57	0.4862	-0.0057	-0.001
356	SLE RA 21	-0.03	-16.4	62.39	0.4845	-0.0057	-0.001
356	SLE FR 1	-0.02	-13.71	52.33	0.4036	-0.0048	-0.0008
356	SLE FR 2	-0.02	-13.69	52.27	0.4031	-0.0048	-0.0008
356	SLE FR 3	-0.02	-13.94	53.19	0.4108	-0.0048	-0.0008
356	SLE FR 4	-0.02	-14.33	54.69	0.4225	-0.0051	-0.0009
356	SLE FR 5	-0.02	-14.59	55.62	0.4302	-0.0051	-0.0009
356	SLE FR 6	-0.02	-14.78	56.37	0.436	-0.0052	-0.0009
356	SLE QP 1	-0.02	-13.71	52.33	0.4036	-0.0048	-0.0008
356	SLE QP 2	-0.02	-14.35	54.75	0.423	-0.005	-0.0009
356	SLD 1	-0.13	-13.64	52.49	0.4002	-0.0428	-0.0065
356	SLD 2	-0.13	-13.64	52.49	0.4002	-0.0428	-0.0065
356	SLD 3	-0.16	-17.66	64.7	0.5328	-0.0495	-0.0076
356	SLD 4	-0.16	-17.66	64.7	0.5328	-0.0495	-0.0076
356	SLD 5	-0.02	-8.04	35.56	0.2151	-0.0061	-0.001
356	SLD 6	-0.02	-8.04	35.56	0.2151	-0.0061	-0.001
356	SLD 7	-0.1	-21.45	76.25	0.657	-0.0287	-0.0045
356	SLD 8	-0.1	-21.45	76.25	0.657	-0.0287	-0.0045
356	SLD 9	0.06	-7.26	33.26	0.189	0.0186	0.0027
356	SLD 10	0.06	-7.26	33.26	0.189	0.0186	0.0027
356	SLD 11	-0.03	-20.67	73.95	0.6309	-0.004	-0.0008
356	SLD 12	-0.03	-20.67	73.95	0.6309	-0.004	-0.0008
356	SLD 13	0.11	-11.04	44.81	0.3132	0.0394	0.0058
356	SLD 14	0.11	-11.04	44.81	0.3132	0.0394	0.0058
356	SLD 15	0.09	-15.07	57.02	0.4458	0.0327	0.0048
356	SLD 16	0.09	-15.07	57.02	0.4458	0.0327	0.0048
356	SLV 1	-0.3	-12.73	49.58	0.3713	-0.0965	-0.0147
356	SLV 2	-0.3	-12.73	49.58	0.3713	-0.0965	-0.0147
356	SLV 3	-0.37	-21.98	77.66	0.6759	-0.1138	-0.0173
356	SLV 4	-0.37	-21.98	77.66	0.6759	-0.1138	-0.0173
356	SLV 5	-0.01	0.15	10.61	-0.0545	-0.0063	-0.0009
356	SLV 6	-0.01	0.15	10.61	-0.0545	-0.0063	-0.0009
356	SLV 7	-0.22	-30.66	104.21	0.9609	-0.0638	-0.0099
356	SLV 8	-0.22	-30.66	104.21	0.9609	-0.0638	-0.0099
356	SLV 9	0.18	1.95	5.29	-0.1148	0.0537	0.0081
356	SLV 10	0.18	1.95	5.29	-0.1148	0.0537	0.0081
356	SLV 11	-0.04	-28.86	98.9	0.9005	-0.0038	-0.0008
356	SLV 12	-0.04	-28.86	98.9	0.9005	-0.0038	-0.0008
356	SLV 13	0.32	-6.73	31.85	0.1702	0.1037	0.0156
356	SLV 14	0.32	-6.73	31.85	0.1702	0.1037	0.0156
356	SLV 15	0.26	-15.97	59.93	0.4748	0.0864	0.0129
356	SLV 16	0.26	-15.97	59.93	0.4748	0.0864	0.0129
2764	SLU 1	0	0	164.62	-7.9294	1.542	0
2764	SLU 2	0	0	171.17	-8.6235	1.5926	0
2764	SLU 3	0	0	171.53	-8.2725	1.6196	0
2764	SLU 4	0	0	175.46	-8.689	1.6499	0
2764	SLU 5	0	0	176.62	-8.8872	1.6537	0
2764	SLU 6	0	0	176.98	-8.5362	1.6807	0
2764	SLU 7	0	0	180.91	-8.9527	1.711	0
2764	SLU 8	0	0	175.52	-8.4568	1.6642	0
2764	SLU 9	0	0	179.45	-8.8733	1.6945	0
2764	SLU 10	0	0	192.47	-9.6401	1.7768	0
2764	SLU 11	0	0	192.83	-9.2891	1.8038	0
2764	SLU 12	0	0	196.76	-9.7056	1.8341	0
2764	SLU 13	0	0	197.92	-9.9038	1.8379	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
2764	SLU 14	0	0	198.28	-9.5528	1.8649	0
2764	SLU 15	0	0	202.21	-9.9693	1.8952	0
2764	SLU 16	0	0	196.82	-9.4734	1.8484	0
2764	SLU 17	0	0	200.75	-9.8899	1.8788	0
2764	SLU 18	0	0	195.05	-9.3816	1.8052	0
2764	SLU 19	0	0	198.98	-9.7981	1.8356	0
2764	SLU 20	0	0	200.5	-9.6454	1.8663	0
2764	SLU 21	0	0	204.43	-10.0618	1.8966	0
2764	SLU 22	0	0	186.76	-9.0071	1.7519	0
2764	SLU 23	0	0	193.31	-9.7013	1.8025	0
2764	SLU 24	0	0	193.67	-9.3503	1.8295	0
2764	SLU 25	0	0	197.6	-9.7667	1.8598	0
2764	SLU 26	0	0	198.76	-9.965	1.8636	0
2764	SLU 27	0	0	199.12	-9.614	1.8906	0
2764	SLU 28	0	0	203.05	-10.0304	1.9209	0
2764	SLU 29	0	0	197.66	-9.5346	1.8741	0
2764	SLU 30	0	0	201.59	-9.951	1.9044	0
2764	SLU 31	0	0	214.61	-10.7178	1.9867	0
2764	SLU 32	0	0	214.97	-10.3668	2.0137	0
2764	SLU 33	0	0	218.9	-10.7833	2.0441	0
2764	SLU 34	0	0	220.06	-10.9815	2.0478	0
2764	SLU 35	0	0	220.42	-10.6306	2.0748	0
2764	SLU 36	0	0	224.35	-11.047	2.1051	0
2764	SLU 37	0	0	218.96	-10.5511	2.0584	0
2764	SLU 38	0	0	222.89	-10.9676	2.0887	0
2764	SLU 39	0	0	217.19	-10.4594	2.0151	0
2764	SLU 40	0	0	221.12	-10.8759	2.0455	0
2764	SLU 41	0	0	222.64	-10.7231	2.0762	0
2764	SLU 42	0	0	226.57	-11.1396	2.1066	0
2764	SLU 43	0	0	206.42	-9.9387	1.9327	0
2764	SLU 44	0	0	212.97	-10.6328	1.9832	0
2764	SLU 45	0	0	213.33	-10.2818	2.0102	0
2764	SLU 46	0	0	217.26	-10.6983	2.0405	0
2764	SLU 47	0	0	218.42	-10.8965	2.0443	0
2764	SLU 48	0	0	218.78	-10.5455	2.0713	0
2764	SLU 49	0	0	222.71	-10.962	2.1016	0
2764	SLU 50	0	0	217.32	-10.4661	2.0548	0
2764	SLU 51	0	0	221.25	-10.8826	2.0852	0
2764	SLU 52	0	0	234.26	-11.6494	2.1674	0
2764	SLU 53	0	0	234.63	-11.2984	2.1945	0
2764	SLU 54	0	0	238.55	-11.7149	2.2248	0
2764	SLU 55	0	0	239.71	-11.9131	2.2285	0
2764	SLU 56	0	0	240.08	-11.5621	2.2555	0
2764	SLU 57	0	0	244	-11.9786	2.2859	0
2764	SLU 58	0	0	238.62	-11.4827	2.2391	0
2764	SLU 59	0	0	242.54	-11.8992	2.2694	0
2764	SLU 60	0	0	236.84	-11.391	2.1959	0
2764	SLU 61	0	0	240.77	-11.8074	2.2262	0
2764	SLU 62	0	0	242.29	-11.6547	2.257	0
2764	SLU 63	0	0	246.22	-12.0711	2.2873	0
2764	SLU 64	0	0	228.56	-11.0164	2.1426	0
2764	SLU 65	0	0	235.11	-11.7106	2.1931	0
2764	SLU 66	0	0	235.47	-11.3596	2.2201	0
2764	SLU 67	0	0	239.4	-11.776	2.2504	0
2764	SLU 68	0	0	240.56	-11.9743	2.2542	0
2764	SLU 69	0	0	240.92	-11.6233	2.2812	0
2764	SLU 70	0	0	244.85	-12.0397	2.3115	0
2764	SLU 71	0	0	239.46	-11.5439	2.2648	0
2764	SLU 72	0	0	243.39	-11.9603	2.2951	0
2764	SLU 73	0	0	256.4	-12.7271	2.3774	0
2764	SLU 74	0	0	256.77	-12.3761	2.4044	0
2764	SLU 75	0	0	260.7	-12.7926	2.4347	0
2764	SLU 76	0	0	261.85	-12.9909	2.4384	0
2764	SLU 77	0	0	262.22	-12.6399	2.4655	0
2764	SLU 78	0	0	266.14	-13.0563	2.4958	0
2764	SLU 79	0	0	260.76	-12.5604	2.449	0
2764	SLU 80	0	0	264.68	-12.9769	2.4793	0
2764	SLU 81	0	0	258.98	-12.4687	2.4058	0
2764	SLU 82	0	0	262.91	-12.8852	2.4361	0
2764	SLU 83	0	0	264.43	-12.7324	2.4669	0
2764	SLU 84	0	0	268.36	-13.1489	2.4972	0
2764	SLE RA 1	0	0	170.95	-8.2373	1.602	0
2764	SLE RA 2	0	0	175.31	-8.7001	1.6357	0
2764	SLE RA 3	0	0	175.56	-8.4661	1.6537	0
2764	SLE RA 4	0	0	178.17	-8.7437	1.6739	0
2764	SLE RA 5	0	0	178.95	-8.8759	1.6764	0
2764	SLE RA 6	0	0	179.19	-8.6419	1.6944	0
2764	SLE RA 7	0	0	181.81	-8.9195	1.7146	0
2764	SLE RA 8	0	0	178.22	-8.5889	1.6835	0
2764	SLE RA 9	0	0	180.83	-8.8666	1.7037	0
2764	SLE RA 10	0	0	189.51	-9.3778	1.7585	0
2764	SLE RA 11	0	0	189.75	-9.1438	1.7765	0
2764	SLE RA 12	0	0	192.37	-9.4214	1.7967	0
2764	SLE RA 13	0	0	193.15	-9.5536	1.7992	0
2764	SLE RA 14	0	0	193.39	-9.3196	1.8173	0
2764	SLE RA 15	0	0	196.01	-9.5972	1.8375	0
2764	SLE RA 16	0	0	192.41	-9.2666	1.8063	0
2764	SLE RA 17	0	0	195.03	-9.5443	1.8265	0
2764	SLE RA 18	0	0	191.23	-9.2055	1.7775	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
2764	SLE RA 19	0	0	193.85	-9.4831	1.7977	0
2764	SLE RA 20	0	0	194.86	-9.3813	1.8182	0
2764	SLE RA 21	0	0	197.48	-9.6589	1.8384	0
2764	SLE FR 1	0	0	170.95	-8.2373	1.602	0
2764	SLE FR 2	0	0	171.82	-8.3299	1.6087	0
2764	SLE FR 3	0	0	172.4	-8.3076	1.6183	0
2764	SLE FR 4	0	0	177.91	-8.6203	1.6614	0
2764	SLE FR 5	0	0	178.49	-8.5981	1.6709	0
2764	SLE FR 6	0	0	181.09	-8.7214	1.6897	0
2764	SLE QP 1	0	0	170.95	-8.2373	1.602	0
2764	SLE QP 2	0	0	177.03	-8.5278	1.6546	0
2764	SLD 1	0	0	260.65	-11.936	2.5025	0
2764	SLD 2	0	0	260.65	-11.936	2.5025	0
2764	SLD 3	0	0	227.34	-10.5274	2.2816	0
2764	SLD 4	0	0	227.34	-10.5274	2.2816	0
2764	SLD 5	0	0	252.63	-11.6866	2.244	0
2764	SLD 6	0	0	252.63	-11.6866	2.244	0
2764	SLD 7	0	0	141.62	-6.9913	1.5077	0
2764	SLD 8	0	0	141.62	-6.9913	1.5077	0
2764	SLD 9	0	0	212.45	-10.0642	1.8016	0
2764	SLD 10	0	0	212.45	-10.0642	1.8016	0
2764	SLD 11	0	0	101.44	-5.3689	1.0652	0
2764	SLD 12	0	0	101.44	-5.3689	1.0652	0
2764	SLD 13	0	0	126.72	-6.5281	1.0277	0
2764	SLD 14	0	0	126.72	-6.5281	1.0277	0
2764	SLD 15	0	0	93.42	-5.1195	0.8068	0
2764	SLD 16	0	0	93.42	-5.1195	0.8068	0
2764	SLV 1	0	0	368.22	-16.3873	3.6199	0
2764	SLV 2	0	0	368.22	-16.3873	3.6199	0
2764	SLV 3	0	0	292.19	-13.1534	3.1133	0
2764	SLV 4	0	0	292.19	-13.1534	3.1133	0
2764	SLV 5	0	0	349.69	-15.7905	3.0126	0
2764	SLV 6	0	0	349.69	-15.7905	3.0126	0
2764	SLV 7	0	0	96.28	-5.0106	1.3239	0
2764	SLV 8	0	0	96.28	-5.0106	1.3239	0
2764	SLV 9	0	0	257.79	-12.0449	1.9854	0
2764	SLV 10	0	0	257.79	-12.0449	1.9854	0
2764	SLV 11	0	0	4.37	-1.2651	0.2967	0
2764	SLV 12	0	0	4.37	-1.2651	0.2967	0
2764	SLV 13	0	0	61.87	-3.9022	0.196	0
2764	SLV 14	0	0	61.87	-3.9022	0.196	0
2764	SLV 15	0	0	-14.15	-0.6682	-0.3106	0
2764	SLV 16	0	0	-14.15	-0.6682	-0.3106	0
3078	SLU 1	0	0	136.79	-3.7328	-2.2244	0
3078	SLU 2	0	0	130.08	-3.504	-2.1081	0
3078	SLU 3	0	0	140.75	-3.831	-2.2817	0
3078	SLU 4	0	0	136.72	-3.6937	-2.2119	0
3078	SLU 5	0	0	132.71	-3.5718	-2.1454	0
3078	SLU 6	0	0	143.38	-3.8988	-2.319	0
3078	SLU 7	0	0	139.35	-3.7615	-2.2492	0
3078	SLU 8	0	0	142.06	-3.8684	-2.2991	0
3078	SLU 9	0	0	138.03	-3.7311	-2.2293	0
3078	SLU 10	0	0	147.2	-3.9402	-2.3946	0
3078	SLU 11	0	0	157.88	-4.2672	-2.5681	0
3078	SLU 12	0	0	153.85	-4.1299	-2.4984	0
3078	SLU 13	0	0	149.84	-4.008	-2.4319	0
3078	SLU 14	0	0	160.51	-4.335	-2.6055	0
3078	SLU 15	0	0	156.48	-4.1977	-2.5357	0
3078	SLU 16	0	0	159.19	-4.3046	-2.5856	0
3078	SLU 17	0	0	155.16	-4.1673	-2.5158	0
3078	SLU 18	0	0	161.26	-4.356	-2.6337	0
3078	SLU 19	0	0	157.23	-4.2187	-2.5639	0
3078	SLU 20	0	0	163.89	-4.4238	-2.671	0
3078	SLU 21	0	0	159.86	-4.2865	-2.6012	0
3078	SLU 22	0	0	153.82	-4.1654	-2.5024	0
3078	SLU 23	0	0	147.1	-3.9366	-2.3861	0
3078	SLU 24	0	0	157.77	-4.2635	-2.5597	0
3078	SLU 25	0	0	153.74	-4.1263	-2.4899	0
3078	SLU 26	0	0	149.73	-4.0044	-2.4234	0
3078	SLU 27	0	0	160.41	-4.3313	-2.597	0
3078	SLU 28	0	0	156.38	-4.194	-2.5272	0
3078	SLU 29	0	0	159.08	-4.301	-2.5771	0
3078	SLU 30	0	0	155.05	-4.1637	-2.5073	0
3078	SLU 31	0	0	164.23	-4.3728	-2.6726	0
3078	SLU 32	0	0	174.9	-4.6998	-2.8461	0
3078	SLU 33	0	0	170.87	-4.5625	-2.7764	0
3078	SLU 34	0	0	166.86	-4.4406	-2.7099	0
3078	SLU 35	0	0	177.53	-4.7675	-2.8835	0
3078	SLU 36	0	0	173.5	-4.6303	-2.8137	0
3078	SLU 37	0	0	176.21	-4.7372	-2.8635	0
3078	SLU 38	0	0	172.18	-4.5999	-2.7938	0
3078	SLU 39	0	0	178.28	-4.7886	-2.9116	0
3078	SLU 40	0	0	174.25	-4.6513	-2.8419	0
3078	SLU 41	0	0	180.92	-4.8564	-2.949	0
3078	SLU 42	0	0	176.89	-4.7191	-2.8792	0
3078	SLU 43	0	0	172	-4.7044	-2.7964	0
3078	SLU 44	0	0	165.28	-4.4756	-2.6801	0
3078	SLU 45	0	0	175.95	-4.8025	-2.8537	0
3078	SLU 46	0	0	171.92	-4.6652	-2.7839	0





Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
3078	SLU 47	0	0	167.91	-4.5433	-2.7175	0
3078	SLU 48	0	0	178.58	-4.8703	-2.891	0
3078	SLU 49	0	0	174.55	-4.733	-2.8212	0
3078	SLU 50	0	0	177.26	-4.84	-2.8711	0
3078	SLU 51	0	0	173.23	-4.7027	-2.8013	0
3078	SLU 52	0	0	182.4	-4.9118	-2.9666	0
3078	SLU 53	0	0	193.08	-5.2387	-3.1402	0
3078	SLU 54	0	0	189.05	-5.1014	-3.0704	0
3078	SLU 55	0	0	185.04	-4.9795	-3.0039	0
3078	SLU 56	0	0	195.71	-5.3065	-3.1775	0
3078	SLU 57	0	0	191.68	-5.1692	-3.1077	0
3078	SLU 58	0	0	194.39	-5.2762	-3.1576	0
3078	SLU 59	0	0	190.36	-5.1389	-3.0878	0
3078	SLU 60	0	0	196.46	-5.3275	-3.2057	0
3078	SLU 61	0	0	192.43	-5.1902	-3.1359	0
3078	SLU 62	0	0	199.09	-5.3953	-3.243	0
3078	SLU 63	0	0	195.06	-5.258	-3.1732	0
3078	SLU 64	0	0	189.02	-5.137	-3.0744	0
3078	SLU 65	0	0	182.3	-4.9081	-2.9581	0
3078	SLU 66	0	0	192.97	-5.2351	-3.1317	0
3078	SLU 67	0	0	188.94	-5.0978	-3.0619	0
3078	SLU 68	0	0	184.93	-4.9759	-2.9954	0
3078	SLU 69	0	0	195.61	-5.3029	-3.169	0
3078	SLU 70	0	0	191.58	-5.1656	-3.0992	0
3078	SLU 71	0	0	194.28	-5.2725	-3.1491	0
3078	SLU 72	0	0	190.25	-5.1353	-3.0793	0
3078	SLU 73	0	0	199.43	-5.3443	-3.2446	0
3078	SLU 74	0	0	210.1	-5.6713	-3.4181	0
3078	SLU 75	0	0	206.07	-5.534	-3.3484	0
3078	SLU 76	0	0	202.06	-5.4121	-3.2819	0
3078	SLU 77	0	0	212.73	-5.7391	-3.4555	0
3078	SLU 78	0	0	208.7	-5.6018	-3.3857	0
3078	SLU 79	0	0	211.41	-5.7087	-3.4356	0
3078	SLU 80	0	0	207.38	-5.5715	-3.3658	0
3078	SLU 81	0	0	213.49	-5.7601	-3.4837	0
3078	SLU 82	0	0	209.45	-5.6228	-3.4139	0
3078	SLU 83	0	0	216.12	-5.8279	-3.521	0
3078	SLU 84	0	0	212.09	-5.6906	-3.4512	0
3078	SLE RA 1	0	0	141.66	-3.8564	-2.3038	0
3078	SLE RA 2	0	0	137.18	-3.7039	-2.2263	0
3078	SLE RA 3	0	0	144.3	-3.9219	-2.342	0
3078	SLE RA 4	0	0	141.61	-3.8303	-2.2955	0
3078	SLE RA 5	0	0	138.93	-3.7491	-2.2512	0
3078	SLE RA 6	0	0	146.05	-3.967	-2.3669	0
3078	SLE RA 7	0	0	143.36	-3.8755	-2.3204	0
3078	SLE RA 8	0	0	145.17	-3.9468	-2.3536	0
3078	SLE RA 9	0	0	142.48	-3.8553	-2.3071	0
3078	SLE RA 10	0	0	148.6	-3.9947	-2.4173	0
3078	SLE RA 11	0	0	155.71	-4.2127	-2.533	0
3078	SLE RA 12	0	0	153.03	-4.1211	-2.4865	0
3078	SLE RA 13	0	0	150.35	-4.0399	-2.4422	0
3078	SLE RA 14	0	0	157.47	-4.2578	-2.5579	0
3078	SLE RA 15	0	0	154.78	-4.1663	-2.5114	0
3078	SLE RA 16	0	0	156.59	-4.2376	-2.5446	0
3078	SLE RA 17	0	0	153.9	-4.1461	-2.4981	0
3078	SLE RA 18	0	0	157.97	-4.2719	-2.5767	0
3078	SLE RA 19	0	0	155.28	-4.1803	-2.5301	0
3078	SLE RA 20	0	0	159.72	-4.3171	-2.6016	0
3078	SLE RA 21	0	0	157.04	-4.2255	-2.555	0
3078	SLE FR 1	0	0	141.66	-3.8564	-2.3038	0
3078	SLE FR 2	0	0	140.76	-3.8259	-2.2883	0
3078	SLE FR 3	0	0	142.36	-3.8745	-2.3138	0
3078	SLE FR 4	0	0	145.66	-3.9506	-2.3702	0
3078	SLE FR 5	0	0	147.25	-3.9991	-2.3956	0
3078	SLE FR 6	0	0	149.81	-4.0642	-2.4403	0
3078	SLE QP 1	0	0	141.66	-3.8564	-2.3038	0
3078	SLE QP 2	0	0	146.55	-3.9811	-2.3857	0
3078	SLD 1	0	0	196.48	-5.9372	-3.1402	0
3078	SLD 2	0	0	196.48	-5.9372	-3.1402	0
3078	SLD 3	0	0	227.25	-7.2265	-3.734	0
3078	SLD 4	0	0	227.25	-7.2265	-3.734	0
3078	SLD 5	0	0	114.85	-2.6124	-1.7114	0
3078	SLD 6	0	0	114.85	-2.6124	-1.7114	0
3078	SLD 7	0	0	217.44	-6.9101	-3.6908	0
3078	SLD 8	0	0	217.44	-6.9101	-3.6908	0
3078	SLD 9	0	0	75.67	-1.052	-1.0806	0
3078	SLD 10	0	0	75.67	-1.052	-1.0806	0
3078	SLD 11	0	0	178.25	-5.3497	-3.06	0
3078	SLD 12	0	0	178.25	-5.3497	-3.06	0
3078	SLD 13	0	0	65.85	-0.7357	-1.0374	0
3078	SLD 14	0	0	65.85	-0.7357	-1.0374	0
3078	SLD 15	0	0	96.62	-2.025	-1.6312	0
3078	SLD 16	0	0	96.62	-2.025	-1.6312	0
3078	SLV 1	0	0	261.55	-8.4555	-4.1182	0
3078	SLV 2	0	0	261.55	-8.4555	-4.1182	0
3078	SLV 3	0	0	331.74	-11.4253	-5.4716	0
3078	SLV 4	0	0	331.74	-11.4253	-5.4716	0
3078	SLV 5	0	0	74.58	-0.8192	-0.8527	0
3078	SLV 6	0	0	74.58	-0.8192	-0.8527	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
3078	SLV 7	0	0	308.58	-10.7186	-5.3642	0
3078	SLV 8	0	0	308.58	-10.7186	-5.3642	0
3078	SLV 9	0	0	-15.47	2.7564	0.5928	0
3078	SLV 10	0	0	-15.47	2.7564	0.5928	0
3078	SLV 11	0	0	218.52	-7.1429	-3.9186	0
3078	SLV 12	0	0	218.52	-7.1429	-3.9186	0
3078	SLV 13	0	0	-38.64	3.4632	0.7002	0
3078	SLV 14	0	0	-38.64	3.4632	0.7002	0
3078	SLV 15	0	0	31.56	0.4934	-0.6532	0
3078	SLV 16	0	0	31.56	0.4934	-0.6532	0
6438	SLU 1	0	0	345.52	1.8098	-1.8545	0
6438	SLU 2	0	0	378.57	1.9424	-2.0521	0
6438	SLU 3	0	0	361.38	1.881	-1.9235	0
6438	SLU 4	0	0	381.21	1.9605	-2.0421	0
6438	SLU 5	0	0	390.62	1.9907	-2.0994	0
6438	SLU 6	0	0	373.43	1.9293	-1.9708	0
6438	SLU 7	0	0	393.25	2.0088	-2.0894	0
6438	SLU 8	0	0	369.62	1.9064	-1.949	0
6438	SLU 9	0	0	389.44	1.986	-2.0676	0
6438	SLU 10	0	0	423.99	2.177	-2.3136	0
6438	SLU 11	0	0	406.81	2.1155	-2.185	0
6438	SLU 12	0	0	426.63	2.1951	-2.3036	0
6438	SLU 13	0	0	436.04	2.2253	-2.3609	0
6438	SLU 14	0	0	418.85	2.1638	-2.2323	0
6438	SLU 15	0	0	438.68	2.2434	-2.3508	0
6438	SLU 16	0	0	415.04	2.1409	-2.2105	0
6438	SLU 17	0	0	434.87	2.2205	-2.3291	0
6438	SLU 18	0	0	410.42	2.1449	-2.228	0
6438	SLU 19	0	0	430.24	2.2245	-2.3466	0
6438	SLU 20	0	0	422.46	2.1932	-2.2753	0
6438	SLU 21	0	0	442.29	2.2727	-2.3939	0
6438	SLU 22	0	0	394.19	2.056	-2.1156	0
6438	SLU 23	0	0	427.23	2.1886	-2.3133	0
6438	SLU 24	0	0	410.05	2.1272	-2.1847	0
6438	SLU 25	0	0	429.87	2.2068	-2.3032	0
6438	SLU 26	0	0	439.28	2.2369	-2.3605	0
6438	SLU 27	0	0	422.09	2.1755	-2.2319	0
6438	SLU 28	0	0	441.92	2.2551	-2.3505	0
6438	SLU 29	0	0	418.28	2.1526	-2.2101	0
6438	SLU 30	0	0	438.11	2.2322	-2.3287	0
6438	SLU 31	0	0	472.66	2.4232	-2.5747	0
6438	SLU 32	0	0	455.47	2.3618	-2.4461	0
6438	SLU 33	0	0	475.3	2.4413	-2.5647	0
6438	SLU 34	0	0	484.71	2.4715	-2.622	0
6438	SLU 35	0	0	467.52	2.4101	-2.4934	0
6438	SLU 36	0	0	487.35	2.4896	-2.612	0
6438	SLU 37	0	0	463.71	2.3872	-2.4716	0
6438	SLU 38	0	0	483.54	2.4667	-2.5902	0
6438	SLU 39	0	0	459.08	2.3911	-2.4892	0
6438	SLU 40	0	0	478.91	2.4707	-2.6077	0
6438	SLU 41	0	0	471.13	2.4394	-2.5364	0
6438	SLU 42	0	0	490.96	2.519	-2.655	0
6438	SLU 43	0	0	432.49	2.2683	-2.3213	0
6438	SLU 44	0	0	465.54	2.4009	-2.5189	0
6438	SLU 45	0	0	448.35	2.3395	-2.3903	0
6438	SLU 46	0	0	468.18	2.4191	-2.5089	0
6438	SLU 47	0	0	477.59	2.4492	-2.5662	0
6438	SLU 48	0	0	460.4	2.3878	-2.4376	0
6438	SLU 49	0	0	480.23	2.4674	-2.5562	0
6438	SLU 50	0	0	456.59	2.3649	-2.4158	0
6438	SLU 51	0	0	476.41	2.4445	-2.5344	0
6438	SLU 52	0	0	510.96	2.6355	-2.7804	0
6438	SLU 53	0	0	493.78	2.5741	-2.6518	0
6438	SLU 54	0	0	513.6	2.6536	-2.7704	0
6438	SLU 55	0	0	523.01	2.6838	-2.8277	0
6438	SLU 56	0	0	505.82	2.6224	-2.6991	0
6438	SLU 57	0	0	525.65	2.7019	-2.8177	0
6438	SLU 58	0	0	502.01	2.5995	-2.6773	0
6438	SLU 59	0	0	521.84	2.679	-2.7959	0
6438	SLU 60	0	0	497.39	2.6034	-2.6948	0
6438	SLU 61	0	0	517.21	2.683	-2.8134	0
6438	SLU 62	0	0	509.43	2.6517	-2.7421	0
6438	SLU 63	0	0	529.26	2.7313	-2.8607	0
6438	SLU 64	0	0	481.16	2.5146	-2.5824	0
6438	SLU 65	0	0	514.21	2.6472	-2.7801	0
6438	SLU 66	0	0	497.02	2.5857	-2.6515	0
6438	SLU 67	0	0	516.84	2.6653	-2.7701	0
6438	SLU 68	0	0	526.25	2.6955	-2.8273	0
6438	SLU 69	0	0	509.06	2.634	-2.6987	0
6438	SLU 70	0	0	528.89	2.7136	-2.8173	0
6438	SLU 71	0	0	505.25	2.6111	-2.6769	0
6438	SLU 72	0	0	525.08	2.6907	-2.7955	0
6438	SLU 73	0	0	559.63	2.8817	-3.0415	0
6438	SLU 74	0	0	542.44	2.8203	-2.9129	0
6438	SLU 75	0	0	562.27	2.8999	-3.0315	0
6438	SLU 76	0	0	571.68	2.93	-3.0888	0
6438	SLU 77	0	0	554.49	2.8686	-2.9602	0
6438	SLU 78	0	0	574.32	2.9481	-3.0788	0
6438	SLU 79	0	0	550.68	2.8457	-2.9384	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
6438	SLU 80	0	0	570.51	2.9253	-3.057	0
6438	SLU 81	0	0	546.05	2.8496	-2.956	0
6438	SLU 82	0	0	565.88	2.9292	-3.0746	0
6438	SLU 83	0	0	558.1	2.8979	-3.0032	0
6438	SLU 84	0	0	577.93	2.9775	-3.1218	0
6438	SLE RA 1	0	0	359.43	1.8802	-1.9291	0
6438	SLE RA 2	0	0	381.46	1.9686	-2.0609	0
6438	SLE RA 3	0	0	370	1.9276	-1.9751	0
6438	SLE RA 4	0	0	383.22	1.9807	-2.0542	0
6438	SLE RA 5	0	0	389.49	2.0008	-2.0924	0
6438	SLE RA 6	0	0	378.03	1.9598	-2.0066	0
6438	SLE RA 7	0	0	391.25	2.0128	-2.0857	0
6438	SLE RA 8	0	0	375.49	1.9446	-1.9921	0
6438	SLE RA 9	0	0	388.71	1.9976	-2.0712	0
6438	SLE RA 10	0	0	411.74	2.1249	-2.2352	0
6438	SLE RA 11	0	0	400.28	2.084	-2.1494	0
6438	SLE RA 12	0	0	413.5	2.137	-2.2285	0
6438	SLE RA 13	0	0	419.77	2.1571	-2.2667	0
6438	SLE RA 14	0	0	408.31	2.1162	-2.1809	0
6438	SLE RA 15	0	0	421.53	2.1692	-2.26	0
6438	SLE RA 16	0	0	405.77	2.1009	-2.1664	0
6438	SLE RA 17	0	0	418.99	2.154	-2.2455	0
6438	SLE RA 18	0	0	402.69	2.1036	-2.1781	0
6438	SLE RA 19	0	0	415.91	2.1566	-2.2572	0
6438	SLE RA 20	0	0	410.72	2.1357	-2.2096	0
6438	SLE RA 21	0	0	423.94	2.1888	-2.2887	0
6438	SLE FR 1	0	0	359.43	1.8802	-1.9291	0
6438	SLE FR 2	0	0	363.83	1.8979	-1.9554	0
6438	SLE FR 3	0	0	362.64	1.893	-1.9417	0
6438	SLE FR 4	0	0	376.81	1.9649	-2.0302	0
6438	SLE FR 5	0	0	375.62	1.9601	-2.0164	0
6438	SLE FR 6	0	0	381.06	1.9919	-2.0536	0
6438	SLE QP 1	0	0	359.43	1.8802	-1.9291	0
6438	SLE QP 2	0	0	372.4	1.9472	-2.0038	0
6438	SLD 1	0	0	475.28	2.4591	-2.3573	0
6438	SLD 2	0	0	475.28	2.4591	-2.3573	0
6438	SLD 3	0	0	425.39	2.2673	-2.1054	0
6438	SLD 4	0	0	425.39	2.2673	-2.1054	0
6438	SLD 5	0	0	478.94	2.3918	-2.4919	0
6438	SLD 6	0	0	478.94	2.3918	-2.4919	0
6438	SLD 7	0	0	312.63	1.7522	-1.6522	0
6438	SLD 8	0	0	312.63	1.7522	-1.6522	0
6438	SLD 9	0	0	432.18	2.1422	-2.3554	0
6438	SLD 10	0	0	432.18	2.1422	-2.3554	0
6438	SLD 11	0	0	265.87	1.5026	-1.5157	0
6438	SLD 12	0	0	265.87	1.5026	-1.5157	0
6438	SLD 13	0	0	319.42	1.6271	-1.9022	0
6438	SLD 14	0	0	319.42	1.6271	-1.9022	0
6438	SLD 15	0	0	269.53	1.4353	-1.6503	0
6438	SLD 16	0	0	269.53	1.4353	-1.6503	0
6438	SLV 1	0	0	610.58	3.1382	-2.8303	0
6438	SLV 2	0	0	610.58	3.1382	-2.8303	0
6438	SLV 3	0	0	495.02	2.6901	-2.2362	0
6438	SLV 4	0	0	495.02	2.6901	-2.2362	0
6438	SLV 5	0	0	619.12	2.9842	-3.1528	0
6438	SLV 6	0	0	619.12	2.9842	-3.1528	0
6438	SLV 7	0	0	233.93	1.4904	-1.1725	0
6438	SLV 8	0	0	233.93	1.4904	-1.1725	0
6438	SLV 9	0	0	510.88	2.404	-2.8351	0
6438	SLV 10	0	0	510.88	2.404	-2.8351	0
6438	SLV 11	0	0	125.69	0.9102	-0.8548	0
6438	SLV 12	0	0	125.69	0.9102	-0.8548	0
6438	SLV 13	0	0	249.79	1.2043	-1.7714	0
6438	SLV 14	0	0	249.79	1.2043	-1.7714	0
6438	SLV 15	0	0	134.23	0.7561	-1.1773	0
6438	SLV 16	0	0	134.23	0.7561	-1.1773	0
6688	SLU 1	0	0	288.32	-1.5913	-1.6876	0
6688	SLU 2	0	0	274.59	-1.5396	-1.6303	0
6688	SLU 3	0	0	296.48	-1.6586	-1.7503	0
6688	SLU 4	0	0	288.24	-1.6275	-1.7159	0
6688	SLU 5	0	0	278.99	-1.5903	-1.6734	0
6688	SLU 6	0	0	300.87	-1.7092	-1.7933	0
6688	SLU 7	0	0	292.64	-1.6782	-1.759	0
6688	SLU 8	0	0	297.11	-1.6927	-1.7737	0
6688	SLU 9	0	0	288.88	-1.6616	-1.7393	0
6688	SLU 10	0	0	312.5	-1.7398	-1.8744	0
6688	SLU 11	0	0	334.38	-1.8587	-1.9944	0
6688	SLU 12	0	0	326.15	-1.8277	-1.96	0
6688	SLU 13	0	0	316.89	-1.7904	-1.9174	0
6688	SLU 14	0	0	338.78	-1.9094	-2.0374	0
6688	SLU 15	0	0	330.54	-1.8784	-2.003	0
6688	SLU 16	0	0	335.02	-1.8928	-2.0178	0
6688	SLU 17	0	0	326.78	-1.8618	-1.9834	0
6688	SLU 18	0	0	342.47	-1.8773	-2.0363	0
6688	SLU 19	0	0	334.23	-1.8462	-2.0019	0
6688	SLU 20	0	0	346.86	-1.928	-2.0793	0
6688	SLU 21	0	0	338.63	-1.8969	-2.0449	0
6688	SLU 22	0	0	325.5	-1.8011	-1.9317	0
6688	SLU 23	0	0	311.77	-1.7493	-1.8744	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
6688	SLU 24	0	0	333.66	-1.8683	-1.9944	0
6688	SLU 25	0	0	325.42	-1.8373	-1.96	0
6688	SLU 26	0	0	316.17	-1.8	-1.9174	0
6688	SLU 27	0	0	338.05	-1.919	-2.0374	0
6688	SLU 28	0	0	329.82	-1.8879	-2.003	0
6688	SLU 29	0	0	334.29	-1.9024	-2.0178	0
6688	SLU 30	0	0	326.06	-1.8713	-1.9834	0
6688	SLU 31	0	0	349.68	-1.9495	-2.1184	0
6688	SLU 32	0	0	371.56	-2.0685	-2.2384	0
6688	SLU 33	0	0	363.33	-2.0374	-2.204	0
6688	SLU 34	0	0	354.07	-2.0002	-2.1615	0
6688	SLU 35	0	0	375.96	-2.1191	-2.2814	0
6688	SLU 36	0	0	367.72	-2.0881	-2.2471	0
6688	SLU 37	0	0	372.2	-2.1026	-2.2618	0
6688	SLU 38	0	0	363.96	-2.0715	-2.2274	0
6688	SLU 39	0	0	379.65	-2.087	-2.2803	0
6688	SLU 40	0	0	371.41	-2.056	-2.2459	0
6688	SLU 41	0	0	384.04	-2.1377	-2.3234	0
6688	SLU 42	0	0	375.81	-2.1066	-2.289	0
6688	SLU 43	0	0	362.07	-1.9968	-2.1102	0
6688	SLU 44	0	0	348.34	-1.9451	-2.053	0
6688	SLU 45	0	0	370.22	-2.0641	-2.1729	0
6688	SLU 46	0	0	361.99	-2.033	-2.1386	0
6688	SLU 47	0	0	352.74	-1.9958	-2.096	0
6688	SLU 48	0	0	374.62	-2.1147	-2.216	0
6688	SLU 49	0	0	366.39	-2.0837	-2.1816	0
6688	SLU 50	0	0	370.86	-2.0982	-2.1963	0
6688	SLU 51	0	0	362.63	-2.0671	-2.162	0
6688	SLU 52	0	0	386.25	-2.1453	-2.297	0
6688	SLU 53	0	0	408.13	-2.2642	-2.417	0
6688	SLU 54	0	0	399.89	-2.2332	-2.3826	0
6688	SLU 55	0	0	390.64	-2.1959	-2.34	0
6688	SLU 56	0	0	412.53	-2.3149	-2.46	0
6688	SLU 57	0	0	404.29	-2.2838	-2.4256	0
6688	SLU 58	0	0	408.76	-2.2983	-2.4404	0
6688	SLU 59	0	0	400.53	-2.2673	-2.406	0
6688	SLU 60	0	0	416.22	-2.2828	-2.4589	0
6688	SLU 61	0	0	407.98	-2.2517	-2.4245	0
6688	SLU 62	0	0	420.61	-2.3335	-2.5019	0
6688	SLU 63	0	0	412.38	-2.3024	-2.4676	0
6688	SLU 64	0	0	399.25	-2.2066	-2.3543	0
6688	SLU 65	0	0	385.52	-2.1548	-2.297	0
6688	SLU 66	0	0	407.41	-2.2738	-2.417	0
6688	SLU 67	0	0	399.17	-2.2427	-2.3826	0
6688	SLU 68	0	0	389.92	-2.2055	-2.34	0
6688	SLU 69	0	0	411.8	-2.3245	-2.46	0
6688	SLU 70	0	0	403.57	-2.2934	-2.4256	0
6688	SLU 71	0	0	408.04	-2.3079	-2.4404	0
6688	SLU 72	0	0	399.81	-2.2768	-2.406	0
6688	SLU 73	0	0	423.43	-2.355	-2.5411	0
6688	SLU 74	0	0	445.31	-2.474	-2.661	0
6688	SLU 75	0	0	437.07	-2.4429	-2.6267	0
6688	SLU 76	0	0	427.82	-2.4056	-2.5841	0
6688	SLU 77	0	0	449.71	-2.5246	-2.7041	0
6688	SLU 78	0	0	441.47	-2.4936	-2.6697	0
6688	SLU 79	0	0	445.94	-2.5081	-2.6844	0
6688	SLU 80	0	0	437.71	-2.477	-2.6501	0
6688	SLU 81	0	0	453.4	-2.4925	-2.7029	0
6688	SLU 82	0	0	445.16	-2.4615	-2.6686	0
6688	SLU 83	0	0	457.79	-2.5432	-2.746	0
6688	SLU 84	0	0	449.56	-2.5121	-2.7116	0
6688	SLE RA 1	0	0	298.94	-1.6513	-1.7573	0
6688	SLE RA 2	0	0	289.79	-1.6168	-1.7192	0
6688	SLE RA 3	0	0	304.38	-1.6961	-1.7991	0
6688	SLE RA 4	0	0	298.89	-1.6754	-1.7762	0
6688	SLE RA 5	0	0	292.72	-1.6505	-1.7479	0
6688	SLE RA 6	0	0	307.31	-1.7299	-1.8278	0
6688	SLE RA 7	0	0	301.82	-1.7092	-1.8049	0
6688	SLE RA 8	0	0	304.8	-1.7188	-1.8147	0
6688	SLE RA 9	0	0	299.31	-1.6981	-1.7918	0
6688	SLE RA 10	0	0	315.06	-1.7502	-1.8819	0
6688	SLE RA 11	0	0	329.65	-1.8295	-1.9618	0
6688	SLE RA 12	0	0	324.16	-1.8088	-1.9389	0
6688	SLE RA 13	0	0	317.99	-1.784	-1.9106	0
6688	SLE RA 14	0	0	332.58	-1.8633	-1.9905	0
6688	SLE RA 15	0	0	327.09	-1.8426	-1.9676	0
6688	SLE RA 16	0	0	330.07	-1.8523	-1.9774	0
6688	SLE RA 17	0	0	324.58	-1.8316	-1.9545	0
6688	SLE RA 18	0	0	335.04	-1.8419	-1.9898	0
6688	SLE RA 19	0	0	329.55	-1.8212	-1.9669	0
6688	SLE RA 20	0	0	337.97	-1.8757	-2.0185	0
6688	SLE RA 21	0	0	332.48	-1.855	-1.9956	0
6688	SLE FR 1	0	0	298.94	-1.6513	-1.7573	0
6688	SLE FR 2	0	0	297.11	-1.6444	-1.7497	0
6688	SLE FR 3	0	0	300.11	-1.6648	-1.7688	0
6688	SLE FR 4	0	0	307.94	-1.7016	-1.8194	0
6688	SLE FR 5	0	0	310.94	-1.722	-1.8386	0
6688	SLE FR 6	0	0	316.99	-1.7466	-1.8736	0
6688	SLE QP 1	0	0	298.94	-1.6513	-1.7573	0



Nodo	Cont.	Reazione a traslazione			Reazione a rotazione		
Ind.	N.br.	x	y	z	x	y	z
6688	SLE QP 2	0	0	309.77	-1.7085	-1.8271	0
6688	SLD 1	0	0	363.84	-2.0409	-1.9658	0
6688	SLD 2	0	0	363.84	-2.0409	-1.9658	0
6688	SLD 3	0	0	407.79	-2.2112	-2.1848	0
6688	SLD 4	0	0	407.79	-2.2112	-2.1848	0
6688	SLD 5	0	0	259.34	-1.5499	-1.5365	0
6688	SLD 6	0	0	259.34	-1.5499	-1.5365	0
6688	SLD 7	0	0	405.83	-2.1175	-2.2666	0
6688	SLD 8	0	0	405.83	-2.1175	-2.2666	0
6688	SLD 9	0	0	213.71	-1.2994	-1.3875	0
6688	SLD 10	0	0	213.71	-1.2994	-1.3875	0
6688	SLD 11	0	0	360.2	-1.867	-2.1177	0
6688	SLD 12	0	0	360.2	-1.867	-2.1177	0
6688	SLD 13	0	0	211.75	-1.2058	-1.4693	0
6688	SLD 14	0	0	211.75	-1.2058	-1.4693	0
6688	SLD 15	0	0	255.7	-1.376	-1.6884	0
6688	SLD 16	0	0	255.7	-1.376	-1.6884	0
6688	SLV 1	0	0	435.4	-2.4837	-2.1513	0
6688	SLV 2	0	0	435.4	-2.4837	-2.1513	0
6688	SLV 3	0	0	537.19	-2.8805	-2.6628	0
6688	SLV 4	0	0	537.19	-2.8805	-2.6628	0
6688	SLV 5	0	0	193.07	-1.3392	-1.1485	0
6688	SLV 6	0	0	193.07	-1.3392	-1.1485	0
6688	SLV 7	0	0	532.39	-2.6619	-2.8536	0
6688	SLV 8	0	0	532.39	-2.6619	-2.8536	0
6688	SLV 9	0	0	87.16	-0.755	-0.8006	0
6688	SLV 10	0	0	87.16	-0.755	-0.8006	0
6688	SLV 11	0	0	426.47	-2.0777	-2.5056	0
6688	SLV 12	0	0	426.47	-2.0777	-2.5056	0
6688	SLV 13	0	0	82.35	-0.5364	-0.9913	0
6688	SLV 14	0	0	82.35	-0.5364	-0.9913	0
6688	SLV 15	0	0	184.15	-0.9332	-1.5028	0
6688	SLV 16	0	0	184.15	-0.9332	-1.5028	0

## 1.3 Risposta modale

**Modo:** identificativo del modo di vibrare.

**Periodo:** periodo. [s]

**Massa X:** massa partecipante in direzione globale X. Il valore è adimensionale.

**Massa Y:** massa partecipante in direzione globale Y. Il valore è adimensionale.

**Massa Z:** massa partecipante in direzione globale Z. Il valore è adimensionale.

**Massa rot. X:** massa rotazionale partecipante attorno la direzione globale X. Il valore è adimensionale.

**Massa rot. Y:** massa rotazionale partecipante attorno la direzione globale Y. Il valore è adimensionale.

**Massa rot. Z:** massa rotazionale partecipante attorno la direzione globale Z. Il valore è adimensionale.

**Massa sX:** massa partecipante in direzione Sisma X. Il valore è adimensionale.

**Massa sY:** massa partecipante in direzione Sisma Y. Il valore è adimensionale.

**Totale masse partecipanti:**

Traslazione X: 0.867277

Traslazione Y: 0.873092

Traslazione Z: 0

Rotazione X: 0.836141

Rotazione Y: 0.905511

Rotazione Z: 0.679728

Modo	Periodo	Massa X	Massa Y	Massa Z	Massa rot. X	Massa rot. Y	Massa rot. Z	Massa sX	Massa sY
1	4.201651359	0.000022637	0.03757721	0	0.03735298	0.000017246	0.014208895	0.000022637	0.03757721
2	2.560867905	0.011640078	0.000307428	0	0.000588328	0.008697003	0.000285348	0.011640078	0.000307428
3	2.403532053	0.00000329	0.000021103	0	0.005245432	0.000228036	0.000066852	0.00000329	0.000021103
4	2.365325263	0.000020749	0.005576319	0	0.014720275	0.000046925	0.013054291	0.000020749	0.005576319
5	2.330556792	0.004788184	0.000060996	0	0.000522378	0.000154692	0.000414228	0.004788184	0.000060996
6	2.149263242	0.00568797	0.000003373	0	0.000000616	0.010447459	0.000475238	0.00568797	0.000003373
7	2.073037852	0.000942782	0.006403865	0	0.007736348	0.001794267	0.004071078	0.000942782	0.006403865
8	2.066806782	0.005243521	0.000007072	0	0.000039947	0.009536638	0.000097727	0.005243521	0.000007072
9	2.007917582	0.000870659	0.009001031	0	0.009516315	0.001737938	0.008509224	0.000870659	0.009001031
10	1.981536495	0.000351069	0.011198999	0	0.018229674	0.000569381	0.028554545	0.000351069	0.011198999
11	1.96768246	0.000239733	0.012012488	0	0.018993881	0.000407344	0.000253012	0.000239733	0.012012488
12	1.877116124	0.000063579	0.011902132	0	0.010120897	0.000049173	0.026583889	0.000063579	0.011902132
13	1.838626757	0.000020536	0.013126551	0	0.01049423	0.000013856	0.000644673	0.000020536	0.013126551
14	1.783720303	0.000000256	0.002485233	0	0.008604381	0.000008373	0.007791285	0.000000256	0.002485233
15	1.713307209	0.009682271	0.000006032	0	0.000000039	0.000272171	0.00055901	0.009682271	0.000006032
16	1.611757571	0.000005264	0.000747791	0	0.001465208	0.000022858	0.000747986	0.000005264	0.000747791
17	1.523319028	0.000067782	0.000129236	0	0.000766174	0.000145795	0.011084725	0.000067782	0.000129236
18	1.496454791	0.000044612	0.06162711	0	0.061580551	0.000010113	0.041120027	0.000044612	0.06162711
19	1.44442831	0.000449429	0.00008127	0	0.00000688	0.000029423	0.000108455	0.000449429	0.00008127
20	1.39796519	0.000146502	0.021773407	0	0.022949977	0.000289083	0.008077933	0.000146502	0.021773407
21	1.350582257	0.005195036	0.004639362	0	0.00227206	0.001657026	0.01504124	0.005195036	0.004639362
22	1.321372293	0.004689091	0.034573853	0	0.018238659	0.001394988	0.035924806	0.004689091	0.034573853
23	1.261932718	0.01494812	0.003922694	0	0.002509837	0.007491288	0.00617324	0.01494812	0.003922694
24	1.212661622	0.000030462	0.016828129	0	0.006965606	0.000361156	0.010980517	0.000030462	0.016828129
25	1.181807875	0.0159867	0.000198199	0	0.000328658	0.0127148	0.003537742	0.0159867	0.000198199



Modo	Periodo	Massa X	Massa Y	Massa Z	Massa rot. X	Massa rot. Y	Massa rot. Z	Massa sX	Massa sY
26	1.057339734	0.000154212	0.010907013	0	0.00811865	0.000034932	0.006787653	0.000154212	0.010907013
27	0.972889789	0.004233517	0.000442416	0	0.000286924	0.000122236	0.000165016	0.004233517	0.000442416
28	0.905307958	0.000177048	0.012553505	0	0.00141002	0.000241549	0.008077951	0.000177048	0.012553505
29	0.839110748	0.028198802	0.000937797	0	0.000361802	0.03312954	0.000250489	0.028198802	0.000937797
30	0.761405729	0.011263935	0.023847256	0	0.018101615	0.007745425	0.019931303	0.011263935	0.023847256
31	0.755398153	0.035618518	0.006137364	0	0.00367584	0.026186028	0.004487047	0.035618518	0.006137364
32	0.634313422	0.000002703	0.082191315	0	0.072886816	0.000005927	0.058913337	0.000002703	0.082191315
33	0.589006663	0.032186127	0.000040102	0	0.000005235	0.023871983	0.000167908	0.032186127	0.000040102
34	0.455842399	0.000255158	0.072052192	0	0.035003693	0.000124415	0.052183883	0.000255158	0.072052192
35	0.437624801	0.019711608	0.000190252	0	0.000085317	0.005139642	0.000066166	0.019711608	0.000190252
36	0.286489595	0.000227895	0.146058345	0	0.214491051	0.000438146	0.102152068	0.000227895	0.146058345
37	0.241918242	0.101287296	0.000375364	0	0.000396722	0.150118481	0.002447684	0.101287296	0.000375364
38	0.149538724	0.508520557	0.021565141	0	0.01901182	0.553101296	0.00383538	0.508520557	0.021565141
39	0.144696789	0.044297972	0.241570953	0	0.202760253	0.047051006	0.181867789	0.044297972	0.241570953
40	0.018832164	0.000000925	0.000011742	0	0.000295769	0.000103479	0.000028112	0.000000925	0.000011742

## 1.4 Equilibrio globale forze

**Contributo:** Nome attribuito al sistema risultante.

**Fx:** Componente X di forza del sistema risultante. [kN]

**Fy:** Componente Y di forza del sistema risultante. [kN]

**Fz:** Componente Z di forza del sistema risultante. [kN]

**Mx:** Componente di momento attorno l'asse X del sistema risultante. [kN\*m]

**My:** Componente di momento attorno l'asse Y del sistema risultante. [kN\*m]

**Mz:** Componente di momento attorno l'asse Z del sistema risultante. [kN\*m]

Bilancio in condizione di carico: Pesi strutturali

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0.44829	-0.03544	-11913.15314	-11537.1533	-147888.5832	-1.6365
Reazioni	-0.44829	0.03544	11913.15314	11537.1533	147888.5832	1.6365
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

Bilancio in condizione di carico: Permanenti portati

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	0	-2735.67643	-4073.9375	-33900.8684	0
Reazioni	0	0	2735.67643	4073.9375	33900.8684	0
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

Bilancio in condizione di carico: Variabile A

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	0	-2122.70854	-2518.3594	-26289.5485	0
Reazioni	0	0	2122.70854	2518.3594	26289.5485	0
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

Bilancio in condizione di carico: Neve

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	0	-342.57175	-346.8129	-4235.6815	0
Reazioni	0	0	342.57175	346.8129	4235.6815	0
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

Bilancio in condizione di carico: Variabile H

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	0	-265.56193	-345.3691	-3287.8787	0
Reazioni	0	0	265.56193	345.3691	3287.8787	0
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

Bilancio in condizione di carico: Vento

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	-46.4388	0	376.7652	0	575.856
Reazioni	0	46.4388	0	-376.7652	0	-575.856
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

Bilancio in condizione di carico: Sisma X SLV

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	4439.80144	0	0	0	45542.2489	-4849.8964
Reazioni	-4439.80144	0	0	0	-45542.2489	4849.8964
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

Bilancio in condizione di carico: Sisma Y SLV

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	4388.21888	0	-45013.1294	0	-54514.0246
Reazioni	0	-4388.21888	0	45013.1294	0	54514.0246
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0



#### Bilancio in condizione di carico: Sisma X SLD

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	1944.67123	0	0	0	19947.8968	-2124.2964
Reazioni	-1944.67123	0	0	0	-19947.8968	2124.2964
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

#### Bilancio in condizione di carico: Sisma Y SLD

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	1940.05464	0	-19900.5412	0	-24100.9369
Reazioni	0	-1940.05464	0	19900.5412	0	24100.9369
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

#### Bilancio in condizione di carico: Rig Ux

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	0	0	0	0	0
Reazioni	0	0	0	0	0	0
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

#### Bilancio in condizione di carico: Rig Uy

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	0	0	0	0	0
Reazioni	0	0	0	0	0	0
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

#### Bilancio in condizione di carico: Rig Rz

Contributo	Fx	Fy	Fz	Mx	My	Mz
Forze applicate	0	0	0	0	0	0
Reazioni	0	0	0	0	0	0
P-Delta	0	0	0	0	0	0
Totale	0	0	0	0	0	0

## 1.5 Risposta di spettro

**Spettro:** condizione elementare corrispondente allo spettro.

**N.b.:** nome breve della condizione elementare.

**Fx:** componente della forza lungo l'asse X. [kN]

**Fy:** componente della forza lungo l'asse Y. [kN]

**Fz:** componente della forza lungo l'asse Z. [kN]

**Mx:** componente della coppia attorno all'asse X. [kN\*m]

**My:** componente della coppia attorno all'asse Y. [kN\*m]

**Mz:** componente della coppia attorno all'asse Z. [kN\*m]

**Max X:** massima reazione lungo l'asse X.

**Valore:** valore massimo della reazione. [kN]

**Angolo:** angolo d'ingresso del sisma che provoca il valore massimo della reazione. [deg]

**Max Y:** massima reazione lungo l'asse Y.

**Valore:** valore massimo della reazione. [kN]

**Angolo:** angolo d'ingresso del sisma che provoca il valore massimo della reazione. [deg]

**Max Z:** massima reazione lungo l'asse Z.

**Valore:** valore massimo della reazione. [kN]

**Angolo:** angolo d'ingresso del sisma che provoca il valore massimo della reazione. [deg]

Spettro	Fx	Fy	Fz	Mx	My	Mz	Max X		Max Y		Max Z	
N.b.							Valore	Angolo	Valore	Angolo	Valore	Angolo
SLV X	2955.9122	244.4288	0	1.971E03	2.667E04	4.301E03	2956.55	178	1704.5609	89	0	0
SLV Y	244.4288	1704.1746	0	1.437E04	2.200E03	2.134E04	2956.55	178	1704.5609	89	0	0
X SLD	1292.8046	107.2453	0	8.638E02	1.167E04	1.902E03	1293.0469	178	737.7202	89	0	0
Y SLD	107.2453	737.5183	0	6.217E03	964.53409	9.236E03	1293.0469	178	737.7202	89	0	0

## 1.6 Annotazioni solutore

**Informazioni:** informazioni fornite dal solutore al termine del calcolo del modello.

Informazioni

## 1.7 Statistiche soluzione

Tipo di equazioni	Lineari
Tecnica di soluzione	Intel MKL PARDISO
Numero equazioni	103344
Elemento min. diagonale	647.8229229



Elemento max diagonale  
Rapporto max/min  
Elementi non nulli

2273436704.27675  
3509348.96543444  
4095310

## 2 Verifiche

### 2.1 Verifica regolarità strutturale

Le unità di misura elencate nel capitolo sono in [m, kN] ove non espressamente specificato.

#### **Livello:**

**Descr:** descrizione livello.

**Quota:** quota livello. [m]

**Q:** quota livello. [m]

**Qinf:** quota livello precedente. [m]

**Comb:** combinazione.

**A1:** a1 (Distribuzione masse).

**A1n:** a1 numeratore (distanza tra centro massa vs. centro rigidezza [se presente] o centro dell'ingombro del piano). [m]

**A1d:** a1 denominatore (ingombro del piano nella medesima direzione [x o y globale]). [m]

**A1r:** a1 rapporto (distanza centro massa/rigidezza su ingombro del piano).

**A2:** a2 (Distribuzione rigidezze).

**A2n:** a2 numeratore (rigidezza max [x o y globale]).

**A2d:** a2 denominatore (rigidezza min [x o y globale]).

**A2r:** a2 rapporto (rigidezza max/min).

**A3:** a3 (Forma compatta).

**A3n:** a3 numeratore (area convessa). [m<sup>2</sup>]

**A3d:** a3 denominatore (area piano). [m<sup>2</sup>]

**A3r:** a3 rapporto (area convessa/area piano).

**B:** b (Rapporto lati).

**Bn:** b numeratore (lato max [x o y globale]). [m]

**Bd:** b denominatore (lato min [x o y globale]). [m]

**Br:** b rapporto (lato max/min).

**C:** c (Rapporto rigidezze piano).

**Cn:** c numeratore (rigidezza elementi verticali).

**Cd:** c denominatore (rigidezza piano).

**Cr:** c rapporto (rigidezza elementi verticali/rigidezza piano).

**E1:** e1 (Variazione masse).

**E1n:** e1 numeratore (massa max). [kN]

**E1d:** e1 denominatore (massa min). [kN]

**E1r:** e1 rapporto (massa max/min).

**E2:** e2 (Riduzione rigidezze).

**E2n:** e2 numeratore (rigidezza relativa alla traslazione KUmax). [kN/m]

**E2d:** e2 denominatore (rigidezza relativa alla traslazione KUmin). [kN/m]

**E2r:** e2 rapporto (variazione massima in decremento Kmax/Kmin).

**E3:** e3 (Incremento rigidezze).

**E3n:** e3 numeratore (rigidezza relativa alla traslazione KUmax). [kN/m]

**E3d:** e3 denominatore (rigidezza relativa alla traslazione KUmin). [kN/m]

**E3r:** e3 rapporto (variazione massima in incremento Kmax/Kmin).

**F:** f (Rapporto Capacità/Domanda).

**Fn:** f numeratore (rapporto capacità/domanda massimo [c/d max]). [kN]

**Fd:** f denominatore (rapporto capacità/domanda minimo [c/d min]). [kN]

**Fr:** f rapporto (variazione massima [rapporto (c/d max)/(c/d min)]).

**G1:** g1 (Rastremazione di piano).

**G1n:** g1 numeratore (L1). [m]

**G1d:** g1 denominatore (L2). [m]

**G1r:** g1 rapporto (L1/L2).

**G2:** g2 (Rastremazione totale).

**G2n:** g2 numeratore (L0). [m]

**G2d:** g2 denominatore (Li). [m]

**G2r:** g2 rapporto (L0/Li).

**Capacità/Domanda in X:**

**VrdX:** taglio resistente complessivo in direzione X. [kN]

**VedX:** taglio agente complessivo in direzione X. [kN]

**|Rd/Ed|:** |Rd/Ed| (rapporto capacità/domanda in termini di resistenza a taglio).

**Capacità/Domanda in Y:**

**VrdY:** taglio resistente complessivo in direzione Y. [kN]

**VedY:** taglio agente complessivo in direzione Y. [kN]





## Verifica regolarità strutturale

Controllo regolarità edificio secondo D.M. 17-01-18 (N.T.C.) §7.2.1 - §C7.2.1

### Avvertenze

La seguente procedura valuta la regolarità della costruzione secondo quanto indicato nelle NTC 2018 §7.2.1.

Tali valutazioni sono a carattere puramente informativo e vengono condotte sulla base del modello e delle verifiche presenti alla sua generazione, con le limitazioni indicate nella manualistica.

In ogni caso l'impostazione di regolarità della costruzione, in pianta ed elevazione, va indicata nelle preferenze di analisi dall'utente utilizzatore del software.

### Sintesi dei risultati

Orizzontamenti considerati nella valutazione

Nessun livello di fondazione trovato

Livelli di elevazione considerati: Rialzato(L3), Primo(L4), Secondo(L5), Terzo(L6), Sottotetto(L7),

Regolarità in pianta - NO

L'edificio risulta NON regolare in pianta, in base alle condizioni indicate in NTC 2018 §7.2.1

N.V. - Criterio A1 (Distribuzione masse) non valutabile al livello Rialzato

N.V. - Criterio A2 (Distribuzione rigidezze) non valutabile al livello Rialzato

No - Criterio A3 (Forma compatta) NON rispettato, con rapporto massimo 2820475.3/2639353.5=1.1 (limite=1,05) al livello Sottotetto

Ok - Criterio B (Rapporto lati) rispettato, con rapporto massimo 2,42 (limite=4) al livello Rialzato

No - Criterio C (Rapporto rigidezze piano) NON rispettato, con rapporto massimo > 999 (limite=0) al livello Rialzato

Regolarità in altezza - NO

L'edificio risulta NON regolare in altezza, in base alle condizioni indicate in NTC 2018 §7.2.1

Ok - Criterio D (Altezza elementi sismoresistenti) rispettato, con rapporto massimo 1 (limite=1,01)

No - Criterio E1 (Variazione masse) NON rispettato, con rapporto massimo 136222.1/99544.4=1.4 (limite=1,25) tra il livello Sottotetto ed il precedente

N.V. - Criterio E2 (Riduzione rigidezze) non valutabile tra il livello Primo ed il precedente

N.V. - Criterio E3 (Incremento rigidezze) non valutabile tra il livello Primo ed il precedente

No - Criterio F (Rapporto Capacità/Domanda) NON rispettato, con rapporto massimo 31.8/9.6=3.3 (limite=1,3) tra il livello Sottotetto ed il precedente

No - Criterio G1 (Rastremazione di piano) NON rispettato, con rapporto massimo 151.1/1030.1=0.1 (limite=0,1) tra il livello Sottotetto ed il precedente

Ok - Criterio G2 (Rastremazione totale) rispettato, con rapporto massimo 0 (limite=0,3) tra il livello Primo ed il precedente

### Valori per piano

#### Verifiche di regolarità in pianta

Livello		A1			A2			A3			B			C		
Descr	Quota	A1n	A1d	A1r	A2n	A2d	A2r	A3n	A3d	A3r	Bn	Bd	Br	Cn	Cd	Cr
Rialzato	1.11							254.0259	252.1595	1.01	24.98	10.31	2.42	9999	1	9999
Primo	4.83							252.3182	249.494	1.01	24.84	10.31	2.41	9999	1	9999
Secondo	8.35							252.2292	249.7684	1.01	24.84	10.3	2.41	9999	1	9999
Terzo	11.87							252.2292	249.7671	1.01	24.84	10.3	2.41	9999	1	9999
Sottotetto	15.03							282.0475	263.9353	1.07	25.04	11.87	2.11	9999	1	9999

#### Verifiche di regolarità in elevazione

Rapporto di regolarità per la condizione D (Altezza elementi sismoresistenti): 13.92/13.92=0.01.

Livello		E1			E2			E3			F			G1			G2			
Descr	Q	Qinf	E1n	E1d	E1r	E2n	E2d	E2r	E3n	E3d	E3r	Fn	Fd	Fr	G1n	G1d	G1r	G2n	G2d	G2r
Primo	4.83	1.11	1783.3	1374.66	1.3							0.029	0.019	1.55	0.09	24.98	0	0.09	24.98	0
Secondo	8.35	4.83	1374.66	1362.22	1.01							0.012	0.007	1.62	0	24.84	0	0.08	24.98	0
Terzo	11.87	8.35	1362.22	1362.22	1							0.141	0.089	1.59	0	24.84	0	0.08	24.98	0
Sottotetto	15.03	11.87	1362.22	995.44	1.37							0.318	0.096	3.31	1.51	10.3	0.15	0	0.01	

#### Dettaglio delle resistenze di piano a taglio (per valutazione punto F)

Livello			Capacità/Domanda in X				Capacità/Domanda in Y			
Descr	Q	Comb	VrdX	VedX	Rd/Ed		VrdY	VedY	Rd/Ed	
Rialzato	1.11	SLD 1	3083.71	-1843.38	1.7		2678.24	-377.78	7.1	
Rialzato	1.11	SLD 2	3083.71	-1843.38	1.7		2678.24	-377.78	7.1	
Rialzato	1.11	SLD 3	3115.37	-1912.8	1.6		2658.81	300.27	8.9	
Rialzato	1.11	SLD 4	3115.37	-1912.8	1.6		2658.81	300.27	8.9	
Rialzato	1.11	SLD 5	3135.93	-447.4	7		2707.97	-1141.73	2.4	
Rialzato	1.11	SLD 6	3135.93	-447.4	7		2707.97	-1141.73	2.4	
Rialzato	1.11	SLD 7	3196.35	-678.79	4.7		2627.41	1118.43	2.3	
Rialzato	1.11	SLD 8	3196.35	-678.79	4.7		2627.41	1118.43	2.3	
Rialzato	1.11	SLD 9	3161.59	679.75	4.7		2725.4	-1118.5	2.4	
Rialzato	1.11	SLD 10	3161.59	679.75	4.7		2725.4	-1118.5	2.4	
Rialzato	1.11	SLD 11	3221.92	448.36	7.2		2647.52	1141.66	2.3	
Rialzato	1.11	SLD 12	3221.92	448.36	7.2		2647.52	1141.66	2.3	
Rialzato	1.11	SLD 13	3255.94	1913.76	1.7		2735.2	-300.34	9.1	
Rialzato	1.11	SLD 14	3255.94	1913.76	1.7		2735.2	-300.34	9.1	
Rialzato	1.11	SLD 15	3278.07	1844.34	1.8		2716.75	377.71	7.2	
Rialzato	1.11	SLD 16	3278.07	1844.34	1.8		2716.75	377.71	7.2	
Rialzato	1.11	SLV 1	3031.09	-4243.99	0.7		2647.02	-885.98	3	
Rialzato	1.11	SLV 2	3031.09	-4243.99	0.7		2647.02	-885.98	3	
Rialzato	1.11	SLV 3	2936.43	-4416.67	0.7		2511.55	698.83	3.6	
Rialzato	1.11	SLV 4	2936.43	-4416.67	0.7		2511.55	698.83	3.6	
Rialzato	1.11	SLV 5	2914.88	-1010.96	2.9		2694.56	-2669.44	1	
Rialzato	1.11	SLV 6	2914.88	-1010.96	2.9		2694.56	-2669.44	1	
Rialzato	1.11	SLV 7	3085.79	-1586.56	1.9		2489.27	2613.24	1	
Rialzato	1.11	SLV 8	3085.79	-1586.56	1.9		2489.27	2613.24	1	
Rialzato	1.11	SLV 9	3010.25	1587.52	1.9		2766.47	-2613.32	1.1	
Rialzato	1.11	SLV 10	3010.25	1587.52	1.9		2766.47	-2613.32	1.1	
Rialzato	1.11	SLV 11	3104.14	1011.92	3.1		2524.63	2669.37	0.9	
Rialzato	1.11	SLV 12	3104.14	1011.92	3.1		2524.63	2669.37	0.9	



Livello			Capacità/Domanda in X			Capacità/Domanda in Y		
Descr	Q	Comb	VrdX	VedX	Rd/Ed	VrdY	VedY	Rd/Ed
Rialzato	1.11	SLV 13	3238.76	4417.63	0.7	2737.1	-698.9	3.9
Rialzato	1.11	SLV 14	3238.76	4417.63	0.7	2737.1	-698.9	3.9
Rialzato	1.11	SLV 15	3159.63	4244.95	0.7	2675.4	885.9	3
Rialzato	1.11	SLV 16	3159.63	4244.95	0.7	2675.4	885.9	3
Primo	4.83	SLD 1	2134.13	-1111	1.9	1312.79	-204.51	6.4
Primo	4.83	SLD 2	2134.13	-1111	1.9	1312.79	-204.51	6.4
Primo	4.83	SLD 3	2131.84	-1100.79	1.9	1314.37	206.32	6.4
Primo	4.83	SLD 4	2131.84	-1100.79	1.9	1314.37	206.32	6.4
Primo	4.83	SLD 5	2182.33	-348.77	6.3	1305.73	-684.47	1.9
Primo	4.83	SLD 6	2182.33	-348.77	6.3	1305.73	-684.47	1.9
Primo	4.83	SLD 7	2196.07	-314.76	7	1325.51	684.96	1.9
Primo	4.83	SLD 8	2196.07	-314.76	7	1325.51	684.96	1.9
Primo	4.83	SLD 9	2216.98	314.76	7	1311.78	-685.03	1.9
Primo	4.83	SLD 10	2216.98	314.76	7	1311.78	-685.03	1.9
Primo	4.83	SLD 11	2204	348.77	6.3	1328.18	684.4	1.9
Primo	4.83	SLD 12	2204	348.77	6.3	1328.18	684.4	1.9
Primo	4.83	SLD 13	2241.57	1100.79	2	1327.84	-206.39	6.4
Primo	4.83	SLD 14	2241.57	1100.79	2	1327.84	-206.39	6.4
Primo	4.83	SLD 15	2218.39	1110.99	2	1324.89	204.44	6.5
Primo	4.83	SLD 16	2218.39	1110.99	2	1324.89	204.44	6.5
Primo	4.83	SLV 1	1877.43	-2550.33	0.7	1262.51	-479.63	2.6
Primo	4.83	SLV 2	1877.43	-2550.33	0.7	1262.51	-479.63	2.6
Primo	4.83	SLV 3	1865.24	-2526.45	0.7	1302.54	481.82	2.7
Primo	4.83	SLV 4	1865.24	-2526.45	0.7	1302.54	481.82	2.7
Primo	4.83	SLV 5	2060.66	-801.32	2.6	1264.27	-1602.12	0.8
Primo	4.83	SLV 6	2060.66	-801.32	2.6	1264.27	-1602.12	0.8
Primo	4.83	SLV 7	2020.16	-721.72	2.8	1321.81	1602.73	0.8
Primo	4.83	SLV 8	2020.16	-721.72	2.8	1321.81	1602.73	0.8
Primo	4.83	SLV 9	2115.84	721.72	2.9	1287.72	-1602.8	0.8
Primo	4.83	SLV 10	2115.84	721.72	2.9	1287.72	-1602.8	0.8
Primo	4.83	SLV 11	2050.33	801.32	2.6	1333.44	1602.05	0.8
Primo	4.83	SLV 12	2050.33	801.32	2.6	1333.44	1602.05	0.8
Primo	4.83	SLV 13	2043.16	2526.45	0.8	1326.92	-481.9	2.8
Primo	4.83	SLV 14	2043.16	2526.45	0.8	1326.92	-481.9	2.8
Primo	4.83	SLV 15	2012.97	2550.33	0.8	1320.65	479.56	2.8
Primo	4.83	SLV 16	2012.97	2550.33	0.8	1320.65	479.56	2.8
Secondo	8.35	SLD 1	2062.49	-730.69	2.8	1157.65	-151.9	7.6
Secondo	8.35	SLD 2	2062.49	-730.69	2.8	1157.65	-151.9	7.6
Secondo	8.35	SLD 3	2060.72	-722.28	2.9	1166.68	130.95	8.9
Secondo	8.35	SLD 4	2060.72	-722.28	2.9	1166.68	130.95	8.9
Secondo	8.35	SLD 5	2064.8	-231.96	8.9	1130.07	-474.58	2.4
Secondo	8.35	SLD 6	2064.8	-231.96	8.9	1130.07	-474.58	2.4
Secondo	8.35	SLD 7	2060.42	-203.93	10.1	1169.11	468.24	2.5
Secondo	8.35	SLD 8	2060.42	-203.93	10.1	1169.11	468.24	2.5
Secondo	8.35	SLD 9	2058.41	203.93	10.1	1132.66	-468.31	2.4
Secondo	8.35	SLD 10	2058.41	203.93	10.1	1132.66	-468.31	2.4
Secondo	8.35	SLD 11	2058.72	231.96	8.9	1162.16	474.5	2.4
Secondo	8.35	SLD 12	2058.72	231.96	8.9	1162.16	474.5	2.4
Secondo	8.35	SLD 13	2048.47	722.28	2.8	1141.96	-131.02	8.7
Secondo	8.35	SLD 14	2048.47	722.28	2.8	1141.96	-131.02	8.7
Secondo	8.35	SLD 15	2048.97	730.69	2.8	1145.42	151.82	7.5
Secondo	8.35	SLD 16	2048.97	730.69	2.8	1145.42	151.82	7.5
Secondo	8.35	SLV 1	2012.82	-1691.27	1.2	1144.29	-356.36	3.2
Secondo	8.35	SLV 2	2012.82	-1691.27	1.2	1144.29	-356.36	3.2
Secondo	8.35	SLV 3	1984.7	-1672.37	1.2	1174.62	309.29	3.8
Secondo	8.35	SLV 4	1984.7	-1672.37	1.2	1174.62	309.29	3.8
Secondo	8.35	SLV 5	2051.24	-536.03	3.8	1109.17	-1116.5	1
Secondo	8.35	SLV 6	2051.24	-536.03	3.8	1109.17	-1116.5	1
Secondo	8.35	SLV 7	2004.69	-473.06	4.2	1184.63	1102.33	1.1
Secondo	8.35	SLV 8	2004.69	-473.06	4.2	1184.63	1102.33	1.1
Secondo	8.35	SLV 9	2028.81	473.06	4.3	1100.39	-1102.4	1
Secondo	8.35	SLV 10	2028.81	473.06	4.3	1100.39	-1102.4	1
Secondo	8.35	SLV 11	1997.52	536.03	3.7	1169.49	1116.43	1
Secondo	8.35	SLV 12	1997.52	536.03	3.7	1169.49	1116.43	1
Secondo	8.35	SLV 13	1973.61	1672.37	1.2	1105.98	-309.36	3.6
Secondo	8.35	SLV 14	1973.61	1672.37	1.2	1105.98	-309.36	3.6
Secondo	8.35	SLV 15	1940.59	1691.27	1.1	1117.48	356.29	3.1
Secondo	8.35	SLV 16	1940.59	1691.27	1.1	1117.48	356.29	3.1
Terzo	11.87	SLD 1	1743.2	-403.07	4.3	950.21	-99.89	9.5
Terzo	11.87	SLD 2	1743.2	-403.07	4.3	950.21	-99.89	9.5
Terzo	11.87	SLD 3	1741.17	-401.1	4.3	960.52	92.98	10.3
Terzo	11.87	SLD 4	1741.17	-401.1	4.3	960.52	92.98	10.3
Terzo	11.87	SLD 5	1731.77	-123.92	14	947.12	-322.51	2.9
Terzo	11.87	SLD 6	1731.77	-123.92	14	947.12	-322.51	2.9
Terzo	11.87	SLD 7	1746.3	-117.33	14.9	966.46	320.39	3
Terzo	11.87	SLD 8	1746.3	-117.33	14.9	966.46	320.39	3
Terzo	11.87	SLD 9	1727.81	117.33	14.7	945.29	-320.46	2.9
Terzo	11.87	SLD 10	1727.81	117.33	14.7	945.29	-320.46	2.9
Terzo	11.87	SLD 11	1745.07	123.92	14.1	965.24	322.44	3
Terzo	11.87	SLD 12	1745.07	123.92	14.1	965.24	322.44	3
Terzo	11.87	SLD 13	1738.55	401.1	4.3	955.19	-93.05	10.3
Terzo	11.87	SLD 14	1738.55	401.1	4.3	955.19	-93.05	10.3
Terzo	11.87	SLD 15	1736.49	403.07	4.3	957.57	99.82	9.6
Terzo	11.87	SLD 16	1736.49	403.07	4.3	957.57	99.82	9.6
Terzo	11.87	SLV 1	1632.56	-942.64	1.7	953.21	-236.86	4
Terzo	11.87	SLV 2	1632.56	-942.64	1.7	953.21	-236.86	4
Terzo	11.87	SLV 3	1607.01	-938.33	1.7	964.58	221.28	4.4
Terzo	11.87	SLV 4	1607.01	-938.33	1.7	964.58	221.28	4.4
Terzo	11.87	SLV 5	1704.3	-289.34	5.9	922.86	-765.93	1.2



Livello			Capacità/Domanda in X			Capacità/Domanda in Y		
Descr	Q	Comb	VrdX	VedX	Rd/Ed	VrdY	VedY	Rd/Ed
Terzo	11.87	SLV 6	1704.3	-289.34	5.9	922.86	-765.93	1.2
Terzo	11.87	SLV 7	1706.26	-274.95	6.2	969.81	761.2	1.3
Terzo	11.87	SLV 8	1706.26	-274.95	6.2	969.81	761.2	1.3
Terzo	11.87	SLV 9	1703.47	274.95	6.2	925.63	-761.28	1.2
Terzo	11.87	SLV 10	1703.47	274.95	6.2	925.63	-761.28	1.2
Terzo	11.87	SLV 11	1700.05	289.34	5.9	960.53	765.86	1.3
Terzo	11.87	SLV 12	1700.05	289.34	5.9	960.53	765.86	1.3
Terzo	11.87	SLV 13	1663.33	938.33	1.8	950.53	-221.35	4.3
Terzo	11.87	SLV 14	1663.33	938.33	1.8	950.53	-221.35	4.3
Terzo	11.87	SLV 15	1563.64	942.64	1.7	953.02	236.79	4
Terzo	11.87	SLV 16	1563.64	942.64	1.7	953.02	236.79	4
Sottotetto	15.03	SLD 1	945.43	-101.2	9.3	612.25	-25.05	24.4
Sottotetto	15.03	SLD 2	945.43	-101.2	9.3	612.25	-25.05	24.4
Sottotetto	15.03	SLD 3	944.64	-98.86	9.6	604.65	31.46	19.2
Sottotetto	15.03	SLD 4	944.64	-98.86	9.6	604.65	31.46	19.2
Sottotetto	15.03	SLD 5	943.34	-33.9	27.8	523.55	-94.42	5.5
Sottotetto	15.03	SLD 6	943.34	-33.9	27.8	523.55	-94.42	5.5
Sottotetto	15.03	SLD 7	955.04	-26.08	36.6	668.05	93.95	7.1
Sottotetto	15.03	SLD 8	955.04	-26.08	36.6	668.05	93.95	7.1
Sottotetto	15.03	SLD 9	944.12	26.14	36.1	546.06	-97.37	5.6
Sottotetto	15.03	SLD 10	944.12	26.14	36.1	546.06	-97.37	5.6
Sottotetto	15.03	SLD 11	990.89	33.96	29.2	644.51	91.01	7.1
Sottotetto	15.03	SLD 12	990.89	33.96	29.2	644.51	91.01	7.1
Sottotetto	15.03	SLD 13	942.07	98.92	9.5	653.88	-34.88	18.7
Sottotetto	15.03	SLD 14	942.07	98.92	9.5	653.88	-34.88	18.7
Sottotetto	15.03	SLD 15	931.43	101.26	9.2	687.85	21.64	31.8
Sottotetto	15.03	SLD 16	931.43	101.26	9.2	687.85	21.64	31.8
Sottotetto	15.03	SLV 1	869.38	-236.85	3.7	513.99	-55.57	9.2
Sottotetto	15.03	SLV 2	869.38	-236.85	3.7	513.99	-55.57	9.2
Sottotetto	15.03	SLV 3	814.77	-231.37	3.5	505.74	75.76	6.7
Sottotetto	15.03	SLV 4	814.77	-231.37	3.5	505.74	75.76	6.7
Sottotetto	15.03	SLV 5	893.02	-79.35	11.3	466.67	-217.06	2.1
Sottotetto	15.03	SLV 6	893.02	-79.35	11.3	466.67	-217.06	2.1
Sottotetto	15.03	SLV 7	825.66	-61.07	13.5	247.33	220.72	1.1
Sottotetto	15.03	SLV 8	825.66	-61.07	13.5	247.33	220.72	1.1
Sottotetto	15.03	SLV 9	902.07	61.13	14.8	448.99	-224.14	2
Sottotetto	15.03	SLV 10	902.07	61.13	14.8	448.99	-224.14	2
Sottotetto	15.03	SLV 11	889.83	79.41	11.2	292.43	213.64	1.4
Sottotetto	15.03	SLV 12	889.83	79.41	11.2	292.43	213.64	1.4
Sottotetto	15.03	SLV 13	845.2	231.43	3.7	589.7	-79.18	7.4
Sottotetto	15.03	SLV 14	845.2	231.43	3.7	589.7	-79.18	7.4
Sottotetto	15.03	SLV 15	848.87	236.92	3.6	683.94	52.16	13.1
Sottotetto	15.03	SLV 16	848.87	236.92	3.6	683.94	52.16	13.1

## 2.2 Verifiche aste in legno

Le unità di misura elencate nel capitolo sono in [m] ove non espressamente specificato.

**Descrizione:** descrizione della sezione.

**Tipo:** tipo di sezione.

**Base:** base della sezione. [m]

**Altezza:** altezza della sezione. [m]

**Area:** area inerziale nel sistema geometrico centrato nel baricentro. [m<sup>2</sup>]

**Jx:** momento d'inerzia attorno all'asse orizzontale baricentrico di definizione della sezione. [m<sup>4</sup>]

**Jy:** momento d'inerzia attorno all'asse verticale baricentrico di definizione della sezione. [m<sup>4</sup>]

**Wx:** modulo di resistenza elastico minimo relativo all'asse x. [m<sup>3</sup>]

**Wy:** modulo di resistenza elastico minimo relativo all'asse y. [m<sup>3</sup>]

### Asta 11: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.348

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(796/8533)^2 + 0.7 \cdot 52/7467 + 3319/7467 = 0.46 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_x = 0.06896$ ;  $M_y = -4.42485$ ;  $N = -31.85$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{347^2 + 2^2} = 347 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -6.173$ ;  $T_y = 0.029$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.58 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = 0.553$ ;  $T_y = 0.15$ ;  $M_t = 1.77643$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.348  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1067 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = 1.77643$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.174  
 $K_{def} = 0$   
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
 $0.348/0 = 7510 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.174  
 $K_{def} = 0$   
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
 $0.348/0 = 10552.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.174  
 $K_{def} = 0.6$   
Ufin in x = -0.0001  
Ufin in y = 0  
Ufin = 0.0001  
Luce/Ufin > limite  
 $0.348/0.0001 = 6402.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Asta 12: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(503/8533)^2 + 0.7 \cdot 1395/7467 + 3009/7467 = 0.54 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 1.86013$ ;  $M_y = -4.01256$ ;  $N = -20.138$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{v,d} \leq f_{v,d}$   
 $\sqrt{243^2 + 98^2} = 262 \leq 1600$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $T_x = 4.315$ ;  $T_y = 1.737$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0.02 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 4.278$ ;  $T_y = 1.729$ ;  $M_t = -0.26434$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $233 \leq 2530$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.38795$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.338/0 = 9934.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.158  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $0.338/0 = 15206.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $0.338/0 = 8223.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

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### Asta 13: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(181/8533)^2 + 0.7 \cdot 79/7467 + 1841/7467 = 0.25 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -0.10595$ ;  $M_y = -2.45404$ ;  $N = -7.235$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{367^2 + 13^2} = 368 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 6.53$ ;  $T_y = 0.225$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.36 + 0.05 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 6.53$ ;  $T_y = 0.225$ ;  $M_t = 1.10896$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$668 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 1.11271$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.146

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$0.338/0 = 23084.7 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.146

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$0.338/0 = 39334.4 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.146

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin} > \text{limite}$

$0.338/0 = 18499.3 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600



Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Asta 14: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(116/11733)^2 + 0.7 \cdot 27/10267 + 2394/10267 = 0.24 \leq 1$  [4.4.7b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.03626$ ;  $M_y = -3.19135$ ;  $N = -4.649$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(108^2 + 7^2)} = 108 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 1.917$ ;  $T_y = -0.127$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.19 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.849$ ;  $T_y = 0.155$ ;  $M_t = -0.57747$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$347 \leq 1840$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -0.57747$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} >$  limite

$0.338/0 = 192195.7 > 300$  Comb: SLE rara, 18

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} >$  limite

$0.338/0 = 115202.2 > 300$  Comb: SLE rara, 5

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158

$K_{def} = 0.6$



Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.338/0=124309 > 200$   
Condizione base per ricombinare la freccia: Variabile A  
Comb: SLE quasi permanente, 2 + incrementi viscosi  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $1,000 + 0,180 = 1,180$

## Asta 15: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(167/11733)^2 + 0.7 \cdot 14/10267 + 2851/10267 = 0.28 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.01803$ ;  $M_y = 3.80077$ ;  $N = -6.689$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{,d} \leq f_{v,d}$   
 $\sqrt{216^2 + 15^2} = 216 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 3.832$ ;  $T_y = 0.261$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{,tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{,y,d}/f_{v,d})^2 + (\tau_{,z,d}/f_{v,d})^2 \leq 1$   
 $0.32 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 3.76$ ;  $T_y = 0.251$ ;  $M_t = 0.98274$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{,tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $590 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.98274$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.191  
 $K_{def} = 0$   
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
 $0.338/0=35391.9 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.18  
 $K_{def} = 0$





Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
 $0.338/0=43377.2 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.191  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.338/0=31849.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 16: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(168/11733)^2 + 0.7 \cdot 96/10267 + 2937/10267 = 0.29 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = -0.12749; My = 3.91636; N = -6.725

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{471^2 + 14^2} = 471 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Tx = -8.369; Ty = -0.244

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.22 + 0.02 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -4.333; Ty = -0.107; Mt = -0.67943

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $415 \leq 1840$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = -0.69098

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.146  
Kdef = 0  
Uinst tot in x = 0



Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
0.338/0=37477.9 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.146  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
0.338/0=47961.6 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.146  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
0.338/0=33132.5 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 17: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(165/11733)^2 + 0.7*53/10267 + 1514/10267 = 0.15 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = 0.07026; My = -2.01804; N = -6.596

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{393^2 + 5^2} = 393 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Tx = -6.979; Ty = -0.083

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.31 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -1.14; Ty = 0.138; Mt = 0.93891

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8



$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

564  $\leq$  1840 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = 0.93891

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

0.338/0=171920.1 > 300 Comb: SLE rara, 14

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.191

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

0.338/0=315401.2 > 300 Comb: SLE rara, 14

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

0.338/0=127335.4 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,000 = 0,500

Variabile H = 0,000 + 1,000 = 1,000

### Asta 18: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(164/11733)^2 + 0.7 \cdot 39/10267 + 3105/10267 = 0.31 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Mx = -0.0519; My = -4.14025; N = -6.557

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{411^2 + 8^2} = 411 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Tx = -7.305; Ty = -0.147

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = -1.877$ ;  $T_y = -0.075$ ;  $M_t = -0.63225$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $380 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = -0.63225$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $0.338/0 = 45376.2 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.18  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $0.338/0 = 64470.7 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $0.338/0 = 37845.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 19: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(163/11733)^2 + 0.7 \cdot 56/10267 + 4736/10267 = 0.47 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.07512$ ;  $M_y = -6.31524$ ;  $N = -6.512$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{384^2 + 11^2} = 384 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 6.824$ ;  $T_y = 0.199$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.31 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.835$ ;  $T_y = 0.123$ ;  $M_t = 0.93943$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$564 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.93943$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 34191.3 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 44491.5 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 29582.9 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 20: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{mod}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{mod}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(163/11733)^2 + 0.7 \cdot 30/10267 + 4742/10267 = 0.46 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.03983$ ;  $M_y = -6.32279$ ;  $N = -6.509$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{170^2 + 7^2} = 170 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -3.019$ ;  $T_y = -0.127$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.22 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -1.699$ ;  $T_y = -0.093$ ;  $M_t = -0.67396$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{v,d} \leq k_{sh} \cdot f_{v,d}$

$405 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -0.67396$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 31776.5 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 39531.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 28127 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 21: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(169/11733)^2 + 0.7 \cdot 8/10267 + 4333/10267 = 0.42 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.01114$ ;  $M_y = -5.77767$ ;  $N = -6.752$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(159^2 + 3^2)} = 159 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 2.826$ ;  $T_y = -0.062$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.26 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.374$ ;  $T_y = 0.109$ ;  $M_t = 0.79919$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $480 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.79919$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.338/0 = 31695.4 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $0.338/0 = 38186.3 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $0.338/0 = 28669.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$



## Asta 22: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(171/11733)^2 + 0.7 \cdot 18/10267 + 3783/10267 = 0.37 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.02429$ ;  $M_y = -5.04383$ ;  $N = -6.85$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{274^2 + 2^2} = 274 \leq 2200$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -4.879$ ;  $T_y = 0.044$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.27 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -1.151$ ;  $T_y = -0.059$ ;  $M_t = -0.84183$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$506 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -0.84183$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.338/0 = 34153.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.338/0 = 38775.2 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$





$0.338/0=31874.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Asta 23: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(177/11733)^2 + 0.7 \cdot 19/10267 + 2637/10267 = 0.26 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.02486$ ;  $M_y = -3.51536$ ;  $N = -7.094$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{308^2 + 5^2} = 308 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 5.48$ ;  $T_y = -0.081$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.2 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.905$ ;  $T_y = 0.111$ ;  $M_t = 0.60617$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$364 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.60617$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.338/0=40805 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.158

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.338/0=42276.2 > 300$  Comb: SLE rara, 9



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

$0.338/0=39970.5 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 24: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$

$(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

$(53/11733)^2 + 0.7 \cdot 8/10267 + 1629/10267 = 0.16 \leq 1$  [4.4.7b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.01108$ ;  $M_y = 2.17174$ ;  $N = -2.113$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{316^2 + 3^2} = 316 \leq 2200$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -5.613$ ;  $T_y = -0.048$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.33 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -1.075$ ;  $T_y = 0.118$ ;  $M_t = -1.01863$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$612 \leq 1840$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -1.01863$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

$0.338/0=47992.9 > 300$  Comb: SLE rara, 9



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

0.338/0=43640.4 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

0.338/0=51010.8 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 25: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(183/11733)^2 + 0.7*390/10267 + 1486/10267 = 0.17 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Mx = 0.52021; My = 1.98107; N = -7.33

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau, d \leq f_v, d$

$\sqrt{290^2 + 34^2} = 292 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Tx = 5.156; Ty = -0.606

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau, \text{tor}, d / (ksh * f_v, d) + (\tau, y, d / f_v, d)^2 + (\tau, z, d / f_v, d)^2 \leq 1$

$0.17 + 0.01 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 2.017; Ty = -0.235; Mt = 0.53534

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau, \text{tor}, d \leq Ksh * f_v, d$

$321 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = 0.53534



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

0.338/0=61199.7 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.158

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

0.338/0=47623.8 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

0.338/0=62866.6 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,480 = 1,180

Vento = 0,600 + 0,000 = 0,600

### Asta 26: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + S_{m,z,d}/f_{m,z,d} \leq 1$

$(236/11733)^2 + 0.7 \cdot 234/10267 + 1418/10267 = 0.15 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Mx = -0.31154; My = 1.89084; N = -9.434

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{(138^2 + 18^2)} = 140 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

Tx = -2.46; Ty = 0.314

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.29 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 1.295; Ty = -0.112; Mt = -0.87711



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

527  $\leq$  1840 Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.87711$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

0.338/0=73454 > 300 Comb: SLE rara, 10

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

0.338/0=155420.5 > 300 Comb: SLE rara, 10

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

0.338/0=53434.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Vento = 0,600 + 0,400 = 1,000

### Asta 27: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(71/8533)^2 + 0.7 \cdot 792/7467 + 1985/7467 = 0.34 \leq 1$  [4.4.7b] Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_x = 1.05558$ ;  $M_y = 2.64631$ ;  $N = -2.829$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{337^2 + 70^2} = 344 \leq 1600$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = 5.993$ ;  $T_y = -1.238$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.33 + 0.04 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = 5.993$ ;  $T_y = -1.238$ ;  $M_t = 1.01619$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$610 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = 1.01619$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 19995.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.191

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 28398.6 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 16888.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 28: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(225/8533)^2 + 0.7 \cdot 872/7467 + 2220/7467 = 0.38 \leq 1$  [4.4.7b] Comb: SLU, 38; Durata minima del carico nella combinazione: media



$M_x = -1.16288$ ;  $M_y = 2.95945$ ;  $N = -8.989$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{246^2 + 60^2} = 253 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -4.37$ ;  $T_y = -1.074$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.59 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -4.37$ ;  $T_y = -1.074$ ;  $M_t = -1.80799$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1086 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -1.80799$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 15249.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.158

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 19881.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 13379.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 29: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(210/8533)^2 + 0.7 \cdot 234/7467 + 1154/7467 = 0.18 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_x = 0.3122$ ;  $M_y = 1.53884$ ;  $N = -8.409$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{140^2 + 3^2} = 140 \leq 2200$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = -2.489$ ;  $T_y = 0.058$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.14 + 0 + 0 \leq 1$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -1.866$ ;  $T_y = 0.162$ ;  $M_t = 0.60789$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$365 \leq 2530$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.60789$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 26661.6 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 31099.6 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 24557.6 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 30: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338





#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.7 \cdot 56/10267 + 1844/10267 = 0.18 \leq 1$  (formula 4.4.5b) Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.07498$ ;  $M_y = -2.4586$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{306^2 + 10^2} = 306 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -5.433$ ;  $T_y = -0.172$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.53 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -3.696$ ;  $T_y = -0.074$ ;  $M_t = -1.6148$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$970 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -1.6148$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.113

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.338/0 = 117856.8 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.135

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.338/0 = 84092.2 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.191

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$0.338/0 = 92776.2 > 200$

Condizione base per ricombinare la freccia: Variabile A

Comb: SLE quasi permanente, 2 + incrementi viscosi

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$



Variabile A = 1,000 + 0,180 = 1,180

## Asta 31: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$77/5280 + 0.7 \cdot 27/10267 + 2012/10267 = 0.21 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.03652$ ;  $M_y = 2.68277$ ;  $N = 3.091$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{169^2 + 3^2} = 169 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 2.997$ ;  $T_y = 0.058$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{t,d}/f_{v,d})^2 \leq 1$

$0.21 + 0.01 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.978$ ;  $T_y = 0.059$ ;  $M_t = 0.63499$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$381 \leq 1840$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.63499$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.146

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot}$  > limite

$0.338/0 = 132314.8 > 300$  Comb: SLE rara, 19

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.203

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var}$  > limite

$0.338/0 = 128146.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.146

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$



Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.338/0=92887.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,480 = 1,180$   
Vento =  $0,600 + 0,000 = 0,600$

## Asta 32: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(401/11733)^2 + 0.7 \cdot 0/10267 + 2403/10267 = 0.24 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.00027$ ;  $M_y = -3.20384$ ;  $N = -16.035$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{199^2 + 3^2} = 199 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -3.532$ ;  $T_y = -0.059$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.45 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -3.495$ ;  $T_y = -0.058$ ;  $M_t = -1.38239$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $830 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -1.38239$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.191  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
Luce/ $U_{inst,tot} > \text{limite}$   
 $0.338/0=130646.1 > 300$  Comb: SLE rara, 19

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.113  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$



Uinst var = 0  
Luce/Uinst,var > limite  
0.338/0=187288.7 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.191  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
0.338/0=92600.5 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,480 = 1,180  
Vento = 0,600 + 0,000 = 0,600

### Asta 33: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(412/11733)^2 + 0.7*26/10267 + 2404/10267 = 0.24 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = -0.03442; My = -3.20566; N = -16.484

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{185^2 + 5^2} = 185 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 3.284; Ty = 0.086

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.29+0.01+0 <= 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 3.27; Ty = 0.085; Mt = 0.87355

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh * f_{v,d}$   
525 <= 1840 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = 0.87355

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.146  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0



Luce/Uinst,tot > limite  
 $0.338/0=132163.3 > 300$  Comb: SLE rara, 10

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.225  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
 $0.338/0=249411.4 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.146  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.338/0=94191.9 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Vento = 0,600 + 0,400 = 1,000

### Asta 34: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $102/5280 + 0.7 \cdot 14/10267 + 2191/10267 = 0.23 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mx = -0.01867; My = 2.92182; N = 4.067

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{257^2 + 4^2} = 257 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = -4.562; Ty = -0.068

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.37 + 0.03 + 0 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = -4.562; Ty = -0.068; Mt = -1.14769

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh \cdot f_{v,d}$   
 $689 \leq 1840$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



Mt = -1.14769

#### Verifica della freccia istantanea totale D.M. 17-01-18 §4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.214

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

0.338/0=91009.1 > 300 Comb: SLE rara, 15

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.236

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

0.338/0=220411.9 > 300 Comb: SLE rara, 15

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.214

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

0.338/0=65484.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,000 = 0,500

Variabile H = 0,000 + 1,000 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 35: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$65/5280 + 0.7 \cdot 14/10267 + 1796/10267 = 0.19 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$Mx = 0.01888$ ;  $My = -2.39436$ ;  $N = 2.603$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{330^2 + 7^2} = 330 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 5.868$ ;  $T_y = 0.125$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.37+0.01+0 ≤ 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 2.373; Ty = 0.051; Mt = 1.13161

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
680 ≤ 1840 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = 1.13161

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
0.338/0=46808.1 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.146  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
0.338/0=92244.7 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
0.338/0=35549.8 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 36: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $\sigma_{\text{t,0,d}} / f_{\text{t,0,d}} + \sigma_{\text{m,y,d}} / f_{\text{m,y,d}} + K_{\text{m}} \cdot (\sigma_{\text{m,z,d}} / f_{\text{m,z,d}}) \leq 1$   
 $\sigma_{\text{t,0,d}} / f_{\text{t,0,d}} + K_{\text{m}} \cdot (\sigma_{\text{m,y,d}} / f_{\text{m,y,d}}) + \sigma_{\text{m,z,d}} / f_{\text{m,z,d}} \leq 1$   
109/5280+0.7\*17/10267+2199/10267=0.24 ≤ 1 [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mx = -0.0226; My = -2.93151; N = 4.36

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{285^2 + 2^2} = 285 \leq 2200$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -5.066$ ;  $T_y = 0.039$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.28 + 0.01 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -3.022$ ;  $T_y = 0.144$ ;  $M_t = -0.86263$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $518 \leq 1840$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.86263$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.191  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $0.338/0 = 41977.8 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.191  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $0.338/0 = 83352 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $0.338/0 = 31826.9 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

### Asta 37: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$





$St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $84/5280+0.7*14/10267+3551/10267=0.36 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $Mx = 0.01905$ ;  $My = -4.73462$ ;  $N = 3.379$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau, d \leq f_{v,d}$   
 $\sqrt{430^2 + 3^2} = 430 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 7.64$ ;  $T_y = 0.054$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.51+0.02+0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 3.844$ ;  $T_y = -0.673$ ;  $M_t = 1.57412$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $945 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 1.57412$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.146  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.338/0=50683.7 > 300$  Comb: SLE rara, 14

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.18  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $0.338/0=97549.3 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.146  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $0.338/0=37511.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,000 = 0,500$   
Variabile H =  $0,000 + 1,000 = 1,000$

### Asta 38: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.496

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.496  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(281/8533)^2 + 0.7 \cdot 957/7467 + 3120/7467 = 0.51 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_x = -1.27657$ ;  $M_y = 4.16055$ ;  $N = -11.23$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{v,d} \leq f_{v,d}$   
 $\sqrt{457^2 + 82^2} = 464 \leq 1600$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $T_x = 8.122$ ;  $T_y = 1.465$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0.08 + 0 \leq 1$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $T_x = 8.122$ ;  $T_y = 1.465$ ;  $M_t = 0.48313$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.496  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$   
 $290 \leq 1840$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = 0.48313$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.281  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.496/0 = 10300.3 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.281  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $0.496/0 = 13583.2 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.281  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0.0001$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0.0001$   
 $Luce/U_{fin} > \text{limite}$   
 $0.496/0.0001 = 8995.8 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 39: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.18

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.7 \cdot 1321/7467 + 3013/7467 = 0.53 \leq 1$  (formula 4.4.5b) Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_x = 1.76176$ ;  $M_y = 4.01698$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{368^2 + 110^2} = 384 \leq 1600$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -6.541$ ;  $T_y = 1.95$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.26 + 0.05 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -6.42$ ;  $T_y = 1.977$ ;  $M_t = 0.79512$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.18

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$477 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.79512$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.09

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.18/0 = 18317.7 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.09

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.18/0 = 25772.4 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.09

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$0.18/0 = 15605.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600



Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Asta 40: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(111/8533)^2 + 0.7 \cdot 157/7467 + 2112/7467 = 0.3 \leq 1$  [4.4.7b] Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_x = 0.20937$ ;  $M_y = 2.81561$ ;  $N = -4.439$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{376^2 + 7^2} = 376 \leq 1600$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -6.685$ ;  $T_y = 0.132$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.35 + 0.06 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -6.685$ ;  $T_y = 0.132$ ;  $M_t = -1.08191$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$650 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -1.08191$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.146

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot}$  > limite

$0.338/0 = 19055.9 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.146

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var}$  > limite

$0.338/0 = 28177.4 > 300$  Comb: SLE rara, 17



## Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0=15850.9 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Asta 41: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(349/11733)^2 + 0.7 \cdot 163/10267 + 1587/10267 = 0.17 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.21686$ ;  $M_y = 2.11665$ ;  $N = -13.969$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{,d} \leq f_{v,d}$

$\sqrt{257^2 + 16^2} = 257 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -4.565$ ;  $T_y = 0.293$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{,tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{,y,d}/f_{v,d})^2 + (\tau_{,z,d}/f_{v,d})^2 \leq 1$

$0.32 + 0.01 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.048$ ;  $T_y = 0.332$ ;  $M_t = 0.98169$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{,tor,d} \leq K_{sh} \cdot f_{v,d}$

$590 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.98169$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst} \text{ tot in } x = 0$

$U_{inst} \text{ tot in } y = 0$

$U_{inst} \text{ tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0=68261.2 > 300$  Comb: SLE rara, 10



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

0.338/0=140513.6 > 300 Comb: SLE rara, 10

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

0.338/0=50096 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Vento = 0,600 + 0,400 = 1,000

### Asta 42: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(199/11733)^2 + 0.7*124/10267 + 1033/10267 = 0.11 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Mx = 0.16486; My = -1.37673; N = -7.967

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_d \leq f_{v,d}$

$\sqrt{314^2 + 25^2} = 315 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Tx = -5.588; Ty = 0.439

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.15 + 0.01 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -2.732; Ty = 0.331; Mt = -0.46337

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * f_{v,d}$

$278 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = -0.46337



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

0.338/0=101319.5 > 300 Comb: SLE rara, 19

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.191

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

0.338/0=84715.1 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.146

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

0.338/0=75775.3 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,480 = 1,180

Vento = 0,600 + 0,000 = 0,600

### Asta 43: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(284/11733)^2 + 0.7 \cdot 24/10267 + 2211/10267 = 0.22 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Mx = -0.03191; My = -2.94822; N = -11.374

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{(273^2 + 3^2)} = 273 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

Tx = 4.856; Ty = 0.052

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{m,y,d}/f_{v,d})^2 + (\tau_{m,z,d}/f_{v,d})^2 \leq 1$

0.28+0+0 ≤ 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.648; Ty = -0.043; Mt = 0.87144



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

523  $\leq$  1840 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.87144$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

0.338/0=56652.4  $>$  300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

0.338/0=58689.7  $>$  300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

0.338/0=55496.4  $>$  200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 44: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(273/11733)^2 + 0.7 \cdot 19/10267 + 3180/10267 = 0.31 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.02592$ ;  $M_y = -4.24017$ ;  $N = -10.918$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{267^2 + 3^2} = 267 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -4.755$ ;  $T_y = -0.056$





#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0.01 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.096$ ;  $T_y = -0.109$ ;  $M_t = -0.64208$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$386 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.64208$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 42274.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 50883.1 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 38378.5 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 45: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	J <sub>x</sub>	J <sub>y</sub>	W <sub>x</sub>	W <sub>y</sub>
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(259/11733)^2 + 0.7 \cdot 18/10267 + 4135/10267 = 0.4 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.02442$ ;  $M_y = -5.51315$ ;  $N = -10.38$



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{219^2 + 4^2} = 219 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 3.899$ ;  $T_y = 0.07$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.19 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.757$ ;  $T_y = 0.05$ ;  $M_t = 0.59111$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$355 \leq 1840$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.59111$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 31523.1 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 41590 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 27525.5 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 46: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(245/11733)^2 + 0.7 \cdot 6/10267 + 4485/10267 = 0.44 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.00854$ ;  $M_y = -5.97986$ ;  $N = -9.806$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{83^2 + 7^2} = 83 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.474$ ;  $T_y = -0.122$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.27 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.474$ ;  $T_y = -0.122$ ;  $M_t = -0.82766$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$497 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.82766$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 27471 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 37806.6 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 23472.7 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

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### Asta 47: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(230/11733)^2 + 0.7 \cdot 30/10267 + 4731/10267 = 0.46 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.0397$ ;  $M_y = -6.30856$ ;  $N = -9.191$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{126^2 + 5^2} = 126 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 2.238$ ;  $T_y = 0.097$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = 1.345$ ;  $T_y = 0.053$ ;  $M_t = 0.40734$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$245 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = 0.40734$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.338/0 = 26016.3 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.338/0 = 36326.6 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$0.338/0 = 22008.3 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$



Vento = 0,600 + 0,000 = 0,600

## Asta 48: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(212/11733)^2 + 0.7 \cdot 55/10267 + 4750/10267 = 0.47 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.074$ ;  $M_y = -6.33387$ ;  $N = -8.479$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{409^2 + 12^2} = 410 \leq 2200$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -7.279$ ;  $T_y = -0.217$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.29 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.519$ ;  $T_y = -0.143$ ;  $M_t = -0.90052$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$541 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.90052$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.338/0 = 28368.1 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.338/0 = 40554.5 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$



Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.338/0=23725.6 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Asta 49: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.338

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(196/11733)^2 + 0.7*49/10267 + 2941/10267 = 0.29 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -0.06529$ ;  $M_y = -3.9218$ ;  $N = -7.839$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{434^2 + 6^2} = 434 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 7.72$ ;  $T_y = 0.109$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.14 + 0.02 + 0 \leq 1$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -6.088$ ;  $T_y = -0.099$ ;  $M_t = 0.60574$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $364 \leq 2530$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.60574$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.338/0=39064.7 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.158  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$



Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
 $0.338/0=57663.6 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.338/0=32202 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 50: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(178/11733)^2 + 0.7*55/10267 + 1221/10267 = 0.12 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
Mx = 0.07271; My = -1.62811; N = -7.139

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{416^2 + 5^2} = 416 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Tx = 7.392; Ty = 0.088

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.27 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 0.962; Ty = -0.177; Mt = -0.8329

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh * f_{v,d}$   
 $500 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = -0.8329

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.158  
Kdef = 0  
Uinst tot in x = 0



Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
 $0.338/0=114588.3 > 300$  Comb: SLE rara, 15

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.146  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
 $0.338/0=198237.5 > 300$  Comb: SLE rara, 15

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.158  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.338/0=87446.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,000 = 0,500$   
Variabile H =  $0,000 + 1,000 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 51: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(74/11733)^2 + 0.7*73/10267 + 3287/10267 = 0.33 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = -0.09719; My = 4.38253; N = -2.954

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{489^2 + 12^2} = 489 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
Tx = 8.687; Ty = 0.206

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0.02 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 3.524; Ty = -0.049; Mt = 0.47512

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338





Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

285  $\leq$  1840 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.47512$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.191

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

0.338/0=48950.5  $>$  300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.191

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

0.338/0=63149.7  $>$  300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.191

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

0.338/0=43131.6  $>$  200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 52: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(162/11733)^2 + 0.7 \cdot 13/10267 + 3176/10267 = 0.31 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.01763$ ;  $M_y = 4.23449$ ;  $N = -6.496$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{220^2 + 18^2} = 221 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.908$ ;  $T_y = -0.32$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.27 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -3.838$ ;  $T_y = -0.312$ ;  $M_t = -0.81562$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $490 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.81562$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.146  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $0.338/0 = 50004.6 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.146  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $0.338/0 = 59191.2 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.135  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $0.338/0 = 45657.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 53: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(102/11733)^2 + 0.777/10267 + 2681/10267 = 0.27 \leq 1$  [4.4.7b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.10205$ ;  $M_y = -3.57447$ ;  $N = -4.09$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{108^2 + 5^2} = 108 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -1.918$ ;  $T_y = 0.095$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.14 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -1.103$ ;  $T_y = -0.363$ ;  $M_t = 0.43206$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$259 \leq 1840$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.43206$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.338/0 = 76320.1 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.338/0 = 149095.8 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.338/0 = 55800 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

### Asta 54: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.001333333	0.001333333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(228/8533)^2 + 0.7 \cdot 42/7467 + 2237/7467 = 0.3 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = -0.05613$ ;  $M_y = -2.98239$ ;  $N = -9.123$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{395^2 + 20^2} = 396 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -7.029$ ;  $T_y = -0.347$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.26 + 0.06 + 0 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $T_x = -6.937$ ;  $T_y = -0.357$ ;  $M_t = -0.81156$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $487 \leq 1840$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_t = -0.81156$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.191  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $0.338/0 = 17682.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.191  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $0.338/0 = 29412.3 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.18  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $0.338/0 = 14264 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Asta 55: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.338

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(779/8533)^2 + 0.7 \cdot 1043/7467 + 3299/7467 = 0.55 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = 1.39107$ ;  $M_y = -4.39857$ ;  $N = -31.172$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{215^2 + 25^2} = 217 \leq 1600$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = -3.831$ ;  $T_y = -0.447$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.1 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -3.558$ ;  $T_y = -0.403$ ;  $M_t = 0.31115$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.338

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$187 \leq 1840$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.31115$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.169

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.338/0 = 8722.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.338/0 = 13079.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.169

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$0.338/0 = 7268.7 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

### Asta 56: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.189

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	0.2	0.2	0.04	0.0001333333	0.0001333333	0.00133333	0.00133333

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.189

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(876/8533)^2 + 0.7 \cdot 245/7467 + 4265/7467 = 0.6 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = 0.3272$ ;  $M_y = -5.68706$ ;  $N = -35.024$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{376^2 + 31^2} = 377 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -6.685$ ;  $T_y = 0.551$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.54 + 0.05 + 0 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = -6.557$ ;  $T_y = 0.512$ ;  $M_t = -1.66038$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.189

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$1003 \leq 1840$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -1.67082$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.095

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot}$  > limite

$0.189/0 = 11662.2 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.095

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var}$  > limite

$0.189/0 = 16688.9 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.095

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin}$  > limite

$0.189/0 = 9877.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600



Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Asta 57: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.138

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.138

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

$9862/7467 + 0.7 \cdot 8494/7467 = 2.12 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 15.65165$ ;  $M_y = 10.54949$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.138

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{637^2 + 916^2} = 1116 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -11.726$ ;  $T_y = -16.853$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.138

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$3.96 + 0.17 + 0.31 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -12.072$ ;  $T_y = -16.288$ ;  $M_t = 12.50416$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.138

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > K_{sh} \cdot f_{v,d}$

$7547 > 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = 12.50416$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.069

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$0.138/0 = 5967.1 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.069

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$0.138/0 = 8866 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.069



Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
0.138/0=4988.4 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Asta 58: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.577

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(129^2 + 1524^2) = 1529 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 2.376$ ;  $T_y = 28.041$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(133/8533)^2 + 15520/7467 + 0.7 \cdot 2108/7467 = 2.28 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 24.63099$ ;  $M_y = 2.61865$ ;  $N = -5.523$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.29 + 0.01 + 0.91 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 2.376$ ;  $T_y = 28.041$ ;  $M_t = 0.90284$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.577  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
548  $\leq$  1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.90798$

## Asta 59: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.122

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300





Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{90^2 + 1278^2} = 1281 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 1.664$ ;  $T_y = 23.511$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(158/8533)^2 + 6284/7467 + 0.7 \cdot 3302/7467 = 1.15 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 9.9732$ ;  $M_y = 4.10109$ ;  $N = -6.548$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.27 + 0 + 0.64 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 1.664$ ;  $T_y = 23.511$ ;  $M_t = 0.84592$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.122  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $516 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.85501$

### Asta 60: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.87

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{106^2 + 1048^2} = 1053 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -1.958$ ;  $T_y = 19.278$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(297/8533)^2 + 4854/7467 + 0.7 \cdot 2812/7467 = 0.91 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = 7.70289$ ;  $M_y = 3.49243$ ;  $N = -12.282$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.23 + 0 + 0.43 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -1.958$ ;  $T_y = 19.278$ ;  $M_t = 0.7154$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.87  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $432 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.7154$

### Asta 61: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.992

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{191^2 + 536^2} = 569 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -3.522$ ;  $T_y = 9.859$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.992  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(544/8533)^2 + 7925/7467 + 0.7 \cdot 1700/7467 = 1.22 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -12.57619$ ;  $M_y = -2.11145$ ;  $N = -22.526$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0.01 + 0.11 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -3.522$ ;  $T_y = 9.859$ ;  $M_t = 0.17906$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.992  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $158 \leq 2622$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.26107$

### Asta 62: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.59

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.59  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{234^2 + 117^2} = 261 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -4.3$ ;  $T_y = -2.155$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.59  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(692/8533)^2 + 6806/7467 + 0.7 \cdot 3717/7467 = 1.27 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -10.80064$ ;  $M_y = -4.61656$ ;  $N = -28.649$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -2.12$ ;  $T_y = 0.495$ ;  $M_t = 0.20505$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.59  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $127 \leq 2622$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.2101$

### Asta 63: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.42

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.42  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{39^2 + 236^2} = 240 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.717$ ;  $T_y = -4.348$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(626/8533)^2 + 7432/7467 + 0.7 \cdot 1841/7467 = 1.17 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -11.79501$ ;  $M_y = -2.286$ ;  $N = -25.932$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.42

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.39 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.416$ ;  $T_y = -4.086$ ;  $M_t = -1.22276$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.42

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$738 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -1.22276$

### Asta 64: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.986

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.986

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{8^2 + 360^2} = 360 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.138$ ;  $T_y = -6.619$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(621/8533)^2 + 5898/7467 + 0.7 \cdot 1078/7467 = 0.9 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = -9.36078$ ;  $M_y = -1.33926$ ;  $N = -25.721$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.986

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.395$ ;  $T_y = -6.552$ ;  $M_t = -0.65792$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.986

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$397 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.65792$

### Asta 65: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.994



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.994  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{4^2 + 388^2} = 388 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.082$ ;  $T_y = -7.136$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(570/8533)^2 + 2171/7467 + 0.7 \cdot 721/7467 = 0.36 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -3.44497$ ;  $M_y = -0.89573$ ;  $N = -23.593$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.994  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.097$ ;  $T_y = -7.127$ ;  $M_t = -0.32832$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.994  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $198 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.32832$

### Asta 66: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.105

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.105  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{23^2 + 215^2} = 216 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.422$ ;  $T_y = -3.959$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.105  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(546/8533)^2 + 4667/7467 + 0.7 \cdot 784/7467 = 0.7 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mx = 7.40579; My = -0.97387; N = -22.615

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.105  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -0.388; Ty = -3.953; Mt = -0.16796

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.105  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$   
 $101 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -0.16796

### Asta 67: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.743

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} > f_{v,d}$   
 $\text{Sqrt}(49^2 + 1603^2) = 1604 > 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Tx = 0.901; Ty = 29.495

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(\sigma_{c,0,d} / f_{c,0,d})^2 + \sigma_{m,y,d} / f_{m,y,d} + k_m \cdot (\sigma_{m,z,d} / f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d} / f_{c,0,d})^2 + k_m \cdot (\sigma_{m,y,d} / f_{m,y,d}) + \sigma_{m,z,d} / f_{m,z,d} \leq 1$   
 $(507/8533)^2 + 16401/7467 + 0.7 \cdot 4985/7467 = 2.67 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = 26.02872; My = -6.19089; N = -20.984

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 > 1$   
 $0.54 + 0 + 1 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Tx = 0.901; Ty = 29.495; Mt = -1.71355

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.743  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$   
 $1035 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -1.71479

### Asta 68: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



#### Dati generali

Lunghezza = 1.037

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{288^2 + 1120^2} = 1156 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 5.297$ ;  $T_y = 20.605$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.037

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(728/8533)^2 + 6818/7467 + 0.7 \cdot 452/7467 = 0.96 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -10.81968$ ;  $M_y = 0.56106$ ;  $N = -30.125$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.2 + 0.03 + 0.49 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 5.297$ ;  $T_y = 20.605$ ;  $M_t = -0.6165$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.037

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$372 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.6165$

### Asta 69: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.043

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{138^2 + 675^2} = 689 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 2.548$ ;  $T_y = 12.412$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.043

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$



$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(776/8533)^2 + 12342/7467 + 0.7*2381/7467 = 1.88 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -19.58604$ ;  $My = 2.95717$ ;  $N = -32.135$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0.01 + 0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.542$ ;  $T_y = 12.406$ ;  $M_t = 0.04306$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.043  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $52 \leq 2622$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.08651$

### Asta 70: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.167

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{61^2 + 276^2} = 283 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.117$ ;  $T_y = 5.08$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(683/8533)^2 + 13093/7467 + 0.7*3087/7467 = 2.05 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -20.77783$ ;  $My = 3.83423$ ;  $N = -28.293$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.19 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.08$ ;  $T_y = 5.08$ ;  $M_t = 0.58753$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $355 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.58775$





## Asta 71: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.909

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.909

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{82^2 + 721^2} = 725 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.502$ ;  $T_y = -13.257$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(894/8533)^2 + 11927/7467 + 0.7 \cdot 3561/7467 = 1.94 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -18.92843$ ;  $M_y = 4.42319$ ;  $N = -37.016$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.909

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.2 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.502$ ;  $T_y = -13.257$ ;  $M_t = 0.26223$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.909

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$161 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = 0.26643$

## Asta 72: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.028

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.028

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{35^2 + 674^2} = 675 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.646$ ;  $T_y = -12.395$



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(929/8533)^2 + 3979/7467 + 0.7 \cdot 2033/7467 = 0.74 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_x = -6.31513$ ;  $M_y = 2.52465$ ;  $N = -38.48$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.028

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.18 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.713$ ;  $T_y = -12.372$ ;  $M_t = 0.17148$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.028

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$105 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = 0.17472$

### Asta 73: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.183

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.183

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{8^2 + 335^2} = 335 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.147$ ;  $T_y = -6.155$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.183

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(787/8533)^2 + 8859/7467 + 0.7 \cdot 1391/7467 = 1.33 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 14.05898$ ;  $M_y = 1.72742$ ;  $N = -32.585$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.183

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.049$ ;  $T_y = -6.123$ ;  $M_t = 0.16539$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.183

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$100 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media



Mt = 0.16643

## Asta 74: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.272

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.272

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$311/5280 + 0.7 \cdot 1077/10267 + 2057/10267 = 0.33 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

Mx = -1.70986; My = 2.55473; N = 12.874

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{39^2 + 144^2} = 150 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.713; Ty = 2.658

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{t,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.713; Ty = 2.658; Mt = 0.05865

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.272

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$52 \leq 2622$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

Mt = 0.08572

## Asta 75: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.042

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.042

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $151/3840 + 3642/7467 + 0.7 \cdot 1544/7467 = 0.67 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $Mx = -5.77948$ ;  $My = 1.91816$ ;  $N = 6.251$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2^2 + 238^2} = 238 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.034$ ;  $T_y = 4.381$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.035$ ;  $T_y = 4.37$ ;  $M_t = 0.56446$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $341 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.56446$

### Asta 76: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.042

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $172/3840 + 6491/7467 + 0.7 \cdot 1277/7467 = 1.03 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -10.30068$ ;  $My = 1.58602$ ;  $N = 7.11$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{36^2 + 248^2} = 250 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.654$ ;  $T_y = 4.559$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.41 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.626$ ;  $T_y = 4.554$ ;  $M_t = 1.2876$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$



$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
777 <= 1907 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = 1.2876

## Asta 77: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.633

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.633

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

220/3840+8479/7467+0.7\*385/7467=1.23 > 1 [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -13.4567; My = 0.4784; N = 9.1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{131^2 + 222^2} = 257 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = -2.402; Ty = 4.077

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor,d}}/(k_{\text{sh}} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$

0.72+0.01+0.02 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = -2.248; Ty = 4.054; Mt = 2.26494

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.633

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

1367 <= 1907 Comb: SLU, 72; Durata minima del carico nella combinazione: media

Mt = 2.26494

## Asta 78: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.409

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $331/3840 + 10143/7467 + 0.7*1425/7467 = 1.58 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -16.09722$ ;  $M_y = 1.77002$ ;  $N = 13.704$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.409  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{61^2 + 444^2} = 449 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 1.128$ ;  $T_y = -8.177$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.409  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.27 + 0 + 0.08 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 1.128$ ;  $T_y = -8.177$ ;  $M_t = -0.8568$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.409  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $518 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.85833$

### Asta 79: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.042

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $404/3840 + 8781/7467 + 0.7*2088/7467 = 1.48 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -13.93532$ ;  $M_y = 2.59284$ ;  $N = 16.737$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{63^2 + 409^2} = 414 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -1.164$ ;  $T_y = -7.525$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.07 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -1.173$ ;  $T_y = -7.519$ ;  $M_t = 0.18851$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.042



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
114  $\leq$  1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.18851$

## Asta 80: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.042

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
371/3840+3889/7467+0.7\*535/7467=0.67  $\leq$  1 [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 6.17127$ ;  $M_y = -0.6643$ ;  $N = 15.377$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{91^2 + 659^2} = 665 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -1.681$ ;  $T_y = -12.124$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.21+0+0.17  $\leq$  1 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -1.681$ ;  $T_y = -12.113$ ;  $M_t = -0.66581$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.042  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
402  $\leq$  1907 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.66586$

## Asta 81: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.712

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.712

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$346/3840 + 11218/7467 + 0.7 \cdot 3002/7467 = 1.87 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 17.8035$ ;  $M_y = -3.72844$ ;  $N = 14.312$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.712

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{171^2 + 832^2} = 849 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -3.144$ ;  $T_y = -15.304$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.712

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.6 + 0.01 + 0.27 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -3.144$ ;  $T_y = -15.304$ ;  $M_t = -1.88069$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.712

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1137 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -1.88346$

### Asta 82: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.297

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{134^2 + 1247^2} = 1254 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.473$ ;  $T_y = 22.949$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.297

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(857/8533)^2 + 10806/7467 + 0.7 \cdot 2291/7467 = 1.67 \leq 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -17.14913$ ;  $M_y = 2.8448$ ;  $N = -35.466$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.19 + 0.01 + 0.61 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media





$T_x = 2.484$ ;  $T_y = 22.938$ ;  $M_t = -0.61331$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.297

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

373  $\leq$  1907 Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = -0.61754$

### Asta 83: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{119^2 + 886^2} = 894 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 2.185$ ;  $T_y = 16.307$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(897/8533)^2 + 21012/7467 + 0.7 \cdot 4356/7467 = 3.23 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -33.34661$ ;  $M_y = 5.4106$ ;  $N = -37.12$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0.01 + 0.31 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.187$ ;  $T_y = 16.306$ ;  $M_t = 0.41489$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

250  $\leq$  1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.41489$

### Asta 84: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{63^2 + 491^2} = 495 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 1.16$ ;  $T_y = 9.035$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(923/8533)^2 + 26419/7467 + 0.7 \cdot 5478/7467 = 4.06 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -41.92623$ ;  $M_y = 6.80338$ ;  $N = -38.201$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.32 + 0 + 0.09 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.164$ ;  $T_y = 9.033$ ;  $M_t = 1.00169$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $605 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 1.00169$

### Asta 85: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.599

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.599  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{28^2 + 87^2} = 91 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.513$ ;  $T_y = -1.597$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(937/8533)^2 + 26238/7467 + 0.7 \cdot 5431/7467 = 4.04 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -41.64046$ ;  $M_y = 6.74536$ ;  $N = -38.806$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.599  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.27+0+0 ≤ 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = -0.513; Ty = -1.597; Mt = 0.86313

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.599  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
521 ≤ 1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = 0.86313

### Asta 86: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.426

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.426  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\text{Sqrt}(78^2 + 624^2) = 629 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = -1.428; Ty = -11.478

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + \sigma_{\text{m,y,d}} / f_{\text{m,y,d}} + K_{\text{m}} (\sigma_{\text{m,z,d}} / f_{\text{m,z,d}}) \leq 1$   
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + K_{\text{m}} (\sigma_{\text{m,y,d}} / f_{\text{m,y,d}}) + \sigma_{\text{m,z,d}} / f_{\text{m,z,d}} \leq 1$   
 $(989/8533)^2 + 23794/7467 + 0.7 \cdot 4426/7467 = 3.62 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -37.7613; My = 5.49712; N = -40.934

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.426  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 > 1$   
1.37+0+0.15 > 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Tx = -1.404; Ty = -11.475; Mt = 4.32983

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.426  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} > K_{\text{sh}} \cdot f_{\text{v,d}}$   
2613 > 1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mt = 4.32983

### Asta 87: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{82^2 + 873^2} = 877 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -1.503$ ;  $T_y = -16.071$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(998/8533)^2 + 19710/7467 + 0.7 \cdot 3446/7467 = 2.98 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -31.27965$ ;  $M_y = 4.2805$ ;  $N = -41.332$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.72 + 0 + 0.3 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -1.482$ ;  $T_y = -16.064$ ;  $M_t = 2.27305$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1372 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 2.27305$

### Asta 88: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{80^2 + 1047^2} = 1050 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -1.473$ ;  $T_y = -19.257$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1030/8533)^2 + 10179/7467 + 0.7 \cdot 1785/7467 = 1.55 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -16.15386$ ;  $M_y = 2.21738$ ;  $N = -42.648$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.025



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.23 + 0 + 0.43 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -1.455$ ;  $T_y = -19.246$ ;  $M_t = 0.73346$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $443 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.73346$

### Asta 89: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{80^2 + 1109^2} = 1112 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -1.48$ ;  $T_y = -20.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1070/8533)^2 + 13894/7467 + 0.7 \cdot 1117/7467 = 1.98 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 22.0491$ ;  $M_y = -1.38787$ ;  $N = -44.288$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.48 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -1.478$ ;  $T_y = -20.399$ ;  $M_t = -0.64848$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $392 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.64883$

### Asta 90: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.605

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.605  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{67^2 + 698^2} = 702 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -1.226$ ;  $T_y = -12.851$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.605  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(981/8533)^2 + 20242/7467 + 0.7 \cdot 2540/7467 = 2.96 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 32.1247$ ;  $M_y = -3.1544$ ;  $N = -40.595$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.605  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $1.07 + 0 + 0.19 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -1.215$ ;  $T_y = -12.762$ ;  $M_t = -3.38636$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.605  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} > K_{sh} \cdot f_{v,d}$   
 $2044 > 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_t = -3.38636$

### Asta 91: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.189

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
 $56/3840 + 11236/7467 + 0.7 \cdot 4363/7467 = 1.93 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 17.83162$ ;  $M_y = 5.41849$ ;  $N = 2.306$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} > f_{v,d}$   
 $\sqrt{881^2 + 2942^2} = 3071 > 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -16.209$ ;  $T_y = 54.127$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$4.23 + 0.3 + 3.38 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -16.209$ ;  $T_y = 54.127$ ;  $M_t = 13.35437$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.189

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > k_{sh} \cdot f_{v,d}$

$8060 > 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = 13.35437$

### Asta 92: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.109

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.08

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 5280$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.013$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$6/7467 + 0.7 \cdot 0/7467 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_x = 0.00887$ ;  $M_y = 0$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0^2 + 9^2} = 9 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0$ ;  $T_y = 0.166$

### Asta 93: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.238

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{119^2 + 1225^2} = 1231 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -2.192$ ;  $T_y = 22.536$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.238

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(495/8533)^2 + 11871/7467 + 0.7 \cdot 2015/7467 = 1.78 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -18.83938$ ;  $M_y = -2.50246$ ;  $N = -20.474$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0.01 + 0.59 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.198$ ;  $T_y = 22.536$ ;  $M_t = 0.37395$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.238

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$230 \leq 1907$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = 0.38127$

### Asta 94: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{182^2 + 834^2} = 854 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.346$ ;  $T_y = 15.354$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(578/8533)^2 + 21495/7467 + 0.7 \cdot 5030/7467 = 3.35 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -34.11316$ ;  $M_y = -6.24718$ ;  $N = -23.914$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$





$0.21+0.01+0.27 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -3.348$ ;  $T_y = 15.351$ ;  $M_t = -0.67474$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

407  $\leq$  1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -0.67474$

### Asta 95: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{66^2+438^2} = 443 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1.211$ ;  $T_y = 8.065$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(571/8533)^2 + 26166/7467 + 0.7 \cdot 6119/7467 = 4.08 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -41.52601$ ;  $M_y = -7.59983$ ;  $N = -23.631$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.39+0+0.07 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -1.215$ ;  $T_y = 8.062$ ;  $M_t = -1.22771$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

741  $\leq$  1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -1.22771$

### Asta 96: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.658

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.658  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{47^2 + 163^2} = 170 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.868$ ;  $T_y = -3.006$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(566/8533)^2 + 25976/7467 + 0.7 \cdot 6023/7467 = 4.05 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -41.22461$ ;  $M_y = -7.48073$ ;  $N = -23.436$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.658  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.33 + 0 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.868$ ;  $T_y = -3.006$ ;  $M_t = -1.05115$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.658  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $634 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -1.05115$

### Asta 97: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.367

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.367  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{64^2 + 571^2} = 575 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.174$ ;  $T_y = -10.514$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(602/8533)^2 + 22554/7467 + 0.7 \cdot 5476/7467 = 3.54 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -35.79353$ ;  $M_y = -6.80123$ ;  $N = -24.924$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.367  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$1.39 + 0 + 0.13 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 1.171$ ;  $T_y = -10.505$ ;  $M_t = -4.39246$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.367

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > K_{sh} \cdot f_{v,d}$

$2651 > 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = -4.39246$

### Asta 98: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{75^2 + 816^2} = 820 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 1.386$ ;  $T_y = -15.019$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(599/8533)^2 + 18988/7467 + 0.7 \cdot 4480/7467 = 2.97 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -30.13394$ ;  $M_y = -5.56439$ ;  $N = -24.804$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.71 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.383$ ;  $T_y = -15.009$ ;  $M_t = -2.23696$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1350 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -2.23696$

### Asta 99: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{87^2 + 983^2} = 987 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.592$ ;  $T_y = -18.084$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(621/8533)^2 + 10218/7467 + 0.7 \cdot 2811/7467 = 1.64 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -16.21635$ ;  $M_y = -3.49171$ ;  $N = -25.704$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.22 + 0 + 0.38 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.59$ ;  $T_y = -18.071$ ;  $M_t = -0.68423$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $413 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.68423$

### Asta 100: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.025

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{95^2 + 1040^2} = 1044 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.752$ ;  $T_y = -19.13$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(676/8533)^2 + 12106/7467 + 0.7 \cdot 460/7467 = 1.67 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 19.21221$ ;  $M_y = 0.57166$ ;  $N = -28.005$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.19 + 0 + 0.42 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.752$ ;  $T_y = -19.13$ ;  $M_t = 0.60993$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $368 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.60993$

### Asta 101: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.664

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.664  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{79^2 + 741^2} = 745 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.458$ ;  $T_y = -13.628$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.664  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(608/8533)^2 + 18768/7467 + 0.7 \cdot 1916/7467 = 2.7 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 29.78426$ ;  $M_y = 2.3798$ ;  $N = -25.186$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.664  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.85 + 0 + 0.21 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 1.469$ ;  $T_y = -13.566$ ;  $M_t = 2.68463$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.664  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1620 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 2.68463$

### Asta 102: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.189



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$387/3840 + 12191/7467 + 0.7 \cdot 3720/7467 = 2.08 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 19.34679$ ;  $M_y = -4.62074$ ;  $N = 16.036$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} > f_{v,d}$

$\sqrt{517^2 + 4134^2} = 4166 > 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 9.519$ ;  $T_y = 76.061$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$3.92 + 0.1 + 6.68 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 9.519$ ;  $T_y = 76.061$ ;  $M_t = -12.39076$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.189

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > K_{sh} \cdot f_{v,d}$

$7479 > 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = -12.39076$

### Asta 103: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.109

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.08

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d} \leq f_{t,0,d}$

$1 \leq 5280$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$N = 0.034$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$6/7467+0.7*0/7467=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 0.00886$ ;  $M_y = 0$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0^2+9^2} = 9 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0$ ;  $T_y = 0.166$

### Asta 104: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.253

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.253  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{48^2+445^2} = 447 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.891$ ;  $T_y = -8.185$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.253  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(879/8533)^2+9015/7467+0.7*995/7467=1.31 !> 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 14.30712$ ;  $M_y = 1.2356$ ;  $N = -36.404$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.253  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.2+0+0.08 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.891$ ;  $T_y = -8.185$ ;  $M_t = 0.61999$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.253  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $374 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.61999$

### Asta 105: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.059

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{8^2 + 470^2} = 470 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.14$ ;  $T_y = 8.653$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1167/8533)^2 + 8451/7467 + 0.7 \cdot 847/7467 = 1.23 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 13.41235$ ;  $M_y = 1.0525$ ;  $N = -48.295$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0.09 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.14$ ;  $T_y = 8.653$ ;  $M_t = -0.24277$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.059  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $147 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.24282$

### Asta 106: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.059

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{63^2 + 771^2} = 774 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.152$ ;  $T_y = 14.19$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.059  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1194/8533)^2 + 5994/7467 + 0.7 \cdot 2031/7467 = 1.01 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -9.51249$ ;  $M_y = 2.52239$ ;  $N = -49.441$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$





$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.23 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.16$ ;  $T_y = 14.17$ ;  $M_t = -0.08999$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.059  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $124 \leq 2622$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.2053$

### Asta 107: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{112^2 + 693^2} = 702 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.069$ ;  $T_y = 12.742$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1196/8533)^2 + 12503/7467 + 0.7 \cdot 3644/7467 = 2.04 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -19.84252$ ;  $M_y = 4.52579$ ;  $N = -49.518$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0.01 + 0.19 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 2.09$ ;  $T_y = 12.715$ ;  $M_t = -0.00352$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $86 \leq 2622$  Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.1428$

### Asta 108: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.259

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.259  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{193^2 + 189^2} = 270 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -3.553$ ;  $T_y = -3.477$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(977/8533)^2 + 12322/7467 + 0.7 \cdot 3469/7467 = 1.99 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -19.55557$ ;  $M_y = 4.30831$ ;  $N = -40.44$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.259  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0.01 + 0.01 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $T_x = -3.507$ ;  $T_y = -3.478$ ;  $M_t = -0.57057$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.259  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $345 \leq 1907$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = -0.57085$

### Asta 109: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.061

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.061  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{99^2 + 38^2} = 399 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -1.816$ ;  $T_y = -7.113$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1011/8533)^2 + 13370/7467 + 0.7 \cdot 3264/7467 = 2.11 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -21.21767$ ;  $M_y = 4.05395$ ;  $N = -41.857$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.061  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.17 + 0 + 0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -1.826$ ;  $T_y = -7.096$ ;  $M_t = -0.54697$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.061  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $330 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.54697$

### Asta 110: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.057

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.057  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{148^2 + 853^2} = 866 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -2.717$ ;  $T_y = -15.704$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1075/8533)^2 + 11445/7467 + 0.7 \cdot 2013/7467 = 1.74 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -18.16304$ ;  $M_y = 2.50034$ ;  $N = -44.492$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.057  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0.28 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -2.717$ ;  $T_y = -15.704$ ;  $M_t = 0.07512$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.057  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $74 \leq 2622$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.12274$

### Asta 111: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.057



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.057  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(274^2 + 1431^2) = 1457 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -5.038$ ;  $T_y = -26.339$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.057  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(985/8533)^2 + 10056/7467 + 0.7 \cdot 4434/7467 = 1.78 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 15.95816$ ;  $M_y = -5.50671$ ;  $N = -40.768$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.057  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.24 + 0.03 + 0.8 > 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -5.038$ ;  $T_y = -26.339$ ;  $M_t = 0.77301$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.057  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $467 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.77301$

### Asta 112: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.512

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.512  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} > f_{v,d}$   
 $\text{Sqrt}(54^2 + 1906^2) = 1907 > 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -0.997$ ;  $T_y = -35.073$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.512  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(704/8533)^2 + 20809/7467 + 0.7 \cdot 5239/7467 = 3.28 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = 33.0241; My = -6.50745; N = -29.16

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.512

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 > 1$

$0.58 + 0 + 1.42 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Tx = -0.997; Ty = -35.073; Mt = 1.81753

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.512

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq k_{\text{sh}} \cdot f_{v,d}$

1101  $\leq$  1907 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = 1.82341

### Asta 113: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.138

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{\text{d}} \leq f_{v,d}$

$\sqrt{296^2 + 198^2} = 356 \leq 2200$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

Tx = 5.439; Ty = 3.643

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$(\sigma_{c,0,d} / f_{c,0,d})^2 + \sigma_{m,y,d} / f_{m,y,d} + k_m (\sigma_{m,z,d} / f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d} / f_{c,0,d})^2 + k_m (\sigma_{m,y,d} / f_{m,y,d}) + \sigma_{m,z,d} / f_{m,z,d} \leq 1$

$(848/8533)^2 + 14503/7467 + 0.7 \cdot 8556/7467 = 2.75 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = 23.01667; My = -10.62668; N = -35.097

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 > 1$

$3.36 + 0 + 0.01 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Tx = -0.41; Ty = 2.831; Mt = -10.62466

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.138

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} > k_{\text{sh}} \cdot f_{v,d}$

6413  $>$  1907 Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mt = -10.62466

### Asta 114: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



#### Dati generali

Lunghezza = 0.35

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{142^2 + 1845^2} = 1850 > 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -2.61$ ;  $T_y = 33.947$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(747/8533)^2 + 18474/7467 + 0.7 \cdot 2046/7467 = 2.67 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 29.31793$ ;  $M_y = -2.54053$ ;  $N = -30.913$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.49 + 0.01 + 1.33 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -2.61$ ;  $T_y = 33.947$ ;  $M_t = -1.54106$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.35

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$940 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -1.55673$

### Asta 115: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.13

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{166^2 + 1675^2} = 1683 > 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -3.058$ ;  $T_y = 30.812$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$



$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(791/8533)^2 + 11298/7467 + 0.7*2901/7467 = 1.79 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = 17.93045$ ;  $My = -3.60272$ ;  $N = -32.734$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.52 + 0.01 + 1.1 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -3.058$ ;  $T_y = 30.812$ ;  $M_t = -1.64728$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.13  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $1006 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -1.66723$

### Asta 116: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.879

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{32^2 + 1398^2} = 1399 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.595$ ;  $T_y = 25.73$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(939/8533)^2 + 8902/7467 + 0.7*2407/7467 = 1.43 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = 14.1275$ ;  $My = -2.98929$ ;  $N = -38.864$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.32 + 0 + 0.76 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 0.595$ ;  $T_y = 25.73$ ;  $M_t = -1.02174$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.879  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $617 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -1.02174$



## Asta 117: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.009

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{205^2 + 772^2} = 798 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 3.771$ ;  $T_y = 14.196$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.009

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1287/8533)^2 + 10209/7467 + 0.7 \cdot 1472/7467 = 1.53 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -16.2023$ ;  $M_y = 1.82819$ ;  $N = -53.284$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.16 + 0.02 + 0.23 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 3.771$ ;  $T_y = 14.196$ ;  $M_t = -0.49797$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.009

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$301 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -0.49797$

## Asta 118: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.738

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{276^2 + 156^2} = 317 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 5.078$ ;  $T_y = 2.876$





#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.738

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1495/8533)^2 + 9635/7467 + 0.7 \cdot 4610/7467 = 1.75 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -15.29008$ ;  $M_y = 5.72517$ ;  $N = -61.88$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0.03 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 5.078$ ;  $T_y = 2.876$ ;  $M_t = -0.23932$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.738

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$144 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -0.23932$

### Asta 119: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.291

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.291

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{\tau_{d}^2 + 374^2} = 379 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -1.194$ ;  $T_y = -6.88$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1383/8533)^2 + 10123/7467 + 0.7 \cdot 2140/7467 = 1.58 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -16.06527$ ;  $M_y = 2.65742$ ;  $N = -57.242$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.291

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.69 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.997$ ;  $T_y = -6.586$ ;  $M_t = 2.17147$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.291

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1311 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



Mt = 2.17147

## Asta 120: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.003

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.003

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{16^2 + 493^2} = 494 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.288$ ;  $T_y = -9.078$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1372/8533)^2 + 8174/7467 + 0.7 \cdot 1266/7467 = 1.24 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -12.97246$ ;  $M_y = 1.57295$ ;  $N = -56.793$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.003

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.37 + 0 + 0.09 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.608$ ;  $T_y = -8.996$ ;  $M_t = 1.15832$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.003

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$699 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 1.15832$

## Asta 121: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.004

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.004

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$



$\sqrt{24^2 + 501^2} = 502 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.433$ ;  $T_y = -9.224$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1242/8533)^2 + 2849/7467 + 0.7 \cdot 713/7467 = 0.47 \leq 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -4.52177$ ;  $M_y = 0.88576$ ;  $N = -51.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.004

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.2 + 0 + 0.1 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.433$ ;  $T_y = -9.224$ ;  $M_t = 0.61725$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.004

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$373 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.61725$

### Asta 122: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.012

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.012

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{9^2 + 309^2} = 309 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.166$ ;  $T_y = -5.691$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.012

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1275/8533)^2 + 6263/7467 + 0.7 \cdot 268/7467 = 0.89 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 9.93982$ ;  $M_y = 0.33302$ ;  $N = -52.792$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.012

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.04 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.166$ ;  $T_y = -5.691$ ;  $M_t = 0.29964$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.012

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$



$$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$$

181 <= 1907 Comb: SLU, 80; Durata minima del carico nella combinazione: media

$$M_t = 0.29964$$

## Asta 123: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.204

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{\text{mod}} = 0.8$ ;  $k_{\text{cr}} = 0.67$

$$\tau_{\text{d}} \leq f_{\text{v,d}}$$

$$\sqrt{7^2 + 345^2} = 345 \leq 1600 \text{ Comb: SLU, 29; Durata minima del carico nella combinazione: media}$$

$$T_x = 0.137; T_y = 6.355$$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{\text{mod}} = 0.8$

$$(S_{\text{c},0,\text{d}}/f_{\text{c},0,\text{d}})^2 + S_{\text{m},\text{y},\text{d}}/f_{\text{m},\text{y},\text{d}} + K_{\text{m}} \cdot (S_{\text{m},\text{z},\text{d}}/f_{\text{m},\text{z},\text{d}}) \leq 1$$

$$(S_{\text{c},0,\text{d}}/f_{\text{c},0,\text{d}})^2 + K_{\text{m}} \cdot (S_{\text{m},\text{y},\text{d}}/f_{\text{m},\text{y},\text{d}}) + S_{\text{m},\text{z},\text{d}}/f_{\text{m},\text{z},\text{d}} \leq 1$$

$$(978/8533)^2 + 6314/7467 + 0.7 \cdot 454/7467 = 0.9 \leq 1 \text{ [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media}$$

$$M_x = 10.02105; M_y = 0.5633; N = -40.49$$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{\text{mod}} = 0.8$ ;  $k_{\text{cr}} = 0.67$

$$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}}/f_{\text{v,d}})^2 + (\tau_{\text{z,d}}/f_{\text{v,d}})^2 \leq 1$$

$$0.1 + 0 + 0.05 \leq 1 \text{ Comb: SLU, 71; Durata minima del carico nella combinazione: media}$$

$$T_x = 0.253; T_y = 6.343; M_t = -0.32577$$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.204

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{\text{mod}} = 0.8$

$$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$$

$$197 \leq 1907 \text{ Comb: SLU, 71; Durata minima del carico nella combinazione: media}$$

$$M_t = -0.32577$$

## Asta 124: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.372

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $723/5726 + 0.7*70/11134 + 3262/11134 = 0.42 \leq 1$  [4.4.6b] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.00932$ ;  $M_y = -0.34794$ ;  $N = 5.782$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.372  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{165^2 + 34^2} = 168 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -0.586$ ;  $T_y = -0.12$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.372  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0.01 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -0.586$ ;  $T_y = -0.12$ ;  $M_t = 0.01739$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.372  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $123 \leq 2613$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.01739$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.198  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.372/0 = 23224.1 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.211  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $0.372/0 = 44869.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.198  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $0.372/0 = 18001.8 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 125: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.372

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.074  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $487/5726 + 0.7 \cdot 61/11134 + 2179/11134 = 0.28 \leq 1$  [4.4.6b] Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.00814$ ;  $M_y = -0.23241$ ;  $N = 3.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.372  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{161^2 + 16^2} = 162 \leq 2200$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 0.572$ ;  $T_y = -0.055$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -0.559$ ;  $T_y = 0.067$ ;  $M_t = -0.00763$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.372  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $54 \leq 2613$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.00763$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.186  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.372/0 = 14049 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.186  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $0.372/0 = 22619.6 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.186  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $0.372/0 = 11446.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

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### Asta 126: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.372

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.372

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$535/5726 + 0.7 \cdot 199/11134 + 2442/11134 = 0.33 \leq 1$  [4.4.6b] Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.0265$ ;  $M_y = -0.26053$ ;  $N = 4.277$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.372

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{182^2 + 5^2} = 182 \leq 2200$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = 0.647$ ;  $T_y = -0.017$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0 \leq 1$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$T_x = -0.442$ ;  $T_y = 0.097$ ;  $M_t = -0.00998$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.372

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$70 \leq 2613$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00998$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.186

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot}$  > limite

$0.372/0 = 14889.8 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.186

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var}$  > limite

$0.372/0 = 21909.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.174

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin}$  > limite

$0.372/0 = 12484.6 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600



Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Asta 127: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.389

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.389

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$741/5726 + 0.7 \cdot 98/11134 + 2471/11134 = 0.36 \leq 1$  [4.4.6b] Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.01313$ ;  $M_y = -0.2636$ ;  $N = 5.929$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{180^2 + 52^2} = 187 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 0.64$ ;  $T_y = 0.186$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0.01 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 0.64$ ;  $T_y = 0.186$ ;  $M_t = -0.02549$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.389

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$180 \leq 2613$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.02549$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.208

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.389/0 = 23599 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.208

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.389/0 = 35924.9 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.208

$K_{def} = 0.6$





Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.389/0=19570.2 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Asta 128: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.779

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.779  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(2682/8533)^2 + 30656/8097 + 0.7*443/8097 = 3.92 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -4.08745$ ;  $M_y = -0.04726$ ;  $N = -21.455$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{12^2 + 796^2} = 796 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.042$ ;  $T_y = 2.831$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.25 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.039$ ;  $T_y = 2.831$ ;  $M_t = -0.005$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.779  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $35 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.005$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.13  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = 0.0003$   
 $U_{inst\ tot\ in\ y} = -0.0093$   
 $U_{inst\ tot} = 0.0093$   
Luce/ $U_{inst,tot}$  < limite  
 $2.779/0.0093 = 299.6 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.13  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = 0.0002$



Uinst var in y = -0.006

Uinst var = 0.006

Luce/Uinst,var > limite

$2.779/0.006=465.4 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.13

Kdef = 0.6

Ufin in x = 0.0004

Ufin in y = -0.0113

Ufin = 0.0113

Luce/Ufin > limite

$2.779/0.0113=246.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

### Asta 129: Trave in legno a falda Falda 1 fili 170-171

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.654

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_d \leq f_{v,d}$

$\sqrt{14^2 + 290^2} = 291 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.051$ ;  $T_y = -1.032$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(115/8533)^2 + 11423/8097 + 0.7 \cdot 478/8097 = 1.45 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 1.52311$ ;  $M_y = -0.051$ ; N = -0.924

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.057$ ;  $T_y = -1.029$ ; Mt = 0.00028

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$23 \leq 2613$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

Mt = 0.00322

### Asta 130: Trave in legno a falda Falda 1 fili 170-171

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{8^2 + 672^2} = 673 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.03$ ;  $T_y = 2.391$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(655/8533)^2 + 26734/8097 + 0.7 \cdot 257/8097 = 3.33 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.56448$ ;  $M_y = -0.02745$ ;  $N = -5.239$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.18 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.029$ ;  $T_y = 2.389$ ;  $M_t = -0.00641$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$45 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.00641$

### Asta 131: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.941

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{178^2 + 460^2} = 494 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 3.276$ ;  $T_y = 8.47$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$



$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(183/8533)^2 + 2299/7467 + 0.7*1809/7467 = 0.48 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mx = 3.64892; My = -2.24711; N = -7.579

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_v,d) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0.01 + 0.08 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 3.276; Ty = 8.438; Mt = -0.19939

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.941  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh * f_{v,d}$   
 $123 \leq 1907$  Comb: SLU, 37; Durata minima del carico nella combinazione: media  
Mt = -0.20306

### Asta 132: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{96^2 + 501^2} = 510 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 1.772; Ty = 9.213

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(189/8533)^2 + 4433/7467 + 0.7*1640/7467 = 0.75 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mx = -7.03511; My = 2.03747; N = -7.841

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_v,d) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0.1 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 1.772; Ty = 9.213; Mt = -0.32396

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh * f_{v,d}$   
 $197 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -0.32578



## Asta 133: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{207^2 + 415^2} = 464 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 3.801$ ;  $T_y = 7.639$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(184/8533)^2 + 6640/7467 + 0.7 \cdot 3621/7467 = 1.23 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -10.53729$ ;  $M_y = 4.49668$ ;  $N = -7.631$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0.02 + 0.07 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 3.801$ ;  $T_y = 7.639$ ;  $M_t = -0.37456$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$226 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.37456$

## Asta 134: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{23^2 + 423^2} = 424 \leq 1600$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -0.428$ ;  $T_y = 7.79$



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.585

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(190/8533)^2 + 8029/7467 + 0.7 \cdot 3693/7467 = 1.42 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -12.74178$ ;  $M_y = 4.58691$ ;  $N = -7.866$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0 + 0.07 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.05$ ;  $T_y = 7.617$ ;  $M_t = -0.64802$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$394 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.65218$

### Asta 135: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{307^2 + 234^2} = 386 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -5.647$ ;  $T_y = 4.306$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(187/8533)^2 + 7920/7467 + 0.7 \cdot 3864/7467 = 1.42 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -12.56826$ ;  $M_y = 4.79872$ ;  $N = -7.74$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.11 + 0.04 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -5.647$ ;  $T_y = 4.306$ ;  $M_t = -0.3575$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$217 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



Mt = -0.35873

## Asta 136: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{84^2 + 549^2} = 555 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = -1.54; Ty = -10.094

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(182/8533)^2 + 7892/7467 + 0.7 \cdot 886/7467 = 1.14 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -12.52434; My = 1.10033; N = -7.534

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.12 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = -1.54; Ty = -10.094; Mt = -0.25074

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$151 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = -0.25074

## Asta 137: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.758

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.758

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$



$\text{Sqrt}(83^2 + 773^2) = 777 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 1.529; Ty = -14.222

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(181/8533)^2 + 5124/7467 + 0.7 \cdot 152/7467 = 0.7 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mx = -8.13225; My = -0.18916; N = -7.475

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.758

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor},d}/(k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.23 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 1.529; Ty = -14.222; Mt = -0.14622

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.758

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor},d} \leq K_{\text{sh}} \cdot f_{v,d}$

$89 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

Mt = -0.14699

### Asta 138: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.494

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.7 \cdot 103/7467 + 3230/7467 = 0.44 \leq 1$  (formula 4.4.5b) Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mx = 0.1636; My = 4.01219

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.494

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{d}} \leq f_{v,d}$

$\text{Sqrt}(522^2 + 109^2) = 534 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = -9.614; Ty = -2.005

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.494

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor},d}/(k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.11 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

Tx = -9.586; Ty = -2.006; Mt = -0.05685

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.494

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1





$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
102  $\leq$  2622 Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mt = -0.16864

## Asta 139: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(324^2 + 376^2) = 496 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -5.954; Ty = 6.919

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(104/8533)^2 + 0.7 \cdot 1936/7467 + 3089/7467 = 0.6 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mx = -3.07191; My = -3.83689; N = -4.302

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0.04 + 0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -5.954; Ty = 6.919; Mt = 0.03865

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
56  $\leq$  2622 Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mt = 0.0929

## Asta 140: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{47^2 + 467^2} = 469 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.871$ ;  $T_y = 8.594$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(132/8533)^2 + 4086/7467 + 0.7 \cdot 3123/7467 = 0.84 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -6.48516$ ;  $M_y = -3.87856$ ;  $N = -5.445$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.08 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.92$ ;  $T_y = 8.552$ ;  $M_t = -0.28692$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$173 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.28692$

### Asta 141: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{229^2 + 434^2} = 491 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 4.215$ ;  $T_y = 7.983$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.315

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(140/8533)^2 + 5230/7467 + 0.7 \cdot 1999/7467 = 0.89 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -8.30065$ ;  $M_y = -2.4829$ ;  $N = -5.777$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0.02 + 0.07 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 4.125$ ;  $T_y = 7.822$ ;  $M_t = -0.38182$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
230  $\leq$  1907 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.38182$

## Asta 142: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(108^2 + 288^2)} = 308 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -1.989$ ;  $T_y = -5.298$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.338  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(142/8533)^2 + 5611/7467 + 0.7 \cdot 1370/7467 = 0.88 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -8.90488$ ;  $M_y = -1.70175$ ;  $N = -5.876$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -1.989$ ;  $T_y = -5.298$ ;  $M_t = -0.2994$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
181  $\leq$  1907 Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = -0.29967$

## Asta 143: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{199^2 + 250^2} = 319 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 3.657$ ;  $T_y = -4.601$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(142/8533)^2 + 4842/7467 + 0.7 \cdot 1910/7467 = 0.83 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -7.68499$ ;  $M_y = -2.37196$ ;  $N = -5.878$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0.01 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 3.567$ ;  $T_y = -4.64$ ;  $M_t = -0.41684$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$252 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.41684$

### Asta 144: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.84

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{11^2 + 634^2} = 634 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.204$ ;  $T_y = 11.66$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.84

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(185/8533)^2 + 4854/7467 + 0.7 \cdot 221/7467 = 0.67 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = -7.70332$ ;  $M_y = 0.27419$ ;  $N = -7.655$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.16 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



$T_x = -0.204$ ;  $T_y = 11.66$ ;  $M_t = 0.10217$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.84

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

116  $\leq$  2622 Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.1918$

### Asta 145: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{97^2 + 397^2} = 409 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.789$ ;  $T_y = 7.307$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(191/8533)^2 + 6681/7467 + 0.7 \cdot 1234/7467 = 1.01 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -10.60302$ ;  $M_y = 1.53314$ ;  $N = -7.926$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.06 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.789$ ;  $T_y = 7.307$ ;  $M_t = 0.15026$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

91  $\leq$  1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.15026$

### Asta 146: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{266^2 + 228^2} = 350 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 4.887$ ;  $T_y = -4.19$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(195/8533)^2 + 6392/7467 + 0.7 \cdot 3754/7467 = 1.21 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -10.14368$ ;  $M_y = 4.66209$ ;  $N = -8.071$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0.03 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 4.887$ ;  $T_y = -4.19$ ;  $M_t = 0.21866$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $132 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.21928$

### Asta 147: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{91^2 + 303^2} = 317 \leq 1600$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = -1.668$ ;  $T_y = -5.583$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(196/8533)^2 + 6438/7467 + 0.7 \cdot 3633/7467 = 1.2 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -10.2169$ ;  $M_y = 4.51184$ ;  $N = -8.13$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.15+0.01+0.03 <= 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -2.597; Ty = -5.132; Mt = 0.48438

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
292 <= 1907 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 0.48438

### Asta 148: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\sqrt{41^2 + 442^2} = 444 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -0.748; Ty = -8.14

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(S_{\text{c},0,\text{d}}/f_{\text{c},0,\text{d}})^2 + S_{\text{m},\text{y},\text{d}}/f_{\text{m},\text{y},\text{d}} + K_{\text{m}} \cdot (S_{\text{m},\text{z},\text{d}}/f_{\text{m},\text{z},\text{d}}) \leq 1$   
 $(S_{\text{c},0,\text{d}}/f_{\text{c},0,\text{d}})^2 + K_{\text{m}} \cdot (S_{\text{m},\text{y},\text{d}}/f_{\text{m},\text{y},\text{d}}) + S_{\text{m},\text{z},\text{d}}/f_{\text{m},\text{z},\text{d}} \leq 1$   
 $(194/8533)^2 + 5845/7467 + 0.7 \cdot 2226/7467 = 0.99 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mx = -9.27597; My = 2.76422; N = -8.048

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.12+0+0.08 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -0.748; Ty = -8.14; Mt = 0.38321

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
231 <= 1907 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = 0.38321

### Asta 149: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{115^2 + 449^2} = 463 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -2.123$ ;  $T_y = -8.255$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(193/8533)^2 + 3445/7467 + 0.7 \cdot 1780/7467 = 0.63 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = -5.46783$ ;  $M_y = 2.21053$ ;  $N = -8.005$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0.01 + 0.08 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -2.123$ ;  $T_y = -8.255$ ;  $M_t = 0.34907$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $212 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.35173$

### Asta 150: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.819

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.819  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{188^2 + 394^2} = 436 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -3.451$ ;  $T_y = -7.249$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.819  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(196/8533)^2 + 1955/7467 + 0.7 \cdot 1643/7467 = 0.42 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = 3.10262$ ;  $M_y = -2.04094$ ;  $N = -8.094$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.819





Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0.01 + 0.06 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -3.42$ ;  $T_y = -7.233$ ;  $M_t = 0.25448$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.819  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $156 \leq 1907$  Comb: SLU, 37; Durata minima del carico nella combinazione: media  
 $M_t = 0.25835$

### Asta 151: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.434

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $S_{m,y,d}/f_{m,y,d} + K_{m} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $3116/7467 + 0.7 \cdot 893/7467 = 0.5 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 4.94464$ ;  $M_y = -1.10868$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{27^2 + 276^2} = 278 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.5$ ;  $T_y = 5.083$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.19 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.5$ ;  $T_y = 5.083$ ;  $M_t = 0.60678$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.434  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $367 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = 0.60722$

### Asta 152: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $S_{m,y,d}/f_{m,y,d} + K_{m}*(S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m}*(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $2384/7467 + 0.7*630/7467 = 0.38 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 3.78352$ ;  $M_y = -0.78243$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{132^2 + 575^2} = 589 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 2.421$ ;  $T_y = 10.571$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.17 + 0.01 + 0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 2.421$ ;  $T_y = 10.571$ ;  $M_t = 0.52404$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $316 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.52414$

### Asta 153: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $S_{m,y,d}/f_{m,y,d} + K_{m}*(S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m}*(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $4480/7467 + 0.7*494/7467 = 0.65 \leq 1$  (formula 4.4.5a) Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -7.10947$ ;  $M_y = 0.61311$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{28^2 + 697^2} = 697 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.522$ ;  $T_y = 12.819$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.26 + 0 + 0.19 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.514$ ;  $T_y = 12.813$ ;  $M_t = 0.81996$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$495 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.81996$

### Asta 154: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$S_{m,y,d}/f_{m,y,d} + K_{m} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_{m} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$6965/7467 + 0.7 \cdot 4417/7467 = 1.35 \leq 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -11.05306$ ;  $M_y = 5.48586$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{390^2 + 544^2} = 669 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 7.18$ ;  $T_y = 10.001$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0.06 + 0.12 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 7.18$ ;  $T_y = 10.001$ ;  $M_t = -0.19266$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$116 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.19293$

### Asta 155: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$9830/7467 + 0.7 \cdot 3720/7467 = 1.67 \leq 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -15.60019$ ;  $M_y = 4.61975$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{84^2 + 613^2} = 618 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.552$ ;  $T_y = 11.272$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.23 + 0 + 0.15 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.552$ ;  $T_y = 11.272$ ;  $M_t = -0.73502$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$444 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.73502$

### Asta 156: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.608

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$11826/7467 + 0.7 \cdot 2950/7467 = 1.86 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -18.76854$ ;  $M_y = 3.66411$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$



$\text{Sqrt}(112^2+512^2) = 524 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -2.067$ ;  $T_y = 9.423$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18+0+0.1 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -2.067$ ;  $T_y = 9.423$ ;  $M_t = -0.57274$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $346 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.57274$

### Asta 157: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.495  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $S_{m,y,d}/f_{m,y,d} + K_{m} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $12758/7467+0.7 \cdot 3000/7467=1.99 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -20.24709$ ;  $M_y = 3.72635$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(1^2+339^2) = 339 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.026$ ;  $T_y = 6.233$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1+0+0.04 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.026$ ;  $T_y = 6.233$ ;  $M_t = -0.30671$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $185 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.30714$

### Asta 158: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.315

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$12931/7467 + 0.7 \cdot 3164/7467 = 2.03 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20.52118$ ;  $M_y = 3.92918$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{20^2 + 266^2} = 267 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.376$ ;  $T_y = -4.902$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{t,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.03 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.375$ ;  $T_y = -4.902$ ;  $M_t = -0.20384$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$123 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -0.20384$

## Asta 159: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.135

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$12369/7467 + 0.7 \cdot 3363/7467 = 1.97 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -19.62887$ ;  $M_y = 4.17705$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{55^2 + 419^2} = 423 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.019$ ;  $T_y = -7.711$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.07 \leq 1$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$T_x = 1.045$ ;  $T_y = -7.698$ ;  $M_t = -0.14312$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$86 \leq 1907$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = -0.14312$

### Asta 160: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$M_{m,y,d}/f_{m,y,d} + K_m \cdot (M_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (M_{m,y,d}/f_{m,y,d}) + M_{m,z,d}/f_{m,z,d} \leq 1$

$10961/7467 + 0.7 \cdot 3776/7467 = 1.82 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -17.39508$ ;  $M_y = 4.68929$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{106^2 + 553^2} = 564 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.957$ ;  $T_y = -10.182$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.12 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.957$ ;  $T_y = -10.182$ ;  $M_t = 0.15239$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$92 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.15239$



## Asta 161: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$S_{m,y,d}/f_{m,y,d} + K_{m}(S_{m,z,d}/f_{m,z,d}) \geq 1$

$K_{m}(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \geq 1$

$8534/7467 + 0.7 \cdot 4767/7467 = 1.59 \geq 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -13.54292$ ;  $M_y = 5.92068$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{231^2 + 553^2} = 599 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.249$ ;  $T_y = -10.167$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.04 + 0.02 + 0.12 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.249$ ;  $T_y = -10.167$ ;  $M_t = -0.1173$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$71 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -0.1173$

## Asta 162: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$S_{m,y,d}/f_{m,y,d} + K_{m}(S_{m,z,d}/f_{m,z,d}) \geq 1$

$K_{m}(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$5947/7467 + 0.7 \cdot 2553/7467 = 1.04 \geq 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -9.43789$ ;  $M_y = 3.17126$





#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{229^2 + 655^2} = 693 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.209$ ;  $T_y = -12.045$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0.02 + 0.17 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.209$ ;  $T_y = -12.045$ ;  $M_t = -0.23349$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$141 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -0.23349$

### Asta 163: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$M_{m,y,d}/f_{m,y,d} + K_m \cdot (M_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (M_{m,y,d}/f_{m,y,d}) + M_{m,z,d}/f_{m,z,d} \leq 1$

$2414/7467 + 0.7 \cdot 398/7467 = 0.36 \leq 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = -3.83045$ ;  $M_y = 0.49459$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{174^2 + 677^2} = 699 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -3.198$ ;  $T_y = -12.459$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.01 + 0.18 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -3.208$ ;  $T_y = -12.451$ ;  $M_t = -0.04901$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$87 \leq 2622$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.14492$



## Asta 164: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.395

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.395

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

$2776/7467 + 0.7 \cdot 1562/7467 = 0.52 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = 4.40606$ ;  $M_y = -1.94037$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.395

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{48^2 + 395^2} = 398 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.887$ ;  $T_y = -7.267$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.395

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.06 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -0.901$ ;  $T_y = -7.188$ ;  $M_t = -0.23832$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.395

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$144 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -0.23832$

## Asta 165: Trave in legno a falda Falda 1 fili 178-179

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.654

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$



68/4164+11953/8097+0.7\*775/8097=1.56 !> 1 [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = 1.59376; My = 0.08264; N = 0.545

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.654  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{30^2 + 302^2} = 304 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.105; Ty = -1.074

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.654  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0+0+0.04 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.105; Ty = -1.074; Mt = -0.00021

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.654  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
16 <= 2613 Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mt = 0.0022

### Asta 166: Trave in legno a falda Falda 1 fili 178-179

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{7^2 + 617^2} = 617 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 0.026; Ty = 2.194

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
(166/8533)^2+24694/8097+0.7\*430/8097=3.09 !> 1 [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -3.29254; My = 0.04584; N = -1.326

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.02+0+0.15 <= 1 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 0.026; Ty = 2.191; Mt = -0.00671

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$



47 <= 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -0.00671

## Asta 167: Trave in legno a falda Falda 1 fili 184-185

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.654

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

62/4164+11680/8097+0.7\*802/8097=1.53 > 1 [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = 1.5574; My = 0.0855; N = 0.495

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{30^2 + 303^2} = 304 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 0.108; Ty = -1.076

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$

0+0+0.04 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 0.108; Ty = -1.076; Mt = -0.00039

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.654

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

15 <= 2613 Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

Mt = 0.00208

## Asta 168: Trave in legno a falda Falda 1 fili 184-185

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67



$\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(8^2+583^2) = 583 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.028$ ;  $T_y = 2.074$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(125/8533)^2 + 23294/8097 + 0.7 \cdot 467/8097 = 2.92 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.10586$ ;  $M_y = 0.04983$ ;  $N = -1.002$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.027$ ;  $T_y = 2.07$ ;  $M_t = -0.00612$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $43 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.00612$

**Asta 169: Trave in legno a falda Falda 1 fili 191-192**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 1.654

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 1.654  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) > 1$   
 $St_{0,d}/f_{t,0,d} + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} > 1$   
 $129/4164 + 10470/8097 + 0.7 \cdot 836/8097 = 1.4 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 1.39603$ ;  $M_y = 0.08916$ ;  $N = 1.031$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 1.654  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(25^2+290^2) = 291 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.091$ ;  $T_y = -1.03$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 1.654  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.03 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.077$ ;  $T_y = -1.03$ ;  $M_t = 0.00014$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 1.654  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $15 \leq 2613$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00217$

## Asta 170: Trave in legno a falda Falda 1 fili 191-192

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{6^2 + 575^2} = 575 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.021$ ;  $T_y = 2.045$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(246/8533)^2 + 22609/8097 + 0.7 \cdot 284/8097 = 2.82 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.01449$ ;  $M_y = 0.03028$ ;  $N = -1.965$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.021$ ;  $T_y = 2.045$ ;  $M_t = -0.00569$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $42 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.00588$

## Asta 171: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.415

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$469/5726 + 0.7 \cdot 1176/11134 + 2803/11134 = 0.41 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.1568$ ;  $M_y = 0.29903$ ;  $N = 3.753$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.415

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{401^2 + 140^2} = 425 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 1.426$ ;  $T_y = -0.499$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.415

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.03 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 1.426$ ;  $T_y = -0.499$ ;  $M_t = -0.00774$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.415

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$55 \leq 2613$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00774$

## Asta 172: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.416

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1627/5726 + 0.7 \cdot 506/11134 + 2838/11134 = 0.57 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.06741$ ;  $M_y = 0.30271$ ;  $N = 13.018$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{407^2 + 23^2} = 408 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 1.448$ ;  $T_y = -0.082$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0.03 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 1.448$ ;  $T_y = -0.082$ ;  $M_t = -0.0023$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $21 \leq 2613$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00298$

### Asta 173: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.416

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $2079/5726 + 0.7 \cdot 269/11134 + 3027/11134 = 0.65 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -0.0358$ ;  $M_y = 0.32283$ ;  $N = 16.63$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{351^2 + 69^2} = 357 \leq 2200$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 1.247$ ;  $T_y = 0.246$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.03 + 0 \leq 1$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 1.247$ ;  $T_y = 0.246$ ;  $M_t = 0.00776$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $70 \leq 2613$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00992$

### Asta 174: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.416

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno





Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$3051/5726 + 0.7 \cdot 273/11134 + 1716/11134 = 0.7 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.0364$ ;  $M_y = 0.18305$ ;  $N = 24.405$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{200^2 + 137^2} = 242 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = -0.711$ ;  $T_y = -0.486$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.04 + 0 + 0.01 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -0.354$ ;  $T_y = -0.583$ ;  $M_t = -0.015$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$106 \leq 2613$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.015$

### Asta 175: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.784

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.784

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$232/4164 + 22628/8097 + 0.7 \cdot 149/8097 = 2.86 > 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.01711$ ;  $M_y = -0.01589$ ;  $N = 1.86$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{7^2 + 603^2} = 603 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.023$ ;  $T_y = 2.143$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$



0.02+0+0.14 <= 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -0.023; Ty = 2.143; Mt = -0.00406

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.784

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

31 <= 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = -0.00434

### Asta 176: Trave in legno a falda Falda 1 fili 210-211

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{14^2 + 459^2} = 459 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -0.05; Ty = 1.632

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(536/8533)^2 + 19464/8097 + 0.7 \cdot 652/8097 = 2.46 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.59525; My = -0.06952; N = -4.286

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.02+0+0.08 <= 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -0.05; Ty = 1.632; Mt = -0.00589

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

44 <= 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = -0.00617

### Asta 177: Trave in legno a falda Falda 1 fili 216-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $1840/4164 + 23057/8097 + 0.7 \cdot 893/8097 = 3.37 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.07421$ ;  $M_y = -0.09527$ ;  $N = 14.716$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{25^2 + 634^2} = 634 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.089$ ;  $T_y = 2.253$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.16 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.089$ ;  $T_y = 2.253$ ;  $M_t = -0.00641$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $48 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.00684$

### Asta 178: Trave in legno a falda Falda 1 fili 225-226

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{8^2 + 376^2} = 376 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.029$ ;  $T_y = 1.336$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/fc_{0,d})^2 + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $(Sc_{0,d}/fc_{0,d})^2 + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $(203/8533)^2 + 17105/8097 + 0.7 \cdot 329/8097 = 2.14 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.2807$ ;  $M_y = -0.03514$ ;  $N = -1.621$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0.06 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.029$ ;  $T_y = 1.336$ ;  $M_t = -0.00975$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $69 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.0098$

### Asta 179: Trave in legno a falda Falda 1 fili 236-237

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{4^2 + 329^2} = 329 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.016$ ;  $T_y = 1.169$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(171/8533)^2 + 15674/8097 + 0.7 \cdot 162/8097 = 1.95 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.08992$ ;  $M_y = 0.01725$ ;  $N = -1.37$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.016$ ;  $T_y = 1.169$ ;  $M_t = -0.01326$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $94 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.01329$

### Asta 180: Trave in legno a falda Falda 1 fili 242-243

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{3^2 + 290^2} = 290 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.012$ ;  $T_y = 1.032$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(69/8533)^2 + 14444/8097 + 0.7 \cdot 141/8097 = 1.8 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.92586$ ;  $M_y = 0.01503$ ;  $N = -0.553$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.012$ ;  $T_y = 1.032$ ;  $M_t = -0.01592$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $115 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.01622$

### Asta 181: Trave in legno a falda Falda 1 fili 248-249

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
 $12760/8097 + 0.7 \cdot 353/8097 = 1.61 > 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.70128$ ;  $M_y = -0.03768$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{7^2 + 247^2} = 247 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.024$ ;  $T_y = 0.877$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.024$ ;  $T_y = 0.877$ ;  $M_t = -0.01773$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$129 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.01827$

### Asta 182: Trave in legno a falda Falda 1 fili 254-255

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$10619/8097 + 0.7 \cdot 625/8097 = 1.37 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.41585$ ;  $M_y = -0.06668$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{14^2 + 198^2} = 199 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.05$ ;  $T_y = 0.705$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.05$ ;  $T_y = 0.705$ ;  $M_t = -0.01754$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$129 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.0183$

### Asta 183: Trave in legno a falda Falda 1 fili 261-262

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.31



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{8^2 + 202^2} = 202 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.028$ ;  $T_y = 0.717$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.31  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(71/8533)^2 + 9162/8097 + 0.7 \cdot 172/8097 = 1.15 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.22159$ ;  $M_y = -0.01831$ ;  $N = -0.571$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.028$ ;  $T_y = 0.717$ ;  $M_t = -0.01735$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.31  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $129 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.01823$

### Asta 184: Trave in legno a falda Falda 1 fili 266-267

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.59

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{24^2 + 290^2} = 291 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.085$ ;  $T_y = 1.032$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.59  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(148/8533)^2 + 8373/8097 + 0.7 \cdot 794/8097 = 1.1$  !> 1 [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -1.11645; My = 0.08466; N = -1.185

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
 $0.09 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 0.085; Ty = 1.032; Mt = -0.02402

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.59  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq k_{\text{sh}} \cdot f_{\text{v,d}}$   
 $177 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = -0.0251

### Asta 185: Trave in legno a falda Falda 1 fili 270-271

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.87

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\text{Sqrt}(106^2 + 566^2) = 576 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 0.376; Ty = 2.012

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.87  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + \sigma_{\text{m,y,d}} / f_{\text{m,y,d}} + k_{\text{m}} (\sigma_{\text{m,z,d}} / f_{\text{m,z,d}}) \leq 1$   
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + k_{\text{m}} (\sigma_{\text{m,y,d}} / f_{\text{m,y,d}}) + \sigma_{\text{m,z,d}} / f_{\text{m,z,d}} \leq 1$   
 $(287/8533)^2 + 8612/8097 + 0.7 \cdot 1594/8097 = 1.2$  !> 1 [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -1.14826; My = 0.17002; N = -2.293

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
 $0.12 + 0 + 0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 0.376; Ty = 2.012; Mt = -0.03298

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.87  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq k_{\text{sh}} \cdot f_{\text{v,d}}$   
 $242 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -0.03421

### Asta 186: Trave in legno a falda Falda 1 fili 277-275

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





## Dati generali

Lunghezza = 0.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.11

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St,0,d \leq ft,0,d$

$0 \leq 5726 \text{ Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo}$

$N = 0.003$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$11/6073 + 0.7*0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00149$ ;  $M_y = 0$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.09

$K_{def} = 0$

$U_{inst \text{ tot in } x} = 0$

$U_{inst \text{ tot in } y} = 0$

$U_{inst \text{ tot}} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.3/0 = 10707794 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.26

$K_{def} = 0$

$U_{inst \text{ var in } x} = 0$

$U_{inst \text{ var in } y} = 0$

$U_{inst \text{ var}} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.3/0 = 9522028350.3 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.09

$K_{def} = 0.6$

$U_{fin \text{ in } x} = 0$

$U_{fin \text{ in } y} = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$0.3/0 = 6692496.3 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Asta 187: Trave in legno a falda Falda 5 fili 275-280

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.242

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.129  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0 \leq 5726 \text{ Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo}$   
 $N = 0.003$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00095$ ;  $M_y = 0$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.154  
 $K_{def} = 0$   
 $U_{inst \text{ tot in } x} = 0$   
 $U_{inst \text{ tot in } y} = 0$   
 $U_{inst \text{ tot}} = 0$   
Luce/ $U_{inst,tot} > \text{limite}$   
 $0.242/0 = 7827030.9 > 300$  Comb: SLE rara, 3

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.145  
 $K_{def} = 0$   
 $U_{inst \text{ var in } x} = 0$   
 $U_{inst \text{ var in } y} = 0$   
 $U_{inst \text{ var}} = 0$   
Luce/ $U_{inst,var} > \text{limite}$   
 $0.242/0 = 10297745502.9 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.154  
 $K_{def} = 0.6$   
 $U_{fin \text{ in } x} = 0$   
 $U_{fin \text{ in } y} = 0$   
 $U_{fin} = 0$   
Luce/ $U_{fin} > \text{limite}$   
 $0.242/0 = 4891894.3 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile H =  $0,000 + 1,000 = 1,000$

### Asta 188: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)



$St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $416/5726+0.7*192/11134+2296/11134=0.29 \leq 1$  [4.4.6b] Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $Mx = -0.02558$ ;  $My = -0.24486$ ;  $N = 3.325$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{176^2+31^2} = 179 \leq 2200$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 0.625$ ;  $T_y = -0.109$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03+0+0 \leq 1$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 0.53$ ;  $T_y = -0.144$ ;  $M_t = -0.01284$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $91 \leq 2613$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.01284$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.316  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $0.5/0=35524 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.25  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $0.5/0=25872.7 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.183  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $0.5/0=30839.2 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,480 = 1,180$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 189: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

$\sqrt{777/5726 + 0.7 \cdot 234/11134 + 2409/11134} = 0.37 \leq 1$  [4.4.6b] Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.03115$ ;  $M_y = 0.25698$ ;  $N = 6.216$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{214^2 + 27^2} = 216 \leq 2200$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = 0.761$ ;  $T_y = 0.096$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = 0.761$ ;  $T_y = 0.096$ ;  $M_t = 0.00584$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$41 \leq 2613$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.00584$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.25

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.5/0 = 17207.7 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.233

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.5/0 = 28185.6 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.266

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.5/0 = 13892.6 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

### Asta 190: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.5

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1295/5726 + 0.7 \cdot 37/11134 + 2583/11134 = 0.46 \leq 1$  [4.4.6b] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.00492$ ;  $M_y = 0.2755$ ;  $N = 10.356$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{206^2 + 49^2} = 212 \leq 2200$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = -0.733$ ;  $T_y = 0.174$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0.01 + 0 \leq 1$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = -0.733$ ;  $T_y = 0.174$ ;  $M_t = 0.01931$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$142 \leq 2613$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.02006$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.266

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$0.5/0 = 17759.1 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.266

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$0.5/0 = 26371.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.266

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin} > \text{limite}$

$0.5/0 = 14849.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600



Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Asta 191: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.785

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.785

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1707/8533)^2 + 31633/8097 + 0.7 \cdot 242/8097 = 3.97 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -4.21778$ ;  $M_y = -0.02576$ ;  $N = -13.658$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{5^2 + 820^2} = 821 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.018$ ;  $T_y = 2.917$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.26 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.018$ ;  $T_y = 2.917$ ;  $M_t = 0.0007$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.785

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$22 \leq 2613$  Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.00313$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.135

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = -0.0001$

$U_{inst,tot} \text{ in } y = -0.0095$

$U_{inst,tot} = 0.0095$

Luce/ $U_{inst,tot} < \text{limite}$

$2.785/0.0095 = 291.6 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.135

$K_{def} = 0$

$U_{inst,var} \text{ in } x = -0.0001$

$U_{inst,var} \text{ in } y = -0.0062$

$U_{inst,var} = 0.0062$

Luce/ $U_{inst,var} > \text{limite}$

$2.785/0.0062 = 452.1 > 300$  Comb: SLE rara, 16

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.135



Kdef = 0.6  
Ufin in x = 0.0001  
Ufin in y = -0.0116  
Ufin = 0.0116  
Luce/Ufin > limite  
 $2.785/0.0116=240.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

## Asta 192: Trave in legno a falda Falda 1 fili 121-122

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.653

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $12463/8097 + 0.7 \cdot 628/8097 = 1.59 \leq 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 1.66167$ ;  $M_y = 0.06696$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{14^2 + 326^2} = 326 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.049$ ;  $T_y = -1.158$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.04 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.049$ ;  $T_y = -1.158$ ;  $M_t = 0.0007$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $18 \leq 2613$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00256$

## Asta 193: Trave in legno a falda Falda 1 fili 121-122

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{7^2 + 716^2} = 716 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.024$ ;  $T_y = 2.547$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(593/8533)^2 + 28442/8097 + 0.7 \cdot 396/8097 = 3.55 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.79229$ ;  $M_y = -0.0422$ ;  $N = -4.747$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.2 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.023$ ;  $T_y = 2.545$ ;  $M_t = 0.00032$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $11 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.0016$

### Asta 194: Trave in legno a falda Falda 1 fili 113-114

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.653

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
 $76/4164 + 13510/8097 + 0.7 \cdot 418/8097 = 1.72 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 1.8013$ ;  $M_y = -0.04463$ ;  $N = 0.609$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{18^2 + 344^2} = 344 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.062$ ;  $T_y = -1.222$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.653





Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0+0+0.05 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.062$ ;  $T_y = -1.222$ ;  $M_t = 0.00047$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $20 \leq 2613$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00277$

### Asta 195: Trave in legno a falda Falda 1 fili 113-114

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{19^2 + 681^2} = 681 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.068$ ;  $T_y = 2.422$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(171/8533)^2 + 27295/8097 + 0.7 \cdot 914/8097 = 3.45 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.63934$ ;  $M_y = -0.09749$ ;  $N = -1.369$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0+0+0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.068$ ;  $T_y = 2.422$ ;  $M_t = -0.00064$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $14 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00192$

### Asta 196: Trave in legno a falda Falda 1 fili 104-105

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.653

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $74/4164 + 13678/8097 + 0.7*208/8097 = 1.72 \geq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 1.82372$ ;  $M_y = -0.02217$ ;  $N = 0.59$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{12^2 + 352^2} = 352 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.042$ ;  $T_y = -1.251$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.05 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.042$ ;  $T_y = -1.251$ ;  $M_t = 0.00085$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.653  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $21 \leq 2613$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00301$

### Asta 197: Trave in legno a falda Falda 1 fili 104-105

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{17^2 + 675^2} = 675 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.059$ ;  $T_y = 2.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/fc_{0,d})^2 + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \leq 1$   
 $(Sc_{0,d}/fc_{0,d})^2 + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $(148/8533)^2 + 27013/8097 + 0.7*829/8097 = 3.41 \geq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.60169$ ;  $M_y = -0.08839$ ;  $N = -1.183$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.059$ ;  $T_y = 2.4$ ;  $M_t = -0.00234$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$18 \leq 1900$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_t = -0.0025$

### Asta 198: Trave in legno a falda Falda 1 fili 97-98

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.653

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.653

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$174/4164 + 12896/8097 + 0.7 \cdot 196/8097 = 1.65 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 1.71949$ ;  $M_y = -0.0209$ ;  $N = 1.389$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.653

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{3^2 + 351^2} = 351 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.011$ ;  $T_y = -1.247$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.653

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.05 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.011$ ;  $T_y = -1.247$ ;  $M_t = 0.00011$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.653

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$16 \leq 2613$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00227$

### Asta 199: Trave in legno a falda Falda 1 fili 97-98

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{16^2 + 698^2} = 698 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.056$ ;  $T_y = 2.483$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(270/8533)^2 + 27545/8097 + 0.7 \cdot 675/8097 = 3.46 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.67264$ ;  $M_y = -0.07205$ ;  $N = -2.162$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.19 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.056$ ;  $T_y = 2.483$ ;  $M_t = -0.00299$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $22 \leq 1900$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_t = -0.00317$

### Asta 200: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.416

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $1031/5726 + 0.7 \cdot 1117/11134 + 1867/11134 = 0.42 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.14895$ ;  $M_y = -0.19916$ ;  $N = 8.249$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$



$\sqrt{245^2 + 118^2} = 272 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 0.871$ ;  $T_y = 0.421$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d} / (k_{sh} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 0.871$ ;  $T_y = 0.421$ ;  $M_t = -0.00722$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $56 \leq 2613$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00799$

### Asta 201: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.416

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} / f_{t,0,d} + \sigma_{m,y,d} / f_{m,y,d} + K_m \cdot (\sigma_{m,z,d} / f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d} / f_{t,0,d} + K_m \cdot (\sigma_{m,y,d} / f_{m,y,d}) + \sigma_{m,z,d} / f_{m,z,d} \leq 1$   
 $1818/5726 + 0.7 \cdot 531/11134 + 1541/11134 = 0.49 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.07074$ ;  $M_y = -0.16438$ ;  $N = 14.545$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{233^2 + 15^2} = 233 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 0.827$ ;  $T_y = 0.054$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d} / (k_{sh} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$   
 $0.01 + 0.01 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 0.827$ ;  $T_y = 0.054$ ;  $M_t = -0.00302$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $30 \leq 2613$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.00425$

### Asta 202: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.416

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2258/5726 + 0.7 \cdot 476/11134 + 1853/11134 = 0.59 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.06346$ ;  $M_y = -0.19768$ ;  $N = 18.065$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{202^2 + 14^2} = 202 \leq 2200$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$T_x = 0.717$ ;  $T_y = 0.05$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{t,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.04 + 0 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 0.357$ ;  $T_y = -0.185$ ;  $M_t = 0.01441$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{t,d} \leq K_{sh} \cdot f_{v,d}$

$102 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.01441$

## Asta 203: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 0.416

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2524/5726 + 0.7 \cdot 259/11134 + 2328/11134 = 0.67 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = 0.0346$ ;  $M_y = -0.24832$ ;  $N = 20.193$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.416

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{39^2 + 143^2} = 148 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.138$ ;  $T_y = -0.507$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -0.341$ ;  $T_y = -0.361$ ;  $M_t = 0.01452$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.416  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $103 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.01452$

### Asta 204: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.784

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.784  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $436/4164 + 29093/8097 + 0.7 \cdot 219/8097 = 3.72 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.87903$ ;  $M_y = -0.02335$ ;  $N = 3.491$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2^2 + 773^2} = 773 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.008$ ;  $T_y = 2.75$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.23 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.008$ ;  $T_y = 2.75$ ;  $M_t = -0.00353$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.784  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $26 \leq 1900$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_t = -0.00371$



## Asta 205: Trave in legno a falda Falda 1 fili 81-82

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{7^2 + 637^2} = 637 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.024$ ;  $T_y = 2.264$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(854/8533)^2 + 26623/8097 + 0.7 \cdot 275/8097 = 3.32 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.54971$ ;  $M_y = 0.02938$ ;  $N = -6.832$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.16 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.024$ ;  $T_y = 2.264$ ;  $M_t = -0.00072$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$24 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.00336$

## Asta 206: Trave in legno a falda Falda 1 fili 72-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$1933/4164 + 30971/8097 + 0.7 \cdot 33/8097 = 4.29 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -4.12952$ ;  $M_y = 0.0035$ ;  $N = 15.464$





#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1^2 + 828^2} = 828 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.005$ ;  $T_y = 2.942$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.27 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.005$ ;  $T_y = 2.942$ ;  $M_t = 0.00455$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $35 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.0049$

### Asta 207: Trave in legno a falda Falda 1 fili 65-66

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1^2 + 526^2} = 526 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.004$ ;  $T_y = 1.87$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(371/8533)^2 + 24224/8097 + 0.7 \cdot 233/8097 = 3.01 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.22983$ ;  $M_y = -0.02486$ ;  $N = -2.971$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0.11 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.004$ ;  $T_y = 1.87$ ;  $M_t = 0.01031$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $73 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.01031$



## Asta 208: Trave in legno a falda Falda 1 fili 56-57

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{17^2 + 481^2} = 482 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.061$ ;  $T_y = 1.711$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(252/8533)^2 + 22856/8097 + 0.7 \cdot 810/8097 = 2.89 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.04743$ ;  $M_y = -0.08638$ ;  $N = -2.018$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.09 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.061$ ;  $T_y = 1.711$ ;  $M_t = 0.01808$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $128 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.01808$

## Asta 209: Trave in legno a falda Falda 1 fili 49-50

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{20^2 + 414^2} = 414 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



Tx = -0.072; Ty = 1.472

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(95/8533)^2 + 20872/8097 + 0.7*891/8097 = 2.65 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.783; My = -0.09504; N = -0.763

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*fv,d) + (\tau_{y,d}/fv,d)^2 + (\tau_{z,d}/fv,d)^2 \leq 1$

$0.09 + 0 + 0.07 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

Tx = -0.072; Ty = 1.472; Mt = 0.02497

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * fv,d$

$178 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = 0.02522

### Asta 210: Trave in legno a falda Falda 1 fili 43-44

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.63

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq fv,d$

$\sqrt{1^2 + 354^2} = 354 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

Tx = -0.003; Ty = 1.26

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(64/8533)^2 + 18668/8097 + 0.7*46/8097 = 2.31 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.48913; My = 0.00491; N = -0.509

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*fv,d) + (\tau_{y,d}/fv,d)^2 + (\tau_{z,d}/fv,d)^2 \leq 1$

$0.11 + 0 + 0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

Tx = -0.003; Ty = 1.26; Mt = 0.0295

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * fv,d$



212 <= 1900 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 0.03003

## Asta 211: Trave in legno a falda Falda 1 fili 37-38

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.63

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \geq 1$

$Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \geq 1$

15486/8097+0.7\*705/8097=1.97  $\geq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.06486; My = 0.07517

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau,d \leq f_{v,d}$

$\sqrt{15^2+280^2} = 281 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.055; Ty = 0.996

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.11+0+0.03  $\leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

Tx = 0.052; Ty = 0.996; Mt = 0.03071

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.63

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * f_{v,d}$

222 <= 1900 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = 0.0315

## Asta 212: Trave in legno a falda Falda 1 fili 32-33

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.402

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67



$\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(16^2+259^2) = 260 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.056$ ;  $T_y = 0.921$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 2.402  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(53/8533)^2 + 12767/8097 + 0.7 \cdot 395/8097 = 1.61 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.70221$ ;  $M_y = 0.04218$ ;  $N = -0.425$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.054$ ;  $T_y = 0.921$ ;  $M_t = 0.02927$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 2.402  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $214 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.03026$

**Asta 213: Trave in legno a falda Falda 1 fili 27-28**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 1.658

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.000006667	0.000004267	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(12^2+371^2) = 372 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.041$ ;  $T_y = 1.32$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 1.658  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(217/8533)^2 + 11180/8097 + 0.7 \cdot 657/8097 = 1.44 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.49063$ ;  $M_y = -0.07007$ ;  $N = -1.736$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.14 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.041$ ;  $T_y = 1.32$ ;  $M_t = 0.03724$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 1.658  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
271  $\leq$  1900 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.03841$

## Asta 214: Trave in legno a falda Falda 1 fili 23-24

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.914

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{96^2 + 671^2} = 678 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.343$ ;  $T_y = 2.385$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.914  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(306/8533)^2 + 10629/8097 + 0.7 \cdot 1778/8097 = 1.47 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.41722$ ;  $M_y = -0.18963$ ;  $N = -2.447$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.18 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.343$ ;  $T_y = 2.385$ ;  $M_t = 0.05533$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.914  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
400  $\leq$  1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.05664$

## Asta 215: Trave in legno a falda Falda 1 fili 18-19

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.171

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.171



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(1023/8533)^2 + 6854/8097 + 0.7 \cdot 2842/8097 = 1.11 > 1$  [4.4.7a] Comb: SLU, 30; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -0.91389$ ;  $M_y = 0.30314$ ;  $N = -8.18$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{611^2 + 2360^2} = 2438 > 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 2.174$ ;  $T_y = 8.392$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.78 + 0.15 + 2.18 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 2.174$ ;  $T_y = 8.392$ ;  $M_t = 0.20902$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.171

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1476 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.20902$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.114

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$0.171/0 = 13158.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.114

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$0.171/0 = 18002.7 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.119

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$0.171/0 = 11326 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 216: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.799

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	J <sub>x</sub>	J <sub>y</sub>	W <sub>x</sub>	W <sub>y</sub>
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $424/3840 + 9673/7467 + 0.7*1203/7467 = 1.52 \geq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 15.35074$ ;  $M_y = -1.49414$ ;  $N = 17.571$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{58^2 + 777^2} = 779 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.058$ ;  $T_y = 14.299$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.42 + 0 + 0.24 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.074$ ;  $T_y = 14.277$ ;  $M_t = 1.33916$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.799  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $809 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 1.33959$

### Asta 217: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.066

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.066  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $493/3840 + 4411/7467 + 0.7*1166/7467 = 0.83 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = -6.99998$ ;  $M_y = 1.448$ ;  $N = 20.415$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{84^2 + 578^2} = 584 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.54$ ;  $T_y = 10.632$





#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.13 + 0 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.55$ ;  $T_y = 10.608$ ;  $M_t = 0.41121$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.066  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $248 \leq 1907$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = 0.41171$

### Asta 218: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.066

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.066  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $498/3840 + 8905/7467 + 0.7 \cdot 1899/7467 = 1.5 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -14.13258$ ;  $M_y = 2.35857$ ;  $N = 20.627$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{36^2 + 351^2} = 353 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.661$ ;  $T_y = 6.467$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.676$ ;  $T_y = 6.462$ ;  $M_t = -0.19994$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.066  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $121 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.19994$

### Asta 219: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.226



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.226

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$415/3840 + 9208/7467 + 0.7 \cdot 1279/7467 = 1.46 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -14.61288$ ;  $M_y = 1.58797$ ;  $N = 17.17$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{100^2 + 399^2} = 411 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1.838$ ;  $T_y = 7.344$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$

$0.26 + 0 + 0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1.838$ ;  $T_y = 7.344$ ;  $M_t = 0.82289$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.226

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{t,d} \leq K_{sh} \cdot f_{v,d}$

$498 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.82436$

### Asta 220: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.84

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$291/3840 + 7768/7467 + 0.7 \cdot 332/7467 = 1.15 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -12.32718$ ;  $M_y = 0.41174$ ;  $N = 12.046$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.84

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$



$\text{Sqrt}(106^2+229^2) = 252 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.943$ ;  $T_y = -4.214$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.84  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.59+0+0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 1.804$ ;  $T_y = -4.199$ ;  $M_t = -1.87749$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.84  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1133 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -1.87749$

### Asta 221: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.066

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $243/3840+5425/7467+0.7 \cdot 1349/7467=0.92 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = -8.60972$ ;  $M_y = 1.6751$ ;  $N = 10.075$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.066  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(7^2+245^2) = 245 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.134$ ;  $T_y = -4.51$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.066  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.32+0+0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.148$ ;  $T_y = -4.496$ ;  $M_t = -1.0194$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.066  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $615 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -1.0194$

### Asta 222: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 1.066

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$220/3840 + 2549/7467 + 0.7 \cdot 1264/7467 = 0.52 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -4.04478$ ;  $M_y = 1.56972$ ;  $N = 9.098$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.066

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{28^2 + 217^2} = 218 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.513$ ;  $T_y = -3.986$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.066

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.527$ ;  $T_y = -3.969$ ;  $M_t = -0.3872$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.066

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$234 \leq 1907$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -0.3872$

## Asta 223: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 0.957

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$473/5280 + 0.7 \cdot 1460/10267 + 1908/10267 = 0.37 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = -2.31709$ ;  $M_y = 2.37021$ ;  $N = 19.575$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.957

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{160^2 + 14^2} = 161 \leq 2200$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -2.946$ ;  $T_y = -0.254$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.957

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = 2.353$ ;  $T_y = -0.764$ ;  $M_t = 0.12611$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.957

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$76 \leq 2622$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.12611$

### Asta 224: Trave in legno a falda Falda 5 fili 271-281

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.854

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.854

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{63^2 + 580^2} = 584 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.225$ ;  $T_y = -2.064$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.854

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(390/8533)^2 + 6606/8097 + 0.7 \cdot 1151/8097 = 0.92 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 0.88083$ ;  $M_y = -0.12282$ ;  $N = -3.123$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.854

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.225$ ;  $T_y = -2.064$ ;  $M_t = 0.02147$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.854

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$158 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.02243$



## Asta 225: Trave in legno a falda Falda 5 fili 271-281

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.232

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.123

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St,0,d \leq ft,0,d$

$0 \leq 5726 \text{ Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo}$

$N = 0.003$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$6/6073+0.7*0/6073=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00086$ ;  $M_y = 0$

## Asta 226: Trave in legno a falda Falda 5 fili 267-282

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.634

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.634

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau,d \leq f_v,d$

$\sqrt{14^2+232^2} = 232 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.051$ ;  $T_y = -0.824$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.634

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(156/8533)^2+5495/8097+0.7*267/8097=0.7 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 0.73265$ ;  $M_y = 0.02851$ ;  $N = -1.247$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.634

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh}*f_v,d) + (\tau_{y,d}/f_v,d)^2 + (\tau_{z,d}/f_v,d)^2 \leq 1$

$0.03+0+0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.068$ ;  $T_y = -0.779$ ;  $M_t = 0.00683$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.634

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

48 ≤ 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.00683$

#### Asta 227: Trave in legno a falda Falda 5 fili 267-282

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.232

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.131

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

1 ≤ 5726 Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$N = 0.008$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$6/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00086$ ;  $M_y = 0$

#### Asta 228: Trave in legno a falda Falda 5 fili 262-283

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 2.396

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.397

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{44^2 + 130^2} = 137 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.157$ ;  $T_y = -0.463$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.397

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(182/8533)^2 + 4850/8097 + 0.7 \cdot 1609/8097 = 0.74 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mx = 0.64667; My = 0.17164; N = -1.457

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.397  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$   
0.04 + 0 + 0.01  $\leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.155; Ty = -0.463; Mt = -0.01012

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.397  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq k_{\text{sh}} \cdot f_{v,d}$   
71  $\leq$  1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -0.01012

### Asta 229: Trave in legno a falda Falda 5 fili 262-283

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.232

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.131  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
1  $\leq$  5726 Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
N = 0.011

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.6; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{m,y,d} / f_{m,y,d} + K_m \cdot (\sigma_{m,z,d} / f_{m,z,d}) \leq 1$   
 $K_m \cdot (\sigma_{m,y,d} / f_{m,y,d}) + \sigma_{m,z,d} / f_{m,z,d} \leq 1$   
 $6/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
Mx = 0.00087; My = 0

### Asta 230: Trave in legno a falda Falda 5 fili 256-284

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.16

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.16  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67





$\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(62^2 + 79^2) = 100 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.222$ ;  $T_y = -0.279$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 3.16  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(173/8533)^2 + 3676/8097 + 0.7 \cdot 3004/8097 = 0.71 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = 0.49016$ ;  $M_y = 0.32047$ ;  $N = -1.387$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.16  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.222$ ;  $T_y = -0.279$ ;  $M_t = -0.02006$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.16  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $142 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.02006$

### Asta 231: Trave in legno a falda Falda 5 fili 256-284

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.232

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.131  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $1 \leq 5726$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.004$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00087$ ;  $M_y = 0$

### Asta 232: Trave in legno a falda Falda 5 fili 250-285

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.923

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 3.924  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m,y,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.7 \cdot 2175/8097 + 2882/8097 = 0.54 \leq 1$  (formula 4.4.5b) Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = 0.29007$ ;  $M_y = 0.30741$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.924  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{47^2 + 52^2} = 70 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.168$ ;  $T_y = -0.184$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.924  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.168$ ;  $T_y = -0.184$ ;  $M_t = -0.02052$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.924  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $145 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.02052$

### Asta 233: Trave in legno a falda Falda 5 fili 250-285

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.232

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.132  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0 \leq 5726$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.003$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m,y,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00087$ ;  $M_y = 0$



## Asta 234: Trave in legno a falda Falda 5 fili 244-286

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 4.687

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 4.687

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{18^2 + 37^2} = 41 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.065$ ;  $T_y = -0.132$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 4.687

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(152/8533)^2 + 0.7 \cdot 1159/8097 + 1527/8097 = 0.29 \leq 1$  [4.4.7b] Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_x = 0.15453$ ;  $M_y = 0.16283$ ;  $N = -1.219$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 4.687

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.068$ ;  $T_y = -0.129$ ;  $M_t = -0.01269$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 4.687

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$90 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.01269$

## Asta 235: Trave in legno a falda Falda 5 fili 244-286

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.232

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.124

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 5726$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$N = 0.003$



#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_{m,y,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00087$ ;  $M_y = 0$

#### Asta 236: Trave in legno a falda Falda 2 fili 19-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.151

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(1095/8533)^2 + 1390/8097 + 0.7 \cdot 1172/8097 = 0.29 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 0.18535$ ;  $M_y = -0.12498$ ;  $N = -8.758$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.151

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{217^2 + 117^2} = 247 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.773$ ;  $T_y = -0.417$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.151

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0.02 + 0.01 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.773$ ;  $T_y = -0.417$ ;  $M_t = -0.03522$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.151

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$250 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.03542$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.076

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$0.151/0 = 16778.2 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.076

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$



Uinst var = 0  
Luce/Uinst,var > limite  
 $0.151/0=28698.9 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.076  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $0.151/0=13366 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 237: Trave in legno a falda Falda 2 fili 24-2

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.926

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.926  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_d \leq f_{v,d}$   
 $\sqrt{113^2 + 569^2} = 580 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.404; Ty = -2.024

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.926  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(421/8533)^2 + 7806/8097 + 0.7 \cdot 1883/8097 = 1.13 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = 1.04083; My = 0.20088; N = -3.369

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.926  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0.01 + 0.13 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.404; Ty = -2.024; Mt = -0.02454

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.926  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $180 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = -0.02547

### Asta 238: Trave in legno a falda Falda 2 fili 28-3

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 1.698

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.698

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2^2 + 235^2} = 235 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.007$ ;  $T_y = -0.837$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.698

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(191/8533)^2 + 6536/8097 + 0.7 \cdot 25/8097 = 0.81 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 0.87144$ ;  $M_y = 0.00267$ ;  $N = -1.524$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.698

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.027$ ;  $T_y = -0.789$ ;  $M_t = -0.00412$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.698

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$51 \leq 2613$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00721$

## Asta 239: Trave in legno a falda Falda 2 fili 33-4

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 2.463

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.463

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{49^2 + 118^2} = 128 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.173$ ;  $T_y = -0.42$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.463

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)



$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(215/8533)^2 + 5503/8097 + 0.7*1854/8097 = 0.84 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $Mx = 0.73379$ ;  $My = -0.19777$ ;  $N = -1.721$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.463  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.173$ ;  $T_y = -0.42$ ;  $M_t = 0.01981$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.463  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $140 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.01981$

### Asta 240: Trave in legno a falda Falda 2 fili 39-5

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.228

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{74^2 + 68^2} = 101 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.263$ ;  $T_y = -0.243$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 3.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(170/8533)^2 + 3682/8097 + 0.7*3610/8097 = 0.77 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $Mx = 0.49097$ ;  $My = -0.38502$ ;  $N = -1.364$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.263$ ;  $T_y = -0.243$ ;  $M_t = 0.02963$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $209 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.02963$



## Asta 241: Trave in legno a falda Falda 2 fili 45-6

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 3.993

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$0.7 \cdot 750/8097 + 3761/8097 = 0.53 \leq 1$  (formula 4.4.5b) Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_x = -0.09997$ ;  $M_y = 0.40114$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.993

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{53^2 + 35^2} = 64 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.189$ ;  $T_y = -0.126$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.993

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.1 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.189$ ;  $T_y = -0.125$ ;  $M_t = 0.02703$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.993

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$191 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.02703$

## Asta 242: Trave in legno a falda Falda 2 fili 51-7

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 4.758

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 4.758

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$St_{0,d}/f_{t,0,d} + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$162/5726 + 2967/11134 + 0.7 \cdot 1570/11134 = 0.39 \leq 1$  [4.4.6a] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$M_x = -0.39554$ ;  $M_y = -0.16749$ ;  $N = 1.293$





#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{21^2 + 55^2} = 59 \leq 2200$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$T_x = -0.074$ ;  $T_y = 0.195$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.056$ ;  $T_y = 0.124$ ;  $M_t = 0.01359$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 4.758

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$96 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.01359$

### Asta 243: Trave in legno a falda Falda 6 fili 238-239

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.039

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2116/4164 + 17062/8097 + 0.7 \cdot 2177/8097 = 2.8 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.27489$ ;  $M_y = -0.2322$ ;  $N = 16.926$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{55^2 + 355^2} = 359 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.196$ ;  $T_y = 1.262$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.196$ ;  $T_y = 1.262$ ;  $M_t = 0.00729$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$54 \leq 1900$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = 0.00759$



## Asta 244: Trave in legno a falda Falda 6 fili 276-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.175

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$0 \leq 5726 \text{ Comb: SLV, 6}$ ; Durata minima del carico nella combinazione: istantaneo

$N = 0.001$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.175

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm_{y,d}/f_{m,y,d} + K_m \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

$4/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.0005$ ;  $M_y = 0$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.076

$K_{def} = 0$

$U_{inst \text{ tot in } x} = 0$

$U_{inst \text{ tot in } y} = 0$

$U_{inst \text{ tot}} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$0.175/0 = 7355026.5 > 300$  Comb: SLE rara, 6

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.018

$K_{def} = 0$

$U_{inst \text{ var in } x} = 0$

$U_{inst \text{ var in } y} = 0$

$U_{inst \text{ var}} = 0$

$Luce/U_{inst,var} > \text{limite}$

$0.175/0 = 3173617451.7 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.076

$K_{def} = 0.6$

$U_{fin \text{ in } x} = 0$

$U_{fin \text{ in } y} = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$0.175/0 = 4597924.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,000 = 0,500$

Variabile H =  $0,000 + 1,000 = 1,000$

## Asta 245: Trave in legno a falda Falda 6 fili 272-273

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.964



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.964

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$

$\sqrt{220^2 + 797^2} = 827 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.782$ ;  $T_y = -2.834$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(469/8533)^2 + 12669/8097 + 0.7 \cdot 3515/8097 = 1.87 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.68926$ ;  $M_y = 0.37491$ ;  $N = -3.755$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.964

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0.02 + 0.25 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.782$ ;  $T_y = -2.834$ ;  $M_t = 0.05589$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.964

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$395 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.05593$

### Asta 246: Trave in legno a falda Falda 6 fili 268-269

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.752

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.752

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$

$\sqrt{88^2 + 388^2} = 397 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.313$ ;  $T_y = -1.378$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(170/8533)^2 + 11783/8097 + 0.7 \cdot 2655/8097 = 1.69 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -1.5711; My = 0.28317; N = -1.356

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.752

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$

$0.14 + 0 + 0.06 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -0.313; Ty = -1.378; Mt = 0.03682

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.752

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq k_{\text{sh}} \cdot f_{v,d}$

$260 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Mt = 0.03684

### Asta 247: Trave in legno a falda Falda 6 fili 263-264

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.54

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$S_{m,y,d} / f_{m,y,d} + K_m \cdot (S_{m,z,d} / f_{m,z,d}) > 1$

$K_m \cdot (S_{m,y,d} / f_{m,y,d}) + S_{m,z,d} / f_{m,z,d} > 1$

$11541/8097 + 0.7 \cdot 1816/8097 = 1.58 > 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -1.53876; My = 0.19366

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.54

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{d}} \leq f_{v,d}$

$\sqrt{40^2 + 241^2} = 245 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -0.143; Ty = -0.858

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.54

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = -0.146; Ty = -0.854; Mt = 0.01948

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.54

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq k_{\text{sh}} \cdot f_{v,d}$

$138 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = 0.01948

### Asta 248: Trave in legno a falda Falda 6 fili 257-258

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



#### Dati generali

Lunghezza = 0.888

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{26^2 + 626^2} = 626 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.094$ ;  $T_y = 2.225$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.888

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(361/8533)^2 + 15242/8097 + 0.7 \cdot 248/8097 = 1.91 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.03221$ ;  $M_y = 0.02648$ ;  $N = -2.889$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.15 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.094$ ;  $T_y = 2.225$ ;  $M_t = -0.01988$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.888

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$141 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -0.01991$

### Asta 249: Trave in legno a falda Falda 6 fili 251-252

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{51^2 + 453^2} = 456 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.182$ ;  $T_y = 1.611$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)



$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(549/8533)^2 + 16502/8097 + 0.7*1404/8097 = 2.16 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -2.20032$ ;  $My = 0.1498$ ;  $N = -4.396$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.08 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.182$ ;  $T_y = 1.611$ ;  $M_t = -0.01654$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $117 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.01656$

### Asta 250: Trave in legno a falda Falda 6 fili 245-246

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.464

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.464  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \geq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \geq 1$   
 $837/4164 + 17504/8097 + 0.7*1394/8097 = 2.48 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -2.33391$ ;  $My = 0.14866$ ;  $N = 6.698$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{44^2 + 415^2} = 417 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.155$ ;  $T_y = 1.475$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.07 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.155$ ;  $T_y = 1.475$ ;  $M_t = -0.00902$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.464  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $64 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.00902$



## Asta 251: Trave in legno a falda Falda 5 fili 241-287

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 5.236

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 5.236

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{12^2 + 56^2} = 57 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.043$ ;  $T_y = -0.198$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(818/8533)^2 + 2518/8097 + 0.7 \cdot 1083/8097 = 0.41 \leq 1$  [4.4.7a] Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_x = -0.33568$ ;  $M_y = 0.11555$ ;  $N = -6.541$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 5.236

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.044$ ;  $T_y = -0.198$ ;  $M_t = 0.00735$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 5.236

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$52 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.00735$

## Asta 252: Trave in legno a falda Falda 5 fili 241-287

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.232

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.116

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 5726$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$N = 0.003$



#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_{m}*(S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_{m}*(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$7/6073 + 0.7*0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00087$ ;  $M_y = 0$

#### Asta 253: Trave in legno a falda Falda 5 fili 245-288

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 4.69

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 4.69

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{54^2 + 62^2} = 82 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.192$ ;  $T_y = -0.22$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_{m}*(S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_{m}*(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(141/8533)^2 + 0.7*3001/8097 + 4305/8097 = 0.79 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_x = -0.40013$ ;  $M_y = 0.45923$ ;  $N = -1.128$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 4.69

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.193$ ;  $T_y = -0.218$ ;  $M_t = 0.0226$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 4.69

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

$160 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.0226$

#### Asta 254: Trave in legno a falda Falda 5 fili 245-288

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.232

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200





Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.116  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0 \leq 5726 \text{ Comb: SLV, 16}$ ; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.003$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00087$ ;  $M_y = 0$

### Asta 255: Trave in legno a falda Falda 5 fili 251-289

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.928

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.928  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{97^2 + 104^2} = 142 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.345$ ;  $T_y = -0.37$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(89/8533)^2 + 0.7 \cdot 4851/8097 + 6720/8097 = 1.25 \ngtr 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -0.64682$ ;  $M_y = 0.71685$ ;  $N = -0.708$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.928  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.345$ ;  $T_y = -0.369$ ;  $M_t = 0.02867$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.928  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $202 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.02867$

### Asta 256: Trave in legno a falda Falda 5 fili 251-289

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.232

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.109

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,d} \leq f_{t,d}$

$0 \leq 5726 \text{ Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo}$

$N = 0.003$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00087$ ;  $M_y = 0$

## Asta 257: Trave in legno a falda Falda 5 fili 257-290

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 3.171

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.171

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{122^2 + 180^2} = 218 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.434$ ;  $T_y = -0.641$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(192/8533)^2 + 7192/8097 + 0.7 \cdot 6910/8097 = 1.49 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -0.95887$ ;  $M_y = 0.73704$ ;  $N = -1.534$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.171

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0.01 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.434$ ;  $T_y = -0.641$ ;  $M_t = 0.02264$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.171

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
160  $\leq$  1900 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.02264$

## Asta 258: Trave in legno a falda Falda 5 fili 257-290

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.233

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.109  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0 \leq 5726$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.003$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00087$ ;  $M_y = 0$

## Asta 259: Trave in legno a falda Falda 5 fili 263-291

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.409

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.409  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(106^2 + 308^2)} = 326 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.377$ ;  $T_y = -1.096$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(326/8533)^2 + 9666/8097 + 0.7 \cdot 4592/8097 = 1.59 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.28876$ ;  $M_y = 0.4898$ ;  $N = -2.605$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.409

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0+0+0.04 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.375$ ;  $T_y = -1.095$ ;  $M_t = -0.00095$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.409

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$34 \leq 2613$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00479$

### Asta 260: Trave in legno a falda Falda 5 fili 263-291

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.233

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.14

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$0 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.003$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm_{y,d}/f_{m,y,d} + K_m \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

$7/6073+0.7 \cdot 0/6073=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00087$ ;  $M_y = 0$

### Asta 261: Trave in legno a falda Falda 5 fili 268-292

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.648

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.648

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{51^2+486^2} = 489 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



$T_x = -0.181$ ;  $T_y = -1.728$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(294/8533)^2 + 10801/8097 + 0.7 \cdot 1690/8097 = 1.48 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.44015$ ;  $M_y = 0.18029$ ;  $N = -2.351$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.648

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.09 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.179$ ;  $T_y = -1.727$ ;  $M_t = -0.02307$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.648

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$163 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.02307$

### Asta 262: Trave in legno a falda Falda 5 fili 268-292

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.233

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.124

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq ft_{0,d}$

$0 \leq 5726$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$N = 0.003$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00088$ ;  $M_y = 0$

### Asta 263: Trave in legno a falda Falda 5 fili 272-293

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.886

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.886  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{101^2 + 1058^2} = 1063 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.358$ ;  $T_y = -3.763$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(622/8533)^2 + 13373/8097 + 0.7 \cdot 1044/8097 = 1.75 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.78303$ ;  $M_y = -0.11134$ ;  $N = -4.979$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.886  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.17 + 0 + 0.44 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.358$ ;  $T_y = -3.763$ ;  $M_t = -0.04699$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.886  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $332 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.04702$

### Asta 264: Trave in legno a falda Falda 5 fili 272-293

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.233

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.117  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0 \leq 5726$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.004$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00088$ ;  $M_y = 0$



## Asta 265: Trave in legno a falda Falda 5 fili 276-294

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.242

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.121

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{t,0,d} \leq f_{t,0,d}$

$0 \leq 5726 \text{ Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo}$

$N = 0.003$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$7/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00095$ ;  $M_y = 0$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.154

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$0.242/0 = 7832703.8 > 300$  Comb: SLE rara, 6

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.234

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$0.242/0 = 5179827209.1 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.154

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin} > \text{limite}$

$0.242/0 = 4896360.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,000 = 0,500$

Variabile H =  $0,000 + 1,000 = 1,000$

## Asta 266: Trave in legno a falda Falda 6 fili 227-228

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 3.039



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$187/4164 + 16551/8097 + 0.7 \cdot 268/8097 = 2.11 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.20679$ ;  $M_y = -0.02853$ ;  $N = 1.493$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1^2 + 336^2} = 336 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.005$ ;  $T_y = 1.194$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.009$ ;  $T_y = 1.191$ ;  $M_t = 0.01761$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$125 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.01772$

### Asta 267: Trave in legno a falda Falda 6 fili 218-219

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.039

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$382/4164 + 15577/8097 + 0.7 \cdot 340/8097 = 2.04 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.07699$ ;  $M_y = -0.03631$ ;  $N = 3.057$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$





$\sqrt{5^2+309^2} = 309 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.016$ ;  $T_y = 1.099$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08+0+0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.019$ ;  $T_y = 1.099$ ;  $M_t = 0.0203$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.038  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $144 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.0204$

### Asta 268: Trave in legno a falda Falda 6 fili 212-213

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.35

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.349  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \cdot I > 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \cdot I > 1$   
 $504/4164+11988/8097+0.7 \cdot 140/8097=1.61 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.59838$ ;  $M_y = -0.01498$ ;  $N = 4.03$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3^2+215^2} = 215 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.01$ ;  $T_y = 0.765$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04+0+0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.01$ ;  $T_y = 0.765$ ;  $M_t = 0.01154$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.349  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $81 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.01154$

### Asta 269: Trave in legno a falda Falda 6 fili 203-204

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 2.556

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.556

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$412/4164 + 11144/8097 + 0.7 \cdot 671/8097 = 1.53 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.48581$ ;  $M_y = 0.0716$ ;  $N = 3.296$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{11^2 + 282^2} = 282 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.04$ ;  $T_y = 1.002$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.04$ ;  $T_y = 1.002$ ;  $M_t = 0.01377$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.556

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$97 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.01377$

## Asta 270: Trave in legno a falda Falda 6 fili 193-194

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 1.763

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.762

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$244/4164 + 8261/8097 + 0.7 \cdot 1224/8097 = 1.18 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.10142$ ;  $M_y = 0.13053$ ;  $N = 1.954$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{34^2 + 364^2} = 365 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.123$ ;  $T_y = 1.293$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.123$ ;  $T_y = 1.293$ ;  $M_t = 0.00822$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.762

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$58 \leq 1900$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = 0.00823$

### Asta 271: Trave in legno a falda Falda 6 fili 186-187

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.969

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$280/4164 + 9745/8097 + 0.7 \cdot 961/8097 = 1.35 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 1.29933$ ;  $M_y = -0.10253$ ;  $N = 2.24$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{66^2 + 608^2} = 612 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.236$ ;  $T_y = 2.162$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.14 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.236$ ;  $T_y = 2.162$ ;  $M_t = 0.00478$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.969

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$34 \leq 1900$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = 0.0048$



## Asta 272: Trave in legno a falda Falda 4 fili 172-173

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.968

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$989/4164 + 37665/8097 + 0.7 \cdot 1297/8097 = 5 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.02204$ ;  $M_y = -0.13835$ ;  $N = 7.914$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{34^2 + 815^2} = 816 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.12$ ;  $T_y = 2.899$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.15 + 0 + 0.26 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.12$ ;  $T_y = 2.899$ ;  $M_t = -0.03964$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$280 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.03964$

## Asta 273: Trave in legno a falda Falda 4 fili 163-164

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.968

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0^2 + 1048^2} = 1048 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.001$ ;  $T_y = 3.726$



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(63/8533)^2 + 44928/8097 + 0.7 \cdot 345/8097 = 5.58 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.99034$ ;  $M_y = -0.03677$ ;  $N = -0.508$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.43 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.001$ ;  $T_y = 3.726$ ;  $M_t = -0.02368$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$167 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.02368$

### Asta 274: Trave in legno a falda Falda 4 fili 155-156

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.968

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) > 1$

$St_{0,d}/f_{t,0,d} + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} > 1$

$74/4164 + 43385/8097 + 0.7 \cdot 663/8097 = 5.43 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.78473$ ;  $M_y = -0.07074$ ;  $N = 0.595$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{13^2 + 947^2} = 947 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.044$ ;  $T_y = 3.366$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.35 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.044$ ;  $T_y = 3.366$ ;  $M_t = -0.01257$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$89 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



Mt = -0.01257

## Asta 275: Trave in legno a falda Falda 4 fili 150-151

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.968

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$44470/8097 + 0.7 \cdot 66/8097 = 5.5 \leq 1$  (formula 4.4.5a) Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.92935$ ;  $M_y = -0.00707$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1^2 + 967^2} = 967 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.002$ ;  $T_y = 3.436$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.36 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.002$ ;  $T_y = 3.436$ ;  $M_t = 0.00184$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$25 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.00357$

## Asta 276: Trave in legno a falda Falda 4 fili 141-142

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.968

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$



$\sqrt{11^2 + 977^2} = 977 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.038$ ;  $T_y = 3.472$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(76/8533)^2 + 44824/8097 + 0.7 \cdot 587/8097 = 5.59 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.97652$ ;  $M_y = 0.06265$ ;  $N = -0.612$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.37 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.038$ ;  $T_y = 3.472$ ;  $M_t = 0.01591$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$112 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.01592$

### Asta 277: Trave in legno a falda Falda 4 fili 134-135

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.968

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{24^2 + 959^2} = 960 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.086$ ;  $T_y = 3.411$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(71/8533)^2 + 44292/8097 + 0.7 \cdot 1110/8097 = 5.57 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.90555$ ;  $M_y = 0.11838$ ;  $N = -0.566$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.11 + 0 + 0.36 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.086$ ;  $T_y = 3.411$ ;  $M_t = 0.02969$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$



$\tau_{tor,d} \leq Ksh \cdot f_{v,d}$   
210  $\leq$  1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = 0.02969

## Asta 278: Trave in legno a falda Falda 4 fili 123-124

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.968

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

555/4164+37151/8097+0.7\*200/8097=4.74  $\geq$  1 [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -4.95346; My = 0.02131; N = 4.443

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{3^2 + 699^2} = 699 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.012; Ty = 2.486

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.15+0+0.19  $\leq$  1 Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.012; Ty = 2.486; Mt = 0.04012

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.967

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh \cdot f_{v,d}$

283  $\leq$  1900 Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = 0.04012

## Asta 279: Trave in legno a falda Falda 4 fili 230-231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.534

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.534

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$





$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{297^2 + 2444^2} = 2462 > 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -1.056$ ;  $T_y = -8.691$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(576/8533)^2 + 29763/8097 + 0.7 \cdot 2290/8097 = 3.88 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.96844$ ;  $M_y = 0.24426$ ;  $N = -4.605$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.534

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.6 + 0.03 + 2.33 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -1.056$ ;  $T_y = -8.691$ ;  $M_t = 0.16173$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.534

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1146 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.16232$

### Asta 280: Trave in legno a falda Falda 4 fili 230-231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$0 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.002$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

### Asta 281: Trave in legno a falda Falda 4 fili 221-222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.305

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.305  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{82^2 + 598^2} = 604 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.293$ ;  $T_y = -2.126$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(156/8533)^2 + 15061/8097 + 0.7 \cdot 1768/8097 = 2.01 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.00812$ ;  $M_y = 0.18854$ ;  $N = -1.247$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.305  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.29 + 0 + 0.14 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.291$ ;  $T_y = -2.119$ ;  $M_t = 0.07817$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.305  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $552 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.0782$

### Asta 282: Trave in legno a falda Falda 4 fili 221-222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.039  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $1 \leq 5726$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.006$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$



## Asta 283: Trave in legno a falda Falda 4 fili 214-215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.076

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.076

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{24^2 + 409^2} = 410 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.086$ ;  $T_y = -1.454$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(82/8533)^2 + 17058/8097 + 0.7 \cdot 788/8097 = 2.17 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.27443$ ;  $M_y = 0.084$ ;  $N = -0.659$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.076

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.2 + 0 + 0.07 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.086$ ;  $T_y = -1.451$ ;  $M_t = 0.05377$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.076

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$380 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.05379$

## Asta 284: Trave in legno a falda Falda 4 fili 214-215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.144

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.034

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$3 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.025$



#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

#### Asta 285: Trave in legno a falda Falda 4 fili 205-206

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 2.846

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.846

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1^2 + 382^2} = 382 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.005$ ;  $T_y = -1.357$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(84/8533)^2 + 23019/8097 + 0.7 \cdot 110/8097 = 2.85 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.06916$ ;  $M_y = -0.0117$ ;  $N = -0.669$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.846

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.17 + 0 + 0.06 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.004$ ;  $T_y = -1.355$ ;  $M_t = 0.04482$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.846

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$317 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.04483$

#### Asta 286: Trave in legno a falda Falda 4 fili 205-206

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.144

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.048  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0 \leq 5726 \text{ Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo}$   
 $N = 0.004$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $Sm_{y,d}/f_{m,y,d} + K_m(Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $K_m(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

### Asta 287: Trave in legno a falda Falda 4 fili 195-196

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.45

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.45  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/f_{t,0,d} + Sm_{y,d}/f_{m,y,d} + K_m(Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $St_{0,d}/f_{t,0,d} + K_m(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $91/4164 + 27820/8097 + 0.7 \cdot 103/8097 = 3.47 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -3.70932$ ;  $M_y = 0.01098$ ;  $N = 0.731$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} > f_{v,d}$   
 $\sqrt{21^2 + 2125^2} = 2125 > 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 0.076$ ;  $T_y = 7.555$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.32 + 0 + 1.76 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 0.076$ ;  $T_y = 7.555$ ;  $M_t = -0.08741$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.45  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $617 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.08741$

### Asta 288: Trave in legno a falda Falda 4 fili 188-189

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 1.221

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.221

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$52/4164 + 34835/8097 + 0.7 \cdot 438/8097 = 4.35 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -4.64472$ ;  $M_y = 0.04675$ ;  $N = 0.412$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{22^2 + 1262^2} = 1262 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.077$ ;  $T_y = 4.487$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.26 + 0 + 0.62 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.077$ ;  $T_y = 4.487$ ;  $M_t = -0.0712$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.221

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$503 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -0.0712$

## Asta 289: Trave in legno a falda Falda 4 fili 181-182

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 1.992

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.992

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$117/4164 + 35887/8097 + 0.7 \cdot 191/8097 = 4.48 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -4.78493$ ;  $M_y = 0.02035$ ;  $N = 0.934$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{7^2 + 894^2} = 894 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.024$ ;  $T_y = 3.18$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.31 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.024$ ;  $T_y = 3.18$ ;  $M_t = -0.05681$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.992  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $401 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.05682$

### Asta 290: Trave in legno a falda Falda 4 fili 116-117

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.036

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.036  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $421/4164 + 41000/8097 + 0.7 \cdot 110/8097 = 5.17 \leq 1$  [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -5.46667$ ;  $M_y = -0.01178$ ;  $N = 3.364$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2^2 + 975^2} = 975 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.007$ ;  $T_y = 3.468$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.2 + 0 + 0.37 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.007$ ;  $T_y = 3.468$ ;  $M_t = 0.05489$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.036  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $388 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.05489$



## Asta 291: Trave in legno a falda Falda 4 fili 108-109

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.265

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{18^2 + 1319^2} = 1319 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.062$ ;  $T_y = 4.689$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.265

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(176/8533)^2 + 38574/8097 + 0.7 \cdot 361/8097 = 4.8 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.14317$ ;  $M_y = 0.03851$ ;  $N = -1.411$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.25 + 0 + 0.68 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.062$ ;  $T_y = 4.689$ ;  $M_t = 0.06682$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.265

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$472 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.06682$

## Asta 292: Trave in legno a falda Falda 4 fili 101-102

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.495

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.495

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$30608/8097 + 0.7 \cdot 303/8097 = 3.81 > 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -4.08112$ ;  $M_y = 0.03233$





#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{36^2 + 2119^2} = 2119 > 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 0.128$ ;  $T_y = 7.535$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.3 + 0 + 1.75 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 0.128$ ;  $T_y = 7.535$ ;  $M_t = 0.07987$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.495

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

$564 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.07987$

### Asta 293: Trave in legno a falda Falda 4 fili 93-94

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.89

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.89

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{30^2 + 462^2} = 463 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.107$ ;  $T_y = -1.644$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m * (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m * (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(141/8533)^2 + 24185/8097 + 0.7 * 1401/8097 = 3.11 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.22461$ ;  $M_y = -0.14945$ ;  $N = -1.132$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.89

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.15 + 0 + 0.08 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.106$ ;  $T_y = -1.643$ ;  $M_t = -0.03985$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.89

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

$281 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.03985$



## Asta 294: Trave in legno a falda Falda 4 fili 93-94

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.144

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $2 \leq 5726 \text{ Comb: SLV, 8;}$  Durata minima del carico nella combinazione: istantaneo  
 $N = 0.015$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $Sm_{y,d}/f_{m,y,d} + Km*(Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $Km*(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7*0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

## Asta 295: Trave in legno a falda Falda 4 fili 85-86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.12

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.12  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{50^2 + 477^2} = 480 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.177$ ;  $T_y = -1.697$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km*(Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km*(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(155/8533)^2 + 17280/8097 + 0.7*1796/8097 = 2.29 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.304$ ;  $M_y = -0.19162$ ;  $N = -1.238$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.12  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$



0.17+0+0.09 <= 1 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 0.177; Ty = -1.695; Mt = -0.04533

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.12

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

320 <= 1900 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = -0.04534

### Asta 296: Trave in legno a falda Falda 4 fili 85-86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; Kh = 1.084 (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

1 <= 5726 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

N = 0.004

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.6; Kh = 1.084 (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

3/6073+0.7\*0/6073=0 <= 1 (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

Mx = 0.00035; My = 0

### Asta 297: Trave in legno a falda Falda 4 fili 79-80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.349

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.349

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{103^2+652^2} = 660 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.366; Ty = -2.318

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)



$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(207/8533)^2 + 14151/8097 + 0.7*2355/8097 = 1.95 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -1.88678$ ;  $My = -0.25124$ ;  $N = -1.658$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.349  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.25 + 0 + 0.17 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.367$ ;  $T_y = -2.313$ ;  $M_t = -0.06663$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.349  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $471 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.06664$

### Asta 298: Trave in legno a falda Falda 4 fili 79-80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.039  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St,0,d \leq f_{t,0,d}$   
 $1 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.012$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $3/6073 + 0.7*0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

### Asta 299: Trave in legno a falda Falda 4 fili 70-71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.578

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.578



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{260^2 + 1935^2} = 1952 > 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 0.923$ ;  $T_y = -6.878$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(451/8533)^2 + 22435/8097 + 0.7 \cdot 2376/8097 = 2.98 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.99136$ ;  $M_y = -0.25349$ ;  $N = -3.607$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.578

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.51 + 0.03 + 1.46 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 0.923$ ;  $T_y = -6.878$ ;  $M_t = -0.13743$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.578

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$974 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.13785$

### Asta 300: Trave in legno a falda Falda 4 fili 70-71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.067

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 3123$  Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$N = 0.001$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

### Asta 301: Trave in legno a falda Falda 3 fili 106-107

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.741



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$293/4164 + 9711/8097 + 0.7 \cdot 533/8097 = 1.32 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 1.2948$ ;  $M_y = 0.05687$ ;  $N = 2.348$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{46^2 + 721^2} = 723 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.163$ ;  $T_y = 2.565$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.2 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.163$ ;  $T_y = 2.565$ ;  $M_t = -0.0044$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.74

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$44 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00619$

### Asta 302: Trave in legno a falda Falda 3 fili 58-59

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.038

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$322/4164 + 16071/8097 + 0.7 \cdot 378/8097 = 2.09 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.14277$ ;  $M_y = 0.04028$ ;  $N = 2.572$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$



$\sqrt{7^2+360^2} = 360 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.024$ ;  $T_y = 1.28$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04+0+0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 0.029$ ;  $T_y = 1.277$ ;  $M_t = -0.01173$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.038  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $84 \leq 1900$  Comb: SLU, 37; Durata minima del carico nella combinazione: media  
 $M_t = -0.01184$

### Asta 303: Trave in legno a falda Falda 3 fili 67-68

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.039

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.038  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \cdot I > 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \cdot I > 1$   
 $207/4164+15153/8097+0.7 \cdot 58/8097=1.93 \cdot I > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.02034$ ;  $M_y = 0.00624$ ;  $N = 1.652$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2^2+326^2} = 326 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.006$ ;  $T_y = 1.158$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06+0+0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.002$ ;  $T_y = 1.157$ ;  $M_t = -0.01699$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.038  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $121 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.01709$

### Asta 304: Trave in legno a falda Falda 3 fili 76-77

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 3.038

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$433/4164 + 14181/8097 + 0.7 \cdot 295/8097 = 1.88 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.89076$ ;  $M_y = 0.0315$ ;  $N = 3.468$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{5^2 + 297^2} = 297 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.016$ ;  $T_y = 1.056$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.016$ ;  $T_y = 1.056$ ;  $M_t = -0.01917$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.038

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$136 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.01926$

## Asta 305: Trave in legno a falda Falda 3 fili 83-84

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 3.213

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 3.213

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$561/4164 + 11959/8097 + 0.7 \cdot 161/8097 = 1.63 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.59456$ ;  $M_y = 0.01718$ ;  $N = 4.485$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$





$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3^2 + 235^2} = 235 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.012$ ;  $T_y = 0.835$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.012$ ;  $T_y = 0.835$ ;  $M_t = -0.01398$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.213  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $99 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.01398$

### Asta 306: Trave in legno a falda Falda 3 fili 91-92

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.389

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.389  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $428/4164 + 10005/8097 + 0.7 \cdot 593/8097 = 1.39 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.33403$ ;  $M_y = -0.06322$ ;  $N = 3.426$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{10^2 + 294^2} = 294 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.035$ ;  $T_y = 1.046$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.035$ ;  $T_y = 1.046$ ;  $M_t = -0.01201$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.389  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $85 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -0.01201$



## Asta 307: Trave in legno a falda Falda 3 fili 99-100

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.564

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$238/4164 + 9292/8097 + 0.7 \cdot 587/8097 = 1.26 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 1.23891$ ;  $M_y = 0.06262$ ;  $N = 1.902$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{25^2 + 408^2} = 408 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.09$ ;  $T_y = 1.449$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.06 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.09$ ;  $T_y = 1.449$ ;  $M_t = -0.00716$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.564

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$51 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.00716$

## Asta 308: Trave in legno a falda Falda 3 fili 46-47

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.831

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{49^2 + 397^2} = 400 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.173$ ;  $T_y = 1.413$



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.831

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(412/8533)^2 + 15206/8097 + 0.7 \cdot 1458/8097 = 2.01 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.0275$ ;  $M_y = -0.15548$ ;  $N = -3.297$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.06 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.173$ ;  $T_y = 1.413$ ;  $M_t = 0.01507$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.831

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$107 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.01509$

### Asta 309: Trave in legno a falda Falda 3 fili 52-53

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.644

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.645

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$1034/4164 + 16220/8097 + 0.7 \cdot 1031/8097 = 2.34 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.1627$ ;  $M_y = -0.10999$ ;  $N = 8.273$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{31^2 + 390^2} = 391 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.112$ ;  $T_y = 1.385$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.06 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.112$ ;  $T_y = 1.385$ ;  $M_t = 0.00677$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.645

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$48 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



Mt = 0.00677

## Asta 310: Trave in legno a falda Falda 3 fili 40-41

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.016

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{60^2 + 500^2} = 504 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.214$ ;  $T_y = 1.779$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 1.016

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(229/8533)^2 + 14151/8097 + 0.7 \cdot 1041/8097 = 1.84 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.88674$ ;  $M_y = -0.11101$ ;  $N = -1.834$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.1 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.214$ ;  $T_y = 1.779$ ;  $M_t = 0.01782$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.016

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$126 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.01784$

## Asta 311: Trave in legno a falda Falda 3 fili 34-35

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.64

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$



$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $12171/8097 + 0.7 \cdot 1039/8097 = 1.59 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.62278$ ;  $M_y = -0.11087$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.64  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{20^2 + 240^2} = 241 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.073$ ;  $T_y = -0.855$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.64  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.075$ ;  $T_y = -0.853$ ;  $M_t = -0.01528$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.64  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $108 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.01528$

### Asta 312: Trave in legno a falda Falda 3 fili 29-30

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.825

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.825  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{46^2 + 408^2} = 411 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.165$ ;  $T_y = -1.451$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(189/8533)^2 + 12768/8097 + 0.7 \cdot 1576/8097 = 1.71 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.70236$ ;  $M_y = -0.16808$ ;  $N = -1.513$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.825  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.15 + 0 + 0.07 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.165$ ;  $T_y = -1.451$ ;  $M_t = -0.04041$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.825  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$



$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
285 <= 1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -0.04041

## Asta 313: Trave in legno a falda Falda 3 fili 25-26

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.01

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.01  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\text{Sqrt}(115^2 + 849^2) = 856 <= 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.407; Ty = -3.018

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(\sigma_{\text{c,0,d}}/f_{\text{c,0,d}})^2 + \sigma_{\text{m,y,d}}/f_{\text{m,y,d}} + K_{\text{m}}(\sigma_{\text{m,z,d}}/f_{\text{m,z,d}}) \leq 1$   
 $(\sigma_{\text{c,0,d}}/f_{\text{c,0,d}})^2 + K_{\text{m}}(\sigma_{\text{m,y,d}}/f_{\text{m,y,d}}) + \sigma_{\text{m,z,d}}/f_{\text{m,z,d}} \leq 1$   
 $(427/8533)^2 + 14397/8097 + 0.7 \cdot 2232/8097 = 1.97 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -1.91966; My = -0.23808; N = -3.418

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.01  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{\text{tor,d}}/(k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}}/f_{\text{v,d}})^2 + (\tau_{\text{z,d}}/f_{\text{v,d}})^2 \leq 1$   
 $0.3 + 0.01 + 0.28 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.407; Ty = -3.018; Mt = -0.08012

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.01  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
566 <= 1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -0.08012

## Asta 314: Trave in legno a falda Falda 3 fili 21-22

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.205

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_{m,d}(S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_{m,d}(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1357/8533)^2 + 10290/8097 + 0.7 \cdot 3855/8097 = 1.63 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.37203$ ;  $M_y = 0.41117$ ;  $N = -10.856$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.205  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} > f_{v,d}$   
 $\sqrt{922^2 + 2924^2} = 3066 > 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -3.277$ ;  $T_y = -10.397$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.205  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 > 1$   
 $1.15 + 0.33 + 3.34 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -3.277$ ;  $T_y = -10.397$ ;  $M_t = -0.31056$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.205  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} > K_{sh} \cdot f_{v,d}$   
 $2193 > 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_t = -0.31056$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.068  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $0.205/0 = 7212.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.068  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $0.205/0 = 10505.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.068  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $0.205/0 = 6070.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Asta 315: Trave in legno a falda Falda 2 fili 55-8

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 5.128

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 5.128  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $210/5726 + 2820/11134 + 0.7 \cdot 632/11134 = 0.33 \leq 1$  [4.4.6a] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -0.37599$ ;  $M_y = -0.06741$ ;  $N = 1.676$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0^2 + 52^2} = 52 \leq 2200$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -0.001$ ;  $T_y = 0.185$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.029$ ;  $T_y = 0.088$ ;  $M_t = -0.00392$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 5.128  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $28 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.00392$

### Asta 316: Trave in legno a falda Falda 2 fili 52-9

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 4.756

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $96/4164 + 0.7 \cdot 1554/8097 + 3123/8097 = 0.54 \leq 1$  [4.4.6b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_x = -0.20715$ ;  $M_y = -0.33317$ ;  $N = 0.771$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 4.756  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{38^2 + 30^2} = 48 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.134$ ;  $T_y = -0.108$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 4.756





Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.134$ ;  $T_y = -0.108$ ;  $M_t = -0.01612$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 4.756  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $114 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.01612$

### Asta 317: Trave in legno a falda Falda 2 fili 46-10

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.99

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.7 \cdot 4142/8097 + 6297/8097 = 1.14 \leq 1$  (formula 4.4.5b) Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -0.55223$ ;  $M_y = -0.67166$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.99  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{88^2 + 80^2} = 119 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.313$ ;  $T_y = -0.285$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.99  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.314$ ;  $T_y = -0.284$ ;  $M_t = -0.02671$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.99  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $189 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.02671$

### Asta 318: Trave in legno a falda Falda 2 fili 40-11

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.223

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.223  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{122^2 + 168^2} = 208 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.435$ ;  $T_y = -0.599$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(148/8533)^2 + 7281/8097 + 0.7 \cdot 7120/8097 = 1.51 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -0.97075$ ;  $M_y = -0.75945$ ;  $N = -1.186$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.223  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0.01 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.435$ ;  $T_y = -0.599$ ;  $M_t = -0.02343$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.223  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $165 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.02343$

### Asta 319: Trave in legno a falda Falda 2 fili 34-12

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.456

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.456  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{124^2 + 332^2} = 354 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.439$ ;  $T_y = -1.179$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(322/8533)^2 + 11299/8097 + 0.7 \cdot 5632/8097 = 1.88 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.50656$ ;  $M_y = -0.60071$ ;  $N = -2.576$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.456  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0.01 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.439$ ;  $T_y = -1.179$ ;  $M_t = -0.00352$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.456  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $40 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.00569$

### Asta 320: Trave in legno a falda Falda 2 fili 29-13

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.689

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.689  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{63^2 + 533^2} = 537 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.225$ ;  $T_y = -1.896$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(345/8533)^2 + 12502/8097 + 0.7 \cdot 2116/8097 = 1.73 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.66689$ ;  $M_y = -0.22572$ ;  $N = -2.759$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.689  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0.11 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.225$ ;  $T_y = -1.896$ ;  $M_t = 0.02114$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.689  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $149 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.02114$

### Asta 321: Trave in legno a falda Falda 2 fili 25-14

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.923



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.923  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{96^2 + 1115^2} = 1120 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.342$ ;  $T_y = -3.966$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(670/8533)^2 + 14423/8097 + 0.7 \cdot 986/8097 = 1.87 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.92306$ ;  $M_y = 0.10521$ ;  $N = -5.361$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.923  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0 + 0.49 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.342$ ;  $T_y = -3.966$ ;  $M_t = 0.04926$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.923  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $348 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.04926$

### Asta 322: Trave in legno a falda Falda 2 fili 21-15

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.156

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.156  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1039/8533)^2 + 3023/8097 + 0.7 \cdot 1522/8097 = 0.52 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = 0.40306$ ;  $M_y = 0.16235$ ;  $N = -8.312$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.156  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$



$\sqrt{207^2 + 583^2} = 619 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.738$ ;  $T_y = -2.075$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.156  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d} / (k_{sh} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$   
 $0.26 + 0.02 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.738$ ;  $T_y = -2.075$ ;  $M_t = 0.06978$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.156  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $493 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.06978$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.088  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce} / U_{inst,tot} > \text{limite}$   
 $0.156 / 0 = 14435.8 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.088  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce} / U_{inst,var} > \text{limite}$   
 $0.156 / 0 = 25948.6 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.088  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce} / U_{fin} > \text{limite}$   
 $0.156 / 0 = 11355 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

### Asta 323: Trave in legno a falda Falda 1 fili 148-149

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 4.283

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1^2 + 237^2} = 237 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



Tx = 0.002; Ty = 0.843

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 4.283

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(127/8533)^2 + 15544/8097 + 0.7*42/8097 = 1.92 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.07255; My = 0.00449; N = -1.014

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*fv,d) + (\tau_{y,d}/fv,d)^2 + (\tau_{z,d}/fv,d)^2 \leq 1$

0+0+0.02  $\leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 0.002; Ty = 0.843; Mt = -0.00125

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 4.283

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * fv,d$

9  $\leq 1900$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

Mt = -0.00126

### Asta 324: Trave in legno a falda Falda 1 fili 153-154

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 4.283

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq fv,d$

$\sqrt{5^2 + 235^2} = 236 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 0.017; Ty = 0.837

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 4.283

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(418/8533)^2 + 15023/8097 + 0.7*252/8097 = 1.88 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.0031; My = 0.02683; N = -3.347

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*fv,d) + (\tau_{y,d}/fv,d)^2 + (\tau_{z,d}/fv,d)^2 \leq 1$

0.01+0+0.02  $\leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 0.017; Ty = 0.837; Mt = -0.00338

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 4.283

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * fv,d$



24 <= 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -0.00342

## Asta 325: Trave in legno a falda Falda 1 fili 139-140

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 4.283

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3^2 + 238^2} = 238 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.011$ ;  $T_y = 0.845$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 4.283  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(338/8533)^2 + 15177/8097 + 0.7 \cdot 157/8097 = 1.89 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.0236$ ;  $M_y = -0.01673$ ;  $N = -2.701$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.011$ ;  $T_y = 0.845$ ;  $M_t = 0.00052$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 4.283  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $11 \leq 2613$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.00154$

## Asta 326: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$



$St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $267/5280 + 0.7*1763/10267 + 3816/10267 = 0.54 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $Mx = -2.79867$ ;  $My = 4.74009$ ;  $N = 11.07$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau, d \leq f_{v,d}$   
 $\sqrt{300^2 + 142^2} = 332 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -5.525$ ;  $T_y = -2.614$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0.01 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -3.226$ ;  $T_y = 2.573$ ;  $M_t = 0.29835$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $181 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.2996$

### Asta 327: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau, d \leq f_{v,d}$   
 $\sqrt{117^2 + 233^2} = 261 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.154$ ;  $T_y = 4.296$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(160/8533)^2 + 2644/7467 + 0.7*164/7467 = 0.37 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = -4.19562$ ;  $M_y = 0.20411$ ;  $N = -6.607$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0.01 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.154$ ;  $T_y = 4.296$ ;  $M_t = 0.20838$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$





$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
126  $\leq$  1907 Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_t = 0.20951$

## Asta 328: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{190^2 + 284^2} = 342 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -3.501$ ;  $T_y = -5.232$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.428  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(156/8533)^2 + 2340/7467 + 0.7 \cdot 1066/7467 = 0.41 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -3.71344$ ;  $M_y = -1.32453$ ;  $N = -6.474$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0.01 + 0.03 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -3.369$ ;  $T_y = -5.064$ ;  $M_t = 0.23786$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
144  $\leq$  1907 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.23786$

## Asta 329: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{84^2 + 233^2} = 248 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.551$ ;  $T_y = -4.283$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

$(148/8533)^2 + 0.7 \cdot 1682/7467 + 1899/7467 = 0.41 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -2.66999$ ;  $M_y = -2.35895$ ;  $N = -6.143$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.544$ ;  $T_y = -4.271$ ;  $M_t = 0.09087$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$55 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.09087$

### Asta 330: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{222^2 + 147^2} = 267 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 4.093$ ;  $T_y = -2.704$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

$(124/8533)^2 + 0.7 \cdot 749/7467 + 1469/7467 = 0.27 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -1.18884$ ;  $M_y = -1.82429$ ;  $N = -5.136$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0.02 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 3.938$ ;  $T_y = -2.886$ ;  $M_t = -0.10649$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

64  $\leq$  1907 Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -0.10649$

#### Asta 331: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.401

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0.401

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

0.7\*484/7467+2229/7467=0.34  $\leq$  1 (formula 4.4.5b) Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -0.76866$ ;  $M_y = 2.76878$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{348^2 + 165^2} = 385 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 6.396$ ;  $T_y = 3.035$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.03+0.05+0.01  $\leq$  1 Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = 6.355$ ;  $T_y = 3.021$ ;  $M_t = 0.08462$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.401

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

109  $\leq$  2622 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.18094$

#### Asta 332: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.676

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{378^2 + 186^2} = 421 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 6.946$ ;  $T_y = 3.423$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(312/11733)^2 + 0.7 \cdot 1380/10267 + 4530/10267 = 0.54 \leq 1$  [4.4.7b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = 2.18964$ ;  $M_y = -5.62684$ ;  $N = -12.902$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.16 + 0.03 + 0.01 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 4.745$ ;  $T_y = 2.371$ ;  $M_t = -0.51215$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$310 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.51285$

### Asta 333: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$221/5280 + 0.7 \cdot 788/10267 + 1945/10267 = 0.28 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = -1.25012$ ;  $M_y = 2.41573$ ;  $N = 9.129$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{107^2 + 221^2} = 245 \leq 1600$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = -1.976$ ;  $T_y = -4.061$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$



0.07+0+0.02 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -1.94; Ty = -4.063; Mt = -0.22679

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

138 <= 1907 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = -0.22923

### Asta 334: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

256/5280+0.7\*701/10267+1895/10267=0.28 <= 1 [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Mx = 1.11311; My = -2.35353; N = 10.616

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{95^2 + 166^2} = 192 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -1.752; Ty = -3.061

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor,d}}/(k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.05+0+0.01 <= 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = -1.609; Ty = -2.999; Mt = -0.15533

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

94 <= 1907 Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = -0.15533

### Asta 335: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $258/5280 + 0.7 \cdot 987/10267 + 3212/10267 = 0.43 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 1.56714$ ;  $M_y = -3.98941$ ;  $N = 10.698$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{181^2 + 102^2} = 208 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -3.336$ ;  $T_y = -1.88$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.01 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = -0.905$ ;  $T_y = 2.316$ ;  $M_t = -0.10692$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $65 \leq 1907$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = -0.10692$

### Asta 336: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $261/5280 + 0.7 \cdot 1501/10267 + 4992/10267 = 0.64 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 2.38226$ ;  $M_y = -6.1995$ ;  $N = 10.807$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{213^2 + 138^2} = 254 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 3.918$ ;  $T_y = 2.547$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 3.918$ ;  $T_y = 2.547$ ;  $M_t = -0.08634$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $52 \leq 2622$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.08634$

### Asta 337: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $263/5280 + 0.7 \cdot 1598/10267 + 5268/10267 = 0.67 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 2.53681$ ;  $M_y = -6.54268$ ;  $N = 10.909$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{459^2 + 208^2} = 504 \leq 2200$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -8.44$ ;  $T_y = -3.825$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0.04 + 0.01 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 8.098$ ;  $T_y = 4.278$ ;  $M_t = 0.12444$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $60 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.09915$

### Asta 338: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $266/5280 + 0.7 \cdot 1924/10267 + 4287/10267 = 0.6 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -3.0529$ ;  $M_y = 5.32414$ ;  $N = 11.029$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(569^2 + 293^2)} = 640 \leq 2200$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 10.461$ ;  $T_y = 5.395$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.07 + 0.02 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 10.461$ ;  $T_y = 5.395$ ;  $M_t = 0.07107$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $87 \leq 2622$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.14425$

### Asta 339: Trave in legno a falda Falda 1 fili 133-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $219/5280 + 0.7 \cdot 244/10267 + 2161/10267 = 0.27 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 0.388$ ;  $M_y = -2.6839$ ;  $N = 9.087$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(8^2 + 351^2)} = 351 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.145$ ;  $T_y = 6.454$





#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.4+0+0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.145$ ;  $T_y = 6.454$ ;  $M_t = 1.26654$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $764 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 1.26654$

### Asta 340: Trave in legno a falda Falda 1 fili 133-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{26^2 + 233^2} = 234 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.485$ ;  $T_y = 4.287$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.54  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(101/8533)^2 + 1972/7467 + 0.7 \cdot 494/7467 = 0.31 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -3.12937$ ;  $M_y = -0.61303$ ;  $N = -4.164$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11+0+0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.485$ ;  $T_y = 4.287$ ;  $M_t = 0.35974$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $217 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.35974$

### Asta 341: Trave in legno a falda Falda 1 fili 133-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{21^2 + 197^2} = 198 \leq 1600$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.378$ ;  $T_y = -3.627$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.293  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(101/8533)^2 + 2080/7467 + 0.7 \cdot 611/7467 = 0.34 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -3.30091$ ;  $M_y = -0.75873$ ;  $N = -4.189$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.378$ ;  $T_y = -3.627$ ;  $M_t = -0.35993$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $217 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.35993$

### Asta 342: Trave in legno a falda Falda 1 fili 133-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.675

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.675  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{463^2 + 270^2} = 536 \leq 2200$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -8.525$ ;  $T_y = -4.963$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.675  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(279/11733)^2 + 0.7 \cdot 1193/10267 + 4534/10267 = 0.52 \leq 1$  [4.4.7b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mx = 1.89366; My = -5.63181; N = -11.563

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.675  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$   
 $0.4 + 0 + 0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = -0.655; Ty = -6.511; Mt = -1.25947

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.675  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$   
 $760 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -1.25947

### Asta 343: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.675

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{v,d}$   
 $\text{Sqrt}(210^2 + 465^2) = 510 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -3.868; Ty = -8.549

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(\sigma_{c,0,d} / f_{c,0,d})^2 + \sigma_{m,y,d} / f_{m,y,d} + k_m \cdot (\sigma_{m,z,d} / f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d} / f_{c,0,d})^2 + k_m \cdot (\sigma_{m,y,d} / f_{m,y,d}) + \sigma_{m,z,d} / f_{m,z,d} \leq 1$   
 $(143/8533)^2 + 4389/7467 + 0.7 \cdot 117/7467 = 0.6 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mx = -6.96518; My = 0.14533; N = -5.915

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$   
 $0.03 + 0.06 + 0.02 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Tx = -9.827; Ty = -5.645; Mt = 0.12583

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$   
 $76 \leq 2622$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mt = 0.12583

### Asta 344: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.675

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.675

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$220/5280 + 0.7 \cdot 1264/10267 + 5328/10267 = 0.65 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = 2.00614$ ;  $M_y = -6.61713$ ;  $N = 9.105$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.675

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{103^2 + 362^2} = 377 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.897$ ;  $T_y = -6.668$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.675

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 1.897$ ;  $T_y = -6.668$ ;  $M_t = -0.16888$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.675

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$102 \leq 1907$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -0.16888$

## Asta 345: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$221/5280 + 0.7 \cdot 1176/10267 + 5104/10267 = 0.62 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = 1.86643$ ;  $M_y = -6.33881$ ;  $N = 9.149$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{5^2 + 305^2} = 305 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.086$ ;  $T_y = -5.614$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.04 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = 0.085$ ;  $T_y = -5.599$ ;  $M_t = 0.0185$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $58 \leq 2622$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.09683$

### Asta 346: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $222/5280 + 0.7 \cdot 645/10267 + 2969/10267 = 0.38 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 1.0241$ ;  $M_y = -3.68744$ ;  $N = 9.184$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{59^2 + 200^2} = 209 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.09$ ;  $T_y = -3.682$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.02 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = 1.082$ ;  $T_y = -3.673$ ;  $M_t = 0.06588$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $62 \leq 2622$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 0.10319$



## Asta 347: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(209^2 + 108^2)} = 235 \leq 2200$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 3.84$ ;  $T_y = 1.991$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(144/8533)^2 + 1195/7467 + 0.7 \cdot 756/7467 = 0.23 \leq 1$  [4.4.7a] Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_x = 1.89576$ ;  $M_y = 0.93913$ ;  $N = -5.955$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.468$ ;  $T_y = 2.282$ ;  $M_t = 0.10042$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$61 \leq 1907$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.10042$

## Asta 348: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.676

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(93^2 + 207^2)} = 227 \leq 1600$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = 1.718$ ;  $T_y = 3.809$



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(141/8533)^2 + 0.7 \cdot 601/7467 + 1472/7467 = 0.25 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_x = 0.95401$ ;  $M_y = 1.82815$ ;  $N = -5.846$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.632$ ;  $T_y = 3.793$ ;  $M_t = 0.17337$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$105 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.17462$

### Asta 349: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.676

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$235/5280 + 0.7 \cdot 722/10267 + 1620/10267 = 0.25 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -1.14634$ ;  $M_y = 2.01235$ ;  $N = 9.734$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{156^2 + 174^2} = 233 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.861$ ;  $T_y = 3.194$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.16 + 0.01 + 0.01 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -2.838$ ;  $T_y = 3.211$ ;  $M_t = 0.49531$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.676

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$299 \leq 1907$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



Mt = 0.49531

## Asta 350: Trave in legno a falda Falda 4 fili 173-174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 3.167

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{7^2 + 641^2} = 641 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.026; Ty = -2.279

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(134/8533)^2 + 39696/8097 + 0.7 \cdot 458/8097 = 4.94 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -5.29275; My = -0.04889; N = -1.07

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0 + 0.16 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 0.026; Ty = -2.279; Mt = 0.03592

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

254  $\leq$  1900 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = 0.03594

## Asta 351: Trave in legno a falda Falda 4 fili 173-174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.144

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; Kh = 1.084 (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$





1 <= 5726 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
N = 0.005

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_{m^*}(S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_{m^*}(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

### Asta 352: Trave in legno a falda Falda 4 fili 164-165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.167

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{4^2 + 697^2} = 697 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.015$ ;  $T_y = -2.478$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_{m^*}(S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_{m^*}(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(262/8533)^2 + 42730/8097 + 0.7 \cdot 202/8097 = 5.3 \geq 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.6973$ ;  $M_y = -0.02155$ ;  $N = -2.098$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.19 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.015$ ;  $T_y = -2.478$ ;  $M_t = 0.02469$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$175 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 0.02471$

### Asta 353: Trave in legno a falda Falda 4 fili 164-165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.029  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,d} \leq f_{t,d}$   
 $1 \leq 5726 \text{ Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo}$   
 $N = 0.005$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

### Asta 354: Trave in legno a falda Falda 4 fili 156-157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.167

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{9^2 + 684^2} = 684 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.034$ ;  $T_y = -2.432$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(149/8533)^2 + 42925/8097 + 0.7 \cdot 489/8097 = 5.34 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -5.72336$ ;  $M_y = -0.05214$ ;  $N = -1.194$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.031$ ;  $T_y = -2.432$ ;  $M_t = 0.01187$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $84 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 0.01187$



## Asta 355: Trave in legno a falda Falda 4 fili 156-157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.144

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.039

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St,0,d \leq f_{t,0,d}$

$1 \leq 5726 \text{ Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo}$

$N = 0.009$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm,y,d/f_{m,y,d} + K_m \cdot (Sm,z,d/f_{m,z,d}) \leq 1$

$K_m \cdot (Sm,y,d/f_{m,y,d}) + Sm,z,d/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

## Asta 356: Trave in legno a falda Falda 4 fili 151-152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 3.167

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{17^2 + 715^2} = 715 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.06$ ;  $T_y = -2.543$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(Sc,0,d/f_{c,0,d})^2 + Sm,y,d/f_{m,y,d} + K_m \cdot (Sm,z,d/f_{m,z,d}) \leq 1$

$(Sc,0,d/f_{c,0,d})^2 + K_m \cdot (Sm,y,d/f_{m,y,d}) + Sm,z,d/f_{m,z,d} \leq 1$

$(244/8533)^2 + 43697/8097 + 0.7 \cdot 958/8097 = 5.48 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -5.82631$ ;  $M_y = -0.10219$ ;  $N = -1.949$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.2 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.06$ ;  $T_y = -2.543$ ;  $M_t = -0.00139$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $21 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.00304$

#### Asta 357: Trave in legno a falda Falda 4 fili 151-152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.144

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.034  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $1 \leq 5726$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.008$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

#### Asta 358: Trave in legno a falda Falda 4 fili 142-143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 3.167

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{24^2 + 713^2} = 713 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.086$ ;  $T_y = -2.535$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(117/8533)^2 + 42829/8097 + 0.7 \cdot 1449/8097 = 5.41 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -5.7105; My = -0.1546; N = -0.936

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$

0.05 + 0 + 0.2 ≤ 1 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Tx = 0.087; Ty = -2.535; Mt = -0.01428

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

101 ≤ 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = -0.01428

### Asta 359: Trave in legno a falda Falda 4 fili 142-143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.039

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; Kh = 1.084 (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

0 ≤ 5726 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

N = 0.003

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.6; Kh = 1.084 (formula 11.7.1)

$\sigma_{m,y,d} / f_{m,y,d} + K_m \cdot (\sigma_{m,z,d} / f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d} / f_{m,y,d}) + \sigma_{m,z,d} / f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

Mx = 0.00035; My = 0

### Asta 360: Trave in legno a falda Falda 4 fili 135-136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.167

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67



$\tau_{t,d} \leq f_{v,d}$   
 $\text{Sqrt}(30^2 + 785^2) = 785 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.108$ ;  $T_y = -2.791$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(468/8533)^2 + 43090/8097 + 0.7 \cdot 1730/8097 = 5.47 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -5.74536$ ;  $M_y = -0.18451$ ;  $N = -3.748$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0.24 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.108$ ;  $T_y = -2.791$ ;  $M_t = -0.02643$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $187 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.02645$

### Asta 361: Trave in legno a falda Falda 4 fili 135-136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.039  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.002$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

### Asta 362: Trave in legno a falda Falda 4 fili 124-125

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.167

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{41^2 + 806^2} = 807 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.144$ ;  $T_y = -2.865$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(922/8533)^2 + 41257/8097 + 0.7 \cdot 1888/8097 = 5.27 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -5.50087$ ;  $M_y = -0.20143$ ;  $N = -7.375$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.14 + 0 + 0.25 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.144$ ;  $T_y = -2.865$ ;  $M_t = -0.03793$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $268 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.03793$

### Asta 363: Trave in legno a falda Falda 4 fili 124-125

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $1 \leq 5726$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.009$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$



## Asta 364: Trave in legno a falda Falda 4 fili 196-197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 3.167

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{8^2 + 442^2} = 442 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.028$ ;  $T_y = -1.571$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(85/8533)^2 + 29200/8097 + 0.7 \cdot 501/8097 = 3.65 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.89337$ ;  $M_y = -0.05347$ ;  $N = -0.677$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.18 + 0 + 0.08 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.028$ ;  $T_y = -1.571$ ;  $M_t = 0.04914$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$347 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.04919$

## Asta 365: Trave in legno a falda Falda 4 fili 196-197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.144

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$1 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.012$





#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

#### Asta 366: Trave in legno a falda Falda 4 fili 189-190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 3.167

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{13^2 + 525^2} = 525 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.046$ ;  $T_y = -1.866$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(150/8533)^2 + 33452/8097 + 0.7 \cdot 808/8097 = 4.2 \ngtr 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -4.46024$ ;  $M_y = -0.0862$ ;  $N = -1.204$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.18 + 0 + 0.11 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.046$ ;  $T_y = -1.866$ ;  $M_t = 0.04883$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$345 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.04887$

#### Asta 367: Trave in legno a falda Falda 4 fili 189-190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 0.144

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $1 \leq 5726 \text{ Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo}$   
 $N = 0.004$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

### Asta 368: Trave in legno a falda Falda 4 fili 182-183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.167

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{15^2 + 588^2} = 588 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.053$ ;  $T_y = -2.09$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(156/8533)^2 + 36758/8097 + 0.7 \cdot 894/8097 = 4.62 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -4.90113$ ;  $M_y = -0.09541$ ;  $N = -1.247$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0 + 0.13 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.053$ ;  $T_y = -2.09$ ;  $M_t = 0.04413$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $312 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.04413$

### Asta 369: Trave in legno a falda Falda 4 fili 182-183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 0.144

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.034

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$2 \leq 5726 \text{ Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo}$

$N = 0.012$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

## Asta 370: Trave in legno a falda Falda 4 fili 117-118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 3.167

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) > 1$

$St_{0,d}/f_{t,0,d} + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} > 1$

$1071/4164 + 48589/8097 + 0.7 \cdot 1282/8097 = 6.37 > 1$  [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -6.47858$ ;  $M_y = -0.13679$ ;  $N = 8.566$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{26^2 + 1138^2} = 1138 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.092$ ;  $T_y = -4.047$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.16 + 0 + 0.51 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.092$ ;  $T_y = -4.047$ ;  $M_t = -0.04317$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
305  $\leq$  1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -0.04321$

## Asta 371: Trave in legno a falda Falda 4 fili 117-118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.144

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.048  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $1 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.004$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 0.00035$ ;  $M_y = 0$

## Asta 372: Trave in legno a falda Falda 4 fili 109-110

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 3.167

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{10^2 + 720^2} = 720 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.036$ ;  $T_y = -2.56$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(968/8533)^2 + 36355/8097 + 0.7 \cdot 820/8097 = 4.57 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -4.84735$ ;  $M_y = -0.08749$ ;  $N = -7.747$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.16 + 0 + 0.2 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.036$ ;  $T_y = -2.56$ ;  $M_t = -0.04408$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$312 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.04413$

### Asta 373: Trave in legno a falda Falda 4 fili 109-110

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$1 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.006$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{m,y,d}/f_{m,y,d} + K_m \cdot (St_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (St_{m,y,d}/f_{m,y,d}) + St_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

### Asta 374: Trave in legno a falda Falda 4 fili 102-103

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 3.167

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{21^2 + 574^2} = 575 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



$T_x = 0.074$ ;  $T_y = -2.042$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(274/8533)^2 + 31229/8097 + 0.7 \cdot 1155/8097 = 3.96 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -4.1639$ ;  $M_y = -0.12319$ ;  $N = -2.19$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.17 + 0 + 0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0.074$ ;  $T_y = -2.04$ ;  $M_t = -0.04471$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 3.167

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$316 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.04471$

### Asta 375: Trave in legno a falda Falda 4 fili 102-103

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.144

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0.043

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$0 \leq 5726$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.003$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$3/6073 + 0.7 \cdot 0/6073 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 0.00035$ ;  $M_y = 0$

### Asta 376: Trave in legno a falda Falda 3 fili 77-78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.999

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \geq 1$

$K_{m,y,d}/f_{m,y,d} + S_{m,z,d}/f_{m,z,d} \geq 1$

$14966/8097 + 0.7 \cdot 185/8097 = 1.86 \geq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.99552$ ;  $M_y = 0.01974$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.999

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{11^2 + 826^2} = 826 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.04$ ;  $T_y = -2.936$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.999

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.11 + 0 + 0.27 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.04$ ;  $T_y = -2.936$ ;  $M_t = 0.0301$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.999

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$213 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.03013$

### Asta 377: Trave in legno a falda Falda 3 fili 59-60

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.441

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \geq 1$

$St_{0,d}/f_{t,0,d} + K_{m,y,d}/f_{m,y,d} + S_{m,z,d}/f_{m,z,d} \geq 1$

$390/4164 + 16832/8097 + 0.7 \cdot 432/8097 = 2.21 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.24428$ ;  $M_y = 0.04612$ ;  $N = 3.119$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{15^2 + 518^2} = 518 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.052$ ;  $T_y = -1.841$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.1 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.052$ ;  $T_y = -1.841$ ;  $M_t = 0.01537$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $109 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.01537$

### Asta 378: Trave in legno a falda Falda 3 fili 68-69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.823

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.823  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{13^2 + 548^2} = 548 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.045$ ;  $T_y = -1.95$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(210/8533)^2 + 15460/8097 + 0.7 \cdot 377/8097 = 1.94 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.06139$ ;  $M_y = 0.04022$ ;  $N = -1.684$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.823  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0.12 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.045$ ;  $T_y = -1.95$ ;  $M_t = 0.02101$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.823  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $148 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.02102$

### Asta 379: Trave in legno a falda Falda 3 fili 47-48

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.441

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667





Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{6^2 + 333^2} = 333 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.02$ ;  $T_y = -1.183$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(157/8533)^2 + 14687/8097 + 0.7 \cdot 266/8097 = 1.84 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.95825$ ;  $M_y = 0.02838$ ;  $N = -1.254$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.018$ ;  $T_y = -1.183$ ;  $M_t = -0.00505$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $36 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -0.00505$

### Asta 380: Trave in legno a falda Falda 3 fili 53-54

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.441

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{14^2 + 333^2} = 333 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.051$ ;  $T_y = -1.182$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(168/8533)^2 + 14284/8097 + 0.7 \cdot 576/8097 = 1.81 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -1.90448$ ;  $M_y = 0.06145$ ;  $N = -1.347$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02+0+0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.051$ ;  $T_y = -1.182$ ;  $M_t = 0.00549$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$40 \leq 1900$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = 0.00564$

### Asta 381: Trave in legno a falda Falda 3 fili 41-42

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.441

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{19^2+302^2} = 303 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.067$ ;  $T_y = -1.074$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(118/8533)^2+13783/8097+0.7*789/8097=1.77 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.83767$ ;  $M_y = -0.08416$ ;  $N = -0.942$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05+0+0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.07$ ;  $T_y = -1.072$ ;  $M_t = -0.01377$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$97 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -0.01377$

### Asta 382: Trave in legno a falda Falda 1 fili 161-163

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.228



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1581/8533)^2 + 26240/8097 + 0.7 \cdot 154/8097 = 3.29 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 3.49865$ ;  $M_y = -0.0164$ ;  $N = -12.645$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{2^2 + 873^2} = 873 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.009$ ;  $T_y = -3.105$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.3 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.009$ ;  $T_y = -3.105$ ;  $M_t = 0.0073$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$52 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.0073$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.708

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = -0.0001$

$U_{inst,tot} \text{ in } y = 0.0043$

$U_{inst,tot} = 0.0043$

Luce/ $U_{inst,tot} > \text{limite}$

$2.228/0.0043 = 517.5 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.708

$K_{def} = 0$

$U_{inst,var} \text{ in } x = -0.0001$

$U_{inst,var} \text{ in } y = 0.0028$

$U_{inst,var} = 0.0028$

Luce/ $U_{inst,var} > \text{limite}$

$2.228/0.0028 = 791.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.708

$K_{def} = 0.6$

$U_{fin} \text{ in } x = -0.0001$

$U_{fin} \text{ in } y = 0.0052$

$U_{fin} = 0.0052$

Luce/ $U_{fin} > \text{limite}$

$2.228/0.0052 = 428.6 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$



## Asta 383: Trave in legno a falda Falda 1 fili 171-172

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{18^2 + 817^2} = 817 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.064$ ;  $T_y = -2.905$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1244/8533)^2 + 24570/8097 + 0.7 \cdot 612/8097 = 3.11 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.27603$ ;  $M_y = -0.06531$ ;  $N = -9.951$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.064$ ;  $T_y = -2.905$ ;  $M_t = 0.00879$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$62 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.00879$

## Asta 384: Trave in legno a falda Falda 1 fili 179-180

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$151/4164 + 24105/8097 + 0.7 \cdot 1285/8097 = 3.12 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.21405$ ;  $M_y = -0.13702$ ;  $N = 1.206$



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{34^2 + 796^2} = 796 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.119$ ;  $T_y = -2.829$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.25 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.119$ ;  $T_y = -2.829$ ;  $M_t = 0.00868$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

$61 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.00869$

### Asta 385: Trave in legno a falda Falda 1 fili 185-186

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.228

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m * (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m * (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$218/4164 + 22916/8097 + 0.7 * 1232/8097 = 2.99 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.0555$ ;  $M_y = -0.13146$ ;  $N = 1.747$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{31^2 + 740^2} = 740 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.109$ ;  $T_y = -2.631$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.21 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.109$ ;  $T_y = -2.631$ ;  $M_t = 0.00803$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

$57 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.00809$



## Asta 386: Trave in legno a falda Falda 1 fili 192-193

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$138/4164 + 22167/8097 + 0.7 \cdot 791/8097 = 2.84 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.95561$ ;  $M_y = -0.08437$ ;  $N = 1.105$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{21^2 + 711^2} = 712 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.074$ ;  $T_y = -2.529$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.2 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.07$ ;  $T_y = -2.527$ ;  $M_t = 0.00741$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$53 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 0.00748$

## Asta 387: Trave in legno a falda Falda 1 fili 202-203

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



341/4164+21590/8097+0.7\*281/8097=2.77 > 1 [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -2.87861; My = -0.03; N = 2.731

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{5^2 + 703^2} = 703 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.019; Ty = -2.5

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.03+0+0.19 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 0.019; Ty = -2.5; Mt = 0.00682

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
51 <= 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = 0.00723

### Asta 388: Trave in legno a falda Falda 1 fili 211-212

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.228

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
266/4164+20791/8097+0.7\*397/8097=2.67 > 1 [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -2.77212; My = 0.04237; N = 2.127

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{9^2 + 687^2} = 687 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -0.031; Ty = -2.441

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.03+0+0.18 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -0.031; Ty = -2.441; Mt = 0.00734

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$



55 <= 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = 0.00778

## Asta 389: Trave in legno a falda Falda 1 fili 217-218

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

1134/4164+20256/8097+0.7\*265/8097=2.8 > 1 [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.70083; My = 0.02826; N = 9.069

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{7^2 + 673^2} = 673 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -0.024; Ty = -2.394

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.03+0+0.18 <= 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -0.024; Ty = -2.394; Mt = 0.00904

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

66 <= 1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = 0.0094

## Asta 390: Trave in legno a falda Falda 1 fili 226-227

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.227

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)





$St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \geq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \geq 1$   
 $722/4164+17765/8097+0.7*91/8097=2.38 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = 2.36868$ ;  $My = -0.00975$ ;  $N = 5.777$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau, d \leq f_{v,d}$   
 $\sqrt{1^2+609^2} = 609 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.004$ ;  $T_y = -2.165$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau, \text{tor}, d / (k_{sh} * f_{v,d}) + (\tau, y, d / f_{v,d})^2 + (\tau, z, d / f_{v,d})^2 \leq 1$   
 $0.04+0+0.14 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.004$ ;  $T_y = -2.165$ ;  $M_t = 0.0117$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau, \text{tor}, d \leq K_{sh} * f_{v,d}$   
 $84 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.01191$

### Asta 391: Trave in legno a falda Falda 1 fili 237-238

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.227

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.000006667	0.000004267	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau, d \leq f_{v,d}$   
 $\sqrt{17^2+544^2} = 545 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.059$ ;  $T_y = -1.935$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(723/8533)^2+16371/8097+0.7*968/8097=2.11 \geq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 2.18278$ ;  $M_y = -0.10326$ ;  $N = -5.782$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau, \text{tor}, d / (k_{sh} * f_{v,d}) + (\tau, y, d / f_{v,d})^2 + (\tau, z, d / f_{v,d})^2 \leq 1$   
 $0.05+0+0.12 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.059$ ;  $T_y = -1.935$ ;  $M_t = 0.0143$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
101  $\leq$  1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.01432$

## Asta 392: Trave in legno a falda Falda 1 fili 243-244

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.724

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $850/4164 + 15239/8097 + 0.7 \cdot 2010/8097 = 2.26 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.03188$ ;  $M_y = 0.21442$ ;  $N = 6.8$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.724  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{90^2 + 647^2} = 653 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.32$ ;  $T_y = -2.3$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.724  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0.16 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -0.32$ ;  $T_y = -2.3$ ;  $M_t = 0.02584$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.724  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
182  $\leq$  1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.02584$

## Asta 393: Trave in legno a falda Falda 1 fili 249-250

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.025

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$517/4164 + 14001/8097 + 0.7 \cdot 4715/8097 = 2.26 \geq 1$  [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.86675$ ;  $M_y = 0.50294$ ;  $N = 4.138$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{291^2 + 826^2} = 875 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1.034$ ;  $T_y = -2.936$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0.03 + 0.27 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1.034$ ;  $T_y = -2.936$ ;  $M_t = 0.03557$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.025

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$251 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 0.03557$

### Asta 394: Trave in legno a falda Falda 1 fili 255-256

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 0.401

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$560/4164 + 9409/8097 + 0.7 \cdot 6894/8097 = 1.89 \geq 1$  [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.25452$ ;  $M_y = 0.7354$ ;  $N = 4.476$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.401

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{899^2 + 1016^2} = 1356 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.196$ ;  $T_y = -3.612$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.401

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.14 + 0.32 + 0.4 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.196$ ;  $T_y = -3.612$ ;  $M_t = 0.0379$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.401  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $268 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 0.0379$

### Asta 395: Trave in legno a falda Falda 1 fili 133-134

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.228

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m * (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m * (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(947/8533)^2 + 26051/8097 + 0.7 * 143/8097 = 3.24 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 3.47352$ ;  $M_y = 0.01526$ ;  $N = -7.576$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3^2 + 883^2} = 883 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.011$ ;  $T_y = -3.141$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.3 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.011$ ;  $T_y = -3.141$ ;  $M_t = -0.00132$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $13 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -0.00187$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.446  
 $K_{def} = 0$   
 $U_{inst,tot}$  in x = 0.0001  
 $U_{inst,tot}$  in y = -0.004  
 $U_{inst,tot} = 0.004$   
Luce/ $U_{inst,tot} >$  limite  
 $2.228/0.004 = 556.7 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.782  
 $K_{def} = 0$   
 $U_{inst,var}$  in x = 0  
 $U_{inst,var}$  in y = 0.0026  
 $U_{inst,var} = 0.0026$



Luce/Uinst,var > limite

$2.228/0.0026=854.5 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.446

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0001$

$U_{fin\ in\ y} = -0.0048$

$U_{fin} = 0.0048$

Luce/ $U_{fin} > \text{limite}$

$2.228/0.0048=459.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Asta 396: Trave in legno a falda Falda 1 fili 122-123

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{14^2 + 843^2} = 843 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.049$ ;  $T_y = -2.998$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(860/8533)^2 + 26007/8097 + 0.7 \cdot 477/8097 = 3.26 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.4676$ ;  $M_y = 0.05084$ ;  $N = -6.883$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{x,y,d}/f_{v,d})^2 + (\tau_{x,z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.28 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.049$ ;  $T_y = -2.998$ ;  $M_t = -0.00105$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$15 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.0021$

## Asta 397: Trave in legno a falda Falda 1 fili 114-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$155/4164 + 26701/8097 + 0.7 \cdot 943/8097 = 3.42 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.56012$ ;  $M_y = 0.1006$ ;  $N = 1.241$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{25^2 + 863^2} = 864 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.088$ ;  $T_y = -3.07$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.28 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = -0.098$ ;  $T_y = -3.034$ ;  $M_t = 0.00012$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$20 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00286$

## Asta 398: Trave in legno a falda Falda 1 fili 105-106

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$190/4164 + 26739/8097 + 0.7 \cdot 782/8097 = 3.42 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.56516$ ;  $M_y = 0.08338$ ;  $N = 1.522$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{21^2 + 849^2} = 849 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.075$ ;  $T_y = -3.019$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.28 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.075$ ;  $T_y = -3.019$ ;  $M_t = 0.00191$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$27 \leq 2613$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 0.00377$

### Asta 399: Trave in legno a falda Falda 1 fili 98-99

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.228

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$153/4164 + 27171/8097 + 0.7 \cdot 350/8097 = 3.42 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.62285$ ;  $M_y = 0.03729$ ;  $N = 1.225$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{9^2 + 856^2} = 856 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.031$ ;  $T_y = -3.045$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.29 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.031$ ;  $T_y = -3.045$ ;  $M_t = 0.00307$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$22 \leq 1900$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_t = 0.00314$



## Asta 400: Trave in legno a falda Falda 1 fili 90-91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.228

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$450/4164 + 27778/8097 + 0.7 \cdot 58/8097 = 3.54 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.70368$ ;  $M_y = -0.00616$ ;  $N = 3.602$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{4^2 + 884^2} = 884 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.015$ ;  $T_y = -3.143$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.31 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.015$ ;  $T_y = -3.143$ ;  $M_t = 0.00272$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$20 \leq 1900$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_t = 0.0028$

## Asta 401: Trave in legno a falda Falda 1 fili 82-83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.227

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$246/4164 + 27910/8097 + 0.7 \cdot 660/8097 = 3.56 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.72133$ ;  $M_y = -0.0704$ ;  $N = 1.97$





#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{16^2 + 896^2} = 897 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.059$ ;  $T_y = -3.187$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.31 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.059$ ;  $T_y = -3.187$ ;  $M_t = -0.00018$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

$25 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.00359$

### Asta 402: Trave in legno a falda Falda 1 fili 74-76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.228

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m * (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m * (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1227/4164 + 27846/8097 + 0.7 * 454/8097 = 3.77 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.71285$ ;  $M_y = -0.04837$ ;  $N = 9.818$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{11^2 + 899^2} = 899 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.038$ ;  $T_y = -3.198$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.32 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.038$ ;  $T_y = -3.198$ ;  $M_t = -0.00562$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

$43 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.00608$



## Asta 403: Trave in legno a falda Falda 1 fili 66-67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.227

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$667/4164 + 25101/8097 + 0.7 \cdot 81/8097 = 3.27 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -3.34678$ ;  $M_y = 0.00867$ ;  $N = 5.335$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1^2 + 831^2} = 831 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.004$ ;  $T_y = -2.954$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.27 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.004$ ;  $T_y = -2.954$ ;  $M_t = -0.01287$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$92 \leq 1900$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -0.0131$

## Asta 404: Trave in legno a falda Falda 1 fili 57-58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.227

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{12^2 + 758^2} = 758 \leq 1600$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



Tx = 0.042; Ty = -2.695

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km*(Sm_{z,d}/f_{m,z,d}) \leq 1$

$(Sc_{0,d}/f_{c,0,d})^2 + Km*(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

$(810/8533)^2 + 22284/8097 + 0.7*782/8097 = 2.83 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = 2.97124; My = 0.08339; N = -6.481

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.22 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 0.042; Ty = -2.695; Mt = -0.02051

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * f_{v,d}$

$145 \leq 1900$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = -0.02051

### Asta 405: Trave in legno a falda Falda 1 fili 50-51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.876

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 1.876

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$St_{0,d}/f_{t,0,d} + Sm_{y,d}/f_{m,y,d} + Km*(Sm_{z,d}/f_{m,z,d}) > 1$

$St_{0,d}/f_{t,0,d} + Km*(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} > 1$

$914/4164 + 20826/8097 + 0.7*3095/8097 = 3.06 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = 2.77675; My = 0.3301; N = 7.309

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.876

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{75^2 + 851^2} = 854 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 0.266; Ty = -3.024

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.876

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0 + 0.28 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 0.266; Ty = -3.024; Mt = -0.03239

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.876

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * f_{v,d}$



229 <= 1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -0.03239

## Asta 406: Trave in legno a falda Falda 1 fili 44-45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 1.151

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$962/4164 + 20848/8097 + 0.7 \cdot 5622/8097 = 3.29 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -2.77971; My = -0.59969; N = 7.696

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.151

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{322^2 + 1186^2} = 1229 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 1.145; Ty = -4.218

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.151

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.19 + 0.04 + 0.55 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 1.145; Ty = -4.218; Mt = -0.05081

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.151

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

359 <= 1900 Comb: SLU, 72; Durata minima del carico nella combinazione: media

Mt = -0.05081

## Asta 407: Trave in legno a falda Falda 1 fili 38-39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 0.515

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)



$St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \geq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \geq 1$   
 $855/4164+14981/8097+0.7*9717/8097=2.9 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -1.9975$ ;  $My = -1.0365$ ;  $N = 6.843$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0.515  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau, d > f_{v,d}$   
 $\sqrt{1040^2+1558^2} = 1874 > 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 3.699$ ;  $T_y = -5.541$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0.515  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau, \text{tor}, d / (k_{sh} * f_{v,d}) + (\tau, y, d / f_{v,d})^2 + (\tau, z, d / f_{v,d})^2 > 1$   
 $0.21+0.42+0.95 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 3.699$ ;  $T_y = -5.541$ ;  $M_t = -0.05743$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 0.515  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau, \text{tor}, d \leq K_{sh} * f_{v,d}$   
 $406 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.05743$

### Asta 408: Trave in legno a falda Falda 1 fili 149-150

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.227

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \geq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \geq 1$   
 $123/4164+26345/8097+0.7*283/8097=3.31 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 3.51261$ ;  $M_y = 0.03019$ ;  $N = 0.982$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau, d \leq f_{v,d}$   
 $\sqrt{7^2+805^2} = 805 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.026$ ;  $T_y = -2.862$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau, \text{tor}, d / (k_{sh} * f_{v,d}) + (\tau, y, d / f_{v,d})^2 + (\tau, z, d / f_{v,d})^2 \leq 1$   
 $0.01+0+0.25 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.026$ ;  $T_y = -2.862$ ;  $M_t = 0.00249$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
18  $\leq$  1900 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 0.0025$

## Asta 409: Trave in legno a falda Falda 1 fili 154-155

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.227

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{5^2 + 821^2} = 821 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 0.019$ ;  $T_y = -2.918$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(220/8533)^2 + 26449/8097 + 0.7 \cdot 168/8097 = 3.28 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 3.52655$ ;  $M_y = 0.01796$ ;  $N = -1.762$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.021$ ;  $T_y = -2.918$ ;  $M_t = 0.00522$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
37  $\leq$  1900 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 0.00522$

## Asta 410: Trave in legno a falda Falda 1 fili 140-141

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 2.227

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.228



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{5^2 + 817^2} = 817 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 0.019$ ;  $T_y = -2.905$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(146/8533)^2 + 26021/8097 + 0.7 \cdot 223/8097 = 3.23 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 3.46951$ ;  $M_y = 0.02374$ ;  $N = -1.169$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.018$ ;  $T_y = -2.905$ ;  $M_t = -0.0001$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.228

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$11 \leq 2613$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -0.0016$

### Asta 411: Trave in legno a falda Falda 6 fili 239-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.441

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$1448/4164 + 20256/8097 + 0.7 \cdot 197/8097 = 2.87 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 2.70081$ ;  $M_y = 0.02098$ ;  $N = 11.582$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{7^2 + 617^2} = 617 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.026$ ;  $T_y = -2.194$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.15 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.026$ ;  $T_y = -2.194$ ;  $M_t = -0.01975$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

139  $\leq$  1900 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -0.01975$

#### Asta 412: Trave in legno a falda Falda 6 fili 258-259

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 2.441

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{43^2 + 317^2} = 320 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.154$ ;  $T_y = -1.128$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(129/8533)^2 + 14452/8097 + 0.7 \cdot 1734/8097 = 1.93 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -1.92687$ ;  $M_y = 0.185$ ;  $N = -1.033$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.158$ ;  $T_y = -1.126$ ;  $M_t = 0.01743$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

123  $\leq$  1900 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.01743$

#### Asta 413: Trave in legno a falda Falda 6 fili 252-253

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 2.441

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno





Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{9^2 + 359^2} = 359 \leq 1600$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.031$ ;  $T_y = -1.275$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(187/8533)^2 + 15693/8097 + 0.7 \cdot 304/8097 = 1.96 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.09233$ ;  $M_y = 0.03242$ ;  $N = -1.492$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -0.034$ ;  $T_y = -1.275$ ;  $M_t = 0.00773$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$55 \leq 1900$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 0.00773$

### Asta 414: Trave in legno a falda Falda 6 fili 246-247

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 2.441

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{8^2 + 365^2} = 365 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.028$ ;  $T_y = -1.297$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(196/8533)^2 + 15355/8097 + 0.7 \cdot 390/8097 = 1.93 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -2.04737$ ;  $M_y = -0.04163$ ;  $N = -1.564$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 2.441

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$



0.02+0+0.05 <= 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 0.028; Ty = -1.297; Mt = -0.00519

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 2.441  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
38 <= 1900 Comb: SLU, 38; Durata minima del carico nella combinazione: media  
Mt = -0.00531

### Asta 415: Trave in legno a falda Falda 6 fili 228-229

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.899

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
270/4164+16930/8097+0.7\*15/8097=2.16 > 1 [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -2.25739; My = -0.00158; N = 2.159

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.899  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{5^2 + 618^2} = 618 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 0.017; Ty = -2.197

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.899  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.09+0+0.15 <= 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 0.017; Ty = -2.197; Mt = -0.02548

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.899  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
180 <= 1900 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = -0.02548

### Asta 416: Trave in legno a falda Falda 6 fili 219-220

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 1.105

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 1.105  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2^2 + 892^2} = 892 \leq 1600$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.008$ ;  $T_y = -3.17$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(91/8533)^2 + 16580/8097 + 0.7 \cdot 3/8097 = 2.05 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -2.21073$ ;  $M_y = -0.00034$ ;  $N = -0.727$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 1.105  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.13 + 0 + 0.31 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0.008$ ;  $T_y = -3.17$ ;  $M_t = -0.03558$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 1.105  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $251 \leq 1900$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -0.03558$

## 2.3 Verifiche superelementi in legno

Le unità di misura elencate nel capitolo sono in [m] ove non espressamente specificato.

**Descrizione:** descrizione della sezione.

**Tipo:** tipo di sezione.

**Base:** base della sezione. [m]

**Altezza:** altezza della sezione. [m]

**Area:** area inerziale nel sistema geometrico centrato nel baricentro. [m<sup>2</sup>]

**J<sub>x</sub>:** momento d'inerzia attorno all'asse orizzontale baricentrico di definizione della sezione. [m<sup>4</sup>]

**J<sub>y</sub>:** momento d'inerzia attorno all'asse verticale baricentrico di definizione della sezione. [m<sup>4</sup>]

**W<sub>x</sub>:** modulo di resistenza elastico minimo relativo all'asse x. [m<sup>3</sup>]

**W<sub>y</sub>:** modulo di resistenza elastico minimo relativo all'asse y. [m<sup>3</sup>]

### Superelemento in legno a "Falda 1" 73-76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.858 composto da:

asta 206: Trave in legno a falda Falda 1 fili 72-74 (L = 2.63)

asta 402: Trave in legno a falda Falda 1 fili 74-76 (L = 2.228)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	J <sub>x</sub>	J <sub>y</sub>	W <sub>x</sub>	W <sub>y</sub>
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.543

Kdef = 0

Uinst tot in x = -0.0005

Uinst tot in y = -0.0652

Uinst tot = 0.0652

Luce/Uinst,tot < limite

4.858/0.0652=74.5 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.543

Kdef = 0

Uinst var in x = -0.0003

Uinst var in y = -0.0432

Uinst var = 0.0432

Luce/Uinst,var < limite

4.858/0.0432=112.5 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.543

Kdef = 0.6

Ufin in x = -0.0007

Ufin in y = -0.0785

Ufin = 0.0785

Luce/Ufin < limite

4.858/0.0785=61.9 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" 74-(-967; -97)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.728 composto da:

asta 343: Trave in legno a falda Falda 1 fili 74-133 (L = 0.675)

asta 344: Trave in legno a falda Falda 1 fili 74-133 (L = 0.675)

asta 345: Trave in legno a falda Falda 1 fili 74-133 (L = 0.676)

asta 346: Trave in legno a falda Falda 1 fili 74-133 (L = 0.676)

asta 347: Trave in legno a falda Falda 1 fili 74-133 (L = 0.676)

asta 348: Trave in legno a falda Falda 1 fili 74-133 (L = 0.676)

asta 349: Trave in legno a falda Falda 1 fili 74-133 (L = 0.676)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.193

Kdef = 0

Uinst tot in x = -0.0013

Uinst tot in y = 0.0008

Uinst tot = 0.0013

Luce/Uinst,tot > limite

4.728/0.0013=3717.4 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.463

Kdef = 0

Uinst var in x = -0.001

Uinst var in y = 0.0007

Uinst var = 0.001



Luce/Uinst,var > limite

4.728/0.001=4579.4 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.171

Kdef = 0.6

Ufin in x = -0.0014

Ufin in y = 0.0009

Ufin = 0.0014

Luce/Ufin > limite

4.728/0.0014=3288.5 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" 89-91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.676 composto da:

asta 200: Trave in legno a falda Falda 1 fili 89-90 (L = 0.416)

asta 201: Trave in legno a falda Falda 1 fili 89-90 (L = 0.416)

asta 202: Trave in legno a falda Falda 1 fili 89-90 (L = 0.416)

asta 203: Trave in legno a falda Falda 1 fili 89-90 (L = 0.416)

asta 204: Trave in legno a falda Falda 1 fili 89-90 (L = 2.784)

asta 400: Trave in legno a falda Falda 1 fili 90-91 (L = 2.228)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.356

Kdef = 0

Uinst tot in x = 0.0006

Uinst tot in y = -0.0652

Uinst tot = 0.0652

Luce/Uinst,tot < limite

6.676/0.0652=102.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.356

Kdef = 0

Uinst var in x = -0.0003

Uinst var in y = -0.0429

Uinst var = 0.0429

Luce/Uinst,var < limite

6.676/0.0429=155.8 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.412

Kdef = 0.6

Ufin in x = 0.001

Ufin in y = -0.0786

Ufin = 0.0786

Luce/Ufin < limite

6.676/0.0786=84.9 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600



## Superelemento in legno a "Falda 1" 133-(-896; -97)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 2.702$  composto da:

asta 339: Trave in legno a falda Falda 1 fili 133-161 ( $L = 0.676$ )

asta 340: Trave in legno a falda Falda 1 fili 133-161 ( $L = 0.676$ )

asta 341: Trave in legno a falda Falda 1 fili 133-161 ( $L = 0.676$ )

asta 342: Trave in legno a falda Falda 1 fili 133-161 ( $L = 0.675$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.419

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.0005$

$U_{inst\ tot\ in\ y} = -0.0015$

$U_{inst\ tot} = 0.0015$

$Luce/U_{inst,tot} > \text{limite}$

$2.702/0.0015 = 1857.3 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.419

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.0002$

$U_{inst\ var\ in\ y} = -0.0009$

$U_{inst\ var} = 0.0009$

$Luce/U_{inst,var} > \text{limite}$

$2.702/0.0009 = 2852 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.464

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.0007$

$U_{fin\ in\ y} = -0.0018$

$U_{fin} = 0.0018$

$Luce/U_{fin} > \text{limite}$

$2.702/0.0018 = 1492.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 1" 161-(-225; -97)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.729$  composto da:

asta 332: Trave in legno a falda Falda 1 fili 161-217 ( $L = 0.676$ )

asta 333: Trave in legno a falda Falda 1 fili 161-217 ( $L = 0.676$ )

asta 334: Trave in legno a falda Falda 1 fili 161-217 ( $L = 0.676$ )

asta 335: Trave in legno a falda Falda 1 fili 161-217 ( $L = 0.676$ )

asta 336: Trave in legno a falda Falda 1 fili 161-217 ( $L = 0.676$ )

asta 337: Trave in legno a falda Falda 1 fili 161-217 ( $L = 0.676$ )

asta 338: Trave in legno a falda Falda 1 fili 161-217 ( $L = 0.676$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.288  
Kdef = 0  
Uinst tot in x = -0.001  
Uinst tot in y = 0.0004  
Uinst tot = 0.001  
Luce/Uinst,tot > limite  
4.729/0.001=4544.9 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.198  
Kdef = 0  
Uinst var in x = -0.0008  
Uinst var in y = 0.0003  
Uinst var = 0.0008  
Luce/Uinst,var > limite  
4.729/0.0008=5976.6 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.49  
Kdef = 0.6  
Ufin in x = -0.0013  
Ufin in y = -0.0005  
Ufin = 0.0013  
Luce/Ufin > limite  
4.729/0.0013=3505.5 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" 201-203

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.675 composto da:  
asta 171: Trave in legno a falda Falda 1 fili 201-202 (L = 0.415)  
asta 172: Trave in legno a falda Falda 1 fili 201-202 (L = 0.416)  
asta 173: Trave in legno a falda Falda 1 fili 201-202 (L = 0.416)  
asta 174: Trave in legno a falda Falda 1 fili 201-202 (L = 0.416)  
asta 175: Trave in legno a falda Falda 1 fili 201-202 (L = 2.784)  
asta 387: Trave in legno a falda Falda 1 fili 202-203 (L = 2.228)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.354  
Kdef = 0  
Uinst tot in x = 0.0004  
Uinst tot in y = -0.0505  
Uinst tot = 0.0505  
Luce/Uinst,tot < limite  
6.675/0.0505=132.2 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.354  
Kdef = 0



Uinst var in x = -0.0003  
Uinst var in y = -0.0328  
Uinst var = 0.0328  
Luce/Uinst,var < limite  
6.675/0.0328=203.2 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.411  
Kdef = 0.6  
Ufin in x = 0.0007  
Ufin in y = -0.0611  
Ufin = 0.0611  
Luce/Ufin < limite  
6.675/0.0611=109.2 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" 217-(85; -97)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.779 composto da:  
asta 326: Trave in legno a falda Falda 1 fili 217-260 (L = 0.676)  
asta 327: Trave in legno a falda Falda 1 fili 217-260 (L = 0.676)  
asta 328: Trave in legno a falda Falda 1 fili 217-260 (L = 0.676)  
asta 329: Trave in legno a falda Falda 1 fili 217-260 (L = 0.676)  
asta 330: Trave in legno a falda Falda 1 fili 217-260 (L = 0.676)  
asta 331: Trave in legno a falda Falda 1 fili 217-260 (L = 0.401)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.644  
Kdef = 0  
Uinst tot in x = -0.0018  
Uinst tot in y = -0.0029  
Uinst tot = 0.0029  
Luce/Uinst,tot > limite  
3.779/0.0029=1323.2 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.644  
Kdef = 0  
Uinst var in x = -0.0013  
Uinst var in y = -0.0019  
Uinst var = 0.0019  
Luce/Uinst,var > limite  
3.779/0.0019=1948.9 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.689  
Kdef = 0.6  
Ufin in x = -0.0023  
Ufin in y = -0.0038  
Ufin = 0.0038  
Luce/Ufin > limite  
3.779/0.0038=1006.4 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600





Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" 223-218

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.857$  composto da:

asta 177: Trave in legno a falda Falda 1 fili 216-217 ( $L = 2.63$ )

asta 389: Trave in legno a falda Falda 1 fili 217-218 ( $L = 2.228$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.542

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.0005$

$U_{inst\ tot\ in\ y} = -0.0466$

$U_{inst\ tot} = 0.0466$

Luce/ $U_{inst,tot} < \text{limite}$

$4.857/0.0466 = 104.3 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.542

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.0004$

$U_{inst\ var\ in\ y} = -0.0304$

$U_{inst\ var} = 0.0304$

Luce/ $U_{inst,var} < \text{limite}$

$4.857/0.0304 = 159.8 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.542

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0006$

$U_{fin\ in\ y} = -0.0563$

$U_{fin} = 0.0563$

Luce/ $U_{fin} < \text{limite}$

$4.857/0.0563 = 86.3 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-88; -322)-(-88; -243)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 0.87$  composto da:

Asta 185: Trave in legno a falda Falda 1 fili 270-271

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.551

Kdef = 0

Uinst tot in x = 0.0001

Uinst tot in y = -0.0005

Uinst tot = 0.0005

Luce/Uinst,tot > limite

0.87/0.0005=1673.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.551

Kdef = 0

Uinst var in x = 0

Uinst var in y = -0.0004

Uinst var = 0.0004

Luce/Uinst,var > limite

0.87/0.0004=2466.8 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.58

Kdef = 0.6

Ufin in x = 0.0001

Ufin in y = -0.0006

Ufin = 0.0006

Luce/Ufin > limite

0.87/0.0006=1401.9 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-156; -322)-(-156; -178)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.59 composto da:

Asta 184: Trave in legno a falda Falda 1 fili 266-267

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.007

Kdef = 0

Uinst tot in x = 0.0001

Uinst tot in y = -0.0019

Uinst tot = 0.0019

Luce/Uinst,tot > limite

1.59/0.0019=820 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.954

Kdef = 0

Uinst var in x = 0.0001

Uinst var in y = -0.0013

Uinst var = 0.0013

Luce/Uinst,var > limite

1.59/0.0013=1194.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.007



Kdef = 0.6  
Ufin in x = 0.0002  
Ufin in y = -0.0023  
Ufin = 0.0023  
Luce/Ufin > limite  
1.59/0.0023=689 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-223; -322)-(-223; -112)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.31 composto da:  
Asta 183: Trave in legno a falda Falda 1 fili 261-262

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.386  
Kdef = 0  
Uinst tot in x = 0.0003  
Uinst tot in y = -0.0053  
Uinst tot = 0.0053  
Luce/Uinst,tot > limite  
2.31/0.0053=432.2 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.309  
Kdef = 0  
Uinst var in x = 0.0002  
Uinst var in y = -0.0036  
Uinst var = 0.0036  
Luce/Uinst,var > limite  
2.31/0.0036=634.2 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.386  
Kdef = 0.6  
Ufin in x = 0.0003  
Ufin in y = -0.0064  
Ufin = 0.0064  
Luce/Ufin > limite  
2.31/0.0064=362.4 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-291; -322)-256

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 3.03 composto da:  
asta 182: Trave in legno a falda Falda 1 fili 254-255 (L = 2.63)  
asta 394: Trave in legno a falda Falda 1 fili 255-256 (L = 0.401)



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.753

Kdef = 0

Uinst tot in x = 0.0006

Uinst tot in y = -0.0128

Uinst tot = 0.0128

Luce/Uinst,tot < limite

3.03/0.0128=236.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.753

Kdef = 0

Uinst var in x = 0.0003

Uinst var in y = -0.0086

Uinst var = 0.0086

Luce/Uinst,var > limite

3.03/0.0086=353.9 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.753

Kdef = 0.6

Ufin in x = 0.0007

Ufin in y = -0.0154

Ufin = 0.0154

Luce/Ufin < limite

3.03/0.0154=196.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-359; -322)-250

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.654 composto da:

asta 181: Trave in legno a falda Falda 1 fili 248-249 (L = 2.63)

asta 393: Trave in legno a falda Falda 1 fili 249-250 (L = 1.025)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.016

Kdef = 0

Uinst tot in x = 0.0012

Uinst tot in y = -0.023

Uinst tot = 0.023

Luce/Uinst,tot < limite

3.654/0.023=158.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.016

Kdef = 0

Uinst var in x = 0.0007

Uinst var in y = -0.0152

Uinst var = 0.0152

Luce/Uinst,var < limite

3.654/0.0152=240.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.016

Kdef = 0.6

Ufin in x = 0.0016

Ufin in y = -0.0277

Ufin = 0.0277

Luce/Ufin < limite

3.654/0.0277=131.8 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-426; -322)-244

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.354 composto da:

asta 180: Trave in legno a falda Falda 1 fili 242-243 (L = 2.63)

asta 392: Trave in legno a falda Falda 1 fili 243-244 (L = 1.724)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.279

Kdef = 0

Uinst tot in x = 0.0007

Uinst tot in y = -0.034

Uinst tot = 0.034

Luce/Uinst,tot < limite

4.354/0.034=128.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.279

Kdef = 0

Uinst var in x = -0.0004

Uinst var in y = -0.0223

Uinst var = 0.0223

Luce/Uinst,var < limite

4.354/0.0223=195.5 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.279

Kdef = 0.6

Ufin in x = 0.001

Ufin in y = -0.041

Ufin = 0.041

Luce/Ufin < limite

4.354/0.041=106.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600



Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-494; -322)-238

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.857$  composto da:  
asta 179: Trave in legno a falda Falda 1 fili 236-237 ( $L = 2.63$ )  
asta 391: Trave in legno a falda Falda 1 fili 237-238 ( $L = 2.227$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.367  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = -0.0007$   
 $U_{inst\ tot\ in\ y} = -0.0407$   
 $U_{inst\ tot} = 0.0407$   
Luce/ $U_{inst,tot} < \text{limite}$   
 $4.857/0.0407 = 119.4 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.367  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.0005$   
 $U_{inst\ var\ in\ y} = -0.0266$   
 $U_{inst\ var} = 0.0266$   
Luce/ $U_{inst,var} < \text{limite}$   
 $4.857/0.0266 = 182.6 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.367  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = -0.0009$   
 $U_{fin\ in\ y} = -0.0492$   
 $U_{fin} = 0.0492$   
Luce/ $U_{fin} < \text{limite}$   
 $4.857/0.0492 = 98.8 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-561; -322)-227

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.857$  composto da:  
asta 178: Trave in legno a falda Falda 1 fili 225-226 ( $L = 2.63$ )  
asta 390: Trave in legno a falda Falda 1 fili 226-227 ( $L = 2.227$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.454  
Kdef = 0  
Uinst tot in x = -0.0004  
Uinst tot in y = -0.044  
Uinst tot = 0.044  
Luce/Uinst,tot < limite  
4.857/0.044=110.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.454  
Kdef = 0  
Uinst var in x = -0.0004  
Uinst var in y = -0.0287  
Uinst var = 0.0287  
Luce/Uinst,var < limite  
4.857/0.0287=169 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.454  
Kdef = 0.6  
Ufin in x = -0.0005  
Ufin in y = -0.0532  
Ufin = 0.0532  
Luce/Ufin < limite  
4.857/0.0532=91.4 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-696; -322)-212

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.858 composto da:  
asta 176: Trave in legno a falda Falda 1 fili 210-211 (L = 2.63)  
asta 388: Trave in legno a falda Falda 1 fili 211-212 (L = 2.228)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.454  
Kdef = 0  
Uinst tot in x = -0.0006  
Uinst tot in y = -0.0486  
Uinst tot = 0.0486  
Luce/Uinst,tot < limite  
4.858/0.0486=100 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.542  
Kdef = 0  
Uinst var in x = -0.0005  
Uinst var in y = -0.0317  
Uinst var = 0.0317  
Luce/Uinst,var < limite  
4.858/0.0317=153.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.454

Kdef = 0.6

Ufin in x = -0.0006

Ufin in y = -0.0588

Ufin = 0.0588

Luce/Ufin < limite

4.858/0.0588=82.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-832; -471)-193

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:

asta 169: Trave in legno a falda Falda 1 fili 191-192 (L = 1.654)

asta 170: Trave in legno a falda Falda 1 fili 191-192 (L = 2.63)

asta 386: Trave in legno a falda Falda 1 fili 192-193 (L = 2.228)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.196

Kdef = 0

Uinst tot in x = 0.0005

Uinst tot in y = -0.0524

Uinst tot = 0.0524

Luce/Uinst,tot < limite

6.511/0.0524=124.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196

Kdef = 0

Uinst var in x = -0.0004

Uinst var in y = -0.034

Uinst var = 0.034

Luce/Uinst,var < limite

6.511/0.034=191.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.251

Kdef = 0.6

Ufin in x = 0.0007

Ufin in y = -0.0634

Ufin = 0.0634

Luce/Ufin < limite

6.511/0.0634=102.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-899; -471)-186

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





## Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:

asta 167: Trave in legno a falda Falda 1 fili 184-185 (L = 1.654)

asta 168: Trave in legno a falda Falda 1 fili 184-185 (L = 2.63)

asta 385: Trave in legno a falda Falda 1 fili 185-186 (L = 2.228)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.196

Kdef = 0

Uinst tot in x = 0.0004

Uinst tot in y = -0.0545

Uinst tot = 0.0545

Luce/Uinst,tot < limite

6.511/0.0545=119.6 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196

Kdef = 0

Uinst var in x = -0.0004

Uinst var in y = -0.0354

Uinst var = 0.0354

Luce/Uinst,var < limite

6.511/0.0354=184.2 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.251

Kdef = 0.6

Ufin in x = 0.0006

Ufin in y = -0.0659

Ufin = 0.0659

Luce/Ufin < limite

6.511/0.0659=98.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-967; -471)-180

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:

asta 165: Trave in legno a falda Falda 1 fili 178-179 (L = 1.654)

asta 166: Trave in legno a falda Falda 1 fili 178-179 (L = 2.63)

asta 384: Trave in legno a falda Falda 1 fili 179-180 (L = 2.228)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.196

Kdef = 0



Uinst tot in x = 0.0004  
Uinst tot in y = -0.0567  
Uinst tot = 0.0567  
Luce/Uinst,tot < limite  
6.511/0.0567=114.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196  
Kdef = 0  
Uinst var in x = -0.0004  
Uinst var in y = -0.0368  
Uinst var = 0.0368  
Luce/Uinst,var < limite  
6.511/0.0368=176.8 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.251  
Kdef = 0.6  
Ufin in x = 0.0006  
Ufin in y = -0.0687  
Ufin = 0.0687  
Luce/Ufin < limite  
6.511/0.0687=94.7 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-1034; -471)-172

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.512 composto da:  
asta 129: Trave in legno a falda Falda 1 fili 170-171 (L = 1.654)  
asta 130: Trave in legno a falda Falda 1 fili 170-171 (L = 2.63)  
asta 383: Trave in legno a falda Falda 1 fili 171-172 (L = 2.228)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.108  
Kdef = 0  
Uinst tot in x = 0.0005  
Uinst tot in y = -0.0592  
Uinst tot = 0.0592  
Luce/Uinst,tot < limite  
6.512/0.0592=110 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196  
Kdef = 0  
Uinst var in x = -0.0003  
Uinst var in y = -0.0384  
Uinst var = 0.0384  
Luce/Uinst,var < limite  
6.512/0.0384=169.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.163  
Kdef = 0.6  
Ufin in x = 0.0008  
Ufin in y = -0.0717



Ufin = 0.0717  
Luce/Ufin < limite  
 $6.512/0.0717=90.8 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-1169; -471)-155

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:  
asta 324: Trave in legno a falda Falda 1 fili 153-154 (L = 4.283)  
asta 409: Trave in legno a falda Falda 1 fili 154-155 (L = 2.227)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.712  
Kdef = 0  
Uinst tot in x = -0.0007  
Uinst tot in y = -0.0669  
Uinst tot = 0.0669  
Luce/Uinst,tot < limite  
 $6.511/0.0669=97.3 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.712  
Kdef = 0  
Uinst var in x = -0.0005  
Uinst var in y = -0.0433  
Uinst var = 0.0433  
Luce/Uinst,var < limite  
 $6.511/0.0433=150.3 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.712  
Kdef = 0.6  
Ufin in x = -0.0009  
Ufin in y = -0.0811  
Ufin = 0.0811  
Luce/Ufin < limite  
 $6.511/0.0811=80.3 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 1" (-1237; -471)-150

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:  
asta 323: Trave in legno a falda Falda 1 fili 148-149 (L = 4.283)  
asta 408: Trave in legno a falda Falda 1 fili 149-150 (L = 2.227)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.712  
Kdef = 0  
Uinst tot in x = -0.0003  
Uinst tot in y = -0.0688  
Uinst tot = 0.0688  
Luce/Uinst,tot < limite  
 $6.511/0.0688=94.7 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.712  
Kdef = 0  
Uinst var in x = -0.0003  
Uinst var in y = -0.0445  
Uinst var = 0.0445  
Luce/Uinst,var < limite  
 $6.511/0.0445=146.2 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.712  
Kdef = 0.6  
Ufin in x = -0.0003  
Ufin in y = -0.0834  
Ufin = 0.0834  
Luce/Ufin < limite  
 $6.511/0.0834=78.1 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 1" (-1304; -471)-141

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:  
asta 325: Trave in legno a falda Falda 1 fili 139-140 (L = 4.283)  
asta 410: Trave in legno a falda Falda 1 fili 140-141 (L = 2.227)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.712  
Kdef = 0  
Uinst tot in x = 0.0003  
Uinst tot in y = -0.0682  
Uinst tot = 0.0682  
Luce/Uinst,tot < limite  
 $6.511/0.0682=95.5 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.712  
Kdef = 0  
Uinst var in x = -0.0003  
Uinst var in y = -0.0442



Uinst var = 0.0442  
Luce/Uinst,var < limite  
6.511/0.0442=147.4 < 300 Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.712  
Kdef = 0.6  
Ufin in x = 0.0004  
Ufin in y = -0.0826  
Ufin = 0.0826  
Luce/Ufin < limite  
6.511/0.0826=78.8 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 1" (-1440; -471)-123

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:  
asta 192: Trave in legno a falda Falda 1 fili 121-122 (L = 1.653)  
asta 193: Trave in legno a falda Falda 1 fili 121-122 (L = 2.63)  
asta 396: Trave in legno a falda Falda 1 fili 122-123 (L = 2.228)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.196  
Kdef = 0  
Uinst tot in x = 0.0005  
Uinst tot in y = -0.0637  
Uinst tot = 0.0637  
Luce/Uinst,tot < limite  
6.511/0.0637=102.2 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196  
Kdef = 0  
Uinst var in x = -0.0005  
Uinst var in y = -0.0414  
Uinst var = 0.0414  
Luce/Uinst,var < limite  
6.511/0.0414=157.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.251  
Kdef = 0.6  
Ufin in x = 0.0009  
Ufin in y = -0.0771  
Ufin = 0.0771  
Luce/Ufin < limite  
6.511/0.0771=84.5 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600



## Superelemento in legno a "Falda 1" (-1507; -471)-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 6.511$  composto da:

asta 194: Trave in legno a falda Falda 1 fili 113-114 ( $L = 1.653$ )

asta 195: Trave in legno a falda Falda 1 fili 113-114 ( $L = 2.63$ )

asta 397: Trave in legno a falda Falda 1 fili 114-115 ( $L = 2.228$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.196

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.0005$

$U_{inst\ tot\ in\ y} = -0.0634$

$U_{inst\ tot} = 0.0634$

$Luce/U_{inst\ tot} < \text{limite}$

$6.511/0.0634 = 102.7 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.0005$

$U_{inst\ var\ in\ y} = -0.0413$

$U_{inst\ var} = 0.0413$

$Luce/U_{inst\ var} < \text{limite}$

$6.511/0.0413 = 157.7 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.251

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0009$

$U_{fin\ in\ y} = -0.0767$

$U_{fin} = 0.0767$

$Luce/U_{fin} < \text{limite}$

$6.511/0.0767 = 84.9 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-1575; -471)-106

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 6.511$  composto da:

asta 196: Trave in legno a falda Falda 1 fili 104-105 ( $L = 1.653$ )

asta 197: Trave in legno a falda Falda 1 fili 104-105 ( $L = 2.63$ )

asta 398: Trave in legno a falda Falda 1 fili 105-106 ( $L = 2.228$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.196

Kdef = 0

Uinst tot in x = 0.0005

Uinst tot in y = -0.0636

Uinst tot = 0.0636

Luce/Uinst,tot < limite

6.511/0.0636=102.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196

Kdef = 0

Uinst var in x = -0.0005

Uinst var in y = -0.0415

Uinst var = 0.0415

Luce/Uinst,var < limite

6.511/0.0415=156.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.251

Kdef = 0.6

Ufin in x = 0.0008

Ufin in y = -0.0769

Ufin = 0.0769

Luce/Ufin < limite

6.511/0.0769=84.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-1642; -471)-99

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.511 composto da:

asta 198: Trave in legno a falda Falda 1 fili 97-98 (L = 1.653)

asta 199: Trave in legno a falda Falda 1 fili 97-98 (L = 2.63)

asta 399: Trave in legno a falda Falda 1 fili 98-99 (L = 2.228)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.196

Kdef = 0

Uinst tot in x = 0.0006

Uinst tot in y = -0.0643

Uinst tot = 0.0643

Luce/Uinst,tot < limite

6.511/0.0643=101.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.196

Kdef = 0

Uinst var in x = -0.0004

Uinst var in y = -0.0421

Uinst var = 0.0421

Luce/Uinst,var < limite

6.511/0.0421=154.6 < 300 Comb: SLE rara, 17 - NON SODDISFATTA



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.251

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0009$

$U_{fin\ in\ y} = -0.0776$

$U_{fin} = 0.0776$

$Luce/U_{fin} < \text{limite}$

$6.511/0.0776=83.9 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 1" (-1777; -322)-83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva  $L = 4.858$  composto da:

asta 205: Trave in legno a falda Falda 1 fili 81-82 ( $L = 2.63$ )

asta 401: Trave in legno a falda Falda 1 fili 82-83 ( $L = 2.227$ )

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.543

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.0006$

$U_{inst\ tot\ in\ y} = -0.0657$

$U_{inst\ tot} = 0.0657$

$Luce/U_{inst,tot} < \text{limite}$

$4.858/0.0657=74 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.543

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.0003$

$U_{inst\ var\ in\ y} = -0.0433$

$U_{inst\ var} = 0.0433$

$Luce/U_{inst,var} < \text{limite}$

$4.858/0.0433=112.1 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.543

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.0007$

$U_{fin\ in\ y} = -0.0791$

$U_{fin} = 0.0791$

$Luce/U_{fin} < \text{limite}$

$4.858/0.0791=61.4 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 1" (-1912; -322)-67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





### Dati generali

Superelemento di lunghezza complessiva L= 4.858 composto da:

asta 207: Trave in legno a falda Falda 1 fili 65-66 (L = 2.63)

asta 403: Trave in legno a falda Falda 1 fili 66-67 (L = 2.227)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.455

Kdef = 0

Uinst tot in x = -0.0006

Uinst tot in y = -0.063

Uinst tot = 0.063

Luce/Uinst,tot < limite

4.858/0.063=77.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.455

Kdef = 0

Uinst var in x = -0.0003

Uinst var in y = -0.0418

Uinst var = 0.0418

Luce/Uinst,var < limite

4.858/0.0418=116.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.455

Kdef = 0.6

Ufin in x = -0.0008

Ufin in y = -0.0758

Ufin = 0.0758

Luce/Ufin < limite

4.858/0.0758=64.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-1980; -322)-58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 4.858 composto da:

asta 208: Trave in legno a falda Falda 1 fili 56-57 (L = 2.63)

asta 404: Trave in legno a falda Falda 1 fili 57-58 (L = 2.227)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.367

Kdef = 0

Uinst tot in x = -0.0007

Uinst tot in y = -0.0588



Uinst tot = 0.0588  
Luce/Uinst,tot < limite  
4.858/0.0588=82.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.367  
Kdef = 0  
Uinst var in x = -0.0003  
Uinst var in y = -0.0391  
Uinst var = 0.0391  
Luce/Uinst,var < limite  
4.858/0.0391=124.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.367  
Kdef = 0.6  
Ufin in x = -0.0009  
Ufin in y = -0.0706  
Ufin = 0.0706  
Luce/Ufin < limite  
4.858/0.0706=68.8 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-2048; -322)-51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.506 composto da:  
asta 209: Trave in legno a falda Falda 1 fili 49-50 (L = 2.63)  
asta 405: Trave in legno a falda Falda 1 fili 50-51 (L = 1.876)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.28  
Kdef = 0  
Uinst tot in x = -0.0012  
Uinst tot in y = -0.0504  
Uinst tot = 0.0504  
Luce/Uinst,tot < limite  
4.506/0.0504=89.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.28  
Kdef = 0  
Uinst var in x = -0.0007  
Uinst var in y = -0.0336  
Uinst var = 0.0336  
Luce/Uinst,var < limite  
4.506/0.0336=134.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.28  
Kdef = 0.6  
Ufin in x = -0.0015  
Ufin in y = -0.0605  
Ufin = 0.0605  
Luce/Ufin < limite  
4.506/0.0605=74.4 < 200 - NON SODDISFATTA



Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-2115; -322)-45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 3.781 composto da:

asta 210: Trave in legno a falda Falda 1 fili 43-44 (L = 2.63)

asta 406: Trave in legno a falda Falda 1 fili 44-45 (L = 1.151)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.104

Kdef = 0

Uinst tot in x = -0.0019

Uinst tot in y = -0.0353

Uinst tot = 0.0353

Luce/Uinst,tot < limite

3.781/0.0353=107.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.104

Kdef = 0

Uinst var in x = -0.0012

Uinst var in y = -0.0236

Uinst var = 0.0236

Luce/Uinst,var < limite

3.781/0.0236=160.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.104

Kdef = 0.6

Ufin in x = -0.0024

Ufin in y = -0.0422

Ufin = 0.0422

Luce/Ufin < limite

3.781/0.0422=89.5 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-2183; -322)-39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 3.145 composto da:

asta 211: Trave in legno a falda Falda 1 fili 37-38 (L = 2.63)

asta 407: Trave in legno a falda Falda 1 fili 38-39 (L = 0.515)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016



$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.841

Kdef = 0

Uinst tot in x = -0.0011

Uinst tot in y = -0.0202

Uinst tot = 0.0202

Luce/Uinst,tot < limite

$3.145/0.0202=156.1 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.754

Kdef = 0

Uinst var in x = -0.0007

Uinst var in y = -0.0136

Uinst var = 0.0136

Luce/Uinst,var < limite

$3.145/0.0136=231.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.841

Kdef = 0.6

Ufin in x = -0.0013

Ufin in y = -0.0241

Ufin = 0.0241

Luce/Ufin < limite

$3.145/0.0241=130.6 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 1" (-2242; -97)-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.871 composto da:

asta 138: Trave in legno a falda Falda 1 fili 36-74 (L = 0.494)

asta 139: Trave in legno a falda Falda 1 fili 36-74 (L = 0.676)

asta 140: Trave in legno a falda Falda 1 fili 36-74 (L = 0.676)

asta 141: Trave in legno a falda Falda 1 fili 36-74 (L = 0.676)

asta 142: Trave in legno a falda Falda 1 fili 36-74 (L = 0.676)

asta 143: Trave in legno a falda Falda 1 fili 36-74 (L = 0.676)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.205

Kdef = 0

Uinst tot in x = -0.0041

Uinst tot in y = -0.0066

Uinst tot = 0.0066

Luce/Uinst,tot > limite

$3.871/0.0066=589.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.205

Kdef = 0



Uinst var in x = -0.0028  
Uinst var in y = -0.0045  
Uinst var = 0.0045  
Luce/Uinst,var > limite  
 $3.871/0.0045=861.9 > 300$  Comb: SLE rara, 17  
**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 2.266  
Kdef = 0.6  
Ufin in x = -0.0047  
Ufin in y = -0.0071  
Ufin = 0.0071  
Luce/Ufin > limite  
 $3.871/0.0071=543.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-2250; -322)-(-2250; -104)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.402 composto da:  
Asta 212: Trave in legno a falda Falda 1 fili 32-33

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.441  
Kdef = 0  
Uinst tot in x = -0.0005  
Uinst tot in y = -0.0081  
Uinst tot = 0.0081  
Luce/Uinst,tot < limite  
 $2.402/0.0081=298.2 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.361  
Kdef = 0  
Uinst var in x = -0.0003  
Uinst var in y = -0.0056  
Uinst var = 0.0056  
Luce/Uinst,var > limite  
 $2.402/0.0056=432.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.441  
Kdef = 0.6  
Ufin in x = -0.0006  
Ufin in y = -0.0096  
Ufin = 0.0096  
Luce/Ufin > limite  
 $2.402/0.0096=251.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$



## Superelemento in legno a "Falda 1" (-2318; -322)-(-2318; -172)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 1.658 composto da:

Asta 213: Trave in legno a falda Falda 1 fili 27-28

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.05

Kdef = 0

Uinst tot in x = -0.0003

Uinst tot in y = -0.0027

Uinst tot = 0.0027

Luce/Uinst,tot > limite

1.658/0.0027=614.4 > 300 Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.995

Kdef = 0

Uinst var in x = -0.0002

Uinst var in y = -0.0019

Uinst var = 0.0019

Luce/Uinst,var > limite

1.658/0.0019=877 > 300 Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.05

Kdef = 0.6

Ufin in x = -0.0003

Ufin in y = -0.0032

Ufin = 0.0032

Luce/Ufin > limite

1.658/0.0032=520.5 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-2385; -322)-(-2385; -239)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 0.914 composto da:

Asta 214: Trave in legno a falda Falda 1 fili 23-24

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.609

Kdef = 0

Uinst tot in x = -0.0001

Uinst tot in y = -0.0007



Uinst tot = 0.0007  
Luce/Uinst,tot > limite  
 $0.914/0.0007=1352.8 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.579  
Kdef = 0  
Uinst var in x = -0.0001  
Uinst var in y = -0.0005  
Uinst var = 0.0005  
Luce/Uinst,var > limite  
 $0.914/0.0005=1903.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.609  
Kdef = 0.6  
Ufin in x = -0.0001  
Ufin in y = -0.0008  
Ufin = 0.0008  
Luce/Ufin > limite  
 $0.914/0.0008=1151.5 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 2" 24-(-2468; -256)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 0.926 composto da:  
Asta 237: Trave in legno a falda Falda 2 fili 24-2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.679  
Kdef = 0  
Uinst tot in x = 0.0001  
Uinst tot in y = 0.0003  
Uinst tot = 0.0003  
Luce/Uinst,tot > limite  
 $0.926/0.0003=3038.7 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.679  
Kdef = 0  
Uinst var in x = 0.0001  
Uinst var in y = 0.0002  
Uinst var = 0.0002  
Luce/Uinst,var > limite  
 $0.926/0.0002=4270 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.679  
Kdef = 0.6  
Ufin in x = 0.0001  
Ufin in y = 0.0004  
Ufin = 0.0004  
Luce/Ufin > limite  
 $0.926/0.0004=2589.3 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$



Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 2" 25-(-2469; 505)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 0.923$  composto da:  
Asta 321: Trave in legno a falda Falda 2 fili 25-14

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.215  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = -0.0001$   
 $U_{inst\ tot\ in\ y} = -0.0005$   
 $U_{inst\ tot} = 0.0005$   
Luce/ $U_{inst,tot} > \text{limite}$   
 $0.923/0.0005 = 1980.1 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.215  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.0001$   
 $U_{inst\ var\ in\ y} = -0.0003$   
 $U_{inst\ var} = 0.0003$   
Luce/ $U_{inst,var} > \text{limite}$   
 $0.923/0.0003 = 2907.1 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.215  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = -0.0002$   
 $U_{fin\ in\ y} = -0.0006$   
 $U_{fin} = 0.0006$   
Luce/ $U_{fin} > \text{limite}$   
 $0.923/0.0006 = 1662.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 2" 28-(-2468; -190)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 1.698$  composto da:  
Asta 238: Trave in legno a falda Falda 2 fili 28-3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1





#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.189

Kdef = 0

Uinst tot in x = 0.0001

Uinst tot in y = 0.0012

Uinst tot = 0.0012

Luce/Uinst,tot > limite

1.698/0.0012=1461.8 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.132

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0.0008

Uinst var = 0.0008

Luce/Uinst,var > limite

1.698/0.0008=2049.5 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.189

Kdef = 0.6

Ufin in x = 0.0001

Ufin in y = 0.0014

Ufin = 0.0014

Luce/Ufin > limite

1.698/0.0014=1245.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 2" 29-(-2469; 432)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.689 composto da:

Asta 320: Trave in legno a falda Falda 2 fili 29-13

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.394

Kdef = 0

Uinst tot in x = -0.0004

Uinst tot in y = -0.0014

Uinst tot = 0.0014

Luce/Uinst,tot > limite

1.689/0.0014=1219.9 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.394

Kdef = 0

Uinst var in x = -0.0003

Uinst var in y = -0.0009

Uinst var = 0.0009

Luce/Uinst,var > limite

1.689/0.0009=1810.8 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.394

Kdef = 0.6



Ufin in x = -0.0005  
Ufin in y = -0.0017  
Ufin = 0.0017  
Luce/Ufin > limite  
 $1.689/0.0017=1020.2 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 2" 33-(-2468; -125)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.463 composto da:  
Asta 239: Trave in legno a falda Falda 2 fili 33-4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.56  
Kdef = 0  
Uinst tot in x = 0.0006  
Uinst tot in y = 0.0029  
Uinst tot = 0.0029  
Luce/Uinst,tot > limite  
 $2.463/0.0029=850.1 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.56  
Kdef = 0  
Uinst var in x = 0.0004  
Uinst var in y = 0.0021  
Uinst var = 0.0021  
Luce/Uinst,var > limite  
 $2.463/0.0021=1186.1 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.56  
Kdef = 0.6  
Ufin in x = 0.0008  
Ufin in y = 0.0034  
Ufin = 0.0034  
Luce/Ufin > limite  
 $2.463/0.0034=725.9 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 2" 34-(-2468; 359)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.456 composto da:  
Asta 319: Trave in legno a falda Falda 2 fili 34-12

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667



Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.655  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = -0.0019$   
 $U_{inst\ tot\ in\ y} = -0.0029$   
 $U_{inst\ tot} = 0.0029$   
 $Luce/U_{inst,tot} > limite$   
 $2.456/0.0029 = 838.3 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.655  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.0013$   
 $U_{inst\ var\ in\ y} = -0.0019$   
 $U_{inst\ var} = 0.0019$   
 $Luce/U_{inst,var} > limite$   
 $2.456/0.0019 = 1265.9 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.655  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = -0.0023$   
 $U_{fin\ in\ y} = -0.0035$   
 $U_{fin} = 0.0035$   
 $Luce/U_{fin} > limite$   
 $2.456/0.0035 = 696.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 2" 39-(-2468; -59)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva  $L = 3.228$  composto da:  
Asta 240: Trave in legno a falda Falda 2 fili 39-5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.045  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = 0.0024$   
 $U_{inst\ tot\ in\ y} = 0.003$   
 $U_{inst\ tot} = 0.003$   
 $Luce/U_{inst,tot} > limite$   
 $3.228/0.003 = 1065.4 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.045  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = 0.0016$   
 $U_{inst\ var\ in\ y} = 0.0023$



Uinst var = 0.0023

Luce/Uinst,var > limite

$3.228/0.0023=1408.3 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.045

Kdef = 0.6

Ufin in x = 0.0029

Ufin in y = 0.0035

Ufin = 0.0035

Luce/Ufin > limite

$3.228/0.0035=928.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 2" 40-(-2468; 286)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.223 composto da:

Asta 318: Trave in legno a falda Falda 2 fili 40-11

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.859

Kdef = 0

Uinst tot in x = -0.0038

Uinst tot in y = -0.0038

Uinst tot = 0.0038

Luce/Uinst,tot > limite

$3.223/0.0038=838.5 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.752

Kdef = 0

Uinst var in x = -0.0025

Uinst var in y = -0.0024

Uinst var = 0.0025

Luce/Uinst,var > limite

$3.223/0.0025=1274 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.859

Kdef = 0.6

Ufin in x = -0.0045

Ufin in y = -0.0047

Ufin = 0.0047

Luce/Ufin > limite

$3.223/0.0047=688.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$



## Superelemento in legno a "Falda 2" 45-(-2468; 7)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 3.993$  composto da:

Asta 241: Trave in legno a falda Falda 2 fili 45-6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.932

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.0031$

$U_{inst\ tot\ in\ y} = -0.001$

$U_{inst\ tot} = 0.0031$

Luce/ $U_{inst,tot}$  > limite

$3.993/0.0031 = 1306.3 > 300$  Comb: SLE rara, 16

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.932

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.002$

$U_{inst\ var\ in\ y} = -0.0004$

$U_{inst\ var} = 0.002$

Luce/ $U_{inst,var}$  > limite

$3.993/0.002 = 2005.1 > 300$  Comb: SLE rara, 16

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.932

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0037$

$U_{fin\ in\ y} = -0.0014$

$U_{fin} = 0.0037$

Luce/ $U_{fin}$  > limite

$3.993/0.0037 = 1080.3 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 2" 51-(-2468; 73)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.758$  composto da:

Asta 242: Trave in legno a falda Falda 2 fili 51-7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.696

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.0014$

$U_{inst\ tot\ in\ y} = -0.0044$



Uinst tot = 0.0044  
Luce/Uinst,tot > limite  
4.758/0.0044=1088 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.696  
Kdef = 0  
Uinst var in x = 0.0009  
Uinst var in y = -0.0022  
Uinst var = 0.0022  
Luce/Uinst,var > limite  
4.758/0.0022=2166.6 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.696  
Kdef = 0.6  
Ufin in x = 0.0017  
Ufin in y = -0.0057  
Ufin = 0.0057  
Luce/Ufin > limite  
4.758/0.0057=837.7 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 2" 52-(-2468; 140)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.756 composto da:  
Asta 316: Trave in legno a falda Falda 2 fili 52-9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.22  
Kdef = 0  
Uinst tot in x = -0.0033  
Uinst tot in y = -0.008  
Uinst tot = 0.008  
Luce/Uinst,tot > limite  
4.756/0.008=593.7 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.22  
Kdef = 0  
Uinst var in x = -0.0022  
Uinst var in y = -0.0045  
Uinst var = 0.0045  
Luce/Uinst,var > limite  
4.756/0.0045=1050.9 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.22  
Kdef = 0.6  
Ufin in x = -0.0039  
Ufin in y = -0.0101  
Ufin = 0.0101  
Luce/Ufin > limite  
4.756/0.0101=470.9 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600



Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 2" 55-(-2906; -763)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 6.757$  composto da:

asta 113: Trave in legno a falda Falda 2 fili 55-1 ( $L = 0.138$ )  
asta 114: Trave in legno a falda Falda 2 fili 55-1 ( $L = 0.35$ )  
asta 115: Trave in legno a falda Falda 2 fili 55-1 ( $L = 0.13$ )  
asta 116: Trave in legno a falda Falda 2 fili 55-1 ( $L = 0.879$ )  
asta 117: Trave in legno a falda Falda 2 fili 55-1 ( $L = 1.009$ )  
asta 118: Trave in legno a falda Falda 2 fili 55-1 ( $L = 0.738$ )  
asta 119: Trave in legno a falda Falda 2 fili 55-1 ( $L = 0.291$ )  
asta 120: Trave in legno a falda Falda 2 fili 55-1 ( $L = 1.003$ )  
asta 121: Trave in legno a falda Falda 2 fili 55-1 ( $L = 1.004$ )  
asta 122: Trave in legno a falda Falda 2 fili 55-1 ( $L = 1.012$ )  
asta 123: Trave in legno a falda Falda 2 fili 55-1 ( $L = 0.204$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.12

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.0054$

$U_{inst\ tot\ in\ y} = -0.025$

$U_{inst\ tot} = 0.025$

$Luce/U_{inst,tot} < \text{limite}$

$6.757/0.025 = 270.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.12

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.0033$

$U_{inst\ var\ in\ y} = -0.0165$

$U_{inst\ var} = 0.0165$

$Luce/U_{inst,var} > \text{limite}$

$6.757/0.0165 = 408.9 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.204

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0066$

$U_{fin\ in\ y} = -0.0301$

$U_{fin} = 0.0301$

$Luce/U_{fin} > \text{limite}$

$6.757/0.0301 = 224.5 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 3" 21-(-1581; -365)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 7.116$  composto da:

asta 104: Trave in legno a falda Falda 3 fili 16-55 ( $L = 0.253$ )  
asta 105: Trave in legno a falda Falda 3 fili 16-55 ( $L = 1.059$ )  
asta 106: Trave in legno a falda Falda 3 fili 16-55 ( $L = 1.059$ )



asta 107: Trave in legno a falda Falda 3 fili 16-55 (L = 0.8)  
asta 108: Trave in legno a falda Falda 3 fili 16-55 (L = 0.259)  
asta 109: Trave in legno a falda Falda 3 fili 16-55 (L = 1.061)  
asta 110: Trave in legno a falda Falda 3 fili 16-55 (L = 1.057)  
asta 111: Trave in legno a falda Falda 3 fili 16-55 (L = 1.057)  
asta 112: Trave in legno a falda Falda 3 fili 16-55 (L = 0.512)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.676

Kdef = 0

Uinst tot in x = 0.0117

Uinst tot in y = -0.0399

Uinst tot = 0.0399

Luce/Uinst,tot < limite

7.116/0.0399=178.5 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.676

Kdef = 0

Uinst var in x = 0.0077

Uinst var in y = -0.0264

Uinst var = 0.0264

Luce/Uinst,var < limite

7.116/0.0264=269.4 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.79

Kdef = 0.6

Ufin in x = 0.014

Ufin in y = -0.0479

Ufin = 0.0479

Luce/Ufin < limite

7.116/0.0479=148.5 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 25-(-2385; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.01 composto da:

Asta 313: Trave in legno a falda Falda 3 fili 25-26

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.303

Kdef = 0

Uinst tot in x = -0.0001

Uinst tot in y = -0.0009

Uinst tot = 0.0009





Luce/Uinst,tot > limite  
1.01/0.0009=1077.3 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.303  
Kdef = 0  
Uinst var in x = -0.0001  
Uinst var in y = -0.0006  
Uinst var = 0.0006  
Luce/Uinst,var > limite  
1.01/0.0006=1611.4 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.303  
Kdef = 0.6  
Ufin in x = -0.0002  
Ufin in y = -0.0011  
Ufin = 0.0011  
Luce/Ufin > limite  
1.01/0.0011=898.6 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 29-(-2318; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.825 composto da:  
Asta 312: Trave in legno a falda Falda 3 fili 29-30

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.608  
Kdef = 0  
Uinst tot in x = -0.0003  
Uinst tot in y = -0.003  
Uinst tot = 0.003  
Luce/Uinst,tot > limite  
1.825/0.003=610.8 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.608  
Kdef = 0  
Uinst var in x = -0.0002  
Uinst var in y = -0.002  
Uinst var = 0.002  
Luce/Uinst,var > limite  
1.825/0.002=928.9 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.608  
Kdef = 0.6  
Ufin in x = -0.0004  
Ufin in y = -0.0036  
Ufin = 0.0036  
Luce/Ufin > limite  
1.825/0.0036=506.7 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600



Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 3" 31-(-1341; 377)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 5.036 composto da:

asta 144: Trave in legno a falda Falda 3 fili 31-87 (L = 0.84)  
asta 145: Trave in legno a falda Falda 3 fili 31-87 (L = 0.676)  
asta 146: Trave in legno a falda Falda 3 fili 31-87 (L = 0.676)  
asta 147: Trave in legno a falda Falda 3 fili 31-87 (L = 0.676)  
asta 148: Trave in legno a falda Falda 3 fili 31-87 (L = 0.676)  
asta 149: Trave in legno a falda Falda 3 fili 31-87 (L = 0.676)  
asta 150: Trave in legno a falda Falda 3 fili 31-87 (L = 0.819)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.326

Kdef = 0

Uinst tot in x = 0.0065

Uinst tot in y = -0.0142

Uinst tot = 0.0142

Luce/Uinst,tot > limite

5.036/0.0142=354.1 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.304

Kdef = 0

Uinst var in x = 0.0044

Uinst var in y = -0.0094

Uinst var = 0.0094

Luce/Uinst,var > limite

5.036/0.0094=536.9 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.422

Kdef = 0.6

Ufin in x = 0.008

Ufin in y = -0.0173

Ufin = 0.0173

Luce/Ufin > limite

5.036/0.0173=290.4 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 3" 34-(-2250; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.64 composto da:

Asta 311: Trave in legno a falda Falda 3 fili 34-35

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.968  
Kdef = 0  
Uinst tot in x = -0.0004  
Uinst tot in y = -0.0078  
Uinst tot = 0.0078  
Luce/Uinst,tot > limite  
 $2.64/0.0078=337 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.968  
Kdef = 0  
Uinst var in x = -0.0003  
Uinst var in y = -0.0051  
Uinst var = 0.0051  
Luce/Uinst,var > limite  
 $2.64/0.0051=517.4 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.968  
Kdef = 0.6  
Ufin in x = -0.0005  
Ufin in y = -0.0095  
Ufin = 0.0095  
Luce/Ufin > limite  
 $2.64/0.0095=278.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 3" 40-(-2183; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.457 composto da:  
asta 310: Trave in legno a falda Falda 3 fili 40-41 (L = 1.016)  
asta 381: Trave in legno a falda Falda 3 fili 41-42 (L = 2.441)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.423  
Kdef = 0  
Uinst tot in x = -0.0009  
Uinst tot in y = -0.0219  
Uinst tot = 0.0219  
Luce/Uinst,tot < limite  
 $3.457/0.0219=158.1 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.423  
Kdef = 0  
Uinst var in x = -0.0006  
Uinst var in y = -0.0143  
Uinst var = 0.0143  
Luce/Uinst,var < limite  
 $3.457/0.0143=241.2 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.457

Kdef = 0.6

Ufin in x = -0.0011

Ufin in y = -0.0268

Ufin = 0.0268

Luce/Ufin < limite

3.457/0.0268=128.8 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 46-(-2115; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.271 composto da:

asta 308: Trave in legno a falda Falda 3 fili 46-47 (L = 1.831)

asta 379: Trave in legno a falda Falda 3 fili 47-48 (L = 2.441)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.993

Kdef = 0

Uinst tot in x = -0.0008

Uinst tot in y = -0.0364

Uinst tot = 0.0364

Luce/Uinst,tot < limite

4.271/0.0364=117.3 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.993

Kdef = 0

Uinst var in x = -0.0005

Uinst var in y = -0.0239

Uinst var = 0.0239

Luce/Uinst,var < limite

4.271/0.0239=178.8 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.054

Kdef = 0.6

Ufin in x = -0.001

Ufin in y = -0.0444

Ufin = 0.0444

Luce/Ufin < limite

4.271/0.0444=96.3 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 52-(-2048; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 5.085 composto da:



asta 309: Trave in legno a falda Falda 3 fili 52-53 (L = 2.644)

asta 380: Trave in legno a falda Falda 3 fili 53-54 (L = 2.441)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.645

Kdef = 0

Uinst tot in x = 0.0008

Uinst tot in y = -0.047

Uinst tot = 0.047

Luce/Uinst,tot < limite

5.085/0.047=108.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.645

Kdef = 0

Uinst var in x = 0.0005

Uinst var in y = -0.0308

Uinst var = 0.0308

Luce/Uinst,var < limite

5.085/0.0308=165.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.733

Kdef = 0.6

Ufin in x = 0.001

Ufin in y = -0.0569

Ufin = 0.0569

Luce/Ufin < limite

5.085/0.0569=89.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 3" 58-(-1980; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 5.479 composto da:

asta 302: Trave in legno a falda Falda 3 fili 58-59 (L = 3.038)

asta 377: Trave in legno a falda Falda 3 fili 59-60 (L = 2.441)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.835

Kdef = 0

Uinst tot in x = 0.0004

Uinst tot in y = -0.048

Uinst tot = 0.048

Luce/Uinst,tot < limite

5.479/0.048=114.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.835

Kdef = 0

Uinst var in x = 0.0004

Uinst var in y = -0.0312

Uinst var = 0.0312

Luce/Uinst,var < limite

5.479/0.0312=175.7 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.835

Kdef = 0.6

Ufin in x = -0.0006

Ufin in y = -0.058

Ufin = 0.058

Luce/Ufin < limite

5.479/0.058=94.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 63-(-1113; -333)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 7.084 composto da:

asta 216: Trave in legno a falda Falda 3 fili 60-115 (L = 0.799)

asta 217: Trave in legno a falda Falda 3 fili 60-115 (L = 1.066)

asta 218: Trave in legno a falda Falda 3 fili 60-115 (L = 1.066)

asta 219: Trave in legno a falda Falda 3 fili 60-115 (L = 0.226)

asta 220: Trave in legno a falda Falda 3 fili 60-115 (L = 0.84)

asta 221: Trave in legno a falda Falda 3 fili 60-115 (L = 1.066)

asta 222: Trave in legno a falda Falda 3 fili 60-115 (L = 1.066)

asta 223: Trave in legno a falda Falda 3 fili 60-115 (L = 0.957)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.324

Kdef = 0

Uinst tot in x = 0.0078

Uinst tot in y = -0.0256

Uinst tot = 0.0256

Luce/Uinst,tot < limite

7.084/0.0256=276.9 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.296

Kdef = 0

Uinst var in x = 0.0049

Uinst var in y = -0.0162

Uinst var = 0.0162

Luce/Uinst,var > limite

7.084/0.0162=437.9 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.429

Kdef = 0.6

Ufin in x = 0.0094

Ufin in y = -0.0312

Ufin = 0.0312



Luce/Ufin > limite

$7.084/0.0312=227 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 3" 67-69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.862$  composto da:

asta 303: Trave in legno a falda Falda 3 fili 67-68 ( $L = 3.039$ )

asta 378: Trave in legno a falda Falda 3 fili 68-69 ( $L = 1.823$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.734

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.0004$

$U_{inst\ tot\ in\ y} = -0.0388$

$U_{inst\ tot} = 0.0388$

Luce/ $U_{inst,tot}$  < limite

$4.862/0.0388=125.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.734

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.0004$

$U_{inst\ var\ in\ y} = -0.0251$

$U_{inst\ var} = 0.0251$

Luce/ $U_{inst,var}$  < limite

$4.862/0.0251=193.9 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.734

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0005$

$U_{fin\ in\ y} = -0.047$

$U_{fin} = 0.047$

Luce/ $U_{fin}$  < limite

$4.862/0.047=103.4 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 3" 76-78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.037$  composto da:

asta 304: Trave in legno a falda Falda 3 fili 76-77 ( $L = 3.038$ )

asta 376: Trave in legno a falda Falda 3 fili 77-78 ( $L = 0.999$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.532  
Kdef = 0  
Uinst tot in x = 0.0004  
Uinst tot in y = -0.0244  
Uinst tot = 0.0244  
Luce/Uinst,tot < limite  
4.037/0.0244=165.1 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.532  
Kdef = 0  
Uinst var in x = 0.0003  
Uinst var in y = -0.0157  
Uinst var = 0.0157  
Luce/Uinst,var < limite  
4.037/0.0157=257 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.532  
Kdef = 0.6  
Ufin in x = 0.0004  
Ufin in y = -0.0297  
Ufin = 0.0297  
Luce/Ufin < limite  
4.037/0.0297=136 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 83-84

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.213 composto da:  
Asta 305: Trave in legno a falda Falda 3 fili 83-84

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.142  
Kdef = 0  
Uinst tot in x = 0.0001  
Uinst tot in y = -0.0085  
Uinst tot = 0.0085  
Luce/Uinst,tot > limite  
3.213/0.0085=376.1 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.142  
Kdef = 0  
Uinst var in x = 0.0001  
Uinst var in y = -0.0054  
Uinst var = 0.0054  
Luce/Uinst,var > limite  
3.213/0.0054=600.3 > 300 Comb: SLE rara, 8





### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.142

Kdef = 0.6

Ufin in x = 0.0001

Ufin in y = -0.0105

Ufin = 0.0105

Luce/Ufin > limite

$3.213/0.0105=307.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 3" 91-92

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 2.389 composto da:

Asta 306: Trave in legno a falda Falda 3 fili 91-92

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.752

Kdef = 0

Uinst tot in x = -0.0002

Uinst tot in y = -0.0028

Uinst tot = 0.0028

Luce/Uinst,tot > limite

$2.389/0.0028=850.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.752

Kdef = 0

Uinst var in x = -0.0001

Uinst var in y = -0.0018

Uinst var = 0.0018

Luce/Uinst,var > limite

$2.389/0.0018=1340.7 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.752

Kdef = 0.6

Ufin in x = -0.0003

Ufin in y = -0.0034

Ufin = 0.0034

Luce/Ufin > limite

$2.389/0.0034=697.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 3" 99-100

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.564 composto da:

Asta 307: Trave in legno a falda Falda 3 fili 99-100



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.417

Kdef = 0

Uinst tot in x = -0.0001

Uinst tot in y = 0.001

Uinst tot = 0.001

Luce/Uinst,tot > limite

1.564/0.001=1567.4 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.417

Kdef = 0

Uinst var in x = -0.0001

Uinst var in y = 0.0006

Uinst var = 0.0006

Luce/Uinst,var > limite

1.564/0.0006=2437.2 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.417

Kdef = 0.6

Ufin in x = -0.0001

Ufin in y = 0.0012

Ufin = 0.0012

Luce/Ufin > limite

1.564/0.0012=1286.6 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 106-107

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 0.741 composto da:

Asta 301: Trave in legno a falda Falda 3 fili 106-107

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.247

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0.0004

Uinst tot = 0.0004

Luce/Uinst,tot > limite

0.741/0.0004=1859 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.247



Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0.0002  
Uinst var = 0.0002  
Luce/Uinst,var > limite  
0.741/0.0002=3064.1 > 300 Comb: SLE rara, 17  
**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 0.247  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0.0005  
Ufin = 0.0005  
Luce/Ufin > limite  
0.741/0.0005=1511.9 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 3"- "Falda 2" 46-(-2468; 213)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 3.99 composto da:  
Asta 317: Trave in legno a falda Falda 2 fili 46-10

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.463  
Kdef = 0  
Uinst tot in x = -0.005  
Uinst tot in y = -0.0056  
Uinst tot = 0.0056  
Luce/Uinst,tot > limite  
3.99/0.0056=719 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.33  
Kdef = 0  
Uinst var in x = -0.0033  
Uinst var in y = -0.0034  
Uinst var = 0.0034  
Luce/Uinst,var > limite  
3.99/0.0034=1186.2 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.463  
Kdef = 0.6  
Ufin in x = -0.006  
Ufin in y = -0.0069  
Ufin = 0.0069  
Luce/Ufin > limite  
3.99/0.0069=580 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600



## Superelemento in legno a "Falda 3"- "Falda 2" 55-(-2468; 105)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 5.128 composto da:

Asta 315: Trave in legno a falda Falda 2 fili 55-8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.564

Kdef = 0

Uinst tot in x = 0.0007

Uinst tot in y = -0.0091

Uinst tot = 0.0091

Luce/Uinst,tot > limite

5.128/0.0091=565.2 > 300 Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.564

Kdef = 0

Uinst var in x = 0.0005

Uinst var in y = -0.0051

Uinst var = 0.0051

Luce/Uinst,var > limite

5.128/0.0051=1003.2 > 300 Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.564

Kdef = 0.6

Ufin in x = 0.0008

Ufin in y = -0.0114

Ufin = 0.0114

Luce/Ufin > limite

5.128/0.0114=447.9 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 70-71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 0.723 composto da:

asta 299: Trave in legno a falda Falda 4 fili 70-71 (L = 0.578)

asta 300: Trave in legno a falda Falda 4 fili 70-71 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.212

Kdef = 0



Uinst tot in x = 0.0001  
Uinst tot in y = -0.0007  
Uinst tot = 0.0007  
Luce/Uinst,tot > limite  
0.723/0.0007=1107 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.212  
Kdef = 0  
Uinst var in x = 0.0001  
Uinst var in y = -0.0004  
Uinst var = 0.0004  
Luce/Uinst,var > limite  
0.723/0.0004=1665.2 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.212  
Kdef = 0.6  
Ufin in x = 0.0001  
Ufin in y = -0.0008  
Ufin = 0.0008  
Luce/Ufin > limite  
0.723/0.0008=920.9 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 79-80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.493 composto da:  
asta 297: Trave in legno a falda Falda 4 fili 79-80 (L = 1.349)  
asta 298: Trave in legno a falda Falda 4 fili 79-80 (L = 0.144)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.405  
Kdef = 0  
Uinst tot in x = 0.0003  
Uinst tot in y = -0.0014  
Uinst tot = 0.0014  
Luce/Uinst,tot > limite  
1.493/0.0014=1045.9 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.405  
Kdef = 0  
Uinst var in x = 0.0002  
Uinst var in y = -0.0009  
Uinst var = 0.0009  
Luce/Uinst,var > limite  
1.493/0.0009=1586.5 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.538  
Kdef = 0.6  
Ufin in x = 0.0003  
Ufin in y = -0.0021  
Ufin = 0.0021  
Luce/Ufin > limite  
1.493/0.0021=727.6 > 200



Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 85-86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 2.264$  composto da:

asta 295: Trave in legno a falda Falda 4 fili 85-86 ( $L = 2.12$ )

asta 296: Trave in legno a falda Falda 4 fili 85-86 ( $L = 0.144$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.707

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.0004$

$U_{inst\ tot\ in\ y} = -0.0054$

$U_{inst\ tot} = 0.0054$

Luce/ $U_{inst\ tot} >$  limite

$2.264/0.0054 = 421.5 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.707

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.0003$

$U_{inst\ var\ in\ y} = -0.0035$

$U_{inst\ var} = 0.0035$

Luce/ $U_{inst\ var} >$  limite

$2.264/0.0035 = 643.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.707

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.0005$

$U_{fin\ in\ y} = -0.0065$

$U_{fin} = 0.0065$

Luce/ $U_{fin} >$  limite

$2.264/0.0065 = 349.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 93-94

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 3.035$  composto da:

asta 293: Trave in legno a falda Falda 4 fili 93-94 ( $L = 2.89$ )

asta 294: Trave in legno a falda Falda 4 fili 93-94 ( $L = 0.144$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.06

Kdef = 0

Uinst tot in x = 0.0007

Uinst tot in y = -0.0162

Uinst tot = 0.0162

Luce/Uinst,tot < limite

3.035/0.0162=187 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.06

Kdef = 0

Uinst var in x = 0.0005

Uinst var in y = -0.0106

Uinst var = 0.0106

Luce/Uinst,var < limite

3.035/0.0106=285.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.06

Kdef = 0.6

Ufin in x = 0.0009

Ufin in y = -0.0196

Ufin = 0.0196

Luce/Ufin < limite

3.035/0.0196=154.9 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 8.935 composto da:

asta 151: Trave in legno a falda Falda 4 fili 95-198 (L = 0.434)

asta 152: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 153: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 154: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 155: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 156: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 157: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 158: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 159: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 160: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 161: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 162: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 163: Trave in legno a falda Falda 4 fili 95-198 (L = 0.676)

asta 164: Trave in legno a falda Falda 4 fili 95-198 (L = 0.395)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 4.577

Kdef = 0

Uinst tot in x = 0.0317

Uinst tot in y = -0.0787

Uinst tot = 0.0787

Luce/Uinst,tot < limite

8.935/0.0787=113.5 < 300 Comb: SLE rara, 16 - NON SODDISFATTA



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 4.577

Kdef = 0

Uinst var in x = 0.021

Uinst var in y = -0.0523

Uinst var = 0.0523

Luce/Uinst,var < limite

8.935/0.0523=171 < 300 Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 4.727

Kdef = 0.6

Ufin in x = 0.0381

Ufin in y = -0.0946

Ufin = 0.0946

Luce/Ufin < limite

8.935/0.0946=94.5 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 101-103

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.806 composto da:

asta 292: Trave in legno a falda Falda 4 fili 101-102 (L = 0.495)

asta 374: Trave in legno a falda Falda 4 fili 102-103 (L = 3.167)

asta 375: Trave in legno a falda Falda 4 fili 102-103 (L = 0.144)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.339

Kdef = 0

Uinst tot in x = -0.001

Uinst tot in y = -0.0408

Uinst tot = 0.0408

Luce/Uinst,tot < limite

3.806/0.0408=93.2 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.339

Kdef = 0

Uinst var in x = -0.0007

Uinst var in y = -0.0269

Uinst var = 0.0269

Luce/Uinst,var < limite

3.806/0.0269=141.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.355

Kdef = 0.6

Ufin in x = -0.0012

Ufin in y = -0.0498

Ufin = 0.0498

Luce/Ufin < limite

3.806/0.0498=76.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600





Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 108-110

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 4.576 composto da:

asta 291: Trave in legno a falda Falda 4 fili 108-109 (L = 1.265)

asta 372: Trave in legno a falda Falda 4 fili 109-110 (L = 3.167)

asta 373: Trave in legno a falda Falda 4 fili 109-110 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.687

Kdef = 0

Uinst tot in x = -0.002

Uinst tot in y = -0.08

Uinst tot = 0.08

Luce/Uinst,tot < limite

4.576/0.08=57.2 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.687

Kdef = 0

Uinst var in x = -0.0014

Uinst var in y = -0.0528

Uinst var = 0.0528

Luce/Uinst,var < limite

4.576/0.0528=86.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.73

Kdef = 0.6

Ufin in x = -0.0023

Ufin in y = -0.0974

Ufin = 0.0974

Luce/Ufin < limite

4.576/0.0974=47 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 116-118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 5.347 composto da:

asta 290: Trave in legno a falda Falda 4 fili 116-117 (L = 2.036)

asta 370: Trave in legno a falda Falda 4 fili 117-118 (L = 3.167)

asta 371: Trave in legno a falda Falda 4 fili 117-118 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.141

Kdef = 0

Uinst tot in x = -0.002

Uinst tot in y = -0.1244

Uinst tot = 0.1244

Luce/Uinst,tot < limite

5.347/0.1244=43 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.141

Kdef = 0

Uinst var in x = -0.0015

Uinst var in y = -0.0821

Uinst var = 0.0821

Luce/Uinst,var < limite

5.347/0.0821=65.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.209

Kdef = 0.6

Ufin in x = -0.0023

Ufin in y = -0.1507

Ufin = 0.1507

Luce/Ufin < limite

5.347/0.1507=35.5 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 123-125

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.279 composto da:

asta 278: Trave in legno a falda Falda 4 fili 123-124 (L = 2.968)

asta 362: Trave in legno a falda Falda 4 fili 124-125 (L = 3.167)

asta 363: Trave in legno a falda Falda 4 fili 124-125 (L = 0.144)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.968

Kdef = 0

Uinst tot in x = -0.0021

Uinst tot in y = -0.1781

Uinst tot = 0.1781

Luce/Uinst,tot < limite

6.279/0.1781=35.2 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.968

Kdef = 0

Uinst var in x = -0.0017

Uinst var in y = -0.1175

Uinst var = 0.1175

Luce/Uinst,var < limite

6.279/0.1175=53.4 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.066

Kdef = 0.6



Ufin in x = -0.0024  
Ufin in y = -0.2147  
Ufin = 0.2147  
Luce/Ufin < limite  
 $6.279/0.2147=29.3 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 8.35 composto da:

asta 93: Trave in legno a falda Falda 4 fili 126-61 (L = 1.238)  
asta 94: Trave in legno a falda Falda 4 fili 126-61 (L = 1.025)  
asta 95: Trave in legno a falda Falda 4 fili 126-61 (L = 1.025)  
asta 96: Trave in legno a falda Falda 4 fili 126-61 (L = 0.658)  
asta 97: Trave in legno a falda Falda 4 fili 126-61 (L = 0.367)  
asta 98: Trave in legno a falda Falda 4 fili 126-61 (L = 1.025)  
asta 99: Trave in legno a falda Falda 4 fili 126-61 (L = 1.025)  
asta 100: Trave in legno a falda Falda 4 fili 126-61 (L = 1.025)  
asta 101: Trave in legno a falda Falda 4 fili 126-61 (L = 0.664)  
asta 102: Trave in legno a falda Falda 4 fili 126-61 (L = 0.189)  
asta 103: Trave in legno a falda Falda 4 fili 126-61 (L = 0.109)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.573  
Kdef = 0  
Uinst tot in x = -0.0357  
Uinst tot in y = -0.1117  
Uinst tot = 0.1117  
Luce/Uinst,tot < limite  
 $8.35/0.1117=74.7 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.573  
Kdef = 0  
Uinst var in x = -0.0239  
Uinst var in y = -0.0734  
Uinst var = 0.0734  
Luce/Uinst,var < limite  
 $8.35/0.0734=113.8 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.683  
Kdef = 0.6  
Ufin in x = -0.0427  
Ufin in y = -0.1348  
Ufin = 0.1348  
Luce/Ufin < limite  
 $8.35/0.1348=62 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 134-136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



#### Dati generali

Superelemento di lunghezza complessiva L= 6.279 composto da:  
asta 277: Trave in legno a falda Falda 4 fili 134-135 (L = 2.968)  
asta 360: Trave in legno a falda Falda 4 fili 135-136 (L = 3.167)  
asta 361: Trave in legno a falda Falda 4 fili 135-136 (L = 0.144)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.073

Kdef = 0

Uinst tot in x = -0.0026

Uinst tot in y = -0.1921

Uinst tot = 0.1921

Luce/Uinst,tot < limite

6.279/0.1921=32.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.073

Kdef = 0

Uinst var in x = -0.002

Uinst var in y = -0.1268

Uinst var = 0.1268

Luce/Uinst,var < limite

6.279/0.1268=49.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.172

Kdef = 0.6

Ufin in x = -0.0029

Ufin in y = -0.2315

Ufin = 0.2315

Luce/Ufin < limite

6.279/0.2315=27.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 141-143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 6.279 composto da:

asta 276: Trave in legno a falda Falda 4 fili 141-142 (L = 2.968)

asta 358: Trave in legno a falda Falda 4 fili 142-143 (L = 3.167)

asta 359: Trave in legno a falda Falda 4 fili 142-143 (L = 0.144)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.073

Kdef = 0

Uinst tot in x = -0.0025

Uinst tot in y = -0.2018



Uinst tot = 0.2018  
Luce/Uinst,tot < limite  
6.279/0.2018=31.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.073  
Kdef = 0  
Uinst var in x = -0.002  
Uinst var in y = -0.1332  
Uinst var = 0.1332  
Luce/Uinst,var < limite  
6.279/0.1332=47.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.172  
Kdef = 0.6  
Ufin in x = -0.0029  
Ufin in y = -0.2432  
Ufin = 0.2432  
Luce/Ufin < limite  
6.279/0.2432=25.8 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 150-152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.279 composto da:  
asta 275: Trave in legno a falda Falda 4 fili 150-151 (L = 2.968)  
asta 356: Trave in legno a falda Falda 4 fili 151-152 (L = 3.167)  
asta 357: Trave in legno a falda Falda 4 fili 151-152 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.073  
Kdef = 0  
Uinst tot in x = -0.0023  
Uinst tot in y = -0.2055  
Uinst tot = 0.2055  
Luce/Uinst,tot < limite  
6.279/0.2055=30.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.073  
Kdef = 0  
Uinst var in x = -0.0018  
Uinst var in y = -0.1357  
Uinst var = 0.1357  
Luce/Uinst,var < limite  
6.279/0.1357=46.3 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.172  
Kdef = 0.6  
Ufin in x = -0.0026  
Ufin in y = -0.2476  
Ufin = 0.2476  
Luce/Ufin < limite  
6.279/0.2476=25.4 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:



Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 155-157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.279 composto da:  
asta 274: Trave in legno a falda Falda 4 fili 155-156 (L = 2.968)  
asta 354: Trave in legno a falda Falda 4 fili 156-157 (L = 3.167)  
asta 355: Trave in legno a falda Falda 4 fili 156-157 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.179

Kdef = 0

Uinst tot in x = -0.0022

Uinst tot in y = -0.2038

Uinst tot = 0.2038

Luce/Uinst,tot < limite

6.279/0.2038=30.8 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.179

Kdef = 0

Uinst var in x = -0.0018

Uinst var in y = -0.1345

Uinst var = 0.1345

Luce/Uinst,var < limite

6.279/0.1345=46.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.277

Kdef = 0.6

Ufin in x = -0.0024

Ufin in y = -0.2456

Ufin = 0.2456

Luce/Ufin < limite

6.279/0.2456=25.6 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 163-165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.279 composto da:  
asta 273: Trave in legno a falda Falda 4 fili 163-164 (L = 2.968)  
asta 352: Trave in legno a falda Falda 4 fili 164-165 (L = 3.167)  
asta 353: Trave in legno a falda Falda 4 fili 164-165 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.179  
Kdef = 0  
Uinst tot in x = -0.0023  
Uinst tot in y = -0.1963  
Uinst tot = 0.1963  
Luce/Uinst,tot < limite  
6.279/0.1963=32 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.179  
Kdef = 0  
Uinst var in x = -0.0018  
Uinst var in y = -0.1295  
Uinst var = 0.1295  
Luce/Uinst,var < limite  
6.279/0.1295=48.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.277  
Kdef = 0.6  
Ufin in x = -0.0027  
Ufin in y = -0.2366  
Ufin = 0.2366  
Luce/Ufin < limite  
6.279/0.2366=26.5 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 8.35 composto da:  
asta 82: Trave in legno a falda Falda 4 fili 169-233 (L = 1.297)  
asta 83: Trave in legno a falda Falda 4 fili 169-233 (L = 1.025)  
asta 84: Trave in legno a falda Falda 4 fili 169-233 (L = 1.025)  
asta 85: Trave in legno a falda Falda 4 fili 169-233 (L = 0.599)  
asta 86: Trave in legno a falda Falda 4 fili 169-233 (L = 0.426)  
asta 87: Trave in legno a falda Falda 4 fili 169-233 (L = 1.025)  
asta 88: Trave in legno a falda Falda 4 fili 169-233 (L = 1.025)  
asta 89: Trave in legno a falda Falda 4 fili 169-233 (L = 1.025)  
asta 90: Trave in legno a falda Falda 4 fili 169-233 (L = 0.605)  
asta 91: Trave in legno a falda Falda 4 fili 169-233 (L = 0.189)  
asta 92: Trave in legno a falda Falda 4 fili 169-233 (L = 0.109)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.626  
Kdef = 0  
Uinst tot in x = 0.0296  
Uinst tot in y = -0.1117  
Uinst tot = 0.1117  
Luce/Uinst,tot < limite  
8.35/0.1117=74.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.626



Kdef = 0  
Uinst var in x = 0.0189  
Uinst var in y = -0.0734  
Uinst var = 0.0734  
Luce/Uinst,var < limite  
8.35/0.0734=113.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.738  
Kdef = 0.6  
Ufin in x = 0.0359  
Ufin in y = -0.1347  
Ufin = 0.1347  
Luce/Ufin < limite  
8.35/0.1347=62 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 172-174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.279 composto da:  
asta 272: Trave in legno a falda Falda 4 fili 172-173 (L = 2.968)  
asta 350: Trave in legno a falda Falda 4 fili 173-174 (L = 3.167)  
asta 351: Trave in legno a falda Falda 4 fili 173-174 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.179  
Kdef = 0  
Uinst tot in x = -0.0022  
Uinst tot in y = -0.184  
Uinst tot = 0.184  
Luce/Uinst,tot < limite  
6.279/0.184=34.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.179  
Kdef = 0  
Uinst var in x = -0.0018  
Uinst var in y = -0.1213  
Uinst var = 0.1213  
Luce/Uinst,var < limite  
6.279/0.1213=51.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.277  
Kdef = 0.6  
Ufin in x = -0.0024  
Ufin in y = -0.2218  
Ufin = 0.2218  
Luce/Ufin < limite  
6.279/0.2218=28.3 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000





## Superelemento in legno a "Falda 4" 181-183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 5.303$  composto da:

asta 289: Trave in legno a falda Falda 4 fili 181-182 ( $L = 1.992$ )

asta 368: Trave in legno a falda Falda 4 fili 182-183 ( $L = 3.167$ )

asta 369: Trave in legno a falda Falda 4 fili 182-183 ( $L = 0.144$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.414

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.0018$

$U_{inst\ tot\ in\ y} = -0.1335$

$U_{inst\ tot} = 0.1335$

$Luce/U_{inst,tot} < \text{limite}$

$5.303/0.1335=39.7 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.414

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.0014$

$U_{inst\ var\ in\ y} = -0.0881$

$U_{inst\ var} = 0.0881$

$Luce/U_{inst,var} < \text{limite}$

$5.303/0.0881=60.2 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.48

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.002$

$U_{fin\ in\ y} = -0.1619$

$U_{fin} = 0.1619$

$Luce/U_{fin} < \text{limite}$

$5.303/0.1619=32.8 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 188-190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.532$  composto da:

asta 288: Trave in legno a falda Falda 4 fili 188-189 ( $L = 1.221$ )

asta 366: Trave in legno a falda Falda 4 fili 189-190 ( $L = 3.167$ )

asta 367: Trave in legno a falda Falda 4 fili 189-190 ( $L = 0.144$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.854



Kdef = 0  
Uinst tot in x = -0.0013  
Uinst tot in y = -0.0874  
Uinst tot = 0.0874  
Luce/Uinst,tot < limite  
4.532/0.0874=51.9 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.854  
Kdef = 0  
Uinst var in x = -0.001  
Uinst var in y = -0.0576  
Uinst var = 0.0576  
Luce/Uinst,var < limite  
4.532/0.0576=78.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.895  
Kdef = 0.6  
Ufin in x = -0.0014  
Ufin in y = -0.1064  
Ufin = 0.1064  
Luce/Ufin < limite  
4.532/0.1064=42.6 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 195-197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 3.761 composto da:  
asta 287: Trave in legno a falda Falda 4 fili 195-196 (L = 0.45)  
asta 364: Trave in legno a falda Falda 4 fili 196-197 (L = 3.167)  
asta 365: Trave in legno a falda Falda 4 fili 196-197 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.506  
Kdef = 0  
Uinst tot in x = -0.0006  
Uinst tot in y = -0.0467  
Uinst tot = 0.0467  
Luce/Uinst,tot < limite  
3.761/0.0467=80.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.506  
Kdef = 0  
Uinst var in x = -0.0005  
Uinst var in y = -0.0307  
Uinst var = 0.0307  
Luce/Uinst,var < limite  
3.761/0.0307=122.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.521  
Kdef = 0.6  
Ufin in x = -0.0007  
Ufin in y = -0.0568  
Ufin = 0.0568



Luce/Ufin < limite

$3.761/0.0568=66.2 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 205-206

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 2.991$  composto da:

asta 285: Trave in legno a falda Falda 4 fili 205-206 ( $L = 2.846$ )

asta 286: Trave in legno a falda Falda 4 fili 205-206 ( $L = 0.144$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.138

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.0001$

$U_{inst\ tot\ in\ y} = -0.0196$

$U_{inst\ tot} = 0.0196$

Luce/ $U_{inst,tot}$  < limite

$2.991/0.0196=152.3 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.138

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.0001$

$U_{inst\ var\ in\ y} = -0.0129$

$U_{inst\ var} = 0.0129$

Luce/ $U_{inst,var}$  < limite

$2.991/0.0129=232.6 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.138

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.0001$

$U_{fin\ in\ y} = -0.0237$

$U_{fin} = 0.0237$

Luce/ $U_{fin}$  < limite

$2.991/0.0237=126.1 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 214-215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 2.22$  composto da:

asta 283: Trave in legno a falda Falda 4 fili 214-215 ( $L = 2.076$ )

asta 284: Trave in legno a falda Falda 4 fili 214-215 ( $L = 0.144$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.83  
Kdef = 0  
Uinst tot in x = -0.0003  
Uinst tot in y = -0.007  
Uinst tot = 0.007  
Luce/Uinst,tot > limite  
2.22/0.007=315.3 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.83  
Kdef = 0  
Uinst var in x = -0.0002  
Uinst var in y = -0.0046  
Uinst var = 0.0046  
Luce/Uinst,var > limite  
2.22/0.0046=481.8 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.83  
Kdef = 0.6  
Ufin in x = -0.0003  
Ufin in y = -0.0085  
Ufin = 0.0085  
Luce/Ufin > limite  
2.22/0.0085=261.1 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 221-222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 1.449 composto da:  
asta 281: Trave in legno a falda Falda 4 fili 221-222 (L = 1.305)  
asta 282: Trave in legno a falda Falda 4 fili 221-222 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.478  
Kdef = 0  
Uinst tot in x = -0.0002  
Uinst tot in y = -0.0022  
Uinst tot = 0.0022  
Luce/Uinst,tot > limite  
1.449/0.0022=650.7 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.478  
Kdef = 0  
Uinst var in x = -0.0002  
Uinst var in y = -0.0015  
Uinst var = 0.0015  
Luce/Uinst,var > limite  
1.449/0.0015=988.6 > 300 Comb: SLE rara, 8



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.478

Kdef = 0.6

Ufin in x = -0.0003

Ufin in y = -0.0027

Ufin = 0.0027

Luce/Ufin > limite

1.449/0.0027=539.8 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 230-231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 0.679 composto da:

asta 279: Trave in legno a falda Falda 4 fili 230-231 (L = 0.534)

asta 280: Trave in legno a falda Falda 4 fili 230-231 (L = 0.144)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.214

Kdef = 0

Uinst tot in x = -0.0001

Uinst tot in y = -0.0009

Uinst tot = 0.0009

Luce/Uinst,tot > limite

0.679/0.0009=714.7 > 300 Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.214

Kdef = 0

Uinst var in x = -0.0001

Uinst var in y = -0.0006

Uinst var = 0.0006

Luce/Uinst,var > limite

0.679/0.0006=1074.6 > 300 Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.231

Kdef = 0.6

Ufin in x = -0.0002

Ufin in y = -0.0011

Ufin = 0.0011

Luce/Ufin > limite

0.679/0.0011=594.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 5" 241-287

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 5.468 composto da:

asta 251: Trave in legno a falda Falda 5 fili 241-287 (L = 5.236)

asta 252: Trave in legno a falda Falda 5 fili 241-287 (L = 0.232)



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.92

Kdef = 0

Uinst tot in x = -0.0013

Uinst tot in y = -0.0066

Uinst tot = 0.0066

Luce/Uinst,tot > limite

5.468/0.0066=824.4 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.745

Kdef = 0

Uinst var in x = -0.001

Uinst var in y = -0.0037

Uinst var = 0.0037

Luce/Uinst,var > limite

5.468/0.0037=1469.5 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.92

Kdef = 0.6

Ufin in x = -0.0016

Ufin in y = -0.0084

Ufin = 0.0084

Luce/Ufin > limite

5.468/0.0084=650.8 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 5" 241-(373; 989)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 7.11 composto da:

asta 67: Trave in legno a falda Falda 5 fili 241-279 (L = 0.743)

asta 68: Trave in legno a falda Falda 5 fili 241-279 (L = 1.037)

asta 69: Trave in legno a falda Falda 5 fili 241-279 (L = 1.043)

asta 70: Trave in legno a falda Falda 5 fili 241-279 (L = 1.167)

asta 71: Trave in legno a falda Falda 5 fili 241-279 (L = 0.909)

asta 72: Trave in legno a falda Falda 5 fili 241-279 (L = 1.028)

asta 73: Trave in legno a falda Falda 5 fili 241-279 (L = 1.183)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.368

Kdef = 0

Uinst tot in x = 0.0119

Uinst tot in y = -0.0405



Uinst tot = 0.0405  
Luce/Uinst,tot < limite  
7.11/0.0405=175.5 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.368  
Kdef = 0  
Uinst var in x = 0.0077  
Uinst var in y = -0.0265  
Uinst var = 0.0265  
Luce/Uinst,var < limite  
7.11/0.0265=267.8 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.462  
Kdef = 0.6  
Ufin in x = 0.0145  
Ufin in y = -0.0489  
Ufin = 0.0489  
Luce/Ufin < limite  
7.11/0.0489=145.4 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 5" 244-286

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 4.919 composto da:  
asta 234: Trave in legno a falda Falda 5 fili 244-286 (L = 4.687)  
asta 235: Trave in legno a falda Falda 5 fili 244-286 (L = 0.232)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.718  
Kdef = 0  
Uinst tot in x = 0.0019  
Uinst tot in y = -0.0022  
Uinst tot = 0.0022  
Luce/Uinst,tot > limite  
4.919/0.0022=2264.8 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.749  
Kdef = 0  
Uinst var in x = 0.0012  
Uinst var in y = -0.0009  
Uinst var = 0.0012  
Luce/Uinst,var > limite  
4.919/0.0012=4003 > 300 Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.875  
Kdef = 0.6  
Ufin in x = 0.0023  
Ufin in y = -0.0029  
Ufin = 0.0029  
Luce/Ufin > limite  
4.919/0.0029=1686.7 > 200  
Coefficienti combinatori impiegati:



Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 5" 245-288

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.922$  composto da:  
asta 253: Trave in legno a falda Falda 5 fili 245-288 ( $L = 4.69$ )  
asta 254: Trave in legno a falda Falda 5 fili 245-288 ( $L = 0.232$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.72  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = -0.0045$   
 $U_{inst\ tot\ in\ y} = -0.0059$   
 $U_{inst\ tot} = 0.0059$   
Luce/ $U_{inst,tot} >$  limite  
 $4.922/0.0059 = 837.6 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.563  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.003$   
 $U_{inst\ var\ in\ y} = -0.0032$   
 $U_{inst\ var} = 0.0032$   
Luce/ $U_{inst,var} >$  limite  
 $4.922/0.0032 = 1516.3 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.72  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = -0.0054$   
 $U_{fin\ in\ y} = -0.0075$   
 $U_{fin} = 0.0075$   
Luce/ $U_{fin} >$  limite  
 $4.922/0.0075 = 657.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 5" 250-285

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.156$  composto da:  
asta 232: Trave in legno a falda Falda 5 fili 250-285 ( $L = 3.923$ )  
asta 233: Trave in legno a falda Falda 5 fili 250-285 ( $L = 0.232$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300





Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.915  
Kdef = 0  
Uinst tot in x = -0.0023  
Uinst tot in y = 0.0012  
Uinst tot = 0.0023  
Luce/Uinst,tot > limite  
4.156/0.0023=1786.9 > 300 Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.915  
Kdef = 0  
Uinst var in x = -0.0015  
Uinst var in y = 0.001  
Uinst var = 0.0015  
Luce/Uinst,var > limite  
4.156/0.0015=2833.2 > 300 Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.915  
Kdef = 0.6  
Ufin in x = -0.0028  
Ufin in y = 0.0013  
Ufin = 0.0028  
Luce/Ufin > limite  
4.156/0.0028=1461.4 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 5" 251-289

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 4.16 composto da:  
asta 255: Trave in legno a falda Falda 5 fili 251-289 (L = 3.928)  
asta 256: Trave in legno a falda Falda 5 fili 251-289 (L = 0.232)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.916  
Kdef = 0  
Uinst tot in x = 0.0045  
Uinst tot in y = -0.004  
Uinst tot = 0.0045  
Luce/Uinst,tot > limite  
4.16/0.0045=916.9 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.916  
Kdef = 0  
Uinst var in x = 0.003  
Uinst var in y = -0.0023  
Uinst var = 0.003  
Luce/Uinst,var > limite  
4.16/0.003=1405.6 > 300 Comb: SLE rara, 9



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.916

Kdef = 0.6

Ufin in x = 0.0055

Ufin in y = -0.005

Ufin = 0.0055

Luce/Ufin > limite

4.16/0.0055=758.6 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 5" 256-284

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.392 composto da:

asta 230: Trave in legno a falda Falda 5 fili 256-284 (L = 3.16)

asta 231: Trave in legno a falda Falda 5 fili 256-284 (L = 0.232)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.318

Kdef = 0

Uinst tot in x = -0.0017

Uinst tot in y = 0.0029

Uinst tot = 0.0029

Luce/Uinst,tot > limite

3.392/0.0029=1158 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.212

Kdef = 0

Uinst var in x = -0.0011

Uinst var in y = 0.0022

Uinst var = 0.0022

Luce/Uinst,var > limite

3.392/0.0022=1563.7 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.318

Kdef = 0.6

Ufin in x = -0.0021

Ufin in y = 0.0034

Ufin = 0.0034

Luce/Ufin > limite

3.392/0.0034=999.1 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 5" 257-290

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Superelemento di lunghezza complessiva L= 3.404 composto da:

asta 257: Trave in legno a falda Falda 5 fili 257-290 (L = 3.171)

asta 258: Trave in legno a falda Falda 5 fili 257-290 (L = 0.233)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.74

Kdef = 0

Uinst tot in x = 0.0032

Uinst tot in y = 0.0026

Uinst tot = 0.0032

Luce/Uinst,tot > limite

3.404/0.0032=1079.5 > 300 Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.74

Kdef = 0

Uinst var in x = 0.0021

Uinst var in y = 0.0019

Uinst var = 0.0021

Luce/Uinst,var > limite

3.404/0.0021=1657.5 > 300 Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.74

Kdef = 0.6

Ufin in x = 0.0038

Ufin in y = -0.0032

Ufin = 0.0038

Luce/Ufin > limite

3.404/0.0038=892.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 5" 262-283

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.629 composto da:

asta 228: Trave in legno a falda Falda 5 fili 262-283 (L = 2.396)

asta 229: Trave in legno a falda Falda 5 fili 262-283 (L = 0.232)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.758

Kdef = 0

Uinst tot in x = -0.0005

Uinst tot in y = 0.0024

Uinst tot = 0.0024

Luce/Uinst,tot > limite



2.629/0.0024=1104.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.758

Kdef = 0

Uinst var in x = -0.0003

Uinst var in y = 0.0017

Uinst var = 0.0017

Luce/Uinst,var > limite

2.629/0.0017=1541.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.758

Kdef = 0.6

Ufin in x = -0.0006

Ufin in y = 0.0028

Ufin = 0.0028

Luce/Ufin > limite

2.629/0.0028=941.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 5" 263-291

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.642 composto da:

asta 259: Trave in legno a falda Falda 5 fili 263-291 (L = 2.409)

asta 260: Trave in legno a falda Falda 5 fili 263-291 (L = 0.233)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.008

Kdef = 0

Uinst tot in x = 0.0012

Uinst tot in y = 0.0027

Uinst tot = 0.0027

Luce/Uinst,tot > limite

2.642/0.0027=971.5 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.008

Kdef = 0

Uinst var in x = 0.0008

Uinst var in y = 0.0018

Uinst var = 0.0018

Luce/Uinst,var > limite

2.642/0.0018=1432.9 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.008

Kdef = 0.6

Ufin in x = 0.0015

Ufin in y = 0.0032

Ufin = 0.0032

Luce/Ufin > limite

2.642/0.0032=814.2 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600



Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 5" 267-282

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 1.866 composto da:

asta 226: Trave in legno a falda Falda 5 fili 267-282 (L = 1.634)

asta 227: Trave in legno a falda Falda 5 fili 267-282 (L = 0.232)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.307

Kdef = 0

Uinst tot in x = -0.0001

Uinst tot in y = 0.0012

Uinst tot = 0.0012

Luce/Uinst,tot > limite

1.866/0.0012=1555 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.253

Kdef = 0

Uinst var in x = -0.0001

Uinst var in y = 0.0009

Uinst var = 0.0009

Luce/Uinst,var > limite

1.866/0.0009=2184.5 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.307

Kdef = 0.6

Ufin in x = -0.0003

Ufin in y = 0.0014

Ufin = 0.0014

Luce/Ufin > limite

1.866/0.0014=1316.8 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 5" 268-292

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 1.881 composto da:

asta 261: Trave in legno a falda Falda 5 fili 268-292 (L = 1.648)

asta 262: Trave in legno a falda Falda 5 fili 268-292 (L = 0.233)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.373

Kdef = 0

Uinst tot in x = 0.0003

Uinst tot in y = 0.0017

Uinst tot = 0.0017

Luce/Uinst,tot > limite

1.881/0.0017=1138.2 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.373

Kdef = 0

Uinst var in x = 0.0002

Uinst var in y = 0.0011

Uinst var = 0.0011

Luce/Uinst,var > limite

1.881/0.0011=1736.6 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.373

Kdef = 0.6

Ufin in x = 0.0006

Ufin in y = 0.002

Ufin = 0.002

Luce/Ufin > limite

1.881/0.002=943.2 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 5" 271-281

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.086 composto da:

asta 224: Trave in legno a falda Falda 5 fili 271-281 (L = 0.854)

asta 225: Trave in legno a falda Falda 5 fili 271-281 (L = 0.232)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.74

Kdef = 0

Uinst tot in x = -0.0002

Uinst tot in y = 0.0005

Uinst tot = 0.0005

Luce/Uinst,tot > limite

1.086/0.0005=2204.1 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.712

Kdef = 0

Uinst var in x = -0.0001

Uinst var in y = 0.0003

Uinst var = 0.0003

Luce/Uinst,var > limite

1.086/0.0003=3194.7 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.74

Kdef = 0.6



Ufin in x = -0.0003  
Ufin in y = 0.0006  
Ufin = 0.0006  
Luce/Ufin > limite  
 $1.086/0.0006=1856 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 5" 272-293

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 1.12 composto da:  
asta 263: Trave in legno a falda Falda 5 fili 272-293 (L = 0.886)  
asta 264: Trave in legno a falda Falda 5 fili 272-293 (L = 0.233)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.768  
Kdef = 0  
Uinst tot in x = 0.0003  
Uinst tot in y = 0.0008  
Uinst tot = 0.0008  
Luce/Uinst,tot > limite  
 $1.12/0.0008=1461.1 > 300$  Comb: SLE rara, 16

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.798  
Kdef = 0  
Uinst var in x = 0.0002  
Uinst var in y = 0.0005  
Uinst var = 0.0005  
Luce/Uinst,var > limite  
 $1.12/0.0005=2318.1 > 300$  Comb: SLE rara, 16

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.768  
Kdef = 0.6  
Ufin in x = 0.0006  
Ufin in y = 0.0009  
Ufin = 0.0009  
Luce/Ufin > limite  
 $1.12/0.0009=1194.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 5" (-456; 87)-(375; -693)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 6.657 composto da:  
asta 58: Trave in legno a falda Falda 5 fili 241-277 (L = 0.577)  
asta 59: Trave in legno a falda Falda 5 fili 241-277 (L = 0.122)  
asta 60: Trave in legno a falda Falda 5 fili 241-277 (L = 0.87)



asta 61: Trave in legno a falda Falda 5 fili 241-277 (L = 0.992)  
asta 62: Trave in legno a falda Falda 5 fili 241-277 (L = 0.59)  
asta 63: Trave in legno a falda Falda 5 fili 241-277 (L = 0.42)  
asta 64: Trave in legno a falda Falda 5 fili 241-277 (L = 0.986)  
asta 65: Trave in legno a falda Falda 5 fili 241-277 (L = 0.994)  
asta 66: Trave in legno a falda Falda 5 fili 241-277 (L = 1.105)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.073

Kdef = 0

Uinst tot in x = -0.0047

Uinst tot in y = -0.0198

Uinst tot = 0.0198

Luce/Uinst,tot > limite

6.657/0.0198=337 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.073

Kdef = 0

Uinst var in x = -0.0027

Uinst var in y = -0.0127

Uinst var = 0.0127

Luce/Uinst,var > limite

6.657/0.0127=523.1 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.139

Kdef = 0.6

Ufin in x = -0.0058

Ufin in y = -0.024

Ufin = 0.024

Luce/Ufin > limite

6.657/0.024=277.6 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 6" 177-(-95; 1037)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 7.196 composto da:

asta 74: Trave in legno a falda Falda 6 fili 177-240 (L = 1.272)

asta 75: Trave in legno a falda Falda 6 fili 177-240 (L = 1.042)

asta 76: Trave in legno a falda Falda 6 fili 177-240 (L = 1.042)

asta 77: Trave in legno a falda Falda 6 fili 177-240 (L = 0.633)

asta 78: Trave in legno a falda Falda 6 fili 177-240 (L = 0.409)

asta 79: Trave in legno a falda Falda 6 fili 177-240 (L = 1.042)

asta 80: Trave in legno a falda Falda 6 fili 177-240 (L = 1.042)

asta 81: Trave in legno a falda Falda 6 fili 177-240 (L = 0.712)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno





Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 3.8

Kdef = 0

Uinst tot in x = 0.0089

Uinst tot in y = -0.028

Uinst tot = 0.028

Luce/Uinst,tot < limite

7.196/0.028=257.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 3.8

Kdef = 0

Uinst var in x = 0.0056

Uinst var in y = -0.0179

Uinst var = 0.0179

Luce/Uinst,var > limite

7.196/0.0179=403.1 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 3.912

Kdef = 0.6

Ufin in x = 0.0109

Ufin in y = -0.0341

Ufin = 0.0341

Luce/Ufin > limite

7.196/0.0341=211.3 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 6" 186-187

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 0.969 composto da:

Asta 271: Trave in legno a falda Falda 6 fili 186-187

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.291

Kdef = 0

Uinst tot in x = 0.0001

Uinst tot in y = 0.0006

Uinst tot = 0.0006

Luce/Uinst,tot > limite

0.969/0.0006=1725.9 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.291

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0.0003

Uinst var = 0.0003

Luce/Uinst,var > limite

0.969/0.0003=2802.8 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.291

Kdef = 0.6

Ufin in x = 0.0001



Ufin in y = 0.0007

Ufin = 0.0007

Luce/Ufin > limite

$0.969/0.0007=1403 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 6" 193-194

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 1.763 composto da:

Asta 270: Trave in legno a falda Falda 6 fili 193-194

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.351

Kdef = 0

Uinst tot in x = 0.0002

Uinst tot in y = -0.0008

Uinst tot = 0.0008

Luce/Uinst,tot > limite

$1.763/0.0008=2119.8 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.351

Kdef = 0

Uinst var in x = 0.0001

Uinst var in y = -0.0005

Uinst var = 0.0005

Luce/Uinst,var > limite

$1.763/0.0005=3288.4 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.351

Kdef = 0.6

Ufin in x = 0.0002

Ufin in y = -0.001

Ufin = 0.001

Luce/Ufin > limite

$1.763/0.001=1738.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 6" 203-204

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 2.556 composto da:

Asta 269: Trave in legno a falda Falda 6 fili 203-204

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016



$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.789

Kdef = 0

Uinst tot in x = 0.0003

Uinst tot in y = -0.0045

Uinst tot = 0.0045

Luce/Uinst,tot > limite

2.556/0.0045=564.9 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.789

Kdef = 0

Uinst var in x = 0.0002

Uinst var in y = -0.0029

Uinst var = 0.0029

Luce/Uinst,var > limite

2.556/0.0029=890.3 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.789

Kdef = 0.6

Ufin in x = 0.0003

Ufin in y = -0.0055

Ufin = 0.0055

Luce/Ufin > limite

2.556/0.0055=463 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 6" 209-(217; 377)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 5.077 composto da:

asta 131: Trave in legno a falda Falda 6 fili 209-265 (L = 0.941)

asta 132: Trave in legno a falda Falda 6 fili 209-265 (L = 0.676)

asta 133: Trave in legno a falda Falda 6 fili 209-265 (L = 0.676)

asta 134: Trave in legno a falda Falda 6 fili 209-265 (L = 0.676)

asta 135: Trave in legno a falda Falda 6 fili 209-265 (L = 0.676)

asta 136: Trave in legno a falda Falda 6 fili 209-265 (L = 0.676)

asta 137: Trave in legno a falda Falda 6 fili 209-265 (L = 0.758)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	0.18	0.23	0.0414	0.000182505	0.00011178	0.001587	0.001242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.765

Kdef = 0

Uinst tot in x = 0.0073

Uinst tot in y = -0.0169

Uinst tot = 0.0169

Luce/Uinst,tot < limite

5.077/0.0169=299.9 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.787

Kdef = 0



Uinst var in x = 0.005  
Uinst var in y = -0.0112  
Uinst var = 0.0112  
Luce/Uinst,var > limite  
 $5.077/0.0112=452.3 > 300$  Comb: SLE rara, 17  
**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 2.841  
Kdef = 0.6  
Ufin in x = 0.0086  
Ufin in y = -0.0202  
Ufin = 0.0202  
Luce/Ufin > limite  
 $5.077/0.0202=251.6 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 6" 212-213

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 3.35 composto da:  
Asta 268: Trave in legno a falda Falda 6 fili 212-213

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.233  
Kdef = 0  
Uinst tot in x = -0.0001  
Uinst tot in y = -0.0105  
Uinst tot = 0.0105  
Luce/Uinst,tot > limite  
 $3.35/0.0105=319 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.233  
Kdef = 0  
Uinst var in x = -0.0001  
Uinst var in y = -0.0066  
Uinst var = 0.0066  
Luce/Uinst,var > limite  
 $3.35/0.0066=510.5 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.233  
Kdef = 0.6  
Ufin in x = -0.0001  
Ufin in y = -0.0129  
Ufin = 0.0129  
Luce/Ufin > limite  
 $3.35/0.0129=260.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$



## Superelemento in legno a "Falda 6" 218-220

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.144$  composto da:

asta 267: Trave in legno a falda Falda 6 fili 218-219 ( $L = 3.039$ )

asta 416: Trave in legno a falda Falda 6 fili 219-220 ( $L = 1.105$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.532

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.0004$

$U_{inst\ tot\ in\ y} = -0.0299$

$U_{inst\ tot} = 0.0299$

$Luce/U_{inst,tot} < \text{limite}$

$4.144/0.0299 = 138.7 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.532

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.0003$

$U_{inst\ var\ in\ y} = -0.0192$

$U_{inst\ var} = 0.0192$

$Luce/U_{inst,var} < \text{limite}$

$4.144/0.0192 = 215.7 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.43

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.0004$

$U_{fin\ in\ y} = -0.0363$

$U_{fin} = 0.0363$

$Luce/U_{fin} < \text{limite}$

$4.144/0.0363 = 114.1 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 6" 227-229

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 4.937$  composto da:

asta 266: Trave in legno a falda Falda 6 fili 227-228 ( $L = 3.039$ )

asta 415: Trave in legno a falda Falda 6 fili 228-229 ( $L = 1.899$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.734

$K_{def} = 0$



Uinst tot in x = -0.0005  
Uinst tot in y = -0.0446  
Uinst tot = 0.0446  
Luce/Uinst,tot < limite  
4.937/0.0446=110.7 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.734  
Kdef = 0  
Uinst var in x = -0.0004  
Uinst var in y = -0.0288  
Uinst var = 0.0288  
Luce/Uinst,var < limite  
4.937/0.0288=171.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.734  
Kdef = 0.6  
Ufin in x = -0.0006  
Ufin in y = -0.0541  
Ufin = 0.0541  
Luce/Ufin < limite  
4.937/0.0541=91.3 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 6" 238-235

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 5.479 composto da:  
asta 243: Trave in legno a falda Falda 6 fili 238-239 (L = 3.039)  
asta 411: Trave in legno a falda Falda 6 fili 239-240 (L = 2.441)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.835  
Kdef = 0  
Uinst tot in x = 0.0031  
Uinst tot in y = -0.0532  
Uinst tot = 0.0532  
Luce/Uinst,tot < limite  
5.479/0.0532=103 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.835  
Kdef = 0  
Uinst var in x = 0.0013  
Uinst var in y = -0.0346  
Uinst var = 0.0346  
Luce/Uinst,var < limite  
5.479/0.0346=158.3 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.835  
Kdef = 0.6  
Ufin in x = 0.0041  
Ufin in y = -0.0643  
Ufin = 0.0643  
Luce/Ufin < limite



5.479/0.0643=85.2 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 6" 245-(-426; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 4.905 composto da:  
asta 250: Trave in legno a falda Falda 6 fili 245-246 (L = 2.464)  
asta 414: Trave in legno a falda Falda 6 fili 246-247 (L = 2.441)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 2.464

Kdef = 0

Uinst tot in x = -0.0007

Uinst tot in y = -0.0487

Uinst tot = 0.0487

Luce/Uinst,tot < limite

4.905/0.0487=100.7 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 2.464

Kdef = 0

Uinst var in x = -0.0004

Uinst var in y = -0.0319

Uinst var = 0.0319

Luce/Uinst,var < limite

4.905/0.0319=153.8 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 2.547

Kdef = 0.6

Ufin in x = -0.0009

Ufin in y = -0.059

Ufin = 0.059

Luce/Ufin < limite

4.905/0.059=83.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 6" 251-(-359; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 4.117 composto da:  
asta 249: Trave in legno a falda Falda 6 fili 251-252 (L = 1.676)  
asta 413: Trave in legno a falda Falda 6 fili 252-253 (L = 2.441)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.839  
Kdef = 0  
Uinst tot in x = 0.0011  
Uinst tot in y = -0.0361  
Uinst tot = 0.0361  
Luce/Uinst,tot < limite  
4.117/0.0361=114 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.839  
Kdef = 0  
Uinst var in x = 0.0006  
Uinst var in y = -0.0237  
Uinst var = 0.0237  
Luce/Uinst,var < limite  
4.117/0.0237=174 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.895  
Kdef = 0.6  
Ufin in x = 0.0014  
Ufin in y = -0.0441  
Ufin = 0.0441  
Luce/Ufin < limite  
4.117/0.0441=93.4 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 6" 257-(-291; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 3.329 composto da:  
asta 248: Trave in legno a falda Falda 6 fili 257-258 (L = 0.888)  
asta 412: Trave in legno a falda Falda 6 fili 258-259 (L = 2.441)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 1.376  
Kdef = 0  
Uinst tot in x = 0.0012  
Uinst tot in y = -0.0207  
Uinst tot = 0.0207  
Luce/Uinst,tot < limite  
3.329/0.0207=160.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.376  
Kdef = 0  
Uinst var in x = 0.0007  
Uinst var in y = -0.0136  
Uinst var = 0.0136  
Luce/Uinst,var < limite  
3.329/0.0136=245.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA





### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 1.405

Kdef = 0.6

Ufin in x = 0.0015

Ufin in y = -0.0255

Ufin = 0.0255

Luce/Ufin < limite

3.329/0.0255=130.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 6" 263-(-223; 596)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 2.54 composto da:

Asta 247: Trave in legno a falda Falda 6 fili 263-264

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.931

Kdef = 0

Uinst tot in x = 0.0005

Uinst tot in y = -0.0067

Uinst tot = 0.0067

Luce/Uinst,tot > limite

2.54/0.0067=379.5 > 300 Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.931

Kdef = 0

Uinst var in x = 0.0003

Uinst var in y = -0.0043

Uinst var = 0.0043

Luce/Uinst,var > limite

2.54/0.0043=586.3 > 300 Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.931

Kdef = 0.6

Ufin in x = 0.0007

Ufin in y = -0.0081

Ufin = 0.0081

Luce/Ufin > limite

2.54/0.0081=313.2 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 6" 268-(-156; 596)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 1.752 composto da:

Asta 246: Trave in legno a falda Falda 6 fili 268-269



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.584

Kdef = 0

Uinst tot in x = 0.0004

Uinst tot in y = -0.0026

Uinst tot = 0.0026

Luce/Uinst,tot > limite

$1.752/0.0026=669.8 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.584

Kdef = 0

Uinst var in x = 0.0002

Uinst var in y = -0.0017

Uinst var = 0.0017

Luce/Uinst,var > limite

$1.752/0.0017=1039.3 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.584

Kdef = 0.6

Ufin in x = 0.0005

Ufin in y = -0.0032

Ufin = 0.0032

Luce/Ufin > limite

$1.752/0.0032=552.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 6" 272-(-88; 597)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 0.964 composto da:

Asta 245: Trave in legno a falda Falda 6 fili 272-273

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	0.08	0.1	0.008	0.0000066667	0.0000042667	0.00013333	0.00010667

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 0.289

Kdef = 0

Uinst tot in x = -0.0001

Uinst tot in y = -0.0007

Uinst tot = 0.0007

Luce/Uinst,tot > limite

$0.964/0.0007=1326.3 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 0.289

Kdef = 0

Uinst var in x = -0.0001



Uinst var in y = -0.0005

Uinst var = 0.0005

Luce/Uinst,var > limite

$0.964/0.0005=2080.8 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 0.289

Kdef = 0.6

Ufin in x = 0.0002

Ufin in y = -0.0009

Ufin = 0.0009

Luce/Ufin > limite

$0.964/0.0009=1088.9 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

## 2.4 Verifica sismica globale

**Desc.:** descrizione.

**Stato limite:** (muratura) V=Taglio; PF=Pressoflessione; PFFP=Pressoflessione fuori piano; R=Ribaltamento.

**Molt.:** moltiplicatore minimo della azione sismica che produce lo stato limite.

**Comb.:** combinazione.

**PGA:** accelerazione al suolo.

**iPGA (ZE):** indicatore di rischio sismico in termini di PGA ovvero rapporto tra l'azione sismica massima sopportabile dall'elemento e l'azione sismica massima che si utilizzerebbe nel progetto nuovo (§C8.3).

**TR:** tempo di ritorno.

**(TR/TRrif)^.41:** indicatore di rischio sismico in termini di periodo di ritorno.

**fa:** fattore di accelerazione.

**Stato limite:** (muratura) V=Taglio; PF=Presso flessione; PFFP=Pressoflessione fuori piano; R=Ribaltamento.

**Coeff.s.:** coefficiente minimo prodotto dallo stato limite.

**Verifica:** stato di verifica.

**Maschio:** maschio.

**Stato limite:** (maschio muratura) V=Taglio; PF=Presso flessione; PFFP=Presso flessione fuori piano; R=Ribaltamento.

**Trave:** trave di collegamento in muratura.

**Stato limite:** (trave muratura) V=Taglio; F=Flessione.

**S. L.:** stato limite di riferimento.

**TR,C:** periodo di ritorno di capacità.

**PGA,C:** accelerazione di aggancio di capacità.

**TR,Rif:** periodo di ritorno di riferimento.

**PGA,Rif:** accelerazione di aggancio di riferimento.

**Tipo rottura:** tipo di rottura che fornisce il valore minimo degli elementi considerati.

**PAM:** perdita media annua attesa.

**Classe PAM:** classe di rischio PAM.

**IS-V:** indice di sicurezza.

**Classe IS-V:** classe di rischio IS-V.

### Verifica di elementi dotati di indicatori di rischio sismico mediante analisi con fattore q

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.) § C8.7.1

#### Accelerazioni e tempi di ritorno

Accelerazione di aggancio SLO (ag/g\_SLO\*S\*ST) PGA,SLOrif = 0.081

Accelerazione di aggancio SLD (ag/g\_SLD\*S\*ST) PGA,SLDrif = 0.101

Accelerazione di aggancio SLV (ag/g\_SLV\*S\*ST) PGA,SLVrif = 0.244

Tr,SLOrif = 30 anni

Tr,SLDrif = 50 anni

Tr,SLVrif = 475 anni

#### Moltiplicatori minimi delle condizioni sismiche

(Il valore di ZE corrisponde al valore di I.R. PGA secondo quanto riportato nella Circolare 7 21-01-19 §C8.3)

#### Rottura a taglio

Moltiplicatore: 0

Maschio 19

Lunghezza: 0.304; altezza: 2.7; spessore: 0.3; sezione a quota: 1.11

Combinazione SLV 1 N= 0.23 V par.= 0.23 I'= 0 fvd= 83 Vt scorrimento= 0 Vt fess. diag.= 0

Tempo di ritorno 0 anni



Indicatore  $iTr = (Tr/Tr,SLVrif)^{.41} = 0$

PGA 0

Indicatore  $iPGA = PGA/PGA,SLVrif = 0$

Fattore di accelerazione  $fa = 0$

#### Rottura a flessione

Moltiplicatore: 0

Maschio 19

Lunghezza: 0.304; altezza: 2.7; spessore: 0.3 sezione a quota 1.11

Combinazione SLV 1 N = 0.23 M = -0.0616  $\sigma_0 = 0$  fd = 1438 Mu = 0

Tempo di ritorno 0 anni

Indicatore  $iTr = (Tr/Tr,SLVrif)^{.41} = 0$

PGA 0

Indicatore  $iPGA = PGA/PGA,SLVrif = 0$

Fattore di accelerazione  $fa = 0$

#### Rottura a pressoflessione nel piano ortogonale

Moltiplicatore: 0.065

Maschio 189

Lunghezza: 0.36; altezza: 3.16; spessore: 0.14; sezione a quota: 13.45

Combinazione SLV 11 fd= 1438 Ta= 0.12 Wa= 3 N= -0.21 M= 0.0142 Mc= 0.0147

Tempo di ritorno 0 anni

Indicatore  $iTr = (Tr/Tr,SLVrif)^{.41} = 0$

PGA 0

Indicatore  $iPGA = PGA/PGA,SLVrif = 0$

Fattore di accelerazione  $fa = 0$

#### Rottura per meccanismi locali di collasso

Moltiplicatore: 0

Maschio 19

Lunghezza: 0.304; altezza: 2.7; spessore: 0.3 f.agg.= 0 a.lim.= 0

Combinazione SLV 1 N top= 0.23 N base= -2.05 T orto= -0.02  $\alpha_0 = 0$  M\*= 0 e\*= 0 a0\*= 0

Tempo di ritorno 0 anni

Indicatore  $iTr = (Tr/Tr,SLVrif)^{.41} = 0$

PGA 0

Indicatore  $iPGA = PGA/PGA,SLVrif = 0$

Fattore di accelerazione  $fa = 0$

#### Indicatori minimi riferiti al solo materiale muratura

Desc.	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	$(Tr/TRrif)^{.41}$	fa
Maschio 19	PF	0	SLV 1	0	0	0	0	0
Maschio 19	V	0	SLV 1	0	0	0	0	0
Maschio 189	PFFP	0.065	SLV 11	0	0	0	0	0
Maschio 19	R	0	SLV 1	0	0	0	0	0
Trave di accoppiamento 10	PF	0	SLV 1	0	0	0	0	0
Trave di accoppiamento 1	V	0	SLV 1	0	0	0	0	0

#### Coefficienti di sicurezza riferiti al solo materiale muratura

Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 1	PF SLU	3.412	SLU 83	Si
Maschio 1	V SLU	1.546	SLU 76	Si
Maschio 1	PF	1.44	SLV 11	Si
Maschio 1	V	0.625	SLV 9	No
Maschio 1	PFFP	6.92	SLV 15	Si
Maschio 1	R	0.322	SLV 5	No
Maschio 2	PF SLU	2.961	SLU 83	Si
Maschio 2	V SLU	1.398	SLU 83	Si
Maschio 2	PF	0	SLV 13	No
Maschio 2	V	0	SLV 13	No
Maschio 2	PFFP	7.32	SLV 13	Si
Maschio 2	R	0.215	SLV 11	No
Maschio 3	PF SLU	1.165	SLU 48	Si
Maschio 3	V SLU	6.412	SLU 38	Si
Maschio 3	PF	0	SLD 1	No
Maschio 3	V	0	SLD 1	No
Maschio 3	PFFP	4.276	SLV 5	Si
Maschio 3	R	0	SLV 12	No
Maschio 4	PF SLU	4.054	SLU 77	Si
Maschio 4	V SLU	3.886	SLU 77	Si
Maschio 4	PF	1.66	SLV 13	Si
Maschio 4	V	0.38	SLV 13	No
Maschio 4	PFFP	20.461	SLV 9	Si
Maschio 4	R	0.183	SLV 9	No
Maschio 5	PF SLU	13.513	SLU 83	Si
Maschio 5	V SLU	2.942	SLU 77	Si
Maschio 5	PF	1.101	SLV 5	Si
Maschio 5	V	0.425	SLV 5	No
Maschio 5	PFFP	31.798	SLV 9	Si
Maschio 5	R	0	SLV 5	No
Maschio 6	PF SLU	16.877	SLU 44	Si
Maschio 6	V SLU	10.848	SLU 51	Si
Maschio 6	PF	1.085	SLV 9	Si
Maschio 6	V	0.402	SLV 9	No
Maschio 6	PFFP	29.883	SLV 9	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 6	R	0.192	SLV 7	No
Maschio 7	PF SLU	0	SLU 81	No
Maschio 7	V SLU	1.245	SLU 83	Si
Maschio 7	PF	0.671	SLV 11	No
Maschio 7	V	0.795	SLV 7	No
Maschio 7	PFFP	24.599	SLV 5	Si
Maschio 7	R	0.163	SLV 3	No
Maschio 8	PF SLU	0	SLU 2	No
Maschio 8	V SLU	0	SLU 2	No
Maschio 8	PF	0	SLV 10	No
Maschio 8	V	0	SLD 1	No
Maschio 8	PFFP	6.637	SLV 7	Si
Maschio 8	R	0	SLV 12	No
Maschio 9	PF SLU	2.056	SLU 44	Si
Maschio 9	V SLU	1.723	SLU 47	Si
Maschio 9	PF	1.529	SLV 13	Si
Maschio 9	V	0.433	SLV 15	No
Maschio 9	PFFP	14.956	SLV 11	Si
Maschio 9	R	0.193	SLV 11	No
Maschio 10	PF SLU	0.76	SLU 84	No
Maschio 10	V SLU	1.55	SLU 73	Si
Maschio 10	PF	1.252	SLV 13	Si
Maschio 10	V	0.39	SLV 13	No
Maschio 10	PFFP	33.439	SLV 3	Si
Maschio 10	R	0	SLV 4	No
Maschio 11	PF SLU	1.136	SLU 84	Si
Maschio 11	V SLU	1.243	SLU 82	Si
Maschio 11	PF	0	SLV 13	No
Maschio 11	V	0	SLV 13	No
Maschio 11	PFFP	34.937	SLV 3	Si
Maschio 11	R	0.185	SLV 11	No
Maschio 12	PF SLU	4.362	SLU 77	Si
Maschio 12	V SLU	2.382	SLU 52	Si
Maschio 12	PF	1.897	SLV 7	Si
Maschio 12	V	0.586	SLV 11	No
Maschio 12	PFFP	15.31	SLV 7	Si
Maschio 12	R	0.1	SLV 9	No
Maschio 13	PF SLU	0.95	SLU 84	No
Maschio 13	V SLU	1.653	SLU 81	Si
Maschio 13	PF	0	SLV 12	No
Maschio 13	V	0	SLD 7	No
Maschio 13	PFFP	1.495	SLV 11	Si
Maschio 13	R	0	SLV 12	No
Maschio 14	PF SLU	4.153	SLU 84	Si
Maschio 14	V SLU	2.199	SLU 84	Si
Maschio 14	PF	0	SLV 11	No
Maschio 14	V	0	SLV 11	No
Maschio 14	PFFP	3.824	SLV 11	Si
Maschio 14	R	0.195	SLV 1	No
Maschio 15	PF SLU	1.6	SLU 83	Si
Maschio 15	V SLU	2.995	SLU 79	Si
Maschio 15	PF	1.517	SLV 11	Si
Maschio 15	V	0.705	SLV 11	No
Maschio 15	PFFP	28.449	SLV 11	Si
Maschio 15	R	0.169	SLV 1	No
Maschio 16	PF SLU	8.248	SLU 82	Si
Maschio 16	V SLU	0.761	SLU 83	No
Maschio 16	PF	1.564	SLV 7	Si
Maschio 16	V	0.581	SLV 9	No
Maschio 16	PFFP	10.456	SLV 7	Si
Maschio 16	R	0.182	SLV 5	No
Maschio 18	PF SLU	2.405	SLU 84	Si
Maschio 18	V SLU	5.417	SLU 52	Si
Maschio 18	PF	2.538	SLV 5	Si
Maschio 18	V	1.027	SLV 7	Si
Maschio 18	PFFP	47.315	SLV 1	Si
Maschio 18	R	0.397	SLV 5	No
Maschio 19	PF SLU	0	SLU 84	No
Maschio 19	V SLU	0	SLU 1	No
Maschio 19	PF	0	SLV 16	No
Maschio 19	V	0	SLD 1	No
Maschio 19	PFFP	0	SLV 12	No
Maschio 19	R	0	SLV 16	No
Maschio 21	PF SLU	0	SLU 80	No
Maschio 21	V SLU	0	SLU 1	No
Maschio 21	PF	0	SLV 16	No
Maschio 21	V	0	SLD 1	No
Maschio 21	PFFP	0	SLV 12	No
Maschio 21	R	0	SLV 16	No
Maschio 23	PF SLU	1.705	SLU 28	Si
Maschio 23	V SLU	1.532	SLU 70	Si
Maschio 23	PF	1.403	SLV 11	Si
Maschio 23	V	0.764	SLV 11	No
Maschio 23	PFFP	14.219	SLV 1	Si
Maschio 23	R	0.547	SLV 3	No
Maschio 25	PF SLU	1.455	SLU 49	Si
Maschio 25	V SLU	2.109	SLU 70	Si
Maschio 25	PF	1.494	SLV 13	Si
Maschio 25	V	2.037	SLV 11	Si
Maschio 25	PFFP	12.379	SLV 1	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 25	R	0.017	SLV 1	No
Maschio 26	PF SLU	7.02	SLU 83	Si
Maschio 26	V SLU	1.443	SLU 83	Si
Maschio 26	PF	1.613	SLV 13	Si
Maschio 26	V	0.56	SLV 3	No
Maschio 26	PFFP	32.635	SLV 15	Si
Maschio 26	R	0.364	SLV 5	No
Maschio 27	PF SLU	6.45	SLU 84	Si
Maschio 27	V SLU	4.381	SLU 82	Si
Maschio 27	PF	1.343	SLV 13	Si
Maschio 27	V	0.495	SLV 3	No
Maschio 27	PFFP	40.81	SLV 5	Si
Maschio 27	R	0.172	SLV 5	No
Maschio 28	PF SLU	0	SLU 81	No
Maschio 28	V SLU	5.303	SLU 83	Si
Maschio 28	PF	1.026	SLV 15	Si
Maschio 28	V	1.558	SLV 1	Si
Maschio 28	PFFP	33.023	SLV 1	Si
Maschio 28	R	0.353	SLV 9	No
Maschio 29	PF SLU	2.847	SLU 84	Si
Maschio 29	V SLU	3.206	SLU 84	Si
Maschio 29	PF	0	SLV 1	No
Maschio 29	V	0	SLV 1	No
Maschio 29	PFFP	30.848	SLV 1	Si
Maschio 29	R	0.309	SLV 3	No
Maschio 30	PF SLU	0.16	SLU 82	No
Maschio 30	V SLU	3.524	SLU 84	Si
Maschio 30	PF	0.797	SLV 13	No
Maschio 30	V	0.152	SLV 13	No
Maschio 30	PFFP	27.625	SLV 9	Si
Maschio 30	R	0.335	SLV 9	No
Maschio 31	PF SLU	2.983	SLU 83	Si
Maschio 31	V SLU	3.261	SLU 82	Si
Maschio 31	PF	0.864	SLV 13	No
Maschio 31	V	0.2	SLV 13	No
Maschio 31	PFFP	38.854	SLV 9	Si
Maschio 31	R	0.364	SLV 7	No
Maschio 32	PF SLU	0.685	SLU 83	No
Maschio 32	V SLU	12.029	SLU 84	Si
Maschio 32	PF	1.077	SLV 13	Si
Maschio 32	V	1.569	SLV 13	Si
Maschio 32	PFFP	43.566	SLV 5	Si
Maschio 32	R	0.375	SLV 7	No
Maschio 33	PF SLU	9.967	SLU 83	Si
Maschio 33	V SLU	1.306	SLU 83	Si
Maschio 33	PF	1.618	SLV 15	Si
Maschio 33	V	0.461	SLV 15	No
Maschio 33	PFFP	37.74	SLV 3	Si
Maschio 33	R	0.344	SLV 5	No
Maschio 34	PF SLU	2.934	SLU 84	Si
Maschio 34	V SLU	10.464	SLU 50	Si
Maschio 34	PF	1.718	SLV 1	Si
Maschio 34	V	0.567	SLV 1	No
Maschio 34	PFFP	16.304	SLV 9	Si
Maschio 34	R	0.158	SLV 3	No
Maschio 35	PF SLU	9.478	SLU 82	Si
Maschio 35	V SLU	4.144	SLU 82	Si
Maschio 35	PF	3.127	SLV 1	Si
Maschio 35	V	0.66	SLV 1	No
Maschio 35	PFFP	20.885	SLV 9	Si
Maschio 35	R	0.129	SLV 5	No
Maschio 36	PF SLU	9.562	SLU 83	Si
Maschio 36	V SLU	7.653	SLU 78	Si
Maschio 36	PF	3.168	SLV 15	Si
Maschio 36	V	0.741	SLV 3	No
Maschio 36	PFFP	27.019	SLV 1	Si
Maschio 36	R	0.108	SLV 11	No
Maschio 37	PF SLU	5.386	SLU 82	Si
Maschio 37	V SLU	2.85	SLU 82	Si
Maschio 37	PF	1.216	SLV 1	Si
Maschio 37	V	0.444	SLV 1	No
Maschio 37	PFFP	4.732	SLV 1	Si
Maschio 37	R	0	SLV 4	No
Maschio 38	PF SLU	5.376	SLU 82	Si
Maschio 38	V SLU	1.32	SLU 79	Si
Maschio 38	PF	2.01	SLV 11	Si
Maschio 38	V	0.701	SLV 5	No
Maschio 38	PFFP	27.275	SLV 11	Si
Maschio 38	R	0.352	SLV 1	No
Maschio 39	PF SLU	3.793	SLU 79	Si
Maschio 39	V SLU	3.323	SLU 79	Si
Maschio 39	PF	2.397	SLV 11	Si
Maschio 39	V	0.792	SLV 11	No
Maschio 39	PFFP	231.325	SLV 11	Si
Maschio 39	R	1.109	SLV 5	Si
Maschio 40	PF SLU	15.606	SLU 82	Si
Maschio 40	V SLU	3.186	SLU 52	Si
Maschio 40	PF	3.982	SLV 11	Si
Maschio 40	V	0.849	SLV 7	No
Maschio 40	PFFP	35.253	SLV 13	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 40	R	0.256	SLV 1	No
Maschio 42	PF SLU	2.036	SLU 82	Si
Maschio 42	V SLU	1.149	SLU 82	Si
Maschio 42	PF	2.751	SLV 7	Si
Maschio 42	V	0.748	SLV 7	No
Maschio 42	PFFP	19.661	SLV 9	Si
Maschio 42	R	0.158	SLV 3	No
Maschio 43	PF SLU	8.111	SLU 40	Si
Maschio 43	V SLU	12.284	SLU 77	Si
Maschio 43	PF	0	SLV 11	No
Maschio 43	V	0	SLV 11	No
Maschio 43	PFFP	10.739	SLV 7	Si
Maschio 43	R	0.155	SLV 3	No
Maschio 44	PF SLU	5.302	SLU 38	Si
Maschio 44	V SLU	2.38	SLU 84	Si
Maschio 44	PF	0	SLV 3	No
Maschio 44	V	0	SLV 3	No
Maschio 44	PFFP	2.267	SLV 7	Si
Maschio 44	R	0.164	SLV 9	No
Maschio 45	PF SLU	3.115	SLU 41	Si
Maschio 45	V SLU	3.798	SLU 83	Si
Maschio 45	PF	0	SLV 12	No
Maschio 45	V	0	SLV 3	No
Maschio 45	PFFP	10.53	SLV 7	Si
Maschio 45	R	0	SLV 12	No
Maschio 46	PF SLU	3.569	SLU 83	Si
Maschio 46	V SLU	3.452	SLU 2	Si
Maschio 46	PF	2.051	SLV 11	Si
Maschio 46	V	0.91	SLV 11	No
Maschio 46	PFFP	22.278	SLV 11	Si
Maschio 46	R	0.2	SLV 5	No
Maschio 47	PF SLU	1.324	SLU 84	Si
Maschio 47	V SLU	1.432	SLU 84	Si
Maschio 47	PF	0	SLV 1	No
Maschio 47	V	0	SLV 1	No
Maschio 47	PFFP	32.377	SLV 15	Si
Maschio 47	R	0.18	SLV 7	No
Maschio 48	PF SLU	1.025	SLU 84	Si
Maschio 48	V SLU	1.82	SLU 73	Si
Maschio 48	PF	1.263	SLV 1	Si
Maschio 48	V	0.72	SLV 1	No
Maschio 48	PFFP	27.066	SLV 11	Si
Maschio 48	R	0	SLV 16	No
Maschio 49	PF SLU	2.476	SLU 47	Si
Maschio 49	V SLU	1.462	SLU 76	Si
Maschio 49	PF	1.524	SLV 3	Si
Maschio 49	V	0.404	SLV 3	No
Maschio 49	PFFP	11.592	SLV 7	Si
Maschio 49	R	0.157	SLV 7	No
Maschio 50	PF SLU	3.905	SLU 5	Si
Maschio 50	V SLU	2.482	SLU 2	Si
Maschio 50	PF	0	SLV 7	No
Maschio 50	V	0	SLV 7	No
Maschio 50	PFFP	4.688	SLV 7	Si
Maschio 50	R	0.216	SLV 11	No
Maschio 51	PF SLU	0	SLU 77	No
Maschio 51	V SLU	17.739	SLU 37	Si
Maschio 51	PF	1.308	SLV 7	Si
Maschio 51	V	0.909	SLV 11	No
Maschio 51	PFFP	28.654	SLV 9	Si
Maschio 51	R	0.19	SLV 1	No
Maschio 52	PF SLU	4.502	SLU 81	Si
Maschio 52	V SLU	3.282	SLU 81	Si
Maschio 52	PF	0	SLV 10	No
Maschio 52	V	0	SLV 5	No
Maschio 52	PFFP	10.179	SLV 9	Si
Maschio 52	R	0	SLV 14	No
Maschio 53	PF SLU	12.044	SLU 43	Si
Maschio 53	V SLU	7.836	SLU 50	Si
Maschio 53	PF	0	SLV 6	No
Maschio 53	V	0	SLV 1	No
Maschio 53	PFFP	2.683	SLV 5	Si
Maschio 53	R	0.23	SLV 9	No
Maschio 54	PF SLU	7.151	SLU 76	Si
Maschio 54	V SLU	31.604	SLU 5	Si
Maschio 54	PF	1.996	SLV 5	Si
Maschio 54	V	1.174	SLV 5	Si
Maschio 54	PFFP	18.265	SLV 1	Si
Maschio 54	R	0.364	SLV 13	No
Maschio 55	PF SLU	7.464	SLU 76	Si
Maschio 55	V SLU	13.046	SLU 5	Si
Maschio 55	PF	2.072	SLV 9	Si
Maschio 55	V	0.631	SLV 9	No
Maschio 55	PFFP	3.192	SLV 15	Si
Maschio 55	R	0.035	SLV 15	No
Maschio 56	PF SLU	0.976	SLU 50	No
Maschio 56	V SLU	0.222	SLU 50	No
Maschio 56	PF	0	SLD 3	No
Maschio 56	V	0	SLD 3	No
Maschio 56	PFFP	2.658	SLV 15	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 56	R	0.043	SLV 9	No
Maschio 57	PF SLU	1.912	SLU 83	Si
Maschio 57	V SLU	1.537	SLU 83	Si
Maschio 57	PF	0	SLV 9	No
Maschio 57	V	0	SLV 9	No
Maschio 57	PFFP	4.008	SLV 5	Si
Maschio 57	R	0.047	SLV 9	No
Maschio 58	PF SLU	0	SLU 2	No
Maschio 58	V SLU	0	SLU 2	No
Maschio 58	PF	0	SLD 1	No
Maschio 58	V	0	SLD 1	No
Maschio 58	PFFP	2.617	SLV 13	Si
Maschio 58	R	0.055	SLV 9	No
Maschio 59	PF SLU	1.624	SLU 2	Si
Maschio 59	V SLU	1.728	SLU 44	Si
Maschio 59	PF	0	SLV 1	No
Maschio 59	V	0	SLV 1	No
Maschio 59	PFFP	2.158	SLV 5	Si
Maschio 59	R	0.048	SLV 7	No
Maschio 60	PF SLU	1.193	SLU 82	Si
Maschio 60	V SLU	1.819	SLU 73	Si
Maschio 60	PF	0	SLV 13	No
Maschio 60	V	0	SLV 13	No
Maschio 60	PFFP	6.611	SLV 11	Si
Maschio 60	R	0.058	SLV 5	No
Maschio 61	PF SLU	0.269	SLU 83	No
Maschio 61	V SLU	2.124	SLU 81	Si
Maschio 61	PF	1.983	SLV 13	Si
Maschio 61	V	0.528	SLV 7	No
Maschio 61	PFFP	4.964	SLV 9	Si
Maschio 61	R	0.021	SLV 3	No
Maschio 62	PF SLU	0	SLU 73	No
Maschio 62	V SLU	0.786	SLU 81	No
Maschio 62	PF	0	SLV 1	No
Maschio 62	V	0	SLV 1	No
Maschio 62	PFFP	7.102	SLV 9	Si
Maschio 62	R	0.032	SLV 5	No
Maschio 63	PF SLU	0.872	SLU 84	No
Maschio 63	V SLU	1.724	SLU 79	Si
Maschio 63	PF	0	SLV 12	No
Maschio 63	V	0	SLV 7	No
Maschio 63	PFFP	5.515	SLV 11	Si
Maschio 63	R	0.046	SLV 7	No
Maschio 64	PF SLU	4.365	SLU 44	Si
Maschio 64	V SLU	2.464	SLU 2	Si
Maschio 64	PF	2.099	SLV 9	Si
Maschio 64	V	0.326	SLV 11	No
Maschio 64	PFFP	2.597	SLV 15	Si
Maschio 64	R	0.021	SLV 1	No
Maschio 65	PF SLU	1.184	SLU 82	Si
Maschio 65	V SLU	0.557	SLU 82	No
Maschio 65	PF	0	SLV 3	No
Maschio 65	V	0	SLV 3	No
Maschio 65	PFFP	2.508	SLV 3	Si
Maschio 65	R	0.036	SLV 11	No
Maschio 66	PF SLU	0.877	SLU 83	No
Maschio 66	V SLU	0.521	SLU 83	No
Maschio 66	PF	0	SLV 16	No
Maschio 66	V	0	SLD 3	No
Maschio 66	PFFP	0	SLV 16	No
Maschio 66	R	0	SLV 6	No
Maschio 67	PF SLU	0	SLU 31	No
Maschio 67	V SLU	2.825	SLU 79	Si
Maschio 67	PF	0.924	SLV 7	No
Maschio 67	V	0.562	SLV 11	No
Maschio 67	PFFP	5.082	SLV 5	Si
Maschio 67	R	0.02	SLV 11	No
Maschio 68	PF SLU	2.324	SLU 83	Si
Maschio 68	V SLU	2.153	SLU 83	Si
Maschio 68	PF	1.644	SLV 11	Si
Maschio 68	V	0.905	SLV 9	No
Maschio 68	PFFP	17.093	SLV 11	Si
Maschio 68	R	0.234	SLV 11	No
Maschio 69	PF SLU	0.509	SLU 83	No
Maschio 69	V SLU	0.153	SLU 50	No
Maschio 69	PF	0	SLD 5	No
Maschio 69	V	0	SLD 5	No
Maschio 69	PFFP	34.491	SLV 7	Si
Maschio 69	R	0.291	SLV 11	No
Maschio 71	PF SLU	3.845	SLU 83	Si
Maschio 71	V SLU	5.809	SLU 52	Si
Maschio 71	PF	4.87	SLV 15	Si
Maschio 71	V	0.874	SLV 7	No
Maschio 71	PFFP	15.478	SLV 1	Si
Maschio 71	R	0.137	SLV 5	No
Maschio 72	PF SLU	0	SLU 1	No
Maschio 72	V SLU	0	SLU 1	No
Maschio 72	PF	0	SLV 10	No
Maschio 72	V	0	SLD 1	No
Maschio 72	PFFP	7.704	SLV 7	Si





Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 72	R	0	SLV 10	No
Maschio 73	PF SLU	0	SLU 74	No
Maschio 73	V SLU	3.015	SLU 79	Si
Maschio 73	PF	0	SLV 6	No
Maschio 73	V	0	SLV 1	No
Maschio 73	PFFP	0	SLV 6	No
Maschio 73	R	0.056	SLV 9	No
Maschio 74	PF SLU	2.582	SLU 83	Si
Maschio 74	V SLU	1.392	SLU 83	Si
Maschio 74	PF	1.56	SLV 15	Si
Maschio 74	V	0.684	SLV 1	No
Maschio 74	PFFP	8.592	SLV 15	Si
Maschio 74	R	0.052	SLV 5	No
Maschio 75	PF SLU	2.264	SLU 83	Si
Maschio 75	V SLU	3.557	SLU 82	Si
Maschio 75	PF	2.728	SLV 1	Si
Maschio 75	V	0.698	SLV 3	No
Maschio 75	PFFP	11.086	SLV 5	Si
Maschio 75	R	0.04	SLV 5	No
Maschio 76	PF SLU	8.561	SLU 82	Si
Maschio 76	V SLU	2.697	SLU 82	Si
Maschio 76	PF	4.28	SLV 13	Si
Maschio 76	V	0.739	SLV 15	No
Maschio 76	PFFP	9.376	SLV 9	Si
Maschio 76	R	0.049	SLV 9	No
Maschio 77	PF SLU	3.039	SLU 83	Si
Maschio 77	V SLU	1.248	SLU 83	Si
Maschio 77	PF	2.434	SLV 3	Si
Maschio 77	V	0.677	SLV 15	No
Maschio 77	PFFP	9.479	SLV 3	Si
Maschio 77	R	0.048	SLV 7	No
Maschio 78	PF SLU	2.78	SLU 82	Si
Maschio 78	V SLU	1.167	SLU 82	Si
Maschio 78	PF	0	SLV 13	No
Maschio 78	V	0	SLV 13	No
Maschio 78	PFFP	6.266	SLV 13	Si
Maschio 78	R	0.054	SLV 7	No
Maschio 79	PF SLU	6.327	SLU 82	Si
Maschio 79	V SLU	3.319	SLU 82	Si
Maschio 79	PF	2.076	SLV 3	Si
Maschio 79	V	0.624	SLV 1	No
Maschio 79	PFFP	9.278	SLV 9	Si
Maschio 79	R	0.031	SLV 9	No
Maschio 80	PF SLU	6.613	SLU 83	Si
Maschio 80	V SLU	14.11	SLU 80	Si
Maschio 80	PF	1.804	SLV 3	Si
Maschio 80	V	0.709	SLV 1	No
Maschio 80	PFFP	9.281	SLV 1	Si
Maschio 80	R	0.051	SLV 9	No
Maschio 81	PF SLU	1.865	SLU 83	Si
Maschio 81	V SLU	0.704	SLU 84	No
Maschio 81	PF	1.196	SLV 15	Si
Maschio 81	V	0.288	SLV 15	No
Maschio 81	PFFP	8.418	SLV 1	Si
Maschio 81	R	0.056	SLV 9	No
Maschio 82	PF SLU	1.357	SLU 83	Si
Maschio 82	V SLU	1.994	SLU 79	Si
Maschio 82	PF	1.679	SLV 9	Si
Maschio 82	V	0.967	SLV 5	No
Maschio 82	PFFP	15.98	SLV 7	Si
Maschio 82	R	0.038	SLV 11	No
Maschio 83	PF SLU	4.727	SLU 84	Si
Maschio 83	V SLU	9.994	SLU 52	Si
Maschio 83	PF	3.656	SLV 11	Si
Maschio 83	V	0.928	SLV 11	No
Maschio 83	PFFP	17.132	SLV 15	Si
Maschio 83	R	0.125	SLV 3	No
Maschio 84	PF SLU	1.244	SLU 82	Si
Maschio 84	V SLU	0.857	SLU 82	No
Maschio 84	PF	0	SLV 3	No
Maschio 84	V	0	SLV 3	No
Maschio 84	PFFP	0	SLV 11	No
Maschio 84	R	0.034	SLV 7	No
Maschio 85	PF SLU	0	SLU 63	No
Maschio 85	V SLU	2.894	SLU 52	Si
Maschio 85	PF	1.773	SLV 5	Si
Maschio 85	V	0.7	SLV 11	No
Maschio 85	PFFP	4.87	SLV 11	Si
Maschio 85	R	0.021	SLV 3	No
Maschio 86	PF SLU	0.62	SLU 84	No
Maschio 86	V SLU	0.842	SLU 84	No
Maschio 86	PF	0	SLV 12	No
Maschio 86	V	0	SLV 7	No
Maschio 86	PFFP	3.534	SLV 7	Si
Maschio 86	R	0.049	SLV 7	No
Maschio 87	PF SLU	0	SLU 56	No
Maschio 87	V SLU	2.077	SLU 77	Si
Maschio 87	PF	1.745	SLV 7	Si
Maschio 87	V	0.624	SLV 11	No
Maschio 87	PFFP	4.936	SLV 9	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 87	R	0.02	SLV 7	No
Maschio 88	PF SLU	0	SLU 1	No
Maschio 88	V SLU	0	SLU 1	No
Maschio 88	PF	0	SLD 1	No
Maschio 88	V	0	SLD 1	No
Maschio 88	PFFP	1.185	SLV 13	Si
Maschio 88	R	0.054	SLV 7	No
Maschio 89	PF SLU	0	SLU 10	No
Maschio 89	V SLU	0.375	SLU 82	No
Maschio 89	PF	0	SLD 9	No
Maschio 89	V	0	SLD 9	No
Maschio 89	PFFP	8.536	SLV 1	Si
Maschio 89	R	0	SLV 16	No
Maschio 90	PF SLU	0	SLU 57	No
Maschio 90	V SLU	2.158	SLU 73	Si
Maschio 90	PF	0	SLV 3	No
Maschio 90	V	0	SLV 3	No
Maschio 90	PFFP	5.943	SLV 7	Si
Maschio 90	R	0.057	SLV 9	No
Maschio 91	PF SLU	1.544	SLU 2	Si
Maschio 91	V SLU	1.02	SLU 44	Si
Maschio 91	PF	0	SLV 11	No
Maschio 91	V	0	SLV 11	No
Maschio 91	PFFP	5.488	SLV 11	Si
Maschio 91	R	0	SLV 8	No
Maschio 92	PF SLU	1.277	SLU 2	Si
Maschio 92	V SLU	0.489	SLU 73	No
Maschio 92	PF	0	SLV 3	No
Maschio 92	V	0	SLV 3	No
Maschio 92	PFFP	0	SLV 8	No
Maschio 92	R	0	SLV 8	No
Maschio 93	PF SLU	2.079	SLU 77	Si
Maschio 93	V SLU	1.423	SLU 83	Si
Maschio 93	PF	0	SLV 1	No
Maschio 93	V	0	SLV 1	No
Maschio 93	PFFP	3.481	SLV 9	Si
Maschio 93	R	0	SLV 10	No
Maschio 94	PF SLU	2.152	SLU 81	Si
Maschio 94	V SLU	0.783	SLU 84	No
Maschio 94	PF	0	SLV 6	No
Maschio 94	V	0	SLV 1	No
Maschio 94	PFFP	0	SLV 6	No
Maschio 94	R	0	SLV 10	No
Maschio 95	PF SLU	2.784	SLU 76	Si
Maschio 95	V SLU	25.806	SLU 5	Si
Maschio 95	PF	1.689	SLV 5	Si
Maschio 95	V	1.027	SLV 5	Si
Maschio 95	PFFP	7.494	SLV 1	Si
Maschio 95	R	0.057	SLV 11	No
Maschio 96	PF SLU	1.991	SLU 76	Si
Maschio 96	V SLU	1.587	SLU 84	Si
Maschio 96	PF	1.727	SLV 9	Si
Maschio 96	V	0.937	SLV 9	No
Maschio 96	PFFP	4.992	SLV 11	Si
Maschio 96	R	0.061	SLV 5	No
Maschio 97	PF SLU	1.882	SLU 81	Si
Maschio 97	V SLU	1.297	SLU 81	Si
Maschio 97	PF	1.519	SLV 7	Si
Maschio 97	V	0.767	SLV 7	No
Maschio 97	PFFP	3.868	SLV 13	Si
Maschio 97	R	0.06	SLV 7	No
Maschio 98	PF SLU	2.014	SLU 83	Si
Maschio 98	V SLU	1.693	SLU 82	Si
Maschio 98	PF	1.626	SLV 1	Si
Maschio 98	V	0.985	SLV 1	No
Maschio 98	PFFP	4.571	SLV 9	Si
Maschio 98	R	0.058	SLV 11	No
Maschio 99	PF SLU	10.823	SLU 30	Si
Maschio 99	V SLU	4.45	SLU 61	Si
Maschio 99	PF	2.734	SLV 1	Si
Maschio 99	V	0.91	SLV 13	No
Maschio 99	PFFP	4.342	SLV 5	Si
Maschio 99	R	0	SLV 7	No
Maschio 100	PF SLU	1.152	SLU 76	Si
Maschio 100	V SLU	0.649	SLU 76	No
Maschio 100	PF	1.318	SLV 1	Si
Maschio 100	V	0.576	SLV 1	No
Maschio 100	PFFP	4.476	SLV 11	Si
Maschio 100	R	0.056	SLV 9	No
Maschio 101	PF SLU	5.693	SLU 73	Si
Maschio 101	V SLU	16.167	SLU 28	Si
Maschio 101	PF	2.048	SLV 3	Si
Maschio 101	V	0.922	SLV 1	No
Maschio 101	PFFP	3.06	SLV 7	Si
Maschio 101	R	0.056	SLV 5	No
Maschio 102	PF SLU	2.513	SLU 73	Si
Maschio 102	V SLU	5.25	SLU 52	Si
Maschio 102	PF	0	SLV 9	No
Maschio 102	V	0	SLV 9	No
Maschio 102	PFFP	3.571	SLV 11	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 102	R	0.064	SLV 7	No
Maschio 103	PF SLU	4.769	SLU 29	Si
Maschio 103	V SLU	9.464	SLU 81	Si
Maschio 103	PF	7.812	SLV 5	Si
Maschio 103	V	0.768	SLV 9	No
Maschio 103	PFFP	3.154	SLV 5	Si
Maschio 103	R	0.017	SLV 1	No
Maschio 104	PF SLU	3.245	SLU 82	Si
Maschio 104	V SLU	2.305	SLU 82	Si
Maschio 104	PF	0	SLV 6	No
Maschio 104	V	0	SLD 1	No
Maschio 104	PFFP	3.586	SLV 5	Si
Maschio 104	R	0	SLV 6	No
Maschio 105	PF SLU	2.266	SLU 73	Si
Maschio 105	V SLU	1.846	SLU 73	Si
Maschio 105	PF	0	SLV 8	No
Maschio 105	V	0	SLV 3	No
Maschio 105	PFFP	4.597	SLV 15	Si
Maschio 105	R	0	SLV 12	No
Maschio 106	PF SLU	4.598	SLU 76	Si
Maschio 106	V SLU	3.99	SLU 2	Si
Maschio 106	PF	3.746	SLV 13	Si
Maschio 106	V	0.568	SLV 11	No
Maschio 106	PFFP	2.538	SLV 15	Si
Maschio 106	R	0.021	SLV 1	No
Maschio 107	PF SLU	2.748	SLU 82	Si
Maschio 107	V SLU	1.172	SLU 82	Si
Maschio 107	PF	1.09	SLV 15	Si
Maschio 107	V	0.297	SLV 15	No
Maschio 107	PFFP	5.641	SLV 3	Si
Maschio 107	R	0	SLV 5	No
Maschio 108	PF SLU	0	SLU 35	No
Maschio 108	V SLU	0	SLU 37	No
Maschio 108	PF	0	SLV 16	No
Maschio 108	V	0	SLD 7	No
Maschio 108	PFFP	0	SLV 12	No
Maschio 108	R	0	SLV 10	No
Maschio 109	PF SLU	3.2	SLU 81	Si
Maschio 109	V SLU	8.841	SLU 30	Si
Maschio 109	PF	1.186	SLV 5	Si
Maschio 109	V	0.439	SLV 5	No
Maschio 109	PFFP	2.844	SLV 5	Si
Maschio 109	R	0.012	SLV 9	No
Maschio 111	PF SLU	0	SLU 1	No
Maschio 111	V SLU	0	SLU 1	No
Maschio 111	PF	0	SLV 12	No
Maschio 111	V	0	SLD 1	No
Maschio 111	PFFP	0	SLV 12	No
Maschio 111	R	0	SLV 12	No
Maschio 112	PF SLU	0.843	SLU 77	No
Maschio 112	V SLU	3.249	SLU 29	Si
Maschio 112	PF	0	SLV 10	No
Maschio 112	V	0	SLD 5	No
Maschio 112	PFFP	0	SLV 5	No
Maschio 112	R	0	SLV 12	No
Maschio 113	PF SLU	5.208	SLU 82	Si
Maschio 113	V SLU	5.071	SLU 82	Si
Maschio 113	PF	1.466	SLV 13	Si
Maschio 113	V	0.913	SLV 13	No
Maschio 113	PFFP	3.806	SLV 13	Si
Maschio 113	R	0.013	SLV 9	No
Maschio 114	PF SLU	10.955	SLU 82	Si
Maschio 114	V SLU	3.646	SLU 82	Si
Maschio 114	PF	3.057	SLV 1	Si
Maschio 114	V	0.914	SLV 1	No
Maschio 114	PFFP	7.071	SLV 9	Si
Maschio 114	R	0.032	SLV 9	No
Maschio 115	PF SLU	11.373	SLU 77	Si
Maschio 115	V SLU	4.919	SLU 80	Si
Maschio 115	PF	2.867	SLV 3	Si
Maschio 115	V	0.938	SLV 15	No
Maschio 115	PFFP	6.623	SLV 1	Si
Maschio 115	R	0.061	SLV 9	No
Maschio 116	PF SLU	3.304	SLU 82	Si
Maschio 116	V SLU	2.401	SLU 82	Si
Maschio 116	PF	2.196	SLV 1	Si
Maschio 116	V	1.217	SLV 13	Si
Maschio 116	PFFP	5.168	SLV 1	Si
Maschio 116	R	0.026	SLV 5	No
Maschio 117	PF SLU	3.597	SLU 83	Si
Maschio 117	V SLU	1.677	SLU 83	Si
Maschio 117	PF	2.812	SLV 1	Si
Maschio 117	V	0.821	SLV 1	No
Maschio 117	PFFP	5.855	SLV 15	Si
Maschio 117	R	0.034	SLV 11	No
Maschio 118	PF SLU	8.951	SLU 83	Si
Maschio 118	V SLU	9.516	SLU 82	Si
Maschio 118	PF	4.178	SLV 15	Si
Maschio 118	V	0.861	SLV 3	No
Maschio 118	PFFP	8.164	SLV 5	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 118	R	0.034	SLV 9	No
Maschio 119	PF SLU	2.421	SLU 84	Si
Maschio 119	V SLU	7.401	SLU 52	Si
Maschio 119	PF	0.788	SLV 15	No
Maschio 119	V	0.166	SLV 1	No
Maschio 119	PFFP	9.285	SLV 5	Si
Maschio 119	R	0	SLV 5	No
Maschio 120	PF SLU	2.691	SLU 84	Si
Maschio 120	V SLU	3.726	SLU 82	Si
Maschio 120	PF	1.553	SLV 15	Si
Maschio 120	V	0.917	SLV 15	No
Maschio 120	PFFP	8.938	SLV 9	Si
Maschio 120	R	0.033	SLV 9	No
Maschio 121	PF SLU	2.846	SLU 84	Si
Maschio 121	V SLU	2.511	SLU 77	Si
Maschio 121	PF	1.235	SLV 15	Si
Maschio 121	V	0.517	SLV 15	No
Maschio 121	PFFP	9.032	SLV 9	Si
Maschio 121	R	0.051	SLV 5	No
Maschio 122	PF SLU	4.988	SLU 83	Si
Maschio 122	V SLU	1.705	SLU 83	Si
Maschio 122	PF	3.31	SLV 3	Si
Maschio 122	V	0.963	SLV 13	No
Maschio 122	PFFP	6.831	SLV 3	Si
Maschio 122	R	0.039	SLV 7	No
Maschio 124	PF SLU	5.199	SLU 82	Si
Maschio 124	V SLU	2.049	SLU 82	Si
Maschio 124	PF	1.036	SLV 3	Si
Maschio 124	V	0.215	SLV 3	No
Maschio 124	PFFP	4.133	SLV 11	Si
Maschio 124	R	0	SLV 7	No
Maschio 125	PF SLU	6.016	SLU 76	Si
Maschio 125	V SLU	4.545	SLU 2	Si
Maschio 125	PF	4.603	SLV 1	Si
Maschio 125	V	0.817	SLV 7	No
Maschio 125	PFFP	3.611	SLV 7	Si
Maschio 125	R	0.019	SLV 9	No
Maschio 126	PF SLU	3.199	SLU 73	Si
Maschio 126	V SLU	7.061	SLU 23	Si
Maschio 126	PF	0	SLV 12	No
Maschio 126	V	0	SLV 7	No
Maschio 126	PFFP	0	SLV 7	No
Maschio 126	R	0	SLV 12	No
Maschio 127	PF SLU	8.03	SLU 29	Si
Maschio 127	V SLU	4.182	SLU 77	Si
Maschio 127	PF	5.944	SLV 9	Si
Maschio 127	V	0.762	SLV 5	No
Maschio 127	PFFP	3.232	SLV 9	Si
Maschio 127	R	0.018	SLV 13	No
Maschio 128	PF SLU	0	SLU 10	No
Maschio 128	V SLU	0	SLU 10	No
Maschio 128	PF	0	SLD 5	No
Maschio 128	V	0	SLD 5	No
Maschio 128	PFFP	0	SLV 13	No
Maschio 128	R	0	SLV 1	No
Maschio 129	PF SLU	0.806	SLU 79	No
Maschio 129	V SLU	10.775	SLU 84	Si
Maschio 129	PF	1.481	SLV 13	Si
Maschio 129	V	5.095	SLV 15	Si
Maschio 129	PFFP	4.611	SLV 9	Si
Maschio 129	R	0	SLV 16	No
Maschio 130	PF SLU	2.232	SLU 82	Si
Maschio 130	V SLU	6.155	SLU 79	Si
Maschio 130	PF	0	SLV 3	No
Maschio 130	V	0	SLV 3	No
Maschio 130	PFFP	3.209	SLV 7	Si
Maschio 130	R	0.06	SLV 11	No
Maschio 131	PF SLU	5.449	SLU 84	Si
Maschio 131	V SLU	5.811	SLU 84	Si
Maschio 131	PF	2.279	SLV 15	Si
Maschio 131	V	0.899	SLV 3	No
Maschio 131	PFFP	3.451	SLV 7	Si
Maschio 131	R	0.058	SLV 9	No
Maschio 132	PF SLU	5.24	SLU 31	Si
Maschio 132	V SLU	1.008	SLU 73	Si
Maschio 132	PF	2.076	SLV 11	Si
Maschio 132	V	0.89	SLV 13	No
Maschio 132	PFFP	2.873	SLV 7	Si
Maschio 132	R	0.054	SLV 11	No
Maschio 133	PF SLU	9.404	SLU 30	Si
Maschio 133	V SLU	10.617	SLU 61	Si
Maschio 133	PF	2.294	SLV 13	Si
Maschio 133	V	0.959	SLV 1	No
Maschio 133	PFFP	3.87	SLV 9	Si
Maschio 133	R	0.014	SLV 9	No
Maschio 134	PF SLU	7.84	SLU 82	Si
Maschio 134	V SLU	1.993	SLU 82	Si
Maschio 134	PF	2.32	SLV 1	Si
Maschio 134	V	0.958	SLV 13	No
Maschio 134	PFFP	2.516	SLV 5	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 134	R	0.061	SLV 7	No
Maschio 135	PF SLU	12.262	SLU 76	Si
Maschio 135	V SLU	23.568	SLU 81	Si
Maschio 135	PF	2.819	SLV 5	Si
Maschio 135	V	1.563	SLV 7	Si
Maschio 135	PFFP	5.346	SLV 1	Si
Maschio 135	R	0.063	SLV 11	No
Maschio 136	PF SLU	5.887	SLU 37	Si
Maschio 136	V SLU	4.46	SLU 82	Si
Maschio 136	PF	4.014	SLV 9	Si
Maschio 136	V	1.638	SLV 9	Si
Maschio 136	PFFP	2.465	SLV 11	Si
Maschio 136	R	0.058	SLV 5	No
Maschio 137	PF SLU	5.568	SLU 83	Si
Maschio 137	V SLU	3.412	SLU 81	Si
Maschio 137	PF	3.316	SLV 7	Si
Maschio 137	V	1.655	SLV 7	Si
Maschio 137	PFFP	2.283	SLV 9	Si
Maschio 137	R	0.058	SLV 3	No
Maschio 138	PF SLU	8.317	SLU 61	Si
Maschio 138	V SLU	3.109	SLU 82	Si
Maschio 138	PF	2.781	SLV 13	Si
Maschio 138	V	1.601	SLV 1	Si
Maschio 138	PFFP	2.661	SLV 9	Si
Maschio 138	R	0.033	SLV 9	No
Maschio 139	PF SLU	0	SLU 8	No
Maschio 139	V SLU	0	SLU 6	No
Maschio 139	PF	0	SLV 1	No
Maschio 139	V	0	SLV 1	No
Maschio 139	PFFP	0	SLV 3	No
Maschio 139	R	0	SLV 4	No
Maschio 140	PF SLU	4.378	SLU 82	Si
Maschio 140	V SLU	1.355	SLU 82	Si
Maschio 140	PF	3.234	SLV 3	Si
Maschio 140	V	1.465	SLV 1	Si
Maschio 140	PFFP	2.539	SLV 11	Si
Maschio 140	R	0.053	SLV 5	No
Maschio 141	PF SLU	5.278	SLU 68	Si
Maschio 141	V SLU	1.917	SLU 80	Si
Maschio 141	PF	2.149	SLV 1	Si
Maschio 141	V	1.015	SLV 1	Si
Maschio 141	PFFP	2.667	SLV 11	Si
Maschio 141	R	0.049	SLV 3	No
Maschio 142	PF SLU	3.176	SLU 30	Si
Maschio 142	V SLU	2.315	SLU 71	Si
Maschio 142	PF	0	SLV 13	No
Maschio 142	V	0	SLV 13	No
Maschio 142	PFFP	1.727	SLV 15	Si
Maschio 142	R	0	SLV 13	No
Maschio 143	PF SLU	3.37	SLU 29	Si
Maschio 143	V SLU	6.68	SLU 51	Si
Maschio 143	PF	3.589	SLV 9	Si
Maschio 143	V	0.884	SLV 9	No
Maschio 143	PFFP	1.722	SLV 9	Si
Maschio 143	R	0.019	SLV 7	No
Maschio 144	PF SLU	3.016	SLU 71	Si
Maschio 144	V SLU	4.805	SLU 29	Si
Maschio 144	PF	0	SLV 10	No
Maschio 144	V	0	SLV 9	No
Maschio 144	PFFP	1.743	SLV 9	Si
Maschio 144	R	0	SLV 10	No
Maschio 145	PF SLU	3.009	SLU 44	Si
Maschio 145	V SLU	3.636	SLU 73	Si
Maschio 145	PF	0	SLV 8	No
Maschio 145	V	0	SLV 3	No
Maschio 145	PFFP	0	SLV 11	No
Maschio 145	R	0	SLV 12	No
Maschio 146	PF SLU	4.38	SLU 26	Si
Maschio 146	V SLU	4.011	SLU 71	Si
Maschio 146	PF	2.897	SLV 9	Si
Maschio 146	V	0.683	SLV 11	No
Maschio 146	PFFP	1.611	SLV 15	Si
Maschio 146	R	0.02	SLV 7	No
Maschio 147	PF SLU	4.485	SLU 82	Si
Maschio 147	V SLU	1.179	SLU 82	Si
Maschio 147	PF	0	SLV 10	No
Maschio 147	V	0	SLV 5	No
Maschio 147	PFFP	0	SLV 10	No
Maschio 147	R	0	SLV 10	No
Maschio 148	PF SLU	0	SLU 6	No
Maschio 148	V SLU	0	SLU 6	No
Maschio 148	PF	0	SLV 16	No
Maschio 148	V	0	SLD 3	No
Maschio 148	PFFP	0	SLV 16	No
Maschio 148	R	0	SLV 10	No
Maschio 149	PF SLU	7.892	SLU 29	Si
Maschio 149	V SLU	6.602	SLU 30	Si
Maschio 149	PF	1.63	SLV 5	Si
Maschio 149	V	0.629	SLV 5	No
Maschio 149	PFFP	1.94	SLV 9	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 149	R	0.012	SLV 13	No
Maschio 150	PF SLU	0	SLU 1	No
Maschio 150	V SLU	0	SLU 1	No
Maschio 150	PF	0	SLV 16	No
Maschio 150	V	0	SLD 1	No
Maschio 150	PFFP	0	SLV 16	No
Maschio 150	R	0	SLV 12	No
Maschio 151	PF SLU	1.129	SLU 77	Si
Maschio 151	V SLU	1.022	SLU 29	Si
Maschio 151	PF	0	SLV 12	No
Maschio 151	V	0	SLD 1	No
Maschio 151	PFFP	0	SLV 10	No
Maschio 151	R	0	SLV 12	No
Maschio 152	PF SLU	1.671	SLU 9	Si
Maschio 152	V SLU	3.307	SLU 30	Si
Maschio 152	PF	2.132	SLV 9	Si
Maschio 152	V	2.177	SLV 1	Si
Maschio 152	PFFP	2.034	SLV 13	Si
Maschio 152	R	0	SLV 5	No
Maschio 153	PF SLU	8.009	SLU 30	Si
Maschio 153	V SLU	4.892	SLU 84	Si
Maschio 153	PF	2.992	SLV 1	Si
Maschio 153	V	1.335	SLV 1	Si
Maschio 153	PFFP	3.797	SLV 15	Si
Maschio 153	R	0.002	SLV 11	No
Maschio 154	PF SLU	12.375	SLU 30	Si
Maschio 154	V SLU	4.923	SLU 30	Si
Maschio 154	PF	3.424	SLV 15	Si
Maschio 154	V	1.486	SLV 15	Si
Maschio 154	PFFP	3.497	SLV 7	Si
Maschio 154	R	0.054	SLV 5	No
Maschio 155	PF SLU	3.561	SLU 30	Si
Maschio 155	V SLU	2.53	SLU 80	Si
Maschio 155	PF	2.486	SLV 9	Si
Maschio 155	V	1.925	SLV 13	Si
Maschio 155	PFFP	3.09	SLV 1	Si
Maschio 155	R	0.058	SLV 9	No
Maschio 156	PF SLU	4.445	SLU 77	Si
Maschio 156	V SLU	1.316	SLU 83	Si
Maschio 156	PF	2.786	SLV 3	Si
Maschio 156	V	0.933	SLV 1	No
Maschio 156	PFFP	3.068	SLV 15	Si
Maschio 156	R	0.018	SLV 7	No
Maschio 157	PF SLU	9.272	SLU 77	Si
Maschio 157	V SLU	17.197	SLU 29	Si
Maschio 157	PF	4.148	SLV 1	Si
Maschio 157	V	1.023	SLV 13	Si
Maschio 157	PFFP	5.164	SLV 13	Si
Maschio 157	R	0.019	SLV 9	No
Maschio 158	PF SLU	6.991	SLU 41	Si
Maschio 158	V SLU	6.337	SLU 37	Si
Maschio 158	PF	0	SLV 1	No
Maschio 158	V	0	SLV 1	No
Maschio 158	PFFP	4.679	SLV 7	Si
Maschio 158	R	0	SLV 3	No
Maschio 159	PF SLU	4.795	SLU 82	Si
Maschio 159	V SLU	4.17	SLU 82	Si
Maschio 159	PF	2.057	SLV 15	Si
Maschio 159	V	1.266	SLV 15	Si
Maschio 159	PFFP	5.743	SLV 1	Si
Maschio 159	R	0.01	SLV 5	No
Maschio 160	PF SLU	3.643	SLU 78	Si
Maschio 160	V SLU	2.478	SLU 77	Si
Maschio 160	PF	1.225	SLV 15	Si
Maschio 160	V	0.552	SLV 15	No
Maschio 160	PFFP	5.862	SLV 5	Si
Maschio 160	R	0.038	SLV 5	No
Maschio 161	PF SLU	4.627	SLU 77	Si
Maschio 161	V SLU	1.661	SLU 41	Si
Maschio 161	PF	3.226	SLV 15	Si
Maschio 161	V	1.144	SLV 15	Si
Maschio 161	PFFP	3.657	SLV 1	Si
Maschio 161	R	0.023	SLV 9	No
Maschio 162	PF SLU	0	SLU 1	No
Maschio 162	V SLU	0	SLU 1	No
Maschio 162	PF	0	SLD 1	No
Maschio 162	V	0	SLD 1	No
Maschio 162	PFFP	1.002	SLV 7	Si
Maschio 162	R	0	SLV 1	No
Maschio 163	PF SLU	24.48	SLU 21	Si
Maschio 163	V SLU	7.569	SLU 82	Si
Maschio 163	PF	7.268	SLV 5	Si
Maschio 163	V	1.122	SLV 7	Si
Maschio 163	PFFP	7.35	SLV 7	Si
Maschio 163	R	0.086	SLV 3	No
Maschio 165	PF SLU	5.201	SLU 27	Si
Maschio 165	V SLU	1.724	SLU 71	Si
Maschio 165	PF	3.451	SLV 13	Si
Maschio 165	V	1.152	SLV 9	Si
Maschio 165	PFFP	3.698	SLV 3	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 165	R	0	SLV 7	No
Maschio 166	PF SLU	3.256	SLU 40	Si
Maschio 166	V SLU	1.404	SLU 82	Si
Maschio 166	PF	0	SLV 3	No
Maschio 166	V	0	SLV 3	No
Maschio 166	PFFP	2.018	SLV 11	Si
Maschio 166	R	0	SLV 7	No
Maschio 167	PF SLU	5.338	SLU 26	Si
Maschio 167	V SLU	3.987	SLU 71	Si
Maschio 167	PF	3.859	SLV 7	Si
Maschio 167	V	0.869	SLV 7	No
Maschio 167	PFFP	1.791	SLV 3	Si
Maschio 167	R	0.015	SLV 7	No
Maschio 168	PF SLU	3.415	SLU 44	Si
Maschio 168	V SLU	6.924	SLU 73	Si
Maschio 168	PF	0	SLV 12	No
Maschio 168	V	0	SLV 3	No
Maschio 168	PFFP	0	SLV 8	No
Maschio 168	R	0	SLV 12	No
Maschio 169	PF SLU	3.883	SLU 29	Si
Maschio 169	V SLU	4.728	SLU 37	Si
Maschio 169	PF	2.964	SLV 5	Si
Maschio 169	V	0.871	SLV 5	No
Maschio 169	PFFP	1.771	SLV 9	Si
Maschio 169	R	0.018	SLV 11	No
Maschio 170	PF SLU	0	SLU 27	No
Maschio 170	V SLU	0.967	SLU 79	No
Maschio 170	PF	0	SLV 5	No
Maschio 170	V	0	SLV 5	No
Maschio 170	PFFP	0	SLV 6	No
Maschio 170	R	0	SLV 10	No
Maschio 171	PF SLU	0	SLU 3	No
Maschio 171	V SLU	583.983	SLU 80	Si
Maschio 171	PF	1.641	SLV 5	Si
Maschio 171	V	107.743	SLV 5	Si
Maschio 171	PFFP	0	SLV 1	No
Maschio 171	R	0	SLV 14	No
Maschio 172	PF SLU	3.66	SLU 82	Si
Maschio 172	V SLU	5.064	SLU 71	Si
Maschio 172	PF	0	SLV 1	No
Maschio 172	V	0	SLV 1	No
Maschio 172	PFFP	0	SLV 7	No
Maschio 172	R	0.053	SLV 11	No
Maschio 173	PF SLU	10.36	SLU 65	Si
Maschio 173	V SLU	15.066	SLU 23	Si
Maschio 173	PF	2.426	SLV 13	Si
Maschio 173	V	1.432	SLV 13	Si
Maschio 173	PFFP	2.479	SLV 7	Si
Maschio 173	R	0.039	SLV 15	No
Maschio 174	PF SLU	5.229	SLU 82	Si
Maschio 174	V SLU	1.477	SLU 82	Si
Maschio 174	PF	3.157	SLV 15	Si
Maschio 174	V	1.364	SLV 15	Si
Maschio 174	PFFP	2.159	SLV 7	Si
Maschio 174	R	0.055	SLV 5	No
Maschio 175	PF SLU	2.027	SLU 9	Si
Maschio 175	V SLU	5.902	SLU 8	Si
Maschio 175	PF	0	SLV 11	No
Maschio 175	V	0	SLV 11	No
Maschio 175	PFFP	1.207	SLV 15	Si
Maschio 175	R	0.049	SLV 11	No
Maschio 176	PF SLU	8.705	SLU 61	Si
Maschio 176	V SLU	2.356	SLU 82	Si
Maschio 176	PF	2.208	SLV 1	Si
Maschio 176	V	1.229	SLV 15	Si
Maschio 176	PFFP	1.894	SLV 5	Si
Maschio 176	R	0.031	SLV 5	No
Maschio 177	PF SLU	22.891	SLU 29	Si
Maschio 177	V SLU	18.575	SLU 81	Si
Maschio 177	PF	4.047	SLV 5	Si
Maschio 177	V	2.094	SLV 7	Si
Maschio 177	PFFP	3.152	SLV 1	Si
Maschio 177	R	0.059	SLV 15	No
Maschio 178	PF SLU	1.476	SLU 41	Si
Maschio 178	V SLU	18.407	SLU 69	Si
Maschio 178	PF	0	SLV 3	No
Maschio 178	V	0	SLV 3	No
Maschio 178	PFFP	0	SLV 3	No
Maschio 178	R	0	SLV 12	No
Maschio 179	PF SLU	3.578	SLU 35	Si
Maschio 179	V SLU	9.09	SLU 30	Si
Maschio 179	PF	2.819	SLV 7	Si
Maschio 179	V	3.574	SLV 9	Si
Maschio 179	PFFP	0	SLV 9	No
Maschio 179	R	0	SLV 10	No
Maschio 180	PF SLU	1.143	SLU 38	Si
Maschio 180	V SLU	0.492	SLU 38	No
Maschio 180	PF	0	SLV 3	No
Maschio 180	V	0	SLV 3	No
Maschio 180	PFFP	1.386	SLV 9	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 180	R	0.023	SLV 5	No
Maschio 181	PF SLU	0	SLU 84	No
Maschio 181	V SLU	0	SLU 1	No
Maschio 181	PF	0	SLV 16	No
Maschio 181	V	0	SLD 1	No
Maschio 181	PFFP	0	SLV 10	No
Maschio 181	R	0	SLV 16	No
Maschio 182	PF SLU	1.301	SLU 38	Si
Maschio 182	V SLU	0.873	SLU 38	No
Maschio 182	PF	0.994	SLV 5	No
Maschio 182	V	0.279	SLV 5	No
Maschio 182	PFFP	1.339	SLV 11	Si
Maschio 182	R	0	SLV 1	No
Maschio 183	PF SLU	2.866	SLU 10	Si
Maschio 183	V SLU	2.136	SLU 80	Si
Maschio 183	PF	1.237	SLV 5	Si
Maschio 183	V	0.612	SLV 5	No
Maschio 183	PFFP	1.036	SLV 11	Si
Maschio 183	R	0	SLV 5	No
Maschio 184	PF SLU	0	SLU 84	No
Maschio 184	V SLU	0	SLU 1	No
Maschio 184	PF	0	SLV 16	No
Maschio 184	V	0	SLD 1	No
Maschio 184	PFFP	0	SLV 12	No
Maschio 184	R	0	SLV 16	No
Maschio 185	PF SLU	1.211	SLU 29	Si
Maschio 185	V SLU	1.182	SLU 29	Si
Maschio 185	PF	0	SLV 16	No
Maschio 185	V	0	SLD 1	No
Maschio 185	PFFP	0	SLV 16	No
Maschio 185	R	0	SLV 16	No
Maschio 186	PF SLU	1.195	SLU 37	Si
Maschio 186	V SLU	9.655	SLU 47	Si
Maschio 186	PF	0	SLD 5	No
Maschio 186	V	0	SLD 5	No
Maschio 186	PFFP	0	SLV 1	No
Maschio 186	R	0.021	SLV 11	No
Maschio 187	PF SLU	0.795	SLU 80	No
Maschio 187	V SLU	4.268	SLU 80	Si
Maschio 187	PF	1.198	SLV 11	Si
Maschio 187	V	0.898	SLV 11	No
Maschio 187	PFFP	2.814	SLV 9	Si
Maschio 187	R	0	SLV 13	No
Maschio 188	PF SLU	1.01	SLU 38	Si
Maschio 188	V SLU	0.221	SLU 38	No
Maschio 188	PF	0	SLV 6	No
Maschio 188	V	0	SLD 3	No
Maschio 188	PFFP	0	SLV 1	No
Maschio 188	R	0	SLV 6	No
Maschio 189	PF SLU	0	SLU 84	No
Maschio 189	V SLU	0	SLU 1	No
Maschio 189	PF	0	SLV 16	No
Maschio 189	V	0	SLD 1	No
Maschio 189	PFFP	0	SLV 16	No
Maschio 189	R	0	SLV 10	No
Maschio 190	PF SLU	3.833	SLU 40	Si
Maschio 190	V SLU	7.018	SLU 30	Si
Maschio 190	PF	0	SLV 5	No
Maschio 190	V	0	SLV 5	No
Maschio 190	PFFP	0	SLV 1	No
Maschio 190	R	0.02	SLV 7	No
Maschio 191	PF SLU	0	SLU 1	No
Maschio 191	V SLU	0	SLU 1	No
Maschio 191	PFFP	0	SLV 16	No
Maschio 191	R	0	SLV 14	No
Maschio 192	PF SLU	4.813	SLU 27	Si
Maschio 192	V SLU	120.696	SLU 27	Si
Maschio 192	PFFP	0	SLV 10	No
Maschio 192	R	0	SLV 10	No
Maschio 193	PF SLU	0	SLU 84	No
Maschio 193	V SLU	0	SLU 1	No
Maschio 193	PF	0	SLV 14	No
Maschio 193	V	0	SLD 1	No
Maschio 193	PFFP	0	SLV 10	No
Maschio 193	R	0	SLV 16	No
Maschio 194	PF SLU	8.716	SLU 37	Si
Maschio 194	V SLU	11.202	SLU 29	Si
Maschio 194	PF	0	SLV 7	No
Maschio 194	V	0	SLV 7	No
Maschio 194	PFFP	1.09	SLV 7	Si
Maschio 194	R	0	SLV 8	No
Maschio 195	PF SLU	14.287	SLU 30	Si
Maschio 195	V SLU	10.565	SLU 38	Si
Maschio 195	PF	3.486	SLV 15	Si
Maschio 195	V	3.344	SLV 15	Si
Maschio 195	PFFP	1.118	SLV 11	Si
Maschio 195	R	0	SLV 5	No
Maschio 196	PF SLU	0	SLU 84	No
Maschio 196	V SLU	0	SLU 1	No
Maschio 196	PF	0	SLV 16	No





Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 196	V	0	SLD 1	No
Maschio 196	PFFP	0	SLV 1	No
Maschio 196	R	0	SLV 16	No
Maschio 197	PF SLU	2.547	SLU 39	Si
Maschio 197	V SLU	1.435	SLU 83	Si
Maschio 197	PF	2.546	SLV 1	Si
Maschio 197	V	1.707	SLV 1	Si
Maschio 197	PFFP	1.12	SLV 15	Si
Maschio 197	R	0.008	SLV 9	No
Maschio 198	PF SLU	9.387	SLU 60	Si
Maschio 198	V SLU	7.616	SLU 81	Si
Maschio 198	PF	1.99	SLV 13	Si
Maschio 198	V	1.532	SLV 13	Si
Maschio 198	PFFP	2.469	SLV 13	Si
Maschio 198	R	0.02	SLV 11	No
Maschio 199	PF SLU	3.095	SLU 41	Si
Maschio 199	V SLU	3.639	SLU 37	Si
Maschio 199	PF	0	SLD 1	No
Maschio 199	V	0	SLD 1	No
Maschio 199	PFFP	1.284	SLV 7	Si
Maschio 199	R	0	SLV 3	No
Maschio 200	PF SLU	4.177	SLU 19	Si
Maschio 200	V SLU	2.7	SLU 82	Si
Maschio 200	PF	0	SLV 1	No
Maschio 200	V	0	SLV 1	No
Maschio 200	PFFP	1.848	SLV 1	Si
Maschio 200	R	0.061	SLV 11	No
Maschio 201	PF SLU	3.169	SLU 39	Si
Maschio 201	V SLU	2.086	SLU 83	Si
Maschio 201	PF	1.187	SLV 15	Si
Maschio 201	V	0.579	SLV 15	No
Maschio 201	PFFP	3.046	SLV 5	Si
Maschio 201	R	0.067	SLV 11	No
Maschio 202	PF SLU	2.069	SLU 37	Si
Maschio 202	V SLU	1.401	SLU 41	Si
Maschio 202	PF	1.914	SLV 15	Si
Maschio 202	V	1.98	SLV 15	Si
Maschio 202	PFFP	1.413	SLV 1	Si
Maschio 202	R	0.101	SLV 11	No
Maschio 203	PF SLU	0	SLU 5	No
Maschio 203	V SLU	0	SLU 5	No
Maschio 203	PF	0	SLV 12	No
Maschio 203	V	0	SLV 1	No
Maschio 203	PFFP	0.976	SLV 7	No
Maschio 203	R	0	SLV 12	No
Maschio 204	PF SLU	1.714	SLU 30	Si
Maschio 204	V SLU	1.313	SLU 30	Si
Maschio 204	PF	0	SLD 5	No
Maschio 204	V	0	SLD 5	No
Maschio 204	PFFP	0	SLV 1	No
Maschio 204	R	0.028	SLV 11	No
Maschio 205	PF SLU	1.209	SLU 30	Si
Maschio 205	V SLU	1.154	SLU 37	Si
Maschio 205	PF	0	SLD 5	No
Maschio 205	V	0	SLD 5	No
Maschio 205	PFFP	0.987	SLV 13	No
Maschio 205	R	0.022	SLV 5	No
Maschio 206	PF SLU	0	SLU 6	No
Maschio 206	V SLU	0.354	SLU 80	No
Maschio 206	PF	0.629	SLV 15	No
Maschio 206	V	0.213	SLV 15	No
Maschio 206	PFFP	2.726	SLV 5	Si
Maschio 206	R	0	SLV 1	No
Maschio 207	PF SLU	0	SLU 1	No
Maschio 207	V SLU	23.293	SLU 80	Si
Maschio 207	PF	0	SLD 7	No
Maschio 207	V	73.041	SLV 11	Si
Maschio 207	PFFP	0	SLV 1	No
Maschio 207	R	0	SLV 4	No
Maschio 208	PF SLU	0	SLU 84	No
Maschio 208	V SLU	0	SLU 1	No
Maschio 208	PF	0	SLV 14	No
Maschio 208	V	0	SLD 1	No
Maschio 208	PFFP	0	SLV 10	No
Maschio 208	R	0	SLV 14	No
Maschio 209	PF SLU	1.469	SLU 42	Si
Maschio 209	V SLU	0.96	SLU 38	No
Maschio 209	PF	0	SLV 15	No
Maschio 209	V	0	SLV 15	No
Maschio 209	PFFP	1.387	SLV 9	Si
Maschio 209	R	0.018	SLV 9	No
Maschio 210	PF SLU	5.393	SLU 43	Si
Maschio 210	V SLU	15.344	SLU 81	Si
Maschio 210	PF	1.135	SLV 11	Si
Maschio 210	V	1.005	SLV 11	Si
Maschio 210	PFFP	1.267	SLV 15	Si
Maschio 210	R	0	SLV 1	No
Maschio 211	PF SLU	1.995	SLU 31	Si
Maschio 211	V SLU	1.508	SLU 82	Si
Maschio 211	PF	0	SLV 12	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 211	V	0	SLD 13	No
Maschio 211	PFFP	0	SLV 14	No
Maschio 211	R	0	SLV 12	No
Maschio 212	PF SLU	2.262	SLU 19	Si
Maschio 212	V SLU	2.046	SLU 82	Si
Maschio 212	PF	0	SLV 10	No
Maschio 212	V	0	SLD 5	No
Maschio 212	PFFP	0	SLV 5	No
Maschio 212	R	0	SLV 10	No
Maschio 213	PF SLU	3.078	SLU 19	Si
Maschio 213	V SLU	2.179	SLU 82	Si
Maschio 213	PF	0	SLV 3	No
Maschio 213	V	0	SLV 3	No
Maschio 213	PFFP	0	SLV 11	No
Maschio 213	R	0	SLV 3	No
Maschio 214	PF SLU	4.663	SLU 52	Si
Maschio 214	V SLU	5.747	SLU 37	Si
Maschio 214	PF	0	SLV 12	No
Maschio 214	V	0	SLD 11	No
Maschio 214	PFFP	0	SLV 12	No
Maschio 214	R	0	SLV 16	No
Maschio 215	PF SLU	1.68	SLU 31	Si
Maschio 215	V SLU	2.175	SLU 80	Si
Maschio 215	PF	0	SLV 12	No
Maschio 215	V	0	SLD 7	No
Maschio 215	PFFP	0	SLV 16	No
Maschio 215	R	0	SLV 16	No
Maschio 216	PF SLU	8.25	SLU 10	Si
Maschio 216	V SLU	21.922	SLU 31	Si
Maschio 216	PF	1.883	SLV 9	Si
Maschio 216	V	2.378	SLV 9	Si
Maschio 216	PFFP	1.09	SLV 7	Si
Maschio 216	R	0	SLV 3	No
Maschio 217	PF SLU	2.231	SLU 31	Si
Maschio 217	V SLU	1.86	SLU 78	Si
Maschio 217	PF	1.078	SLV 11	Si
Maschio 217	V	0.66	SLV 11	No
Maschio 217	PFFP	1.182	SLV 11	Si
Maschio 217	R	0	SLV 5	No
Maschio 220	PF SLU	1.144	SLU 84	Si
Maschio 220	V SLU	1.171	SLU 84	Si
Maschio 220	PF	0	SLV 16	No
Maschio 220	V	0	SLV 3	No
Maschio 220	PFFP	2.629	SLV 11	Si
Maschio 220	R	0	SLV 16	No
Maschio 221	PF SLU	2.732	SLU 84	Si
Maschio 221	V SLU	1.705	SLU 84	Si
Maschio 221	PF	0	SLV 12	No
Maschio 221	V	0	SLV 1	No
Maschio 221	PFFP	1.489	SLV 7	Si
Maschio 221	R	0	SLV 12	No
Maschio 222	PF SLU	6.324	SLU 80	Si
Maschio 222	V SLU	7.561	SLU 79	Si
Maschio 222	PF	0	SLV 16	No
Maschio 222	V	0	SLV 3	No
Maschio 222	PFFP	0	SLV 11	No
Maschio 222	R	0	SLV 16	No
Maschio 223	PF SLU	5.079	SLU 83	Si
Maschio 223	V SLU	6.126	SLU 83	Si
Maschio 223	PF	0	SLV 8	No
Maschio 223	V	0	SLV 1	No
Maschio 223	PFFP	1.765	SLV 7	Si
Maschio 223	R	0	SLV 8	No
Maschio 224	PF SLU	7.699	SLU 80	Si
Maschio 224	V SLU	6.73	SLU 73	Si
Maschio 224	PF	0	SLV 16	No
Maschio 224	V	0	SLD 7	No
Maschio 224	PFFP	0	SLV 12	No
Maschio 224	R	0	SLV 16	No
Maschio 225	PF SLU	5.802	SLU 84	Si
Maschio 225	V SLU	8.269	SLU 84	Si
Maschio 225	PF	0	SLV 16	No
Maschio 225	V	0	SLV 1	No
Maschio 225	PFFP	0	SLV 12	No
Maschio 225	R	0	SLV 8	No
Maschio 226	PF SLU	55.906	SLU 52	Si
Maschio 226	V SLU	13.148	SLU 81	Si
Maschio 226	PF	0	SLV 7	No
Maschio 226	V	0	SLV 7	No
Maschio 226	PFFP	4.862	SLV 7	Si
Maschio 226	R	0.43	SLV 5	No
Maschio 227	PF SLU	9.312	SLU 70	Si
Maschio 227	V SLU	9.909	SLU 44	Si
Maschio 227	PF	0	SLV 16	No
Maschio 227	V	0	SLD 7	No
Maschio 227	PFFP	0	SLV 12	No
Maschio 227	R	0	SLV 16	No
Maschio 228	PF SLU	4.381	SLU 36	Si
Maschio 228	V SLU	7.174	SLU 78	Si
Maschio 228	PF	0	SLV 16	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 228	V	0	SLV 1	No
Maschio 228	PFFP	0	SLV 12	No
Maschio 228	R	0	SLV 12	No
Maschio 229	PF SLU	0	SLU 79	No
Maschio 229	V SLU	0	SLU 3	No
Maschio 229	PF	0	SLV 14	No
Maschio 229	V	0	SLD 1	No
Maschio 229	PFFP	0	SLV 1	No
Maschio 229	R	0	SLV 16	No
Maschio 230	PF SLU	0	SLU 84	No
Maschio 230	V SLU	0	SLU 2	No
Maschio 230	PF	0	SLV 14	No
Maschio 230	V	0	SLD 1	No
Maschio 230	PFFP	0	SLV 1	No
Maschio 230	R	0	SLV 16	No
Maschio 231	PF SLU	0	SLU 1	No
Maschio 231	V SLU	0	SLU 1	No
Maschio 231	PF	0	SLV 10	No
Maschio 231	V	0	SLD 1	No
Maschio 231	PFFP	0	SLV 10	No
Maschio 231	R	0	SLV 10	No
Maschio 232	PF SLU	3.103	SLU 37	Si
Maschio 232	V SLU	4.836	SLU 38	Si
Maschio 232	PF	0	SLV 14	No
Maschio 232	V	0	SLD 1	No
Maschio 232	PFFP	0	SLV 12	No
Maschio 232	R	0	SLV 14	No
Maschio 233	PF SLU	1.85	SLU 44	Si
Maschio 233	V SLU	6.495	SLU 44	Si
Maschio 233	PF	0	SLV 12	No
Maschio 233	V	0	SLD 1	No
Maschio 233	PFFP	0	SLV 16	No
Maschio 233	R	0	SLV 16	No
Maschio 234	PF SLU	3.07	SLU 43	Si
Maschio 234	V SLU	2.091	SLU 80	Si
Maschio 234	PF	0	SLV 16	No
Maschio 234	V	0	SLD 11	No
Maschio 234	PFFP	0	SLV 1	No
Maschio 234	R	0	SLV 16	No
Maschio 235	PF SLU	0	SLU 1	No
Maschio 235	V SLU	0	SLU 1	No
Maschio 235	PFFP	0	SLV 10	No
Maschio 235	R	0.166	SLV 1	No
Maschio 236	PF SLU	5.009	SLU 41	Si
Maschio 236	V SLU	5.686	SLU 52	Si
Maschio 236	PF	0.984	SLV 5	No
Maschio 236	V	0.067	SLV 5	No
Maschio 236	PFFP	4.209	SLV 5	Si
Maschio 236	R	0.046	SLV 9	No
Maschio 237	PF SLU	0	SLU 84	No
Maschio 237	V SLU	0	SLU 1	No
Maschio 237	PFFP	0	SLV 1	No
Maschio 237	R	0	SLV 14	No
Maschio 238	PF SLU	0	SLU 1	No
Maschio 238	V SLU	0	SLU 1	No
Maschio 238	PF	0	SLV 8	No
Maschio 238	V	0	SLD 1	No
Maschio 238	PFFP	0	SLV 1	No
Maschio 238	R	0	SLV 8	No
Maschio 239	PF SLU	2.209	SLU 43	Si
Maschio 239	V SLU	2.705	SLU 38	Si
Maschio 239	PF	0	SLV 16	No
Maschio 239	V	0	SLD 7	No
Maschio 239	PFFP	0	SLV 1	No
Maschio 239	R	0	SLV 16	No
Maschio 240	PF SLU	2.856	SLU 41	Si
Maschio 240	V SLU	3.357	SLU 79	Si
Maschio 240	PF	0	SLV 7	No
Maschio 240	V	0	SLV 7	No
Maschio 240	PFFP	2.475	SLV 7	Si
Maschio 240	R	0.007	SLV 7	No
Maschio 241	PF SLU	17.581	SLU 69	Si
Maschio 241	V SLU	8.876	SLU 29	Si
Maschio 241	PF	4.452	SLV 11	Si
Maschio 241	V	1.012	SLV 7	Si
Maschio 241	PFFP	7.832	SLV 7	Si
Maschio 241	R	0.048	SLV 7	No
Maschio 242	PF SLU	2.879	SLU 82	Si
Maschio 242	V SLU	3.445	SLU 29	Si
Maschio 242	PF	2.831	SLV 7	Si
Maschio 242	V	1.152	SLV 9	Si
Maschio 242	PFFP	2.186	SLV 5	Si
Maschio 242	R	0.011	SLV 3	No
Maschio 243	PF SLU	1.473	SLU 44	Si
Maschio 243	V SLU	2.432	SLU 44	Si
Maschio 243	PF	0	SLV 16	No
Maschio 243	V	0	SLD 1	No
Maschio 243	PFFP	0	SLV 1	No
Maschio 243	R	0	SLV 8	No
Maschio 244	PF SLU	2.228	SLU 2	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 244	V SLU	9.198	SLU 34	Si
Maschio 244	PF	0	SLV 12	No
Maschio 244	V	0	SLD 1	No
Maschio 244	PFFP	0	SLV 1	No
Maschio 244	R	0	SLV 10	No
Maschio 245	PF SLU	0	SLU 71	No
Maschio 245	V SLU	0	SLU 6	No
Maschio 245	PF	0	SLV 14	No
Maschio 245	V	0	SLD 1	No
Maschio 245	PFFP	0	SLV 1	No
Maschio 245	R	0	SLV 14	No
Maschio 246	PF SLU	0	SLU 84	No
Maschio 246	V SLU	0	SLU 2	No
Maschio 246	PF	0	SLV 14	No
Maschio 246	V	0	SLD 1	No
Maschio 246	PFFP	0	SLV 6	No
Maschio 246	R	0	SLV 16	No

#### Verifica maschi in muratura

Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
1	PF	1.075	SLV 15	0.262	1.071	583	1.088	Si
	V	0.582	SLV 5	0.135	0.553	108	0.545	No
	PFFP	1.29	SLV 15	0.312	1.276	985	1.349	Si
2	R	0.344	SLV 5	0.078	0.318	28	0.313	No
	PF	0.938	SLV 13	0.227	0.931	393	0.925	No
	V	0.508	SLV 7	0.116	0.477	75	0.469	No
3	PFFP	1.405	SLV 13	0.339	1.387	1297	1.51	Si
	R	0.329	SLV 11	0.074	0.303	25	0.299	No
	PF	0.177	SLV 3	0.038	0.157	5	0.155	No
4	V	0.13	SLV 3	0.026	0.107	2	0.106	No
	PFFP	1.332	SLV 5	0.322	1.317	1093	1.407	Si
	R	0.327	SLV 5	0.074	0.303	25	0.299	No
5	PF	1.409	SLV 13	0.34	1.391	1309	1.515	Si
	V	0.49	SLV 3	0.112	0.46	69	0.453	No
	PFFP	2.582	SLV 9	0.362	1.483	1618	1.653	Si
6	R	0.229	SLV 5	0.051	0.21	10	0.205	No
	PF	1.076	SLV 5	0.262	1.073	585	1.089	Si
	V	0.429	SLV 11	0.098	0.399	49	0.394	No
7	PFFP	2.48	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.098	SLV 11	0.02	0.08	1	0.08	No
	PF	1.082	SLV 9	0.263	1.078	594	1.096	Si
8	V	0.626	SLV 9	0.146	0.598	129	0.586	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.201	SLV 7	0.044	0.181	7	0.177	No
9	PF	0.671	SLV 11	0.157	0.644	154	0.63	No
	V	0.75	SLV 7	0.178	0.73	206	0.71	No
	PFFP	2.256	SLV 5	0.362	1.483	1618	1.653	Si
10	R	0.172	SLV 7	0.038	0.157	5	0.155	No
	PF	0.12	SLV 5	0.026	0.107	2	0.106	No
	V	0.063	SLV 1	0	0	0	0	No
11	PFFP	1.788	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.341	SLV 11	0.077	0.313	27	0.309	No
	PF	1.974	SLV 15	0.362	1.483	1618	1.653	Si
12	V	0.405	SLV 1	0.093	0.38	43	0.373	No
	PFFP	2.221	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.226	SLV 11	0.051	0.21	10	0.205	No
13	PF	2.004	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.328	SLV 13	0.075	0.308	26	0.304	No
	PFFP	3.039	SLV 3	0.362	1.483	1618	1.653	Si
14	R	0.215	SLV 7	0.049	0.201	9	0.197	No
	PF	0.434	SLV 15	0.099	0.407	51	0.401	No
	V	0.328	SLV 15	0.075	0.308	26	0.304	No
15	PFFP	2.058	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.256	SLV 11	0.057	0.234	13	0.229	No
	PF	2.348	SLV 7	0.362	1.483	1618	1.653	Si
16	V	0.556	SLV 5	0.128	0.525	96	0.519	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.112	SLV 5	0.02	0.08	1	0.08	No
17	PF	0.295	SLV 7	0.067	0.275	20	0.273	No
	V	0.331	SLV 7	0.075	0.308	26	0.304	No
	PFFP	1.018	SLV 11	0.248	1.017	499	1.02	Si
18	R	0.334	SLV 13	0.077	0.313	27	0.309	No
	PF	0.81	SLV 15	0.194	0.793	257	0.777	No
	V	0.779	SLV 15	0.186	0.759	229	0.741	No
19	PFFP	1.133	SLV 11	0.275	1.126	678	1.157	Si
	R	0.248	SLV 1	0.057	0.234	13	0.229	No
	PF	1.401	SLV 11	0.338	1.383	1286	1.504	Si
20	V	0.805	SLV 11	0.193	0.788	252	0.771	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.196	SLV 15	0.044	0.181	7	0.177	No
21	PF	1.12	SLV 7	0.272	1.114	656	1.142	Si
	V	0.376	SLV 9	0.086	0.351	36	0.347	No
	PFFP	1.283	SLV 7	0.31	1.269	969	1.34	Si
22	R	0.191	SLV 5	0.041	0.169	6	0.167	No
	PF	2.382	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.029	SLV 7	0.251	1.028	515	1.034	Si
23	PFFP	2.854	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.405	SLV 5	0.092	0.376	42	0.37	No
24	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No



Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
21	PFFP	0.587	SLV 11	0.136	0.558	110	0.549	No
	R	0	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
23	PFFP	0.722	SLV 11	0.171	0.699	186	0.681	No
	R	0	SLV 1	0	0	0	0	No
	PF	2.667	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.777	SLV 11	0.185	0.758	228	0.74	No
25	PFFP	1.000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.638	SLV 3	0.149	0.61	136	0.599	No
	PF	1.38	SLV 1	0.333	1.363	1224	1.474	Si
	V	1.381	SLV 1	0.333	1.364	1227	1.476	Si
26	PFFP	1.813	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.261	SLV 13	0.059	0.242	14	0.236	No
	PF	1.522	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.506	SLV 3	0.116	0.477	75	0.469	No
27	PFFP	1.000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.375	SLV 5	0.085	0.346	35	0.343	No
	PF	1.359	SLV 1	0.328	1.343	1165	1.445	Si
	V	0.616	SLV 3	0.143	0.587	124	0.577	No
28	PFFP	1.000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.314	SLV 11	0.071	0.292	23	0.289	No
	PF	1.025	SLV 15	0.25	1.024	510	1.03	Si
	V	1.079	SLV 1	0.263	1.075	589	1.092	Si
29	PFFP	1.798	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.368	SLV 9	0.083	0.342	34	0.339	No
	PF	0.944	SLV 1	0.229	0.937	400	0.932	No
	V	0.955	SLV 1	0.232	0.95	415	0.946	No
30	PFFP	1.954	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.356	SLV 7	0.081	0.332	31	0.327	No
	PF	0.865	SLV 13	0.208	0.852	310	0.839	No
	V	0.886	SLV 13	0.214	0.875	333	0.864	No
31	PFFP	1.695	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.367	SLV 7	0.083	0.342	34	0.339	No
	PF	0.869	SLV 13	0.209	0.855	314	0.844	No
	V	0.548	SLV 13	0.127	0.518	93	0.512	No
32	PFFP	3.279	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.374	SLV 5	0.085	0.346	35	0.343	No
	PF	1.077	SLV 13	0.262	1.073	586	1.09	Si
	V	1.161	SLV 13	0.282	1.153	726	1.19	Si
33	PFFP	1.000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.378	SLV 7	0.086	0.351	36	0.347	No
	PF	1.621	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.422	SLV 15	0.097	0.395	47	0.387	No
34	PFFP	1.000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.368	SLV 5	0.083	0.342	34	0.339	No
	PF	1.645	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.668	SLV 1	0.156	0.64	152	0.627	No
35	PFFP	1.859	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.192	SLV 7	0.041	0.169	6	0.167	No
	PF	2.174	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.635	SLV 1	0.148	0.606	134	0.595	No
36	PFFP	2.313	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.163	SLV 5	0.035	0.143	4	0.141	No
	PF	3.048	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.719	SLV 13	0.17	0.696	184	0.678	No
37	PFFP	1.000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.133	SLV 7	0.026	0.107	2	0.106	No
	PF	1.149	SLV 1	0.279	1.141	704	1.175	Si
	V	0.633	SLV 13	0.148	0.604	133	0.593	No
38	PFFP	1.183	SLV 1	0.287	1.173	765	1.216	Si
	R	0.349	SLV 11	0.079	0.323	30	0.322	No
	PF	1.282	SLV 11	0.31	1.268	966	1.338	Si
	V	0.62	SLV 5	0.144	0.591	126	0.58	No
39	PFFP	1.58	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.359	SLV 5	0.081	0.332	31	0.327	No
	PF	1.317	SLV 11	0.318	1.302	1054	1.387	Si
	V	0.869	SLV 11	0.209	0.855	314	0.844	No
40	PFFP	1.746	SLV 11	0.362	1.483	1618	1.653	Si
	R	1.106	SLV 5	0.269	1.101	632	1.124	Si
	PF	3.05	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.838	SLV 7	0.201	0.822	282	0.808	No
42	PFFP	3.845	SLV 13	0.362	1.483	1618	1.653	Si
	R	0.268	SLV 1	0.061	0.249	16	0.249	No
	PF	1.379	SLV 9	0.333	1.362	1222	1.473	Si
	V	0.65	SLV 7	0.152	0.623	142	0.61	No
43	PFFP	1.885	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.175	SLV 7	0.038	0.157	5	0.155	No
	PF	0.904	SLV 11	0.218	0.894	352	0.884	No
	V	0.759	SLV 11	0.18	0.738	212	0.718	No
44	PFFP	3.173	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.231	SLV 3	0.051	0.21	10	0.205	No
	PF	0.842	SLV 7	0.202	0.828	288	0.815	No
	V	0.814	SLV 3	0.195	0.797	260	0.781	No
45	PFFP	1.057	SLV 7	0.258	1.054	556	1.067	Si
	R	0.21	SLV 9	0.047	0.191	8	0.187	No
	PF	0.539	SLV 7	0.124	0.508	88	0.501	No
	V	0.538	SLV 7	0.124	0.508	88	0.501	No
	PFFP	1.418	SLV 7	0.342	1.4	1337	1.529	Si
	R	0.361	SLV 9	0.082	0.337	33	0.335	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
46	PF	2.059	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.932	SLV 11	0.226	0.925	386	0.918	No
	PFFP	3.973	SLV 11	0.362	1.483	1618	1.653	Si
47	R	0.202	SLV 5	0.044	0.181	7	0.177	No
	PF	0.548	SLV 3	0.127	0.518	93	0.512	No
	V	0.438	SLV 3	0.1	0.41	52	0.404	No
	PFFP	2.022	SLV 15	0.362	1.483	1618	1.653	Si
48	R	0.258	SLV 7	0.057	0.234	13	0.229	No
	PF	1.822	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.652	SLV 1	0.153	0.625	143	0.611	No
	PFFP	2.579	SLV 11	0.362	1.483	1618	1.653	Si
49	R	0.23	SLV 11	0.051	0.21	10	0.205	No
	PF	1.289	SLV 7	0.312	1.275	983	1.347	Si
	V	0.388	SLV 13	0.089	0.364	39	0.359	No
	PFFP	1.639	SLV 7	0.362	1.483	1618	1.653	Si
50	R	0.223	SLV 7	0.049	0.201	9	0.197	No
	PF	0.976	SLV 7	0.238	0.973	441	0.97	No
	V	0.538	SLV 1	0.124	0.508	88	0.501	No
	PFFP	1.127	SLV 7	0.274	1.121	668	1.15	Si
51	R	0.269	SLV 11	0.061	0.249	16	0.249	No
	PF	1.389	SLV 7	0.335	1.372	1251	1.487	Si
	V	0.928	SLV 11	0.225	0.921	381	0.914	No
	PFFP	3.198	SLV 9	0.362	1.483	1618	1.653	Si
52	R	0.195	SLV 11	0.044	0.181	7	0.177	No
	PF	0.715	SLV 5	0.169	0.692	182	0.675	No
	V	0.386	SLV 11	0.088	0.359	38	0.355	No
	PFFP	1.62	SLV 9	0.362	1.483	1618	1.653	Si
53	R	0.334	SLV 15	0.077	0.313	27	0.309	No
	PF	0.83	SLV 5	0.199	0.814	275	0.799	No
	V	0.586	SLV 3	0.136	0.555	109	0.547	No
	PFFP	1.056	SLV 5	0.257	1.053	554	1.065	Si
54	R	0.29	SLV 9	0.066	0.269	19	0.267	No
	PF	1.37	SLV 3	0.331	1.353	1196	1.46	Si
	V	1.099	SLV 5	0.267	1.094	621	1.116	Si
	PFFP	1.6	SLV 1	0.362	1.483	1618	1.653	Si
55	R	0.375	SLV 9	0.085	0.346	35	0.343	No
	PF	1.399	SLV 15	0.337	1.381	1279	1.501	Si
	V	0.684	SLV 11	0.161	0.658	161	0.642	No
	PFFP	1.449	SLV 15	0.349	1.429	1433	1.573	Si
56	R	0.064	SLV 5	0	0	0	0	No
	PF	0.119	SLV 3	0.026	0.107	2	0.106	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	1.526	SLV 15	0.362	1.483	1618	1.653	Si
57	R	0.076	SLV 7	0	0	0	0	No
	PF	0.677	SLV 9	0.159	0.652	158	0.637	No
	V	0.312	SLV 13	0.071	0.292	23	0.289	No
	PFFP	1.395	SLV 5	0.337	1.378	1269	1.496	Si
58	R	0.061	SLV 5	0	0	0	0	No
	PF	0.024	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	1.483	SLV 13	0.357	1.462	1544	1.621	Si
59	R	0.077	SLV 5	0	0	0	0	No
	PF	0.629	SLV 1	0.147	0.602	132	0.592	No
	V	0.449	SLV 13	0.103	0.42	55	0.413	No
	PFFP	1.212	SLV 5	0.293	1.201	820	1.251	Si
60	R	0.063	SLV 5	0	0	0	0	No
	PF	0.539	SLV 13	0.124	0.508	88	0.501	No
	V	0.388	SLV 13	0.089	0.364	39	0.359	No
	PFFP	1.712	SLV 11	0.362	1.483	1618	1.653	Si
61	R	0.062	SLV 5	0	0	0	0	No
	PF	2.474	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.474	SLV 7	0.108	0.442	63	0.437	No
	PFFP	2.958	SLV 9	0.362	1.483	1618	1.653	Si
62	R	0.022	SLV 1	0	0	0	0	No
	PF	0.883	SLV 1	0.213	0.871	329	0.86	No
	V	0.304	SLV 3	0.07	0.286	22	0.284	No
	PFFP	1.77	SLV 9	0.362	1.483	1618	1.653	Si
63	R	0.06	SLV 5	0	0	0	0	No
	PF	0.658	SLV 7	0.154	0.631	147	0.618	No
	V	0.6	SLV 3	0.14	0.571	117	0.563	No
	PFFP	1.383	SLV 11	0.334	1.366	1234	1.479	Si
64	R	0.059	SLV 7	0	0	0	0	No
	PF	1.776	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.353	SLV 11	0.08	0.328	31	0.327	No
	PFFP	1.557	SLV 15	0.362	1.483	1618	1.653	Si
65	R	0.023	SLV 1	0	0	0	0	No
	PF	0.521	SLV 13	0.12	0.49	81	0.484	No
	V	0.033	SLV 13	0	0	0	0	No
	PFFP	1.204	SLV 3	0.292	1.193	805	1.241	Si
66	R	0.06	SLV 5	0	0	0	0	No
	PF	0.072	SLV 11	0	0	0	0	No
	V	0.069	SLV 11	0	0	0	0	No
	PFFP	0.147	SLV 11	0.031	0.127	3	0.125	No
67	R	0.021	SLV 3	0	0	0	0	No
	PF	0.871	SLV 7	0.21	0.858	316	0.846	No
	V	0.583	SLV 11	0.135	0.553	108	0.545	No
	PFFP	2.449	SLV 5	0.362	1.483	1618	1.653	Si
68	R	0.022	SLV 1	0	0	0	0	No
	PF	1.126	SLV 11	0.274	1.12	665	1.148	Si
	V	0.886	SLV 9	0.214	0.875	333	0.864	No



Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
69	PFFP	1.408	SLV 11	0.34	1.39	1307	1.514	Si
	R	0.261	SLV 11	0.059	0.242	14	0.236	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
71	PFFP	3.326	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.322	SLV 5	0.073	0.298	24	0.294	No
	PF	3.747	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.875	SLV 11	0.211	0.862	320	0.85	No
72	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.14	SLV 5	0.031	0.127	3	0.125	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
73	PFFP	1.61	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.029	SLV 1	0	0	0	0	No
	PF	0.526	SLV 5	0.121	0.495	83	0.489	No
	V	0.502	SLV 5	0.115	0.471	73	0.464	No
74	PFFP	0.866	SLV 5	0.208	0.853	311	0.841	No
	R	0.058	SLV 5	0	0	0	0	No
	PF	1.374	SLV 15	0.332	1.357	1207	1.466	Si
	V	0.611	SLV 1	0.142	0.583	122	0.573	No
75	PFFP	2.723	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 5	0	0	0	0	No
	PF	2.73	SLV 1	0.362	1.483	1618	1.653	Si
	V	0.673	SLV 3	0.158	0.646	155	0.632	No
76	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.057	SLV 5	0	0	0	0	No
	PF	2.67	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.706	SLV 15	0.167	0.682	175	0.664	No
77	PFFP	3.621	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.058	SLV 5	0	0	0	0	No
	PF	2.21	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.593	SLV 15	0.138	0.565	113	0.555	No
78	PFFP	2.997	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.058	SLV 5	0	0	0	0	No
	PF	0.917	SLV 13	0.222	0.909	369	0.902	No
	V	0.342	SLV 1	0.078	0.318	28	0.313	No
79	PFFP	1.887	SLV 13	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 7	0	0	0	0	No
	PF	1.994	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.592	SLV 1	0.137	0.562	112	0.553	No
80	PFFP	3.655	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.058	SLV 5	0	0	0	0	No
	PF	1.772	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.725	SLV 1	0.171	0.701	187	0.682	No
81	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 5	0	0	0	0	No
	PF	1.171	SLV 1	0.284	1.162	744	1.202	Si
	V	0.202	SLV 15	0.044	0.181	7	0.177	No
82	PFFP	2.605	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.058	SLV 5	0	0	0	0	No
	PF	1.126	SLV 7	0.274	1.12	665	1.148	Si
	V	0.959	SLV 5	0.233	0.955	420	0.951	No
83	PFFP	1.382	SLV 7	0.334	1.365	1231	1.478	Si
	R	0.241	SLV 7	0.053	0.218	11	0.214	No
	PF	2.087	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.932	SLV 11	0.226	0.925	386	0.918	No
84	PFFP	3.974	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.133	SLV 5	0.026	0.107	2	0.106	No
	PF	0.426	SLV 3	0.098	0.399	49	0.394	No
	V	0.127	SLV 3	0.026	0.107	2	0.106	No
85	PFFP	0.964	SLV 11	0.235	0.96	426	0.956	No
	R	0.06	SLV 5	0	0	0	0	No
	PF	1.714	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.699	SLV 11	0.165	0.674	171	0.658	No
86	PFFP	2.551	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.022	SLV 1	0	0	0	0	No
	PF	0.592	SLV 11	0.138	0.565	113	0.555	No
	V	0.332	SLV 13	0.077	0.313	27	0.309	No
87	PFFP	1.192	SLV 7	0.289	1.182	783	1.227	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	1.874	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.58	SLV 11	0.135	0.551	107	0.543	No
88	PFFP	2.403	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.022	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
89	PFFP	1.016	SLV 13	0.248	1.015	497	1.019	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0.004	SLV 13	0	0	0	0	No
90	PFFP	1.692	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.054	SLV 7	0	0	0	0	No
	PF	0.675	SLV 1	0.158	0.648	156	0.633	No
	V	0.557	SLV 3	0.129	0.528	97	0.521	No
91	PFFP	1.472	SLV 7	0.355	1.452	1508	1.606	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	0.701	SLV 11	0.165	0.676	172	0.659	No
	V	0.371	SLV 1	0.085	0.346	35	0.343	No
	PFFP	3.094	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 5	0	0	0	0	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
92	PF	0.926	SLV 3	0.224	0.918	378	0.911	No
	V	0.129	SLV 13	0.026	0.107	2	0.106	No
	PFFP	0.905	SLV 7	0.219	0.896	354	0.886	No
93	R	0.061	SLV 5	0	0	0	0	No
	PF	0.646	SLV 5	0.151	0.619	140	0.606	No
	V	0.412	SLV 1	0.095	0.388	45	0.381	No
94	PFFP	1.288	SLV 9	0.311	1.274	981	1.346	Si
	R	0.06	SLV 5	0	0	0	0	No
	PF	0.866	SLV 5	0.208	0.853	311	0.841	No
95	V	0.222	SLV 15	0.051	0.21	10	0.205	No
	PFFP	0.791	SLV 5	0.189	0.773	239	0.755	No
	R	0.061	SLV 5	0	0	0	0	No
96	PF	1.603	SLV 5	0.362	1.483	1618	1.653	Si
	V	1.014	SLV 5	0.248	1.014	494	1.016	Si
	PFFP	2.005	SLV 1	0.362	1.483	1618	1.653	Si
97	R	0.059	SLV 7	0	0	0	0	No
	PF	1.688	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.924	SLV 9	0.224	0.917	377	0.91	No
98	PFFP	1.946	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.063	SLV 5	0	0	0	0	No
	PF	1.556	SLV 13	0.362	1.483	1618	1.653	Si
99	V	0.739	SLV 7	0.175	0.718	198	0.699	No
	PFFP	1.538	SLV 13	0.362	1.483	1618	1.653	Si
	R	0.064	SLV 5	0	0	0	0	No
100	PF	1.392	SLV 13	0.336	1.374	1259	1.491	Si
	V	0.984	SLV 1	0.24	0.982	453	0.981	No
	PFFP	1.596	SLV 9	0.362	1.483	1618	1.653	Si
101	R	0.062	SLV 5	0	0	0	0	No
	PF	1.329	SLV 1	0.321	1.314	1084	1.403	Si
	V	0.902	SLV 13	0.218	0.892	351	0.883	No
102	PFFP	2.036	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.063	SLV 5	0	0	0	0	No
	PF	1.529	SLV 15	0.362	1.483	1618	1.653	Si
103	V	0.412	SLV 1	0.095	0.388	45	0.381	No
	PFFP	1.528	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 5	0	0	0	0	No
104	PF	1.846	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.922	SLV 1	0.223	0.914	374	0.907	No
	PFFP	1.603	SLV 7	0.362	1.483	1618	1.653	Si
105	R	0.067	SLV 5	0	0	0	0	No
	PF	0.663	SLV 13	0.155	0.635	149	0.622	No
	V	0.603	SLV 13	0.14	0.574	118	0.565	No
106	PFFP	1.692	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.071	SLV 7	0	0	0	0	No
	PF	2.673	SLV 9	0.362	1.483	1618	1.653	Si
107	V	0.787	SLV 9	0.188	0.769	236	0.751	No
	PFFP	2.21	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.02	SLV 1	0	0	0	0	No
108	PF	0.407	SLV 1	0.094	0.384	44	0.377	No
	V	0.326	SLV 1	0.074	0.303	25	0.299	No
	PFFP	1.584	SLV 5	0.362	1.483	1618	1.653	Si
109	R	0.057	SLV 11	0	0	0	0	No
	PF	0.612	SLV 7	0.143	0.585	123	0.575	No
	V	0.419	SLV 13	0.097	0.395	47	0.387	No
110	PFFP	1.856	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.063	SLV 5	0	0	0	0	No
111	PF	3.335	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.572	SLV 11	0.133	0.544	104	0.536	No
	PFFP	1.833	SLV 15	0.362	1.483	1618	1.653	Si
112	R	0.021	SLV 1	0	0	0	0	No
	PF	1.067	SLV 15	0.26	1.064	571	1.078	Si
	V	0.572	SLV 15	0.132	0.542	103	0.534	No
113	PFFP	2.465	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 5	0	0	0	0	No
	PF	0.055	SLV 11	0	0	0	0	No
114	V	0.032	SLV 11	0	0	0	0	No
	PFFP	0.538	SLV 11	0.124	0.508	88	0.501	No
	R	0.02	SLV 1	0	0	0	0	No
115	PF	1.14	SLV 5	0.277	1.133	689	1.165	Si
	V	0.69	SLV 5	0.163	0.665	166	0.65	No
	PFFP	1.692	SLV 5	0.362	1.483	1618	1.653	Si
116	R	0.02	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
117	PFFP	0.695	SLV 7	0.163	0.669	168	0.653	No
	R	0.029	SLV 1	0	0	0	0	No
	PF	0.388	SLV 5	0.088	0.359	38	0.355	No
118	V	0.359	SLV 5	0.081	0.332	31	0.327	No
	PFFP	0.976	SLV 5	0.238	0.973	441	0.97	No
	R	0.061	SLV 9	0	0	0	0	No
119	PF	1.223	SLV 13	0.296	1.211	842	1.265	Si
	V	0.971	SLV 13	0.236	0.967	435	0.965	No
	PFFP	1.533	SLV 13	0.362	1.483	1618	1.653	Si
120	R	0.062	SLV 5	0	0	0	0	No
	PF	2.827	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.901	SLV 1	0.218	0.89	349	0.881	No
121	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 7	0	0	0	0	No
	PF	2.42	SLV 3	0.362	1.483	1618	1.653	Si
122	V	0.931	SLV 15	0.226	0.924	385	0.917	No





Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
116	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.063	SLV 7	0	0	0	0	No
	PF	1.474	SLV 1	0.355	1.454	1514	1.608	Si
	V	1.22	SLV 1	0.295	1.208	836	1.261	Si
117	PFFP	1.882	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 7	0	0	0	0	No
	PF	2.443	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.773	SLV 1	0.184	0.754	224	0.735	No
118	PFFP	2.73	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	3.785	SLV 1	0.362	1.483	1618	1.653	Si
	V	0.856	SLV 3	0.206	0.842	301	0.829	No
119	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 5	0	0	0	0	No
	PF	0.766	SLV 15	0.182	0.746	218	0.727	No
	V	0.78	SLV 15	0.186	0.761	230	0.743	No
120	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 5	0	0	0	0	No
	PF	1.568	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.947	SLV 15	0.23	0.942	405	0.937	No
121	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 5	0	0	0	0	No
	PF	1.255	SLV 15	0.303	1.242	907	1.304	Si
	V	0.679	SLV 15	0.159	0.652	158	0.637	No
122	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	2.761	SLV 1	0.362	1.483	1618	1.653	Si
	V	0.949	SLV 13	0.231	0.944	408	0.94	No
124	PFFP	2.998	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	1.019	SLV 3	0.249	1.018	501	1.022	Si
	V	0.648	SLV 3	0.152	0.621	141	0.608	No
125	PFFP	1.69	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 9	0	0	0	0	No
	PF	3.954	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.816	SLV 7	0.195	0.799	262	0.784	No
126	PFFP	2.77	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.021	SLV 1	0	0	0	0	No
	PF	0.612	SLV 11	0.143	0.585	123	0.575	No
	V	0.612	SLV 11	0.143	0.585	123	0.575	No
127	PFFP	0.98	SLV 7	0.239	0.977	447	0.975	No
	R	0.064	SLV 5	0	0	0	0	No
	PF	2.381	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.788	SLV 5	0.188	0.77	237	0.752	No
128	PFFP	2.094	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.02	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
129	PFFP	0.921	SLV 13	0.223	0.913	373	0.906	No
	R	0.061	SLV 13	0	0	0	0	No
	PF	1.472	SLV 1	0.355	1.452	1507	1.605	Si
	V	1.58	SLV 1	0.362	1.483	1618	1.653	Si
130	PFFP	1.876	SLV 9	0.362	1.483	1618	1.653	Si
	R	0	SLV 1	0	0	0	0	No
	PF	0.856	SLV 3	0.206	0.842	301	0.829	No
	V	0.674	SLV 3	0.158	0.648	156	0.633	No
131	PFFP	1.41	SLV 7	0.34	1.392	1313	1.517	Si
	R	0.067	SLV 7	0	0	0	0	No
	PF	1.933	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.893	SLV 3	0.216	0.882	340	0.872	No
132	PFFP	1.632	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.066	SLV 5	0	0	0	0	No
	PF	1.283	SLV 11	0.31	1.269	969	1.34	Si
	V	0.807	SLV 13	0.193	0.791	254	0.774	No
133	PFFP	1.366	SLV 7	0.33	1.35	1186	1.455	Si
	R	0.064	SLV 5	0	0	0	0	No
	PF	1.439	SLV 13	0.347	1.42	1401	1.558	Si
	V	0.958	SLV 1	0.233	0.953	418	0.949	No
134	PFFP	1.639	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 7	0	0	0	0	No
	PF	1.245	SLV 5	0.301	1.233	887	1.292	Si
	V	0.947	SLV 13	0.23	0.942	405	0.937	No
135	PFFP	1.258	SLV 5	0.304	1.245	914	1.308	Si
	R	0.065	SLV 5	0	0	0	0	No
	PF	2.186	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.442	SLV 5	0.348	1.423	1412	1.563	Si
136	PFFP	2.248	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.064	SLV 5	0	0	0	0	No
	PF	2.114	SLV 11	0.362	1.483	1618	1.653	Si
	V	1.522	SLV 11	0.362	1.483	1618	1.653	Si
137	PFFP	1.608	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.065	SLV 5	0	0	0	0	No
	PF	1.776	SLV 9	0.362	1.483	1618	1.653	Si
	V	1.52	SLV 9	0.362	1.483	1618	1.653	Si
138	PFFP	1.426	SLV 9	0.344	1.408	1361	1.54	Si
	R	0.063	SLV 5	0	0	0	0	No
	PF	1.45	SLV 13	0.349	1.43	1435	1.573	Si
	V	1.291	SLV 13	0.312	1.277	987	1.35	Si
	PFFP	1.541	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 7	0	0	0	0	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
139	PF	0.561	SLV 3	0.13	0.532	99	0.526	No
	V	0.474	SLV 3	0.109	0.445	64	0.44	No
	PFFP	0.941	SLV 3	0.228	0.934	396	0.928	No
	R	0.068	SLV 7	0	0	0	0	No
140	PF	1.823	SLV 11	0.362	1.483	1618	1.653	Si
	V	1.824	SLV 11	0.362	1.483	1618	1.653	Si
	PFFP	1.458	SLV 11	0.351	1.439	1463	1.586	Si
	R	0.061	SLV 5	0	0	0	0	No
141	PF	2.408	SLV 11	0.362	1.483	1618	1.653	Si
	V	1.018	SLV 1	0.248	1.017	499	1.02	Si
	PFFP	2.066	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.064	SLV 7	0	0	0	0	No
142	PF	0.734	SLV 13	0.174	0.711	193	0.691	No
	V	0.721	SLV 15	0.17	0.698	185	0.679	No
	PFFP	1.31	SLV 15	0.316	1.295	1035	1.376	Si
	R	0.066	SLV 11	0	0	0	0	No
143	PF	2.112	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.892	SLV 9	0.215	0.881	340	0.872	No
	PFFP	1.481	SLV 9	0.357	1.461	1538	1.619	Si
	R	0.02	SLV 1	0	0	0	0	No
144	PF	0.86	SLV 9	0.207	0.846	305	0.834	No
	V	0.857	SLV 9	0.206	0.843	302	0.831	No
	PFFP	1.163	SLV 9	0.282	1.155	730	1.193	Si
	R	0.057	SLV 5	0	0	0	0	No
145	PF	0.635	SLV 13	0.148	0.606	134	0.595	No
	V	0.464	SLV 13	0.107	0.436	61	0.431	No
	PFFP	0.956	SLV 11	0.233	0.952	416	0.947	No
	R	0.061	SLV 5	0	0	0	0	No
146	PF	3.244	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.68	SLV 11	0.16	0.654	159	0.638	No
	PFFP	1.506	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.021	SLV 1	0	0	0	0	No
147	PF	0.483	SLV 9	0.11	0.451	66	0.445	No
	V	0.435	SLV 9	0.099	0.407	51	0.401	No
	PFFP	0.641	SLV 5	0.15	0.614	138	0.602	No
	R	0.06	SLV 7	0	0	0	0	No
148	PF	0.015	SLV 11	0	0	0	0	No
	V	0	SLV 7	0	0	0	0	No
	PFFP	0.226	SLV 11	0.051	0.21	10	0.205	No
	R	0.018	SLV 1	0	0	0	0	No
149	PF	1.398	SLV 5	0.337	1.381	1277	1.5	Si
	V	0.784	SLV 5	0.187	0.766	234	0.748	No
	PFFP	1.595	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.019	SLV 1	0	0	0	0	No
150	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.367	SLV 11	0.083	0.342	34	0.339	No
	R	0.031	SLV 5	0	0	0	0	No
151	PF	0.16	SLV 5	0.035	0.143	4	0.141	No
	V	0.147	SLV 5	0.031	0.127	3	0.125	No
	PFFP	0.421	SLV 9	0.096	0.392	46	0.384	No
	R	0.058	SLV 11	0	0	0	0	No
152	PF	1.534	SLV 13	0.362	1.483	1618	1.653	Si
	V	1.42	SLV 13	0.342	1.401	1342	1.531	Si
	PFFP	1.389	SLV 13	0.335	1.372	1250	1.487	Si
	R	0.059	SLV 7	0	0	0	0	No
153	PF	2.75	SLV 15	0.362	1.483	1618	1.653	Si
	V	1.385	SLV 1	0.334	1.368	1238	1.481	Si
	PFFP	3.251	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 7	0	0	0	0	No
154	PF	2.626	SLV 3	0.362	1.483	1618	1.653	Si
	V	1.523	SLV 15	0.362	1.483	1618	1.653	Si
	PFFP	2.563	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 5	0	0	0	0	No
155	PF	1.894	SLV 3	0.362	1.483	1618	1.653	Si
	V	1.691	SLV 3	0.362	1.483	1618	1.653	Si
	PFFP	1.883	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
156	PF	1.986	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.904	SLV 1	0.218	0.894	352	0.884	No
	PFFP	1.898	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.057	SLV 5	0	0	0	0	No
157	PF	3.379	SLV 13	0.362	1.483	1618	1.653	Si
	V	1.022	SLV 13	0.249	1.021	505	1.025	Si
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.055	SLV 5	0	0	0	0	No
158	PF	0.579	SLV 1	0.135	0.551	107	0.543	No
	V	0.544	SLV 1	0.125	0.513	90	0.506	No
	PFFP	2.165	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.051	SLV 7	0	0	0	0	No
159	PF	1.687	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.225	SLV 15	0.296	1.213	845	1.266	Si
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.054	SLV 5	0	0	0	0	No
160	PF	1.267	SLV 15	0.306	1.253	933	1.319	Si
	V	0.696	SLV 15	0.164	0.671	169	0.655	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.056	SLV 5	0	0	0	0	No
161	PF	2.388	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.202	SLV 15	0.291	1.191	801	1.239	Si



Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
162	PFFP	2.217	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.058	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
163	PFFP	1	SLV 7	0.244	1	475	1	Si
	R	0.068	SLV 1	0	0	0	0	No
	PF	3.454	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.121	SLV 7	0.272	1.115	657	1.142	Si
165	PFFP	3.345	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.107	SLV 7	0.02	0.08	1	0.08	No
	PF	1.986	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.171	SLV 9	0.284	1.162	744	1.202	Si
166	PFFP	1.868	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.056	SLV 7	0	0	0	0	No
	PF	0.893	SLV 3	0.216	0.882	340	0.872	No
	V	0.636	SLV 3	0.149	0.608	135	0.597	No
167	PFFP	1.312	SLV 11	0.317	1.297	1040	1.379	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	3.808	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.868	SLV 7	0.209	0.855	313	0.843	No
168	PFFP	1.542	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.02	SLV 1	0	0	0	0	No
	PF	0.523	SLV 7	0.12	0.493	82	0.487	No
	V	0.518	SLV 7	0.119	0.487	80	0.482	No
169	PFFP	0.734	SLV 7	0.174	0.711	193	0.691	No
	R	0.061	SLV 5	0	0	0	0	No
	PF	1.939	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.883	SLV 5	0.213	0.871	329	0.86	No
170	PFFP	1.467	SLV 9	0.354	1.447	1492	1.599	Si
	R	0.019	SLV 1	0	0	0	0	No
	PF	0.789	SLV 5	0.188	0.771	238	0.753	No
	V	0.781	SLV 5	0.186	0.762	231	0.744	No
171	PFFP	0.785	SLV 5	0.187	0.766	234	0.748	No
	R	0.059	SLV 7	0	0	0	0	No
	PF	1.037	SLV 5	0.253	1.035	526	1.043	Si
	V	1.03	SLV 5	0.251	1.028	516	1.035	Si
172	PFFP	0.456	SLV 5	0.104	0.427	57	0.419	No
	R	0.067	SLV 13	0	0	0	0	No
	PF	0.755	SLV 1	0.179	0.733	208	0.713	No
	V	0.706	SLV 3	0.167	0.682	175	0.664	No
173	PFFP	0.959	SLV 7	0.233	0.955	420	0.951	No
	R	0.065	SLV 7	0	0	0	0	No
	PF	1.822	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.389	SLV 13	0.335	1.372	1250	1.487	Si
174	PFFP	1.711	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.063	SLV 5	0	0	0	0	No
	PF	1.887	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.575	SLV 15	0.362	1.483	1618	1.653	Si
175	PFFP	1.422	SLV 7	0.343	1.404	1350	1.535	Si
	R	0.062	SLV 5	0	0	0	0	No
	PF	0.761	SLV 15	0.181	0.74	213	0.72	No
	V	0.646	SLV 15	0.151	0.619	140	0.606	No
176	PFFP	1.07	SLV 15	0.261	1.066	575	1.081	Si
	R	0.066	SLV 7	0	0	0	0	No
	PF	1.293	SLV 5	0.312	1.279	993	1.353	Si
	V	1.176	SLV 13	0.285	1.167	753	1.208	Si
177	PFFP	1.276	SLV 5	0.308	1.263	954	1.331	Si
	R	0.061	SLV 11	0	0	0	0	No
	PF	2.865	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.871	SLV 5	0.362	1.483	1618	1.653	Si
178	PFFP	2.306	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.064	SLV 5	0	0	0	0	No
	PF	0.788	SLV 3	0.188	0.769	236	0.751	No
	V	0.752	SLV 7	0.179	0.731	207	0.711	No
179	PFFP	0.734	SLV 7	0.174	0.711	193	0.691	No
	R	0.073	SLV 13	0	0	0	0	No
	PF	1.726	SLV 9	0.362	1.483	1618	1.653	Si
	V	1.644	SLV 9	0.362	1.483	1618	1.653	Si
180	PFFP	0.98	SLV 9	0.239	0.977	447	0.975	No
	R	0.055	SLV 11	0	0	0	0	No
	PF	0.654	SLV 3	0.153	0.627	144	0.613	No
	V	0.416	SLV 3	0.096	0.392	46	0.384	No
181	PFFP	1.291	SLV 9	0.312	1.277	988	1.35	Si
	R	0.051	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
182	PFFP	0.287	SLV 5	0.064	0.262	18	0.261	No
	R	0	SLV 1	0	0	0	0	No
	PF	0.988	SLV 5	0.241	0.987	458	0.985	No
	V	0.732	SLV 5	0.173	0.71	192	0.69	No
183	PFFP	1.264	SLV 11	0.306	1.251	927	1.315	Si
	R	0.062	SLV 3	0	0	0	0	No
	PF	1.288	SLV 5	0.311	1.274	981	1.346	Si
	V	0.836	SLV 5	0.2	0.82	280	0.805	No
184	PFFP	1.026	SLV 11	0.25	1.025	510	1.03	Si
	R	0.081	SLV 7	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.223	SLV 7	0.049	0.201	9	0.197	No
	R	0	SLV 1	0	0	0	0	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
185	PF	0.198	SLV 5	0.044	0.181	7	0.177	No
	V	0.193	SLV 5	0.041	0.169	6	0.167	No
	PFFP	0.339	SLV 11	0.077	0.313	27	0.309	No
186	R	0	SLV 1	0	0	0	0	No
	PF	0.257	SLV 9	0.057	0.234	13	0.229	No
	V	0.218	SLV 9	0.049	0.201	9	0.197	No
	PFFP	0.783	SLV 3	0.186	0.763	232	0.745	No
187	R	0.025	SLV 1	0	0	0	0	No
	PF	1.458	SLV 11	0.351	1.439	1463	1.586	Si
	V	0.938	SLV 11	0.227	0.931	393	0.925	No
	PFFP	1.499	SLV 9	0.361	1.478	1599	1.645	Si
188	R	0.068	SLV 1	0	0	0	0	No
	PF	0.193	SLV 7	0.041	0.169	6	0.167	No
	V	0.131	SLV 7	0.026	0.107	2	0.106	No
	PFFP	0.605	SLV 5	0.141	0.576	119	0.567	No
189	R	0.028	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.065	SLV 11	0	0	0	0	No
190	R	0.022	SLV 1	0	0	0	0	No
	PF	0.957	SLV 5	0.233	0.953	417	0.948	No
	V	0.913	SLV 5	0.221	0.905	364	0.897	No
	PFFP	0.607	SLV 9	0.141	0.578	120	0.569	No
191	R	0.028	SLV 1	0	0	0	0	No
	PFFP	0.344	SLV 11	0.078	0.318	28	0.313	No
	R	0	SLV 1	0	0	0	0	No
192	PFFP	0.504	SLV 5	0.116	0.474	74	0.467	No
	R	0.095	SLV 7	0.02	0.08	1	0.08	No
	PF	0	SLV 1	0	0	0	0	No
193	V	0	SLV 1	0	0	0	0	No
	PFFP	0.227	SLV 9	0.051	0.21	10	0.205	No
	R	0	SLV 1	0	0	0	0	No
194	PF	0.949	SLV 7	0.231	0.944	408	0.94	No
	V	0.936	SLV 7	0.227	0.929	391	0.923	No
	PFFP	1.068	SLV 7	0.26	1.065	573	1.08	Si
	R	0	SLV 1	0	0	0	0	No
195	PF	1.87	SLV 11	0.362	1.483	1618	1.653	Si
	V	1.74	SLV 11	0.362	1.483	1618	1.653	Si
	PFFP	1.085	SLV 11	0.264	1.081	599	1.1	Si
	R	0.079	SLV 5	0	0	0	0	No
196	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.395	SLV 5	0.09	0.368	40	0.363	No
197	R	0	SLV 1	0	0	0	0	No
	PF	1.365	SLV 15	0.329	1.348	1182	1.453	Si
	V	1.329	SLV 15	0.321	1.314	1084	1.403	Si
	PFFP	1.065	SLV 15	0.259	1.062	568	1.076	Si
198	R	0.098	SLV 7	0.02	0.08	1	0.08	No
	PF	1.459	SLV 13	0.352	1.439	1465	1.587	Si
	V	1.187	SLV 13	0.288	1.177	773	1.221	Si
	PFFP	1.85	SLV 13	0.362	1.483	1618	1.653	Si
199	R	0.071	SLV 7	0	0	0	0	No
	PF	0.334	SLV 1	0.077	0.313	27	0.309	No
	V	0.311	SLV 1	0.071	0.292	23	0.289	No
	PFFP	1.064	SLV 7	0.259	1.061	567	1.075	Si
200	R	0.063	SLV 7	0	0	0	0	No
	PF	0.665	SLV 1	0.156	0.639	151	0.625	No
	V	0.649	SLV 1	0.152	0.621	141	0.608	No
	PFFP	1.325	SLV 1	0.32	1.31	1073	1.397	Si
201	R	0.081	SLV 7	0	0	0	0	No
	PF	1.26	SLV 15	0.305	1.247	918	1.31	Si
	V	0.709	SLV 15	0.167	0.685	177	0.667	No
	PFFP	2.115	SLV 5	0.362	1.483	1618	1.653	Si
202	R	0.076	SLV 11	0	0	0	0	No
	PF	2.327	SLV 1	0.362	1.483	1618	1.653	Si
	V	2.318	SLV 1	0.362	1.483	1618	1.653	Si
	PFFP	1.285	SLV 1	0.311	1.271	972	1.341	Si
203	R	0.106	SLV 5	0.02	0.08	1	0.08	No
	PF	0.443	SLV 5	0.101	0.414	53	0.407	No
	V	0.201	SLV 5	0.044	0.181	7	0.177	No
	PFFP	0.986	SLV 7	0.24	0.984	455	0.983	No
204	R	0.114	SLV 7	0.026	0.107	2	0.106	No
	PF	0.353	SLV 9	0.08	0.328	31	0.327	No
	V	0.322	SLV 7	0.073	0.298	24	0.294	No
	PFFP	0.841	SLV 5	0.202	0.827	287	0.813	No
205	R	0.029	SLV 1	0	0	0	0	No
	PF	0.327	SLV 5	0.074	0.303	25	0.299	No
	V	0.291	SLV 5	0.066	0.269	19	0.267	No
	PFFP	0.987	SLV 13	0.241	0.986	457	0.984	No
206	R	0.026	SLV 1	0	0	0	0	No
	PF	0.073	SLV 15	0	0	0	0	No
	V	0.032	SLV 15	0	0	0	0	No
	PFFP	1.816	SLV 5	0.362	1.483	1618	1.653	Si
207	R	0.008	SLV 9	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	1.429	SLV 1	0.345	1.41	1370	1.544	Si
208	PFFP	0.799	SLV 5	0.191	0.78	246	0.764	No
	R	0.064	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
209	PFFP	0.28	SLV 5	0.062	0.256	17	0.255	No
	R	0	SLV 1	0	0	0	0	No
	PF	0.794	SLV 15	0.189	0.775	242	0.758	No
	V	0.512	SLV 15	0.118	0.482	78	0.477	No
210	PFFP	1.317	SLV 9	0.318	1.302	1054	1.387	Si
	R	0.065	SLV 5	0	0	0	0	No
	PF	1.128	SLV 11	0.274	1.122	669	1.151	Si
	V	1	SLV 11	0.244	1	475	1	Si
211	PFFP	1.259	SLV 15	0.304	1.246	916	1.309	Si
	R	0.065	SLV 1	0	0	0	0	No
	PF	0.359	SLV 13	0.082	0.337	33	0.335	No
	V	0.335	SLV 13	0.077	0.313	27	0.309	No
212	PFFP	0.325	SLV 9	0.074	0.303	25	0.299	No
	R	0.061	SLV 11	0	0	0	0	No
	PF	0.362	SLV 9	0.082	0.337	33	0.335	No
	V	0.328	SLV 9	0.074	0.303	25	0.299	No
213	PFFP	0.744	SLV 5	0.177	0.723	201	0.703	No
	R	0.054	SLV 11	0	0	0	0	No
	PF	0.807	SLV 3	0.193	0.791	254	0.774	No
	V	0.574	SLV 3	0.133	0.544	104	0.536	No
214	PFFP	0.896	SLV 15	0.216	0.885	343	0.875	No
	R	0.061	SLV 7	0	0	0	0	No
	PF	0.372	SLV 11	0.085	0.346	35	0.343	No
	V	0.361	SLV 11	0.082	0.337	33	0.335	No
215	PFFP	0.324	SLV 7	0.073	0.298	24	0.294	No
	R	0.083	SLV 5	0	0	0	0	No
	PF	0.26	SLV 7	0.059	0.242	14	0.236	No
	V	0.26	SLV 7	0.059	0.242	14	0.236	No
216	PFFP	0.206	SLV 11	0.047	0.191	8	0.187	No
	R	0	SLV 1	0	0	0	0	No
	PF	1.826	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.479	SLV 7	0.356	1.459	1532	1.616	Si
217	PFFP	1.069	SLV 7	0.26	1.066	574	1.081	Si
	R	0.071	SLV 7	0	0	0	0	No
	PF	1.071	SLV 11	0.261	1.068	577	1.083	Si
	V	0.935	SLV 11	0.227	0.928	389	0.921	No
220	PFFP	1.154	SLV 11	0.28	1.146	714	1.182	Si
	R	0.078	SLV 11	0	0	0	0	No
	PF	0.505	SLV 15	0.116	0.474	74	0.467	No
	V	0.32	SLV 1	0.073	0.298	24	0.294	No
221	PFFP	1.054	SLV 11	0.257	1.052	552	1.064	Si
	R	0.17	SLV 5	0.038	0.157	5	0.155	No
	PF	0.461	SLV 3	0.106	0.433	59	0.425	No
	V	0.417	SLV 3	0.096	0.392	46	0.384	No
222	PFFP	1.016	SLV 7	0.248	1.015	497	1.019	Si
	R	0.172	SLV 9	0.038	0.157	5	0.155	No
	PF	0.47	SLV 15	0.108	0.442	63	0.437	No
	V	0.393	SLV 15	0.09	0.368	40	0.363	No
223	PFFP	0.972	SLV 11	0.237	0.969	436	0.965	No
	R	0.086	SLV 5	0.02	0.08	1	0.08	No
	PF	0.507	SLV 3	0.116	0.477	75	0.469	No
	V	0.422	SLV 3	0.097	0.395	47	0.387	No
224	PFFP	1.071	SLV 7	0.261	1.068	577	1.083	Si
	R	0.087	SLV 9	0.02	0.08	1	0.08	No
	PF	0.31	SLV 15	0.071	0.292	23	0.289	No
	V	0.289	SLV 15	0.066	0.269	19	0.267	No
225	PFFP	0.504	SLV 7	0.116	0.474	74	0.467	No
	R	0.074	SLV 5	0	0	0	0	No
	PF	0.427	SLV 3	0.098	0.403	50	0.397	No
	V	0.379	SLV 3	0.087	0.355	37	0.351	No
226	PFFP	0.796	SLV 11	0.19	0.778	244	0.761	No
	R	0.074	SLV 9	0	0	0	0	No
	PF	0.905	SLV 11	0.219	0.896	354	0.886	No
	V	0.898	SLV 11	0.217	0.888	346	0.878	No
227	PFFP	1.082	SLV 7	0.263	1.078	594	1.096	Si
	R	0.456	SLV 5	0.104	0.427	57	0.419	No
	PF	0.275	SLV 7	0.062	0.256	17	0.255	No
	V	0.273	SLV 7	0.062	0.256	17	0.255	No
228	PFFP	0.307	SLV 11	0.069	0.281	21	0.278	No
	R	0.04	SLV 11	0	0	0	0	No
	PF	0.433	SLV 7	0.098	0.403	50	0.397	No
	V	0.387	SLV 15	0.089	0.364	39	0.359	No
229	PFFP	0.488	SLV 11	0.112	0.457	68	0.451	No
	R	0.005	SLV 1	0	0	0	0	No
	PF	0.049	SLV 9	0	0	0	0	No
	V	0.048	SLV 9	0	0	0	0	No
230	PFFP	0.171	SLV 9	0.038	0.157	5	0.155	No
	R	0	SLV 1	0	0	0	0	No
	PF	0.015	SLV 5	0	0	0	0	No
	V	0.014	SLV 5	0	0	0	0	No
231	PFFP	0.262	SLV 9	0.059	0.242	14	0.236	No
	R	0	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
232	PFFP	0.578	SLV 5	0.134	0.548	106	0.541	No
	R	0.039	SLV 13	0	0	0	0	No
	PF	0.142	SLV 5	0.031	0.127	3	0.125	No
	V	0.138	SLV 5	0.031	0.127	3	0.125	No
	PFFP	0.278	SLV 11	0.062	0.256	17	0.255	No
	R	0.101	SLV 9	0.02	0.08	1	0.08	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
233	PF	0.173	SLV 11	0.038	0.157	5	0.155	No
	V	0.173	SLV 11	0.038	0.157	5	0.155	No
	PFFP	0.249	SLV 11	0.055	0.226	12	0.221	No
	R	0.118	SLV 5	0.026	0.107	2	0.106	No
234	PF	0.353	SLV 11	0.08	0.328	31	0.327	No
	V	0.346	SLV 11	0.079	0.323	30	0.322	No
	PFFP	0.399	SLV 11	0.091	0.372	41	0.366	No
	R	0.119	SLV 5	0.026	0.107	2	0.106	No
235	PFFP	0.262	SLV 5	0.059	0.242	14	0.236	No
	R	0.166	SLV 1	0.038	0.157	5	0.155	No
236	PF	0.992	SLV 5	0.242	0.991	464	0.99	No
	V	0.638	SLV 5	0.149	0.61	136	0.599	No
	PFFP	2.078	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
237	PFFP	0.475	SLV 11	0.109	0.445	64	0.44	No
	R	0	SLV 1	0	0	0	0	No
238	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.286	SLV 7	0.064	0.262	18	0.261	No
	R	0.09	SLV 7	0.02	0.08	1	0.08	No
239	PF	0.162	SLV 11	0.035	0.143	4	0.141	No
	V	0.161	SLV 11	0.035	0.143	4	0.141	No
	PFFP	0.344	SLV 11	0.078	0.318	28	0.313	No
	R	0.131	SLV 5	0.026	0.107	2	0.106	No
240	PF	0.772	SLV 11	0.184	0.753	223	0.733	No
	V	0.678	SLV 7	0.159	0.652	158	0.637	No
	PFFP	1.745	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.03	SLV 3	0	0	0	0	No
241	PF	3.342	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.011	SLV 7	0.247	1.01	489	1.012	Si
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 7	0	0	0	0	No
242	PF	1.699	SLV 9	0.362	1.483	1618	1.653	Si
	V	1.119	SLV 9	0.272	1.113	654	1.14	Si
	PFFP	1.861	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.044	SLV 13	0	0	0	0	No
243	PF	0.139	SLV 3	0.031	0.127	3	0.125	No
	V	0.142	SLV 3	0.031	0.127	3	0.125	No
	PFFP	0.331	SLV 7	0.075	0.308	26	0.304	No
	R	0.122	SLV 5	0.026	0.107	2	0.106	No
244	PF	0.119	SLV 5	0.026	0.107	2	0.106	No
	V	0.119	SLV 5	0.026	0.107	2	0.106	No
	PFFP	0.291	SLV 7	0.066	0.269	19	0.267	No
	R	0.114	SLV 1	0.026	0.107	2	0.106	No
245	PF	0.019	SLV 11	0	0	0	0	No
	V	0.018	SLV 11	0	0	0	0	No
	PFFP	0.178	SLV 5	0.038	0.157	5	0.155	No
	R	0.02	SLV 5	0	0	0	0	No
246	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.262	SLV 5	0.059	0.242	14	0.236	No
	R	0	SLV 1	0	0	0	0	No

#### Verifica travi di collegamento in muratura

Trave	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
1	F	0.683	SLV 7	0.161	0.658	161	0.642	No
	V	0	SLV 1	0	0	0	0	No
2	F	0.338	SLV 13	0.078	0.318	28	0.313	No
	V	0	SLV 1	0	0	0	0	No
3	F	0.102	SLV 9	0.02	0.08	1	0.08	No
	V	0	SLV 1	0	0	0	0	No
4	F	0.261	SLV 7	0.059	0.242	14	0.236	No
	V	0	SLV 1	0	0	0	0	No
5	F	0.598	SLV 9	0.139	0.569	116	0.561	No
	V	0	SLV 1	0	0	0	0	No
6	F	0.39	SLV 3	0.09	0.368	40	0.363	No
	V	0	SLV 1	0	0	0	0	No
7	F	0.221	SLV 3	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
8	F	0.024	SLV 13	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
9	F	0.175	SLV 9	0.038	0.157	5	0.155	No
	V	0	SLV 1	0	0	0	0	No
10	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
11	F	0.341	SLV 13	0.078	0.318	28	0.313	No
	V	0	SLV 1	0	0	0	0	No
12	F	0.21	SLV 3	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
13	F	0.841	SLV 7	0.202	0.827	287	0.813	No
	V	0	SLV 1	0	0	0	0	No
14	F	0.319	SLV 3	0.073	0.298	24	0.294	No
	V	0	SLV 1	0	0	0	0	No
15	F	0.427	SLV 15	0.098	0.403	50	0.397	No
	V	0	SLV 1	0	0	0	0	No
16	F	0.308	SLV 1	0.07	0.286	22	0.284	No
	V	0	SLV 1	0	0	0	0	No
17	F	0.364	SLV 15	0.083	0.342	34	0.339	No
	V	0	SLV 1	0	0	0	0	No
18	F	0.173	SLV 3	0.038	0.157	5	0.155	No



Trave	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
	V	0	SLV 1	0	0	0	0	No
19	F	0.163	SLV 3	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
20	F	0.844	SLV 1	0.203	0.829	289	0.816	No
	V	0	SLV 1	0	0	0	0	No
21	F	0.301	SLV 1	0.069	0.281	21	0.278	No
	V	0	SLV 1	0	0	0	0	No
22	F	0.285	SLV 13	0.066	0.269	19	0.267	No
	V	0	SLV 1	0	0	0	0	No
23	F	0.151	SLV 13	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
24	F	0.143	SLV 7	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
25	F	0.136	SLV 13	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
26	F	0.075	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
27	F	0.147	SLV 5	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
28	F	0.283	SLV 13	0.064	0.262	18	0.261	No
	V	0	SLV 1	0	0	0	0	No
29	F	0.154	SLV 11	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
30	F	0.217	SLV 11	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
31	F	0.288	SLV 15	0.066	0.269	19	0.267	No
	V	0	SLV 1	0	0	0	0	No
32	F	0.172	SLV 13	0.038	0.157	5	0.155	No
	V	0	SLV 1	0	0	0	0	No
33	F	0.107	SLV 7	0.02	0.08	1	0.08	No
	V	0	SLV 1	0	0	0	0	No
34	F	0.704	SLV 3	0.166	0.68	174	0.662	No
	V	0	SLV 1	0	0	0	0	No
35	F	0.082	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
36	F	0.499	SLV 1	0.114	0.468	72	0.461	No
	V	0	SLV 1	0	0	0	0	No
37	F	0.13	SLV 13	0.026	0.107	2	0.106	No
	V	0	SLV 1	0	0	0	0	No
38	F	0.674	SLV 13	0.158	0.648	156	0.633	No
	V	0	SLV 1	0	0	0	0	No
39	F	0.049	SLV 13	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
40	F	0.712	SLV 13	0.168	0.687	178	0.669	No
	V	0	SLV 1	0	0	0	0	No
41	F	0.22	SLV 9	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
42	F	0.294	SLV 13	0.067	0.275	20	0.273	No
	V	0	SLV 1	0	0	0	0	No
43	F	0.261	SLV 15	0.059	0.242	14	0.236	No
	V	0.041	SLV 15	0	0	0	0	No
44	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
45	F	0.192	SLV 9	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
46	F	0.18	SLV 1	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
47	F	0.213	SLV 13	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
48	F	0.233	SLV 13	0.053	0.218	11	0.214	No
	V	0	SLV 1	0	0	0	0	No
49	F	0.218	SLV 15	0.049	0.201	9	0.197	No
	V	0.008	SLV 1	0	0	0	0	No
50	F	0.466	SLV 15	0.107	0.439	62	0.434	No
	V	0	SLV 1	0	0	0	0	No
51	F	0.183	SLV 3	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
52	F	0.528	SLV 3	0.122	0.498	84	0.491	No
	V	0	SLV 1	0	0	0	0	No
53	F	0.219	SLV 15	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
54	F	0.707	SLV 3	0.167	0.683	176	0.666	No
	V	0	SLV 1	0	0	0	0	No
55	F	0.267	SLV 3	0.061	0.249	16	0.249	No
	V	0	SLV 1	0	0	0	0	No
56	F	0.204	SLV 13	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
57	F	0.181	SLV 5	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
58	F	0.124	SLV 13	0.026	0.107	2	0.106	No
	V	0	SLV 1	0	0	0	0	No
59	F	0.549	SLV 13	0.127	0.518	93	0.512	No
	V	0	SLV 1	0	0	0	0	No
60	F	0.1	SLV 13	0.02	0.08	1	0.08	No
	V	0	SLV 1	0	0	0	0	No
61	F	0.805	SLV 11	0.193	0.788	252	0.771	No
	V	0	SLV 1	0	0	0	0	No
62	F	0.156	SLV 3	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
63	F	0.534	SLV 1	0.123	0.503	86	0.496	No



Trave	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
64	V	0	SLV 1	0	0	0	0	No
	F	0.222	SLV 13	0.051	0.21	10	0.205	No
	V	0	SLV 1	0	0	0	0	No
65	F	0.342	SLV 13	0.078	0.318	28	0.313	No
	V	0	SLV 1	0	0	0	0	No
66	F	0.207	SLV 15	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
67	F	0.521	SLV 15	0.12	0.49	81	0.484	No
	V	0	SLV 1	0	0	0	0	No
68	F	0.407	SLV 7	0.092	0.376	42	0.37	No
	V	0	SLV 1	0	0	0	0	No
69	F	0.735	SLV 3	0.174	0.713	194	0.693	No
	V	0	SLV 1	0	0	0	0	No
70	F	1.125	SLV 3	0.273	1.119	664	1.147	Si
	V	0	SLV 1	0	0	0	0	No
71	F	0.28	SLV 1	0.064	0.262	18	0.261	No
	V	0	SLV 1	0	0	0	0	No
72	F	0.403	SLV 1	0.093	0.38	43	0.373	No
	V	0	SLV 1	0	0	0	0	No
73	F	1.971	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
74	F	1.412	SLV 13	0.341	1.394	1318	1.52	Si
	V	0	SLV 1	0	0	0	0	No
75	F	0.697	SLV 13	0.164	0.671	169	0.655	No
	V	0	SLV 1	0	0	0	0	No
76	F	0.925	SLV 13	0.224	0.917	378	0.911	No
	V	0	SLV 1	0	0	0	0	No
77	F	0.254	SLV 9	0.057	0.234	13	0.229	No
	V	0.123	SLV 9	0.026	0.107	2	0.106	No
78	F	0.302	SLV 13	0.069	0.281	21	0.278	No
	V	0	SLV 1	0	0	0	0	No
79	F	0.209	SLV 15	0.047	0.191	8	0.187	No
	V	0.018	SLV 15	0	0	0	0	No
80	F	0.145	SLV 11	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
81	F	0.246	SLV 9	0.055	0.226	12	0.221	No
	V	0	SLV 1	0	0	0	0	No
82	F	0.765	SLV 1	0.182	0.744	217	0.725	No
	V	0	SLV 1	0	0	0	0	No
83	F	0.84	SLV 1	0.201	0.825	285	0.811	No
	V	0	SLV 1	0	0	0	0	No
84	F	0.895	SLV 1	0.216	0.884	342	0.874	No
	V	0	SLV 1	0	0	0	0	No
85	F	1.001	SLV 1	0.245	1.001	476	1.001	Si
	V	0	SLV 1	0	0	0	0	No
86	F	0.489	SLV 13	0.112	0.46	69	0.453	No
	V	0	SLV 1	0	0	0	0	No
87	F	0.74	SLV 13	0.175	0.718	198	0.699	No
	V	0	SLV 1	0	0	0	0	No
88	F	0.41	SLV 1	0.094	0.384	44	0.377	No
	V	0	SLV 1	0	0	0	0	No
89	F	0.251	SLV 13	0.057	0.234	13	0.229	No
	V	0	SLV 1	0	0	0	0	No
90	F	0.321	SLV 15	0.074	0.303	25	0.299	No
	V	0	SLV 1	0	0	0	0	No
91	F	0.344	SLV 15	0.079	0.323	30	0.322	No
	V	0	SLV 1	0	0	0	0	No
92	F	0.378	SLV 15	0.087	0.355	37	0.351	No
	V	0	SLV 1	0	0	0	0	No
93	F	0.191	SLV 3	0.044	0.181	7	0.177	No
	V	0	SLV 1	0	0	0	0	No
94	F	0.422	SLV 3	0.097	0.395	47	0.387	No
	V	0	SLV 1	0	0	0	0	No
95	F	0.147	SLV 5	0.031	0.127	3	0.125	No
	V	0.012	SLV 5	0	0	0	0	No
96	F	1.000	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
97	F	0.809	SLV 15	0.193	0.792	255	0.775	No
	V	0	SLV 1	0	0	0	0	No
98	F	0.819	SLV 15	0.196	0.803	265	0.787	No
	V	0	SLV 1	0	0	0	0	No
99	F	1.158	SLV 15	0.281	1.15	721	1.187	Si
	V	0	SLV 1	0	0	0	0	No
100	F	1.354	SLV 3	0.327	1.338	1151	1.437	Si
	V	0	SLV 1	0	0	0	0	No
101	F	1.156	SLV 1	0.28	1.148	717	1.184	Si
	V	0	SLV 1	0	0	0	0	No
102	F	0.777	SLV 13	0.185	0.758	228	0.74	No
	V	0	SLV 1	0	0	0	0	No
103	F	0.767	SLV 13	0.183	0.747	219	0.728	No
	V	0	SLV 1	0	0	0	0	No
104	F	0.888	SLV 15	0.214	0.877	335	0.867	No
	V	0	SLV 1	0	0	0	0	No
105	F	1.092	SLV 1	0.266	1.087	610	1.108	Si
	V	0	SLV 1	0	0	0	0	No
106	F	0.483	SLV 7	0.11	0.451	66	0.445	No
	V	0	SLV 1	0	0	0	0	No
107	F	1.794	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
108	F	1.884	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No





Trave	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
109	V	0	SLV 1	0	0	0	0	No
	F	0.629	SLV 1	0.147	0.602	132	0.592	No
	V	0	SLV 1	0	0	0	0	No
110	F	1.202	SLV 1	0.291	1.191	801	1.239	Si
	V	0	SLV 1	0	0	0	0	No
111	F	2.6	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.177	SLV 15	0.038	0.157	5	0.155	No
112	F	2.293	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
113	F	0.992	SLV 13	0.242	0.991	464	0.99	No
	V	0	SLV 1	0	0	0	0	No
114	F	1.361	SLV 3	0.328	1.344	1170	1.447	Si
	V	0	SLV 1	0	0	0	0	No
115	F	0.186	SLV 5	0.041	0.169	6	0.167	No
	V	0.049	SLV 9	0	0	0	0	No
116	F	0.557	SLV 13	0.129	0.528	97	0.521	No
	V	0	SLV 1	0	0	0	0	No
117	F	0.285	SLV 1	0.066	0.269	19	0.267	No
	V	0.023	SLV 15	0	0	0	0	No
118	F	0.208	SLV 11	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
119	F	0.493	SLV 5	0.113	0.463	70	0.456	No
	V	0.04	SLV 5	0	0	0	0	No
120	F	1.684	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
121	F	2.663	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
122	F	2.127	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
123	F	2.095	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
124	F	1.407	SLV 13	0.339	1.389	1303	1.512	Si
	V	0	SLV 1	0	0	0	0	No
125	F	1.757	SLV 13	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
126	F	0.631	SLV 1	0.148	0.604	133	0.593	No
	V	0	SLV 1	0	0	0	0	No
127	F	0.3	SLV 13	0.069	0.281	21	0.278	No
	V	0	SLV 1	0	0	0	0	No
128	F	0.463	SLV 15	0.107	0.436	61	0.431	No
	V	0	SLV 1	0	0	0	0	No
129	F	0.472	SLV 15	0.108	0.442	63	0.437	No
	V	0	SLV 1	0	0	0	0	No
130	F	0.603	SLV 15	0.14	0.574	118	0.565	No
	V	0	SLV 1	0	0	0	0	No
131	F	0.431	SLV 3	0.099	0.407	51	0.401	No
	V	0	SLV 1	0	0	0	0	No
132	F	0.635	SLV 3	0.148	0.606	134	0.595	No
	V	0	SLV 1	0	0	0	0	No
133	F	0.132	SLV 9	0.026	0.107	2	0.106	No
	V	0.008	SLV 9	0	0	0	0	No
134	F	2.354	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.321	SLV 7	0.073	0.298	24	0.294	No
135	F	1000	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
136	F	1.086	SLV 15	0.264	1.082	600	1.101	Si
	V	0	SLV 1	0	0	0	0	No
137	F	1.396	SLV 5	0.337	1.379	1272	1.498	Si
	V	0	SLV 1	0	0	0	0	No
138	F	2.411	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.121	SLV 3	0.026	0.107	2	0.106	No
139	F	2	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
140	F	1.386	SLV 13	0.334	1.369	1241	1.483	Si
	V	0	SLV 1	0	0	0	0	No
141	F	1.831	SLV 13	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
142	F	1.231	SLV 15	0.298	1.219	858	1.274	Si
	V	0	SLV 1	0	0	0	0	No
143	F	1.307	SLV 15	0.316	1.292	1027	1.372	Si
	V	0	SLV 1	0	0	0	0	No
144	F	2.159	SLV 7	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
145	F	2.604	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
146	F	1.273	SLV 3	0.308	1.259	946	1.326	Si
	V	0	SLV 1	0	0	0	0	No
147	F	1.357	SLV 5	0.328	1.341	1161	1.443	Si
	V	0	SLV 1	0	0	0	0	No
148	F	1.83	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
149	F	2.729	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.285	SLV 5	0.064	0.262	18	0.261	No
150	F	0.921	SLV 5	0.223	0.913	373	0.906	No
	V	0	SLV 1	0	0	0	0	No
151	F	1.868	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.219	SLV 1	0.049	0.201	9	0.197	No
152	F	2.514	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
153	F	0.562	SLV 11	0.13	0.532	99	0.526	No



Trave	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
	V	0	SLV 1	0	0	0	0	No
154	F	2.18	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.313	SLV 11	0.071	0.292	23	0.289	No
155	F	4.068	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.272	SLV 3	0.062	0.256	17	0.255	No
156	F	1.831	SLV 9	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
157	F	4.053	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
158	F	2.066	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
159	F	3.344	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
160	F	1.588	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
161	F	1.998	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
162	F	0.591	SLV 3	0.137	0.562	112	0.553	No
	V	0	SLV 1	0	0	0	0	No
163	F	0.819	SLV 15	0.196	0.803	265	0.787	No
	V	0	SLV 1	0	0	0	0	No
164	F	2.04	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
165	F	1.448	SLV 15	0.349	1.428	1429	1.571	Si
	V	0	SLV 1	0	0	0	0	No
166	F	1000	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.767	SLV 11	0.362	1.483	1618	1.653	Si
167	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
168	F	1.636	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
169	F	3.055	SLV 11	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
170	F	1.464	SLV 9	0.353	1.444	1482	1.594	Si
	V	0.005	SLV 7	0	0	0	0	No
171	F	1.424	SLV 13	0.343	1.405	1354	1.536	Si
	V	0	SLV 1	0	0	0	0	No
172	F	0.455	SLV 1	0.104	0.427	57	0.419	No
	V	0	SLV 1	0	0	0	0	No
173	F	1.165	SLV 3	0.282	1.156	733	1.195	Si
	V	0.47	SLV 3	0.108	0.442	63	0.437	No
174	F	1.791	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
175	F	0.741	SLV 9	0.176	0.72	199	0.7	No
	V	0	SLV 1	0	0	0	0	No
176	F	1.993	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.131	SLV 15	0.026	0.107	2	0.106	No
177	F	1.192	SLV 11	0.289	1.182	783	1.227	Si
	V	0	SLV 1	0	0	0	0	No
178	F	3.971	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.331	SLV 7	0.075	0.308	26	0.304	No
179	F	0.912	SLV 9	0.221	0.903	362	0.895	No
	V	0.07	SLV 7	0	0	0	0	No
180	F	2.464	SLV 9	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
181	F	1.613	SLV 13	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
182	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
183	F	0.426	SLV 1	0.098	0.399	49	0.394	No
	V	0.055	SLV 1	0	0	0	0	No
184	F	0.351	SLV 13	0.08	0.328	31	0.327	No
	V	0	SLV 1	0	0	0	0	No
185	F	0.573	SLV 13	0.133	0.544	104	0.536	No
	V	0.029	SLV 13	0	0	0	0	No
186	F	0.643	SLV 13	0.15	0.614	138	0.602	No
	V	0	SLV 1	0	0	0	0	No
187	F	1.021	SLV 13	0.249	1.02	504	1.025	Si
	V	0.094	SLV 13	0.02	0.08	1	0.08	No
188	F	1.753	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.175	SLV 9	0.038	0.157	5	0.155	No

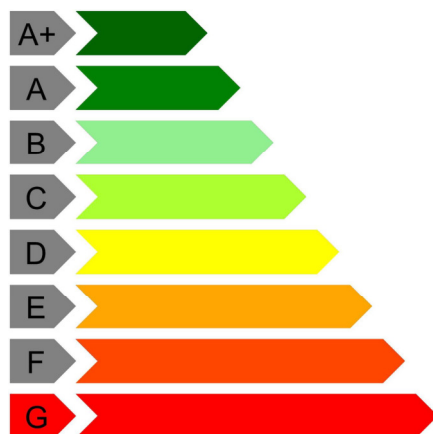
#### Periodi di ritorno e accelerazioni di aggancio per gli Stati Limite

S. L.	TR,C	PGA,C	TR,Rif	PGA,Rif	Tipo rottura
Stato limite di salvaguardia della vita	0	0	475	0.244	taglio maschio muratura

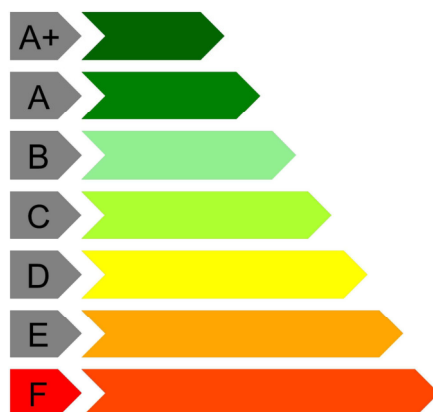
#### Coefficienti relativi alle Linee guida per la classificazione del rischio sismico delle costruzioni secondo il D.M. 24 09/01/2020

TR,C	TR,Rif	PAM	Classe PAM	IS-V	Classe IS-V	Tipo rottura
0	475	8.22	G	0	F	taglio maschio muratura

Classe PAM



Classe IS-V



## 2.5 Verifiche maschi in muratura

Le unità di misura elencate nel capitolo sono in [m, kN, s] ove non espressamente specificato.

*X<sub>ini.</sub>*: coordinate del punto iniziale del maschio. [m]

*Y<sub>ini.</sub>*: coordinate del punto iniziale del maschio. [m]

*X<sub>fin.</sub>*: coordinate del punto finale del maschio. [m]

*Y<sub>fin.</sub>*: coordinate del punto finale del maschio. [m]

*Quota i.*: livello o falda inferiore.

*Quota s.*: livello o falda superiore.

*l*: lunghezza del maschio. [m]

*Sp.*: spessore. [m]

*h<sub>netta</sub>*: altezza netta (a filo solai). [m]

*h<sub>ini.</sub>*: altezza nel modello al punto iniziale. [m]

*h<sub>fin.</sub>*: altezza nel modello al punto finale. [m]

*a*: distanza tra irrigidimenti laterali. [m]

*a.s.,sx*: lunghezza di appoggio del solaio di sinistra. [m]

*a.s.,dx*: lunghezza di appoggio del solaio di destra. [m]

*f<sub>b</sub>*: resistenza normalizzata a compressione verticale dei blocchi. [kN/m<sup>2</sup>]

*f<sub>k</sub>*: resistenza caratteristica a compressione della muratura utilizzata. [kN/m<sup>2</sup>]

*f<sub>vk0</sub>*: resistenza caratteristica a taglio in assenza di carichi verticali. [kN/m<sup>2</sup>]

*f<sub>medio</sub>*: resistenza media a compressione della muratura utilizzata. [kN/m<sup>2</sup>]

*τ<sub>0</sub>*: resistenza media a taglio in assenza di azioni normali [C8.7.1.16]. [kN/m<sup>2</sup>]

*f<sub>v0</sub>*: resistenza media a taglio in assenza di azioni normali [C8.7.1.17]. [kN/m<sup>2</sup>]

*μ*: coefficiente di attrito [C8.7.1.17].

*φ*: coefficiente di ammortamento o ingranamento secondo Circolare 7 21-01-19 §C8.7.1.3.1.1.

*f<sub>v,lim</sub>*: valore massimo della resistenza a taglio che può essere impiegata nel calcolo. [kN/m<sup>2</sup>]

*E*: modulo di elasticità longitudinale della muratura utilizzata. [kN/m<sup>2</sup>]

*G*: modulo di elasticità tangenziale della muratura utilizzata. [kN/m<sup>2</sup>]

*FC*: fattore di confidenza della muratura.

*Comb.*: combinazione.

*Quota*: quota della sezione di verifica. [m]

*N*: sforzo normale. [kN]

*M*: momento flettente nel piano. [kN\*m]

*σ<sub>0</sub>*: tensione media di compressione. [kN/m<sup>2</sup>]



**Mu:** momento flettente ultimo. [kN\*m]

**c.s.:** coefficiente di sicurezza.

**Verifica:** stato di verifica.

**V par:** taglio nel piano. [kN]

**$\sigma_n$ :** tensione media di compressione sulla parte reagente. [kN/m<sup>2</sup>]

**l':** lunghezza della parte compressa della parete. [m]

**fvd:** resistenza a taglio di calcolo. [kN/m<sup>2</sup>]

**Vt scorr.:** taglio ultimo per verifica a scorrimento. [kN]

**Vt fess.diag.:** taglio ultimo per verifica a fessurazione diagonale regolare [C8.7.1.17]. [kN]

**Vt,lim:** taglio limite [C8.7.1.18]. [kN]

**c.s.:** coefficiente di sicurezza a taglio.

**fd:** resistenza a compressione di calcolo. [kN/m<sup>2</sup>]

**sa:** accelerazione massima, adimensionalizzata rispetto a g, che l'elemento strutturale subisce durante il sisma.

**M:** momento flettente fuori piano. [kN\*m]

**Mc:** momento di collasso per azioni perpendicolari al piano. [kN\*m]

**Coeff.s.:** coefficiente di sicurezza.

**N top:** sforzo normale in sommità. [kN]

**N base:** sforzo normale al piede. [kN]

**V orto:** taglio fuori piano. [kN]

**$\alpha_0$ :** moltiplicatore secondo [C8.7.1.1].

**M\*:** massa partecipante al cinematisimo. [kN/(m/s<sup>2</sup>)]

**e\*:** frazione di massa partecipante della muratura [C8.7.1.5].

**$\alpha_0^*$ :** accelerazione spettrale di attivazione del meccanismo [C8.7.1.8]. [m/s<sup>2</sup>]

**aLim:** accelerazione limite [C7.2.11]. [m/s<sup>2</sup>]

**Stato limite:** pF\_SLU=Presso flessione per azioni non sismiche; V\_SLU=Taglio per azioni non sismiche; PF\_SLV=Presso flessione per azioni sismiche; V\_SLV=Taglio per azioni sismiche; PFFP\_SLV=Presso flessione fuori piano per azioni sismiche; R\_SLV=Ribaltamento per azioni sismiche.

## Maschio 1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.653	1.271	-24.653	-3.284	L1	L3	4.555	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 62	-1.59	-534.46	-149.5422	261	827.5996	5.534	Si
SLU 62	0.61	-373.49	-187.7669	182	660.3547	3.517	Si
SLU 81	-1.59	-570.45	-167.5452	278	855.3255	5.105	Si
SLU 81	0.61	-401.86	-202.9646	196	694.9596	3.424	Si
SLU 56	-1.59	-526.91	-143.0299	257	821.3383	5.742	Si
SLU 56	0.61	-368.65	-184.1796	180	654.2226	3.552	Si
SLU 77	-1.59	-570.91	-161.481	279	855.6626	5.299	Si
SLU 77	0.61	-403.79	-202.422	197	697.2307	3.444	Si
SLU 60	-1.59	-526.44	-149.0942	257	820.9451	5.506	Si
SLU 60	0.61	-366.72	-184.7223	179	651.7669	3.528	Si
SLU 82	-1.59	-573.21	-166.9916	280	857.3086	5.134	Si
SLU 82	0.61	-412.53	-200.2674	201	707.4108	3.532	Si
SLU 74	-1.59	-562.9	-161.0329	275	849.8051	5.277	Si
SLU 74	0.61	-397.01	-199.3773	194	689.2026	3.457	Si
SLU 83	-1.59	-578.46	-167.9933	282	861.018	5.125	Si
SLU 83	0.61	-408.64	-206.0093	199	702.8981	3.412	Si
SLU 84	-1.59	-581.22	-167.4397	284	862.9407	5.154	Si
SLU 84	0.61	-419.31	-203.3121	205	715.152	3.518	Si
SLU 79	-1.59	-567.4	-159.503	277	853.1178	5.349	Si
SLU 79	0.61	-400.75	-200.9619	196	693.6457	3.452	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	-1.59	-76.14	89.6742	37	168.1433	1.875	Si
SLV 14	0.61	-106.48	-56.3877	52	232.2046	4.118	Si
SLV 8	-1.59	-482.46	-466.3236	235	887.1361	1.902	Si
SLV 8	0.61	-296.55	-92.0606	145	595.4143	6.468	Si
SLV 15	-1.59	-72.5	-107.5976	35	160.331	1.49	Si
SLV 15	0.61	-88.57	-11.0151	43	194.5767	17.665	Si
SLV 7	-1.59	-482.46	-466.3236	235	887.1361	1.902	Si
SLV 7	0.61	-296.55	-92.0606	145	595.4143	6.468	Si
SLV 16	-1.59	-72.5	-107.5976	35	160.331	1.49	Si
SLV 16	0.61	-88.57	-11.0151	43	194.5767	17.665	Si
SLV 12	-1.59	-291.28	-406.9811	142	586.2419	1.44	Si
SLV 12	0.61	-190.91	-30.2236	93	401.6496	13.289	Si
SLV 9	-1.59	-303.44	250.5917	148	607.3521	2.424	Si
SLV 9	0.61	-250.63	-181.4655	122	513.6894	2.831	Si
SLV 11	-1.59	-291.28	-406.9811	142	586.2419	1.44	Si
SLV 11	0.61	-190.91	-30.2236	93	401.6496	13.289	Si



Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 13	-1.59	-76.14	89.6742	37	168.1433	1.875	Si
SLV 13	0.61	-106.48	-56.3877	52	232.2046	4.118	Si
SLV 10	-1.59	-303.44	250.5917	148	607.3521	2.424	Si
SLV 10	0.61	-250.63	-181.4655	122	513.6894	2.831	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 68	-1.59	-519.5	95.64	-137.2764		253	4.555	89	183.14			1.91	Si
SLU 68	0.61	-377.56	99.93	-174.5402		184	4.555	80	164.22			1.64	Si
SLU 80	-1.59	-570.17	101.72	-158.9494		278	4.555	93	189.9			1.87	Si
SLU 80	0.61	-411.42	107.72	-198.2646		201	4.555	82	168.73			1.57	Si
SLU 83	-1.59	-578.46	95.98	-167.9933		282	4.555	93	191			1.99	Si
SLU 83	0.61	-408.64	103.04	-206.0093		199	4.555	82	168.36			1.63	Si
SLU 78	-1.59	-573.68	102.3	-160.9274		280	4.555	93	190.37			1.86	Si
SLU 78	0.61	-414.46	108.43	-199.7248		202	4.555	83	169.14			1.56	Si
SLU 75	-1.59	-565.66	99.75	-160.4793		276	4.555	92	189.3			1.9	Si
SLU 75	0.61	-407.69	105.83	-196.6801		199	4.555	82	168.23			1.59	Si
SLU 73	-1.59	-555.98	100.97	-157.6843		271	4.555	92	188.01			1.86	Si
SLU 73	0.61	-404.99	106.56	-190.3771		198	4.555	82	167.87			1.58	Si
SLU 82	-1.59	-573.21	99.98	-166.9916		280	4.555	93	190.3			1.9	Si
SLU 82	0.61	-412.53	106.49	-200.2674		201	4.555	82	168.88			1.59	Si
SLU 84	-1.59	-581.22	102.54	-167.4397		284	4.555	93	191.37			1.87	Si
SLU 84	0.61	-419.31	109.08	-203.3121		205	4.555	83	169.78			1.56	Si
SLU 76	-1.59	-564	103.53	-158.1323		275	4.555	92	189.07			1.83	Si
SLU 76	0.61	-411.76	109.16	-193.4218		201	4.555	82	168.78			1.55	Si
SLU 77	-1.59	-570.91	95.75	-161.481		279	4.555	93	190			1.98	Si
SLU 77	0.61	-403.79	102.38	-202.422		197	4.555	82	167.71			1.64	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-1.59	-291.28	-235.64	-406.9811		245	2.6409	132	157.29			0.67	No, Vu<V
SLV 12	0.61	-190.91	-219.84	-30.2236		93	4.555	102	208.99			0.95	No, Vu<V
SLV 7	-1.59	-482.46	-231.31	-466.3236		273	3.9328	138	243.97			1.05	Si
SLV 7	0.61	-296.55	-179.08	-92.0606		145	4.555	112	230.12			1.29	Si
SLV 10	-1.59	-303.44	358.53	250.5917		155	4.355	114	224			0.62	No, Vu<V
SLV 10	0.61	-250.63	314.43	-181.4655		122	4.555	108	220.94			0.7	No, Vu<V
SLV 6	-1.59	-494.62	362.86	191.2491		241	4.555	132	269.74			0.74	No, Vu<V
SLV 6	0.61	-356.27	355.19	-243.3025		174	4.555	118	242.07			0.68	No, Vu<V
SLV 5	-1.59	-494.62	362.86	191.2491		241	4.555	132	269.74			0.74	No, Vu<V
SLV 5	0.61	-356.27	355.19	-243.3025		174	4.555	118	242.07			0.68	No, Vu<V
SLV 11	-1.59	-291.28	-235.64	-406.9811		245	2.6409	132	157.29			0.67	No, Vu<V
SLV 11	0.61	-190.91	-219.84	-30.2236		93	4.555	102	208.99			0.95	No, Vu<V
SLV 13	-1.59	-76.14	145.52	89.6742		51	3.2994	94	138.96			0.95	No, Vu<V
SLV 13	0.61	-106.48	79.87	-56.3877		52	4.555	94	192.11			2.41	Si
SLV 14	-1.59	-76.14	145.52	89.6742		51	3.2994	94	138.96			0.95	No, Vu<V
SLV 14	0.61	-106.48	79.87	-56.3877		52	4.555	94	192.11			2.41	Si
SLV 9	-1.59	-303.44	358.53	250.5917		155	4.355	114	224			0.62	No, Vu<V
SLV 9	0.61	-250.63	314.43	-181.4655		122	4.555	108	220.94			0.7	No, Vu<V
SLV 8	-1.59	-482.46	-231.31	-466.3236		273	3.9328	138	243.97			1.05	Si
SLV 8	0.61	-296.55	-179.08	-92.0606		145	4.555	112	230.12			1.29	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.24	43	-87.25	2.738	18.9465	6.92	Si
SLV 16	1438	0.24	43	-87.25	2.738	18.9465	6.92	Si
SLV 13	1438	0.24	49	-100.36	2.738	21.6759	7.92	Si
SLV 14	1438	0.24	49	-100.36	2.738	21.6759	7.92	Si
SLV 12	1438	0.24	117	-239.59	2.738	48.7516	17.81	Si
SLV 11	1438	0.24	117	-239.59	2.738	48.7516	17.81	Si
SLV 10	1438	0.24	138	-283.3	2.738	56.533	20.65	Si
SLV 9	1438	0.24	138	-283.3	2.738	56.533	20.65	Si
SLV 7	1438	0.24	187	-383.29	2.738	73.0424	26.68	Si
SLV 8	1438	0.24	187	-383.29	2.738	73.0424	26.68	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 6	-329.94	-494.62	7.74	0.074	41.427	0.946	1.13496	3.52938	No
SLV 5	-329.94	-494.62	7.74	0.074	41.427	0.946	1.13496	3.52938	No
SLV 2	-416.38	-713.4	8.09	0.075	50.204	0.954	1.14023	3.48092	No
SLV 1	-416.38	-713.4	8.09	0.075	50.204	0.954	1.14023	3.48092	No
SLV 10	-235.87	-303.44	6.03	0.077	31.902	0.933	1.19562	3.52938	No
SLV 9	-235.87	-303.44	6.03	0.077	31.902	0.933	1.19562	3.52938	No
SLV 3	-396.41	-709.76	6.68	0.078	48.174	0.953	1.18454	3.48092	No
SLV 4	-396.41	-709.76	6.68	0.078	48.174	0.953	1.18454	3.48092	No
SLV 8	-263.35	-482.46	3.05	0.087	34.681	0.937	1.34636	3.52938	No
SLV 7	-263.35	-482.46	3.05	0.087	34.681	0.937	1.34636	3.52938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	3.412	SLU 83	Si
V_SLV	1.546	SLU 76	Si
PF_SLV	1.44	SLV 11	Si
V_SLV	0.625	SLV 9	No
PFFP_SLV	6.92	SLV 15	Si
R_SLV	0.322	SLV 5	No



## Maschio 2

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.653	5.876	-24.653	2.271	L1	L3	3.605	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 78	-1.59	-343.25	14.7359	212	457.9962	31.08	Si
SLU 78	0.61	-260.46	126.2034	161	376.9457	2.987	Si
SLU 83	-1.59	-347.32	7.7956	214	461.4984	59.2	Si
SLU 83	0.61	-265.66	129.2141	164	382.5884	2.961	Si
SLU 75	-1.59	-339.11	13.809	209	454.3915	32.906	Si
SLU 75	0.61	-256.68	124.4751	158	372.8012	2.995	Si
SLU 82	-1.59	-342.18	12.3453	211	457.0697	37.024	Si
SLU 82	0.61	-259.51	126.2302	160	375.9036	2.978	Si
SLU 84	-1.59	-346.32	13.2722	213	460.6399	34.707	Si
SLU 84	0.61	-263.29	127.9585	162	380.019	2.97	Si
SLU 81	-1.59	-343.18	6.8687	212	457.9395	66.67	Si
SLU 81	0.61	-261.88	127.4858	161	378.4976	2.969	Si
SLU 77	-1.59	-344.25	9.2593	212	458.8631	49.557	Si
SLU 77	0.61	-262.84	127.459	162	379.5335	2.978	Si
SLU 80	-1.59	-341.54	14.8758	211	456.5113	30.688	Si
SLU 80	0.61	-258.55	125.2916	159	374.8563	2.992	Si
SLU 79	-1.59	-342.54	9.3992	211	457.3829	48.662	Si
SLU 79	0.61	-260.93	126.5472	161	377.4564	2.983	Si
SLU 74	-1.59	-340.12	8.3324	210	455.2697	54.639	Si
SLU 74	0.61	-259.06	125.7307	160	375.4135	2.986	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 14	-1.59	-69.35	146.9219	0	0	0	No, e>l/2
SLV 14	0.61	-71.49	-17.816	44	124.217	6.972	Si
SLV 8	-1.59	-277.17	-278.7169	171	429.7454	1.542	Si
SLV 8	0.61	-232.15	183.2641	143	369.4368	2.016	Si
SLV 6	-1.59	-314.79	256.3118	194	477.2952	1.862	Si
SLV 6	0.61	-191.28	42.1067	118	311.5122	7.398	Si
SLV 7	-1.59	-277.17	-278.7169	171	429.7454	1.542	Si
SLV 7	0.61	-232.15	183.2641	143	369.4368	2.016	Si
SLV 5	-1.59	-314.79	256.3118	194	477.2952	1.862	Si
SLV 5	0.61	-191.28	42.1067	118	311.5122	7.398	Si
SLV 11	-1.59	-169.97	-242.7768	105	280.1051	1.154	Si
SLV 11	0.61	-170.26	132.8051	105	280.5295	2.112	Si
SLV 13	-1.59	-69.35	146.9219	0	0	0	No, e>l/2
SLV 13	0.61	-71.49	-17.816	44	124.217	6.972	Si
SLV 12	-1.59	-169.97	-242.7768	105	280.1051	1.154	Si
SLV 12	0.61	-170.26	132.8051	105	280.5295	2.112	Si
SLV 10	-1.59	-207.59	292.2519	128	334.988	1.146	Si
SLV 10	0.61	-129.39	-8.3523	80	218.0054	26.101	Si
SLV 9	-1.59	-207.59	292.2519	128	334.988	1.146	Si
SLV 9	0.61	-129.39	-8.3523	80	218.0054	26.101	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	-1.59	-342.18	-92.37	12.3453		211	3.605	84	135.75			1.47	Si
SLU 82	0.61	-259.51	-82.53	126.2302		160	3.605	77	124.73			1.51	Si
SLU 60	-1.59	-321.81	-89	7.7783		198	3.605	82	133.03			1.49	Si
SLU 60	0.61	-241.27	-80.27	117.1546		149	3.605	75	122.29			1.52	Si
SLU 84	-1.59	-346.32	-92.9	13.2722		213	3.605	84	136.3			1.47	Si
SLU 84	0.61	-263.29	-83	127.9585		162	3.605	77	125.23			1.51	Si
SLU 77	-1.59	-344.25	-95.56	9.2593		212	3.605	84	136.03			1.42	Si
SLU 77	0.61	-262.84	-86.01	127.459		162	3.605	77	125.17			1.46	Si
SLU 74	-1.59	-340.12	-95.03	8.3324		210	3.605	84	135.47			1.43	Si
SLU 74	0.61	-259.06	-85.54	125.7307		160	3.605	77	124.67			1.46	Si
SLU 62	-1.59	-325.95	-89.53	8.7052		201	3.605	82	133.58			1.49	Si
SLU 62	0.61	-245.04	-80.75	118.8829		151	3.605	76	122.8			1.52	Si
SLU 78	-1.59	-343.25	-90.86	14.7359		212	3.605	84	135.89			1.5	Si
SLU 78	0.61	-260.46	-81.35	126.2034		161	3.605	77	124.85			1.53	Si
SLU 83	-1.59	-347.32	-97.6	7.7956		214	3.605	84	136.43			1.4	Si
SLU 83	0.61	-265.66	-87.66	129.2141		164	3.605	77	125.55			1.43	Si
SLU 81	-1.59	-343.18	-97.07	6.8687		212	3.605	84	135.88			1.4	Si
SLU 81	0.61	-261.88	-87.19	127.4858		161	3.605	77	125.04			1.43	Si
SLU 79	-1.59	-342.54	-94.58	9.3992		211	3.605	84	135.8			1.44	Si
SLU 79	0.61	-260.93	-85.14	126.5472		161	3.605	77	124.92			1.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	-1.59	-69.35	41.49	146.9219		0	0	83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	0.61	-71.49	12.42	-17.816		44	3.605	92	149.49			12.03	Si
SLV 12	-1.59	-169.97	-280.37	-242.7768		336	1.1225	151	76.09			0.27	No, Vu<V
SLV 12	0.61	-170.26	-259.81	132.8051		123	3.0674	108	149.08			0.57	No, Vu<V
SLV 10	-1.59	-207.59	171.94	292.2519		390	1.1839	161	85.91			0.5	No, Vu<V
SLV 10	0.61	-129.39	146.85	-8.3523		80	3.605	99	161.07			1.1	Si
SLV 9	-1.59	-207.59	171.94	292.2519		390	1.1839	161	85.91			0.5	No, Vu<V
SLV 9	0.61	-129.39	146.85	-8.3523		80	3.605	99	161.07			1.1	Si
SLV 14	-1.59	-69.35	41.49	146.9219		0	0	83	0			0	No, Vu<V
SLV 14	0.61	-71.49	12.42	-17.816		44	3.605	92	149.49			12.03	Si
SLV 7	-1.59	-277.17	-304.25	-278.7169		258	2.3908	135	145.09			0.48	No, Vu<V
SLV 7	0.61	-232.15	-266.59	183.2641		170	3.0392	117	160.4			0.6	No, Vu<V
SLD 7	-1.59	-257.86	-169.35	-117.4841		159	3.605	115	186.76			1.1	Si
SLD 7	0.61	-203.25	-148.82	128.6398		129	3.5087	109	172.23			1.16	Si
SLV 11	-1.59	-169.97	-280.37	-242.7768		336	1.1225	151	76.09			0.27	No, Vu<V
SLV 11	0.61	-170.26	-259.81	132.8051		123	3.0674	108	149.08			0.57	No, Vu<V
SLD 8	-1.59	-257.86	-169.35	-117.4841		159	3.605	115	186.76			1.1	Si
SLD 8	0.61	-203.25	-148.82	128.6398		129	3.5087	109	172.23			1.16	Si
SLV 8	-1.59	-277.17	-304.25	-278.7169		258	2.3908	135	145.09			0.48	No, Vu<V
SLV 8	0.61	-232.15	-266.59	183.2641		170	3.0392	117	160.4			0.6	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	1438	0.24	45	-73.2	2.167	15.8628	7.32	Si
SLV 14	1438	0.24	45	-73.2	2.167	15.8628	7.32	Si
SLV 16	1438	0.24	47	-75.69	2.167	16.38	7.56	Si
SLV 15	1438	0.24	47	-75.69	2.167	16.38	7.56	Si
SLV 10	1438	0.24	106	-172.29	2.167	35.3963	16.33	Si
SLV 9	1438	0.24	106	-172.29	2.167	35.3963	16.33	Si
SLV 12	1438	0.24	111	-180.58	2.167	36.9286	17.04	Si
SLV 11	1438	0.24	111	-180.58	2.167	36.9286	17.04	Si
SLV 6	1438	0.24	160	-259.71	2.167	50.7786	23.43	Si
SLV 5	1438	0.24	160	-259.71	2.167	50.7786	23.43	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-164.38	-169.97	10.4	0.048	22.999	0.928	0.75862	3.52938	No
SLV 12	-164.38	-169.97	10.4	0.048	22.999	0.928	0.75862	3.52938	No
SLV 8	-229.44	-277.17	10.64	0.056	29.575	0.941	0.86466	3.52938	No
SLV 7	-229.44	-277.17	10.64	0.056	29.575	0.941	0.86466	3.52938	No
SLV 9	-95.9	-207.59	-5.55	0.067	16.145	0.906	1.06813	3.52938	No
SLV 10	-95.9	-207.59	-5.55	0.067	16.145	0.906	1.06813	3.52938	No
SLV 6	-160.96	-314.79	-5.31	0.073	22.654	0.927	1.14826	3.52938	No
SLV 5	-160.96	-314.79	-5.31	0.073	22.654	0.927	1.14826	3.52938	No
SLV 15	-64.51	-58.07	4.54	0.071	13.073	0.895	1.15699	3.48092	No
SLV 16	-64.51	-58.07	4.54	0.071	13.073	0.895	1.15699	3.48092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.961	SLU 83	Si
V_SLU	1.398	SLU 83	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	7.32	SLV 13	Si
R_SLV	0.215	SLV 11	No

## Maschio 3

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-22.763	5.876	-24.653	5.876	L1	L3	1.89	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 8	0.41	-59.67	-27.548	70	51.5294	1.871	Si
SLU 8	0.81	-47.19	-34.4473	55	41.5605	1.206	Si
SLU 50	0.41	-73.32	-34.1158	86	61.9577	1.816	Si
SLU 50	0.81	-57.32	-42.5886	67	49.6832	1.167	Si
SLU 46	0.41	-73.11	-33.8615	86	61.7983	1.825	Si
SLU 46	0.81	-57.45	-41.7262	68	49.786	1.193	Si
SLU 45	0.41	-73.31	-34.2305	86	61.9468	1.81	Si
SLU 45	0.81	-57.21	-42.4132	67	49.6012	1.169	Si
SLU 49	0.41	-73.54	-33.9799	86	62.1186	1.828	Si
SLU 49	0.81	-57.86	-42.1699	68	50.1106	1.188	Si
SLU 69	0.41	-85.36	-39.0901	100	70.7288	1.809	Si
SLU 69	0.81	-68.67	-48.4764	81	58.4647	1.206	Si
SLU 6	0.41	-60.08	-27.7811	71	51.854	1.867	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 6	0.81	-47.5	-34.7157	56	41.8119	1.204	Si
SLU 48	0.41	-73.74	-34.3489	87	62.2669	1.813	Si
SLU 48	0.81	-57.62	-42.8569	68	49.9261	1.165	Si
SLU 51	0.41	-73.12	-33.7467	86	61.8092	1.832	Si
SLU 51	0.81	-57.55	-41.9016	68	49.8679	1.19	Si
SLU 43	0.41	-72.46	-33.879	85	61.3161	1.81	Si
SLU 43	0.81	-56.49	-41.7011	66	49.0323	1.176	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	0.41	-67.89	-43.3283	80	59.9681	1.384	Si
SLV 12	0.81	-42.57	-52.8861	0	0	0	No, $e \geq l/2$
SLD 4	0.41	-51.46	-20.3827	61	46.2236	2.268	Si
SLD 4	0.81	-41.6	-53.5547	0	0	0	No, $e \geq l/2$
SLV 8	0.41	-48.96	-28.6122	58	44.0855	1.541	Si
SLV 8	0.81	-29.31	-71.4023	0	0	0	No, $e \geq l/2$
SLD 7	0.41	-58.85	-29.6467	69	52.4636	1.77	Si
SLD 7	0.81	-42.88	-51.8146	0	0	0	No, $e \geq l/2$
SLD 8	0.41	-58.85	-29.6467	69	52.4636	1.77	Si
SLD 8	0.81	-42.88	-51.8146	0	0	0	No, $e \geq l/2$
SLD 3	0.41	-51.46	-20.3827	61	46.2236	2.268	Si
SLD 3	0.81	-41.6	-53.5547	0	0	0	No, $e \geq l/2$
SLV 7	0.41	-48.96	-28.6122	58	44.0855	1.541	Si
SLV 7	0.81	-29.31	-71.4023	0	0	0	No, $e \geq l/2$
SLD 2	0.41	-53.39	-18.8465	63	47.8638	2.54	Si
SLD 2	0.81	-46.24	-47.0654	0	0	0	No, $e \geq l/2$
SLD 1	0.41	-53.39	-18.8465	63	47.8638	2.54	Si
SLD 1	0.81	-46.24	-47.0654	0	0	0	No, $e \geq l/2$
SLV 11	0.41	-67.89	-43.3283	80	59.9681	1.384	Si
SLV 11	0.81	-42.57	-52.8861	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	0.41	-99.19	3.55	-44.5374		148	1.488	75	50.43			14.19	Si
SLU 79	0.81	-82.25	4.83	-54.6595		217	0.8413	85	32			6.62	Si
SLU 80	0.41	-98.99	3.79	-44.1684		147	1.4965	75	50.61			13.37	Si
SLU 80	0.81	-82.48	5.05	-53.9725		210	0.8719	84	32.8			6.49	Si
SLU 37	0.41	-85.54	3.86	-37.9696		126	1.5033	72	48.99			12.69	Si
SLU 37	0.81	-72.12	4.93	-46.5183		178	0.9001	79	32.12			6.51	Si
SLU 29	0.41	-71.29	2.83	-32.2892		107	1.4762	70	46.41			16.4	Si
SLU 29	0.81	-58.24	3.8	-40.0668		168	0.7713	78	27.05			7.13	Si
SLU 30	0.41	-71.09	3.06	-31.9201		106	1.488	70	46.68			15.23	Si
SLU 30	0.81	-58.48	4.01	-39.3798		159	0.8148	77	28.17			7.02	Si
SLU 36	0.41	-85.75	3.93	-37.8337		126	1.5114	72	49.22			12.54	Si
SLU 36	0.81	-72.67	4.99	-46.0996		173	0.9318	79	32.98			6.61	Si
SLU 35	0.41	-85.95	3.69	-38.2028		127	1.5016	73	49			13.27	Si
SLU 35	0.81	-72.43	4.77	-46.7866		179	0.8972	79	32.09			6.72	Si
SLU 38	0.41	-85.34	4.09	-37.6006		125	1.5132	72	49.21			12.02	Si
SLU 38	0.81	-72.36	5.15	-45.8313		172	0.9348	78	33.02			6.41	Si
SLU 77	0.41	-99.61	3.39	-44.7706		149	1.4866	75	50.45			14.9	Si
SLU 77	0.81	-82.55	4.67	-54.9279		219	0.8389	85	31.98			6.84	Si
SLU 78	0.41	-99.41	3.62	-44.4015		148	1.495	75	50.63			13.99	Si
SLU 78	0.81	-82.79	4.89	-54.2409		212	0.8695	84	32.78			6.7	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	0.41	-32.31	185.54	-7.4665		38	1.89	91	77.34			0.42	No, $V_u < V$
SLV 3	0.81	-26.13	155.95	-75.4097		0	0	83	0			0	No, $V_u < V$
SLV 8	0.41	-48.96	133.77	-28.6122		101	1.0817	103	50.36			0.38	No, $V_u < V$
SLV 8	0.81	-29.31	19.51	-71.4023		0	0	83	0			0	No, $V_u < V$
SLV 4	0.41	-32.31	185.54	-7.4665		38	1.89	91	77.34			0.42	No, $V_u < V$
SLV 4	0.81	-26.13	155.95	-75.4097		0	0	83	0			0	No, $V_u < V$
SLV 7	0.41	-48.96	133.77	-28.6122		101	1.0817	103	50.36			0.38	No, $V_u < V$
SLV 7	0.81	-29.31	19.51	-71.4023		0	0	83	0			0	No, $V_u < V$
SLV 1	0.41	-36.97	134.42	-4.0576		43	1.89	92	78.27			0.58	No, $V_u < V$
SLV 1	0.81	-36.66	174.72	-60.3284		0	0	83	0			0	No, $V_u < V$
SLD 4	0.41	-51.46	80.54	-20.3827		69	1.6468	97	72.05			0.89	No, $V_u < V$
SLD 4	0.81	-41.6	68.57	-53.5547		0	0	83	0			0	No, $V_u < V$
SLD 7	0.41	-58.85	56.46	-29.6467		99	1.3237	103	61.41			1.09	Si
SLD 7	0.81	-42.88	10.11	-51.8146		0	0	83	0			0	No, $V_u < V$
SLV 11	0.41	-67.89	38.28	-43.3283		164	0.9205	116	48.1			1.26	Si
SLV 11	0.81	-42.57	-78.67	-52.8861		0	0	83	0			0	No, $V_u < V$
SLD 1	0.41	-53.39	59.62	-18.8465		67	1.7761	97	77.28			1.3	Si
SLD 1	0.81	-46.24	76.24	-47.0654		0	0	83	0			0	No, $V_u < V$
SLV 12	0.41	-67.89	38.28	-43.3283		164	0.9205	116	48.1			1.26	Si
SLV 12	0.81	-42.57	-78.67	-52.8861		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.24	27	-22.9	1.1782	5.0382	4.28	Si
SLV 6	1438	0.24	27	-22.9	1.1782	5.0382	4.28	Si
SLV 9	1438	0.24	28	-23.99	1.1782	5.2738	4.48	Si
SLV 10	1438	0.24	28	-23.99	1.1782	5.2738	4.48	Si
SLV 2	1438	0.24	64	-54.64	1.1782	11.6469	9.89	Si
SLV 1	1438	0.24	64	-54.64	1.1782	11.6469	9.89	Si
SLV 14	1438	0.24	69	-58.29	1.1782	12.3801	10.51	Si
SLV 13	1438	0.24	69	-58.29	1.1782	12.3801	10.51	Si





Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.24	98	-82.94	1.1782	17.1719	14.58	Si
SLV 4	1438	0.24	98	-82.94	1.1782	17.1719	14.58	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-122.44	10.29	4.8	0	0	0	0	3.52938	No, Trazione
SLV 12	22.99	-168.32	-1.62	0	0	0	0	3.52938	No, Trazione
SLV 3	19.49	-186.17	0.41	0	0	0	0	3.48092	No, Trazione
SLV 8	44.87	-205.41	-1.72	0	0	0	0	3.52938	No, Trazione
SLV 7	44.87	-205.41	-1.72	0	0	0	0	3.52938	No, Trazione
SLV 11	22.99	-168.32	-1.62	0	0	0	0	3.52938	No, Trazione
SLV 10	-122.44	10.29	4.8	0	0	0	0	3.52938	No, Trazione
SLV 4	19.49	-186.17	0.41	0	0	0	0	3.48092	No, Trazione
SLV 6	-100.56	-26.8	4.7	0.059	13.509	0.934	0.91401	3.52938	No
SLV 5	-100.56	-26.8	4.7	0.059	13.509	0.934	0.91401	3.52938	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.165	SLV 48	Si
V_SLV	6.412	SLV 38	Si
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	4.276	SLV 5	Si
R_SLV	0	SLV 12	No

## Maschio 4

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	5.876	-21.763	5.876	L1	L3	2.145	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 77	0.41	-282.67	-31.3589	293	194.1737	6.192	Si
SLV 77	0.81	-282.13	-47.8608	292	194.0112	4.054	Si
SLV 80	0.41	-280.45	-30.8709	291	193.4999	6.268	Si
SLV 80	0.81	-279.85	-47.1388	290	193.3137	4.101	Si
SLV 74	0.41	-279.91	-31.2095	290	193.3335	6.195	Si
SLV 74	0.81	-279.28	-47.2925	289	193.1388	4.084	Si
SLV 69	0.41	-249.26	-29.6963	258	182.582	6.148	Si
SLV 69	0.81	-247.96	-44.8318	257	182.0703	4.061	Si
SLV 75	0.41	-279.69	-31.2582	290	193.2658	6.183	Si
SLV 75	0.81	-279.07	-47.2668	289	193.0729	4.085	Si
SLV 78	0.41	-282.45	-31.4077	293	194.1076	6.18	Si
SLV 78	0.81	-281.92	-47.8352	292	193.9469	4.054	Si
SLV 67	0.41	-246.28	-29.5956	255	181.4032	6.129	Si
SLV 67	0.81	-244.9	-44.2378	254	180.8471	4.088	Si
SLV 70	0.41	-249.04	-29.7451	258	182.4959	6.135	Si
SLV 70	0.81	-247.75	-44.8061	257	181.9863	4.062	Si
SLV 66	0.41	-246.5	-29.5469	255	181.4909	6.142	Si
SLV 66	0.81	-245.11	-44.2634	254	180.9328	4.088	Si
SLV 79	0.41	-280.67	-30.8222	291	193.5672	6.28	Si
SLV 79	0.81	-280.06	-47.1645	290	193.3792	4.1	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	0.41	-170.06	-84.1502	176	156.0932	1.855	Si
SLV 15	0.81	-177.23	-42.4316	184	161.5187	3.807	Si
SLD 14	0.41	-157.87	-42.3022	164	146.6529	3.467	Si
SLD 14	0.81	-172.26	-30.7098	178	157.7651	5.137	Si
SLD 15	0.41	-180.14	-49.0685	187	163.6908	3.336	Si
SLD 15	0.81	-182.86	-37.1448	189	165.7118	4.461	Si
SLD 16	0.41	-180.14	-49.0685	187	163.6908	3.336	Si
SLD 16	0.81	-182.86	-37.1448	189	165.7118	4.461	Si
SLV 13	0.41	-116.82	-68.0175	121	112.8756	1.66	Si
SLV 13	0.81	-152.25	-27.4754	158	142.2095	5.176	Si
SLV 12	0.41	-264	-65.2495	274	219.7625	3.368	Si
SLV 12	0.81	-222.5	-58.5937	231	193.6137	3.304	Si
SLV 16	0.41	-170.06	-84.1502	176	156.0932	1.855	Si
SLV 16	0.81	-177.23	-42.4316	184	161.5187	3.807	Si
SLV 11	0.41	-264	-65.2495	274	219.7625	3.368	Si
SLV 11	0.81	-222.5	-58.5937	231	193.6137	3.304	Si
SLV 14	0.41	-116.82	-68.0175	121	112.8756	1.66	Si
SLV 14	0.81	-152.25	-27.4754	158	142.2095	5.176	Si
SLD 13	0.41	-157.87	-42.3022	164	146.6529	3.467	Si
SLD 13	0.81	-172.26	-30.7098	178	157.7651	5.137	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 71	0.41	-247.26	21.43	-29.1596		256	2.145	90	86.59			4.04	Si
SLU 71	0.81	-245.89	17.75	-44.1354		255	2.145	90	86.41			4.87	Si
SLU 84	0.41	-292.02	22.96	-31.434		303	2.145	96	92.56			4.03	Si
SLU 84	0.81	-291.65	18.75	-47.8686		302	2.145	96	92.51			4.94	Si
SLU 69	0.41	-249.26	21.67	-29.6963		258	2.145	90	86.86			4.01	Si
SLU 69	0.81	-247.96	17.95	-44.8318		257	2.145	90	86.69			4.83	Si
SLU 74	0.41	-279.91	22.63	-31.2095		290	2.145	94	90.95			4.02	Si
SLU 74	0.81	-279.28	18.55	-47.2925		289	2.145	94	90.86			4.9	Si
SLU 80	0.41	-280.45	23.05	-30.8709		291	2.145	94	91.02			3.95	Si
SLU 80	0.81	-279.85	18.96	-47.1388		290	2.145	94	90.94			4.8	Si
SLU 79	0.41	-280.67	23.25	-30.8222		291	2.145	94	91.05			3.92	Si
SLU 79	0.81	-280.06	19.17	-47.1645		290	2.145	94	90.97			4.75	Si
SLU 70	0.41	-249.04	21.46	-29.7451		258	2.145	90	86.83			4.05	Si
SLU 70	0.81	-247.75	17.74	-44.8061		257	2.145	90	86.66			4.88	Si
SLU 78	0.41	-282.45	23.29	-31.4077		293	2.145	95	91.28			3.92	Si
SLU 78	0.81	-281.92	19.16	-47.8352		292	2.145	94	91.21			4.76	Si
SLU 83	0.41	-292.24	23.17	-31.3853		303	2.145	96	92.59			4	Si
SLU 83	0.81	-291.86	18.95	-47.8943		302	2.145	96	92.54			4.88	Si
SLU 77	0.41	-282.67	23.5	-31.3589		293	2.145	95	91.31			3.89	Si
SLU 77	0.81	-282.13	19.37	-47.8608		292	2.145	95	91.24			4.71	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	0.41	-116.82	-206.62	-68.0175		177	1.4707	119	78.51			0.38	No, Vu<V
SLV 14	0.81	-152.25	-210	-27.4754		158	2.145	115	110.89			0.53	No, Vu<V
SLV 4	0.41	-260.96	236.94	23.6274		270	2.145	137	132.63			0.56	No, Vu<V
SLV 4	0.81	-223.29	234.74	-38.755		231	2.145	130	125.1			0.53	No, Vu<V
SLV 10	0.41	-86.51	-167.77	-11.4739		90	2.145	101	97.74			0.58	No, Vu<V
SLV 10	0.81	-139.22	-183.65	-8.7397		144	2.145	112	108.28			0.59	No, Vu<V
SLV 3	0.41	-260.96	236.94	23.6274		270	2.145	137	132.63			0.56	No, Vu<V
SLV 3	0.81	-223.29	234.74	-38.755		231	2.145	130	125.1			0.53	No, Vu<V
SLV 13	0.41	-116.82	-206.62	-68.0175		177	1.4707	119	78.51			0.38	No, Vu<V
SLV 13	0.81	-152.25	-210	-27.4754		158	2.145	115	110.89			0.53	No, Vu<V
SLV 1	0.41	-207.71	160.2	39.7601		215	2.145	126	121.98			0.76	No, Vu<V
SLV 1	0.81	-198.31	149.49	-23.7988		205	2.145	124	120.1			0.8	No, Vu<V
SLV 9	0.41	-86.51	-167.77	-11.4739		90	2.145	101	97.74			0.58	No, Vu<V
SLV 9	0.81	-139.22	-183.65	-8.7397		144	2.145	112	108.28			0.59	No, Vu<V
SLV 7	0.41	-291.27	198.09	-32.9162		302	2.145	144	138.69			0.7	No, Vu<V
SLV 7	0.81	-236.32	208.4	-57.4907		245	2.145	132	127.7			0.61	No, Vu<V
SLV 2	0.41	-207.71	160.2	39.7601		215	2.145	126	121.98			0.76	No, Vu<V
SLV 2	0.81	-198.31	149.49	-23.7988		205	2.145	124	120.1			0.8	No, Vu<V
SLV 8	0.41	-291.27	198.09	-32.9162		302	2.145	144	138.69			0.7	No, Vu<V
SLV 8	0.81	-236.32	208.4	-57.4907		245	2.145	132	127.7			0.61	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.24	143	-137.66	1.3371	27.3586	20.46	Si
SLV 10	1438	0.24	143	-137.66	1.3371	27.3586	20.46	Si
SLV 5	1438	0.24	162	-156.07	1.3371	30.4692	22.79	Si
SLV 6	1438	0.24	162	-156.07	1.3371	30.4692	22.79	Si
SLV 14	1438	0.24	170	-163.77	1.3371	31.732	23.73	Si
SLV 13	1438	0.24	170	-163.77	1.3371	31.732	23.73	Si
SLV 16	1438	0.24	212	-204.56	1.3371	38.0435	28.45	Si
SLV 15	1438	0.24	212	-204.56	1.3371	38.0435	28.45	Si
SLV 2	1438	0.24	233	-225.14	1.3371	40.9864	30.65	Si
SLV 1	1438	0.24	233	-225.14	1.3371	40.9864	30.65	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-152.44	-251.09	9.24	0.042	19.211	0.945	0.64472	3.52938	No
SLV 9	-152.44	-251.09	9.24	0.042	19.211	0.945	0.64472	3.52938	No
SLV 6	-175.35	-243.89	10.1	0.042	21.537	0.951	0.6479	3.52938	No
SLV 5	-175.35	-243.89	10.1	0.042	21.537	0.951	0.6479	3.52938	No
SLV 1	-206.6	-233.35	9.39	0.051	24.711	0.956	0.77522	3.48092	No
SLV 2	-206.6	-233.35	9.39	0.051	24.711	0.956	0.77522	3.48092	No
SLV 14	-130.22	-257.35	6.52	0.054	16.959	0.939	0.82976	3.48092	No
SLV 13	-130.22	-257.35	6.52	0.054	16.959	0.939	0.82976	3.48092	No
SLV 4	-210.46	-231.51	7.93	0.058	25.103	0.957	0.87806	3.48092	No
SLV 3	-210.46	-231.51	7.93	0.058	25.103	0.957	0.87806	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.054	SLU 77	Si
V_SLU	3.886	SLU 77	Si
PF_SLV	1.66	SLV 13	Si
V_SLV	0.38	SLV 13	No
PFFP_SLV	20.461	SLV 9	Si
R_SLV	0.183	SLV 9	No

## Maschio 5

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.693	-5.876	-19.693	6.576	L1	L3	0.7	0.45	2.7	2.7	2.7			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 77	-1.59	-178.47	1.334	567	19.0185	14.257	Si
SLU 77	1.11	-151.74	-0.4982	482	21.7025	43.563	Si
SLU 78	-1.59	-178.47	1.3283	567	19.0188	14.318	Si
SLU 78	1.11	-151.67	-0.4788	481	21.7067	45.338	Si
SLU 79	-1.59	-176.78	1.3062	561	19.2455	14.733	Si
SLU 79	1.11	-150.24	-0.5315	477	21.7954	41.007	Si
SLU 80	-1.59	-176.78	1.3006	561	19.2458	14.798	Si
SLU 80	1.11	-150.17	-0.5121	477	21.7993	42.569	Si
SLU 84	-1.59	-183.64	1.3467	583	18.2745	13.57	Si
SLU 84	1.11	-156.22	-0.3284	496	21.3883	65.119	Si
SLU 82	-1.59	-182.89	1.329	581	18.3865	13.835	Si
SLU 82	1.11	-155.06	-0.1716	492	21.475	125.128	Si
SLU 81	-1.59	-182.89	1.3346	581	18.3863	13.777	Si
SLU 81	1.11	-155.13	-0.191	492	21.4702	112.388	Si
SLU 83	-1.59	-183.64	1.3524	583	18.2743	13.513	Si
SLU 83	1.11	-156.29	-0.3479	496	21.3833	61.471	Si
SLU 74	-1.59	-177.72	1.3162	564	19.12	14.526	Si
SLU 74	1.11	-150.58	-0.3414	478	21.775	63.789	Si
SLU 75	-1.59	-177.72	1.3106	564	19.1202	14.589	Si
SLU 75	1.11	-150.51	-0.3219	478	21.779	67.647	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 9	-1.59	-91.71	-21.6258	291	24.4503	1.131	Si
SLV 9	1.11	-54.26	-1.4967	172	16.3135	10.9	Si
SLV 5	-1.59	-90.17	-21.948	286	24.1663	1.101	Si
SLV 5	1.11	-63.41	2.5947	201	18.5368	7.144	Si
SLV 8	-1.59	-153.57	23.3654	488	32.3036	1.383	Si
SLV 8	1.11	-150.11	1.1152	477	32.0483	28.738	Si
SLD 11	-1.59	-136.97	10.6807	435	30.8795	2.891	Si
SLD 11	1.11	-118.6	-1.4374	376	28.7186	19.98	Si
SLV 10	-1.59	-91.71	-21.6258	291	24.4503	1.131	Si
SLV 10	1.11	-54.26	-1.4967	172	16.3135	10.9	Si
SLV 11	-1.59	-155.11	23.6877	492	32.4102	1.368	Si
SLV 11	1.11	-140.96	-2.9763	448	31.2678	10.506	Si
SLV 7	-1.59	-153.57	23.3654	488	32.3036	1.383	Si
SLV 7	1.11	-150.11	1.1152	477	32.0483	28.738	Si
SLD 12	-1.59	-136.97	10.6807	435	30.8795	2.891	Si
SLD 12	1.11	-118.6	-1.4374	376	28.7186	19.98	Si
SLV 12	-1.59	-155.11	23.6877	492	32.4102	1.368	Si
SLV 12	1.11	-140.96	-2.9763	448	31.2678	10.506	Si
SLV 6	-1.59	-90.17	-21.948	286	24.1663	1.101	Si
SLV 6	1.11	-63.41	2.5947	201	18.5368	7.144	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	-1.59	-176.78	4.69	1.3006		561	0.7	108	34.13			7.27	Si
SLU 80	1.11	-150.17	11.57	-0.5121		477	0.7	108	34.13			2.95	Si
SLU 78	-1.59	-178.47	4.71	1.3283		567	0.7	108	34.13			7.25	Si
SLU 78	1.11	-151.67	11.58	-0.4788		481	0.7	108	34.13			2.95	Si
SLU 77	-1.59	-178.47	4.73	1.334		567	0.7	108	34.13			7.22	Si
SLU 77	1.11	-151.74	11.6	-0.4982		482	0.7	108	34.13			2.94	Si
SLU 74	-1.59	-177.72	4.52	1.3162		564	0.7	108	34.13			7.55	Si
SLU 74	1.11	-150.58	11.11	-0.3414		478	0.7	108	34.13			3.07	Si
SLU 76	-1.59	-176.03	4.48	1.2791		559	0.7	108	34.13			7.62	Si
SLU 76	1.11	-148.97	11.07	-0.3423		473	0.7	108	34.13			3.08	Si
SLU 84	-1.59	-183.64	4.73	1.3467		583	0.7	108	34.13			7.21	Si
SLU 84	1.11	-156.22	11.44	-0.3284		496	0.7	108	34.13			2.98	Si
SLU 75	-1.59	-177.72	4.51	1.3106		564	0.7	108	34.13			7.57	Si
SLU 75	1.11	-150.51	11.09	-0.3219		478	0.7	108	34.13			3.08	Si
SLU 79	-1.59	-176.78	4.71	1.3062		561	0.7	108	34.13			7.24	Si
SLU 79	1.11	-150.24	11.59	-0.5315		477	0.7	108	34.13			2.95	Si
SLU 83	-1.59	-183.64	4.75	1.3524		583	0.7	108	34.13			7.18	Si
SLU 83	1.11	-156.29	11.46	-0.3479		496	0.7	108	34.13			2.98	Si
SLU 81	-1.59	-182.89	4.55	1.3346		581	0.7	108	34.13			7.51	Si
SLU 81	1.11	-155.13	10.97	-0.191		492	0.7	108	34.13			3.11	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	-1.59	-155.11	59.79	23.6877		582	0.5918	163	43.28			0.72	No, Vu<V
SLV 11	1.11	-140.96	106.52	-2.9763		448	0.7	163	51.19			0.48	No, Vu<V
SLV 1	-1.59	-110.57	-41.32	-6.4643		351	0.7	154	48.36			1.17	Si
SLV 1	1.11	-104.43	-78.1	6.8503		332	0.7	150	47.14			0.6	No, Vu<V
SLV 9	-1.59	-91.71	-36.1	-21.6258		595	0.3426	163	25.05			0.69	No, Vu<V
SLV 9	1.11	-54.26	-54.66	-1.4967		172	0.7	118	37.1			0.68	No, Vu<V
SLV 15	-1.59	-134.71	47.11	8.204		428	0.7	163	51.19			1.09	Si
SLV 15	1.11	-99.94	93.11	-7.2318		317	0.7	147	46.24			0.5	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	-1.59	-90.17	-54	-21.948		627	0.3198	163	23.38			0.43	No, Vu<V
SLV 6	1.11	-63.41	-91.51	2.5947		201	0.7	124	38.93			0.43	No, Vu<V
SLV 2	-1.59	-110.57	-41.32	-6.4643		351	0.7	154	48.36			1.17	Si
SLV 2	1.11	-104.43	-78.1	6.8503		332	0.7	150	47.14			0.6	No, Vu<V
SLV 12	-1.59	-155.11	59.79	23.6877		582	0.5918	163	43.28			0.72	No, Vu<V
SLV 12	1.11	-140.96	106.52	-2.9763		448	0.7	163	51.19			0.48	No, Vu<V
SLV 16	-1.59	-134.71	47.11	8.204		428	0.7	163	51.19			1.09	Si
SLV 16	1.11	-99.94	93.11	-7.2318		317	0.7	147	46.24			0.5	No, Vu<V
SLV 5	-1.59	-90.17	-54	-21.948		627	0.3198	163	23.38			0.43	No, Vu<V
SLV 5	1.11	-63.41	-91.51	2.5947		201	0.7	124	38.93			0.43	No, Vu<V
SLV 10	-1.59	-91.71	-36.1	-21.6258		595	0.3426	163	25.05			0.69	No, Vu<V
SLV 10	1.11	-54.26	-54.66	-1.4967		172	0.7	118	37.1			0.68	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.24	233	-73.5	0.4208	13.3799	31.8	Si
SLV 10	1438	0.24	233	-73.5	0.4208	13.3799	31.8	Si
SLV 6	1438	0.24	262	-82.39	0.4208	14.5689	34.62	Si
SLV 5	1438	0.24	262	-82.39	0.4208	14.5689	34.62	Si
SLV 14	1438	0.24	294	-92.58	0.4208	15.8199	37.6	Si
SLV 13	1438	0.24	294	-92.58	0.4208	15.8199	37.6	Si
SLV 15	1438	0.24	374	-117.81	0.4208	18.3938	43.71	Si
SLV 16	1438	0.24	374	-117.81	0.4208	18.3938	43.71	Si
SLV 1	1438	0.24	388	-122.18	0.4208	18.7643	44.59	Si
SLV 2	1438	0.24	388	-122.18	0.4208	18.7643	44.59	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-63.41	-90.17	-7.91	0	7.656	0.954	0	3.52938	No
SLV 10	-54.26	-91.71	-6.46	0	6.727	0.949	0	3.52938	No
SLV 7	-150.11	-153.57	18.63	0	16.482	0.977	0	3.52938	No
SLV 5	-63.41	-90.17	-7.91	0	7.656	0.954	0	3.52938	No
SLV 15	-99.94	-134.71	12.47	0	11.373	0.968	0	3.48092	No
SLV 9	-54.26	-91.71	-6.46	0	6.727	0.949	0	3.52938	No
SLV 12	-140.96	-155.11	20.07	0	15.55	0.976	0	3.52938	No
SLV 11	-140.96	-155.11	20.07	0	15.55	0.976	0	3.52938	No
SLV 8	-150.11	-153.57	18.63	0	16.482	0.977	0	3.52938	No
SLV 16	-99.94	-134.71	12.47	0	11.373	0.968	0	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	13.513	SLU 83	Si
V_SLU	2.942	SLU 77	Si
PF_SLV	1.101	SLV 5	Si
V_SLV	0.425	SLV 5	No
PFFP_SLV	31.798	SLV 9	Si
R_SLV	0	SLV 5	No

## Maschio 6

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	2.071	-19.618	4.851	L1	L3	2.78	0.3	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 68	-1.59	-483.02	-2.3042	579	194.0378	84.21	Si
SLU 68	0.41	-444.69	12.0469	533	213.5178	17.724	Si
SLU 44	-1.59	-416.72	1.1043	500	223.9366	202.793	Si
SLU 44	0.41	-378.38	13.8065	454	233.0144	16.877	Si
SLU 47	-1.59	-425.77	-1.3635	511	220.9153	162.016	Si
SLU 47	0.41	-387.43	13.4566	465	231.4133	17.197	Si
SLU 65	-1.59	-473.97	0.1636	568	199.18	1000	Si
SLU 65	0.41	-435.64	12.3968	522	217.24	17.524	Si
SLU 46	-1.59	-430.57	-0.6754	516	219.1783	324.5	Si
SLU 46	0.41	-392.23	12.9803	470	230.4288	17.752	Si
SLU 51	-1.59	-435.9	-4.0364	523	217.1345	53.794	Si
SLU 51	0.41	-397.57	12.6246	477	229.2225	18.157	Si
SLU 73	-1.59	-534.48	-0.2598	641	158.4424	609.933	Si
SLU 73	0.41	-496.14	10.1387	595	185.9938	18.345	Si
SLU 67	-1.59	-487.82	-1.6161	585	191.1767	118.295	Si
SLU 67	0.41	-449.49	11.5706	539	211.4094	18.271	Si
SLU 49	-1.59	-439.62	-3.1432	527	215.644	68.606	Si
SLU 49	0.41	-401.28	12.6305	481	228.3146	18.077	Si
SLU 76	-1.59	-543.53	-2.7276	652	151.059	55.382	Si
SLU 76	0.41	-505.19	9.7888	606	180.0305	18.391	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	-1.59	-357.33	-142.6758	428	322.5251	2.261	Si
SLV 13	0.41	-327.29	75.6636	392	308.8219	4.082	Si
SLV 9	-1.59	-355.91	-296.8138	427	321.9315	1.085	Si
SLV 9	0.41	-328.17	114.184	393	309.2569	2.708	Si
SLV 10	-1.59	-355.91	-296.8138	427	321.9315	1.085	Si
SLV 10	0.41	-328.17	114.184	393	309.2569	2.708	Si
SLV 12	-1.59	-380.65	261.1711	456	331.4638	1.269	Si
SLV 12	0.41	-348.7	-74.1536	418	318.8395	4.3	Si
SLV 7	-1.59	-386.85	296.4482	464	333.5918	1.125	Si
SLV 7	0.41	-355.61	-97.6374	426	321.8065	3.296	Si
SLV 5	-1.59	-362.11	-261.5366	434	324.478	1.241	Si
SLV 5	0.41	-335.08	90.7002	402	312.6111	3.447	Si
SLV 8	-1.59	-386.85	296.4482	464	333.5918	1.125	Si
SLV 8	0.41	-355.61	-97.6374	426	321.8065	3.296	Si
SLV 6	-1.59	-362.11	-261.5366	434	324.478	1.241	Si
SLV 6	0.41	-335.08	90.7002	402	312.6111	3.447	Si
SLV 11	-1.59	-380.65	261.1711	456	331.4638	1.269	Si
SLV 11	0.41	-348.7	-74.1536	418	318.8395	4.3	Si
SLV 14	-1.59	-357.33	-142.6758	428	322.5251	2.261	Si
SLV 14	0.41	-327.29	75.6636	392	308.8219	4.082	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 47	-1.59	-425.77	-7.41	-1.3635		511	2.78	108	90.35			12.2	Si
SLU 47	0.41	-387.43	-7.41	13.4566		465	2.78	108	90.35			12.2	Si
SLU 71	-1.59	-494.79	-7.89	-5.2847		593	2.78	108	90.35			11.46	Si
SLU 71	0.41	-456.45	-7.89	10.4916		547	2.78	108	90.35			11.46	Si
SLU 50	-1.59	-437.53	-8.12	-4.344		525	2.78	108	90.35			11.13	Si
SLU 50	0.41	-399.19	-8.12	11.9013		479	2.78	108	90.35			11.13	Si
SLU 59	-1.59	-496.41	-7.41	-4.4598		595	2.78	108	90.35			12.19	Si
SLU 59	0.41	-458.07	-7.41	10.3665		549	2.78	108	90.35			12.19	Si
SLU 69	-1.59	-498.5	-7.44	-4.3915		598	2.78	108	90.35			12.14	Si
SLU 69	0.41	-460.16	-7.44	10.4974		552	2.78	108	90.35			12.14	Si
SLU 49	-1.59	-439.62	-7.89	-3.1432		527	2.78	108	90.35			11.46	Si
SLU 49	0.41	-401.28	-7.89	12.6305		481	2.78	108	90.35			11.46	Si
SLU 48	-1.59	-441.24	-7.68	-3.4509		529	2.78	108	90.35			11.77	Si
SLU 48	0.41	-402.91	-7.68	11.9072		483	2.78	108	90.35			11.77	Si
SLU 72	-1.59	-493.16	-8.09	-4.9771		591	2.78	108	90.35			11.16	Si
SLU 72	0.41	-454.82	-8.09	11.2149		545	2.78	108	90.35			11.16	Si
SLU 51	-1.59	-435.9	-8.33	-4.0364		523	2.78	108	90.35			10.85	Si
SLU 51	0.41	-397.57	-8.33	12.6246		477	2.78	108	90.35			10.85	Si
SLU 70	-1.59	-496.87	-7.65	-4.0839		596	2.78	108	90.35			11.81	Si
SLU 70	0.41	-458.54	-7.65	11.2207		550	2.78	108	90.35			11.81	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	-1.59	-362.11	-174.99	-261.5366		603	2.0032	163	97.66			0.56	No, Vu<V
SLV 6	0.41	-335.08	-174.67	90.7002		402	2.78	163	135.52			0.78	No, Vu<V
SLV 13	-1.59	-357.33	-104.86	-142.6758		428	2.78	163	135.52			1.29	Si
SLV 13	0.41	-327.29	-105.4	75.6636		392	2.78	162	134.96			1.28	Si
SLV 5	-1.59	-362.11	-174.99	-261.5366		603	2.0032	163	97.66			0.56	No, Vu<V
SLV 5	0.41	-335.08	-174.67	90.7002		402	2.78	163	135.52			0.78	No, Vu<V
SLV 10	-1.59	-355.91	-202.18	-296.8138		711	1.6681	163	81.32			0.4	No, Vu<V
SLV 10	0.41	-328.17	-202.21	114.184		393	2.78	162	135.13			0.67	No, Vu<V
SLV 14	-1.59	-357.33	-104.86	-142.6758		428	2.78	163	135.52			1.29	Si
SLV 14	0.41	-327.29	-105.4	75.6636		392	2.78	162	134.96			1.28	Si
SLV 8	-1.59	-386.85	193.73	296.4482		689	1.8711	163	91.21			0.47	No, Vu<V
SLV 8	0.41	-355.61	193.76	-97.6374		426	2.78	163	135.52			0.7	No, Vu<V
SLV 7	-1.59	-386.85	193.73	296.4482		689	1.8711	163	91.21			0.47	No, Vu<V
SLV 7	0.41	-355.61	193.76	-97.6374		426	2.78	163	135.52			0.7	No, Vu<V
SLV 9	-1.59	-355.91	-202.18	-296.8138		711	1.6681	163	81.32			0.4	No, Vu<V
SLV 9	0.41	-328.17	-202.21	114.184		393	2.78	162	135.13			0.67	No, Vu<V
SLV 12	-1.59	-380.65	166.53	261.1711		601	2.1116	163	102.94			0.62	No, Vu<V
SLV 12	0.41	-348.7	166.21	-74.1536		418	2.78	163	135.52			0.82	No, Vu<V
SLV 11	-1.59	-380.65	166.53	261.1711		601	2.1116	163	102.94			0.62	No, Vu<V
SLV 11	0.41	-348.7	166.21	-74.1536		418	2.78	163	135.52			0.82	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.24	392	-326.64	1.1141	33.2909	29.88	Si
SLV 9	1438	0.24	392	-326.64	1.1141	33.2909	29.88	Si
SLV 6	1438	0.24	399	-333.15	1.1141	33.6354	30.19	Si
SLV 5	1438	0.24	399	-333.15	1.1141	33.6354	30.19	Si
SLV 13	1438	0.24	402	-335.6	1.1141	33.7615	30.31	Si
SLV 14	1438	0.24	402	-335.6	1.1141	33.7615	30.31	Si
SLV 16	1438	0.24	419	-349.79	1.1141	34.4587	30.93	Si
SLV 15	1438	0.24	419	-349.79	1.1141	34.4587	30.93	Si
SLV 1	1438	0.24	428	-357.31	1.1141	34.804	31.24	Si
SLV 2	1438	0.24	428	-357.31	1.1141	34.804	31.24	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-284.39	-386.85	0.93	0.056	32.125	0.97	0.84232	4.39851	No
SLV 8	-284.39	-386.85	0.93	0.056	32.125	0.97	0.84232	4.39851	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 9	-241.97	-355.91	-0.9	0.056	27.806	0.966	0.84927	4.39851	No
SLV 10	-241.97	-355.91	-0.9	0.056	27.806	0.966	0.84927	4.39851	No
SLV 4	-276.68	-385.43	0.96	0.056	31.339	0.969	0.84156	4.30325	No
SLV 3	-276.68	-385.43	0.96	0.056	31.339	0.969	0.84156	4.30325	No
SLV 11	-279.69	-380.65	0.48	0.058	31.646	0.969	0.86493	4.39851	No
SLV 12	-279.69	-380.65	0.48	0.058	31.646	0.969	0.86493	4.39851	No
SLV 14	-249.68	-357.33	-0.93	0.056	28.591	0.966	0.84634	4.30325	No
SLV 13	-249.68	-357.33	-0.93	0.056	28.591	0.966	0.84634	4.30325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	16.877	SLU 44	Si
V_SLU	10.848	SLU 51	Si
PF_SLV	1.085	SLV 9	Si
V_SLV	0.402	SLV 9	No
PFFP_SLV	29.883	SLV 9	Si
R_SLV	0.192	SLV 7	No

## Maschio 7

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	5.651	-19.618	6.101	L1	L3	0.45	0.3	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 78	-1.59	-82.92	0.8724	614	4.5884	5.26	Si
SLU 78	0.41	-108.39	-6.108	803	0.3498	0.057	No, M>Mu
SLU 77	-1.59	-82.94	0.8738	614	4.5872	5.25	Si
SLU 77	0.41	-108.47	-6.1141	803	0.3325	0.054	No, M>Mu
SLU 83	-1.59	-85.24	0.8906	631	4.3131	4.843	Si
SLU 83	0.41	-111.35	-6.291	825	0	0	No, Rottura per schiacciamento
SLU 80	-1.59	-82.22	0.8598	609	4.6677	5.429	Si
SLU 80	0.41	-107.37	-6.0417	795	0.5708	0.094	No, M>Mu
SLU 84	-1.59	-85.23	0.8892	631	4.3144	4.852	Si
SLU 84	0.41	-111.27	-6.2849	824	0	0	No, Rottura per schiacciamento
SLU 79	-1.59	-82.23	0.8612	609	4.6665	5.418	Si
SLU 79	0.41	-107.45	-6.0479	796	0.5538	0.092	No, M>Mu
SLU 81	-1.59	-84.69	0.8772	627	4.3799	4.993	Si
SLU 81	0.41	-110.29	-6.2345	817	0	0	No, Rottura per schiacciamento
SLU 74	-1.59	-82.39	0.8604	610	4.6489	5.403	Si
SLU 74	0.41	-107.41	-6.0576	796	0.5622	0.093	No, M>Mu
SLU 82	-1.59	-84.68	0.8757	627	4.3812	5.003	Si
SLU 82	0.41	-110.21	-6.2284	816	0	0	No, Rottura per schiacciamento
SLU 75	-1.59	-82.38	0.8589	610	4.6501	5.414	Si
SLU 75	0.41	-107.33	-6.0515	795	0.5791	0.096	No, M>Mu

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 11	-1.59	-52.74	7.5371	391	8.0723	1.071	Si
SLV 11	0.41	-121.39	-10.7416	899	7.2127	0.671	No, M>Mu
SLD 11	-1.59	-55.03	3.5455	408	8.251	2.327	Si
SLD 11	0.41	-93.79	-6.9822	695	9.1042	1.304	Si
SLV 15	-1.59	-67.98	3.1847	504	8.992	2.824	Si
SLV 15	0.41	-98.63	-7.6315	731	8.9226	1.169	Si
SLV 16	-1.59	-67.98	3.1847	504	8.992	2.824	Si
SLV 16	0.41	-98.63	-7.6315	731	8.9226	1.169	Si
SLV 8	-1.59	-44.53	7.1917	330	7.314	1.017	Si
SLV 8	0.41	-114.07	-9.7186	845	7.9172	0.815	No, M>Mu
SLV 12	-1.59	-52.74	7.5371	391	8.0723	1.071	Si
SLV 12	0.41	-121.39	-10.7416	899	7.2127	0.671	No, M>Mu
SLV 7	-1.59	-44.53	7.1917	330	7.314	1.017	Si
SLV 7	0.41	-114.07	-9.7186	845	7.9172	0.815	No, M>Mu
SLD 12	-1.59	-55.03	3.5455	408	8.251	2.327	Si
SLD 12	0.41	-93.79	-6.9822	695	9.1042	1.304	Si
SLV 6	-1.59	-60.7	-6.3953	450	8.6316	1.35	Si
SLV 6	0.41	-24.62	2.5773	182	4.7134	1.829	Si
SLV 5	-1.59	-60.7	-6.3953	450	8.6316	1.35	Si
SLV 5	0.41	-24.62	2.5773	182	4.7134	1.829	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	-1.59	-84.68	1.04	0.8757		627	0.45	108	14.62			14.01	Si
SLU 82	0.41	-110.21	11.67	-6.2284		816	0.45	108	14.62			1.25	Si
SLU 81	-1.59	-84.69	1.05	0.8772		627	0.45	108	14.62			13.95	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	0.41	-110.29	11.68	-6.2345		817	0.45	108	14.62			1.25	Si
SLU 83	-1.59	-85.24	1.09	0.8906		631	0.45	108	14.62			13.42	Si
SLU 83	0.41	-111.35	11.75	-6.291		825	0.45	108	14.62			1.24	Si
SLU 80	-1.59	-82.22	1.07	0.8598		609	0.45	108	14.62			13.64	Si
SLU 80	0.41	-107.37	11.24	-6.0417		795	0.45	108	14.62			1.3	Si
SLU 75	-1.59	-82.38	1.04	0.8589		610	0.45	108	14.62			14.03	Si
SLU 75	0.41	-107.33	11.31	-6.0515		795	0.45	108	14.62			1.29	Si
SLU 79	-1.59	-82.23	1.08	0.8612		609	0.45	108	14.62			13.58	Si
SLU 79	0.41	-107.45	11.24	-6.0479		796	0.45	108	14.62			1.3	Si
SLU 84	-1.59	-85.23	1.09	0.8892		631	0.45	108	14.62			13.48	Si
SLU 84	0.41	-111.27	11.74	-6.2849		824	0.45	108	14.62			1.25	Si
SLU 77	-1.59	-82.94	1.09	0.8738		614	0.45	108	14.62			13.44	Si
SLU 77	0.41	-108.47	11.38	-6.1141		803	0.45	108	14.62			1.28	Si
SLU 78	-1.59	-82.92	1.08	0.8724		614	0.45	108	14.62			13.5	Si
SLU 78	0.41	-108.39	11.37	-6.108		803	0.45	108	14.62			1.29	Si
SLU 74	-1.59	-82.39	1.05	0.8604		610	0.45	108	14.62			13.97	Si
SLU 74	0.41	-107.41	11.31	-6.0576		796	0.45	108	14.62			1.29	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 12	-1.59	-55.03	4.21	3.5455		408	0.45	163	21.94			5.22	Si
SLD 12	0.41	-93.79	14.1	-6.9822		695	0.45	163	21.94			1.56	Si
SLV 12	-1.59	-52.74	8.84	7.5371		714	0.2463	163	12			1.36	Si
SLV 12	0.41	-121.39	22.58	-10.7416		988	0.4095	163	19.97			0.88	No, Vu<V
SLD 7	-1.59	-51.51	3.88	3.3923		382	0.45	160	21.55			5.56	Si
SLD 7	0.41	-90.66	15.48	-6.5393		672	0.45	163	21.94			1.42	Si
SLV 11	-1.59	-52.74	8.84	7.5371		714	0.2463	163	12			1.36	Si
SLV 11	0.41	-121.39	22.58	-10.7416		988	0.4095	163	19.97			0.88	No, Vu<V
SLV 4	-1.59	-40.6	1.76	2.0332		301	0.45	143	19.37			11	Si
SLV 4	0.41	-74.22	17.8	-4.2216		550	0.45	163	21.94			1.23	Si
SLD 8	-1.59	-51.51	3.88	3.3923		382	0.45	160	21.55			5.56	Si
SLD 8	0.41	-90.66	15.48	-6.5393		672	0.45	163	21.94			1.42	Si
SLD 11	-1.59	-55.03	4.21	3.5455		408	0.45	163	21.94			5.22	Si
SLD 11	0.41	-93.79	14.1	-6.9822		695	0.45	163	21.94			1.56	Si
SLV 3	-1.59	-40.6	1.76	2.0332		301	0.45	143	19.37			11	Si
SLV 3	0.41	-74.22	17.8	-4.2216		550	0.45	163	21.94			1.23	Si
SLV 7	-1.59	-44.53	8.09	7.1917		779	0.1904	163	9.28			1.15	Si
SLV 7	0.41	-114.07	25.71	-9.7186		907	0.4194	163	20.45			0.8	No, Vu<V
SLV 8	-1.59	-44.53	8.09	7.1917		779	0.1904	163	9.28			1.15	Si
SLV 8	0.41	-114.07	25.71	-9.7186		907	0.4194	163	20.45			0.8	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.24	286	-38.61	0.1803	4.436	24.6	Si
SLV 6	1438	0.24	286	-38.61	0.1803	4.436	24.6	Si
SLV 10	1438	0.24	322	-43.47	0.1803	4.8021	26.63	Si
SLV 9	1438	0.24	322	-43.47	0.1803	4.8021	26.63	Si
SLV 1	1438	0.24	379	-51.22	0.1803	5.2972	29.37	Si
SLV 2	1438	0.24	379	-51.22	0.1803	5.2972	29.37	Si
SLV 3	1438	0.24	495	-66.88	0.1803	5.9646	33.08	Si
SLV 4	1438	0.24	495	-66.88	0.1803	5.9646	33.08	Si
SLV 14	1438	0.24	499	-67.41	0.1803	5.9793	33.16	Si
SLV 13	1438	0.24	499	-67.41	0.1803	5.9793	33.16	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-67.14	-40.6	-0.76	0.047	7.35	0.978	0.70271	4.30325	No
SLV 3	-67.14	-40.6	-0.76	0.047	7.35	0.978	0.70271	4.30325	No
SLV 8	-92.5	-44.53	-0.8	0.049	9.933	0.984	0.72555	4.39851	No
SLV 7	-92.5	-44.53	-0.8	0.049	9.933	0.984	0.72555	4.39851	No
SLV 2	-48.99	-45.45	-0.59	0.048	5.501	0.971	0.71578	4.30325	No
SLV 1	-48.99	-45.45	-0.59	0.048	5.501	0.971	0.71578	4.30325	No
SLV 11	-96.08	-52.74	-0.65	0.051	10.298	0.984	0.75047	4.39851	No
SLV 12	-96.08	-52.74	-0.65	0.051	10.298	0.984	0.75047	4.39851	No
SLV 16	-79.08	-67.98	-0.27	0.054	8.566	0.981	0.80666	4.30325	No
SLV 15	-79.08	-67.98	-0.27	0.054	8.566	0.981	0.80666	4.30325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 81	No
V_SLU	1.245	SLU 83	Si
PF_SLV	0.671	SLV 11	No
V_SLV	0.795	SLV 7	No
PFFP_SLV	24.599	SLV 5	Si
R_SLV	0.163	SLV 3	No

## Maschio 8

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.543	-3.284	-24.653	-3.284	L1	L3	2.11	0.45	2.7	2.7	2.7			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 5	0.41	-40.84	-17.7015	43	40.8141	2.306	Si
SLU 5	0.81	-25.15	-27.8963	0	0	0	No, e>l/2
SLU 26	0.41	-51.45	-21.4945	54	50.6715	2.357	Si
SLU 26	0.81	-35.56	-33.6457	37	35.7903	1.064	Si
SLU 51	0.41	-60.64	-25.5299	64	58.9555	2.309	Si
SLU 51	0.81	-43.76	-40.9733	46	43.5511	1.063	Si
SLU 47	0.41	-54.19	-23.4079	57	53.1628	2.271	Si
SLU 47	0.81	-35.38	-36.7598	37	35.6172	0.969	No, M>Mu
SLU 7	0.41	-47.65	-19.9789	50	47.178	2.361	Si
SLU 7	0.81	-33.83	-32.3517	36	34.129	1.055	Si
SLU 2	0.41	-40.74	-17.8014	43	40.7181	2.287	Si
SLU 2	0.81	-25.12	-27.2351	0	0	0	No, e>l/2
SLU 49	0.41	-61	-25.6852	64	59.2787	2.308	Si
SLU 49	0.81	-44.05	-41.2152	46	43.8298	1.063	Si
SLU 68	0.41	-64.8	-27.2009	68	62.634	2.303	Si
SLU 68	0.81	-45.78	-42.5092	48	45.4429	1.069	Si
SLU 44	0.41	-54.09	-23.5078	57	53.0704	2.258	Si
SLU 44	0.81	-35.34	-36.0986	37	35.5834	0.986	No, M>Mu
SLU 9	0.41	-47.29	-19.8235	50	46.8416	2.363	Si
SLU 9	0.81	-33.53	-32.1098	35	33.842	1.054	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	0.41	-18.21	-15.1788	19	18.9082	1.246	Si
SLV 5	0.81	32.04	-70.0629	0	0	0	No, Trazione
SLV 6	0.41	-18.21	-15.1788	19	18.9082	1.246	Si
SLV 6	0.81	32.04	-70.0629	0	0	0	No, Trazione
SLD 6	0.41	-44.61	-21.4757	47	45.252	2.107	Si
SLD 6	0.81	-18.03	-52.8034	0	0	0	No, e>l/2
SLV 10	0.41	-42.85	-36.1261	45	43.5365	1.205	Si
SLV 10	0.81	14.75	-56.0491	0	0	0	No, Trazione
SLV 9	0.41	-42.85	-36.1261	45	43.5365	1.205	Si
SLV 9	0.81	14.75	-56.0491	0	0	0	No, Trazione
SLD 10	0.41	-55.39	-30.6226	58	55.6435	1.817	Si
SLD 10	0.81	-25.56	-46.7752	0	0	0	No, e>l/2
SLV 3	0.41	-32.36	8.9847	34	33.1829	3.693	Si
SLV 3	0.81	-46.86	-56.014	0	0	0	No, e>l/2
SLD 1	0.41	-41.5	-10.6747	44	42.2185	3.955	Si
SLD 1	0.81	-30.94	-52.7547	0	0	0	No, e>l/2
SLV 1	0.41	-12.56	9.1116	13	13.1048	1.438	Si
SLV 1	0.81	-1.13	-70.044	0	0	0	No, e>l/2
SLV 2	0.41	-12.56	9.1116	13	13.1048	1.438	Si
SLV 2	0.81	-1.13	-70.044	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	0.41	-61	16.34	-25.6852	71	1.9018	65	55.68				3.41	Si
SLU 49	0.81	-44.05	17.53	-41.2152	273	0.3583	92	14.83				0.85	No, Vu<V
SLU 2	0.41	-40.74	-0.51	-17.8014	49	1.8542	62	51.79				101.95	Si
SLU 2	0.81	-25.12	0.3	-27.2351	0	0	56	0				0	No, Vu<V
SLU 69	0.41	-81.13	33.51	-32.8111	92	1.9517	68	59.61				1.78	Si
SLU 69	0.81	-66.97	34.92	-52.2929	181	0.8226	80	29.49				0.84	No, Vu<V
SLU 50	0.41	-70.15	29.16	-28.8628	81	1.9308	66	57.62				1.98	Si
SLU 50	0.81	-56.27	30.43	-46.3016	180	0.6964	79	24.91				0.82	No, Vu<V
SLU 77	0.41	-94.73	37.56	-37.7957	107	1.9681	70	61.83				1.65	Si
SLU 77	0.81	-80.5	39.1	-58.9928	185	0.9666	80	34.9				0.89	No, Vu<V
SLU 47	0.41	-54.19	6.01	-23.4079	64	1.8691	64	53.95				8.98	Si
SLU 47	0.81	-35.38	7.09	-36.7598	1642	0.0479	108	2.33				0.33	No, Vu<V
SLU 51	0.41	-60.64	16.3	-25.5299	71	1.9019	65	55.63				3.41	Si
SLU 51	0.81	-43.76	17.48	-40.9733	273	0.3558	92	14.73				0.84	No, Vu<V
SLU 48	0.41	-70.52	29.2	-29.0181	81	1.9305	66	57.67				1.97	Si
SLU 48	0.81	-56.57	30.48	-46.5435	180	0.6966	80	24.96				0.82	No, Vu<V
SLU 71	0.41	-80.76	33.47	-32.6558	92	1.952	68	59.57				1.78	Si
SLU 71	0.81	-66.67	34.87	-52.0509	180	0.823	80	29.46				0.84	No, Vu<V
SLU 5	0.41	-40.84	1.21	-17.7015	49	1.8648	62	52.07				43.04	Si
SLU 5	0.81	-25.15	2.05	-27.8963	0	0	56	0				0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	0.41	-42.85	-120.98	-36.1261	150	0.6357	113	32.41				0.27	No, Vu<V
SLV 10	0.81	14.75	-127.56	-56.0491	0	0	83	0				0	No, Vu<V
SLV 6	0.41	-18.21	-15.36	-15.1788	61	0.6641	96	28.55				1.86	Si
SLV 6	0.81	32.04	-19.64	-70.0629	0	0	83	0				0	No, Vu<V
SLV 1	0.41	-12.56	171.89	9.1116	28	0.9882	89	39.57				0.23	No, Vu<V
SLV 1	0.81	-1.13	174.84	-70.044	0	0	83	0				0	No, Vu<V
SLD 10	0.41	-55.39	-36.48	-30.6226	82	1.5063	100	67.57				1.85	Si
SLD 10	0.81	-25.56	-38.49	-46.7752	0	0	83	0				0	No, Vu<V
SLV 9	0.41	-42.85	-120.98	-36.1261	150	0.6357	113	32.41				0.27	No, Vu<V
SLV 9	0.81	14.75	-127.56	-56.0491	0	0	83	0				0	No, Vu<V
SLV 5	0.41	-18.21	-15.36	-15.1788	61	0.6641	96	28.55				1.86	Si
SLV 5	0.81	32.04	-19.64	-70.0629	0	0	83	0				0	No, Vu<V





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 1	0.41	-41.5	89.06	-10.6747		44	2.11	92	87.43			0.98	No, Vu<V
SLD 1	0.81	-30.94	90.5	-52.7547		0	0	83	0			0	No, Vu<V
SLD 6	0.41	-44.61	9.58	-21.4757		58	1.7207	95	73.45			7.67	Si
SLD 6	0.81	-18.03	8.3	-52.8034		0	0	83	0			0	No, Vu<V
SLV 2	0.41	-12.56	171.89	9.1116		28	0.9882	89	39.57			0.23	No, Vu<V
SLV 2	0.81	-1.13	174.84	-70.044		0	0	83	0			0	No, Vu<V
SLV 3	0.41	-32.36	226.78	8.9847		34	2.11	90	85.6			0.38	No, Vu<V
SLV 3	0.81	-46.86	233.6	-56.014		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.24	41	-38.7	1.2683	8.4178	6.64	Si
SLV 8	1438	0.24	41	-38.7	1.2683	8.4178	6.64	Si
SLV 12	1438	0.24	48	-45.35	1.2683	9.8056	7.73	Si
SLV 11	1438	0.24	48	-45.35	1.2683	9.8056	7.73	Si
SLV 4	1438	0.24	57	-53.96	1.2683	11.5762	9.13	Si
SLV 3	1438	0.24	57	-53.96	1.2683	11.5762	9.13	Si
SLV 1	1438	0.24	78	-73.69	1.2683	15.5265	12.24	Si
SLV 2	1438	0.24	78	-73.69	1.2683	15.5265	12.24	Si
SLV 16	1438	0.24	80	-76.13	1.2683	16.0046	12.62	Si
SLV 15	1438	0.24	80	-76.13	1.2683	16.0046	12.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	25.4	-184.63	-0.23	0	0	0	0	3.48092	No, Trazione
SLV 12	-122.01	0.04	-4.79	0	0	0	0	3.52938	No, Trazione
SLV 5	48.73	-216.48	1.83	0	0	0	0	3.52938	No, Trazione
SLV 6	48.73	-216.48	1.83	0	0	0	0	3.52938	No, Trazione
SLV 10	24.71	-187.52	1.67	0	0	0	0	3.52938	No, Trazione
SLV 9	24.71	-187.52	1.67	0	0	0	0	3.52938	No, Trazione
SLV 11	-122.01	0.04	-4.79	0	0	0	0	3.52938	No, Trazione
SLV 2	25.4	-184.63	-0.23	0	0	0	0	3.48092	No, Trazione
SLV 8	-97.99	-28.92	-4.62	0.061	13.64	0.928	0.95544	3.52938	No
SLV 7	-97.99	-28.92	-4.62	0.061	13.64	0.928	0.95544	3.52938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 2	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 1	No
PFFP_SLV	6.637	SLV 7	Si
R_SLV	0	SLV 12	No

## Maschio 9

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.313	-3.284	-21.543	-3.284	L1	L3	3.23	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	0.41	-394.69	-170.5537	272	424.938	2.492	Si
SLU 76	0.81	-381.8	-200.0639	263	417.7729	2.088	Si
SLU 52	0.41	-355.18	-161.4387	244	401.5378	2.487	Si
SLU 52	0.81	-342.29	-188.3341	235	392.9831	2.087	Si
SLU 44	0.41	-307.19	-147.8934	211	367.3975	2.484	Si
SLU 44	0.81	-294.3	-173.6938	202	357.1554	2.056	Si
SLU 47	0.41	-307.87	-146.4099	212	367.9211	2.513	Si
SLU 47	0.81	-294.98	-173.3811	203	357.7027	2.063	Si
SLU 55	0.41	-355.85	-159.9552	245	401.9731	2.513	Si
SLU 55	0.81	-342.96	-188.0214	236	393.4421	2.093	Si
SLU 5	0.41	-243.56	-120.4964	168	312.4303	2.593	Si
SLU 5	0.81	-233.64	-144.9147	161	302.8705	2.09	Si
SLU 65	0.41	-346.04	-158.4919	238	395.5183	2.496	Si
SLU 65	0.81	-333.14	-185.7363	229	386.6421	2.082	Si
SLU 2	0.41	-242.88	-121.9799	167	311.7883	2.556	Si
SLU 2	0.81	-232.97	-145.2273	160	302.2103	2.081	Si
SLU 68	0.41	-346.71	-157.0084	239	395.9704	2.522	Si
SLU 68	0.81	-333.82	-185.4236	230	387.1179	2.088	Si
SLU 73	0.41	-394.02	-172.0373	271	424.5742	2.468	Si
SLU 73	0.81	-381.13	-200.3766	262	417.3854	2.083	Si



# Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	0.41	-348.84	-212.7299	240	452.7195	2.128	Si
SLV 9	0.81	-286.42	-220.4352	197	387.9703	1.76	Si
SLV 6	0.41	-346.89	-127.026	239	450.8042	3.549	Si
SLV 6	0.81	-285.52	-209.635	196	386.9783	1.846	Si
SLV 13	0.41	-306.11	-267.5755	211	409.157	1.529	Si
SLV 13	0.81	-278.86	-163.9032	192	379.6436	2.316	Si
SLV 14	0.41	-306.11	-267.5755	211	409.157	1.529	Si
SLV 14	0.81	-278.86	-163.9032	192	379.6436	2.316	Si
SLV 5	0.41	-346.89	-127.026	239	450.8042	3.549	Si
SLV 5	0.81	-285.52	-209.635	196	386.9783	1.846	Si
SLV 16	0.41	-267.53	-228.8822	184	366.9776	1.603	Si
SLV 16	0.81	-271.47	-104.647	187	371.4086	3.549	Si
SLV 10	0.41	-348.84	-212.7299	240	452.7195	2.128	Si
SLV 10	0.81	-286.42	-220.4352	197	387.9703	1.76	Si
SLV 15	0.41	-267.53	-228.8822	184	366.9776	1.603	Si
SLV 15	0.81	-271.47	-104.647	187	371.4086	3.549	Si
SLD 14	0.41	-293.38	-176.0518	202	395.5421	2.247	Si
SLD 14	0.81	-276.42	-136.7861	190	376.9344	2.756	Si
SLD 13	0.41	-293.38	-176.0518	202	395.5421	2.247	Si
SLD 13	0.81	-276.42	-136.7861	190	376.9344	2.756	Si

# Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	0.41	-394.69	73.88	-170.5537		272	3.23	92	133.38			1.81	Si
SLU 76	0.81	-381.8	73.88	-200.0639		263	3.23	91	131.66			1.78	Si
SLU 55	0.41	-355.85	70.27	-159.9552		245	3.23	88	128.2			1.82	Si
SLU 55	0.81	-342.96	70.27	-188.0214		238	3.2003	87	125.74			1.79	Si
SLU 65	0.41	-346.04	68.22	-158.4919		238	3.23	87	126.89			1.86	Si
SLU 65	0.81	-333.14	68.22	-185.7363		233	3.1724	87	123.73			1.81	Si
SLU 68	0.41	-346.71	71.14	-157.0084		239	3.23	87	126.98			1.78	Si
SLU 68	0.81	-333.82	71.14	-185.4236		233	3.1786	87	123.97			1.74	Si
SLU 2	0.41	-242.88	58.2	-121.9799		167	3.23	78	113.13			1.94	Si
SLU 2	0.81	-232.97	58.2	-145.2273		174	2.9748	79	105.43			1.81	Si
SLU 44	0.41	-307.19	64.61	-147.8934		211	3.23	84	121.71			1.88	Si
SLU 44	0.81	-294.3	64.61	-173.6938		213	3.0744	84	116.1			1.8	Si
SLU 47	0.41	-307.87	67.53	-146.4099		212	3.23	84	121.8			1.8	Si
SLU 47	0.81	-294.98	67.53	-173.3811		213	3.0817	84	116.37			1.72	Si
SLU 5	0.41	-243.56	61.13	-120.4964		168	3.23	78	113.22			1.85	Si
SLU 5	0.81	-233.64	61.13	-144.9147		174	2.9843	79	105.76			1.73	Si
SLU 26	0.41	-282.4	64.74	-131.0949		194	3.23	81	118.4			1.83	Si
SLU 26	0.81	-272.48	64.74	-156.9571		194	3.1169	81	114.25			1.76	Si
SLU 13	0.41	-291.54	63.86	-134.0417		201	3.23	82	119.62			1.87	Si
SLU 13	0.81	-281.62	63.86	-159.555		199	3.1453	82	116.18			1.82	Si

# Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	0.41	-220.25	-212.02	-83.7522		152	3.23	114	165.17			0.78	No, Vu<V
SLV 12	0.81	-261.79	-289.56	-22.9145		180	3.23	119	173.48			0.6	No, Vu<V
SLV 15	0.41	-267.53	-321.18	-228.8822		261	2.2784	136	138.95			0.43	No, Vu<V
SLV 15	0.81	-271.47	-339.96	-104.647		187	3.23	121	175.42			0.52	No, Vu<V
SLV 11	0.41	-220.25	-212.02	-83.7522		152	3.23	114	165.17			0.78	No, Vu<V
SLV 11	0.81	-261.79	-289.56	-22.9145		180	3.23	119	173.48			0.6	No, Vu<V
SLV 1	0.41	-299.61	375.77	18.104		206	3.23	125	181.05			0.48	No, Vu<V
SLV 1	0.81	-275.84	394.55	-127.9024		190	3.23	121	176.29			0.45	No, Vu<V
SLV 16	0.41	-267.53	-321.18	-228.8822		261	2.2784	136	138.95			0.43	No, Vu<V
SLV 16	0.81	-271.47	-339.96	-104.647		187	3.23	121	175.42			0.52	No, Vu<V
SLV 2	0.41	-299.61	375.77	18.104		206	3.23	125	181.05			0.48	No, Vu<V
SLV 2	0.81	-275.84	394.55	-127.9024		190	3.23	121	176.29			0.45	No, Vu<V
SLV 3	0.41	-261.03	286.91	56.7973		180	3.23	119	173.33			0.6	No, Vu<V
SLV 3	0.81	-268.45	258.28	-68.6462		185	3.23	120	174.81			0.68	No, Vu<V
SLV 5	0.41	-346.89	266.61	-127.026		239	3.23	131	190.5			0.71	No, Vu<V
SLV 5	0.81	-285.52	344.15	-209.635		240	2.6423	131	156.19			0.45	No, Vu<V
SLV 4	0.41	-261.03	286.91	56.7973		180	3.23	119	173.33			0.6	No, Vu<V
SLV 4	0.81	-268.45	258.28	-68.6462		185	3.23	120	174.81			0.68	No, Vu<V
SLV 6	0.41	-346.89	266.61	-127.026		239	3.23	131	190.5			0.71	No, Vu<V
SLV 6	0.81	-285.52	344.15	-209.635		240	2.6423	131	156.19			0.45	No, Vu<V

# Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.24	96	-140.11	1.9416	29.0379	14.96	Si
SLV 11	1438	0.24	96	-140.11	1.9416	29.0379	14.96	Si
SLV 7	1438	0.24	99	-143.54	1.9416	29.6869	15.29	Si
SLV 8	1438	0.24	99	-143.54	1.9416	29.6869	15.29	Si
SLV 15	1438	0.24	140	-204.09	1.9416	40.6434	20.93	Si
SLV 16	1438	0.24	140	-204.09	1.9416	40.6434	20.93	Si
SLV 4	1438	0.24	148	-215.53	1.9416	42.6096	21.95	Si
SLV 3	1438	0.24	148	-215.53	1.9416	42.6096	21.95	Si
SLV 14	1438	0.24	181	-262.36	1.9416	50.3111	25.91	Si
SLV 13	1438	0.24	181	-262.36	1.9416	50.3111	25.91	Si

# Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-237.46	-117.68	-13.58	0.044	29.731	0.947	0.68065	3.52938	No
SLV 12	-237.46	-117.68	-13.58	0.044	29.731	0.947	0.68065	3.52938	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 8	-228.35	-126.77	-13.12	0.045	28.807	0.945	0.68763	3.52938	No
SLV 7	-228.35	-126.77	-13.12	0.045	28.807	0.945	0.68763	3.52938	No
SLV 16	-245.25	-190.19	-12.18	0.05	30.521	0.948	0.77274	3.48092	No
SLV 15	-245.25	-190.19	-12.18	0.05	30.521	0.948	0.77274	3.48092	No
SLV 3	-214.87	-220.49	-10.66	0.052	27.441	0.943	0.80903	3.48092	No
SLV 4	-214.87	-220.49	-10.66	0.052	27.441	0.943	0.80903	3.48092	No
SLV 14	-242.81	-261.43	-10.53	0.056	30.274	0.947	0.85985	3.48092	No
SLV 13	-242.81	-261.43	-10.53	0.056	30.274	0.947	0.85985	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.056	SLU 44	Si
V_SLU	1.723	SLU 47	Si
PF_SLV	1.529	SLV 13	Si
V_SLV	0.433	SLV 15	No
PFFP_SLV	14.956	SLV 11	Si
R_SLV	0.193	SLV 11	No

## Maschio 10

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.523	-3.284	-17.313	-3.284	L1	L3	0.79	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 77	0.41	-224.25	5.3538	631	19.9841	3.733	Si
SLU 77	0.81	-178.84	30.8791	503	27.0154	0.875	No, M>Mu
SLU 75	0.41	-230.97	6.0121	650	18.4675	3.072	Si
SLU 75	0.81	-186.17	32.1635	524	26.2613	0.816	No, M>Mu
SLU 84	0.41	-241	5.8587	678	15.9699	2.726	Si
SLU 84	0.81	-193.53	33.3761	544	25.3564	0.76	No, M>Mu
SLU 81	0.41	-231.13	5.3562	650	18.4284	3.441	Si
SLU 81	0.81	-184.43	31.8783	519	26.4529	0.83	No, M>Mu
SLU 82	0.41	-239.42	5.9366	673	16.3813	2.759	Si
SLU 82	0.81	-192.65	33.2694	542	25.4727	0.766	No, M>Mu
SLU 83	0.41	-232.71	5.2783	655	18.0528	3.42	Si
SLU 83	0.81	-185.32	31.985	521	26.3565	0.824	No, M>Mu
SLU 80	0.41	-231.51	5.799	651	18.3392	3.163	Si
SLU 80	0.81	-185.96	32.064	523	26.2842	0.82	No, M>Mu
SLU 76	0.41	-235.46	6.2639	662	17.3839	2.775	Si
SLU 76	0.81	-190.56	32.8848	536	25.7395	0.783	No, M>Mu
SLU 78	0.41	-232.55	5.9342	654	18.0926	3.049	Si
SLU 78	0.81	-187.05	32.2702	526	26.1606	0.811	No, M>Mu
SLU 73	0.41	-233.88	6.3419	658	17.7713	2.802	Si
SLU 73	0.81	-189.68	32.7781	534	25.8486	0.789	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	0.41	-149.66	14.4375	421	38.7475	2.684	Si
SLV 13	0.81	-160.05	31.8832	450	39.9256	1.252	Si
SLV 9	0.41	-195.82	11.7867	551	42.4795	3.604	Si
SLV 9	0.81	-167.7	29.9774	472	40.6676	1.357	Si
SLV 16	0.41	-120.51	11.4194	339	34.3945	3.012	Si
SLV 16	0.81	-137.66	28.2345	387	37.1426	1.316	Si
SLD 15	0.41	-139.08	7.4384	391	37.3464	5.021	Si
SLD 15	0.81	-129.28	24.3572	364	35.8669	1.473	Si
SLV 14	0.41	-149.66	14.4375	421	38.7475	2.684	Si
SLV 14	0.81	-160.05	31.8832	450	39.9256	1.252	Si
SLV 10	0.41	-195.82	11.7867	551	42.4795	3.604	Si
SLV 10	0.81	-167.7	29.9774	472	40.6676	1.357	Si
SLV 15	0.41	-120.51	11.4194	339	34.3945	3.012	Si
SLV 15	0.81	-137.66	28.2345	387	37.1426	1.316	Si
SLD 14	0.41	-150.89	8.6003	424	38.898	4.523	Si
SLD 14	0.81	-138.48	25.8772	390	37.2613	1.44	Si
SLD 13	0.41	-150.89	8.6003	424	38.898	4.523	Si
SLD 13	0.81	-138.48	25.8772	390	37.2613	1.44	Si
SLD 16	0.41	-139.08	7.4384	391	37.3464	5.021	Si
SLD 16	0.81	-129.28	24.3572	364	35.8669	1.473	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	0.41	-235.46	-23.38	6.2639		662	0.79	108	38.51			1.65	Si
SLU 76	0.81	-190.56	-8.39	32.8848		635	0.6673	108	32.53			3.88	Si
SLU 68	0.41	-209.61	-22.79	6.3065		590	0.79	108	38.51			1.69	Si
SLU 68	0.81	-170.85	-8.09	29.5744		570	0.6657	108	32.45			4.01	Si
SLU 65	0.41	-208.03	-24.25	6.3845		585	0.79	108	38.51			1.59	Si
SLU 65	0.81	-169.97	-8.22	29.4677		568	0.6649	108	32.41			3.94	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 44	0.41	-188.32	-23.14	6.1859		530	0.79	108	38.51			1.66	Si
SLU 44	0.81	-154.58	-8.05	26.8522		517	0.6639	108	32.36			4.02	Si
SLU 75	0.41	-230.97	-21.41	6.0121		650	0.79	108	38.51			1.8	Si
SLU 75	0.81	-186.17	-7.17	32.1635		621	0.6667	108	32.5			4.54	Si
SLU 52	0.41	-214.16	-23.73	6.1433		602	0.79	108	38.51			1.62	Si
SLU 52	0.81	-174.29	-8.34	30.1625		582	0.6658	108	32.46			3.89	Si
SLU 82	0.41	-239.42	-22.49	5.9366		673	0.79	108	38.51			1.71	Si
SLU 82	0.81	-192.65	-7.32	33.2694		642	0.6669	108	32.51			4.44	Si
SLU 55	0.41	-215.74	-22.26	6.0653		607	0.79	108	38.51			1.73	Si
SLU 55	0.81	-175.18	-8.21	30.2692		584	0.6666	108	32.5			3.96	Si
SLU 73	0.41	-233.88	-24.85	6.3419		658	0.79	108	38.51			1.55	Si
SLU 73	0.81	-189.68	-8.51	32.7781		632	0.6666	108	32.5			3.82	Si
SLU 47	0.41	-189.9	-21.67	6.1079		534	0.79	108	38.51			1.78	Si
SLU 47	0.81	-155.47	-7.92	26.9588		520	0.6648	108	32.41			4.09	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	0.41	-184.38	93.66	-3.1969		519	0.79	163	57.77			0.62	No, Vu<V
SLV 1	0.81	-107.27	8.5	14.2755		303	0.7858	144	50.92			5.99	Si
SLV 15	0.41	-120.51	-120.8	11.4194		339	0.79	151	53.73			0.44	No, Vu<V
SLV 15	0.81	-137.66	-16.14	28.2345		537	0.5697	163	41.66			2.58	Si
SLV 16	0.41	-120.51	-120.8	11.4194		339	0.79	151	53.73			0.44	No, Vu<V
SLV 16	0.81	-137.66	-16.14	28.2345		537	0.5697	163	41.66			2.58	Si
SLV 10	0.41	-195.82	-95.17	11.7867		551	0.79	163	57.77			0.61	No, Vu<V
SLV 10	0.81	-167.7	-30.03	29.9774		574	0.6487	163	47.44			1.58	Si
SLV 13	0.41	-149.66	-148.01	14.4375		421	0.79	163	57.77			0.39	No, Vu<V
SLV 13	0.81	-160.05	-28.53	31.8832		606	0.5874	163	42.95			1.51	Si
SLV 4	0.41	-155.23	120.87	-6.2151		437	0.79	163	57.77			0.48	No, Vu<V
SLV 4	0.81	-84.88	20.89	10.6268		239	0.79	131	46.6			2.23	Si
SLV 2	0.41	-184.38	93.66	-3.1969		519	0.79	163	57.77			0.62	No, Vu<V
SLV 2	0.81	-107.27	8.5	14.2755		303	0.7858	144	50.92			5.99	Si
SLV 9	0.41	-195.82	-95.17	11.7867		551	0.79	163	57.77			0.61	No, Vu<V
SLV 9	0.81	-167.7	-30.03	29.9774		574	0.6487	163	47.44			1.58	Si
SLV 14	0.41	-149.66	-148.01	14.4375		421	0.79	163	57.77			0.39	No, Vu<V
SLV 14	0.81	-160.05	-28.53	31.8832		606	0.5874	163	42.95			1.51	Si
SLV 3	0.41	-155.23	120.87	-6.2151		437	0.79	163	57.77			0.48	No, Vu<V
SLV 3	0.81	-84.88	20.89	10.6268		239	0.79	131	46.6			2.23	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.24	249	-88.68	0.4749	15.8792	33.44	Si
SLV 3	1438	0.24	249	-88.68	0.4749	15.8792	33.44	Si
SLV 7	1438	0.24	255	-90.74	0.4749	16.1521	34.01	Si
SLV 8	1438	0.24	255	-90.74	0.4749	16.1521	34.01	Si
SLV 1	1438	0.24	298	-105.91	0.4749	18.0195	37.95	Si
SLV 2	1438	0.24	298	-105.91	0.4749	18.0195	37.95	Si
SLV 11	1438	0.24	309	-109.75	0.4749	18.4543	38.86	Si
SLV 12	1438	0.24	309	-109.75	0.4749	18.4543	38.86	Si
SLV 5	1438	0.24	417	-148.18	0.4749	21.9672	46.26	Si
SLV 6	1438	0.24	417	-148.18	0.4749	21.9672	46.26	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-60.49	0.3	-3.86	0	0	0	0	3.48092	No, Trazione
SLV 3	-60.49	0.3	-3.86	0	0	0	0	3.48092	No, Trazione
SLV 8	-57.35	-64.28	-3.87	0.036	7.198	0.946	0.54746	3.52938	No
SLV 7	-57.35	-64.28	-3.87	0.036	7.198	0.946	0.54746	3.52938	No
SLV 11	-63.82	-137.52	-3.59	0.044	7.855	0.95	0.66797	3.52938	No
SLV 12	-63.82	-137.52	-3.59	0.044	7.855	0.95	0.66797	3.52938	No
SLV 1	-69.65	-17.58	-3.59	0.047	8.446	0.953	0.71187	3.48092	No
SLV 2	-69.65	-17.58	-3.59	0.047	8.446	0.953	0.71187	3.48092	No
SLV 15	-82.05	-243.81	-2.95	0.059	9.707	0.959	0.88989	3.48092	No
SLV 16	-82.05	-243.81	-2.95	0.059	9.707	0.959	0.88989	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.76	SLU 84	No
V_SLU	1.55	SLU 73	Si
PF_SLV	1.252	SLV 13	Si
V_SLV	0.39	SLV 13	No
PFFP_SLV	33.439	SLV 3	Si
R_SLV	0	SLV 4	No

## Maschio 11

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-13.763	-3.284	-14.223	-3.284	L1	L3	0.46	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 73	-1.59	-97.29	-7.9152	470	9.4657	1.196	Si
SLU 73	0.51	-104.49	-0.4841	505	9.14	18.882	Si
SLU 76	-1.59	-99.03	-7.8559	478	9.3999	1.197	Si
SLU 76	0.51	-105.42	-0.523	509	9.0878	17.377	Si
SLU 81	-1.59	-102.95	-7.8884	497	9.2219	1.169	Si
SLU 81	0.51	-108.02	-0.5268	522	8.9285	16.947	Si
SLU 83	-1.59	-104.69	-7.829	506	9.1292	1.166	Si
SLU 83	0.51	-108.95	-0.5658	526	8.8674	15.674	Si
SLU 75	-1.59	-99.53	-7.7527	481	9.3794	1.21	Si
SLU 75	0.51	-105.31	-0.5636	509	9.0942	16.135	Si
SLU 82	-1.59	-102.45	-8.1212	495	9.2469	1.139	Si
SLU 82	0.51	-108.8	-0.4707	526	8.8774	18.862	Si
SLU 80	-1.59	-101.11	-7.6414	488	9.3108	1.218	Si
SLU 80	0.51	-105.83	-0.5993	511	9.064	15.124	Si
SLU 77	-1.59	-101.77	-7.4605	492	9.2796	1.244	Si
SLU 77	0.51	-105.46	-0.6587	509	9.0856	13.793	Si
SLU 84	-1.59	-104.19	-8.0618	503	9.1566	1.136	Si
SLU 84	0.51	-109.73	-0.5096	530	8.8143	17.297	Si
SLU 78	-1.59	-101.27	-7.6933	489	9.303	1.209	Si
SLU 78	0.51	-106.23	-0.6026	513	9.0399	15.003	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 14	-1.59	-52.14	-16.8755	0	0	0	No, $e \geq l/2$
SLV 14	0.51	-107.79	3.3173	521	14.2263	4.288	Si
SLD 13	-1.59	-61.43	-10.2837	297	10.6971	1.04	Si
SLD 13	0.51	-87.6	1.1683	423	13.17	11.273	Si
SLV 11	-1.59	-41.13	-7.7214	199	7.921	1.026	Si
SLV 11	0.51	-66.24	1.0242	320	11.2449	10.98	Si
SLD 16	-1.59	-56.08	-10.0574	271	10.0383	0.998	No, $M > Mu$
SLD 16	0.51	-83.68	1.2632	404	12.8792	10.196	Si
SLD 14	-1.59	-61.43	-10.2837	297	10.6971	1.04	Si
SLD 14	0.51	-87.6	1.1683	423	13.17	11.273	Si
SLV 13	-1.59	-52.14	-16.8755	0	0	0	No, $e \geq l/2$
SLV 13	0.51	-107.79	3.3173	521	14.2263	4.288	Si
SLV 15	-1.59	-39.63	-16.3288	0	0	0	No, $e \geq l/2$
SLV 15	0.51	-98.63	3.532	476	13.8386	3.918	Si
SLV 16	-1.59	-39.63	-16.3288	0	0	0	No, $e \geq l/2$
SLV 16	0.51	-98.63	3.532	476	13.8386	3.918	Si
SLV 12	-1.59	-41.13	-7.7214	199	7.921	1.026	Si
SLV 12	0.51	-66.24	1.0242	320	11.2449	10.98	Si
SLD 15	-1.59	-56.08	-10.0574	271	10.0383	0.998	No, $M > Mu$
SLD 15	0.51	-83.68	1.2632	404	12.8792	10.196	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	-1.59	-100.03	-16.43	-7.5199		483	0.46	108	22.42			1.36	Si
SLU 74	0.51	-104.53	4.81	-0.6198		505	0.46	108	22.42			4.66	Si
SLU 75	-1.59	-99.53	-16.91	-7.7527		485	0.4563	108	22.25			1.32	Si
SLU 75	0.51	-105.31	4.93	-0.5636		509	0.46	108	22.42			4.55	Si
SLU 76	-1.59	-99.03	-17.13	-7.8559		487	0.452	108	22.04			1.29	Si
SLU 76	0.51	-105.42	4.99	-0.523		509	0.46	108	22.42			4.5	Si
SLU 80	-1.59	-101.11	-16.7	-7.6414		488	0.46	108	22.42			1.34	Si
SLU 80	0.51	-105.83	4.98	-0.5993		511	0.46	108	22.42			4.5	Si
SLU 81	-1.59	-102.95	-17.25	-7.8884		497	0.46	108	22.42			1.3	Si
SLU 81	0.51	-108.02	4.92	-0.5268		522	0.46	108	22.42			4.56	Si
SLU 73	-1.59	-97.29	-17.23	-7.9152		485	0.4459	108	21.74			1.26	Si
SLU 73	0.51	-104.49	4.92	-0.4841		505	0.46	108	22.42			4.56	Si
SLU 78	-1.59	-101.27	-16.8	-7.6933		489	0.46	108	22.42			1.33	Si
SLU 78	0.51	-106.23	5	-0.6026		513	0.46	108	22.42			4.48	Si
SLU 82	-1.59	-102.45	-17.73	-8.1212		503	0.4522	108	22.04			1.24	Si
SLU 82	0.51	-108.8	5.04	-0.4707		526	0.46	108	22.42			4.45	Si
SLU 83	-1.59	-104.69	-17.15	-7.829		506	0.46	108	22.42			1.31	Si
SLU 83	0.51	-108.95	4.99	-0.5658		526	0.46	108	22.42			4.49	Si
SLU 84	-1.59	-104.19	-17.63	-8.0618		506	0.4579	108	22.32			1.27	Si
SLU 84	0.51	-109.73	5.12	-0.5096		530	0.46	108	22.42			4.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	-1.59	-61.43	-19.95	-10.2837		727	0.1878	163	13.73			0.69	No, $Vu < V$
SLD 13	0.51	-87.6	0.32	1.1683		423	0.46	163	33.64			105.14	Si
SLD 15	-1.59	-56.08	-19.73	-10.0574		820	0.152	163	11.11			0.56	No, $Vu < V$
SLD 15	0.51	-83.68	-1.27	1.2632		404	0.46	163	33.64			26.51	Si
SLV 12	-1.59	-41.13	-16.31	-7.7214		721	0.1268	163	9.27			0.57	No, $Vu < V$
SLV 12	0.51	-66.24	-5.52	1.0242		320	0.46	147	30.5			5.52	Si
SLV 11	-1.59	-41.13	-16.31	-7.7214		721	0.1268	163	9.27			0.57	No, $Vu < V$
SLV 11	0.51	-66.24	-5.52	1.0242		320	0.46	147	30.5			5.52	Si
SLV 16	-1.59	-39.63	-30.56	-16.3288		0	0	83	0			0	No, $Vu < V$
SLV 16	0.51	-98.63	-7.31	3.532		476	0.46	163	33.64			4.6	Si
SLD 16	-1.59	-56.08	-19.73	-10.0574		820	0.152	163	11.11			0.56	No, $Vu < V$
SLD 16	0.51	-83.68	-1.27	1.2632		404	0.46	163	33.64			26.51	Si
SLV 13	-1.59	-52.14	-31.08	-16.8755		0	0	83	0			0	No, $Vu < V$
SLV 13	0.51	-107.79	-3.57	3.3173		521	0.46	163	33.64			9.42	Si
SLV 14	-1.59	-52.14	-31.08	-16.8755		0	0	83	0			0	No, $Vu < V$
SLV 14	0.51	-107.79	-3.57	3.3173		521	0.46	163	33.64			9.42	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	-1.59	-39.63	-30.56	-16.3288		0	0	83	0			0	No, Vu<V
SLV 15	0.51	-98.63	-7.31	3.532		476	0.46	163	33.64			4.6	Si
SLD 14	-1.59	-61.43	-19.95	-10.2837		727	0.1878	163	13.73			0.69	No, Vu<V
SLD 14	0.51	-87.6	0.32	1.1683		423	0.46	163	33.64			105.14	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.24	265	-54.81	0.2765	9.6604	34.94	Si
SLV 4	1438	0.24	265	-54.81	0.2765	9.6604	34.94	Si
SLV 7	1438	0.24	315	-65.15	0.2765	10.8833	39.36	Si
SLV 8	1438	0.24	315	-65.15	0.2765	10.8833	39.36	Si
SLV 2	1438	0.24	342	-70.8	0.2765	11.4713	41.49	Si
SLV 1	1438	0.24	342	-70.8	0.2765	11.4713	41.49	Si
SLV 11	1438	0.24	435	-90.01	0.2765	13.0448	47.18	Si
SLV 12	1438	0.24	435	-90.01	0.2765	13.0448	47.18	Si
SLV 13	1438	0.24	742	-153.64	0.2765	13.57	49.08	Si
SLV 14	1438	0.24	742	-153.64	0.2765	13.57	49.08	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-38.36	-41.13	-2.18	0.043	4.696	0.951	0.65273	3.52938	No
SLV 12	-38.36	-41.13	-2.18	0.043	4.696	0.951	0.65273	3.52938	No
SLV 7	-24.67	-54.91	-1.51	0.047	3.308	0.934	0.72479	3.52938	No
SLV 8	-24.67	-54.91	-1.51	0.047	3.308	0.934	0.72479	3.52938	No
SLV 15	-67.42	-39.63	-2.71	0.052	7.651	0.969	0.77637	3.48092	No
SLV 16	-67.42	-39.63	-2.71	0.052	7.651	0.969	0.77637	3.48092	No
SLV 14	-78.64	-52.14	-2.49	0.059	8.793	0.973	0.87588	3.48092	No
SLV 13	-78.64	-52.14	-2.49	0.059	8.793	0.973	0.87588	3.48092	No
SLV 9	-75.75	-82.81	-1.45	0.071	8.499	0.972	1.05591	3.52938	No
SLV 10	-75.75	-82.81	-1.45	0.071	8.499	0.972	1.05591	3.52938	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.136	SLU 84	Si
V_SLU	1.243	SLU 82	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	34.937	SLV 3	Si
R_SLV	0.185	SLV 11	No

## Maschio 12

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.498	1.046	-18.498	-3.284	L1	L3	4.33	0.3	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	-1.59	-401.07	-121.9935	309	539.1975	4.42	Si
SLU 83	1.11	-206.1	9.0354	159	359.2964	39.765	Si
SLU 77	-1.59	-391.69	-122.4368	302	534.1046	4.362	Si
SLU 77	1.11	-200.48	7.7375	154	351.8107	45.468	Si
SLU 32	-1.59	-324.76	-103.1468	250	487.3161	4.724	Si
SLU 32	1.11	-168.48	5.532	130	306.6773	55.437	Si
SLU 74	-1.59	-387.81	-115.8027	299	531.8936	4.593	Si
SLU 74	1.11	-198.45	9.5285	153	349.0691	36.634	Si
SLU 35	-1.59	-328.64	-109.7809	253	490.5278	4.468	Si
SLU 35	1.11	-170.51	3.741	131	309.6682	82.776	Si
SLU 78	-1.59	-390.51	-111.1805	301	533.4357	4.798	Si
SLU 78	1.11	-203.63	9.5236	157	356.0144	37.382	Si
SLU 79	-1.59	-388.97	-121.6329	299	532.5595	4.378	Si
SLU 79	1.11	-198.68	7.7304	153	349.3806	45.196	Si
SLU 41	-1.59	-338.02	-109.3376	260	498.0405	4.555	Si
SLU 41	1.11	-176.13	5.0389	136	317.8427	63.077	Si
SLU 81	-1.59	-397.19	-115.3594	306	537.1353	4.656	Si
SLU 81	1.11	-204.07	10.8264	157	356.6015	32.938	Si
SLU 37	-1.59	-325.92	-108.977	251	488.2805	4.481	Si
SLU 37	1.11	-168.71	3.7339	130	307.0171	82.224	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	-1.59	-300.6	-245.4698	231	527.5439	2.149	Si
SLV 4	1.11	-152.65	-23.8985	118	298.7003	12.499	Si
SLV 12	-1.59	-260.59	-186.2284	201	471.5564	2.532	Si
SLV 12	1.11	-100.09	24.2507	77	203.0315	8.372	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	-1.59	-299.26	-153.6952	230	525.7452	3.421	Si
SLV 1	1.11	-168.71	-26.324	130	326.4356	12.401	Si
SLV 3	-1.59	-300.6	-245.4698	231	527.5439	2.149	Si
SLV 3	1.11	-152.65	-23.8985	118	298.7003	12.499	Si
SLV 7	-1.59	-279.78	-262.9877	215	498.9481	1.897	Si
SLV 7	1.11	-115.7	3.3341	89	232.229	69.653	Si
SLD 8	-1.59	-272.25	-153.6632	210	488.3191	3.178	Si
SLD 8	1.11	-126.61	7.34	97	252.244	34.366	Si
SLV 8	-1.59	-279.78	-262.9877	215	498.9481	1.897	Si
SLV 8	1.11	-115.7	3.3341	89	232.229	69.653	Si
SLV 11	-1.59	-260.59	-186.2284	201	471.5564	2.532	Si
SLV 11	1.11	-100.09	24.2507	77	203.0315	8.372	Si
SLD 7	-1.59	-272.25	-153.6632	210	488.3191	3.178	Si
SLD 7	1.11	-126.61	7.34	97	252.244	34.366	Si
SLV 2	-1.59	-299.26	-153.6952	230	525.7452	3.421	Si
SLV 2	1.11	-168.71	-26.324	130	326.4356	12.401	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-1.59	-379.24	23.07	-89.6042		292	4.33	94	122.73			5.32	Si
SLU 73	1.11	-199.85	40.96	14.2892		154	4.33	76	98.81			2.41	Si
SLU 65	-1.59	-341.95	22.59	-73.2832		263	4.33	91	117.76			5.21	Si
SLU 65	1.11	-177.8	38.8	15.4232		137	4.33	74	95.87			2.47	Si
SLU 55	-1.59	-350.11	20.62	-78.8776		270	4.33	91	118.85			5.76	Si
SLU 55	1.11	-181.97	37.13	14.7716		140	4.33	74	96.43			2.6	Si
SLU 10	-1.59	-283.19	24.11	-59.5876		218	4.33	85	109.93			4.56	Si
SLU 10	1.11	-149.96	37.49	12.5662		115	4.33	71	92.16			2.46	Si
SLU 2	-1.59	-245.9	23.63	-43.2666		189	4.33	81	104.95			4.44	Si
SLU 2	1.11	-127.91	35.32	13.7002		98	4.33	69	89.22			2.53	Si
SLU 52	-1.59	-346.24	23.95	-72.2435		267	4.33	91	118.33			4.94	Si
SLU 52	1.11	-179.94	40.37	16.5627		139	4.33	74	96.16			2.38	Si
SLU 44	-1.59	-308.95	23.47	-55.9225		238	4.33	87	113.36			4.83	Si
SLU 44	1.11	-157.89	38.21	17.6966		122	4.33	72	93.22			2.44	Si
SLU 31	-1.59	-316.19	23.23	-76.9483		243	4.33	88	114.33			4.92	Si
SLU 31	1.11	-169.88	38.08	10.2927		131	4.33	73	94.82			2.49	Si
SLU 76	-1.59	-383.12	19.74	-96.2383		295	4.33	95	123.25			6.24	Si
SLU 76	1.11	-201.89	37.72	12.4982		155	4.33	76	99.08			2.63	Si
SLU 23	-1.59	-278.91	22.75	-60.6273		215	4.33	84	109.35			4.81	Si
SLU 23	1.11	-147.83	35.91	11.4267		114	4.33	71	91.88			2.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-1.59	-260.59	-205.68	-186.2284		201	4.33	123	160.37			0.78	No, Vu<V
SLV 12	1.11	-100.09	-218.89	24.2507		77	4.33	99	128.27			0.59	No, Vu<V
SLV 11	-1.59	-260.59	-205.68	-186.2284		201	4.33	123	160.37			0.78	No, Vu<V
SLV 11	1.11	-100.09	-218.89	24.2507		77	4.33	99	128.27			0.59	No, Vu<V
SLD 6	-1.59	-272.01	85.68	-22.755		209	4.33	125	162.65			1.9	Si
SLD 6	1.11	-149.31	107.49	3.215		115	4.33	106	138.11			1.28	Si
SLV 9	-1.59	-256.14	202.45	119.6867		197	4.33	123	159.48			0.79	No, Vu<V
SLV 9	1.11	-153.63	222.92	16.1655		118	4.33	107	138.98			0.62	No, Vu<V
SLV 8	-1.59	-279.78	-205.78	-262.9877		254	3.675	134	147.83			0.72	No, Vu<V
SLV 8	1.11	-115.7	-200.77	3.3341		89	4.33	101	131.39			0.65	No, Vu<V
SLV 10	-1.59	-256.14	202.45	119.6867		197	4.33	123	159.48			0.79	No, Vu<V
SLV 10	1.11	-153.63	222.92	16.1655		118	4.33	107	138.98			0.62	No, Vu<V
SLV 6	-1.59	-275.33	202.35	42.9275		212	4.33	126	163.32			0.81	No, Vu<V
SLV 6	1.11	-169.24	241.05	-4.7511		130	4.33	109	142.1			0.59	No, Vu<V
SLV 5	-1.59	-275.33	202.35	42.9275		212	4.33	126	163.32			0.81	No, Vu<V
SLV 5	1.11	-169.24	241.05	-4.7511		130	4.33	109	142.1			0.59	No, Vu<V
SLV 7	-1.59	-279.78	-205.78	-262.9877		254	3.675	134	147.83			0.72	No, Vu<V
SLV 7	1.11	-115.7	-200.77	3.3341		89	4.33	101	131.39			0.65	No, Vu<V
SLD 5	-1.59	-272.01	85.68	-22.755		209	4.33	125	162.65			1.9	Si
SLD 5	1.11	-149.31	107.49	3.215		115	4.33	106	138.11			1.28	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.24	156	-203.1	1.7352	26.5668	15.31	Si
SLV 8	1438	0.24	156	-203.1	1.7352	26.5668	15.31	Si
SLV 12	1438	0.24	158	-205.16	1.7352	26.796	15.44	Si
SLV 11	1438	0.24	158	-205.16	1.7352	26.796	15.44	Si
SLV 4	1438	0.24	163	-211.95	1.7352	27.5471	15.88	Si
SLV 3	1438	0.24	163	-211.95	1.7352	27.5471	15.88	Si
SLV 16	1438	0.24	168	-218.81	1.7352	28.2966	16.31	Si
SLV 15	1438	0.24	168	-218.81	1.7352	28.2966	16.31	Si
SLV 1	1438	0.24	171	-221.59	1.7352	28.5985	16.48	Si
SLV 2	1438	0.24	171	-221.59	1.7352	28.5985	16.48	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	-153.63	-256.14	-6.79	0.028	20.637	0.934	0.44155	4.39851	No
SLV 10	-153.63	-256.14	-6.79	0.028	20.637	0.934	0.44155	4.39851	No
SLV 5	-169.24	-275.33	-7.16	0.029	22.216	0.938	0.44355	4.39851	No
SLV 6	-169.24	-275.33	-7.16	0.029	22.216	0.938	0.44355	4.39851	No
SLV 2	-168.71	-299.26	-6.66	0.031	22.162	0.938	0.48171	4.30325	No
SLV 1	-168.71	-299.26	-6.66	0.031	22.162	0.938	0.48171	4.30325	No
SLV 14	-116.68	-235.32	-5.41	0.031	16.913	0.923	0.48694	4.30325	No
SLV 13	-116.68	-235.32	-5.41	0.031	16.913	0.923	0.48694	4.30325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 4	-152.65	-300.6	-5.85	0.033	20.538	0.934	0.51891	4.30325	No
SLV 3	-152.65	-300.6	-5.85	0.033	20.538	0.934	0.51891	4.30325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.362	SLU 77	Si
V_SLU	2.382	SLU 52	Si
PF_SLV	1.897	SLV 7	Si
V_SLV	0.586	SLV 11	No
PFFP_SLV	15.31	SLV 7	Si
R_SLV	0.1	SLV 9	No

## Maschio 13

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-17.053	-5.009	-17.053	-3.509	L1	L3	1.5	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 76	-1.59	-169.82	34.0688	252	88.0268	2.584	Si
SLU 76	1.11	-103.03	65.5844	153	62.7928	0.957	No, M>Mu
SLU 77	-1.59	-172.97	28.9497	256	88.9172	3.071	Si
SLU 77	1.11	-112.54	69.9807	167	67.1296	0.959	No, M>Mu
SLU 84	-1.59	-176.18	33.4551	261	89.7954	2.684	Si
SLU 84	1.11	-111.62	70.2537	165	66.7207	0.95	No, M>Mu
SLU 81	-1.59	-178.54	29.8547	265	90.4258	3.029	Si
SLU 81	1.11	-117.62	72.8852	174	69.3432	0.951	No, M>Mu
SLU 82	-1.59	-176.83	33.1902	262	89.9711	2.711	Si
SLU 82	1.11	-112.2	70.4844	166	66.9779	0.95	No, M>Mu
SLU 73	-1.59	-170.47	33.8039	253	88.2139	2.61	Si
SLU 73	1.11	-103.61	65.8151	153	63.0636	0.958	No, M>Mu
SLU 80	-1.59	-170.3	32.1101	252	88.1666	2.746	Si
SLU 80	1.11	-106.06	66.9543	157	64.2029	0.959	No, M>Mu
SLU 75	-1.59	-171.91	32.0203	255	88.6209	2.768	Si
SLU 75	1.11	-107.7	67.8105	160	64.9537	0.958	No, M>Mu
SLU 83	-1.59	-177.89	30.1196	264	90.2532	2.996	Si
SLU 83	1.11	-117.04	72.6545	173	69.0945	0.951	No, M>Mu
SLU 78	-1.59	-171.25	32.2852	254	88.4365	2.739	Si
SLU 78	1.11	-107.12	67.5798	159	64.6893	0.957	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 4	-1.59	-95.99	0.8546	142	63.6164	74.436	Si
SLV 4	1.11	-20.52	16.4993	0	0	0	No, e>l/2
SLD 11	-1.59	-80.41	31.2694	119	54.4254	1.741	Si
SLD 11	1.11	-24.95	20.0198	0	0	0	No, e>l/2
SLV 12	-1.59	-16.75	47.6594	0	0	0	No, e>l/2
SLV 12	1.11	57.47	-23.9678	0	0	0	No, Trazione
SLD 8	-1.59	-81.14	24.7986	120	54.8675	2.213	Si
SLD 8	1.11	-21.01	17.6209	0	0	0	No, e>l/2
SLD 12	-1.59	-80.41	31.2694	119	54.4254	1.741	Si
SLD 12	1.11	-24.95	20.0198	0	0	0	No, e>l/2
SLV 7	-1.59	-18.48	32.8415	0	0	0	No, e>l/2
SLV 7	1.11	67.18	-29.8348	0	0	0	No, Trazione
SLD 7	-1.59	-81.14	24.7986	120	54.8675	2.213	Si
SLD 7	1.11	-21.01	17.6209	0	0	0	No, e>l/2
SLV 8	-1.59	-18.48	32.8415	0	0	0	No, e>l/2
SLV 8	1.11	67.18	-29.8348	0	0	0	No, Trazione
SLV 11	-1.59	-16.75	47.6594	0	0	0	No, e>l/2
SLV 11	1.11	57.47	-23.9678	0	0	0	No, Trazione
SLV 3	-1.59	-95.99	0.8546	142	63.6164	74.436	Si
SLV 3	1.11	-20.52	16.4993	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	-1.59	-172.97	-1.04	28.9497		256	1.5	90	60.56			57.98	Si
SLU 77	1.11	-112.54	-10.92	69.9807		650	0.3845	108	18.75			1.72	Si
SLU 83	-1.59	-177.89	-1.39	30.1196		264	1.5	91	61.22			44.07	Si
SLU 83	1.11	-117.04	-11.43	72.6545		671	0.3877	108	18.9			1.65	Si
SLU 79	-1.59	-172.02	-0.98	28.7746		255	1.5	90	60.44			61.54	Si
SLU 79	1.11	-111.48	-10.79	69.3551		646	0.3836	108	18.7			1.73	Si
SLU 60	-1.59	-169.63	-1.24	26.8566		251	1.5	89	60.12			48.59	Si
SLU 60	1.11	-109.03	-10.66	67.5421		619	0.3916	108	19.09			1.79	Si
SLU 62	-1.59	-168.97	-1.06	27.1216		250	1.5	89	60.03			56.89	Si
SLU 62	1.11	-108.45	-10.56	67.3114		621	0.3881	108	18.92			1.79	Si
SLU 56	-1.59	-164.05	-0.71	25.9516		243	1.5	88	59.37			83.56	Si
SLU 56	1.11	-103.96	-10.05	64.6376		601	0.3847	108	18.75			1.87	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	-1.59	-173.62	-1.23	28.6848		257	1.5	90	60.65			49.45	Si
SLU 74	1.11	-113.12	-11.02	70.2113		648	0.3879	108	18.91			1.72	Si
SLU 82	-1.59	-176.83	0.98	33.1902		262	1.5	90	61.08			62.27	Si
SLU 82	1.11	-112.2	-9.46	70.4844		682	0.3654	108	17.81			1.88	Si
SLU 81	-1.59	-178.54	-1.57	29.8547		265	1.5	91	61.31			39.02	Si
SLU 81	1.11	-117.62	-11.53	72.8852		669	0.391	108	19.06			1.65	Si
SLU 53	-1.59	-164.7	-0.89	25.6867		244	1.5	88	59.46			66.62	Si
SLU 53	1.11	-104.53	-10.15	64.8683		598	0.3884	108	18.93			1.87	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	-1.59	-18.48	20.44	32.8415		0	0	83	0			0	No, Vu<V
SLV 8	1.11	67.18	13.87	-29.8348		0	0	83	0			0	No, Vu<V
SLV 3	-1.59	-95.99	6.16	0.8546		142	1.5	112	75.45			12.26	Si
SLV 3	1.11	-20.52	-6.73	16.4993		0	0	83	0			0	No, Vu<V
SLD 12	-1.59	-80.41	8	31.2694		165	1.0833	116	56.71			7.09	Si
SLD 12	1.11	-24.95	2.33	20.0198		0	0	83	0			0	No, Vu<V
SLV 11	-1.59	-16.75	20.1	47.6594		0	0	83	0			0	No, Vu<V
SLV 11	1.11	57.47	17.51	-23.9678		0	0	83	0			0	No, Vu<V
SLD 11	-1.59	-80.41	8	31.2694		165	1.0833	116	56.71			7.09	Si
SLD 11	1.11	-24.95	2.33	20.0198		0	0	83	0			0	No, Vu<V
SLV 4	-1.59	-95.99	6.16	0.8546		142	1.5	112	75.45			12.26	Si
SLV 4	1.11	-20.52	-6.73	16.4993		0	0	83	0			0	No, Vu<V
SLD 8	-1.59	-81.14	8.13	24.7986		135	1.3331	110	66.22			8.15	Si
SLD 8	1.11	-21.01	0.86	17.6209		0	0	83	0			0	No, Vu<V
SLD 7	-1.59	-81.14	8.13	24.7986		135	1.3331	110	66.22			8.15	Si
SLD 7	1.11	-21.01	0.86	17.6209		0	0	83	0			0	No, Vu<V
SLV 12	-1.59	-16.75	20.1	47.6594		0	0	83	0			0	No, Vu<V
SLV 12	1.11	57.47	17.51	-23.9678		0	0	83	0			0	No, Vu<V
SLV 7	-1.59	-18.48	20.44	32.8415		0	0	83	0			0	No, Vu<V
SLV 7	1.11	67.18	13.87	-29.8348		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.24	9	-6.04	0.9017	1.3481	1.5	Si
SLV 11	1438	0.24	9	-6.04	0.9017	1.3481	1.5	Si
SLV 7	1438	0.24	12	-8	0.9017	1.782	1.98	Si
SLV 8	1438	0.24	12	-8	0.9017	1.782	1.98	Si
SLV 16	1438	0.24	112	-75.48	0.9017	15.4287	17.11	Si
SLV 15	1438	0.24	112	-75.48	0.9017	15.4287	17.11	Si
SLV 3	1438	0.24	122	-82.02	0.9017	16.6192	18.43	Si
SLV 4	1438	0.24	122	-82.02	0.9017	16.6192	18.43	Si
SLV 13	1438	0.24	203	-136.97	0.9017	25.6995	28.5	Si
SLV 14	1438	0.24	203	-136.97	0.9017	25.6995	28.5	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	67.18	-18.48	0.9	0	0	0	0	3.52938	No, Trazione
SLV 12	57.47	-16.75	-1.08	0	0	0	0	3.52938	No, Trazione
SLV 11	57.47	-16.75	-1.08	0	0	0	0	3.52938	No, Trazione
SLV 8	67.18	-18.48	0.9	0	0	0	0	3.52938	No, Trazione
SLV 15	-52.88	-90.25	-4.09	0.044	8.011	0.917	0.69853	3.48092	No
SLV 16	-52.88	-90.25	-4.09	0.044	8.011	0.917	0.69853	3.48092	No
SLV 3	-20.52	-95.99	2.52	0.052	4.839	0.89	0.8522	3.48092	No
SLV 4	-20.52	-95.99	2.52	0.052	4.839	0.89	0.8522	3.48092	No
SLV 14	-137.76	-154.97	-4.69	0.062	16.598	0.955	0.94097	3.48092	No
SLV 13	-137.76	-154.97	-4.69	0.062	16.598	0.955	0.94097	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.95	SLU 84	No
V_SLU	1.653	SLU 81	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 7	No
PFFP_SLV	1.495	SLV 11	Si
R_SLV	0	SLV 12	No

## Maschio 14

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.763	-4.784	-17.053	-4.784	L1	L3	3.29	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 38	-1.59	-287.5	-84.9918	194	360.1896	4.238	Si
SLU 38	1.11	-170.73	-16.7165	115	241.097	14.423	Si
SLU 36	-1.59	-287.69	-84.7311	194	360.3596	4.253	Si
SLU 36	1.11	-171.03	-16.0901	116	241.4503	15.006	Si
SLU 83	-1.59	-365.81	-99.1673	247	419.2248	4.227	Si
SLU 83	1.11	-214.6	-15.4761	145	290.2033	18.752	Si
SLU 42	-1.59	-292.61	-86.5362	198	364.5539	4.213	Si
SLU 42	1.11	-174.61	-15.6175	118	245.6481	15.729	Si
SLU 80	-1.59	-357.89	-98.9653	242	414.0178	4.183	Si
SLU 80	1.11	-211.4	-14.8559	143	286.7956	19.305	Si
SLU 79	-1.59	-360.69	-97.623	244	415.8812	4.26	Si
SLU 79	1.11	-210.73	-16.5751	142	286.0752	17.259	Si
SLU 76	-1.59	-351.88	-95.8741	238	409.9518	4.276	Si
SLU 76	1.11	-209.88	-9.5393	142	285.1716	29.894	Si
SLU 84	-1.59	-363	-100.5097	245	417.4004	4.153	Si
SLU 84	1.11	-215.28	-13.7569	145	290.9166	21.147	Si
SLU 78	-1.59	-358.09	-98.7046	242	414.1499	4.196	Si
SLU 78	1.11	-211.7	-14.2295	143	287.1157	20.178	Si
SLU 77	-1.59	-360.89	-97.3623	244	416.0118	4.273	Si
SLU 77	1.11	-211.03	-15.9487	143	286.3958	17.957	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 16	-1.59	-196.32	-85.6237	133	287.8946	3.362	Si
SLD 16	1.11	-88.07	26.0124	59	137.8286	5.299	Si
SLV 16	-1.59	-113.73	-117.6158	77	175.3263	1.491	Si
SLV 16	1.11	-3.44	62.7806	0	0	0	No, $e \geq l/2$
SLV 13	-1.59	-226.45	-155.5242	153	325.8753	2.095	Si
SLV 13	1.11	-67.84	30.8506	46	107.4101	3.482	Si
SLV 12	-1.59	-43.77	-20.5334	30	70.2642	3.422	Si
SLV 12	1.11	-8.88	65.9087	0	0	0	No, $e \geq l/2$
SLD 15	-1.59	-196.32	-85.6237	133	287.8946	3.362	Si
SLD 15	1.11	-88.07	26.0124	59	137.8286	5.299	Si
SLV 14	-1.59	-226.45	-155.5242	153	325.8753	2.095	Si
SLV 14	1.11	-67.84	30.8506	46	107.4101	3.482	Si
SLV 8	-1.59	-96.52	24.7716	65	150.309	6.068	Si
SLV 8	1.11	-77.94	36.6598	53	122.6914	3.347	Si
SLV 7	-1.59	-96.52	24.7716	65	150.309	6.068	Si
SLV 7	1.11	-77.94	36.6598	53	122.6914	3.347	Si
SLV 11	-1.59	-43.77	-20.5334	30	70.2642	3.422	Si
SLV 11	1.11	-8.88	65.9087	0	0	0	No, $e \geq l/2$
SLV 15	-1.59	-113.73	-117.6158	77	175.3263	1.491	Si
SLV 15	1.11	-3.44	62.7806	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	-1.59	-358.09	58.47	-98.7046		242	3.29	88	130			2.22	Si
SLU 78	1.11	-211.7	22.74	-14.2295		143	3.29	75	110.48			4.86	Si
SLU 82	-1.59	-358.86	57.79	-96.5236		242	3.29	88	130.1			2.25	Si
SLU 82	1.11	-213.31	22.32	-9.5865		144	3.29	75	110.69			4.96	Si
SLU 81	-1.59	-361.67	57.31	-95.1812		244	3.29	88	130.47			2.28	Si
SLU 81	1.11	-212.64	21.83	-11.3057		144	3.29	75	110.6			5.07	Si
SLU 76	-1.59	-351.88	57.25	-95.8741		238	3.29	87	129.17			2.26	Si
SLU 76	1.11	-209.88	22.44	-9.5393		142	3.29	74	110.23			4.91	Si
SLU 80	-1.59	-357.89	58.58	-98.9653		242	3.29	88	129.97			2.22	Si
SLU 80	1.11	-211.4	22.8	-14.8559		143	3.29	75	110.44			4.84	Si
SLU 77	-1.59	-360.89	58	-97.3623		244	3.29	88	130.37			2.25	Si
SLU 77	1.11	-211.03	22.25	-15.9487		143	3.29	75	110.39			4.96	Si
SLU 83	-1.59	-365.81	58.95	-99.1673		247	3.29	88	131.02			2.22	Si
SLU 83	1.11	-214.6	22.52	-15.4761		145	3.29	75	110.86			4.92	Si
SLU 84	-1.59	-363	59.42	-100.5097		245	3.29	88	130.65			2.2	Si
SLU 84	1.11	-215.28	23.01	-13.7569		145	3.29	75	110.95			4.82	Si
SLU 75	-1.59	-353.95	56.83	-94.7185		239	3.29	87	129.44			2.28	Si
SLU 75	1.11	-209.73	22.05	-10.0591		142	3.29	74	110.21			5	Si
SLU 79	-1.59	-360.69	58.1	-97.623		244	3.29	88	130.34			2.24	Si
SLU 79	1.11	-210.73	22.31	-16.5751		142	3.29	75	110.35			4.95	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	-1.59	-289.57	97.21	33.4009		196	3.29	122	181.29			1.86	Si
SLV 4	1.11	-233.65	74.08	-34.7155		158	3.29	115	170.1			2.3	Si
SLV 6	-1.59	-472.24	93.27	-101.5898		319	3.29	147	217.82			2.34	Si
SLV 6	1.11	-292.6	52.97	-69.7735		198	3.29	123	181.9			3.43	Si
SLV 11	-1.59	-43.77	-15.94	-20.5334		30	3.29	89	132.13			8.29	Si
SLV 11	1.11	-8.88	-23.31	65.9087		0	0	83	0			0	No, $V_u < V$
SLV 3	-1.59	-289.57	97.21	33.4009		196	3.29	122	181.29			1.86	Si
SLV 3	1.11	-233.65	74.08	-34.7155		158	3.29	115	170.1			2.3	Si
SLV 1	-1.59	-402.28	117.6	-4.5075		272	3.29	138	203.83			1.73	Si
SLV 1	1.11	-298.04	85.29	-66.6455		201	3.29	124	182.98			2.15	Si
SLV 2	-1.59	-402.28	117.6	-4.5075		272	3.29	138	203.83			1.73	Si
SLV 2	1.11	-298.04	85.29	-66.6455		201	3.29	124	182.98			2.15	Si
SLV 15	-1.59	-113.73	-40.27	-117.6158		138	1.8325	111	91.47			2.27	Si
SLV 15	1.11	-3.44	-55.63	62.7806		0	0	83	0			0	No, $V_u < V$
SLV 12	-1.59	-43.77	-15.94	-20.5334		30	3.29	89	132.13			8.29	Si
SLV 12	1.11	-8.88	-23.31	65.9087		0	0	83	0			0	No, $V_u < V$
SLV 5	-1.59	-472.24	93.27	-101.5898		319	3.29	147	217.82			2.34	Si
SLV 5	1.11	-292.6	52.97	-69.7735		198	3.29	123	181.9			3.43	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	-1.59	-113.73	-40.27	-117.6158		138	1.8325	111	91.47			2.27	Si
SLV 16	1.11	-3.44	-55.63	62.7806		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.24	23	-34.26	1.9776	7.5623	3.82	Si
SLV 11	1438	0.24	23	-34.26	1.9776	7.5623	3.82	Si
SLV 16	1438	0.24	48	-71.39	1.9776	15.4291	7.8	Si
SLV 15	1438	0.24	48	-71.39	1.9776	15.4291	7.8	Si
SLV 7	1438	0.24	63	-93.18	1.9776	19.8861	10.06	Si
SLV 8	1438	0.24	63	-93.18	1.9776	19.8861	10.06	Si
SLV 14	1438	0.24	110	-162.14	1.9776	33.212	16.79	Si
SLV 13	1438	0.24	110	-162.14	1.9776	33.212	16.79	Si
SLV 3	1438	0.24	181	-267.8	1.9776	51.3354	25.96	Si
SLV 4	1438	0.24	181	-267.8	1.9776	51.3354	25.96	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-298.04	-402.28	-15.91	0.045	35.987	0.954	0.68051	3.48092	No
SLV 2	-298.04	-402.28	-15.91	0.045	35.987	0.954	0.68051	3.48092	No
SLV 4	-233.65	-289.57	-13.4	0.045	29.449	0.945	0.68787	3.48092	No
SLV 3	-233.65	-289.57	-13.4	0.045	29.449	0.945	0.68787	3.48092	No
SLV 5	-292.6	-472.24	-13.41	0.052	35.434	0.954	0.78722	3.52938	No
SLV 6	-292.6	-472.24	-13.41	0.052	35.434	0.954	0.78722	3.52938	No
SLV 10	-223.54	-419.49	-8.76	0.061	28.425	0.944	0.94161	3.52938	No
SLV 9	-223.54	-419.49	-8.76	0.061	28.425	0.944	0.94161	3.52938	No
SLV 8	-77.94	-96.52	-5.05	0.065	13.79	0.902	1.05172	3.52938	No
SLV 7	-77.94	-96.52	-5.05	0.065	13.79	0.902	1.05172	3.52938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.153	SLU 84	Si
V_SLU	2.199	SLU 84	Si
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	3.824	SLV 11	Si
R_SLV	0.195	SLV 1	No

## Maschio 15

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-15.058	2.271	-15.058	6.576	L1	L3	4.305	0.3	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	-1.59	-724.22	17.7126	561	485.7455	27.424	Si
SLU 79	1.11	-774.47	239.7845	600	439.8289	1.834	Si
SLU 83	-1.59	-761.11	6.5774	589	453.0449	68.879	Si
SLU 83	1.11	-814.83	247.121	631	395.4584	1.6	Si
SLU 75	-1.59	-730.66	8.2133	566	480.4409	58.496	Si
SLU 75	1.11	-778.3	238.849	603	435.899	1.825	Si
SLU 82	-1.59	-760.62	-1.9499	589	453.5192	232.586	Si
SLU 82	1.11	-810.93	243.7916	628	400.0348	1.641	Si
SLU 84	-1.59	-760.87	6.5971	589	453.2764	68.708	Si
SLU 84	1.11	-814.55	247.1483	631	395.791	1.601	Si
SLU 78	-1.59	-730.91	16.7603	566	480.229	28.653	Si
SLU 78	1.11	-781.92	242.2057	605	432.1381	1.784	Si
SLU 77	-1.59	-731.15	16.7406	566	480.027	28.674	Si
SLU 77	1.11	-782.2	242.1784	606	431.8431	1.783	Si
SLU 74	-1.59	-730.9	8.1936	566	480.2391	58.612	Si
SLU 74	1.11	-778.59	238.8217	603	435.6082	1.824	Si
SLU 80	-1.59	-723.98	17.7323	561	485.9407	27.404	Si
SLU 80	1.11	-774.19	239.8117	599	440.1149	1.835	Si
SLU 81	-1.59	-760.86	-1.9696	589	453.2879	230.143	Si
SLU 81	1.11	-811.21	243.7644	628	399.7065	1.64	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	-1.59	-399.39	385.7996	309	642.1044	1.664	Si
SLV 7	1.11	-551.29	347.3756	427	772.0947	2.223	Si
SLD 7	-1.59	-455.78	167.9382	353	697.7067	4.155	Si
SLD 7	1.11	-533.91	240.0771	413	760.4135	3.167	Si
SLV 12	-1.59	-390.02	416.55	302	632.0334	1.517	Si
SLV 12	1.11	-561.47	337.9962	435	778.56	2.303	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	-1.59	-606.77	-409.7003	470	803.8793	1.962	Si
SLV 5	1.11	-480.09	-14.3918	372	719.0065	49.959	Si
SLV 8	-1.59	-399.39	385.7996	309	642.1044	1.664	Si
SLV 8	1.11	-551.29	347.3756	427	772.0947	2.223	Si
SLD 8	-1.59	-455.78	167.9382	353	697.7067	4.155	Si
SLD 8	1.11	-533.91	240.0771	413	760.4135	3.167	Si
SLV 9	-1.59	-597.41	-378.9499	463	799.1049	2.109	Si
SLV 9	1.11	-490.28	-23.7712	380	727.4503	30.602	Si
SLV 10	-1.59	-597.41	-378.9499	463	799.1049	2.109	Si
SLV 10	1.11	-490.28	-23.7712	380	727.4503	30.602	Si
SLV 6	-1.59	-606.77	-409.7003	470	803.8793	1.962	Si
SLV 6	1.11	-480.09	-14.3918	372	719.0065	49.959	Si
SLV 11	-1.59	-390.02	416.55	302	632.0334	1.517	Si
SLV 11	1.11	-561.47	337.9962	435	778.56	2.303	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 70	-1.59	-644.26	14.48	22.7994	499	4.305	108	139.91				9.66	Si
SLU 70	1.11	-679.3	42.4	217.2549	526	4.305	108	139.91				3.3	Si
SLU 72	-1.59	-637.33	15.16	23.7714	493	4.305	108	139.91				9.23	Si
SLU 72	1.11	-671.56	42.74	214.861	520	4.305	108	139.91				3.27	Si
SLU 84	-1.59	-760.87	11.26	6.5971	589	4.305	108	139.91				12.43	Si
SLU 84	1.11	-814.55	43.55	247.1483	631	4.305	108	139.91				3.21	Si
SLU 78	-1.59	-730.91	14.92	16.7603	566	4.305	108	139.91				9.38	Si
SLU 78	1.11	-781.92	46.33	242.2057	605	4.305	108	139.91				3.02	Si
SLU 69	-1.59	-644.5	14.51	22.7797	499	4.305	108	139.91				9.64	Si
SLU 69	1.11	-679.58	42.44	217.2276	526	4.305	108	139.91				3.3	Si
SLU 83	-1.59	-761.11	11.29	6.5774	589	4.305	108	139.91				12.39	Si
SLU 83	1.11	-814.83	43.59	247.121	631	4.305	108	139.91				3.21	Si
SLU 71	-1.59	-637.57	15.19	23.7517	494	4.305	108	139.91				9.21	Si
SLU 71	1.11	-671.85	42.78	214.8337	520	4.305	108	139.91				3.27	Si
SLU 80	-1.59	-723.98	15.6	17.7323	561	4.305	108	139.91				8.97	Si
SLU 80	1.11	-774.19	46.67	239.8117	599	4.305	108	139.91				3	Si
SLU 77	-1.59	-731.15	14.95	16.7406	566	4.305	108	139.91				9.36	Si
SLU 77	1.11	-782.2	46.37	242.1784	606	4.305	108	139.91				3.02	Si
SLU 79	-1.59	-724.22	15.64	17.7126	561	4.305	108	139.91				8.95	Si
SLU 79	1.11	-774.47	46.71	239.7845	600	4.305	108	139.91				3	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	-1.59	-399.39	203.84	385.7996	374	3.5596	158	168.87				0.83	No, Vu<V
SLV 7	1.11	-551.29	218.75	347.3756	427	4.305	163	209.87				0.96	No, Vu<V
SLV 16	-1.59	-451.69	102.7	174.0005	350	4.305	153	197.96				1.93	Si
SLV 16	1.11	-548.44	120.47	200.4349	425	4.305	163	209.87				1.74	Si
SLV 10	-1.59	-597.41	-195.15	-378.9499	463	4.305	163	209.87				1.08	Si
SLV 10	1.11	-490.28	-167.9	-23.7712	380	4.305	159	205.68				1.23	Si
SLV 12	-1.59	-390.02	225.03	416.55	400	3.2535	163	158.61				0.7	No, Vu<V
SLV 12	1.11	-561.47	239.14	337.9962	435	4.305	163	209.87				0.88	No, Vu<V
SLV 6	-1.59	-606.77	-216.35	-409.7003	470	4.305	163	209.87				0.97	No, Vu<V
SLV 6	1.11	-480.09	-188.29	-14.3918	372	4.305	158	203.64				1.08	Si
SLV 5	-1.59	-606.77	-216.35	-409.7003	470	4.305	163	209.87				0.97	No, Vu<V
SLV 5	1.11	-480.09	-188.29	-14.3918	372	4.305	158	203.64				1.08	Si
SLV 9	-1.59	-597.41	-195.15	-378.9499	463	4.305	163	209.87				1.08	Si
SLV 9	1.11	-490.28	-167.9	-23.7712	380	4.305	159	205.68				1.23	Si
SLV 11	-1.59	-390.02	225.03	416.55	400	3.2535	163	158.61				0.7	No, Vu<V
SLV 11	1.11	-561.47	239.14	337.9962	435	4.305	163	209.87				0.88	No, Vu<V
SLV 8	-1.59	-399.39	203.84	385.7996	374	3.5596	158	168.87				0.83	No, Vu<V
SLV 8	1.11	-551.29	218.75	347.3756	427	4.305	163	209.87				0.96	No, Vu<V
SLV 15	-1.59	-451.69	102.7	174.0005	350	4.305	153	197.96				1.93	Si
SLV 15	1.11	-548.44	120.47	200.4349	425	4.305	163	209.87				1.74	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.24	359	-463.1	1.7252	49.0797	28.45	Si
SLV 11	1438	0.24	359	-463.1	1.7252	49.0797	28.45	Si
SLV 8	1438	0.24	363	-468.22	1.7252	49.3943	28.63	Si
SLV 7	1438	0.24	363	-468.22	1.7252	49.3943	28.63	Si
SLV 15	1438	0.24	369	-476.23	1.7252	49.877	28.91	Si
SLV 16	1438	0.24	369	-476.23	1.7252	49.877	28.91	Si
SLV 13	1438	0.24	381	-492.61	1.7252	50.8251	29.46	Si
SLV 14	1438	0.24	381	-492.61	1.7252	50.8251	29.46	Si
SLV 4	1438	0.24	382	-493.29	1.7252	50.8635	29.48	Si
SLV 3	1438	0.24	382	-493.29	1.7252	50.8635	29.48	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	-493.13	-545.11	5.37	0.049	55.116	0.973	0.72673	4.30325	No
SLV 2	-493.13	-545.11	5.37	0.049	55.116	0.973	0.72673	4.30325	No
SLV 4	-514.48	-482.89	5.36	0.049	57.291	0.974	0.73031	4.30325	No
SLV 3	-514.48	-482.89	5.36	0.049	57.291	0.974	0.73031	4.30325	No
SLV 13	-527.08	-513.9	-5.43	0.049	58.574	0.974	0.73046	4.30325	No
SLV 14	-527.08	-513.9	-5.43	0.049	58.574	0.974	0.73046	4.30325	No
SLV 15	-548.44	-451.69	-5.44	0.049	60.749	0.975	0.73316	4.30325	No
SLV 16	-548.44	-451.69	-5.44	0.049	60.749	0.975	0.73316	4.30325	No
SLV 12	-561.47	-390.02	-1.67	0.056	62.077	0.976	0.82954	4.39851	No
SLV 11	-561.47	-390.02	-1.67	0.056	62.077	0.976	0.82954	4.39851	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.6	SLU 83	Si
V_SLU	2.995	SLU 79	Si
PF_SLV	1.517	SLV 11	Si
V_SLV	0.705	SLV 11	No
PFFP_SLV	28.449	SLV 11	Si
R_SLV	0.169	SLV 1	No

## Maschio 16

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.763	-4.784	-13.763	-3.314	L1	L3	1.47	0.3	2.7	2.7	2.7			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	-1.59	-262.1	6.037	594	52.0718	8.625	Si
SLU 84	1.11	-302.78	-3.2131	687	34.9505	10.878	Si
SLU 83	-1.59	-261.49	5.5667	593	52.2767	9.391	Si
SLU 83	1.11	-302.48	-3.3145	686	35.1006	10.59	Si
SLU 75	-1.59	-251.61	5.7466	571	55.3878	9.638	Si
SLU 75	1.11	-291.81	-3.0894	662	40.233	13.023	Si
SLU 76	-1.59	-251.51	5.9288	570	55.4162	9.347	Si
SLU 76	1.11	-291.6	-3.1898	661	40.3325	12.644	Si
SLU 78	-1.59	-255.15	5.3285	579	54.3168	10.194	Si
SLU 78	1.11	-297.25	-3.4849	674	37.6743	10.811	Si
SLU 61	-1.59	-243.57	5.7425	552	57.6227	10.034	Si
SLU 61	1.11	-280.29	-3.3248	636	45.2519	13.61	Si
SLU 73	-1.59	-247.96	6.3469	562	56.4344	8.892	Si
SLU 73	1.11	-286.16	-2.7943	649	42.7653	15.305	Si
SLU 79	-1.59	-254.04	4.7268	576	54.658	11.563	Si
SLU 79	1.11	-296.54	-3.7543	672	38.0169	10.126	Si
SLU 81	-1.59	-257.94	5.9848	585	53.4396	8.929	Si
SLU 81	1.11	-297.04	-2.9189	674	37.7758	12.942	Si
SLU 82	-1.59	-258.55	6.4551	586	53.2436	8.248	Si
SLU 82	1.11	-297.34	-2.8175	674	37.6323	13.356	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	-1.59	-47.81	20.4703	108	32.0177	1.564	Si
SLV 8	1.11	-61.08	-3.7008	139	39.8016	10.755	Si
SLV 16	-1.59	-228.91	9.3839	519	96.7591	10.311	Si
SLV 16	1.11	-173.47	22.7441	393	86.4432	3.801	Si
SLV 3	-1.59	-59.03	8.1178	134	38.6316	4.759	Si
SLV 3	1.11	-149.72	-24.1604	340	79.4579	3.289	Si
SLV 11	-1.59	-98.77	20.8502	224	59.2834	2.843	Si
SLV 11	1.11	-68.21	10.3705	155	43.7819	4.222	Si
SLV 4	-1.59	-59.03	8.1178	134	38.6316	4.759	Si
SLV 4	1.11	-149.72	-24.1604	340	79.4579	3.289	Si
SLV 1	-1.59	-119.62	-2.0903	271	68.3943	32.721	Si
SLV 1	1.11	-232.82	-27.6258	528	97.1699	3.517	Si
SLV 12	-1.59	-98.77	20.8502	224	59.2834	2.843	Si
SLV 12	1.11	-68.21	10.3705	155	43.7819	4.222	Si
SLV 2	-1.59	-119.62	-2.0903	271	68.3943	32.721	Si
SLV 2	1.11	-232.82	-27.6258	528	97.1699	3.517	Si
SLV 15	-1.59	-228.91	9.3839	519	96.7591	10.311	Si
SLV 15	1.11	-173.47	22.7441	393	86.4432	3.801	Si
SLV 7	-1.59	-47.81	20.4703	108	32.0177	1.564	Si
SLV 7	1.11	-61.08	-3.7008	139	39.8016	10.755	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	-1.59	-251	-59.83	5.2763		569	1.4699	108	47.77			0.8	No, Vu<V
SLU 74	1.11	-291.51	-32.5	-3.1908		661	1.4699	108	47.77			1.47	Si
SLU 82	-1.59	-258.55	-60.92	6.4551		586	1.4699	108	47.77			0.78	No, Vu<V
SLU 82	1.11	-297.34	-33.18	-2.8175		674	1.4699	108	47.77			1.44	Si
SLU 78	-1.59	-255.15	-60.74	5.3285		579	1.4699	108	47.77			0.79	No, Vu<V
SLU 78	1.11	-297.25	-32.91	-3.4849		674	1.4699	108	47.77			1.45	Si
SLU 80	-1.59	-254.65	-60.64	5.1971		577	1.4699	108	47.77			0.79	No, Vu<V
SLU 80	1.11	-296.84	-32.85	-3.6529		673	1.4699	108	47.77			1.45	Si
SLU 79	-1.59	-254.04	-61.13	4.7268		576	1.4699	108	47.77			0.78	No, Vu<V
SLU 79	1.11	-296.54	-33.35	-3.7543		672	1.4699	108	47.77			1.43	Si
SLU 81	-1.59	-257.94	-61.41	5.9848		585	1.4699	108	47.77			0.78	No, Vu<V
SLU 81	1.11	-297.04	-33.68	-2.9189		674	1.4699	108	47.77			1.42	Si
SLU 84	-1.59	-262.1	-62.32	6.037		594	1.4699	108	47.77			0.77	No, Vu<V
SLU 84	1.11	-302.78	-34.09	-3.2131		687	1.4699	108	47.77			1.4	Si
SLU 83	-1.59	-261.49	-62.81	5.5667		593	1.4699	108	47.77			0.76	No, Vu<V
SLU 83	1.11	-302.48	-34.58	-3.3145		686	1.4699	108	47.77			1.38	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	-1.59	-251.61	-59.34	5.7466		571	1.4699	108	47.77			0.8	No, Vu<V
SLU 75	1.11	-291.81	-32.01	-3.0894		662	1.4699	108	47.77			1.49	Si
SLU 77	-1.59	-254.54	-61.23	4.8582		577	1.4699	108	47.77			0.78	No, Vu<V
SLU 77	1.11	-296.95	-33.41	-3.5863		673	1.4699	108	47.77			1.43	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	-1.59	-249.76	-104.09	-13.5565		566	1.4699	163	71.66			0.69	No, Vu<V
SLV 5	1.11	-338.09	-77.57	-15.2523		767	1.4699	163	71.66			0.92	No, Vu<V
SLV 9	-1.59	-300.73	-123.38	-13.1767		682	1.4699	163	71.66			0.58	No, Vu<V
SLV 9	1.11	-345.21	-97.93	-1.181		783	1.4699	163	71.66			0.73	No, Vu<V
SLV 7	-1.59	-47.81	42.49	20.4703		173	0.9202	118	32.57			0.77	No, Vu<V
SLV 7	1.11	-61.08	55.42	-3.7008		139	1.4699	111	48.96			0.88	No, Vu<V
SLV 13	-1.59	-289.5	-94.59	-0.8242		657	1.4699	163	71.66			0.76	No, Vu<V
SLV 13	1.11	-256.57	-75.13	19.2786		582	1.4699	163	71.66			0.95	No, Vu<V
SLV 8	-1.59	-47.81	42.49	20.4703		173	0.9202	118	32.57			0.77	No, Vu<V
SLV 8	1.11	-61.08	55.42	-3.7008		139	1.4699	111	48.96			0.88	No, Vu<V
SLD 9	-1.59	-228.56	-76.38	-3.6194		518	1.4699	163	71.66			0.94	No, Vu<V
SLD 9	1.11	-263.86	-54.32	-1.8529		598	1.4699	163	71.66			1.32	Si
SLV 6	-1.59	-249.76	-104.09	-13.5565		566	1.4699	163	71.66			0.69	No, Vu<V
SLV 6	1.11	-338.09	-77.57	-15.2523		767	1.4699	163	71.66			0.92	No, Vu<V
SLV 10	-1.59	-300.73	-123.38	-13.1767		682	1.4699	163	71.66			0.58	No, Vu<V
SLV 10	1.11	-345.21	-97.93	-1.181		783	1.4699	163	71.66			0.73	No, Vu<V
SLD 10	-1.59	-228.56	-76.38	-3.6194		518	1.4699	163	71.66			0.94	No, Vu<V
SLD 10	1.11	-263.86	-54.32	-1.8529		598	1.4699	163	71.66			1.32	Si
SLV 14	-1.59	-289.5	-94.59	-0.8242		657	1.4699	163	71.66			0.76	No, Vu<V
SLV 14	1.11	-256.57	-75.13	19.2786		582	1.4699	163	71.66			0.95	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.24	102	-44.78	0.589	6.1589	10.46	Si
SLV 8	1438	0.24	102	-44.78	0.589	6.1589	10.46	Si
SLV 12	1438	0.24	181	-79.62	0.589	10.1784	17.28	Si
SLV 11	1438	0.24	181	-79.62	0.589	10.1784	17.28	Si
SLV 4	1438	0.24	204	-90.06	0.589	11.251	19.1	Si
SLV 3	1438	0.24	204	-90.06	0.589	11.251	19.1	Si
SLV 2	1438	0.24	371	-163.71	0.589	17.0953	29.02	Si
SLV 1	1438	0.24	371	-163.71	0.589	17.0953	29.02	Si
SLV 15	1438	0.24	468	-206.2	0.589	19.0929	32.41	Si
SLV 16	1438	0.24	468	-206.2	0.589	19.0929	32.41	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-338.09	-249.76	1.04	0.054	36.11	0.985	0.80076	4.39851	No
SLV 5	-338.09	-249.76	1.04	0.054	36.11	0.985	0.80076	4.39851	No
SLV 2	-232.82	-119.62	1.22	0.053	25.384	0.979	0.7862	4.30325	No
SLV 1	-232.82	-119.62	1.22	0.053	25.384	0.979	0.7862	4.30325	No
SLV 12	-68.21	-98.77	-0.81	0.053	8.631	0.945	0.81247	4.39851	No
SLV 11	-68.21	-98.77	-0.81	0.053	8.631	0.945	0.81247	4.39851	No
SLV 16	-173.47	-228.91	-1	0.053	19.338	0.973	0.79692	4.30325	No
SLV 15	-173.47	-228.91	-1	0.053	19.338	0.973	0.79692	4.30325	No
SLV 10	-345.21	-300.73	0.49	0.056	36.837	0.986	0.82364	4.39851	No
SLV 9	-345.21	-300.73	0.49	0.056	36.837	0.986	0.82364	4.39851	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.248	SLU 82	Si
V_SLU	0.761	SLU 83	No
PF_SLV	1.564	SLV 7	Si
V_SLV	0.581	SLV 9	No
PFFP_SLV	10.456	SLV 7	Si
R_SLV	0.182	SLV 5	No

## Maschio 18

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-13.763	-3.314	-13.763	1.046	Z medio -60 cm	L3	4.36	0.3	1.71	0.72	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	0.39	-748.54	-68.6946	572	485.4487	7.067	Si
SLU 84	1.11	-703.1	-216.8161	538	521.347	2.405	Si
SLU 82	0.39	-743.39	-66.1644	568	489.9384	7.405	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	1.11	-698.02	-214.5283	534	524.8377	2.446	Si
SLU 77	0.39	-720.1	-73.245	551	508.9079	6.948	Si
SLU 77	1.11	-675.47	-211.7708	516	539.0481	2.545	Si
SLU 80	0.39	-717.46	-74.8994	548	510.9178	6.821	Si
SLU 80	1.11	-673.13	-213.6895	515	540.4027	2.529	Si
SLU 76	0.39	-714.27	-72.3397	546	513.3058	7.096	Si
SLU 76	1.11	-669.93	-212.4344	512	542.2199	2.552	Si
SLU 83	0.39	-745.6	-68.7387	570	488.0258	7.1	Si
SLU 83	1.11	-700.28	-215.2672	535	523.3	2.431	Si
SLU 81	0.39	-740.46	-66.2084	566	492.4536	7.438	Si
SLU 81	1.11	-695.19	-212.9795	531	526.7319	2.473	Si
SLU 78	0.39	-723.04	-73.2009	553	506.6375	6.921	Si
SLU 78	1.11	-678.29	-213.3197	519	537.3819	2.519	Si
SLU 79	0.39	-714.52	-74.9434	546	513.1211	6.847	Si
SLU 79	1.11	-670.3	-212.1406	512	542.0091	2.555	Si
SLU 75	0.39	-717.89	-70.6707	549	510.5902	7.225	Si
SLU 75	1.11	-673.21	-211.0319	515	540.3566	2.561	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	0.39	-338.68	-97.3133	259	581.8918	5.98	Si
SLV 2	1.11	-311.72	-183.4544	238	547.0248	2.982	Si
SLD 6	0.39	-442.82	-118.6883	339	697.9033	5.88	Si
SLD 6	1.11	-421.06	-192.2199	322	676.1108	3.517	Si
SLD 5	0.39	-442.82	-118.6883	339	697.9033	5.88	Si
SLD 5	1.11	-421.06	-192.2199	322	676.1108	3.517	Si
SLV 9	0.39	-461.01	-200.4825	352	715.1363	3.567	Si
SLV 9	1.11	-453.82	-244.4891	347	708.4351	2.898	Si
SLV 1	0.39	-338.68	-97.3133	259	581.8918	5.98	Si
SLV 1	1.11	-311.72	-183.4544	238	547.0248	2.982	Si
SLD 10	0.39	-476.43	-119.7009	364	729.0389	6.091	Si
SLD 10	1.11	-455.11	-191.3166	348	709.648	3.709	Si
SLV 5	0.39	-383.18	-198.0557	293	635.0866	3.207	Si
SLV 5	1.11	-374.62	-246.4085	286	625.2643	2.538	Si
SLV 6	0.39	-383.18	-198.0557	293	635.0866	3.207	Si
SLV 6	1.11	-374.62	-246.4085	286	625.2643	2.538	Si
SLD 9	0.39	-476.43	-119.7009	364	729.0389	6.091	Si
SLD 9	1.11	-455.11	-191.3166	348	709.648	3.709	Si
SLV 10	0.39	-461.01	-200.4825	352	715.1363	3.567	Si
SLV 10	1.11	-453.82	-244.4891	347	708.4351	2.898	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	0.39	-743.39	25.58	-66.1644		568	4.3601	108	141.7			5.54	Si
SLU 82	1.11	-698.02	19.4	-214.5283		534	4.3601	108	141.7			7.31	Si
SLU 55	0.39	-656.92	22.55	-79.1402		502	4.3601	108	141.7			6.28	Si
SLU 55	1.11	-615.9	16.88	-206.7846		471	4.3601	108	141.7			8.39	Si
SLU 61	0.39	-686.04	25.71	-72.9648		524	4.3601	108	141.7			5.51	Si
SLU 61	1.11	-643.99	19.83	-208.8786		492	4.3601	108	141.7			7.14	Si
SLU 81	0.39	-740.46	22.33	-66.2084		566	4.3601	108	141.7			6.35	Si
SLU 81	1.11	-695.19	16.18	-212.9795		531	4.3601	108	141.7			8.76	Si
SLU 60	0.39	-683.1	22.46	-73.0089		522	4.3601	108	141.7			6.31	Si
SLU 60	1.11	-641.17	16.61	-207.3297		490	4.3601	108	141.7			8.53	Si
SLU 52	0.39	-651.77	26.16	-76.6099		498	4.3601	108	141.7			5.42	Si
SLU 52	1.11	-610.82	20.65	-204.4969		467	4.3601	108	141.7			6.86	Si
SLU 44	0.39	-567.24	22.14	-85.1837		434	4.3601	108	141.7			6.4	Si
SLU 44	1.11	-529.02	17.54	-191.8634		404	4.3601	108	141.7			8.08	Si
SLU 76	0.39	-714.27	22.42	-72.3397		546	4.3601	108	141.7			6.32	Si
SLU 76	1.11	-669.93	16.44	-212.4344		512	4.3601	108	141.7			8.62	Si
SLU 10	0.39	-537.13	22.27	-55.1417		411	4.3601	108	141.7			6.36	Si
SLU 10	1.11	-504.07	17.72	-162.3065		385	4.3601	107	139.88			7.89	Si
SLU 73	0.39	-709.13	26.03	-69.8095		542	4.3601	108	141.7			5.44	Si
SLU 73	1.11	-664.85	20.21	-210.1466		508	4.3601	108	141.7			7.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 8	0.39	-500.04	97.41	0.9083		382	4.3601	160	209.01			2.15	Si
SLD 8	1.11	-457.63	88.15	-113.314		350	4.3601	153	200.53			2.27	Si
SLV 8	0.39	-515.46	206.48	81.69		394	4.3601	162	212.1			1.03	Si
SLV 8	1.11	-458.92	190.24	-60.1415		351	4.3601	154	200.79			1.06	Si
SLV 6	0.39	-383.18	-173.75	-198.0557		293	4.3601	142	185.64			1.07	Si
SLV 6	1.11	-374.62	-169.99	-246.4085		286	4.3601	141	183.93			1.08	Si
SLV 5	0.39	-383.18	-173.75	-198.0557		293	4.3601	142	185.64			1.07	Si
SLV 5	1.11	-374.62	-169.99	-246.4085		286	4.3601	141	183.93			1.08	Si
SLV 11	0.39	-593.29	201.63	79.2631		454	4.3601	163	212.56			1.05	Si
SLV 11	1.11	-538.13	190.02	-58.2221		411	4.3601	163	212.56			1.12	Si
SLV 12	0.39	-593.29	201.63	79.2631		454	4.3601	163	212.56			1.05	Si
SLV 12	1.11	-538.13	190.02	-58.2221		411	4.3601	163	212.56			1.12	Si
SLD 7	0.39	-500.04	97.41	0.9083		382	4.3601	160	209.01			2.15	Si
SLD 7	1.11	-457.63	88.15	-113.314		350	4.3601	153	200.53			2.27	Si
SLV 9	0.39	-461.01	-178.6	-200.4825		352	4.3601	154	201.21			1.13	Si
SLV 9	1.11	-453.82	-170.21	-244.4891		347	4.3601	153	199.77			1.17	Si
SLV 10	0.39	-461.01	-178.6	-200.4825		352	4.3601	154	201.21			1.13	Si
SLV 10	1.11	-453.82	-170.21	-244.4891		347	4.3601	153	199.77			1.17	Si
SLV 7	0.39	-515.46	206.48	81.69		394	4.3601	162	212.1			1.03	Si
SLV 7	1.11	-458.92	190.24	-60.1415		351	4.3601	154	200.79			1.06	Si



## Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 0.75 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.26	219	-286.72	0.7459	35.2923	47.31	Si
SLV 2	1438	0.26	219	-286.72	0.7459	35.2923	47.31	Si
SLV 5	1438	0.26	250	-326.63	0.7459	38.982	52.26	Si
SLV 6	1438	0.26	250	-326.63	0.7459	38.982	52.26	Si
SLV 3	1438	0.26	251	-328.18	0.7459	39.1187	52.44	Si
SLV 4	1438	0.26	251	-328.18	0.7459	39.1187	52.44	Si
SLV 9	1438	0.26	308	-402.31	0.7459	45.1561	60.54	Si
SLV 10	1438	0.26	308	-402.31	0.7459	45.1561	60.54	Si
SLV 7	1438	0.26	355	-464.83	0.7459	49.4464	66.29	Si
SLV 8	1438	0.26	355	-464.83	0.7459	49.4464	66.29	Si

## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 0.75 Wa = 0.0005 Ta = 0.0163

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-374.62	-383.18	3.14	0.084	41.292	0.976	1.25395	3.16051	No
SLV 6	-374.62	-383.18	3.14	0.084	41.292	0.976	1.25395	3.16051	No
SLV 2	-311.72	-338.68	3.04	0.084	34.886	0.972	1.25358	3.13562	No
SLV 1	-311.72	-338.68	3.04	0.084	34.886	0.972	1.25358	3.13562	No
SLV 9	-453.82	-461.01	2.65	0.086	49.361	0.98	1.27317	3.16051	No
SLV 10	-453.82	-461.01	2.65	0.086	49.361	0.98	1.27317	3.16051	No
SLV 4	-337.01	-378.37	2.47	0.086	37.461	0.974	1.27919	3.13562	No
SLV 3	-337.01	-378.37	2.47	0.086	37.461	0.974	1.27919	3.13562	No
SLV 14	-575.74	-598.11	1.41	0.088	61.784	0.984	1.30448	3.13562	No
SLV 13	-575.74	-598.11	1.41	0.088	61.784	0.984	1.30448	3.13562	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.405	SLU 84	Si
V_SLU	5.417	SLU 52	Si
PF_SLV	2.538	SLV 5	Si
V_SLV	1.027	SLV 7	Si
PFFP_SLV	47.315	SLV 1	Si
R_SLV	0.397	SLV 5	No

## Maschio 19

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.463	-3.619	-12.463	-3.315	L1	L3	0.304	0.3	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 56	-1.59	-4.87	0.3138	53	0.6915	2.204	Si
SLU 56	1.11	0.41	-0.1089	0	0	0	No, Trazione
SLU 57	-1.59	-4.85	0.3143	53	0.6891	2.193	Si
SLU 57	1.11	0.41	-0.109	0	0	0	No, Trazione
SLU 55	-1.59	-5.03	0.3095	55	0.7125	2.302	Si
SLU 55	1.11	0.4	-0.1081	0	0	0	No, Trazione
SLU 58	-1.59	-4.97	0.3108	55	0.7058	2.271	Si
SLU 58	1.11	0.4	-0.1084	0	0	0	No, Trazione
SLU 61	-1.59	-6.63	0.3391	73	0.9176	2.706	Si
SLU 61	1.11	0.49	-0.132	0	0	0	No, Trazione
SLU 59	-1.59	-4.96	0.3113	54	0.7034	2.259	Si
SLU 59	1.11	0.4	-0.1084	0	0	0	No, Trazione
SLU 53	-1.59	-4.95	0.3116	54	0.7023	2.254	Si
SLU 53	1.11	0.4	-0.1085	0	0	0	No, Trazione
SLU 54	-1.59	-4.93	0.3121	54	0.6999	2.243	Si
SLU 54	1.11	0.4	-0.1086	0	0	0	No, Trazione
SLU 1	-1.59	-1.15	0.1867	0	0	0	No, e>l/2
SLU 1	1.11	0.15	-0.0419	0	0	0	No, Trazione
SLU 60	-1.59	-6.64	0.3386	73	0.9199	2.717	Si
SLU 60	1.11	0.49	-0.1319	0	0	0	No, Trazione

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	-1.59	11.62	0.6804	0	0	0	No, Trazione
SLV 12	1.11	0.38	-0.1032	0	0	0	No, Trazione
SLV 10	-1.59	-13.92	-0.1913	153	1.8526	9.686	Si
SLV 10	1.11	0.12	-0.0308	0	0	0	No, Trazione
SLV 14	-1.59	-2.89	0.1768	32	0.4274	2.417	Si
SLV 14	1.11	0.25	-0.0688	0	0	0	No, Trazione
SLV 7	-1.59	9.82	0.6263	0	0	0	No, Trazione
SLV 7	1.11	0.34	-0.0924	0	0	0	No, Trazione
SLV 6	-1.59	-15.72	-0.2453	172	2.0534	8.371	Si
SLV 6	1.11	0.08	-0.02	0	0	0	No, Trazione





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	-1.59	-2.89	0.1768	32	0.4274	2.417	Si
SLV 13	1.11	0.25	-0.0688	0	0	0	No, Trazione
SLV 8	-1.59	9.82	0.6263	0	0	0	No, Trazione
SLV 8	1.11	0.34	-0.0924	0	0	0	No, Trazione
SLV 11	-1.59	11.62	0.6804	0	0	0	No, Trazione
SLV 11	1.11	0.38	-0.1032	0	0	0	No, Trazione
SLV 9	-1.59	-13.92	-0.1913	153	1.8526	9.686	Si
SLV 9	1.11	0.12	-0.0308	0	0	0	No, Trazione
SLD 1	-1.59	-5	0.1223	55	0.726	5.934	Si
SLD 1	1.11	0.18	-0.0492	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	-1.59	-6.63	0.31	0.3391		73	0.3026	65	5.93			19.42	Si
SLU 61	1.11	0.49	0.47	-0.132		0	0	56	0			0	No, Vu<V
SLU 1	-1.59	-1.15	0.45	0.1867		0	0	56	0			0	No, Vu<V
SLU 1	1.11	0.15	0.17	-0.0419		0	0	56	0			0	No, Vu<V
SLU 57	-1.59	-4.85	0.43	0.3143		62	0.2617	64	5.01			11.52	Si
SLU 57	1.11	0.41	0.4	-0.109		0	0	56	0			0	No, Vu<V
SLU 56	-1.59	-4.87	0.43	0.3138		62	0.2627	64	5.03			11.68	Si
SLU 56	1.11	0.41	0.4	-0.1089		0	0	56	0			0	No, Vu<V
SLU 60	-1.59	-6.64	0.3	0.3386		73	0.3033	65	5.94			19.74	Si
SLU 60	1.11	0.49	0.47	-0.1319		0	0	56	0			0	No, Vu<V
SLU 53	-1.59	-4.95	0.41	0.3116		62	0.2673	64	5.11			12.41	Si
SLU 53	1.11	0.4	0.39	-0.1085		0	0	56	0			0	No, Vu<V
SLU 54	-1.59	-4.93	0.42	0.3121		62	0.2662	64	5.09			12.24	Si
SLU 54	1.11	0.4	0.4	-0.1086		0	0	56	0			0	No, Vu<V
SLU 59	-1.59	-4.96	0.41	0.3113		62	0.2677	64	5.12			12.5	Si
SLU 59	1.11	0.4	0.39	-0.1084		0	0	56	0			0	No, Vu<V
SLU 55	-1.59	-5.03	0.39	0.3095		62	0.2714	64	5.19			13.17	Si
SLU 55	1.11	0.4	0.39	-0.1081		0	0	56	0			0	No, Vu<V
SLU 58	-1.59	-4.97	0.41	0.3108		62	0.2687	64	5.14			12.67	Si
SLU 58	1.11	0.4	0.39	-0.1084		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-1.59	11.62	3.89	0.6804		0	0	83	0			0	No, Vu<V
SLV 12	1.11	0.38	0.94	-0.1032		0	0	83	0			0	No, Vu<V
SLV 9	-1.59	-13.92	-2.56	-0.1913		153	0.3041	114	10.39			4.06	Si
SLV 9	1.11	0.12	-0.42	-0.0308		0	0	83	0			0	No, Vu<V
SLV 11	-1.59	11.62	3.89	0.6804		0	0	83	0			0	No, Vu<V
SLV 11	1.11	0.38	0.94	-0.1032		0	0	83	0			0	No, Vu<V
SLV 10	-1.59	-13.92	-2.56	-0.1913		153	0.3041	114	10.39			4.06	Si
SLV 10	1.11	0.12	-0.42	-0.0308		0	0	83	0			0	No, Vu<V
SLV 7	-1.59	9.82	3.46	0.6263		0	0	83	0			0	No, Vu<V
SLV 7	1.11	0.34	0.89	-0.0924		0	0	83	0			0	No, Vu<V
SLV 14	-1.59	-2.89	0.2	0.1768		35	0.2723	90	7.38			36.27	Si
SLV 14	1.11	0.25	0.11	-0.0688		0	0	83	0			0	No, Vu<V
SLV 6	-1.59	-15.72	-2.99	-0.2453		172	0.3041	118	10.75			3.6	Si
SLV 6	1.11	0.08	-0.47	-0.02		0	0	83	0			0	No, Vu<V
SLD 1	-1.59	-5	-0.27	0.1223		55	0.3041	94	8.6			31.5	Si
SLD 1	1.11	0.18	0.09	-0.0492		0	0	83	0			0	No, Vu<V
SLV 8	-1.59	9.82	3.46	0.6263		0	0	83	0			0	No, Vu<V
SLV 8	1.11	0.34	0.89	-0.0924		0	0	83	0			0	No, Vu<V
SLV 13	-1.59	-2.89	0.2	0.1768		35	0.2723	90	7.38			36.27	Si
SLV 13	1.11	0.25	0.11	-0.0688		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.24	0	2.38	0.1219	0	0	No, Trazione
SLV 11	1438	0.24	0	2.38	0.1219	0	0	No, Trazione
SLV 7	1438	0.24	0	1.38	0.1219	0	0	No, Trazione
SLV 8	1438	0.24	0	1.38	0.1219	0	0	No, Trazione
SLV 15	1438	0.24	10	-0.96	0.1219	0.1421	1.17	Si
SLV 16	1438	0.24	10	-0.96	0.1219	0.1421	1.17	Si
SLV 3	1438	0.24	47	-4.28	0.1219	0.6168	5.06	Si
SLV 4	1438	0.24	47	-4.28	0.1219	0.6168	5.06	Si
SLV 13	1438	0.24	53	-4.81	0.1219	0.6901	5.66	Si
SLV 14	1438	0.24	53	-4.81	0.1219	0.6901	5.66	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	a0*	aLim	Verifica
SLV 8	0.34	9.82	0.11	0	0	0	0	4.39851	No, Trazione
SLV 2	0.12	-8.88	0.26	0	0	0	0	4.30325	No, Trazione
SLV 1	0.12	-8.88	0.26	0	0	0	0	4.30325	No, Trazione
SLV 10	0.12	-13.92	-0.16	0	0	0	0	4.39851	No, Trazione
SLV 5	0.08	-15.72	0.02	0	0	0	0	4.39851	No, Trazione
SLV 4	0.2	-1.22	0.28	0	0	0	0	4.30325	No, Trazione
SLV 7	0.34	9.82	0.11	0	0	0	0	4.39851	No, Trazione
SLV 9	0.12	-13.92	-0.16	0	0	0	0	4.39851	No, Trazione
SLV 6	0.08	-15.72	0.02	0	0	0	0	4.39851	No, Trazione
SLV 3	0.2	-1.22	0.28	0	0	0	0	4.30325	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU		SLU 84	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLU	0	SLU 1	No
PF SLV	0	SLV 16	No
V SLV	0	SLD 1	No
PFFP SLV	0	SLV 12	No
R SLV	0	SLV 16	No

## Maschio 21

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.463	-3.315	-12.463	-1.916	L2	L3	1.399	0.3	0.72	0.72	0.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 61	0.39	-8.53	1.671	20	5.8152	3.48	Si
SLU 61	1.11	-0.09	-0.5641	0	0	0	No, e>l/2
SLU 59	0.39	-7.68	1.5424	18	5.2521	3.405	Si
SLU 59	1.11	0	-0.4983	0	0	0	No, e>l/2
SLU 56	0.39	-7.66	1.5587	18	5.2355	3.359	Si
SLU 56	1.11	0	-0.5029	0	0	0	No, Trazione
SLU 60	0.39	-8.53	1.6678	20	5.8185	3.489	Si
SLU 60	1.11	-0.09	-0.5632	0	0	0	No, e>l/2
SLU 1	0.39	-4.52	0.9288	11	3.118	3.357	Si
SLU 1	1.11	0.13	-0.2597	0	0	0	No, Trazione
SLU 54	0.39	-7.67	1.5469	18	5.2475	3.392	Si
SLU 54	1.11	0	-0.4995	0	0	0	No, e>l/2
SLU 57	0.39	-7.65	1.562	18	5.2322	3.35	Si
SLU 57	1.11	0	-0.5039	0	0	0	No, Trazione
SLU 53	0.39	-7.68	1.5437	18	5.2508	3.402	Si
SLU 53	1.11	0	-0.4986	0	0	0	No, e>l/2
SLU 55	0.39	-7.7	1.5295	18	5.2651	3.442	Si
SLU 55	1.11	-0.01	-0.4946	0	0	0	No, e>l/2
SLU 58	0.39	-7.69	1.5392	18	5.2553	3.414	Si
SLU 58	1.11	-0.01	-0.4974	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 12	0.39	-1.73	2.4241	0	0	0	No, e>l/2
SLV 12	1.11	0.46	-0.7238	0	0	0	No, Trazione
SLV 11	0.39	-1.73	2.4241	0	0	0	No, e>l/2
SLV 11	1.11	0.46	-0.7238	0	0	0	No, Trazione
SLV 7	0.39	-2.18	2.1125	0	0	0	No, e>l/2
SLV 7	1.11	0.38	-0.6331	0	0	0	No, Trazione
SLV 3	0.39	-4.88	0.9258	12	3.3822	3.653	Si
SLV 3	1.11	0.05	-0.2821	0	0	0	No, Trazione
SLV 4	0.39	-4.88	0.9258	12	3.3822	3.653	Si
SLV 4	1.11	0.05	-0.2821	0	0	0	No, Trazione
SLV 14	0.39	-5.23	1.2585	12	3.6201	2.877	Si
SLV 14	1.11	0.12	-0.3743	0	0	0	No, Trazione
SLD 1	0.39	-5.79	0.7167	14	4.0012	5.583	Si
SLD 1	1.11	-0.02	-0.2175	0	0	0	No, e>l/2
SLV 8	0.39	-2.18	2.1125	0	0	0	No, e>l/2
SLV 8	1.11	0.38	-0.6331	0	0	0	No, Trazione
SLV 13	0.39	-5.23	1.2585	12	3.6201	2.877	Si
SLV 13	1.11	0.12	-0.3743	0	0	0	No, Trazione
SLV 15	0.39	-3.37	1.9642	8	2.342	1.192	Si
SLV 15	1.11	0.32	-0.5845	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 57	0.39	-7.65	9.57	1.562	18	1.3991	58	24.34	24.34			2.54	Si
SLU 57	1.11	0	3.52	-0.5039	0	0	56	0	0			0	No, Vu<V
SLU 59	0.39	-7.68	9.48	1.5424	18	1.3991	58	24.34	24.34			2.57	Si
SLU 59	1.11	0	3.48	-0.4983	0	0	56	0	0			0	No, Vu<V
SLU 53	0.39	-7.68	9.49	1.5437	18	1.3991	58	24.34	24.34			2.57	Si
SLU 53	1.11	0	3.49	-0.4986	0	0	56	0	0			0	No, Vu<V
SLU 55	0.39	-7.7	9.43	1.5295	18	1.3991	58	24.34	24.34			2.58	Si
SLU 55	1.11	-0.01	3.46	-0.4946	0	0	56	0	0			0	No, Vu<V
SLU 54	0.39	-7.67	9.5	1.5469	18	1.3991	58	24.34	24.34			2.56	Si
SLU 54	1.11	0	3.49	-0.4995	0	0	56	0	0			0	No, Vu<V
SLU 56	0.39	-7.66	9.55	1.5587	18	1.3991	58	24.34	24.34			2.55	Si
SLU 56	1.11	0	3.51	-0.5029	0	0	56	0	0			0	No, Vu<V
SLU 1	0.39	-4.52	5.28	0.9288	11	1.3991	57	23.92	23.92			4.53	Si
SLU 1	1.11	0.13	2.1	-0.2597	0	0	56	0	0			0	No, Vu<V
SLU 61	0.39	-8.53	10.56	1.671	20	1.3991	58	24.46	24.46			2.32	Si
SLU 61	1.11	-0.09	3.78	-0.5641	0	0	56	0	0			0	No, Vu<V
SLU 60	0.39	-8.53	10.55	1.6678	20	1.3991	58	24.46	24.46			2.32	Si
SLU 60	1.11	-0.09	3.77	-0.5632	0	0	56	0	0			0	No, Vu<V
SLU 58	0.39	-7.69	9.47	1.5392	18	1.3991	58	24.34	24.34			2.57	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	1.11	-0.01	3.48	-0.4974		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	0.39	-1.73	13.92	2.4241		0	0	83	0			0	No, Vu<V
SLV 12	1.11	0.46	1.87	-0.7238		0	0	83	0			0	No, Vu<V
SLV 3	0.39	-4.88	5.66	0.9258		12	1.3991	86	35.95			6.35	Si
SLV 3	1.11	0.05	1.4	-0.2821		0	0	83	0			0	No, Vu<V
SLV 15	0.39	-3.37	11.14	1.9642		32	0.3501	90	9.43			0.85	No, Vu<V
SLV 15	1.11	0.32	3.01	-0.5845		0	0	83	0			0	No, Vu<V
SLV 7	0.39	-2.18	12.28	2.1125		0	0	83	0			0	No, Vu<V
SLV 7	1.11	0.38	1.39	-0.6331		0	0	83	0			0	No, Vu<V
SLV 8	0.39	-2.18	12.28	2.1125		0	0	83	0			0	No, Vu<V
SLV 8	1.11	0.38	1.39	-0.6331		0	0	83	0			0	No, Vu<V
SLV 14	0.39	-5.23	7.11	1.2585		13	1.3765	86	35.46			4.99	Si
SLV 14	1.11	0.12	3.5	-0.3743		0	0	83	0			0	No, Vu<V
SLV 13	0.39	-5.23	7.11	1.2585		13	1.3765	86	35.46			4.99	Si
SLV 13	1.11	0.12	3.5	-0.3743		0	0	83	0			0	No, Vu<V
SLV 4	0.39	-4.88	5.66	0.9258		12	1.3991	86	35.95			6.35	Si
SLV 4	1.11	0.05	1.4	-0.2821		0	0	83	0			0	No, Vu<V
SLD 1	0.39	-5.79	4.34	0.7167		14	1.3991	86	36.13			8.33	Si
SLD 1	1.11	-0.02	2.2	-0.2175		0	0	83	0			0	No, Vu<V
SLV 11	0.39	-1.73	13.92	2.4241		0	0	83	0			0	No, Vu<V
SLV 11	1.11	0.46	1.87	-0.7238		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 0.75 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.26	0	-0.11	0.0424	0	0	No, e>t/2
SLV 11	1438	0.26	0	0.32	0.0424	0	0	No, Trazione
SLV 8	1438	0.26	0	-0.11	0.0424	0	0	No, e>t/2
SLV 12	1438	0.26	0	0.32	0.0424	0	0	No, Trazione
SLV 16	1438	0.26	1	-0.34	0.0424	0.0513	1.21	Si
SLV 15	1438	0.26	1	-0.34	0.0424	0.0513	1.21	Si
SLV 13	1438	0.26	3	-1.35	0.0424	0.202	4.76	Si
SLV 14	1438	0.26	3	-1.35	0.0424	0.202	4.76	Si
SLV 3	1438	0.26	4	-1.8	0.0424	0.2691	6.34	Si
SLV 4	1438	0.26	4	-1.8	0.0424	0.2691	6.34	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 0.75 Wa = 0.0005 Ta = 0.0029

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 15	0.32	-3.37	-0.47	0	0	0	0	2.59853	No, Trazione
SLV 12	0.46	-1.73	-0.04	0	0	0	0	2.60194	No, Trazione
SLV 8	0.38	-2.18	0.27	0	0	0	0	2.60194	No, Trazione
SLV 3	0.05	-4.88	0.57	0	0	0	0	2.59853	No, Trazione
SLV 13	0.12	-5.23	-0.52	0	0	0	0	2.59853	No, Trazione
SLV 14	0.12	-5.23	-0.52	0	0	0	0	2.59853	No, Trazione
SLV 4	0.05	-4.88	0.57	0	0	0	0	2.59853	No, Trazione
SLV 7	0.38	-2.18	0.27	0	0	0	0	2.60194	No, Trazione
SLV 11	0.46	-1.73	-0.04	0	0	0	0	2.60194	No, Trazione
SLV 16	0.32	-3.37	-0.47	0	0	0	0	2.59853	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 80	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 23

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.463	-1.916	-12.463	-0.354	Z medio -60 cm	Z medio 75 cm	1.562	0.3	1.35	0.635	2.064			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 29	-0.25	-31.65	13.1308	68	22.665	1.726	Si
SLU 29	0.39	-13.52	1.306	29	10.1869	7.8	Si
SLU 30	-0.25	-31.68	13.1648	68	22.6856	1.723	Si
SLU 30	0.39	-13.53	1.3079	29	10.1913	7.792	Si
SLU 66	-0.25	-38.98	15.7567	83	27.3326	1.735	Si
SLU 66	0.39	-16.49	1.5437	35	12.3185	7.98	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 69	-0.25	-39.11	15.9162	83	27.4115	1.722	Si
SLU 69	0.39	-16.48	1.5398	35	12.3138	7.997	Si
SLU 70	-0.25	-39.14	15.9501	84	27.4312	1.72	Si
SLU 70	0.39	-16.49	1.5417	35	12.3182	7.99	Si
SLU 67	-0.25	-39.01	15.7907	83	27.3523	1.732	Si
SLU 67	0.39	-16.49	1.5456	35	12.3229	7.973	Si
SLU 28	-0.25	-31.84	13.3647	68	22.7905	1.705	Si
SLU 28	0.39	-13.53	1.3078	29	10.1919	7.793	Si
SLU 24	-0.25	-31.68	13.1713	68	22.6872	1.722	Si
SLU 24	0.39	-13.53	1.3097	29	10.1922	7.782	Si
SLU 27	-0.25	-31.81	13.3307	68	22.7699	1.708	Si
SLU 27	0.39	-13.52	1.3058	29	10.1874	7.801	Si
SLU 25	-0.25	-31.71	13.2052	68	22.7078	1.72	Si
SLU 25	0.39	-13.54	1.3117	29	10.1966	7.774	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	-0.25	-37.37	19.0435	80	27.278	1.432	Si
SLV 16	0.39	-14.99	0.6898	32	11.4028	16.532	Si
SLD 11	-0.25	-34.83	15.2173	74	25.5428	1.679	Si
SLD 11	0.39	-15.01	0.9539	32	11.4108	11.963	Si
SLD 12	-0.25	-34.83	15.2173	74	25.5428	1.679	Si
SLD 12	0.39	-15.01	0.9539	32	11.4108	11.963	Si
SLV 12	-0.25	-36.74	19.1426	78	26.8488	1.403	Si
SLV 12	0.39	-13.72	-0.0031	29	10.4593	1000	Si
SLV 7	-0.25	-34.78	16.0382	74	25.5128	1.591	Si
SLV 7	0.39	-13.93	0.3151	30	10.6113	33.681	Si
SLV 15	-0.25	-37.37	19.0435	80	27.278	1.432	Si
SLV 15	0.39	-14.99	0.6898	32	11.4028	16.532	Si
SLV 11	-0.25	-36.74	19.1426	78	26.8488	1.403	Si
SLV 11	0.39	-13.72	-0.0031	29	10.4593	1000	Si
SLV 8	-0.25	-34.78	16.0382	74	25.5128	1.591	Si
SLV 8	0.39	-13.93	0.3151	30	10.6113	33.681	Si
SLV 13	-0.25	-35.96	15.8542	77	26.3153	1.66	Si
SLV 13	0.39	-16.29	1.6018	35	12.3589	7.716	Si
SLV 14	-0.25	-35.96	15.8542	77	26.3153	1.66	Si
SLV 14	0.39	-16.29	1.6018	35	12.3589	7.716	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 65	-0.25	-38.75	10.48	15.4541		113	1.1462	71	24.27			2.32	Si
SLU 65	0.39	-16.5	17.77	1.551		35	1.5618	60	28.23			1.59	Si
SLU 67	-0.25	-39.01	10.74	15.7907		115	1.1285	71	24.01			2.24	Si
SLU 67	0.39	-16.49	18.22	1.5456		35	1.5618	60	28.23			1.55	Si
SLU 68	-0.25	-38.87	10.59	15.6135		114	1.1378	71	24.15			2.28	Si
SLU 68	0.39	-16.5	17.98	1.5471		35	1.5618	60	28.23			1.57	Si
SLU 64	-0.25	-38.69	10.43	15.3975		112	1.1489	71	24.31			2.33	Si
SLU 64	0.39	-16.49	17.69	1.5478		35	1.5618	60	28.23			1.6	Si
SLU 69	-0.25	-39.11	10.82	15.9162		116	1.1218	71	23.91			2.21	Si
SLU 69	0.39	-16.48	18.38	1.5398		35	1.5618	60	28.23			1.54	Si
SLU 78	-0.25	-54.42	10.75	18.9627		140	1.2973	74	28.88			2.69	Si
SLU 78	0.39	-29.35	18.65	3.4325		63	1.5618	64	29.94			1.61	Si
SLU 71	-0.25	-38.95	10.66	15.7163		115	1.1322	71	24.06			2.26	Si
SLU 71	0.39	-16.48	18.11	1.54		35	1.5618	60	28.23			1.56	Si
SLU 66	-0.25	-38.98	10.71	15.7567		115	1.1301	71	24.03			2.24	Si
SLU 66	0.39	-16.49	18.17	1.5437		35	1.5618	60	28.23			1.55	Si
SLU 70	-0.25	-39.14	10.85	15.9501		116	1.1202	71	23.89			2.2	Si
SLU 70	0.39	-16.49	18.43	1.5417		35	1.5618	60	28.23			1.53	Si
SLU 72	-0.25	-38.98	10.69	15.7503		115	1.1305	71	24.04			2.25	Si
SLU 72	0.39	-16.49	18.16	1.5419		35	1.5618	60	28.23			1.55	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-0.25	-36.74	35.14	19.1426		157	0.7796	115	26.84			0.76	No, Vu<V
SLV 12	0.39	-13.72	40.97	-0.0031		29	1.5618	89	41.79			1.02	Si
SLD 8	-0.25	-33.97	18.54	13.8751		101	1.1173	104	34.73			1.87	Si
SLD 8	0.39	-15.1	23.12	1.0892		32	1.5618	90	42.07			1.82	Si
SLV 16	-0.25	-37.37	19.29	19.0435		153	0.814	114	27.82			1.44	Si
SLV 16	0.39	-14.99	28.63	0.6898		32	1.5618	90	42.04			1.47	Si
SLD 11	-0.25	-34.83	19.5	15.2173		113	1.0319	106	32.76			1.68	Si
SLD 11	0.39	-15.01	25.15	0.9539		32	1.5618	90	42.05			1.67	Si
SLV 8	-0.25	-34.78	32.94	16.0382		121	0.9595	108	30.94			0.94	No, Vu<V
SLV 8	0.39	-13.93	36.3	0.3151		30	1.5618	89	41.83			1.15	Si
SLD 7	-0.25	-33.97	18.54	13.8751		101	1.1173	104	34.73			1.87	Si
SLD 7	0.39	-15.1	23.12	1.0892		32	1.5618	90	42.07			1.82	Si
SLV 11	-0.25	-36.74	35.14	19.1426		157	0.7796	115	26.84			0.76	No, Vu<V
SLV 11	0.39	-13.72	40.97	-0.0031		29	1.5618	89	41.79			1.02	Si
SLD 12	-0.25	-34.83	19.5	15.2173		113	1.0319	106	32.76			1.68	Si
SLD 12	0.39	-15.01	25.15	0.9539		32	1.5618	90	42.05			1.67	Si
SLV 15	-0.25	-37.37	19.29	19.0435		153	0.814	114	27.82			1.44	Si
SLV 15	0.39	-14.99	28.63	0.6898		32	1.5618	90	42.04			1.47	Si
SLV 7	-0.25	-34.78	32.94	16.0382		121	0.9595	108	30.94			0.94	No, Vu<V
SLV 7	0.39	-13.93	36.3	0.3151		30	1.5618	89	41.83			1.15	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 0.072 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.25	33	-15.33	0.1574	2.238	14.22	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.25	33	-15.33	0.1574	2.238	14.22	Si
SLV 3	1438	0.25	33	-15.36	0.1574	2.2422	14.25	Si
SLV 4	1438	0.25	33	-15.36	0.1574	2.2422	14.25	Si
SLV 6	1438	0.25	33	-15.52	0.1574	2.2646	14.39	Si
SLV 5	1438	0.25	33	-15.52	0.1574	2.2646	14.39	Si
SLV 7	1438	0.25	33	-15.62	0.1574	2.2786	14.48	Si
SLV 8	1438	0.25	33	-15.62	0.1574	2.2786	14.48	Si
SLV 9	1438	0.25	34	-15.71	0.1574	2.2916	14.56	Si
SLV 10	1438	0.25	34	-15.71	0.1574	2.2916	14.56	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 0.072 Wa = 0.0005 Ta = 0.0101

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-15.68	-30.85	0.98	0.095	2.513	0.911	1.51404	2.76592	No
SLV 4	-15.68	-30.85	0.98	0.095	2.513	0.911	1.51404	2.76592	No
SLV 13	-16.29	-35.96	-0.89	0.099	2.574	0.912	1.58291	2.76592	No
SLV 14	-16.29	-35.96	-0.89	0.099	2.574	0.912	1.58291	2.76592	No
SLV 1	-16.97	-29.44	0.87	0.101	2.642	0.914	1.60015	2.76592	No
SLV 2	-16.97	-29.44	0.87	0.101	2.642	0.914	1.60015	2.76592	No
SLV 15	-14.99	-37.37	-0.78	0.104	2.445	0.909	1.66078	2.76592	No
SLV 16	-14.99	-37.37	-0.78	0.104	2.445	0.909	1.66078	2.76592	No
SLV 8	-13.93	-34.78	0.49	0.118	2.339	0.907	1.89786	2.77916	No
SLV 7	-13.93	-34.78	0.49	0.118	2.339	0.907	1.89786	2.77916	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.705	SLU 28	Si
V_SLU	1.532	SLU 70	Si
PF_SLV	1.403	SLV 11	Si
V_SLV	0.764	SLV 11	No
PFFP_SLV	14.219	SLV 1	Si
R_SLV	0.547	SLV 3	No

## Maschio 25

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.463	-0.354	-12.463	1.046	Z medio -127 cm	L3	1.4	0.3	2.382	2.064	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 46	-0.95	-120.54	12.5853	287	54.6505	4.342	Si
SLU 46	1.11	-25.18	11.1533	60	16.3279	1.464	Si
SLU 47	-0.95	-119.24	12.3975	284	54.3775	4.386	Si
SLU 47	1.11	-24.88	10.9586	59	16.1473	1.473	Si
SLU 50	-0.95	-120	12.5049	286	54.5379	4.361	Si
SLU 50	1.11	-25.03	11.0789	60	16.238	1.466	Si
SLU 49	-0.95	-121.71	12.7482	290	54.8882	4.306	Si
SLU 49	1.11	-25.45	11.3372	61	16.4919	1.455	Si
SLU 43	-0.95	-117.68	12.1791	280	54.0407	4.437	Si
SLU 43	1.11	-24.48	10.7109	58	15.9087	1.485	Si
SLU 44	-0.95	-118.08	12.2346	281	54.128	4.424	Si
SLU 44	1.11	-24.6	10.7746	59	15.9826	1.483	Si
SLU 48	-0.95	-121.47	12.7149	289	54.8395	4.313	Si
SLU 48	1.11	-25.38	11.299	60	16.4478	1.456	Si
SLU 7	-0.95	-98.36	10.4149	234	49.0588	4.71	Si
SLU 7	1.11	-20.89	9.1992	50	13.73	1.493	Si
SLU 45	-0.95	-120.3	12.552	286	54.6006	4.35	Si
SLU 45	1.11	-25.1	11.1151	60	16.2837	1.465	Si
SLU 51	-0.95	-120.24	12.5382	286	54.5881	4.354	Si
SLU 51	1.11	-25.1	11.1171	60	16.2822	1.465	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 13	-0.95	-116.2	11.9493	277	62.9214	5.266	Si
SLD 13	1.11	-28.74	11.1746	68	18.993	1.7	Si
SLD 15	-0.95	-124.69	13.4908	297	66.0775	4.898	Si
SLD 15	1.11	-30.6	11.7361	73	20.1404	1.716	Si
SLV 10	-0.95	-82.67	6.1811	197	48.5481	7.854	Si
SLV 10	1.11	-20.79	8.2068	49	13.9628	1.701	Si
SLD 14	-0.95	-116.2	11.9493	277	62.9214	5.266	Si
SLD 14	1.11	-28.74	11.1746	68	18.993	1.7	Si
SLV 9	-0.95	-82.67	6.1811	197	48.5481	7.854	Si
SLV 9	1.11	-20.79	8.2068	49	13.9628	1.701	Si
SLV 13	-0.95	-130.71	13.5453	311	68.1941	5.035	Si
SLV 13	1.11	-34.39	15.0385	82	22.46	1.494	Si
SLV 14	-0.95	-130.71	13.5453	311	68.1941	5.035	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	1.11	-34.39	15.0385	82	22.46	1.494	Si
SLV 15	-0.95	-150.51	17.1021	358	74.4582	4.354	Si
SLV 15	1.11	-38.73	16.371	92	25.0676	1.531	Si
SLV 16	-0.95	-150.51	17.1021	358	74.4582	4.354	Si
SLV 16	1.11	-38.73	16.371	92	25.0676	1.531	Si
SLD 16	-0.95	-124.69	13.4908	297	66.0775	4.898	Si
SLD 16	1.11	-30.6	11.7361	73	20.1404	1.716	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	-0.95	-121.71	-14.68	12.7482		290	1.4	94	39.56			2.69	Si
SLU 49	1.11	-25.45	-7.52	11.3372		111	0.7638	70	16.12			2.15	Si
SLU 72	-0.95	-134.7	-16.57	14.3478		321	1.4	98	41.29			2.49	Si
SLU 72	1.11	-29.22	-8.23	12.3825		118	0.8285	71	17.7			2.15	Si
SLU 68	-0.95	-133.7	-16.39	14.2071		318	1.4	98	41.16			2.51	Si
SLU 68	1.11	-28.99	-8.12	12.224		116	0.835	71	17.78			2.19	Si
SLU 71	-0.95	-134.46	-16.53	14.3144		320	1.4	98	41.26			2.5	Si
SLU 71	1.11	-29.14	-8.22	12.3443		117	0.8292	71	17.71			2.15	Si
SLU 48	-0.95	-121.47	-14.65	12.7149		289	1.4	94	39.53			2.7	Si
SLU 48	1.11	-25.38	-7.5	11.299		111	0.7644	70	16.12			2.15	Si
SLU 69	-0.95	-135.92	-16.77	14.5244		324	1.4	99	41.46			2.47	Si
SLU 69	1.11	-29.49	-8.35	12.5645		120	0.822	72	17.63			2.11	Si
SLU 66	-0.95	-134.76	-16.57	14.3615		321	1.4	98	41.3			2.49	Si
SLU 66	1.11	-29.22	-8.22	12.3806		118	0.8288	71	17.71			2.15	Si
SLU 46	-0.95	-120.54	-14.48	12.5853		287	1.4	94	39.41			2.72	Si
SLU 46	1.11	-25.18	-7.39	11.1533		109	0.7711	70	16.21			2.19	Si
SLU 67	-0.95	-135	-16.61	14.3948		321	1.4	98	41.33			2.49	Si
SLU 67	1.11	-29.29	-8.24	12.4188		118	0.8281	71	17.71			2.15	Si
SLU 70	-0.95	-136.16	-16.8	14.5578		324	1.4	99	41.49			2.47	Si
SLU 70	1.11	-29.57	-8.36	12.6027		120	0.8213	72	17.63			2.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	-0.95	-130.71	-13.73	13.5453		311	1.4	146	61.14			4.45	Si
SLV 13	1.11	-34.39	-11.06	15.0385		145	0.7881	112	26.58			2.4	Si
SLV 11	-0.95	-148.66	-31.78	18.0371		354	1.4	154	64.73			2.04	Si
SLV 11	1.11	-35.27	-5.16	12.6484		115	1.0241	106	32.66			6.33	Si
SLD 11	-0.95	-123.78	-20.73	13.8973		295	1.4	142	59.76			2.88	Si
SLD 11	1.11	-29.05	-5.35	10.0887		92	1.0582	102	32.26			6.03	Si
SLV 16	-0.95	-150.51	-24.14	17.1021		358	1.4	155	65.1			2.7	Si
SLV 16	1.11	-38.73	-9.93	16.371		155	0.8321	114	28.55			2.87	Si
SLD 12	-0.95	-123.78	-20.73	13.8973		295	1.4	142	59.76			2.88	Si
SLD 12	1.11	-29.05	-5.35	10.0887		92	1.0582	102	32.26			6.03	Si
SLV 14	-0.95	-130.71	-13.73	13.5453		311	1.4	146	61.14			4.45	Si
SLV 14	1.11	-34.39	-11.06	15.0385		145	0.7881	112	26.58			2.4	Si
SLV 8	-0.95	-127.28	-27.93	15.2817		303	1.4	144	60.46			2.16	Si
SLV 8	1.11	-27.96	-2.19	8.1252		76	1.2281	99	36.29			16.54	Si
SLV 7	-0.95	-127.28	-27.93	15.2817		303	1.4	144	60.46			2.16	Si
SLV 7	1.11	-27.96	-2.19	8.1252		76	1.2281	99	36.29			16.54	Si
SLV 15	-0.95	-150.51	-24.14	17.1021		358	1.4	155	65.1			2.7	Si
SLV 15	1.11	-38.73	-9.93	16.371		155	0.8321	114	28.55			2.87	Si
SLV 12	-0.95	-148.66	-31.78	18.0371		354	1.4	154	64.73			2.04	Si
SLV 12	1.11	-35.27	-5.16	12.6484		115	1.0241	106	32.66			6.33	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 0.078 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.25	94	-39.29	0.4396	5.4425	12.38	Si
SLV 1	1438	0.25	94	-39.29	0.4396	5.4425	12.38	Si
SLV 5	1438	0.25	112	-47.02	0.4396	6.4062	14.57	Si
SLV 6	1438	0.25	112	-47.02	0.4396	6.4062	14.57	Si
SLV 3	1438	0.25	127	-53.45	0.4396	7.183	16.34	Si
SLV 4	1438	0.25	127	-53.45	0.4396	7.183	16.34	Si
SLV 10	1438	0.25	161	-67.8	0.4396	8.8261	20.08	Si
SLV 9	1438	0.25	161	-67.8	0.4396	8.8261	20.08	Si
SLV 7	1438	0.25	224	-94.22	0.4396	11.5386	26.25	Si
SLV 8	1438	0.25	224	-94.22	0.4396	11.5386	26.25	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 0.078 Wa = 0.0005 Ta = 0.0316

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	-10.01	-59.44	1.69	0.004	2.54	0.889	0.065	3.80134	No
SLV 1	-10.01	-59.44	1.69	0.004	2.54	0.889	0.065	3.80134	No
SLV 4	-14.35	-79.24	1.8	0.01	2.95	0.894	0.16646	3.80134	No
SLV 3	-14.35	-79.24	1.8	0.01	2.95	0.894	0.16646	3.80134	No
SLV 14	-34.39	-130.71	-1.97	0.031	4.936	0.924	0.48042	3.80134	No
SLV 13	-34.39	-130.71	-1.97	0.031	4.936	0.924	0.48042	3.80134	No
SLV 16	-38.73	-150.51	-1.86	0.036	5.373	0.929	0.56009	3.80134	No
SLV 15	-38.73	-150.51	-1.86	0.036	5.373	0.929	0.56009	3.80134	No
SLV 10	-20.79	-82.67	-0.82	0.054	3.578	0.905	0.87503	3.86444	No
SLV 9	-20.79	-82.67	-0.82	0.054	3.578	0.905	0.87503	3.86444	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.455	SLU 49	Si
V_SLU	2.109	SLU 70	Si
PF_SLV	1.494	SLV 13	Si
V_SLV	2.037	SLV 11	Si



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	12.379	SLV 1	Si
R SLV	0.017	SLV 1	No

## Maschio 26

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.638	1.046	-24.653	1.046	L1	L3	5.015	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>med</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 74	-1.59	-1072.57	44.6126	475	1120.2868	25.111	Si
SLU 74	0.51	-1023.57	-149.5293	454	1137.5203	7.607	Si
SLU 75	-1.59	-1070.07	45.2637	474	1121.3257	24.773	Si
SLU 75	0.51	-1020.46	-144.9572	452	1138.3937	7.853	Si
SLU 82	-1.59	-1101.25	44.3682	488	1107.1633	24.954	Si
SLU 82	0.51	-1053.94	-149.933	467	1127.6109	7.521	Si
SLU 80	-1.59	-1077.57	43.1601	477	1118.1592	25.907	Si
SLU 80	0.51	-1028.43	-149.2697	456	1136.1038	7.611	Si
SLU 79	-1.59	-1080.08	42.509	479	1117.069	26.278	Si
SLU 79	0.51	-1031.54	-153.8418	457	1135.1627	7.379	Si
SLU 83	-1.59	-1118.04	43.8636	495	1098.4347	25.042	Si
SLU 83	0.51	-1072.43	-159.5896	475	1120.346	7.02	Si
SLU 81	-1.59	-1103.75	43.7171	489	1105.9115	25.297	Si
SLU 81	0.51	-1057.05	-154.5051	468	1126.4532	7.291	Si
SLU 77	-1.59	-1086.87	44.7591	482	1114.0258	24.889	Si
SLU 77	0.51	-1038.95	-154.6138	460	1132.8178	7.327	Si
SLU 78	-1.59	-1084.36	45.4102	480	1115.1623	24.558	Si
SLU 78	0.51	-1035.83	-150.0417	459	1133.8218	7.557	Si
SLU 84	-1.59	-1115.54	44.5147	494	1099.7841	24.706	Si
SLU 84	0.51	-1069.32	-155.0175	474	1121.6343	7.236	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLV 1	-1.59	-791.95	752.4798	351	1415.487	1.881	Si
SLV 1	0.51	-874.54	-46.334	388	1497.4231	32.318	Si
SLV 13	-1.59	-649.73	-772.2735	288	1245.3163	1.613	Si
SLV 13	0.51	-497.11	-192.3284	220	1021.779	5.313	Si
SLV 2	-1.59	-791.95	752.4798	351	1415.487	1.881	Si
SLV 2	0.51	-874.54	-46.334	388	1497.4231	32.318	Si
SLV 8	-1.59	-762.53	391.0374	338	1383.2989	3.538	Si
SLV 8	0.51	-718.09	14.5955	318	1331.7031	91.241	Si
SLV 16	-1.59	-659.12	-692.7867	292	1257.6911	1.815	Si
SLV 16	0.51	-485.87	-140.6234	215	1003.6452	7.137	Si
SLV 4	-1.59	-801.35	831.9665	355	1425.4319	1.713	Si
SLV 4	0.51	-863.31	5.371	383	1487.0035	276.857	Si
SLV 14	-1.59	-649.73	-772.2735	288	1245.3163	1.613	Si
SLV 14	0.51	-497.11	-192.3284	220	1021.779	5.313	Si
SLV 3	-1.59	-801.35	831.9665	355	1425.4319	1.713	Si
SLV 3	0.51	-863.31	5.371	383	1487.0035	276.857	Si
SLV 7	-1.59	-762.53	391.0374	338	1383.2989	3.538	Si
SLV 7	0.51	-718.09	14.5955	318	1331.7031	91.241	Si
SLV 15	-1.59	-659.12	-692.7867	292	1257.6911	1.815	Si
SLV 15	0.51	-485.87	-140.6234	215	1003.6452	7.137	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	-1.59	-1084.36	159.67	45.4102		480	5.015	108	244.48			1.53	Si
SLU 78	0.51	-1035.83	162.07	-150.0417		459	5.015	108	244.48			1.51	Si
SLU 77	-1.59	-1086.87	162.26	44.7591		482	5.015	108	244.48			1.51	Si
SLU 77	0.51	-1038.95	164.76	-154.6138		460	5.015	108	244.48			1.48	Si
SLU 83	-1.59	-1118.04	166.94	43.8636		495	5.015	108	244.48			1.46	Si
SLU 83	0.51	-1072.43	169.47	-159.5896		475	5.015	108	244.48			1.44	Si
SLU 84	-1.59	-1115.54	164.36	44.5147		494	5.015	108	244.48			1.49	Si
SLU 84	0.51	-1069.32	166.78	-155.0175		474	5.015	108	244.48			1.47	Si
SLU 80	-1.59	-1077.57	157.5	43.1601		477	5.015	108	244.48			1.55	Si
SLU 80	0.51	-1028.43	159.89	-149.2697		456	5.015	108	244.48			1.53	Si
SLU 79	-1.59	-1080.08	160.09	42.509		479	5.015	108	244.48			1.53	Si
SLU 79	0.51	-1031.54	162.58	-153.8418		457	5.015	108	244.48			1.5	Si
SLU 74	-1.59	-1072.57	158.48	44.6126		475	5.015	108	244.48			1.54	Si
SLU 74	0.51	-1023.57	160.95	-149.5293		454	5.015	108	244.48			1.52	Si
SLU 81	-1.59	-1103.75	163.17	43.7171		489	5.015	108	244.48			1.5	Si
SLU 81	0.51	-1057.05	165.65	-154.5051		468	5.015	108	244.48			1.48	Si
SLU 82	-1.59	-1101.25	160.58	44.3682		488	5.015	108	244.48			1.52	Si
SLU 82	0.51	-1053.94	162.96	-149.933		467	5.015	108	244.48			1.5	Si
SLU 75	-1.59	-1070.07	155.89	45.2637		474	5.015	108	244.48			1.57	Si
SLU 75	0.51	-1020.46	158.26	-144.9572		452	5.015	108	244.48			1.54	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 3	-1.59	-758.72	307.9	380.1142		336	5.015	151	339.81			1.1	Si
SLD 3	0.51	-760.02	298.19	-51.7831		337	5.015	151	340.07			1.14	Si
SLV 13	-1.59	-649.73	-374.25	-772.2735		365	3.9567	156	278.32			0.74	No, Vu<V
SLV 13	0.51	-497.11	-346.68	-192.3284		220	5.015	127	287.48			0.83	No, Vu<V
SLV 16	-1.59	-659.12	-352.25	-692.7867		335	4.3693	150	295.67			0.84	No, Vu<V
SLV 16	0.51	-485.87	-335.74	-140.6234		215	5.015	126	285.24			0.85	No, Vu<V
SLV 2	-1.59	-791.95	553.15	752.4798		377	4.672	159	333.59			0.6	No, Vu<V
SLV 2	0.51	-874.54	540.06	-46.334		388	5.015	161	362.97			0.67	No, Vu<V
SLV 1	-1.59	-791.95	553.15	752.4798		377	4.672	159	333.59			0.6	No, Vu<V
SLV 1	0.51	-874.54	540.06	-46.334		388	5.015	161	362.97			0.67	No, Vu<V
SLV 14	-1.59	-649.73	-374.25	-772.2735		365	3.9567	156	278.32			0.74	No, Vu<V
SLV 14	0.51	-497.11	-346.68	-192.3284		220	5.015	127	287.48			0.83	No, Vu<V
SLV 15	-1.59	-659.12	-352.25	-692.7867		335	4.3693	150	295.67			0.84	No, Vu<V
SLV 15	0.51	-485.87	-335.74	-140.6234		215	5.015	126	285.24			0.85	No, Vu<V
SLV 4	-1.59	-801.35	575.14	831.9665		404	4.4079	163	322.33			0.56	No, Vu<V
SLV 4	0.51	-863.31	551	5.371		383	5.015	160	360.72			0.65	No, Vu<V
SLV 3	-1.59	-801.35	575.14	831.9665		404	4.4079	163	322.33			0.56	No, Vu<V
SLV 3	0.51	-863.31	551	5.371		383	5.015	160	360.72			0.65	No, Vu<V
SLD 4	-1.59	-758.72	307.9	380.1142		336	5.015	151	339.81			1.1	Si
SLD 4	0.51	-760.02	298.19	-51.7831		337	5.015	151	340.07			1.14	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.24	241	-544.95	3.0146	98.3816	32.64	Si
SLV 15	1438	0.24	241	-544.95	3.0146	98.3816	32.64	Si
SLV 14	1438	0.24	243	-548.89	3.0146	98.9174	32.81	Si
SLV 13	1438	0.24	243	-548.89	3.0146	98.9174	32.81	Si
SLV 12	1438	0.24	286	-645.65	3.0146	111.2563	36.91	Si
SLV 11	1438	0.24	286	-645.65	3.0146	111.2563	36.91	Si
SLV 9	1438	0.24	292	-658.81	3.0146	112.8163	37.42	Si
SLV 10	1438	0.24	292	-658.81	3.0146	112.8163	37.42	Si
SLV 7	1438	0.24	326	-735.91	3.0146	121.3899	40.27	Si
SLV 8	1438	0.24	326	-735.91	3.0146	121.3899	40.27	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-661.06	-731.21	3.14	0.085	75.883	0.966	1.28402	3.52938	No
SLV 6	-661.06	-731.21	3.14	0.085	75.883	0.966	1.28402	3.52938	No
SLV 10	-591.31	-688.55	3.4	0.085	68.785	0.963	1.28556	3.52938	No
SLV 9	-591.31	-688.55	3.4	0.085	68.785	0.963	1.28556	3.52938	No
SLV 7	-615.45	-762.53	-2.59	0.086	71.241	0.964	1.30113	3.52938	No
SLV 8	-615.45	-762.53	-2.59	0.086	71.241	0.964	1.30113	3.52938	No
SLV 12	-545.7	-719.86	-2.33	0.087	64.146	0.96	1.31774	3.52938	No
SLV 11	-545.7	-719.86	-2.33	0.087	64.146	0.96	1.31774	3.52938	No
SLV 2	-726.47	-791.95	0.83	0.088	82.541	0.968	1.32241	3.48092	No
SLV 1	-726.47	-791.95	0.83	0.088	82.541	0.968	1.32241	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.02	SLU 83	Si
V_SLU	1.443	SLU 83	Si
PF_SLV	1.613	SLV 13	Si
V_SLV	0.56	SLV 3	No
PFFP_SLV	32.635	SLV 15	Si
R_SLV	0.364	SLV 5	No

## Maschio 27

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-15.063	1.046	-18.838	1.046	L1	L3	3.775	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	-1.59	-1126.64	-56.625	663	395.1533	6.978	Si
SLU 83	0.51	-1092.81	-62.451	643	433.7177	6.945	Si
SLU 84	-1.59	-1116.68	-63.075	657	406.8284	6.45	Si
SLU 84	0.51	-1086.71	-66.4332	640	440.3395	6.628	Si
SLU 75	-1.59	-1071.39	-61.1225	631	456.5222	7.469	Si
SLU 75	0.51	-1039.18	-63.4784	612	488.445	7.695	Si
SLU 81	-1.59	-1108.69	-57.2402	653	416.0087	7.268	Si
SLU 81	0.51	-1075.14	-66.7167	633	452.6213	6.784	Si
SLU 76	-1.59	-1055.68	-65.2042	621	472.4457	7.246	Si
SLU 76	0.51	-1025.34	-63.9133	604	501.3049	7.844	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	-1.59	-1099.3	-54.0572	647	426.5614	7.891	Si
SLU 77	0.51	-1062.96	-55.2305	626	465.1498	8.422	Si
SLU 82	-1.59	-1098.73	-63.6902	647	427.196	6.707	Si
SLU 82	0.51	-1069.03	-70.6989	629	458.9489	6.492	Si
SLU 80	-1.59	-1080.27	-60.2889	636	447.2129	7.418	Si
SLU 80	0.51	-1047.08	-56.9928	616	480.884	8.438	Si
SLU 73	-1.59	-1037.72	-65.8194	611	489.8253	7.442	Si
SLU 73	0.51	-1007.66	-68.1789	593	516.9553	7.582	Si
SLU 78	-1.59	-1089.34	-60.5073	641	437.4938	7.23	Si
SLU 78	0.51	-1056.86	-59.2127	622	471.2747	7.959	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	-1.59	-868.14	-614.9767	511	953.2672	1.55	Si
SLV 16	0.51	-767.25	94.7735	452	912.8777	9.632	Si
SLV 10	-1.59	-610.33	-338.298	359	813.2604	2.404	Si
SLV 10	0.51	-583.94	82.6578	344	792.1128	9.583	Si
SLV 13	-1.59	-781.56	-684.633	460	919.7296	1.343	Si
SLV 13	0.51	-695.37	140.2198	409	872.8058	6.225	Si
SLV 14	-1.59	-781.56	-684.633	460	919.7296	1.343	Si
SLV 14	0.51	-695.37	140.2198	409	872.8058	6.225	Si
SLV 3	-1.59	-667.52	606.7393	393	854.7523	1.409	Si
SLV 3	0.51	-688.49	-221.1766	405	868.4778	3.927	Si
SLV 4	-1.59	-667.52	606.7393	393	854.7523	1.409	Si
SLV 4	0.51	-688.49	-221.1766	405	868.4778	3.927	Si
SLV 1	-1.59	-580.94	537.0831	342	789.6236	1.47	Si
SLV 1	0.51	-616.61	-175.7304	363	818.109	4.655	Si
SLV 15	-1.59	-868.14	-614.9767	511	953.2672	1.55	Si
SLV 15	0.51	-767.25	94.7735	452	912.8777	9.632	Si
SLV 9	-1.59	-610.33	-338.298	359	813.2604	2.404	Si
SLV 9	0.51	-583.94	82.6578	344	792.1128	9.583	Si
SLV 2	-1.59	-580.94	537.0831	342	789.6236	1.47	Si
SLV 2	0.51	-616.61	-175.7304	363	818.109	4.655	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	-1.59	-1071.39	37.94	-61.1225		631	3.775	108	184.03			4.85	Si
SLU 75	0.51	-1039.18	36.07	-63.4784		612	3.775	108	184.03			5.1	Si
SLU 76	-1.59	-1055.68	37.56	-65.2042		621	3.775	108	184.03			4.9	Si
SLU 76	0.51	-1025.34	35.68	-63.9133		604	3.775	108	184.03			5.16	Si
SLU 40	-1.59	-941.27	37.58	-54.3219		554	3.775	108	184.03			4.9	Si
SLU 40	0.51	-924.32	35.9	-61.5857		544	3.775	108	184.03			5.13	Si
SLU 83	-1.59	-1126.64	38.42	-56.625		663	3.775	108	184.03			4.79	Si
SLU 83	0.51	-1092.81	36.51	-62.451		643	3.775	108	184.03			5.04	Si
SLU 81	-1.59	-1108.69	40.35	-57.2402		653	3.775	108	184.03			4.56	Si
SLU 81	0.51	-1075.14	38.47	-66.7167		633	3.775	108	184.03			4.78	Si
SLU 73	-1.59	-1037.72	39.5	-65.8194		611	3.775	108	184.03			4.66	Si
SLU 73	0.51	-1007.66	37.63	-68.1789		593	3.775	108	184.03			4.89	Si
SLU 84	-1.59	-1116.68	40.07	-63.075		657	3.775	108	184.03			4.59	Si
SLU 84	0.51	-1086.71	38.12	-66.4332		640	3.775	108	184.03			4.83	Si
SLU 74	-1.59	-1081.34	36.29	-54.6724		637	3.775	108	184.03			5.07	Si
SLU 74	0.51	-1045.29	34.46	-59.4962		615	3.775	108	184.03			5.34	Si
SLU 61	-1.59	-984.31	37.76	-59.3001		579	3.775	108	184.03			4.87	Si
SLU 61	0.51	-949.08	36.03	-66.0429		559	3.775	108	184.03			5.11	Si
SLU 82	-1.59	-1098.73	42.01	-63.6902		647	3.775	108	184.03			4.38	Si
SLU 82	0.51	-1069.03	40.07	-70.6989		629	3.775	108	184.03			4.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	-1.59	-868.14	-356.49	-614.9767		545	3.5373	163	258.67			0.73	No, Vu<V
SLV 16	0.51	-767.25	-346.67	94.7735		452	3.775	163	276.05			0.8	No, Vu<V
SLD 4	-1.59	-698.74	202.55	242.7583		411	3.775	163	276.05			1.36	Si
SLD 4	0.51	-689.51	195.11	-119.0763		406	3.775	163	276.05			1.41	Si
SLV 13	-1.59	-781.56	-387.16	-684.633		572	3.0345	163	221.9			0.57	No, Vu<V
SLV 13	0.51	-695.37	-374.03	140.2198		409	3.775	163	276.05			0.74	No, Vu<V
SLD 3	-1.59	-698.74	202.55	242.7583		411	3.775	163	276.05			1.36	Si
SLD 3	0.51	-689.51	195.11	-119.0763		406	3.775	163	276.05			1.41	Si
SLV 14	-1.59	-781.56	-387.16	-684.633		572	3.0345	163	221.9			0.57	No, Vu<V
SLV 14	0.51	-695.37	-374.03	140.2198		409	3.775	163	276.05			0.74	No, Vu<V
SLV 15	-1.59	-868.14	-356.49	-614.9767		545	3.5373	163	258.67			0.73	No, Vu<V
SLV 15	0.51	-767.25	-346.67	94.7735		452	3.775	163	276.05			0.8	No, Vu<V
SLV 1	-1.59	-580.94	402.99	537.0831		447	2.889	163	211.26			0.52	No, Vu<V
SLV 1	0.51	-616.61	390.73	-175.7304		363	3.775	156	264.88			0.68	No, Vu<V
SLV 4	-1.59	-667.52	433.67	606.7393		505	2.9357	163	214.67			0.5	No, Vu<V
SLV 4	0.51	-688.49	418.09	-221.1766		405	3.775	163	276.05			0.66	No, Vu<V
SLV 2	-1.59	-580.94	402.99	537.0831		447	2.889	163	211.26			0.52	No, Vu<V
SLV 2	0.51	-616.61	390.73	-175.7304		363	3.775	156	264.88			0.68	No, Vu<V
SLV 3	-1.59	-667.52	433.67	606.7393		505	2.9357	163	214.67			0.5	No, Vu<V
SLV 3	0.51	-688.49	418.09	-221.1766		405	3.775	163	276.05			0.66	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.24	333	-565.82	2.2692	92.6055	40.81	Si
SLV 5	1438	0.24	333	-565.82	2.2692	92.6055	40.81	Si
SLV 9	1438	0.24	355	-602.92	2.2692	96.2523	42.42	Si
SLV 10	1438	0.24	355	-602.92	2.2692	96.2523	42.42	Si
SLV 2	1438	0.24	357	-607.11	2.2692	96.646	42.59	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.24	357	-607.11	2.2692	96.646	42.59	Si
SLV 4	1438	0.24	400	-679.6	2.2692	102.8453	45.32	Si
SLV 3	1438	0.24	400	-679.6	2.2692	102.8453	45.32	Si
SLV 13	1438	0.24	430	-730.77	2.2692	106.5351	46.95	Si
SLV 14	1438	0.24	430	-730.77	2.2692	106.5351	46.95	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = -0.24  $W_a = 0.0008$   $T_a = 0.0271$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-522.11	-550.14	27.63	0.04	59.614	0.967	0.607	3.52938	No
SLV 5	-522.11	-550.14	27.63	0.04	59.614	0.967	0.607	3.52938	No
SLV 10	-539.59	-610.33	26.74	0.043	61.394	0.968	0.64878	3.52938	No
SLV 9	-539.59	-610.33	26.74	0.043	61.394	0.968	0.64878	3.52938	No
SLV 12	-729.54	-898.93	-29.14	0.05	80.736	0.975	0.74501	3.52938	No
SLV 11	-729.54	-898.93	-29.14	0.05	80.736	0.975	0.74501	3.52938	No
SLV 7	-712.06	-838.75	-28.25	0.05	78.956	0.975	0.75144	3.52938	No
SLV 8	-712.06	-838.75	-28.25	0.05	78.956	0.975	0.75144	3.52938	No
SLV 16	-683.45	-868.14	-10.61	0.073	76.042	0.974	1.09591	3.48092	No
SLV 15	-683.45	-868.14	-10.61	0.073	76.042	0.974	1.09591	3.48092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.45	SLU 84	Si
V_SLU	4.381	SLU 82	Si
PF_SLV	1.343	SLV 13	Si
V_SLV	0.495	SLV 3	No
PFFP_SLV	40.81	SLV 5	Si
R_SLV	0.172	SLV 5	No

## Maschio 28

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-13.583	1.046	-14.063	1.046	L1	L3	0.48	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	-1.59	-172.74	-2.2302	800	0.7556	0.339	No, M>Mu
SLU 78	0.57	-102.83	-12.2358	476	10.2562	0.838	No, M>Mu
SLU 74	-1.59	-171.14	-2.1702	792	1.1237	0.518	No, M>Mu
SLU 74	0.57	-101.65	-12.0975	471	10.302	0.852	No, M>Mu
SLU 80	-1.59	-170.85	-2.2248	791	1.1882	0.534	No, M>Mu
SLU 80	0.57	-101.68	-12.0992	471	10.3007	0.851	No, M>Mu
SLU 84	-1.59	-179.23	-2.2366	830	0	0	No, Rottura per schiacciamento
SLU 84	0.57	-106.24	-12.6468	492	10.102	0.799	No, M>Mu
SLU 81	-1.59	-177.62	-2.1766	822	0	0	No, Rottura per schiacciamento
SLU 81	0.57	-105.06	-12.5086	486	10.1588	0.812	No, M>Mu
SLU 75	-1.59	-171.88	-2.1591	796	0.9549	0.442	No, M>Mu
SLU 75	0.57	-101.6	-12.0908	470	10.3038	0.852	No, M>Mu
SLU 83	-1.59	-178.49	-2.2477	826	0	0	No, Rottura per schiacciamento
SLU 83	0.57	-106.29	-12.6536	492	10.0996	0.798	No, M>Mu
SLU 77	-1.59	-172	-2.2413	796	0.9261	0.413	No, M>Mu
SLU 77	0.57	-102.87	-12.2426	476	10.2542	0.838	No, M>Mu
SLU 76	-1.59	-170.48	-2.1463	789	1.2722	0.593	No, M>Mu
SLU 76	0.57	-100.43	-11.9497	465	10.3455	0.866	No, M>Mu
SLU 82	-1.59	-178.36	-2.1655	826	0	0	No, Rottura per schiacciamento
SLU 82	0.57	-105.01	-12.5018	486	10.161	0.813	No, M>Mu

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	-1.59	-73.38	11.9316	340	12.7145	1.066	Si
SLV 1	0.57	-40.56	-5.4408	188	8.239	1.514	Si
SLV 14	-1.59	-118.83	-15.0297	550	15.6787	1.043	Si
SLV 14	0.57	-86.55	-9.6095	401	13.96	1.453	Si
SLV 12	-1.59	-186.53	-5.2152	864	13.128	2.517	Si
SLV 12	0.57	-87.06	-10.2679	403	14.0022	1.364	Si
SLV 15	-1.59	-157.42	-14.8552	729	15.2463	1.026	Si
SLV 15	0.57	-94.21	-10.5868	436	14.5397	1.373	Si
SLV 13	-1.59	-118.83	-15.0297	550	15.6787	1.043	Si
SLV 13	0.57	-86.55	-9.6095	401	13.96	1.453	Si
SLV 11	-1.59	-186.53	-5.2152	864	13.128	2.517	Si
SLV 11	0.57	-87.06	-10.2679	403	14.0022	1.364	Si
SLV 16	-1.59	-157.42	-14.8552	729	15.2463	1.026	Si
SLV 16	0.57	-94.21	-10.5868	436	14.5397	1.373	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	-1.59	-111.97	12.1061	518	15.4719	1.278	Si
SLV 4	0.57	-48.23	-6.4181	223	9.4598	1.474	Si
SLV 2	-1.59	-73.38	11.9316	340	12.7145	1.066	Si
SLV 2	0.57	-40.56	-5.4408	188	8.239	1.514	Si
SLV 3	-1.59	-111.97	12.1061	518	15.4719	1.278	Si
SLV 3	0.57	-48.23	-6.4181	223	9.4598	1.474	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	-1.59	-171.88	-2.81	-2.1591		796	0.48	108	23.4			8.34	Si
SLU 75	0.57	-101.6	3.17	-12.0908		622	0.363	108	17.7			5.59	Si
SLU 74	-1.59	-171.14	-2.85	-2.1702		792	0.48	108	23.4			8.22	Si
SLU 74	0.57	-101.65	3.19	-12.0975		622	0.363	108	17.69			5.55	Si
SLU 79	-1.59	-170.11	-2.95	-2.2358		788	0.48	108	23.4			7.93	Si
SLU 79	0.57	-101.73	3.24	-12.106		623	0.363	108	17.7			5.46	Si
SLU 77	-1.59	-172	-2.96	-2.2413		796	0.48	108	23.4			7.91	Si
SLU 77	0.57	-102.87	3.26	-12.2426		630	0.363	108	17.7			5.43	Si
SLU 78	-1.59	-172.74	-2.92	-2.2302		800	0.48	108	23.4			8.02	Si
SLU 78	0.57	-102.83	3.24	-12.2358		629	0.363	108	17.7			5.47	Si
SLU 81	-1.59	-177.62	-2.84	-2.1766		822	0.48	108	23.4			8.24	Si
SLU 81	0.57	-105.06	3.27	-12.5086		643	0.3628	108	17.69			5.42	Si
SLU 80	-1.59	-170.85	-2.91	-2.2248		791	0.48	108	23.4			8.04	Si
SLU 80	0.57	-101.68	3.22	-12.0992		622	0.363	108	17.7			5.5	Si
SLU 82	-1.59	-178.36	-2.8	-2.1655		826	0.48	108	23.4			8.35	Si
SLU 82	0.57	-105.01	3.24	-12.5018		643	0.3629	108	17.69			5.45	Si
SLU 83	-1.59	-178.49	-2.95	-2.2477		826	0.48	108	23.4			7.92	Si
SLU 83	0.57	-106.29	3.34	-12.6536		651	0.3628	108	17.69			5.3	Si
SLU 84	-1.59	-179.23	-2.91	-2.2366		830	0.48	108	23.4			8.03	Si
SLU 84	0.57	-106.24	3.31	-12.6468		651	0.3629	108	17.69			5.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	-1.59	-57.9	-7.42	-5.7969		307	0.4197	145	27.32			3.68	Si
SLV 10	0.57	-61.51	1.58	-7.0102		362	0.3781	156	26.48			16.76	Si
SLV 16	-1.59	-157.42	-14.66	-14.8552		801	0.4369	163	31.95			2.18	Si
SLV 16	0.57	-94.21	1.27	-10.5868		547	0.3829	163	28			22	Si
SLV 9	-1.59	-57.9	-7.42	-5.7969		307	0.4197	145	27.32			3.68	Si
SLV 9	0.57	-61.51	1.58	-7.0102		362	0.3781	156	26.48			16.76	Si
SLV 4	-1.59	-111.97	11.84	12.1061		629	0.3956	163	28.93			2.44	Si
SLV 4	0.57	-48.23	3.13	-6.4181		334	0.3208	150	21.67			6.92	Si
SLV 13	-1.59	-118.83	-15.6	-15.0297		775	0.3406	163	24.9			1.6	Si
SLV 13	0.57	-86.55	1.11	-9.6095		497	0.3869	163	28.29			25.39	Si
SLV 15	-1.59	-157.42	-14.66	-14.8552		801	0.4369	163	31.95			2.18	Si
SLV 15	0.57	-94.21	1.27	-10.5868		547	0.3829	163	28			22	Si
SLV 14	-1.59	-118.83	-15.6	-15.0297		775	0.3406	163	24.9			1.6	Si
SLV 14	0.57	-86.55	1.11	-9.6095		497	0.3869	163	28.29			25.39	Si
SLV 2	-1.59	-73.38	10.89	11.9316		702	0.2322	163	16.98			1.56	Si
SLV 2	0.57	-40.56	2.98	-5.4408		284	0.3176	140	20.02			6.73	Si
SLV 1	-1.59	-73.38	10.89	11.9316		702	0.2322	163	16.98			1.56	Si
SLV 1	0.57	-40.56	2.98	-5.4408		284	0.3176	140	20.02			6.73	Si
SLV 3	-1.59	-111.97	11.84	12.1061		629	0.3956	163	28.93			2.44	Si
SLV 3	0.57	-48.23	3.13	-6.4181		334	0.3208	150	21.67			6.92	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.24	245	-52.98	0.2885	9.5281	33.02	Si
SLV 2	1438	0.24	245	-52.98	0.2885	9.5281	33.02	Si
SLV 5	1438	0.24	318	-68.72	0.2885	11.4361	39.64	Si
SLV 6	1438	0.24	318	-68.72	0.2885	11.4361	39.64	Si
SLV 4	1438	0.24	333	-71.87	0.2885	11.7673	40.78	Si
SLV 3	1438	0.24	333	-71.87	0.2885	11.7673	40.78	Si
SLV 16	1438	0.24	832	-179.79	0.2885	12.8959	44.69	Si
SLV 15	1438	0.24	832	-179.79	0.2885	12.8959	44.69	Si
SLV 11	1438	0.24	759	-164.05	0.2885	13.968	48.41	Si
SLV 12	1438	0.24	759	-164.05	0.2885	13.968	48.41	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	-60.43	-57.9	0.48	0.083	6.974	0.965	1.24504	3.52938	No
SLV 10	-60.43	-57.9	0.48	0.083	6.974	0.965	1.24504	3.52938	No
SLV 5	-44.79	-44.27	0.48	0.083	5.383	0.955	1.25625	3.52938	No
SLV 6	-44.79	-44.27	0.48	0.083	5.383	0.955	1.25625	3.52938	No
SLV 12	-89.06	-186.53	-0.32	0.085	9.889	0.974	1.26114	3.52938	No
SLV 11	-89.06	-186.53	-0.32	0.085	9.889	0.974	1.26114	3.52938	No
SLV 8	-73.41	-172.89	-0.33	0.085	8.295	0.97	1.26929	3.52938	No
SLV 7	-73.41	-172.89	-0.33	0.085	8.295	0.97	1.26929	3.52938	No
SLV 13	-88.71	-118.83	0.21	0.086	9.853	0.974	1.27908	3.48092	No
SLV 14	-88.71	-118.83	0.21	0.086	9.853	0.974	1.27908	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 81	No
V_SLU	5.303	SLU 83	Si
PF_SLV	1.026	SLV 15	Si
V_SLV	1.558	SLV 1	Si
PFFP_SLV	33.023	SLV 1	Si



Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0.353	SLV 9	No

## Maschio 29

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.238	1.046	-12.613	1.046	L1	L3	0.375	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 75	-1.59	-101.24	-1.5562	600	5.0015	3.214	Si
SLU 75	0.57	-77.6	-0.4583	460	6.3361	13.824	Si
SLU 78	-1.59	-102.08	-1.5943	605	4.9267	3.09	Si
SLU 78	0.57	-78.38	-0.456	464	6.3166	13.851	Si
SLU 77	-1.59	-101.9	-1.5878	604	4.9424	3.113	Si
SLU 77	0.57	-78.25	-0.4563	464	6.32	13.85	Si
SLU 82	-1.59	-104.86	-1.5702	621	4.6625	2.969	Si
SLU 82	0.57	-80.33	-0.4858	476	6.2598	12.885	Si
SLU 80	-1.59	-101.05	-1.5769	599	5.019	3.183	Si
SLU 80	0.57	-77.5	-0.4503	459	6.3386	14.077	Si
SLU 83	-1.59	-105.52	-1.6018	625	4.5969	2.87	Si
SLU 83	0.57	-80.97	-0.4838	480	6.239	12.896	Si
SLU 84	-1.59	-105.7	-1.6083	626	4.5795	2.847	Si
SLU 84	0.57	-81.1	-0.4835	481	6.2346	12.894	Si
SLU 74	-1.59	-101.07	-1.5497	599	5.0169	3.237	Si
SLU 74	0.57	-77.47	-0.4586	459	6.3392	13.822	Si
SLU 79	-1.59	-100.87	-1.5705	598	5.0343	3.206	Si
SLU 79	0.57	-77.37	-0.4506	458	6.3417	14.075	Si
SLU 81	-1.59	-104.69	-1.5637	620	4.6796	2.993	Si
SLU 81	0.57	-80.2	-0.4861	475	6.2639	12.886	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 3	-1.59	-34.98	4.2459	207	5.4467	1.283	Si
SLV 3	0.57	-28.67	-1.6868	170	4.6283	2.744	Si
SLV 1	-1.59	-21.15	4.2389	0	0	0	No, e>1/2
SLV 1	0.57	-19.75	-1.6556	117	3.3484	2.023	Si
SLV 4	-1.59	-34.98	4.2459	207	5.4467	1.283	Si
SLV 4	0.57	-28.67	-1.6868	170	4.6283	2.744	Si
SLV 15	-1.59	-114.81	-6.3105	680	9.5403	1.512	Si
SLV 15	0.57	-83.41	1.0492	494	9.3127	8.876	Si
SLV 13	-1.59	-100.98	-6.3175	598	9.6611	1.529	Si
SLV 13	0.57	-74.48	1.0804	441	8.9208	8.257	Si
SLV 16	-1.59	-114.81	-6.3105	680	9.5403	1.512	Si
SLV 16	0.57	-83.41	1.0492	494	9.3127	8.876	Si
SLV 14	-1.59	-100.98	-6.3175	598	9.6611	1.529	Si
SLV 14	0.57	-74.48	1.0804	441	8.9208	8.257	Si
SLD 14	-1.59	-82.37	-3.3587	488	9.2747	2.761	Si
SLD 14	0.57	-61.55	0.3083	365	8.0957	26.262	Si
SLD 13	-1.59	-82.37	-3.3587	488	9.2747	2.761	Si
SLD 13	0.57	-61.55	0.3083	365	8.0957	26.262	Si
SLV 2	-1.59	-21.15	4.2389	0	0	0	No, e>1/2
SLV 2	0.57	-19.75	-1.6556	117	3.3484	2.023	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	-1.59	-100.33	-1.35	-1.5432		595	0.375	108	18.28			13.53	Si
SLU 76	0.57	-76.81	-5.39	-0.4524		455	0.375	108	18.28			3.39	Si
SLU 83	-1.59	-105.52	-1.4	-1.6018		625	0.375	108	18.28			13.03	Si
SLU 83	0.57	-80.97	-5.69	-0.4838		480	0.375	108	18.28			3.21	Si
SLU 80	-1.59	-101.05	-1.39	-1.5769		599	0.375	108	18.28			13.19	Si
SLU 80	0.57	-77.5	-5.4	-0.4503		459	0.375	108	18.28			3.39	Si
SLU 81	-1.59	-104.69	-1.37	-1.5637		620	0.375	108	18.28			13.39	Si
SLU 81	0.57	-80.2	-5.67	-0.4861		475	0.375	108	18.28			3.22	Si
SLU 82	-1.59	-104.86	-1.37	-1.5702		621	0.375	108	18.28			13.34	Si
SLU 82	0.57	-80.33	-5.69	-0.4858		476	0.375	108	18.28			3.22	Si
SLU 78	-1.59	-102.08	-1.4	-1.5943		605	0.375	108	18.28			13.05	Si
SLU 78	0.57	-78.38	-5.48	-0.456		464	0.375	108	18.28			3.34	Si
SLU 75	-1.59	-101.24	-1.36	-1.5562		600	0.375	108	18.28			13.41	Si
SLU 75	0.57	-77.6	-5.46	-0.4583		460	0.375	108	18.28			3.35	Si
SLU 74	-1.59	-101.07	-1.36	-1.5497		599	0.375	108	18.28			13.47	Si
SLU 74	0.57	-77.47	-5.45	-0.4586		459	0.375	108	18.28			3.35	Si
SLU 84	-1.59	-105.7	-1.41	-1.6083		626	0.375	108	18.28			12.98	Si
SLU 84	0.57	-81.1	-5.7	-0.4835		481	0.375	108	18.28			3.21	Si
SLU 77	-1.59	-101.9	-1.4	-1.5878		604	0.375	108	18.28			13.1	Si
SLU 77	0.57	-78.25	-5.47	-0.4563		464	0.375	108	18.28			3.34	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 3	-1.59	-53.59	1	1.2871		318	0.375	147	24.78			24.78	Si
SLD 3	0.57	-41.6	-5.93	-0.9146		247	0.375	133	22.38			3.78	Si
SLD 2	-1.59	-47.62	1.03	1.2834		282	0.375	140	23.59			22.86	Si
SLD 2	0.57	-37.8	-5.2	-0.8999		224	0.375	128	21.62			4.15	Si
SLD 4	-1.59	-53.59	1	1.2871		318	0.375	147	24.78			24.78	Si
SLD 4	0.57	-41.6	-5.93	-0.9146		247	0.375	133	22.38			3.78	Si
SLV 1	-1.59	-21.15	3.5	4.2389		0	0	83	0			0	No, Vu<V
SLV 1	0.57	-19.75	-7.19	-1.6556		141	0.311	112	15.61			2.17	Si
SLD 1	-1.59	-47.62	1.03	1.2834		282	0.375	140	23.59			22.86	Si
SLD 1	0.57	-37.8	-5.2	-0.8999		224	0.375	128	21.62			4.15	Si
SLV 7	-1.59	-79.07	0.28	0.5593		469	0.375	163	27.42			99.36	Si
SLV 7	0.57	-58.24	-7.83	-0.7656		345	0.375	152	25.71			3.28	Si
SLV 2	-1.59	-21.15	3.5	4.2389		0	0	83	0			0	No, Vu<V
SLV 2	0.57	-19.75	-7.19	-1.6556		141	0.311	112	15.61			2.17	Si
SLV 8	-1.59	-79.07	0.28	0.5593		469	0.375	163	27.42			99.36	Si
SLV 8	0.57	-58.24	-7.83	-0.7656		345	0.375	152	25.71			3.28	Si
SLV 4	-1.59	-34.98	3.42	4.2459		392	0.1984	162	14.44			4.22	Si
SLV 4	0.57	-28.67	-8.92	-1.6868		170	0.375	117	19.8			2.22	Si
SLV 3	-1.59	-34.98	3.42	4.2459		392	0.1984	162	14.44			4.22	Si
SLV 3	0.57	-28.67	-8.92	-1.6868		170	0.375	117	19.8			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.24	224	-37.85	0.2254	6.9536	30.85	Si
SLV 2	1438	0.24	224	-37.85	0.2254	6.9536	30.85	Si
SLV 6	1438	0.24	253	-42.67	0.2254	7.6134	33.78	Si
SLV 5	1438	0.24	253	-42.67	0.2254	7.6134	33.78	Si
SLV 3	1438	0.24	308	-52.04	0.2254	8.7536	38.83	Si
SLV 4	1438	0.24	308	-52.04	0.2254	8.7536	38.83	Si
SLV 9	1438	0.24	361	-60.97	0.2254	9.6622	42.86	Si
SLV 10	1438	0.24	361	-60.97	0.2254	9.6622	42.86	Si
SLV 7	1438	0.24	533	-89.95	0.2254	11.4096	50.62	Si
SLV 8	1438	0.24	533	-89.95	0.2254	11.4096	50.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-19.84	-34.98	0.68	0.069	2.669	0.934	1.07464	3.48092	No
SLV 3	-19.84	-34.98	0.68	0.069	2.669	0.934	1.07464	3.48092	No
SLV 8	-53.85	-79.07	0.66	0.078	6.124	0.968	1.16813	3.52938	No
SLV 7	-53.85	-79.07	0.66	0.078	6.124	0.968	1.16813	3.52938	No
SLV 12	-75.15	-103.02	0.4	0.083	8.293	0.976	1.2297	3.52938	No
SLV 11	-75.15	-103.02	0.4	0.083	8.293	0.976	1.2297	3.52938	No
SLV 10	-48.98	-56.9	-0.4	0.082	5.628	0.966	1.23691	3.52938	No
SLV 9	-48.98	-56.9	-0.4	0.082	5.628	0.966	1.23691	3.52938	No
SLV 13	-82.99	-100.98	-0.43	0.082	9.092	0.978	1.224	3.48092	No
SLV 14	-82.99	-100.98	-0.43	0.082	9.092	0.978	1.224	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.847	SLU 84	Si
V_SLU	3.206	SLU 84	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	30.848	SLV 1	Si
R_SLV	0.309	SLV 3	No

## Maschio 30

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-10.713	1.046	-11.238	1.046	L1	L3	0.525	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>med</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	-1.59	-181.1	1.8574	767	2.8028	1.509	Si
SLU 76	0.57	-110.64	2.6712	468	12.3458	4.622	Si
SLU 83	-1.59	-190.1	2.0693	805	0.6078	0.294	No, M>Mu
SLU 83	0.57	-117.48	2.8051	497	12.013	4.283	Si
SLU 75	-1.59	-182.7	1.8917	773	2.4277	1.283	Si
SLU 75	0.57	-111.88	2.6931	474	12.2949	4.565	Si
SLU 81	-1.59	-190.37	2.0682	806	0.5388	0.261	No, M>Mu
SLU 81	0.57	-116.78	2.7585	494	12.0527	4.369	Si
SLU 77	-1.59	-181.6	1.9348	769	2.6855	1.388	Si
SLU 77	0.57	-112.55	2.7323	476	12.2655	4.489	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	-1.59	-181.87	1.9336	770	2.6227	1.356	Si
SLU 74	0.57	-111.85	2.6857	473	12.2959	4.578	Si
SLU 82	-1.59	-191.2	2.0262	809	0.3245	0.16	No, M>Mu
SLU 82	0.57	-116.8	2.7659	494	12.0514	4.357	Si
SLU 84	-1.59	-190.93	2.0274	808	0.3942	0.194	No, M>Mu
SLU 84	0.57	-117.5	2.8125	497	12.0116	4.271	Si
SLU 73	-1.59	-181.37	1.8562	768	2.7404	1.476	Si
SLU 73	0.57	-109.94	2.6246	465	12.3725	4.714	Si
SLU 78	-1.59	-182.43	1.8928	772	2.4911	1.316	Si
SLU 78	0.57	-112.57	2.7397	477	12.2645	4.477	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	-1.59	-44.61	6.9392	189	9.9009	1.427	Si
SLV 6	0.57	-53.89	-0.4489	228	11.505	25.627	Si
SLV 15	-1.59	-119.73	-17.1604	507	18.3934	1.072	Si
SLV 15	0.57	-59.82	8.2898	253	12.448	1.502	Si
SLV 2	-1.59	-125.67	19.6613	532	18.6271	0.947	No, M>Mu
SLV 2	0.57	-88.07	-4.7159	373	16.0653	3.407	Si
SLV 3	-1.59	-177.74	19.5522	752	17.9287	0.917	No, M>Mu
SLV 3	0.57	-104.09	-4.528	441	17.471	3.858	Si
SLV 13	-1.59	-67.66	-17.0513	286	13.5974	0.797	No, M>Mu
SLV 13	0.57	-43.8	8.1019	185	9.7525	1.204	Si
SLV 16	-1.59	-119.73	-17.1604	507	18.3934	1.072	Si
SLV 16	0.57	-59.82	8.2898	253	12.448	1.502	Si
SLV 4	-1.59	-177.74	19.5522	752	17.9287	0.917	No, M>Mu
SLV 4	0.57	-104.09	-4.528	441	17.471	3.858	Si
SLV 14	-1.59	-67.66	-17.0513	286	13.5974	0.797	No, M>Mu
SLV 14	0.57	-43.8	8.1019	185	9.7525	1.204	Si
SLV 5	-1.59	-44.61	6.9392	189	9.9009	1.427	Si
SLV 5	0.57	-53.89	-0.4489	228	11.505	25.627	Si
SLV 1	-1.59	-125.67	19.6613	532	18.6271	0.947	No, M>Mu
SLV 1	0.57	-88.07	-4.7159	373	16.0653	3.407	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	-1.59	-190.93	3.72	2.0274		808	0.525	108	25.59			6.89	Si
SLU 84	0.57	-117.5	7.26	2.8125		497	0.525	108	25.59			3.52	Si
SLU 74	-1.59	-181.87	3.56	1.9336		770	0.525	108	25.59			7.2	Si
SLU 74	0.57	-111.85	6.92	2.6857		473	0.525	108	25.59			3.7	Si
SLU 75	-1.59	-182.7	3.5	1.8917		773	0.525	108	25.59			7.32	Si
SLU 75	0.57	-111.88	6.94	2.6931		474	0.525	108	25.59			3.69	Si
SLU 79	-1.59	-179.45	3.58	1.9285		760	0.525	108	25.59			7.16	Si
SLU 79	0.57	-111.3	6.88	2.7054		471	0.525	108	25.59			3.72	Si
SLU 77	-1.59	-181.6	3.6	1.9348		769	0.525	108	25.59			7.12	Si
SLU 77	0.57	-112.55	6.99	2.7323		476	0.525	108	25.59			3.66	Si
SLU 81	-1.59	-190.37	3.74	2.0682		806	0.525	108	25.59			6.85	Si
SLU 81	0.57	-116.78	7.18	2.7585		494	0.525	108	25.59			3.57	Si
SLU 78	-1.59	-182.43	3.54	1.8928		772	0.525	108	25.59			7.24	Si
SLU 78	0.57	-112.57	7.01	2.7397		477	0.525	108	25.59			3.65	Si
SLU 80	-1.59	-180.28	3.52	1.8865		763	0.525	108	25.59			7.28	Si
SLU 80	0.57	-111.32	6.9	2.7128		471	0.525	108	25.59			3.71	Si
SLU 83	-1.59	-190.1	3.78	2.0693		805	0.525	108	25.59			6.78	Si
SLU 83	0.57	-117.48	7.24	2.8051		497	0.525	108	25.59			3.53	Si
SLU 82	-1.59	-191.2	3.68	2.0262		809	0.525	108	25.59			6.96	Si
SLU 82	0.57	-116.8	7.2	2.7659		494	0.525	108	25.59			3.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	-1.59	-67.66	-15.11	-17.0513		4784	0.0314	163	2.3			0.15	No, Vu<V
SLV 14	0.57	-43.8	8.16	8.1019		419	0.2325	163	17.01			2.08	Si
SLV 2	-1.59	-125.67	20.27	19.6613		878	0.3181	163	23.26			1.15	Si
SLV 2	0.57	-88.07	0.1	-4.7159		373	0.525	158	37.3			380.21	Si
SLV 15	-1.59	-119.73	-15.67	-17.1604		744	0.3575	163	26.14			1.67	Si
SLV 15	0.57	-59.82	8.91	8.2898		358	0.3717	155	25.9			2.91	Si
SLV 1	-1.59	-125.67	20.27	19.6613		878	0.3181	163	23.26			1.15	Si
SLV 1	0.57	-88.07	0.1	-4.7159		373	0.525	158	37.3			380.21	Si
SLV 4	-1.59	-177.74	19.7	19.5522		863	0.4575	163	33.45			1.7	Si
SLV 4	0.57	-104.09	0.85	-4.528		441	0.525	163	38.39			45.15	Si
SLV 3	-1.59	-177.74	19.7	19.5522		863	0.4575	163	33.45			1.7	Si
SLV 3	0.57	-104.09	0.85	-4.528		441	0.525	163	38.39			45.15	Si
SLV 13	-1.59	-67.66	-15.11	-17.0513		4784	0.0314	163	2.3			0.15	No, Vu<V
SLV 13	0.57	-43.8	8.16	8.1019		419	0.2325	163	17.01			2.08	Si
SLV 5	-1.59	-44.61	8.55	6.9392		309	0.3209	145	20.95			2.45	Si
SLV 5	0.57	-53.89	2.04	-0.4489		228	0.525	129	30.47			14.92	Si
SLV 6	-1.59	-44.61	8.55	6.9392		309	0.3209	145	20.95			2.45	Si
SLV 6	0.57	-53.89	2.04	-0.4489		228	0.525	129	30.47			14.92	Si
SLV 16	-1.59	-119.73	-15.67	-17.1604		744	0.3575	163	26.14			1.67	Si
SLV 16	0.57	-59.82	8.91	8.2898		358	0.3717	155	25.9			2.91	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.24	195	-46.11	0.3156	8.718	27.63	Si
SLV 9	1438	0.24	195	-46.11	0.3156	8.718	27.63	Si
SLV 14	1438	0.24	237	-55.98	0.3156	10.1531	32.17	Si
SLV 13	1438	0.24	237	-55.98	0.3156	10.1531	32.17	Si
SLV 5	1438	0.24	290	-68.61	0.3156	11.7686	37.29	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.24	290	-68.61	0.3156	11.7686	37.29	Si
SLV 15	1438	0.24	368	-86.94	0.3156	13.6701	43.32	Si
SLV 16	1438	0.24	368	-86.94	0.3156	13.6701	43.32	Si
SLV 8	1438	0.24	727	-171.81	0.3156	15.6491	49.59	Si
SLV 7	1438	0.24	727	-171.81	0.3156	15.6491	49.59	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24  $W_a = 0.0008$   $T_a = 0.0271$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-27.64	-27.21	0.73	0.076	3.723	0.934	1.18201	3.52938	No
SLV 9	-27.64	-27.21	0.73	0.076	3.723	0.934	1.18201	3.52938	No
SLV 8	-91.82	-218.19	-0.7	0.081	10.246	0.973	1.21016	3.52938	No
SLV 7	-91.82	-218.19	-0.7	0.081	10.246	0.973	1.21016	3.52938	No
SLV 4	-95.59	-177.74	-0.6	0.082	10.631	0.974	1.22501	3.48092	No
SLV 3	-95.59	-177.74	-0.6	0.082	10.631	0.974	1.22501	3.48092	No
SLV 13	-23.87	-67.66	0.63	0.078	3.342	0.928	1.22773	3.48092	No
SLV 14	-23.87	-67.66	0.63	0.078	3.342	0.928	1.22773	3.48092	No
SLV 11	-74.52	-200.79	-0.44	0.084	8.485	0.968	1.25858	3.52938	No
SLV 12	-74.52	-200.79	-0.44	0.084	8.485	0.968	1.25858	3.52938	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.16	SLU 82	No
V_SLU	3.524	SLU 84	Si
PF_SLV	0.797	SLV 13	No
V_SLV	0.152	SLV 13	No
PFFP_SLV	27.625	SLV 9	Si
R_SLV	0.335	SLV 9	No

## Maschio 31

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.428	1.046	-9.713	1.046	L1	L3	2.285	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	-1.59	-701.17	-33.3253	682	130.4764	3.915	Si
SLU 75	0.51	-652.48	34.2495	635	164.7522	4.81	Si
SLU 77	-1.59	-711.37	-33.0818	692	122.4793	3.702	Si
SLU 77	0.51	-662.68	30.6627	644	158.1097	5.156	Si
SLU 83	-1.59	-737.09	-33.868	717	101.0449	2.983	Si
SLU 83	0.51	-688.4	34.0293	669	140.0924	4.117	Si
SLU 74	-1.59	-704.49	-32.622	685	127.9055	3.921	Si
SLU 74	0.51	-655.8	31.8965	638	162.6221	5.098	Si
SLU 81	-1.59	-730.22	-33.4082	710	106.9539	3.201	Si
SLU 81	0.51	-681.52	35.2631	663	145.0876	4.114	Si
SLU 79	-1.59	-704.99	-32.2269	686	127.515	3.957	Si
SLU 79	0.51	-656.3	29.7423	638	162.298	5.457	Si
SLU 84	-1.59	-733.78	-34.5713	714	103.9109	3.006	Si
SLU 84	0.51	-685.08	36.3823	666	142.5177	3.917	Si
SLU 82	-1.59	-726.9	-34.1115	707	109.7576	3.218	Si
SLU 82	0.51	-678.2	37.6161	660	147.4506	3.92	Si
SLU 78	-1.59	-708.05	-33.7852	689	125.1125	3.703	Si
SLU 78	0.51	-659.36	33.0157	641	160.3021	4.855	Si
SLU 80	-1.59	-701.67	-32.9302	682	130.0904	3.95	Si
SLU 80	0.51	-652.98	32.0953	635	164.4327	5.123	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	-1.59	-554.16	312.1669	539	353.8731	1.134	Si
SLV 4	0.51	-511.25	-121.6357	497	346.4204	2.848	Si
SLV 16	-1.59	-460.69	-365.0997	448	333.341	0.913	No, M>Mu
SLV 16	0.51	-425.99	180.658	414	321.675	1.781	Si
SLV 14	-1.59	-386.81	-354.1092	376	305.8729	0.864	No, M>Mu
SLV 14	0.51	-354.81	162.8329	345	290.8941	1.786	Si
SLV 2	-1.59	-480.29	323.1574	467	338.9639	1.049	Si
SLV 2	0.51	-440.08	-139.4608	428	326.6761	2.342	Si
SLD 14	-1.59	-434.44	-166.6958	423	324.7186	1.948	Si
SLD 14	0.51	-399.34	82.8004	388	311.2297	3.759	Si
SLV 15	-1.59	-460.69	-365.0997	448	333.341	0.913	No, M>Mu
SLV 15	0.51	-425.99	180.658	414	321.675	1.781	Si
SLV 3	-1.59	-554.16	312.1669	539	353.8731	1.134	Si
SLV 3	0.51	-511.25	-121.6357	497	346.4204	2.848	Si
SLD 13	-1.59	-434.44	-166.6958	423	324.7186	1.948	Si
SLD 13	0.51	-399.34	82.8004	388	311.2297	3.759	Si
SLV 1	-1.59	-480.29	323.1574	467	338.9639	1.049	Si
SLV 1	0.51	-440.08	-139.4608	428	326.6761	2.342	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	-1.59	-386.81	-354.1092	376	305.8729	0.864	No, M>Mu
SLV 13	0.51	-354.81	162.8329	345	290.8941	1.786	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	-1.59	-648.41	-30.96	-30.7397		631	2.285	108	111.39			3.6	Si
SLU 61	0.51	-599.72	-30.96	34.2788		583	2.285	108	111.39			3.6	Si
SLU 81	-1.59	-730.22	-32.7	-33.4082		710	2.285	108	111.39			3.41	Si
SLU 81	0.51	-681.52	-32.7	35.2631		663	2.285	108	111.39			3.41	Si
SLU 76	-1.59	-692.58	-32.3	-32.9393		674	2.285	108	111.39			3.45	Si
SLU 76	0.51	-643.89	-32.3	34.8977		626	2.285	108	111.39			3.45	Si
SLU 83	-1.59	-737.09	-32.33	-33.868		717	2.285	108	111.39			3.45	Si
SLU 83	0.51	-688.4	-32.33	34.0293		669	2.285	108	111.39			3.45	Si
SLU 80	-1.59	-701.67	-30.97	-32.9302		682	2.285	108	111.39			3.6	Si
SLU 80	0.51	-652.98	-30.97	32.0953		635	2.285	108	111.39			3.6	Si
SLU 82	-1.59	-726.9	-34.16	-34.1115		707	2.285	108	111.39			3.26	Si
SLU 82	0.51	-678.2	-34.16	37.6161		660	2.285	108	111.39			3.26	Si
SLU 78	-1.59	-708.05	-31.81	-33.7852		689	2.285	108	111.39			3.5	Si
SLU 78	0.51	-659.36	-31.81	33.0157		641	2.285	108	111.39			3.5	Si
SLU 73	-1.59	-685.7	-32.67	-32.4795		667	2.285	108	111.39			3.41	Si
SLU 73	0.51	-637.01	-32.67	36.1315		620	2.285	108	111.39			3.41	Si
SLU 84	-1.59	-733.78	-33.79	-34.5713		714	2.285	108	111.39			3.3	Si
SLU 84	0.51	-685.08	-33.79	36.3823		666	2.285	108	111.39			3.3	Si
SLU 75	-1.59	-701.17	-32.18	-33.3253		682	2.285	108	111.39			3.46	Si
SLU 75	0.51	-652.48	-32.18	34.2495		635	2.285	108	111.39			3.46	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	-1.59	-386.81	-248.89	-354.1092		1262	0.6811	163	49.81			0.2	No, Vu<V
SLV 13	0.51	-354.81	-236.58	162.8329		384	2.0507	160	147.86			0.63	No, Vu<V
SLV 16	-1.59	-460.69	-259.99	-365.0997		975	1.05	163	76.78			0.3	No, Vu<V
SLV 16	0.51	-425.99	-252.71	180.658		439	2.1552	163	157.6			0.62	No, Vu<V
SLD 16	-1.59	-465.97	-124.81	-171.4838		453	2.285	163	167.09			1.34	Si
SLD 16	0.51	-429.64	-121.61	90.5468		418	2.285	163	167.09			1.37	Si
SLV 15	-1.59	-460.69	-259.99	-365.0997		975	1.05	163	76.78			0.3	No, Vu<V
SLV 15	0.51	-425.99	-252.71	180.658		439	2.1552	163	157.6			0.62	No, Vu<V
SLD 15	-1.59	-465.97	-124.81	-171.4838		453	2.285	163	167.09			1.34	Si
SLD 15	0.51	-429.64	-121.61	90.5468		418	2.285	163	167.09			1.37	Si
SLV 1	-1.59	-480.29	220.4	323.1574		758	1.409	163	103.03			0.47	No, Vu<V
SLV 1	0.51	-440.08	213.12	-139.4608		428	2.285	163	167.09			0.78	No, Vu<V
SLV 14	-1.59	-386.81	-248.89	-354.1092		1262	0.6811	163	49.81			0.2	No, Vu<V
SLV 14	0.51	-354.81	-236.58	162.8329		384	2.0507	160	147.86			0.63	No, Vu<V
SLV 2	-1.59	-480.29	220.4	323.1574		758	1.409	163	103.03			0.47	No, Vu<V
SLV 2	0.51	-440.08	213.12	-139.4608		428	2.285	163	167.09			0.78	No, Vu<V
SLV 4	-1.59	-554.16	209.29	312.1669		709	1.7376	163	127.06			0.61	No, Vu<V
SLV 4	0.51	-511.25	196.99	-121.6357		497	2.285	163	167.09			0.85	No, Vu<V
SLV 3	-1.59	-554.16	209.29	312.1669		709	1.7376	163	127.06			0.61	No, Vu<V
SLV 3	0.51	-511.25	196.99	-121.6357		497	2.285	163	167.09			0.85	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.24	309	-317.34	1.3735	53.367	38.85	Si
SLV 10	1438	0.24	309	-317.34	1.3735	53.367	38.85	Si
SLV 6	1438	0.24	333	-342.01	1.3735	56.0045	40.77	Si
SLV 5	1438	0.24	333	-342.01	1.3735	56.0045	40.77	Si
SLV 13	1438	0.24	361	-371.12	1.3735	58.837	42.84	Si
SLV 14	1438	0.24	361	-371.12	1.3735	58.837	42.84	Si
SLV 16	1438	0.24	430	-441.89	1.3735	64.456	46.93	Si
SLV 15	1438	0.24	430	-441.89	1.3735	64.456	46.93	Si
SLV 1	1438	0.24	441	-453.35	1.3735	65.1972	47.47	Si
SLV 2	1438	0.24	441	-453.35	1.3735	65.1972	47.47	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	-429.97	-607.63	-0.84	0.086	47.686	0.975	1.28342	3.52938	No
SLV 7	-429.97	-607.63	-0.84	0.086	47.686	0.975	1.28342	3.52938	No
SLV 11	-406.46	-579.59	-0.65	0.087	45.292	0.973	1.29371	3.52938	No
SLV 12	-406.46	-579.59	-0.65	0.087	45.292	0.973	1.29371	3.52938	No
SLV 9	-232.06	-333.34	1.38	0.086	27.541	0.958	1.30596	3.52938	No
SLV 10	-232.06	-333.34	1.38	0.086	27.541	0.958	1.30596	3.52938	No
SLV 5	-255.57	-361.39	1.19	0.087	29.931	0.961	1.3083	3.52938	No
SLV 6	-255.57	-361.39	1.19	0.087	29.931	0.961	1.3083	3.52938	No
SLV 3	-396.35	-554.16	-0.34	0.087	44.262	0.973	1.3066	3.48092	No
SLV 4	-396.35	-554.16	-0.34	0.087	44.262	0.973	1.3066	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.983	SLU 83	Si
V_SLU	3.261	SLU 82	Si
PF_SLV	0.864	SLV 13	No
V_SLV	0.2	SLV 13	No
PFFP_SLV	38.854	SLV 9	Si
R_SLV	0.364	SLV 7	No





## Maschio 32

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.988	1.046	-6.528	1.046	L1	L3	0.54	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	-1.59	-172.61	-2.2756	710	5.9647	2.621	Si
SLU 80	0.51	-182.41	2.2693	751	3.8652	1.703	Si
SLU 79	-1.59	-177.56	-2.2591	731	4.9363	2.185	Si
SLU 79	0.51	-184.11	2.2455	758	3.475	1.548	Si
SLU 83	-1.59	-183.06	-2.3828	753	3.7168	1.56	Si
SLU 83	0.51	-191.72	2.3784	789	1.6282	0.685	No, M>Mu
SLU 74	-1.59	-175.52	-2.2735	722	5.3687	2.361	Si
SLU 74	0.51	-183.04	2.2654	753	3.7215	1.643	Si
SLU 81	-1.59	-179.77	-2.3401	740	4.4565	1.904	Si
SLU 81	0.51	-189.06	2.3396	778	2.2898	0.979	No, M>Mu
SLU 78	-1.59	-173.86	-2.3328	715	5.7123	2.449	Si
SLU 78	0.51	-183.99	2.328	757	3.5009	1.504	Si
SLU 82	-1.59	-174.82	-2.3567	719	5.5147	2.34	Si
SLU 82	0.51	-187.37	2.3633	771	2.7029	1.144	Si
SLU 84	-1.59	-178.11	-2.3994	733	4.8195	2.009	Si
SLU 84	0.51	-190.02	2.4021	782	2.0536	0.855	No, M>Mu
SLU 75	-1.59	-170.57	-2.2901	702	6.3695	2.781	Si
SLU 75	0.51	-181.34	2.2892	746	4.1067	1.794	Si
SLU 77	-1.59	-178.81	-2.3162	736	4.6671	2.015	Si
SLU 77	0.51	-185.69	2.3042	764	3.1034	1.347	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	-1.59	-167.85	-7.9588	691	19.6997	2.475	Si
SLV 11	0.51	-131.74	9.6416	542	19.7876	2.052	Si
SLV 16	-1.59	-133.17	-17.9108	548	19.8293	1.107	Si
SLV 16	0.51	-128.68	16.5858	530	19.6862	1.187	Si
SLV 15	-1.59	-133.17	-17.9108	548	19.8293	1.107	Si
SLV 15	0.51	-128.68	16.5858	530	19.6862	1.187	Si
SLV 13	-1.59	-103.01	-16.8616	424	18.1632	1.077	Si
SLV 13	0.51	-123.18	14.16	507	19.4606	1.374	Si
SLV 3	-1.59	-131.71	14.0208	542	19.7866	1.411	Si
SLV 3	0.51	-119.07	-11.3406	490	19.2564	1.698	Si
SLV 2	-1.59	-101.54	15.07	418	18.04	1.197	Si
SLV 2	0.51	-113.56	-13.7663	467	18.9346	1.375	Si
SLV 14	-1.59	-103.01	-16.8616	424	18.1632	1.077	Si
SLV 14	0.51	-123.18	14.16	507	19.4606	1.374	Si
SLV 1	-1.59	-101.54	15.07	418	18.04	1.197	Si
SLV 1	0.51	-113.56	-13.7663	467	18.9346	1.375	Si
SLV 12	-1.59	-167.85	-7.9588	691	19.6997	2.475	Si
SLV 12	0.51	-131.74	9.6416	542	19.7876	2.052	Si
SLV 4	-1.59	-131.71	14.0208	542	19.7866	1.411	Si
SLV 4	0.51	-119.07	-11.3406	490	19.2564	1.698	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	-1.59	-177.56	-2.05	-2.2591		731	0.54	108	26.33			12.84	Si
SLU 79	0.51	-184.11	-2.07	2.2455		758	0.54	108	26.33			12.73	Si
SLU 83	-1.59	-183.06	-2.16	-2.3828		753	0.54	108	26.33			12.18	Si
SLU 83	0.51	-191.72	-2.18	2.3784		789	0.54	108	26.33			12.07	Si
SLU 80	-1.59	-172.61	-2.05	-2.2756		710	0.54	108	26.33			12.85	Si
SLU 80	0.51	-182.41	-2.08	2.2693		751	0.54	108	26.33			12.68	Si
SLU 77	-1.59	-178.81	-2.1	-2.3162		736	0.54	108	26.33			12.51	Si
SLU 77	0.51	-185.69	-2.12	2.3042		764	0.54	108	26.33			12.41	Si
SLU 74	-1.59	-175.52	-2.06	-2.2735		722	0.54	108	26.33			12.77	Si
SLU 74	0.51	-183.04	-2.08	2.2654		753	0.54	108	26.33			12.66	Si
SLU 75	-1.59	-170.57	-2.06	-2.2901		702	0.54	108	26.33			12.78	Si
SLU 75	0.51	-181.34	-2.09	2.2892		746	0.54	108	26.33			12.61	Si
SLU 78	-1.59	-173.86	-2.1	-2.3328		715	0.54	108	26.33			12.53	Si
SLU 78	0.51	-183.99	-2.13	2.328		757	0.54	108	26.33			12.36	Si
SLU 84	-1.59	-178.11	-2.16	-2.3994		733	0.54	108	26.33			12.19	Si
SLU 84	0.51	-190.02	-2.19	2.4021		782	0.54	108	26.33			12.03	Si
SLU 81	-1.59	-179.77	-2.12	-2.3401		740	0.54	108	26.33			12.41	Si
SLU 81	0.51	-189.06	-2.14	2.3396		778	0.54	108	26.33			12.31	Si
SLU 82	-1.59	-174.82	-2.12	-2.3567		719	0.54	108	26.33			12.43	Si
SLU 82	0.51	-187.37	-2.15	2.3633		771	0.54	108	26.33			12.27	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	-1.59	-133.17	-16.11	-17.9108		728	0.4065	163	29.73			1.85	Si
SLV 15	0.51	-128.68	-13.33	16.5858		675	0.4233	163	30.96			2.32	Si
SLD 16	-1.59	-124.29	-7.79	-8.624		511	0.54	163	39.49			5.07	Si
SLD 16	0.51	-124.39	-6.56	8.0339		512	0.54	163	39.49			6.02	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 15	-1.59	-124.29	-7.79	-8.624		511	0.54	163	39.49			5.07	Si
SLD 15	0.51	-124.39	-6.56	8.0339		512	0.54	163	39.49			6.02	Si
SLV 16	-1.59	-133.17	-16.11	-17.9108		728	0.4065	163	29.73			1.85	Si
SLV 16	0.51	-128.68	-13.33	16.5858		675	0.4233	163	30.96			2.32	Si
SLV 4	-1.59	-131.71	12.3	14.0208		597	0.4906	163	35.88			2.92	Si
SLV 4	0.51	-119.07	9.85	-11.3406		505	0.5243	163	38.34			3.89	Si
SLV 1	-1.59	-101.54	13.55	15.07		619	0.3648	163	26.67			1.97	Si
SLV 1	0.51	-113.56	10.74	-13.7663		565	0.4463	163	32.64			3.04	Si
SLV 2	-1.59	-101.54	13.55	15.07		619	0.3648	163	26.67			1.97	Si
SLV 2	0.51	-113.56	10.74	-13.7663		565	0.4463	163	32.64			3.04	Si
SLV 3	-1.59	-131.71	12.3	14.0208		597	0.4906	163	35.88			2.92	Si
SLV 3	0.51	-119.07	9.85	-11.3406		505	0.5243	163	38.34			3.89	Si
SLV 14	-1.59	-103.01	-14.86	-16.8616		718	0.3189	163	23.32			1.57	Si
SLV 14	0.51	-123.18	-12.43	14.16		588	0.4651	163	34.01			2.74	Si
SLV 13	-1.59	-103.01	-14.86	-16.8616		718	0.3189	163	23.32			1.57	Si
SLV 13	0.51	-123.18	-12.43	14.16		588	0.4651	163	34.01			2.74	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.24	372	-90.33	0.3246	14.1414	43.57	Si
SLV 5	1438	0.24	372	-90.33	0.3246	14.1414	43.57	Si
SLV 9	1438	0.24	377	-91.71	0.3246	14.2613	43.94	Si
SLV 10	1438	0.24	377	-91.71	0.3246	14.2613	43.94	Si
SLV 1	1438	0.24	428	-103.91	0.3246	15.1979	46.82	Si
SLV 2	1438	0.24	428	-103.91	0.3246	15.1979	46.82	Si
SLV 14	1438	0.24	447	-108.51	0.3246	15.492	47.73	Si
SLV 13	1438	0.24	447	-108.51	0.3246	15.492	47.73	Si
SLV 4	1438	0.24	481	-116.93	0.3246	15.9483	49.13	Si
SLV 3	1438	0.24	481	-116.93	0.3246	15.9483	49.13	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-60.01	-167.41	0.22	0.088	7.035	0.961	1.32365	3.52938	No
SLV 7	-60.01	-167.41	0.22	0.088	7.035	0.961	1.32365	3.52938	No
SLV 12	-60.4	-167.85	0.2	0.088	7.074	0.961	1.32659	3.52938	No
SLV 11	-60.4	-167.85	0.2	0.088	7.074	0.961	1.32659	3.52938	No
SLV 4	-56.78	-131.71	0.21	0.088	6.706	0.959	1.33213	3.48092	No
SLV 3	-56.78	-131.71	0.21	0.088	6.706	0.959	1.33213	3.48092	No
SLV 15	-58.07	-133.17	0.15	0.089	6.837	0.96	1.34213	3.48092	No
SLV 16	-58.07	-133.17	0.15	0.089	6.837	0.96	1.34213	3.48092	No
SLV 6	-52.06	-66.86	0.13	0.09	6.226	0.956	1.36112	3.52938	No
SLV 5	-52.06	-66.86	0.13	0.09	6.226	0.956	1.36112	3.52938	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.685	SLU 83	No
V_SLU	12.029	SLU 84	Si
PF_SLV	1.077	SLV 13	Si
V_SLV	1.569	SLV 13	Si
PFFP_SLV	43.566	SLV 5	Si
R_SLV	0.375	SLV 7	No

## Maschio 33

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	1.046	-5.088	1.046	L1	L3	4.965	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	-1.59	-960.86	-61.7384	430	1125.9974	18.238	Si
SLU 42	0.51	-955.42	95.8961	428	1126.712	11.749	Si
SLU 74	-1.59	-1084.35	-74.9028	485	1088.059	14.526	Si
SLU 74	0.51	-1060.5	96.9938	475	1098.6265	11.327	Si
SLU 79	-1.59	-1086.94	-74.5744	486	1086.817	14.574	Si
SLU 79	0.51	-1063.55	99.2598	476	1097.363	11.055	Si
SLU 41	-1.59	-959.69	-58.2599	430	1126.1578	19.33	Si
SLU 41	0.51	-955.05	103.2516	427	1126.7574	10.913	Si
SLU 81	-1.59	-1117.28	-70.3923	500	1070.9179	15.214	Si
SLU 81	0.51	-1096.75	105.3696	491	1081.9519	10.268	Si
SLU 39	-1.59	-950.01	-55.9317	425	1127.3423	20.156	Si
SLU 39	0.51	-944.04	100.6436	423	1127.9456	11.207	Si
SLU 77	-1.59	-1094.03	-77.231	490	1083.3273	14.027	Si
SLU 77	0.51	-1071.51	99.6019	480	1093.9396	10.983	Si
SLU 84	-1.59	-1128.13	-76.199	505	1064.6226	13.972	Si
SLU 84	0.51	-1108.13	100.6221	496	1075.9772	10.693	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	-1.59	-1118.45	-73.8708	501	1070.2546	14.488	Si
SLU 82	0.51	-1097.12	98.0141	491	1081.764	11.037	Si
SLU 83	-1.59	-1126.96	-72.7205	504	1065.3168	14.649	Si
SLU 83	0.51	-1107.76	107.9777	496	1076.1762	9.967	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	-1.59	-767.06	674.0756	343	1369.1866	2.031	Si
SLV 3	0.51	-581.18	131.5476	260	1135.6338	8.633	Si
SLV 4	-1.59	-767.06	674.0756	343	1369.1866	2.031	Si
SLV 4	0.51	-581.18	131.5476	260	1135.6338	8.633	Si
SLV 15	-1.59	-702.84	-800.8795	315	1295.5992	1.618	Si
SLV 15	0.51	-829.64	8.3299	371	1433.6762	172.112	Si
SLV 2	-1.59	-780.94	695.6449	350	1384.1035	1.99	Si
SLV 2	0.51	-596.63	101.1277	267	1157.4317	11.445	Si
SLD 15	-1.59	-724.89	-379.5764	324	1321.7128	3.482	Si
SLD 15	0.51	-764.06	34.3803	342	1365.9113	39.729	Si
SLV 13	-1.59	-716.72	-779.3102	321	1312.137	1.684	Si
SLV 13	0.51	-845.09	-22.09	378	1448.4957	65.572	Si
SLV 16	-1.59	-702.84	-800.8795	315	1295.5992	1.618	Si
SLV 16	0.51	-829.64	8.3299	371	1433.6762	172.112	Si
SLD 16	-1.59	-724.89	-379.5764	324	1321.7128	3.482	Si
SLD 16	0.51	-764.06	34.3803	342	1365.9113	39.729	Si
SLV 1	-1.59	-780.94	695.6449	350	1384.1035	1.99	Si
SLV 1	0.51	-596.63	101.1277	267	1157.4317	11.445	Si
SLV 14	-1.59	-716.72	-779.3102	321	1312.137	1.684	Si
SLV 14	0.51	-845.09	-22.09	378	1448.4957	65.572	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	-1.59	-1095.2	-175.95	-80.7095		490	4.965	108	242.04			1.38	Si
SLU 78	0.51	-1071.88	-176.74	92.2463		480	4.965	108	242.04			1.37	Si
SLU 77	-1.59	-1094.03	-178.72	-77.231		490	4.965	108	242.04			1.35	Si
SLU 77	0.51	-1071.51	-179.54	99.6019		480	4.965	108	242.04			1.35	Si
SLU 80	-1.59	-1088.11	-173.49	-78.0529		487	4.965	108	242.04			1.4	Si
SLU 80	0.51	-1063.92	-174.28	91.9042		476	4.965	108	242.04			1.39	Si
SLU 75	-1.59	-1085.52	-172.03	-78.3813		486	4.965	108	242.04			1.41	Si
SLU 75	0.51	-1060.87	-172.82	89.6383		475	4.965	108	242.04			1.4	Si
SLU 81	-1.59	-1117.28	-180.54	-70.3923		500	4.965	108	242.04			1.34	Si
SLU 81	0.51	-1096.75	-181.38	105.3696		491	4.965	108	242.04			1.33	Si
SLU 82	-1.59	-1118.45	-177.77	-73.8708		501	4.965	108	242.04			1.36	Si
SLU 82	0.51	-1097.12	-178.58	98.0141		491	4.965	108	242.04			1.36	Si
SLU 74	-1.59	-1084.35	-174.8	-74.9028		485	4.965	108	242.04			1.38	Si
SLU 74	0.51	-1060.5	-175.61	96.9938		475	4.965	108	242.04			1.38	Si
SLU 84	-1.59	-1128.13	-181.69	-76.199		505	4.965	108	242.04			1.33	Si
SLU 84	0.51	-1108.13	-182.51	100.6221		496	4.965	108	242.04			1.33	Si
SLU 83	-1.59	-1126.96	-184.46	-72.7205		504	4.965	108	242.04			1.31	Si
SLU 83	0.51	-1107.76	-185.3	107.9777		496	4.965	108	242.04			1.31	Si
SLU 79	-1.59	-1086.94	-176.26	-74.5744		486	4.965	108	242.04			1.37	Si
SLU 79	0.51	-1063.55	-177.07	99.2598		476	4.965	108	242.04			1.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	-1.59	-702.84	-633.31	-800.8795		388	4.029	161	291.66			0.46	No, Vu<V
SLV 15	0.51	-829.64	-611.99	8.3299		371	4.965	158	352.12			0.58	No, Vu<V
SLD 16	-1.59	-724.89	-338.91	-379.5764		324	4.965	148	331.17			0.98	No, Vu<V
SLD 16	0.51	-764.06	-329.91	34.3803		342	4.965	152	339			1.03	Si
SLV 13	-1.59	-716.72	-601.78	-779.3102		381	4.1855	159	300.3			0.5	No, Vu<V
SLV 13	0.51	-845.09	-590.28	-22.09		378	4.965	159	355.2			0.6	No, Vu<V
SLV 16	-1.59	-702.84	-633.31	-800.8795		388	4.029	161	291.66			0.46	No, Vu<V
SLV 16	0.51	-829.64	-611.99	8.3299		371	4.965	158	352.12			0.58	No, Vu<V
SLV 3	-1.59	-767.06	381.02	674.0756		354	4.8112	154	333.83			0.88	No, Vu<V
SLV 3	0.51	-581.18	368.44	131.5476		260	4.965	135	302.42			0.82	No, Vu<V
SLD 15	-1.59	-724.89	-338.91	-379.5764		324	4.965	148	331.17			0.98	No, Vu<V
SLD 15	0.51	-764.06	-329.91	34.3803		342	4.965	152	339			1.03	Si
SLV 14	-1.59	-716.72	-601.78	-779.3102		381	4.1855	159	300.3			0.5	No, Vu<V
SLV 14	0.51	-845.09	-590.28	-22.09		378	4.965	159	355.2			0.6	No, Vu<V
SLV 2	-1.59	-780.94	412.55	695.6449		363	4.7752	156	335.26			0.81	No, Vu<V
SLV 2	0.51	-596.63	390.14	101.1277		267	4.965	137	305.51			0.78	No, Vu<V
SLV 4	-1.59	-767.06	381.02	674.0756		354	4.8112	154	333.83			0.88	No, Vu<V
SLV 4	0.51	-581.18	368.44	131.5476		260	4.965	135	302.42			0.82	No, Vu<V
SLV 1	-1.59	-780.94	412.55	695.6449		363	4.7752	156	335.26			0.81	No, Vu<V
SLV 1	0.51	-596.63	390.14	101.1277		267	4.965	137	305.51			0.78	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.24	296	-660.32	2.9845	112.6356	37.74	Si
SLV 4	1438	0.24	296	-660.32	2.9845	112.6356	37.74	Si
SLV 1	1438	0.24	301	-673.47	2.9845	114.1485	38.25	Si
SLV 2	1438	0.24	301	-673.47	2.9845	114.1485	38.25	Si
SLV 7	1438	0.24	307	-686.74	2.9845	115.6467	38.75	Si
SLV 8	1438	0.24	307	-686.74	2.9845	115.6467	38.75	Si
SLV 12	1438	0.24	323	-722.53	2.9845	119.5425	40.05	Si
SLV 11	1438	0.24	323	-722.53	2.9845	119.5425	40.05	Si
SLV 6	1438	0.24	327	-730.56	2.9845	120.388	40.34	Si
SLV 5	1438	0.24	327	-730.56	2.9845	120.388	40.34	Si



## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 5	-635.71	-774.66	6.39	0.081	73.217	0.965	1.2142	3.52938	No
SLV 6	-635.71	-774.66	6.39	0.081	73.217	0.965	1.2142	3.52938	No
SLV 10	-686.47	-755.39	5.95	0.081	78.383	0.967	1.22336	3.52938	No
SLV 9	-686.47	-755.39	5.95	0.081	78.383	0.967	1.22336	3.52938	No
SLV 12	-615.3	-709.13	-5.95	0.081	71.14	0.964	1.22419	3.52938	No
SLV 11	-615.3	-709.13	-5.95	0.081	71.14	0.964	1.22419	3.52938	No
SLV 8	-564.54	-728.39	-5.5	0.082	65.976	0.962	1.23571	3.52938	No
SLV 7	-564.54	-728.39	-5.5	0.082	65.976	0.962	1.23571	3.52938	No
SLV 15	-699.43	-702.84	-2.3	0.086	79.702	0.968	1.29582	3.48092	No
SLV 16	-699.43	-702.84	-2.3	0.086	79.702	0.968	1.29582	3.48092	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.967	SLU 83	Si
V_SLU	1.306	SLU 83	Si
PF_SLV	1.618	SLV 15	Si
V_SLV	0.461	SLV 15	No
PFFP_SLV	37.74	SLV 3	Si
R_SLV	0.344	SLV 5	No

## Maschio 34

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.693	6.576	-17.768	6.576	L1	L3	1.925	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 74	0.41	-246.87	-41.4956	285	154.4824	3.723	Si
SLU 74	0.81	-249.21	-51.8209	288	155.1499	2.994	Si
SLU 77	0.41	-248.71	-41.2361	287	155.0107	3.759	Si
SLU 77	0.81	-250.91	-52.0284	290	155.6266	2.991	Si
SLU 84	0.41	-254.9	-43.1016	294	156.7143	3.636	Si
SLU 84	0.81	-257.51	-53.6531	297	157.4042	2.934	Si
SLU 81	0.41	-253.05	-43.3238	292	156.2168	3.606	Si
SLU 81	0.81	-255.81	-53.4231	295	156.9562	2.938	Si
SLU 75	0.41	-246.87	-41.533	285	154.4826	3.72	Si
SLU 75	0.81	-249.21	-51.8433	288	155.152	2.993	Si
SLU 82	0.41	-253.05	-43.3612	292	156.217	3.603	Si
SLU 82	0.81	-255.81	-53.4455	295	156.9582	2.937	Si
SLU 78	0.41	-248.72	-41.2735	287	155.011	3.756	Si
SLU 78	0.81	-250.91	-52.0508	290	155.6287	2.99	Si
SLU 79	0.41	-246.3	-40.6565	284	154.3165	3.796	Si
SLU 79	0.81	-248.31	-51.4294	287	154.8961	3.012	Si
SLU 80	0.41	-246.3	-40.6939	284	154.3167	3.792	Si
SLU 80	0.81	-248.32	-51.4518	287	154.8983	3.011	Si
SLU 83	0.41	-254.9	-43.0642	294	156.7141	3.639	Si
SLU 83	0.81	-257.51	-53.6306	297	157.4023	2.935	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 2	0.41	-158.88	-46.6462	183	129.9653	2.786	Si
SLD 2	0.81	-164.57	-40.0609	190	133.7686	3.339	Si
SLV 6	0.41	-93.81	-36.1972	108	82.2927	2.273	Si
SLV 6	0.81	-92.33	-27.9765	107	81.1174	2.899	Si
SLV 1	0.41	-144.51	-69.926	167	120.0983	1.718	Si
SLV 1	0.81	-155.93	-45.714	180	127.9751	2.799	Si
SLV 3	0.41	-189.57	-72.9411	219	149.7838	2.053	Si
SLV 3	0.81	-204.72	-52.6295	236	158.9338	3.02	Si
SLD 1	0.41	-158.88	-46.6462	183	129.9653	2.786	Si
SLD 1	0.81	-164.57	-40.0609	190	133.7686	3.339	Si
SLV 4	0.41	-189.57	-72.9411	219	149.7838	2.053	Si
SLV 4	0.81	-204.72	-52.6295	236	158.9338	3.02	Si
SLD 3	0.41	-178.25	-47.7322	206	142.6713	2.989	Si
SLD 3	0.81	-185.42	-42.8613	214	147.205	3.434	Si
SLD 4	0.41	-178.25	-47.7322	206	142.6713	2.989	Si
SLD 4	0.81	-185.42	-42.8613	214	147.205	3.434	Si
SLV 2	0.41	-144.51	-69.926	167	120.0983	1.718	Si
SLV 2	0.81	-155.93	-45.714	180	127.9751	2.799	Si
SLV 5	0.41	-93.81	-36.1972	108	82.2927	2.273	Si
SLV 5	0.81	-92.33	-27.9765	107	81.1174	2.899	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	0.41	-183.07	3.22	-29.4927		211	1.925	84	72.53			22.53	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	0.81	-184.2	6.53	-37.9572		213	1.925	84	72.68			11.13	Si
SLU 71	0.41	-221.93	3.4	-35.644		256	1.925	90	77.72			22.88	Si
SLU 71	0.81	-222.89	7.4	-45.8091		257	1.925	90	77.84			10.52	Si
SLU 8	0.41	-159.82	3.4	-25.0559		184	1.925	80	69.43			20.44	Si
SLU 8	0.81	-160.01	6.27	-32.6516		185	1.925	80	69.46			11.09	Si
SLU 49	0.41	-201.1	3.13	-31.8242		232	1.925	87	74.94			23.94	Si
SLU 49	0.81	-201.31	6.74	-41.1249		232	1.925	87	74.97			11.13	Si
SLU 72	0.41	-221.93	3.34	-35.6814		256	1.925	90	77.72			23.25	Si
SLU 72	0.81	-222.9	7.34	-45.8315		257	1.925	90	77.84			10.6	Si
SLU 51	0.41	-198.68	3.52	-31.2446		229	1.925	86	74.62			21.19	Si
SLU 51	0.81	-198.71	7.08	-40.526		229	1.925	86	74.62			10.54	Si
SLU 69	0.41	-224.35	3.01	-36.2236		259	1.925	90	78.04			25.96	Si
SLU 69	0.81	-225.48	7.05	-46.4081		260	1.925	90	78.19			11.08	Si
SLU 50	0.41	-198.68	3.57	-31.2072		229	1.925	86	74.62			20.87	Si
SLU 50	0.81	-198.7	7.13	-40.5036		229	1.925	86	74.62			10.46	Si
SLU 70	0.41	-224.35	2.95	-36.261		259	1.925	90	78.04			26.43	Si
SLU 70	0.81	-225.49	7	-46.4305		260	1.925	90	78.19			11.17	Si
SLU 48	0.41	-201.1	3.18	-31.7868		232	1.925	87	74.94			23.54	Si
SLU 48	0.81	-201.3	6.79	-41.1025		232	1.925	87	74.96			11.04	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	0.41	-144.51	-145.82	-69.926		224	1.4358	128	82.74			0.57	No, Vu<V
SLV 1	0.81	-155.93	-138.09	-45.714		180	1.925	119	103.37			0.75	No, Vu<V
SLV 5	0.41	-93.81	-68.11	-36.1972		121	1.73	107	83.64			1.23	Si
SLV 5	0.81	-92.33	-68.03	-27.9765		107	1.925	105	90.65			1.33	Si
SLV 4	0.41	-189.57	-129.75	-72.9411		243	1.7332	132	102.91			0.79	No, Vu<V
SLV 4	0.81	-204.72	-119.13	-52.6295		236	1.925	131	113.13			0.95	No, Vu<V
SLV 6	0.41	-93.81	-68.11	-36.1972		121	1.73	107	83.64			1.23	Si
SLV 6	0.81	-92.33	-68.03	-27.9765		107	1.925	105	90.65			1.33	Si
SLV 3	0.41	-189.57	-129.75	-72.9411		243	1.7332	132	102.91			0.79	No, Vu<V
SLV 3	0.81	-204.72	-119.13	-52.6295		236	1.925	131	113.13			0.95	No, Vu<V
SLV 2	0.41	-144.51	-145.82	-69.926		224	1.4358	128	82.74			0.57	No, Vu<V
SLV 2	0.81	-155.93	-138.09	-45.714		180	1.925	119	103.37			0.75	No, Vu<V
SLV 14	0.41	-149.89	129.78	16.3915		173	1.925	118	102.17			0.79	No, Vu<V
SLV 14	0.81	-136.85	125.27	-18.0871		158	1.925	115	99.56			0.79	No, Vu<V
SLV 16	0.41	-194.96	145.85	13.3764		225	1.925	128	111.18			0.76	No, Vu<V
SLV 16	0.81	-185.64	144.23	-25.0026		214	1.925	126	109.31			0.76	No, Vu<V
SLV 15	0.41	-194.96	145.85	13.3764		225	1.925	128	111.18			0.76	No, Vu<V
SLV 15	0.81	-185.64	144.23	-25.0026		214	1.925	126	109.31			0.76	No, Vu<V
SLV 13	0.41	-149.89	129.78	16.3915		173	1.925	118	102.17			0.79	No, Vu<V
SLV 13	0.81	-136.85	125.27	-18.0871		158	1.925	115	99.56			0.79	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.24	106	-91.81	1.1571	18.866	16.3	Si
SLV 10	1438	0.24	106	-91.81	1.1571	18.866	16.3	Si
SLV 5	1438	0.24	112	-96.82	1.1571	19.7913	17.1	Si
SLV 6	1438	0.24	112	-96.82	1.1571	19.7913	17.1	Si
SLV 13	1438	0.24	174	-151.12	1.1571	29.147	25.19	Si
SLV 14	1438	0.24	174	-151.12	1.1571	29.147	25.19	Si
SLV 1	1438	0.24	194	-167.8	1.1571	31.7692	27.46	Si
SLV 2	1438	0.24	194	-167.8	1.1571	31.7692	27.46	Si
SLV 15	1438	0.24	239	-206.95	1.1571	37.4601	32.37	Si
SLV 16	1438	0.24	239	-206.95	1.1571	37.4601	32.37	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-183.78	-297.52	-11.41	0.036	22.011	0.956	0.54997	3.48092	No
SLV 3	-183.78	-297.52	-11.41	0.036	22.011	0.956	0.54997	3.48092	No
SLV 8	-245.65	-382.73	-13.92	0.038	28.304	0.965	0.56824	3.52938	No
SLV 7	-245.65	-382.73	-13.92	0.038	28.304	0.965	0.56824	3.52938	No
SLV 12	-243.93	-364.12	-12.88	0.041	28.129	0.965	0.62277	3.52938	No
SLV 11	-243.93	-364.12	-12.88	0.041	28.129	0.965	0.62277	3.52938	No
SLV 1	-129.03	-205.86	-8.23	0.04	16.452	0.943	0.61897	3.48092	No
SLV 2	-129.03	-205.86	-8.23	0.04	16.452	0.943	0.61897	3.48092	No
SLV 16	-178.05	-235.47	-7.96	0.052	21.428	0.955	0.79379	3.48092	No
SLV 15	-178.05	-235.47	-7.96	0.052	21.428	0.955	0.79379	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.934	SLU 84	Si
V_SLU	10.464	SLU 50	Si
PF_SLV	1.718	SLV 1	Si
V_SLV	0.567	SLV 1	No
PFFP_SLV	16.304	SLV 9	Si
R_SLV	0.158	SLV 3	No

## Maschio 35

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.768	6.576	-12.888	6.576	L1	L3	3.88	0.45	2.7	2.7	2.7			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fν0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 84	0.41	-616.85	-70.927	353	677.6717	9.554	Si
SLU 84	0.81	-563.93	-46.7092	323	660.243	14.135	Si
SLU 81	0.41	-611.84	-71.2986	350	676.3485	9.486	Si
SLU 81	0.81	-559.6	-46.3532	321	658.4773	14.206	Si
SLU 75	0.41	-595.66	-68.4412	341	671.6099	9.813	Si
SLU 75	0.81	-544.37	-45.1491	312	651.8666	14.438	Si
SLU 82	0.41	-611.67	-71.3578	350	676.3029	9.478	Si
SLU 82	0.81	-559.44	-46.3984	320	658.4117	14.19	Si
SLU 74	0.41	-595.83	-68.3819	341	671.6629	9.822	Si
SLU 74	0.81	-544.53	-45.1039	312	651.9387	14.454	Si
SLU 78	0.41	-600.84	-68.0104	344	673.205	9.899	Si
SLU 78	0.81	-548.87	-45.4599	314	653.8826	14.384	Si
SLU 77	0.41	-601.01	-67.9511	344	673.2555	9.908	Si
SLU 77	0.81	-549.02	-45.4148	314	653.9527	14.4	Si
SLU 76	0.41	-589.51	-67.5359	338	669.6211	9.915	Si
SLU 76	0.81	-538.5	-44.6948	308	649.1473	14.524	Si
SLU 73	0.41	-584.33	-67.9668	335	667.8659	9.826	Si
SLU 73	0.81	-534.01	-44.384	306	647.0043	14.577	Si
SLU 83	0.41	-617.01	-70.8678	353	677.7149	9.563	Si
SLU 83	0.81	-564.09	-46.664	323	660.3067	14.15	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLD 4	0.41	-429.36	-123.5185	246	665.3148	5.386	Si
SLD 4	0.81	-390.8	-59.7945	224	619.2681	10.357	Si
SLV 1	0.41	-379.45	-193.5155	217	605.2064	3.127	Si
SLV 1	0.81	-347.4	-42.1746	199	564.2137	13.378	Si
SLV 3	0.41	-460.61	-222.9426	264	700.6579	3.143	Si
SLV 3	0.81	-418.13	-97.4167	239	652.1848	6.695	Si
SLV 13	0.41	-351.18	129.376	201	569.1415	4.399	Si
SLV 13	0.81	-322.33	35.8692	185	530.8404	14.799	Si
SLD 3	0.41	-429.36	-123.5185	246	665.3148	5.386	Si
SLD 3	0.81	-390.8	-59.7945	224	619.2681	10.357	Si
SLV 2	0.41	-379.45	-193.5155	217	605.2064	3.127	Si
SLV 2	0.81	-347.4	-42.1746	199	564.2137	13.378	Si
SLV 4	0.41	-460.61	-222.9426	264	700.6579	3.143	Si
SLV 4	0.81	-418.13	-97.4167	239	652.1848	6.695	Si
SLV 14	0.41	-351.18	129.376	201	569.1415	4.399	Si
SLV 14	0.81	-322.33	35.8692	185	530.8404	14.799	Si
SLV 8	0.41	-545.4	-144.2623	312	787.5843	5.459	Si
SLV 8	0.81	-491.86	-134.5504	282	734.2154	5.457	Si
SLV 7	0.41	-545.4	-144.2623	312	787.5843	5.459	Si
SLV 7	0.81	-491.86	-134.5504	282	734.2154	5.457	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	0.41	-616.85	-39.1	-70.927	353	3.88	103	179.25				4.58	Si
SLU 84	0.81	-563.93	-39.15	-46.7092	323	3.88	99	172.19				4.4	Si
SLU 75	0.41	-595.66	-37.72	-68.4412	341	3.88	101	176.42				4.68	Si
SLU 75	0.81	-544.37	-37.77	-45.1491	312	3.88	97	169.58				4.49	Si
SLU 61	0.41	-552.11	-37.49	-64.2942	316	3.88	98	170.61				4.55	Si
SLU 61	0.81	-504.04	-37.54	-41.8333	289	3.88	94	164.21				4.37	Si
SLU 73	0.41	-584.33	-39	-67.9668	335	3.88	100	174.91				4.48	Si
SLU 73	0.81	-534.01	-39.05	-44.384	306	3.88	96	168.2				4.31	Si
SLU 81	0.41	-611.84	-41.31	-71.2986	350	3.88	102	178.58				4.32	Si
SLU 81	0.81	-559.6	-41.36	-46.3532	321	3.88	98	171.61				4.15	Si
SLU 83	0.41	-617.01	-39.06	-70.8678	353	3.88	103	179.27				4.59	Si
SLU 83	0.81	-564.09	-39.11	-46.664	323	3.88	99	172.21				4.4	Si
SLU 60	0.41	-552.28	-37.45	-64.2349	316	3.88	98	170.64				4.56	Si
SLU 60	0.81	-504.2	-37.5	-41.7882	289	3.88	94	164.23				4.38	Si
SLU 40	0.41	-520.87	-35.55	-61.0363	298	3.88	95	166.45				4.68	Si
SLU 40	0.81	-477.18	-35.59	-39.5316	273	3.88	92	160.62				4.51	Si
SLU 82	0.41	-611.67	-41.35	-71.3578	350	3.88	102	178.56				4.32	Si
SLU 82	0.81	-559.44	-41.4	-46.3984	320	3.88	98	171.59				4.14	Si
SLU 74	0.41	-595.83	-37.68	-68.3819	341	3.88	101	176.44				4.68	Si
SLU 74	0.81	-544.53	-37.73	-45.1039	312	3.88	97	169.6				4.5	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	0.41	-460.61	-318.86	-222.9426	264	3.88	136	237.62				0.75	No, Vu<V
SLV 4	0.81	-418.13	-312.91	-97.4167	239	3.88	131	229.13				0.73	No, Vu<V
SLV 14	0.41	-351.18	266.02	129.376	201	3.88	124	215.74				0.81	No, Vu<V
SLV 14	0.81	-322.33	259.99	35.8692	185	3.88	120	209.97				0.81	No, Vu<V
SLD 2	0.41	-394.87	-154.86	-110.9952	226	3.88	129	224.47				1.45	Si
SLD 2	0.81	-360.77	-155.36	-36.2485	207	3.88	125	217.65				1.4	Si
SLV 3	0.41	-460.61	-318.86	-222.9426	264	3.88	136	237.62				0.75	No, Vu<V
SLV 3	0.81	-418.13	-312.91	-97.4167	239	3.88	131	229.13				0.73	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	0.41	-379.45	-321.31	-193.5155		217	3.88	127	221.39			0.69	No, Vu<V
SLV 1	0.81	-347.4	-325.55	-42.1746		199	3.88	123	214.98			0.66	No, Vu<V
SLV 15	0.41	-432.34	268.47	99.9488		248	3.88	133	231.97			0.86	No, Vu<V
SLV 15	0.81	-393.05	272.63	-19.3728		225	3.88	128	224.11			0.82	No, Vu<V
SLD 1	0.41	-394.87	-154.86	-110.9952		226	3.88	129	224.47			1.45	Si
SLD 1	0.81	-360.77	-155.36	-36.2485		207	3.88	125	217.65			1.4	Si
SLV 13	0.41	-351.18	266.02	129.376		201	3.88	124	215.74			0.81	No, Vu<V
SLV 13	0.81	-322.33	259.99	35.8692		185	3.88	120	209.97			0.81	No, Vu<V
SLV 16	0.41	-432.34	268.47	99.9488		248	3.88	133	231.97			0.86	No, Vu<V
SLV 16	0.81	-393.05	272.63	-19.3728		225	3.88	128	224.11			0.82	No, Vu<V
SLV 2	0.41	-379.45	-321.31	-193.5155		217	3.88	127	221.39			0.69	No, Vu<V
SLV 2	0.81	-347.4	-325.55	-42.1746		199	3.88	123	214.98			0.66	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.24	140	-244.52	2.3323	48.7106	20.89	Si
SLV 9	1438	0.24	140	-244.52	2.3323	48.7106	20.89	Si
SLV 5	1438	0.24	144	-252.02	2.3323	50.0059	21.44	Si
SLV 6	1438	0.24	144	-252.02	2.3323	50.0059	21.44	Si
SLV 13	1438	0.24	201	-350.52	2.3323	65.9097	28.26	Si
SLV 14	1438	0.24	201	-350.52	2.3323	65.9097	28.26	Si
SLV 1	1438	0.24	215	-375.54	2.3323	69.622	29.85	Si
SLV 2	1438	0.24	215	-375.54	2.3323	69.622	29.85	Si
SLV 15	1438	0.24	257	-448.89	2.3323	79.7489	34.19	Si
SLV 16	1438	0.24	257	-448.89	2.3323	79.7489	34.19	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-209.82	-237.45	-17.17	0.029	28.074	0.935	0.45518	3.52938	No
SLV 6	-209.82	-237.45	-17.17	0.029	28.074	0.935	0.45518	3.52938	No
SLV 9	-202.7	-231.31	-16.61	0.03	27.354	0.933	0.46682	3.52938	No
SLV 10	-202.7	-231.31	-16.61	0.03	27.354	0.933	0.46682	3.52938	No
SLV 1	-314.23	-385.48	-20.54	0.036	38.656	0.95	0.54535	3.48092	No
SLV 2	-314.23	-385.48	-20.54	0.036	38.656	0.95	0.54535	3.48092	No
SLV 14	-290.49	-365.01	-18.68	0.038	36.246	0.947	0.58048	3.48092	No
SLV 13	-290.49	-365.01	-18.68	0.038	36.246	0.947	0.58048	3.48092	No
SLV 4	-396.61	-506.22	-22.87	0.039	47.026	0.958	0.59603	3.48092	No
SLV 3	-396.61	-506.22	-22.87	0.039	47.026	0.958	0.59603	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.478	SLU 82	Si
V_SLU	4.144	SLU 82	Si
PF_SLV	3.127	SLV 1	Si
V_SLV	0.66	SLV 1	No
PFFP_SLV	20.885	SLV 9	Si
R_SLV	0.129	SLV 5	No

## Maschio 36

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.888	6.576	-8.008	6.576	L1	L3	3.88	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	0.41	-625.64	68.6751	358	679.8284	9.899	Si
SLU 81	0.81	-624.84	62.8907	358	679.6395	10.807	Si
SLU 74	0.41	-610.62	68.303	350	676.0171	9.897	Si
SLU 74	0.81	-609.9	62.6109	349	675.8181	10.794	Si
SLU 80	0.41	-611.75	70.3607	350	676.3247	9.612	Si
SLU 80	0.81	-611.1	64.3544	350	676.1479	10.507	Si
SLU 82	0.41	-625.09	68.5696	358	679.6983	9.913	Si
SLU 82	0.81	-624.26	62.7559	358	679.5032	10.828	Si
SLU 78	0.41	-617.77	70.7979	354	677.9085	9.575	Si
SLU 78	0.81	-617.33	64.7651	354	677.7959	10.465	Si
SLU 83	0.41	-633.35	71.2754	363	681.5451	9.562	Si
SLU 83	0.81	-632.85	65.1797	362	681.4379	10.455	Si
SLU 79	0.41	-612.3	70.4662	351	676.475	9.6	Si
SLU 79	0.81	-611.67	64.4893	350	676.3049	10.487	Si
SLU 77	0.41	-618.33	70.9034	354	678.0497	9.563	Si
SLU 77	0.81	-617.91	64.8999	354	677.943	10.446	Si
SLU 84	0.41	-632.79	71.1699	362	681.4267	9.575	Si
SLU 84	0.81	-632.27	65.0449	362	681.3143	10.475	Si
SLU 75	0.41	-610.06	68.1975	349	675.8642	9.91	Si
SLU 75	0.81	-609.32	62.4761	349	675.6583	10.815	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	0.41	-359.54	-110.5871	206	579.953	5.244	Si
SLV 4	0.81	-362.88	4.3085	208	584.2476	135.605	Si
SLV 11	0.41	-402.57	124.4442	231	633.615	5.092	Si
SLV 11	0.81	-428.52	82.5046	245	664.3444	8.052	Si
SLV 12	0.41	-402.57	124.4442	231	633.615	5.092	Si
SLV 12	0.81	-428.52	82.5046	245	664.3444	8.052	Si
SLV 2	0.41	-374.03	-128.9202	214	598.4022	4.642	Si
SLV 2	0.81	-361.32	-12.3665	207	582.2467	47.082	Si
SLV 15	0.41	-451.76	218.094	259	690.8239	3.168	Si
SLV 15	0.81	-461.06	94.6808	264	701.1484	7.405	Si
SLV 13	0.41	-466.25	199.7609	267	706.8422	3.538	Si
SLV 13	0.81	-459.5	78.0058	263	699.4262	8.966	Si
SLV 14	0.41	-466.25	199.7609	267	706.8422	3.538	Si
SLV 14	0.81	-459.5	78.0058	263	699.4262	8.966	Si
SLV 1	0.41	-374.03	-128.9202	214	598.4022	4.642	Si
SLV 1	0.81	-361.32	-12.3665	207	582.2467	47.082	Si
SLV 16	0.41	-451.76	218.094	259	690.8239	3.168	Si
SLV 16	0.81	-461.06	94.6808	264	701.1484	7.405	Si
SLV 3	0.41	-359.54	-110.5871	206	579.953	5.244	Si
SLV 3	0.81	-362.88	4.3085	208	584.2476	135.605	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	0.41	-632.79	23.6	71.1699		362	3.88	104	181.37			7.68	Si
SLU 84	0.81	-632.27	23.62	65.0449		362	3.88	104	181.3			7.68	Si
SLU 83	0.41	-633.35	23.54	71.2754		363	3.88	104	181.45			7.71	Si
SLU 83	0.81	-632.85	23.55	65.1797		362	3.88	104	181.38			7.7	Si
SLU 75	0.41	-610.06	22.47	68.1975		349	3.88	102	178.34			7.94	Si
SLU 75	0.81	-609.32	22.48	62.4761		349	3.88	102	178.24			7.93	Si
SLU 82	0.41	-625.09	22.66	68.5696		358	3.88	103	180.34			7.96	Si
SLU 82	0.81	-624.26	22.67	62.7559		358	3.88	103	180.23			7.95	Si
SLU 76	0.41	-603.67	22.33	67.69		346	3.88	102	177.49			7.95	Si
SLU 76	0.81	-602.7	22.35	61.9756		345	3.88	102	177.36			7.94	Si
SLU 80	0.41	-611.75	23.24	70.3607		350	3.88	102	178.57			7.68	Si
SLU 80	0.81	-611.1	23.25	64.3544		350	3.88	102	178.48			7.68	Si
SLU 79	0.41	-612.3	23.17	70.4662		351	3.88	102	178.64			7.71	Si
SLU 79	0.81	-611.67	23.19	64.4893		350	3.88	102	178.56			7.7	Si
SLU 74	0.41	-610.62	22.41	68.303		350	3.88	102	178.42			7.96	Si
SLU 74	0.81	-609.9	22.42	62.6109		349	3.88	102	178.32			7.95	Si
SLU 78	0.41	-617.77	23.42	70.7979		354	3.88	103	179.37			7.66	Si
SLU 78	0.81	-617.33	23.43	64.7651		354	3.88	103	179.31			7.65	Si
SLU 77	0.41	-618.33	23.35	70.9034		354	3.88	103	179.44			7.68	Si
SLU 77	0.81	-617.91	23.37	64.8999		354	3.88	103	179.39			7.68	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	0.41	-374.03	-283.25	-128.9202		214	3.88	126	220.31			0.78	No, Vu<V
SLV 1	0.81	-361.32	-289.34	-12.3665		207	3.88	125	217.76			0.75	No, Vu<V
SLV 3	0.41	-359.54	-293.5	-110.5871		206	3.88	125	217.41			0.74	No, Vu<V
SLV 3	0.81	-362.88	-290.71	4.3085		208	3.88	125	218.08			0.75	No, Vu<V
SLV 14	0.41	-466.25	321.97	199.7609		267	3.88	137	238.75			0.74	No, Vu<V
SLV 14	0.81	-459.5	319.2	78.0058		263	3.88	136	237.4			0.74	No, Vu<V
SLV 4	0.41	-359.54	-293.5	-110.5871		206	3.88	125	217.41			0.74	No, Vu<V
SLV 4	0.81	-362.88	-290.71	4.3085		208	3.88	125	218.08			0.75	No, Vu<V
SLV 2	0.41	-374.03	-283.25	-128.9202		214	3.88	126	220.31			0.78	No, Vu<V
SLV 2	0.81	-361.32	-289.34	-12.3665		207	3.88	125	217.76			0.75	No, Vu<V
SLV 16	0.41	-451.76	311.72	218.094		259	3.88	135	235.85			0.76	No, Vu<V
SLV 16	0.81	-461.06	317.83	94.6808		264	3.88	136	237.71			0.75	No, Vu<V
SLV 13	0.41	-466.25	321.97	199.7609		267	3.88	137	238.75			0.74	No, Vu<V
SLV 13	0.81	-459.5	319.2	78.0058		263	3.88	136	237.4			0.74	No, Vu<V
SLV 15	0.41	-451.76	311.72	218.094		259	3.88	135	235.85			0.76	No, Vu<V
SLV 15	0.81	-461.06	317.83	94.6808		264	3.88	136	237.71			0.75	No, Vu<V
SLD 14	0.41	-436.31	148.39	112.3864		250	3.88	133	232.76			1.57	Si
SLD 14	0.81	-432.43	146.3	57.3872		248	3.88	133	231.99			1.59	Si
SLD 13	0.41	-436.31	148.39	112.3864		250	3.88	133	232.76			1.57	Si
SLD 13	0.81	-432.43	146.3	57.3872		248	3.88	133	231.99			1.59	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.24	190	-331.63	2.3323	63.0175	27.02	Si
SLV 2	1438	0.24	190	-331.63	2.3323	63.0175	27.02	Si
SLV 6	1438	0.24	194	-338.57	2.3323	64.0888	27.48	Si
SLV 5	1438	0.24	194	-338.57	2.3323	64.0888	27.48	Si
SLV 4	1438	0.24	198	-345.3	2.3323	65.1173	27.92	Si
SLV 3	1438	0.24	198	-345.3	2.3323	65.1173	27.92	Si
SLV 9	1438	0.24	205	-358.19	2.3323	67.0615	28.75	Si
SLV 10	1438	0.24	205	-358.19	2.3323	67.0615	28.75	Si
SLV 7	1438	0.24	220	-384.14	2.3323	70.868	30.39	Si
SLV 8	1438	0.24	220	-384.14	2.3323	70.868	30.39	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-408.3	-479.23	-29.76	0.025	48.215	0.959	0.38125	3.52938	No
SLV 12	-408.3	-479.23	-29.76	0.025	48.215	0.959	0.38125	3.52938	No





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	-381.75	-466.26	-27.77	0.026	45.516	0.957	0.39792	3.52938	No
SLV 8	-381.75	-466.26	-27.77	0.026	45.516	0.957	0.39792	3.52938	No
SLV 16	-431.48	-418.33	-29.73	0.028	50.572	0.961	0.42429	3.48092	No
SLV 15	-431.48	-418.33	-29.73	0.028	50.572	0.961	0.42429	3.48092	No
SLV 13	-424.8	-353.17	-27.73	0.032	49.893	0.96	0.47745	3.48092	No
SLV 14	-424.8	-353.17	-27.73	0.032	49.893	0.96	0.47745	3.48092	No
SLV 4	-342.99	-375.12	-23.12	0.033	41.577	0.953	0.49593	3.48092	No
SLV 3	-342.99	-375.12	-23.12	0.033	41.577	0.953	0.49593	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.562	SLU 83	Si
V_SLU	7.653	SLU 78	Si
PF_SLV	3.168	SLV 15	Si
V_SLV	0.741	SLV 3	No
PFFP_SLV	27.019	SLV 1	Si
R_SLV	0.108	SLV 11	No

## Maschio 37

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.008	6.576	-5.308	6.576	L1	L3	1.7	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 60	0.41	-147.27	-8.9977	193	95.5956	10.624	Si
SLU 60	0.81	-140.39	-16.8119	184	92.4474	5.499	Si
SLU 61	0.41	-146.95	-8.9539	192	95.4545	10.661	Si
SLU 61	0.81	-140.08	-16.7992	183	92.3004	5.494	Si
SLU 73	0.41	-156.06	-9.3455	204	99.4316	10.64	Si
SLU 73	0.81	-149.18	-17.6979	195	96.4485	5.45	Si
SLU 84	0.41	-167.36	-9.8028	219	104.0516	10.614	Si
SLU 84	0.81	-160.48	-18.5826	210	101.2806	5.45	Si
SLU 81	0.41	-163.41	-9.6488	214	102.4733	10.62	Si
SLU 81	0.81	-156.53	-18.4863	205	99.628	5.389	Si
SLU 74	0.41	-161.96	-9.6544	212	101.8877	10.553	Si
SLU 74	0.81	-155.08	-18.031	203	99.0153	5.491	Si
SLU 83	0.41	-167.68	-9.8467	219	104.1752	10.58	Si
SLU 83	0.81	-160.8	-18.5952	210	101.41	5.454	Si
SLU 75	0.41	-161.65	-9.6106	211	101.7593	10.588	Si
SLU 75	0.81	-154.77	-18.0183	202	98.881	5.488	Si
SLU 76	0.41	-160.33	-9.5433	210	101.2191	10.606	Si
SLU 76	0.81	-153.45	-17.8069	201	98.3161	5.521	Si
SLU 82	0.41	-163.09	-9.605	213	102.3461	10.656	Si
SLU 82	0.81	-156.21	-18.4736	204	99.4948	5.386	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	0.41	-123.93	32.3859	162	91.3745	2.821	Si
SLV 13	0.81	-122.37	-22.4873	160	90.396	4.02	Si
SLV 10	0.41	-78.58	4.8848	103	61.1794	12.524	Si
SLV 10	0.81	-85.43	-34.9891	112	65.9761	1.886	Si
SLV 6	0.41	-62.82	-18.6601	82	49.8075	2.669	Si
SLV 6	0.81	-69.6	-32.8047	91	54.7584	1.669	Si
SLV 5	0.41	-62.82	-18.6601	82	49.8075	2.669	Si
SLV 5	0.81	-69.6	-32.8047	91	54.7584	1.669	Si
SLV 1	0.41	-71.39	-46.0974	93	56.0442	1.216	Si
SLV 1	0.81	-69.63	-15.2058	91	54.7765	3.602	Si
SLV 2	0.41	-71.39	-46.0974	93	56.0442	1.216	Si
SLV 2	0.81	-69.63	-15.2058	91	54.7765	3.602	Si
SLV 3	0.41	-94.49	-46.07	124	72.1995	1.567	Si
SLV 3	0.81	-85.47	-2.3056	112	66.0083	28.63	Si
SLV 14	0.41	-123.93	32.3859	162	91.3745	2.821	Si
SLV 14	0.81	-122.37	-22.4873	160	90.396	4.02	Si
SLV 4	0.41	-94.49	-46.07	124	72.1995	1.567	Si
SLV 4	0.81	-85.47	-2.3056	112	66.0083	28.63	Si
SLV 9	0.41	-78.58	4.8848	103	61.1794	12.524	Si
SLV 9	0.81	-85.43	-34.9891	112	65.9761	1.886	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	0.41	-166.24	20.77	-9.8523		217	1.7	85	64.66			3.11	Si
SLU 77	0.81	-159.36	20.77	-18.1399		208	1.7	83	63.75			3.07	Si
SLU 75	0.41	-161.65	21.07	-9.6106		211	1.7	84	64.05			3.04	Si
SLU 75	0.81	-154.77	21.07	-18.0183		202	1.7	83	63.14			3	Si
SLU 83	0.41	-167.68	21.92	-9.8467		219	1.7	85	64.86			2.96	Si
SLU 83	0.81	-160.8	21.92	-18.5952		210	1.7	84	63.94			2.92	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	0.41	-165.92	20.84	-9.8085		217	1.7	84	64.62			3.1	Si
SLU 78	0.81	-159.04	20.84	-18.1273		208	1.7	83	63.71			3.06	Si
SLU 73	0.41	-156.06	20.93	-9.3455		204	1.7	83	63.31			3.03	Si
SLU 73	0.81	-149.18	20.93	-17.6979		195	1.7	82	62.39			2.98	Si
SLU 84	0.41	-167.36	22	-9.8028		219	1.7	85	64.82			2.95	Si
SLU 84	0.81	-160.48	22	-18.5826		210	1.7	84	63.9			2.9	Si
SLU 76	0.41	-160.33	20.71	-9.5433		210	1.7	84	63.88			3.08	Si
SLU 76	0.81	-153.45	20.71	-17.8069		201	1.7	82	62.96			3.04	Si
SLU 81	0.41	-163.41	22.14	-9.6488		214	1.7	84	64.29			2.9	Si
SLU 81	0.81	-156.53	22.14	-18.4863		205	1.7	83	63.37			2.86	Si
SLU 82	0.41	-163.09	22.22	-9.605		213	1.7	84	64.25			2.89	Si
SLU 82	0.81	-156.21	22.22	-18.4736		204	1.7	83	63.33			2.85	Si
SLU 74	0.41	-161.96	20.99	-9.6544		212	1.7	84	64.1			3.05	Si
SLU 74	0.81	-155.08	20.99	-18.031		203	1.7	83	63.18			3.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	0.41	-78.58	76.35	4.8848		103	1.7	104	79.47			1.04	Si
SLV 10	0.81	-85.43	75.24	-34.9891		144	1.3213	112	66.63			0.89	No, Vu<V
SLV 2	0.41	-71.39	-83.91	-46.0974		259	0.6128	135	37.26			0.44	No, Vu<V
SLV 2	0.81	-69.63	-80.24	-15.2058		91	1.7	102	77.68			0.97	No, Vu<V
SLV 16	0.41	-147.04	111.75	32.4132		192	1.7	122	93.16			0.83	No, Vu<V
SLV 16	0.81	-138.21	108.09	-9.587		181	1.7	119	91.39			0.85	No, Vu<V
SLV 14	0.41	-123.93	129.96	32.3859		162	1.7	116	88.54			0.68	No, Vu<V
SLV 14	0.81	-122.37	126.29	-22.4873		160	1.7	115	88.22			0.7	No, Vu<V
SLV 1	0.41	-71.39	-83.91	-46.0974		259	0.6128	135	37.26			0.44	No, Vu<V
SLV 1	0.81	-69.63	-80.24	-15.2058		91	1.7	102	77.68			0.97	No, Vu<V
SLV 4	0.41	-94.49	-102.12	-46.07		193	1.0874	122	59.67			0.58	No, Vu<V
SLV 4	0.81	-85.47	-98.45	-2.3056		112	1.7	106	80.84			0.82	No, Vu<V
SLV 3	0.41	-94.49	-102.12	-46.07		193	1.0874	122	59.67			0.58	No, Vu<V
SLV 3	0.81	-85.47	-98.45	-2.3056		112	1.7	106	80.84			0.82	No, Vu<V
SLV 9	0.41	-78.58	76.35	4.8848		103	1.7	104	79.47			1.04	Si
SLV 9	0.81	-85.43	75.24	-34.9891		144	1.3213	112	66.63			0.89	No, Vu<V
SLV 13	0.41	-123.93	129.96	32.3859		162	1.7	116	88.54			0.68	No, Vu<V
SLV 13	0.81	-122.37	126.29	-22.4873		160	1.7	115	88.22			0.7	No, Vu<V
SLV 15	0.41	-147.04	111.75	32.4132		192	1.7	122	93.16			0.83	No, Vu<V
SLV 15	0.81	-138.21	108.09	-9.587		181	1.7	119	91.39			0.85	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.24	29	-22.01	1.0219	4.8353	4.73	Si
SLV 1	1438	0.24	29	-22.01	1.0219	4.8353	4.73	Si
SLV 3	1438	0.24	61	-46.62	1.0219	9.9669	9.75	Si
SLV 4	1438	0.24	61	-46.62	1.0219	9.9669	9.75	Si
SLV 5	1438	0.24	63	-47.87	1.0219	10.2188	10	Si
SLV 6	1438	0.24	63	-47.87	1.0219	10.2188	10	Si
SLV 10	1438	0.24	124	-94.65	1.0219	19.1395	18.73	Si
SLV 9	1438	0.24	124	-94.65	1.0219	19.1395	18.73	Si
SLV 7	1438	0.24	170	-129.92	1.0219	25.1682	24.63	Si
SLV 8	1438	0.24	170	-129.92	1.0219	25.1682	24.63	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	-68.09	25.95	-0.74	0	0	0	0	3.48092	No, Trazione
SLV 4	-86.15	3.65	-1.05	0	0	0	0	3.48092	No, Trazione
SLV 3	-86.15	3.65	-1.05	0	0	0	0	3.48092	No, Trazione
SLV 1	-68.09	25.95	-0.74	0	0	0	0	3.48092	No, Trazione
SLV 15	-104.99	-310.52	-2.71	0.074	13.622	0.94	1.14316	3.48092	No
SLV 16	-104.99	-310.52	-2.71	0.074	13.622	0.94	1.14316	3.48092	No
SLV 12	-119.47	-226.58	-2.49	0.077	15.09	0.945	1.17676	3.52938	No
SLV 11	-119.47	-226.58	-2.49	0.077	15.09	0.945	1.17676	3.52938	No
SLV 13	-86.93	-288.22	-2.4	0.075	11.795	0.932	1.17308	3.48092	No
SLV 14	-86.93	-288.22	-2.4	0.075	11.795	0.932	1.17308	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.386	SLU 82	Si
V_SLU	2.85	SLU 82	Si
PF_SLV	1.216	SLV 1	Si
V_SLV	0.444	SLV 1	No
PFFP_SLV	4.732	SLV 1	Si
R_SLV	0	SLV 4	No

## Maschio 38

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-11.013	-4.784	-11.013	-1.916	L1	L2	2.868	0.3	1.98	1.98	1.98			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 83	-1.59	-527.78	33.4021	613	186.9623	5.597	Si
SLU 83	0.39	-520.18	12.4911	605	192.3554	15.399	Si
SLU 82	-1.59	-516.65	36.2304	600	194.7865	5.376	Si
SLU 82	0.39	-505.79	14.2725	588	201.9256	14.148	Si
SLU 73	-1.59	-494.87	34.1743	575	208.6248	6.105	Si
SLU 73	0.39	-482.61	11.7373	561	215.5611	18.366	Si
SLU 78	-1.59	-518.35	30.67	602	193.6221	6.313	Si
SLU 78	0.39	-510.5	9.5473	593	198.8906	20.832	Si
SLU 84	-1.59	-528.12	34.3115	614	186.7108	5.442	Si
SLU 84	0.39	-519.12	12.761	603	193.0942	15.132	Si
SLU 77	-1.59	-518	29.7605	602	193.8598	6.514	Si
SLU 77	0.39	-511.56	9.2775	595	198.1895	21.362	Si
SLU 75	-1.59	-506.87	32.5889	589	201.2386	6.175	Si
SLU 75	0.39	-497.17	11.0588	578	207.2521	18.741	Si
SLU 76	-1.59	-506.35	32.2554	588	201.572	6.249	Si
SLU 76	0.39	-495.93	10.2257	576	207.9934	20.34	Si
SLU 81	-1.59	-516.3	35.321	600	195.0217	5.521	Si
SLU 81	0.39	-506.86	14.0027	589	201.245	14.372	Si
SLU 74	-1.59	-506.52	31.6794	589	201.46	6.359	Si
SLU 74	0.39	-498.24	10.789	579	206.6092	19.15	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 12	-1.59	-137.25	85.1293	160	171.1396	2.01	Si
SLV 12	0.39	-137.54	40.0043	160	171.4465	4.286	Si
SLV 3	-1.59	-429.07	35.1129	499	364.21	10.373	Si
SLV 3	0.39	-342.5	55.377	398	331.1708	5.98	Si
SLV 8	-1.59	-216.73	82.2361	252	246.742	3	Si
SLV 8	0.39	-172.42	62.0796	200	206.7125	3.33	Si
SLV 16	-1.59	-164.15	44.7571	191	198.6524	4.438	Si
SLV 16	0.39	-226.26	-18.2073	263	254.6517	13.986	Si
SLD 12	-1.59	-257.01	48.766	299	278.4778	5.71	Si
SLD 12	0.39	-252.97	19.5706	294	275.4949	14.077	Si
SLV 11	-1.59	-137.25	85.1293	160	171.1396	2.01	Si
SLV 11	0.39	-137.54	40.0043	160	171.4465	4.286	Si
SLD 11	-1.59	-257.01	48.766	299	278.4778	5.71	Si
SLD 11	0.39	-252.97	19.5706	294	275.4949	14.077	Si
SLV 15	-1.59	-164.15	44.7571	191	198.6524	4.438	Si
SLV 15	0.39	-226.26	-18.2073	263	254.6517	13.986	Si
SLV 7	-1.59	-216.73	82.2361	252	246.742	3	Si
SLV 7	0.39	-172.42	62.0796	200	206.7125	3.33	Si
SLV 4	-1.59	-429.07	35.1129	499	364.21	10.373	Si
SLV 4	0.39	-342.5	55.377	398	331.1708	5.98	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	-1.59	-517.25	-70.59	28.8208		601	2.8682	108	93.22			1.32	Si
SLU 79	0.39	-511.04	-32.85	8.2645		594	2.8682	108	93.22			2.84	Si
SLU 58	-1.59	-483.02	-64.55	24.5792		561	2.8682	108	93.22			1.44	Si
SLU 58	0.39	-477.29	-29.93	3.9652		555	2.8682	108	93.22			3.11	Si
SLU 74	-1.59	-506.52	-65.61	31.6794		589	2.8682	108	93.22			1.42	Si
SLU 74	0.39	-498.24	-28.24	10.789		579	2.8682	108	93.22			3.3	Si
SLU 83	-1.59	-527.78	-68.84	33.4021		613	2.8682	108	93.22			1.35	Si
SLU 83	0.39	-520.18	-30.06	12.4911		605	2.8682	108	93.22			3.1	Si
SLU 81	-1.59	-516.3	-64.11	35.321		600	2.8682	108	93.22			1.45	Si
SLU 81	0.39	-506.86	-25.89	14.0027		589	2.8682	108	93.22			3.6	Si
SLU 56	-1.59	-483.78	-64.29	25.519		562	2.8682	108	93.22			1.45	Si
SLU 56	0.39	-477.82	-29.48	4.9781		555	2.8682	108	93.22			3.16	Si
SLU 84	-1.59	-528.12	-67.08	34.3115		614	2.8682	108	93.22			1.39	Si
SLU 84	0.39	-519.12	-28.28	12.761		603	2.8682	108	93.22			3.3	Si
SLU 80	-1.59	-517.6	-68.83	29.7302		602	2.8682	108	93.22			1.35	Si
SLU 80	0.39	-509.97	-31.07	8.5343		593	2.8682	108	93.22			3	Si
SLU 78	-1.59	-518.35	-68.57	30.67		602	2.8682	108	93.22			1.36	Si
SLU 78	0.39	-510.5	-30.63	9.5473		593	2.8682	108	93.22			3.04	Si
SLU 77	-1.59	-518	-70.33	29.7605		602	2.8682	108	93.22			1.33	Si
SLU 77	0.39	-511.56	-32.41	9.2775		595	2.8682	108	93.22			2.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	-1.59	-137.25	114.77	85.1293		187	2.4416	121	88.49			0.77	No, Vu<V
SLV 11	0.39	-137.54	134.39	40.0043		160	2.8682	115	99.21			0.74	No, Vu<V
SLV 8	-1.59	-216.73	101.23	82.2361		252	2.8682	134	115.05			1.14	Si
SLV 8	0.39	-172.42	127.8	62.0796		200	2.8682	123	106.19			0.83	No, Vu<V
SLV 7	-1.59	-216.73	101.23	82.2361		252	2.8682	134	115.05			1.14	Si
SLV 7	0.39	-172.42	127.8	62.0796		200	2.8682	123	106.19			0.83	No, Vu<V
SLV 9	-1.59	-479.02	-185.94	-39.8642		557	2.8682	163	139.82			0.75	No, Vu<V
SLV 9	0.39	-507.27	-161.14	-52.7303		590	2.8682	163	139.82			0.87	No, Vu<V
SLV 12	-1.59	-137.25	114.77	85.1293		187	2.4416	121	88.49			0.77	No, Vu<V
SLV 12	0.39	-137.54	134.39	40.0043		160	2.8682	115	99.21			0.74	No, Vu<V
SLV 5	-1.59	-558.5	-199.47	-42.7574		649	2.8682	163	139.82			0.7	No, Vu<V
SLV 5	0.39	-542.14	-167.74	-30.655		630	2.8682	163	139.82			0.83	No, Vu<V
SLV 6	-1.59	-558.5	-199.47	-42.7574		649	2.8682	163	139.82			0.7	No, Vu<V
SLV 6	0.39	-542.14	-167.74	-30.655		630	2.8682	163	139.82			0.83	No, Vu<V
SLV 10	-1.59	-479.02	-185.94	-39.8642		557	2.8682	163	139.82			0.75	No, Vu<V
SLV 10	0.39	-507.27	-161.14	-52.7303		590	2.8682	163	139.82			0.87	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 6	-1.59	-438.74	-110.83	-6.3941		510	2.8682	163	139.82			1.26	Si
SLD 6	0.39	-426.71	-82.44	-10.2213		496	2.8682	163	139.82			1.7	Si
SLD 5	-1.59	-438.74	-110.83	-6.3941		510	2.8682	163	139.82			1.26	Si
SLD 5	0.39	-426.71	-82.44	-10.2213		496	2.8682	163	139.82			1.7	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.6 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.24	149	-127.97	0.6181	16.8592	27.28	Si
SLV 12	1438	0.24	149	-127.97	0.6181	16.8592	27.28	Si
SLV 15	1438	0.24	194	-166.53	0.6181	21.0232	34.01	Si
SLV 16	1438	0.24	194	-166.53	0.6181	21.0232	34.01	Si
SLV 7	1438	0.24	231	-198.98	0.6181	24.1981	39.15	Si
SLV 8	1438	0.24	231	-198.98	0.6181	24.1981	39.15	Si
SLV 14	1438	0.24	314	-270.59	0.6181	30.1425	48.76	Si
SLV 13	1438	0.24	314	-270.59	0.6181	30.1425	48.76	Si
SLV 3	1438	0.24	469	-403.22	0.6181	37.2868	60.32	Si
SLV 4	1438	0.24	469	-403.22	0.6181	37.2868	60.32	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.6 Wa = 0.0005 Ta = 0.0218

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	-453.42	-531.6	1.45	0.075	48.578	0.984	1.10923	3.15011	No
SLV 2	-453.42	-531.6	1.45	0.075	48.578	0.984	1.10923	3.15011	No
SLV 6	-542.14	-558.5	0.77	0.076	57.619	0.987	1.12618	3.18459	No
SLV 5	-542.14	-558.5	0.77	0.076	57.619	0.987	1.12618	3.18459	No
SLV 4	-342.5	-429.07	1.34	0.075	37.275	0.98	1.11619	3.15011	No
SLV 3	-342.5	-429.07	1.34	0.075	37.275	0.98	1.11619	3.15011	No
SLV 10	-507.27	-479.02	0.06	0.078	54.065	0.986	1.14767	3.18459	No
SLV 9	-507.27	-479.02	0.06	0.078	54.065	0.986	1.14767	3.18459	No
SLV 14	-337.18	-266.68	-0.89	0.077	36.733	0.98	1.13536	3.15011	No
SLV 13	-337.18	-266.68	-0.89	0.077	36.733	0.98	1.13536	3.15011	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.376	SLU 82	Si
V_SLU	1.32	SLU 79	Si
PF_SLV	2.01	SLV 11	Si
V_SLV	0.701	SLV 5	No
PFFP_SLV	27.275	SLV 11	Si
R_SLV	0.352	SLV 1	No

## Maschio 39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.013	-4.784	-11.013	-1.916	L2	L3	2.868	0.3	0.72	0.72	0.72			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	0.39	-543.04	-46.2515	631	175.4144	3.793	Si
SLU 79	1.11	-545.55	-23.5869	634	173.4219	7.352	Si
SLU 56	0.39	-508.26	-45.7723	591	200.348	4.377	Si
SLU 56	1.11	-509.69	-25.008	592	199.4166	7.974	Si
SLU 78	0.39	-542.48	-43.9534	630	175.8509	4.001	Si
SLU 78	1.11	-545.35	-22.2632	634	173.5837	7.797	Si
SLU 83	0.39	-550.88	-42.8829	640	169.1039	3.943	Si
SLU 83	1.11	-554.03	-21.1603	644	166.4996	7.868	Si
SLU 84	0.39	-549.85	-41.8635	639	169.9498	4.06	Si
SLU 84	1.11	-553.27	-20.9351	643	167.1357	7.983	Si
SLU 58	0.39	-507.78	-47.051	590	200.6571	4.265	Si
SLU 58	1.11	-509.13	-26.1065	592	199.7823	7.653	Si
SLU 80	0.39	-542	-45.2321	630	176.2271	3.896	Si
SLU 80	1.11	-544.78	-23.3617	633	174.0314	7.449	Si
SLU 59	0.39	-506.74	-46.0316	589	201.3206	4.374	Si
SLU 59	1.11	-508.36	-25.8814	591	200.2778	7.738	Si
SLU 62	0.39	-515.62	-43.6824	599	195.4789	4.475	Si
SLU 62	1.11	-517.62	-23.68	602	194.1247	8.198	Si
SLU 77	0.39	-543.52	-44.9728	632	175.0361	3.892	Si
SLU 77	1.11	-546.11	-22.4884	635	172.9724	7.692	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	0.39	-193.14	80.5909	224	226.1036	2.806	Si
SLV 8	1.11	-194.91	64.5193	227	227.7043	3.529	Si
SLV 9	0.39	-532.28	-137.248	619	376.8829	2.746	Si
SLV 9	1.11	-531.61	-95.5267	618	376.8944	3.945	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	0.39	-532.28	-137.248	619	376.8829	2.746	Si
SLV 10	1.11	-531.61	-95.5267	618	376.8944	3.945	Si
SLV 6	0.39	-574.16	-134.1464	667	373.7366	2.786	Si
SLV 6	1.11	-565.87	-64.6361	658	374.7396	5.798	Si
SLV 7	0.39	-193.14	80.5909	224	226.1036	2.806	Si
SLV 7	1.11	-194.91	64.5193	227	227.7043	3.529	Si
SLV 11	0.39	-151.26	77.4893	176	185.7156	2.397	Si
SLV 11	1.11	-160.65	33.6287	187	195.188	5.804	Si
SLV 12	0.39	-151.26	77.4893	176	185.7156	2.397	Si
SLV 12	1.11	-160.65	33.6287	187	195.188	5.804	Si
SLV 14	0.39	-350.06	-65.7084	407	334.8706	5.096	Si
SLV 14	1.11	-361.81	-86.3613	420	340.3088	3.941	Si
SLV 5	0.39	-574.16	-134.1464	667	373.7366	2.786	Si
SLV 5	1.11	-565.87	-64.6361	658	374.7396	5.798	Si
SLV 13	0.39	-350.06	-65.7084	407	334.8706	5.096	Si
SLV 13	1.11	-361.81	-86.3613	420	340.3088	3.941	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 69	0.39	-491.6	-23.8	-43.0104		571	2.8682	108	93.22			3.92	Si
SLU 69	1.11	-492.35	-25.28	-22.9603		572	2.8682	108	93.22			3.69	Si
SLU 56	0.39	-508.26	-23.9	-45.7723		591	2.8682	108	93.22			3.9	Si
SLU 56	1.11	-509.69	-25.14	-25.008		592	2.8682	108	93.22			3.71	Si
SLU 80	0.39	-542	-25.12	-45.2321		630	2.8682	108	93.22			3.71	Si
SLU 80	1.11	-544.78	-26.37	-23.3617		633	2.8682	108	93.22			3.54	Si
SLU 58	0.39	-507.78	-24.33	-47.051		590	2.8682	108	93.22			3.83	Si
SLU 58	1.11	-509.13	-25.56	-26.1065		592	2.8682	108	93.22			3.65	Si
SLU 37	0.39	-453.78	-24.31	-37.5785		527	2.8682	108	93.22			3.83	Si
SLU 37	1.11	-456.79	-25.23	-17.8154		531	2.8682	108	93.22			3.69	Si
SLU 83	0.39	-550.88	-23.96	-42.8829		640	2.8682	108	93.22			3.89	Si
SLU 83	1.11	-554.03	-25	-21.1603		644	2.8682	108	93.22			3.73	Si
SLU 71	0.39	-491.12	-24.23	-44.2891		571	2.8682	108	93.22			3.85	Si
SLU 71	1.11	-491.79	-25.71	-24.0588		572	2.8682	108	93.22			3.63	Si
SLU 78	0.39	-542.48	-24.69	-43.9534		630	2.8682	108	93.22			3.78	Si
SLU 78	1.11	-545.35	-25.94	-22.2632		634	2.8682	108	93.22			3.59	Si
SLU 77	0.39	-543.52	-26.4	-44.9728		632	2.8682	108	93.22			3.53	Si
SLU 77	1.11	-546.11	-27.63	-22.4884		635	2.8682	108	93.22			3.37	Si
SLU 79	0.39	-543.04	-26.83	-46.2515		631	2.8682	108	93.22			3.47	Si
SLU 79	1.11	-545.55	-28.06	-23.5869		634	2.8682	108	93.22			3.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	0.39	-532.28	-151.17	-137.248		619	2.8682	163	139.82			0.92	No, Vu<V
SLV 10	1.11	-531.61	-142.87	-95.5267		618	2.8682	163	139.82			0.98	No, Vu<V
SLV 8	0.39	-193.14	125.75	80.5909		224	2.8682	128	110.33			0.88	No, Vu<V
SLV 8	1.11	-194.91	115.57	64.5193		227	2.8682	129	110.69			0.96	No, Vu<V
SLD 5	0.39	-453.4	-72.9	-73.7126		527	2.8682	163	139.82			1.92	Si
SLD 5	1.11	-450.07	-73.04	-36.3818		523	2.8682	163	139.82			1.91	Si
SLV 11	0.39	-151.26	125.52	77.4893		182	2.7654	120	99.39			0.79	No, Vu<V
SLV 11	1.11	-160.65	123.01	33.6287		187	2.8682	121	103.84			0.84	No, Vu<V
SLV 12	0.39	-151.26	125.52	77.4893		182	2.7654	120	99.39			0.79	No, Vu<V
SLV 12	1.11	-160.65	123.01	33.6287		187	2.8682	121	103.84			0.84	No, Vu<V
SLV 7	0.39	-193.14	125.75	80.5909		224	2.8682	128	110.33			0.88	No, Vu<V
SLV 7	1.11	-194.91	115.57	64.5193		227	2.8682	129	110.69			0.96	No, Vu<V
SLV 6	0.39	-574.16	-150.94	-134.1464		667	2.8682	163	139.82			0.93	No, Vu<V
SLV 6	1.11	-565.87	-150.3	-64.6361		658	2.8682	163	139.82			0.93	No, Vu<V
SLV 5	0.39	-574.16	-150.94	-134.1464		667	2.8682	163	139.82			0.93	No, Vu<V
SLV 5	1.11	-565.87	-150.3	-64.6361		658	2.8682	163	139.82			0.93	No, Vu<V
SLV 9	0.39	-532.28	-151.17	-137.248		619	2.8682	163	139.82			0.92	No, Vu<V
SLV 9	1.11	-531.61	-142.87	-95.5267		618	2.8682	163	139.82			0.98	No, Vu<V
SLD 6	0.39	-453.4	-72.9	-73.7126		527	2.8682	163	139.82			1.92	Si
SLD 6	1.11	-450.07	-73.04	-36.3818		523	2.8682	163	139.82			1.91	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 0.75 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.26	183	-157.85	0.087	20.1228	231.33	Si
SLV 12	1438	0.26	183	-157.85	0.087	20.1228	231.33	Si
SLV 7	1438	0.26	236	-203.39	0.087	24.6069	282.87	Si
SLV 8	1438	0.26	236	-203.39	0.087	24.6069	282.87	Si
SLV 16	1438	0.26	274	-235.8	0.087	27.4372	315.41	Si
SLV 15	1438	0.26	274	-235.8	0.087	27.4372	315.41	Si
SLV 14	1438	0.26	405	-348.15	0.087	34.9298	401.54	Si
SLV 13	1438	0.26	405	-348.15	0.087	34.9298	401.54	Si
SLV 3	1438	0.26	450	-387.61	0.087	36.7062	421.96	Si
SLV 4	1438	0.26	450	-387.61	0.087	36.7062	421.96	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 0.75 Wa = 0.0005 Ta = 0.0029

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-565.87	-574.16	7.27	0.198	58.537	0.995	2.88625	2.60194	Si
SLV 6	-565.87	-574.16	7.27	0.198	58.537	0.995	2.88625	2.60194	Si
SLV 10	-531.61	-532.28	6.37	0.199	55.045	0.995	2.90156	2.60194	Si
SLV 9	-531.61	-532.28	6.37	0.199	55.045	0.995	2.90156	2.60194	Si
SLV 2	-476.01	-489.67	5.78	0.199	49.377	0.994	2.90496	2.59853	Si
SLV 1	-476.01	-489.67	5.78	0.199	49.377	0.994	2.90496	2.59853	Si
SLV 4	-364.72	-375.36	3.6	0.202	38.033	0.993	2.95372	2.59853	Si
SLV 3	-364.72	-375.36	3.6	0.202	38.033	0.993	2.95372	2.59853	Si



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-361.81	-350.06	2.79	0.204	37.736	0.993	2.98554	2.59853	Si
SLV 13	-361.81	-350.06	2.79	0.204	37.736	0.993	2.98554	2.59853	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.793	SLU 79	Si
V_SLU	3.323	SLU 79	Si
PF_SLV	2.397	SLV 11	Si
V_SLV	0.792	SLV 11	No
PFFP_SLV	231.325	SLV 11	Si
R_SLV	1.109	SLV 5	Si

## Maschio 40

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-11.013	-1.916	-11.013	-0.354	L1	Z medio 75 cm	1.562	0.3	2.34	1.98	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 84	-1.59	-307.74	2.4197	657	46.545	19.236	Si
SLU 84	0.39	-292.78	0.6315	625	53.2476	84.322	Si
SLU 81	-1.59	-303.8	2.832	648	48.3994	17.09	Si
SLU 81	0.39	-288.75	0.6851	616	54.895	80.123	Si
SLU 76	-1.59	-293	2.2979	625	53.1527	23.131	Si
SLU 76	0.39	-277.57	0.6063	592	59.1192	97.513	Si
SLU 39	-1.59	-257.27	2.6596	549	65.4806	24.621	Si
SLU 39	0.39	-246.24	0.8565	526	68.2301	79.659	Si
SLU 75	-1.59	-294.74	2.3411	629	52.4214	22.392	Si
SLU 75	0.39	-279.45	0.8292	596	58.4446	70.481	Si
SLU 61	-1.59	-279.78	2.5759	597	58.3231	22.642	Si
SLU 61	0.39	-264.26	-0.2606	564	63.4788	243.6	Si
SLU 82	-1.59	-304.15	3.0909	649	48.236	15.606	Si
SLU 82	0.39	-289.06	0.5287	617	54.7689	103.588	Si
SLU 40	-1.59	-257.62	2.9185	550	65.3844	22.404	Si
SLU 40	0.39	-246.55	0.7001	526	68.1587	97.354	Si
SLU 83	-1.59	-307.39	2.1608	656	46.7136	21.619	Si
SLU 83	0.39	-292.46	0.7879	624	53.3784	67.748	Si
SLU 73	-1.59	-289.41	2.9691	618	54.6271	18.399	Si
SLU 73	0.39	-273.85	0.5035	584	60.4093	119.977	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 8	-1.59	-229.12	24.8909	489	107.3136	4.311	Si
SLV 8	0.39	-214.16	-7.6824	457	104.6782	13.626	Si
SLD 12	-1.59	-201.32	12.0423	430	101.9265	8.464	Si
SLD 12	0.39	-188.35	-2.6729	402	98.6941	36.923	Si
SLV 12	-1.59	-203.1	25.6969	433	102.336	3.982	Si
SLV 12	0.39	-189.48	-6.7073	404	98.9939	14.759	Si
SLV 9	-1.59	-170.72	-21.8775	364	93.5616	4.277	Si
SLV 9	0.39	-160.65	8.6895	343	90.2476	10.386	Si
SLD 11	-1.59	-201.32	12.0423	430	101.9265	8.464	Si
SLD 11	0.39	-188.35	-2.6729	402	98.6941	36.923	Si
SLV 11	-1.59	-203.1	25.6969	433	102.336	3.982	Si
SLV 11	0.39	-189.48	-6.7073	404	98.9939	14.759	Si
SLV 7	-1.59	-229.12	24.8909	489	107.3136	4.311	Si
SLV 7	0.39	-214.16	-7.6824	457	104.6782	13.626	Si
SLV 6	-1.59	-196.74	-22.6835	420	100.837	4.445	Si
SLV 6	0.39	-185.33	7.7144	396	97.8734	12.687	Si
SLV 5	-1.59	-196.74	-22.6835	420	100.837	4.445	Si
SLV 5	0.39	-185.33	7.7144	396	97.8734	12.687	Si
SLV 10	-1.59	-170.72	-21.8775	364	93.5616	4.277	Si
SLV 10	0.39	-160.65	8.6895	343	90.2476	10.386	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-1.59	-289.41	15.84	2.9691	618	1.5618	108	50.76				3.2	Si
SLU 73	0.39	-273.85	11.23	0.5035	584	1.5618	108	50.76				4.52	Si
SLU 52	-1.59	-265.04	15.93	2.4541	566	1.5618	108	50.76				3.19	Si
SLU 52	0.39	-249.05	11.32	-0.2858	532	1.5618	108	50.76				4.48	Si
SLU 61	-1.59	-279.78	15.92	2.5759	597	1.5618	108	50.76				3.19	Si
SLU 61	0.39	-264.26	11.46	-0.2606	564	1.5618	108	50.76				4.43	Si
SLU 63	-1.59	-283.37	14.36	1.9046	605	1.5618	108	50.76				3.54	Si
SLU 63	0.39	-267.98	9.52	-0.1578	572	1.5618	108	50.76				5.33	Si
SLU 82	-1.59	-304.15	15.82	3.0909	649	1.5618	108	50.76				3.21	Si
SLU 82	0.39	-289.06	11.37	0.5287	617	1.5618	108	50.76				4.46	Si
SLU 60	-1.59	-279.43	14.87	2.317	596	1.5618	108	50.76				3.41	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	0.39	-263.95	10.37	-0.1042		563	1.5618	108	50.76			4.89	Si
SLU 55	-1.59	-268.63	14.37	1.7828		573	1.5618	108	50.76			3.53	Si
SLU 55	0.39	-252.77	9.38	-0.183		539	1.5618	108	50.76			5.41	Si
SLU 44	-1.59	-230.09	14.34	1.7672		491	1.5618	108	50.76			3.54	Si
SLU 44	0.39	-213.07	9.31	-0.1013		455	1.5618	108	50.76			5.45	Si
SLU 76	-1.59	-293	14.28	2.2979		625	1.5618	108	50.76			3.56	Si
SLU 76	0.39	-277.57	9.29	0.6063		592	1.5618	108	50.76			5.46	Si
SLU 81	-1.59	-303.8	14.78	2.832		648	1.5618	108	50.76			3.43	Si
SLU 81	0.39	-288.75	10.29	0.6851		616	1.5618	108	50.76			4.93	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	-1.59	-229.12	85.57	24.8909		489	1.5618	163	76.14			0.89	No, Vu<V
SLV 7	0.39	-214.16	89.68	-7.6824		457	1.5618	163	76.14			0.85	No, Vu<V
SLV 11	-1.59	-203.1	84.33	25.6969		433	1.5618	163	76.14			0.9	No, Vu<V
SLV 11	0.39	-189.48	80.06	-6.7073		404	1.5618	163	76.14			0.95	No, Vu<V
SLV 9	-1.59	-170.72	-65.38	-21.8775		364	1.5618	156	73.19			1.12	Si
SLV 9	0.39	-160.65	-77.08	8.6895		343	1.5618	152	71.17			0.92	No, Vu<V
SLV 6	-1.59	-196.74	-64.14	-22.6835		420	1.5618	163	76.14			1.19	Si
SLV 6	0.39	-185.33	-67.47	7.7144		396	1.5618	162	76.11			1.13	Si
SLV 12	-1.59	-203.1	84.33	25.6969		433	1.5618	163	76.14			0.9	No, Vu<V
SLV 12	0.39	-189.48	80.06	-6.7073		404	1.5618	163	76.14			0.95	No, Vu<V
SLV 8	-1.59	-229.12	85.57	24.8909		489	1.5618	163	76.14			0.89	No, Vu<V
SLV 8	0.39	-214.16	89.68	-7.6824		457	1.5618	163	76.14			0.85	No, Vu<V
SLV 10	-1.59	-170.72	-65.38	-21.8775		364	1.5618	156	73.19			1.12	Si
SLV 10	0.39	-160.65	-77.08	8.6895		343	1.5618	152	71.17			0.92	No, Vu<V
SLV 5	-1.59	-196.74	-64.14	-22.6835		420	1.5618	163	76.14			1.19	Si
SLV 5	0.39	-185.33	-67.47	7.7144		396	1.5618	162	76.11			1.13	Si
SLV 3	-1.59	-248.13	34.62	7.2995		530	1.5618	163	76.14			2.2	Si
SLV 3	0.39	-232.87	45.9	-3.4311		497	1.5618	163	76.14			1.66	Si
SLV 4	-1.59	-248.13	34.62	7.2995		530	1.5618	163	76.14			2.2	Si
SLV 4	0.39	-232.87	45.9	-3.4311		497	1.5618	163	76.14			1.66	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.6 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	1438	0.24	319	-149.55	0.4701	16.5724	35.25	Si
SLV 14	1438	0.24	319	-149.55	0.4701	16.5724	35.25	Si
SLV 16	1438	0.24	339	-159.05	0.4701	17.2295	36.65	Si
SLV 15	1438	0.24	339	-159.05	0.4701	17.2295	36.65	Si
SLV 9	1438	0.24	360	-168.89	0.4701	17.8597	37.99	Si
SLV 10	1438	0.24	360	-168.89	0.4701	17.8597	37.99	Si
SLV 6	1438	0.24	416	-194.96	0.4701	19.2854	41.02	Si
SLV 5	1438	0.24	416	-194.96	0.4701	19.2854	41.02	Si
SLV 12	1438	0.24	428	-200.56	0.4701	19.5449	41.58	Si
SLV 11	1438	0.24	428	-200.56	0.4701	19.5449	41.58	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.6 Wa = 0.0005 Ta = 0.0305

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 2	-224.21	-238.42	1.09	0.062	24.375	0.98	0.92144	3.59246	No
SLV 1	-224.21	-238.42	1.09	0.062	24.375	0.98	0.92144	3.59246	No
SLV 4	-232.87	-248.13	1.06	0.062	25.257	0.981	0.92383	3.59246	No
SLV 3	-232.87	-248.13	1.06	0.062	25.257	0.981	0.92383	3.59246	No
SLV 5	-185.33	-196.74	0.54	0.065	20.414	0.977	0.96095	3.64972	No
SLV 6	-185.33	-196.74	0.54	0.065	20.414	0.977	0.96095	3.64972	No
SLV 8	-214.16	-229.12	0.43	0.065	23.351	0.979	0.96442	3.64972	No
SLV 7	-214.16	-229.12	0.43	0.065	23.351	0.979	0.96442	3.64972	No
SLV 15	-150.6	-161.42	-0.62	0.064	16.876	0.972	0.9598	3.59246	No
SLV 16	-150.6	-161.42	-0.62	0.064	16.876	0.972	0.9598	3.59246	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	15.606	SLU 82	Si
V_SLU	3.186	SLU 52	Si
PF_SLV	3.982	SLV 11	Si
V_SLV	0.849	SLV 7	No
PFFP_SLV	35.253	SLV 13	Si
R_SLV	0.256	SLV 1	No

## Maschio 42

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.013	-0.354	-11.013	1.046	L1	L3	1.4	0.3	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	-1.59	-297.96	13.2244	709	26.9236	2.036	Si
SLU 82	1.11	-254.65	-5.5782	606	45.5784	8.171	Si
SLU 76	-1.59	-283.74	12.0531	676	33.8964	2.812	Si
SLU 76	1.11	-241.89	-5.3509	576	49.6078	9.271	Si
SLU 83	-1.59	-298.08	12.371	710	26.8633	2.171	Si
SLU 83	1.11	-255.85	-5.5795	609	45.1652	8.095	Si
SLU 77	-1.59	-286.23	11.2684	681	32.7362	2.905	Si
SLU 77	1.11	-245.66	-5.2725	585	48.4879	9.196	Si
SLU 75	-1.59	-286.11	12.1218	681	32.7908	2.705	Si
SLU 75	1.11	-244.46	-5.2712	582	48.8511	9.268	Si
SLU 84	-1.59	-298.92	12.6635	712	26.4274	2.087	Si
SLU 84	1.11	-256.3	-5.6523	610	45.0088	7.963	Si
SLU 73	-1.59	-282.79	12.614	673	34.3335	2.722	Si
SLU 73	1.11	-240.24	-5.2769	572	50.0802	9.491	Si
SLU 74	-1.59	-285.28	11.8293	679	33.183	2.805	Si
SLU 74	1.11	-244.01	-5.1984	581	48.9857	9.423	Si
SLU 78	-1.59	-287.06	11.5609	683	32.3408	2.797	Si
SLU 78	1.11	-246.11	-5.3453	586	48.3503	9.045	Si
SLU 81	-1.59	-297.13	12.9319	707	27.3563	2.115	Si
SLU 81	1.11	-254.2	-5.5054	605	45.7318	8.307	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	-1.59	-273.76	28.1767	652	89.4067	3.173	Si
SLV 12	1.11	-211.36	-3.2525	503	87.0172	26.754	Si
SLV 11	-1.59	-273.76	28.1767	652	89.4067	3.173	Si
SLV 11	1.11	-211.36	-3.2525	503	87.0172	26.754	Si
SLV 3	-1.59	-274.86	20.1071	654	89.3533	4.444	Si
SLV 3	1.11	-225.55	-2.6186	537	88.4941	33.795	Si
SLV 10	-1.59	-79.76	-15.1831	190	47.1543	3.106	Si
SLV 10	1.11	-85.7	-4.4182	204	49.9713	11.31	Si
SLV 9	-1.59	-79.76	-15.1831	190	47.1543	3.106	Si
SLV 9	1.11	-85.7	-4.4182	204	49.9713	11.31	Si
SLV 7	-1.59	-305.6	31.4565	728	86.5321	2.751	Si
SLV 7	1.11	-238.21	-2.7716	567	89.3473	32.236	Si
SLD 8	-1.59	-241.58	18.2775	575	89.5008	4.897	Si
SLD 8	1.11	-194.69	-3.3055	464	84.5805	25.588	Si
SLD 7	-1.59	-241.58	18.2775	575	89.5008	4.897	Si
SLD 7	1.11	-194.69	-3.3055	464	84.5805	25.588	Si
SLV 4	-1.59	-274.86	20.1071	654	89.3533	4.444	Si
SLV 4	1.11	-225.55	-2.6186	537	88.4941	33.795	Si
SLV 8	-1.59	-305.6	31.4565	728	86.5321	2.751	Si
SLV 8	1.11	-238.21	-2.7716	567	89.3473	32.236	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	-1.59	-283.74	37.11	12.0531		676	1.4	108	45.5			1.23	Si
SLU 76	1.11	-241.89	-0.86	-5.3509		576	1.4	108	45.5			52.79	Si
SLU 61	-1.59	-270.56	37.3	11.9376		644	1.4	108	45.5			1.22	Si
SLU 61	1.11	-228.78	1.44	-5.6874		545	1.4	108	45.5			31.54	Si
SLU 83	-1.59	-298.08	37.64	12.371		710	1.4	108	45.5			1.21	Si
SLU 83	1.11	-255.85	-2.07	-5.5795		609	1.4	108	45.5			21.94	Si
SLU 75	-1.59	-286.11	37.04	12.1218		681	1.4	108	45.5			1.23	Si
SLU 75	1.11	-244.46	-1.07	-5.2712		582	1.4	108	45.5			42.38	Si
SLU 63	-1.59	-271.51	36.21	11.3766		646	1.4	108	45.5			1.26	Si
SLU 63	1.11	-230.43	-0.1	-5.7615		549	1.4	108	45.5			462.64	Si
SLU 60	-1.59	-269.72	36.42	11.6451		642	1.4	108	45.5			1.25	Si
SLU 60	1.11	-228.33	0.64	-5.6146		544	1.4	108	45.5			71.19	Si
SLU 84	-1.59	-298.92	38.52	12.6635		712	1.4	108	45.5			1.18	Si
SLU 84	1.11	-256.3	-1.27	-5.6523		610	1.4	108	45.5			35.82	Si
SLU 81	-1.59	-297.13	38.73	12.9319		707	1.4	108	45.5			1.17	Si
SLU 81	1.11	-254.2	-0.53	-5.5054		605	1.4	108	45.5			85.4	Si
SLU 73	-1.59	-282.79	38.2	12.614		673	1.4	108	45.5			1.19	Si
SLU 73	1.11	-240.24	0.68	-5.2769		572	1.4	108	45.5			67.01	Si
SLU 82	-1.59	-297.96	39.61	13.2244		709	1.4	108	45.5			1.15	Si
SLU 82	1.11	-254.65	0.27	-5.5782		606	1.4	108	45.5			168.14	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 7	-1.59	-241.58	54.15	18.2775		575	1.4	163	68.25			1.26	Si
SLD 7	1.11	-194.69	20.59	-3.3055		464	1.4	163	68.25			3.31	Si
SLV 9	-1.59	-79.76	-40.3	-15.1831		190	1.4	121	50.95			1.26	Si
SLV 9	1.11	-85.7	-48.45	-4.4182		204	1.4	124	52.14			1.08	Si
SLD 8	-1.59	-241.58	54.15	18.2775		575	1.4	163	68.25			1.26	Si
SLD 8	1.11	-194.69	20.59	-3.3055		464	1.4	163	68.25			3.31	Si
SLV 5	-1.59	-111.61	-38.59	-11.9032		266	1.4	136	57.32			1.49	Si
SLV 5	1.11	-112.55	-59.08	-3.9373		268	1.4	137	57.51			0.97	No, Vu<V
SLV 6	-1.59	-111.61	-38.59	-11.9032		266	1.4	136	57.32			1.49	Si
SLV 6	1.11	-112.55	-59.08	-3.9373		268	1.4	137	57.51			0.97	No, Vu<V
SLV 7	-1.59	-305.6	91.28	31.4565		728	1.4	163	68.25			0.75	No, Vu<V
SLV 7	1.11	-238.21	47.66	-2.7716		567	1.4	163	68.25			1.43	Si
SLV 8	-1.59	-305.6	91.28	31.4565		728	1.4	163	68.25			0.75	No, Vu<V
SLV 8	1.11	-238.21	47.66	-2.7716		567	1.4	163	68.25			1.43	Si
SLV 12	-1.59	-273.76	89.56	28.1767		652	1.4	163	68.25			0.76	No, Vu<V
SLV 12	1.11	-211.36	58.29	-3.2525		503	1.4	163	68.25			1.17	Si
SLV 10	-1.59	-79.76	-40.3	-15.1831		190	1.4	121	50.95			1.26	Si
SLV 10	1.11	-85.7	-48.45	-4.4182		204	1.4	124	52.14			1.08	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	-1.59	-273.76	89.56	28.1767		652	1.4	163	68.25			0.76	No, Vu<V
SLV 11	1.11	-211.36	58.29	-3.2525		503	1.4	163	68.25			1.17	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.24	212	-88.96	0.561	11.0307	19.66	Si
SLV 10	1438	0.24	212	-88.96	0.561	11.0307	19.66	Si
SLV 14	1438	0.24	271	-113.72	0.561	13.2779	23.67	Si
SLV 13	1438	0.24	271	-113.72	0.561	13.2779	23.67	Si
SLV 5	1438	0.24	274	-115.27	0.561	13.4072	23.9	Si
SLV 6	1438	0.24	274	-115.27	0.561	13.4072	23.9	Si
SLV 15	1438	0.24	384	-161.26	0.561	16.5879	29.57	Si
SLV 16	1438	0.24	384	-161.26	0.561	16.5879	29.57	Si
SLV 2	1438	0.24	480	-201.44	0.561	18.3554	32.72	Si
SLV 1	1438	0.24	480	-201.44	0.561	18.3554	32.72	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-225.55	-274.86	2.89	0.046	24.564	0.98	0.67827	4.30325	No
SLV 3	-225.55	-274.86	2.89	0.046	24.564	0.98	0.67827	4.30325	No
SLV 1	-187.86	-216.66	2.33	0.047	20.724	0.976	0.69458	4.30325	No
SLV 2	-187.86	-216.66	2.33	0.047	20.724	0.976	0.69458	4.30325	No
SLV 8	-238.21	-305.6	2.4	0.048	25.854	0.981	0.71402	4.39851	No
SLV 7	-238.21	-305.6	2.4	0.048	25.854	0.981	0.71402	4.39851	No
SLV 11	-211.36	-273.76	1.43	0.052	23.118	0.979	0.76746	4.39851	No
SLV 12	-211.36	-273.76	1.43	0.052	23.118	0.979	0.76746	4.39851	No
SLV 13	-98.35	-110.5	-0.91	0.052	11.612	0.959	0.79425	4.30325	No
SLV 14	-98.35	-110.5	-0.91	0.052	11.612	0.959	0.79425	4.30325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.036	SLU 82	Si
V_SLU	1.149	SLU 82	Si
PF_SLV	2.751	SLV 7	Si
V_SLV	0.748	SLV 7	No
PFFP_SLV	19.661	SLV 9	Si
R_SLV	0.158	SLV 3	No

## Maschio 43

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-9.728	2.201	-9.728	6.576	L1	L3	4.375	0.3	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 40	-1.59	-309.06	-30.8791	235	480.6343	15.565	Si
SLU 40	0.61	-212.82	-45.9708	162	372.8787	8.111	Si
SLU 41	-1.59	-309.73	-28.8437	236	481.251	16.685	Si
SLU 41	0.61	-212.74	-45.5156	162	372.7711	8.19	Si
SLU 42	-1.59	-309.67	-28.9664	236	481.1946	16.612	Si
SLU 42	0.61	-212.74	-45.5415	162	372.7685	8.185	Si
SLU 34	-1.59	-286.47	-21.1373	218	458.7424	21.703	Si
SLU 34	0.61	-192.22	-39.5916	146	344.8895	8.711	Si
SLU 84	-1.59	-353.09	-23.5886	269	517.2982	21.93	Si
SLU 84	0.61	-233.54	-47.3331	178	399.2794	8.436	Si
SLU 39	-1.59	-309.12	-30.7563	236	480.6909	15.629	Si
SLU 39	0.61	-212.83	-45.9449	162	372.8812	8.116	Si
SLU 83	-1.59	-353.15	-23.4659	269	517.3437	22.047	Si
SLU 83	0.61	-233.54	-47.3072	178	399.2818	8.44	Si
SLU 82	-1.59	-352.48	-25.5013	269	516.846	20.267	Si
SLU 82	0.61	-233.63	-47.7623	178	399.3825	8.362	Si
SLU 81	-1.59	-352.54	-25.3785	269	516.8916	20.367	Si
SLU 81	0.61	-233.63	-47.7364	178	399.3849	8.366	Si
SLU 31	-1.59	-285.86	-23.0499	218	458.1245	19.875	Si
SLU 31	0.61	-192.31	-40.0208	147	345.0067	8.621	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	-1.59	-333.35	-261.4424	254	577.6248	2.209	Si
SLV 5	0.61	-181.34	-1.5294	138	351.8253	230.045	Si
SLV 8	-1.59	-107.17	230.2316	82	218.7591	0.95	No, M>Mu
SLV 8	0.61	-83.88	-46.2763	64	173.8839	3.758	Si
SLV 10	-1.59	-329.44	-234.6775	251	572.6076	2.44	Si
SLV 10	0.61	-182.3	-0.4	139	353.4462	883.554	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	-1.59	-107.17	230.2316	82	218.7591	0.95	No, $M > \mu$
SLV 7	0.61	-83.88	-46.2763	64	173.8839	3.758	Si
SLV 12	-1.59	-103.26	256.9966	0	0	0	No, $e > l/2$
SLV 12	0.61	-84.83	-45.147	65	175.7595	3.893	Si
SLV 9	-1.59	-329.44	-234.6775	251	572.6076	2.44	Si
SLV 9	0.61	-182.3	-0.4	139	353.4462	883.554	Si
SLV 15	-1.59	-177.86	116.1364	136	345.917	2.979	Si
SLV 15	0.61	-120.06	-28.168	91	242.9786	8.626	Si
SLV 16	-1.59	-177.86	116.1364	136	345.917	2.979	Si
SLV 16	0.61	-120.06	-28.168	91	242.9786	8.626	Si
SLV 6	-1.59	-333.35	-261.4424	254	577.6248	2.209	Si
SLV 6	0.61	-181.34	-1.5294	138	351.8253	230.045	Si
SLV 11	-1.59	-103.26	256.9966	0	0	0	No, $e > l/2$
SLV 11	0.61	-84.83	-45.147	65	175.7595	3.893	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	-1.59	-330.6	6.54	-13.6423		252	4.375	89	117			17.89	Si
SLU 79	0.61	-212.95	8.16	-40.9107		162	4.375	77	101.31			12.42	Si
SLU 78	-1.59	-331.03	6.6	-12.5101		252	4.375	89	117.05			17.74	Si
SLU 78	0.61	-212.95	8.24	-40.57		162	4.375	77	101.31			12.3	Si
SLU 75	-1.59	-330.42	6.51	-14.4227		252	4.375	89	116.97			17.97	Si
SLU 75	0.61	-213.03	8.03	-40.9992		162	4.375	77	101.32			12.62	Si
SLU 80	-1.59	-330.54	6.53	-13.765		252	4.375	89	116.99			17.92	Si
SLU 80	0.61	-212.94	8.15	-40.9366		162	4.375	77	101.31			12.43	Si
SLU 71	-1.59	-276.56	5.71	4.8167		211	4.375	84	109.79			19.23	Si
SLU 71	0.61	-165.08	7.52	-26.9871		126	4.375	72	94.93			12.63	Si
SLU 77	-1.59	-331.09	6.61	-12.3873		252	4.375	89	117.06			17.7	Si
SLU 77	0.61	-212.95	8.25	-40.5441		162	4.375	77	101.31			12.28	Si
SLU 70	-1.59	-276.99	5.77	5.9489		211	4.375	84	109.85			19.05	Si
SLU 70	0.61	-165.08	7.6	-26.6464		126	4.375	72	94.93			12.49	Si
SLU 69	-1.59	-277.05	5.78	6.0716		211	4.375	84	109.86			19.01	Si
SLU 69	0.61	-165.08	7.61	-26.6205		126	4.375	72	94.93			12.48	Si
SLU 74	-1.59	-330.48	6.52	-14.2999		252	4.375	89	116.98			17.94	Si
SLU 74	0.61	-213.03	8.03	-40.9733		162	4.375	77	101.32			12.61	Si
SLU 72	-1.59	-276.5	5.69	4.6939		211	4.375	84	109.78			19.28	Si
SLU 72	0.61	-165.08	7.51	-27.013		126	4.375	72	94.93			12.64	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	-1.59	-107.17	98.54	230.2316		3044	0.1174	163	5.72			0.06	No, $V_u < V$
SLV 7	0.61	-83.88	79.63	-46.2763		64	4.375	96	126.15			1.58	Si
SLV 10	-1.59	-329.44	-89.89	-234.6775		251	4.375	134	175.26			1.95	Si
SLV 10	0.61	-182.3	-68.69	-0.4		139	4.375	111	145.83			2.12	Si
SLV 5	-1.59	-333.35	-93.9	-261.4424		264	4.2096	136	171.91			1.83	Si
SLV 5	0.61	-181.34	-75.26	-1.5294		138	4.375	111	145.64			1.94	Si
SLV 9	-1.59	-329.44	-89.89	-234.6775		251	4.375	134	175.26			1.95	Si
SLV 9	0.61	-182.3	-68.69	-0.4		139	4.375	111	145.83			2.12	Si
SLD 11	-1.59	-168.98	46.46	109.0424		129	4.375	109	143.17			3.08	Si
SLD 11	0.61	-112.45	40.13	-32.6454		86	4.375	100	131.87			3.29	Si
SLD 12	-1.59	-168.98	46.46	109.0424		129	4.375	109	143.17			3.08	Si
SLD 12	0.61	-112.45	40.13	-32.6454		86	4.375	100	131.87			3.29	Si
SLV 8	-1.59	-107.17	98.54	230.2316		3044	0.1174	163	5.72			0.06	No, $V_u < V$
SLV 8	0.61	-83.88	79.63	-46.2763		64	4.375	96	126.15			1.58	Si
SLV 6	-1.59	-333.35	-93.9	-261.4424		264	4.2096	136	171.91			1.83	Si
SLV 6	0.61	-181.34	-75.26	-1.5294		138	4.375	111	145.64			1.94	Si
SLV 12	-1.59	-103.26	102.55	256.9966		0	0	83	0			0	No, $V_u < V$
SLV 12	0.61	-84.83	86.19	-45.147		65	4.375	96	126.34			1.47	Si
SLV 11	-1.59	-103.26	102.55	256.9966		0	0	83	0			0	No, $V_u < V$
SLV 11	0.61	-84.83	86.19	-45.147		65	4.375	96	126.34			1.47	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24  $W_a$  0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.24	105	-137.27	1.7532	18.8282	10.74	Si
SLV 7	1438	0.24	105	-137.27	1.7532	18.8282	10.74	Si
SLV 11	1438	0.24	106	-138.59	1.7532	18.9925	10.83	Si
SLV 12	1438	0.24	106	-138.59	1.7532	18.9925	10.83	Si
SLV 4	1438	0.24	127	-167.25	1.7532	22.4711	12.82	Si
SLV 3	1438	0.24	127	-167.25	1.7532	22.4711	12.82	Si
SLV 16	1438	0.24	131	-171.66	1.7532	22.9927	13.11	Si
SLV 15	1438	0.24	131	-171.66	1.7532	22.9927	13.11	Si
SLV 2	1438	0.24	148	-194.27	1.7532	25.6103	14.61	Si
SLV 1	1438	0.24	148	-194.27	1.7532	25.6103	14.61	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24  $W_a = 0.0005$   $T_a = 0.0406$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 3	-100.29	-190.89	3.55	0.042	15.323	0.916	0.668	4.30325	No
SLV 4	-100.29	-190.89	3.55	0.042	15.323	0.916	0.668	4.30325	No
SLV 14	-103.29	-245.71	-3.54	0.042	15.623	0.917	0.67266	4.30325	No
SLV 13	-103.29	-245.71	-3.54	0.042	15.623	0.917	0.67266	4.30325	No
SLV 16	-98.56	-177.86	-3.14	0.045	15.15	0.915	0.71547	4.30325	No
SLV 15	-98.56	-177.86	-3.14	0.045	15.15	0.915	0.71547	4.30325	No
SLV 2	-105.03	-258.74	3.15	0.046	15.797	0.918	0.72056	4.30325	No
SLV 1	-105.03	-258.74	3.15	0.046	15.797	0.918	0.72056	4.30325	No
SLV 10	-109.42	-329.44	-1.67	0.056	16.238	0.92	0.88925	4.39851	No
SLV 9	-109.42	-329.44	-1.67	0.056	16.238	0.92	0.88925	4.39851	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.111	SLU 40	Si
V_SLU	12.284	SLU 77	Si
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	10.739	SLV 7	Si
R_SLV	0.155	SLV 3	No

## Maschio 44

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-7.723	-4.784	-11.013	-4.784	L1	L3	3.29	0.45	2.7	2.7	2.7			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	-1.59	-290.3	67.4793	196	362.5886	5.373	Si
SLU 42	1.11	-155.06	-4.0445	105	222.2832	54.959	Si
SLU 84	-1.59	-360.94	75.5487	244	416.0474	5.507	Si
SLU 84	1.11	-191.86	-11.2208	130	265.4017	23.653	Si
SLU 78	-1.59	-359.38	75.6543	243	415.0101	5.486	Si
SLU 78	1.11	-190.65	-10.2456	129	264.0387	25.771	Si
SLU 76	-1.59	-348.96	72.7554	236	407.9389	5.607	Si
SLU 76	1.11	-186.95	-13.9079	126	259.865	18.685	Si
SLU 35	-1.59	-294.17	64.4078	199	365.8737	5.681	Si
SLU 35	1.11	-154.37	-2.7389	104	221.4301	80.846	Si
SLU 37	-1.59	-294.68	65.0344	199	366.3057	5.632	Si
SLU 37	1.11	-154.58	-2.1576	104	221.6849	102.745	Si
SLU 36	-1.59	-288.73	67.5849	195	361.2494	5.345	Si
SLU 36	1.11	-153.85	-3.0693	104	220.7984	71.939	Si
SLU 34	-1.59	-278.31	64.6859	188	352.1706	5.444	Si
SLU 34	1.11	-150.16	-6.7316	101	216.2539	32.125	Si
SLU 38	-1.59	-289.24	68.2115	195	361.689	5.302	Si
SLU 38	1.11	-154.06	-2.4879	104	221.0535	88.85	Si
SLU 80	-1.59	-359.89	76.2809	243	415.3508	5.445	Si
SLU 80	1.11	-190.86	-9.6643	129	264.2729	27.345	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	-1.59	-68.01	-7.2039	46	107.6757	14.947	Si
SLV 11	1.11	-68.12	-42.5144	46	107.8408	2.537	Si
SLV 1	-1.59	-231.9	129.1455	157	332.5755	2.575	Si
SLV 1	1.11	-74.95	-38.9177	51	118.1837	3.037	Si
SLV 7	-1.59	-13.41	41.8662	0	0	0	No, e>1/2
SLV 7	1.11	-15.18	-62.0387	0	0	0	No, e>1/2
SLV 12	-1.59	-68.01	-7.2039	46	107.6757	14.947	Si
SLV 12	1.11	-68.12	-42.5144	46	107.8408	2.537	Si
SLD 7	-1.59	-154.07	39.7572	104	231.8618	5.832	Si
SLD 7	1.11	-84.28	-36.6768	57	132.1801	3.604	Si
SLV 4	-1.59	-101.65	115.2852	69	157.8244	1.369	Si
SLV 4	1.11	-18.86	-60.1021	0	0	0	No, e>1/2
SLV 8	-1.59	-13.41	41.8662	0	0	0	No, e>1/2
SLV 8	1.11	-15.18	-62.0387	0	0	0	No, e>1/2
SLV 3	-1.59	-101.65	115.2852	69	157.8244	1.369	Si
SLV 3	1.11	-18.86	-60.1021	0	0	0	No, e>1/2
SLV 2	-1.59	-231.9	129.1455	157	332.5755	2.575	Si
SLV 2	1.11	-74.95	-38.9177	51	118.1837	3.037	Si
SLD 8	-1.59	-154.07	39.7572	104	231.8618	5.832	Si
SLD 8	1.11	-84.28	-36.6768	57	132.1801	3.604	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	-1.59	-352.08	-52.28	70.0107		238	3.29	87	129.19			2.47	Si
SLU 75	1.11	-187.09	-20.07	-14.2689		126	3.29	72	107.2			5.34	Si
SLU 77	-1.59	-364.82	-53.92	72.4772		246	3.29	88	130.89			2.43	Si
SLU 77	1.11	-191.16	-20.36	-9.9152		129	3.29	73	107.74			5.29	Si
SLU 78	-1.59	-359.38	-54.44	75.6543		243	3.29	88	130.17			2.39	Si
SLU 78	1.11	-190.65	-20.87	-10.2456		129	3.29	73	107.67			5.16	Si
SLU 76	-1.59	-348.96	-52.84	72.7554		236	3.29	87	128.78			2.44	Si
SLU 76	1.11	-186.95	-20.5	-13.9079		126	3.29	72	107.18			5.23	Si
SLU 80	-1.59	-359.89	-54.65	76.2809		243	3.29	88	130.24			2.38	Si
SLU 80	1.11	-190.86	-20.96	-9.6643		129	3.29	73	107.7			5.14	Si
SLU 83	-1.59	-366.39	-54.25	72.3717		247	3.29	89	131.1			2.42	Si
SLU 83	1.11	-192.38	-20.31	-10.8905		130	3.29	73	107.9			5.31	Si
SLU 82	-1.59	-353.64	-52.62	69.9051		239	3.29	87	129.4			2.46	Si
SLU 82	1.11	-188.3	-20.02	-15.2442		127	3.29	73	107.36			5.36	Si
SLU 63	-1.59	-349.24	-51.69	68.3672		236	3.29	87	128.81			2.49	Si
SLU 63	1.11	-185.26	-19.76	-14.9358		125	3.29	72	106.95			5.41	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	-1.59	-365.33	-54.12	73.1038		247	3.29	88	130.96			2.42	Si
SLU 79	1.11	-191.37	-20.44	-9.3339		129	3.29	73	107.77			5.27	Si
SLU 84	-1.59	-360.94	-54.77	75.5487		244	3.29	88	130.38			2.38	Si
SLU 84	1.11	-191.86	-20.83	-11.2208		130	3.29	73	107.83			5.18	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	-1.59	-231.9	25.09	129.1455		158	3.2643	115	168.79			6.73	Si
SLV 1	1.11	-74.95	52.51	-38.9177		51	3.29	93	138.36			2.64	Si
SLV 14	-1.59	-413.93	-111.62	-34.4217		280	3.29	139	206.16			1.85	Si
SLV 14	1.11	-251.41	-88.85	26.1634		170	3.29	117	173.66			1.95	Si
SLV 3	-1.59	-101.65	41.48	115.2852		147	1.5327	113	77.81			1.88	Si
SLV 3	1.11	-18.86	61.84	-60.1021		0	0	83	0			0	No, Vu<V
SLV 13	-1.59	-413.93	-111.62	-34.4217		280	3.29	139	206.16			1.85	Si
SLV 13	1.11	-251.41	-88.85	26.1634		170	3.29	117	173.66			1.95	Si
SLV 16	-1.59	-283.68	-95.23	-48.282		192	3.29	122	180.11			1.89	Si
SLV 16	1.11	-195.32	-79.51	4.9791		132	3.29	110	162.44			2.04	Si
SLV 15	-1.59	-283.68	-95.23	-48.282		192	3.29	122	180.11			1.89	Si
SLV 15	1.11	-195.32	-79.51	4.9791		132	3.29	110	162.44			2.04	Si
SLV 7	-1.59	-13.41	12.76	41.8662		0	0	83	0			0	No, Vu<V
SLV 7	1.11	-15.18	23.27	-62.0387		0	0	83	0			0	No, Vu<V
SLV 2	-1.59	-231.9	25.09	129.1455		158	3.2643	115	168.79			6.73	Si
SLV 2	1.11	-74.95	52.51	-38.9177		51	3.29	93	138.36			2.64	Si
SLV 4	-1.59	-101.65	41.48	115.2852		147	1.5327	113	77.81			1.88	Si
SLV 4	1.11	-18.86	61.84	-60.1021		0	0	83	0			0	No, Vu<V
SLV 8	-1.59	-13.41	12.76	41.8662		0	0	83	0			0	No, Vu<V
SLV 8	1.11	-15.18	23.27	-62.0387		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.24	14	-20.15	1.9776	4.4828	2.27	Si
SLV 7	1438	0.24	14	-20.15	1.9776	4.4828	2.27	Si
SLV 11	1438	0.24	48	-71.22	1.9776	15.393	7.78	Si
SLV 12	1438	0.24	48	-71.22	1.9776	15.393	7.78	Si
SLV 3	1438	0.24	50	-74.37	1.9776	16.0459	8.11	Si
SLV 4	1438	0.24	50	-74.37	1.9776	16.0459	8.11	Si
SLV 1	1438	0.24	116	-171.92	1.9776	35.0059	17.7	Si
SLV 2	1438	0.24	116	-171.92	1.9776	35.0059	17.7	Si
SLV 16	1438	0.24	165	-244.6	1.9776	47.5939	24.07	Si
SLV 15	1438	0.24	165	-244.6	1.9776	47.5939	24.07	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-255.09	-502.17	-16.28	0.038	31.625	0.949	0.57783	3.52938	No
SLV 9	-255.09	-502.17	-16.28	0.038	31.625	0.949	0.57783	3.52938	No
SLV 13	-251.41	-413.93	-15.84	0.039	31.251	0.948	0.59249	3.48092	No
SLV 14	-251.41	-413.93	-15.84	0.039	31.251	0.948	0.59249	3.48092	No
SLV 5	-202.15	-447.57	-12.91	0.042	26.257	0.94	0.64478	3.52938	No
SLV 6	-202.15	-447.57	-12.91	0.042	26.257	0.94	0.64478	3.52938	No
SLV 15	-195.32	-283.68	-12.1	0.044	25.566	0.938	0.68095	3.48092	No
SLV 16	-195.32	-283.68	-12.1	0.044	25.566	0.938	0.68095	3.48092	No
SLV 2	-74.95	-231.9	-4.63	0.069	13.496	0.901	1.10603	3.48092	No
SLV 1	-74.95	-231.9	-4.63	0.069	13.496	0.901	1.10603	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.302	SLU 38	Si
V_SLU	2.38	SLU 84	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.267	SLV 7	Si
R_SLV	0.164	SLV 9	No

## Maschio 45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-7.723	-3.284	-7.723	-4.784	L1	L3	1.5	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	-1.59	-205.39	-15.9539	304	96.5074	6.049	Si
SLU 74	1.11	-121.53	-21.9892	180	71.006	3.229	Si
SLU 77	-1.59	-206.59	-16.3411	306	96.7329	5.92	Si
SLU 77	1.11	-122.67	-22.2369	182	71.4814	3.215	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 35	-1.59	-168.57	-14.6855	250	87.6726	5.97	Si
SLU 35	1.11	-102.41	-19.5224	152	62.506	3.202	Si
SLU 37	-1.59	-167.87	-14.5768	249	87.4689	6.001	Si
SLU 37	1.11	-101.72	-19.2879	151	62.1777	3.224	Si
SLU 41	-1.59	-172.85	-15.4527	256	88.8897	5.752	Si
SLU 41	1.11	-105.66	-20.554	157	64.0186	3.115	Si
SLU 79	-1.59	-205.89	-16.2324	305	96.6018	5.951	Si
SLU 79	1.11	-121.98	-22.0024	181	71.1916	3.236	Si
SLU 32	-1.59	-167.37	-14.2983	248	87.3227	6.107	Si
SLU 32	1.11	-101.27	-19.2747	150	61.9676	3.215	Si
SLU 39	-1.59	-171.65	-15.0656	254	88.5538	5.878	Si
SLU 39	1.11	-104.52	-20.3064	155	63.4903	3.127	Si
SLU 81	-1.59	-209.67	-16.7212	311	97.2945	5.819	Si
SLU 81	1.11	-124.78	-23.0209	185	72.3494	3.143	Si
SLU 83	-1.59	-210.87	-17.1083	312	97.506	5.699	Si
SLU 83	1.11	-125.92	-23.2685	187	72.8147	3.129	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	-1.59	-176.4	-39.1308	261	104.009	2.658	Si
SLV 1	1.11	-104.88	-33.387	155	68.6612	2.057	Si
SLV 12	-1.59	-59.98	-14.1591	89	41.7173	2.946	Si
SLV 12	1.11	55.7	19.7045	0	0	0	No, Trazione
SLV 7	-1.59	-62.1	-34.2587	92	43.0692	1.257	Si
SLV 7	1.11	69.82	13.7592	0	0	0	No, Trazione
SLV 5	-1.59	-234.15	-5.6779	347	125.7631	22.149	Si
SLV 5	1.11	-224.28	-48.1026	332	122.4734	2.546	Si
SLV 4	-1.59	-124.78	-47.705	185	79.4325	1.665	Si
SLV 4	1.11	-16.65	-14.8285	0	0	0	No, $e \geq l/2$
SLV 11	-1.59	-59.98	-14.1591	89	41.7173	2.946	Si
SLV 11	1.11	55.7	19.7045	0	0	0	No, Trazione
SLV 6	-1.59	-234.15	-5.6779	347	125.7631	22.149	Si
SLV 6	1.11	-224.28	-48.1026	332	122.4734	2.546	Si
SLV 3	-1.59	-124.78	-47.705	185	79.4325	1.665	Si
SLV 3	1.11	-16.65	-14.8285	0	0	0	No, $e \geq l/2$
SLV 2	-1.59	-176.4	-39.1308	261	104.009	2.658	Si
SLV 2	1.11	-104.88	-33.387	155	68.6612	2.057	Si
SLV 8	-1.59	-62.1	-34.2587	92	43.0692	1.257	Si
SLV 8	1.11	69.82	13.7592	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	-1.59	-206.59	1.71	-16.3411		306	1.5001	96	65.05			38.01	Si
SLU 77	1.11	-122.67	13.86	-22.2369		182	1.5001	80	53.86			3.89	Si
SLU 53	-1.59	-194.04	1.43	-13.4635		287	1.5001	94	63.37			44.47	Si
SLU 53	1.11	-112.18	12.8	-19.0901		166	1.5001	78	52.46			4.1	Si
SLU 79	-1.59	-205.89	1.67	-16.2324		305	1.5001	96	64.95			38.9	Si
SLU 79	1.11	-121.98	13.78	-22.0024		181	1.5001	80	53.76			3.9	Si
SLU 74	-1.59	-205.39	1.79	-15.9539		304	1.5001	96	64.89			36.33	Si
SLU 74	1.11	-121.53	13.78	-21.9892		180	1.5001	80	53.71			3.9	Si
SLU 81	-1.59	-209.67	2.05	-16.7212		311	1.5001	97	65.46			31.86	Si
SLU 81	1.11	-124.78	14.22	-23.0209		185	1.5001	80	54.14			3.81	Si
SLU 62	-1.59	-199.52	1.62	-14.6178		296	1.5001	95	64.1			39.59	Si
SLU 62	1.11	-116.56	13.31	-20.3693		173	1.5001	79	53.04			3.98	Si
SLU 60	-1.59	-198.32	1.69	-14.2307		294	1.5001	95	63.94			37.75	Si
SLU 60	1.11	-115.42	13.24	-20.1217		171	1.5001	78	52.89			4	Si
SLU 83	-1.59	-210.87	1.98	-17.1083		312	1.5001	97	65.62			33.14	Si
SLU 83	1.11	-125.92	14.29	-23.2685		187	1.5001	80	54.29			3.8	Si
SLU 58	-1.59	-194.54	1.31	-13.7419		288	1.5001	94	63.44			48.46	Si
SLU 58	1.11	-112.62	12.8	-19.1033		167	1.5001	78	52.52			4.1	Si
SLU 56	-1.59	-195.24	1.35	-13.8506		289	1.5001	94	63.53			47.04	Si
SLU 56	1.11	-113.32	12.88	-19.3377		168	1.5001	78	52.61			4.08	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	-1.59	-232.03	31.51	14.4217		344	1.5001	152	102.66			3.26	Si
SLV 9	1.11	-238.39	41.75	-42.1574		353	1.5001	154	103.93			2.49	Si
SLV 8	-1.59	-62.1	-29.4	-34.2587		232	0.595	130	34.73			1.18	Si
SLV 8	1.11	69.82	-22.53	13.7592		0	0	83	0			0	No, $V_u < V$
SLV 4	-1.59	-124.78	-10.99	-47.705		251	1.1032	134	66.33			6.04	Si
SLV 4	1.11	-16.65	-14.18	-14.8285		0	0	83	0			0	No, $V_u < V$
SLV 12	-1.59	-59.98	-27.49	-14.1591		89	1.5001	101	68.25			2.48	Si
SLV 12	1.11	55.7	-13.2	19.7045		0	0	83	0			0	No, $V_u < V$
SLV 14	-1.59	-169.35	13.1	27.8679		251	1.5001	134	90.12			6.88	Si
SLV 14	1.11	-151.92	33.39	-13.5696		225	1.5001	128	86.64			2.59	Si
SLV 10	-1.59	-232.03	31.51	14.4217		344	1.5001	152	102.66			3.26	Si
SLV 10	1.11	-238.39	41.75	-42.1574		353	1.5001	154	103.93			2.49	Si
SLV 13	-1.59	-169.35	13.1	27.8679		251	1.5001	134	90.12			6.88	Si
SLV 13	1.11	-151.92	33.39	-13.5696		225	1.5001	128	86.64			2.59	Si
SLV 3	-1.59	-124.78	-10.99	-47.705		251	1.1032	134	66.33			6.04	Si
SLV 3	1.11	-16.65	-14.18	-14.8285		0	0	83	0			0	No, $V_u < V$
SLV 7	-1.59	-62.1	-29.4	-34.2587		232	0.595	130	34.73			1.18	Si
SLV 7	1.11	69.82	-22.53	13.7592		0	0	83	0			0	No, $V_u < V$
SLV 11	-1.59	-59.98	-27.49	-14.1591		89	1.5001	101	68.25			2.48	Si
SLV 11	1.11	55.7	-13.2	19.7045		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.24	66	-44.61	0.9017	9.4948	10.53	Si
SLV 8	1438	0.24	66	-44.61	0.9017	9.4948	10.53	Si
SLV 11	1438	0.24	73	-49.16	0.9017	10.4024	11.54	Si
SLV 12	1438	0.24	73	-49.16	0.9017	10.4024	11.54	Si
SLV 4	1438	0.24	152	-102.86	0.9017	20.257	22.47	Si
SLV 3	1438	0.24	152	-102.86	0.9017	20.257	22.47	Si
SLV 16	1438	0.24	175	-118.03	0.9017	22.7564	25.24	Si
SLV 15	1438	0.24	175	-118.03	0.9017	22.7564	25.24	Si
SLV 1	1438	0.24	233	-157.34	0.9017	28.6476	31.77	Si
SLV 2	1438	0.24	233	-157.34	0.9017	28.6476	31.77	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = -0.24  $W_a = 0.0008$   $T_a = 0.0271$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	55.7	-59.98	0.52	0	0	0	0	3.52938	No, Trazione
SLV 12	55.7	-59.98	0.52	0	0	0	0	3.52938	No, Trazione
SLV 7	69.82	-62.1	0.88	0	0	0	0	3.52938	No, Trazione
SLV 8	69.82	-62.1	0.88	0	0	0	0	3.52938	No, Trazione
SLV 10	-238.39	-232.03	-2.31	0.08	26.836	0.971	1.19203	3.52938	No
SLV 9	-238.39	-232.03	-2.31	0.08	26.836	0.971	1.19203	3.52938	No
SLV 6	-224.28	-234.15	-1.96	0.081	25.4	0.969	1.2127	3.52938	No
SLV 5	-224.28	-234.15	-1.96	0.081	25.4	0.969	1.2127	3.52938	No
SLV 13	-151.92	-169.35	-1.73	0.081	18.037	0.958	1.23139	3.48092	No
SLV 14	-151.92	-169.35	-1.73	0.081	18.037	0.958	1.23139	3.48092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.115	SLU 41	Si
V_SLU	3.798	SLU 83	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 3	No
PFFP_SLV	10.53	SLV 7	Si
R_SLV	0	SLV 12	No

## Maschio 46

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-6.268	1.046	-6.268	-3.284	L1	L3	4.33	0.3	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	-1.59	-636.23	-133.101	490	549.207	4.126	Si
SLU 78	1.11	-561.94	90.5779	433	570.4944	6.298	Si
SLU 41	-1.59	-551.01	-136.3019	424	571.7192	4.195	Si
SLU 41	1.11	-483.3	60.928	372	568.4191	9.329	Si
SLU 84	-1.59	-651.55	-135.561	502	542.0107	3.998	Si
SLU 84	1.11	-575.67	91.3549	443	568.2601	6.22	Si
SLU 83	-1.59	-649.38	-152.1778	500	543.0854	3.569	Si
SLU 83	1.11	-565.54	78.6223	435	569.9836	7.25	Si
SLU 81	-1.59	-641.92	-146.4921	494	546.6474	3.732	Si
SLU 81	1.11	-558.54	78.9483	430	570.9272	7.232	Si
SLU 77	-1.59	-634.07	-149.7179	488	550.1462	3.675	Si
SLU 77	1.11	-551.8	77.8453	425	571.6478	7.343	Si
SLU 82	-1.59	-644.08	-129.8753	496	545.6388	4.201	Si
SLU 82	1.11	-568.68	91.6808	438	569.4939	6.212	Si
SLU 74	-1.59	-626.6	-144.0322	482	553.2403	3.841	Si
SLU 74	1.11	-544.8	78.1713	419	572.1983	7.32	Si
SLU 80	-1.59	-631.82	-132.0844	486	551.1035	4.172	Si
SLU 80	1.11	-557.38	90.3978	429	571.0644	6.317	Si
SLU 79	-1.59	-629.65	-148.7012	485	552.0036	3.712	Si
SLU 79	1.11	-547.24	77.6653	421	572.0289	7.365	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 11	-1.59	-399.7	-178.256	308	647.4241	3.632	Si
SLD 11	1.11	-321.65	14.2202	248	555.2437	39.046	Si
SLV 7	-1.59	-400.69	-288.7869	308	648.4889	2.246	Si
SLV 7	1.11	-299.17	-28.4758	230	525.608	18.458	Si
SLD 7	-1.59	-416.6	-175.5725	321	665.1895	3.789	Si
SLD 7	1.11	-339.46	22.725	261	577.7386	25.423	Si
SLV 16	-1.59	-347.83	-159.7465	268	588.0099	3.681	Si
SLV 16	1.11	-271.68	-2.1847	209	487.5036	223.141	Si
SLD 12	-1.59	-399.7	-178.256	308	647.4241	3.632	Si
SLD 12	1.11	-321.65	14.2202	248	555.2437	39.046	Si
SLV 15	-1.59	-347.83	-159.7465	268	588.0099	3.681	Si
SLV 15	1.11	-271.68	-2.1847	209	487.5036	223.141	Si
SLV 12	-1.59	-360.55	-294.1731	278	603.2597	2.051	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	1.11	-256.91	-47.9083	198	466.1702	9.73	Si
SLV 8	-1.59	-400.69	-288.7869	308	648.4889	2.246	Si
SLV 8	1.11	-299.17	-28.4758	230	525.608	18.458	Si
SLV 11	-1.59	-360.55	-294.1731	278	603.2597	2.051	Si
SLV 11	1.11	-256.91	-47.9083	198	466.1702	9.73	Si
SLD 8	-1.59	-416.6	-175.5725	321	665.1895	3.789	Si
SLD 8	1.11	-339.46	22.725	261	577.7386	25.423	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-1.59	-618.33	23.35	-109.6352		476	4.3299	108	140.72			6.03	Si
SLU 73	1.11	-550.15	39.31	99.5382		424	4.3299	108	140.72			3.58	Si
SLU 52	-1.59	-559.99	24.25	-87.6291		431	4.3299	108	140.72			5.8	Si
SLU 52	1.11	-495.14	38.96	99.459		381	4.3299	106	138.18			3.55	Si
SLU 13	-1.59	-469.09	20.9	-77.4389		361	4.3299	104	134.71			6.45	Si
SLU 13	1.11	-419.9	33.08	81.4388		323	4.3299	99	128.15			3.87	Si
SLU 10	-1.59	-461.63	24.36	-71.7532		355	4.3299	103	133.72			5.49	Si
SLU 10	1.11	-412.9	36.38	81.7647		318	4.3299	98	127.22			3.5	Si
SLU 31	-1.59	-519.96	23.45	-93.7593		400	4.3299	108	140.72			6	Si
SLU 31	1.11	-467.92	36.73	81.8439		360	4.3299	104	134.55			3.66	Si
SLU 23	-1.59	-456.5	23.04	-72.3807		351	4.3299	102	133.03			5.77	Si
SLU 23	1.11	-408.91	34.93	80.3715		315	4.3299	98	126.69			3.63	Si
SLU 5	-1.59	-405.63	20.49	-56.0603		312	4.3299	97	126.25			6.16	Si
SLU 5	1.11	-360.89	31.28	79.9663		278	4.3299	93	120.28			3.85	Si
SLU 2	-1.59	-398.17	23.94	-50.3746		307	4.3299	96	125.25			5.23	Si
SLU 2	1.11	-353.9	34.58	80.2923		272	4.3299	92	119.35			3.45	Si
SLU 65	-1.59	-554.86	22.93	-88.2566		427	4.3299	108	140.72			6.14	Si
SLU 65	1.11	-491.15	37.5	98.0657		378	4.3299	106	137.65			3.67	Si
SLU 44	-1.59	-496.53	23.84	-66.2505		382	4.3299	107	138.37			5.8	Si
SLU 44	1.11	-436.14	37.15	97.9866		336	4.3299	100	130.32			3.51	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	-1.59	-458.02	186.37	107.8569		353	4.3299	154	199.85			1.07	Si
SLV 9	1.11	-439.99	176.56	147.5052		339	4.3299	151	196.25			1.11	Si
SLV 12	-1.59	-360.55	-190.51	-294.1731		297	4.0472	143	173.29			0.91	No, Vu<V
SLV 12	1.11	-256.91	-171.41	-47.9083		198	4.3299	123	159.63			0.93	No, Vu<V
SLV 8	-1.59	-400.69	-189.42	-288.7869		308	4.3299	145	188.39			0.99	No, Vu<V
SLV 8	1.11	-299.17	-157.35	-28.4758		230	4.3299	129	168.08			1.07	Si
SLV 10	-1.59	-458.02	186.37	107.8569		353	4.3299	154	199.85			1.07	Si
SLV 10	1.11	-439.99	176.56	147.5052		339	4.3299	151	196.25			1.11	Si
SLD 6	-1.59	-459.01	80.16	-2.674		353	4.3299	154	200.05			2.5	Si
SLD 6	1.11	-417.5	87.23	104.8091		321	4.3299	148	191.75			2.2	Si
SLD 5	-1.59	-459.01	80.16	-2.674		353	4.3299	154	200.05			2.5	Si
SLD 5	1.11	-417.5	87.23	104.8091		321	4.3299	148	191.75			2.2	Si
SLV 11	-1.59	-360.55	-190.51	-294.1731		297	4.0472	143	173.29			0.91	No, Vu<V
SLV 11	1.11	-256.91	-171.41	-47.9083		198	4.3299	123	159.63			0.93	No, Vu<V
SLV 6	-1.59	-498.17	187.45	113.2431		384	4.3299	160	207.88			1.11	Si
SLV 6	1.11	-482.25	190.61	166.9376		371	4.3299	158	204.7			1.07	Si
SLV 5	-1.59	-498.17	187.45	113.2431		384	4.3299	160	207.88			1.11	Si
SLV 5	1.11	-482.25	190.61	166.9376		371	4.3299	158	204.7			1.07	Si
SLV 7	-1.59	-400.69	-189.42	-288.7869		308	4.3299	145	188.39			0.99	No, Vu<V
SLV 7	1.11	-299.17	-157.35	-28.4758		230	4.3299	129	168.08			1.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.24	249	-323.74	1.7352	38.6557	22.28	Si
SLV 12	1438	0.24	249	-323.74	1.7352	38.6557	22.28	Si
SLV 15	1438	0.24	252	-327.98	1.7352	39.0309	22.49	Si
SLV 16	1438	0.24	252	-327.98	1.7352	39.0309	22.49	Si
SLV 8	1438	0.24	280	-363.82	1.7352	42.0641	24.24	Si
SLV 7	1438	0.24	280	-363.82	1.7352	42.0641	24.24	Si
SLV 13	1438	0.24	286	-371.71	1.7352	42.6984	24.61	Si
SLV 14	1438	0.24	286	-371.71	1.7352	42.6984	24.61	Si
SLV 3	1438	0.24	355	-461.61	1.7352	49.1036	28.3	Si
SLV 4	1438	0.24	355	-461.61	1.7352	49.1036	28.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-482.25	-498.17	-0.02	0.059	54.036	0.972	0.88125	4.39851	No
SLV 5	-482.25	-498.17	-0.02	0.059	54.036	0.972	0.88125	4.39851	No
SLV 9	-439.99	-458.02	0.15	0.059	49.733	0.97	0.88368	4.39851	No
SLV 10	-439.99	-458.02	0.15	0.059	49.733	0.97	0.88368	4.39851	No
SLV 1	-467.47	-510.89	-0.34	0.058	52.532	0.971	0.8736	4.30325	No
SLV 2	-467.47	-510.89	-0.34	0.058	52.532	0.971	0.8736	4.30325	No
SLV 4	-412.55	-481.65	-0.46	0.058	46.94	0.968	0.87775	4.30325	No
SLV 3	-412.55	-481.65	-0.46	0.058	46.94	0.968	0.87775	4.30325	No
SLV 7	-299.17	-400.69	-0.41	0.06	35.403	0.959	0.90396	4.39851	No
SLV 8	-299.17	-400.69	-0.41	0.06	35.403	0.959	0.90396	4.39851	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.569	SLU 83	Si
V_SLU	3.452	SLU 2	Si
PF_SLV	2.051	SLV 11	Si
V_SLV	0.91	SLV 11	No



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	22.278	SLV 11	Si
R SLV	0.2	SLV 5	No

## Maschio 47

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.013	-3.284	-10.553	-3.284	L1	L3	0.46	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 77	-1.59	-100.22	-6.5681	484	9.3502	1.424	Si
SLU 77	0.46	-102.36	-0.254	494	9.2513	36.426	Si
SLU 80	-1.59	-99.54	-6.7291	481	9.3791	1.394	Si
SLU 80	0.46	-102.57	-0.1907	495	9.2409	48.464	Si
SLU 84	-1.59	-101.03	-7.0336	488	9.3144	1.324	Si
SLU 84	0.46	-105.41	-0.1363	509	9.0884	66.692	Si
SLU 82	-1.59	-98.5	-6.9986	476	9.4209	1.346	Si
SLU 82	0.46	-103.42	-0.0996	500	9.1975	92.346	Si
SLU 73	-1.59	-94.08	-6.7833	455	9.5653	1.41	Si
SLU 73	0.46	-98.85	-0.0737	478	9.4072	127.611	Si
SLU 76	-1.59	-96.61	-6.8183	467	9.4892	1.392	Si
SLU 76	0.46	-100.84	-0.1104	487	9.3229	84.452	Si
SLU 83	-1.59	-101.64	-6.8473	491	9.286	1.356	Si
SLU 83	0.46	-105.02	-0.2017	507	9.1108	45.174	Si
SLU 81	-1.59	-99.11	-6.8123	479	9.3967	1.379	Si
SLU 81	0.46	-103.03	-0.165	498	9.2178	55.863	Si
SLU 75	-1.59	-97.09	-6.7194	469	9.4729	1.41	Si
SLU 75	0.46	-100.76	-0.1519	487	9.3264	61.404	Si
SLU 78	-1.59	-99.61	-6.7544	481	9.3762	1.388	Si
SLU 78	0.46	-102.75	-0.1886	496	9.2317	48.958	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 8	-1.59	-36.9	-6.288	178	7.2495	1.153	Si
SLV 8	0.46	-56.63	0.2502	274	10.1082	40.408	Si
SLD 1	-1.59	-62.8	-8.9144	303	10.8576	1.218	Si
SLD 1	0.46	-83.4	0.3739	403	12.8573	34.386	Si
SLD 4	-1.59	-56.36	-8.6212	272	10.0738	1.168	Si
SLD 4	0.46	-78.18	0.3884	378	12.4233	31.984	Si
SLV 2	-1.59	-57.26	-14.7262	0	0	0	No, e>l/2
SLV 2	0.46	-103.07	1.0545	498	14.0458	13.32	Si
SLD 3	-1.59	-56.36	-8.6212	272	10.0738	1.168	Si
SLD 3	0.46	-78.18	0.3884	378	12.4233	31.984	Si
SLD 2	-1.59	-62.8	-8.9144	303	10.8576	1.218	Si
SLD 2	0.46	-83.4	0.3739	403	12.8573	34.386	Si
SLV 7	-1.59	-36.9	-6.288	178	7.2495	1.153	Si
SLV 7	0.46	-56.63	0.2502	274	10.1082	40.408	Si
SLV 4	-1.59	-42.16	-14.0389	0	0	0	No, e>l/2
SLV 4	0.46	-90.88	1.0832	439	13.3917	12.363	Si
SLV 1	-1.59	-57.26	-14.7262	0	0	0	No, e>l/2
SLV 1	0.46	-103.07	1.0545	498	14.0458	13.32	Si
SLV 3	-1.59	-42.16	-14.0389	0	0	0	No, e>l/2
SLV 3	0.46	-90.88	1.0832	439	13.3917	12.363	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-1.59	-94.08	-15.08	-6.7833		455	0.46	108	22.42			1.49	Si
SLU 73	0.46	-98.85	1.73	-0.0737		478	0.46	108	22.42			12.94	Si
SLU 78	-1.59	-99.61	-15.02	-6.7544		481	0.46	108	22.42			1.49	Si
SLU 78	0.46	-102.75	1.88	-0.1886		496	0.46	108	22.42			11.96	Si
SLU 80	-1.59	-99.54	-14.97	-6.7291		481	0.46	108	22.42			1.5	Si
SLU 80	0.46	-102.57	1.86	-0.1907		495	0.46	108	22.42			12.04	Si
SLU 83	-1.59	-101.64	-15.26	-6.8473		491	0.46	108	22.42			1.47	Si
SLU 83	0.46	-105.02	1.66	-0.2017		507	0.46	108	22.42			13.51	Si
SLU 76	-1.59	-96.61	-15.16	-6.8183		467	0.46	108	22.42			1.48	Si
SLU 76	0.46	-100.84	1.83	-0.1104		487	0.46	108	22.42			12.26	Si
SLU 75	-1.59	-97.09	-14.94	-6.7194		469	0.46	108	22.42			1.5	Si
SLU 75	0.46	-100.76	1.78	-0.1519		487	0.46	108	22.42			12.6	Si
SLU 77	-1.59	-100.22	-14.62	-6.5681		484	0.46	108	22.42			1.53	Si
SLU 77	0.46	-102.36	1.78	-0.254		494	0.46	108	22.42			12.58	Si
SLU 84	-1.59	-101.03	-15.66	-7.0336		488	0.46	108	22.42			1.43	Si
SLU 84	0.46	-105.41	1.75	-0.1363		509	0.46	108	22.42			12.79	Si
SLU 82	-1.59	-98.5	-15.58	-6.9986		476	0.46	108	22.42			1.44	Si
SLU 82	0.46	-103.42	1.66	-0.0996		500	0.46	108	22.42			13.53	Si
SLU 81	-1.59	-99.11	-15.18	-6.8123		479	0.46	108	22.42			1.48	Si
SLU 81	0.46	-103.03	1.56	-0.165		498	0.46	108	22.42			14.34	Si





Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 2	-1.59	-62.8	-16.95	-8.9144		528	0.2641	163	19.32			1.14	Si
SLD 2	0.46	-83.4	2.04	0.3739		403	0.46	163	33.64			16.5	Si
SLD 4	-1.59	-56.36	-16.7	-8.6212		542	0.2311	163	16.9			1.01	Si
SLD 4	0.46	-78.18	0.76	0.3884		378	0.46	159	32.89			43.45	Si
SLV 2	-1.59	-57.26	-26.04	-14.7262		0	0	83	0			0	No, Vu<V
SLV 2	0.46	-103.07	3.08	1.0545		498	0.46	163	33.64			10.93	Si
SLV 8	-1.59	-36.9	-13.71	-6.288		459	0.1788	163	13.08			0.95	No, Vu<V
SLV 8	0.46	-56.63	-3.69	0.2502		274	0.46	138	28.58			7.74	Si
SLD 3	-1.59	-56.36	-16.7	-8.6212		542	0.2311	163	16.9			1.01	Si
SLD 3	0.46	-78.18	0.76	0.3884		378	0.46	159	32.89			43.45	Si
SLV 3	-1.59	-42.16	-25.47	-14.0389		0	0	83	0			0	No, Vu<V
SLV 3	0.46	-90.88	0.06	1.0832		439	0.46	163	33.64			567.79	Si
SLV 1	-1.59	-57.26	-26.04	-14.7262		0	0	83	0			0	No, Vu<V
SLV 1	0.46	-103.07	3.08	1.0545		498	0.46	163	33.64			10.93	Si
SLV 4	-1.59	-42.16	-25.47	-14.0389		0	0	83	0			0	No, Vu<V
SLV 4	0.46	-90.88	0.06	1.0832		439	0.46	163	33.64			567.79	Si
SLV 7	-1.59	-36.9	-13.71	-6.288		459	0.1788	163	13.08			0.95	No, Vu<V
SLV 7	0.46	-56.63	-3.69	0.2502		274	0.46	138	28.58			7.74	Si
SLD 1	-1.59	-62.8	-16.95	-8.9144		528	0.2641	163	19.32			1.14	Si
SLD 1	0.46	-83.4	2.04	0.3739		403	0.46	163	33.64			16.5	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.24	239	-49.46	0.2765	8.9527	32.38	Si
SLV 15	1438	0.24	239	-49.46	0.2765	8.9527	32.38	Si
SLV 12	1438	0.24	248	-51.38	0.2765	9.2123	33.32	Si
SLV 11	1438	0.24	248	-51.38	0.2765	9.2123	33.32	Si
SLV 13	1438	0.24	335	-69.4	0.2765	11.3305	40.98	Si
SLV 14	1438	0.24	335	-69.4	0.2765	11.3305	40.98	Si
SLV 8	1438	0.24	352	-72.96	0.2765	11.6809	42.24	Si
SLV 7	1438	0.24	352	-72.96	0.2765	11.6809	42.24	Si
SLV 2	1438	0.24	683	-141.34	0.2765	14.0303	50.74	Si
SLV 1	1438	0.24	683	-141.34	0.2765	14.0303	50.74	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-29.53	-36.9	1.88	0.041	3.8	0.941	0.63388	3.52938	No
SLV 7	-29.53	-36.9	1.88	0.041	3.8	0.941	0.63388	3.52938	No
SLV 11	-16.74	-47.49	1.31	0.042	2.509	0.918	0.67114	3.52938	No
SLV 12	-16.74	-47.49	1.31	0.042	2.509	0.918	0.67114	3.52938	No
SLV 4	-61.43	-42.16	2.43	0.053	7.041	0.966	0.79929	3.48092	No
SLV 3	-61.43	-42.16	2.43	0.053	7.041	0.966	0.79929	3.48092	No
SLV 2	-75.97	-57.26	2.32	0.06	8.521	0.972	0.89478	3.48092	No
SLV 1	-75.97	-57.26	2.32	0.06	8.521	0.972	0.89478	3.48092	No
SLV 5	-78.01	-87.23	1.54	0.07	8.729	0.972	1.0441	3.52938	No
SLV 6	-78.01	-87.23	1.54	0.07	8.729	0.972	1.0441	3.52938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.324	SLU 84	Si
V_SLU	1.432	SLU 84	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	32.377	SLV 15	Si
R_SLV	0.18	SLV 7	No

## Maschio 48

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-8.253	-3.284	-7.463	-3.284	L1	L3	0.79	0.45	2.7	2.7	2.7			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	0.41	-183.57	14.7876	516	26.5456	1.795	Si
SLU 84	0.81	-167.56	27.2164	471	27.8892	1.025	Si
SLU 73	0.41	-177.77	14.1395	500	27.1135	1.918	Si
SLU 73	0.81	-162.74	26.5414	458	28.1569	1.061	Si
SLU 81	0.41	-174.73	14.1666	492	27.3737	1.932	Si
SLU 81	0.81	-158.68	25.763	446	28.3334	1.1	Si
SLU 76	0.41	-179.98	14.3863	506	26.908	1.87	Si
SLU 76	0.81	-164.79	26.8311	464	28.0512	1.045	Si
SLU 83	0.41	-176.94	14.4134	498	27.1865	1.886	Si
SLU 83	0.81	-160.72	26.0527	452	28.2504	1.084	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	0.41	-181.36	14.5408	510	26.7728	1.841	Si
SLU 82	0.81	-165.52	26.9267	466	28.0104	1.04	Si
SLU 77	0.41	-171.82	14.0687	483	27.6002	1.962	Si
SLU 77	0.81	-156.1	25.3057	439	28.4219	1.123	Si
SLU 78	0.41	-178.44	14.4428	502	27.0519	1.873	Si
SLU 78	0.81	-162.95	26.4694	458	28.147	1.063	Si
SLU 75	0.41	-176.23	14.196	496	27.2481	1.919	Si
SLU 75	0.81	-160.9	26.1797	453	28.2424	1.079	Si
SLU 80	0.41	-177.77	14.3837	500	27.1131	1.885	Si
SLU 80	0.81	-162.27	26.3449	456	28.1799	1.07	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 2	0.41	-121.27	7.184	341	34.5286	4.806	Si
SLD 2	0.81	-116.49	22.1074	328	33.6743	1.523	Si
SLV 5	0.41	-163.6	14.294	460	40.2835	2.818	Si
SLV 5	0.81	-155.62	26.7836	438	39.4482	1.473	Si
SLV 1	0.41	-128.85	4.4566	362	35.7989	8.033	Si
SLV 1	0.81	-131.82	28.7129	371	36.2682	1.263	Si
SLD 4	0.41	-109.53	5.5303	308	32.3559	5.851	Si
SLD 4	0.81	-104.96	20.3954	295	31.441	1.542	Si
SLV 4	0.41	-99.97	0.2462	281	30.4005	123.491	Si
SLV 4	0.81	-103.79	24.6365	292	31.2015	1.266	Si
SLV 2	0.41	-128.85	4.4566	362	35.7989	8.033	Si
SLV 2	0.81	-131.82	28.7129	371	36.2682	1.263	Si
SLV 6	0.41	-163.6	14.294	460	40.2835	2.818	Si
SLV 6	0.81	-155.62	26.7836	438	39.4482	1.473	Si
SLD 3	0.41	-109.53	5.5303	308	32.3559	5.851	Si
SLD 3	0.81	-104.96	20.3954	295	31.441	1.542	Si
SLV 3	0.41	-99.97	0.2462	281	30.4005	123.491	Si
SLV 3	0.81	-103.79	24.6365	292	31.2015	1.266	Si
SLD 1	0.41	-121.27	7.184	341	34.5286	4.806	Si
SLD 1	0.81	-116.49	22.1074	328	33.6743	1.523	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	0.41	-177.77	-21.16	14.1395		500	0.79	108	38.51			1.82	Si
SLU 73	0.81	-162.74	-10.87	26.5414		520	0.6957	108	33.92			3.12	Si
SLU 65	0.41	-159.08	-19.65	12.6213		447	0.79	108	38.51			1.96	Si
SLU 65	0.81	-145.62	-10.36	23.8322		466	0.694	108	33.83			3.27	Si
SLU 76	0.41	-179.98	-21.07	14.3863		506	0.79	108	38.51			1.83	Si
SLU 76	0.81	-164.79	-10.82	26.8311		526	0.6965	108	33.96			3.14	Si
SLU 55	0.41	-164.99	-19.57	13.1331		464	0.79	108	38.51			1.97	Si
SLU 55	0.81	-150.91	-10.36	24.6013		482	0.696	108	33.93			3.28	Si
SLU 84	0.41	-183.57	-20.21	14.7876		516	0.79	108	38.51			1.91	Si
SLU 84	0.81	-167.56	-9.59	27.2164		534	0.6977	108	34.01			3.55	Si
SLU 68	0.41	-161.29	-19.56	12.8681		454	0.79	108	38.51			1.97	Si
SLU 68	0.81	-147.66	-10.31	24.1219		472	0.6949	108	33.88			3.29	Si
SLU 52	0.41	-162.77	-19.66	12.8863		458	0.79	108	38.51			1.96	Si
SLU 52	0.81	-148.87	-10.41	24.3116		476	0.6951	108	33.89			3.25	Si
SLU 75	0.41	-176.23	-19.75	14.196		496	0.79	108	38.51			1.95	Si
SLU 75	0.81	-160.9	-9.49	26.1797		513	0.6969	108	33.97			3.58	Si
SLU 82	0.41	-181.36	-20.3	14.5408		510	0.79	108	38.51			1.9	Si
SLU 82	0.81	-165.52	-9.65	26.9267		528	0.697	108	33.98			3.52	Si
SLU 78	0.41	-178.44	-19.66	14.4428		502	0.79	108	38.51			1.96	Si
SLU 78	0.81	-162.95	-9.43	26.4694		519	0.6977	108	34.01			3.61	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	0.41	-102.98	52.34	14.3182		298	0.7679	143	49.39			0.94	No, Vu<V
SLV 16	0.81	-78.35	23.39	5.5362		220	0.79	127	45.3			1.94	Si
SLV 15	0.41	-102.98	52.34	14.3182		298	0.7679	143	49.39			0.94	No, Vu<V
SLV 15	0.81	-78.35	23.39	5.5362		220	0.79	127	45.3			1.94	Si
SLV 5	0.41	-163.6	-54.4	14.294		460	0.79	163	57.77			1.06	Si
SLV 5	0.81	-155.62	-27.89	26.7836		517	0.6687	163	48.9			1.75	Si
SLV 2	0.41	-128.85	-76.95	4.4566		362	0.79	156	55.4			0.72	No, Vu<V
SLV 2	0.81	-131.82	-33.86	28.7129		551	0.5316	163	38.87			1.15	Si
SLV 1	0.41	-128.85	-76.95	4.4566		362	0.79	156	55.4			0.72	No, Vu<V
SLV 1	0.81	-131.82	-33.86	28.7129		551	0.5316	163	38.87			1.15	Si
SLV 3	0.41	-99.97	-61.99	0.2462		281	0.79	140	49.62			0.8	No, Vu<V
SLV 3	0.81	-103.79	-24.59	24.6365		488	0.4729	163	34.58			1.41	Si
SLV 6	0.41	-163.6	-54.4	14.294		460	0.79	163	57.77			1.06	Si
SLV 6	0.81	-155.62	-27.89	26.7836		517	0.6687	163	48.9			1.75	Si
SLV 4	0.41	-99.97	-61.99	0.2462		281	0.79	140	49.62			0.8	No, Vu<V
SLV 4	0.81	-103.79	-24.59	24.6365		488	0.4729	163	34.58			1.41	Si
SLD 2	0.41	-121.27	-40.42	7.184		341	0.79	152	53.88			1.33	Si
SLD 2	0.81	-116.49	-17.6	22.1074		420	0.6157	163	45.02			2.56	Si
SLD 1	0.41	-121.27	-40.42	7.184		341	0.79	152	53.88			1.33	Si
SLD 1	0.81	-116.49	-17.6	22.1074		420	0.6157	163	45.02			2.56	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.24	190	-67.66	0.4749	12.8528	27.07	Si
SLV 12	1438	0.24	190	-67.66	0.4749	12.8528	27.07	Si
SLV 16	1438	0.24	199	-70.9	0.4749	13.3481	28.11	Si
SLV 15	1438	0.24	199	-70.9	0.4749	13.3481	28.11	Si
SLV 8	1438	0.24	235	-83.7	0.4749	15.203	32.01	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.24	235	-83.7	0.4749	15.203	32.01	Si
SLV 14	1438	0.24	252	-89.7	0.4749	16.0147	33.72	Si
SLV 13	1438	0.24	252	-89.7	0.4749	16.0147	33.72	Si
SLV 4	1438	0.24	350	-124.34	0.4749	19.9679	42.05	Si
SLV 3	1438	0.24	350	-124.34	0.4749	19.9679	42.05	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-31	-44.28	4.7	0	4.534	0.921	0	3.52938	No
SLV 15	-76.12	6.99	5.49	0	0	0	0	3.48092	No, Trazione
SLV 11	-31	-44.28	4.7	0	4.534	0.921	0	3.52938	No
SLV 16	-76.12	6.99	5.49	0	0	0	0	3.48092	No, Trazione
SLV 8	-23.12	-108.82	3.17	0.006	3.747	0.91	0.10096	3.52938	No
SLV 7	-23.12	-108.82	3.17	0.006	3.747	0.91	0.10096	3.52938	No
SLV 13	-106.92	-13.62	4.64	0.049	12.237	0.967	0.74332	3.48092	No
SLV 14	-106.92	-13.62	4.64	0.049	12.237	0.967	0.74332	3.48092	No
SLV 9	-133.66	-112.96	1.86	0.075	14.96	0.972	1.12617	3.52938	No
SLV 10	-133.66	-112.96	1.86	0.075	14.96	0.972	1.12617	3.52938	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.025	SLU 84	Si
V_SLU	1.82	SLU 73	Si
PF_SLV	1.263	SLV 1	Si
V_SLV	0.72	SLV 1	No
PFFP_SLV	27.066	SLV 11	Si
R_SLV	0	SLV 16	No

## Maschio 49

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-6.463	-3.284	-3.233	-3.284	L1	L3	3.23	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 65	0.41	-344.83	-119.5746	237	394.7056	3.301	Si
SLU 65	0.81	-331.85	-153.024	228	385.7225	2.521	Si
SLU 5	0.41	-245.4	-93.6368	169	314.1798	3.355	Si
SLU 5	0.81	-235.42	-121.969	162	304.602	2.497	Si
SLU 52	0.41	-352.42	-120.8938	242	399.7499	3.307	Si
SLU 52	0.81	-339.44	-154.4439	234	391.0358	2.532	Si
SLU 73	0.41	-391.47	-128.4799	269	423.1872	3.294	Si
SLU 73	0.81	-378.49	-163.8971	260	415.8557	2.537	Si
SLU 55	0.41	-355.44	-121.4935	245	401.7074	3.306	Si
SLU 55	0.81	-342.46	-155.5912	236	393.1001	2.526	Si
SLU 68	0.41	-347.84	-120.1743	239	396.7255	3.301	Si
SLU 68	0.81	-334.86	-154.1713	230	387.8492	2.516	Si
SLU 2	0.41	-242.39	-93.0372	167	311.3175	3.346	Si
SLU 2	0.81	-232.4	-120.8217	160	301.6576	2.497	Si
SLU 76	0.41	-394.48	-129.0796	271	424.8237	3.291	Si
SLU 76	0.81	-381.5	-165.0445	262	417.599	2.53	Si
SLU 47	0.41	-308.8	-112.5882	212	368.6418	3.274	Si
SLU 47	0.81	-295.82	-144.7181	204	358.3828	2.476	Si
SLU 44	0.41	-305.79	-111.9885	210	366.3008	3.271	Si
SLU 44	0.81	-292.8	-143.5708	201	355.9351	2.479	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	0.41	-214.09	-199.5504	147	304.0783	1.524	Si
SLV 3	0.81	-237.88	-97.1843	164	332.7177	3.424	Si
SLV 6	0.41	-457.78	-166.7264	315	548.746	3.291	Si
SLV 6	0.81	-308.04	-169.3545	212	411.193	2.428	Si
SLV 8	0.41	-95.85	-68.9753	66	146.4394	2.123	Si
SLV 8	0.81	-221.13	-30.8404	152	312.6567	10.138	Si
SLD 4	0.41	-252.74	-130.6998	174	350.0886	2.679	Si
SLD 4	0.81	-256.24	-95.0764	176	354.1208	3.725	Si
SLV 4	0.41	-214.09	-199.5504	147	304.0783	1.524	Si
SLV 4	0.81	-237.88	-97.1843	164	332.7177	3.424	Si
SLV 7	0.41	-95.85	-68.9753	66	146.4394	2.123	Si
SLV 7	0.81	-221.13	-30.8404	152	312.6567	10.138	Si
SLV 5	0.41	-457.78	-166.7264	315	548.746	3.291	Si
SLV 5	0.81	-308.04	-169.3545	212	411.193	2.428	Si
SLD 3	0.41	-252.74	-130.6998	174	350.0886	2.679	Si
SLD 3	0.81	-256.24	-95.0764	176	354.1208	3.725	Si
SLV 1	0.41	-322.67	-228.8757	222	426.435	1.863	Si
SLV 1	0.81	-263.95	-138.7385	182	362.9267	2.616	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	0.41	-322.67	-228.8757	222	426.435	1.863	Si
SLV 2	0.81	-263.95	-138.7385	182	362.9267	2.616	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 65	0.41	-344.83	83.76	-119.5746		237	3.23	87	126.73			1.51	Si
SLU 65	0.81	-331.85	83.76	-153.024		228	3.23	86	125			1.49	Si
SLU 26	0.41	-284.44	75.61	-101.2229		196	3.23	82	118.68			1.57	Si
SLU 26	0.81	-274.46	75.61	-131.4223		189	3.23	81	117.34			1.55	Si
SLU 52	0.41	-352.42	84.02	-120.8938		242	3.23	88	127.74			1.52	Si
SLU 52	0.81	-339.44	84.02	-154.4439		234	3.23	87	126.01			1.5	Si
SLU 55	0.41	-355.44	85.38	-121.4935		245	3.23	88	128.14			1.5	Si
SLU 55	0.81	-342.46	85.38	-155.5912		236	3.23	87	126.41			1.48	Si
SLU 47	0.41	-308.8	80.47	-112.5882		212	3.23	84	121.92			1.52	Si
SLU 47	0.81	-295.82	80.47	-144.7181		204	3.23	83	120.19			1.49	Si
SLU 44	0.41	-305.79	79.1	-111.9885		210	3.23	84	121.52			1.54	Si
SLU 44	0.81	-292.8	79.1	-143.5708		201	3.23	82	119.79			1.51	Si
SLU 76	0.41	-394.48	90.05	-129.0796		271	3.23	92	133.35			1.48	Si
SLU 76	0.81	-381.5	90.05	-165.0445		262	3.23	91	131.62			1.46	Si
SLU 73	0.41	-391.47	88.68	-128.4799		269	3.23	91	132.95			1.5	Si
SLU 73	0.81	-378.49	88.68	-163.8971		260	3.23	90	131.21			1.48	Si
SLU 34	0.41	-331.08	80.53	-110.1282		228	3.23	86	124.89			1.55	Si
SLU 34	0.81	-321.1	80.53	-142.2954		221	3.23	85	123.56			1.53	Si
SLU 68	0.41	-347.84	85.13	-120.1743		239	3.23	87	127.13			1.49	Si
SLU 68	0.81	-334.86	85.13	-154.1713		230	3.23	86	125.4			1.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	0.41	-95.85	-188.47	-68.9753		79	2.6861	99	119.9			0.64	No, Vu<V
SLV 7	0.81	-221.13	-265.59	-30.8404		152	3.23	114	165.35			0.62	No, Vu<V
SLV 14	0.41	-346.76	375.87	46.4449		239	3.23	131	190.48			0.51	No, Vu<V
SLV 14	0.81	-303	394.79	-87.6986		208	3.23	125	181.72			0.46	No, Vu<V
SLV 3	0.41	-214.09	-296.21	-199.5504		232	2.0488	130	119.65			0.4	No, Vu<V
SLV 3	0.81	-237.88	-315.13	-97.1843		164	3.23	116	168.7			0.54	No, Vu<V
SLV 8	0.41	-95.85	-188.47	-68.9753		79	2.6861	99	119.9			0.64	No, Vu<V
SLV 8	0.81	-221.13	-265.59	-30.8404		152	3.23	114	165.35			0.62	No, Vu<V
SLV 15	0.41	-238.18	291.81	75.7702		164	3.23	116	168.76			0.58	No, Vu<V
SLV 15	0.81	-276.93	263.62	-46.1444		191	3.23	121	176.51			0.67	No, Vu<V
SLV 13	0.41	-346.76	375.87	46.4449		239	3.23	131	190.48			0.51	No, Vu<V
SLV 13	0.81	-303	394.79	-87.6986		208	3.23	125	181.72			0.46	No, Vu<V
SLV 4	0.41	-214.09	-296.21	-199.5504		232	2.0488	130	119.65			0.4	No, Vu<V
SLV 4	0.81	-237.88	-315.13	-97.1843		164	3.23	116	168.7			0.54	No, Vu<V
SLV 9	0.41	-465	268.13	-84.1302		320	3.23	147	214.13			0.8	No, Vu<V
SLV 9	0.81	-319.75	345.25	-154.0425		220	3.23	127	185.07			0.54	No, Vu<V
SLV 16	0.41	-238.18	291.81	75.7702		164	3.23	116	168.76			0.58	No, Vu<V
SLV 16	0.81	-276.93	263.62	-46.1444		191	3.23	121	176.51			0.67	No, Vu<V
SLV 10	0.41	-465	268.13	-84.1302		320	3.23	147	214.13			0.8	No, Vu<V
SLV 10	0.81	-319.75	345.25	-154.0425		220	3.23	127	185.07			0.54	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.24	73	-106.41	1.9416	22.507	11.59	Si
SLV 7	1438	0.24	73	-106.41	1.9416	22.507	11.59	Si
SLV 12	1438	0.24	80	-116.56	1.9416	24.5043	12.62	Si
SLV 11	1438	0.24	80	-116.56	1.9416	24.5043	12.62	Si
SLV 4	1438	0.24	132	-191.86	1.9416	38.5049	19.83	Si
SLV 3	1438	0.24	132	-191.86	1.9416	38.5049	19.83	Si
SLV 16	1438	0.24	155	-225.7	1.9416	44.3284	22.83	Si
SLV 15	1438	0.24	155	-225.7	1.9416	44.3284	22.83	Si
SLV 2	1438	0.24	189	-275.26	1.9416	52.3338	26.95	Si
SLV 1	1438	0.24	189	-275.26	1.9416	52.3338	26.95	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-190.17	-115.21	13.69	0.036	24.939	0.938	0.55291	3.52938	No
SLV 8	-190.17	-115.21	13.69	0.036	24.939	0.938	0.55291	3.52938	No
SLV 12	-197.63	-132.06	13.81	0.037	25.694	0.94	0.56712	3.52938	No
SLV 11	-197.63	-132.06	13.81	0.037	25.694	0.94	0.56712	3.52938	No
SLV 4	-202.98	-195.09	11.13	0.049	26.235	0.941	0.75677	3.48092	No
SLV 3	-202.98	-195.09	11.13	0.049	26.235	0.941	0.75677	3.48092	No
SLV 16	-227.84	-251.23	11.56	0.051	28.755	0.945	0.77821	3.48092	No
SLV 15	-227.84	-251.23	11.56	0.051	28.755	0.945	0.77821	3.48092	No
SLV 1	-221.41	-280.4	9.07	0.059	28.103	0.944	0.91583	3.48092	No
SLV 2	-221.41	-280.4	9.07	0.059	28.103	0.944	0.91583	3.48092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.476	SLU 47	Si
V_SLU	1.462	SLU 76	Si
PF_SLV	1.524	SLV 3	Si
V_SLV	0.404	SLV 3	No
PFFP_SLV	11.592	SLV 7	Si
R_SLV	0.157	SLV 7	No



## Maschio 50

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2.233	-3.284	-0.123	-3.284	L1	L3	2.11	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 26	0.41	-178.47	33.5347	188	144.842	4.319	Si
SLU 26	0.81	-159.34	31.458	168	133.4738	4.243	Si
SLU 23	0.41	-175.62	32.7122	185	143.2116	4.378	Si
SLU 23	0.81	-156.7	30.8301	165	131.8225	4.276	Si
SLU 55	0.41	-219.37	38.3148	231	165.7953	4.327	Si
SLU 55	0.81	-196.58	34.929	207	154.681	4.428	Si
SLU 44	0.41	-189.77	36.4927	200	151.0831	4.14	Si
SLU 44	0.81	-167.7	34.1281	177	138.5624	4.06	Si
SLU 47	0.41	-192.62	37.3152	203	152.6036	4.09	Si
SLU 47	0.81	-170.35	34.756	179	140.1343	4.032	Si
SLU 2	0.41	-151.23	30.6276	159	128.3511	4.191	Si
SLU 2	0.81	-133.03	29.5949	140	116.2045	3.927	Si
SLU 76	0.41	-243.77	40.3994	257	176.1208	4.359	Si
SLU 76	0.81	-220.25	36.1642	232	166.195	4.596	Si
SLU 5	0.41	-154.08	31.4501	162	130.1712	4.139	Si
SLU 5	0.81	-135.67	30.2228	143	118.0268	3.905	Si
SLU 68	0.41	-217.01	39.3998	229	164.7098	4.18	Si
SLU 68	0.81	-194.02	35.9912	204	153.3423	4.261	Si
SLU 65	0.41	-214.16	38.5773	226	163.379	4.235	Si
SLU 65	0.81	-191.37	35.3633	202	151.9413	4.297	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	0.41	-282.16	89.9362	297	225.2841	2.505	Si
SLV 13	0.81	-249.26	39.6532	263	206.4735	5.207	Si
SLV 15	0.41	-192.73	83.4988	203	169.555	2.031	Si
SLV 15	0.81	-206.44	25.88	217	179.0434	6.918	Si
SLV 4	0.41	-59.74	-44.3084	63	59.7787	1.349	Si
SLV 4	0.81	-64.52	-5.8037	68	64.2785	11.075	Si
SLV 7	0.41	-1.95	-7.0862	0	0	0	No, $e \geq l/2$
SLV 7	0.81	-64.23	-10.7832	68	64.0155	5.937	Si
SLV 11	0.41	-41.85	31.2559	44	42.5581	1.362	Si
SLV 11	0.81	-106.81	-1.2781	112	102.3135	80.053	Si
SLV 3	0.41	-59.74	-44.3084	63	59.7787	1.349	Si
SLV 3	0.81	-64.52	-5.8037	68	64.2785	11.075	Si
SLV 14	0.41	-282.16	89.9362	297	225.2841	2.505	Si
SLV 14	0.81	-249.26	39.6532	263	206.4735	5.207	Si
SLV 16	0.41	-192.73	83.4988	203	169.555	2.031	Si
SLV 16	0.81	-206.44	25.88	217	179.0434	6.918	Si
SLV 8	0.41	-1.95	-7.0862	0	0	0	No, $e \geq l/2$
SLV 8	0.81	-64.23	-10.7832	68	64.0155	5.937	Si
SLV 12	0.41	-41.85	31.2559	44	42.5581	1.362	Si
SLV 12	0.81	-106.81	-1.2781	112	102.3135	80.053	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	0.41	-216.52	-29.05	37.4923		228	2.11	86	81.62			2.81	Si
SLU 52	0.81	-193.93	-29.4	34.3011		204	2.11	83	78.61			2.67	Si
SLU 44	0.41	-189.77	-29.75	36.4927		200	2.11	82	78.05			2.62	Si
SLU 44	0.81	-167.7	-30.09	34.1281		177	2.11	79	75.11			2.5	Si
SLU 26	0.41	-178.47	-27.89	33.5347		188	2.11	81	76.55			2.74	Si
SLU 26	0.81	-159.34	-28.23	31.458		168	2.11	78	74			2.62	Si
SLU 2	0.41	-151.23	-28.07	30.6276		159	2.11	77	72.91			2.6	Si
SLU 2	0.81	-133.03	-28.4	29.5949		140	2.11	74	70.49			2.48	Si
SLU 68	0.41	-217.01	-29.57	39.3998		229	2.11	86	81.68			2.76	Si
SLU 68	0.81	-194.02	-29.92	35.9912		204	2.11	83	78.62			2.63	Si
SLU 47	0.41	-192.62	-29.79	37.3152		203	2.11	83	78.43			2.63	Si
SLU 47	0.81	-170.35	-30.14	34.756		179	2.11	79	75.46			2.5	Si
SLU 5	0.41	-154.08	-28.11	31.4501		162	2.11	77	73.29			2.61	Si
SLU 5	0.81	-135.67	-28.45	30.2228		143	2.11	75	70.84			2.49	Si
SLU 65	0.41	-214.16	-29.53	38.5773		226	2.11	86	81.3			2.75	Si
SLU 65	0.81	-191.37	-29.87	35.3633		202	2.11	82	78.27			2.62	Si
SLU 10	0.41	-177.98	-27.37	31.6272		187	2.11	81	76.48			2.79	Si
SLU 10	0.81	-159.26	-27.7	29.7679		168	2.11	78	73.98			2.67	Si
SLU 23	0.41	-175.62	-27.84	32.7122		185	2.11	80	76.17			2.74	Si
SLU 23	0.81	-156.7	-28.18	30.8301		165	2.11	78	73.64			2.61	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	0.41	-59.74	-120.74	-44.3084		141	0.9399	112	47.19			0.39	No, $V_u < V$
SLV 3	0.81	-64.52	-144.56	-5.8037		68	2.11	97	92.03			0.64	No, $V_u < V$
SLV 16	0.41	-192.73	171.39	83.4988		230	1.8653	129	108.5			0.63	No, $V_u < V$
SLV 16	0.81	-206.44	180.63	25.88		217	2.11	127	120.41			0.67	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	0.41	-192.73	171.39	83.4988		230	1.8653	129	108.5			0.63	No, Vu<V
SLV 15	0.81	-206.44	180.63	25.88		217	2.11	127	120.41			0.67	No, Vu<V
SLV 7	0.41	-1.95	52.48	-7.0862		0	0	83	0			0	No, Vu<V
SLV 7	0.81	-64.23	23.34	-10.7832		68	2.11	97	91.97			3.94	Si
SLV 1	0.41	-149.17	-181.57	-37.871		157	2.11	115	108.96			0.6	No, Vu<V
SLV 1	0.81	-107.33	-190.91	7.9695		113	2.11	106	100.59			0.53	No, Vu<V
SLV 4	0.41	-59.74	-120.74	-44.3084		141	0.9399	112	47.19			0.39	No, Vu<V
SLV 4	0.81	-64.52	-144.56	-5.8037		68	2.11	97	92.03			0.64	No, Vu<V
SLV 8	0.41	-1.95	52.48	-7.0862		0	0	83	0			0	No, Vu<V
SLV 8	0.81	-64.23	23.34	-10.7832		68	2.11	97	91.97			3.94	Si
SLV 2	0.41	-149.17	-181.57	-37.871		157	2.11	115	108.96			0.6	No, Vu<V
SLV 2	0.81	-107.33	-190.91	7.9695		113	2.11	106	100.59			0.53	No, Vu<V
SLV 12	0.41	-41.85	140.12	31.2559		101	0.9244	103	43.03			0.31	No, Vu<V
SLV 12	0.81	-106.81	120.9	-1.2781		112	2.11	106	100.49			0.83	No, Vu<V
SLV 11	0.41	-41.85	140.12	31.2559		101	0.9244	103	43.03			0.31	No, Vu<V
SLV 11	0.81	-106.81	120.9	-1.2781		112	2.11	106	100.49			0.83	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.24	28	-27.06	1.2683	5.9455	4.69	Si
SLV 7	1438	0.24	28	-27.06	1.2683	5.9455	4.69	Si
SLV 3	1438	0.24	54	-51.01	1.2683	10.9723	8.65	Si
SLV 4	1438	0.24	54	-51.01	1.2683	10.9723	8.65	Si
SLV 12	1438	0.24	90	-85.68	1.2683	17.8544	14.08	Si
SLV 11	1438	0.24	90	-85.68	1.2683	17.8544	14.08	Si
SLV 1	1438	0.24	137	-130.16	1.2683	26.0012	20.5	Si
SLV 2	1438	0.24	137	-130.16	1.2683	26.0012	20.5	Si
SLV 15	1438	0.24	260	-246.43	1.2683	43.6688	34.43	Si
SLV 16	1438	0.24	260	-246.43	1.2683	43.6688	34.43	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-140.56	-121.3	7.45	0.05	17.946	0.943	0.76366	3.52938	No
SLV 11	-140.56	-121.3	7.45	0.05	17.946	0.943	0.76366	3.52938	No
SLV 8	-112.31	-27.92	6.36	0.051	15.086	0.934	0.78695	3.52938	No
SLV 7	-112.31	-27.92	6.36	0.051	15.086	0.934	0.78695	3.52938	No
SLV 15	-178.8	-335.62	7.14	0.057	21.826	0.952	0.87774	3.48092	No
SLV 16	-178.8	-335.62	7.14	0.057	21.826	0.952	0.87774	3.48092	No
SLV 13	-183.33	-425.94	5.78	0.065	22.285	0.953	0.98611	3.48092	No
SLV 14	-183.33	-425.94	5.78	0.065	22.285	0.953	0.98611	3.48092	No
SLV 3	-84.63	-24.36	3.5	0.069	12.296	0.922	1.08303	3.48092	No
SLV 4	-84.63	-24.36	3.5	0.069	12.296	0.922	1.08303	3.48092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.905	SLU 5	Si
V_SLU	2.482	SLU 2	Si
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	4.688	SLV 7	Si
R_SLV	0.216	SLV 11	No

## Maschio 51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	2.071	-5.158	6.801	L1	L3	4.73	0.3	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	-1.59	-1141.63	364.5901	805	33.3106	0.091	No, M>Mu
SLU 74	0.51	-1073.41	359.1433	756	181.1631	0.504	No, M>Mu
SLU 75	-1.59	-1137.6	364.0171	802	42.5909	0.117	No, M>Mu
SLU 75	0.51	-1069.37	359.9998	754	189.3161	0.526	No, M>Mu
SLU 79	-1.59	-1167.73	386.3215	823	0	0	No, Rottura per schiacciamento
SLU 79	0.51	-1099.5	372.7987	775	126.8698	0.34	No, M>Mu
SLU 82	-1.59	-1150.54	354.4652	811	12.5981	0.036	No, M>Mu
SLU 82	0.51	-1082.31	356.3968	763	162.938	0.457	No, M>Mu
SLU 77	-1.59	-1173.96	387.5484	827	0	0	No, Rottura per schiacciamento
SLU 77	0.51	-1105.73	374.7288	779	113.4882	0.303	No, M>Mu
SLU 84	-1.59	-1182.87	377.4235	834	0	0	No, Rottura per schiacciamento
SLU 84	0.51	-1114.64	371.9823	786	94.0847	0.253	No, M>Mu



Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 80	-1.59	-1163.69	385.7485	820	0	0	No, Rottura per schiacciamento
SLU 80	0.51	-1095.46	373.6552	772	135.4539	0.363	No, M>Mu
SLU 81	-1.59	-1154.58	355.0382	814	3.1039	0.009	No, M>Mu
SLU 81	0.51	-1086.35	355.5403	766	154.571	0.435	No, M>Mu
SLU 83	-1.59	-1186.9	377.9965	836	0	0	No, Rottura per schiacciamento
SLU 83	0.51	-1118.68	371.1258	788	85.1836	0.23	No, M>Mu
SLU 78	-1.59	-1169.92	386.9754	824	0	0	No, Rottura per schiacciamento
SLU 78	0.51	-1101.69	375.5853	776	122.1753	0.325	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 8	-1.59	-849.49	470.2088	599	1024.7191	2.179	Si
SLD 8	0.51	-810.94	283.516	571	1020.8582	3.601	Si
SLV 3	-1.59	-914.75	407.9527	645	1022.0133	2.505	Si
SLV 3	0.51	-836.06	319.9821	589	1023.8343	3.2	Si
SLV 11	-1.59	-902.95	767.6007	636	1023.3624	1.333	Si
SLV 11	0.51	-906.83	312.212	639	1022.9603	3.276	Si
SLD 11	-1.59	-823.58	467.0761	580	1022.5709	2.189	Si
SLD 11	0.51	-795.32	269.4818	560	1018.1402	3.778	Si
SLV 12	-1.59	-902.95	767.6007	636	1023.3624	1.333	Si
SLV 12	0.51	-906.83	312.212	639	1022.9603	3.276	Si
SLV 7	-1.59	-963.06	774.3299	679	1012.5254	1.308	Si
SLV 7	0.51	-943.21	344.6501	665	1017.1942	2.951	Si
SLD 7	-1.59	-849.49	470.2088	599	1024.7191	2.179	Si
SLD 7	0.51	-810.94	283.516	571	1020.8582	3.601	Si
SLV 8	-1.59	-963.06	774.3299	679	1012.5254	1.308	Si
SLV 8	0.51	-943.21	344.6501	665	1017.1942	2.951	Si
SLD 12	-1.59	-823.58	467.0761	580	1022.5709	2.189	Si
SLD 12	0.51	-795.32	269.4818	560	1018.1402	3.778	Si
SLV 4	-1.59	-914.75	407.9527	645	1022.0133	2.505	Si
SLV 4	0.51	-836.06	319.9821	589	1023.8343	3.2	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	-1.59	-1007.01	8.33	337.0926		710	4.73	108	153.73			18.45	Si
SLU 35	0.51	-954.53	8.33	321.3082		673	4.73	108	153.73			18.45	Si
SLU 29	-1.59	-880.6	7.86	301.7213		621	4.73	108	153.73			19.55	Si
SLU 29	0.51	-828.12	7.86	286.9155		584	4.73	108	153.73			19.55	Si
SLU 30	-1.59	-876.56	7.18	301.1483		618	4.73	108	153.73			21.4	Si
SLU 30	0.51	-824.08	7.18	287.7719		581	4.73	108	153.73			21.4	Si
SLU 38	-1.59	-996.74	7.99	335.2927		702	4.73	108	153.73			19.25	Si
SLU 38	0.51	-944.26	7.99	320.2346		665	4.73	108	153.73			19.25	Si
SLU 36	-1.59	-1002.97	7.65	336.5196		707	4.73	108	153.73			20.09	Si
SLU 36	0.51	-950.49	7.65	322.1647		670	4.73	108	153.73			20.09	Si
SLU 28	-1.59	-882.79	6.85	302.3752		622	4.73	108	153.73			22.44	Si
SLU 28	0.51	-830.31	6.85	289.702		585	4.73	108	153.73			22.44	Si
SLU 27	-1.59	-886.83	7.53	302.9482		625	4.73	108	153.73			20.41	Si
SLU 27	0.51	-834.35	7.53	288.8456		588	4.73	108	153.73			20.41	Si
SLU 77	-1.59	-1173.96	7.16	387.5484		827	4.73	108	153.73			21.46	Si
SLU 77	0.51	-1105.73	7.16	374.7288		779	4.73	108	153.73			21.46	Si
SLU 37	-1.59	-1000.78	8.67	335.8657		705	4.73	108	153.73			17.74	Si
SLU 37	0.51	-948.29	8.67	319.3781		668	4.73	108	153.73			17.74	Si
SLU 79	-1.59	-1167.73	7.5	386.3215		823	4.73	108	153.73			20.5	Si
SLU 79	0.51	-1099.5	7.5	372.7987		775	4.73	108	153.73			20.5	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	-1.59	-564.54	-226.21	-301.6219		398	4.73	163	230.59			1.02	Si
SLV 10	0.51	-479.43	-224.99	133.6051		338	4.73	151	214.14			0.95	No, Vu<V
SLV 12	-1.59	-902.95	243.79	767.6007		662	4.5447	163	221.55			0.91	No, Vu<V
SLV 12	0.51	-906.83	227.43	312.212		639	4.73	163	230.59			1.01	Si
SLV 6	-1.59	-624.65	-244.8	-294.8927		440	4.73	163	230.59			0.94	No, Vu<V
SLV 6	0.51	-515.8	-228.44	166.0432		363	4.73	156	221.41			0.97	No, Vu<V
SLV 8	-1.59	-963.06	225.2	774.3299		686	4.6829	163	228.29			1.01	Si
SLV 8	0.51	-943.21	223.97	344.6501		665	4.73	163	230.59			1.03	Si
SLV 9	-1.59	-564.54	-226.21	-301.6219		398	4.73	163	230.59			1.02	Si
SLV 9	0.51	-479.43	-224.99	133.6051		338	4.73	151	214.14			0.95	No, Vu<V
SLV 7	-1.59	-963.06	225.2	774.3299		686	4.6829	163	228.29			1.01	Si
SLV 7	0.51	-943.21	223.97	344.6501		665	4.73	163	230.59			1.03	Si
SLV 11	-1.59	-902.95	243.79	767.6007		662	4.5447	163	221.55			0.91	No, Vu<V
SLV 11	0.51	-906.83	227.43	312.212		639	4.73	163	230.59			1.01	Si
SLD 5	-1.59	-704.02	-106.88	5.6319		496	4.73	163	230.59			2.16	Si
SLD 5	0.51	-627.32	-99.74	208.7734		442	4.73	163	230.59			2.31	Si
SLV 5	-1.59	-624.65	-244.8	-294.8927		440	4.73	163	230.59			0.94	No, Vu<V
SLV 5	0.51	-515.8	-228.44	166.0432		363	4.73	156	221.41			0.97	No, Vu<V
SLD 6	-1.59	-704.02	-106.88	5.6319		496	4.73	163	230.59			2.16	Si
SLD 6	0.51	-627.32	-99.74	208.7734		442	4.73	163	230.59			2.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma 0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.24	363	-515.15	1.8955	54.3135	28.65	Si
SLV 9	1438	0.24	363	-515.15	1.8955	54.3135	28.65	Si
SLV 6	1438	0.24	404	-572.69	1.8955	57.5296	30.35	Si
SLV 5	1438	0.24	404	-572.69	1.8955	57.5296	30.35	Si
SLV 14	1438	0.24	408	-578.72	1.8955	57.8331	30.51	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	1438	0.24	408	-578.72	1.8955	57.8331	30.51	Si
SLV 15	1438	0.24	487	-690.75	1.8955	62.334	32.89	Si
SLV 16	1438	0.24	487	-690.75	1.8955	62.334	32.89	Si
SLV 2	1438	0.24	543	-770.54	1.8955	64.2154	33.88	Si
SLV 1	1438	0.24	543	-770.54	1.8955	64.2154	33.88	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0005 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-625.64	-813.22	2.3	0.055	69.095	0.976	0.81883	4.30325	No
SLV 2	-625.64	-813.22	2.3	0.055	69.095	0.976	0.81883	4.30325	No
SLV 15	-714.75	-714.38	-2.22	0.055	78.173	0.979	0.81911	4.30325	No
SLV 16	-714.75	-714.38	-2.22	0.055	78.173	0.979	0.81911	4.30325	No
SLV 11	-852.87	-902.95	-1.02	0.057	92.246	0.982	0.83738	4.39851	No
SLV 12	-852.87	-902.95	-1.02	0.057	92.246	0.982	0.83738	4.39851	No
SLV 3	-737.27	-914.75	2.04	0.055	80.467	0.979	0.8222	4.30325	No
SLV 4	-737.27	-914.75	2.04	0.055	80.467	0.979	0.8222	4.30325	No
SLV 13	-603.12	-612.86	-1.97	0.055	66.802	0.975	0.82688	4.30325	No
SLV 14	-603.12	-612.86	-1.97	0.055	66.802	0.975	0.82688	4.30325	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 77	No
V_SLU	17.739	SLU 37	Si
PF_SLV	1.308	SLV 7	Si
V_SLV	0.909	SLV 11	No
PFFP_SLV	28.654	SLV 9	Si
R_SLV	0.19	SLV 1	No

## Maschio 52

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-5.008	5.876	-3.013	5.876	L1	L3	1.995	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	0.41	-233.79	34.4933	260	158.6504	4.599	Si
SLU 84	0.81	-225.73	24.9174	251	155.6617	6.247	Si
SLU 83	0.41	-234.66	34.9656	261	158.9626	4.546	Si
SLU 83	0.81	-226.6	25.2183	252	155.9929	6.186	Si
SLU 79	0.41	-227.93	33.0533	254	156.495	4.735	Si
SLU 79	0.81	-219.86	23.5955	245	153.3773	6.5	Si
SLU 81	0.41	-229.52	34.8922	256	157.0907	4.502	Si
SLU 81	0.81	-221.46	25.2001	247	154.0081	6.111	Si
SLU 60	0.41	-204.13	31.102	227	146.7808	4.719	Si
SLU 60	0.81	-196.06	22.2359	218	143.1397	6.437	Si
SLU 73	0.41	-216.2	32.1194	241	151.9019	4.729	Si
SLU 73	0.81	-208.14	23.0578	232	148.5264	6.441	Si
SLU 74	0.41	-223.73	33.2038	249	154.8927	4.665	Si
SLU 74	0.81	-215.66	23.6475	240	151.6826	6.414	Si
SLU 75	0.41	-222.86	32.7315	248	154.5546	4.722	Si
SLU 75	0.81	-214.79	23.3466	239	151.3253	6.482	Si
SLU 82	0.41	-228.65	34.4199	255	156.7664	4.555	Si
SLU 82	0.81	-220.59	24.8992	246	153.6647	6.171	Si
SLU 77	0.41	-228.86	33.2772	255	156.8457	4.713	Si
SLU 77	0.81	-220.8	23.6657	246	153.7486	6.497	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	0.41	-20.79	9.9929	23	20.341	2.036	Si
SLV 6	0.81	9.81	38.9407	0	0	0	No, Trazione
SLV 13	0.41	-129.44	86.5802	144	113.8817	1.315	Si
SLV 13	0.81	-114.23	26.8565	127	102.0758	3.801	Si
SLV 16	0.41	-202.86	82.6963	226	164.9283	1.994	Si
SLV 16	0.81	-202.56	12.1636	226	164.7419	13.544	Si
SLV 15	0.41	-202.86	82.6963	226	164.9283	1.994	Si
SLV 15	0.81	-202.56	12.1636	226	164.7419	13.544	Si
SLV 2	0.41	-94.05	-38.2173	105	85.7692	2.244	Si
SLV 2	0.81	-81.94	19.0758	91	75.6301	3.965	Si
SLV 14	0.41	-129.44	86.5802	144	113.8817	1.315	Si
SLV 14	0.81	-114.23	26.8565	127	102.0758	3.801	Si
SLV 1	0.41	-94.05	-38.2173	105	85.7692	2.244	Si
SLV 1	0.81	-81.94	19.0758	91	75.6301	3.965	Si
SLV 10	0.41	-31.4	47.4322	0	0	0	No, e>1/2
SLV 10	0.81	0.13	41.2749	0	0	0	No, Trazione
SLV 5	0.41	-20.79	9.9929	23	20.341	2.036	Si
SLV 5	0.81	9.81	38.9407	0	0	0	No, Trazione





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	0.41	-31.4	47.4322	0	0	0	No, e>/2
SLV 9	0.81	0.13	41.2749	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	0.41	-228.65	23.76	34.4199		255	1.995	90	80.36			3.38	Si
SLU 82	0.81	-220.59	23.76	24.8992		246	1.995	88	79.29			3.34	Si
SLU 83	0.41	-234.66	24.33	34.9656		261	1.995	90	81.16			3.34	Si
SLU 83	0.81	-226.6	24.33	25.2183		252	1.995	89	80.09			3.29	Si
SLU 81	0.41	-229.52	24.19	34.8922		256	1.995	90	80.48			3.33	Si
SLU 81	0.81	-221.46	24.19	25.2001		247	1.995	88	79.4			3.28	Si
SLU 74	0.41	-223.73	23.85	33.2038		249	1.995	89	79.71			3.34	Si
SLU 74	0.81	-215.66	23.85	23.6475		240	1.995	88	78.63			3.3	Si
SLU 75	0.41	-222.86	23.42	32.7315		248	1.995	89	79.59			3.4	Si
SLU 75	0.81	-214.79	23.42	23.3466		239	1.995	87	78.51			3.35	Si
SLU 84	0.41	-233.79	23.9	34.4933		260	1.995	90	81.05			3.39	Si
SLU 84	0.81	-225.73	23.9	24.9174		251	1.995	89	79.97			3.35	Si
SLU 78	0.41	-227.99	23.56	32.8049		254	1.995	89	80.27			3.41	Si
SLU 78	0.81	-219.93	23.56	23.3648		245	1.995	88	79.2			3.36	Si
SLU 79	0.41	-227.93	23.6	33.0533		254	1.995	89	80.27			3.4	Si
SLU 79	0.81	-219.86	23.6	23.5955		245	1.995	88	79.19			3.35	Si
SLU 80	0.41	-227.06	23.18	32.581		253	1.995	89	80.15			3.46	Si
SLU 80	0.81	-218.99	23.18	23.2947		244	1.995	88	79.07			3.41	Si
SLU 77	0.41	-228.86	23.99	33.2772		255	1.995	90	80.39			3.35	Si
SLU 77	0.81	-220.8	23.99	23.6657		246	1.995	88	79.32			3.31	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	0.41	-20.79	-163.96	9.9929		30	1.5502	89	62.29			0.38	No, Vu<V
SLV 6	0.81	9.81	-238.08	38.9407		0	0	83	0			0	No, Vu<V
SLV 9	0.41	-31.4	-77.1	47.4322		0	0	83	0			0	No, Vu<V
SLV 9	0.81	0.13	-152.32	41.2749		0	0	83	0			0	No, Vu<V
SLV 11	0.41	-276.12	197	34.4861		308	1.995	145	130.04			0.66	No, Vu<V
SLV 11	0.81	-294.31	271.12	-7.7013		328	1.995	149	133.68			0.49	No, Vu<V
SLV 1	0.41	-94.05	-169.36	-38.2173		118	1.7734	107	85.31			0.5	No, Vu<V
SLV 1	0.81	-81.94	-189.93	19.0758		91	1.995	102	91.2			0.48	No, Vu<V
SLV 16	0.41	-202.86	202.4	82.6963		255	1.7695	134	106.93			0.53	No, Vu<V
SLV 16	0.81	-202.56	222.97	12.1636		226	1.995	128	115.32			0.52	No, Vu<V
SLV 5	0.41	-20.79	-163.96	9.9929		30	1.5502	89	62.29			0.38	No, Vu<V
SLV 5	0.81	9.81	-238.08	38.9407		0	0	83	0			0	No, Vu<V
SLV 15	0.41	-202.86	202.4	82.6963		255	1.7695	134	106.93			0.53	No, Vu<V
SLV 15	0.81	-202.56	222.97	12.1636		226	1.995	128	115.32			0.52	No, Vu<V
SLV 12	0.41	-276.12	197	34.4861		308	1.995	145	130.04			0.66	No, Vu<V
SLV 12	0.81	-294.31	271.12	-7.7013		328	1.995	149	133.68			0.49	No, Vu<V
SLV 2	0.41	-94.05	-169.36	-38.2173		118	1.7734	107	85.31			0.5	No, Vu<V
SLV 2	0.81	-81.94	-189.93	19.0758		91	1.995	102	91.2			0.48	No, Vu<V
SLV 10	0.41	-31.4	-77.1	47.4322		0	0	83	0			0	No, Vu<V
SLV 10	0.81	0.13	-152.32	41.2749		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.24	64	-57.24	1.1992	12.2063	10.18	Si
SLV 9	1438	0.24	64	-57.24	1.1992	12.2063	10.18	Si
SLV 14	1438	0.24	75	-67.73	1.1992	14.2982	11.92	Si
SLV 13	1438	0.24	75	-67.73	1.1992	14.2982	11.92	Si
SLV 6	1438	0.24	96	-86.41	1.1992	17.9115	14.94	Si
SLV 5	1438	0.24	96	-86.41	1.1992	17.9115	14.94	Si
SLV 16	1438	0.24	118	-105.9	1.1992	21.5273	17.95	Si
SLV 15	1438	0.24	118	-105.9	1.1992	21.5273	17.95	Si
SLV 2	1438	0.24	184	-164.99	1.1992	31.5387	26.3	Si
SLV 1	1438	0.24	184	-164.99	1.1992	31.5387	26.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 14	-141.78	12.01	-3.99	0	0	0	0	3.48092	No, Trazione
SLV 13	-141.78	12.01	-3.99	0	0	0	0	3.48092	No, Trazione
SLV 16	-167.32	-4.01	-4.48	0.069	20.46	0.951	1.05827	3.48092	No
SLV 15	-167.32	-4.01	-4.48	0.069	20.46	0.951	1.05827	3.48092	No
SLV 12	-176.26	-124.06	-3.74	0.074	21.368	0.953	1.12241	3.52938	No
SLV 11	-176.26	-124.06	-3.74	0.074	21.368	0.953	1.12241	3.52938	No
SLV 7	-158.38	-210.95	-2.62	0.079	19.552	0.949	1.20727	3.52938	No
SLV 8	-158.38	-210.95	-2.62	0.079	19.552	0.949	1.20727	3.52938	No
SLV 9	-91.12	-70.66	-2.11	0.081	12.743	0.928	1.26545	3.52938	No
SLV 10	-91.12	-70.66	-2.11	0.081	12.743	0.928	1.26545	3.52938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.502	SLU 81	Si
V_SLU	3.282	SLU 81	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLV 5	No
PFFP_SLV	10.179	SLV 9	Si
R_SLV	0	SLV 14	No



## Maschio 53

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2.013	5.876	-0.123	5.876	L1	L3	1.89	0.45	2.7	2.7	2.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 49	0.41	-170.49	7.4559	200	121.4659	16.291	Si
SLU 49	0.81	-160.9	7.9575	189	116.7367	14.67	Si
SLU 45	0.41	-173.57	9.03	204	122.9296	13.613	Si
SLU 45	0.81	-163.73	9.5791	193	118.1574	12.335	Si
SLU 43	0.41	-170.59	9.1782	201	121.5128	13.239	Si
SLU 43	0.81	-160.83	9.6899	189	116.7035	12.044	Si
SLU 3	0.41	-139.9	6.7277	164	105.5099	15.683	Si
SLU 3	0.81	-132.32	7.1354	156	101.1599	14.177	Si
SLU 1	0.41	-136.92	6.8759	161	103.8195	15.099	Si
SLU 1	0.81	-129.42	7.2462	152	99.458	13.726	Si
SLU 66	0.41	-195.18	8.3313	229	132.4831	15.902	Si
SLU 66	0.81	-185.37	8.7921	218	128.3031	14.593	Si
SLU 48	0.41	-175.14	8.5591	206	123.6669	14.449	Si
SLU 48	0.81	-165.24	9.1838	194	118.9077	12.948	Si
SLU 50	0.41	-173.73	8.2366	204	123.0062	14.934	Si
SLU 50	0.81	-163.86	8.8992	193	118.2217	13.285	Si
SLU 46	0.41	-168.92	7.9267	199	120.7087	15.228	Si
SLU 46	0.81	-159.39	8.3529	187	115.9685	13.884	Si
SLU 64	0.41	-192.2	8.4795	226	131.242	15.477	Si
SLU 64	0.81	-182.47	8.9029	215	127.0201	14.267	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 4	0.41	-143.53	-47.4895	169	116.903	2.462	Si
SLV 4	0.81	-128.05	-5.5691	151	106.0952	19.051	Si
SLV 13	0.41	-156.84	60.1699	184	125.8419	2.091	Si
SLV 13	0.81	-157.43	18.8553	185	126.2321	6.695	Si
SLV 2	0.41	-58.72	-55.4753	69	52.3544	0.944	No, M>Mu
SLV 2	0.81	-48.37	-8.5114	57	43.5795	5.12	Si
SLV 3	0.41	-143.53	-47.4895	169	116.903	2.462	Si
SLV 3	0.81	-128.05	-5.5691	151	106.0952	19.051	Si
SLV 10	0.41	-23.55	10.3773	28	21.7487	2.096	Si
SLV 10	0.81	-26.3	5.8443	31	24.2203	4.144	Si
SLV 14	0.41	-156.84	60.1699	184	125.8419	2.091	Si
SLV 14	0.81	-157.43	18.8553	185	126.2321	6.695	Si
SLV 6	0.41	5.89	-24.3162	0	0	0	No, Trazione
SLV 6	0.81	6.42	-2.3657	0	0	0	No, Trazione
SLV 9	0.41	-23.55	10.3773	28	21.7487	2.096	Si
SLV 9	0.81	-26.3	5.8443	31	24.2203	4.144	Si
SLV 1	0.41	-58.72	-55.4753	69	52.3544	0.944	No, M>Mu
SLV 1	0.81	-48.37	-8.5114	57	43.5795	5.12	Si
SLV 5	0.41	5.89	-24.3162	0	0	0	No, Trazione
SLV 5	0.81	6.42	-2.3657	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	0.41	-198.53	-7.23	7.0603		233	1.89	87	73.72			10.2	Si
SLU 58	0.81	-188.81	-8.29	7.5753		222	1.89	85	72.42			8.74	Si
SLU 56	0.41	-199.94	-7.2	7.3829		235	1.89	87	73.91			10.27	Si
SLU 56	0.81	-190.19	-8.28	7.8599		224	1.89	85	72.61			8.77	Si
SLU 66	0.41	-195.18	-7.3	8.3313		229	1.89	86	73.27			10.03	Si
SLU 66	0.81	-185.37	-8.37	8.7921		218	1.89	85	71.97			8.6	Si
SLU 71	0.41	-195.34	-7.68	7.5379		230	1.89	86	73.3			9.54	Si
SLU 71	0.81	-185.5	-8.75	8.1122		218	1.89	85	71.98			8.23	Si
SLU 45	0.41	-173.57	-7.48	9.03		204	1.89	83	70.39			9.41	Si
SLU 45	0.81	-163.73	-8.44	9.5791		193	1.89	81	69.08			8.19	Si
SLU 50	0.41	-173.73	-7.86	8.2366		204	1.89	83	70.41			8.96	Si
SLU 50	0.81	-163.86	-8.82	8.8992		193	1.89	81	69.1			7.84	Si
SLU 51	0.41	-169.08	-6.8	7.1333		199	1.89	82	69.79			10.26	Si
SLU 51	0.81	-159.52	-7.76	7.6729		188	1.89	81	68.52			8.83	Si
SLU 48	0.41	-175.14	-7.83	8.5591		206	1.89	83	70.6			9.01	Si
SLU 48	0.81	-165.24	-8.8	9.1838		194	1.89	81	69.28			7.87	Si
SLU 43	0.41	-170.59	-7.16	9.1782		201	1.89	82	70			9.78	Si
SLU 43	0.81	-160.83	-8.09	9.6899		189	1.89	81	68.69			8.49	Si
SLU 69	0.41	-196.75	-7.66	7.8605		231	1.89	86	73.48			9.6	Si
SLU 69	0.81	-186.88	-8.73	8.3968		220	1.89	85	72.17			8.27	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	0.41	-23.55	90.59	10.3773		35	1.5129	90	61.44			0.68	No, Vu<V
SLV 10	0.81	-26.3	71.62	5.8443		31	1.89	90	76.13			1.06	Si
SLV 4	0.41	-143.53	-167.03	-47.4895		173	1.8424	118	97.8			0.59	No, Vu<V
SLV 4	0.81	-128.05	-155.22	-5.5691		151	1.89	113	96.48			0.62	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	0.41	5.89	2.86	-24.3162		0	0	83	0			0	No, Vu<V
SLV 5	0.81	6.42	-11.38	-2.3657		0	0	83	0			0	No, Vu<V
SLV 6	0.41	5.89	2.86	-24.3162		0	0	83	0			0	No, Vu<V
SLV 6	0.81	6.42	-11.38	-2.3657		0	0	83	0			0	No, Vu<V
SLV 13	0.41	-156.84	156.58	60.1699		207	1.6841	125	94.52			0.6	No, Vu<V
SLV 13	0.81	-157.43	143.15	18.8553		185	1.89	120	102.36			0.72	No, Vu<V
SLV 2	0.41	-58.72	-135.86	-55.4753		0	0	83	0			0	No, Vu<V
SLV 2	0.81	-48.37	-133.53	-8.5114		57	1.89	95	80.55			0.6	No, Vu<V
SLV 9	0.41	-23.55	90.59	10.3773		35	1.5129	90	61.44			0.68	No, Vu<V
SLV 9	0.81	-26.3	71.62	5.8443		31	1.89	90	76.13			1.06	Si
SLV 3	0.41	-143.53	-167.03	-47.4895		173	1.8424	118	97.8			0.59	No, Vu<V
SLV 3	0.81	-128.05	-155.22	-5.5691		151	1.89	113	96.48			0.62	No, Vu<V
SLV 14	0.41	-156.84	156.58	60.1699		207	1.6841	125	94.52			0.6	No, Vu<V
SLV 14	0.81	-157.43	143.15	18.8553		185	1.89	120	102.36			0.72	No, Vu<V
SLV 1	0.41	-58.72	-135.86	-55.4753		0	0	83	0			0	No, Vu<V
SLV 1	0.81	-48.37	-133.53	-8.5114		57	1.89	95	80.55			0.6	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.24 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.24	16	-13.73	1.1361	3.0484	2.68	Si
SLV 6	1438	0.24	16	-13.73	1.1361	3.0484	2.68	Si
SLV 1	1438	0.24	51	-43.6	1.1361	9.3993	8.27	Si
SLV 2	1438	0.24	51	-43.6	1.1361	9.3993	8.27	Si
SLV 10	1438	0.24	73	-61.68	1.1361	13.0537	11.49	Si
SLV 9	1438	0.24	73	-61.68	1.1361	13.0537	11.49	Si
SLV 4	1438	0.24	138	-117.16	1.1361	23.3888	20.59	Si
SLV 3	1438	0.24	138	-117.16	1.1361	23.3888	20.59	Si
SLV 13	1438	0.24	239	-203.43	1.1361	36.8116	32.4	Si
SLV 14	1438	0.24	239	-203.43	1.1361	36.8116	32.4	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-99.25	-93.12	-5.45	0.052	13.377	0.933	0.8134	3.52938	No
SLV 9	-99.25	-93.12	-5.45	0.052	13.377	0.933	0.8134	3.52938	No
SLV 5	-77.65	-15.4	-4.63	0.054	11.199	0.923	0.84683	3.52938	No
SLV 6	-77.65	-15.4	-4.63	0.054	11.199	0.923	0.84683	3.52938	No
SLV 13	-149.64	-275	-5.33	0.062	18.482	0.949	0.95168	3.48092	No
SLV 14	-149.64	-275	-5.33	0.062	18.482	0.949	0.95168	3.48092	No
SLV 16	-171.22	-353.17	-4.4	0.069	20.674	0.954	1.05711	3.48092	No
SLV 15	-171.22	-353.17	-4.4	0.069	20.674	0.954	1.05711	3.48092	No
SLV 2	-77.63	-15.93	-2.58	0.075	11.197	0.923	1.17485	3.48092	No
SLV 1	-77.63	-15.93	-2.58	0.075	11.197	0.923	1.17485	3.48092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	12.044	SLU 43	Si
V_SLU	7.836	SLU 50	Si
PF_SLV	0	SLV 6	No
V_SLV	0	SLV 1	No
PFFP_SLV	2.683	SLV 5	Si
R_SLV	0.23	SLV 9	No

## Maschio 54

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	6.101	-0.123	-3.284	L1	L3	9.385	0.45	2.7	2.7	2.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 65	-1.59	-1835.33	353.3208	435	4017.6066	11.371	Si
SLU 65	1.11	-1575.28	513.0326	373	4007.12	7.811	Si
SLU 73	-1.59	-2000.03	375.6188	474	3928.8275	10.46	Si
SLU 73	1.11	-1727.08	542.0943	409	4035.6553	7.445	Si
SLU 31	-1.59	-1657.9	348.2237	393	4030.4477	11.574	Si
SLU 31	1.11	-1444.09	494.1024	342	3931.8224	7.958	Si
SLU 52	-1.59	-1839.59	343.3525	436	4016.2423	11.697	Si
SLU 52	1.11	-1576.05	500.3056	373	4007.4258	8.01	Si
SLU 47	-1.59	-1693.08	341.4391	401	4034.7271	11.817	Si
SLU 47	1.11	-1441.97	493.3612	341	3930.2182	7.966	Si
SLU 55	-1.59	-1857.77	363.7371	440	4009.8619	11.024	Si
SLU 55	1.11	-1593.77	522.4229	377	4013.9598	7.683	Si
SLU 26	-1.59	-1511.39	346.3103	358	3976.3142	11.482	Si
SLU 26	1.11	-1310.01	487.158	310	3806.3449	7.813	Si
SLU 34	-1.59	-1676.09	368.6084	397	4033.0818	10.941	Si
SLU 34	1.11	-1461.81	516.2197	346	3944.7353	7.642	Si





## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = -0.24 Wa = 0.0008 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-1833.9	-2294.02	5.16	0.085	202.776	0.976	1.26757	3.48092	No
SLV 13	-1833.9	-2294.02	5.16	0.085	202.776	0.976	1.26757	3.48092	No
SLV 15	-1853.67	-2329.91	4.38	0.085	204.79	0.976	1.273	3.48092	No
SLV 16	-1853.67	-2329.91	4.38	0.085	204.79	0.976	1.273	3.48092	No
SLV 9	-1361.88	-1625.44	3.67	0.087	154.707	0.968	1.30057	3.52938	No
SLV 10	-1361.88	-1625.44	3.67	0.087	154.707	0.968	1.30057	3.52938	No
SLV 11	-1427.78	-1745.08	1.05	0.088	161.416	0.97	1.32246	3.52938	No
SLV 12	-1427.78	-1745.08	1.05	0.088	161.416	0.97	1.32246	3.52938	No
SLV 7	-1042.96	-1207.9	-1.01	0.09	122.253	0.961	1.36003	3.52938	No
SLV 8	-1042.96	-1207.9	-1.01	0.09	122.253	0.961	1.36003	3.52938	No

### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.151	SLU 76	Si
V_SLU	31.604	SLU 5	Si
PF_SLV	1.996	SLV 5	Si
V_SLV	1.174	SLV 5	Si
PFFP_SLV	18.265	SLV 1	Si
R_SLV	0.364	SLV 13	No

## Maschio 55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.678	-3.359	-24.678	5.951	L3	L4	9.311	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 73	1.11	-855.83	-310.608	328	2378.5309	7.658	Si
SLU 73	4.83	-536.01	-97.0634	206	1865.4875	19.219	Si
SLU 13	1.11	-658.2	-270.6858	252	2114.4395	7.811	Si
SLU 13	4.83	-411.2	-78.7267	158	1543.6151	19.607	Si
SLU 23	1.11	-647.84	-264.4235	248	2095.8612	7.926	Si
SLU 23	4.83	-400.96	-77.013	154	1514.1619	19.661	Si
SLU 55	1.11	-800.8	-296.7885	307	2322.2025	7.824	Si
SLU 55	4.83	-491.94	-85.5403	189	1759.6254	20.571	Si
SLU 68	1.11	-804.8	-300.2774	309	2326.7377	7.749	Si
SLU 68	4.83	-493.98	-86.764	189	1764.7085	20.339	Si
SLU 76	1.11	-870.19	-320.3591	334	2391.0468	7.464	Si
SLU 76	4.83	-548.29	-100.0008	210	1893.4722	18.935	Si
SLU 5	1.11	-592.81	-250.604	227	1989.3558	7.938	Si
SLU 5	4.83	-356.88	-65.4899	137	1382.202	21.106	Si
SLU 26	1.11	-662.2	-274.1746	254	2121.4717	7.738	Si
SLU 26	4.83	-413.24	-79.9504	159	1549.4197	19.38	Si
SLU 31	1.11	-713.23	-284.5053	274	2205.17	7.751	Si
SLU 31	4.83	-455.28	-90.2498	175	1665.0786	18.45	Si
SLU 34	1.11	-727.59	-294.2563	279	2226.6638	7.567	Si
SLU 34	4.83	-467.56	-93.1872	179	1697.4111	18.215	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 9	1.11	-495.09	-939.6738	190	1946.5782	2.072	Si
SLV 9	4.83	-334.92	-86.971	128	1395.2257	16.042	Si
SLV 15	1.11	-235.2	262.6326	90	1014.0719	3.861	Si
SLV 15	4.83	-170.11	-25.3958	65	749.6503	29.519	Si
SLV 8	1.11	-691.2	686.8358	265	2519.5532	3.668	Si
SLV 8	4.83	-395.38	-7.3324	152	1612.1851	219.872	Si
SLV 7	1.11	-691.2	686.8358	265	2519.5532	3.668	Si
SLV 7	4.83	-395.38	-7.3324	152	1612.1851	219.872	Si
SLV 12	1.11	-477.97	766.6937	183	1891.243	2.467	Si
SLV 12	4.83	-283.03	-1.9323	109	1200.5415	621.295	Si
SLV 6	1.11	-708.31	-1019.5317	272	2564.2219	2.515	Si
SLV 6	4.83	-447.27	-92.371	172	1789.8306	19.377	Si
SLV 5	1.11	-708.31	-1019.5317	272	2564.2219	2.515	Si
SLV 5	4.83	-447.27	-92.371	172	1789.8306	19.377	Si
SLV 11	1.11	-477.97	766.6937	183	1891.243	2.467	Si
SLV 11	4.83	-283.03	-1.9323	109	1200.5415	621.295	Si
SLV 16	1.11	-235.2	262.6326	90	1014.0719	3.861	Si
SLV 16	4.83	-170.11	-25.3958	65	749.6503	29.519	Si
SLV 10	1.11	-495.09	-939.6738	190	1946.5782	2.072	Si
SLV 10	4.83	-334.92	-86.971	128	1395.2257	16.042	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 26	1.11	-662.2	-17.44	-274.1746		254	9.3107	89	233.13			13.37	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 26	4.83	-413.24	-15.06	-79.9504		159	9.3107	77	199.93			13.28	Si
SLU 55	1.11	-800.8	-15.95	-296.7885		307	9.3107	97	251.61			15.77	Si
SLU 55	4.83	-491.94	-13.52	-85.5403		189	9.3107	81	210.42			15.57	Si
SLU 13	1.11	-658.2	-16.74	-270.6858		252	9.3107	89	232.59			13.89	Si
SLU 13	4.83	-411.2	-14.35	-78.7267		158	9.3107	77	199.66			13.91	Si
SLU 2	1.11	-578.45	-15.05	-240.853		222	9.3107	85	221.96			14.74	Si
SLU 2	4.83	-344.6	-12.7	-62.5525		132	9.3107	73	190.78			15.02	Si
SLU 34	1.11	-727.59	-17.08	-294.2563		279	9.3107	93	241.84			14.16	Si
SLU 34	4.83	-467.56	-14.66	-93.1872		179	9.3107	79	207.17			14.13	Si
SLU 10	1.11	-643.84	-14.69	-260.9347		247	9.3107	88	230.68			15.71	Si
SLU 10	4.83	-398.92	-12.3	-75.7893		153	9.3107	76	198.02			16.09	Si
SLU 5	1.11	-592.81	-17.11	-250.604		227	9.3107	86	223.87			13.09	Si
SLU 5	4.83	-356.88	-14.75	-65.4899		137	9.3107	74	192.42			13.05	Si
SLU 68	1.11	-804.8	-16.65	-300.2774		309	9.3107	97	252.14			15.14	Si
SLU 68	4.83	-493.98	-14.22	-86.764		189	9.3107	81	210.7			14.81	Si
SLU 47	1.11	-735.41	-16.32	-276.7068		282	9.3107	93	242.89			14.89	Si
SLU 47	4.83	-437.62	-13.91	-72.3035		168	9.3107	78	203.18			14.6	Si
SLU 23	1.11	-647.84	-15.39	-264.4235		248	9.3107	89	231.21			15.03	Si
SLU 23	4.83	-400.96	-13.01	-77.013		154	9.3107	76	198.29			15.24	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1.11	-691.2	467.04	686.8358		265	9.3107	136	355.49			0.76	No, Vu<V
SLV 7	4.83	-395.38	293.84	-7.3324		152	9.3107	114	296.33			1.01	Si
SLV 9	1.11	-495.09	-462.52	-939.6738		214	8.272	126	292.03			0.63	No, Vu<V
SLV 9	4.83	-334.92	-288.93	-86.971		128	9.3107	109	284.23			0.98	No, Vu<V
SLV 8	1.11	-691.2	467.04	686.8358		265	9.3107	136	355.49			0.76	No, Vu<V
SLV 8	4.83	-395.38	293.84	-7.3324		152	9.3107	114	296.33			1.01	Si
SLV 5	1.11	-708.31	-461.83	-1019.5317		272	9.3107	138	358.91			0.78	No, Vu<V
SLV 5	4.83	-447.27	-283.73	-92.371		172	9.3107	118	306.7			1.08	Si
SLV 10	1.11	-495.09	-462.52	-939.6738		214	8.272	126	292.03			0.63	No, Vu<V
SLV 10	4.83	-334.92	-288.93	-86.971		128	9.3107	109	284.23			0.98	No, Vu<V
SLD 12	1.11	-543.05	201.27	259.7749		208	9.3107	125	325.86			1.62	Si
SLD 12	4.83	-330.37	127.12	-31.9745		127	9.3107	109	283.32			2.23	Si
SLV 11	1.11	-477.97	466.36	766.6937		186	9.1539	121	309.18			0.66	No, Vu<V
SLV 11	4.83	-283.03	288.64	-1.9323		109	9.3107	105	273.86			0.95	No, Vu<V
SLV 6	1.11	-708.31	-461.83	-1019.5317		272	9.3107	138	358.91			0.78	No, Vu<V
SLV 6	4.83	-447.27	-283.73	-92.371		172	9.3107	118	306.7			1.08	Si
SLV 12	1.11	-477.97	466.36	766.6937		186	9.1539	121	309.18			0.66	No, Vu<V
SLV 12	4.83	-283.03	288.64	-1.9323		109	9.3107	105	273.86			0.95	No, Vu<V
SLD 11	1.11	-543.05	201.27	259.7749		208	9.3107	125	325.86			1.62	Si
SLD 11	4.83	-330.37	127.12	-31.9745		127	9.3107	109	283.32			2.23	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.31	79	-207.06	8.4909	27.1044	3.19	Si
SLV 16	1438	0.31	79	-207.06	8.4909	27.1044	3.19	Si
SLV 13	1438	0.31	80	-209.45	8.4909	27.3948	3.23	Si
SLV 14	1438	0.31	80	-209.45	8.4909	27.3948	3.23	Si
SLV 12	1438	0.31	148	-385.14	8.4909	47.4003	5.58	Si
SLV 11	1438	0.31	148	-385.14	8.4909	47.4003	5.58	Si
SLV 10	1438	0.31	151	-393.09	8.4909	48.2416	5.68	Si
SLV 9	1438	0.31	151	-393.09	8.4909	48.2416	5.68	Si
SLV 8	1438	0.31	207	-540.16	8.4909	62.7991	7.4	Si
SLV 7	1438	0.31	207	-540.16	8.4909	62.7991	7.4	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 15	-170.11	-235.2	7.32	0.022	31.595	0.899	0.35499	10.12339	No
SLV 16	-170.11	-235.2	7.32	0.022	31.595	0.899	0.35499	10.12339	No
SLV 14	-185.68	-240.33	7.05	0.024	33.12	0.902	0.3841	10.12339	No
SLV 13	-185.68	-240.33	7.05	0.024	33.12	0.902	0.3841	10.12339	No
SLV 1	-560.19	-951.09	-8.18	0.03	70.771	0.945	0.46252	10.12339	No
SLV 2	-560.19	-951.09	-8.18	0.03	70.771	0.945	0.46252	10.12339	No
SLV 3	-544.62	-945.96	-7.91	0.03	69.193	0.944	0.46669	10.12339	No
SLV 4	-544.62	-945.96	-7.91	0.03	69.193	0.944	0.46669	10.12339	No
SLV 6	-447.27	-708.31	-3.16	0.038	59.335	0.936	0.58789	10.54325	No
SLV 5	-447.27	-708.31	-3.16	0.038	59.335	0.936	0.58789	10.54325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	7.464	SLU 76	Si
V_SLV	13.046	SLU 5	Si
PF_SLV	2.072	SLV 9	Si
V_SLV	0.631	SLV 9	No
PFFP_SLV	3.192	SLV 15	Si
R_SLV	0.035	SLV 15	No

## Maschio 56

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	2.01	-78.26	-79.95	-47.6042		267	1.0478	137	40.1			0.5	No, Vu<V
SLV 14	3.91	-7.37	-53.24	31.7661		0	0	83	0			0	No, Vu<V
SLD 3	2.01	-62.58	97.02	58.8235		4236	0.0528	163	2.4			0.02	No, Vu<V
SLD 3	3.91	-80.36	84.97	-80.0728		0	0	83	0			0	No, Vu<V
SLV 13	2.01	-78.26	-79.95	-47.6042		267	1.0478	137	40.1			0.5	No, Vu<V
SLV 13	3.91	-7.37	-53.24	31.7661		0	0	83	0			0	No, Vu<V
SLV 2	2.01	-69.31	118.25	73.0121		0	0	83	0			0	No, Vu<V
SLV 2	3.91	-95.35	114.68	-99.9908		0	0	83	0			0	No, Vu<V
SLV 8	2.01	-44.31	155.05	91.4787		0	0	83	0			0	No, Vu<V
SLV 8	3.91	-94.6	109.63	-106.5986		0	0	83	0			0	No, Vu<V
SLD 8	2.01	-58.25	90.23	54.022		2302	0.0904	163	4.11			0.05	No, Vu<V
SLD 8	3.91	-73.72	71.3	-71.7841		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.31	65	-35.04	1.7464	4.6426	2.66	Si
SLV 16	1438	0.31	65	-35.04	1.7464	4.6426	2.66	Si
SLV 14	1438	0.31	67	-35.83	1.7464	4.7415	2.72	Si
SLV 13	1438	0.31	67	-35.83	1.7464	4.7415	2.72	Si
SLV 11	1438	0.31	101	-54.28	1.7464	6.9691	3.99	Si
SLV 12	1438	0.31	101	-54.28	1.7464	6.9691	3.99	Si
SLV 9	1438	0.31	106	-56.91	1.7464	7.2759	4.17	Si
SLV 10	1438	0.31	106	-56.91	1.7464	7.2759	4.17	Si
SLV 8	1438	0.31	133	-71.56	1.7464	8.9241	5.11	Si
SLV 7	1438	0.31	133	-71.56	1.7464	8.9241	5.11	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-17.17	-23.06	1.02	0.028	4.81	0.889	0.45447	10.54325	No
SLV 10	-17.17	-23.06	1.02	0.028	4.81	0.889	0.45447	10.54325	No
SLV 6	-22.14	-43.4	1.07	0.028	5.266	0.89	0.4545	10.54325	No
SLV 5	-22.14	-43.4	1.07	0.028	5.266	0.89	0.4545	10.54325	No
SLV 12	-37.36	-109.49	-1.11	0.03	6.731	0.901	0.47926	10.54325	No
SLV 11	-37.36	-109.49	-1.11	0.03	6.731	0.901	0.47926	10.54325	No
SLV 7	-42.33	-129.83	-1.07	0.031	7.22	0.905	0.50021	10.54325	No
SLV 8	-42.33	-129.83	-1.07	0.031	7.22	0.905	0.50021	10.54325	No
SLV 1	-35.01	-97.38	0.38	0.043	6.5	0.899	0.69937	10.12339	No
SLV 2	-35.01	-97.38	0.38	0.043	6.5	0.899	0.69937	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.976	SLU 50	No
V_SLU	0.222	SLU 50	No
PF_SLV	0	SLD 3	No
V_SLV	0	SLD 3	No
PFFP_SLV	2.658	SLV 15	Si
R_SLV	0.043	SLV 9	No

## Maschio 57

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-19.618	5.951	-21.763	5.951	L3	L4	2.145	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	2.01	-251.6	-68.5532	419	131.0703	1.912	Si
SLU 83	3.91	-253.9	-19.849	423	130.9883	6.599	Si
SLU 74	2.01	-243.41	-66.5965	405	131.1739	1.97	Si
SLU 74	3.91	-244.6	-19.385	407	131.1771	6.767	Si
SLU 78	2.01	-247.58	-66.8907	412	131.1579	1.961	Si
SLU 78	3.91	-250.21	-21.6411	417	131.1085	6.058	Si
SLU 80	2.01	-245.35	-66.1795	409	131.176	1.982	Si
SLU 80	3.91	-248.25	-21.6791	413	131.1483	6.05	Si
SLU 84	2.01	-251.24	-68.4819	418	131.0809	1.914	Si
SLU 84	3.91	-253.24	-20.1565	422	131.0142	6.5	Si
SLU 79	2.01	-245.7	-66.2509	409	131.1746	1.98	Si
SLU 79	3.91	-248.91	-21.3715	414	131.1369	6.136	Si
SLU 82	2.01	-246.71	-68.1164	411	131.1675	1.926	Si
SLU 82	3.91	-246.97	-18.208	411	131.1651	7.204	Si
SLU 81	2.01	-247.07	-68.1877	411	131.164	1.924	Si
SLU 81	3.91	-247.62	-17.9004	412	131.1573	7.327	Si
SLU 75	2.01	-243.05	-66.5252	405	131.1718	1.972	Si
SLU 75	3.91	-243.94	-19.6926	406	131.1761	6.661	Si
SLU 77	2.01	-247.94	-66.962	413	131.153	1.959	Si
SLU 77	3.91	-250.87	-21.3335	418	131.0914	6.145	Si





### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 14	2.01	-126.17	-69.5841	210	112.056	1.61	Si
SLD 14	3.91	-177.95	11.1959	296	144.5743	12.913	Si
SLV 15	2.01	-146.17	-87.6009	243	125.5431	1.433	Si
SLV 15	3.91	-230.2	29.5729	383	169.4428	5.73	Si
SLD 13	2.01	-126.17	-69.5841	210	112.056	1.61	Si
SLD 13	3.91	-177.95	11.1959	296	144.5743	12.913	Si
SLV 6	2.01	-62.01	-53.3048	103	60.8898	1.142	Si
SLV 6	3.91	-91.59	-6.4702	152	85.9709	13.287	Si
SLV 9	2.01	-29.4	-82.1319	0	0	0	No, $e \geq l/2$
SLV 9	3.91	-121.63	22.4658	203	108.8255	4.844	Si
SLV 16	2.01	-146.17	-87.6009	243	125.5431	1.433	Si
SLV 16	3.91	-230.2	29.5729	383	169.4428	5.73	Si
SLV 14	2.01	-74.71	-100.5991	0	0	0	No, $e \geq l/2$
SLV 14	3.91	-196.26	41.8737	327	154.1972	3.682	Si
SLV 13	2.01	-74.71	-100.5991	0	0	0	No, $e \geq l/2$
SLV 13	3.91	-196.26	41.8737	327	154.1972	3.682	Si
SLV 5	2.01	-62.01	-53.3048	103	60.8898	1.142	Si
SLV 5	3.91	-91.59	-6.4702	152	85.9709	13.287	Si
SLV 10	2.01	-29.4	-82.1319	0	0	0	No, $e \geq l/2$
SLV 10	3.91	-121.63	22.4658	203	108.8255	4.844	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	2.01	-243.05	-40.54	-66.5252		405	2.145	108	65.07			1.6	Si
SLU 75	3.91	-243.94	-40.55	-19.6926		406	2.145	108	65.07			1.6	Si
SLU 80	2.01	-245.35	-40.44	-66.1795		409	2.145	108	65.07			1.61	Si
SLU 80	3.91	-248.25	-40.47	-21.6791		413	2.145	108	65.07			1.61	Si
SLU 83	2.01	-251.6	-42.32	-68.5532		419	2.145	108	65.07			1.54	Si
SLU 83	3.91	-253.9	-42.33	-19.849		423	2.145	108	65.07			1.54	Si
SLU 77	2.01	-247.94	-41.05	-66.962		413	2.145	108	65.07			1.59	Si
SLU 77	3.91	-250.87	-41.08	-21.3335		418	2.145	108	65.07			1.58	Si
SLU 78	2.01	-247.58	-40.68	-66.8907		412	2.145	108	65.07			1.6	Si
SLU 78	3.91	-250.21	-40.71	-21.6411		417	2.145	108	65.07			1.6	Si
SLU 79	2.01	-245.7	-40.8	-66.2509		409	2.145	108	65.07			1.59	Si
SLU 79	3.91	-248.91	-40.85	-21.3715		414	2.145	108	65.07			1.59	Si
SLU 81	2.01	-247.07	-42.18	-68.1877		411	2.145	108	65.07			1.54	Si
SLU 81	3.91	-247.62	-42.17	-17.9004		412	2.145	108	65.07			1.54	Si
SLU 84	2.01	-251.24	-41.95	-68.4819		418	2.145	108	65.07			1.55	Si
SLU 84	3.91	-253.24	-41.96	-20.1565		422	2.145	108	65.07			1.55	Si
SLU 82	2.01	-246.71	-41.81	-68.1164		411	2.145	108	65.07			1.56	Si
SLU 82	3.91	-246.97	-41.79	-18.208		411	2.145	108	65.07			1.56	Si
SLU 74	2.01	-243.41	-40.91	-66.5965		405	2.145	108	65.07			1.59	Si
SLU 74	3.91	-244.6	-40.92	-19.385		407	2.145	108	65.07			1.59	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	2.01	-146.17	-133.52	-87.6009		368	1.4196	157	62.36			0.47	No, $V_u < V$
SLV 16	3.91	-230.2	-119.81	29.5729		383	2.145	160	96.09			0.8	No, $V_u < V$
SLV 5	2.01	-62.01	-39.02	-53.3048		347	0.6388	153	27.31			0.7	No, $V_u < V$
SLV 5	3.91	-91.59	-28.25	-6.4702		152	2.145	114	68.37			2.42	Si
SLV 10	2.01	-29.4	-110.31	-82.1319		0	0	83	0			0	No, $V_u < V$
SLV 10	3.91	-121.63	-88.38	22.4658		203	2.145	124	74.38			0.84	No, $V_u < V$
SLV 6	2.01	-62.01	-39.02	-53.3048		347	0.6388	153	27.31			0.7	No, $V_u < V$
SLV 6	3.91	-91.59	-28.25	-6.4702		152	2.145	114	68.37			2.42	Si
SLD 13	2.01	-126.17	-86.15	-69.5841		288	1.563	141	61.71			0.72	No, $V_u < V$
SLD 13	3.91	-177.95	-76.07	11.1959		296	2.145	143	85.64			1.13	Si
SLV 13	2.01	-74.71	-161.2	-100.5991		0	0	83	0			0	No, $V_u < V$
SLV 13	3.91	-196.26	-137.68	41.8737		327	2.145	149	89.3			0.65	No, $V_u < V$
SLV 14	2.01	-74.71	-161.2	-100.5991		0	0	83	0			0	No, $V_u < V$
SLV 14	3.91	-196.26	-137.68	41.8737		327	2.145	149	89.3			0.65	No, $V_u < V$
SLV 9	2.01	-29.4	-110.31	-82.1319		0	0	83	0			0	No, $V_u < V$
SLV 9	3.91	-121.63	-88.38	22.4658		203	2.145	124	74.38			0.84	No, $V_u < V$
SLD 14	2.01	-126.17	-86.15	-69.5841		288	1.563	141	61.71			0.72	No, $V_u < V$
SLD 14	3.91	-177.95	-76.07	11.1959		296	2.145	143	85.64			1.13	Si
SLV 15	2.01	-146.17	-133.52	-87.6009		368	1.4196	157	62.36			0.47	No, $V_u < V$
SLV 15	3.91	-230.2	-119.81	29.5729		383	2.145	160	96.09			0.8	No, $V_u < V$

### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.31	102	-61.09	1.9561	7.8404	4.01	Si
SLV 5	1438	0.31	102	-61.09	1.9561	7.8404	4.01	Si
SLV 10	1438	0.31	113	-67.59	1.9561	8.5915	4.39	Si
SLV 9	1438	0.31	113	-67.59	1.9561	8.5915	4.39	Si
SLV 2	1438	0.31	206	-123.99	1.9561	14.4253	7.37	Si
SLV 1	1438	0.31	206	-123.99	1.9561	14.4253	7.37	Si
SLV 13	1438	0.31	243	-145.67	1.9561	16.3458	8.36	Si
SLV 14	1438	0.31	243	-145.67	1.9561	16.3458	8.36	Si
SLV 4	1438	0.31	307	-184.4	1.9561	19.3293	9.88	Si
SLV 3	1438	0.31	307	-184.4	1.9561	19.3293	9.88	Si

### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	-97.89	-75.44	1.46	0.032	13.148	0.934	0.49317	10.54325	No
SLV 10	-97.89	-75.44	1.46	0.032	13.148	0.934	0.49317	10.54325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	-184.73	-246.64	-1.45	0.034	21.958	0.958	0.5199	10.54325	No
SLV 8	-184.73	-246.64	-1.45	0.034	21.958	0.958	0.5199	10.54325	No
SLV 4	-114.44	-215.26	-1.27	0.034	14.823	0.94	0.52238	10.12339	No
SLV 3	-114.44	-215.26	-1.27	0.034	14.823	0.94	0.52238	10.12339	No
SLV 14	-168.17	-106.81	1.28	0.035	20.276	0.954	0.53053	10.12339	No
SLV 13	-168.17	-106.81	1.28	0.035	20.276	0.954	0.53053	10.12339	No
SLV 12	-211.03	-227.81	-0.89	0.037	24.633	0.962	0.55974	10.54325	No
SLV 11	-211.03	-227.81	-0.89	0.037	24.633	0.962	0.55974	10.54325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.912	SLU 83	Si
V_SLU	1.537	SLU 83	Si
PF_SLV	0	SLV 9	No
V_SLV	0	SLV 9	No
PFFP_SLV	4.008	SLV 5	Si
R_SLV	0.047	SLV 9	No

## Maschio 58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.543	-3.359	-24.678	-3.359	L3	L4	2.135	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 49	2.01	-72.39	69.3866	121	65.7915	0.948	No, M>Mu
SLU 49	3.91	-74.85	-80.594	0	0	0	No, e>l/2
SLU 26	2.01	-52.12	70.5886	0	0	0	No, e>l/2
SLU 26	3.91	-62.68	-71.4352	0	0	0	No, e>l/2
SLU 34	2.01	-61.42	76.1871	0	0	0	No, e>l/2
SLU 34	3.91	-75.71	-81.2782	0	0	0	No, e>l/2
SLU 44	2.01	-57.59	73.6311	0	0	0	No, e>l/2
SLU 44	3.91	-62.54	-74.5525	0	0	0	No, e>l/2
SLU 55	2.01	-68.71	80.9005	0	0	0	No, e>l/2
SLU 55	3.91	-77.96	-86.5368	0	0	0	No, e>l/2
SLU 52	2.01	-66.89	79.2295	0	0	0	No, e>l/2
SLU 52	3.91	-75.57	-84.3955	0	0	0	No, e>l/2
SLU 31	2.01	-59.59	74.5161	0	0	0	No, e>l/2
SLU 31	3.91	-73.33	-79.1368	0	0	0	No, e>l/2
SLU 23	2.01	-50.29	68.9176	0	0	0	No, e>l/2
SLU 23	3.91	-60.29	-69.2939	0	0	0	No, e>l/2
SLU 65	2.01	-67.04	79.7073	0	0	0	No, e>l/2
SLU 65	3.91	-75.18	-84.4837	0	0	0	No, e>l/2
SLU 51	2.01	-71.55	69.0003	120	65.1545	0.944	No, M>Mu
SLU 51	3.91	-73.89	-79.8832	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 5	2.01	-49.25	129.7032	0	0	0	No, e>l/2
SLV 5	3.91	-105.73	-134.6333	0	0	0	No, e>l/2
SLV 3	2.01	-77.38	102.5754	0	0	0	No, e>l/2
SLV 3	3.91	-116.65	-139.6472	0	0	0	No, e>l/2
SLV 6	2.01	-49.25	129.7032	0	0	0	No, e>l/2
SLV 6	3.91	-105.73	-134.6333	0	0	0	No, e>l/2
SLV 15	2.01	-79.99	-46.7228	134	76.0385	1.627	Si
SLV 15	3.91	-14.78	29.3712	0	0	0	No, e>l/2
SLV 10	2.01	-50.03	84.9137	0	0	0	No, e>l/2
SLV 10	3.91	-75.17	-83.9277	0	0	0	No, e>l/2
SLV 1	2.01	-63.97	139.2133	0	0	0	No, e>l/2
SLV 1	3.91	-128.07	-164.6361	0	0	0	No, e>l/2
SLV 9	2.01	-50.03	84.9137	0	0	0	No, e>l/2
SLV 9	3.91	-75.17	-83.9277	0	0	0	No, e>l/2
SLV 4	2.01	-77.38	102.5754	0	0	0	No, e>l/2
SLV 4	3.91	-116.65	-139.6472	0	0	0	No, e>l/2
SLV 2	2.01	-63.97	139.2133	0	0	0	No, e>l/2
SLV 2	3.91	-128.07	-164.6361	0	0	0	No, e>l/2
SLD 1	2.01	-68.84	86.2231	0	0	0	No, e>l/2
SLD 1	3.91	-95.97	-109.6805	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 26	2.01	-52.12	93.11	70.5886		0	0	56	0	0		0	No, Vu<V
SLU 26	3.91	-62.68	92.06	-71.4352		0	0	56	0	0		0	No, Vu<V
SLU 13	2.01	-51.96	92.93	70.1109		0	0	56	0	0		0	No, Vu<V
SLU 13	3.91	-63.07	91.88	-71.347		0	0	56	0	0		0	No, Vu<V
SLU 46	2.01	-70.57	93.64	67.7156		778	0.3239	108	9.82			0.1	No, Vu<V
SLU 46	3.91	-72.47	92.68	-78.4526		0	0	56	0	0		0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	2.01	-66.89	106.75	79.2295		0	0	56	0			0	No, Vu<V
SLU 52	3.91	-75.57	105.57	-84.3955		0	0	56	0			0	No, Vu<V
SLU 34	2.01	-61.42	103.39	76.1871		0	0	56	0			0	No, Vu<V
SLU 34	3.91	-75.71	102.26	-81.2782		0	0	56	0			0	No, Vu<V
SLU 65	2.01	-67.04	106.93	79.7073		0	0	56	0			0	No, Vu<V
SLU 65	3.91	-75.18	105.75	-84.4837		0	0	56	0			0	No, Vu<V
SLU 55	2.01	-68.71	109.08	80.9005		0	0	56	0			0	No, Vu<V
SLU 55	3.91	-77.96	107.89	-86.5368		0	0	56	0			0	No, Vu<V
SLU 47	2.01	-59.41	98.81	75.3021		0	0	56	0			0	No, Vu<V
SLU 47	3.91	-64.92	97.69	-76.6939		0	0	56	0			0	No, Vu<V
SLU 73	2.01	-76.34	117.2	85.3057		0	0	56	0			0	No, Vu<V
SLU 73	3.91	-88.22	115.95	-94.3266		0	0	56	0			0	No, Vu<V
SLU 31	2.01	-59.59	101.05	74.5161		0	0	56	0			0	No, Vu<V
SLU 31	3.91	-73.33	99.94	-79.1368		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	2.01	-63.97	212.32	139.2133		0	0	83	0			0	No, Vu<V
SLV 1	3.91	-128.07	191.1	-164.6361		0	0	83	0			0	No, Vu<V
SLV 3	2.01	-77.38	174.11	102.5754		0	0	83	0			0	No, Vu<V
SLV 3	3.91	-116.65	163.75	-139.6472		0	0	83	0			0	No, Vu<V
SLD 1	2.01	-68.84	132.37	86.2231		0	0	83	0			0	No, Vu<V
SLD 1	3.91	-95.97	123.07	-109.6805		0	0	83	0			0	No, Vu<V
SLV 2	2.01	-63.97	212.32	139.2133		0	0	83	0			0	No, Vu<V
SLV 2	3.91	-128.07	191.1	-164.6361		0	0	83	0			0	No, Vu<V
SLV 15	2.01	-79.99	-68.93	-46.7228		197	1.4502	123	49.84			0.72	No, Vu<V
SLV 15	3.91	-14.78	-48.91	29.3712		0	0	83	0			0	No, Vu<V
SLV 4	2.01	-77.38	174.11	102.5754		0	0	83	0			0	No, Vu<V
SLV 4	3.91	-116.65	163.75	-139.6472		0	0	83	0			0	No, Vu<V
SLV 6	2.01	-49.25	171.84	129.7032		0	0	83	0			0	No, Vu<V
SLV 6	3.91	-105.73	148.59	-134.6333		0	0	83	0			0	No, Vu<V
SLV 5	2.01	-49.25	171.84	129.7032		0	0	83	0			0	No, Vu<V
SLV 5	3.91	-105.73	148.59	-134.6333		0	0	83	0			0	No, Vu<V
SLV 10	2.01	-50.03	98.92	84.9137		0	0	83	0			0	No, Vu<V
SLV 10	3.91	-75.17	84.79	-83.9277		0	0	83	0			0	No, Vu<V
SLV 9	2.01	-50.03	98.92	84.9137		0	0	83	0			0	No, Vu<V
SLV 9	3.91	-75.17	84.79	-83.9277		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.31	64	-38.41	1.947	5.0946	2.62	Si
SLV 13	1438	0.31	64	-38.41	1.947	5.0946	2.62	Si
SLV 16	1438	0.31	68	-40.5	1.947	5.3555	2.75	Si
SLV 15	1438	0.31	68	-40.5	1.947	5.3555	2.75	Si
SLV 9	1438	0.31	101	-60.15	1.947	7.7273	3.97	Si
SLV 10	1438	0.31	101	-60.15	1.947	7.7273	3.97	Si
SLV 11	1438	0.31	112	-67.11	1.947	8.5324	4.38	Si
SLV 12	1438	0.31	112	-67.11	1.947	8.5324	4.38	Si
SLV 6	1438	0.31	135	-80.87	1.947	10.0683	5.17	Si
SLV 5	1438	0.31	135	-80.87	1.947	10.0683	5.17	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-42.33	-97.76	0.84	0.036	7.571	0.902	0.5829	10.54325	No
SLV 10	-42.33	-97.76	0.84	0.036	7.571	0.902	0.5829	10.54325	No
SLV 8	-23.38	-74.76	-0.81	0.036	5.75	0.889	0.59365	10.54325	No
SLV 7	-23.38	-74.76	-0.81	0.036	5.75	0.889	0.59365	10.54325	No
SLV 6	-46.85	-114.29	0.65	0.039	8.016	0.905	0.62933	10.54325	No
SLV 5	-46.85	-114.29	0.65	0.039	8.016	0.905	0.62933	10.54325	No
SLV 11	-18.87	-58.23	-0.61	0.041	5.337	0.889	0.67382	10.54325	No
SLV 12	-18.87	-58.23	-0.61	0.041	5.337	0.889	0.67382	10.54325	No
SLV 3	-36.87	-107.88	-0.53	0.042	7.036	0.898	0.67356	10.12339	No
SLV 4	-36.87	-107.88	-0.53	0.042	7.036	0.898	0.67356	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 2	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	2.617	SLV 13	Si
R_SLV	0.055	SLV 9	No

## Maschio 59

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-19.368	-3.359	-21.543	-3.359	L3	L4	2.175	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 47	3.11	-105.23	-51.9828	173	90.1616	1.734	Si
SLU 47	3.91	-94.5	-33.6406	155	83.1933	2.473	Si
SLU 10	3.11	-97.67	-48.7115	160	85.3054	1.751	Si
SLU 10	3.91	-89.38	-31.0726	147	79.691	2.565	Si
SLU 5	3.11	-78.54	-43.7079	129	71.8904	1.645	Si
SLU 5	3.91	-70.25	-28.5108	115	65.5809	2.3	Si
SLU 44	3.11	-104.52	-52.2257	172	89.7187	1.718	Si
SLU 44	3.91	-93.8	-33.0126	154	82.7172	2.506	Si
SLU 65	3.11	-121.74	-56.0189	200	99.9044	1.783	Si
SLU 65	3.91	-110.88	-35.9563	182	93.6289	2.604	Si
SLU 52	3.11	-124.36	-56.9864	204	101.3381	1.778	Si
SLU 52	3.91	-113.63	-36.2024	187	95.2695	2.632	Si
SLU 23	3.11	-95.06	-47.744	156	83.5655	1.75	Si
SLU 23	3.91	-86.63	-30.8265	142	77.7575	2.522	Si
SLU 26	3.11	-95.76	-47.5011	157	84.0377	1.769	Si
SLU 26	3.91	-87.33	-31.4545	143	78.2557	2.488	Si
SLU 13	3.11	-98.38	-48.4686	162	85.7695	1.77	Si
SLU 13	3.91	-90.09	-31.7006	148	80.1807	2.529	Si
SLU 2	3.11	-77.84	-43.9508	128	71.365	1.624	Si
SLU 2	3.91	-69.55	-27.8828	114	65.0298	2.332	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 10	3.11	-100.49	-105.0131	165	94.5239	0.9	No, M>Mu
SLV 10	3.91	-123.55	-53.7758	203	112.0552	2.084	Si
SLD 1	3.11	-97.76	-34.3275	161	92.3432	2.69	Si
SLD 1	3.91	-94.21	-64.0099	155	89.4842	1.398	Si
SLV 5	3.11	-75.87	-94.1126	0	0	0	No, e>l/2
SLV 5	3.91	-100.17	-101.8151	164	94.2702	0.926	No, M>Mu
SLD 2	3.11	-97.76	-34.3275	161	92.3432	2.69	Si
SLD 2	3.91	-94.21	-64.0099	155	89.4842	1.398	Si
SLV 3	3.11	-87.5	3.3658	144	83.9701	24.948	Si
SLV 3	3.91	-71.63	-85.6077	0	0	0	No, e>l/2
SLV 1	3.11	-68.88	-35.7547	113	67.9692	1.901	Si
SLV 1	3.91	-72.21	-118.9553	0	0	0	No, e>l/2
SLV 9	3.11	-100.49	-105.0131	165	94.5239	0.9	No, M>Mu
SLV 9	3.91	-123.55	-53.7758	203	112.0552	2.084	Si
SLV 2	3.11	-68.88	-35.7547	113	67.9692	1.901	Si
SLV 2	3.91	-72.21	-118.9553	0	0	0	No, e>l/2
SLV 4	3.11	-87.5	3.3658	144	83.9701	24.948	Si
SLV 4	3.91	-71.63	-85.6077	0	0	0	No, e>l/2
SLV 6	3.11	-75.87	-94.1126	0	0	0	No, e>l/2
SLV 6	3.91	-100.17	-101.8151	164	94.2702	0.926	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 10	3.11	-97.67	-21.99	-48.7115	197	1.7663	82	40.5				1.84	Si
SLU 10	3.91	-89.38	-21.99	-31.0726	147	2.175	75	45.75				2.08	Si
SLU 65	3.11	-121.74	-25.02	-56.0189	231	1.8821	86	45.51				1.82	Si
SLU 65	3.91	-110.88	-25.02	-35.9563	182	2.175	80	48.62				1.94	Si
SLU 73	3.11	-141.58	-26.98	-60.7795	256	1.9746	90	49.59				1.84	Si
SLU 73	3.91	-130.71	-26.98	-39.1461	215	2.175	84	51.26				1.9	Si
SLU 52	3.11	-124.36	-25.9	-56.9864	235	1.8878	87	45.95				1.77	Si
SLU 52	3.91	-113.63	-25.9	-36.2024	187	2.175	80	48.98				1.89	Si
SLU 2	3.11	-77.84	-20.03	-43.9508	177	1.5685	79	34.78				1.74	Si
SLU 2	3.91	-69.55	-20.03	-27.8828	121	2.0598	72	41.31				2.06	Si
SLU 55	3.11	-125.06	-24.81	-56.7435	235	1.9014	87	46.25				1.86	Si
SLU 55	3.91	-114.34	-24.81	-36.8304	188	2.175	81	49.08				1.98	Si
SLU 47	3.11	-105.23	-22.85	-51.9828	211	1.7805	84	41.73				1.83	Si
SLU 47	3.91	-94.5	-22.85	-33.6406	155	2.175	76	46.43				2.03	Si
SLU 44	3.11	-104.52	-23.94	-52.2257	212	1.7635	84	41.37				1.73	Si
SLU 44	3.91	-93.8	-23.94	-33.0126	154	2.175	76	46.34				1.94	Si
SLU 23	3.11	-95.06	-21.11	-47.744	193	1.7557	81	39.98				1.89	Si
SLU 23	3.91	-86.63	-21.11	-30.8265	142	2.175	75	45.38				2.15	Si
SLU 5	3.11	-78.54	-18.94	-43.7079	176	1.593	79	35.25				1.86	Si
SLU 5	3.91	-70.25	-18.94	-28.5108	123	2.045	72	41.18				2.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	3.11	-100.49	-81.28	-105.0131	2816	0.1274	163	5.8				0.07	No, Vu<V
SLV 9	3.91	-123.55	-74.29	-53.7758	226	1.9568	128	70.37				0.95	No, Vu<V
SLV 4	3.11	-87.5	120.16	3.3658	144	2.175	112	68.25				0.57	No, Vu<V
SLV 4	3.91	-71.63	113.24	-85.6077	0	0	83	0				0	No, Vu<V
SLV 13	3.11	-150.95	-150.42	-72.0898	295	1.8297	142	72.88				0.48	No, Vu<V
SLV 13	3.91	-150.16	-143.5	41.1756	247	2.175	133	80.78				0.56	No, Vu<V
SLV 2	3.11	-68.88	103.3	-35.7547	144	1.7051	112	53.56				0.52	No, Vu<V
SLV 2	3.91	-72.21	99.63	-118.9553	0	0	83	0				0	No, Vu<V
SLV 1	3.11	-68.88	103.3	-35.7547	144	1.7051	112	53.56				0.52	No, Vu<V
SLV 1	3.91	-72.21	99.63	-118.9553	0	0	83	0				0	No, Vu<V
SLV 5	3.11	-75.87	-5.17	-94.1126	0	0	83	0				0	No, Vu<V
SLV 5	3.91	-100.17	-1.35	-101.8151	1678	0.2132	163	9.7				7.18	Si
SLV 6	3.11	-75.87	-5.17	-94.1126	0	0	83	0				0	No, Vu<V
SLV 6	3.91	-100.17	-1.35	-101.8151	1678	0.2132	163	9.7				7.18	Si
SLV 10	3.11	-100.49	-81.28	-105.0131	2816	0.1274	163	5.8				0.07	No, Vu<V
SLV 10	3.91	-123.55	-74.29	-53.7758	226	1.9568	128	70.37				0.95	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	3.11	-87.5	120.16	3.3658		144	2.175	112	68.25			0.57	No, Vu<V
SLV 3	3.91	-71.63	113.24	-85.6077		0	0	83	0			0	No, Vu<V
SLV 14	3.11	-150.95	-150.42	-72.0898		295	1.8297	142	72.88			0.48	No, Vu<V
SLV 14	3.91	-150.16	-143.5	41.1756		247	2.175	133	80.78			0.56	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.31	52	-31.94	1.9835	4.2798	2.16	Si
SLV 6	1438	0.31	52	-31.94	1.9835	4.2798	2.16	Si
SLV 10	1438	0.31	72	-44.02	1.9835	5.7987	2.92	Si
SLV 9	1438	0.31	72	-44.02	1.9835	5.7987	2.92	Si
SLV 1	1438	0.31	100	-60.93	1.9835	7.8314	3.95	Si
SLV 2	1438	0.31	100	-60.93	1.9835	7.8314	3.95	Si
SLV 3	1438	0.31	161	-97.85	1.9835	11.8981	6	Si
SLV 4	1438	0.31	161	-97.85	1.9835	11.8981	6	Si
SLV 13	1438	0.31	166	-101.2	1.9835	12.2414	6.17	Si
SLV 14	1438	0.31	166	-101.2	1.9835	12.2414	6.17	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-34.57	-117.57	-1.13	0.031	6.878	0.896	0.50466	10.54325	No
SLV 8	-34.57	-117.57	-1.13	0.031	6.878	0.896	0.50466	10.54325	No
SLV 9	-157.28	-42.18	1.12	0.036	19.214	0.952	0.54458	10.54325	No
SLV 10	-157.28	-42.18	1.12	0.036	19.214	0.952	0.54458	10.54325	No
SLV 11	-45.02	-112.49	-1	0.034	7.899	0.903	0.54904	10.54325	No
SLV 12	-45.02	-112.49	-1	0.034	7.899	0.903	0.54904	10.54325	No
SLV 6	-146.83	-47.26	0.99	0.036	18.152	0.949	0.55596	10.54325	No
SLV 5	-146.83	-47.26	0.99	0.036	18.152	0.949	0.55596	10.54325	No
SLV 14	-130.19	-60.87	0.53	0.039	16.464	0.945	0.60336	10.12339	No
SLV 13	-130.19	-60.87	0.53	0.039	16.464	0.945	0.60336	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.624	SLU 2	Si
V_SLU	1.728	SLU 44	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	2.158	SLV 5	Si
R_SLV	0.048	SLV 7	No

## Maschio 60

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.313	-3.359	-18.868	-3.359	L3	L4	0.555	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	3.11	-97.95	-1.2509	630	6.1491	4.916	Si
SLU 81	3.91	-96.99	4.732	624	6.2931	1.33	Si
SLU 75	3.11	-96.39	-1.5463	620	6.3806	4.126	Si
SLU 75	3.91	-95.05	4.8656	612	6.5708	1.35	Si
SLU 73	3.11	-95.56	-1.9136	615	6.5	3.397	Si
SLU 73	3.91	-93.93	5.2834	604	6.7248	1.273	Si
SLU 78	3.11	-97.14	-1.426	625	6.2707	4.397	Si
SLU 78	3.91	-95.93	4.6403	617	6.4472	1.389	Si
SLU 76	3.11	-96.31	-1.7932	620	6.3928	3.565	Si
SLU 76	3.91	-94.8	5.058	610	6.6056	1.306	Si
SLU 83	3.11	-98.7	-1.1306	635	6.0341	5.337	Si
SLU 83	3.91	-97.86	4.5066	630	6.1622	1.367	Si
SLU 74	3.11	-95.25	-1.1263	613	6.5435	5.81	Si
SLU 74	3.91	-94.22	4.425	606	6.6845	1.511	Si
SLU 80	3.11	-96.29	-1.3929	620	6.3946	4.591	Si
SLU 80	3.91	-95.12	4.5388	612	6.5608	1.445	Si
SLU 84	3.11	-99.84	-1.5506	642	5.854	3.775	Si
SLU 84	3.91	-98.69	4.9473	635	6.0352	1.22	Si
SLU 82	3.11	-99.09	-1.671	638	5.9727	3.574	Si
SLU 82	3.91	-97.82	5.1726	629	6.1693	1.193	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	3.11	-35.35	-9.8009	227	7.9833	0.815	No, M>Mu
SLV 15	3.91	-45.73	14.823	0	0	0	No, e>l/2
SLD 14	3.11	-58.68	-5.1465	378	11.2514	2.186	Si
SLD 14	3.91	-60.2	9.7216	387	11.4092	1.174	Si



Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 9	3.11	-84.53	-5.2848	544	13.0144	2.463	Si
SLV 9	3.91	-76.33	12.9664	491	12.6665	0.977	No, M>Mu
SLV 3	3.11	-79.81	9.0003	514	12.8381	1.426	Si
SLV 3	3.91	-73.13	-11.8513	471	12.4774	1.053	Si
SLV 16	3.11	-35.35	-9.8009	227	7.9833	0.815	No, M>Mu
SLV 16	3.91	-45.73	14.823	0	0	0	No, e>l/2
SLV 14	3.11	-50.87	-10.7537	327	10.3339	0.961	No, M>Mu
SLV 14	3.91	-55.43	18.2751	0	0	0	No, e>l/2
SLV 10	3.11	-84.53	-5.2848	544	13.0144	2.463	Si
SLV 10	3.91	-76.33	12.9664	491	12.6665	0.977	No, M>Mu
SLV 4	3.11	-79.81	9.0003	514	12.8381	1.426	Si
SLV 4	3.91	-73.13	-11.8513	471	12.4774	1.053	Si
SLD 13	3.11	-58.68	-5.1465	378	11.2514	2.186	Si
SLD 13	3.91	-60.2	9.7216	387	11.4092	1.174	Si
SLV 13	3.11	-50.87	-10.7537	327	10.3339	0.961	No, M>Mu
SLV 13	3.91	-55.43	18.2751	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 68	3.11	-86.28	-8.14	-1.706		555	0.555	108	16.84			2.07	Si
SLU 68	3.91	-84.44	-7.95	4.6309		543	0.555	108	16.84			2.12	Si
SLU 84	3.11	-99.84	-8.44	-1.5506		642	0.555	108	16.84			1.99	Si
SLU 84	3.91	-98.69	-8.26	4.9473		635	0.555	108	16.84			2.04	Si
SLU 61	3.11	-90.63	-8.28	-1.6045		583	0.555	108	16.84			2.03	Si
SLU 61	3.91	-89.16	-8.11	4.8047		574	0.555	108	16.84			2.08	Si
SLU 73	3.11	-95.56	-9.25	-1.9136		615	0.555	108	16.84			1.82	Si
SLU 73	3.91	-93.93	-9.05	5.2834		604	0.555	108	16.84			1.86	Si
SLU 76	3.11	-96.31	-8.84	-1.7932		620	0.555	108	16.84			1.9	Si
SLU 76	3.91	-94.8	-8.63	5.058		610	0.555	108	16.84			1.95	Si
SLU 52	3.11	-87.1	-8.68	-1.8471		560	0.555	108	16.84			1.94	Si
SLU 52	3.91	-85.27	-8.48	4.9154		549	0.555	108	16.84			1.98	Si
SLU 55	3.11	-87.84	-8.26	-1.7268		565	0.555	108	16.84			2.04	Si
SLU 55	3.91	-86.14	-8.07	4.6901		554	0.555	108	16.84			2.09	Si
SLU 75	3.11	-96.39	-8.3	-1.5463		620	0.555	108	16.84			2.03	Si
SLU 75	3.91	-95.05	-8.13	4.8656		612	0.555	108	16.84			2.07	Si
SLU 65	3.11	-85.53	-8.56	-1.8263		550	0.555	108	16.84			1.97	Si
SLU 65	3.91	-83.56	-8.36	4.8563		538	0.555	108	16.84			2.01	Si
SLU 82	3.11	-99.09	-8.85	-1.671		638	0.555	108	16.84			1.9	Si
SLU 82	3.91	-97.82	-8.67	5.1726		629	0.555	108	16.84			1.94	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	3.11	-58.68	-19.41	-5.1465		378	0.555	159	24.69			1.27	Si
SLD 13	3.91	-60.2	-18.89	9.7216		618	0.348	163	15.84			0.84	No, Vu<V
SLV 13	3.11	-50.87	-37.77	-10.7537		916	0.1983	163	9.02			0.24	No, Vu<V
SLV 13	3.91	-55.43	-36.81	18.2751		0	0	83	0			0	No, Vu<V
SLV 9	3.11	-84.53	-22.45	-5.2848		544	0.555	163	25.25			1.12	Si
SLV 9	3.91	-76.33	-20.04	12.9664		844	0.3228	163	14.69			0.73	No, Vu<V
SLV 14	3.11	-50.87	-37.77	-10.7537		916	0.1983	163	9.02			0.24	No, Vu<V
SLV 14	3.91	-55.43	-36.81	18.2751		0	0	83	0			0	No, Vu<V
SLV 10	3.11	-84.53	-22.45	-5.2848		544	0.555	163	25.25			1.12	Si
SLV 10	3.91	-76.33	-20.04	12.9664		844	0.3228	163	14.69			0.73	No, Vu<V
SLV 3	3.11	-79.81	27.15	9.0003		577	0.4942	163	22.48			0.83	No, Vu<V
SLV 3	3.91	-73.13	26.37	-11.8513		754	0.3463	163	15.76			0.6	No, Vu<V
SLV 4	3.11	-79.81	27.15	9.0003		577	0.4942	163	22.48			0.83	No, Vu<V
SLV 4	3.91	-73.13	26.37	-11.8513		754	0.3463	163	15.76			0.6	No, Vu<V
SLV 15	3.11	-35.35	-32.89	-9.8009		0	0	83	0			0	No, Vu<V
SLV 15	3.91	-45.73	-33.29	14.823		0	0	83	0			0	No, Vu<V
SLV 16	3.11	-35.35	-32.89	-9.8009		0	0	83	0			0	No, Vu<V
SLV 16	3.91	-45.73	-33.29	14.823		0	0	83	0			0	No, Vu<V
SLD 14	3.11	-58.68	-19.41	-5.1465		378	0.555	159	24.69			1.27	Si
SLD 14	3.91	-60.2	-18.89	9.7216		618	0.348	163	15.84			0.84	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.31	180	-28.04	0.5061	3.3462	6.61	Si
SLV 12	1438	0.31	180	-28.04	0.5061	3.3462	6.61	Si
SLV 7	1438	0.31	208	-32.35	0.5061	3.7574	7.42	Si
SLV 8	1438	0.31	208	-32.35	0.5061	3.7574	7.42	Si
SLV 15	1438	0.31	275	-42.75	0.5061	4.6375	9.16	Si
SLV 16	1438	0.31	275	-42.75	0.5061	4.6375	9.16	Si
SLV 3	1438	0.31	367	-57.11	0.5061	5.5905	11.05	Si
SLV 4	1438	0.31	367	-57.11	0.5061	5.5905	11.05	Si
SLV 14	1438	0.31	384	-59.66	0.5061	5.7282	11.32	Si
SLV 13	1438	0.31	384	-59.66	0.5061	5.7282	11.32	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	$\alpha 0^*$	aLim	Verifica
SLV 5	-36.76	-104.15	0.09	0.04	4.561	0.948	0.61472	10.54325	No
SLV 6	-36.76	-104.15	0.09	0.04	4.561	0.948	0.61472	10.54325	No
SLV 1	-35.66	-69.98	0.16	0.039	4.449	0.947	0.59068	10.12339	No
SLV 2	-35.66	-69.98	0.16	0.039	4.449	0.947	0.59068	10.12339	No
SLV 4	-30.87	-48.33	0.14	0.039	3.963	0.942	0.6053	10.12339	No
SLV 3	-30.87	-48.33	0.14	0.039	3.963	0.942	0.6053	10.12339	No
SLV 9	-32.93	-111.79	0.01	0.042	4.171	0.944	0.65389	10.54325	No
SLV 10	-32.93	-111.79	0.01	0.042	4.171	0.944	0.65389	10.54325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-22.86	-95.45	-0.11	0.041	3.153	0.93	0.63644	10.12339	No
SLV 14	-22.86	-95.45	-0.11	0.041	3.153	0.93	0.63644	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.193	SLU 82	Si
V_SLU	1.819	SLU 73	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	6.611	SLV 11	Si
R_SLV	0.058	SLV 5	No

## Maschio 61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	1.046	-19.618	5.811	L3	L4	4.765	0.14	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 83	1.11	-515.92	231.6684	773	62.2075	0.269	No, M>Mu
SLU 83	4.83	-368.42	-3.3659	552	282.6828	83.985	Si
SLU 84	1.11	-514.11	232.6369	771	66.0885	0.284	No, M>Mu
SLU 84	4.83	-367.81	-2.9798	551	283.2013	95.04	Si
SLU 75	1.11	-498.72	224.0835	748	97.7598	0.436	No, M>Mu
SLU 75	4.83	-355.37	-2.5823	533	293.0059	113.468	Si
SLU 78	1.11	-509.9	226.05	764	74.9598	0.332	No, M>Mu
SLU 78	4.83	-371.38	0.8043	557	280.1388	348.308	Si
SLU 77	1.11	-511.71	225.0816	767	71.146	0.316	No, M>Mu
SLU 77	4.83	-371.99	0.4182	558	279.6011	668.568	Si
SLU 81	1.11	-504.75	229.7019	757	85.5985	0.373	No, M>Mu
SLU 81	4.83	-352.41	-6.7525	528	295.1351	43.708	Si
SLU 80	1.11	-505.13	224.4863	757	84.8179	0.378	No, M>Mu
SLU 80	4.83	-368.7	2.2569	553	282.4454	125.147	Si
SLU 82	1.11	-502.93	230.6703	754	89.3012	0.387	No, M>Mu
SLU 82	4.83	-351.8	-6.3664	527	295.5675	46.426	Si
SLU 79	1.11	-506.95	223.5179	760	81.0801	0.363	No, M>Mu
SLU 79	4.83	-369.31	1.8708	554	281.9222	150.693	Si
SLU 74	1.11	-500.54	223.115	750	94.1243	0.422	No, M>Mu
SLU 74	4.83	-355.98	-2.9684	534	292.5543	98.558	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 16	1.11	-341.83	180.1061	512	472.9013	2.626	Si
SLD 16	4.83	-233.81	14.6659	350	397.2787	27.089	Si
SLV 15	1.11	-346.24	217.3687	519	474.5376	2.183	Si
SLV 15	4.83	-234.15	36.0766	351	397.6308	11.022	Si
SLV 16	1.11	-346.24	217.3687	519	474.5376	2.183	Si
SLV 16	4.83	-234.15	36.0766	351	397.6308	11.022	Si
SLV 13	1.11	-296.02	226.4501	444	449.1594	1.983	Si
SLV 13	4.83	-208.72	43.039	313	369.9561	8.596	Si
SLV 10	1.11	-249.87	188.5289	375	412.8406	2.19	Si
SLV 10	4.83	-187.52	22.568	281	343.9954	15.243	Si
SLD 14	1.11	-320.21	184.6029	480	463.2264	2.509	Si
SLD 14	4.83	-222.81	17.6203	334	385.7543	21.893	Si
SLV 14	1.11	-296.02	226.4501	444	449.1594	1.983	Si
SLV 14	4.83	-208.72	43.039	313	369.9561	8.596	Si
SLV 9	1.11	-249.87	188.5289	375	412.8406	2.19	Si
SLV 9	4.83	-187.52	22.568	281	343.9954	15.243	Si
SLD 13	1.11	-320.21	184.6029	480	463.2264	2.509	Si
SLD 13	4.83	-222.81	17.6203	334	385.7543	21.893	Si
SLD 15	1.11	-341.83	180.1061	512	472.9013	2.626	Si
SLD 15	4.83	-233.81	14.6659	350	397.2787	27.089	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	1.11	-500.54	31.6	223.115		750	4.7652	108	72.27			2.29	Si
SLU 74	4.83	-355.98	7.25	-2.9684		534	4.7652	108	72.27			9.97	Si
SLU 76	1.11	-492.74	30.2	223.1654		739	4.7652	108	72.27			2.39	Si
SLU 76	4.83	-352.28	5.76	-0.8723		528	4.7652	108	72.27			12.55	Si
SLU 73	1.11	-481.56	31.36	221.1989		722	4.7652	108	72.27			2.3	Si
SLU 73	4.83	-336.27	8.49	-4.2588		504	4.7652	108	72.27			8.51	Si
SLU 75	1.11	-498.72	31.33	224.0835		748	4.7652	108	72.27			2.31	Si
SLU 75	4.83	-355.37	6.97	-2.5823		533	4.7652	108	72.27			10.37	Si
SLU 84	1.11	-514.11	32.59	232.6369		771	4.7652	108	72.27			2.22	Si
SLU 84	4.83	-367.81	7.47	-2.9798		551	4.7652	108	72.27			9.68	Si
SLU 82	1.11	-502.93	33.76	230.6703		754	4.7652	108	72.27			2.14	Si
SLU 82	4.83	-351.8	10.2	-6.3664		527	4.7652	108	72.27			7.09	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	1.11	-511.71	30.43	225.0816		767	4.7652	108	72.27			2.38	Si
SLU 77	4.83	-371.99	4.52	0.4182		558	4.7652	108	72.27			16	Si
SLU 78	1.11	-509.9	30.16	226.05		764	4.7652	108	72.27			2.4	Si
SLU 78	4.83	-371.38	4.23	0.8043		557	4.7652	108	72.27			17.07	Si
SLU 81	1.11	-504.75	34.03	229.7019		757	4.7652	108	72.27			2.12	Si
SLU 81	4.83	-352.41	10.48	-6.7525		528	4.7652	108	72.27			6.89	Si
SLU 83	1.11	-515.92	32.86	231.6684		773	4.7652	108	72.27			2.2	Si
SLU 83	4.83	-368.42	7.75	-3.3659		552	4.7652	108	72.27			9.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1.11	-417.27	177.08	158.2575		625	4.7652	163	108.41			0.61	No, Vu<V
SLV 12	4.83	-272.3	105.19	-0.6399		408	4.7652	163	108.41			1.03	Si
SLV 11	1.11	-417.27	177.08	158.2575		625	4.7652	163	108.41			0.61	No, Vu<V
SLV 11	4.83	-272.3	105.19	-0.6399		408	4.7652	163	108.41			1.03	Si
SLV 6	1.11	-260.53	-134.94	146.9437		391	4.7652	161	107.7			0.8	No, Vu<V
SLV 6	4.83	-194.78	-95.58	-1.9409		292	4.7652	142	94.55			0.99	No, Vu<V
SLV 7	1.11	-427.94	205.15	116.6722		641	4.7652	163	108.41			0.53	No, Vu<V
SLV 7	4.83	-279.56	133.5	-25.1489		419	4.7652	163	108.41			0.81	No, Vu<V
SLV 3	1.11	-381.79	118.87	78.7511		572	4.7652	163	108.41			0.91	No, Vu<V
SLV 3	4.83	-258.35	86.34	-45.6199		387	4.7652	161	107.26			1.24	Si
SLV 4	1.11	-381.79	118.87	78.7511		572	4.7652	163	108.41			0.91	No, Vu<V
SLV 4	4.83	-258.35	86.34	-45.6199		387	4.7652	161	107.26			1.24	Si
SLV 9	1.11	-249.87	-163.02	188.5289		375	4.7652	158	105.57			0.65	No, Vu<V
SLV 9	4.83	-187.52	-123.89	22.568		281	4.7652	140	93.1			0.75	No, Vu<V
SLV 8	1.11	-427.94	205.15	116.6722		641	4.7652	163	108.41			0.53	No, Vu<V
SLV 8	4.83	-279.56	133.5	-25.1489		419	4.7652	163	108.41			0.81	No, Vu<V
SLV 10	1.11	-249.87	-163.02	188.5289		375	4.7652	158	105.57			0.65	No, Vu<V
SLV 10	4.83	-187.52	-123.89	22.568		281	4.7652	140	93.1			0.75	No, Vu<V
SLV 5	1.11	-260.53	-134.94	146.9437		391	4.7652	161	107.7			0.8	No, Vu<V
SLV 5	4.83	-194.78	-95.58	-1.9409		292	4.7652	142	94.55			0.99	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.31	344	-229.35	2.3244	11.5373	4.96	Si
SLV 10	1438	0.31	344	-229.35	2.3244	11.5373	4.96	Si
SLV 6	1438	0.31	354	-236.36	2.3244	11.7476	5.05	Si
SLV 5	1438	0.31	354	-236.36	2.3244	11.7476	5.05	Si
SLV 13	1438	0.31	390	-259.86	2.3244	12.3912	5.33	Si
SLV 14	1438	0.31	390	-259.86	2.3244	12.3912	5.33	Si
SLV 1	1438	0.31	425	-283.21	2.3244	12.9369	5.57	Si
SLV 2	1438	0.31	425	-283.21	2.3244	12.9369	5.57	Si
SLV 15	1438	0.31	439	-293.01	2.3244	13.138	5.65	Si
SLV 16	1438	0.31	439	-293.01	2.3244	13.138	5.65	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzzeria = 2.97 Wa = 0.0003 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-258.35	-381.79	0.14	0.02	29.798	0.965	0.29829	14.01752	No
SLV 4	-258.35	-381.79	0.14	0.02	29.798	0.965	0.29829	14.01752	No
SLV 7	-279.56	-427.94	0.1	0.02	31.956	0.967	0.29855	14.01752	No
SLV 8	-279.56	-427.94	0.1	0.02	31.956	0.967	0.29855	14.01752	No
SLV 15	-234.15	-346.24	-0.11	0.02	27.336	0.962	0.30241	14.01752	No
SLV 16	-234.15	-346.24	-0.11	0.02	27.336	0.962	0.30241	14.01752	No
SLV 14	-208.72	-296.02	-0.16	0.02	24.749	0.958	0.30269	14.01752	No
SLV 13	-208.72	-296.02	-0.16	0.02	24.749	0.958	0.30269	14.01752	No
SLV 11	-272.3	-417.27	0.03	0.02	31.217	0.966	0.30312	14.01752	No
SLV 12	-272.3	-417.27	0.03	0.02	31.217	0.966	0.30312	14.01752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.269	SLU 83	No
V_SLU	2.124	SLU 81	Si
PF_SLV	1.983	SLV 13	Si
V_SLV	0.528	SLV 7	No
PFFP_SLV	4.964	SLV 9	Si
R_SLV	0.021	SLV 3	No

## Maschio 62

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	5.951	-19.618	6.661	L3	L4	0.71	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	1.11	-164.19	-9.7308	826	0	0	No, Rottura per schiacciamento
SLU 76	4.83	-76.5	-0.2337	385	14.3284	61.308	Si
SLU 79	1.11	-165.82	-9.7759	834	0	0	No, Rottura per schiacciamento
SLU 79	4.83	-82.32	-0.4698	414	14.3681	30.583	Si
SLU 75	1.11	-165.95	-9.8625	835	0	0	No, Rottura per schiacciamento
SLU 75	4.83	-76.42	-0.1916	384	14.3268	74.792	Si
SLU 74	1.11	-166	-9.8762	835	0	0	No, Rottura per schiacciamento
SLU 74	4.83	-76.46	-0.1926	385	14.3275	74.399	Si
SLU 84	1.11	-171.46	-10.1945	862	0	0	No, Rottura per schiacciamento
SLU 84	4.83	-79.1	-0.1703	398	14.3644	84.365	Si
SLU 81	1.11	-169.95	-10.186	855	0	0	No, Rottura per schiacciamento
SLU 81	4.83	-73.38	0.0631	369	14.2458	225.736	Si
SLU 77	1.11	-167.55	-9.8985	843	0	0	No, Rottura per schiacciamento
SLU 77	4.83	-82.22	-0.427	414	14.3687	33.653	Si
SLU 73	1.11	-162.64	-9.7085	818	0	0	No, Rottura per schiacciamento
SLU 73	4.83	-70.75	0.0007	356	14.1431	1000	Si
SLU 80	1.11	-165.77	-9.7622	834	0	0	No, Rottura per schiacciamento
SLU 80	4.83	-82.28	-0.4688	414	14.3683	30.65	Si
SLU 83	1.11	-171.5	-10.2083	863	0	0	No, Rottura per schiacciamento
SLU 83	4.83	-79.13	-0.1713	398	14.3647	83.863	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	1.11	-141.37	-15.163	711	20.9783	1.384	Si
SLV 4	4.83	-19.12	2.3567	96	6.2548	2.654	Si
SLV 5	1.11	-69.37	-9.55	349	17.5938	1.842	Si
SLV 5	4.83	-10.02	1.9404	50	3.4096	1.757	Si
SLD 2	1.11	-113.3	-10.4684	570	21.461	2.05	Si
SLD 2	4.83	-29.12	1.301	146	9.098	6.993	Si
SLD 1	1.11	-113.3	-10.4684	570	21.461	2.05	Si
SLD 1	4.83	-29.12	1.301	146	9.098	6.993	Si
SLV 1	1.11	-112.52	-15.3123	566	21.4416	1.4	Si
SLV 1	4.83	-2.33	3.0637	0	0	0	No, $e \geq l/2$
SLV 7	1.11	-165.54	-9.0523	833	18.7179	2.068	Si
SLV 7	4.83	-66	-0.4164	332	17.064	40.983	Si
SLV 6	1.11	-69.37	-9.55	349	17.5938	1.842	Si
SLV 6	4.83	-10.02	1.9404	50	3.4096	1.757	Si
SLV 3	1.11	-141.37	-15.163	711	20.9783	1.384	Si
SLV 3	4.83	-19.12	2.3567	96	6.2548	2.654	Si
SLV 8	1.11	-165.54	-9.0523	833	18.7179	2.068	Si
SLV 8	4.83	-66	-0.4164	332	17.064	40.983	Si
SLV 2	1.11	-112.52	-15.3123	566	21.4416	1.4	Si
SLV 2	4.83	-2.33	3.0637	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	1.11	-164.19	-25.75	-9.7308	826	0.71	108	21.54				0.84	No, $V_u < V$
SLU 76	4.83	-76.5	-8.8	-0.2337	385	0.71	107	21.25				2.41	Si
SLU 81	1.11	-169.95	-27.4	-10.186	855	0.71	108	21.54				0.79	No, $V_u < V$
SLU 81	4.83	-73.38	-11.48	0.0631	369	0.71	105	20.83				1.81	Si
SLU 78	1.11	-167.51	-25.83	-9.8848	843	0.71	108	21.54				0.83	No, $V_u < V$
SLU 78	4.83	-82.18	-7.53	-0.4259	413	0.71	108	21.54				2.86	Si
SLU 73	1.11	-162.64	-26.09	-9.7085	818	0.71	108	21.54				0.83	No, $V_u < V$
SLU 73	4.83	-70.75	-10.61	0.0007	356	0.71	103	20.48				1.93	Si
SLU 82	1.11	-169.9	-27.38	-10.1722	855	0.71	108	21.54				0.79	No, $V_u < V$
SLU 82	4.83	-73.34	-11.5	0.0641	369	0.71	105	20.82				1.81	Si
SLU 83	1.11	-171.5	-27.06	-10.2083	863	0.71	108	21.54				0.8	No, $V_u < V$
SLU 83	4.83	-79.13	-9.67	-0.1713	398	0.71	108	21.54				2.23	Si
SLU 77	1.11	-167.55	-25.85	-9.8985	843	0.71	108	21.54				0.83	No, $V_u < V$
SLU 77	4.83	-82.22	-7.5	-0.427	414	0.71	108	21.54				2.87	Si
SLU 75	1.11	-165.95	-26.18	-9.8625	835	0.71	108	21.54				0.82	No, $V_u < V$
SLU 75	4.83	-76.42	-9.34	-0.1916	384	0.71	107	21.23				2.27	Si
SLU 84	1.11	-171.46	-27.04	-10.1945	862	0.71	108	21.54				0.8	No, $V_u < V$
SLU 84	4.83	-79.1	-9.69	-0.1703	398	0.71	108	21.54				2.22	Si
SLU 74	1.11	-166	-26.19	-9.8762	835	0.71	108	21.54				0.82	No, $V_u < V$
SLU 74	4.83	-76.46	-9.31	-0.1926	385	0.71	107	21.24				2.28	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	1.11	-69.37	-10.79	-9.55	380	0.652	159	29.09				2.7	Si
SLV 5	4.83	-10.02	-30.04	1.9404	74	0.4839	98	13.29				0.44	No, $V_u < V$
SLD 3	1.11	-125.48	-38.23	-10.4044	631	0.71	163	32.3				0.85	No, $V_u < V$
SLD 3	4.83	-36.21	-17.69	0.9944	182	0.71	120	23.81				1.35	Si
SLV 2	1.11	-112.52	-53.1	-15.3123	612	0.6568	163	29.88				0.56	No, $V_u < V$
SLV 2	4.83	-2.33	-40	3.0637	0	0	83	0				0	No, $V_u < V$
SLV 7	1.11	-165.54	-49.92	-9.0523	833	0.71	163	32.3				0.65	No, $V_u < V$
SLV 7	4.83	-66	-1.01	-0.4164	332	0.71	150	29.77				29.43	Si
SLD 4	1.11	-125.48	-38.23	-10.4044	631	0.71	163	32.3				0.85	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 4	4.83	-36.21	-17.69	0.9944		182	0.71	120	23.81			1.35	Si
SLV 8	1.11	-165.54	-49.92	-9.0523		833	0.71	163	32.3			0.65	No, Vu<V
SLV 8	4.83	-66	-1.01	-0.4164		332	0.71	150	29.77			29.43	Si
SLV 1	1.11	-112.52	-53.1	-15.3123		612	0.6568	163	29.88			0.56	No, Vu<V
SLV 1	4.83	-2.33	-40	3.0637		0	0	83	0			0	No, Vu<V
SLV 3	1.11	-141.37	-64.84	-15.163		711	0.71	163	32.3			0.5	No, Vu<V
SLV 3	4.83	-19.12	-31.29	2.3567		98	0.6953	103	20.05			0.64	No, Vu<V
SLV 6	1.11	-69.37	-10.79	-9.55		380	0.652	159	29.09			2.7	Si
SLV 6	4.83	-10.02	-30.04	1.9404		74	0.4839	98	13.29			0.44	No, Vu<V
SLV 4	1.11	-141.37	-64.84	-15.163		711	0.71	163	32.3			0.5	No, Vu<V
SLV 4	4.83	-19.12	-31.29	2.3567		98	0.6953	103	20.05			0.64	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.31	203	-40.29	0.6625	4.7051	7.1	Si
SLV 9	1438	0.31	203	-40.29	0.6625	4.7051	7.1	Si
SLV 6	1438	0.31	213	-42.31	0.6625	4.8914	7.38	Si
SLV 5	1438	0.31	213	-42.31	0.6625	4.8914	7.38	Si
SLV 13	1438	0.31	332	-65.94	0.6625	6.7255	10.15	Si
SLV 14	1438	0.31	332	-65.94	0.6625	6.7255	10.15	Si
SLV 1	1438	0.31	365	-72.66	0.6625	7.1295	10.76	Si
SLV 2	1438	0.31	365	-72.66	0.6625	7.1295	10.76	Si
SLV 16	1438	0.31	452	-89.94	0.6625	7.9293	11.97	Si
SLV 15	1438	0.31	452	-89.94	0.6625	7.9293	11.97	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-10.02	-69.37	-0.53	0.021	2.123	0.893	0.33918	10.54325	No
SLV 6	-10.02	-69.37	-0.53	0.021	2.123	0.893	0.33918	10.54325	No
SLV 9	-33.4	-61.23	-0.45	0.033	4.453	0.935	0.50758	10.54325	No
SLV 10	-33.4	-61.23	-0.45	0.033	4.453	0.935	0.50758	10.54325	No
SLV 12	-89.38	-157.4	0.5	0.035	10.141	0.969	0.52532	10.54325	No
SLV 11	-89.38	-157.4	0.5	0.035	10.141	0.969	0.52532	10.54325	No
SLV 7	-66	-165.54	0.42	0.035	7.762	0.96	0.53418	10.54325	No
SLV 8	-66	-165.54	0.42	0.035	7.762	0.96	0.53418	10.54325	No
SLV 1	-2.33	-112.52	-0.29	0.033	1.455	0.912	0.52618	10.12339	No
SLV 2	-2.33	-112.52	-0.29	0.033	1.455	0.912	0.52618	10.12339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 73	No
V_SLU	0.786	SLU 81	No
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	7.102	SLV 9	Si
R_SLV	0.032	SLV 5	No

## Maschio 63

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.383	-3.359	-17.313	-3.359	L3	L4	0.93	0.28	3.72	3.72	3.72			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>med</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	2.01	-168.81	13.8952	648	16.0278	1.153	Si
SLU 77	3.91	-133.72	12.2735	514	22.9811	1.872	Si
SLU 79	2.01	-167.9	13.9889	645	16.2758	1.163	Si
SLU 79	3.91	-132.2	12.0642	508	23.1608	1.92	Si
SLU 76	2.01	-174.57	15.7785	670	14.3694	0.911	No, M>Mu
SLU 76	3.91	-129.04	11.3393	496	23.5013	2.073	Si
SLU 84	2.01	-178	15.2713	684	13.3127	0.872	No, M>Mu
SLU 84	3.91	-137.02	12.3436	526	22.5577	1.827	Si
SLU 75	2.01	-171.85	14.6579	660	15.1695	1.035	Si
SLU 75	3.91	-132.02	11.9572	507	23.181	1.939	Si
SLU 82	2.01	-175.61	14.4938	674	14.0549	0.97	No, M>Mu
SLU 82	3.91	-137.51	12.6401	528	22.4905	1.779	Si
SLU 80	2.01	-173.34	15.5292	666	14.7364	0.949	No, M>Mu
SLU 80	3.91	-130.01	11.4513	499	23.4015	2.044	Si
SLU 83	2.01	-172.56	13.731	663	14.9633	1.09	Si
SLU 83	3.91	-139.21	12.9565	535	22.2497	1.717	Si
SLU 73	2.01	-172.18	15.0011	661	15.0756	1.005	Si
SLU 73	3.91	-129.53	11.6357	497	23.4513	2.015	Si
SLU 78	2.01	-174.24	15.4354	669	14.4667	0.937	No, M>Mu
SLU 78	3.91	-131.53	11.6607	505	23.2364	1.993	Si



### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	2.01	-96.87	27.0935	372	31.3298	1.156	Si
SLV 7	3.91	24.39	-14.9952	0	0	0	No, Trazione
SLV 4	2.01	-146.43	36.2747	562	36.7537	1.013	Si
SLV 4	3.91	-34.96	-7.0049	134	14.4689	2.066	Si
SLV 3	2.01	-146.43	36.2747	562	36.7537	1.013	Si
SLV 3	3.91	-34.96	-7.0049	134	14.4689	2.066	Si
SLV 10	2.01	-132.47	-9.56	509	35.9522	3.761	Si
SLV 10	3.91	-209.35	32.6579	804	33.2966	1.02	Si
SLV 9	2.01	-132.47	-9.56	509	35.9522	3.761	Si
SLV 9	3.91	-209.35	32.6579	804	33.2966	1.02	Si
SLV 12	2.01	-72.4	12.5815	278	26.0062	2.067	Si
SLV 12	3.91	9.58	-9.2666	0	0	0	No, Trazione
SLV 11	2.01	-72.4	12.5815	278	26.0062	2.067	Si
SLV 11	3.91	9.58	-9.2666	0	0	0	No, Trazione
SLV 8	2.01	-96.87	27.0935	372	31.3298	1.156	Si
SLV 8	3.91	24.39	-14.9952	0	0	0	No, Trazione
SLV 2	2.01	-164.45	29.6322	632	36.946	1.247	Si
SLV 2	3.91	-100.63	5.5724	386	31.9942	5.742	Si
SLV 1	2.01	-164.45	29.6322	632	36.946	1.247	Si
SLV 1	3.91	-100.63	5.5724	386	31.9942	5.742	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	2.01	-172.56	15.66	13.731		663	0.93	108	28.21			1.8	Si
SLU 83	3.91	-139.21	-5.16	12.9565		535	0.93	108	28.21			5.47	Si
SLU 58	2.01	-154.97	15.48	13.0256		595	0.93	108	28.21			1.82	Si
SLU 58	3.91	-120.31	-4.65	11.0053		462	0.93	108	28.21			6.07	Si
SLU 80	2.01	-173.34	16.28	15.5292		666	0.93	108	28.21			1.73	Si
SLU 80	3.91	-130.01	-4.9	11.4513		499	0.93	108	28.21			5.75	Si
SLU 59	2.01	-160.41	15.39	14.5658		616	0.93	108	28.21			1.83	Si
SLU 59	3.91	-118.12	-4.9	10.3925		454	0.93	108	28.21			5.76	Si
SLU 56	2.01	-155.88	15.21	12.9319		599	0.93	108	28.21			1.86	Si
SLU 56	3.91	-121.84	-4.79	11.2147		468	0.93	108	28.21			5.89	Si
SLU 57	2.01	-161.31	15.12	14.4721		619	0.93	108	28.21			1.87	Si
SLU 57	3.91	-119.64	-5.04	10.6018		459	0.93	108	28.21			5.6	Si
SLU 78	2.01	-174.24	16.01	15.4354		669	0.93	108	28.21			1.76	Si
SLU 78	3.91	-131.53	-5.05	11.6607		505	0.93	108	28.21			5.59	Si
SLU 84	2.01	-178	15.57	15.2713		684	0.93	108	28.21			1.81	Si
SLU 84	3.91	-137.02	-5.41	12.3436		526	0.93	108	28.21			5.21	Si
SLU 77	2.01	-168.81	16.09	13.8952		648	0.93	108	28.21			1.75	Si
SLU 77	3.91	-133.72	-4.79	12.2735		514	0.93	108	28.21			5.89	Si
SLU 79	2.01	-167.9	16.36	13.9889		645	0.93	108	28.21			1.72	Si
SLU 79	3.91	-132.2	-4.65	12.0642		508	0.93	108	28.21			6.07	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	2.01	-164.45	59.07	29.6322		687	0.8544	163	38.88			0.66	No, Vu<V
SLV 1	3.91	-100.63	6.04	5.5724		386	0.93	161	41.83			6.92	Si
SLV 16	2.01	-64.89	-39.92	-12.0988		277	0.8356	139	32.47			0.81	No, Vu<V
SLV 16	3.91	-84.32	-14.2	12.0903		324	0.93	148	38.56			2.72	Si
SLV 12	2.01	-72.4	-9.5	12.5815		296	0.8737	143	34.87			3.67	Si
SLV 12	3.91	9.58	8.14	-9.2666		0	0	83	0			0	No, Vu<V
SLV 4	2.01	-146.43	56.28	36.2747		802	0.6518	163	29.66			0.53	No, Vu<V
SLV 4	3.91	-34.96	16.1	-7.0049		157	0.7938	115	25.51			1.58	Si
SLV 15	2.01	-64.89	-39.92	-12.0988		277	0.8356	139	32.47			0.81	No, Vu<V
SLV 15	3.91	-84.32	-14.2	12.0903		324	0.93	148	38.56			2.72	Si
SLV 2	2.01	-164.45	59.07	29.6322		687	0.8544	163	38.88			0.66	No, Vu<V
SLV 2	3.91	-100.63	6.04	5.5724		386	0.93	161	41.83			6.92	Si
SLV 7	2.01	-96.87	19.36	27.0935		622	0.5559	163	25.29			1.31	Si
SLV 7	3.91	24.39	17.24	-14.9952		0	0	83	0			0	No, Vu<V
SLV 8	2.01	-96.87	19.36	27.0935		622	0.5559	163	25.29			1.31	Si
SLV 8	3.91	24.39	17.24	-14.9952		0	0	83	0			0	No, Vu<V
SLV 3	2.01	-146.43	56.28	36.2747		802	0.6518	163	29.66			0.53	No, Vu<V
SLV 3	3.91	-34.96	16.1	-7.0049		157	0.7938	115	25.51			1.58	Si
SLV 11	2.01	-72.4	-9.5	12.5815		296	0.8737	143	34.87			3.67	Si
SLV 11	3.91	9.58	8.14	-9.2666		0	0	83	0			0	No, Vu<V

### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.31	146	-37.93	0.8481	4.6776	5.52	Si
SLV 12	1438	0.31	146	-37.93	0.8481	4.6776	5.52	Si
SLV 15	1438	0.31	205	-53.49	0.8481	6.2292	7.34	Si
SLV 16	1438	0.31	205	-53.49	0.8481	6.2292	7.34	Si
SLV 8	1438	0.31	242	-62.97	0.8481	7.0708	8.34	Si
SLV 7	1438	0.31	242	-62.97	0.8481	7.0708	8.34	Si
SLV 13	1438	0.31	353	-91.85	0.8481	9.1467	10.78	Si
SLV 14	1438	0.31	353	-91.85	0.8481	9.1467	10.78	Si
SLV 6	1438	0.31	733	-190.84	0.8481	10.6926	12.61	Si
SLV 5	1438	0.31	733	-190.84	0.8481	10.6926	12.61	Si

### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-29.47	-31.18	0.59	0.031	4.395	0.919	0.48753	10.54325	No
SLV 8	-29.47	-31.18	0.59	0.031	4.395	0.919	0.48753	10.54325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 12	-42.13	-29.88	0.57	0.033	5.67	0.934	0.51106	10.54325	No
SLV 11	-42.13	-29.88	0.57	0.033	5.67	0.934	0.51106	10.54325	No
SLV 9	-109.98	-155.99	-0.46	0.036	12.561	0.967	0.54835	10.54325	No
SLV 10	-109.98	-155.99	-0.46	0.036	12.561	0.967	0.54835	10.54325	No
SLV 6	-97.32	-157.3	-0.45	0.036	11.272	0.964	0.55048	10.54325	No
SLV 5	-97.32	-157.3	-0.45	0.036	11.272	0.964	0.55048	10.54325	No
SLV 15	-80.65	-72.49	0.19	0.039	9.577	0.958	0.59426	10.12339	No
SLV 16	-80.65	-72.49	0.19	0.039	9.577	0.958	0.59426	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.872	SLU 84	No
V_SLU	1.724	SLU 79	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 7	No
PFFP_SLV	5.515	SLV 11	Si
R_SLV	0.046	SLV 7	No

## Maschio 64

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.448	-3.359	-18.448	1.046	L3	L4	4.406	0.14	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 47	1.11	-174.78	-54.2305	283	251.0775	4.63	Si
SLU 47	4.83	-178.95	25.0816	290	253.7967	10.119	Si
SLU 52	1.11	-195	-59.1636	316	262.8415	4.443	Si
SLU 52	4.83	-200.84	30.1508	326	265.568	8.808	Si
SLU 10	1.11	-162.27	-49.7602	263	242.0086	4.863	Si
SLU 10	4.83	-168.26	26.5986	273	246.5266	9.268	Si
SLU 68	1.11	-195.01	-54.3293	316	262.8439	4.838	Si
SLU 68	4.83	-203.06	32.9613	329	266.528	8.086	Si
SLU 76	1.11	-217.23	-56.2882	352	271.6303	4.826	Si
SLU 76	4.83	-228.95	40.172	371	274.5216	6.834	Si
SLU 2	1.11	-140.05	-47.8014	227	222.5149	4.655	Si
SLU 2	4.83	-142.38	19.3879	231	224.7565	11.593	Si
SLU 44	1.11	-172.79	-57.2047	280	249.7253	4.365	Si
SLU 44	4.83	-174.95	22.9401	284	251.1926	10.95	Si
SLU 55	1.11	-197	-56.1894	319	263.8057	4.695	Si
SLU 55	4.83	-204.84	32.2923	332	267.2644	8.276	Si
SLU 73	1.11	-215.24	-59.2624	349	271.0194	4.573	Si
SLU 73	4.83	-224.95	38.0304	365	273.6707	7.196	Si
SLU 65	1.11	-193.02	-57.3035	313	261.845	4.569	Si
SLU 65	4.83	-199.06	30.8197	323	264.7693	8.591	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	1.11	-130.58	-101.8901	212	237.8147	2.334	Si
SLV 13	4.83	-117.16	30.2226	190	217.9663	7.212	Si
SLV 14	1.11	-130.58	-101.8901	212	237.8147	2.334	Si
SLV 14	4.83	-117.16	30.2226	190	217.9663	7.212	Si
SLV 5	1.11	-192.29	-117.732	312	315.5144	2.68	Si
SLV 5	4.83	-179.55	35.4264	291	301.2884	8.505	Si
SLV 12	1.11	-96.43	53.6412	156	185.2483	3.453	Si
SLV 12	4.83	-121.3	14.8882	197	224.194	15.058	Si
SLV 11	1.11	-96.43	53.6412	156	185.2483	3.453	Si
SLV 11	4.83	-121.3	14.8882	197	224.194	15.058	Si
SLV 9	1.11	-176.79	-142.0285	287	298.0912	2.099	Si
SLV 9	4.83	-156.43	36.5188	254	273.0651	7.477	Si
SLV 7	1.11	-111.93	77.9377	181	209.9531	2.694	Si
SLV 7	4.83	-144.42	13.7958	234	257.1652	18.641	Si
SLV 6	1.11	-192.29	-117.732	312	315.5144	2.68	Si
SLV 6	4.83	-179.55	35.4264	291	301.2884	8.505	Si
SLV 8	1.11	-111.93	77.9377	181	209.9531	2.694	Si
SLV 8	4.83	-144.42	13.7958	234	257.1652	18.641	Si
SLV 10	1.11	-176.79	-142.0285	287	298.0912	2.099	Si
SLV 10	4.83	-156.43	36.5188	254	273.0651	7.477	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	1.11	-215.24	-21.58	-59.2624		349	4.4057	102	62.96			2.92	Si
SLU 73	4.83	-224.95	-12.9	38.0304		365	4.4057	104	64.26			4.98	Si
SLU 23	1.11	-160.28	-20.74	-47.9002		260	4.4057	90	55.64			2.68	Si
SLU 23	4.83	-166.49	-13.25	27.2675		270	4.4057	92	56.46			4.26	Si
SLU 65	1.11	-193.02	-20.89	-57.3035		313	4.4057	97	60			2.87	Si
SLU 65	4.83	-199.06	-12.64	30.8197		323	4.4057	99	60.81			4.81	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	1.11	-140.05	-21.49	-47.8014		227	4.4057	86	52.94			2.46	Si
SLU 2	4.83	-142.38	-14.37	19.3879		231	4.4057	86	53.25			3.7	Si
SLU 31	1.11	-182.5	-21.42	-49.859		296	4.4057	95	58.6			2.74	Si
SLU 31	4.83	-192.38	-13.52	34.4782		312	4.4057	97	59.92			4.43	Si
SLU 52	1.11	-195	-22.33	-59.1636		316	4.4057	98	60.27			2.7	Si
SLU 52	4.83	-200.84	-14.02	30.1508		326	4.4057	99	61.04			4.35	Si
SLU 10	1.11	-162.27	-22.17	-49.7602		263	4.4057	91	55.9			2.52	Si
SLU 10	4.83	-168.26	-14.64	26.5986		273	4.4057	92	56.7			3.87	Si
SLU 13	1.11	-164.26	-18.84	-46.786		266	4.4057	91	56.17			2.98	Si
SLU 13	4.83	-172.26	-11.28	28.7402		279	4.4057	93	57.23			5.07	Si
SLU 5	1.11	-142.04	-18.15	-44.8272		230	4.4057	86	53.21			2.93	Si
SLU 5	4.83	-146.37	-11.02	21.5295		237	4.4057	87	53.78			4.88	Si
SLU 44	1.11	-172.79	-21.65	-57.2047		280	4.4057	93	57.3			2.65	Si
SLU 44	4.83	-174.95	-13.75	22.9401		284	4.4057	93	57.59			4.19	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	1.11	-192.29	-215.93	-117.732		312	4.4057	146	89.86			0.42	No, Vu<V
SLV 6	4.83	-179.55	-133.52	35.4264		291	4.4057	142	87.31			0.65	No, Vu<V
SLV 7	1.11	-111.93	218.41	77.9377		181	4.4057	120	73.79			0.34	No, Vu<V
SLV 7	4.83	-144.42	120.42	13.7958		234	4.4057	130	80.28			0.67	No, Vu<V
SLD 11	1.11	-124.34	90.13	3.3309		202	4.4057	124	76.27			0.85	No, Vu<V
SLD 11	4.83	-138.71	60.84	20.6414		225	4.4057	128	79.14			1.3	Si
SLV 8	1.11	-111.93	218.41	77.9377		181	4.4057	120	73.79			0.34	No, Vu<V
SLV 8	4.83	-144.42	120.42	13.7958		234	4.4057	130	80.28			0.67	No, Vu<V
SLD 12	1.11	-124.34	90.13	3.3309		202	4.4057	124	76.27			0.85	No, Vu<V
SLD 12	4.83	-138.71	60.84	20.6414		225	4.4057	128	79.14			1.3	Si
SLV 5	1.11	-192.29	-215.93	-117.732		312	4.4057	146	89.86			0.42	No, Vu<V
SLV 5	4.83	-179.55	-133.52	35.4264		291	4.4057	142	87.31			0.65	No, Vu<V
SLV 9	1.11	-176.79	-217.7	-142.0285		301	4.1985	143	84.34			0.39	No, Vu<V
SLV 9	4.83	-156.43	-113.25	36.5188		254	4.4057	134	82.69			0.73	No, Vu<V
SLV 11	1.11	-96.43	216.65	53.6412		156	4.4057	115	70.69			0.33	No, Vu<V
SLV 11	4.83	-121.3	140.69	14.8882		197	4.4057	123	75.66			0.54	No, Vu<V
SLV 12	1.11	-96.43	216.65	53.6412		156	4.4057	115	70.69			0.33	No, Vu<V
SLV 12	4.83	-121.3	140.69	14.8882		197	4.4057	123	75.66			0.54	No, Vu<V
SLV 10	1.11	-176.79	-217.7	-142.0285		301	4.1985	143	84.34			0.39	No, Vu<V
SLV 10	4.83	-156.43	-113.25	36.5188		254	4.4057	134	82.69			0.73	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.31	147	-90.63	2.149	5.5814	2.6	Si
SLV 16	1438	0.31	147	-90.63	2.149	5.5814	2.6	Si
SLV 13	1438	0.31	174	-107.14	2.149	6.4336	2.99	Si
SLV 14	1438	0.31	174	-107.14	2.149	6.4336	2.99	Si
SLV 12	1438	0.31	186	-114.97	2.149	6.8201	3.17	Si
SLV 11	1438	0.31	186	-114.97	2.149	6.8201	3.17	Si
SLV 8	1438	0.31	247	-152.33	2.149	8.508	3.96	Si
SLV 7	1438	0.31	247	-152.33	2.149	8.508	3.96	Si
SLV 9	1438	0.31	276	-169.99	2.149	9.2153	4.29	Si
SLV 10	1438	0.31	276	-169.99	2.149	9.2153	4.29	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 2.97 Wa = 0.0003 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-194.22	-182.25	0.35	0.019	23.009	0.958	0.28832	14.01752	No
SLV 2	-194.22	-182.25	0.35	0.019	23.009	0.958	0.28832	14.01752	No
SLV 4	-183.68	-158.14	0.35	0.019	21.938	0.957	0.28903	14.01752	No
SLV 3	-183.68	-158.14	0.35	0.019	21.938	0.957	0.28903	14.01752	No
SLV 13	-117.16	-130.58	-0.32	0.019	15.186	0.94	0.29872	14.01752	No
SLV 14	-117.16	-130.58	-0.32	0.019	15.186	0.94	0.29872	14.01752	No
SLV 16	-106.62	-106.48	-0.32	0.019	14.119	0.936	0.30055	14.01752	No
SLV 15	-106.62	-106.48	-0.32	0.019	14.119	0.936	0.30055	14.01752	No
SLV 6	-179.55	-192.29	0.11	0.02	21.517	0.956	0.30699	14.01752	No
SLV 5	-179.55	-192.29	0.11	0.02	21.517	0.956	0.30699	14.01752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.365	SLU 44	Si
V_SLU	2.464	SLU 2	Si
PF_SLV	2.099	SLV 9	Si
V_SLV	0.326	SLV 11	No
PFFP_SLV	2.597	SLV 15	Si
R_SLV	0.021	SLV 1	No

## Maschio 65

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-3.359	-15.483	-3.359	L3	L4	1.73	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 82	1.11	-114.78	-59.4812	237	70.403	1.184	Si
SLU 82	3.21	-169.31	-14.2305	350	83.6128	5.876	Si
SLU 84	1.11	-116.39	-59.4761	240	70.9806	1.193	Si
SLU 84	3.21	-169.91	-15.6523	351	83.6857	5.347	Si
SLU 76	1.11	-112.7	-57.6209	233	69.643	1.209	Si
SLU 76	3.21	-164.51	-14.3549	340	82.9723	5.78	Si
SLU 75	1.11	-112.78	-57.3912	233	69.6727	1.214	Si
SLU 75	3.21	-164.22	-15.0052	339	82.9315	5.527	Si
SLU 83	1.11	-115.75	-58.5638	239	70.7538	1.208	Si
SLU 83	3.21	-167.57	-17.0945	346	83.3928	4.878	Si
SLU 78	1.11	-114.4	-57.3861	236	70.2644	1.224	Si
SLU 78	3.21	-164.82	-16.4269	340	83.0177	5.054	Si
SLU 73	1.11	-111.09	-57.626	229	69.0393	1.198	Si
SLU 73	3.21	-163.91	-12.9331	338	82.8852	6.409	Si
SLU 74	1.11	-112.15	-56.4789	232	69.4358	1.229	Si
SLU 74	3.21	-161.88	-16.4474	334	82.5802	5.021	Si
SLU 80	1.11	-113.89	-57.0076	235	70.0804	1.229	Si
SLU 80	3.21	-163.55	-16.7382	338	82.8324	4.949	Si
SLU 81	1.11	-114.14	-58.5689	236	70.1717	1.198	Si
SLU 81	3.21	-166.97	-15.6727	345	83.3138	5.316	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	1.11	-94.34	-86.6772	0	0	0	No, $e \geq l/2$
SLV 13	3.21	-199.8	34.8319	412	114.4855	3.287	Si
SLV 7	1.11	-61.66	-6.1213	127	47.7799	7.805	Si
SLV 7	3.21	-34.58	-39.082	0	0	0	No, $e \geq l/2$
SLV 10	1.11	-95.52	-72.7449	197	69.2883	0.952	No, $M > Mu$
SLV 10	3.21	-190.4	16.3396	393	111.7163	6.837	Si
SLV 8	1.11	-61.66	-6.1213	127	47.7799	7.805	Si
SLV 8	3.21	-34.58	-39.082	0	0	0	No, $e \geq l/2$
SLV 16	1.11	-86.29	-74.0584	178	63.7583	0.861	No, $M > Mu$
SLV 16	3.21	-165.7	25.7001	342	103.2033	4.016	Si
SLV 15	1.11	-86.29	-74.0584	178	63.7583	0.861	No, $M > Mu$
SLV 15	3.21	-165.7	25.7001	342	103.2033	4.016	Si
SLV 9	1.11	-95.52	-72.7449	197	69.2883	0.952	No, $M > Mu$
SLV 9	3.21	-190.4	16.3396	393	111.7163	6.837	Si
SLV 14	1.11	-94.34	-86.6772	0	0	0	No, $e \geq l/2$
SLV 14	3.21	-199.8	34.8319	412	114.4855	3.287	Si
SLV 3	1.11	-62.84	7.811	130	48.5866	6.22	Si
SLV 3	3.21	-25.18	-57.5744	0	0	0	No, $e \geq l/2$
SLV 4	1.11	-62.84	7.811	130	48.5866	6.22	Si
SLV 4	3.21	-25.18	-57.5744	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	1.11	-112.7	-54.45	-57.6209		379	1.0612	106	31.53			0.58	No, $Vu < V$
SLU 76	3.21	-164.51	-54.41	-14.3549		340	1.73	101	48.85			0.9	No, $Vu < V$
SLU 84	1.11	-116.39	-55.45	-59.4761		391	1.062	108	32.04			0.58	No, $Vu < V$
SLU 84	3.21	-169.91	-55.87	-15.6523		351	1.73	102	49.57			0.89	No, $Vu < V$
SLU 65	1.11	-101.5	-50.35	-51.8783		341	1.0616	101	30.05			0.6	No, $Vu < V$
SLU 65	3.21	-147.65	-49.23	-12.1493		305	1.73	96	46.6			0.95	No, $Vu < V$
SLU 73	1.11	-111.09	-55.5	-57.626		382	1.0388	106	30.97			0.56	No, $Vu < V$
SLU 73	3.21	-163.91	-55.68	-12.9331		338	1.73	101	48.77			0.88	No, $Vu < V$
SLU 81	1.11	-114.14	-54.69	-58.5689		386	1.0556	107	31.64			0.58	No, $Vu < V$
SLU 81	3.21	-166.97	-55.18	-15.6727		345	1.73	102	49.17			0.89	No, $Vu < V$
SLU 82	1.11	-114.78	-56.5	-59.4812		394	1.0403	108	31.49			0.56	No, $Vu < V$
SLU 82	3.21	-169.31	-57.13	-14.2305		350	1.73	102	49.49			0.87	No, $Vu < V$
SLU 75	1.11	-112.78	-53.9	-57.3912		377	1.0684	106	31.66			0.59	No, $Vu < V$
SLU 75	3.21	-164.22	-53.79	-15.0052		339	1.73	101	48.81			0.91	No, $Vu < V$
SLU 40	1.11	-94.77	-47.92	-49.9883		334	1.0126	100	28.39			0.59	No, $Vu < V$
SLU 40	3.21	-142.28	-48.89	-10.9786		294	1.73	95	45.88			0.94	No, $Vu < V$
SLU 31	1.11	-91.09	-46.91	-48.1331		322	1.0097	99	27.85			0.59	No, $Vu < V$
SLU 31	3.21	-136.87	-47.43	-9.6812		283	1.73	93	45.16			0.95	No, $Vu < V$
SLU 61	1.11	-108.36	-51.78	-55.1776		363	1.0674	104	31.05			0.6	No, $Vu < V$
SLU 61	3.21	-156.9	-52.36	-14.0152		324	1.73	99	47.83			0.91	No, $Vu < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1.11	-61.66	3.33	-6.1213		127	1.73	109	52.7			15.82	Si
SLV 7	3.21	-34.58	-7.25	-39.082		0	0	83	0			0	No, $Vu < V$
SLV 3	1.11	-62.84	58.35	7.811		130	1.73	109	52.93			0.91	No, $Vu < V$
SLV 3	3.21	-25.18	18.72	-57.5744		0	0	83	0			0	No, $Vu < V$
SLV 16	1.11	-86.29	-124.38	-74.0584		15241	0.0202	163	0.92			0.01	No, $Vu < V$
SLV 16	3.21	-165.7	-82.81	25.7001		342	1.73	152	73.51			0.89	No, $Vu < V$
SLV 8	1.11	-61.66	3.33	-6.1213		127	1.73	109	52.7			15.82	Si
SLV 8	3.21	-34.58	-7.25	-39.082		0	0	83	0			0	No, $Vu < V$
SLV 14	1.11	-94.34	-132.04	-86.6772		0	0	83	0			0	No, $Vu < V$
SLV 14	3.21	-199.8	-91.02	34.8319		412	1.73	163	78.71			0.86	No, $Vu < V$
SLV 9	1.11	-95.52	-77.02	-72.7449		1100	0.3102	163	14.11			0.18	No, $Vu < V$
SLV 9	3.21	-190.4	-65.05	16.3396		393	1.73	162	78.45			1.21	Si
SLV 13	1.11	-94.34	-132.04	-86.6772		0	0	83	0			0	No, $Vu < V$
SLV 13	3.21	-199.8	-91.02	34.8319		412	1.73	163	78.71			0.86	No, $Vu < V$
SLV 15	1.11	-86.29	-124.38	-74.0584		15241	0.0202	163	0.92			0.01	No, $Vu < V$
SLV 15	3.21	-165.7	-82.81	25.7001		342	1.73	152	73.51			0.89	No, $Vu < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	1.11	-95.52	-77.02	-72.7449		1100	0.3102	163	14.11			0.18	No, Vu<V
SLV 10	3.21	-190.4	-65.05	16.3396		393	1.73	162	78.45			1.21	Si
SLV 4	1.11	-62.84	58.35	7.811		130	1.73	109	52.93			0.91	No, Vu<V
SLV 4	3.21	-25.18	18.72	-57.5744		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.31	61	-29.75	1.5777	3.956	2.51	Si
SLV 3	1438	0.31	61	-29.75	1.5777	3.956	2.51	Si
SLV 8	1438	0.31	65	-31.34	1.5777	4.1551	2.63	Si
SLV 7	1438	0.31	65	-31.34	1.5777	4.1551	2.63	Si
SLV 2	1438	0.31	133	-64.48	1.5777	8.0438	5.1	Si
SLV 1	1438	0.31	133	-64.48	1.5777	8.0438	5.1	Si
SLV 12	1438	0.31	139	-67.43	1.5777	8.3642	5.3	Si
SLV 11	1438	0.31	139	-67.43	1.5777	8.3642	5.3	Si
SLV 5	1438	0.31	304	-147.1	1.5777	15.4755	9.81	Si
SLV 6	1438	0.31	304	-147.1	1.5777	15.4755	9.81	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-77.32	-68.69	-1.84	0.024	10.44	0.933	0.38124	10.54325	No
SLV 11	-77.32	-68.69	-1.84	0.024	10.44	0.933	0.38124	10.54325	No
SLV 7	-80.89	-61.66	-1.56	0.028	10.801	0.935	0.43245	10.54325	No
SLV 8	-80.89	-61.66	-1.56	0.028	10.801	0.935	0.43245	10.54325	No
SLV 5	-142.07	-88.48	1.91	0.029	17.006	0.956	0.44743	10.54325	No
SLV 6	-142.07	-88.48	1.91	0.029	17.006	0.956	0.44743	10.54325	No
SLV 10	-138.5	-95.52	1.63	0.031	16.644	0.955	0.47226	10.54325	No
SLV 9	-138.5	-95.52	1.63	0.031	16.644	0.955	0.47226	10.54325	No
SLV 2	-124.82	-70.89	1.02	0.035	15.254	0.952	0.53072	10.12339	No
SLV 1	-124.82	-70.89	1.02	0.035	15.254	0.952	0.53072	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.184	SLV 82	Si
V_SLV	0.557	SLV 82	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.508	SLV 3	Si
R_SLV	0.036	SLV 11	No

## Maschio 66

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-15.058	1.046	-15.058	1.406	L3	L4	0.36	0.14	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 83	1.11	-9.44	-1.4921	187	1.3085	0.877	No, M>Mu
SLV 83	3.21	-17.5	-0.6713	347	1.8073	2.692	Si
SLV 79	1.11	-9.04	-1.4295	179	1.2687	0.887	No, M>Mu
SLV 79	3.21	-16.55	-0.6665	328	1.7779	2.668	Si
SLV 84	1.11	-9.43	-1.4904	187	1.3075	0.877	No, M>Mu
SLV 84	3.21	-17.44	-0.6748	346	1.8056	2.676	Si
SLV 75	1.11	-9.07	-1.4324	180	1.2715	0.888	No, M>Mu
SLV 75	3.21	-16.71	-0.6443	332	1.7836	2.768	Si
SLV 77	1.11	-9.16	-1.4486	182	1.2809	0.884	No, M>Mu
SLV 77	3.21	-16.83	-0.6708	334	1.7874	2.665	Si
SLV 82	1.11	-9.35	-1.476	185	1.2993	0.88	No, M>Mu
SLV 82	3.21	-17.38	-0.6449	345	1.8041	2.798	Si
SLV 81	1.11	-9.36	-1.4777	186	1.3002	0.88	No, M>Mu
SLV 81	3.21	-17.45	-0.6414	346	1.8058	2.816	Si
SLV 78	1.11	-9.15	-1.4468	182	1.2799	0.885	No, M>Mu
SLV 78	3.21	-16.76	-0.6743	333	1.7853	2.648	Si
SLV 74	1.11	-9.08	-1.4342	180	1.2725	0.887	No, M>Mu
SLV 74	3.21	-16.77	-0.6408	333	1.7857	2.786	Si
SLV 80	1.11	-9.03	-1.4277	179	1.2677	0.888	No, M>Mu
SLV 80	3.21	-16.48	-0.67	327	1.7757	2.65	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	1.11	-10.67	-1.4584	212	1.5876	1.089	Si
SLV 5	3.21	-86.74	6.6243	1721	0	0	No, Rottura per schiacciamento
SLV 11	1.11	-1.45	-0.4535	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	3.21	64.6	-7.4428	0	0	0	No, Trazione
SLV 12	1.11	-1.45	-0.4535	0	0	0	No, $e \geq l/2$
SLV 12	3.21	64.6	-7.4428	0	0	0	No, Trazione
SLV 7	1.11	-2.56	-0.63	0	0	0	No, $e \geq l/2$
SLV 7	3.21	61.32	-7.0289	0	0	0	No, Trazione
SLV 4	1.11	-6.7	-1.1259	133	1.0754	0.955	No, $M > M_u$
SLV 4	3.21	5.67	-1.7674	0	0	0	No, Trazione
SLV 6	1.11	-10.67	-1.4584	212	1.5876	1.089	Si
SLV 6	3.21	-86.74	6.6243	1721	0	0	No, Rottura per schiacciamento
SLD 16	1.11	-4.75	-0.7768	94	0.7883	1.015	Si
SLD 16	3.21	0.43	-1.5467	0	0	0	No, Trazione
SLV 8	1.11	-2.56	-0.63	0	0	0	No, $e \geq l/2$
SLV 8	3.21	61.32	-7.0289	0	0	0	No, Trazione
SLV 10	1.11	-9.55	-1.2819	190	1.4525	1.133	Si
SLV 10	3.21	-83.46	6.2104	1656	0	0	No, Rottura per schiacciamento
SLV 9	1.11	-9.55	-1.2819	190	1.4525	1.133	Si
SLV 9	3.21	-83.46	6.2104	1656	0	0	No, Rottura per schiacciamento

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	1.11	-9.15	-1.84	-1.4468		996	0.0656	108	1			0.54	No, $V_u < V$
SLU 78	3.21	-16.76	-0.98	-0.6743		333	0.36	100	5.04			5.14	Si
SLU 82	1.11	-9.35	-1.91	-1.476		1008	0.0662	108	1			0.53	No, $V_u < V$
SLU 82	3.21	-17.38	-1.06	-0.6449		345	0.36	102	5.12			4.85	Si
SLU 84	1.11	-9.43	-1.91	-1.4904		1023	0.0659	108	1			0.52	No, $V_u < V$
SLU 84	3.21	-17.44	-1.04	-0.6748		346	0.36	102	5.12			4.94	Si
SLU 74	1.11	-9.08	-1.85	-1.4342		983	0.0659	108	1			0.54	No, $V_u < V$
SLU 74	3.21	-16.77	-1.01	-0.6408		333	0.36	100	5.04			4.99	Si
SLU 75	1.11	-9.07	-1.84	-1.4324		981	0.066	108	1			0.54	No, $V_u < V$
SLU 75	3.21	-16.71	-1	-0.6443		332	0.36	100	5.03			5.03	Si
SLU 77	1.11	-9.16	-1.85	-1.4486		998	0.0656	108	0.99			0.54	No, $V_u < V$
SLU 77	3.21	-16.83	-0.99	-0.6708		334	0.36	100	5.04			5.09	Si
SLU 83	1.11	-9.44	-1.91	-1.4921		1025	0.0658	108	1			0.52	No, $V_u < V$
SLU 83	3.21	-17.5	-1.05	-0.6713		347	0.36	102	5.13			4.91	Si
SLU 79	1.11	-9.04	-1.82	-1.4295		986	0.0655	108	0.99			0.55	No, $V_u < V$
SLU 79	3.21	-16.55	-0.97	-0.6665		328	0.36	99	5.01			5.15	Si
SLU 80	1.11	-9.03	-1.81	-1.4277		984	0.0656	108	0.99			0.55	No, $V_u < V$
SLU 80	3.21	-16.48	-0.96	-0.67		327	0.36	99	5			5.19	Si
SLU 81	1.11	-9.36	-1.92	-1.4777		1010	0.0661	108	1			0.52	No, $V_u < V$
SLU 81	3.21	-17.45	-1.07	-0.6414		346	0.36	102	5.13			4.81	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1.11	-2.56	3.61	-0.63		0	0	83	0			0	No, $V_u < V$
SLV 7	3.21	61.32	-14.84	-7.0289		0	0	83	0			0	No, $V_u < V$
SLD 15	1.11	-4.75	-0.37	-0.7768		693	0.0489	163	1.11			3.02	Si
SLD 15	3.21	0.43	-2.93	-1.5467		0	0	83	0			0	No, $V_u < V$
SLV 15	1.11	-2.98	0.86	-0.5375		0	0	83	0			0	No, $V_u < V$
SLV 15	3.21	16.6	-6.1	-3.147		0	0	83	0			0	No, $V_u < V$
SLV 8	1.11	-2.56	3.61	-0.63		0	0	83	0			0	No, $V_u < V$
SLV 8	3.21	61.32	-14.84	-7.0289		0	0	83	0			0	No, $V_u < V$
SLD 16	1.11	-4.75	-0.37	-0.7768		693	0.0489	163	1.11			3.02	Si
SLD 16	3.21	0.43	-2.93	-1.5467		0	0	83	0			0	No, $V_u < V$
SLV 12	1.11	-1.45	3.97	-0.4535		0	0	83	0			0	No, $V_u < V$
SLV 12	3.21	64.6	-15.48	-7.4428		0	0	83	0			0	No, $V_u < V$
SLV 4	1.11	-6.7	-0.34	-1.1259		1324	0.0362	163	0.82			2.43	Si
SLV 4	3.21	5.67	-3.97	-1.7674		0	0	83	0			0	No, $V_u < V$
SLV 11	1.11	-1.45	3.97	-0.4535		0	0	83	0			0	No, $V_u < V$
SLV 11	3.21	64.6	-15.48	-7.4428		0	0	83	0			0	No, $V_u < V$
SLD 12	1.11	-4.14	0.91	-0.7471		0	0	83	0			0	No, $V_u < V$
SLD 12	3.21	20.16	-6.77	-3.3047		0	0	83	0			0	No, $V_u < V$
SLV 3	1.11	-6.7	-0.34	-1.1259		1324	0.0362	163	0.82			2.43	Si
SLV 3	3.21	5.67	-3.97	-1.7674		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.31	0	63.33	0.1756	0	0	No, Trazione
SLV 8	1438	0.31	0	61.38	0.1756	0	0	No, Trazione
SLV 5	1438	0.31	1708	-86.11	0.1756	0	0	No, Rottura per schiacciamento
SLV 7	1438	0.31	0	61.38	0.1756	0	0	No, Trazione
SLV 11	1438	0.31	0	63.33	0.1756	0	0	No, Trazione
SLV 9	1438	0.31	1670	-84.15	0.1756	0	0	No, Rottura per schiacciamento
SLV 4	1438	0.31	0	7.47	0.1756	0	0	No, Trazione
SLV 6	1438	0.31	1708	-86.11	0.1756	0	0	No, Rottura per schiacciamento
SLV 3	1438	0.31	0	7.47	0.1756	0	0	No, Trazione
SLV 10	1438	0.31	1670	-84.15	0.1756	0	0	No, Rottura per schiacciamento

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0003 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	0.65	-10.67	0.01	0	0	0	0	14.01752	No, Trazione





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 6	0.65	-10.67	0.01	0	0	0	0	14.01752	No, Trazione
SLV 12	-43.8	-1.45	-0.01	0.019	4.725	0.982	0.28547	14.01752	No
SLV 11	-43.8	-1.45	-0.01	0.019	4.725	0.982	0.28547	14.01752	No
SLV 15	-30.17	-2.98	-0.02	0.019	3.336	0.976	0.28718	14.01752	No
SLV 16	-30.17	-2.98	-0.02	0.019	3.336	0.976	0.28718	14.01752	No
SLV 7	-42.53	-2.56	0	0.02	4.596	0.982	0.28897	14.01752	No
SLV 8	-42.53	-2.56	0	0.02	4.596	0.982	0.28897	14.01752	No
SLV 3	-25.94	-6.7	0.01	0.019	2.905	0.972	0.29071	14.01752	No
SLV 4	-25.94	-6.7	0.01	0.019	2.905	0.972	0.29071	14.01752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.877	SLU 83	No
V_SLU	0.521	SLU 83	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 3	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 6	No

## Maschio 67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-15.058	2.206	-15.058	6.661	L3	L4	4.455	0.14	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 61	1.11	-584.89	276.6062	938	0	0	No, Rottura per schiacciamento
SLU 61	3.21	-424.07	-15.7681	680	156.151	9.903	Si
SLU 58	1.11	-566.94	271.7101	909	0	0	No, Rottura per schiacciamento
SLU 58	3.21	-414.76	-20.3552	665	169.6504	8.334	Si
SLU 42	1.11	-552.56	269.7392	886	0	0	No, Rottura per schiacciamento
SLU 42	3.21	-406.2	-17.5417	651	181.4037	10.341	Si
SLU 60	1.11	-585.18	276.5935	938	0	0	No, Rottura per schiacciamento
SLU 60	3.21	-424.32	-15.943	680	155.7768	9.771	Si
SLU 55	1.11	-562.14	266.984	901	0	0	No, Rottura per schiacciamento
SLU 55	3.21	-408.99	-17.5248	656	177.6394	10.136	Si
SLU 57	1.11	-574.65	274.4829	921	0	0	No, Rottura per schiacciamento
SLU 57	3.21	-420.51	-20.4091	674	161.403	7.908	Si
SLU 54	1.11	-570.33	269.7357	914	0	0	No, Rottura per schiacciamento
SLU 54	3.21	-415.16	-17.8701	666	169.0931	9.462	Si
SLU 62	1.11	-589.5	281.3407	945	0	0	No, Rottura per schiacciamento
SLU 62	3.21	-429.68	-18.4819	689	147.6565	7.989	Si
SLU 56	1.11	-574.94	274.4702	922	0	0	No, Rottura per schiacciamento
SLU 56	3.21	-420.76	-20.5839	675	161.0366	7.823	Si
SLU 59	1.11	-566.65	271.7228	909	0	0	No, Rottura per schiacciamento
SLU 59	3.21	-414.51	-20.1804	665	170.0036	8.424	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 12	1.11	-491.05	420.4111	787	389.0129	0.925	No, M>Mu
SLV 12	3.21	-413.36	-35.744	663	421.332	11.787	Si
SLV 8	1.11	-479.76	428.3664	769	395.9023	0.924	No, M>Mu
SLV 8	3.21	-401.13	-23.0285	643	423.2055	18.377	Si
SLD 8	1.11	-452.88	298.0363	726	409.3028	1.373	Si
SLD 8	3.21	-350.86	-17.0862	563	421.7219	24.682	Si
SLV 11	1.11	-491.05	420.4111	787	389.0129	0.925	No, M>Mu
SLV 11	3.21	-413.36	-35.744	663	421.332	11.787	Si
SLV 4	1.11	-429.86	282.9393	689	417.4192	1.475	Si
SLV 4	3.21	-321.34	3.9453	515	413.9673	104.927	Si
SLD 7	1.11	-452.88	298.0363	726	409.3028	1.373	Si
SLD 7	3.21	-350.86	-17.0862	563	421.7219	24.682	Si
SLD 11	1.11	-457.63	294.6287	734	407.2419	1.382	Si
SLD 11	3.21	-356.08	-22.6672	571	422.5645	18.642	Si
SLV 3	1.11	-429.86	282.9393	689	417.4192	1.475	Si
SLV 3	3.21	-321.34	3.9453	515	413.9673	104.927	Si
SLD 12	1.11	-457.63	294.6287	734	407.2419	1.382	Si
SLD 12	3.21	-356.08	-22.6672	571	422.5645	18.642	Si
SLV 7	1.11	-479.76	428.3664	769	395.9023	0.924	No, M>Mu



Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 7	3.21	-401.13	-23.0285	643	423.2055	18.377	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 69	1.11	-573.74	21.97	273.4884		920	4.455	108	67.57			3.08	Si
SLU 69	3.21	-420.24	11.1	-20.9311		674	4.455	108	67.57			6.09	Si
SLU 79	1.11	-628.45	23.91	304.2765		1008	4.455	108	67.57			2.83	Si
SLU 79	3.21	-461.53	11.81	-22.2557		740	4.455	108	67.57			5.72	Si
SLU 71	1.11	-565.74	22.57	270.7283		907	4.455	108	67.57			2.99	Si
SLU 71	3.21	-414.24	11.83	-20.7024		664	4.455	108	67.57			5.71	Si
SLU 80	1.11	-628.16	23.88	304.2891		1007	4.455	108	67.57			2.83	Si
SLU 80	3.21	-461.28	11.78	-22.0808		740	4.455	108	67.57			5.74	Si
SLU 78	1.11	-636.15	23.28	307.0492		1020	4.455	108	67.57			2.9	Si
SLU 78	3.21	-467.28	11.04	-22.3095		749	4.455	108	67.57			6.12	Si
SLU 77	1.11	-636.44	23.32	307.0366		1020	4.455	108	67.57			2.9	Si
SLU 77	3.21	-467.53	11.08	-22.4844		750	4.455	108	67.57			6.1	Si
SLU 70	1.11	-573.45	21.94	273.501		919	4.455	108	67.57			3.08	Si
SLU 70	3.21	-419.99	11.07	-20.7563		673	4.455	108	67.57			6.11	Si
SLU 38	1.11	-530.01	22.35	260.1086		850	4.455	108	67.57			3.02	Si
SLU 38	3.21	-391.28	12.07	-19.415		627	4.455	108	67.57			5.6	Si
SLU 72	1.11	-565.45	22.53	270.7409		907	4.455	108	67.57			3	Si
SLU 72	3.21	-413.99	11.8	-20.5276		664	4.455	108	67.57			5.73	Si
SLU 37	1.11	-530.3	22.39	260.096		850	4.455	108	67.57			3.02	Si
SLU 37	3.21	-391.53	12.1	-19.5898		628	4.455	108	67.57			5.58	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1.11	-491.05	166.64	420.4111		853	4.1141	163	93.59			0.56	No, Vu<V
SLV 12	3.21	-413.36	151.43	-35.744		663	4.455	163	101.35			0.67	No, Vu<V
SLV 10	1.11	-386.13	-131.73	-21.6127		619	4.455	163	101.35			0.77	No, Vu<V
SLV 10	3.21	-226.15	-135.39	-1.0614		363	4.455	156	97.21			0.72	No, Vu<V
SLV 5	1.11	-374.84	-146.76	-13.6574		601	4.455	163	101.35			0.69	No, Vu<V
SLV 5	3.21	-213.92	-148.04	11.6542		343	4.455	152	94.76			0.64	No, Vu<V
SLV 15	1.11	-467.5	79.75	256.4217		750	4.455	163	101.35			1.27	Si
SLV 15	3.21	-362.11	65.81	-38.44		581	4.455	163	101.35			1.54	Si
SLV 8	1.11	-479.76	151.61	428.3664		856	4.0039	163	91.09			0.6	No, Vu<V
SLV 8	3.21	-401.13	138.77	-23.0285		643	4.455	163	101.35			0.73	No, Vu<V
SLV 6	1.11	-374.84	-146.76	-13.6574		601	4.455	163	101.35			0.69	No, Vu<V
SLV 6	3.21	-213.92	-148.04	11.6542		343	4.455	152	94.76			0.64	No, Vu<V
SLV 16	1.11	-467.5	79.75	256.4217		750	4.455	163	101.35			1.27	Si
SLV 16	3.21	-362.11	65.81	-38.44		581	4.455	163	101.35			1.54	Si
SLV 9	1.11	-386.13	-131.73	-21.6127		619	4.455	163	101.35			0.77	No, Vu<V
SLV 9	3.21	-226.15	-135.39	-1.0614		363	4.455	156	97.21			0.72	No, Vu<V
SLV 7	1.11	-479.76	151.61	428.3664		856	4.0039	163	91.09			0.6	No, Vu<V
SLV 7	3.21	-401.13	138.77	-23.0285		643	4.455	163	101.35			0.73	No, Vu<V
SLV 11	1.11	-491.05	166.64	420.4111		853	4.1141	163	93.59			0.56	No, Vu<V
SLV 11	3.21	-413.36	151.43	-35.744		663	4.455	163	101.35			0.67	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.31	358	-223.06	2.1731	11.0439	5.08	Si
SLV 6	1438	0.31	358	-223.06	2.1731	11.0439	5.08	Si
SLV 9	1438	0.31	379	-236.46	2.1731	11.4164	5.25	Si
SLV 10	1438	0.31	379	-236.46	2.1731	11.4164	5.25	Si
SLV 2	1438	0.31	431	-269.05	2.1731	12.1845	5.61	Si
SLV 1	1438	0.31	431	-269.05	2.1731	12.1845	5.61	Si
SLV 14	1438	0.31	503	-313.74	2.1731	12.9204	5.95	Si
SLV 13	1438	0.31	503	-313.74	2.1731	12.9204	5.95	Si
SLV 3	1438	0.31	516	-321.88	2.1731	13.015	5.99	Si
SLV 4	1438	0.31	516	-321.88	2.1731	13.015	5.99	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 2.97 Wa = 0.0003 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 12	-294.58	-491.05	0.38	0.019	33.258	0.97	0.2824	14.01752	No
SLV 11	-294.58	-491.05	0.38	0.019	33.258	0.97	0.2824	14.01752	No
SLV 8	-286.94	-479.76	0.33	0.019	32.48	0.969	0.28532	14.01752	No
SLV 7	-286.94	-479.76	0.33	0.019	32.48	0.969	0.28532	14.01752	No
SLV 6	-158.97	-374.84	-0.37	0.019	19.463	0.951	0.2892	14.01752	No
SLV 5	-158.97	-374.84	-0.37	0.019	19.463	0.951	0.2892	14.01752	No
SLV 16	-258.7	-467.5	0.2	0.019	29.605	0.967	0.29315	14.01752	No
SLV 15	-258.7	-467.5	0.2	0.019	29.605	0.967	0.29315	14.01752	No
SLV 10	-166.6	-386.13	-0.32	0.019	20.239	0.953	0.29316	14.01752	No
SLV 9	-166.6	-386.13	-0.32	0.019	20.239	0.953	0.29316	14.01752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 31	No
V_SLU	2.825	SLU 79	Si
PF_SLV	0.924	SLV 7	No
V_SLV	0.562	SLV 11	No
PFFP_SLV	5.082	SLV 5	Si
R_SLV	0.02	SLV 11	No



## Maschio 68

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-4.859	-13.753	-3.314	L3	Z medio 313 cm	1.545	0.28	2.02	2.02	2.02			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 80	1.11	-320.55	-8.2438	741	22.3761	2.714	Si
SLU 80	3.13	-233.49	12.9432	540	60.8582	4.702	Si
SLU 83	1.11	-326.11	-8.085	754	18.7888	2.324	Si
SLU 83	3.13	-238.6	14.8792	552	59.5165	4	Si
SLU 84	1.11	-326.65	-7.8554	755	18.4278	2.346	Si
SLU 84	3.13	-238.9	14.791	552	59.4348	4.018	Si
SLU 79	1.11	-320	-8.4734	740	22.7225	2.682	Si
SLU 79	3.13	-233.19	13.0315	539	60.9327	4.676	Si
SLU 82	1.11	-320.68	-7.1589	741	22.2917	3.114	Si
SLU 82	3.13	-234.28	14.8936	542	60.6589	4.073	Si
SLU 81	1.11	-320.13	-7.3884	740	22.6384	3.064	Si
SLU 81	3.13	-233.98	14.9818	541	60.7345	4.054	Si
SLU 77	1.11	-320.39	-8.2618	741	22.4724	2.72	Si
SLU 77	3.13	-233.51	13.1991	540	60.8546	4.61	Si
SLU 78	1.11	-320.94	-8.0322	742	22.1251	2.755	Si
SLU 78	3.13	-233.8	13.1109	540	60.7796	4.636	Si
SLU 74	1.11	-314.42	-7.5652	727	26.1723	3.46	Si
SLU 74	3.13	-228.88	13.3018	529	61.9693	4.659	Si
SLU 76	1.11	-314.93	-7.3942	728	25.8579	3.497	Si
SLU 76	3.13	-229.07	12.987	530	61.9267	4.768	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 1	1.11	-297.8	-42.2623	688	100.4414	2.377	Si
SLV 1	3.13	-196.15	-2.7888	453	95.2974	34.171	Si
SLV 11	1.11	-61.07	25.3789	141	41.7238	1.644	Si
SLV 11	3.13	-61.05	12.3721	141	41.7154	3.372	Si
SLV 12	1.11	-61.07	25.3789	141	41.7238	1.644	Si
SLV 12	3.13	-61.05	12.3721	141	41.7154	3.372	Si
SLV 3	1.11	-208.9	-29.5222	483	97.5991	3.306	Si
SLV 3	3.13	-139.79	-1.9457	323	79.428	40.822	Si
SLV 16	1.11	-141.02	32.074	326	79.8762	2.49	Si
SLV 16	3.13	-119.83	18.5684	277	71.5823	3.855	Si
SLV 6	1.11	-377.76	-35.5672	873	83.2658	2.341	Si
SLV 6	3.13	-254.93	3.4075	589	101.9545	29.921	Si
SLV 2	1.11	-297.8	-42.2623	688	100.4414	2.377	Si
SLV 2	3.13	-196.15	-2.7888	453	95.2974	34.171	Si
SLV 15	1.11	-141.02	32.074	326	79.8762	2.49	Si
SLV 15	3.13	-119.83	18.5684	277	71.5823	3.855	Si
SLV 4	1.11	-208.9	-29.5222	483	97.5991	3.306	Si
SLV 4	3.13	-139.79	-1.9457	323	79.428	40.822	Si
SLV 5	1.11	-377.76	-35.5672	873	83.2658	2.341	Si
SLV 5	3.13	-254.93	3.4075	589	101.9545	29.921	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	1.11	-326.65	-21.19	-7.8554	755	1.545	108	46.87				2.21	Si
SLU 84	3.13	-238.9	-12.48	14.791	552	1.545	108	46.87				3.76	Si
SLU 78	1.11	-320.94	-20.31	-8.0322	742	1.545	108	46.87				2.31	Si
SLU 78	3.13	-233.8	-11.09	13.1109	540	1.545	108	46.87				4.22	Si
SLU 81	1.11	-320.13	-21.1	-7.3884	740	1.545	108	46.87				2.22	Si
SLU 81	3.13	-233.98	-12.78	14.9818	541	1.545	108	46.87				3.67	Si
SLU 82	1.11	-320.68	-20.52	-7.1589	741	1.545	108	46.87				2.28	Si
SLU 82	3.13	-234.28	-12.35	14.8936	542	1.545	108	46.87				3.8	Si
SLU 75	1.11	-314.97	-19.64	-7.3356	728	1.545	108	46.87				2.39	Si
SLU 75	3.13	-229.18	-10.97	13.2135	530	1.545	108	46.87				4.27	Si
SLU 74	1.11	-314.42	-20.22	-7.5652	727	1.545	108	46.87				2.32	Si
SLU 74	3.13	-228.88	-11.4	13.3018	529	1.545	108	46.87				4.11	Si
SLU 79	1.11	-320	-20.82	-8.4734	740	1.545	108	46.87				2.25	Si
SLU 79	3.13	-233.19	-11.45	13.0315	539	1.545	108	46.87				4.09	Si
SLU 80	1.11	-320.55	-20.25	-8.2438	741	1.545	108	46.87				2.31	Si
SLU 80	3.13	-233.49	-11.01	12.9432	540	1.545	108	46.87				4.26	Si
SLU 77	1.11	-320.39	-20.88	-8.2618	741	1.545	108	46.87				2.24	Si
SLU 77	3.13	-233.51	-11.53	13.1991	540	1.545	108	46.87				4.06	Si
SLU 83	1.11	-326.11	-21.77	-8.085	754	1.545	108	46.87				2.15	Si
SLU 83	3.13	-238.6	-12.91	14.8792	552	1.545	108	46.87				3.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	1.11	-229.92	-67.48	19.3339	531	1.545	163	70.3				1.04	Si
SLV 13	3.13	-176.19	-49.04	17.7253	407	1.545	163	70.3				1.43	Si
SLV 11	1.11	-61.07	28.99	25.3789	204	1.0707	124	37.2				1.28	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	3.13	-61.05	27.29	12.3721		141	1.545	112	48.26			1.77	Si
SLV 5	1.11	-377.76	-54.41	-35.5672		873	1.545	163	70.3			1.29	Si
SLV 5	3.13	-254.93	-40.24	3.4075		589	1.545	163	70.3			1.75	Si
SLV 12	1.11	-61.07	28.99	25.3789		204	1.0707	124	37.2			1.28	Si
SLV 12	3.13	-61.05	27.29	12.3721		141	1.545	112	48.26			1.77	Si
SLV 6	1.11	-377.76	-54.41	-35.5672		873	1.545	163	70.3			1.29	Si
SLV 6	3.13	-254.93	-40.24	3.4075		589	1.545	163	70.3			1.75	Si
SLV 7	1.11	-81.43	52.26	6.9001		188	1.545	121	52.34			1	Si
SLV 7	3.13	-67.04	45.15	6.2178		155	1.545	114	49.46			1.1	Si
SLV 10	1.11	-357.4	-77.68	-17.0883		826	1.545	163	70.3			0.9	No, Vu<V
SLV 10	3.13	-248.94	-58.1	9.5617		575	1.545	163	70.3			1.21	Si
SLV 9	1.11	-357.4	-77.68	-17.0883		826	1.545	163	70.3			0.9	No, Vu<V
SLV 9	3.13	-248.94	-58.1	9.5617		575	1.545	163	70.3			1.21	Si
SLV 8	1.11	-81.43	52.26	6.9001		188	1.545	121	52.34			1	Si
SLV 8	3.13	-67.04	45.15	6.2178		155	1.545	114	49.46			1.1	Si
SLV 14	1.11	-229.92	-67.48	19.3339		531	1.545	163	70.3			1.04	Si
SLV 14	3.13	-176.19	-49.04	17.7253		407	1.545	163	70.3			1.43	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.12 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.29	126	-54.51	0.4004	6.8444	17.09	Si
SLV 11	1438	0.29	126	-54.51	0.4004	6.8444	17.09	Si
SLV 7	1438	0.29	153	-66.24	0.4004	8.1119	20.26	Si
SLV 8	1438	0.29	153	-66.24	0.4004	8.1119	20.26	Si
SLV 16	1438	0.29	285	-123.13	0.4004	13.2226	33.02	Si
SLV 15	1438	0.29	285	-123.13	0.4004	13.2226	33.02	Si
SLV 4	1438	0.29	375	-162.24	0.4004	15.7423	39.31	Si
SLV 3	1438	0.29	375	-162.24	0.4004	15.7423	39.31	Si
SLV 13	1438	0.29	448	-193.68	0.4004	17.1798	42.9	Si
SLV 14	1438	0.29	448	-193.68	0.4004	17.1798	42.9	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.12 Wa = 0.0005 Ta = 0.0243

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 11	-61.05	-61.07	1.27	0.059	7.45	0.952	0.89817	3.84424	No
SLV 12	-61.05	-61.07	1.27	0.059	7.45	0.952	0.89817	3.84424	No
SLV 7	-67.04	-81.43	1.11	0.062	8.059	0.955	0.94063	3.84424	No
SLV 8	-67.04	-81.43	1.11	0.062	8.059	0.955	0.94063	3.84424	No
SLV 16	-119.83	-141.02	1.07	0.065	13.43	0.972	0.97461	3.79731	No
SLV 15	-119.83	-141.02	1.07	0.065	13.43	0.972	0.97461	3.79731	No
SLV 13	-176.19	-229.92	0.74	0.068	19.172	0.98	1.01183	3.79731	No
SLV 14	-176.19	-229.92	0.74	0.068	19.172	0.98	1.01183	3.79731	No
SLV 9	-248.94	-357.4	0.17	0.071	26.585	0.985	1.04359	3.84424	No
SLV 10	-248.94	-357.4	0.17	0.071	26.585	0.985	1.04359	3.84424	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.324	SLU 83	Si
V_SLU	2.153	SLU 83	Si
PF_SLV	1.644	SLV 11	Si
V_SLV	0.905	SLV 9	No
PFFP_SLV	17.093	SLV 11	Si
R_SLV	0.234	SLV 11	No

## Maschio 69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-3.499	-13.753	-3.314	Z medio 313 cm	L4	0.186	0.28	1.7	1.7	1.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	3.13	-27.9	0.1209	537	0.8838	7.309	Si
SLU 81	4.83	-21.55	1.8852	414	0.9826	0.521	No, M>Mu
SLU 75	3.13	-28.59	0.2427	550	0.8625	3.553	Si
SLU 75	4.83	-21.17	1.8526	407	0.9829	0.531	No, M>Mu
SLU 77	3.13	-29.12	0.2213	560	0.8447	3.816	Si
SLU 77	4.83	-21.35	1.9034	411	0.9829	0.516	No, M>Mu
SLU 84	3.13	-28.49	0.134	548	0.8657	6.46	Si
SLU 84	4.83	-21.95	1.9213	422	0.9816	0.511	No, M>Mu
SLU 80	3.13	-29.03	0.2325	558	0.8476	3.645	Si
SLU 80	4.83	-21.35	1.8905	411	0.9829	0.52	No, M>Mu
SLU 82	3.13	-27.93	0.1382	537	0.8829	6.39	Si
SLU 82	4.83	-21.66	1.8778	417	0.9824	0.523	No, M>Mu
SLU 83	3.13	-28.46	0.1168	547	0.8666	7.422	Si
SLU 83	4.83	-21.83	1.9287	420	0.982	0.509	No, M>Mu



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	3.13	-28.56	0.2255	549	0.8635	3.829	Si
SLU 74	4.83	-21.06	1.86	405	0.9829	0.528	No, M>Mu
SLU 79	3.13	-29	0.2153	558	0.8486	3.942	Si
SLU 79	4.83	-21.23	1.8979	408	0.9829	0.518	No, M>Mu
SLU 78	3.13	-29.15	0.2386	561	0.8437	3.536	Si
SLU 78	4.83	-21.46	1.896	413	0.9827	0.518	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	3.13	-22.33	0.2701	430	1.3443	4.977	Si
SLV 13	4.83	-18.8	2.3979	0	0	0	No, e>l/2
SLD 5	3.13	-23.58	-0.2067	453	1.3764	6.659	Si
SLD 5	4.83	-15.54	1.766	0	0	0	No, e>l/2
SLD 9	3.13	-23.45	-0.132	451	1.3735	10.406	Si
SLD 9	4.83	-16.38	1.9486	0	0	0	No, e>l/2
SLV 11	3.13	-15.08	1.4332	0	0	0	No, e>l/2
SLV 11	4.83	-12.24	0.1596	235	0.9172	5.746	Si
SLV 16	3.13	-18.83	0.9041	362	1.23	1.36	Si
SLV 16	4.83	-16.82	1.5944	0	0	0	No, e>l/2
SLV 10	3.13	-26.74	-0.6802	514	1.4375	2.113	Si
SLV 10	4.83	-18.84	2.8381	0	0	0	No, e>l/2
SLV 12	3.13	-15.08	1.4332	0	0	0	No, e>l/2
SLV 12	4.83	-12.24	0.1596	235	0.9172	5.746	Si
SLD 10	3.13	-23.45	-0.132	451	1.3735	10.406	Si
SLD 10	4.83	-16.38	1.9486	0	0	0	No, e>l/2
SLV 14	3.13	-22.33	0.2701	430	1.3443	4.977	Si
SLV 14	4.83	-18.8	2.3979	0	0	0	No, e>l/2
SLD 6	3.13	-23.58	-0.2067	453	1.3764	6.659	Si
SLD 6	4.83	-15.54	1.766	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	3.13	-27.39	-0.01	0.471		527	0.1857	108	5.63			375.57	Si
SLU 49	4.83	-17.91	0.98	1.6152		7992	0.008	108	0.24			0.25	No, Vu<V
SLU 71	3.13	-28.96	-0.26	0.4549		557	0.1857	108	5.63			21.63	Si
SLU 71	4.83	-19.16	1.05	1.7248		8032	0.0085	108	0.26			0.25	No, Vu<V
SLU 56	3.13	-27.4	-1.2	0.2141		527	0.1857	108	5.63			4.69	Si
SLU 56	4.83	-19.87	1.06	1.7958		9623	0.0074	108	0.22			0.21	No, Vu<V
SLU 58	3.13	-27.29	-1.23	0.2081		525	0.1857	108	5.63			4.59	Si
SLU 58	4.83	-19.76	1.03	1.7902		10554	0.0067	108	0.2			0.2	No, Vu<V
SLU 50	3.13	-27.25	-0.18	0.4477		524	0.1857	108	5.63			32.08	Si
SLU 50	4.83	-17.69	0.84	1.6171		14862	0.0043	108	0.13			0.15	No, Vu<V
SLU 8	3.13	-21.67	-0.21	0.3443		417	0.1857	108	5.63			26.57	Si
SLU 8	4.83	-14.13	0.66	1.2924		12315	0.0041	108	0.12			0.19	No, Vu<V
SLU 48	3.13	-27.36	-0.15	0.4537		526	0.1857	108	5.63			38.34	Si
SLU 48	4.83	-17.8	0.88	1.6226		12628	0.005	108	0.15			0.17	No, Vu<V
SLU 51	3.13	-27.27	-0.04	0.4649		525	0.1857	108	5.63			129.02	Si
SLU 51	4.83	-17.8	0.94	1.6097		8775	0.0072	108	0.22			0.23	No, Vu<V
SLU 6	3.13	-21.78	-0.18	0.3504		419	0.1857	108	5.63			30.72	Si
SLU 6	4.83	-14.24	0.7	1.2979		10016	0.0051	108	0.15			0.22	No, Vu<V
SLU 45	3.13	-26.8	-0.03	0.4579		515	0.1857	108	5.63			196.81	Si
SLU 45	4.83	-17.51	0.97	1.5792		7832	0.008	108	0.24			0.25	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	3.13	-26.74	-8.92	-0.6802		514	0.1857	163	8.45			0.95	No, Vu<V
SLV 10	4.83	-18.84	-4.36	2.8381		0	0	83	0			0	No, Vu<V
SLV 13	3.13	-22.33	-5.47	0.2701		430	0.1857	163	8.45			1.55	Si
SLV 13	4.83	-18.8	-0.39	2.3979		0	0	83	0			0	No, Vu<V
SLD 6	3.13	-23.58	-3.29	-0.2067		453	0.1857	163	8.45			2.57	Si
SLD 6	4.83	-15.54	-1.41	1.766		0	0	83	0			0	No, Vu<V
SLD 9	3.13	-23.45	-4.01	-0.132		451	0.1857	163	8.45			2.1	Si
SLD 9	4.83	-16.38	-1.33	1.9486		0	0	83	0			0	No, Vu<V
SLV 16	3.13	-18.83	-0.81	0.9041		500	0.1345	163	6.12			7.59	Si
SLV 16	4.83	-16.82	2.85	1.5944		0	0	83	0			0	No, Vu<V
SLV 14	3.13	-22.33	-5.47	0.2701		430	0.1857	163	8.45			1.55	Si
SLV 14	4.83	-18.8	-0.39	2.3979		0	0	83	0			0	No, Vu<V
SLV 12	3.13	-15.08	6.62	1.4332		0	0	83	0			0	No, Vu<V
SLV 12	4.83	-12.24	6.43	0.1596		235	0.1857	130	6.78			1.06	Si
SLD 10	3.13	-23.45	-4.01	-0.132		451	0.1857	163	8.45			2.1	Si
SLD 10	4.83	-16.38	-1.33	1.9486		0	0	83	0			0	No, Vu<V
SLD 5	3.13	-23.58	-3.29	-0.2067		453	0.1857	163	8.45			2.57	Si
SLD 5	4.83	-15.54	-1.41	1.766		0	0	83	0			0	No, Vu<V
SLV 11	3.13	-15.08	6.62	1.4332		0	0	83	0			0	No, Vu<V
SLV 11	4.83	-12.24	6.43	0.1596		235	0.1857	130	6.78			1.06	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 3.98 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.33	225	-11.68	0.0387	1.3342	34.49	Si
SLV 7	1438	0.33	225	-11.68	0.0387	1.3342	34.49	Si
SLV 4	1438	0.33	225	-11.72	0.0387	1.3378	34.59	Si
SLV 3	1438	0.33	225	-11.72	0.0387	1.3378	34.59	Si
SLV 11	1438	0.33	265	-13.78	0.0387	1.5107	39.05	Si
SLV 12	1438	0.33	265	-13.78	0.0387	1.5107	39.05	Si
SLV 2	1438	0.33	267	-13.86	0.0387	1.5168	39.21	Si
SLV 1	1438	0.33	267	-13.86	0.0387	1.5168	39.21	Si
SLV 15	1438	0.33	360	-18.73	0.0387	1.8491	47.8	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.33	360	-18.73	0.0387	1.8491	47.8	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 3.98  $W_a = 0.0005$   $T_a = 0.0172$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-12.24	-15.08	0.18	0.073	1.37	0.972	1.09648	3.774	No
SLV 11	-12.24	-15.08	0.18	0.073	1.37	0.972	1.09648	3.774	No
SLV 5	-16.9	-27.02	-0.2	0.075	1.845	0.979	1.10655	3.774	No
SLV 6	-16.9	-27.02	-0.2	0.075	1.845	0.979	1.10655	3.774	No
SLV 8	-10.29	-15.36	0.14	0.076	1.172	0.968	1.1398	3.774	No
SLV 7	-10.29	-15.36	0.14	0.076	1.172	0.968	1.1398	3.774	No
SLV 10	-18.84	-26.74	-0.16	0.078	2.043	0.981	1.1504	3.774	No
SLV 9	-18.84	-26.74	-0.16	0.078	2.043	0.981	1.1504	3.774	No
SLV 2	-12.32	-23.27	-0.14	0.077	1.378	0.972	1.14836	3.74239	No
SLV 1	-12.32	-23.27	-0.14	0.077	1.378	0.972	1.14836	3.74239	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.509	SLU 83	No
V_SLU	0.153	SLU 50	No
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	34.491	SLV 7	Si
R_SLV	0.291	SLV 11	No

## Maschio 71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-3.314	-13.753	-0.354	Z medio 212 cm	L4	2.96	0.28	2.71	0	3.72			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	3.13	-453.3	56.2917	547	220.4329	3.916	Si
SLU 82	4.83	-375	5.961	452	246.7241	41.39	Si
SLU 75	3.13	-439.83	51.8304	531	226.8676	4.377	Si
SLU 75	4.83	-362.7	2.7138	438	248.4104	91.537	Si
SLU 79	3.13	-440.28	51.3362	531	226.6655	4.415	Si
SLU 79	4.83	-362.3	1.5692	437	248.4548	158.328	Si
SLU 81	3.13	-452.41	56.505	546	220.8816	3.909	Si
SLU 81	4.83	-374	6.1749	451	246.8856	39.982	Si
SLU 83	3.13	-457.04	56.8335	551	218.5057	3.845	Si
SLU 83	4.83	-377.49	5.3151	455	246.3015	46.34	Si
SLU 80	3.13	-441.17	51.1229	532	226.2639	4.426	Si
SLU 80	4.83	-363.29	1.3554	438	248.3445	183.231	Si
SLU 78	3.13	-444.46	52.1589	536	224.7468	4.309	Si
SLU 78	4.83	-366.19	1.854	442	247.9991	133.765	Si
SLU 84	3.13	-457.92	56.6202	553	218.039	3.851	Si
SLU 84	4.83	-378.49	5.1012	457	246.1248	48.248	Si
SLU 74	3.13	-438.95	52.0437	530	227.2639	4.367	Si
SLU 74	4.83	-361.71	2.9277	436	248.5181	84.886	Si
SLU 77	3.13	-443.57	52.3722	535	225.1611	4.299	Si
SLU 77	4.83	-365.2	2.0679	441	248.1221	119.989	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 12	3.13	-295.83	42.4124	357	309.9309	7.308	Si
SLD 12	4.83	-250.94	11.867	303	279.3613	23.541	Si
SLV 14	3.13	-365.58	58.8643	441	345.736	5.873	Si
SLV 14	4.83	-290.22	-8.6203	350	306.4292	35.547	Si
SLD 15	3.13	-321.29	47.3507	388	324.6464	6.856	Si
SLD 15	4.83	-264.63	3.3901	319	289.308	85.339	Si
SLV 11	3.13	-290.37	58.5213	350	306.5247	5.238	Si
SLV 11	4.83	-257.42	29.6024	311	284.1393	9.599	Si
SLV 13	3.13	-365.58	58.8643	441	345.736	5.873	Si
SLV 13	4.83	-290.22	-8.6203	350	306.4292	35.547	Si
SLV 12	3.13	-290.37	58.5213	350	306.5247	5.238	Si
SLV 12	4.83	-257.42	29.6024	311	284.1393	9.599	Si
SLD 11	3.13	-295.83	42.4124	357	309.9309	7.308	Si
SLD 11	4.83	-250.94	11.867	303	279.3613	23.541	Si
SLV 15	3.13	-349.49	69.5632	422	338.7397	4.87	Si
SLV 15	4.83	-289.16	9.5333	349	305.7617	32.073	Si
SLD 16	3.13	-321.29	47.3507	388	324.6464	6.856	Si
SLD 16	4.83	-264.63	3.3901	319	289.308	85.339	Si
SLV 16	3.13	-349.49	69.5632	422	338.7397	4.87	Si
SLV 16	4.83	-289.16	9.5333	349	305.7617	32.073	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	3.13	-453.3	15.02	56.2917		547	2.96	108	89.79			5.98	Si
SLU 82	4.83	-375	2.99	5.961		452	2.96	108	89.79			30.02	Si
SLU 31	3.13	-361.57	13.39	45.8219		436	2.96	108	89.79			6.71	Si
SLU 31	4.83	-298.87	4.04	4.6345		361	2.96	104	85.89			21.26	Si
SLU 19	3.13	-347.95	13.32	43.5869		420	2.96	108	89.79			6.74	Si
SLU 19	4.83	-288.92	2.28	5.8289		349	2.96	102	84.57			37.02	Si
SLU 10	3.13	-327.16	13.57	37.6188		395	2.96	108	89.67			6.61	Si
SLU 10	4.83	-270.91	3.9	2.8002		327	2.96	99	82.17			21.07	Si
SLU 73	3.13	-432.51	15.27	50.3236		522	2.96	108	89.79			5.88	Si
SLU 73	4.83	-356.98	4.61	2.9323		431	2.96	108	89.79			19.49	Si
SLU 61	3.13	-418.89	15.2	48.0887		505	2.96	108	89.79			5.91	Si
SLU 61	4.83	-347.03	2.85	4.1267		419	2.96	108	89.79			31.49	Si
SLU 40	3.13	-382.36	13.13	51.79		461	2.96	108	89.79			6.84	Si
SLU 40	4.83	-316.89	2.42	7.6632		382	2.96	107	88.3			36.41	Si
SLU 81	3.13	-452.41	12.5	56.505		546	2.96	108	89.79			7.18	Si
SLU 81	4.83	-374	1.25	6.1749		451	2.96	108	89.79			71.95	Si
SLU 52	3.13	-398.1	15.46	42.1206		480	2.96	108	89.79			5.81	Si
SLU 52	4.83	-329.02	4.47	1.0981		397	2.96	108	89.79			20.11	Si
SLU 60	3.13	-418	12.69	48.302		504	2.96	108	89.79			7.08	Si
SLU 60	4.83	-346.03	1.11	4.3406		418	2.96	108	89.79			81.06	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	3.13	-255.78	137.5	38.358		309	2.96	145	120.22			0.87	No, Vu<V
SLV 8	4.83	-231.27	83.64	28.6509		279	2.96	139	115.32			1.38	Si
SLV 7	3.13	-255.78	137.5	38.358		309	2.96	145	120.22			0.87	No, Vu<V
SLV 7	4.83	-231.27	83.64	28.6509		279	2.96	139	115.32			1.38	Si
SLV 9	3.13	-343.99	-123.58	22.8585		415	2.96	163	134.68			1.09	Si
SLV 9	4.83	-260.94	-80.06	-30.9097		315	2.96	146	121.25			1.51	Si
SLV 10	3.13	-343.99	-123.58	22.8585		415	2.96	163	134.68			1.09	Si
SLV 10	4.83	-260.94	-80.06	-30.9097		315	2.96	146	121.25			1.51	Si
SLV 12	3.13	-290.37	144.55	58.5213		350	2.96	153	127.14			0.88	No, Vu<V
SLV 12	4.83	-257.42	92.34	29.6024		311	2.96	145	120.55			1.31	Si
SLV 11	3.13	-290.37	144.55	58.5213		350	2.96	153	127.14			0.88	No, Vu<V
SLV 11	4.83	-257.42	92.34	29.6024		311	2.96	145	120.55			1.31	Si
SLD 12	3.13	-295.83	66.18	42.4124		357	2.96	155	128.23			1.94	Si
SLD 12	4.83	-250.94	40.49	11.867		303	2.96	144	119.25			2.95	Si
SLD 11	3.13	-295.83	66.18	42.4124		357	2.96	155	128.23			1.94	Si
SLD 11	4.83	-250.94	40.49	11.867		303	2.96	144	119.25			2.95	Si
SLV 5	3.13	-309.4	-130.62	2.6952		373	2.96	158	130.95			1	Si
SLV 5	4.83	-234.78	-88.76	-31.8612		283	2.96	140	116.02			1.31	Si
SLV 6	3.13	-309.4	-130.62	2.6952		373	2.96	158	130.95			1	Si
SLV 6	4.83	-234.78	-88.76	-31.8612		283	2.96	140	116.02			1.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 3.98 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.33	268	-221.85	1.567	24.2545	15.48	Si
SLV 1	1438	0.33	268	-221.85	1.567	24.2545	15.48	Si
SLV 3	1438	0.33	272	-225.77	1.567	24.561	15.67	Si
SLV 4	1438	0.33	272	-225.77	1.567	24.561	15.67	Si
SLV 5	1438	0.33	299	-248.19	1.567	26.231	16.74	Si
SLV 6	1438	0.33	299	-248.19	1.567	26.231	16.74	Si
SLV 7	1438	0.33	315	-261.27	1.567	27.1408	17.32	Si
SLV 8	1438	0.33	315	-261.27	1.567	27.1408	17.32	Si
SLV 10	1438	0.33	331	-274.7	1.567	28.0258	17.88	Si
SLV 9	1438	0.33	331	-274.7	1.567	28.0258	17.88	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 3.98 Wa = 0.0005 Ta = 0.0438

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-234.78	-309.4	0.84	0.052	27.066	0.965	0.79	5.77817	No
SLV 6	-234.78	-309.4	0.84	0.052	27.066	0.965	0.79	5.77817	No
SLV 9	-260.94	-343.99	0.67	0.053	29.728	0.968	0.79577	5.77817	No
SLV 10	-260.94	-343.99	0.67	0.053	29.728	0.968	0.79577	5.77817	No
SLV 1	-203.04	-250.27	0.79	0.053	23.837	0.96	0.79904	5.64181	No
SLV 2	-203.04	-250.27	0.79	0.053	23.837	0.96	0.79904	5.64181	No
SLV 11	-257.42	-290.37	-0.07	0.055	29.371	0.967	0.82913	5.77817	No
SLV 12	-257.42	-290.37	-0.07	0.055	29.371	0.967	0.82913	5.77817	No
SLV 13	-290.22	-365.58	0.21	0.054	32.71	0.97	0.81382	5.64181	No
SLV 14	-290.22	-365.58	0.21	0.054	32.71	0.97	0.81382	5.64181	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.845	SLU 83	Si
V_SLU	5.809	SLU 52	Si
PF_SLV	4.87	SLV 15	Si
V_SLV	0.874	SLV 7	No
PFFP_SLV	15.478	SLV 1	Si
R_SLV	0.137	SLV 5	No

## Maschio 72

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-0.354	-13.753	-0.228	L3	L4	0.126	0.28	3.72	3.72	3.72			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 56	1.11	-19.65	-0.156	558	0.3885	2.491	Si
SLU 56	3.21	-5.85	-1.0454	0	0	0	No, $e \geq l/2$
SLU 61	1.11	-21.33	-0.1027	606	0.3432	3.342	Si
SLU 61	3.21	-5.72	-1.0438	0	0	0	No, $e \geq l/2$
SLU 58	1.11	-19.37	-0.1564	550	0.3948	2.525	Si
SLU 58	3.21	-5.8	-1.0355	0	0	0	No, $e \geq l/2$
SLU 60	1.11	-21.01	-0.1147	597	0.3528	3.077	Si
SLU 60	3.21	-5.78	-1.0504	0	0	0	No, $e \geq l/2$
SLU 54	1.11	-20.22	-0.1244	575	0.3744	3.009	Si
SLU 54	3.21	-5.61	-1.0143	0	0	0	No, $e \geq l/2$
SLU 59	1.11	-19.7	-0.1444	560	0.3874	2.683	Si
SLU 59	3.21	-5.74	-1.0289	0	0	0	No, $e \geq l/2$
SLU 55	1.11	-20.16	-0.1169	573	0.376	3.217	Si
SLU 55	3.21	-5.52	-1	0	0	0	No, $e \geq l/2$
SLU 53	1.11	-19.9	-0.1364	565	0.3825	2.804	Si
SLU 53	3.21	-5.67	-1.0209	0	0	0	No, $e \geq l/2$
SLU 57	1.11	-19.97	-0.144	568	0.3807	2.645	Si
SLU 57	3.21	-5.79	-1.0389	0	0	0	No, $e \geq l/2$
SLU 1	1.11	-13.72	-0.1018	390	0.4496	4.416	Si
SLU 1	3.21	-3.74	-0.6742	0	0	0	No, $e \geq l/2$

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	1.11	-30.06	0.4921	854	0.5685	1.155	Si
SLV 8	3.21	-0.02	-0.2826	0	0	0	No, $e \geq l/2$
SLV 7	1.11	-30.06	0.4921	854	0.5685	1.155	Si
SLV 7	3.21	-0.02	-0.2826	0	0	0	No, $e \geq l/2$
SLV 11	1.11	-34.45	0.5186	979	0.4305	0.83	No, $M > Mu$
SLV 11	3.21	-1.22	-0.4356	0	0	0	No, $e \geq l/2$
SLV 14	1.11	-17.11	-0.2471	486	0.6475	2.621	Si
SLV 14	3.21	-7.23	-1.1218	0	0	0	No, $e \geq l/2$
SLV 10	1.11	0.11	-0.7068	0	0	0	No, Trazione
SLV 10	3.21	-8.31	-1.2167	0	0	0	No, $e \geq l/2$
SLV 13	1.11	-17.11	-0.2471	486	0.6475	2.621	Si
SLV 13	3.21	-7.23	-1.1218	0	0	0	No, $e \geq l/2$
SLV 12	1.11	-34.45	0.5186	979	0.4305	0.83	No, $M > Mu$
SLV 12	3.21	-1.22	-0.4356	0	0	0	No, $e \geq l/2$
SLV 9	1.11	0.11	-0.7068	0	0	0	No, Trazione
SLV 9	3.21	-8.31	-1.2167	0	0	0	No, $e \geq l/2$
SLV 6	1.11	4.5	-0.7333	0	0	0	No, Trazione
SLV 6	3.21	-7.11	-1.0637	0	0	0	No, $e \geq l/2$
SLD 1	1.11	-9.65	-0.2052	274	0.4705	2.293	Si
SLD 1	3.21	-3.75	-0.6893	0	0	0	No, $e \geq l/2$

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 1	1.11	-13.72	0.83	-0.1018		390	0.1257	108	3.78			4.57	Si
SLU 1	3.21	-3.74	-1.01	-0.6742		0	0	56	0			0	No, $Vu < V$
SLU 57	1.11	-19.97	1.2	-0.144		568	0.1257	108	3.81			3.17	Si
SLU 57	3.21	-5.79	-1.71	-1.0389		0	0	56	0			0	No, $Vu < V$
SLU 56	1.11	-19.65	1.1	-0.156		558	0.1257	108	3.81			3.46	Si
SLU 56	3.21	-5.85	-1.84	-1.0454		0	0	56	0			0	No, $Vu < V$
SLU 55	1.11	-20.16	1.38	-0.1169		573	0.1257	108	3.81			2.77	Si
SLU 55	3.21	-5.52	-1.35	-1		0	0	56	0			0	No, $Vu < V$
SLU 53	1.11	-19.9	1.24	-0.1364		565	0.1257	108	3.81			3.08	Si
SLU 53	3.21	-5.67	-1.56	-1.0209		0	0	56	0			0	No, $Vu < V$
SLU 54	1.11	-20.22	1.34	-0.1244		575	0.1257	108	3.81			2.85	Si
SLU 54	3.21	-5.61	-1.43	-1.0143		0	0	56	0			0	No, $Vu < V$
SLU 61	1.11	-21.33	1.56	-0.1027		606	0.1257	108	3.81			2.44	Si
SLU 61	3.21	-5.72	-1.19	-1.0438		0	0	56	0			0	No, $Vu < V$
SLU 59	1.11	-19.7	1.17	-0.1444		560	0.1257	108	3.81			3.25	Si
SLU 59	3.21	-5.74	-1.72	-1.0289		0	0	56	0			0	No, $Vu < V$
SLU 58	1.11	-19.37	1.07	-0.1564		550	0.1257	108	3.81			3.56	Si
SLU 58	3.21	-5.8	-1.85	-1.0355		0	0	56	0			0	No, $Vu < V$
SLU 60	1.11	-21.01	1.46	-0.1147		597	0.1257	108	3.81			2.61	Si
SLU 60	3.21	-5.78	-1.32	-1.0504		0	0	56	0			0	No, $Vu < V$

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	1.11	-34.45	5.47	0.5186		979	0.1257	163	5.72			1.05	Si
SLV 11	3.21	-1.22	5.32	-0.4356		0	0	83	0			0	No, $Vu < V$
SLV 10	1.11	0.11	-5.15	-0.7068		0	0	83	0			0	No, $Vu < V$
SLV 10	3.21	-8.31	-9.58	-1.2167		0	0	83	0			0	No, $Vu < V$
SLV 14	1.11	-17.11	-3.19	-0.2471		486	0.1257	163	5.72			1.79	Si
SLV 14	3.21	-7.23	-6.66	-1.1218		0	0	83	0			0	No, $Vu < V$
SLV 12	1.11	-34.45	5.47	0.5186		979	0.1257	163	5.72			1.05	Si
SLV 12	3.21	-1.22	5.32	-0.4356		0	0	83	0			0	No, $Vu < V$





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 1	1.11	-9.65	1.27	-0.2052		276	0.1248	139	4.84			3.8	Si
SLD 1	3.21	-3.75	-0.69	-0.6893		0	0	83	0			0	No, Vu<V
SLV 13	1.11	-17.11	-3.19	-0.2471		486	0.1257	163	5.72			1.79	Si
SLV 13	3.21	-7.23	-6.66	-1.1218		0	0	83	0			0	No, Vu<V
SLV 9	1.11	0.11	-5.15	-0.7068		0	0	83	0			0	No, Vu<V
SLV 9	3.21	-8.31	-9.58	-1.2167		0	0	83	0			0	No, Vu<V
SLV 6	1.11	4.5	-3.64	-0.7333		0	0	83	0			0	No, Vu<V
SLV 6	3.21	-7.11	-7.61	-1.0637		0	0	83	0			0	No, Vu<V
SLV 7	1.11	-30.06	6.98	0.4921		854	0.1257	163	5.72			0.82	No, Vu<V
SLV 7	3.21	-0.02	7.28	-0.2826		0	0	83	0			0	No, Vu<V
SLV 8	1.11	-30.06	6.98	0.4921		854	0.1257	163	5.72			0.82	No, Vu<V
SLV 8	3.21	-0.02	7.28	-0.2826		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.31	225	-7.91	0.1173	0.9037	7.7	Si
SLV 8	1438	0.31	225	-7.91	0.1173	0.9037	7.7	Si
SLV 4	1438	0.31	265	-9.33	0.1173	1.0229	8.72	Si
SLV 3	1438	0.31	265	-9.33	0.1173	1.0229	8.72	Si
SLV 12	1438	0.31	338	-11.9	0.1173	1.2048	10.27	Si
SLV 11	1438	0.31	338	-11.9	0.1173	1.2048	10.27	Si
SLV 9	1438	0.31	831	-29.25	0.1173	1.3097	11.17	Si
SLV 10	1438	0.31	831	-29.25	0.1173	1.3097	11.17	Si
SLV 1	1438	0.31	413	-14.54	0.1173	1.3473	11.49	Si
SLV 2	1438	0.31	413	-14.54	0.1173	1.3473	11.49	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	2.69	0.11	0.96	0	0	0	0	10.54325	No, Trazione
SLV 3	-13.33	-12.85	2.71	0	1.541	0.964	0	10.12339	No
SLV 1	-1.2	-2.48	3.68	0	0.322	0.889	0	10.12339	No
SLV 11	-37.74	-34.45	-2.29	0	4.028	0.986	0	10.54325	No
SLV 2	-1.2	-2.48	3.68	0	0.322	0.889	0	10.12339	No
SLV 6	7.42	4.5	2.74	0	0	0	0	10.54325	No, Trazione
SLV 12	-37.74	-34.45	-2.29	0	4.028	0.986	0	10.54325	No
SLV 10	2.69	0.11	0.96	0	0	0	0	10.54325	No, Trazione
SLV 5	7.42	4.5	2.74	0	0	0	0	10.54325	No, Trazione
SLV 4	-13.33	-12.85	2.71	0	1.541	0.964	0	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 1	No
PFFP_SLV	7.704	SLV 7	Si
R_SLV	0	SLV 10	No

## Maschio 73

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	0.672	-13.753	1.046	L3	L4	0.374	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	1.11	-89.83	-2.5279	857	0	0	No, Rottura per schiacciamento
SLU 79	3.21	-61.53	0.8363	587	3.2159	3.845	Si
SLU 84	1.11	-92.04	-2.3873	878	0	0	No, Rottura per schiacciamento
SLU 84	3.21	-66.49	0.5877	634	2.7524	4.683	Si
SLU 83	1.11	-92.54	-2.4636	883	0	0	No, Rottura per schiacciamento
SLU 83	3.21	-65.83	0.6725	628	2.82	4.193	Si
SLU 74	1.11	-88.76	-2.3723	847	0	0	No, Rottura per schiacciamento
SLU 74	3.21	-62.79	0.6646	599	3.1088	4.677	Si
SLU 80	1.11	-89.33	-2.4517	852	0	0	No, Rottura per schiacciamento
SLU 80	3.21	-62.19	0.7515	593	3.1607	4.206	Si
SLU 82	1.11	-90.06	-2.2268	859	0	0	No, Rottura per schiacciamento
SLU 82	3.21	-66.76	0.4283	637	2.7246	6.361	Si
SLU 75	1.11	-88.25	-2.2961	842	0	0	No, Rottura per schiacciamento



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	3.21	-63.44	0.5798	605	3.05	5.26	Si
SLU 76	1.11	-87.01	-2.2404	830	0	0	No, Rottura per schiacciamento
SLU 76	3.21	-62.89	0.5355	600	3.0995	5.788	Si
SLU 77	1.11	-90.74	-2.5328	866	0	0	No, Rottura per schiacciamento
SLU 77	3.21	-62.52	0.824	597	3.132	3.801	Si
SLU 81	1.11	-90.56	-2.3031	864	0	0	No, Rottura per schiacciamento
SLU 81	3.21	-66.1	0.5131	631	2.7929	5.443	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	1.11	-94.98	-4.9281	906	4.5914	0.932	No, M>Mu
SLV 13	3.21	-49.38	0.4343	471	5.6782	13.076	Si
SLV 6	1.11	-73.54	-5.3498	702	5.8596	1.095	Si
SLV 6	3.21	5.01	4.943	0	0	0	No, Trazione
SLV 5	1.11	-73.54	-5.3498	702	5.8596	1.095	Si
SLV 5	3.21	5.01	4.943	0	0	0	No, Trazione
SLV 1	1.11	-36.35	-0.7783	347	4.8722	6.26	Si
SLV 1	3.21	-9.67	2.8241	0	0	0	No, e>l/2
SLV 8	1.11	-25.93	3.5617	247	3.8701	1.087	Si
SLV 8	3.21	-76.65	-3.5008	731	5.7591	1.645	Si
SLV 9	1.11	-91.13	-6.5947	869	4.9187	0.746	No, M>Mu
SLV 9	3.21	-6.9	4.226	0	0	0	No, e>l/2
SLV 14	1.11	-94.98	-4.9281	906	4.5914	0.932	No, M>Mu
SLV 14	3.21	-49.38	0.4343	471	5.6782	13.076	Si
SLV 7	1.11	-25.93	3.5617	247	3.8701	1.087	Si
SLV 7	3.21	-76.65	-3.5008	731	5.7591	1.645	Si
SLV 2	1.11	-36.35	-0.7783	347	4.8722	6.26	Si
SLV 2	3.21	-9.67	2.8241	0	0	0	No, e>l/2
SLV 10	1.11	-91.13	-6.5947	869	4.9187	0.746	No, M>Mu
SLV 10	3.21	-6.9	4.226	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	1.11	-92.54	-3.53	-2.4636		883	0.3743	108	11.35			3.22	Si
SLU 83	3.21	-65.83	-3.38	0.6725		628	0.3743	108	11.35			3.36	Si
SLU 77	1.11	-90.74	-3.76	-2.5328		866	0.3743	108	11.35			3.02	Si
SLU 77	3.21	-62.52	-3.63	0.824		597	0.3743	108	11.35			3.13	Si
SLU 80	1.11	-89.33	-3.58	-2.4517		852	0.3743	108	11.35			3.17	Si
SLU 80	3.21	-62.19	-3.46	0.7515		593	0.3743	108	11.35			3.28	Si
SLU 37	1.11	-77.56	-3.4	-2.2399		740	0.3743	108	11.35			3.34	Si
SLU 37	3.21	-52.56	-3.3	0.8053		501	0.3743	108	11.35			3.44	Si
SLU 79	1.11	-89.83	-3.77	-2.5279		857	0.3743	108	11.35			3.02	Si
SLU 79	3.21	-61.53	-3.64	0.8363		587	0.3743	108	11.35			3.12	Si
SLU 35	1.11	-78.47	-3.4	-2.2388		749	0.3743	108	11.35			3.34	Si
SLU 35	3.21	-53.55	-3.29	0.793		511	0.3743	108	11.35			3.45	Si
SLU 71	1.11	-78.88	-3.51	-2.3036		753	0.3743	108	11.35			3.24	Si
SLU 71	3.21	-52.11	-3.42	0.8464		497	0.3743	108	11.35			3.32	Si
SLU 74	1.11	-88.76	-3.41	-2.3723		847	0.3743	108	11.35			3.33	Si
SLU 74	3.21	-62.79	-3.27	0.6646		599	0.3743	108	11.35			3.47	Si
SLU 78	1.11	-90.24	-3.58	-2.4566		861	0.3743	108	11.35			3.17	Si
SLU 78	3.21	-63.18	-3.45	0.7392		603	0.3743	108	11.35			3.29	Si
SLU 69	1.11	-79.79	-3.5	-2.3085		761	0.3743	108	11.35			3.25	Si
SLU 69	3.21	-53.1	-3.4	0.8342		507	0.3743	108	11.35			3.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1.11	-94.98	-12.83	-4.9281		906	0.3743	163	17.03			1.33	Si
SLV 14	3.21	-49.38	-9.83	0.4343		471	0.3743	163	17.03			1.73	Si
SLV 2	1.11	-36.35	1.12	-0.7783		347	0.3743	153	16			14.35	Si
SLV 2	3.21	-9.67	0.54	2.8241		0	0	83	0			0	No, Vu<V
SLV 6	1.11	-73.54	-12.51	-5.3498		765	0.3432	163	15.62			1.25	Si
SLV 6	3.21	5.01	-9.23	4.943		0	0	83	0			0	No, Vu<V
SLV 5	1.11	-73.54	-12.51	-5.3498		765	0.3432	163	15.62			1.25	Si
SLV 5	3.21	5.01	-9.23	4.943		0	0	83	0			0	No, Vu<V
SLV 1	1.11	-36.35	1.12	-0.7783		347	0.3743	153	16			14.35	Si
SLV 1	3.21	-9.67	0.54	2.8241		0	0	83	0			0	No, Vu<V
SLV 10	1.11	-91.13	-16.7	-6.5947		945	0.3444	163	15.67			0.94	No, Vu<V
SLV 10	3.21	-6.9	-12.34	4.226		0	0	83	0			0	No, Vu<V
SLV 7	1.11	-25.93	12.47	3.5617		620	0.1494	163	6.8			0.54	No, Vu<V
SLV 7	3.21	-76.65	8.32	-3.5008		731	0.3743	163	17.03			2.05	Si
SLV 13	1.11	-94.98	-12.83	-4.9281		906	0.3743	163	17.03			1.33	Si
SLV 13	3.21	-49.38	-9.83	0.4343		471	0.3743	163	17.03			1.73	Si
SLV 8	1.11	-25.93	12.47	3.5617		620	0.1494	163	6.8			0.54	No, Vu<V
SLV 8	3.21	-76.65	8.32	-3.5008		731	0.3743	163	17.03			2.05	Si
SLV 9	1.11	-91.13	-16.7	-6.5947		945	0.3444	163	15.67			0.94	No, Vu<V
SLV 9	3.21	-6.9	-12.34	4.226		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.31	0	4.03	0.3493	0	0	No, Trazione
SLV 6	1438	0.31	0	4.03	0.3493	0	0	No, Trazione
SLV 10	1438	0.31	67	-7.07	0.3493	0.9346	2.68	Si
SLV 9	1438	0.31	67	-7.07	0.3493	0.9346	2.68	Si
SLV 1	1438	0.31	111	-11.67	0.3493	1.4852	4.25	Si
SLV 2	1438	0.31	111	-11.67	0.3493	1.4852	4.25	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.31	346	-36.22	0.3493	3.6367	10.41	Si
SLV 3	1438	0.31	346	-36.22	0.3493	3.6367	10.41	Si
SLV 11	1438	0.31	848	-88.9	0.3493	3.806	10.9	Si
SLV 12	1438	0.31	848	-88.9	0.3493	3.806	10.9	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97  $W_a = 0.0005$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-54.2	-91.13	-0.01	0.04	6.067	0.972	0.59541	10.54325	No
SLV 9	-54.2	-91.13	-0.01	0.04	6.067	0.972	0.59541	10.54325	No
SLV 5	-49.88	-73.54	0.01	0.04	5.627	0.97	0.59779	10.54325	No
SLV 6	-49.88	-73.54	0.01	0.04	5.627	0.97	0.59779	10.54325	No
SLV 13	-46.79	-94.98	-0.04	0.039	5.312	0.969	0.5921	10.12339	No
SLV 14	-46.79	-94.98	-0.04	0.039	5.312	0.969	0.5921	10.12339	No
SLV 15	-36.11	-80.7	-0.05	0.04	4.226	0.961	0.59876	10.12339	No
SLV 16	-36.11	-80.7	-0.05	0.04	4.226	0.961	0.59876	10.12339	No
SLV 11	-18.61	-43.52	-0.05	0.041	2.449	0.937	0.63973	10.54325	No
SLV 12	-18.61	-43.52	-0.05	0.041	2.449	0.937	0.63973	10.54325	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 74	No
V_SLU	3.015	SLU 79	Si
PF_SLV	0	SLV 6	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 6	No
R_SLV	0.056	SLV 9	No

## Maschio 74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-20.668	1.046	-24.653	1.046	L3	L4	3.985	0.28	3.72	3.72	3.72			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	1.11	-689.72	32.7277	618	331.4146	10.126	Si
SLU 84	3.21	-632.58	-146.6765	567	383.198	2.613	Si
SLU 82	1.11	-678.17	31.3921	608	343.0357	10.927	Si
SLU 82	3.21	-621.03	-142.4073	557	391.9255	2.752	Si
SLU 81	1.11	-679.99	32.9789	609	341.2485	10.347	Si
SLU 81	3.21	-622.84	-143.5857	558	390.5929	2.72	Si
SLU 78	1.11	-676.59	31.8388	606	344.5817	10.823	Si
SLU 78	3.21	-619.45	-142.5847	555	393.0752	2.757	Si
SLU 79	1.11	-672.07	32.4257	602	348.9415	10.761	Si
SLU 79	3.21	-614.93	-142.153	551	396.3019	2.788	Si
SLU 83	1.11	-691.54	34.3145	620	329.5355	9.603	Si
SLU 83	3.21	-634.39	-147.8549	569	381.7735	2.582	Si
SLU 80	1.11	-670.25	30.8388	601	350.6657	11.371	Si
SLU 80	3.21	-613.11	-140.9746	549	397.5715	2.82	Si
SLU 74	1.11	-666.86	32.0901	598	353.8551	11.027	Si
SLU 74	3.21	-609.71	-139.4939	546	399.9097	2.867	Si
SLU 75	1.11	-665.04	30.5032	596	355.5378	11.656	Si
SLU 75	3.21	-607.9	-138.3155	545	401.1378	2.9	Si
SLU 77	1.11	-678.4	33.4257	608	342.8071	10.256	Si
SLU 77	3.21	-621.26	-143.7631	557	391.7552	2.725	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	1.11	-572.7	351.0536	513	661.7693	1.885	Si
SLV 1	3.21	-539.71	-156.8526	484	649.6682	4.142	Si
SLV 2	1.11	-572.7	351.0536	513	661.7693	1.885	Si
SLV 2	3.21	-539.71	-156.8526	484	649.6682	4.142	Si
SLD 1	1.11	-501.87	162.4679	450	631.8743	3.889	Si
SLD 1	3.21	-462.74	-118.1757	415	609.0685	5.154	Si
SLV 13	1.11	-334.45	-311.6492	300	502.9137	1.614	Si
SLV 13	3.21	-278.45	-37.6839	250	441.4988	11.716	Si
SLV 4	1.11	-562.35	347.0773	504	658.3163	1.897	Si
SLV 4	3.21	-531.04	-135.9264	476	645.9625	4.752	Si
SLV 14	1.11	-334.45	-311.6492	300	502.9137	1.614	Si
SLV 14	3.21	-278.45	-37.6839	250	441.4988	11.716	Si
SLV 15	1.11	-324.1	-315.6254	290	492.2541	1.56	Si
SLV 15	3.21	-269.78	-16.7578	242	431.176	25.73	Si
SLV 16	1.11	-324.1	-315.6254	290	492.2541	1.56	Si
SLV 16	3.21	-269.78	-16.7578	242	431.176	25.73	Si
SLV 3	1.11	-562.35	347.0773	504	658.3163	1.897	Si
SLV 3	3.21	-531.04	-135.9264	476	645.9625	4.752	Si
SLD 2	1.11	-501.87	162.4679	450	631.8743	3.889	Si



Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLD 2	3.21	-462.74	-118.1757	415	609.0685	5.154	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	1.11	-672.07	83.22	32.4257		602	3.985	108	120.88			1.45	Si
SLU 79	3.21	-614.93	83.22	-142.153		551	3.985	108	120.88			1.45	Si
SLU 78	1.11	-676.59	83.14	31.8388		606	3.985	108	120.88			1.45	Si
SLU 78	3.21	-619.45	83.14	-142.5847		555	3.985	108	120.88			1.45	Si
SLU 83	1.11	-691.54	86.83	34.3145		620	3.985	108	120.88			1.39	Si
SLU 83	3.21	-634.39	86.83	-147.8549		569	3.985	108	120.88			1.39	Si
SLU 77	1.11	-678.4	84.46	33.4257		608	3.985	108	120.88			1.43	Si
SLU 77	3.21	-621.26	84.46	-143.7631		557	3.985	108	120.88			1.43	Si
SLU 80	1.11	-670.25	81.9	30.8388		601	3.985	108	120.88			1.48	Si
SLU 80	3.21	-613.11	81.9	-140.9746		549	3.985	108	120.88			1.48	Si
SLU 81	1.11	-679.99	84.16	32.9789		609	3.985	108	120.88			1.44	Si
SLU 81	3.21	-622.84	84.16	-143.5857		558	3.985	108	120.88			1.44	Si
SLU 84	1.11	-689.72	85.51	32.7277		618	3.985	108	120.88			1.41	Si
SLU 84	3.21	-632.58	85.51	-146.6765		567	3.985	108	120.88			1.41	Si
SLU 75	1.11	-665.04	80.47	30.5032		596	3.985	108	120.88			1.5	Si
SLU 75	3.21	-607.9	80.47	-138.3155		545	3.985	108	120.88			1.5	Si
SLU 82	1.11	-678.17	82.84	31.3921		608	3.985	108	120.88			1.46	Si
SLU 82	3.21	-621.03	82.84	-142.4073		557	3.985	108	120.88			1.46	Si
SLU 74	1.11	-666.86	81.79	32.0901		598	3.985	108	120.88			1.48	Si
SLU 74	3.21	-609.71	81.79	-139.4939		546	3.985	108	120.88			1.48	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	1.11	-572.7	265.03	351.0536		513	3.985	163	181.32			0.68	No, Vu<V
SLV 2	3.21	-539.71	243.27	-156.8526		484	3.985	163	181.32			0.75	No, Vu<V
SLD 2	1.11	-501.87	143.81	162.4679		450	3.985	163	181.32			1.26	Si
SLD 2	3.21	-462.74	134.13	-118.1757		415	3.985	163	181.32			1.35	Si
SLV 14	1.11	-334.45	-156.55	-311.6492		375	3.182	158	141.14			0.9	No, Vu<V
SLV 14	3.21	-278.45	-128.6	-37.6839		250	3.985	133	148.67			1.16	Si
SLV 1	1.11	-572.7	265.03	351.0536		513	3.985	163	181.32			0.68	No, Vu<V
SLV 1	3.21	-539.71	243.27	-156.8526		484	3.985	163	181.32			0.75	No, Vu<V
SLV 15	1.11	-324.1	-165.35	-315.6254		379	3.0559	159	136.12			0.82	No, Vu<V
SLV 15	3.21	-269.78	-143.6	-16.7578		242	3.985	132	146.94			1.02	Si
SLV 16	1.11	-324.1	-165.35	-315.6254		379	3.0559	159	136.12			0.82	No, Vu<V
SLV 16	3.21	-269.78	-143.6	-16.7578		242	3.985	132	146.94			1.02	Si
SLV 3	1.11	-562.35	256.22	347.0773		504	3.985	163	181.32			0.71	No, Vu<V
SLV 3	3.21	-531.04	228.27	-135.9264		476	3.985	163	181.32			0.79	No, Vu<V
SLV 13	1.11	-334.45	-156.55	-311.6492		375	3.182	158	141.14			0.9	No, Vu<V
SLV 13	3.21	-278.45	-128.6	-37.6839		250	3.985	133	148.67			1.16	Si
SLV 4	1.11	-562.35	256.22	347.0773		504	3.985	163	181.32			0.71	No, Vu<V
SLV 4	3.21	-531.04	228.27	-135.9264		476	3.985	163	181.32			0.79	No, Vu<V
SLD 1	1.11	-501.87	143.81	162.4679		450	3.985	163	181.32			1.26	Si
SLD 1	3.21	-462.74	134.13	-118.1757		415	3.985	163	181.32			1.35	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.31	260	-289.83	3.7186	31.95	8.59	Si
SLV 16	1438	0.31	260	-289.83	3.7186	31.95	8.59	Si
SLV 13	1438	0.31	266	-296.89	3.7186	32.5132	8.74	Si
SLV 14	1438	0.31	266	-296.89	3.7186	32.5132	8.74	Si
SLV 11	1438	0.31	328	-365.64	3.7186	37.4612	10.07	Si
SLV 12	1438	0.31	328	-365.64	3.7186	37.4612	10.07	Si
SLV 9	1438	0.31	349	-389.18	3.7186	38.9322	10.47	Si
SLV 10	1438	0.31	349	-389.18	3.7186	38.9322	10.47	Si
SLV 8	1438	0.31	392	-437.69	3.7186	41.6045	11.19	Si
SLV 7	1438	0.31	392	-437.69	3.7186	41.6045	11.19	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 6	-319.61	-501.38	2.01	0.036	38.397	0.955	0.54696	10.54325	No
SLV 5	-319.61	-501.38	2.01	0.036	38.397	0.955	0.54696	10.54325	No
SLV 11	-337.05	-395.41	-1.99	0.036	40.17	0.957	0.54766	10.54325	No
SLV 12	-337.05	-395.41	-1.99	0.036	40.17	0.957	0.54766	10.54325	No
SLV 9	-320.01	-429.91	1.71	0.037	38.437	0.955	0.55961	10.54325	No
SLV 10	-320.01	-429.91	1.71	0.037	38.437	0.955	0.55961	10.54325	No
SLV 7	-336.65	-466.89	-1.7	0.037	40.129	0.957	0.55971	10.54325	No
SLV 8	-336.65	-466.89	-1.7	0.037	40.129	0.957	0.55971	10.54325	No
SLV 15	-331.55	-324.1	-1.04	0.039	39.61	0.956	0.58674	10.12339	No
SLV 16	-331.55	-324.1	-1.04	0.039	39.61	0.956	0.58674	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.582	SLU 83	Si
V_SLV	1.392	SLU 83	Si
PF_SLV	1.56	SLV 15	Si
V_SLV	0.684	SLV 1	No
PFFP_SLV	8.592	SLV 15	Si
R_SLV	0.052	SLV 5	No



## Maschio 75

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.283	1.046	-19.868	1.046	L3	L4	7.585	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 82	1.11	-1537.3	208.379	724	649.4392	3.117	Si
SLU 82	3.61	-1347.36	-177.8769	634	1130.2131	6.354	Si
SLU 80	1.11	-1511.45	246.6459	712	724.1898	2.936	Si
SLU 80	3.61	-1319.12	-143.6576	621	1188.2024	8.271	Si
SLU 77	1.11	-1533.77	258.443	722	659.8354	2.553	Si
SLU 77	3.61	-1337.78	-145.6358	630	1150.2837	7.898	Si
SLU 84	1.11	-1564.05	230.5043	736	569.0175	2.469	Si
SLU 84	3.61	-1371.76	-168.9208	646	1077.3235	6.378	Si
SLU 81	1.11	-1543.02	221.4291	727	632.5213	2.857	Si
SLU 81	3.61	-1349.36	-174.4933	635	1125.9849	6.453	Si
SLU 74	1.11	-1507.01	236.3177	710	736.7047	3.117	Si
SLU 74	3.61	-1313.39	-154.5918	618	1199.5396	7.759	Si
SLU 78	1.11	-1528.05	245.3929	719	676.5215	2.757	Si
SLU 78	3.61	-1335.78	-149.0194	629	1154.4107	7.747	Si
SLU 75	1.11	-1501.3	223.2676	707	752.7204	3.371	Si
SLU 75	3.61	-1311.39	-157.9754	617	1203.4532	7.618	Si
SLU 79	1.11	-1517.16	259.696	714	707.9198	2.726	Si
SLU 79	3.61	-1321.11	-140.274	622	1184.2212	8.442	Si
SLU 83	1.11	-1569.77	243.5544	739	551.4293	2.264	Si
SLU 83	3.61	-1373.75	-165.5372	647	1072.8819	6.481	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 15	1.11	-1103.41	-511.0133	520	2405.3425	4.707	Si
SLV 15	3.61	-905.78	-70.1666	426	2236.1403	31.869	Si
SLV 1	1.11	-894.66	814.9105	421	2223.2279	2.728	Si
SLV 1	3.61	-806.78	-130.0807	380	2108.4554	16.209	Si
SLV 5	1.11	-861.1	578.7676	405	2182.0666	3.77	Si
SLV 5	3.61	-788.81	-17.4428	371	2082.2165	119.374	Si
SLV 2	1.11	-894.66	814.9105	421	2223.2279	2.728	Si
SLV 2	3.61	-806.78	-130.0807	380	2108.4554	16.209	Si
SLV 16	1.11	-1103.41	-511.0133	520	2405.3425	4.707	Si
SLV 16	3.61	-905.78	-70.1666	426	2236.1403	31.869	Si
SLV 6	1.11	-861.1	578.7676	405	2182.0666	3.77	Si
SLV 6	3.61	-788.81	-17.4428	371	2082.2165	119.374	Si
SLV 4	1.11	-964.96	664.6266	454	2298.7824	3.459	Si
SLV 4	3.61	-841.47	-190.5211	396	2156.4576	11.319	Si
SLD 1	1.11	-954.59	439.7223	449	2288.5425	5.205	Si
SLD 1	3.61	-835.27	-114.53	393	2148.1352	18.756	Si
SLV 3	1.11	-964.96	664.6266	454	2298.7824	3.459	Si
SLV 3	3.61	-841.47	-190.5211	396	2156.4576	11.319	Si
SLD 2	1.11	-954.59	439.7223	449	2288.5425	5.205	Si
SLD 2	3.61	-835.27	-114.53	393	2148.1352	18.756	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1.11	-1543.02	61.97	221.4291		727	7.585	108	230.08			3.71	Si
SLU 81	3.61	-1349.36	63.02	-174.4933		635	7.585	108	230.08			3.65	Si
SLU 60	1.11	-1373.21	55.89	189.452		647	7.585	108	230.08			4.12	Si
SLU 60	3.61	-1187.71	57.38	-160.1149		559	7.585	108	230.08			4.01	Si
SLU 83	1.11	-1569.77	59.7	243.5544		739	7.585	108	230.08			3.85	Si
SLU 83	3.61	-1373.75	60	-165.5372		647	7.585	108	230.08			3.83	Si
SLU 84	1.11	-1564.05	60.92	230.5043		736	7.585	108	230.08			3.78	Si
SLU 84	3.61	-1371.76	61.67	-168.9208		646	7.585	108	230.08			3.73	Si
SLU 61	1.11	-1367.5	57.12	176.4019		644	7.585	108	230.08			4.03	Si
SLU 61	3.61	-1185.71	59.05	-163.4985		558	7.585	108	230.08			3.9	Si
SLU 82	1.11	-1537.3	63.19	208.379		724	7.585	108	230.08			3.64	Si
SLU 82	3.61	-1347.36	64.69	-177.8769		634	7.585	108	230.08			3.56	Si
SLU 73	1.11	-1454.13	58.63	193.6953		685	7.585	108	230.08			3.92	Si
SLU 73	3.61	-1269	60.4	-163.8254		598	7.585	108	230.08			3.81	Si
SLU 75	1.11	-1501.3	57.87	223.2676		707	7.585	108	230.08			3.98	Si
SLU 75	3.61	-1311.39	58.56	-157.9754		617	7.585	108	230.08			3.93	Si
SLU 40	1.11	-1326.24	56.04	177.6956		624	7.585	108	230.08			4.11	Si
SLU 40	3.61	-1175.17	57.09	-157.2634		553	7.585	108	230.08			4.03	Si
SLU 76	1.11	-1480.88	56.35	215.8206		697	7.585	108	230.08			4.08	Si
SLU 76	3.61	-1293.4	57.38	-154.8694		609	7.585	108	230.08			4.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	1.11	-1103.41	-379.26	-511.0133		520	7.585	163	345.12			0.91	No, Vu<V
SLV 15	3.61	-905.78	-289.86	-70.1666		426	7.585	163	345.12			1.19	Si
SLV 14	1.11	-1033.11	-422.28	-360.7294		486	7.585	163	345.12			0.82	No, Vu<V
SLV 14	3.61	-871.09	-330.05	-9.7262		410	7.585	163	345.12			1.05	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	1.11	-964.96	494.52	664.6266		454	7.585	163	345.12			0.7	No, Vu<V
SLV 4	3.61	-841.47	404.03	-190.5211		396	7.585	163	345.12			0.85	No, Vu<V
SLV 13	1.11	-1033.11	-422.28	-360.7294		486	7.585	163	345.12			0.82	No, Vu<V
SLV 13	3.61	-871.09	-330.05	-9.7262		410	7.585	163	345.12			1.05	Si
SLV 3	1.11	-964.96	494.52	664.6266		454	7.585	163	345.12			0.7	No, Vu<V
SLV 3	3.61	-841.47	404.03	-190.5211		396	7.585	163	345.12			0.85	No, Vu<V
SLV 1	1.11	-894.66	451.5	814.9105		421	7.585	163	345.12			0.76	No, Vu<V
SLV 1	3.61	-806.78	363.83	-130.0807		380	7.585	159	338.34			0.93	No, Vu<V
SLV 7	1.11	-1095.44	238.88	77.8216		516	7.585	163	345.12			1.44	Si
SLV 7	3.61	-904.45	208.07	-218.9109		426	7.585	163	345.12			1.66	Si
SLV 2	1.11	-894.66	451.5	814.9105		421	7.585	163	345.12			0.76	No, Vu<V
SLV 2	3.61	-806.78	363.83	-130.0807		380	7.585	159	338.34			0.93	No, Vu<V
SLV 8	1.11	-1095.44	238.88	77.8216		516	7.585	163	345.12			1.44	Si
SLV 8	3.61	-904.45	208.07	-218.9109		426	7.585	163	345.12			1.66	Si
SLV 16	1.11	-1103.41	-379.26	-511.0133		520	7.585	163	345.12			0.91	No, Vu<V
SLV 16	3.61	-905.78	-289.86	-70.1666		426	7.585	163	345.12			1.19	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.31	386	-818.86	7.078	78.4654	11.09	Si
SLV 6	1438	0.31	386	-818.86	7.078	78.4654	11.09	Si
SLV 1	1438	0.31	391	-829.51	7.078	79.0096	11.16	Si
SLV 2	1438	0.31	391	-829.51	7.078	79.0096	11.16	Si
SLV 9	1438	0.31	400	-848.72	7.078	79.9595	11.3	Si
SLV 10	1438	0.31	400	-848.72	7.078	79.9595	11.3	Si
SLV 4	1438	0.31	409	-868.51	7.078	80.8967	11.43	Si
SLV 3	1438	0.31	409	-868.51	7.078	80.8967	11.43	Si
SLV 13	1438	0.31	437	-929.05	7.078	83.5014	11.8	Si
SLV 14	1438	0.31	437	-929.05	7.078	83.5014	11.8	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-737.84	-861.1	10.4	0.028	86.251	0.961	0.42456	10.54325	No
SLV 5	-737.84	-861.1	10.4	0.028	86.251	0.961	0.42456	10.54325	No
SLV 10	-742.25	-902.64	10.21	0.028	86.701	0.962	0.42878	10.54325	No
SLV 9	-742.25	-902.64	10.21	0.028	86.701	0.962	0.42878	10.54325	No
SLV 12	-873.76	-1136.97	-10.39	0.029	100.082	0.966	0.44319	10.54325	No
SLV 11	-873.76	-1136.97	-10.39	0.029	100.082	0.966	0.44319	10.54325	No
SLV 8	-869.34	-1095.44	-10.2	0.03	99.633	0.966	0.4457	10.54325	No
SLV 7	-869.34	-1095.44	-10.2	0.03	99.633	0.966	0.4457	10.54325	No
SLV 15	-832.88	-1103.41	-3.4	0.037	95.922	0.965	0.5547	10.12339	No
SLV 16	-832.88	-1103.41	-3.4	0.037	95.922	0.965	0.5547	10.12339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.264	SLU 83	Si
V_SLU	3.557	SLU 82	Si
PF_SLV	2.728	SLV 1	Si
V_SLV	0.698	SLV 3	No
PFFP_SLV	11.086	SLV 5	Si
R_SLV	0.04	SLV 5	No

## Maschio 76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-4.968	1.046	-11.163	1.046	L3	L4	6.195	0.28	3.72	3.72	3.72			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	f $\nu_0$	$\mu$	$\phi$	f $\nu_{lim}$	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	1.11	-1050.11	12.219	605	835.326	68.363	Si
SLU 82	3.61	-976.29	109.172	563	934.5941	8.561	Si
SLU 81	1.11	-1055.66	5.5009	609	826.8998	150.322	Si
SLU 81	3.61	-977.69	108.4888	564	932.9431	8.599	Si
SLU 73	1.11	-990.3	11.9074	571	917.5953	77.061	Si
SLU 73	3.61	-916.43	98.5915	528	997.5551	10.118	Si
SLU 76	1.11	-1004.33	5.3333	579	899.7117	168.696	Si
SLU 76	3.61	-931.93	95.4018	537	982.7567	10.301	Si
SLU 83	1.11	-1069.69	-1.0732	617	804.997	750.112	Si
SLU 83	3.61	-993.19	105.2992	573	913.9804	8.68	Si
SLU 77	1.11	-1039.32	-10.9112	599	851.3285	78.023	Si
SLU 77	3.61	-961.44	94.1358	554	951.677	10.11	Si
SLU 78	1.11	-1033.77	-4.1931	596	859.3573	204.945	Si
SLU 78	3.61	-960.05	94.819	553	953.2289	10.053	Si
SLU 74	1.11	-1025.3	-4.3372	591	871.3641	200.905	Si
SLU 74	3.61	-945.94	97.3254	545	968.4816	9.951	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	1.11	-1019.75	2.3809	588	879.0517	369.205	Si
SLU 75	3.61	-944.55	98.0086	545	969.9389	9.896	Si
SLU 84	1.11	-1064.14	5.645	613	813.7644	144.158	Si
SLU 84	3.61	-991.8	105.9823	572	915.726	8.64	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	1.11	-527.36	-279.4603	304	1227.0542	4.391	Si
SLV 10	3.61	-493.25	7.5902	284	1172.2687	154.445	Si
SLV 14	1.11	-619.24	-317.2511	357	1357.6939	4.28	Si
SLV 14	3.61	-557.2	247.2527	321	1272.1918	5.145	Si
SLV 9	1.11	-527.36	-279.4603	304	1227.0542	4.391	Si
SLV 9	3.61	-493.25	7.5902	284	1172.2687	154.445	Si
SLV 16	1.11	-707.51	-197.8847	408	1459.9567	7.378	Si
SLV 16	3.61	-625.1	318.8884	360	1365.1904	4.281	Si
SLV 8	1.11	-831.11	270.1863	479	1564.8741	5.792	Si
SLV 8	3.61	-732.66	112.5865	422	1484.9228	13.189	Si
SLV 7	1.11	-831.11	270.1863	479	1564.8741	5.792	Si
SLV 7	3.61	-732.66	112.5865	422	1484.9228	13.189	Si
SLV 3	1.11	-739.23	307.9772	426	1491.1355	4.842	Si
SLV 3	3.61	-668.71	-127.0761	386	1417.8009	11.157	Si
SLV 13	1.11	-619.24	-317.2511	357	1357.6939	4.28	Si
SLV 13	3.61	-557.2	247.2527	321	1272.1918	5.145	Si
SLV 15	1.11	-707.51	-197.8847	408	1459.9567	7.378	Si
SLV 15	3.61	-625.1	318.8884	360	1365.1904	4.281	Si
SLV 4	1.11	-739.23	307.9772	426	1491.1355	4.842	Si
SLV 4	3.61	-668.71	-127.0761	386	1417.8009	11.157	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	1.11	-1039.32	-64.34	-10.9112		599	6.195	108	187.91			2.92	Si
SLU 77	3.61	-961.44	-63.21	94.1358		554	6.195	108	187.91			2.97	Si
SLU 74	1.11	-1025.3	-64.62	-4.3372		591	6.195	108	187.91			2.91	Si
SLU 74	3.61	-945.94	-63.91	97.3254		545	6.195	108	187.91			2.94	Si
SLU 81	1.11	-1055.66	-67.92	5.5009		609	6.195	108	187.91			2.77	Si
SLU 81	3.61	-977.69	-67.65	108.4888		564	6.195	108	187.91			2.78	Si
SLU 84	1.11	-1064.14	-69.06	5.645		613	6.195	108	187.91			2.72	Si
SLU 84	3.61	-991.8	-68.98	105.9823		572	6.195	108	187.91			2.72	Si
SLU 75	1.11	-1019.75	-66.04	2.3809		588	6.195	108	187.91			2.85	Si
SLU 75	3.61	-944.55	-65.94	98.0086		545	6.195	108	187.91			2.85	Si
SLU 83	1.11	-1069.69	-67.64	-1.0732		617	6.195	108	187.91			2.78	Si
SLU 83	3.61	-993.19	-66.95	105.2992		573	6.195	108	187.91			2.81	Si
SLU 73	1.11	-990.3	-65.39	11.9074		571	6.195	108	187.91			2.87	Si
SLU 73	3.61	-916.43	-66.26	98.5915		528	6.195	108	187.91			2.84	Si
SLU 76	1.11	-1004.33	-65.11	5.3333		579	6.195	108	187.91			2.89	Si
SLU 76	3.61	-931.93	-65.56	95.4018		537	6.195	108	187.91			2.87	Si
SLU 82	1.11	-1050.11	-69.34	12.219		605	6.195	108	187.91			2.71	Si
SLU 82	3.61	-976.29	-69.68	109.172		563	6.195	108	187.91			2.7	Si
SLU 78	1.11	-1033.77	-65.77	-4.1931		596	6.195	108	187.91			2.86	Si
SLU 78	3.61	-960.05	-65.24	94.819		553	6.195	108	187.91			2.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	1.11	-739.23	262.47	307.9772		426	6.195	163	281.87			1.07	Si
SLV 4	3.61	-668.71	194.55	-127.0761		386	6.195	160	278.29			1.43	Si
SLV 2	1.11	-650.96	298.56	188.6108		375	6.195	158	274.74			0.92	No, Vu<V
SLV 2	3.61	-600.8	228.19	-198.7117		346	6.195	153	264.71			1.16	Si
SLV 1	1.11	-650.96	298.56	188.6108		375	6.195	158	274.74			0.92	No, Vu<V
SLV 1	3.61	-600.8	228.19	-198.7117		346	6.195	153	264.71			1.16	Si
SLV 11	1.11	-821.6	-198.28	118.4277		474	6.195	163	281.87			1.42	Si
SLV 11	3.61	-719.58	-173.61	246.3758		415	6.195	163	281.87			1.62	Si
SLV 14	1.11	-619.24	-345.51	-317.2511		357	6.195	155	268.4			0.78	No, Vu<V
SLV 14	3.61	-557.2	-277.84	247.2527		321	6.195	148	255.99			0.92	No, Vu<V
SLV 13	1.11	-619.24	-345.51	-317.2511		357	6.195	155	268.4			0.78	No, Vu<V
SLV 13	3.61	-557.2	-277.84	247.2527		321	6.195	148	255.99			0.92	No, Vu<V
SLV 16	1.11	-707.51	-381.6	-197.8847		408	6.195	163	281.87			0.74	No, Vu<V
SLV 16	3.61	-625.1	-311.47	318.8884		360	6.195	155	269.57			0.87	No, Vu<V
SLV 3	1.11	-739.23	262.47	307.9772		426	6.195	163	281.87			1.07	Si
SLV 3	3.61	-668.71	194.55	-127.0761		386	6.195	160	278.29			1.43	Si
SLV 12	1.11	-821.6	-198.28	118.4277		474	6.195	163	281.87			1.42	Si
SLV 12	3.61	-719.58	-173.61	246.3758		415	6.195	163	281.87			1.62	Si
SLV 15	1.11	-707.51	-381.6	-197.8847		408	6.195	163	281.87			0.74	No, Vu<V
SLV 15	3.61	-625.1	-311.47	318.8884		360	6.195	155	269.57			0.87	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.31	294	-509.78	5.7809	54.2035	9.38	Si
SLV 10	1438	0.31	294	-509.78	5.7809	54.2035	9.38	Si
SLV 6	1438	0.31	305	-528.71	5.7809	55.5552	9.61	Si
SLV 5	1438	0.31	305	-528.71	5.7809	55.5552	9.61	Si
SLV 13	1438	0.31	331	-573.97	5.7809	58.5946	10.14	Si
SLV 14	1438	0.31	331	-573.97	5.7809	58.5946	10.14	Si
SLV 1	1438	0.31	367	-637.07	5.7809	62.381	10.79	Si
SLV 2	1438	0.31	367	-637.07	5.7809	62.381	10.79	Si
SLV 15	1438	0.31	374	-647.91	5.7809	62.9788	10.89	Si
SLV 16	1438	0.31	374	-647.91	5.7809	62.9788	10.89	Si



## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 2.97  $W_a = 0.0005$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 9	-488.6	-527.36	4.21	0.034	58.852	0.955	0.51647	10.54325	No
SLV 10	-488.6	-527.36	4.21	0.034	58.852	0.955	0.51647	10.54325	No
SLV 6	-499.65	-536.87	4.16	0.034	59.975	0.955	0.51857	10.54325	No
SLV 5	-499.65	-536.87	4.16	0.034	59.975	0.955	0.51857	10.54325	No
SLV 7	-660.73	-831.11	-4.25	0.035	76.357	0.964	0.52398	10.54325	No
SLV 8	-660.73	-831.11	-4.25	0.035	76.357	0.964	0.52398	10.54325	No
SLV 11	-649.68	-821.6	-4.2	0.035	75.233	0.964	0.52465	10.54325	No
SLV 12	-649.68	-821.6	-4.2	0.035	75.233	0.964	0.52465	10.54325	No
SLV 4	-617.24	-739.23	-1.36	0.039	71.933	0.962	0.58681	10.12339	No
SLV 3	-617.24	-739.23	-1.36	0.039	71.933	0.962	0.58681	10.12339	No

### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.561	SLU 82	Si
V_SLU	2.697	SLU 82	Si
PF_SLV	4.28	SLV 13	Si
V_SLV	0.739	SLV 15	No
PFFP_SLV	9.376	SLV 9	Si
R_SLV	0.049	SLV 9	No

## Maschio 77

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	1.046	-4.168	1.046	L3	L4	4.045	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 79	1.11	-693.06	9.8595	612	348.7404	35.371	Si
SLU 79	3.21	-682.91	104.5708	603	358.8254	3.431	Si
SLU 78	1.11	-702.07	8.5323	620	339.4099	39.779	Si
SLU 78	3.21	-691.77	102.1702	611	350.0425	3.426	Si
SLU 84	1.11	-715.77	11.5595	632	324.5331	28.075	Si
SLU 84	3.21	-708.34	106.4789	625	332.698	3.125	Si
SLU 77	1.11	-699.6	9.339	618	341.9965	36.62	Si
SLU 77	3.21	-690.12	105.75	609	351.7086	3.326	Si
SLU 83	1.11	-713.31	12.3661	630	327.2677	26.465	Si
SLU 83	3.21	-706.69	110.0586	624	334.4842	3.039	Si
SLU 82	1.11	-707.37	11.9508	625	333.7503	27.927	Si
SLU 82	3.21	-698.93	103.3676	617	342.6963	3.315	Si
SLU 80	1.11	-695.52	9.0529	614	346.2245	38.245	Si
SLU 80	3.21	-684.57	100.9911	604	357.2117	3.537	Si
SLU 74	1.11	-691.2	9.7304	610	350.6183	36.033	Si
SLU 74	3.21	-680.71	102.6387	601	360.955	3.517	Si
SLU 81	1.11	-704.91	12.7575	622	336.3942	26.368	Si
SLU 81	3.21	-697.28	106.9473	616	344.4142	3.22	Si
SLU 75	1.11	-693.67	8.9237	612	348.1224	39.011	Si
SLU 75	3.21	-682.36	99.0589	602	359.3572	3.628	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 1	1.11	-431.26	232.9708	381	600.4123	2.577	Si
SLV 1	3.21	-337.2	43.9284	298	515.8183	11.742	Si
SLV 14	1.11	-528.24	-232.615	466	660.5661	2.84	Si
SLV 14	3.21	-591.46	85.258	522	684.9736	8.034	Si
SLV 15	1.11	-514.78	-223.2645	455	653.8575	2.929	Si
SLV 15	3.21	-576.4	79.6984	509	680.2193	8.535	Si
SLV 3	1.11	-417.79	242.3213	369	589.8861	2.434	Si
SLV 3	3.21	-322.15	38.3689	284	499.8737	13.028	Si
SLV 4	1.11	-417.79	242.3213	369	589.8861	2.434	Si
SLV 4	3.21	-322.15	38.3689	284	499.8737	13.028	Si
SLV 13	1.11	-528.24	-232.615	466	660.5661	2.84	Si
SLV 13	3.21	-591.46	85.258	522	684.9736	8.034	Si
SLV 16	1.11	-514.78	-223.2645	455	653.8575	2.929	Si
SLV 16	3.21	-576.4	79.6984	509	680.2193	8.535	Si
SLD 3	1.11	-449.1	108.1881	397	613.5456	5.671	Si
SLD 3	3.21	-398.25	51.2165	352	573.6697	11.201	Si
SLV 2	1.11	-431.26	232.9708	381	600.4123	2.577	Si
SLV 2	3.21	-337.2	43.9284	298	515.8183	11.742	Si
SLD 4	1.11	-449.1	108.1881	397	613.5456	5.671	Si
SLD 4	3.21	-398.25	51.2165	352	573.6697	11.201	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1.11	-704.91	-95.47	12.7575		622	4.045	108	122.7			1.29	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	3.21	-697.28	-95.68	106.9473		616	4.045	108	122.7			1.28	Si
SLU 74	1.11	-691.2	-92.1	9.7304		610	4.045	108	122.7			1.33	Si
SLU 74	3.21	-680.71	-92.31	102.6387		601	4.045	108	122.7			1.33	Si
SLU 83	1.11	-713.31	-98.11	12.3661		630	4.045	108	122.7			1.25	Si
SLU 83	3.21	-706.69	-98.32	110.0586		624	4.045	108	122.7			1.25	Si
SLU 80	1.11	-695.52	-91.17	9.0529		614	4.045	108	122.7			1.35	Si
SLU 80	3.21	-684.57	-91.46	100.9911		604	4.045	108	122.7			1.34	Si
SLU 82	1.11	-707.37	-93.34	11.9508		625	4.045	108	122.7			1.31	Si
SLU 82	3.21	-698.93	-93.64	103.3676		617	4.045	108	122.7			1.31	Si
SLU 84	1.11	-715.77	-95.98	11.5595		632	4.045	108	122.7			1.28	Si
SLU 84	3.21	-708.34	-96.28	106.4789		625	4.045	108	122.7			1.27	Si
SLU 75	1.11	-693.67	-89.98	8.9237		612	4.045	108	122.7			1.36	Si
SLU 75	3.21	-682.36	-90.27	99.0589		602	4.045	108	122.7			1.36	Si
SLU 79	1.11	-693.06	-93.3	9.8595		612	4.045	108	122.7			1.32	Si
SLU 79	3.21	-682.91	-93.51	104.5708		603	4.045	108	122.7			1.31	Si
SLU 78	1.11	-702.07	-92.62	8.5323		620	4.045	108	122.7			1.32	Si
SLU 78	3.21	-691.77	-92.91	102.1702		611	4.045	108	122.7			1.32	Si
SLU 77	1.11	-699.6	-94.74	9.339		618	4.045	108	122.7			1.3	Si
SLU 77	3.21	-690.12	-94.95	105.75		609	4.045	108	122.7			1.29	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1.11	-528.24	-269.94	-232.615		466	4.045	163	184.05			0.68	No, Vu<V
SLV 14	3.21	-591.46	-243.58	85.258		522	4.045	163	184.05			0.76	No, Vu<V
SLV 16	1.11	-514.78	-271.77	-223.2645		455	4.045	163	184.05			0.68	No, Vu<V
SLV 16	3.21	-576.4	-235.73	79.6984		509	4.045	163	184.05			0.78	No, Vu<V
SLV 15	1.11	-514.78	-271.77	-223.2645		455	4.045	163	184.05			0.68	No, Vu<V
SLV 15	3.21	-576.4	-235.73	79.6984		509	4.045	163	184.05			0.78	No, Vu<V
SLV 4	1.11	-417.79	158.23	242.3213		369	4.045	157	177.94			1.12	Si
SLV 4	3.21	-322.15	131.59	38.3689		284	4.045	140	158.81			1.21	Si
SLD 15	1.11	-491.24	-150.25	-94.4664		434	4.045	163	184.05			1.22	Si
SLD 15	3.21	-509.04	-134.55	70.1062		449	4.045	163	184.05			1.37	Si
SLV 2	1.11	-431.26	160.07	232.9708		381	4.045	159	180.63			1.13	Si
SLV 2	3.21	-337.2	123.74	43.9284		298	4.045	143	161.82			1.31	Si
SLD 16	1.11	-491.24	-150.25	-94.4664		434	4.045	163	184.05			1.22	Si
SLD 16	3.21	-509.04	-134.55	70.1062		449	4.045	163	184.05			1.37	Si
SLV 13	1.11	-528.24	-269.94	-232.615		466	4.045	163	184.05			0.68	No, Vu<V
SLV 13	3.21	-591.46	-243.58	85.258		522	4.045	163	184.05			0.76	No, Vu<V
SLV 3	1.11	-417.79	158.23	242.3213		369	4.045	157	177.94			1.12	Si
SLV 3	3.21	-322.15	131.59	38.3689		284	4.045	140	158.81			1.21	Si
SLV 1	1.11	-431.26	160.07	232.9708		381	4.045	159	180.63			1.13	Si
SLV 1	3.21	-337.2	123.74	43.9284		298	4.045	143	161.82			1.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.31	299	-338.21	3.7746	35.778	9.48	Si
SLV 4	1438	0.31	299	-338.21	3.7746	35.778	9.48	Si
SLV 2	1438	0.31	311	-352.39	3.7746	36.7721	9.74	Si
SLV 1	1438	0.31	311	-352.39	3.7746	36.7721	9.74	Si
SLV 7	1438	0.31	358	-405.02	3.7746	40.1079	10.63	Si
SLV 8	1438	0.31	358	-405.02	3.7746	40.1079	10.63	Si
SLV 6	1438	0.31	399	-452.27	3.7746	42.6249	11.29	Si
SLV 5	1438	0.31	399	-452.27	3.7746	42.6249	11.29	Si
SLV 11	1438	0.31	421	-476.46	3.7746	43.7388	11.59	Si
SLV 12	1438	0.31	421	-476.46	3.7746	43.7388	11.59	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	$\alpha_{lim}$	Verifica
SLV 8	-376.07	-436.02	-3.19	0.033	44.226	0.96	0.50517	10.54325	No
SLV 7	-376.07	-436.02	-3.19	0.033	44.226	0.96	0.50517	10.54325	No
SLV 10	-430.07	-510.01	3.2	0.034	49.719	0.964	0.51035	10.54325	No
SLV 9	-430.07	-510.01	3.2	0.034	49.719	0.964	0.51035	10.54325	No
SLV 5	-391.06	-480.91	3.04	0.034	45.751	0.961	0.5121	10.54325	No
SLV 6	-391.06	-480.91	3.04	0.034	45.751	0.961	0.5121	10.54325	No
SLV 12	-415.07	-465.12	-3.04	0.034	48.193	0.963	0.51427	10.54325	No
SLV 11	-415.07	-465.12	-3.04	0.034	48.193	0.963	0.51427	10.54325	No
SLV 13	-470.32	-528.24	1.19	0.038	53.816	0.967	0.57273	10.12339	No
SLV 14	-470.32	-528.24	1.19	0.038	53.816	0.967	0.57273	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.039	SLU 83	Si
V_SLU	1.248	SLU 83	Si
PF_SLV	2.434	SLV 3	Si
V_SLV	0.677	SLV 15	No
PFFP_SLV	9.479	SLV 3	Si
R_SLV	0.048	SLV 7	No

## Maschio 78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.693	6.661	-17.768	6.661	L3	L4	1.925	0.28	3.72	3.72	3.72			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	2.01	-215.36	-36.4768	400	105.6108	2.895	Si
SLU 73	3.91	-248.55	1.4404	461	103.8027	72.068	Si
SLU 83	2.01	-227.28	-37.8183	422	105.5171	2.79	Si
SLU 83	3.91	-260.49	0.7905	483	101.9717	128.989	Si
SLU 81	2.01	-225.88	-37.9404	419	105.5604	2.782	Si
SLU 81	3.91	-262.56	2.1922	487	101.5894	46.342	Si
SLU 78	2.01	-220.79	-36.6649	410	105.6455	2.881	Si
SLU 78	3.91	-248.53	-1.0582	461	103.8053	98.093	Si
SLU 82	2.01	-225.87	-37.9725	419	105.5609	2.78	Si
SLU 82	3.91	-262.63	2.2254	487	101.5769	45.645	Si
SLU 75	2.01	-219.39	-36.7869	407	105.6489	2.872	Si
SLU 75	3.91	-250.61	0.3434	465	103.5318	301.5	Si
SLU 84	2.01	-227.27	-37.8504	422	105.5176	2.788	Si
SLU 84	3.91	-260.55	0.8238	483	101.9598	123.774	Si
SLU 74	2.01	-219.4	-36.7549	407	105.6489	2.874	Si
SLU 74	3.91	-250.54	0.3102	465	103.5408	333.817	Si
SLU 77	2.01	-220.8	-36.6328	410	105.6454	2.884	Si
SLU 77	3.91	-248.46	-1.0914	461	103.8137	95.116	Si
SLU 76	2.01	-216.76	-36.3548	402	105.6321	2.906	Si
SLU 76	3.91	-246.47	0.0387	457	104.0575	1000	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	2.01	-76.4	-30.6027	142	65.0042	2.124	Si
SLV 5	3.91	-151.08	19.1013	280	112.0575	5.866	Si
SLV 15	2.01	-177.55	18.9348	329	124.8191	6.592	Si
SLV 15	3.91	-81.13	-59.4216	151	68.4675	1.152	Si
SLV 2	2.01	-120.01	-70.0991	223	94.4633	1.348	Si
SLV 2	3.91	-256.67	59.3878	476	150.7642	2.539	Si
SLV 14	2.01	-135.51	24.4301	251	103.5933	4.24	Si
SLV 14	3.91	-52.02	-58.5666	0	0	0	No, $e \geq l/2$
SLV 4	2.01	-162.05	-75.5944	301	117.5933	1.556	Si
SLV 4	3.91	-285.77	58.5328	530	155.7052	2.66	Si
SLV 6	2.01	-76.4	-30.6027	142	65.0042	2.124	Si
SLV 6	3.91	-151.08	19.1013	280	112.0575	5.866	Si
SLV 13	2.01	-135.51	24.4301	251	103.5933	4.24	Si
SLV 13	3.91	-52.02	-58.5666	0	0	0	No, $e \geq l/2$
SLV 16	2.01	-177.55	18.9348	329	124.8191	6.592	Si
SLV 16	3.91	-81.13	-59.4216	151	68.4675	1.152	Si
SLV 3	2.01	-162.05	-75.5944	301	117.5933	1.556	Si
SLV 3	3.91	-285.77	58.5328	530	155.7052	2.66	Si
SLV 1	2.01	-120.01	-70.0991	223	94.4633	1.348	Si
SLV 1	3.91	-256.67	59.3878	476	150.7642	2.539	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	2.01	-193.21	-43.12	-32.0135		358	1.925	103	55.71			1.29	Si
SLU 40	3.91	-227.02	-43.14	2.7265		421	1.925	108	58.39			1.35	Si
SLU 60	2.01	-202.84	-45.05	-34.645		376	1.925	106	56.99			1.27	Si
SLU 60	3.91	-234	-45.08	1.4114		434	1.925	108	58.39			1.3	Si
SLU 83	2.01	-227.28	-47.48	-37.8183		422	1.925	108	58.39			1.23	Si
SLU 83	3.91	-260.49	-47.54	0.7905		483	1.925	108	58.39			1.23	Si
SLU 81	2.01	-225.88	-49.91	-37.9404		419	1.925	108	58.39			1.17	Si
SLU 81	3.91	-262.56	-49.95	2.1922		487	1.925	108	58.39			1.17	Si
SLU 73	2.01	-215.36	-47.12	-36.4768		400	1.925	108	58.39			1.24	Si
SLU 73	3.91	-248.55	-47.14	1.4404		461	1.925	108	58.39			1.24	Si
SLU 75	2.01	-219.39	-45.78	-36.7869		407	1.925	108	58.39			1.28	Si
SLU 75	3.91	-250.61	-45.82	0.3434		465	1.925	108	58.39			1.27	Si
SLU 82	2.01	-225.87	-49.99	-37.9725		419	1.925	108	58.39			1.17	Si
SLU 82	3.91	-262.63	-50.02	2.2254		487	1.925	108	58.39			1.17	Si
SLU 74	2.01	-219.4	-45.7	-36.7549		407	1.925	108	58.39			1.28	Si
SLU 74	3.91	-250.54	-45.76	0.3102		465	1.925	108	58.39			1.28	Si
SLU 84	2.01	-227.27	-47.55	-37.8504		422	1.925	108	58.39			1.23	Si
SLU 84	3.91	-260.55	-47.6	0.8238		483	1.925	108	58.39			1.23	Si
SLU 61	2.01	-202.83	-45.13	-34.6771		376	1.925	106	56.99			1.26	Si
SLU 61	3.91	-234.07	-45.15	1.4446		434	1.925	108	58.39			1.29	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	2.01	-76.4	-80.15	-30.6027		162	1.6858	116	54.62			0.68	No, $V_u < V$
SLV 6	3.91	-151.08	-86.44	19.1013		280	1.925	139	75.13			0.87	No, $V_u < V$
SLV 3	2.01	-162.05	-143.02	-75.5944		389	1.488	161	67.13			0.47	No, $V_u < V$
SLV 3	3.91	-285.77	-123.63	58.5328		530	1.925	163	87.59			0.71	No, $V_u < V$
SLV 13	2.01	-135.51	79.46	24.4301		251	1.925	134	72.02			0.91	No, $V_u < V$
SLV 13	3.91	-52.02	60	-58.5666		0	0	83	0			0	No, $V_u < V$
SLV 5	2.01	-76.4	-80.15	-30.6027		162	1.6858	116	54.62			0.68	No, $V_u < V$
SLV 5	3.91	-151.08	-86.44	19.1013		280	1.925	139	75.13			0.87	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	2.01	-120.01	-151.28	-70.0991		378	1.1352	159	50.49			0.33	No, Vu<V
SLV 1	3.91	-256.67	-138.53	59.3878		476	1.925	163	87.59			0.63	No, Vu<V
SLV 2	2.01	-120.01	-151.28	-70.0991		378	1.1352	159	50.49			0.33	No, Vu<V
SLV 2	3.91	-256.67	-138.53	59.3878		476	1.925	163	87.59			0.63	No, Vu<V
SLV 16	2.01	-177.55	87.71	18.9348		329	1.925	149	80.43			0.92	No, Vu<V
SLV 16	3.91	-81.13	74.9	-59.4216		420	0.6902	163	31.4			0.42	No, Vu<V
SLV 15	2.01	-177.55	87.71	18.9348		329	1.925	149	80.43			0.92	No, Vu<V
SLV 15	3.91	-81.13	74.9	-59.4216		420	0.6902	163	31.4			0.42	No, Vu<V
SLV 14	2.01	-135.51	79.46	24.4301		251	1.925	134	72.02			0.91	No, Vu<V
SLV 14	3.91	-52.02	60	-58.5666		0	0	83	0			0	No, Vu<V
SLV 4	2.01	-162.05	-143.02	-75.5944		389	1.488	161	67.13			0.47	No, Vu<V
SLV 4	3.91	-285.77	-123.63	58.5328		530	1.925	163	87.59			0.71	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	1438	0.31	169	-91.19	1.7555	10.9993	6.27	Si
SLV 14	1438	0.31	169	-91.19	1.7555	10.9993	6.27	Si
SLV 10	1438	0.31	170	-91.66	1.7555	11.0468	6.29	Si
SLV 9	1438	0.31	170	-91.66	1.7555	11.0468	6.29	Si
SLV 16	1438	0.31	233	-125.55	1.7555	14.2259	8.1	Si
SLV 15	1438	0.31	233	-125.55	1.7555	14.2259	8.1	Si
SLV 5	1438	0.31	235	-126.42	1.7555	14.3014	8.15	Si
SLV 6	1438	0.31	235	-126.42	1.7555	14.3014	8.15	Si
SLV 12	1438	0.31	383	-206.17	1.7555	19.8282	11.29	Si
SLV 11	1438	0.31	383	-206.17	1.7555	19.8282	11.29	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-207.86	-196.61	0.63	0.038	23.986	0.965	0.57039	10.54325	No
SLV 7	-207.86	-196.61	0.63	0.038	23.986	0.965	0.57039	10.54325	No
SLV 12	-151.16	-188.44	0.66	0.038	18.22	0.955	0.57467	10.54325	No
SLV 11	-151.16	-188.44	0.66	0.038	18.22	0.955	0.57467	10.54325	No
SLV 6	-164.57	-79.53	-0.58	0.038	19.583	0.957	0.57924	10.54325	No
SLV 5	-164.57	-79.53	-0.58	0.038	19.583	0.957	0.57924	10.54325	No
SLV 10	-107.87	-71.36	-0.55	0.039	13.827	0.942	0.59608	10.54325	No
SLV 9	-107.87	-71.36	-0.55	0.039	13.827	0.942	0.59608	10.54325	No
SLV 4	-258.85	-165.15	0.17	0.039	29.176	0.97	0.59127	10.12339	No
SLV 3	-258.85	-165.15	0.17	0.039	29.176	0.97	0.59127	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.78	SLU 82	Si
V_SLU	1.167	SLU 82	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	6.266	SLV 13	Si
R_SLV	0.054	SLV 7	No

## Maschio 79

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-16.768	6.661	-12.888	6.661	L3	L4	3.88	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	2.01	-550.88	-62.665	507	403.4502	6.438	Si
SLU 84	3.91	-596.11	-19.4294	549	377.4688	19.428	Si
SLU 75	2.01	-530.66	-60.4503	488	412.1611	6.818	Si
SLU 75	3.91	-572.46	-19.0824	527	392.1733	20.552	Si
SLU 73	2.01	-520.8	-60.7067	479	415.7622	6.849	Si
SLU 73	3.91	-562.58	-18.2913	518	397.5903	21.737	Si
SLU 77	2.01	-534	-59.0218	492	410.8455	6.961	Si
SLU 77	3.91	-574.29	-19.9334	529	391.1195	19.621	Si
SLU 74	2.01	-530.78	-60.3659	489	412.1143	6.827	Si
SLU 74	3.91	-572.62	-19.1062	527	392.0827	20.521	Si
SLU 81	2.01	-547.78	-63.9249	504	404.9012	6.334	Si
SLU 81	3.91	-594.59	-18.6259	547	378.4865	20.32	Si
SLU 78	2.01	-533.88	-59.1061	491	410.894	6.952	Si
SLU 78	3.91	-574.13	-19.9097	528	391.2113	19.649	Si
SLU 76	2.01	-524.01	-59.3626	482	414.6344	6.985	Si
SLU 76	3.91	-564.25	-19.1186	519	396.701	20.75	Si
SLU 82	2.01	-547.66	-64.0092	504	404.9571	6.327	Si
SLU 82	3.91	-594.43	-18.6022	547	378.5925	20.352	Si
SLU 83	2.01	-551	-62.5807	507	403.3927	6.446	Si
SLU 83	3.91	-596.27	-19.4532	549	377.3617	19.398	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	2.01	-341.84	-206.0901	315	492.3962	2.389	Si
SLV 2	3.91	-387.52	214.7606	357	532.3216	2.479	Si
SLV 16	2.01	-373.88	123.3253	344	521.0323	4.225	Si
SLV 16	3.91	-377.51	-241.6551	347	524.0884	2.169	Si
SLV 3	2.01	-401.68	-261.8247	370	543.4572	2.076	Si
SLV 3	3.91	-421.11	187.8276	388	557.7904	2.97	Si
SLV 7	2.01	-461.75	-192.0459	425	584.1963	3.042	Si
SLV 7	3.91	-445.04	6.0868	410	573.9206	94.29	Si
SLV 14	2.01	-314.04	179.0599	289	465.1088	2.598	Si
SLV 14	3.91	-343.92	-214.7221	317	494.3381	2.302	Si
SLV 15	2.01	-373.88	123.3253	344	521.0323	4.225	Si
SLV 15	3.91	-377.51	-241.6551	347	524.0884	2.169	Si
SLV 8	2.01	-461.75	-192.0459	425	584.1963	3.042	Si
SLV 8	3.91	-445.04	6.0868	410	573.9206	94.29	Si
SLV 4	2.01	-401.68	-261.8247	370	543.4572	2.076	Si
SLV 4	3.91	-421.11	187.8276	388	557.7904	2.97	Si
SLV 1	2.01	-341.84	-206.0901	315	492.3962	2.389	Si
SLV 1	3.91	-387.52	214.7606	357	532.3216	2.479	Si
SLV 13	2.01	-314.04	179.0599	289	465.1088	2.598	Si
SLV 13	3.91	-343.92	-214.7221	317	494.3381	2.302	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	2.01	-530.66	-32.73	-60.4503		488	3.88	108	117.69			3.6	Si
SLU 75	3.91	-572.46	-32.73	-19.0824		527	3.88	108	117.69			3.6	Si
SLU 81	2.01	-547.78	-35.41	-63.9249		504	3.88	108	117.69			3.32	Si
SLU 81	3.91	-594.59	-35.4	-18.6259		547	3.88	108	117.69			3.32	Si
SLU 83	2.01	-551	-34.08	-62.5807		507	3.88	108	117.69			3.45	Si
SLU 83	3.91	-596.27	-34.07	-19.4532		549	3.88	108	117.69			3.45	Si
SLU 60	2.01	-490.03	-31.65	-57.4745		451	3.88	108	117.69			3.72	Si
SLU 60	3.91	-528.07	-31.64	-17.1673		486	3.88	108	117.69			3.72	Si
SLU 82	2.01	-547.66	-35.46	-64.0092		504	3.88	108	117.69			3.32	Si
SLU 82	3.91	-594.43	-35.46	-18.6022		547	3.88	108	117.69			3.32	Si
SLU 76	2.01	-524.01	-31.95	-59.3626		482	3.88	108	117.69			3.68	Si
SLU 76	3.91	-564.25	-31.95	-19.1186		519	3.88	108	117.69			3.68	Si
SLU 61	2.01	-489.91	-31.7	-57.5588		451	3.88	108	117.69			3.71	Si
SLU 61	3.91	-527.91	-31.69	-17.1435		486	3.88	108	117.69			3.71	Si
SLU 84	2.01	-550.88	-34.13	-62.665		507	3.88	108	117.69			3.45	Si
SLU 84	3.91	-596.11	-34.13	-19.4294		549	3.88	108	117.69			3.45	Si
SLU 73	2.01	-520.8	-33.28	-60.7067		479	3.88	108	117.69			3.54	Si
SLU 73	3.91	-562.58	-33.28	-18.2913		518	3.88	108	117.69			3.54	Si
SLU 74	2.01	-530.78	-32.68	-60.3659		489	3.88	108	117.69			3.6	Si
SLU 74	3.91	-572.62	-32.67	-19.1062		527	3.88	108	117.69			3.6	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	2.01	-373.88	210.33	123.3253		344	3.88	152	165.31			0.79	No, Vu<V
SLV 16	3.91	-377.51	178.26	-241.6551		347	3.88	153	166.03			0.93	No, Vu<V
SLV 3	2.01	-401.68	-252.79	-261.8247		371	3.8645	158	170.51			0.67	No, Vu<V
SLV 3	3.91	-421.11	-220.48	187.8276		388	3.88	161	174.76			0.79	No, Vu<V
SLD 1	2.01	-351.39	-123.78	-113.9249		323	3.88	148	160.81			1.3	Si
SLD 1	3.91	-384.98	-109.95	85.9609		354	3.88	154	167.53			1.52	Si
SLV 1	2.01	-341.84	-254.75	-206.0901		315	3.88	146	158.9			0.62	No, Vu<V
SLV 1	3.91	-387.52	-222.67	214.7606		357	3.88	155	168.04			0.75	No, Vu<V
SLV 14	2.01	-314.04	208.37	179.0599		289	3.88	141	153.34			0.74	No, Vu<V
SLV 14	3.91	-343.92	176.07	-214.7221		317	3.88	147	159.32			0.9	No, Vu<V
SLV 2	2.01	-341.84	-254.75	-206.0901		315	3.88	146	158.9			0.62	No, Vu<V
SLV 2	3.91	-387.52	-222.67	214.7606		357	3.88	155	168.04			0.75	No, Vu<V
SLV 15	2.01	-373.88	210.33	123.3253		344	3.88	152	165.31			0.79	No, Vu<V
SLV 15	3.91	-377.51	178.26	-241.6551		347	3.88	153	166.03			0.93	No, Vu<V
SLD 2	2.01	-351.39	-123.78	-113.9249		323	3.88	148	160.81			1.3	Si
SLD 2	3.91	-384.98	-109.95	85.9609		354	3.88	154	167.53			1.52	Si
SLV 4	2.01	-401.68	-252.79	-261.8247		371	3.8645	158	170.51			0.67	No, Vu<V
SLV 4	3.91	-421.11	-220.48	187.8276		388	3.88	161	174.76			0.79	No, Vu<V
SLV 13	2.01	-314.04	208.37	179.0599		289	3.88	141	153.34			0.74	No, Vu<V
SLV 13	3.91	-343.92	176.07	-214.7221		317	3.88	147	159.32			0.9	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.31	280	-304.21	3.5384	32.829	9.28	Si
SLV 10	1438	0.31	280	-304.21	3.5384	32.829	9.28	Si
SLV 5	1438	0.31	291	-315.8	3.5384	33.6941	9.52	Si
SLV 6	1438	0.31	291	-315.8	3.5384	33.6941	9.52	Si
SLV 13	1438	0.31	313	-340.48	3.5384	35.441	10.02	Si
SLV 14	1438	0.31	313	-340.48	3.5384	35.441	10.02	Si
SLV 1	1438	0.31	349	-379.13	3.5384	37.9186	10.72	Si
SLV 2	1438	0.31	349	-379.13	3.5384	37.9186	10.72	Si
SLV 16	1438	0.31	353	-383.17	3.5384	38.1593	10.78	Si
SLV 15	1438	0.31	353	-383.17	3.5384	38.1593	10.78	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-285.85	-208.72	6.56	0.022	34.812	0.952	0.32832	10.54325	No
SLV 9	-285.85	-208.72	6.56	0.022	34.812	0.952	0.32832	10.54325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 5	-293.57	-210.7	6.56	0.022	35.595	0.953	0.33374	10.54325	No
SLV 6	-293.57	-210.7	6.56	0.022	35.595	0.953	0.33374	10.54325	No
SLV 12	-361.5	-422.6	-6.61	0.024	42.5	0.96	0.37032	10.54325	No
SLV 11	-361.5	-422.6	-6.61	0.024	42.5	0.96	0.37032	10.54325	No
SLV 7	-369.21	-424.58	-6.61	0.025	43.285	0.961	0.37386	10.54325	No
SLV 8	-369.21	-424.58	-6.61	0.025	43.285	0.961	0.37386	10.54325	No
SLV 15	-326.02	-345.42	-2	0.036	38.893	0.957	0.54524	10.12339	No
SLV 16	-326.02	-345.42	-2	0.036	38.893	0.957	0.54524	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.327	SLU 82	Si
V_SLU	3.319	SLU 82	Si
PF_SLV	2.076	SLV 3	Si
V_SLV	0.624	SLV 1	No
PFFP_SLV	9.278	SLV 9	Si
R_SLV	0.031	SLV 9	No

## Maschio 80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.888	6.661	-8.008	6.661	L3	L4	3.88	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 79	2.01	-564.27	57.2537	519	396.6934	6.929	Si
SLU 79	3.91	-515.04	41.595	474	417.6668	10.041	Si
SLU 83	2.01	-586.87	57.9926	540	383.5044	6.613	Si
SLU 83	3.91	-537.64	42.6437	495	409.3566	9.599	Si
SLU 78	2.01	-570.44	57.6456	525	393.3167	6.823	Si
SLU 78	3.91	-521.21	41.897	480	415.6214	9.92	Si
SLU 75	2.01	-563.64	55.4801	519	397.0257	7.156	Si
SLU 75	3.91	-514.41	41.0241	474	417.8645	10.186	Si
SLU 77	2.01	-570.92	57.6622	526	393.0456	6.816	Si
SLU 77	3.91	-521.69	42.084	480	415.4545	9.872	Si
SLU 84	2.01	-586.39	57.976	540	383.8092	6.62	Si
SLU 84	3.91	-537.16	42.4567	494	409.5573	9.646	Si
SLU 74	2.01	-564.13	55.4967	519	396.769	7.149	Si
SLU 74	3.91	-514.9	41.2111	474	417.7119	10.136	Si
SLU 81	2.01	-580.08	55.8271	534	387.7029	6.945	Si
SLU 81	3.91	-530.85	41.7708	489	412.0891	9.865	Si
SLU 80	2.01	-563.79	57.2371	519	396.9503	6.935	Si
SLU 80	3.91	-514.56	41.408	474	417.8197	10.09	Si
SLU 82	2.01	-579.6	55.8105	534	387.9933	6.952	Si
SLU 82	3.91	-530.37	41.5838	488	412.2754	9.914	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	2.01	-417.79	222.0784	385	555.4211	2.501	Si
SLV 13	3.91	-373.51	-196.9605	344	520.7243	2.644	Si
SLV 1	2.01	-333.38	-167.2101	307	484.3315	2.897	Si
SLV 1	3.91	-288.48	208.3558	266	438.0249	2.102	Si
SLV 14	2.01	-417.79	222.0784	385	555.4211	2.501	Si
SLV 14	3.91	-373.51	-196.9605	344	520.7243	2.644	Si
SLV 2	2.01	-333.38	-167.2101	307	484.3315	2.897	Si
SLV 2	3.91	-288.48	208.3558	266	438.0249	2.102	Si
SLV 15	2.01	-419.57	239.0794	386	556.6963	2.328	Si
SLV 15	3.91	-389	-153.2893	358	533.5153	3.48	Si
SLV 3	2.01	-335.16	-150.209	309	486.046	3.236	Si
SLV 3	3.91	-303.97	252.027	280	454.6665	1.804	Si
SLV 7	2.01	-366.79	5.8765	338	514.9517	87.629	Si
SLV 7	3.91	-351.81	161.116	324	501.624	3.113	Si
SLV 8	2.01	-366.79	5.8765	338	514.9517	87.629	Si
SLV 8	3.91	-351.81	161.116	324	501.624	3.113	Si
SLV 4	2.01	-335.16	-150.209	309	486.046	3.236	Si
SLV 4	3.91	-303.97	252.027	280	454.6665	1.804	Si
SLV 16	2.01	-419.57	239.0794	386	556.6963	2.328	Si
SLV 16	3.91	-389	-153.2893	358	533.5153	3.48	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	2.01	-563.64	7.62	55.4801		519	3.88	108	117.69			15.45	Si
SLU 75	3.91	-514.41	7.62	41.0241		474	3.88	108	117.69			15.45	Si
SLU 83	2.01	-586.87	8.09	57.9926		540	3.88	108	117.69			14.55	Si
SLU 83	3.91	-537.64	8.09	42.6437		495	3.88	108	117.69			14.55	Si
SLU 38	2.01	-483.94	7.68	49.9591		445	3.88	108	117.69			15.33	Si
SLU 38	3.91	-445.78	7.68	35.3884		410	3.88	108	117.69			15.33	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	2.01	-490.59	7.63	50.3676		452	3.88	108	117.69			15.42	Si
SLU 36	3.91	-452.43	7.63	35.8774		416	3.88	108	117.69			15.42	Si
SLU 78	2.01	-570.44	8.3	57.6456		525	3.88	108	117.69			14.18	Si
SLU 78	3.91	-521.21	8.3	41.897		480	3.88	108	117.69			14.18	Si
SLU 76	2.01	-556.67	7.72	55.0605		512	3.88	108	117.69			15.24	Si
SLU 76	3.91	-507.44	7.72	40.4104		467	3.88	108	117.69			15.24	Si
SLU 84	2.01	-586.39	8.18	57.976		540	3.88	108	117.69			14.39	Si
SLU 84	3.91	-537.16	8.18	42.4567		494	3.88	108	117.69			14.39	Si
SLU 79	2.01	-564.27	8.25	57.2537		519	3.88	108	117.69			14.26	Si
SLU 79	3.91	-515.04	8.25	41.595		474	3.88	108	117.69			14.26	Si
SLU 80	2.01	-563.79	8.34	57.2371		519	3.88	108	117.69			14.11	Si
SLU 80	3.91	-514.56	8.34	41.408		474	3.88	108	117.69			14.11	Si
SLU 77	2.01	-570.92	8.21	57.6622		526	3.88	108	117.69			14.34	Si
SLU 77	3.91	-521.69	8.21	42.084		480	3.88	108	117.69			14.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	2.01	-333.38	-221.77	-167.2101		307	3.88	145	157.21			0.71	No, Vu<V
SLV 2	3.91	-288.48	-192.87	208.3558		282	3.6532	140	142.94			0.74	No, Vu<V
SLV 14	2.01	-417.79	225.41	222.0784		385	3.88	160	174.09			0.77	No, Vu<V
SLV 14	3.91	-373.51	194.98	-196.9605		344	3.88	152	165.24			0.85	No, Vu<V
SLD 16	2.01	-395.57	103.17	124.5438		364	3.88	156	169.65			1.64	Si
SLD 16	3.91	-360.75	90.68	-51.8442		332	3.88	150	162.68			1.79	Si
SLD 15	2.01	-395.57	103.17	124.5438		364	3.88	156	169.65			1.64	Si
SLD 15	3.91	-360.75	90.68	-51.8442		332	3.88	150	162.68			1.79	Si
SLV 4	2.01	-335.16	-216.55	-150.209		309	3.88	145	157.57			0.73	No, Vu<V
SLV 4	3.91	-303.97	-186.12	252.027		326	3.3326	148	138.56			0.74	No, Vu<V
SLV 1	2.01	-333.38	-221.77	-167.2101		307	3.88	145	157.21			0.71	No, Vu<V
SLV 1	3.91	-288.48	-192.87	208.3558		282	3.6532	140	142.94			0.74	No, Vu<V
SLV 16	2.01	-419.57	230.63	239.0794		386	3.88	161	174.45			0.76	No, Vu<V
SLV 16	3.91	-389	201.73	-153.2893		358	3.88	155	168.33			0.83	No, Vu<V
SLV 15	2.01	-419.57	230.63	239.0794		386	3.88	161	174.45			0.76	No, Vu<V
SLV 15	3.91	-389	201.73	-153.2893		358	3.88	155	168.33			0.83	No, Vu<V
SLV 13	2.01	-417.79	225.41	222.0784		385	3.88	160	174.09			0.77	No, Vu<V
SLV 13	3.91	-373.51	194.98	-196.9605		344	3.88	152	165.24			0.85	No, Vu<V
SLV 3	2.01	-335.16	-216.55	-150.209		309	3.88	145	157.57			0.73	No, Vu<V
SLV 3	3.91	-303.97	-186.12	252.027		326	3.3326	148	138.56			0.74	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.31	280	-304.37	3.5384	32.8411	9.28	Si
SLV 2	1438	0.31	280	-304.37	3.5384	32.8411	9.28	Si
SLV 6	1438	0.31	291	-316.51	3.5384	33.7457	9.54	Si
SLV 5	1438	0.31	291	-316.51	3.5384	33.7457	9.54	Si
SLV 4	1438	0.31	294	-319.08	3.5384	33.9333	9.59	Si
SLV 3	1438	0.31	294	-319.08	3.5384	33.9333	9.59	Si
SLV 10	1438	0.31	314	-341.62	3.5384	35.5187	10.04	Si
SLV 9	1438	0.31	314	-341.62	3.5384	35.5187	10.04	Si
SLV 8	1438	0.31	336	-365.54	3.5384	37.0834	10.48	Si
SLV 7	1438	0.31	336	-365.54	3.5384	37.0834	10.48	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-286.39	-395.97	-2.11	0.035	34.866	0.952	0.53932	10.54325	No
SLV 9	-286.39	-395.97	-2.11	0.035	34.866	0.952	0.53932	10.54325	No
SLV 5	-269.67	-364.77	-2.05	0.035	33.168	0.95	0.54169	10.54325	No
SLV 6	-269.67	-364.77	-2.05	0.035	33.168	0.95	0.54169	10.54325	No
SLV 7	-288.98	-335.59	1.79	0.036	35.129	0.953	0.55429	10.54325	No
SLV 8	-288.98	-335.59	1.79	0.036	35.129	0.953	0.55429	10.54325	No
SLV 11	-305.7	-366.79	1.73	0.037	36.828	0.955	0.55686	10.54325	No
SLV 12	-305.7	-366.79	1.73	0.037	36.828	0.955	0.55686	10.54325	No
SLV 13	-312.65	-422.15	-0.84	0.039	37.534	0.955	0.59568	10.12339	No
SLV 14	-312.65	-422.15	-0.84	0.039	37.534	0.955	0.59568	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.613	SLU 83	Si
V_SLU	14.11	SLU 80	Si
PF_SLV	1.804	SLV 3	Si
V_SLV	0.709	SLV 1	No
PFFP_SLV	9.281	SLV 1	Si
R_SLV	0.051	SLV 9	No

## Maschio 81

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-7.008	6.661	-5.158	6.661	L3	L4	1.85	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 80	2.01	-239.42	50.246	462	95.8033	1.907	Si
SLU 80	3.91	-313.82	-1.724	606	74.3899	43.149	Si
SLU 75	2.01	-234.64	49.266	453	96.349	1.956	Si
SLU 75	3.91	-310.17	-3.977	599	76.0066	19.111	Si
SLU 84	2.01	-243.72	50.9755	470	95.2273	1.868	Si
SLU 84	3.91	-323.2	-4.63	624	69.9662	15.111	Si
SLU 78	2.01	-241.48	50.6829	466	95.5367	1.885	Si
SLU 78	3.91	-317.37	-2.2109	613	72.7618	32.911	Si
SLU 77	2.01	-241.98	50.7318	467	95.4694	1.882	Si
SLU 77	3.91	-317.82	-2.0489	614	72.55	35.409	Si
SLU 81	2.01	-237.38	49.6076	458	96.0492	1.936	Si
SLU 81	3.91	-316.46	-6.2342	611	73.186	11.739	Si
SLU 79	2.01	-239.92	50.2949	463	95.7405	1.904	Si
SLU 79	3.91	-314.28	-1.5621	607	74.1852	47.491	Si
SLU 83	2.01	-244.22	51.0244	471	95.1551	1.865	Si
SLU 83	3.91	-323.66	-4.4681	625	69.7428	15.609	Si
SLU 74	2.01	-235.14	49.315	454	96.2967	1.953	Si
SLU 74	3.91	-310.63	-3.8151	600	75.8091	19.871	Si
SLU 82	2.01	-236.88	49.5586	457	96.1065	1.939	Si
SLU 82	3.91	-316.01	-6.3962	610	73.3951	11.475	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 12	2.01	-181.13	74.4679	350	119.5984	1.606	Si
SLV 12	3.91	-272.13	-16.8603	525	143.4931	8.511	Si
SLV 2	2.01	-144.58	-29.1325	279	103.1882	3.542	Si
SLV 2	3.91	-97.62	54.4244	188	76.3723	1.403	Si
SLV 13	2.01	-152.2	79.9505	294	106.9308	1.337	Si
SLV 13	3.91	-285.9	-60.8551	552	145.0001	2.383	Si
SLV 1	2.01	-144.58	-29.1325	279	103.1882	3.542	Si
SLV 1	3.91	-97.62	54.4244	188	76.3723	1.403	Si
SLV 3	2.01	-159.17	-14.0419	307	110.2042	7.848	Si
SLV 3	3.91	-121.68	56.1076	235	90.9165	1.62	Si
SLV 15	2.01	-166.78	95.0411	322	113.622	1.196	Si
SLV 15	3.91	-309.96	-59.1719	598	146.3035	2.473	Si
SLV 14	2.01	-152.2	79.9505	294	106.9308	1.337	Si
SLV 14	3.91	-285.9	-60.8551	552	145.0001	2.383	Si
SLV 11	2.01	-181.13	74.4679	350	119.5984	1.606	Si
SLV 11	3.91	-272.13	-16.8603	525	143.4931	8.511	Si
SLV 16	2.01	-166.78	95.0411	322	113.622	1.196	Si
SLV 16	3.91	-309.96	-59.1719	598	146.3035	2.473	Si
SLV 4	2.01	-159.17	-14.0419	307	110.2042	7.848	Si
SLV 4	3.91	-121.68	56.1076	235	90.9165	1.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	2.01	-244.22	79.58	51.0244		471	1.85	108	56.12			0.71	No, Vu<V
SLU 83	3.91	-323.66	79.28	-4.4681		625	1.85	108	56.12			0.71	No, Vu<V
SLU 81	2.01	-237.38	79.58	49.6076		458	1.85	108	56.12			0.71	No, Vu<V
SLU 81	3.91	-316.46	79.29	-6.2342		611	1.85	108	56.12			0.71	No, Vu<V
SLU 73	2.01	-225.41	75.34	47.3797		435	1.85	108	56.12			0.74	No, Vu<V
SLU 73	3.91	-299.12	75.05	-5.3643		577	1.85	108	56.12			0.75	No, Vu<V
SLU 74	2.01	-235.14	76.4	49.315		454	1.85	108	56.12			0.73	No, Vu<V
SLU 74	3.91	-310.63	76.11	-3.8151		600	1.85	108	56.12			0.74	No, Vu<V
SLU 78	2.01	-241.48	76.49	50.6829		466	1.85	108	56.12			0.73	No, Vu<V
SLU 78	3.91	-317.37	76.17	-2.2109		613	1.85	108	56.12			0.74	No, Vu<V
SLU 76	2.01	-232.25	75.34	48.7965		448	1.85	108	56.12			0.74	No, Vu<V
SLU 76	3.91	-306.32	75.03	-3.5982		591	1.85	108	56.12			0.75	No, Vu<V
SLU 82	2.01	-236.88	79.67	49.5586		457	1.85	108	56.12			0.7	No, Vu<V
SLU 82	3.91	-316.01	79.37	-6.3962		610	1.85	108	56.12			0.71	No, Vu<V
SLU 75	2.01	-234.64	76.49	49.266		453	1.85	108	56.12			0.73	No, Vu<V
SLU 75	3.91	-310.17	76.19	-3.977		599	1.85	108	56.12			0.74	No, Vu<V
SLU 77	2.01	-241.98	76.4	50.7318		467	1.85	108	56.12			0.73	No, Vu<V
SLU 77	3.91	-317.82	76.09	-2.0489		614	1.85	108	56.12			0.74	No, Vu<V
SLU 84	2.01	-243.72	79.67	50.9755		470	1.85	108	56.12			0.7	No, Vu<V
SLU 84	3.91	-323.2	79.35	-4.63		624	1.85	108	56.12			0.71	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	2.01	-152.2	154.47	79.9505		453	1.1991	163	54.56			0.35	No, Vu<V
SLV 14	3.91	-285.9	141.08	-60.8551		552	1.85	163	84.17			0.6	No, Vu<V
SLV 15	2.01	-166.78	168.5	95.0411		559	1.0655	163	48.48			0.29	No, Vu<V
SLV 15	3.91	-309.96	150.46	-59.1719		598	1.85	163	84.17			0.56	No, Vu<V
SLD 14	2.01	-154.34	96.33	53.6489		318	1.7322	147	71.29			0.74	No, Vu<V
SLD 14	3.91	-240	90.38	-27.9254		463	1.85	163	84.17			0.93	No, Vu<V
SLD 13	2.01	-154.34	96.33	53.6489		318	1.7322	147	71.29			0.74	No, Vu<V
SLD 13	3.91	-240	90.38	-27.9254		463	1.85	163	84.17			0.93	No, Vu<V
SLD 16	2.01	-160.5	102.27	59.9854		347	1.6537	153	70.69			0.69	No, Vu<V
SLD 16	3.91	-250.1	94.34	-27.2772		483	1.85	163	84.17			0.89	No, Vu<V
SLD 15	2.01	-160.5	102.27	59.9854		347	1.6537	153	70.69			0.69	No, Vu<V
SLD 15	3.91	-250.1	94.34	-27.2772		483	1.85	163	84.17			0.89	No, Vu<V
SLV 11	2.01	-181.13	107.49	74.4679		420	1.5416	163	70.14			0.65	No, Vu<V
SLV 11	3.91	-272.13	94.91	-16.8603		525	1.85	163	84.17			0.89	No, Vu<V
SLV 13	2.01	-152.2	154.47	79.9505		453	1.1991	163	54.56			0.35	No, Vu<V
SLV 13	3.91	-285.9	141.08	-60.8551		552	1.85	163	84.17			0.6	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	2.01	-181.13	107.49	74.4679		420	1.5416	163	70.14			0.65	No, Vu<V
SLV 12	3.91	-272.13	94.91	-16.8603		525	1.85	163	84.17			0.89	No, Vu<V
SLV 16	2.01	-166.78	168.5	95.0411		559	1.0655	163	48.48			0.29	No, Vu<V
SLV 16	3.91	-309.96	150.46	-59.1719		598	1.85	163	84.17			0.56	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.31	245	-126.88	1.6871	14.2025	8.42	Si
SLV 2	1438	0.31	245	-126.88	1.6871	14.2025	8.42	Si
SLV 5	1438	0.31	272	-140.82	1.6871	15.3288	9.09	Si
SLV 6	1438	0.31	272	-140.82	1.6871	15.3288	9.09	Si
SLV 3	1438	0.31	279	-144.64	1.6871	15.6222	9.26	Si
SLV 4	1438	0.31	279	-144.64	1.6871	15.6222	9.26	Si
SLV 10	1438	0.31	329	-170.53	1.6871	17.4421	10.34	Si
SLV 9	1438	0.31	329	-170.53	1.6871	17.4421	10.34	Si
SLV 7	1438	0.31	386	-200.02	1.6871	19.1535	11.35	Si
SLV 8	1438	0.31	386	-200.02	1.6871	19.1535	11.35	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-183.31	-64.18	0.34	0.039	21.378	0.962	0.59207	10.54325	No
SLV 9	-183.31	-64.18	0.34	0.039	21.378	0.962	0.59207	10.54325	No
SLV 14	-249.63	-98.94	0.37	0.039	28.128	0.971	0.57969	10.12339	No
SLV 13	-249.63	-98.94	0.37	0.039	28.128	0.971	0.57969	10.12339	No
SLV 11	-215.26	-151.84	-0.04	0.04	24.629	0.967	0.60521	10.54325	No
SLV 12	-215.26	-151.84	-0.04	0.04	24.629	0.967	0.60521	10.54325	No
SLV 8	-168	-148.34	-0.18	0.04	19.821	0.959	0.6088	10.54325	No
SLV 7	-168	-148.34	-0.18	0.04	19.821	0.959	0.6088	10.54325	No
SLV 15	-259.21	-125.24	0.25	0.039	29.103	0.971	0.5848	10.12339	No
SLV 16	-259.21	-125.24	0.25	0.039	29.103	0.971	0.5848	10.12339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.865	SLU 83	Si
V_SLU	0.704	SLU 84	No
PF_SLV	1.196	SLV 15	Si
V_SLV	0.288	SLV 15	No
PFFP_SLV	8.418	SLV 1	Si
R_SLV	0.056	SLV 9	No

## Maschio 82

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-4.709	-11.003	-3.314	L3	Z medio 313 cm	1.395	0.28	2.02	2.02	2.02			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	1.11	-251.27	-22.5658	643	36.8534	1.633	Si
SLU 76	3.13	-166.89	4.5543	427	55.3486	12.153	Si
SLU 78	1.11	-259.34	-23.7674	664	33.4478	1.407	Si
SLU 78	3.13	-172.65	4.7776	442	55.0785	11.529	Si
SLU 77	1.11	-259.96	-23.975	666	33.1757	1.384	Si
SLU 77	3.13	-173.12	4.8536	443	55.0505	11.342	Si
SLU 80	1.11	-259.65	-23.972	665	33.3132	1.39	Si
SLU 80	3.13	-172.83	4.7108	442	55.0682	11.69	Si
SLU 79	1.11	-260.27	-24.1795	666	33.0403	1.366	Si
SLU 79	3.13	-173.29	4.7869	444	55.0398	11.498	Si
SLU 84	1.11	-261.88	-23.3984	670	32.3174	1.381	Si
SLU 84	3.13	-174.37	5.2846	446	54.9703	10.402	Si
SLU 83	1.11	-262.5	-23.6059	672	32.0385	1.357	Si
SLU 83	3.13	-174.83	5.3607	448	54.9388	10.249	Si
SLU 82	1.11	-253.92	-22.1305	650	35.7691	1.616	Si
SLU 82	3.13	-168.73	5.1787	432	55.278	10.674	Si
SLU 74	1.11	-251.99	-22.7071	645	36.5602	1.61	Si
SLU 74	3.13	-167.49	4.7478	429	55.3273	11.653	Si
SLU 81	1.11	-254.53	-22.338	652	35.5117	1.59	Si
SLU 81	3.13	-169.2	5.2548	433	55.2579	10.516	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	1.11	-301.45	-46.1313	772	77.4556	1.679	Si
SLV 10	3.13	-190.71	2.5701	488	79.867	31.076	Si
SLV 14	1.11	-234.65	-41.2194	601	83.1997	2.018	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	3.13	-133.16	0.608	341	66.964	110.141	Si
SLV 5	1.11	-286.26	-35.2916	733	79.9071	2.264	Si
SLV 5	3.13	-193.35	3.8802	495	80.2267	20.676	Si
SLV 7	1.11	-44.77	14.8748	115	28.299	1.902	Si
SLV 7	3.13	-37.71	2.6413	97	24.2257	9.172	Si
SLV 6	1.11	-286.26	-35.2916	733	79.9071	2.264	Si
SLV 6	3.13	-193.35	3.8802	495	80.2267	20.676	Si
SLV 15	1.11	-162.2	-26.1695	415	74.6852	2.854	Si
SLV 15	3.13	-86.46	0.2363	221	49.3827	208.971	Si
SLV 16	1.11	-162.2	-26.1695	415	74.6852	2.854	Si
SLV 16	3.13	-86.46	0.2363	221	49.3827	208.971	Si
SLV 9	1.11	-301.45	-46.1313	772	77.4556	1.679	Si
SLV 9	3.13	-190.71	2.5701	488	79.867	31.076	Si
SLV 13	1.11	-234.65	-41.2194	601	83.1997	2.018	Si
SLV 13	3.13	-133.16	0.608	341	66.964	110.141	Si
SLV 8	1.11	-44.77	14.8748	115	28.299	1.902	Si
SLV 8	3.13	-37.71	2.6413	97	24.2257	9.172	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	1.11	-260.27	-21.23	-24.1795	666	1.395	108	42.31				1.99	Si
SLU 79	3.13	-173.29	-13.9	4.7869	444	1.395	108	42.31				3.04	Si
SLU 84	1.11	-261.88	-20.23	-23.3984	670	1.395	108	42.31				2.09	Si
SLU 84	3.13	-174.37	-13.75	5.2846	446	1.395	108	42.31				3.08	Si
SLU 78	1.11	-259.34	-20.73	-23.7674	664	1.395	108	42.31				2.04	Si
SLU 78	3.13	-172.65	-13.59	4.7776	442	1.395	108	42.31				3.11	Si
SLU 81	1.11	-254.53	-19.08	-22.338	652	1.395	108	42.31				2.22	Si
SLU 81	3.13	-169.2	-12.93	5.2548	433	1.395	108	42.31				3.27	Si
SLU 83	1.11	-262.5	-20.64	-23.6059	672	1.395	108	42.31				2.05	Si
SLU 83	3.13	-174.83	-14.04	5.3607	448	1.395	108	42.31				3.01	Si
SLU 74	1.11	-251.99	-19.59	-22.7071	645	1.395	108	42.31				2.16	Si
SLU 74	3.13	-167.49	-12.77	4.7478	429	1.395	108	42.31				3.31	Si
SLU 58	1.11	-245.13	-19.14	-23.0985	628	1.395	108	42.31				2.21	Si
SLU 58	3.13	-162.66	-12.23	4.118	416	1.395	108	42.31				3.46	Si
SLU 75	1.11	-251.38	-19.17	-22.4995	644	1.395	108	42.31				2.21	Si
SLU 75	3.13	-167.02	-12.48	4.6717	428	1.395	108	42.31				3.39	Si
SLU 77	1.11	-259.96	-21.14	-23.975	666	1.395	108	42.31				2	Si
SLU 77	3.13	-173.12	-13.88	4.8536	443	1.395	108	42.31				3.05	Si
SLU 80	1.11	-259.65	-20.81	-23.972	665	1.395	108	42.31				2.03	Si
SLU 80	3.13	-172.83	-13.62	4.7108	442	1.395	108	42.31				3.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	1.11	-184.02	-52.61	-5.087	471	1.395	163	63.47				1.21	Si
SLV 2	3.13	-141.96	-35.83	4.975	363	1.395	156	60.94				1.7	Si
SLV 1	1.11	-184.02	-52.61	-5.087	471	1.395	163	63.47				1.21	Si
SLV 1	3.13	-141.96	-35.83	4.975	363	1.395	156	60.94				1.7	Si
SLV 12	1.11	-59.96	40.87	4.0351	154	1.395	114	44.54				1.09	Si
SLV 12	3.13	-35.07	27.97	1.3312	90	1.395	101	39.56				1.41	Si
SLV 5	1.11	-286.26	-65.62	-35.2916	733	1.395	163	63.47				0.97	No, Vu<V
SLV 5	3.13	-193.35	-42.42	3.8802	495	1.395	163	63.47				1.5	Si
SLV 9	1.11	-301.45	-49.61	-46.1313	772	1.395	163	63.47				1.28	Si
SLV 9	3.13	-190.71	-30.52	2.5701	488	1.395	163	63.47				2.08	Si
SLV 10	1.11	-301.45	-49.61	-46.1313	772	1.395	163	63.47				1.28	Si
SLV 10	3.13	-190.71	-30.52	2.5701	488	1.395	163	63.47				2.08	Si
SLV 8	1.11	-44.77	24.87	14.8748	146	1.0958	113	34.52				1.39	Si
SLV 8	3.13	-37.71	16.07	2.6413	97	1.395	103	40.09				2.49	Si
SLV 7	1.11	-44.77	24.87	14.8748	146	1.0958	113	34.52				1.39	Si
SLV 7	3.13	-37.71	16.07	2.6413	97	1.395	103	40.09				2.49	Si
SLV 6	1.11	-286.26	-65.62	-35.2916	733	1.395	163	63.47				0.97	No, Vu<V
SLV 6	3.13	-193.35	-42.42	3.8802	495	1.395	163	63.47				1.5	Si
SLV 11	1.11	-59.96	40.87	4.0351	154	1.395	114	44.54				1.09	Si
SLV 11	3.13	-35.07	27.97	1.3312	90	1.395	101	39.56				1.41	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.12 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.29	117	-45.63	0.3615	5.7776	15.98	Si
SLV 7	1438	0.29	117	-45.63	0.3615	5.7776	15.98	Si
SLV 12	1438	0.29	125	-48.89	0.3615	6.1432	16.99	Si
SLV 11	1438	0.29	125	-48.89	0.3615	6.1432	16.99	Si
SLV 4	1438	0.29	301	-117.64	0.3615	12.4098	34.32	Si
SLV 3	1438	0.29	301	-117.64	0.3615	12.4098	34.32	Si
SLV 15	1438	0.29	329	-128.49	0.3615	13.1457	36.36	Si
SLV 16	1438	0.29	329	-128.49	0.3615	13.1457	36.36	Si
SLV 2	1438	0.29	468	-182.61	0.3615	15.7837	43.66	Si
SLV 1	1438	0.29	468	-182.61	0.3615	15.7837	43.66	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.12 Wa = 0.0005 Ta = 0.0243

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-35.07	-59.96	-3.02	0.009	4.694	0.935	0.145	3.84424	No
SLV 11	-35.07	-59.96	-3.02	0.009	4.694	0.935	0.145	3.84424	No
SLV 8	-37.71	-44.77	-3.14	0.01	4.961	0.937	0.15762	3.84424	No
SLV 7	-37.71	-44.77	-3.14	0.01	4.961	0.937	0.15762	3.84424	No
SLV 4	-95.27	-111.58	-1.58	0.059	10.81	0.969	0.88088	3.79731	No
SLV 3	-95.27	-111.58	-1.58	0.059	10.81	0.969	0.88088	3.79731	No
SLV 9	-190.71	-301.45	1.85	0.062	20.533	0.983	0.92284	3.84424	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 10	-190.71	-301.45	1.85	0.062	20.533	0.983	0.92284	3.84424	No
SLV 6	-193.35	-286.26	1.73	0.063	20.802	0.983	0.93288	3.84424	No
SLV 5	-193.35	-286.26	1.73	0.063	20.802	0.983	0.93288	3.84424	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.357	SLU 83	Si
V_SLU	1.994	SLU 79	Si
PF_SLV	1.679	SLV 9	Si
V_SLV	0.967	SLV 5	No
PFFP_SLV	15.98	SLV 7	Si
R_SLV	0.038	SLV 11	No

## Maschio 83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota l.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-3.314	-11.003	-0.354	L3	Z medio 398 cm	2.96	0.28	2.87	2.02	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 80	1.11	-463.84	3.4667	560	214.8384	61.972	Si
SLU 80	3.13	-428.14	43.9518	517	231.8107	5.274	Si
SLU 82	1.11	-468.8	9.3602	566	212.0377	22.653	Si
SLU 82	3.13	-432.72	48.2688	522	229.9452	4.764	Si
SLU 74	1.11	-457.97	6.2376	553	218.0117	34.951	Si
SLU 74	3.13	-422.68	45.498	510	233.913	5.141	Si
SLU 76	1.11	-455.42	6.1519	549	219.347	35.655	Si
SLU 76	3.13	-419.59	44.4669	506	235.0453	5.286	Si
SLU 84	1.11	-477.31	7.0725	576	206.9871	29.266	Si
SLU 84	3.13	-441.27	47.856	532	226.2175	4.727	Si
SLU 77	1.11	-466.48	3.95	563	213.3647	54.016	Si
SLU 77	3.13	-431.23	45.0851	520	230.5616	5.114	Si
SLU 78	1.11	-466.59	4.5463	563	213.2986	46.917	Si
SLU 78	3.13	-431.24	45.2384	520	230.5603	5.097	Si
SLU 83	1.11	-477.19	6.4762	576	207.0586	31.972	Si
SLU 83	3.13	-441.27	47.7027	532	226.219	4.742	Si
SLU 75	1.11	-458.09	6.834	553	217.9499	31.892	Si
SLU 75	3.13	-422.69	45.6513	510	233.9117	5.124	Si
SLU 81	1.11	-468.69	8.7638	566	212.1049	24.202	Si
SLU 81	3.13	-432.72	48.1155	522	229.9466	4.779	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 4	1.11	-413.34	5.4228	499	362.0526	66.765	Si
SLV 4	3.13	-300.76	59.2758	363	312.9279	5.279	Si
SLV 5	1.11	-372.55	-68.9646	450	348.5325	5.054	Si
SLV 5	3.13	-315.79	6.0845	381	321.6292	52.861	Si
SLV 11	1.11	-248.34	75.8826	300	277.4097	3.656	Si
SLV 11	3.13	-251.4	51.658	303	279.7067	5.415	Si
SLV 3	1.11	-413.34	5.4228	499	362.0526	66.765	Si
SLV 3	3.13	-300.76	59.2758	363	312.9279	5.279	Si
SLV 7	1.11	-315.23	65.0037	380	321.3173	4.943	Si
SLV 7	3.13	-266.17	64.6315	321	290.3908	4.493	Si
SLV 8	1.11	-315.23	65.0037	380	321.3173	4.943	Si
SLV 8	3.13	-266.17	64.6315	321	290.3908	4.493	Si
SLV 9	1.11	-305.65	-58.0857	369	315.8318	5.437	Si
SLV 9	3.13	-301.03	-6.889	363	313.0868	45.447	Si
SLV 12	1.11	-248.34	75.8826	300	277.4097	3.656	Si
SLV 12	3.13	-251.4	51.658	303	279.7067	5.415	Si
SLV 6	1.11	-372.55	-68.9646	450	348.5325	5.054	Si
SLV 6	3.13	-315.79	6.0845	381	321.6292	52.861	Si
SLV 10	1.11	-305.65	-58.0857	369	315.8318	5.437	Si
SLV 10	3.13	-301.03	-6.889	363	313.0868	45.447	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 8	1.11	-301.88	-4.45	-3.0107		364	2.96	104	86.29			19.4	Si
SLU 8	3.13	-275.69	-7.66	23.7468		333	2.96	100	82.8			10.81	Si
SLU 71	1.11	-412.47	-3.81	-0.2053		498	2.96	108	89.79			23.54	Si
SLU 71	3.13	-377.54	-7.95	35.6523		456	2.96	108	89.79			11.29	Si
SLU 10	1.11	-336.32	7.81	5.6341		406	2.96	108	89.79			11.49	Si
SLU 10	3.13	-309.18	5.03	32.9742		373	2.96	105	87.27			17.33	Si
SLU 29	1.11	-340.12	-4.98	0.5442		410	2.96	108	89.79			18.01	Si
SLU 29	3.13	-312.64	-8.4	30.646		377	2.96	106	87.73			10.44	Si
SLU 52	1.11	-408.67	8.98	4.8847		493	2.96	108	89.79			9.99	Si
SLU 52	3.13	-374.09	5.48	37.9805		451	2.96	108	89.79			16.38	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 27	1.11	-342.88	-4.4	1.6238		414	2.96	108	89.79			20.41	Si
SLU 27	3.13	-315.73	-7.84	31.9326		381	2.96	106	88.14			11.24	Si
SLU 61	1.11	-430.56	8.19	5.8053		519	2.96	108	89.79			10.97	Si
SLU 61	3.13	-395.77	4.85	41.3696		478	2.96	108	89.79			18.51	Si
SLU 44	1.11	-357.42	7.76	1.809		431	2.96	108	89.79			11.57	Si
SLU 44	3.13	-323.5	4.12	29.8343		390	2.96	108	89.18			21.64	Si
SLU 73	1.11	-446.92	8.45	8.4396		539	2.96	108	89.79			10.63	Si
SLU 73	3.13	-411.04	4.74	44.8798		496	2.96	108	89.79			18.94	Si
SLU 6	1.11	-304.63	-3.86	-1.9311		368	2.96	105	86.66			22.43	Si
SLU 6	3.13	-278.78	-7.1	25.0333		336	2.96	100	83.22			11.72	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1.11	-248.34	127.95	75.8826		300	2.96	143	118.73			0.93	No, Vu<V
SLV 12	3.13	-251.4	107.1	51.658		303	2.96	144	119.35			1.11	Si
SLV 5	1.11	-372.55	-120.98	-68.9646		450	2.96	163	134.68			1.11	Si
SLV 5	3.13	-315.79	-105.47	6.0845		381	2.96	160	132.23			1.25	Si
SLV 14	1.11	-207.55	-52.53	1.4952		250	2.96	133	110.58			2.1	Si
SLV 14	3.13	-266.43	-56.56	-1.5334		321	2.96	148	122.35			2.16	Si
SLV 11	1.11	-248.34	127.95	75.8826		300	2.96	143	118.73			0.93	No, Vu<V
SLV 11	3.13	-251.4	107.1	51.658		303	2.96	144	119.35			1.11	Si
SLV 8	1.11	-315.23	138.23	65.0037		380	2.96	159	132.11			0.96	No, Vu<V
SLV 8	3.13	-266.17	121.14	64.6315		321	2.96	148	122.3			1.01	Si
SLV 13	1.11	-207.55	-52.53	1.4952		250	2.96	133	110.58			2.1	Si
SLV 13	3.13	-266.43	-56.56	-1.5334		321	2.96	148	122.35			2.16	Si
SLV 7	1.11	-315.23	138.23	65.0037		380	2.96	159	132.11			0.96	No, Vu<V
SLV 7	3.13	-266.17	121.14	64.6315		321	2.96	148	122.3			1.01	Si
SLV 9	1.11	-305.65	-131.26	-58.0857		369	2.96	157	130.2			0.99	No, Vu<V
SLV 9	3.13	-301.03	-119.5	-6.889		363	2.96	156	129.27			1.08	Si
SLV 10	1.11	-305.65	-131.26	-58.0857		369	2.96	157	130.2			0.99	No, Vu<V
SLV 10	3.13	-301.03	-119.5	-6.889		363	2.96	156	129.27			1.08	Si
SLV 6	1.11	-372.55	-120.98	-68.9646		450	2.96	163	134.68			1.11	Si
SLV 6	3.13	-315.79	-105.47	6.0845		381	2.96	160	132.23			1.25	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.12 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.29	305	-252.42	1.5486	26.5305	17.13	Si
SLV 15	1438	0.29	305	-252.42	1.5486	26.5305	17.13	Si
SLV 11	1438	0.29	318	-263.53	1.5486	27.293	17.62	Si
SLV 12	1438	0.29	318	-263.53	1.5486	27.293	17.62	Si
SLV 13	1438	0.29	334	-277.11	1.5486	28.1797	18.2	Si
SLV 14	1438	0.29	334	-277.11	1.5486	28.1797	18.2	Si
SLV 8	1438	0.29	359	-297.73	1.5486	29.4279	19	Si
SLV 7	1438	0.29	359	-297.73	1.5486	29.4279	19	Si
SLV 9	1438	0.29	417	-345.83	1.5486	31.8822	20.59	Si
SLV 10	1438	0.29	417	-345.83	1.5486	31.8822	20.59	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.12 Wa = 0.0005 Ta = 0.0491

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-300.76	-413.34	1.61	0.047	33.97	0.97	0.70442	5.62296	No
SLV 3	-300.76	-413.34	1.61	0.047	33.97	0.97	0.70442	5.62296	No
SLV 1	-315.65	-430.53	1.5	0.047	35.486	0.971	0.7097	5.62296	No
SLV 2	-315.65	-430.53	1.5	0.047	35.486	0.971	0.7097	5.62296	No
SLV 13	-266.43	-207.55	-1.32	0.048	30.475	0.967	0.71919	5.62296	No
SLV 14	-266.43	-207.55	-1.32	0.048	30.475	0.967	0.71919	5.62296	No
SLV 15	-251.55	-190.35	-1.2	0.048	28.96	0.965	0.72581	5.62296	No
SLV 16	-251.55	-190.35	-1.2	0.048	28.96	0.965	0.72581	5.62296	No
SLV 7	-266.17	-315.23	0.76	0.05	30.448	0.967	0.74826	5.7778	No
SLV 8	-266.17	-315.23	0.76	0.05	30.448	0.967	0.74826	5.7778	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.727	SLU 84	Si
V_SLU	9.994	SLU 52	Si
PF_SLV	3.656	SLV 11	Si
V_SLV	0.928	SLV 11	No
PFFP_SLV	17.132	SLV 15	Si
R_SLV	0.125	SLV 3	No

## Maschio 84

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-9.448	-3.359	-11.003	-3.359	L3	L4	1.555	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	1.11	-97.25	42.851	223	54.8806	1.281	Si
SLU 76	3.21	-138.82	16.8161	319	65.6864	3.906	Si
SLU 81	1.11	-97.6	43.9398	224	55.001	1.252	Si
SLU 81	3.21	-139.81	17.8304	321	65.8518	3.693	Si
SLU 40	1.11	-80.8	37.8235	186	48.511	1.283	Si
SLU 40	3.21	-118.64	13.6624	272	61.3862	4.493	Si
SLU 84	1.11	-100.65	44.8818	231	56.0472	1.249	Si
SLU 84	3.21	-144.07	17.9799	331	66.5134	3.699	Si
SLU 80	1.11	-99.87	43.1873	229	55.7855	1.292	Si
SLU 80	3.21	-141.27	18.4371	324	66.088	3.585	Si
SLU 75	1.11	-97.3	42.7332	223	54.8978	1.285	Si
SLU 75	3.21	-138.64	17.2679	318	65.6565	3.802	Si
SLU 82	1.11	-97.86	44.3032	225	55.0912	1.244	Si
SLU 82	3.21	-140.89	16.9475	324	66.0276	3.896	Si
SLU 78	1.11	-100.1	43.3118	230	55.8605	1.29	Si
SLU 78	3.21	-141.82	18.3002	326	66.1737	3.616	Si
SLU 73	1.11	-94.46	42.2724	217	53.883	1.275	Si
SLU 73	3.21	-135.64	15.7838	312	65.1273	4.126	Si
SLU 83	1.11	-100.39	44.5184	231	55.9602	1.257	Si
SLU 83	3.21	-142.99	18.8628	328	66.3527	3.518	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	1.11	-57.86	62.9852	0	0	0	No, $e \geq l/2$
SLV 3	3.21	-145.59	-22.4451	334	82.2191	3.663	Si
SLV 7	1.11	-26.74	42.3208	0	0	0	No, $e \geq l/2$
SLV 7	3.21	-50.72	13.2861	117	35.6778	2.685	Si
SLV 13	1.11	-76.33	-5.7107	175	50.832	8.901	Si
SLV 13	3.21	-42	47.3497	0	0	0	No, $e \geq l/2$
SLV 14	1.11	-76.33	-5.7107	175	50.832	8.901	Si
SLV 14	3.21	-42	47.3497	0	0	0	No, $e \geq l/2$
SLV 8	1.11	-26.74	42.3208	0	0	0	No, $e \geq l/2$
SLV 8	3.21	-50.72	13.2861	117	35.6778	2.685	Si
SLV 11	1.11	-24.84	22.3804	0	0	0	No, $e \geq l/2$
SLV 11	3.21	-8.05	36.4604	0	0	0	No, $e \geq l/2$
SLV 12	1.11	-24.84	22.3804	0	0	0	No, $e \geq l/2$
SLV 12	3.21	-8.05	36.4604	0	0	0	No, $e \geq l/2$
SLV 4	1.11	-57.86	62.9852	0	0	0	No, $e \geq l/2$
SLV 4	3.21	-145.59	-22.4451	334	82.2191	3.663	Si
SLV 15	1.11	-51.55	-3.4827	118	36.1942	10.393	Si
SLV 15	3.21	-3.36	54.8023	0	0	0	No, $e \geq l/2$
SLV 16	1.11	-51.55	-3.4827	118	36.1942	10.393	Si
SLV 16	3.21	-3.36	54.8023	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	1.11	-94.46	32.08	42.2724		341	0.99	101	27.99			0.87	No, $V_u < V$
SLU 73	3.21	-135.64	42.65	15.7838		312	1.555	97	42.27			0.99	No, $V_u < V$
SLU 82	1.11	-97.86	32.9	44.3032		359	0.9743	103	28.2			0.86	No, $V_u < V$
SLU 82	3.21	-140.89	44.59	16.9475		324	1.555	99	42.97			0.96	No, $V_u < V$
SLU 83	1.11	-100.39	31.89	44.5184		358	1.0021	103	28.97			0.91	No, $V_u < V$
SLU 83	3.21	-142.99	43.36	18.8628		328	1.555	99	43.25			1	No, $V_u < V$
SLU 75	1.11	-97.3	31.6	42.7332		342	1.015	101	28.76			0.91	No, $V_u < V$
SLU 75	3.21	-138.64	42.07	17.2679		318	1.555	98	42.67			1.01	Si
SLU 31	1.11	-77.41	27.4	35.7927		292	0.9453	95	25.03			0.91	No, $V_u < V$
SLU 31	3.21	-113.38	36.67	12.4987		260	1.555	90	39.31			1.07	Si
SLU 40	1.11	-80.8	28.21	37.8235		311	0.9282	97	25.21			0.89	No, $V_u < V$
SLU 40	3.21	-118.64	38.61	13.6624		272	1.555	92	40.01			1.04	Si
SLU 76	1.11	-97.25	31.94	42.851		344	1.0107	101	28.69			0.9	No, $V_u < V$
SLU 76	3.21	-138.82	42.47	16.8161		319	1.555	98	42.7			1.01	Si
SLU 84	1.11	-100.65	32.76	44.8818		361	0.9947	104	28.89			0.88	No, $V_u < V$
SLU 84	3.21	-144.07	44.41	17.9799		331	1.555	100	43.4			0.98	No, $V_u < V$
SLU 81	1.11	-97.6	32.03	43.9398		355	0.9819	103	28.29			0.88	No, $V_u < V$
SLU 81	3.21	-139.81	43.54	17.8304		321	1.555	98	42.83			0.98	No, $V_u < V$
SLU 42	1.11	-83.59	28.07	38.402		313	0.9543	97	25.99			0.93	No, $V_u < V$
SLU 42	3.21	-121.82	38.43	14.6948		280	1.555	93	40.43			1.05	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	1.11	-57.86	109.98	62.9852		0	0	83	0			0	No, $V_u < V$
SLV 3	3.21	-145.59	65.77	-22.4451		334	1.555	150	65.4			0.99	No, $V_u < V$
SLV 8	1.11	-26.74	34.42	42.3208		0	0	83	0			0	No, $V_u < V$
SLV 8	3.21	-50.72	10.34	13.2861		117	1.5467	107	46.23			4.47	Si
SLV 16	1.11	-51.55	-76.32	-3.4827		118	1.555	107	46.59			0.61	No, $V_u < V$
SLV 16	3.21	-3.36	-29.51	54.8023		0	0	83	0			0	No, $V_u < V$
SLV 14	1.11	-76.33	-67.45	-5.7107		175	1.555	118	51.55			0.76	No, $V_u < V$
SLV 14	3.21	-42	-10.59	47.3497		0	0	83	0			0	No, $V_u < V$
SLV 4	1.11	-57.86	109.98	62.9852		0	0	83	0			0	No, $V_u < V$
SLV 4	3.21	-145.59	65.77	-22.4451		334	1.555	150	65.4			0.99	No, $V_u < V$
SLV 13	1.11	-76.33	-67.45	-5.7107		175	1.555	118	51.55			0.76	No, $V_u < V$
SLV 13	3.21	-42	-10.59	47.3497		0	0	83	0			0	No, $V_u < V$
SLV 7	1.11	-26.74	34.42	42.3208		0	0	83	0			0	No, $V_u < V$
SLV 7	3.21	-50.72	10.34	13.2861		117	1.5467	107	46.23			4.47	Si
SLV 11	1.11	-24.84	-21.47	22.3804		0	0	83	0			0	No, $V_u < V$
SLV 11	3.21	-8.05	-18.24	36.4604		0	0	83	0			0	No, $V_u < V$
SLV 15	1.11	-51.55	-76.32	-3.4827		118	1.555	107	46.59			0.61	No, $V_u < V$
SLV 15	3.21	-3.36	-29.51	54.8023		0	0	83	0			0	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1.11	-24.84	-21.47	22.3804		0	0	83	0			0	No, Vu<V
SLV 12	3.21	-8.05	-18.24	36.4604		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.31	0	-10.12	1.4181	0	0	No, e>t/2
SLV 11	1438	0.31	0	-7.03	1.4181	0	0	No, e>t/2
SLV 12	1438	0.31	0	-7.03	1.4181	0	0	No, e>t/2
SLV 15	1438	0.31	0	-10.12	1.4181	0	0	No, e>t/2
SLV 7	1438	0.31	99	-42.89	1.4181	5.5205	3.89	Si
SLV 8	1438	0.31	99	-42.89	1.4181	5.5205	3.89	Si
SLV 14	1438	0.31	112	-48.64	1.4181	6.1869	4.36	Si
SLV 13	1438	0.31	112	-48.64	1.4181	6.1869	4.36	Si
SLV 4	1438	0.31	298	-129.66	1.4181	13.7285	9.68	Si
SLV 3	1438	0.31	298	-129.66	1.4181	13.7285	9.68	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-53.22	-26.74	-1.55	0.023	7.744	0.922	0.3594	10.54325	No
SLV 8	-53.22	-26.74	-1.55	0.023	7.744	0.922	0.3594	10.54325	No
SLV 11	-61.84	-24.84	-1.26	0.028	8.611	0.928	0.44362	10.54325	No
SLV 12	-61.84	-24.84	-1.26	0.028	8.611	0.928	0.44362	10.54325	No
SLV 10	-144.48	-107.46	1.6	0.031	16.993	0.96	0.46982	10.54325	No
SLV 9	-144.48	-107.46	1.6	0.031	16.993	0.96	0.46982	10.54325	No
SLV 6	-135.87	-109.35	1.3	0.033	16.117	0.958	0.49479	10.54325	No
SLV 5	-135.87	-109.35	1.3	0.033	16.117	0.958	0.49479	10.54325	No
SLV 4	-72.1	-57.86	-0.9	0.034	9.646	0.935	0.52251	10.12339	No
SLV 3	-72.1	-57.86	-0.9	0.034	9.646	0.935	0.52251	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.244	SLV 82	Si
V_SLV	0.857	SLV 82	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0.034	SLV 7	No

## Maschio 85

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-6.268	-3.359	-6.268	1.046	L3	L4	4.405	0.14	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 76	1.11	-543.25	-122.6359	881	0	0	No, Rottura per schiacciamento
SLU 76	4.83	-330.79	20.9144	536	248.8188	11.897	Si
SLU 75	1.11	-540.48	-111.7803	876	0	0	No, Rottura per schiacciamento
SLU 75	4.83	-332.17	21.7	539	247.8494	11.422	Si
SLU 77	1.11	-536.42	-93.4816	870	0	0	No, Rottura per schiacciamento
SLU 77	4.83	-334.76	22.3541	543	245.9759	11.004	Si
SLU 78	1.11	-547.3	-110.6639	887	0	0	No, Rottura per schiacciamento
SLU 78	4.83	-338.28	22.3814	549	243.345	10.873	Si
SLU 73	1.11	-536.43	-123.7523	870	0	0	No, Rottura per schiacciamento
SLU 73	4.83	-324.68	20.2331	526	252.9219	12.5	Si
SLU 81	1.11	-542.29	-96.6753	879	0	0	No, Rottura per schiacciamento
SLU 81	4.83	-334.35	22.3786	542	246.2818	11.005	Si
SLU 84	1.11	-560	-112.7411	908	0	0	No, Rottura per schiacciamento
SLU 84	4.83	-343.97	23.0873	558	238.8541	10.346	Si
SLU 74	1.11	-529.6	-94.5981	859	0	0	No, Rottura per schiacciamento
SLU 74	4.83	-328.65	21.6727	533	250.292	11.549	Si
SLU 83	1.11	-549.11	-95.5588	890	0	0	No, Rottura per schiacciamento
SLU 83	4.83	-340.46	23.0599	552	241.6605	10.48	Si
SLU 63	1.11	-507.51	-110.9411	823	0	0	No, Rottura per schiacciamento
SLU 63	4.83	-309.19	17.1576	501	261.8516	15.262	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	1.11	-453.15	-137.1095	735	397.8591	2.902	Si
SLV 1	4.83	-256.89	54.6045	417	372.9103	6.829	Si
SLD 9	1.11	-391.17	-127.3171	634	414.3062	3.254	Si
SLD 9	4.83	-230.47	7.5244	374	352.354	46.828	Si
SLD 5	1.11	-407.59	-133.5776	661	412.1357	3.085	Si
SLD 5	4.83	-237.22	18.1725	385	357.9938	19.7	Si
SLD 6	1.11	-407.59	-133.5776	661	412.1357	3.085	Si
SLD 6	4.83	-237.22	18.1725	385	357.9938	19.7	Si
SLV 10	1.11	-432.98	-204.7058	702	405.6745	1.982	Si
SLV 10	4.83	-244.26	1.4401	396	363.5937	252.471	Si
SLV 9	1.11	-432.98	-204.7058	702	405.6745	1.982	Si
SLV 9	4.83	-244.26	1.4401	396	363.5937	252.471	Si
SLV 5	1.11	-472.18	-219.0126	766	388.3009	1.773	Si
SLV 5	4.83	-260.53	26.7309	422	375.421	14.044	Si
SLV 2	1.11	-453.15	-137.1095	735	397.8591	2.902	Si
SLV 2	4.83	-256.89	54.6045	417	372.9103	6.829	Si
SLD 10	1.11	-391.17	-127.3171	634	414.3062	3.254	Si
SLD 10	4.83	-230.47	7.5244	374	352.354	46.828	Si
SLV 6	1.11	-472.18	-219.0126	766	388.3009	1.773	Si
SLV 6	4.83	-260.53	26.7309	422	375.421	14.044	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 23	1.11	-399.69	-21.47	-99.8927		648	4.405	108	66.81			3.11	Si
SLU 23	4.83	-240.44	-13.29	14.574		390	4.405	108	66.32			4.99	Si
SLU 73	1.11	-536.43	-22.33	-123.7523		870	4.405	108	66.81			2.99	Si
SLU 73	4.83	-324.68	-12.86	20.2331		526	4.405	108	66.81			5.19	Si
SLU 13	1.11	-410.04	-19.44	-100.6164		665	4.405	108	66.81			3.44	Si
SLU 13	4.83	-248	-11.19	14.4382		402	4.405	108	66.81			5.97	Si
SLU 2	1.11	-347.21	-22.23	-98.0928		563	4.405	108	66.81			3	Si
SLU 2	4.83	-205.66	-14.47	8.6443		333	4.405	100	61.68			4.26	Si
SLU 10	1.11	-403.22	-22.86	-101.7328		654	4.405	108	66.81			2.92	Si
SLU 10	4.83	-241.88	-14.67	13.7568		392	4.405	108	66.51			4.53	Si
SLU 55	1.11	-490.77	-19.66	-120.8359		796	4.405	108	66.81			3.4	Si
SLU 55	4.83	-296.01	-10.56	14.9848		480	4.405	108	66.81			6.33	Si
SLU 31	1.11	-455.7	-22.1	-103.5328		739	4.405	108	66.81			3.02	Si
SLU 31	4.83	-276.66	-13.49	19.6864		449	4.405	108	66.81			4.95	Si
SLU 65	1.11	-480.41	-21.7	-120.1123		779	4.405	108	66.81			3.08	Si
SLU 65	4.83	-288.45	-12.66	15.1206		468	4.405	108	66.81			5.28	Si
SLU 44	1.11	-427.93	-22.46	-118.3123		694	4.405	108	66.81			2.97	Si
SLU 44	4.83	-253.67	-13.84	9.1909		411	4.405	108	66.81			4.83	Si
SLU 52	1.11	-483.94	-23.09	-121.9524		785	4.405	108	66.81			2.89	Si
SLU 52	4.83	-289.9	-14.04	14.3034		470	4.405	108	66.81			4.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1.11	-287.14	136.23	62.6859		466	4.405	163	100.21			0.74	No, Vu<V
SLV 8	4.83	-195.91	114.89	22.0672		318	4.405	147	90.57			0.79	No, Vu<V
SLD 12	1.11	-312.53	61.59	-8.4423		507	4.405	163	100.21			1.63	Si
SLD 12	4.83	-202.95	50.45	5.3349		329	4.405	149	91.98			1.82	Si
SLV 12	1.11	-247.94	143.09	76.9927		402	4.405	163	100.21			0.7	No, Vu<V
SLV 12	4.83	-179.64	113.23	-3.2236		291	4.405	142	87.32			0.77	No, Vu<V
SLD 11	1.11	-312.53	61.59	-8.4423		507	4.405	163	100.21			1.63	Si
SLD 11	4.83	-202.95	50.45	5.3349		329	4.405	149	91.98			1.82	Si
SLV 11	1.11	-247.94	143.09	76.9927		402	4.405	163	100.21			0.7	No, Vu<V
SLV 11	4.83	-179.64	113.23	-3.2236		291	4.405	142	87.32			0.77	No, Vu<V
SLV 10	1.11	-432.98	-135.9	-204.7058		702	4.405	163	100.21			0.74	No, Vu<V
SLV 10	4.83	-244.26	-107.44	1.4401		396	4.405	163	100.21			0.93	No, Vu<V
SLV 9	1.11	-432.98	-135.9	-204.7058		702	4.405	163	100.21			0.74	No, Vu<V
SLV 9	4.83	-244.26	-107.44	1.4401		396	4.405	163	100.21			0.93	No, Vu<V
SLV 7	1.11	-287.14	136.23	62.6859		466	4.405	163	100.21			0.74	No, Vu<V
SLV 7	4.83	-195.91	114.89	22.0672		318	4.405	147	90.57			0.79	No, Vu<V
SLV 5	1.11	-472.18	-142.76	-219.0126		766	4.405	163	100.21			0.7	No, Vu<V
SLV 5	4.83	-260.53	-105.78	26.7309		422	4.405	163	100.21			0.95	No, Vu<V
SLV 6	1.11	-472.18	-142.76	-219.0126		766	4.405	163	100.21			0.7	No, Vu<V
SLV 6	4.83	-260.53	-105.78	26.7309		422	4.405	163	100.21			0.95	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.31	333	-205.55	2.1487	10.4635	4.87	Si
SLV 12	1438	0.31	333	-205.55	2.1487	10.4635	4.87	Si
SLV 16	1438	0.31	352	-217.04	2.1487	10.8168	5.03	Si
SLV 15	1438	0.31	352	-217.04	2.1487	10.8168	5.03	Si
SLV 7	1438	0.31	377	-232.73	2.1487	11.2595	5.24	Si
SLV 8	1438	0.31	377	-232.73	2.1487	11.2595	5.24	Si
SLV 14	1438	0.31	412	-254.07	2.1487	11.7884	5.49	Si
SLV 13	1438	0.31	412	-254.07	2.1487	11.7884	5.49	Si
SLV 3	1438	0.31	499	-307.64	2.1487	12.7429	5.93	Si
SLV 4	1438	0.31	499	-307.64	2.1487	12.7429	5.93	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0003 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-237.5	-397.64	0.28	0.019	27.411	0.965	0.28973	14.01752	No
SLV 4	-237.5	-397.64	0.28	0.019	27.411	0.965	0.28973	14.01752	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 1	-256.89	-453.15	0.25	0.019	29.384	0.967	0.29046	14.01752	No
SLV 2	-256.89	-453.15	0.25	0.019	29.384	0.967	0.29046	14.01752	No
SLV 13	-202.66	-322.49	-0.27	0.019	23.867	0.96	0.29266	14.01752	No
SLV 14	-202.66	-322.49	-0.27	0.019	23.867	0.96	0.29266	14.01752	No
SLV 15	-183.28	-266.97	-0.24	0.02	21.896	0.956	0.29689	14.01752	No
SLV 16	-183.28	-266.97	-0.24	0.02	21.896	0.956	0.29689	14.01752	No
SLV 9	-244.26	-432.98	-0.13	0.02	28.099	0.965	0.29795	14.01752	No
SLV 10	-244.26	-432.98	-0.13	0.02	28.099	0.965	0.29795	14.01752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 63	No
V_SLU	2.894	SLU 52	Si
PF_SLV	1.773	SLV 5	Si
V_SLV	0.7	SLV 11	No
PFFP_SLV	4.87	SLV 11	Si
R_SLV	0.021	SLV 3	No

## Maschio 86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.463	-3.359	-8.548	-3.359	L3	L4	1.085	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 83	2.01	-187.55	-34.0641	617	24.6368	0.723	No, M>Mu
SLU 83	3.91	-137.16	-9.1869	451	33.1683	3.61	Si
SLU 80	2.01	-190.48	-36.0878	627	23.7969	0.659	No, M>Mu
SLU 80	3.91	-131.04	-7.8928	431	33.4461	4.238	Si
SLU 82	2.01	-190.12	-35.8028	626	23.9038	0.668	No, M>Mu
SLU 82	3.91	-133.95	-8.5429	441	33.3343	3.902	Si
SLU 78	2.01	-191.3	-36.1501	630	23.555	0.652	No, M>Mu
SLU 78	3.91	-132.17	-8.0572	435	33.4072	4.146	Si
SLU 73	2.01	-187.03	-36.074	616	24.7801	0.687	No, M>Mu
SLU 73	3.91	-126.7	-7.6296	417	33.544	4.397	Si
SLU 75	2.01	-187.43	-35.2704	617	24.6688	0.699	No, M>Mu
SLU 75	3.91	-130.51	-8.1818	430	33.4625	4.09	Si
SLU 79	2.01	-184.04	-33.4695	606	25.5902	0.765	No, M>Mu
SLU 79	3.91	-132.59	-8.6614	436	33.3914	3.855	Si
SLU 76	2.01	-190.9	-36.9537	628	23.673	0.641	No, M>Mu
SLU 76	3.91	-128.35	-7.505	422	33.5164	4.466	Si
SLU 77	2.01	-184.86	-33.5318	609	25.3715	0.757	No, M>Mu
SLU 77	3.91	-133.72	-8.8258	440	33.3448	3.778	Si
SLU 84	2.01	-193.99	-36.6824	639	22.7445	0.62	No, M>Mu
SLU 84	3.91	-135.61	-8.4183	446	33.254	3.95	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 8	2.01	-35.52	-7.5226	117	17.4268	2.317	Si
SLV 8	3.91	16.17	13.2571	0	0	0	No, Trazione
SLV 14	2.01	-201.56	-51.9104	663	49.9726	0.963	No, M>Mu
SLV 14	3.91	-104.85	1.1386	345	40.8149	35.847	Si
SLV 16	2.01	-158.42	-48.187	521	49.2651	1.022	Si
SLV 16	3.91	-38.01	15.4371	125	18.5103	1.199	Si
SLV 12	2.01	-69.02	-24.2859	227	30.4805	1.255	Si
SLV 12	3.91	27.15	21.9624	0	0	0	No, Trazione
SLV 9	2.01	-212.81	-36.697	700	49.263	1.342	Si
SLV 9	3.91	-195.64	-25.6992	644	50.1976	1.953	Si
SLV 15	2.01	-158.42	-48.187	521	49.2651	1.022	Si
SLV 15	3.91	-38.01	15.4371	125	18.5103	1.199	Si
SLV 13	2.01	-201.56	-51.9104	663	49.9726	0.963	No, M>Mu
SLV 13	3.91	-104.85	1.1386	345	40.8149	35.847	Si
SLV 7	2.01	-35.52	-7.5226	117	17.4268	2.317	Si
SLV 7	3.91	16.17	13.2571	0	0	0	No, Trazione
SLV 10	2.01	-212.81	-36.697	700	49.263	1.342	Si
SLV 10	3.91	-195.64	-25.6992	644	50.1976	1.953	Si
SLV 11	2.01	-69.02	-24.2859	227	30.4805	1.255	Si
SLV 11	3.91	27.15	21.9624	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	2.01	-190.12	-36.81	-35.8028		639	1.0625	108	32.23			0.88	No, Vu<V
SLU 82	3.91	-133.95	-6.61	-8.5429		441	1.085	108	32.91			4.98	Si
SLU 84	2.01	-193.99	-38.18	-36.6824		653	1.0602	108	32.16			0.84	No, Vu<V
SLU 84	3.91	-135.61	-7	-8.4183		446	1.085	108	32.91			4.7	Si
SLU 78	2.01	-191.3	-37.79	-36.1501		644	1.0606	108	32.17			0.85	No, Vu<V
SLU 78	3.91	-132.17	-6.9	-8.0572		435	1.085	108	32.91			4.77	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	2.01	-190.9	-37.05	-36.9537		651	1.0468	108	31.75			0.86	No, Vu<V
SLU 76	3.91	-128.35	-6.55	-7.505		422	1.085	108	32.91			5.02	Si
SLU 75	2.01	-187.43	-36.43	-35.2704		630	1.063	108	32.24			0.89	No, Vu<V
SLU 75	3.91	-130.51	-6.52	-8.1818		430	1.085	108	32.91			5.05	Si
SLU 73	2.01	-187.03	-35.69	-36.074		637	1.0489	108	31.82			0.89	No, Vu<V
SLU 73	3.91	-126.7	-6.17	-7.6296		417	1.085	108	32.91			5.34	Si
SLU 79	2.01	-184.04	-36.99	-33.4695		608	1.0819	108	32.82			0.89	No, Vu<V
SLU 79	3.91	-132.59	-7.02	-8.6614		436	1.085	108	32.91			4.69	Si
SLU 80	2.01	-190.48	-37.84	-36.0878		642	1.0591	108	32.13			0.85	No, Vu<V
SLU 80	3.91	-131.04	-6.97	-7.8928		431	1.085	108	32.91			4.72	Si
SLU 77	2.01	-184.86	-36.94	-33.5318		609	1.0833	108	32.86			0.89	No, Vu<V
SLU 77	3.91	-133.72	-6.95	-8.8258		440	1.085	108	32.91			4.74	Si
SLU 83	2.01	-187.55	-37.33	-34.0641		619	1.0826	108	32.84			0.88	No, Vu<V
SLU 83	3.91	-137.16	-7.05	-9.1869		451	1.085	108	32.91			4.67	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	2.01	-212.81	-59.28	-36.697		700	1.085	163	49.37			0.83	No, Vu<V
SLV 10	3.91	-195.64	5.89	-25.6992		644	1.085	163	49.37			8.38	Si
SLV 9	2.01	-212.81	-59.28	-36.697		700	1.085	163	49.37			0.83	No, Vu<V
SLV 9	3.91	-195.64	5.89	-25.6992		644	1.085	163	49.37			8.38	Si
SLV 11	2.01	-69.02	-23.09	-24.2859		431	0.5719	163	26.02			1.13	Si
SLV 11	3.91	27.15	-25.09	21.9624		0	0	83	0			0	No, Vu<V
SLV 14	2.01	-201.56	-87.11	-51.9104		842	0.8549	163	38.9			0.45	No, Vu<V
SLV 14	3.91	-104.85	-17.74	1.1386		345	1.085	152	46.29			2.61	Si
SLV 8	2.01	-35.52	11.62	-7.5226		128	0.9922	109	30.26			2.6	Si
SLV 8	3.91	16.17	-14.13	13.2571		0	0	83	0			0	No, Vu<V
SLV 16	2.01	-158.42	-76.25	-48.187		791	0.715	163	32.53			0.43	No, Vu<V
SLV 16	3.91	-38.01	-27.04	15.4371		332	0.4092	150	17.15			0.63	No, Vu<V
SLV 7	2.01	-35.52	11.62	-7.5226		128	0.9922	109	30.26			2.6	Si
SLV 7	3.91	16.17	-14.13	13.2571		0	0	83	0			0	No, Vu<V
SLV 15	2.01	-158.42	-76.25	-48.187		791	0.715	163	32.53			0.43	No, Vu<V
SLV 15	3.91	-38.01	-27.04	15.4371		332	0.4092	150	17.15			0.63	No, Vu<V
SLV 12	2.01	-69.02	-23.09	-24.2859		431	0.5719	163	26.02			1.13	Si
SLV 12	3.91	27.15	-25.09	21.9624		0	0	83	0			0	No, Vu<V
SLV 13	2.01	-201.56	-87.11	-51.9104		842	0.8549	163	38.9			0.45	No, Vu<V
SLV 13	3.91	-104.85	-17.74	1.1386		345	1.085	152	46.29			2.61	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.31	89	-26.93	0.9895	3.4969	3.53	Si
SLV 8	1438	0.31	89	-26.93	0.9895	3.4969	3.53	Si
SLV 4	1438	0.31	143	-43.53	0.9895	5.3797	5.44	Si
SLV 3	1438	0.31	143	-43.53	0.9895	5.3797	5.44	Si
SLV 12	1438	0.31	197	-59.81	0.9895	7.024	7.1	Si
SLV 11	1438	0.31	197	-59.81	0.9895	7.024	7.1	Si
SLV 2	1438	0.31	298	-90.64	0.9895	9.5908	9.69	Si
SLV 1	1438	0.31	298	-90.64	0.9895	9.5908	9.69	Si
SLV 16	1438	0.31	504	-153.12	0.9895	12.5942	12.73	Si
SLV 15	1438	0.31	504	-153.12	0.9895	12.5942	12.73	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-38.61	-24.44	0.62	0.033	5.551	0.924	0.51546	10.54325	No
SLV 8	-38.61	-24.44	0.62	0.033	5.551	0.924	0.51546	10.54325	No
SLV 11	-25.87	-29.22	0.55	0.033	4.278	0.908	0.52756	10.54325	No
SLV 12	-25.87	-29.22	0.55	0.033	4.278	0.908	0.52756	10.54325	No
SLV 10	-105.44	-171.1	-0.59	0.036	12.328	0.961	0.54187	10.54325	No
SLV 9	-105.44	-171.1	-0.59	0.036	12.328	0.961	0.54187	10.54325	No
SLV 5	-118.18	-166.32	-0.52	0.037	13.623	0.965	0.55076	10.54325	No
SLV 6	-118.18	-166.32	-0.52	0.037	13.623	0.965	0.55076	10.54325	No
SLV 4	-81.31	-68.52	0.3	0.039	9.874	0.953	0.58748	10.12339	No
SLV 3	-81.31	-68.52	0.3	0.039	9.874	0.953	0.58748	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.62	SLU 84	No
V_SLU	0.842	SLU 84	No
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 7	No
PFFP_SLV	3.534	SLV 7	Si
R_SLV	0.049	SLV 7	No

## Maschio 87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	1.046	-5.158	5.811	L3	L4	4.765	0.14	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

Sismicad 12.19 - Licenza assegnata a Sidel ingegneria Srl - Via Isonzo, 13 - Villanova di Castenaso (BO)





fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 59	1.11	-543.71	244.8124	815	0	0	No, Rottura per schiacciamento
SLU 59	4.83	-362.59	9.5851	544	287.4554	29.99	Si
SLU 57	1.11	-547.66	245.5628	821	0	0	No, Rottura per schiacciamento
SLU 57	4.83	-365.05	7.8517	547	285.464	36.357	Si
SLU 69	1.11	-556.72	248.2555	835	0	0	No, Rottura per schiacciamento
SLU 69	4.83	-372.16	11.8323	558	279.4234	23.615	Si
SLU 84	1.11	-612.65	271.1493	918	0	0	No, Rottura per schiacciamento
SLU 84	4.83	-405.11	0.9811	607	245.635	250.371	Si
SLU 83	1.11	-615.8	270.8882	923	0	0	No, Rottura per schiacciamento
SLU 83	4.83	-406.04	1.4117	609	244.5488	173.225	Si
SLU 56	1.11	-550.81	245.3017	826	0	0	No, Rottura per schiacciamento
SLU 56	4.83	-365.98	8.2824	549	284.7029	34.375	Si
SLU 63	1.11	-548.12	243.7699	822	0	0	No, Rottura per schiacciamento
SLU 63	4.83	-359.72	2.0964	539	289.7039	138.19	Si
SLU 58	1.11	-546.86	244.5513	820	0	0	No, Rottura per schiacciamento
SLU 58	4.83	-363.51	10.0157	545	286.7142	28.626	Si
SLU 71	1.11	-552.77	247.5051	829	0	0	No, Rottura per schiacciamento
SLU 71	4.83	-369.69	13.5656	554	281.5685	20.756	Si
SLU 62	1.11	-551.27	243.5089	826	0	0	No, Rottura per schiacciamento
SLU 62	4.83	-360.64	2.5271	541	288.986	114.356	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 12	1.11	-518.6	209.8638	777	449.4586	2.142	Si
SLV 12	4.83	-321.22	-1.8107	482	463.7161	256.101	Si
SLV 11	1.11	-518.6	209.8638	777	449.4586	2.142	Si
SLV 11	4.83	-321.22	-1.8107	482	463.7161	256.101	Si
SLD 4	1.11	-418.28	212.6324	627	485.1654	2.282	Si
SLD 4	4.83	-264.54	19.7871	397	425.721	21.515	Si
SLV 1	1.11	-372.22	230.1206	558	481.8512	2.094	Si
SLV 1	4.83	-237.42	39.6086	356	400.8973	10.121	Si
SLV 2	1.11	-372.22	230.1206	558	481.8512	2.094	Si
SLV 2	4.83	-237.42	39.6086	356	400.8973	10.121	Si
SLD 3	1.11	-418.28	212.6324	627	485.1654	2.282	Si
SLD 3	4.83	-264.54	19.7871	397	425.721	21.515	Si
SLV 8	1.11	-527.26	254.2677	790	443.6216	1.745	Si
SLV 8	4.83	-322.44	23.1734	483	464.3254	20.037	Si
SLV 4	1.11	-448.43	265.1752	672	480.6175	1.812	Si
SLV 4	4.83	-277.32	45.4761	416	435.9218	9.586	Si
SLV 7	1.11	-527.26	254.2677	790	443.6216	1.745	Si
SLV 7	4.83	-322.44	23.1734	483	464.3254	20.037	Si
SLV 3	1.11	-448.43	265.1752	672	480.6175	1.812	Si
SLV 3	4.83	-277.32	45.4761	416	435.9218	9.586	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	1.11	-526.1	31.36	234.6773		789	4.765	108	72.27			2.3	Si
SLU 36	4.83	-356.66	18.95	5.5879		535	4.765	108	72.27			3.81	Si
SLU 83	1.11	-615.8	33.45	270.8882		923	4.765	108	72.27			2.16	Si
SLU 83	4.83	-406.04	20.04	1.4117		609	4.765	108	72.27			3.61	Si
SLU 79	1.11	-611.39	34.7	271.9306		916	4.765	108	72.27			2.08	Si
SLU 79	4.83	-408.91	20.09	8.9004		613	4.765	108	72.27			3.6	Si
SLU 84	1.11	-612.65	32.77	271.1493		918	4.765	108	72.27			2.21	Si
SLU 84	4.83	-405.11	19.41	0.9811		607	4.765	108	72.27			3.72	Si
SLU 35	1.11	-529.25	32.03	234.4162		793	4.765	108	72.27			2.26	Si
SLU 35	4.83	-357.58	19.58	6.0185		536	4.765	108	72.27			3.69	Si
SLU 80	1.11	-608.25	34.02	272.1917		912	4.765	108	72.27			2.12	Si
SLU 80	4.83	-407.98	19.46	8.4697		612	4.765	108	72.27			3.71	Si
SLU 74	1.11	-594.62	31.52	261.1705		891	4.765	108	72.27			2.29	Si
SLU 74	4.83	-391.7	18.64	1.6778		587	4.765	108	72.27			3.88	Si
SLU 37	1.11	-525.3	31.94	233.6658		787	4.765	108	72.27			2.26	Si
SLU 37	4.83	-355.12	19.22	7.7518		532	4.765	108	72.27			3.76	Si
SLU 78	1.11	-612.19	34.11	272.9421		918	4.765	108	72.27			2.12	Si
SLU 78	4.83	-410.45	19.81	6.7364		615	4.765	108	72.27			3.65	Si
SLU 77	1.11	-615.34	34.79	272.681		922	4.765	108	72.27			2.08	Si
SLU 77	4.83	-411.37	20.44	7.1671		617	4.765	108	72.27			3.54	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1.11	-527.26	151.49	254.2677		790	4.765	163	108.4			0.72	No, Vu<V
SLV 7	4.83	-322.44	109.52	23.1734		483	4.765	163	108.4			0.99	No, Vu<V
SLV 5	1.11	-273.2	-137.33	137.4189		410	4.765	163	108.4			0.79	No, Vu<V
SLV 5	4.83	-189.46	-114.75	3.6152		284	4.765	140	93.48			0.81	No, Vu<V
SLV 15	1.11	-419.59	98.62	117.1621		629	4.765	163	108.4			1.1	Si
SLV 15	4.83	-273.26	84.9	-37.8041		410	4.765	163	108.4			1.28	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	1.11	-264.55	-115.08	93.015		397	4.765	163	108.4			0.94	No, Vu<V
SLV 10	4.83	-188.25	-89.89	-21.3689		282	4.765	140	93.24			1.04	Si
SLV 6	1.11	-273.2	-137.33	137.4189		410	4.765	163	108.4			0.79	No, Vu<V
SLV 6	4.83	-189.46	-114.75	3.6152		284	4.765	140	93.48			0.81	No, Vu<V
SLV 11	1.11	-518.6	173.74	209.8638		777	4.765	163	108.4			0.62	No, Vu<V
SLV 11	4.83	-321.22	134.38	-1.8107		482	4.765	163	108.4			0.81	No, Vu<V
SLV 8	1.11	-527.26	151.49	254.2677		790	4.765	163	108.4			0.72	No, Vu<V
SLV 8	4.83	-322.44	109.52	23.1734		483	4.765	163	108.4			0.99	No, Vu<V
SLV 9	1.11	-264.55	-115.08	93.015		397	4.765	163	108.4			0.94	No, Vu<V
SLV 9	4.83	-188.25	-89.89	-21.3689		282	4.765	140	93.24			1.04	Si
SLV 12	1.11	-518.6	173.74	209.8638		777	4.765	163	108.4			0.62	No, Vu<V
SLV 12	4.83	-321.22	134.38	-1.8107		482	4.765	163	108.4			0.81	No, Vu<V
SLV 16	1.11	-419.59	98.62	117.1621		629	4.765	163	108.4			1.1	Si
SLV 16	4.83	-273.26	84.9	-37.8041		410	4.765	163	108.4			1.28	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.31	341	-227.3	2.3243	11.474	4.94	Si
SLV 9	1438	0.31	341	-227.3	2.3243	11.474	4.94	Si
SLV 6	1438	0.31	364	-242.62	2.3243	11.9281	5.13	Si
SLV 5	1438	0.31	364	-242.62	2.3243	11.9281	5.13	Si
SLV 14	1438	0.31	409	-272.69	2.3243	12.7023	5.46	Si
SLV 13	1438	0.31	409	-272.69	2.3243	12.7023	5.46	Si
SLV 2	1438	0.31	485	-323.76	2.3243	13.6614	5.88	Si
SLV 1	1438	0.31	485	-323.76	2.3243	13.6614	5.88	Si
SLV 16	1438	0.31	490	-326.91	2.3243	13.706	5.9	Si
SLV 15	1438	0.31	490	-326.91	2.3243	13.706	5.9	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0003 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-322.44	-527.26	0.42	0.019	36.322	0.971	0.28182	14.01752	No
SLV 8	-322.44	-527.26	0.42	0.019	36.322	0.971	0.28182	14.01752	No
SLV 12	-321.22	-518.6	0.3	0.019	36.198	0.971	0.28711	14.01752	No
SLV 11	-321.22	-518.6	0.3	0.019	36.198	0.971	0.28711	14.01752	No
SLV 3	-277.32	-448.43	0.32	0.019	31.728	0.967	0.2879	14.01752	No
SLV 4	-277.32	-448.43	0.32	0.019	31.728	0.967	0.2879	14.01752	No
SLV 10	-188.25	-264.55	-0.39	0.019	22.668	0.955	0.28898	14.01752	No
SLV 9	-188.25	-264.55	-0.39	0.019	22.668	0.955	0.28898	14.01752	No
SLV 14	-233.37	-343.37	-0.29	0.019	27.256	0.962	0.29226	14.01752	No
SLV 13	-233.37	-343.37	-0.29	0.019	27.256	0.962	0.29226	14.01752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 56	No
V_SLU	2.077	SLU 77	Si
PF_SLV	1.745	SLV 7	Si
V_SLV	0.624	SLV 11	No
PFFP_SLV	4.936	SLV 9	Si
R_SLV	0.02	SLV 7	No

## Maschio 88

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	5.951	-5.158	6.006	L3	L4	0.055	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 55	3.11	-11.6	0.1822	753	0.0241	0.132	No, M>Mu
SLU 55	3.91	-15.15	0.4391	0	0	0	No, e>l/2
SLU 56	3.11	-12.57	0.2043	816	0	0	No, Rottura per schiacciamento
SLU 56	3.91	-15.94	0.4546	0	0	0	No, e>l/2
SLU 1	3.11	-7.89	0.1228	513	0.0805	0.655	No, M>Mu
SLU 1	3.91	-10.29	0.3	0	0	0	No, e>l/2
SLU 59	3.11	-12.51	0.2038	812	0.0011	0.005	No, M>Mu
SLU 59	3.91	-15.78	0.448	0	0	0	No, e>l/2
SLU 60	3.11	-11.3	0.1698	734	0.0308	0.181	No, M>Mu
SLU 60	3.91	-15.38	0.4567	0	0	0	No, e>l/2
SLU 57	3.11	-12.51	0.2026	812	0.0011	0.005	No, M>Mu
SLU 57	3.91	-15.92	0.4543	0	0	0	No, e>l/2
SLU 58	3.11	-12.57	0.2055	816	0	0	No, Rottura per schiacciamento
SLU 58	3.91	-15.8	0.4483	0	0	0	No, e>l/2
SLU 61	3.11	-11.24	0.1681	730	0.0322	0.192	No, M>Mu
SLU 61	3.91	-15.35	0.4564	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 53	3.11	-11.71	0.1838	760	0.0215	0.117	No, M>Mu
SLU 53	3.91	-15.33	0.4458	0	0	0	No, e>l/2
SLU 54	3.11	-11.64	0.1821	756	0.0231	0.127	No, M>Mu
SLU 54	3.91	-15.3	0.4456	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	3.11	-1.67	-0.0447	108	0.0418	0.935	No, M>Mu
SLV 9	3.91	-9.97	0.4125	0	0	0	No, e>l/2
SLD 15	3.11	-7.21	0.0649	468	0.1223	1.883	Si
SLD 15	3.91	-14.35	0.4273	0	0	0	No, e>l/2
SLV 14	3.11	-2.16	-0.0931	0	0	0	No, e>l/2
SLV 14	3.91	-16.29	0.5562	0	0	0	No, e>l/2
SLV 6	3.11	-4.55	0.0692	295	0.0948	1.371	Si
SLV 6	3.91	-6.46	0.2813	0	0	0	No, e>l/2
SLD 1	3.11	-10.01	0.201	650	0.1288	0.641	No, M>Mu
SLD 1	3.91	-8.43	0.2398	0	0	0	No, e>l/2
SLV 10	3.11	-1.67	-0.0447	108	0.0418	0.935	No, M>Mu
SLV 10	3.91	-9.97	0.4125	0	0	0	No, e>l/2
SLD 14	3.11	-5.83	0.0343	378	0.1106	3.229	Si
SLD 14	3.91	-13.56	0.4309	0	0	0	No, e>l/2
SLV 13	3.11	-2.16	-0.0931	0	0	0	No, e>l/2
SLV 13	3.91	-16.29	0.5562	0	0	0	No, e>l/2
SLV 5	3.11	-4.55	0.0692	295	0.0948	1.371	Si
SLV 5	3.91	-6.46	0.2813	0	0	0	No, e>l/2
SLV 15	3.11	-5.46	-0.0206	354	0.1066	5.161	Si
SLV 15	3.91	-18.2	0.5482	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 56	3.11	-12.57	1.06	0.2043		1331	0.0337	108	1.02			0.97	No, Vu<V
SLU 56	3.91	-15.94	-2.16	0.4546		0	0	56	0			0	No, Vu<V
SLU 58	3.11	-12.57	1.06	0.2055		1342	0.0335	108	1.02			0.96	No, Vu<V
SLU 58	3.91	-15.8	-2.13	0.4483		0	0	56	0			0	No, Vu<V
SLU 53	3.11	-11.71	0.96	0.1838		1181	0.0354	108	1.07			1.12	Si
SLU 53	3.91	-15.33	-2.11	0.4458		0	0	56	0			0	No, Vu<V
SLU 1	3.11	-7.89	0.64	0.1228		787	0.0358	108	1.09			1.7	Si
SLU 1	3.91	-10.29	-1.42	0.3		0	0	56	0			0	No, Vu<V
SLU 61	3.11	-11.24	0.89	0.1681		1067	0.0376	108	1.14			1.29	Si
SLU 61	3.91	-15.35	-2.16	0.4564		0	0	56	0			0	No, Vu<V
SLU 54	3.11	-11.64	0.95	0.1821		1169	0.0356	108	1.08			1.14	Si
SLU 54	3.91	-15.3	-2.11	0.4456		0	0	56	0			0	No, Vu<V
SLU 60	3.11	-11.3	0.9	0.1698		1078	0.0374	108	1.14			1.27	Si
SLU 60	3.91	-15.38	-2.16	0.4567		0	0	56	0			0	No, Vu<V
SLU 59	3.11	-12.51	1.05	0.2038		1329	0.0336	108	1.02			0.97	No, Vu<V
SLU 59	3.91	-15.78	-2.13	0.448		0	0	56	0			0	No, Vu<V
SLU 57	3.11	-12.51	1.05	0.2026		1318	0.0339	108	1.03			0.98	No, Vu<V
SLU 57	3.91	-15.92	-2.16	0.4543		0	0	56	0			0	No, Vu<V
SLU 55	3.11	-11.6	0.95	0.1822		1171	0.0354	108	1.07			1.13	Si
SLU 55	3.91	-15.15	-2.08	0.4391		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	3.11	-4.55	0.32	0.0692		441	0.0369	163	1.68			5.27	Si
SLV 5	3.91	-6.46	-1.55	0.2813		0	0	83	0			0	No, Vu<V
SLV 15	3.11	-5.46	-0.29	-0.0206		354	0.055	154	2.37			8.08	Si
SLV 15	3.91	-18.2	-2.41	0.5482		0	0	83	0			0	No, Vu<V
SLD 14	3.11	-5.83	0.07	0.0343		378	0.055	159	2.45			34.93	Si
SLD 14	3.91	-13.56	-2	0.4309		0	0	83	0			0	No, Vu<V
SLV 13	3.11	-2.16	-0.74	-0.0931		0	0	83	0			0	No, Vu<V
SLV 13	3.91	-16.29	-2.55	0.5562		0	0	83	0			0	No, Vu<V
SLV 14	3.11	-2.16	-0.74	-0.0931		0	0	83	0			0	No, Vu<V
SLV 14	3.91	-16.29	-2.55	0.5562		0	0	83	0			0	No, Vu<V
SLD 1	3.11	-10.01	1.13	0.201		1605	0.0223	163	1.01			0.9	No, Vu<V
SLD 1	3.91	-8.43	-1.22	0.2398		0	0	83	0			0	No, Vu<V
SLD 15	3.11	-7.21	0.26	0.0649		468	0.055	163	2.5			9.57	Si
SLD 15	3.91	-14.35	-1.94	0.4273		0	0	83	0			0	No, Vu<V
SLV 9	3.11	-1.67	-0.41	-0.0447		0	0	83	0			0	No, Vu<V
SLV 9	3.91	-9.97	-2.09	0.4125		0	0	83	0			0	No, Vu<V
SLV 6	3.11	-4.55	0.32	0.0692		441	0.0369	163	1.68			5.27	Si
SLV 6	3.91	-6.46	-1.55	0.2813		0	0	83	0			0	No, Vu<V
SLV 10	3.11	-1.67	-0.41	-0.0447		0	0	83	0			0	No, Vu<V
SLV 10	3.91	-9.97	-2.09	0.4125		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	1438	0.31	29	-0.45	0.0513	0.0608	1.19	Si
SLV 14	1438	0.31	29	-0.45	0.0513	0.0608	1.19	Si
SLV 10	1438	0.31	44	-0.68	0.0513	0.0917	1.79	Si
SLV 9	1438	0.31	44	-0.68	0.0513	0.0917	1.79	Si
SLV 16	1438	0.31	137	-2.11	0.0513	0.2623	5.11	Si
SLV 15	1438	0.31	137	-2.11	0.0513	0.2623	5.11	Si
SLV 6	1438	0.31	165	-2.55	0.0513	0.3082	6.01	Si
SLV 5	1438	0.31	165	-2.55	0.0513	0.3082	6.01	Si
SLV 12	1438	0.31	405	-6.23	0.0513	0.5834	11.37	Si
SLV 11	1438	0.31	405	-6.23	0.0513	0.5834	11.37	Si



## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 2.97  $W_a = 0.0005$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	-5.13	-23.77	0.02	0.038	0.603	0.96	0.5702	10.54325	No
SLV 8	-5.13	-23.77	0.02	0.038	0.603	0.96	0.5702	10.54325	No
SLV 12	-5.25	-23.74	0.02	0.038	0.615	0.961	0.57905	10.54325	No
SLV 11	-5.25	-23.74	0.02	0.038	0.615	0.961	0.57905	10.54325	No
SLV 10	-2.43	-12.49	-0.02	0.038	0.329	0.933	0.59151	10.54325	No
SLV 9	-2.43	-12.49	-0.02	0.038	0.329	0.933	0.59151	10.54325	No
SLV 5	-2.31	-12.52	-0.01	0.039	0.317	0.931	0.61257	10.54325	No
SLV 6	-2.31	-12.52	-0.01	0.039	0.317	0.931	0.61257	10.54325	No
SLV 4	-4	-19.87	0.01	0.039	0.488	0.952	0.60171	10.12339	No
SLV 3	-4	-19.87	0.01	0.039	0.488	0.952	0.60171	10.12339	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	1.185	SLV 13	Si
R_SLV	0.054	SLV 7	No

## Maschio 89

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	6.506	-5.158	6.661	L3	L4	0.155	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 61	3.11	-46.57	-1.6837	1073	0	0	No, Rottura per schiacciamento
SLU 61	3.91	-24.63	1.2781	568	0.5789	0.453	No, M>Mu
SLU 56	3.11	-47.63	-1.5489	1098	0	0	No, Rottura per schiacciamento
SLU 56	3.91	-27.72	1.1092	639	0.4639	0.418	No, M>Mu
SLU 55	3.11	-45.53	-1.5484	1049	0	0	No, Rottura per schiacciamento
SLU 55	3.91	-25.48	1.1377	587	0.5515	0.485	No, M>Mu
SLU 59	3.11	-47.06	-1.5171	1084	0	0	No, Rottura per schiacciamento
SLU 59	3.91	-27.56	1.0804	635	0.4706	0.436	No, M>Mu
SLU 54	3.11	-46.08	-1.5815	1062	0	0	No, Rottura per schiacciamento
SLU 54	3.91	-25.58	1.1683	589	0.5479	0.469	No, M>Mu
SLU 57	3.11	-47.55	-1.553	1096	0	0	No, Rottura per schiacciamento
SLU 57	3.91	-27.57	1.1147	635	0.4704	0.422	No, M>Mu
SLU 60	3.11	-46.66	-1.6796	1075	0	0	No, Rottura per schiacciamento
SLU 60	3.91	-24.78	1.2726	571	0.5743	0.451	No, M>Mu
SLU 42	3.11	-46.46	-1.6087	1071	0	0	No, Rottura per schiacciamento
SLU 42	3.91	-25.8	1.1911	594	0.5403	0.454	No, M>Mu
SLU 53	3.11	-46.17	-1.5775	1064	0	0	No, Rottura per schiacciamento
SLU 53	3.91	-25.73	1.1628	593	0.5427	0.467	No, M>Mu
SLU 58	3.11	-47.15	-1.513	1086	0	0	No, Rottura per schiacciamento
SLU 58	3.91	-27.71	1.075	639	0.4641	0.432	No, M>Mu

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	3.11	-45.57	-3.3229	1050	0.4969	0.15	No, M>Mu
SLV 13	3.91	-0.75	3.1184	0	0	0	No, e>l/2
SLD 14	3.11	-39.36	-2.1264	907	0.7864	0.37	No, M>Mu
SLD 14	3.91	-10.99	1.8652	0	0	0	No, e>l/2
SLV 14	3.11	-45.57	-3.3229	1050	0.4969	0.15	No, M>Mu
SLV 14	3.91	-0.75	3.1184	0	0	0	No, e>l/2
SLV 9	3.11	-27.7	-1.8276	638	1.0254	0.561	No, M>Mu
SLV 9	3.91	-2.5	1.9761	0	0	0	No, e>l/2
SLV 15	3.11	-52.2	-3.3272	1203	0.0631	0.019	No, M>Mu
SLV 15	3.91	-7.96	2.8432	0	0	0	No, e>l/2
SLD 16	3.11	-42.16	-2.1287	971	0.6699	0.315	No, M>Mu
SLD 16	3.91	-14.04	1.7448	0	0	0	No, e>l/2
SLD 15	3.11	-42.16	-2.1287	971	0.6699	0.315	No, M>Mu
SLD 15	3.91	-14.04	1.7448	0	0	0	No, e>l/2
SLV 10	3.11	-27.7	-1.8276	638	1.0254	0.561	No, M>Mu



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	3.91	-2.5	1.9761	0	0	0	No, $e \geq l/2$
SLV 16	3.11	-52.2	-3.3272	1203	0.0631	0.019	No, $M > Mu$
SLV 16	3.91	-7.96	2.8432	0	0	0	No, $e \geq l/2$
SLD 13	3.11	-39.36	-2.1264	907	0.7864	0.37	No, $M > Mu$
SLD 13	3.91	-10.99	1.8652	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	3.11	-52.44	-6.49	-1.883		1501	0.1248	108	3.78			0.58	No, $V_u < V$
SLU 81	3.91	-28.02	-6.34	1.4235		1249	0.0801	108	2.43			0.38	No, $V_u < V$
SLU 19	3.11	-39.22	-4.96	-1.4339		1140	0.1228	108	3.73			0.75	No, $V_u < V$
SLU 19	3.91	-20.57	-4.85	1.0938		1007	0.073	108	2.21			0.46	No, $V_u < V$
SLU 39	3.11	-45.08	-5.64	-1.6332		1300	0.1238	108	3.76			0.67	No, $V_u < V$
SLU 39	3.91	-23.96	-5.51	1.2392		1106	0.0773	108	2.35			0.43	No, $V_u < V$
SLU 61	3.11	-46.57	-5.81	-1.6837		1341	0.124	108	3.76			0.65	No, $V_u < V$
SLU 61	3.91	-24.63	-5.68	1.2781		1145	0.0768	108	2.33			0.41	No, $V_u < V$
SLU 60	3.11	-46.66	-5.79	-1.6796		1338	0.1245	108	3.78			0.65	No, $V_u < V$
SLU 60	3.91	-24.78	-5.67	1.2726		1128	0.0784	108	2.38			0.42	No, $V_u < V$
SLU 82	3.11	-52.35	-6.51	-1.887		1503	0.1244	108	3.77			0.58	No, $V_u < V$
SLU 82	3.91	-27.87	-6.36	1.429		1265	0.0787	108	2.39			0.38	No, $V_u < V$
SLU 40	3.11	-45	-5.66	-1.6373		1303	0.1233	108	3.74			0.66	No, $V_u < V$
SLU 40	3.91	-23.81	-5.53	1.2447		1124	0.0757	108	2.3			0.42	No, $V_u < V$
SLU 84	3.11	-53.82	-6.37	-1.8585		1491	0.1289	108	3.91			0.61	No, $V_u < V$
SLU 84	3.91	-29.86	-6.2	1.3754		1131	0.0943	108	2.86			0.46	No, $V_u < V$
SLU 73	3.11	-49.84	-6.13	-1.7803		1420	0.1253	108	3.8			0.62	No, $V_u < V$
SLU 73	3.91	-26.73	-5.99	1.3422		1166	0.0819	108	2.48			0.41	No, $V_u < V$
SLU 52	3.11	-44.06	-5.43	-1.577		1258	0.1251	108	3.8			0.7	No, $V_u < V$
SLU 52	3.91	-23.49	-5.31	1.1913		1044	0.0804	108	2.44			0.46	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	3.11	-45.57	-12.89	-3.3229		11852	0.0137	163	0.62			0.05	No, $V_u < V$
SLV 14	3.91	-0.75	-12.56	3.1184		0	0	83	0			0	No, $V_u < V$
SLD 15	3.11	-42.16	-7.33	-2.1287		1859	0.081	163	3.69			0.5	No, $V_u < V$
SLD 15	3.91	-14.04	-7.3	1.7448		0	0	83	0			0	No, $V_u < V$
SLD 16	3.11	-42.16	-7.33	-2.1287		1859	0.081	163	3.69			0.5	No, $V_u < V$
SLD 16	3.91	-14.04	-7.3	1.7448		0	0	83	0			0	No, $V_u < V$
SLD 13	3.11	-39.36	-7.95	-2.1264		1996	0.0704	163	3.2			0.4	No, $V_u < V$
SLD 13	3.91	-10.99	-7.75	1.8652		0	0	83	0			0	No, $V_u < V$
SLV 10	3.11	-27.7	-8.87	-1.8276		2862	0.0346	163	1.57			0.18	No, $V_u < V$
SLV 10	3.91	-2.5	-8.11	1.9761		0	0	83	0			0	No, $V_u < V$
SLV 15	3.11	-52.2	-11.49	-3.3272		4516	0.0413	163	1.88			0.16	No, $V_u < V$
SLV 15	3.91	-7.96	-11.54	2.8432		0	0	83	0			0	No, $V_u < V$
SLV 16	3.11	-52.2	-11.49	-3.3272		4516	0.0413	163	1.88			0.16	No, $V_u < V$
SLV 16	3.91	-7.96	-11.54	2.8432		0	0	83	0			0	No, $V_u < V$
SLD 14	3.11	-39.36	-7.95	-2.1264		1996	0.0704	163	3.2			0.4	No, $V_u < V$
SLD 14	3.91	-10.99	-7.75	1.8652		0	0	83	0			0	No, $V_u < V$
SLV 9	3.11	-27.7	-8.87	-1.8276		2862	0.0346	163	1.57			0.18	No, $V_u < V$
SLV 9	3.91	-2.5	-8.11	1.9761		0	0	83	0			0	No, $V_u < V$
SLV 13	3.11	-45.57	-12.89	-3.3229		11852	0.0137	163	0.62			0.05	No, $V_u < V$
SLV 13	3.91	-0.75	-12.56	3.1184		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.31	257	-11.17	0.1446	1.2346	8.54	Si
SLV 2	1438	0.31	257	-11.17	0.1446	1.2346	8.54	Si
SLV 6	1438	0.31	335	-14.53	0.1446	1.477	10.21	Si
SLV 5	1438	0.31	335	-14.53	0.1446	1.477	10.21	Si
SLV 16	1438	0.31	880	-38.21	0.1446	1.4951	10.34	Si
SLV 15	1438	0.31	880	-38.21	0.1446	1.4951	10.34	Si
SLV 3	1438	0.31	350	-15.2	0.1446	1.5178	10.49	Si
SLV 4	1438	0.31	350	-15.2	0.1446	1.5178	10.49	Si
SLV 12	1438	0.31	803	-34.85	0.1446	1.6728	11.57	Si
SLV 11	1438	0.31	803	-34.85	0.1446	1.6728	11.57	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-2.68	-21.09	-0.22	0	0.511	0.898	0	10.54325	No
SLV 6	-2.68	-21.09	-0.22	0	0.511	0.898	0	10.54325	No
SLV 10	2.73	-29.97	-0.11	0	0	0	0	10.54325	No, Trazione
SLV 9	2.73	-29.97	-0.11	0	0	0	0	10.54325	No, Trazione
SLV 15	0.23	-56.75	0.29	0	0	0	0	10.12339	No, Trazione
SLV 13	4.29	-49.17	0.16	0	0	0	0	10.12339	No, Trazione
SLV 16	0.23	-56.75	0.29	0	0	0	0	10.12339	No, Trazione
SLV 14	4.29	-49.17	0.16	0	0	0	0	10.12339	No, Trazione
SLV 11	-10.82	-55.23	0.32	0.016	1.33	0.95	0.24225	10.54325	No
SLV 12	-10.82	-55.23	0.32	0.016	1.33	0.95	0.24225	10.54325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 10	No
V_SLU	0.375	SLU 82	No
PF_SLV	0	SLD 9	No
V_SLV	0	SLD 9	No
PFFP_SLV	8.536	SLV 1	Si
R_SLV	0	SLV 16	No



## Maschio 90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-6.008	-3.359	-6.463	-3.359	L3	L4	0.455	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 75	3.11	-102.35	1.6674	803	0.3203	0.192	No, M>Mu
SLU 75	3.91	-112.51	-2.5925	883	0	0	No, Rottura per schiacciamento
SLU 61	3.11	-95.51	1.5844	750	1.7315	1.093	Si
SLU 61	3.91	-104.6	-2.4675	821	0	0	No, Rottura per schiacciamento
SLU 74	3.11	-99.13	1.3376	778	1.0104	0.755	No, M>Mu
SLU 74	3.91	-109.44	-2.2681	859	0	0	No, Rottura per schiacciamento
SLU 83	3.11	-102.76	1.3623	807	0.2284	0.168	No, M>Mu
SLU 83	3.91	-113.67	-2.2998	892	0	0	No, Rottura per schiacciamento
SLU 57	3.11	-94.91	1.5162	745	1.8454	1.217	Si
SLU 57	3.91	-104.18	-2.3069	818	0	0	No, Rottura per schiacciamento
SLU 73	3.11	-102.26	1.8895	803	0.3392	0.18	No, M>Mu
SLU 73	3.91	-111.91	-2.8261	878	0	0	No, Rottura per schiacciamento
SLU 77	3.11	-100.65	1.3158	790	0.6909	0.525	No, M>Mu
SLU 77	3.91	-111.34	-2.2036	874	0	0	No, Rottura per schiacciamento
SLU 84	3.11	-105.99	1.6921	832	0	0	No, Rottura per schiacciamento
SLU 84	3.91	-116.74	-2.6242	916	0	0	No, Rottura per schiacciamento
SLU 78	3.11	-103.87	1.6456	815	0	0	No, Rottura per schiacciamento
SLU 78	3.91	-114.41	-2.5281	898	0	0	No, Rottura per schiacciamento
SLU 63	3.11	-97.03	1.5627	762	1.4361	0.919	No, M>Mu
SLU 63	3.91	-106.51	-2.4031	836	0	0	No, Rottura per schiacciamento

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 3	3.11	-36.49	7.8175	286	6.3559	0.813	No, M>Mu
SLV 3	3.91	-47.26	-10.9552	0	0	0	No, e>l/2
SLV 15	3.11	-78.67	-6.5565	618	8.8525	1.35	Si
SLV 15	3.91	-81.32	8.9289	638	8.8358	0.99	No, M>Mu
SLV 16	3.11	-78.67	-6.5565	618	8.8525	1.35	Si
SLV 16	3.91	-81.32	8.9289	638	8.8358	0.99	No, M>Mu
SLV 13	3.11	-98.82	-5.9127	776	8.21	1.389	Si
SLV 13	3.91	-101.32	7.7144	795	8.0476	1.043	Si
SLV 2	3.11	-56.64	8.4613	445	8.1972	0.969	No, M>Mu
SLV 2	3.91	-67.26	-12.1697	528	8.6902	0.714	No, M>Mu
SLV 4	3.11	-36.49	7.8175	286	6.3559	0.813	No, M>Mu
SLV 4	3.91	-47.26	-10.9552	0	0	0	No, e>l/2
SLV 6	3.11	-94.91	4.1816	745	8.4275	2.015	Si
SLV 6	3.91	-102.51	-6.6271	805	7.9635	1.202	Si
SLV 5	3.11	-94.91	4.1816	745	8.4275	2.015	Si
SLV 5	3.91	-102.51	-6.6271	805	7.9635	1.202	Si
SLV 14	3.11	-98.82	-5.9127	776	8.21	1.389	Si
SLV 14	3.91	-101.32	7.7144	795	8.0476	1.043	Si
SLV 1	3.11	-56.64	8.4613	445	8.1972	0.969	No, M>Mu
SLV 1	3.91	-67.26	-12.1697	528	8.6902	0.714	No, M>Mu

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	3.11	-104.47	6.03	1.7138		820	0.455	108	13.8			2.29	Si
SLU 82	3.91	-114.84	6.02	-2.6886		901	0.455	108	13.8			2.29	Si
SLU 84	3.11	-105.99	5.94	1.6921		832	0.455	108	13.8			2.32	Si
SLU 84	3.91	-116.74	5.92	-2.6242		916	0.455	108	13.8			2.33	Si
SLU 65	3.11	-92.11	5.98	1.7864		723	0.455	108	13.8			2.31	Si
SLU 65	3.91	-100.31	5.96	-2.6421		787	0.455	108	13.8			2.32	Si
SLU 55	3.11	-94.82	5.81	1.7383		744	0.455	108	13.8			2.37	Si
SLU 55	3.91	-103.58	5.79	-2.5405		813	0.455	108	13.8			2.38	Si
SLU 73	3.11	-102.26	6.4	1.8895		803	0.455	108	13.8			2.16	Si
SLU 73	3.91	-111.91	6.37	-2.8261		878	0.455	108	13.8			2.17	Si
SLU 78	3.11	-103.87	5.75	1.6456		815	0.455	108	13.8			2.4	Si
SLU 78	3.91	-114.41	5.74	-2.5281		898	0.455	108	13.8			2.41	Si
SLU 76	3.11	-103.78	6.3	1.8677		815	0.455	108	13.8			2.19	Si
SLU 76	3.91	-113.82	6.28	-2.7617		893	0.455	108	13.8			2.2	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	3.11	-93.3	5.91	1.7601		732	0.455	108	13.8			2.34	Si
SLU 52	3.91	-101.68	5.88	-2.6049		798	0.455	108	13.8			2.35	Si
SLU 75	3.11	-102.35	5.84	1.6674		803	0.455	108	13.8			2.36	Si
SLU 75	3.91	-112.51	5.83	-2.5925		883	0.455	108	13.8			2.37	Si
SLU 68	3.11	-93.63	5.89	1.7646		735	0.455	108	13.8			2.34	Si
SLU 68	3.91	-102.22	5.86	-2.5777		802	0.455	108	13.8			2.35	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	3.11	-56.64	28.13	8.4613		863	0.2343	163	10.66			0.38	No, Vu<V
SLV 2	3.91	-67.26	25.75	-12.1697		1719	0.1397	163	6.36			0.25	No, Vu<V
SLV 14	3.11	-98.82	-15.99	-5.9127		776	0.455	163	20.7			1.29	Si
SLV 14	3.91	-101.32	-17.62	7.7144		797	0.4541	163	20.66			1.17	Si
SLV 6	3.11	-94.91	18.54	4.1816		745	0.455	163	20.7			1.12	Si
SLV 6	3.91	-102.51	11.76	-6.6271		805	0.455	163	20.7			1.76	Si
SLV 4	3.11	-36.49	23.12	7.8175		3270	0.0399	163	1.81			0.08	No, Vu<V
SLV 4	3.91	-47.26	24.74	-10.9552		0	0	83	0			0	No, Vu<V
SLV 3	3.11	-36.49	23.12	7.8175		3270	0.0399	163	1.81			0.08	No, Vu<V
SLV 3	3.91	-47.26	24.74	-10.9552		0	0	83	0			0	No, Vu<V
SLV 1	3.11	-56.64	28.13	8.4613		863	0.2343	163	10.66			0.38	No, Vu<V
SLV 1	3.91	-67.26	25.75	-12.1697		1719	0.1397	163	6.36			0.25	No, Vu<V
SLV 5	3.11	-94.91	18.54	4.1816		745	0.455	163	20.7			1.12	Si
SLV 5	3.91	-102.51	11.76	-6.6271		805	0.455	163	20.7			1.76	Si
SLV 15	3.11	-78.67	-21.01	-6.5565		650	0.4325	163	19.68			0.94	No, Vu<V
SLV 15	3.91	-81.32	-18.63	8.9289		823	0.3531	163	16.07			0.86	No, Vu<V
SLV 16	3.11	-78.67	-21.01	-6.5565		650	0.4325	163	19.68			0.94	No, Vu<V
SLV 16	3.91	-81.32	-18.63	8.9289		823	0.3531	163	16.07			0.86	No, Vu<V
SLV 13	3.11	-98.82	-15.99	-5.9127		776	0.455	163	20.7			1.29	Si
SLV 13	3.91	-101.32	-17.62	7.7144		797	0.4541	163	20.66			1.17	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.31	159	-20.25	0.4149	2.4658	5.94	Si
SLV 7	1438	0.31	159	-20.25	0.4149	2.4658	5.94	Si
SLV 12	1438	0.31	188	-23.93	0.4149	2.8355	6.83	Si
SLV 11	1438	0.31	188	-23.93	0.4149	2.8355	6.83	Si
SLV 4	1438	0.31	298	-38.01	0.4149	4.022	9.69	Si
SLV 3	1438	0.31	298	-38.01	0.4149	4.022	9.69	Si
SLV 15	1438	0.31	395	-50.3	0.4149	4.7665	11.49	Si
SLV 16	1438	0.31	395	-50.3	0.4149	4.7665	11.49	Si
SLV 1	1438	0.31	447	-56.92	0.4149	5.0551	12.18	Si
SLV 2	1438	0.31	447	-56.92	0.4149	5.0551	12.18	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-38.95	-87.76	0.07	0.04	4.634	0.957	0.60306	10.54325	No
SLV 10	-38.95	-87.76	0.07	0.04	4.634	0.957	0.60306	10.54325	No
SLV 5	-35.02	-92.81	0.07	0.04	4.235	0.954	0.60767	10.54325	No
SLV 6	-35.02	-92.81	0.07	0.04	4.235	0.954	0.60767	10.54325	No
SLV 11	-20.66	-13.38	-0.13	0.039	2.778	0.934	0.60782	10.54325	No
SLV 12	-20.66	-13.38	-0.13	0.039	2.778	0.934	0.60782	10.54325	No
SLV 8	-16.73	-18.44	-0.12	0.039	2.382	0.925	0.61926	10.54325	No
SLV 7	-16.73	-18.44	-0.12	0.039	2.382	0.925	0.61926	10.54325	No
SLV 16	-31.64	-33.51	-0.06	0.04	3.891	0.95	0.61869	10.12339	No
SLV 15	-31.64	-33.51	-0.06	0.04	3.891	0.95	0.61869	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 57	No
V_SLU	2.158	SLU 73	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	5.943	SLV 7	Si
R_SLV	0.057	SLV 9	No

## Maschio 91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-3.233	-3.359	-5.508	-3.359	L3	L4	2.275	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 2	3.11	-100.11	59.5275	157	91.9061	1.544	Si
SLU 2	3.91	-91.4	29.768	143	85.6529	2.877	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	3.11	-153.55	77.3186	241	122.9785	1.591	Si
SLU 52	3.91	-142.28	38.3024	223	117.4643	3.067	Si
SLU 68	3.11	-154.36	77.3549	242	123.3502	1.595	Si
SLU 68	3.91	-142.93	38.0929	224	117.8012	3.092	Si
SLU 73	3.11	-174.1	83.1091	273	131.5924	1.583	Si
SLU 73	3.91	-162.68	40.9367	255	127.0322	3.103	Si
SLU 47	3.11	-133.81	71.5644	210	112.9577	1.578	Si
SLU 47	3.91	-122.53	35.4585	192	106.4673	3.003	Si
SLU 65	3.11	-151.6	76.5523	238	122.0637	1.595	Si
SLU 65	3.91	-140.18	37.7404	220	116.3767	3.084	Si
SLU 55	3.11	-156.31	78.1212	245	124.2415	1.59	Si
SLU 55	3.91	-145.03	38.6549	228	118.8635	3.075	Si
SLU 44	3.11	-131.05	70.7618	206	111.4229	1.575	Si
SLU 44	3.91	-119.78	35.106	188	104.7962	2.985	Si
SLU 5	3.11	-102.87	60.3301	161	93.8148	1.555	Si
SLU 5	3.91	-94.15	30.1205	148	87.6669	2.911	Si
SLU 76	3.11	-176.86	83.9117	278	132.607	1.58	Si
SLU 76	3.91	-165.43	41.2892	260	128.1848	3.105	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	3.11	-207.23	104.9031	325	172.9607	1.649	Si
SLV 5	3.91	-244.58	-21.2492	384	190.7867	8.979	Si
SLV 16	3.11	-96.68	11.2578	152	96.312	8.555	Si
SLV 16	3.91	-75.32	106.3005	0	0	0	No, $e \geq l/2$
SLV 15	3.11	-96.68	11.2578	152	96.312	8.555	Si
SLV 15	3.91	-75.32	106.3005	0	0	0	No, $e \geq l/2$
SLV 7	3.11	-84.97	2.9042	133	86.0978	29.646	Si
SLV 7	3.91	-29.29	19.5639	46	32.0611	1.639	Si
SLV 6	3.11	-207.23	104.9031	325	172.9607	1.649	Si
SLV 6	3.91	-244.58	-21.2492	384	190.7867	8.979	Si
SLV 12	3.11	-70.62	-9.717	111	73.0434	7.517	Si
SLV 12	3.91	-15.76	66.1891	0	0	0	No, $e \geq l/2$
SLV 8	3.11	-84.97	2.9042	133	86.0978	29.646	Si
SLV 8	3.91	-29.29	19.5639	46	32.0611	1.639	Si
SLV 11	3.11	-70.62	-9.717	111	73.0434	7.517	Si
SLV 11	3.91	-15.76	66.1891	0	0	0	No, $e \geq l/2$
SLV 13	3.11	-133.36	41.8575	209	125.7026	3.003	Si
SLV 13	3.91	-139.91	94.0566	220	130.5418	1.388	Si
SLV 14	3.11	-133.36	41.8575	209	125.7026	3.003	Si
SLV 14	3.91	-139.91	94.0566	220	130.5418	1.388	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	3.11	-156.31	49.24	78.1212		292	1.9131	94	50.6			1.03	Si
SLU 55	3.91	-145.03	49.24	38.6549		228	2.275	86	54.73			1.11	Si
SLU 68	3.11	-154.36	49	77.3549		289	1.9091	94	50.28			1.03	Si
SLU 68	3.91	-142.93	49	38.0929		224	2.275	85	54.45			1.11	Si
SLU 47	3.11	-133.81	45.04	71.5644		264	1.808	91	45.97			1.02	Si
SLU 47	3.91	-122.53	45.04	35.4585		192	2.275	81	51.73			1.15	Si
SLU 5	3.11	-102.87	37.7	60.3301		222	1.6531	85	39.43			1.05	Si
SLU 5	3.91	-94.15	37.7	30.1205		148	2.275	75	47.94			1.27	Si
SLU 73	3.11	-174.1	52.64	83.1091		314	1.9804	97	54.02			1.03	Si
SLU 73	3.91	-162.68	52.64	40.9367		255	2.275	90	57.08			1.08	Si
SLU 2	3.11	-100.11	37.13	59.5275		220	1.6287	85	38.68			1.04	Si
SLU 2	3.91	-91.4	37.13	29.768		143	2.275	75	47.58			1.28	Si
SLU 76	3.11	-176.86	53.21	83.9117		318	1.9891	98	54.52			1.02	Si
SLU 76	3.91	-165.43	53.21	41.2892		260	2.275	90	57.45			1.08	Si
SLU 44	3.11	-131.05	44.48	70.7618		261	1.7927	90	45.36			1.02	Si
SLU 44	3.91	-119.78	44.48	35.106		188	2.275	81	51.36			1.15	Si
SLU 65	3.11	-151.6	48.44	76.5523		285	1.8976	94	49.73			1.03	Si
SLU 65	3.91	-140.18	48.44	37.7404		220	2.275	85	54.08			1.12	Si
SLU 52	3.11	-153.55	48.68	77.3186		288	1.9019	94	50.06			1.03	Si
SLU 52	3.91	-142.28	48.68	38.3024		223	2.275	85	54.36			1.12	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	3.11	-96.68	-107.42	11.2578		152	2.275	114	72.42			0.67	No, $V_u < V$
SLV 16	3.91	-75.32	-107.19	106.3005		0	0	83	0			0	No, $V_u < V$
SLV 5	3.11	-207.23	110.09	104.9031		391	1.8938	161	85.63			0.78	No, $V_u < V$
SLV 5	3.91	-244.58	122.14	-21.2492		384	2.275	160	102			0.84	No, $V_u < V$
SLV 15	3.11	-96.68	-107.42	11.2578		152	2.275	114	72.42			0.67	No, $V_u < V$
SLV 15	3.91	-75.32	-107.19	106.3005		0	0	83	0			0	No, $V_u < V$
SLV 11	3.11	-70.62	-47.41	-9.717		111	2.275	106	67.21			1.42	Si
SLV 11	3.91	-15.76	-59.46	66.1891		0	0	83	0			0	No, $V_u < V$
SLV 2	3.11	-181.17	170.1	83.9282		320	2.0227	147	83.43			0.49	No, $V_u < V$
SLV 2	3.91	-185.01	169.87	-61.3606		290	2.275	141	90.09			0.53	No, $V_u < V$
SLV 12	3.11	-70.62	-47.41	-9.717		111	2.275	106	67.21			1.42	Si
SLV 12	3.91	-15.76	-59.46	66.1891		0	0	83	0			0	No, $V_u < V$
SLV 1	3.11	-181.17	170.1	83.9282		320	2.0227	147	83.43			0.49	No, $V_u < V$
SLV 1	3.91	-185.01	169.87	-61.3606		290	2.275	141	90.09			0.53	No, $V_u < V$
SLV 3	3.11	-144.49	145.63	53.3286		227	2.275	129	81.98			0.56	No, $V_u < V$
SLV 3	3.91	-120.43	137.4	-49.1167		196	2.1889	123	75.16			0.55	No, $V_u < V$
SLV 6	3.11	-207.23	110.09	104.9031		391	1.8938	161	85.63			0.78	No, $V_u < V$
SLV 6	3.91	-244.58	122.14	-21.2492		384	2.275	160	102			0.84	No, $V_u < V$
SLV 4	3.11	-144.49	145.63	53.3286		227	2.275	129	81.98			0.56	No, $V_u < V$
SLV 4	3.91	-120.43	137.4	-49.1167		196	2.1889	123	75.16			0.55	No, $V_u < V$





## Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.31	145	-92.27	2.0747	11.3861	5.49	Si
SLV 12	1438	0.31	145	-92.27	2.0747	11.3861	5.49	Si
SLV 7	1438	0.31	147	-93.78	2.0747	11.5472	5.57	Si
SLV 8	1438	0.31	147	-93.78	2.0747	11.5472	5.57	Si
SLV 15	1438	0.31	164	-104.45	2.0747	12.6611	6.1	Si
SLV 16	1438	0.31	164	-104.45	2.0747	12.6611	6.1	Si
SLV 3	1438	0.31	172	-109.5	2.0747	13.173	6.35	Si
SLV 4	1438	0.31	172	-109.5	2.0747	13.173	6.35	Si
SLV 13	1438	0.31	183	-116.41	2.0747	13.8604	6.68	Si
SLV 14	1438	0.31	183	-116.41	2.0747	13.8604	6.68	Si

## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	-50.76	8.69	-1.03	0	0	0	0	10.54325	No, Trazione
SLV 8	-50.76	8.69	-1.03	0	0	0	0	10.54325	No, Trazione
SLV 11	-48.52	-2.77	-1.28	0.031	8.402	0.904	0.49601	10.54325	No
SLV 12	-48.52	-2.77	-1.28	0.031	8.402	0.904	0.49601	10.54325	No
SLV 6	-185.53	-174.49	1.27	0.035	22.232	0.956	0.53782	10.54325	No
SLV 5	-185.53	-174.49	1.27	0.035	22.232	0.956	0.53782	10.54325	No
SLV 10	-183.29	-185.95	1.02	0.037	22.005	0.955	0.55623	10.54325	No
SLV 9	-183.29	-185.95	1.02	0.037	22.005	0.955	0.55623	10.54325	No
SLV 1	-140.97	-97.02	0.76	0.038	17.708	0.946	0.58238	10.12339	No
SLV 2	-140.97	-97.02	0.76	0.038	17.708	0.946	0.58238	10.12339	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.544	SLU 2	Si
V_SLU	1.02	SLU 44	Si
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	5.488	SLV 11	Si
R_SLV	0	SLV 8	No

## Maschio 92

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s.,dx
-0.123	-3.359	-2.233	-3.359	L3	L4	2.11	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lm	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 23	2.01	-111.94	-69.0946	189	90.6298	1.312	Si
SLU 23	3.91	-159.13	-7.9276	269	112.3703	14.174	Si
SLU 76	2.01	-157.15	-85.2962	266	111.6538	1.309	Si
SLU 76	3.91	-219.88	-6.9269	372	125.9874	18.188	Si
SLU 26	2.01	-114.76	-69.9751	194	92.2009	1.318	Si
SLU 26	3.91	-162.9	-8.0971	276	113.6853	14.04	Si
SLU 5	2.01	-99.05	-64.4865	168	82.9885	1.287	Si
SLU 5	3.91	-139.61	-8.973	236	104.5587	11.653	Si
SLU 73	2.01	-154.33	-84.4157	261	110.6059	1.31	Si
SLU 73	3.91	-216.11	-6.7574	366	125.6136	18.589	Si
SLU 2	2.01	-96.23	-63.606	163	81.2233	1.277	Si
SLU 2	3.91	-135.84	-8.8035	230	102.859	11.684	Si
SLU 47	2.01	-126.33	-74.529	214	98.2942	1.319	Si
SLU 47	3.91	-173.36	-9.3115	293	117.0112	12.566	Si
SLU 13	2.01	-114.15	-69.7651	193	91.8622	1.317	Si
SLU 13	3.91	-162.84	-7.4643	276	113.6647	15.228	Si
SLU 44	2.01	-123.52	-73.6485	209	96.8659	1.315	Si
SLU 44	3.91	-169.59	-9.142	287	115.869	12.674	Si
SLU 10	2.01	-111.33	-68.8846	188	90.2835	1.311	Si
SLU 10	3.91	-159.07	-7.2948	269	112.3487	15.401	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 4	2.01	-71.62	34.5275	121	68.0603	1.971	Si
SLV 4	3.91	-40.73	-51.9592	0	0	0	No, e>l/2
SLV 8	2.01	-48.76	28.9113	83	47.9683	1.659	Si
SLV 8	3.91	-27.68	-20.1862	47	28.0793	1.391	Si
SLV 15	2.01	-127.47	-88.1777	216	110.7342	1.256	Si
SLV 15	3.91	-203.96	49.7796	345	154.381	3.101	Si
SLV 3	2.01	-71.62	34.5275	121	68.0603	1.971	Si
SLV 3	3.91	-40.73	-51.9592	0	0	0	No, e>l/2
SLV 7	2.01	-48.76	28.9113	83	47.9683	1.659	Si
SLV 7	3.91	-27.68	-20.1862	47	28.0793	1.391	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	2.01	-186.67	-114.5591	316	146.0128	1.275	Si
SLV 9	3.91	-277.16	21.2943	469	180.1388	8.459	Si
SLV 10	2.01	-186.67	-114.5591	316	146.0128	1.275	Si
SLV 10	3.91	-277.16	21.2943	469	180.1388	8.459	Si
SLV 16	2.01	-127.47	-88.1777	216	110.7342	1.256	Si
SLV 16	3.91	-203.96	49.7796	345	154.381	3.101	Si
SLV 13	2.01	-163.82	-120.1753	277	133.6071	1.112	Si
SLV 13	3.91	-264.11	53.0673	447	176.6945	3.33	Si
SLV 14	2.01	-163.82	-120.1753	277	133.6071	1.112	Si
SLV 14	3.91	-264.11	53.0673	447	176.6945	3.33	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	2.01	-138.62	-82.73	-78.9271		340	1.4568	101	41.14			0.5	No, Vu<V
SLU 52	3.91	-192.82	-82.22	-7.6332		326	2.11	99	58.53			0.71	No, Vu<V
SLU 2	2.01	-96.23	-62.58	-63.606		291	1.1821	94	31.22			0.5	No, Vu<V
SLU 2	3.91	-135.84	-62.12	-8.8035		230	2.11	86	50.93			0.82	No, Vu<V
SLU 31	2.01	-127.04	-78.41	-74.3732		322	1.4088	98	38.85			0.5	No, Vu<V
SLU 31	3.91	-182.36	-77.91	-6.4189		309	2.11	97	57.14			0.73	No, Vu<V
SLU 65	2.01	-139.23	-82.38	-79.137		341	1.4598	101	41.27			0.5	No, Vu<V
SLU 65	3.91	-192.88	-81.87	-8.2661		326	2.11	99	58.54			0.72	No, Vu<V
SLU 13	2.01	-114.15	-71.57	-69.7651		306	1.3314	96	35.93			0.5	No, Vu<V
SLU 13	3.91	-162.84	-71.09	-7.4643		276	2.11	92	54.53			0.77	No, Vu<V
SLU 76	2.01	-157.15	-91.38	-85.2962		365	1.5367	104	44.86			0.49	No, Vu<V
SLU 76	3.91	-219.88	-90.85	-6.9269		372	2.11	105	62.14			0.68	No, Vu<V
SLU 55	2.01	-141.43	-83.64	-79.8076		343	1.4722	101	41.76			0.5	No, Vu<V
SLU 55	3.91	-196.59	-83.12	-7.8027		333	2.11	100	59.03			0.71	No, Vu<V
SLU 73	2.01	-154.33	-90.47	-84.4157		362	1.5241	104	44.29			0.49	No, Vu<V
SLU 73	3.91	-216.11	-89.95	-6.7574		366	2.11	104	61.64			0.69	No, Vu<V
SLU 34	2.01	-129.86	-79.31	-75.2537		325	1.4265	99	39.5			0.5	No, Vu<V
SLU 34	3.91	-186.13	-78.82	-6.5884		315	2.11	98	57.64			0.73	No, Vu<V
SLU 10	2.01	-111.33	-70.67	-68.8846		304	1.3088	96	35.2			0.5	No, Vu<V
SLU 10	3.91	-159.07	-70.19	-7.2948		269	2.11	91	54.03			0.77	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	2.01	-137.16	-103.98	-76.1131		327	1.5002	149	62.44			0.6	No, Vu<V
SLD 13	3.91	-200.38	-96.37	23.3543		339	2.11	151	89.31			0.93	No, Vu<V
SLV 9	2.01	-186.67	-144.13	-114.5591		504	1.3239	163	60.24			0.42	No, Vu<V
SLV 9	3.91	-277.16	-124.78	21.2943		469	2.11	163	96.01			0.77	No, Vu<V
SLV 13	2.01	-163.82	-170.4	-120.1753		607	0.9642	163	43.87			0.26	No, Vu<V
SLV 13	3.91	-264.11	-152.63	53.0673		447	2.11	163	96.01			0.63	No, Vu<V
SLV 15	2.01	-127.47	-133.8	-88.1777		418	1.0897	163	49.58			0.37	No, Vu<V
SLV 15	3.91	-203.96	-125.22	49.7796		345	2.11	152	90.03			0.72	No, Vu<V
SLV 14	2.01	-163.82	-170.4	-120.1753		607	0.9642	163	43.87			0.26	No, Vu<V
SLV 14	3.91	-264.11	-152.63	53.0673		447	2.11	163	96.01			0.63	No, Vu<V
SLV 4	2.01	-71.62	63.21	34.5275		149	1.7187	113	54.43			0.86	No, Vu<V
SLV 4	3.91	-40.73	45.73	-51.9592		0	0	83	0			0	No, Vu<V
SLV 3	2.01	-71.62	63.21	34.5275		149	1.7187	113	54.43			0.86	No, Vu<V
SLV 3	3.91	-40.73	45.73	-51.9592		0	0	83	0			0	No, Vu<V
SLD 14	2.01	-137.16	-103.98	-76.1131		327	1.5002	149	62.44			0.6	No, Vu<V
SLD 14	3.91	-200.38	-96.37	23.3543		339	2.11	151	89.31			0.93	No, Vu<V
SLV 16	2.01	-127.47	-133.8	-88.1777		418	1.0897	163	49.58			0.37	No, Vu<V
SLV 16	3.91	-203.96	-125.22	49.7796		345	2.11	152	90.03			0.72	No, Vu<V
SLV 10	2.01	-186.67	-144.13	-114.5591		504	1.3239	163	60.24			0.42	No, Vu<V
SLV 10	3.91	-277.16	-124.78	21.2943		469	2.11	163	96.01			0.77	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97  $W_a = 0.0005$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.31	0	0.82	1.9242	0	0	No, Trazione
SLV 8	1438	0.31	0	0.82	1.9242	0	0	No, Trazione
SLV 12	1438	0.31	61	-36.29	1.9242	4.8251	2.51	Si
SLV 11	1438	0.31	61	-36.29	1.9242	4.8251	2.51	Si
SLV 3	1438	0.31	72	-42.48	1.9242	5.5968	2.91	Si
SLV 4	1438	0.31	72	-42.48	1.9242	5.5968	2.91	Si
SLV 2	1438	0.31	198	-116.69	1.9242	13.6959	7.12	Si
SLV 1	1438	0.31	198	-116.69	1.9242	13.6959	7.12	Si
SLV 15	1438	0.31	281	-166.16	1.9242	17.9081	9.31	Si
SLV 16	1438	0.31	281	-166.16	1.9242	17.9081	9.31	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97  $W_a = 0.0005$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	$\alpha_{lim}$	Verifica
SLV 7	-39.41	19.63	-0.65	0	0	0	0	10.54325	No, Trazione
SLV 8	-39.41	19.63	-0.65	0	0	0	0	10.54325	No, Trazione
SLV 11	-74.25	-2.99	-0.93	0.036	10.712	0.923	0.56064	10.54325	No
SLV 12	-74.25	-2.99	-0.93	0.036	10.712	0.923	0.56064	10.54325	No
SLV 6	-189.66	-198.35	0.75	0.038	22.408	0.959	0.57021	10.54325	No
SLV 5	-189.66	-198.35	0.75	0.038	22.408	0.959	0.57021	10.54325	No
SLV 10	-224.5	-220.98	0.47	0.039	25.951	0.964	0.58442	10.54325	No
SLV 9	-224.5	-220.98	0.47	0.039	25.951	0.964	0.58442	10.54325	No
SLV 16	-167.48	-105.68	-0.77	0.038	20.153	0.955	0.57077	10.12339	No
SLV 15	-167.48	-105.68	-0.77	0.038	20.153	0.955	0.57077	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	1.277	SLU 2	Si



Stato limite	Coeff.s.	Comb.	Verifica
V_SLU	0.489	SLU 73	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 8	No
R_SLV	0	SLV 8	No

## Maschio 93

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-3.013	5.951	-5.158	5.951	L3	L4	2.145	0.28	3.72	3.72	3.72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 81	2.01	-243.45	59.9455	405	131.1742	2.188	Si
SLU 81	3.91	-279.67	43.959	466	128.4847	2.923	Si
SLU 74	2.01	-243.89	60.4711	406	131.176	2.169	Si
SLU 74	3.91	-280.4	45.5503	467	128.3699	2.818	Si
SLU 76	2.01	-240.62	59.6251	401	131.142	2.199	Si
SLU 76	3.91	-276.06	46.1925	460	129.0104	2.793	Si
SLU 77	2.01	-253.35	63.0123	422	131.0101	2.079	Si
SLU 77	3.91	-292.45	48.605	487	126.1613	2.596	Si
SLU 75	2.01	-242.77	60.091	404	131.1697	2.183	Si
SLU 75	3.91	-278.69	46.0533	464	128.6318	2.793	Si
SLU 80	2.01	-250.82	62.4197	418	131.0929	2.1	Si
SLU 80	3.91	-289.25	48.9119	482	126.8112	2.593	Si
SLU 78	2.01	-252.23	62.6321	420	131.0502	2.092	Si
SLU 78	3.91	-290.74	49.1079	484	126.5135	2.576	Si
SLU 84	2.01	-251.79	62.1065	419	131.0646	2.11	Si
SLU 84	3.91	-290	47.5165	483	126.6617	2.666	Si
SLU 83	2.01	-252.91	62.4866	421	131.0266	2.097	Si
SLU 83	3.91	-291.71	47.0136	486	126.3151	2.687	Si
SLU 79	2.01	-251.94	62.7998	419	131.0597	2.087	Si
SLU 79	3.91	-290.96	48.409	484	126.4703	2.613	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 4	2.01	-148.8	81.0961	248	127.2308	1.569	Si
SLV 4	3.91	-235.62	-34.0739	392	171.566	5.035	Si
SLV 14	2.01	-174.49	0.0254	291	142.6443	1000	Si
SLV 14	3.91	-131.71	93.1556	219	115.9032	1.244	Si
SLV 10	2.01	-56.61	58.906	94	56.0316	0.951	No, M>Mu
SLV 10	3.91	-82.36	64.6515	137	78.416	1.213	Si
SLV 2	2.01	-77.01	101.2099	0	0	0	No, e>l/2
SLV 2	3.91	-179.1	-23.5071	298	145.2062	6.177	Si
SLV 9	2.01	-56.61	58.906	94	56.0316	0.951	No, M>Mu
SLV 9	3.91	-82.36	64.6515	137	78.416	1.213	Si
SLV 5	2.01	-27.37	89.2613	0	0	0	No, e>l/2
SLV 5	3.91	-96.58	29.6527	161	89.9472	3.033	Si
SLV 1	2.01	-77.01	101.2099	0	0	0	No, e>l/2
SLV 1	3.91	-179.1	-23.5071	298	145.2062	6.177	Si
SLV 3	2.01	-148.8	81.0961	248	127.2308	1.569	Si
SLV 3	3.91	-235.62	-34.0739	392	171.566	5.035	Si
SLV 6	2.01	-27.37	89.2613	0	0	0	No, e>l/2
SLV 6	3.91	-96.58	29.6527	161	89.9472	3.033	Si
SLV 13	2.01	-174.49	0.0254	291	142.6443	1000	Si
SLV 13	3.91	-131.71	93.1556	219	115.9032	1.244	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	2.01	-251.94	45.29	62.7998		419	2.145	108	65.07			1.44	Si
SLU 79	3.91	-290.96	44.83	48.409		484	2.145	108	65.07			1.45	Si
SLU 80	2.01	-250.82	44.5	62.4197		418	2.145	108	65.07			1.46	Si
SLU 80	3.91	-289.25	44.03	48.9119		482	2.145	108	65.07			1.48	Si
SLU 77	2.01	-253.35	45.35	63.0123		422	2.145	108	65.07			1.43	Si
SLU 77	3.91	-292.45	44.89	48.605		487	2.145	108	65.07			1.45	Si
SLU 84	2.01	-251.79	44.95	62.1065		419	2.145	108	65.07			1.45	Si
SLU 84	3.91	-290	44.49	47.5165		483	2.145	108	65.07			1.46	Si
SLU 74	2.01	-243.89	44.14	60.4711		406	2.145	108	65.07			1.47	Si
SLU 74	3.91	-280.4	43.71	45.5503		467	2.145	108	65.07			1.49	Si
SLU 81	2.01	-243.45	44.53	59.9455		405	2.145	108	65.07			1.46	Si
SLU 81	3.91	-279.67	44.1	43.959		466	2.145	108	65.07			1.48	Si
SLU 75	2.01	-242.77	43.35	60.091		404	2.145	108	65.07			1.5	Si
SLU 75	3.91	-278.69	42.91	46.0533		464	2.145	108	65.07			1.52	Si
SLU 83	2.01	-252.91	45.74	62.4866		421	2.145	108	65.07			1.42	Si
SLU 83	3.91	-291.71	45.29	47.0136		486	2.145	108	65.07			1.44	Si
SLU 78	2.01	-252.23	44.56	62.6321		420	2.145	108	65.07			1.46	Si
SLU 78	3.91	-290.74	44.09	49.1079		484	2.145	108	65.07			1.48	Si
SLU 82	2.01	-242.33	43.74	59.5654		403	2.145	108	65.07			1.49	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	3.91	-277.96	43.3	44.4619		463	2.145	108	65.07			1.5	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	2.01	-148.8	150.11	81.0961		336	1.5825	150	66.69			0.44	No, Vu<V
SLV 3	3.91	-235.62	125.25	-34.0739		392	2.145	162	97.17			0.78	No, Vu<V
SLV 13	2.01	-174.49	-89.68	0.0254		291	2.145	141	84.95			0.95	No, Vu<V
SLV 13	3.91	-131.71	-65.37	93.1556		429	1.0956	163	49.85			0.76	No, Vu<V
SLV 9	2.01	-56.61	-62.28	58.906		2109	0.0959	163	4.36			0.07	No, Vu<V
SLV 9	3.91	-82.36	-26.04	64.6515		341	0.8625	152	36.6			1.41	Si
SLV 14	2.01	-174.49	-89.68	0.0254		291	2.145	141	84.95			0.95	No, Vu<V
SLV 14	3.91	-131.71	-65.37	93.1556		429	1.0956	163	49.85			0.76	No, Vu<V
SLV 2	2.01	-77.01	112.84	101.2099		0	0	83	0			0	No, Vu<V
SLV 2	3.91	-179.1	107.2	-23.5071		298	2.145	143	85.87			0.8	No, Vu<V
SLV 10	2.01	-56.61	-62.28	58.906		2109	0.0959	163	4.36			0.07	No, Vu<V
SLV 10	3.91	-82.36	-26.04	64.6515		341	0.8625	152	36.6			1.41	Si
SLV 4	2.01	-148.8	150.11	81.0961		336	1.5825	150	66.69			0.44	No, Vu<V
SLV 4	3.91	-235.62	125.25	-34.0739		392	2.145	162	97.17			0.78	No, Vu<V
SLV 5	2.01	-27.37	-1.53	89.2613		0	0	83	0			0	No, Vu<V
SLV 5	3.91	-96.58	25.73	29.6527		161	2.145	115	69.37			2.7	Si
SLV 6	2.01	-27.37	-1.53	89.2613		0	0	83	0			0	No, Vu<V
SLV 6	3.91	-96.58	25.73	29.6527		161	2.145	115	69.37			2.7	Si
SLV 1	2.01	-77.01	112.84	101.2099		0	0	83	0			0	No, Vu<V
SLV 1	3.91	-179.1	107.2	-23.5071		298	2.145	143	85.87			0.8	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.31	87	-52.37	1.9561	6.8084	3.48	Si
SLV 10	1438	0.31	87	-52.37	1.9561	6.8084	3.48	Si
SLV 5	1438	0.31	96	-57.68	1.9561	7.44	3.8	Si
SLV 6	1438	0.31	96	-57.68	1.9561	7.44	3.8	Si
SLV 14	1438	0.31	211	-126.64	1.9561	14.6704	7.5	Si
SLV 13	1438	0.31	211	-126.64	1.9561	14.6704	7.5	Si
SLV 2	1438	0.31	240	-144.33	1.9561	16.2326	8.3	Si
SLV 1	1438	0.31	240	-144.33	1.9561	16.2326	8.3	Si
SLV 16	1438	0.31	326	-195.62	1.9561	20.0862	10.27	Si
SLV 15	1438	0.31	326	-195.62	1.9561	20.0862	10.27	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-82.48	4.1	1.09	0	0	0	0	10.54325	No, Trazione
SLV 10	-82.48	4.1	1.09	0	0	0	0	10.54325	No, Trazione
SLV 5	-97.65	30	1.5	0	0	0	0	10.54325	No, Trazione
SLV 6	-97.65	30	1.5	0	0	0	0	10.54325	No, Trazione
SLV 11	-200.07	-280.01	-1.41	0.035	23.518	0.96	0.52483	10.54325	No
SLV 12	-200.07	-280.01	-1.41	0.035	23.518	0.96	0.52483	10.54325	No
SLV 7	-215.25	-254.11	-0.99	0.037	25.062	0.962	0.55315	10.54325	No
SLV 8	-215.25	-254.11	-0.99	0.037	25.062	0.962	0.55315	10.54325	No
SLV 2	-156.52	-39.22	1.12	0.036	19.091	0.952	0.54355	10.12339	No
SLV 1	-156.52	-39.22	1.12	0.036	19.091	0.952	0.54355	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.079	SLU 77	Si
V_SLU	1.423	SLU 83	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	3.481	SLV 9	Si
R_SLV	0	SLV 10	No

## Maschio 94

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	5.951	-2.013	5.951	L3	L4	1.89	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	2.01	-149.98	-41.3994	283	92.4188	2.232	Si
SLU 80	3.91	-193.75	12.2683	366	100.8012	8.216	Si
SLU 74	2.01	-154.78	-42.9633	292	93.7481	2.182	Si
SLU 74	3.91	-198.31	10.3246	375	101.1915	9.801	Si
SLU 79	2.01	-154.55	-42.6523	292	93.6873	2.197	Si
SLU 79	3.91	-198.22	11.4979	375	101.1843	8.8	Si
SLU 82	2.01	-153.47	-42.7135	290	93.3972	2.187	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	3.91	-199.01	10.8464	376	101.243	9.334	Si
SLU 78	2.01	-151.48	-41.8351	286	92.8455	2.219	Si
SLU 78	3.91	-195.79	12.2242	370	100.987	8.261	Si
SLU 83	2.01	-159.32	-44.0911	301	94.9132	2.153	Si
SLU 83	3.91	-205.42	11.2051	388	101.6177	9.069	Si
SLU 84	2.01	-154.75	-42.8382	292	93.7403	2.188	Si
SLU 84	3.91	-200.95	11.9755	380	101.3757	8.465	Si
SLU 77	2.01	-156.05	-43.088	295	94.0839	2.184	Si
SLU 77	3.91	-200.26	11.4537	378	101.3301	8.847	Si
SLU 75	2.01	-150.2	-41.7105	284	92.4842	2.217	Si
SLU 75	3.91	-193.84	11.0951	366	100.8102	9.086	Si
SLU 81	2.01	-158.04	-43.9664	299	94.5956	2.152	Si
SLU 81	3.91	-203.48	10.076	384	101.5231	10.076	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	2.01	-59.3	27.309	112	50.8996	1.864	Si
SLV 2	3.91	-10.72	-27.2813	0	0	0	No, $e \geq l/2$
SLV 16	2.01	-154.92	-87.493	293	111.3257	1.272	Si
SLV 16	3.91	-258.76	38.6493	489	146.6739	3.795	Si
SLV 14	2.01	-98.67	-68.8931	186	79.0149	1.147	Si
SLV 14	3.91	-191.34	31.0122	362	127.3103	4.105	Si
SLV 5	2.01	-7.45	15.3382	0	0	0	No, $e \geq l/2$
SLV 5	3.91	4.72	-15.7885	0	0	0	No, Trazione
SLV 15	2.01	-154.92	-87.493	293	111.3257	1.272	Si
SLV 15	3.91	-258.76	38.6493	489	146.6739	3.795	Si
SLV 9	2.01	-19.26	-13.5224	36	17.6607	1.306	Si
SLV 9	3.91	-49.46	1.6995	93	43.1681	25.4	Si
SLV 10	2.01	-19.26	-13.5224	36	17.6607	1.306	Si
SLV 10	3.91	-49.46	1.6995	93	43.1681	25.4	Si
SLV 1	2.01	-59.3	27.309	112	50.8996	1.864	Si
SLV 1	3.91	-10.72	-27.2813	0	0	0	No, $e \geq l/2$
SLV 13	2.01	-98.67	-68.8931	186	79.0149	1.147	Si
SLV 13	3.91	-191.34	31.0122	362	127.3103	4.105	Si
SLV 6	2.01	-7.45	15.3382	0	0	0	No, $e \geq l/2$
SLV 6	3.91	4.72	-15.7885	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	2.01	-154.55	-62.28	-42.6523		292	1.89	94	50.01			0.8	No, $V_u < V$
SLU 79	3.91	-198.22	-62.12	11.4979		375	1.89	105	55.83			0.9	No, $V_u < V$
SLU 80	2.01	-149.98	-62.08	-41.3994		283	1.89	93	49.4			0.8	No, $V_u < V$
SLU 80	3.91	-193.75	-61.91	12.2683		366	1.89	104	55.23			0.89	No, $V_u < V$
SLU 83	2.01	-159.32	-64.1	-44.0911		301	1.89	96	50.64			0.79	No, $V_u < V$
SLU 83	3.91	-205.42	-63.94	11.2051		388	1.89	107	56.79			0.89	No, $V_u < V$
SLU 82	2.01	-153.47	-62.9	-42.7135		290	1.89	94	49.86			0.79	No, $V_u < V$
SLU 82	3.91	-199.01	-62.73	10.8464		376	1.89	106	55.93			0.89	No, $V_u < V$
SLU 77	2.01	-156.05	-62.76	-43.088		295	1.89	95	50.21			0.8	No, $V_u < V$
SLU 77	3.91	-200.26	-62.6	11.4537		378	1.89	106	56.1			0.9	No, $V_u < V$
SLU 81	2.01	-158.04	-63.1	-43.9664		299	1.89	95	50.47			0.8	No, $V_u < V$
SLU 81	3.91	-203.48	-62.94	10.076		384	1.89	107	56.53			0.9	No, $V_u < V$
SLU 75	2.01	-150.2	-61.56	-41.7105		284	1.89	93	49.43			0.8	No, $V_u < V$
SLU 75	3.91	-193.84	-61.39	11.0951		366	1.89	104	55.25			0.9	No, $V_u < V$
SLU 76	2.01	-145.65	-60.96	-40.4395		275	1.89	92	48.82			0.8	No, $V_u < V$
SLU 76	3.91	-188.82	-60.78	11.6529		357	1.89	103	54.58			0.9	No, $V_u < V$
SLU 78	2.01	-151.48	-62.56	-41.8351		286	1.89	94	49.6			0.79	No, $V_u < V$
SLU 78	3.91	-195.79	-62.39	12.2242		370	1.89	105	55.51			0.89	No, $V_u < V$
SLU 84	2.01	-154.75	-63.9	-42.8382		292	1.89	95	50.03			0.78	No, $V_u < V$
SLU 84	3.91	-200.95	-63.73	11.9755		380	1.89	106	56.19			0.88	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	2.01	-59.3	58.94	27.309		146	1.4534	112	45.77			0.78	No, $V_u < V$
SLV 2	3.91	-10.72	40.03	-27.2813		0	0	83	0			0	No, $V_u < V$
SLV 12	2.01	-206.77	-132.36	-75.5223		425	1.7393	163	79.14			0.6	No, $V_u < V$
SLV 12	3.91	-274.2	-110.67	27.1565		518	1.89	163	86			0.78	No, $V_u < V$
SLV 6	2.01	-7.45	48.75	15.3382		0	0	83	0			0	No, $V_u < V$
SLV 6	3.91	4.72	27.26	-15.7885		0	0	83	0			0	No, $V_u < V$
SLV 5	2.01	-7.45	48.75	15.3382		0	0	83	0			0	No, $V_u < V$
SLV 5	3.91	4.72	27.26	-15.7885		0	0	83	0			0	No, $V_u < V$
SLV 11	2.01	-206.77	-132.36	-75.5223		425	1.7393	163	79.14			0.6	No, $V_u < V$
SLV 11	3.91	-274.2	-110.67	27.1565		518	1.89	163	86			0.78	No, $V_u < V$
SLV 13	2.01	-98.67	-102.78	-68.8931		476	0.7404	163	33.69			0.33	No, $V_u < V$
SLV 13	3.91	-191.34	-94.14	31.0122		362	1.89	156	82.37			0.87	No, $V_u < V$
SLV 14	2.01	-98.67	-102.78	-68.8931		476	0.7404	163	33.69			0.33	No, $V_u < V$
SLV 14	3.91	-191.34	-94.14	31.0122		362	1.89	156	82.37			0.87	No, $V_u < V$
SLV 1	2.01	-59.3	58.94	27.309		146	1.4534	112	45.77			0.78	No, $V_u < V$
SLV 1	3.91	-10.72	40.03	-27.2813		0	0	83	0			0	No, $V_u < V$
SLV 15	2.01	-154.92	-142.56	-87.493		485	1.1407	163	51.9			0.36	No, $V_u < V$
SLV 15	3.91	-258.76	-123.44	38.6493		489	1.89	163	86			0.7	No, $V_u < V$
SLV 16	2.01	-154.92	-142.56	-87.493		485	1.1407	163	51.9			0.36	No, $V_u < V$
SLV 16	3.91	-258.76	-123.44	38.6493		489	1.89	163	86			0.7	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97  $W_a$  0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.31	0	20.64	1.7236	0	0	No, Trazione
SLV 9	1438	0.31	0	-9.67	1.7236	0	0	No, $e \geq t/2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.31	0	20.64	1.7236	0	0	No, Trazione
SLV 10	1438	0.31	0	-9.67	1.7236	0	0	No, $e > t/2$
SLV 1	1438	0.31	68	-36.06	1.7236	4.7663	2.77	Si
SLV 2	1438	0.31	68	-36.06	1.7236	4.7663	2.77	Si
SLV 3	1438	0.31	217	-114.95	1.7236	13.2326	7.68	Si
SLV 4	1438	0.31	217	-114.95	1.7236	13.2326	7.68	Si
SLV 13	1438	0.31	259	-137.07	1.7236	15.1219	8.77	Si
SLV 14	1438	0.31	259	-137.07	1.7236	15.1219	8.77	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 2.97  $W_a = 0.0005$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-21.63	50.18	0.98	0	0	0	0	10.54325	No, Trazione
SLV 9	-50.92	33.52	1.03	0	0	0	0	10.54325	No, Trazione
SLV 10	-50.92	33.52	1.03	0	0	0	0	10.54325	No, Trazione
SLV 5	-21.63	50.18	0.98	0	0	0	0	10.54325	No, Trazione
SLV 8	-177.25	-225.49	-0.98	0.036	20.82	0.96	0.5451	10.54325	No
SLV 7	-177.25	-225.49	-0.98	0.036	20.82	0.96	0.5451	10.54325	No
SLV 12	-206.55	-242.15	-0.93	0.036	23.801	0.965	0.54913	10.54325	No
SLV 11	-206.55	-242.15	-0.93	0.036	23.801	0.965	0.54913	10.54325	No
SLV 13	-139.57	-82.4	0.41	0.039	16.99	0.952	0.59964	10.12339	No
SLV 14	-139.57	-82.4	0.41	0.039	16.99	0.952	0.59964	10.12339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.152	SLU 81	Si
V_SLU	0.783	SLU 84	No
PF_SLV	0	SLV 6	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 6	No
R_SLV	0	SLV 10	No

## Maschio 95

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	-3.284	-0.123	5.951	L3	L4	9.235	0.28	3.72	3.72	3.72			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 55	1.11	-1589.75	-469.8942	615	1800.3149	3.831	Si
SLU 55	4.83	-1041.61	-206.6729	403	2431.1942	11.763	Si
SLU 84	1.11	-1789.16	-419.2246	692	1244.0143	2.967	Si
SLU 84	4.83	-1180.72	-185.4362	457	2395.821	12.92	Si
SLU 82	1.11	-1771.52	-397.4857	685	1300.2647	3.271	Si
SLU 82	4.83	-1167.46	-169.6544	451	2402.8537	14.163	Si
SLU 78	1.11	-1759.72	-432.4226	681	1337.1158	3.092	Si
SLU 78	4.83	-1163.57	-197.3638	450	2404.7671	12.184	Si
SLU 65	1.11	-1572.25	-461.3696	608	1840.8209	3.99	Si
SLU 65	4.83	-1029.91	-201.8233	398	2430.3006	12.042	Si
SLU 75	1.11	-1742.08	-410.6836	674	1391.0888	3.387	Si
SLU 75	4.83	-1150.3	-181.5819	445	2410.8024	13.277	Si
SLU 73	1.11	-1719.99	-482.7828	665	1456.7221	3.017	Si
SLU 73	4.83	-1130.91	-210.2203	437	2418.2365	11.503	Si
SLU 76	1.11	-1737.64	-504.5217	672	1404.4574	2.784	Si
SLU 76	4.83	-1144.18	-226.0021	442	2413.329	10.678	Si
SLU 68	1.11	-1589.89	-483.1085	615	1799.9852	3.726	Si
SLU 68	4.83	-1043.17	-217.6052	403	2431.2678	11.173	Si
SLU 80	1.11	-1743.48	-431.7865	674	1386.8325	3.212	Si
SLU 80	4.83	-1150.7	-197.6194	445	2410.6352	12.198	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	1.11	-976.31	-1844.7211	378	3115.0507	1.689	Si
SLV 5	4.83	-667.96	-884.4691	258	2432.2254	2.75	Si
SLV 6	1.11	-976.31	-1844.7211	378	3115.0507	1.689	Si
SLV 6	4.83	-667.96	-884.4691	258	2432.2254	2.75	Si
SLV 8	1.11	-1054.45	1578.6361	408	3243.9541	2.055	Si
SLV 8	4.83	-721.9	748.8633	279	2571.7287	3.434	Si
SLV 7	1.11	-1054.45	1578.6361	408	3243.9541	2.055	Si
SLV 7	4.83	-721.9	748.8633	279	2571.7287	3.434	Si
SLV 9	1.11	-1338.44	-1922.0884	518	3562.1308	1.853	Si
SLV 9	4.83	-849.25	-885.7987	328	2867.3586	3.237	Si
SLV 10	1.11	-1338.44	-1922.0884	518	3562.1308	1.853	Si
SLV 10	4.83	-849.25	-885.7987	328	2867.3586	3.237	Si
SLV 11	1.11	-1416.59	1501.2688	548	3608.3219	2.404	Si
SLV 11	4.83	-903.19	747.5337	349	2978.2784	3.984	Si
SLD 5	1.11	-1100.68	-884.4569	426	3311.8113	3.744	Si



Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLD 5	4.83	-734.49	-412.4539	284	2603.0598	6.311	Si
SLV 12	1.11	-1416.59	1501.2688	548	3608.3219	2.404	Si
SLV 12	4.83	-903.19	747.5337	349	2978.2784	3.984	Si
SLD 6	1.11	-1100.68	-884.4569	426	3311.8113	3.744	Si
SLD 6	4.83	-734.49	-412.4539	284	2603.0598	6.311	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 47	1.11	-1442	-9.45	-448.4809		558	9.2349	108	280.13			29.65	Si
SLU 47	4.83	-940.61	-6.55	-198.2759		364	9.2349	104	269.07			41.09	Si
SLU 2	1.11	-1141.47	-10.59	-391.9		441	9.2349	108	280.13			26.46	Si
SLU 2	4.83	-744.28	-7.76	-170.9574		288	9.2349	94	242.89			31.29	Si
SLU 13	1.11	-1306.86	-9.89	-435.0521		505	9.2349	108	280.13			28.34	Si
SLU 13	4.83	-858.56	-7.03	-195.1363		332	9.2349	100	258.13			36.72	Si
SLU 5	1.11	-1159.11	-10.86	-413.6389		448	9.2349	108	280.13			25.81	Si
SLU 5	4.83	-757.55	-8.03	-186.7393		293	9.2349	95	244.66			30.47	Si
SLU 74	1.11	-1724.38	9.08	-268.9723		667	9.2349	108	280.13			30.86	Si
SLU 74	4.83	-1140.18	9.51	-115.335		441	9.2349	108	280.13			29.45	Si
SLU 26	1.11	-1307	-9.87	-448.2665		505	9.2349	108	280.13			28.38	Si
SLU 26	4.83	-860.11	-7.01	-206.0685		333	9.2349	100	258.34			36.83	Si
SLU 23	1.11	-1289.36	-9.6	-426.5276		499	9.2349	108	280.13			29.17	Si
SLU 23	4.83	-846.85	-6.75	-190.2867		328	9.2349	99	256.57			38.03	Si
SLU 83	1.11	-1771.47	9.32	-277.5133		685	9.2349	108	280.13			30.05	Si
SLU 83	4.83	-1170.6	9.77	-119.1893		453	9.2349	108	280.13			28.68	Si
SLU 81	1.11	-1753.82	9.59	-255.7744		678	9.2349	108	280.13			29.21	Si
SLU 81	4.83	-1157.33	10.03	-103.4074		448	9.2349	108	280.13			27.92	Si
SLU 10	1.11	-1289.22	-9.62	-413.3132		499	9.2349	108	280.13			29.13	Si
SLU 10	4.83	-845.29	-6.76	-179.3544		327	9.2349	99	256.36			37.92	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1.11	-1054.45	376.18	1578.6361		408	9.2349	163	420.19			1.12	Si
SLV 8	4.83	-721.9	252.48	748.8633		279	9.2349	139	359.86			1.43	Si
SLV 9	1.11	-1338.44	-363.43	-1922.0884		518	9.2349	163	420.19			1.16	Si
SLV 9	4.83	-849.25	-239.12	-885.7987		328	9.2349	149	385.33			1.61	Si
SLV 7	1.11	-1054.45	376.18	1578.6361		408	9.2349	163	420.19			1.12	Si
SLV 7	4.83	-721.9	252.48	748.8633		279	9.2349	139	359.86			1.43	Si
SLD 7	1.11	-1135.06	167.27	573.6196		439	9.2349	163	420.19			2.51	Si
SLD 7	4.83	-758.79	113.78	275.9738		293	9.2349	142	367.24			3.23	Si
SLD 8	1.11	-1135.06	167.27	573.6196		439	9.2349	163	420.19			2.51	Si
SLD 8	4.83	-758.79	113.78	275.9738		293	9.2349	142	367.24			3.23	Si
SLV 6	1.11	-976.31	-362.68	-1844.7211		426	8.184	163	372.37			1.03	Si
SLV 6	4.83	-667.96	-234.75	-884.4691		258	9.2349	135	349.07			1.49	Si
SLV 11	1.11	-1416.59	375.43	1501.2688		548	9.2349	163	420.19			1.12	Si
SLV 11	4.83	-903.19	248.11	747.5337		349	9.2349	153	396.12			1.6	Si
SLV 5	1.11	-976.31	-362.68	-1844.7211		426	8.184	163	372.37			1.03	Si
SLV 5	4.83	-667.96	-234.75	-884.4691		258	9.2349	135	349.07			1.49	Si
SLV 12	1.11	-1416.59	375.43	1501.2688		548	9.2349	163	420.19			1.12	Si
SLV 12	4.83	-903.19	248.11	747.5337		349	9.2349	153	396.12			1.6	Si
SLV 10	1.11	-1338.44	-363.43	-1922.0884		518	9.2349	163	420.19			1.16	Si
SLV 10	4.83	-849.25	-239.12	-885.7987		328	9.2349	149	385.33			1.61	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 2.97 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.31	211	-544.68	8.4218	63.1094	7.49	Si
SLV 2	1438	0.31	211	-544.68	8.4218	63.1094	7.49	Si
SLV 4	1438	0.31	216	-557.4	8.4218	64.2687	7.63	Si
SLV 3	1438	0.31	216	-557.4	8.4218	64.2687	7.63	Si
SLV 5	1438	0.31	316	-817.1	8.4218	84.8098	10.07	Si
SLV 6	1438	0.31	316	-817.1	8.4218	84.8098	10.07	Si
SLV 8	1438	0.31	332	-859.49	8.4218	87.5951	10.4	Si
SLV 7	1438	0.31	332	-859.49	8.4218	87.5951	10.4	Si
SLV 10	1438	0.31	411	-1063.32	8.4218	98.7647	11.73	Si
SLV 9	1438	0.31	411	-1063.32	8.4218	98.7647	11.73	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 2.97 Wa = 0.0005 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	$\alpha 0^*$	aLim	Verifica
SLV 11	-903.19	-1416.59	-1.34	0.04	105.508	0.962	0.59806	10.54325	No
SLV 12	-903.19	-1416.59	-1.34	0.04	105.508	0.962	0.59806	10.54325	No
SLV 9	-849.25	-1338.44	0.67	0.04	100.022	0.96	0.61173	10.54325	No
SLV 10	-849.25	-1338.44	0.67	0.04	100.022	0.96	0.61173	10.54325	No
SLV 16	-1095.83	-1811.73	-1.13	0.039	125.11	0.967	0.59256	10.12339	No
SLV 15	-1095.83	-1811.73	-1.13	0.039	125.11	0.967	0.59256	10.12339	No
SLV 8	-721.9	-1054.45	-0.92	0.041	87.075	0.954	0.61719	10.54325	No
SLV 7	-721.9	-1054.45	-0.92	0.041	87.075	0.954	0.61719	10.54325	No
SLV 5	-667.96	-976.31	1.1	0.04	81.595	0.952	0.61847	10.54325	No
SLV 6	-667.96	-976.31	1.1	0.04	81.595	0.952	0.61847	10.54325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.784	SLU 76	Si
V_SLU	25.806	SLU 5	Si
PF_SLV	1.689	SLV 5	Si
V_SLV	1.027	SLV 5	Si
PFFP_SLV	7.494	SLV 1	Si
R_SLV	0.057	SLV 11	No



## Maschio 96

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.678	-3.359	-24.678	1.266	L4	L5	4.626	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 76	4.83	-607.57	-299.3558	469	595.9902	1.991	Si
SLU 76	6.93	-474.76	-161.507	367	603.9367	3.739	Si
SLU 84	4.83	-620.39	-291.9358	479	591.1299	2.025	Si
SLU 84	6.93	-483.8	-163.2979	374	605.8474	3.71	Si
SLU 80	4.83	-610.46	-294.0797	471	594.9592	2.023	Si
SLU 80	6.93	-479.13	-162.4037	370	604.9043	3.725	Si
SLU 55	4.83	-550.39	-281.3626	425	608.8922	2.164	Si
SLU 55	6.93	-431.35	-146.3052	333	589.7619	4.031	Si
SLU 68	4.83	-553.57	-285.693	427	608.5509	2.13	Si
SLU 68	6.93	-435.51	-147.8385	336	591.4775	4.001	Si
SLU 82	4.83	-607.19	-283.9364	469	596.1259	2.1	Si
SLU 82	6.93	-471.64	-158.3342	364	603.1934	3.81	Si
SLU 70	4.83	-562.13	-281.1814	434	607.413	2.16	Si
SLU 70	6.93	-444.62	-149.3774	343	594.9706	3.983	Si
SLU 75	4.83	-602.92	-286.8448	466	597.5749	2.083	Si
SLU 75	6.93	-471.72	-158.0821	364	603.212	3.816	Si
SLU 78	4.83	-616.13	-294.8442	476	592.8257	2.011	Si
SLU 78	6.93	-483.87	-163.0458	374	605.8619	3.716	Si
SLU 73	4.83	-594.36	-291.3564	459	600.2437	2.06	Si
SLU 73	6.93	-462.61	-156.5433	357	600.8013	3.838	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 10	4.83	-452.67	-432.7447	349	747.4868	1.727	Si
SLV 10	6.93	-384.79	-145.8211	297	673.5749	4.619	Si
SLV 6	4.83	-562.3	-453.9634	434	838.4312	1.847	Si
SLV 6	6.93	-440.07	-178.0406	340	734.7841	4.127	Si
SLV 14	4.83	-248.59	-229.2625	192	484.6347	2.114	Si
SLV 14	6.93	-250.25	-66.7329	193	487.2602	7.302	Si
SLD 5	4.83	-468.49	-302.1022	362	762.7822	2.525	Si
SLD 5	6.93	-367.13	-134.0445	283	652.13	4.865	Si
SLV 9	4.83	-452.67	-432.7447	349	747.4868	1.727	Si
SLV 9	6.93	-384.79	-145.8211	297	673.5749	4.619	Si
SLD 9	4.83	-421.43	-293.0165	325	715.1445	2.441	Si
SLD 9	6.93	-343.49	-120.0747	265	622.0111	5.18	Si
SLD 6	4.83	-468.49	-302.1022	362	762.7822	2.525	Si
SLD 6	6.93	-367.13	-134.0445	283	652.13	4.865	Si
SLV 13	4.83	-248.59	-229.2625	192	484.6347	2.114	Si
SLV 13	6.93	-250.25	-66.7329	193	487.2602	7.302	Si
SLV 5	4.83	-562.3	-453.9634	434	838.4312	1.847	Si
SLV 5	6.93	-440.07	-178.0406	340	734.7841	4.127	Si
SLD 10	4.83	-421.43	-293.0165	325	715.1445	2.441	Si
SLD 10	6.93	-343.49	-120.0747	265	622.0111	5.18	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	4.83	-607.57	-86.88	-299.3558		469	4.6257	108	140.31			1.62	Si
SLU 76	6.93	-474.76	-84.44	-161.507		367	4.6257	104	135.26			1.6	Si
SLU 82	4.83	-607.19	-85.14	-283.9364		469	4.6257	108	140.31			1.65	Si
SLU 82	6.93	-471.64	-83.68	-158.3342		364	4.6257	104	134.84			1.61	Si
SLU 78	4.83	-616.13	-87.18	-294.8442		476	4.6257	108	140.31			1.61	Si
SLU 78	6.93	-483.87	-85.72	-163.0458		374	4.6257	105	136.47			1.59	Si
SLU 77	4.83	-600.65	-83.22	-274.9309		464	4.6257	108	140.31			1.69	Si
SLU 77	6.93	-472.19	-83.23	-156.9454		365	4.6257	104	134.91			1.62	Si
SLU 80	4.83	-610.46	-86.52	-294.0797		471	4.6257	108	140.31			1.62	Si
SLU 80	6.93	-479.13	-85.06	-162.4037		370	4.6257	105	135.84			1.6	Si
SLU 79	4.83	-594.97	-82.56	-274.1664		459	4.6257	108	140.31			1.7	Si
SLU 79	6.93	-467.44	-82.57	-156.3032		361	4.6257	104	134.28			1.63	Si
SLU 73	4.83	-594.36	-84.6	-291.3564		459	4.6257	108	140.31			1.66	Si
SLU 73	6.93	-462.61	-82.16	-156.5433		357	4.6257	103	133.64			1.63	Si
SLU 75	4.83	-602.92	-84.9	-286.8448		466	4.6257	108	140.31			1.65	Si
SLU 75	6.93	-471.72	-83.44	-158.0821		364	4.6257	104	134.85			1.62	Si
SLU 84	4.83	-620.39	-87.42	-291.9358		479	4.6257	108	140.31			1.6	Si
SLU 84	6.93	-483.8	-85.96	-163.2979		374	4.6257	105	136.46			1.59	Si
SLU 83	4.83	-604.91	-83.46	-272.0225		467	4.6257	108	140.31			1.68	Si
SLU 83	6.93	-472.11	-83.47	-157.1975		365	4.6257	104	134.9			1.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 6	4.83	-468.49	-124.36	-302.1022		362	4.6257	156	201.63			1.62	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 6	6.93	-367.13	-110.54	-134.0445		283	4.6257	140	181.36			1.64	Si
SLV 2	4.83	-614.04	-128.89	-299.9916		474	4.6257	163	210.47			1.63	Si
SLV 2	6.93	-434.5	-123.44	-174.1313		335	4.6257	150	194.83			1.58	Si
SLD 5	4.83	-468.49	-124.36	-302.1022		362	4.6257	156	201.63			1.62	Si
SLD 5	6.93	-367.13	-110.54	-134.0445		283	4.6257	140	181.36			1.64	Si
SLV 9	4.83	-452.67	-197.74	-432.7447		397	4.0706	163	185.21			0.94	No, Vu<V
SLV 9	6.93	-384.79	-162.95	-145.8211		297	4.6257	143	184.89			1.13	Si
SLV 12	4.83	-235.04	105.61	77.904		181	4.6257	120	154.94			1.47	Si
SLV 12	6.93	-184.63	73.56	-27.2532		143	4.6257	112	144.86			1.97	Si
SLV 1	4.83	-614.04	-128.89	-299.9916		474	4.6257	163	210.47			1.63	Si
SLV 1	6.93	-434.5	-123.44	-174.1313		335	4.6257	150	194.83			1.58	Si
SLV 5	4.83	-562.3	-214.96	-453.9634		445	4.5166	163	205.5			0.96	No, Vu<V
SLV 5	6.93	-440.07	-182.92	-178.0406		340	4.6257	151	195.95			1.07	Si
SLV 11	4.83	-235.04	105.61	77.904		181	4.6257	120	154.94			1.47	Si
SLV 11	6.93	-184.63	73.56	-27.2532		143	4.6257	112	144.86			1.97	Si
SLV 10	4.83	-452.67	-197.74	-432.7447		397	4.0706	163	185.21			0.94	No, Vu<V
SLV 10	6.93	-384.79	-162.95	-145.8211		297	4.6257	143	184.89			1.13	Si
SLV 6	4.83	-562.3	-214.96	-453.9634		445	4.5166	163	205.5			0.96	No, Vu<V
SLV 6	6.93	-440.07	-182.92	-178.0406		340	4.6257	151	195.95			1.07	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.38	148	-191.05	4.7112	23.518	4.99	Si
SLV 12	1438	0.38	148	-191.05	4.7112	23.518	4.99	Si
SLV 16	1438	0.38	154	-199.17	4.7112	24.3743	5.17	Si
SLV 15	1438	0.38	154	-199.17	4.7112	24.3743	5.17	Si
SLV 7	1438	0.38	190	-245.47	4.7112	29.0349	6.16	Si
SLV 8	1438	0.38	190	-245.47	4.7112	29.0349	6.16	Si
SLV 14	1438	0.38	201	-260.54	4.7112	30.4707	6.47	Si
SLV 13	1438	0.38	201	-260.54	4.7112	30.4707	6.47	Si
SLV 4	1438	0.38	294	-380.55	4.7112	40.466	8.59	Si
SLV 3	1438	0.38	294	-380.55	4.7112	40.466	8.59	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-341.12	-562.3	0.12	0.044	41.165	0.954	0.66598	10.83091	No
SLV 6	-341.12	-562.3	0.12	0.044	41.165	0.954	0.66598	10.83091	No
SLV 10	-304.93	-452.67	0	0.044	37.489	0.95	0.68034	10.83091	No
SLV 9	-304.93	-452.67	0	0.044	37.489	0.95	0.68034	10.83091	No
SLV 2	-335.04	-614.04	0.24	0.043	40.547	0.954	0.66255	10.4105	No
SLV 1	-335.04	-614.04	0.24	0.043	40.547	0.954	0.66255	10.4105	No
SLV 3	-293.63	-548.75	0.22	0.044	36.343	0.949	0.67361	10.4105	No
SLV 4	-293.63	-548.75	0.22	0.044	36.343	0.949	0.67361	10.4105	No
SLV 7	-203.11	-344.67	0.06	0.046	27.171	0.935	0.71827	10.83091	No
SLV 8	-203.11	-344.67	0.06	0.046	27.171	0.935	0.71827	10.83091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.991	SLU 76	Si
V_SLU	1.587	SLU 84	Si
PF_SLV	1.727	SLV 9	Si
V_SLV	0.937	SLV 9	No
PFFP_SLV	4.992	SLV 11	Si
R_SLV	0.061	SLV 5	No

## Maschio 97

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota l.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-24.678	2.066	-24.678	5.951	L4	L5	3.885	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	4.83	-422.59	221.0936	388	429.3967	1.942	Si
SLU 74	6.93	-369.74	51.3777	340	418.5331	8.146	Si
SLU 77	4.83	-429.64	220.6478	395	429.9198	1.948	Si
SLU 77	6.93	-377.91	52.6126	347	421.0117	8.002	Si
SLU 82	4.83	-422.06	218.9595	388	429.3484	1.961	Si
SLU 82	6.93	-366.38	49.6212	337	417.428	8.412	Si
SLU 60	4.83	-391.27	208.9205	360	424.4369	2.032	Si
SLU 60	6.93	-338.16	49.1194	311	406.193	8.269	Si
SLU 84	4.83	-429.11	218.5137	394	429.888	1.967	Si
SLU 84	6.93	-374.55	50.856	344	420.027	8.259	Si
SLU 75	4.83	-418.53	211.7103	385	428.9958	2.026	Si
SLU 75	6.93	-364.71	50.3387	335	416.8604	8.281	Si
SLU 83	4.83	-433.17	227.897	398	430.1003	1.887	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	6.93	-379.58	51.895	349	421.4827	8.122	Si
SLU 78	4.83	-425.57	211.2645	391	429.6445	2.034	Si
SLU 78	6.93	-372.88	51.5736	343	419.5192	8.134	Si
SLU 81	4.83	-426.13	228.3428	392	429.6863	1.882	Si
SLU 81	6.93	-371.41	50.6601	341	419.0639	8.272	Si
SLU 79	4.83	-425.82	218.1898	391	429.6634	1.969	Si
SLU 79	6.93	-374.26	52.6764	344	419.9389	7.972	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	4.83	-332.33	311.3569	306	484.1471	1.555	Si
SLV 11	6.93	-311.03	47.1329	286	462.7916	9.819	Si
SLV 4	4.83	-456.18	299.3012	419	582	1.945	Si
SLV 4	6.93	-393.48	53.6442	362	538.0664	10.03	Si
SLD 12	4.83	-309.73	222.0686	285	461.4522	2.078	Si
SLD 12	6.93	-278.14	41.3224	256	427.2265	10.339	Si
SLV 3	4.83	-456.18	299.3012	419	582	1.945	Si
SLV 3	6.93	-393.48	53.6442	362	538.0664	10.03	Si
SLV 7	4.83	-415.73	365.4281	382	554.9735	1.519	Si
SLV 7	6.93	-378.85	54.3246	348	526.1607	9.685	Si
SLV 8	4.83	-415.73	365.4281	382	554.9735	1.519	Si
SLV 8	6.93	-378.85	54.3246	348	526.1607	9.685	Si
SLD 11	4.83	-309.73	222.0686	285	461.4522	2.078	Si
SLD 11	6.93	-278.14	41.3224	256	427.2265	10.339	Si
SLV 12	4.83	-332.33	311.3569	306	484.1471	1.555	Si
SLV 12	6.93	-311.03	47.1329	286	462.7916	9.819	Si
SLD 7	4.83	-345.38	245.3985	318	496.5674	2.024	Si
SLD 7	6.93	-307.15	44.4162	282	458.7673	10.329	Si
SLD 8	4.83	-345.38	245.3985	318	496.5674	2.024	Si
SLD 8	6.93	-307.15	44.4162	282	458.7673	10.329	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	4.83	-418.53	77.77	211.7103		385	3.885	107	116.24			1.49	Si
SLU 75	6.93	-364.71	77.81	50.3387		335	3.885	100	109.06			1.4	Si
SLU 82	4.83	-422.06	79.84	218.9595		388	3.885	107	116.71			1.46	Si
SLU 82	6.93	-366.38	79.88	49.6212		337	3.885	100	109.28			1.37	Si
SLU 60	4.83	-391.27	77.14	208.9205		360	3.885	104	112.6			1.46	Si
SLU 60	6.93	-338.16	77.18	49.1194		311	3.885	97	105.52			1.37	Si
SLU 81	4.83	-426.13	84.7	228.3428		392	3.885	108	117.25			1.38	Si
SLU 81	6.93	-371.41	84.75	50.6601		341	3.885	101	109.96			1.3	Si
SLU 83	4.83	-433.17	84.94	227.897		398	3.885	108	117.85			1.39	Si
SLU 83	6.93	-379.58	84.99	51.895		349	3.885	102	111.04			1.31	Si
SLU 74	4.83	-422.59	82.63	221.0936		388	3.885	107	116.78			1.41	Si
SLU 74	6.93	-369.74	82.68	51.3777		340	3.885	101	109.73			1.33	Si
SLU 79	4.83	-425.82	81.82	218.1898		391	3.885	108	117.21			1.43	Si
SLU 79	6.93	-374.26	81.87	52.6764		344	3.885	101	110.33			1.35	Si
SLU 77	4.83	-429.64	82.87	220.6478		395	3.885	108	117.72			1.42	Si
SLU 77	6.93	-377.91	82.92	52.6126		347	3.885	102	110.82			1.34	Si
SLU 84	4.83	-429.11	80.07	218.5137		394	3.885	108	117.65			1.47	Si
SLU 84	6.93	-374.55	80.12	50.856		344	3.885	101	110.37			1.38	Si
SLU 62	4.83	-398.32	77.37	208.4747		366	3.885	104	113.54			1.47	Si
SLU 62	6.93	-346.32	77.42	50.3543		318	3.885	98	106.61			1.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	4.83	-456.18	133.87	299.3012		422	3.8592	163	175.59			1.31	Si
SLV 4	6.93	-393.48	113.06	53.6442		362	3.885	156	169.35			1.5	Si
SLV 12	4.83	-332.33	164.71	311.3569		393	3.0169	162	136.86			0.83	No, Vu<V
SLV 12	6.93	-311.03	141.07	47.1329		286	3.885	141	152.86			1.08	Si
SLD 11	4.83	-309.73	104.19	222.0686		301	3.6766	144	147.73			1.42	Si
SLD 11	6.93	-278.14	94.05	41.3224		256	3.885	134	146.28			1.56	Si
SLV 11	4.83	-332.33	164.71	311.3569		393	3.0169	162	136.86			0.83	No, Vu<V
SLV 11	6.93	-311.03	141.07	47.1329		286	3.885	141	152.86			1.08	Si
SLV 7	4.83	-415.73	189.19	365.4281		465	3.1905	163	145.17			0.77	No, Vu<V
SLV 7	6.93	-378.85	157.98	54.3246		348	3.885	153	166.42			1.05	Si
SLV 3	4.83	-456.18	133.87	299.3012		422	3.8592	163	175.59			1.31	Si
SLV 3	6.93	-393.48	113.06	53.6442		362	3.885	156	169.35			1.5	Si
SLD 7	4.83	-345.38	114.54	245.3985		334	3.6959	150	155.31			1.36	Si
SLD 7	6.93	-307.15	101.15	44.4162		282	3.885	140	152.08			1.5	Si
SLD 8	4.83	-345.38	114.54	245.3985		334	3.6959	150	155.31			1.36	Si
SLD 8	6.93	-307.15	101.15	44.4162		282	3.885	140	152.08			1.5	Si
SLD 12	4.83	-309.73	104.19	222.0686		301	3.6766	144	147.73			1.42	Si
SLD 12	6.93	-278.14	94.05	41.3224		256	3.885	134	146.28			1.56	Si
SLV 8	4.83	-415.73	189.19	365.4281		465	3.1905	163	145.17			0.77	No, Vu<V
SLV 8	6.93	-378.85	157.98	54.3246		348	3.885	153	166.42			1.05	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.38	110	-120.2	3.9568	15.3058	3.87	Si
SLV 13	1438	0.38	110	-120.2	3.9568	15.3058	3.87	Si
SLV 10	1438	0.38	128	-139.1	3.9568	17.4362	4.41	Si
SLV 9	1438	0.38	128	-139.1	3.9568	17.4362	4.41	Si
SLV 15	1438	0.38	158	-172.11	3.9568	20.9755	5.3	Si
SLV 16	1438	0.38	158	-172.11	3.9568	20.9755	5.3	Si
SLV 5	1438	0.38	190	-207.22	3.9568	24.488	6.19	Si
SLV 6	1438	0.38	190	-207.22	3.9568	24.488	6.19	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.38	287	-312.15	3.9568	33.438	8.45	Si
SLV 12	1438	0.38	287	-312.15	3.9568	33.438	8.45	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-279.26	-415.73	-0.51	0.043	33.839	0.953	0.64813	10.83091	No
SLV 7	-279.26	-415.73	-0.51	0.043	33.839	0.953	0.64813	10.83091	No
SLV 11	-236.08	-332.33	-0.69	0.042	29.454	0.947	0.64874	10.83091	No
SLV 12	-236.08	-332.33	-0.69	0.042	29.454	0.947	0.64874	10.83091	No
SLV 6	-157.37	-253.29	0.69	0.043	21.484	0.931	0.67619	10.83091	No
SLV 5	-157.37	-253.29	0.69	0.043	21.484	0.931	0.67619	10.83091	No
SLV 1	-250.41	-407.44	0.48	0.043	30.909	0.95	0.65665	10.4105	No
SLV 2	-250.41	-407.44	0.48	0.043	30.909	0.95	0.65665	10.4105	No
SLV 4	-286.98	-456.18	0.12	0.044	34.623	0.954	0.66493	10.4105	No
SLV 3	-286.98	-456.18	0.12	0.044	34.623	0.954	0.66493	10.4105	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.882	SLU 81	Si
V_SLU	1.297	SLU 81	Si
PF_SLV	1.519	SLV 7	Si
V_SLV	0.767	SLV 7	No
PFFP_SLV	3.868	SLV 13	Si
R_SLV	0.06	SLV 7	No

## Maschio 98

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.713	5.951	-24.678	5.951	L4	L5	1.965	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	5.73	-240.91	52.9526	438	109.4652	2.067	Si
SLU 84	7.53	-216.75	-5.7432	394	109.9668	19.147	Si
SLU 83	5.73	-245.1	54.1849	445	109.1175	2.014	Si
SLU 83	7.53	-219.96	-5.4097	400	110.0477	20.343	Si
SLU 77	5.73	-243.04	52.3626	442	109.2981	2.087	Si
SLU 77	7.53	-215.87	-3.0708	392	109.9371	35.801	Si
SLU 80	5.73	-236.2	50.6436	429	109.7635	2.167	Si
SLU 80	7.53	-209.8	-2.8179	381	109.6372	38.907	Si
SLU 79	5.73	-240.4	51.8758	437	109.5023	2.111	Si
SLU 79	7.53	-213.01	-2.4845	387	109.8159	44.201	Si
SLU 82	5.73	-237.56	53.0596	432	109.6873	2.067	Si
SLU 82	7.53	-214.67	-7.7704	390	109.8905	14.142	Si
SLU 75	5.73	-235.5	51.2374	428	109.7997	2.143	Si
SLU 75	7.53	-210.59	-5.4315	383	109.6852	20.194	Si
SLU 74	5.73	-239.69	52.4696	436	109.5514	2.088	Si
SLU 74	7.53	-213.8	-5.098	389	109.8528	21.548	Si
SLU 78	5.73	-238.85	51.1304	434	109.6079	2.144	Si
SLU 78	7.53	-212.66	-3.4042	387	109.7987	32.254	Si
SLU 81	5.73	-241.76	54.2919	439	109.4011	2.015	Si
SLU 81	7.53	-217.88	-7.437	396	110.0006	14.791	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	5.73	-240.47	93.1177	437	151.7525	1.63	Si
SLV 4	7.53	-237.21	-19.6297	431	150.826	7.684	Si
SLV 7	5.73	-259.78	68.4813	472	156.6059	2.287	Si
SLV 7	7.53	-225.06	-7.7005	409	147.0956	19.102	Si
SLD 2	5.73	-177.89	56.7179	323	128.5316	2.266	Si
SLD 2	7.53	-170.77	-11.1154	310	125.1625	11.26	Si
SLV 3	5.73	-240.47	93.1177	437	151.7525	1.63	Si
SLV 3	7.53	-237.21	-19.6297	431	150.826	7.684	Si
SLD 3	5.73	-198.03	61.0584	360	137.2538	2.248	Si
SLD 3	7.53	-185.33	-10.8171	337	131.8908	12.193	Si
SLV 1	5.73	-193.57	83.2665	352	135.4239	1.626	Si
SLV 1	7.53	-203.15	-20.1996	369	139.2791	6.895	Si
SLV 2	5.73	-193.57	83.2665	352	135.4239	1.626	Si
SLV 2	7.53	-203.15	-20.1996	369	139.2791	6.895	Si
SLD 1	5.73	-177.89	56.7179	323	128.5316	2.266	Si
SLD 1	7.53	-170.77	-11.1154	310	125.1625	11.26	Si
SLV 8	5.73	-259.78	68.4813	472	156.6059	2.287	Si
SLV 8	7.53	-225.06	-7.7005	409	147.0956	19.102	Si
SLD 4	5.73	-198.03	61.0584	360	137.2538	2.248	Si
SLD 4	7.53	-185.33	-10.8171	337	131.8908	12.193	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	5.73	-245.1	33.05	54.1849		445	1.965	108	59.61			1.8	Si
SLU 83	7.53	-219.96	33.06	-5.4097		400	1.965	108	59.61			1.8	Si
SLU 39	5.73	-201.74	30.4	45.7202		367	1.965	104	57.47			1.89	Si
SLU 39	7.53	-184.54	30.4	-6.8488		335	1.965	100	55.17			1.81	Si
SLU 81	5.73	-241.76	34.93	54.2919		439	1.965	108	59.61			1.71	Si
SLU 81	7.53	-217.88	34.93	-7.437		396	1.965	108	59.61			1.71	Si
SLU 82	5.73	-237.56	34.98	53.0596		432	1.965	108	59.61			1.7	Si
SLU 82	7.53	-214.67	34.96	-7.7704		390	1.965	108	59.19			1.69	Si
SLU 73	5.73	-226.72	32.76	50.036		412	1.965	108	59.61			1.82	Si
SLU 73	7.53	-203.5	32.72	-7.0948		370	1.965	105	57.7			1.76	Si
SLU 60	5.73	-222.37	31.31	49.7149		404	1.965	108	59.61			1.9	Si
SLU 60	7.53	-197.67	31.31	-6.5525		359	1.965	103	56.92			1.82	Si
SLU 75	5.73	-235.5	31.56	51.2374		428	1.965	108	59.61			1.89	Si
SLU 75	7.53	-210.59	31.54	-5.4315		383	1.965	107	58.64			1.86	Si
SLU 84	5.73	-240.91	33.1	52.9526		438	1.965	108	59.61			1.8	Si
SLU 84	7.53	-216.75	33.08	-5.7432		394	1.965	108	59.47			1.8	Si
SLU 61	5.73	-218.18	31.35	48.4826		397	1.965	108	59.61			1.9	Si
SLU 61	7.53	-194.46	31.33	-6.886		353	1.965	103	56.49			1.8	Si
SLU 40	5.73	-197.55	30.45	44.488		359	1.965	103	56.91			1.87	Si
SLU 40	7.53	-181.33	30.42	-7.1823		330	1.965	99	54.74			1.8	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 2	5.73	-177.89	45.82	56.7179		323	1.965	148	81.43			1.78	Si
SLD 2	7.53	-170.77	41.32	-11.1154		310	1.965	145	80			1.94	Si
SLV 14	5.73	-92.4	-36.42	-19.9602		168	1.965	117	64.33			1.77	Si
SLV 14	7.53	-54.86	-27.36	11.9846		100	1.965	103	56.82			2.08	Si
SLV 3	5.73	-240.47	80.01	93.1177		481	1.7858	163	81.25			1.02	Si
SLV 3	7.53	-237.21	70.96	-19.6297		431	1.965	163	89.41			1.26	Si
SLV 13	5.73	-92.4	-36.42	-19.9602		168	1.965	117	64.33			1.77	Si
SLV 13	7.53	-54.86	-27.36	11.9846		100	1.965	103	56.82			2.08	Si
SLD 4	5.73	-198.03	47.15	61.0584		360	1.965	155	85.46			1.81	Si
SLD 4	7.53	-185.33	43.17	-10.8171		337	1.965	151	82.92			1.92	Si
SLD 3	5.73	-198.03	47.15	61.0584		360	1.965	155	85.46			1.81	Si
SLD 3	7.53	-185.33	43.17	-10.8171		337	1.965	151	82.92			1.92	Si
SLV 1	5.73	-193.57	76.58	83.2665		417	1.657	163	75.39			0.98	No, Vu<V
SLV 1	7.53	-203.15	66.35	-20.1996		369	1.965	157	86.48			1.3	Si
SLV 2	5.73	-193.57	76.58	83.2665		417	1.657	163	75.39			0.98	No, Vu<V
SLV 2	7.53	-203.15	66.35	-20.1996		369	1.965	157	86.48			1.3	Si
SLV 4	5.73	-240.47	80.01	93.1177		481	1.7858	163	81.25			1.02	Si
SLV 4	7.53	-237.21	70.96	-19.6297		431	1.965	163	89.41			1.26	Si
SLD 1	5.73	-177.89	45.82	56.7179		323	1.965	148	81.43			1.78	Si
SLD 1	7.53	-170.77	41.32	-11.1154		310	1.965	145	80			1.94	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.38	133	-73.34	2.0013	9.1475	4.57	Si
SLV 10	1438	0.38	133	-73.34	2.0013	9.1475	4.57	Si
SLV 13	1438	0.38	136	-74.85	2.0013	9.3118	4.65	Si
SLV 14	1438	0.38	136	-74.85	2.0013	9.3118	4.65	Si
SLV 5	1438	0.38	201	-110.78	2.0013	12.9531	6.47	Si
SLV 6	1438	0.38	201	-110.78	2.0013	12.9531	6.47	Si
SLV 16	1438	0.38	206	-113.57	2.0013	13.2139	6.6	Si
SLV 15	1438	0.38	206	-113.57	2.0013	13.2139	6.6	Si
SLV 1	1438	0.38	363	-199.63	2.0013	19.6491	9.82	Si
SLV 2	1438	0.38	363	-199.63	2.0013	19.6491	9.82	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-147.83	-229.25	-0.46	0.041	17.783	0.955	0.62694	10.83091	No
SLV 11	-147.83	-229.25	-0.46	0.041	17.783	0.955	0.62694	10.83091	No
SLV 8	-176.18	-278.61	-0.18	0.042	20.666	0.961	0.64156	10.83091	No
SLV 7	-176.18	-278.61	-0.18	0.042	20.666	0.961	0.64156	10.83091	No
SLV 1	-153.62	-220.4	0.55	0.041	18.372	0.956	0.61714	10.4105	No
SLV 2	-153.62	-220.4	0.55	0.041	18.372	0.956	0.61714	10.4105	No
SLV 5	-90.59	-100.48	0.45	0.042	11.977	0.937	0.65171	10.83091	No
SLV 6	-90.59	-100.48	0.45	0.042	11.977	0.937	0.65171	10.83091	No
SLV 4	-179.3	-273.84	0.36	0.041	20.983	0.961	0.62698	10.4105	No
SLV 3	-179.3	-273.84	0.36	0.041	20.983	0.961	0.62698	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.014	SLU 83	Si
V_SLU	1.693	SLU 82	Si
PF_SLV	1.626	SLV 1	Si
V_SLV	0.985	SLV 1	No
PFFP_SLV	4.571	SLV 9	Si
R_SLV	0.058	SLV 11	No

Maschio 99

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	5.951	-21.813	5.951	L4	L5	2.195	0.28	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fν0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 30	5.73	-145.33	-10.4587	236	113.198	10.823	Si
SLU 30	7.53	-117.05	-0.4762	190	98.4288	206.687	Si
SLU 28	5.73	-147.36	-9.678	240	114.1234	11.792	Si
SLU 28	7.53	-120.32	0.0955	196	100.3163	1000	Si
SLU 9	5.73	-127.27	-8.9974	207	104.171	11.578	Si
SLU 9	7.53	-99.81	-0.4465	162	87.7005	196.416	Si
SLU 38	5.73	-160.68	-10.1484	261	119.7494	11.8	Si
SLU 38	7.53	-135.7	0.9157	221	108.5629	118.553	Si
SLU 8	5.73	-127.68	-8.8063	208	104.392	11.854	Si
SLU 8	7.53	-100.04	-0.1457	163	87.8572	602.995	Si
SLU 71	5.73	-173.95	-10.2133	283	124.5768	12.198	Si
SLU 71	7.53	-141.37	1.3675	230	111.3409	81.421	Si
SLU 72	5.73	-173.54	-10.4044	282	124.439	11.96	Si
SLU 72	7.53	-141.13	1.0667	230	111.2273	104.276	Si
SLU 27	5.73	-147.77	-9.4869	240	114.3083	12.049	Si
SLU 27	7.53	-120.56	0.3964	196	100.4516	253.44	Si
SLU 29	5.73	-145.74	-10.2676	237	113.3865	11.043	Si
SLU 29	7.53	-117.29	-0.1754	191	98.5675	561.897	Si
SLU 37	5.73	-161.09	-9.9573	262	119.9103	12.042	Si
SLU 37	7.53	-135.94	1.2165	221	108.6822	89.337	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 13	5.73	-117.07	-36.6135	190	108.4532	2.962	Si
SLV 13	7.53	-166.73	24.8782	271	142.3583	5.722	Si
SLV 15	5.73	-147.12	-35.031	239	129.8347	3.706	Si
SLV 15	7.53	-176.09	27.755	287	147.9434	5.33	Si
SLV 4	5.73	-131.36	32.9779	214	118.9475	3.607	Si
SLV 4	7.53	-53.73	-13.8818	87	54.7462	3.944	Si
SLV 9	5.73	-76.48	-14.6565	124	75.3927	5.144	Si
SLV 9	7.53	-112.98	6.9491	184	105.3382	15.159	Si
SLV 10	5.73	-76.48	-14.6565	124	75.3927	5.144	Si
SLV 10	7.53	-112.98	6.9491	184	105.3382	15.159	Si
SLV 14	5.73	-117.07	-36.6135	190	108.4532	2.962	Si
SLV 14	7.53	-166.73	24.8782	271	142.3583	5.722	Si
SLV 3	5.73	-131.36	32.9779	214	118.9475	3.607	Si
SLV 3	7.53	-53.73	-13.8818	87	54.7462	3.944	Si
SLV 1	5.73	-101.3	31.3955	165	96.1809	3.064	Si
SLV 1	7.53	-44.36	-16.7586	72	45.8123	2.734	Si
SLV 2	5.73	-101.3	31.3955	165	96.1809	3.064	Si
SLV 2	7.53	-44.36	-16.7586	72	45.8123	2.734	Si
SLV 16	5.73	-147.12	-35.031	239	129.8347	3.706	Si
SLV 16	7.53	-176.09	27.755	287	147.9434	5.33	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	5.73	-182.87	-12.65	-2.4526		298	2.195	95	58.53			4.63	Si
SLU 81	7.53	-167.94	-12.63	8.6107		273	2.195	92	56.54			4.48	Si
SLU 18	5.73	-136.6	-10.34	-1.0456		222	2.195	85	52.36			5.06	Si
SLU 18	7.53	-126.61	-10.32	7.0975		206	2.195	83	51.03			4.94	Si
SLU 52	5.73	-157.55	-11.11	-1.4428		256	2.195	90	55.15			4.97	Si
SLU 52	7.53	-142.3	-11.1	7.5425		232	2.195	86	53.12			4.79	Si
SLU 61	5.73	-164.4	-12.2	-1.1824		267	2.195	91	56.06			4.6	Si
SLU 61	7.53	-150.45	-12.18	8.3396		245	2.195	88	54.2			4.45	Si
SLU 19	5.73	-136.19	-10.38	-1.2367		222	2.195	85	52.3			5.04	Si
SLU 19	7.53	-126.38	-10.37	6.7967		206	2.195	83	50.99			4.92	Si
SLU 73	5.73	-175.6	-11.6	-2.9041		286	2.195	94	57.56			4.96	Si
SLU 73	7.53	-159.55	-11.58	7.5128		260	2.195	90	55.42			4.78	Si
SLU 40	5.73	-154.25	-10.87	-2.698		251	2.195	89	54.71			5.03	Si
SLU 40	7.53	-143.62	-10.86	6.767		234	2.195	87	53.29			4.91	Si
SLU 39	5.73	-154.66	-10.83	-2.5069		252	2.195	89	54.77			5.06	Si
SLU 39	7.53	-143.86	-10.81	7.0678		234	2.195	87	53.33			4.93	Si
SLU 82	5.73	-182.46	-12.69	-2.6437		297	2.195	95	58.47			4.61	Si
SLU 82	7.53	-167.7	-12.67	8.3099		273	2.195	92	56.5			4.46	Si
SLU 60	5.73	-164.81	-12.15	-0.9912		268	2.195	91	56.12			4.62	Si
SLU 60	7.53	-150.69	-12.14	8.6404		245	2.195	88	54.24			4.47	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	5.73	-76.48	-46.49	-14.6565		124	2.195	108	66.51			1.43	Si
SLV 10	7.53	-112.98	-47.7	6.9491		184	2.195	120	73.81			1.55	Si
SLV 3	5.73	-131.36	67.05	32.9779		214	2.195	126	77.49			1.16	Si
SLV 3	7.53	-53.73	56.92	-13.8818		87	2.195	101	61.96			1.09	Si
SLV 9	5.73	-76.48	-46.49	-14.6565		124	2.195	108	66.51			1.43	Si
SLV 9	7.53	-112.98	-47.7	6.9491		184	2.195	120	73.81			1.55	Si
SLV 15	5.73	-147.12	-71.09	-35.031		239	2.195	131	80.64			1.13	Si
SLV 15	7.53	-176.09	-58.12	27.755		287	2.195	141	86.43			1.49	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	5.73	-147.12	-71.09	-35.031		239	2.195	131	80.64			1.13	Si
SLV 16	7.53	-176.09	-58.12	27.755		287	2.195	141	86.43			1.49	Si
SLV 14	5.73	-117.07	-82.05	-36.6135		190	2.195	121	74.63			0.91	No, Vu<V
SLV 14	7.53	-166.73	-71.9	24.8782		271	2.195	138	84.56			1.18	Si
SLV 13	5.73	-117.07	-82.05	-36.6135		190	2.195	121	74.63			0.91	No, Vu<V
SLV 13	7.53	-166.73	-71.9	24.8782		271	2.195	138	84.56			1.18	Si
SLV 4	5.73	-131.36	67.05	32.9779		214	2.195	126	77.49			1.16	Si
SLV 4	7.53	-53.73	56.92	-13.8818		87	2.195	101	61.96			1.09	Si
SLV 2	5.73	-101.3	56.09	31.3955		165	2.195	116	71.48			1.27	Si
SLV 2	7.53	-44.36	43.15	-16.7586		73	2.1592	98	59.25			1.37	Si
SLV 1	5.73	-101.3	56.09	31.3955		165	2.195	116	71.48			1.27	Si
SLV 1	7.53	-44.36	43.15	-16.7586		73	2.1592	98	59.25			1.37	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.38	126	-77.3	2.2356	9.7076	4.34	Si
SLV 6	1438	0.38	126	-77.3	2.2356	9.7076	4.34	Si
SLV 2	1438	0.38	129	-79.04	2.2356	9.9014	4.43	Si
SLV 1	1438	0.38	129	-79.04	2.2356	9.9014	4.43	Si
SLV 10	1438	0.38	155	-95.42	2.2356	11.6611	5.22	Si
SLV 9	1438	0.38	155	-95.42	2.2356	11.6611	5.22	Si
SLV 4	1438	0.38	161	-98.66	2.2356	11.998	5.37	Si
SLV 3	1438	0.38	161	-98.66	2.2356	11.998	5.37	Si
SLV 13	1438	0.38	227	-139.45	2.2356	15.8974	7.11	Si
SLV 14	1438	0.38	227	-139.45	2.2356	15.8974	7.11	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-57.3	-166.34	3.88	0	8.963	0.914	0	10.83091	No
SLV 7	-57.3	-166.34	3.88	0	8.963	0.914	0	10.83091	No
SLV 6	-82.05	-61.77	-4.55	0.003	11.447	0.928	0.04059	10.83091	No
SLV 5	-82.05	-61.77	-4.55	0.003	11.447	0.928	0.04059	10.83091	No
SLV 11	-88.45	-186.73	4.6	0.004	12.092	0.931	0.06802	10.83091	No
SLV 12	-88.45	-186.73	4.6	0.004	12.092	0.931	0.06802	10.83091	No
SLV 1	-37.05	-74.57	-2.44	0.01	6.961	0.899	0.16635	10.4105	No
SLV 2	-37.05	-74.57	-2.44	0.01	6.961	0.899	0.16635	10.4105	No
SLV 10	-113.2	-82.16	-3.83	0.017	14.595	0.941	0.25871	10.83091	No
SLV 9	-113.2	-82.16	-3.83	0.017	14.595	0.941	0.25871	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	10.823	SLU 30	Si
V_SLU	4.45	SLU 61	Si
PF_SLV	2.734	SLV 1	Si
V_SLV	0.91	SLV 13	No
PFFP_SLV	4.342	SLV 5	Si
R_SLV	0	SLV 7	No

## Maschio 100

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota s.	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.493	-3.359	-24.678	-3.359	L4	L5	2.185	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	5.73	-273.4	114.7983	447	134.8297	1.174	Si
SLU 80	7.53	-270.76	-17.3082	443	135.0944	7.805	Si
SLU 84	5.73	-275.12	116.3102	450	134.6398	1.158	Si
SLU 84	7.53	-273.93	-18.5744	448	134.7726	7.256	Si
SLU 73	5.73	-259.17	115.0495	424	135.8963	1.181	Si
SLU 73	7.53	-258.25	-17.5181	422	135.9348	7.76	Si
SLU 77	5.73	-275.85	107.5891	451	134.5566	1.251	Si
SLU 77	7.53	-270.22	-17.6767	442	135.1447	7.645	Si
SLU 68	5.73	-245.66	108.1714	402	136.0879	1.258	Si
SLU 68	7.53	-241.09	-14.7046	394	135.9717	9.247	Si
SLU 76	5.73	-266.29	117.5622	435	135.4736	1.152	Si
SLU 76	7.53	-265.57	-17.4122	434	135.526	7.783	Si
SLU 82	5.73	-268.01	113.7974	438	135.3381	1.189	Si
SLU 82	7.53	-266.6	-18.6803	436	135.4497	7.251	Si
SLU 83	5.73	-275.11	108.3951	450	134.6411	1.242	Si
SLU 83	7.53	-270.72	-18.5772	442	135.0981	7.272	Si
SLU 78	5.73	-275.86	115.5042	451	134.5553	1.165	Si
SLU 78	7.53	-273.43	-17.674	447	134.8263	7.629	Si
SLU 75	5.73	-268.74	112.9914	439	135.2765	1.197	Si
SLU 75	7.53	-266.1	-17.7798	435	135.4873	7.62	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	5.73	-208.8	115.3243	341	164.3998	1.426	Si
SLV 3	7.53	-228.37	-39.0755	373	173.2737	4.434	Si
SLV 5	5.73	-281.36	129.5834	460	191.6912	1.479	Si
SLV 5	7.53	-273.28	-21.2367	447	189.4154	8.919	Si
SLD 3	5.73	-194.83	90.5321	318	157.3763	1.738	Si
SLD 3	7.53	-199.41	-23.7053	326	159.74	6.739	Si
SLD 4	5.73	-194.83	90.5321	318	157.3763	1.738	Si
SLD 4	7.53	-199.41	-23.7053	326	159.74	6.739	Si
SLV 1	5.73	-258.18	140.0457	422	184.647	1.318	Si
SLV 1	7.53	-272.92	-39.8305	446	189.3079	4.753	Si
SLD 2	5.73	-215.94	101.0848	353	167.7659	1.66	Si
SLD 2	7.53	-218.26	-23.9319	357	168.8305	7.055	Si
SLV 6	5.73	-281.36	129.5834	460	191.6912	1.479	Si
SLV 6	7.53	-273.28	-21.2367	447	189.4154	8.919	Si
SLV 4	5.73	-208.8	115.3243	341	164.3998	1.426	Si
SLV 4	7.53	-228.37	-39.0755	373	173.2737	4.434	Si
SLV 2	5.73	-258.18	140.0457	422	184.647	1.318	Si
SLV 2	7.53	-272.92	-39.8305	446	189.3079	4.753	Si
SLD 1	5.73	-215.94	101.0848	353	167.7659	1.66	Si
SLD 1	7.53	-218.26	-23.9319	357	168.8305	7.055	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	5.73	-268.01	89.33	113.7974		478	2.0037	108	60.78			0.68	No, Vu<V
SLU 82	7.53	-266.6	89.02	-18.6803		436	2.185	108	66.28			0.74	No, Vu<V
SLU 34	5.73	-222.67	79.69	101.3422		416	1.9122	108	58			0.73	No, Vu<V
SLU 34	7.53	-225.9	79.17	-15.2033		369	2.185	105	64.11			0.81	No, Vu<V
SLU 55	5.73	-243.18	81.99	107.2115		444	1.9549	108	59.3			0.72	No, Vu<V
SLU 55	7.53	-239.21	81.48	-14.9653		391	2.185	108	65.88			0.81	No, Vu<V
SLU 80	5.73	-273.4	88.37	114.7983		484	2.0178	108	61.21			0.69	No, Vu<V
SLU 80	7.53	-270.76	88.07	-17.3082		443	2.185	108	66.28			0.75	No, Vu<V
SLU 75	5.73	-268.74	87.63	112.9914		476	2.0162	108	61.16			0.7	No, Vu<V
SLU 75	7.53	-266.1	87.33	-17.7798		435	2.185	108	66.28			0.76	No, Vu<V
SLU 78	5.73	-275.86	89.1	115.5042		487	2.0214	108	61.31			0.69	No, Vu<V
SLU 78	7.53	-273.43	88.79	-17.674		447	2.185	108	66.28			0.75	No, Vu<V
SLU 84	5.73	-275.12	90.79	116.3102		489	2.0092	108	60.95			0.67	No, Vu<V
SLU 84	7.53	-273.93	90.49	-18.5744		448	2.185	108	66.28			0.73	No, Vu<V
SLU 76	5.73	-266.29	91.24	117.5622		487	1.953	108	59.24			0.65	No, Vu<V
SLU 76	7.53	-265.57	90.73	-17.4122		434	2.185	108	66.28			0.73	No, Vu<V
SLU 68	5.73	-245.66	82.18	108.1714		448	1.9565	108	59.35			0.72	No, Vu<V
SLU 68	7.53	-241.09	81.67	-14.7046		394	2.185	108	66.13			0.81	No, Vu<V
SLU 73	5.73	-259.17	89.78	115.0495		476	1.9458	108	59.02			0.66	No, Vu<V
SLU 73	7.53	-258.25	89.27	-17.5181		422	2.185	108	66.28			0.74	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	5.73	-258.18	130.46	140.0457		559	1.6502	163	75.09			0.58	No, Vu<V
SLV 2	7.53	-272.92	120.97	-39.8305		446	2.185	163	99.42			0.82	No, Vu<V
SLD 1	5.73	-215.94	87.22	101.0848		412	1.8731	163	85.23			0.98	No, Vu<V
SLD 1	7.53	-218.26	83.01	-23.9319		357	2.185	155	94.64			1.14	Si
SLV 6	5.73	-281.36	100.88	129.5834		530	1.8958	163	86.26			0.86	No, Vu<V
SLV 6	7.53	-273.28	98.02	-21.2367		447	2.185	163	99.42			1.01	Si
SLD 4	5.73	-194.83	80.9	90.5321		369	1.8835	157	82.91			1.02	Si
SLD 4	7.53	-199.41	76.8	-23.7053		326	2.185	149	90.86			1.18	Si
SLD 3	5.73	-194.83	80.9	90.5321		369	1.8835	157	82.91			1.02	Si
SLD 3	7.53	-199.41	76.8	-23.7053		326	2.185	149	90.86			1.18	Si
SLD 2	5.73	-215.94	87.22	101.0848		412	1.8731	163	85.23			0.98	No, Vu<V
SLD 2	7.53	-218.26	83.01	-23.9319		357	2.185	155	94.64			1.14	Si
SLV 1	5.73	-258.18	130.46	140.0457		559	1.6502	163	75.09			0.58	No, Vu<V
SLV 1	7.53	-272.92	120.97	-39.8305		446	2.185	163	99.42			0.82	No, Vu<V
SLV 3	5.73	-208.8	114.82	115.3243		460	1.6206	163	73.74			0.64	No, Vu<V
SLV 3	7.53	-228.37	105.35	-39.0755		373	2.185	158	96.66			0.92	No, Vu<V
SLV 5	5.73	-281.36	100.88	129.5834		530	1.8958	163	86.26			0.86	No, Vu<V
SLV 5	7.53	-273.28	98.02	-21.2367		447	2.185	163	99.42			1.01	Si
SLV 4	5.73	-208.8	114.82	115.3243		460	1.6206	163	73.74			0.64	No, Vu<V
SLV 4	7.53	-228.37	105.35	-39.0755		373	2.185	158	96.66			0.92	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.38	130	-79.63	2.2254	9.9607	4.48	Si
SLV 12	1438	0.38	130	-79.63	2.2254	9.9607	4.48	Si
SLV 16	1438	0.38	152	-93.27	2.2254	11.4284	5.14	Si
SLV 15	1438	0.38	152	-93.27	2.2254	11.4284	5.14	Si
SLV 7	1438	0.38	193	-118.15	2.2254	13.9271	6.26	Si
SLV 8	1438	0.38	193	-118.15	2.2254	13.9271	6.26	Si
SLV 13	1438	0.38	235	-143.48	2.2254	16.232	7.29	Si
SLV 14	1438	0.38	235	-143.48	2.2254	16.232	7.29	Si
SLV 4	1438	0.38	362	-221.68	2.2254	21.832	9.81	Si
SLV 3	1438	0.38	362	-221.68	2.2254	21.832	9.81	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-179.56	-276.99	0.74	0.04	21.318	0.958	0.60556	10.83091	No
SLV 10	-179.56	-276.99	0.74	0.04	21.318	0.958	0.60556	10.83091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 8	-99.86	-117.62	-0.75	0.04	13.231	0.936	0.61985	10.83091	No
SLV 7	-99.86	-117.62	-0.75	0.04	13.231	0.936	0.61985	10.83091	No
SLV 6	-207.13	-326.87	0.47	0.041	24.122	0.962	0.621	10.83091	No
SLV 5	-207.13	-326.87	0.47	0.041	24.122	0.962	0.621	10.83091	No
SLV 3	-169.56	-249.05	-0.65	0.04	20.302	0.956	0.6144	10.4105	No
SLV 4	-169.56	-249.05	-0.65	0.04	20.302	0.956	0.6144	10.4105	No
SLV 13	-109.87	-145.57	0.64	0.041	14.243	0.94	0.63043	10.4105	No
SLV 14	-109.87	-145.57	0.64	0.041	14.243	0.94	0.63043	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.152	SLU 76	Si
V_SLU	0.649	SLU 76	No
PF_SLV	1.318	SLV 1	Si
V_SLV	0.576	SLV 1	No
PFFP_SLV	4.476	SLV 11	Si
R_SLV	0.056	SLV 9	No

## Maschio 101

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.368	-3.359	-21.593	-3.359	L4	L5	2.225	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 52	6.83	-116.8	-16.1848	187	100.0311	6.181	Si
SLU 52	7.63	-105.04	-16.018	169	92.672	5.785	Si
SLU 73	6.83	-130.38	-17.2815	209	107.7808	6.237	Si
SLU 73	7.63	-118.49	-17.7473	190	101.043	5.693	Si
SLU 65	6.83	-115.41	-15.4704	185	99.1954	6.412	Si
SLU 65	7.63	-103.75	-15.9322	167	91.8252	5.763	Si
SLU 76	6.83	-131.72	-16.6893	211	108.5034	6.501	Si
SLU 76	7.63	-119.86	-17.8463	192	101.8527	5.707	Si
SLU 68	6.83	-116.75	-14.8781	187	100.0061	6.722	Si
SLU 68	7.63	-105.12	-16.0312	169	92.7235	5.784	Si
SLU 84	6.83	-144.42	-16.7109	232	114.9434	6.878	Si
SLU 84	7.63	-131.72	-18.7305	211	108.5041	5.793	Si
SLU 55	6.83	-118.14	-15.5926	190	100.8336	6.467	Si
SLU 55	7.63	-106.42	-16.117	171	93.5626	5.805	Si
SLU 82	6.83	-143.07	-17.3031	230	114.2956	6.605	Si
SLU 82	7.63	-130.35	-18.6315	209	107.7658	5.784	Si
SLU 44	6.83	-101.83	-14.3737	163	90.5547	6.3	Si
SLU 44	7.63	-90.3	-14.203	145	82.5849	5.815	Si
SLU 75	6.83	-140.71	-16.2426	226	113.1368	6.965	Si
SLU 75	7.63	-128.08	-18.3218	206	106.5264	5.814	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 4	6.83	-71.59	-5.7821	115	72.1534	12.479	Si
SLV 4	7.63	-82.68	-40.0364	133	81.994	2.048	Si
SLD 2	6.83	-99.57	-7.4951	160	96.2816	12.846	Si
SLD 2	7.63	-94.79	-26.5628	152	92.3216	3.476	Si
SLV 1	6.83	-97.01	-3.1698	156	94.1722	29.709	Si
SLV 1	7.63	-99.21	-44.7324	159	95.9851	2.146	Si
SLD 3	6.83	-89.21	-8.5951	143	87.6139	10.193	Si
SLD 3	7.63	-87.9	-24.6106	141	86.4948	3.515	Si
SLV 6	6.83	-139.17	-4.4969	223	126.5208	28.135	Si
SLV 6	7.63	-119.03	-29.3609	191	111.7119	3.805	Si
SLV 2	6.83	-97.01	-3.1698	156	94.1722	29.709	Si
SLV 2	7.63	-99.21	-44.7324	159	95.9851	2.146	Si
SLV 3	6.83	-71.59	-5.7821	115	72.1534	12.479	Si
SLV 3	7.63	-82.68	-40.0364	133	81.994	2.048	Si
SLD 1	6.83	-99.57	-7.4951	160	96.2816	12.846	Si
SLD 1	7.63	-94.79	-26.5628	152	92.3216	3.476	Si
SLD 4	6.83	-89.21	-8.5951	143	87.6139	10.193	Si
SLD 4	7.63	-87.9	-24.6106	141	86.4948	3.515	Si
SLV 5	6.83	-139.17	-4.4969	223	126.5208	28.135	Si
SLV 5	7.63	-119.03	-29.3609	191	111.7119	3.805	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 28	6.83	-103.55	2.99	-11.2468		166	2.225	78	48.42			16.17	Si
SLU 28	7.63	-94.22	1.2	-13.7229		151	2.225	76	47.17			39.24	Si
SLU 30	6.83	-100.84	2.95	-10.9389		162	2.225	77	48.06			16.31	Si
SLU 30	7.63	-91.55	1.28	-13.3537		147	2.225	75	46.82			36.62	Si
SLU 69	6.83	-136.52	2.8	-12.7074		219	2.225	85	52.81			18.84	Si
SLU 69	7.63	-123.02	1.24	-16.7653		197	2.225	82	51.01			41.05	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 70	6.83	-127.09	2.79	-13.8393		204	2.225	83	51.56			18.48	Si
SLU 70	7.63	-114.71	0.96	-16.6058		184	2.225	80	49.91			52.09	Si
SLU 72	6.83	-124.38	2.74	-13.5314		200	2.225	82	51.2			18.67	Si
SLU 72	7.63	-112.03	1.03	-16.2366		180	2.225	80	49.55			47.9	Si
SLU 36	6.83	-118.51	2.73	-13.0579		190	2.225	81	50.41			18.48	Si
SLU 36	7.63	-108.96	0.59	-15.5379		175	2.225	79	49.14			82.88	Si
SLU 27	6.83	-112.97	3.01	-10.115		181	2.225	80	49.67			16.51	Si
SLU 27	7.63	-102.53	1.49	-13.8824		165	2.225	77	48.28			32.47	Si
SLU 35	6.83	-127.94	2.74	-11.9261		205	2.225	83	51.67			18.85	Si
SLU 35	7.63	-117.27	0.88	-15.6975		188	2.225	81	50.25			57.26	Si
SLU 38	6.83	-115.8	2.68	-12.75		186	2.225	80	50.05			18.67	Si
SLU 38	7.63	-106.29	0.67	-15.1688		171	2.225	78	48.78			72.9	Si
SLU 29	6.83	-110.27	2.96	-9.8071		177	2.225	79	49.31			16.66	Si
SLU 29	7.63	-99.85	1.56	-13.5133		160	2.225	77	47.93			30.66	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	6.83	-97.01	77.35	-3.1698		156	2.225	114	71.32			0.92	No, Vu<V
SLV 1	7.63	-99.21	58.48	-44.7324		179	1.9848	119	66.15			1.13	Si
SLV 14	6.83	-132.72	-64.93	-15.6692		213	2.225	126	78.46			1.21	Si
SLV 14	7.63	-100.75	-51.07	14.8392		162	2.225	116	72.07			1.41	Si
SLV 16	6.83	-107.3	-76.43	-18.2815		172	2.225	118	73.38			0.96	No, Vu<V
SLV 16	7.63	-84.22	-59.6	19.5351		135	2.225	110	68.76			1.15	Si
SLV 15	6.83	-107.3	-76.43	-18.2815		172	2.225	118	73.38			0.96	No, Vu<V
SLV 15	7.63	-84.22	-59.6	19.5351		135	2.225	110	68.76			1.15	Si
SLV 2	6.83	-97.01	77.35	-3.1698		156	2.225	114	71.32			0.92	No, Vu<V
SLV 2	7.63	-99.21	58.48	-44.7324		179	1.9848	119	66.15			1.13	Si
SLV 3	6.83	-71.59	65.85	-5.7821		115	2.225	106	66.23			1.01	Si
SLV 3	7.63	-82.68	49.96	-40.0364		157	1.8849	115	60.52			1.21	Si
SLV 12	6.83	-65.14	-40.05	-16.9544		105	2.225	104	64.94			1.62	Si
SLV 12	7.63	-64.41	-31.2	4.1637		103	2.225	104	64.8			2.08	Si
SLV 13	6.83	-132.72	-64.93	-15.6692		213	2.225	126	78.46			1.21	Si
SLV 13	7.63	-100.75	-51.07	14.8392		162	2.225	116	72.07			1.41	Si
SLV 4	6.83	-71.59	65.85	-5.7821		115	2.225	106	66.23			1.01	Si
SLV 4	7.63	-82.68	49.96	-40.0364		157	1.8849	115	60.52			1.21	Si
SLV 11	6.83	-65.14	-40.05	-16.9544		105	2.225	104	64.94			1.62	Si
SLV 11	7.63	-64.41	-31.2	4.1637		103	2.225	104	64.8			2.08	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.38	85	-53.26	2.2661	6.9346	3.06	Si
SLV 7	1438	0.38	85	-53.26	2.2661	6.9346	3.06	Si
SLV 11	1438	0.38	92	-57.22	2.2661	7.4087	3.27	Si
SLV 12	1438	0.38	92	-57.22	2.2661	7.4087	3.27	Si
SLV 4	1438	0.38	125	-77.77	2.2661	9.7755	4.31	Si
SLV 3	1438	0.38	125	-77.77	2.2661	9.7755	4.31	Si
SLV 16	1438	0.38	146	-90.97	2.2661	11.2142	4.95	Si
SLV 15	1438	0.38	146	-90.97	2.2661	11.2142	4.95	Si
SLV 1	1438	0.38	165	-102.74	2.2661	12.4423	5.49	Si
SLV 2	1438	0.38	165	-102.74	2.2661	12.4423	5.49	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-97.64	-127.99	0.85	0.039	13.064	0.935	0.60925	10.83091	No
SLV 6	-97.64	-127.99	0.85	0.039	13.064	0.935	0.60925	10.83091	No
SLV 11	-62.14	-38	-0.84	0.039	9.49	0.916	0.62084	10.83091	No
SLV 12	-62.14	-38	-0.84	0.039	9.49	0.916	0.62084	10.83091	No
SLV 2	-81.01	-90.71	0.8	0.04	11.385	0.927	0.62076	10.4105	No
SLV 1	-81.01	-90.71	0.8	0.04	11.385	0.927	0.62076	10.4105	No
SLV 16	-78.78	-75.28	-0.79	0.04	11.16	0.926	0.62426	10.4105	No
SLV 15	-78.78	-75.28	-0.79	0.04	11.16	0.926	0.62426	10.4105	No
SLV 10	-100.42	-131.81	0.5	0.042	13.344	0.936	0.65479	10.83091	No
SLV 9	-100.42	-131.81	0.5	0.042	13.344	0.936	0.65479	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.693	SLU 73	Si
V_SLU	16.167	SLU 28	Si
PF_SLV	2.048	SLV 3	Si
V_SLV	0.922	SLV 1	No
PFFP_SLV	3.06	SLV 7	Si
R_SLV	0.056	SLV 5	No

## Maschio 102

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.263	-3.359	-18.868	-3.359	L4	L5	0.605	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 73	6.83	-44.34	0.2257	262	9.1031	40.332	Si
SLU 73	7.63	-38.9	3.3629	230	8.4507	2.513	Si
SLU 2	6.83	-26.96	0.0654	159	6.5612	100.306	Si
SLU 2	7.63	-22.79	2.1753	135	5.7544	2.645	Si
SLU 10	6.83	-31.98	0.0644	189	7.4317	115.453	Si
SLU 10	7.63	-27.92	2.569	165	6.7373	2.623	Si
SLU 52	6.83	-39.98	0.1666	236	8.5902	51.557	Si
SLU 52	7.63	-34.64	3.0827	204	7.8484	2.546	Si
SLU 82	6.83	-48.38	0.3624	286	9.5035	26.222	Si
SLU 82	7.63	-42.9	3.4745	253	8.9428	2.574	Si
SLU 31	6.83	-36.34	0.1235	215	8.0976	65.59	Si
SLU 31	7.63	-32.19	2.8492	190	7.4651	2.62	Si
SLU 44	6.83	-34.96	0.1677	206	7.8959	47.096	Si
SLU 44	7.63	-29.5	2.689	174	7.0169	2.61	Si
SLU 65	6.83	-39.32	0.2267	232	8.5048	37.509	Si
SLU 65	7.63	-33.77	2.9692	199	7.7151	2.598	Si
SLU 76	6.83	-45.2	0.359	267	9.1943	25.608	Si
SLU 76	7.63	-39.52	3.194	233	8.5308	2.671	Si
SLU 61	6.83	-44.02	0.3033	260	9.0678	29.893	Si
SLU 61	7.63	-38.64	3.1943	228	8.4153	2.634	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 15	6.83	-10.95	-5.8015	0	0	0	No, $e \geq l/2$
SLV 15	7.63	-29.51	8.2558	174	7.6544	0.927	No, $M > Mu$
SLV 14	6.83	-12.96	-4.9006	0	0	0	No, $e \geq l/2$
SLV 14	7.63	-20	8.3282	0	0	0	No, $e \geq l/2$
SLV 10	6.83	-30.97	0.1937	183	7.9662	41.129	Si
SLV 10	7.63	-12.55	4.1659	0	0	0	No, $e \geq l/2$
SLD 16	6.83	-24.21	-2.2712	143	6.4665	2.847	Si
SLD 16	7.63	-29.61	4.8428	175	7.6756	1.585	Si
SLV 9	6.83	-30.97	0.1937	183	7.9662	41.129	Si
SLV 9	7.63	-12.55	4.1659	0	0	0	No, $e \geq l/2$
SLD 14	6.83	-25.05	-1.8958	148	6.661	3.513	Si
SLD 14	7.63	-25.79	4.8622	152	6.8293	1.405	Si
SLD 15	6.83	-24.21	-2.2712	143	6.4665	2.847	Si
SLD 15	7.63	-29.61	4.8428	175	7.6756	1.585	Si
SLD 13	6.83	-25.05	-1.8958	148	6.661	3.513	Si
SLD 13	7.63	-25.79	4.8622	152	6.8293	1.405	Si
SLV 16	6.83	-10.95	-5.8015	0	0	0	No, $e \geq l/2$
SLV 16	7.63	-29.51	8.2558	174	7.6544	0.927	No, $M > Mu$
SLV 13	6.83	-12.96	-4.9006	0	0	0	No, $e \geq l/2$
SLV 13	7.63	-20	8.3282	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	6.83	-44.34	-2.91	0.2257	262	0.605	90	15.32				5.27	Si
SLU 73	7.63	-38.9	-1.61	3.3629	230	0.605	86	14.6				9.08	Si
SLU 31	6.83	-36.34	-2.63	0.1235	215	0.605	84	14.26				5.41	Si
SLU 31	7.63	-32.19	-1.44	2.8492	190	0.605	81	13.7				9.51	Si
SLU 44	6.83	-34.96	-2.47	0.1677	206	0.605	83	14.07				5.7	Si
SLU 44	7.63	-29.5	-0.89	2.689	174	0.605	79	13.35				15.07	Si
SLU 10	6.83	-31.98	-2.53	0.0644	189	0.605	81	13.67				5.4	Si
SLU 10	7.63	-27.92	-1.19	2.569	165	0.605	78	13.13				11.08	Si
SLU 61	6.83	-44.02	-2.49	0.3033	260	0.605	90	15.28				6.14	Si
SLU 61	7.63	-38.64	-1.61	3.1943	228	0.605	86	14.56				9.07	Si
SLU 82	6.83	-48.38	-2.59	0.3624	286	0.605	94	15.86				6.12	Si
SLU 82	7.63	-42.9	-1.86	3.4745	253	0.605	89	15.13				8.13	Si
SLU 2	6.83	-26.96	-2.19	0.0654	159	0.605	77	13.01				5.93	Si
SLU 2	7.63	-22.79	-0.72	2.1753	135	0.605	73	12.45				17.34	Si
SLU 23	6.83	-31.31	-2.29	0.1245	185	0.605	80	13.59				5.92	Si
SLU 23	7.63	-27.05	-0.97	2.4555	160	0.605	77	13.02				13.37	Si
SLU 65	6.83	-39.32	-2.57	0.2267	232	0.605	87	14.65				5.71	Si
SLU 65	7.63	-33.77	-1.14	2.9692	199	0.605	82	13.91				12.2	Si
SLU 52	6.83	-39.98	-2.81	0.1666	236	0.605	87	14.74				5.25	Si
SLU 52	7.63	-34.64	-1.35	3.0827	204	0.605	83	14.03				10.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	6.83	-55.73	24.01	5.7504	333	0.5979	150	25.1				1.05	Si
SLV 4	7.63	-39.91	1.01	-3.8782	236	0.605	130	22.1				21.9	Si
SLV 1	6.83	-57.73	18.6	6.6514	367	0.5619	157	24.66				1.33	Si
SLV 1	7.63	-30.4	5.04	-3.8057	204	0.532	124	18.49				3.67	Si
SLV 2	6.83	-57.73	18.6	6.6514	367	0.5619	157	24.66				1.33	Si
SLV 2	7.63	-30.4	5.04	-3.8057	204	0.532	124	18.49				3.67	Si
SLV 9	6.83	-30.97	-16.93	0.1937	183	0.605	120	20.31				1.2	Si
SLV 9	7.63	-12.55	4.44	4.1659	0	0	83	0				0	No, $Vu < V$
SLV 10	6.83	-30.97	-16.93	0.1937	183	0.605	120	20.31				1.2	Si
SLV 10	7.63	-12.55	4.44	4.1659	0	0	83	0				0	No, $Vu < V$
SLV 13	6.83	-12.96	-26.33	-4.9006	0	0	83	0				0	No, $Vu < V$
SLV 13	7.63	-20	-3.12	8.3282	0	0	83	0				0	No, $Vu < V$
SLV 14	6.83	-12.96	-26.33	-4.9006	0	0	83	0				0	No, $Vu < V$
SLV 14	7.63	-20	-3.12	8.3282	0	0	83	0				0	No, $Vu < V$
SLV 3	6.83	-55.73	24.01	5.7504	333	0.5979	150	25.1				1.05	Si
SLV 3	7.63	-39.91	1.01	-3.8782	236	0.605	130	22.1				21.9	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	6.83	-10.95	-20.92	-5.8015		0	0	83	0			0	No, Vu<V
SLV 15	7.63	-29.51	-7.15	8.2558		1544	0.0683	163	3.11			0.43	No, Vu<V
SLV 16	6.83	-10.95	-20.92	-5.8015		0	0	83	0			0	No, Vu<V
SLV 16	7.63	-29.51	-7.15	8.2558		1544	0.0683	163	3.11			0.43	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.38	101	-17.14	0.6162	2.2006	3.57	Si
SLV 12	1438	0.38	101	-17.14	0.6162	2.2006	3.57	Si
SLV 15	1438	0.38	110	-18.65	0.6162	2.376	3.86	Si
SLV 16	1438	0.38	110	-18.65	0.6162	2.376	3.86	Si
SLV 7	1438	0.38	132	-22.4	0.6162	2.7964	4.54	Si
SLV 8	1438	0.38	132	-22.4	0.6162	2.7964	4.54	Si
SLV 14	1438	0.38	149	-25.21	0.6162	3.0996	5.03	Si
SLV 13	1438	0.38	149	-25.21	0.6162	3.0996	5.03	Si
SLV 3	1438	0.38	214	-36.19	0.6162	4.1805	6.78	Si
SLV 4	1438	0.38	214	-36.19	0.6162	4.1805	6.78	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-21.97	-13.46	-0.08	0.045	3.09	0.927	0.6984	10.83091	No
SLV 8	-21.97	-13.46	-0.08	0.045	3.09	0.927	0.6984	10.83091	No
SLV 3	-23.34	-23.14	-0.07	0.045	3.228	0.929	0.69861	10.4105	No
SLV 4	-23.34	-23.14	-0.07	0.045	3.228	0.929	0.69861	10.4105	No
SLV 11	-18.56	-12.31	-0.06	0.046	2.748	0.92	0.73286	10.83091	No
SLV 12	-18.56	-12.31	-0.06	0.046	2.748	0.92	0.73286	10.83091	No
SLV 2	-21.1	-30.28	-0.04	0.046	3.003	0.925	0.73013	10.4105	No
SLV 1	-21.1	-30.28	-0.04	0.046	3.003	0.925	0.73013	10.4105	No
SLV 5	-14.51	-37.26	0.04	0.049	2.343	0.91	0.77441	10.83091	No
SLV 6	-14.51	-37.26	0.04	0.049	2.343	0.91	0.77441	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.513	SLU 73	Si
V_SLU	5.25	SLU 52	Si
PF_SLV	0	SLV 9	No
V_SLV	0	SLV 9	No
PFFP_SLV	3.571	SLV 11	Si
R_SLV	0.064	SLV 7	No

## Maschio 103

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	1.046	-19.618	5.811	L4	L5	4.765	0.14	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 72	4.83	-325.93	-1.7393	489	310.8018	178.698	Si
SLU 72	8.35	-268.48	64.2828	402	323.6424	5.035	Si
SLU 8	4.83	-239.52	0.8964	359	319.1435	356.041	Si
SLU 8	8.35	-205.99	60.4573	309	304.7509	5.041	Si
SLU 51	4.83	-287.68	0.312	431	322.5701	1000	Si
SLU 51	8.35	-236.54	57.9206	355	318.2658	5.495	Si
SLU 30	4.83	-277.26	-0.9423	416	323.5535	343.381	Si
SLU 30	8.35	-238.02	65.7598	357	318.7118	4.847	Si
SLU 71	4.83	-326.43	-1.9519	489	310.5613	159.105	Si
SLU 71	8.35	-268.38	65.3425	402	323.6397	4.953	Si
SLU 29	4.83	-277.76	-1.1549	416	323.5279	280.127	Si
SLU 29	8.35	-237.93	66.8195	357	318.6832	4.769	Si
SLU 9	4.83	-239.01	1.109	358	319.0002	287.635	Si
SLU 9	8.35	-206.09	59.3976	309	304.8066	5.132	Si
SLU 27	4.83	-280.22	-2.5427	420	323.3712	127.176	Si
SLU 27	8.35	-236.31	60.0309	354	318.192	5.3	Si
SLU 28	4.83	-279.71	-2.33	419	323.4077	138.8	Si
SLU 28	8.35	-236.4	58.9711	354	318.222	5.396	Si
SLU 50	4.83	-288.19	0.0994	432	322.4985	1000	Si
SLU 50	8.35	-236.45	58.9803	354	318.2359	5.396	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	4.83	-183.64	-27.2831	275	338.9659	12.424	Si
SLV 10	8.35	-105.58	-22.8346	158	218.9775	9.59	Si
SLV 2	4.83	-223.86	-43.9431	336	386.8867	8.804	Si
SLV 2	8.35	-150.88	-3.287	226	292.9444	89.122	Si





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 4	-176.65	-247.64	-0.42	0.02	21.299	0.954	0.30311	16.49646	No
SLV 3	-176.65	-247.64	-0.42	0.02	21.299	0.954	0.30311	16.49646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.769	SLU 29	Si
V_SLU	9.464	SLU 81	Si
PF_SLV	7.812	SLV 5	Si
V_SLV	0.768	SLV 9	No
PFFP_SLV	3.154	SLV 5	Si
R_SLV	0.017	SLV 1	No

## Maschio 104

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-19.618	5.951	-19.618	6.661	L4	L5	0.71	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 40	4.83	-53.97	-3.7376	271	12.774	3.418	Si
SLU 40	8.35	-48.57	2.1077	244	12.0712	5.727	Si
SLU 81	4.83	-63.93	-4.2207	322	13.7355	3.254	Si
SLU 81	8.35	-56.07	2.4255	282	13.0135	5.365	Si
SLU 19	4.83	-46.42	-3.3771	234	11.7554	3.481	Si
SLU 19	8.35	-39.44	2.0588	198	10.592	5.145	Si
SLU 73	4.83	-62.39	-3.8451	314	13.6153	3.541	Si
SLU 73	8.35	-54.12	2.1258	272	12.7919	6.017	Si
SLU 82	4.83	-63.87	-4.2311	321	13.7314	3.245	Si
SLU 82	8.35	-55.82	2.4199	281	12.9857	5.366	Si
SLU 60	4.83	-56.38	-3.8602	284	13.0465	3.38	Si
SLU 60	8.35	-46.95	2.3766	236	11.8345	4.98	Si
SLU 61	4.83	-56.33	-3.8705	283	13.0407	3.369	Si
SLU 61	8.35	-46.69	2.3709	235	11.7965	4.975	Si
SLU 18	4.83	-46.47	-3.3667	234	11.7635	3.494	Si
SLU 18	8.35	-39.7	2.0644	200	10.638	5.153	Si
SLU 39	4.83	-54.02	-3.7272	272	12.7803	3.429	Si
SLU 39	8.35	-48.83	2.1134	246	12.1071	5.729	Si
SLU 52	4.83	-54.84	-3.4845	276	12.8755	3.695	Si
SLU 52	8.35	-44.99	2.0768	226	11.5348	5.554	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 1	4.83	18.96	-11.6162	0	0	0	No, Trazione
SLV 1	8.35	-59.99	12.467	302	16.0375	1.286	Si
SLV 13	4.83	-91.1	5.5057	458	20.2114	3.671	Si
SLV 13	8.35	-13.14	-8.6127	0	0	0	No, e>l/2
SLV 4	4.83	1.56	-10.3495	0	0	0	No, Trazione
SLV 4	8.35	-63.31	11.2208	318	16.6176	1.481	Si
SLD 1	4.83	-17.06	-6.4453	0	0	0	No, e>l/2
SLD 1	8.35	-47.72	6.151	240	13.6117	2.213	Si
SLV 3	4.83	1.56	-10.3495	0	0	0	No, Trazione
SLV 3	8.35	-63.31	11.2208	318	16.6176	1.481	Si
SLV 2	4.83	18.96	-11.6162	0	0	0	No, Trazione
SLV 2	8.35	-59.99	12.467	302	16.0375	1.286	Si
SLV 14	4.83	-91.1	5.5057	458	20.2114	3.671	Si
SLV 14	8.35	-13.14	-8.6127	0	0	0	No, e>l/2
SLV 15	4.83	-108.5	6.7724	546	21.3127	3.147	Si
SLV 15	8.35	-16.45	-9.8588	0	0	0	No, e>l/2
SLV 6	4.83	0.74	-7.1014	0	0	0	No, Trazione
SLV 6	8.35	-39.72	6.5429	200	11.7953	1.803	Si
SLV 5	4.83	0.74	-7.1014	0	0	0	No, Trazione
SLV 5	8.35	-39.72	6.5429	200	11.7953	1.803	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 18	4.83	-46.47	-6.73	-3.3667		234	0.71	87	17.24			2.56	Si
SLU 18	8.35	-39.7	-2.46	2.0644		200	0.71	82	16.34			6.65	Si
SLU 82	4.83	-63.87	-8.49	-4.2311		321	0.71	98	19.56			2.3	Si
SLU 82	8.35	-55.82	-3.03	2.4199		281	0.71	93	18.49			6.1	Si
SLU 40	4.83	-53.97	-7.4	-3.7376		271	0.71	92	18.24			2.47	Si
SLU 40	8.35	-48.57	-2.65	2.1077		244	0.71	88	17.52			6.62	Si
SLU 19	4.83	-46.42	-6.75	-3.3771		234	0.71	87	17.23			2.55	Si
SLU 19	8.35	-39.44	-2.43	2.0588		198	0.71	82	16.3			6.71	Si
SLU 73	4.83	-62.39	-7.79	-3.8451		314	0.71	97	19.36			2.49	Si
SLU 73	8.35	-54.12	-2.73	2.1258		272	0.71	92	18.26			6.68	Si
SLU 52	4.83	-54.84	-7.14	-3.4845		276	0.71	92	18.36			2.57	Si
SLU 52	8.35	-44.99	-2.52	2.0768		226	0.71	86	17.04			6.77	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	4.83	-56.33	-7.84	-3.8705		283	0.71	93	18.55			2.37	Si
SLU 61	8.35	-46.69	-2.81	2.3709		235	0.71	87	17.27			6.14	Si
SLU 39	4.83	-54.02	-7.38	-3.7272		272	0.71	92	18.25			2.47	Si
SLU 39	8.35	-48.83	-2.67	2.1134		246	0.71	88	17.55			6.57	Si
SLU 81	4.83	-63.93	-8.47	-4.2207		322	0.71	98	19.57			2.31	Si
SLU 81	8.35	-56.07	-3.06	2.4255		282	0.71	93	18.52			6.06	Si
SLU 60	4.83	-56.38	-7.82	-3.8602		284	0.71	93	18.56			2.37	Si
SLU 60	8.35	-46.95	-2.84	2.3766		236	0.71	87	17.3			6.09	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	4.83	1.56	-23.61	-10.3495		0	0	83	0			0	No, Vu<V
SLV 4	8.35	-63.31	-10.59	11.2208		424	0.5333	163	24.27			2.29	Si
SLV 6	4.83	0.74	-25.58	-7.1014		0	0	83	0			0	No, Vu<V
SLV 6	8.35	-39.72	-18.38	6.5429		249	0.5708	133	21.26			1.16	Si
SLV 14	4.83	-91.1	13.54	5.5057		458	0.71	163	32.3			2.39	Si
SLV 14	8.35	-13.14	7.04	-8.6127		0	0	83	0			0	No, Vu<V
SLV 13	4.83	-91.1	13.54	5.5057		458	0.71	163	32.3			2.39	Si
SLV 13	8.35	-13.14	7.04	-8.6127		0	0	83	0			0	No, Vu<V
SLV 1	4.83	18.96	-31.85	-11.6162		0	0	83	0			0	No, Vu<V
SLV 1	8.35	-59.99	-18.28	12.467		485	0.4416	163	20.09			1.1	Si
SLV 3	4.83	1.56	-23.61	-10.3495		0	0	83	0			0	No, Vu<V
SLV 3	8.35	-63.31	-10.59	11.2208		424	0.5333	163	24.27			2.29	Si
SLV 2	4.83	18.96	-31.85	-11.6162		0	0	83	0			0	No, Vu<V
SLV 2	8.35	-59.99	-18.28	12.467		485	0.4416	163	20.09			1.1	Si
SLV 5	4.83	0.74	-25.58	-7.1014		0	0	83	0			0	No, Vu<V
SLV 5	8.35	-39.72	-18.38	6.5429		249	0.5708	133	21.26			1.16	Si
SLD 1	4.83	-17.06	-16.67	-6.4453		0	0	83	0			0	No, Vu<V
SLD 1	8.35	-47.72	-8.83	6.151		251	0.6783	134	25.37			2.87	Si
SLV 15	4.83	-108.5	21.78	6.7724		546	0.71	163	32.3			1.48	Si
SLV 15	8.35	-16.45	14.73	-9.8588		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.38	104	-20.72	0.7399	2.6537	3.59	Si
SLV 5	1438	0.38	104	-20.72	0.7399	2.6537	3.59	Si
SLV 2	1438	0.38	122	-24.32	0.7399	3.064	4.14	Si
SLV 1	1438	0.38	122	-24.32	0.7399	3.064	4.14	Si
SLV 10	1438	0.38	140	-27.85	0.7399	3.4519	4.67	Si
SLV 9	1438	0.38	140	-27.85	0.7399	3.4519	4.67	Si
SLV 4	1438	0.38	174	-34.53	0.7399	4.147	5.6	Si
SLV 3	1438	0.38	174	-34.53	0.7399	4.147	5.6	Si
SLV 13	1438	0.38	242	-48.07	0.7399	5.3984	7.3	Si
SLV 14	1438	0.38	242	-48.07	0.7399	5.3984	7.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-36.73	-90.27	3.59	0	4.732	0.941	0	10.83091	No
SLV 6	-39.72	0.74	-3.55	0	0	0	0	10.83091	No, Trazione
SLV 13	-13.14	-91.1	2.75	0	2.364	0.901	0	10.4105	No
SLV 1	-59.99	18.96	-4.23	0	0	0	0	10.4105	No, Trazione
SLV 2	-59.99	18.96	-4.23	0	0	0	0	10.4105	No, Trazione
SLV 14	-13.14	-91.1	2.75	0	2.364	0.901	0	10.4105	No
SLV 4	-63.31	1.56	-2.71	0	0	0	0	10.4105	No, Trazione
SLV 5	-39.72	0.74	-3.55	0	0	0	0	10.83091	No, Trazione
SLV 3	-63.31	1.56	-2.71	0	0	0	0	10.4105	No, Trazione
SLV 11	-36.73	-90.27	3.59	0	4.732	0.941	0	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.245	SLU 82	Si
V_SLU	2.305	SLU 82	Si
PF_SLV	0	SLV 6	No
V_SLV	0	SLD 1	No
PFFP_SLV	3.586	SLV 5	Si
R_SLV	0	SLV 6	No

## Maschio 105

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.333	-3.359	-17.363	-3.359	L4	L5	1.03	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	5.73	-98.85	-8.6783	343	29.4873	3.398	Si
SLU 76	7.53	-82.47	11.5581	286	27.5625	2.385	Si
SLU 73	5.73	-96.87	-9.6407	336	29.3169	3.041	Si
SLU 73	7.53	-82.94	12.1925	288	27.6341	2.266	Si
SLU 65	5.73	-88.31	-8.8457	306	28.383	3.209	Si
SLU 65	7.53	-72.97	10.9799	253	25.9078	2.36	Si
SLU 82	5.73	-101.71	-9.2505	353	29.703	3.211	Si
SLU 82	7.53	-89.06	12.5509	309	28.4785	2.269	Si
SLU 75	5.73	-101	-8.282	350	29.6524	3.58	Si
SLU 75	7.53	-85.95	11.7333	298	28.0698	2.392	Si
SLU 84	5.73	-103.7	-8.2881	360	29.8313	3.599	Si
SLU 84	7.53	-88.59	11.9165	307	28.4195	2.385	Si
SLU 44	5.73	-81.32	-8.123	282	27.3831	3.371	Si
SLU 44	7.53	-64.95	10.016	225	24.2014	2.416	Si
SLU 81	5.73	-103.48	-8.1542	359	29.8181	3.657	Si
SLU 81	7.53	-91.84	12.3089	318	28.8071	2.34	Si
SLU 61	5.73	-94.73	-8.5278	328	29.1138	3.414	Si
SLU 61	7.53	-81.04	11.587	281	27.338	2.359	Si
SLU 52	5.73	-89.88	-8.918	312	28.5793	3.205	Si
SLU 52	7.53	-74.92	11.2286	260	26.2783	2.34	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	5.73	-62.33	7.0631	216	26.4215	3.741	Si
SLV 11	7.53	-1.52	-11.0683	0	0	0	No, $e \geq l/2$
SLV 13	5.73	-52.51	-35.0038	0	0	0	No, $e \geq l/2$
SLV 13	7.53	-97.19	29.856	337	36.2484	1.214	Si
SLV 14	5.73	-52.51	-35.0038	0	0	0	No, $e \geq l/2$
SLV 14	7.53	-97.19	29.856	337	36.2484	1.214	Si
SLV 12	5.73	-62.33	7.0631	216	26.4215	3.741	Si
SLV 12	7.53	-1.52	-11.0683	0	0	0	No, $e \geq l/2$
SLV 7	5.73	-74.01	21.2525	257	30.1096	1.417	Si
SLV 7	7.53	8.74	-19.7567	0	0	0	No, Trazione
SLV 10	5.73	-68.19	-32.1869	236	28.3235	0.88	No, $M > M_u$
SLV 10	7.53	-130.29	36.2975	452	42.2907	1.165	Si
SLV 3	5.73	-89.69	24.0694	311	34.4336	1.431	Si
SLV 3	7.53	-24.36	-13.3152	0	0	0	No, $e \geq l/2$
SLV 8	5.73	-74.01	21.2525	257	30.1096	1.417	Si
SLV 8	7.53	8.74	-19.7567	0	0	0	No, Trazione
SLV 9	5.73	-68.19	-32.1869	236	28.3235	0.88	No, $M > M_u$
SLV 9	7.53	-130.29	36.2975	452	42.2907	1.165	Si
SLV 4	5.73	-89.69	24.0694	311	34.4336	1.431	Si
SLV 4	7.53	-24.36	-13.3152	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	5.73	-79.27	-13.66	-8.3784		275	1.03	92	26.59			1.95	Si
SLU 31	7.53	-69	-6.92	10.2285		239	1.03	87	25.22			3.64	Si
SLU 65	5.73	-88.31	-14.71	-8.8457		306	1.03	96	27.8			1.89	Si
SLU 65	7.53	-72.97	-7.95	10.9799		253	1.03	89	25.75			3.24	Si
SLU 61	5.73	-94.73	-13.55	-8.5278		328	1.03	99	28.65			2.11	Si
SLU 61	7.53	-81.04	-7.74	11.587		281	1.03	93	26.83			3.47	Si
SLU 10	5.73	-72.28	-12.49	-7.6557		251	1.03	89	25.66			2.06	Si
SLU 10	7.53	-60.98	-6.89	9.2646		211	1.03	84	24.15			3.51	Si
SLU 73	5.73	-96.87	-15.68	-9.6407		336	1.03	100	28.94			1.85	Si
SLU 73	7.53	-82.94	-8.33	12.1925		288	1.03	94	27.08			3.25	Si
SLU 52	5.73	-89.88	-14.51	-8.918		312	1.03	97	28.01			1.93	Si
SLU 52	7.53	-74.92	-8.29	11.2286		260	1.03	90	26.01			3.14	Si
SLU 82	5.73	-101.71	-14.72	-9.2505		353	1.03	103	29.58			2.01	Si
SLU 82	7.53	-89.06	-7.77	12.5509		309	1.03	97	27.9			3.59	Si
SLU 23	5.73	-70.7	-12.68	-7.5835		245	1.03	88	25.45			2.01	Si
SLU 23	7.53	-59.03	-6.55	9.0158		205	1.03	83	23.89			3.65	Si
SLU 76	5.73	-98.85	-14.18	-8.6783		343	1.03	101	29.2			2.06	Si
SLU 76	7.53	-82.47	-7.43	11.5581		286	1.03	94	27.02			3.64	Si
SLU 44	5.73	-81.32	-13.54	-8.123		282	1.03	93	26.86			1.98	Si
SLU 44	7.53	-64.95	-7.92	10.016		225	1.03	86	24.68			3.12	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	5.73	-89.69	39.49	24.0694		433	0.7399	163	33.67			0.85	No, $V_u < V$
SLV 3	7.53	-24.36	9.89	-13.3152		0	0	83	0			0	No, $V_u < V$
SLV 10	5.73	-68.19	-40.88	-32.1869		1888	0.129	163	5.87			0.14	No, $V_u < V$
SLV 10	7.53	-130.29	-17.61	36.2975		656	0.7092	163	32.27			1.83	Si
SLV 13	5.73	-52.51	-56.87	-35.0038		0	0	83	0			0	No, $V_u < V$
SLV 13	7.53	-97.19	-19.57	29.856		557	0.6234	163	28.37			1.45	Si
SLV 14	5.73	-52.51	-56.87	-35.0038		0	0	83	0			0	No, $V_u < V$
SLV 14	7.53	-97.19	-19.57	29.856		557	0.6234	163	28.37			1.45	Si
SLV 7	5.73	-74.01	23.5	21.2525		387	0.6835	161	30.75			1.31	Si
SLV 7	7.53	8.74	7.93	-19.7567		0	0	83	0			0	No, $V_u < V$
SLV 8	5.73	-74.01	23.5	21.2525		387	0.6835	161	30.75			1.31	Si
SLV 8	7.53	8.74	7.93	-19.7567		0	0	83	0			0	No, $V_u < V$
SLV 9	5.73	-68.19	-40.88	-32.1869		1888	0.129	163	5.87			0.14	No, $V_u < V$
SLV 9	7.53	-130.29	-17.61	36.2975		656	0.7092	163	32.27			1.83	Si
SLV 11	5.73	-62.33	-1.89	7.0631		216	1.03	127	36.5			19.28	Si
SLV 11	7.53	-1.52	0.75	-11.0683		0	0	83	0			0	No, $V_u < V$
SLV 12	5.73	-62.33	-1.89	7.0631		216	1.03	127	36.5			19.28	Si
SLV 12	7.53	-1.52	0.75	-11.0683		0	0	83	0			0	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	5.73	-89.69	39.49	24.0694		433	0.7399	163	33.67			0.85	No, Vu<V
SLV 4	7.53	-24.36	9.89	-13.3152		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.38	134	-38.69	1.049	4.822	4.6	Si
SLV 16	1438	0.38	134	-38.69	1.049	4.822	4.6	Si
SLV 11	1438	0.38	145	-41.95	1.049	5.1733	4.93	Si
SLV 12	1438	0.38	145	-41.95	1.049	5.1733	4.93	Si
SLV 13	1438	0.38	172	-49.58	1.049	5.9643	5.69	Si
SLV 14	1438	0.38	172	-49.58	1.049	5.9643	5.69	Si
SLV 7	1438	0.38	193	-55.62	1.049	6.5578	6.25	Si
SLV 8	1438	0.38	193	-55.62	1.049	6.5578	6.25	Si
SLV 10	1438	0.38	271	-78.23	1.049	8.5209	8.12	Si
SLV 9	1438	0.38	271	-78.23	1.049	8.5209	8.12	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	15.71	-54.93	-0.69	0	0	0	0	10.83091	No, Trazione
SLV 12	6.04	-68.32	-0.81	0	0	0	0	10.83091	No, Trazione
SLV 11	6.04	-68.32	-0.81	0	0	0	0	10.83091	No, Trazione
SLV 8	15.71	-54.93	-0.69	0	0	0	0	10.83091	No, Trazione
SLV 5	-100.84	-81.5	0.83	0.035	11.696	0.963	0.53556	10.83091	No
SLV 6	-100.84	-81.5	0.83	0.035	11.696	0.963	0.53556	10.83091	No
SLV 10	-110.5	-94.88	0.71	0.037	12.68	0.966	0.55528	10.83091	No
SLV 9	-110.5	-94.88	0.71	0.037	12.68	0.966	0.55528	10.83091	No
SLV 2	-48.77	-56.58	0.45	0.038	6.408	0.938	0.59335	10.4105	No
SLV 1	-48.77	-56.58	0.45	0.038	6.408	0.938	0.59335	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.266	SLU 73	Si
V_SLU	1.846	SLU 73	Si
PF_SLV	0	SLV 8	No
V_SLV	0	SLV 3	No
PFFP_SLV	4.597	SLV 15	Si
R_SLV	0	SLV 12	No

## Maschio 106

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-18.448	-3.359	-18.448	1.046	L4	L5	4.406	0.14	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	4.83	-231.17	44.7915	375	274.9342	6.138	Si
SLU 78	8.35	-169.72	52.4591	275	247.5743	4.719	Si
SLU 36	4.83	-198.08	40.6803	321	264.3154	6.497	Si
SLU 36	8.35	-145.59	47.2317	236	227.7754	4.823	Si
SLU 34	4.83	-192.94	34.4893	313	261.8032	7.591	Si
SLU 34	8.35	-136.79	47.1799	222	219.2922	4.648	Si
SLU 26	4.83	-168.54	28.111	273	246.724	8.777	Si
SLU 26	8.35	-119.47	41.556	194	200.6004	4.827	Si
SLU 73	4.83	-222.03	35.2002	360	272.9597	7.754	Si
SLU 73	8.35	-156.57	50.1662	254	237.4191	4.733	Si
SLU 76	4.83	-226.03	38.6005	366	273.9145	7.096	Si
SLU 76	8.35	-160.92	52.4073	261	240.9516	4.598	Si
SLU 31	4.83	-188.93	31.089	306	259.6863	8.353	Si
SLU 31	8.35	-132.44	44.9388	215	214.8378	4.781	Si
SLU 68	4.83	-201.63	32.2221	327	265.9161	8.253	Si
SLU 68	8.35	-143.61	46.7834	233	225.9246	4.829	Si
SLU 84	4.83	-234.48	43.5024	380	275.4672	6.332	Si
SLU 84	8.35	-169.26	51.608	274	247.249	4.791	Si
SLU 80	4.83	-228.03	44.1691	370	274.3378	6.211	Si
SLU 80	8.35	-166.2	51.4388	269	245.0046	4.763	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	4.83	-141.28	63.7594	229	252.8828	3.966	Si
SLV 8	8.35	-110.28	6.6868	179	207.3761	31.013	Si
SLV 9	4.83	-158.88	-10.8036	258	276.2108	25.567	Si
SLV 9	8.35	-109.79	49.8645	178	206.6219	4.144	Si
SLV 11	4.83	-125.2	56.0773	203	229.9788	4.101	Si
SLV 11	8.35	-97.07	14.4775	157	186.2887	12.868	Si







Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.598	SLU 76	Si
V_SLU	3.99	SLU 2	Si
PF_SLV	3.746	SLV 13	Si
V_SLV	0.568	SLV 11	No
PFFP_SLV	2.538	SLV 15	Si
R_SLV	0.021	SLV 1	No

## Maschio 107

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.893	-3.359	-15.433	-3.359	L4	L5	1.54	0.28	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	4.83	-132.49	-14.4664	307	63.5362	4.392	Si
SLU 73	6.93	-148.13	23.8736	344	65.9586	2.763	Si
SLU 61	4.83	-130.21	-12.6753	302	63.0947	4.978	Si
SLU 61	6.93	-142.14	21.8109	330	65.157	2.987	Si
SLU 84	4.83	-139.5	-13.346	324	64.7547	4.852	Si
SLU 84	6.93	-153.17	23.36	355	66.5105	2.847	Si
SLU 65	4.83	-122.2	-13.0415	283	61.3589	4.705	Si
SLU 65	6.93	-133.01	21.5139	308	63.6352	2.958	Si
SLU 83	4.83	-139.84	-12.1335	324	64.8088	5.341	Si
SLU 83	6.93	-151.61	22.3589	352	66.351	2.968	Si
SLU 82	4.83	-137.13	-14.2687	318	64.3661	4.511	Si
SLU 82	6.93	-153.57	24.2176	356	66.549	2.748	Si
SLU 76	4.83	-134.86	-13.5436	313	63.9731	4.723	Si
SLU 76	6.93	-147.74	23.0161	343	65.9108	2.864	Si
SLU 75	4.83	-135.97	-13.0684	315	64.1683	4.91	Si
SLU 75	6.93	-148.66	22.9031	345	66.021	2.883	Si
SLU 81	4.83	-137.47	-13.0563	319	64.4238	4.934	Si
SLU 81	6.93	-152	23.2165	353	66.3921	2.86	Si
SLU 78	4.83	-138.35	-12.1457	321	64.5689	5.316	Si
SLU 78	6.93	-148.26	22.0456	344	65.974	2.993	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	4.83	-80.01	-34.7807	186	52.2538	1.502	Si
SLV 13	6.93	-136.66	41.953	317	77.933	1.858	Si
SLV 11	4.83	-56.37	-22.3557	131	38.7633	1.734	Si
SLV 11	6.93	-102.41	11.5293	238	63.5296	5.51	Si
SLV 10	4.83	-120.1	-11.4429	279	71.3986	6.24	Si
SLV 10	6.93	-120.88	33.262	280	71.7246	2.156	Si
SLD 15	4.83	-81.01	-21.2524	188	52.7881	2.484	Si
SLD 15	6.93	-114.76	24.1296	266	69.1184	2.864	Si
SLV 14	4.83	-80.01	-34.7807	186	52.2538	1.502	Si
SLV 14	6.93	-136.66	41.953	317	77.933	1.858	Si
SLV 9	4.83	-120.1	-11.4429	279	71.3986	6.24	Si
SLV 9	6.93	-120.88	33.262	280	71.7246	2.156	Si
SLV 12	4.83	-56.37	-22.3557	131	38.7633	1.734	Si
SLV 12	6.93	-102.41	11.5293	238	63.5296	5.51	Si
SLV 15	4.83	-60.89	-38.0545	141	41.4693	1.09	Si
SLV 15	6.93	-131.12	35.4332	304	75.8347	2.14	Si
SLV 16	4.83	-60.89	-38.0545	141	41.4693	1.09	Si
SLV 16	6.93	-131.12	35.4332	304	75.8347	2.14	Si
SLD 16	4.83	-81.01	-21.2524	188	52.7881	2.484	Si
SLD 16	6.93	-114.76	24.1296	266	69.1184	2.864	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	4.83	-125.58	-24.69	-12.8729		291	1.54	94	40.7			1.65	Si
SLU 52	6.93	-136.7	-33.23	21.467		317	1.54	98	42.18			1.27	Si
SLU 40	4.83	-112.21	-24.55	-12.5135		260	1.54	90	38.92			1.59	Si
SLU 40	6.93	-129.13	-32.86	20.8279		299	1.54	95	41.17			1.25	Si
SLU 61	4.83	-130.21	-24.7	-12.6753		302	1.54	96	41.32			1.67	Si
SLU 61	6.93	-142.14	-34.12	21.8109		330	1.54	100	42.91			1.26	Si
SLU 84	4.83	-139.5	-26.23	-13.346		324	1.54	99	42.56			1.62	Si
SLU 84	6.93	-153.17	-35.64	23.36		355	1.54	103	44.38			1.25	Si
SLU 81	4.83	-137.47	-26.3	-13.0563		319	1.54	98	42.28			1.61	Si
SLU 81	6.93	-152	-36.36	23.2165		353	1.54	103	44.22			1.22	Si
SLU 75	4.83	-135.97	-25.84	-13.0684		315	1.54	98	42.08			1.63	Si
SLU 75	6.93	-148.66	-34.64	22.9031		345	1.54	102	43.78			1.26	Si
SLU 82	4.83	-137.13	-28.05	-14.2687		318	1.54	98	42.24			1.51	Si
SLU 82	6.93	-153.57	-37.91	24.2176		356	1.54	103	44.43			1.17	Si
SLU 76	4.83	-134.86	-26.22	-13.5436		313	1.54	97	41.94			1.6	Si
SLU 76	6.93	-147.74	-34.76	23.0161		343	1.54	101	43.65			1.26	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	4.83	-132.49	-28.04	-14.4664		307	1.54	97	41.62			1.48	Si
SLU 73	6.93	-148.13	-37.02	23.8736		344	1.54	101	43.71			1.18	Si
SLU 31	4.83	-107.57	-24.54	-12.7111		249	1.54	89	38.3			1.56	Si
SLU 31	6.93	-123.69	-31.97	20.484		287	1.54	94	40.45			1.27	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 16	4.83	-81.01	-38.64	-21.2524		190	1.523	121	51.74			1.34	Si
SLD 16	6.93	-114.76	-39.85	24.1296		266	1.54	137	58.89			1.48	Si
SLV 14	4.83	-80.01	-63.7	-34.7807		284	1.0059	140	39.47			0.62	No, Vu<V
SLV 14	6.93	-136.66	-55.83	41.953		351	1.389	154	59.74			1.07	Si
SLV 11	4.83	-56.37	-36.79	-22.3557		180	1.1203	119	37.42			1.02	Si
SLV 11	6.93	-102.41	-43.75	11.5293		238	1.54	131	56.42			1.29	Si
SLV 12	4.83	-56.37	-36.79	-22.3557		180	1.1203	119	37.42			1.02	Si
SLV 12	6.93	-102.41	-43.75	11.5293		238	1.54	131	56.42			1.29	Si
SLD 15	4.83	-81.01	-38.64	-21.2524		190	1.523	121	51.74			1.34	Si
SLD 15	6.93	-114.76	-39.85	24.1296		266	1.54	137	58.89			1.48	Si
SLD 14	4.83	-88.94	-37.36	-19.8867		206	1.54	125	53.72			1.44	Si
SLD 14	6.93	-116.96	-37.46	26.8044		271	1.54	138	59.33			1.58	Si
SLD 13	4.83	-88.94	-37.36	-19.8867		206	1.54	125	53.72			1.44	Si
SLD 13	6.93	-116.96	-37.46	26.8044		271	1.54	138	59.33			1.58	Si
SLV 16	4.83	-60.89	-66.78	-38.0545		500	0.4352	163	19.8			0.3	No, Vu<V
SLV 16	6.93	-131.12	-61.63	35.4332		312	1.4993	146	61.21			0.99	No, Vu<V
SLV 15	4.83	-60.89	-66.78	-38.0545		500	0.4352	163	19.8			0.3	No, Vu<V
SLV 15	6.93	-131.12	-61.63	35.4332		312	1.4993	146	61.21			0.99	No, Vu<V
SLV 13	4.83	-80.01	-63.7	-34.7807		284	1.0059	140	39.47			0.62	No, Vu<V
SLV 13	6.93	-136.66	-55.83	41.953		351	1.389	154	59.74			1.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.38	170	-73.43	1.5685	8.8471	5.64	Si
SLV 4	1438	0.38	170	-73.43	1.5685	8.8471	5.64	Si
SLV 8	1438	0.38	180	-77.69	1.5685	9.273	5.91	Si
SLV 7	1438	0.38	180	-77.69	1.5685	9.273	5.91	Si
SLV 1	1438	0.38	196	-84.53	1.5685	9.936	6.33	Si
SLV 2	1438	0.38	196	-84.53	1.5685	9.936	6.33	Si
SLV 11	1438	0.38	214	-92.46	1.5685	10.6725	6.8	Si
SLV 12	1438	0.38	214	-92.46	1.5685	10.6725	6.8	Si
SLV 5	1438	0.38	266	-114.72	1.5685	12.5637	8.01	Si
SLV 6	1438	0.38	266	-114.72	1.5685	12.5637	8.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-17.69	-135.35	3.28	0	4.086	0.891	0	10.83091	No
SLV 5	-17.69	-135.35	3.28	0	4.086	0.891	0	10.83091	No
SLV 10	-14.99	-120.1	2.81	0	3.835	0.889	0	10.83091	No
SLV 9	-14.99	-120.1	2.81	0	3.835	0.889	0	10.83091	No
SLV 11	-135.41	-56.37	-2.99	0.023	15.926	0.96	0.35402	10.83091	No
SLV 12	-135.41	-56.37	-2.99	0.023	15.926	0.96	0.35402	10.83091	No
SLV 1	-63	-130.83	1.8	0.023	8.578	0.932	0.36525	10.4105	No
SLV 2	-63	-130.83	1.8	0.023	8.578	0.932	0.36525	10.4105	No
SLV 7	-138.12	-71.62	-2.52	0.027	16.201	0.961	0.40497	10.83091	No
SLV 8	-138.12	-71.62	-2.52	0.027	16.201	0.961	0.40497	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.748	SLU 82	Si
V_SLU	1.172	SLU 82	Si
PF_SLV	1.09	SLV 15	Si
V_SLV	0.297	SLV 15	No
PFFP_SLV	5.641	SLV 3	Si
R_SLV	0	SLV 5	No

## Maschio 108

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-15.058	1.046	-15.058	1.406	L4	L5	0.36	0.14	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 63	4.83	-41.73	2.8145	828	0	0	No, Rottura per schiacciamento
SLU 63	6.93	-12.03	-1.6047	239	1.5308	0.954	No, M>Mu
SLU 62	4.83	-41.73	2.8208	829	0	0	No, Rottura per schiacciamento



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 62	6.93	-12.03	-1.6057	239	1.531	0.953	No, M>Mu
SLU 56	4.83	-41.52	2.818	824	0	0	No, Rottura per schiacciamento
SLU 56	6.93	-11.78	-1.6306	234	1.5118	0.927	No, M>Mu
SLU 42	4.83	-41.67	2.9328	827	0	0	No, Rottura per schiacciamento
SLU 42	6.93	-10.52	-1.7704	209	1.4084	0.796	No, M>Mu
SLU 38	4.83	-40.89	2.9171	811	0.0291	0.01	No, M>Mu
SLU 38	6.93	-9.77	-1.8034	0	0	0	No, e>l/2
SLU 83	4.83	-47.47	3.268	942	0	0	No, Rottura per schiacciamento
SLU 83	6.93	-12.91	-1.9114	256	1.5928	0.833	No, M>Mu
SLU 41	4.83	-41.74	2.939	828	0	0	No, Rottura per schiacciamento
SLU 41	6.93	-10.52	-1.7714	209	1.4086	0.795	No, M>Mu
SLU 69	4.83	-41.12	2.7809	816	0	0	No, Rottura per schiacciamento
SLU 69	6.93	-11.87	-1.6042	236	1.5188	0.947	No, M>Mu
SLU 37	4.83	-40.96	2.9234	813	0.0172	0.006	No, M>Mu
SLU 37	6.93	-9.78	-1.8045	0	0	0	No, e>l/2
SLU 57	4.83	-41.45	2.8118	822	0	0	No, Rottura per schiacciamento
SLU 57	6.93	-11.77	-1.6296	234	1.5116	0.928	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	4.83	8.93	-3.5897	0	0	0	No, Trazione
SLV 10	6.93	-35.13	2.7405	697	2.7163	0.991	No, M>Mu
SLV 9	4.83	8.93	-3.5897	0	0	0	No, Trazione
SLV 9	6.93	-35.13	2.7405	697	2.7163	0.991	No, M>Mu
SLD 16	4.83	-35.91	2.8858	712	2.6947	0.934	No, M>Mu
SLD 16	6.93	-4.02	-1.8597	0	0	0	No, e>l/2
SLV 12	4.83	-69.64	7.7529	1382	0	0	No, Rottura per schiacciamento
SLV 12	6.93	19.01	-5.2289	0	0	0	No, Trazione
SLV 7	4.83	-66.79	7.3378	1325	0	0	No, Rottura per schiacciamento
SLV 7	6.93	16.3	-4.7367	0	0	0	No, Trazione
SLV 5	4.83	11.78	-4.0048	0	0	0	No, Trazione
SLV 5	6.93	-37.84	3.2327	751	2.6261	0.812	No, M>Mu
SLV 8	4.83	-66.79	7.3378	1325	0	0	No, Rottura per schiacciamento
SLV 8	6.93	16.3	-4.7367	0	0	0	No, Trazione
SLV 4	4.83	-35.96	2.8836	713	2.6931	0.934	No, M>Mu
SLV 4	6.93	-5.81	-1.3732	0	0	0	No, e>l/2
SLV 11	4.83	-69.64	7.7529	1382	0	0	No, Rottura per schiacciamento
SLV 11	6.93	19.01	-5.2289	0	0	0	No, Trazione
SLV 6	4.83	11.78	-4.0048	0	0	0	No, Trazione
SLV 6	6.93	-37.84	3.2327	751	2.6261	0.812	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	4.83	-46.62	5.17	3.2461		1006	0.3311	108	5.02			0.97	No, Vu<V
SLU 80	6.93	-12.16	5.14	-1.9434		1437	0.0604	108	0.92			0.18	No, Vu<V
SLU 38	4.83	-40.89	4.71	2.9171		896	0.326	108	4.94			1.05	Si
SLU 38	6.93	-9.77	4.68	-1.8034		0	0	56	0			0	No, Vu<V
SLU 37	4.83	-40.96	4.73	2.9234		898	0.3259	108	4.94			1.04	Si
SLU 37	6.93	-9.78	4.68	-1.8045		0	0	56	0			0	No, Vu<V
SLU 35	4.83	-41.46	4.74	2.9363		904	0.3275	108	4.97			1.05	Si
SLU 35	6.93	-10.27	4.68	-1.7963		4819	0.0152	108	0.23			0.05	No, Vu<V
SLU 16	4.83	-35.29	3.97	2.4761		765	0.3295	108	5			1.26	Si
SLU 16	6.93	-8.9	3.93	-1.4988		1820	0.0349	108	0.53			0.13	No, Vu<V
SLU 17	4.83	-35.22	3.95	2.4698		763	0.3296	108	5			1.27	Si
SLU 17	6.93	-8.9	3.93	-1.4978		1809	0.0351	108	0.53			0.14	No, Vu<V
SLU 79	4.83	-46.69	5.19	3.2524		1007	0.331	108	5.02			0.97	No, Vu<V
SLU 79	6.93	-12.16	5.14	-1.9444		1441	0.0603	108	0.91			0.18	No, Vu<V
SLU 41	4.83	-41.74	4.73	2.939		907	0.3288	108	4.99			1.05	Si
SLU 41	6.93	-10.52	4.67	-1.7714		2148	0.035	108	0.53			0.11	No, Vu<V
SLU 36	4.83	-41.39	4.72	2.93		902	0.3277	108	4.97			1.05	Si
SLU 36	6.93	-10.27	4.68	-1.7953		4765	0.0154	108	0.23			0.05	No, Vu<V
SLU 42	4.83	-41.67	4.71	2.9328		905	0.3289	108	4.99			1.06	Si
SLU 42	6.93	-10.52	4.67	-1.7704		2137	0.0352	108	0.53			0.11	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	4.83	11.78	-13.97	-4.0048		0	0	83	0			0	No, Vu<V
SLV 6	6.93	-37.84	-6.02	3.2327		953	0.2837	163	6.45			1.07	Si
SLD 16	4.83	-35.91	5.84	2.8858		858	0.2989	163	6.8			1.16	Si
SLD 16	6.93	-4.02	4.53	-1.8597		0	0	83	0			0	No, Vu<V
SLV 7	4.83	-66.79	18.33	7.3378		2267	0.2104	163	4.79			0.26	No, Vu<V
SLV 7	6.93	16.3	10.79	-4.7367		0	0	83	0			0	No, Vu<V
SLV 5	4.83	11.78	-13.97	-4.0048		0	0	83	0			0	No, Vu<V
SLV 5	6.93	-37.84	-6.02	3.2327		953	0.2837	163	6.45			1.07	Si
SLV 12	4.83	-69.64	19.68	7.7529		2414	0.206	163	4.69			0.24	No, Vu<V
SLV 12	6.93	19.01	11.68	-5.2289		0	0	83	0			0	No, Vu<V
SLV 8	4.83	-66.79	18.33	7.3378		2267	0.2104	163	4.79			0.26	No, Vu<V
SLV 8	6.93	16.3	10.79	-4.7367		0	0	83	0			0	No, Vu<V
SLV 11	4.83	-69.64	19.68	7.7529		2414	0.206	163	4.69			0.24	No, Vu<V
SLV 11	6.93	19.01	11.68	-5.2289		0	0	83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	4.83	-35.96	5.46	2.8836		858	0.2994	163	6.81			1.25	Si
SLV 4	6.93	-5.81	3.86	-1.3732		0	0	83	0			0	No, Vu<V
SLV 10	4.83	8.93	-12.62	-3.5897		0	0	83	0			0	No, Vu<V
SLV 10	6.93	-35.13	-5.13	2.7405		820	0.306	163	6.96			1.36	Si
SLV 9	4.83	8.93	-12.62	-3.5897		0	0	83	0			0	No, Vu<V
SLV 9	6.93	-35.13	-5.13	2.7405		820	0.306	163	6.96			1.36	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.38	0	5.94	0.1961	0	0	No, Trazione
SLV 7	1438	0.38	0	5.94	0.1961	0	0	No, Trazione
SLV 12	1438	0.38	0	8.47	0.1961	0	0	No, Trazione
SLV 11	1438	0.38	0	8.47	0.1961	0	0	No, Trazione
SLV 16	1438	0.38	57	-2.88	0.1961	0.1924	0.98	No, M>Mu
SLV 15	1438	0.38	57	-2.88	0.1961	0.1924	0.98	No, M>Mu
SLV 3	1438	0.38	225	-11.32	0.1961	0.6466	3.3	Si
SLV 4	1438	0.38	225	-11.32	0.1961	0.6466	3.3	Si
SLV 14	1438	0.38	301	-15.15	0.1961	0.7995	4.08	Si
SLV 13	1438	0.38	301	-15.15	0.1961	0.7995	4.08	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	0.7	8.93	-0.1	0	0	0	0	16.49646	No, Trazione
SLV 13	-10.83	-21.9	-0.29	0	1.353	0.947	0	16.49646	No
SLV 5	1.64	11.78	0.07	0	0	0	0	16.49646	No, Trazione
SLV 10	0.7	8.93	-0.1	0	0	0	0	16.49646	No, Trazione
SLV 14	-10.83	-21.9	-0.29	0	1.353	0.947	0	16.49646	No
SLV 6	1.64	11.78	0.07	0	0	0	0	16.49646	No, Trazione
SLV 2	-7.71	-12.39	0.28	0	1.038	0.934	0	16.49646	No
SLV 1	-7.71	-12.39	0.28	0	1.038	0.934	0	16.49646	No
SLV 3	-16.66	-35.96	0.29	0.006	1.946	0.962	0.08749	16.49646	No
SLV 4	-16.66	-35.96	0.29	0.006	1.946	0.962	0.08749	16.49646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 35	No
V_SLU	0	SLU 37	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 10	No

## Maschio 109

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota l.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-15.058	2.206	-15.058	6.661	L4	L5	4.455	0.14	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	4.83	-310.85	-75.2983	498	268.7677	3.569	Si
SLU 75	6.93	-278.58	-74.7181	447	280.2812	3.751	Si
SLU 83	4.83	-318.77	-78.594	511	264.5479	3.366	Si
SLU 83	6.93	-286.49	-78.5941	459	278.302	3.541	Si
SLU 84	4.83	-318.62	-78.4154	511	264.6296	3.375	Si
SLU 84	6.93	-286.35	-78.4309	459	278.3429	3.549	Si
SLU 73	4.83	-300.88	-77.8711	482	273.301	3.51	Si
SLU 73	6.93	-268.6	-70.0808	431	281.992	4.024	Si
SLU 77	4.83	-316.68	-70.4392	508	265.7161	3.772	Si
SLU 77	6.93	-284.4	-78.6767	456	278.8783	3.545	Si
SLU 74	4.83	-310.99	-75.4769	499	268.6958	3.56	Si
SLU 74	6.93	-278.72	-74.8813	447	280.2501	3.743	Si
SLU 81	4.83	-313.09	-83.6317	502	267.6317	3.2	Si
SLU 81	6.93	-280.81	-74.7987	450	279.778	3.74	Si
SLU 82	4.83	-312.94	-83.4531	502	267.7063	3.208	Si
SLU 82	6.93	-280.67	-74.6355	450	279.8117	3.749	Si
SLU 78	4.83	-316.53	-70.2605	508	265.7952	3.783	Si
SLU 78	6.93	-284.26	-78.5135	456	278.9166	3.552	Si
SLU 79	4.83	-312.48	-68.0934	501	267.9439	3.935	Si
SLU 79	6.93	-280.21	-77.9437	449	279.9187	3.591	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	4.83	-141.7	-190.7952	227	256.9413	1.347	Si
SLV 10	6.93	-117.61	25.5107	189	221.5421	8.684	Si





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 12	-169.36	-290.97	-1.18	0.016	20.34	0.955	0.23958	16.49646	No
SLV 11	-169.36	-290.97	-1.18	0.016	20.34	0.955	0.23958	16.49646	No
SLV 13	-142.27	-205.2	0.7	0.018	17.589	0.949	0.27583	16.49646	No
SLV 14	-142.27	-205.2	0.7	0.018	17.589	0.949	0.27583	16.49646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.2	SLU 81	Si
V_SLU	8.841	SLU 30	Si
PF_SLV	1.186	SLV 5	Si
V_SLV	0.439	SLV 5	No
PFFP_SLV	2.844	SLV 5	Si
R_SLV	0.012	SLV 9	No

## Maschio 111

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-0.354	-13.753	-0.228	L4	L5	0.126	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 55	4.83	-11.17	0.0663	317	0.4285	6.466	Si
SLU 55	6.93	-6.33	-1.1045	0	0	0	No, e>l/2
SLU 60	4.83	-11.49	0.115	326	0.4327	3.762	Si
SLU 60	6.93	-6.44	-1.135	0	0	0	No, e>l/2
SLU 1	4.83	-8.18	-0.0209	232	0.3674	17.548	Si
SLU 1	6.93	-4.25	-0.7368	0	0	0	No, e>l/2
SLU 57	4.83	-10.85	0.0305	308	0.4238	13.904	Si
SLU 57	6.93	-6.96	-1.1914	0	0	0	No, e>l/2
SLU 54	4.83	-11.23	0.0597	319	0.4293	7.194	Si
SLU 54	6.93	-6.48	-1.1251	0	0	0	No, e>l/2
SLU 56	4.83	-10.62	0.0175	302	0.4202	24.078	Si
SLU 56	6.93	-7.09	-1.2091	0	0	0	No, e>l/2
SLU 59	4.83	-10.64	0.0284	302	0.4206	14.81	Si
SLU 59	6.93	-6.9	-1.1826	0	0	0	No, e>l/2
SLU 61	4.83	-11.72	0.1281	333	0.4355	3.401	Si
SLU 61	6.93	-6.31	-1.1173	0	0	0	No, e>l/2
SLU 58	4.83	-10.41	0.0154	296	0.4167	27.122	Si
SLU 58	6.93	-7.04	-1.2003	0	0	0	No, e>l/2
SLU 53	4.83	-11	0.0466	312	0.426	9.133	Si
SLU 53	6.93	-6.61	-1.1428	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 7	4.83	-21.27	0.6755	604	0.6756	1	Si
SLV 7	6.93	4.16	0.3511	0	0	0	No, Trazione
SLV 14	4.83	-10.11	-0.0585	287	0.486	8.306	Si
SLV 14	6.93	-10.24	-1.5396	0	0	0	No, e>l/2
SLD 1	4.83	-4.25	-0.1558	121	0.2405	1.543	Si
SLD 1	6.93	-4.43	-0.7812	0	0	0	No, e>l/2
SLV 13	4.83	-10.11	-0.0585	287	0.486	8.306	Si
SLV 13	6.93	-10.24	-1.5396	0	0	0	No, e>l/2
SLV 12	4.83	-24.77	0.7682	704	0.6601	0.859	No, M>Mu
SLV 12	6.93	2.3	0.1091	0	0	0	No, Trazione
SLV 6	4.83	7.58	-0.7628	0	0	0	No, Trazione
SLV 6	6.93	-11.8	-1.7511	0	0	0	No, e>l/2
SLV 10	4.83	4.08	-0.6701	0	0	0	No, Trazione
SLV 10	6.93	-13.66	-1.9931	0	0	0	No, e>l/2
SLV 11	4.83	-24.77	0.7682	704	0.6601	0.859	No, M>Mu
SLV 11	6.93	2.3	0.1091	0	0	0	No, Trazione
SLV 9	4.83	4.08	-0.6701	0	0	0	No, Trazione
SLV 9	6.93	-13.66	-1.9931	0	0	0	No, e>l/2
SLV 8	4.83	-21.27	0.6755	604	0.6756	1	Si
SLV 8	6.93	4.16	0.3511	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	4.83	-10.41	0.99	0.0154		296	0.1257	95	3.34			3.38	Si
SLU 58	6.93	-7.04	-2.61	-1.2003		0	0	56	0			0	No, Vu<V
SLU 55	4.83	-11.17	1.44	0.0663		317	0.1257	98	3.45			2.39	Si
SLU 55	6.93	-6.33	-1.98	-1.1045		0	0	56	0			0	No, Vu<V
SLU 56	4.83	-10.62	1.03	0.0175		302	0.1257	96	3.37			3.28	Si
SLU 56	6.93	-7.09	-2.64	-1.2091		0	0	56	0			0	No, Vu<V
SLU 57	4.83	-10.85	1.15	0.0305		308	0.1257	97	3.4			2.96	Si
SLU 57	6.93	-6.96	-2.51	-1.1914		0	0	56	0			0	No, Vu<V
SLU 59	4.83	-10.64	1.11	0.0284		302	0.1257	96	3.37			3.04	Si
SLU 59	6.93	-6.9	-2.48	-1.1826		0	0	56	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	4.83	-11.72	1.83	0.1281		333	0.1257	100	3.52			1.93	Si
SLU 61	6.93	-6.31	-1.72	-1.1173		0	0	56	0			0	No, Vu<V
SLU 53	4.83	-11	1.28	0.0466		312	0.1257	97	3.42			2.67	Si
SLU 53	6.93	-6.61	-2.21	-1.1428		0	0	56	0			0	No, Vu<V
SLU 60	4.83	-11.49	1.71	0.115		326	0.1257	99	3.49			2.04	Si
SLU 60	6.93	-6.44	-1.84	-1.135		0	0	56	0			0	No, Vu<V
SLU 1	4.83	-8.18	0.74	-0.0209		232	0.1257	87	3.05			4.1	Si
SLU 1	6.93	-4.25	-1.38	-0.7368		0	0	56	0			0	No, Vu<V
SLU 54	4.83	-11.23	1.4	0.0597		319	0.1257	98	3.45			2.47	Si
SLU 54	6.93	-6.48	-2.09	-1.1251		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	4.83	-10.11	-3.93	-0.0585		287	0.1257	141	4.95			1.26	Si
SLV 13	6.93	-10.24	-7.03	-1.5396		0	0	83	0			0	No, Vu<V
SLV 10	4.83	4.08	-6.72	-0.6701		0	0	83	0			0	No, Vu<V
SLV 10	6.93	-13.66	-10.32	-1.9931		0	0	83	0			0	No, Vu<V
SLV 11	4.83	-24.77	6.8	0.7682		926	0.0955	163	4.35			0.64	No, Vu<V
SLV 11	6.93	2.3	5.29	0.1091		0	0	83	0			0	No, Vu<V
SLV 6	4.83	7.58	-5.05	-0.7628		0	0	83	0			0	No, Vu<V
SLV 6	6.93	-11.8	-8.46	-1.7511		0	0	83	0			0	No, Vu<V
SLV 14	4.83	-10.11	-3.93	-0.0585		287	0.1257	141	4.95			1.26	Si
SLV 14	6.93	-10.24	-7.03	-1.5396		0	0	83	0			0	No, Vu<V
SLD 1	4.83	-4.25	1.21	-0.1558		193	0.0784	122	2.68			2.22	Si
SLD 1	6.93	-4.43	-1.25	-0.7812		0	0	83	0			0	No, Vu<V
SLV 8	4.83	-21.27	8.46	0.6755		814	0.0933	163	4.24			0.5	No, Vu<V
SLV 8	6.93	4.16	7.15	0.3511		0	0	83	0			0	No, Vu<V
SLV 7	4.83	-21.27	8.46	0.6755		814	0.0933	163	4.24			0.5	No, Vu<V
SLV 7	6.93	4.16	7.15	0.3511		0	0	83	0			0	No, Vu<V
SLV 9	4.83	4.08	-6.72	-0.6701		0	0	83	0			0	No, Vu<V
SLV 9	6.93	-13.66	-10.32	-1.9931		0	0	83	0			0	No, Vu<V
SLV 12	4.83	-24.77	6.8	0.7682		926	0.0955	163	4.35			0.64	No, Vu<V
SLV 12	6.93	2.3	5.29	0.1091		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.38	0	3.84	0.131	0	0	No, Trazione
SLV 12	1438	0.38	0	0.66	0.131	0	0	No, Trazione
SLV 11	1438	0.38	0	0.66	0.131	0	0	No, Trazione
SLV 7	1438	0.38	0	3.84	0.131	0	0	No, Trazione
SLV 3	1438	0.38	47	-1.67	0.131	0.2246	1.71	Si
SLV 4	1438	0.38	47	-1.67	0.131	0.2246	1.71	Si
SLV 2	1438	0.38	272	-9.57	0.131	1.042	7.95	Si
SLV 1	1438	0.38	272	-9.57	0.131	1.042	7.95	Si
SLV 15	1438	0.38	349	-12.27	0.131	1.2279	9.37	Si
SLV 16	1438	0.38	349	-12.27	0.131	1.2279	9.37	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	1.99	-21.27	-0.4	0	0	0	0	10.83091	No, Trazione
SLV 4	-11.06	-7.08	2.19	0	1.3	0.96	0	10.4105	No
SLV 6	-27.19	7.58	2.24	0	0	0	0	10.83091	No, Trazione
SLV 1	-19.81	1.57	2.98	0	0	0	0	10.4105	No, Trazione
SLV 5	-27.19	7.58	2.24	0	0	0	0	10.83091	No, Trazione
SLV 10	-24.76	4.08	0.82	0	0	0	0	10.83091	No, Trazione
SLV 3	-11.06	-7.08	2.19	0	1.3	0.96	0	10.4105	No
SLV 9	-24.76	4.08	0.82	0	0	0	0	10.83091	No, Trazione
SLV 7	1.99	-21.27	-0.4	0	0	0	0	10.83091	No, Trazione
SLV 2	-19.81	1.57	2.98	0	0	0	0	10.4105	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 12	No

## Maschio 112

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-13.753	0.672	-13.753	1.046	L4	L5	0.374	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	4.83	-69.02	-2.222	659	2.4743	1.114	Si
SLU 74	6.93	-48.04	0.7411	458	3.9317	5.305	Si
SLU 75	4.83	-68.3	-2.1128	652	2.5563	1.21	Si
SLU 75	6.93	-48.6	0.648	464	3.918	6.047	Si
SLU 78	4.83	-71.23	-2.403	680	2.2089	0.919	No, M>Mu
SLU 78	6.93	-48.48	0.8854	463	3.921	4.429	Si
SLU 77	4.83	-71.95	-2.5122	686	2.1177	0.843	No, M>Mu
SLU 77	6.93	-47.92	0.9786	457	3.9345	4.021	Si
SLU 81	4.83	-68.34	-1.9808	652	2.5521	1.288	Si
SLU 81	6.93	-50.1	0.4854	478	3.8739	7.981	Si
SLU 83	4.83	-71.26	-2.271	680	2.2042	0.971	No, M>Mu
SLU 83	6.93	-49.98	0.7228	477	3.8777	5.365	Si
SLU 69	4.83	-64.43	-2.3748	615	2.9584	1.246	Si
SLU 69	6.93	-41.1	1.0258	392	3.989	3.889	Si
SLU 84	4.83	-70.54	-2.1618	673	2.2932	1.061	Si
SLU 84	6.93	-50.54	0.6296	482	3.8592	6.129	Si
SLU 79	4.83	-70.97	-2.5023	677	2.2411	0.896	No, M>Mu
SLU 79	6.93	-46.94	0.9805	448	3.9548	4.034	Si
SLU 80	4.83	-70.25	-2.3931	670	2.3292	0.973	No, M>Mu
SLU 80	6.93	-47.5	0.8873	453	3.9437	4.445	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	4.83	-39.08	-0.9394	373	5.0821	5.41	Si
SLV 1	6.93	-2.88	3.5655	0	0	0	No, e>l/2
SLV 7	4.83	-5.83	5.9632	0	0	0	No, e>l/2
SLV 7	6.93	-64.55	-4.2796	616	5.9913	1.4	Si
SLV 5	4.83	-73.81	-7.1732	704	5.8519	0.816	No, M>Mu
SLV 5	6.93	11.02	5.9778	0	0	0	No, Trazione
SLV 8	4.83	-5.83	5.9632	0	0	0	No, e>l/2
SLV 8	6.93	-64.55	-4.2796	616	5.9913	1.4	Si
SLV 2	4.83	-39.08	-0.9394	373	5.0821	5.41	Si
SLV 2	6.93	-2.88	3.5655	0	0	0	No, e>l/2
SLV 6	4.83	-73.81	-7.1732	704	5.8519	0.816	No, M>Mu
SLV 6	6.93	11.02	5.9778	0	0	0	No, Trazione
SLV 9	4.83	-83.19	-8.5756	794	5.4555	0.636	No, M>Mu
SLV 9	6.93	0.27	4.9682	0	0	0	No, Trazione
SLV 12	4.83	-15.21	4.5609	0	0	0	No, e>l/2
SLV 12	6.93	-75.31	-5.2892	719	5.8059	1.098	Si
SLD 6	4.83	-57.01	-3.8122	544	5.9196	1.553	Si
SLD 6	6.93	-13.77	2.7441	0	0	0	No, e>l/2
SLV 10	4.83	-83.19	-8.5756	794	5.4555	0.636	No, M>Mu
SLV 10	6.93	0.27	4.9682	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	4.83	-70.97	-3.36	-2.5023		677	0.3743	108	11.35			3.37	Si
SLU 79	6.93	-46.94	-3.32	0.9805		448	0.3743	108	11.35			3.42	Si
SLU 29	4.83	-54.53	-3.14	-2.1909		520	0.3743	108	11.35			3.62	Si
SLU 29	6.93	-32.73	-3.14	1.0519		312	0.3743	97	10.19			3.25	Si
SLU 69	4.83	-64.43	-3.25	-2.3748		615	0.3743	108	11.35			3.5	Si
SLU 69	6.93	-41.1	-3.24	1.0258		392	0.3743	108	11.3			3.49	Si
SLU 77	4.83	-71.95	-3.37	-2.5122		686	0.3743	108	11.35			3.37	Si
SLU 77	6.93	-47.92	-3.32	0.9786		457	0.3743	108	11.35			3.42	Si
SLU 27	4.83	-55.51	-3.14	-2.2008		530	0.3743	108	11.35			3.61	Si
SLU 27	6.93	-33.71	-3.14	1.05		322	0.3743	98	10.32			3.29	Si
SLU 37	4.83	-62.05	-3.26	-2.3284		592	0.3743	108	11.35			3.48	Si
SLU 37	6.93	-39.55	-3.22	1.0047		377	0.3743	106	11.1			3.44	Si
SLU 35	4.83	-63.03	-3.27	-2.3383		601	0.3743	108	11.35			3.48	Si
SLU 35	6.93	-40.53	-3.22	1.0028		387	0.3743	107	11.23			3.48	Si
SLU 30	4.83	-53.81	-2.92	-2.0817		513	0.3743	108	11.35			3.89	Si
SLU 30	6.93	-33.29	-2.93	0.9587		318	0.3743	98	10.26			3.51	Si
SLU 28	4.83	-54.79	-2.93	-2.0916		523	0.3743	108	11.35			3.88	Si
SLU 28	6.93	-34.27	-2.93	0.9568		327	0.3743	99	10.39			3.55	Si
SLU 71	4.83	-63.45	-3.24	-2.3649		605	0.3743	108	11.35			3.5	Si
SLU 71	6.93	-40.12	-3.24	1.0277		383	0.3743	107	11.17			3.45	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	4.83	-39.08	0.58	-0.9394		373	0.3743	158	16.55			28.68	Si
SLV 1	6.93	-2.88	-8.64	3.5655		0	0	83	0			0	No, Vu<V
SLV 6	4.83	-73.81	-13.57	-7.1732		977	0.2699	163	12.28			0.9	No, Vu<V
SLV 6	6.93	11.02	-14.25	5.9778		0	0	83	0			0	No, Vu<V
SLV 2	4.83	-39.08	0.58	-0.9394		373	0.3743	158	16.55			28.68	Si
SLV 2	6.93	-2.88	-8.64	3.5655		0	0	83	0			0	No, Vu<V
SLV 9	4.83	-83.19	-17.35	-8.5756		1178	0.2522	163	11.47			0.66	No, Vu<V
SLV 9	6.93	0.27	-12.07	4.9682		0	0	83	0			0	No, Vu<V
SLV 10	4.83	-83.19	-17.35	-8.5756		1178	0.2522	163	11.47			0.66	No, Vu<V
SLV 10	6.93	0.27	-12.07	4.9682		0	0	83	0			0	No, Vu<V
SLV 7	4.83	-5.83	14.25	5.9632		0	0	83	0			0	No, Vu<V
SLV 7	6.93	-64.55	9.04	-4.2796		636	0.3626	163	16.5			1.83	Si
SLV 12	4.83	-15.21	10.47	4.5609		0	0	83	0			0	No, Vu<V
SLV 12	6.93	-75.31	11.22	-5.2892		767	0.3508	163	15.96			1.42	Si
SLV 11	4.83	-15.21	10.47	4.5609		0	0	83	0			0	No, Vu<V
SLV 11	6.93	-75.31	11.22	-5.2892		767	0.3508	163	15.96			1.42	Si
SLV 5	4.83	-73.81	-13.57	-7.1732		977	0.2699	163	12.28			0.9	No, Vu<V
SLV 5	6.93	11.02	-14.25	5.9778		0	0	83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	4.83	-5.83	14.25	5.9632		0	0	83	0			0	No, Vu<V
SLV 8	6.93	-64.55	9.04	-4.2796		636	0.3626	163	16.5			1.83	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.38	0	-2.03	0.3901	0	0	No, e>t/2
SLV 5	1438	0.38	0	-2.03	0.3901	0	0	No, e>t/2
SLV 1	1438	0.38	93	-9.73	0.3901	1.2589	3.23	Si
SLV 2	1438	0.38	93	-9.73	0.3901	1.2589	3.23	Si
SLV 10	1438	0.38	113	-11.88	0.3901	1.5084	3.87	Si
SLV 9	1438	0.38	113	-11.88	0.3901	1.5084	3.87	Si
SLV 4	1438	0.38	250	-26.19	0.3901	2.9165	7.48	Si
SLV 3	1438	0.38	250	-26.19	0.3901	2.9165	7.48	Si
SLV 14	1438	0.38	406	-42.57	0.3901	3.9784	10.2	Si
SLV 13	1438	0.38	406	-42.57	0.3901	3.9784	10.2	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	0.59	-15.21	-0.3	0	0	0	0	10.83091	No, Trazione
SLV 11	0.59	-15.21	-0.3	0	0	0	0	10.83091	No, Trazione
SLV 16	-15.02	-49.94	-0.77	0.005	2.055	0.931	0.08029	10.4105	No
SLV 15	-15.02	-49.94	-0.77	0.005	2.055	0.931	0.08029	10.4105	No
SLV 3	-23.27	-18.69	0.7	0.018	2.891	0.948	0.28347	10.4105	No
SLV 4	-23.27	-18.69	0.7	0.018	2.891	0.948	0.28347	10.4105	No
SLV 13	-30.87	-70.33	-0.73	0.022	3.664	0.958	0.33855	10.4105	No
SLV 14	-30.87	-70.33	-0.73	0.022	3.664	0.958	0.33855	10.4105	No
SLV 1	-39.13	-39.08	0.74	0.026	4.503	0.965	0.38461	10.4105	No
SLV 2	-39.13	-39.08	0.74	0.026	4.503	0.965	0.38461	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.843	SLU 77	No
V_SLU	3.249	SLU 29	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 5	No
R_SLV	0	SLV 12	No

## Maschio 113

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-19.758	6.661	-17.718	6.661	L4	L5	2.04	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	5.73	-212.95	2.3217	373	117.799	50.738	Si
SLU 84	7.53	-187.54	20.5425	328	114.1897	5.559	Si
SLU 39	5.73	-187.61	0.3548	328	114.2031	321.872	Si
SLU 39	7.53	-167.93	19.3713	294	109.4683	5.651	Si
SLU 75	5.73	-207.94	2.5723	364	117.3111	45.606	Si
SLU 75	7.53	-182.53	19.682	320	113.1432	5.749	Si
SLU 73	5.73	-209.65	1.2704	367	117.4899	92.482	Si
SLU 73	7.53	-184.24	20.678	323	113.5124	5.49	Si
SLU 61	5.73	-200.65	0.9495	351	116.4044	122.591	Si
SLU 61	7.53	-175.5	19.8272	307	111.4913	5.623	Si
SLU 40	5.73	-187.63	0.2787	328	114.2075	409.715	Si
SLU 40	7.53	-167.95	19.4381	294	109.4746	5.632	Si
SLU 60	5.73	-200.62	1.0256	351	116.4013	113.497	Si
SLU 60	7.53	-175.48	19.7604	307	111.4857	5.642	Si
SLU 81	5.73	-220.4	0.9527	386	118.3201	124.2	Si
SLU 81	7.53	-194.99	22.1172	341	115.5401	5.224	Si
SLU 83	5.73	-212.93	2.3978	373	117.7971	49.128	Si
SLU 83	7.53	-187.52	20.4758	328	114.1853	5.577	Si
SLU 82	5.73	-220.42	0.8766	386	118.3213	134.978	Si
SLU 82	7.53	-195.01	22.184	341	115.5438	5.208	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	5.73	-134.73	-19.6116	236	110.8934	5.654	Si
SLV 6	7.53	-121.67	36.3163	213	102.4698	2.822	Si
SLV 5	5.73	-134.73	-19.6116	236	110.8934	5.654	Si
SLV 5	7.53	-121.67	36.3163	213	102.4698	2.822	Si
SLV 13	5.73	-78.19	48.3075	137	70.8179	1.466	Si
SLV 13	7.53	-56.58	-24.8253	99	53.0307	2.136	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	5.73	-211.27	-45.1229	370	150.2623	3.33	Si
SLV 3	7.53	-193.9	51.932	339	142.8327	2.75	Si
SLV 16	5.73	-94.68	52.2649	166	83.4746	1.597	Si
SLV 16	7.53	-69.88	-31.0175	122	64.1412	2.068	Si
SLV 15	5.73	-94.68	52.2649	166	83.4746	1.597	Si
SLV 15	7.53	-69.88	-31.0175	122	64.1412	2.068	Si
SLV 2	5.73	-194.77	-49.0803	341	143.2262	2.918	Si
SLV 2	7.53	-180.6	58.1243	316	136.5446	2.349	Si
SLV 14	5.73	-78.19	48.3075	137	70.8179	1.466	Si
SLV 14	7.53	-56.58	-24.8253	99	53.0307	2.136	Si
SLV 1	5.73	-194.77	-49.0803	341	143.2262	2.918	Si
SLV 1	7.53	-180.6	58.1243	316	136.5446	2.349	Si
SLV 4	5.73	-211.27	-45.1229	370	150.2623	3.33	Si
SLV 4	7.53	-193.9	51.932	339	142.8327	2.75	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 39	5.73	-187.61	-10.22	0.3548		328	2.04	99	56.75			5.56	Si
SLU 39	7.53	-167.93	-10.22	19.3713		294	2.04	95	54.12			5.3	Si
SLU 40	5.73	-187.63	-10.29	0.2787		328	2.04	99	56.75			5.51	Si
SLU 40	7.53	-167.95	-10.29	19.4381		294	2.04	95	54.13			5.26	Si
SLU 61	5.73	-200.65	-10.04	0.9495		351	2.04	102	58.49			5.83	Si
SLU 61	7.53	-175.5	-10.04	19.8272		307	2.04	97	55.13			5.49	Si
SLU 82	5.73	-220.42	-11.38	0.8766		386	2.04	107	61.12			5.37	Si
SLU 82	7.53	-195.01	-11.38	22.184		341	2.04	101	57.73			5.07	Si
SLU 73	5.73	-209.65	-10.33	1.2704		367	2.04	104	59.69			5.78	Si
SLU 73	7.53	-184.24	-10.33	20.678		323	2.04	99	56.3			5.45	Si
SLU 31	5.73	-176.86	-9.24	0.6726		310	2.04	97	55.32			5.99	Si
SLU 31	7.53	-157.18	-9.24	17.9322		275	2.04	92	52.69			5.7	Si
SLU 81	5.73	-220.4	-11.3	0.9527		386	2.04	107	61.12			5.41	Si
SLU 81	7.53	-194.99	-11.3	22.1172		341	2.04	101	57.73			5.11	Si
SLU 60	5.73	-200.62	-9.96	1.0256		351	2.04	102	58.48			5.87	Si
SLU 60	7.53	-175.48	-9.96	19.7604		307	2.04	97	55.13			5.54	Si
SLU 18	5.73	-167.84	-8.87	0.4277		294	2.04	95	54.11			6.1	Si
SLU 18	7.53	-148.43	-8.87	17.0145		260	2.04	90	51.52			5.81	Si
SLU 19	5.73	-167.86	-8.95	0.3517		294	2.04	95	54.11			6.05	Si
SLU 19	7.53	-148.45	-8.95	17.0813		260	2.04	90	51.53			5.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	5.73	-78.19	47.98	48.3075		231	1.2065	130	43.79			0.91	No, Vu<V
SLV 14	7.53	-56.58	37.31	-24.8253		116	1.7436	107	52			1.39	Si
SLV 1	5.73	-194.77	-67.29	-49.0803		341	2.04	152	86.55			1.29	Si
SLV 1	7.53	-180.6	-56.78	58.1243		316	2.04	147	83.72			1.47	Si
SLV 5	5.73	-134.73	-34.77	-19.6116		236	2.04	131	74.55			2.14	Si
SLV 5	7.53	-121.67	-31.87	36.3163		213	2.04	126	71.93			2.26	Si
SLV 2	5.73	-194.77	-67.29	-49.0803		341	2.04	152	86.55			1.29	Si
SLV 2	7.53	-180.6	-56.78	58.1243		316	2.04	147	83.72			1.47	Si
SLV 3	5.73	-211.27	-60.58	-45.1229		370	2.04	157	89.85			1.48	Si
SLV 3	7.53	-193.9	-49.9	51.932		339	2.04	151	86.38			1.73	Si
SLV 16	5.73	-94.68	54.69	52.2649		241	1.404	132	51.7			0.95	No, Vu<V
SLV 16	7.53	-69.88	44.18	-31.0175		144	1.7284	112	54.31			1.23	Si
SLV 15	5.73	-94.68	54.69	52.2649		241	1.404	132	51.7			0.95	No, Vu<V
SLV 15	7.53	-69.88	44.18	-31.0175		144	1.7284	112	54.31			1.23	Si
SLV 6	5.73	-134.73	-34.77	-19.6116		236	2.04	131	74.55			2.14	Si
SLV 6	7.53	-121.67	-31.87	36.3163		213	2.04	126	71.93			2.26	Si
SLV 4	5.73	-211.27	-60.58	-45.1229		370	2.04	157	89.85			1.48	Si
SLV 4	7.53	-193.9	-49.9	51.932		339	2.04	151	86.38			1.73	Si
SLV 13	5.73	-78.19	47.98	48.3075		231	1.2065	130	43.79			0.91	No, Vu<V
SLV 13	7.53	-56.58	37.31	-24.8253		116	1.7436	107	52			1.39	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.38	109	-61.99	2.0777	7.9075	3.81	Si
SLV 13	1438	0.38	109	-61.99	2.0777	7.9075	3.81	Si
SLV 10	1438	0.38	141	-80.76	2.0777	9.9982	4.81	Si
SLV 9	1438	0.38	141	-80.76	2.0777	9.9982	4.81	Si
SLV 16	1438	0.38	145	-82.8	2.0777	10.217	4.92	Si
SLV 15	1438	0.38	145	-82.8	2.0777	10.217	4.92	Si
SLV 5	1438	0.38	206	-117.67	2.0777	13.6961	6.59	Si
SLV 6	1438	0.38	206	-117.67	2.0777	13.6961	6.59	Si
SLV 11	1438	0.38	263	-150.14	2.0777	16.498	7.94	Si
SLV 12	1438	0.38	263	-150.14	2.0777	16.498	7.94	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	$\alpha_0^*$	$\alpha_{lim}$	Verifica
SLV 10	-67.21	-101.52	3.34	0.009	9.728	0.923	0.14332	10.83091	No
SLV 9	-67.21	-101.52	3.34	0.009	9.728	0.923	0.14332	10.83091	No
SLV 6	-84.17	-162.71	3.15	0.016	11.436	0.932	0.24948	10.83091	No
SLV 5	-84.17	-162.71	3.15	0.016	11.436	0.932	0.24948	10.83091	No
SLV 12	-118.51	-121	-3.11	0.022	14.913	0.946	0.34195	10.83091	No
SLV 11	-118.51	-121	-3.11	0.022	14.913	0.946	0.34195	10.83091	No
SLV 8	-135.47	-182.19	-3.3	0.023	16.634	0.951	0.3513	10.83091	No
SLV 7	-135.47	-182.19	-3.3	0.023	16.634	0.951	0.3513	10.83091	No
SLV 13	-65.38	-36.95	1.3	0.033	9.544	0.922	0.5184	10.4105	No
SLV 14	-65.38	-36.95	1.3	0.033	9.544	0.922	0.5184	10.4105	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.208	SLU 82	Si
V_SLU	5.071	SLU 82	Si
PF_SLV	1.466	SLV 13	Si
V_SLV	0.913	SLV 13	No
PFFP_SLV	3.806	SLV 13	Si
R_SLV	0.013	SLV 9	No

## Maschio 114

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.818	6.661	-12.838	6.661	L4	L5	3.98	0.28	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 84	5.73	-459.76	-36.7983	413	451.5408	12.271	Si
SLU 84	7.53	-409.75	19.5007	368	447.3458	22.94	Si
SLU 82	5.73	-459.62	-41.2189	412	451.5443	10.955	Si
SLU 82	7.53	-409.61	16.4338	368	447.3196	27.22	Si
SLU 83	5.73	-459.85	-36.6474	413	451.5384	12.321	Si
SLU 83	7.53	-409.84	19.4571	368	447.3638	22.992	Si
SLU 60	5.73	-414	-38.1323	371	448.1282	11.752	Si
SLU 60	7.53	-364.51	13.2069	327	434.106	32.87	Si
SLU 74	5.73	-447.17	-35.6854	401	451.5176	12.653	Si
SLU 74	7.53	-397.16	18.2233	356	444.5631	24.395	Si
SLU 73	5.73	-438.13	-38.9456	393	451.0721	11.582	Si
SLU 73	7.53	-388.12	15.402	348	442.1347	28.706	Si
SLU 52	5.73	-392.41	-36.0099	352	443.3311	12.311	Si
SLU 52	7.53	-342.92	12.2187	308	424.6254	34.752	Si
SLU 61	5.73	-413.9	-38.2832	371	448.1118	11.705	Si
SLU 61	7.53	-364.42	13.2505	327	434.0694	32.759	Si
SLU 75	5.73	-447.08	-35.8363	401	451.5148	12.599	Si
SLU 75	7.53	-397.07	18.2669	356	444.5399	24.336	Si
SLU 81	5.73	-459.72	-41.068	413	451.5419	10.995	Si
SLU 81	7.53	-409.71	16.3902	368	447.3377	27.293	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 15	5.73	-291.52	85.9391	262	455.9299	5.305	Si
SLV 15	7.53	-251.13	-124.2096	225	407.5759	3.281	Si
SLV 13	5.73	-273.63	90.6569	246	435.0957	4.799	Si
SLV 13	7.53	-237.48	-107.6167	213	390.1635	3.625	Si
SLV 16	5.73	-291.52	85.9391	262	455.9299	5.305	Si
SLV 16	7.53	-251.13	-124.2096	225	407.5759	3.281	Si
SLV 14	5.73	-273.63	90.6569	246	435.0957	4.799	Si
SLV 14	7.53	-237.48	-107.6167	213	390.1635	3.625	Si
SLV 1	5.73	-314.3	-138.8215	282	481.0913	3.466	Si
SLV 1	7.53	-277.99	144.0002	249	440.2667	3.057	Si
SLV 3	5.73	-332.2	-143.5393	298	499.7976	3.482	Si
SLV 3	7.53	-291.64	127.4073	262	456.063	3.58	Si
SLV 5	5.73	-279.19	-53	251	441.6667	8.333	Si
SLV 5	7.53	-247.89	75.2926	222	403.4994	5.359	Si
SLV 4	5.73	-332.2	-143.5393	298	499.7976	3.482	Si
SLV 4	7.53	-291.64	127.4073	262	456.063	3.58	Si
SLV 2	5.73	-314.3	-138.8215	282	481.0913	3.466	Si
SLV 2	7.53	-277.99	144.0002	249	440.2667	3.057	Si
SLV 6	5.73	-279.19	-53	251	441.6667	8.333	Si
SLV 6	7.53	-247.89	75.2926	222	403.4994	5.359	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	5.73	-459.72	-31.85	-41.068		413	3.98	108	120.73			3.79	Si
SLU 81	7.53	-409.71	-31.85	16.3902		368	3.98	105	116.54			3.66	Si
SLU 82	5.73	-459.62	-31.96	-41.2189		412	3.98	108	120.73			3.78	Si
SLU 82	7.53	-409.61	-31.96	16.4338		368	3.98	105	116.53			3.65	Si
SLU 83	5.73	-459.85	-31.1	-36.6474		413	3.98	108	120.73			3.88	Si
SLU 83	7.53	-409.84	-31.1	19.4571		368	3.98	105	116.56			3.75	Si
SLU 61	5.73	-413.9	-28.56	-38.2832		371	3.98	105	117.1			4.1	Si
SLU 61	7.53	-364.42	-28.56	13.2505		327	3.98	99	110.5			3.87	Si
SLU 73	5.73	-438.13	-30.12	-38.9456		393	3.98	108	120.33			3.99	Si
SLU 73	7.53	-388.12	-30.12	15.402		348	3.98	102	113.66			3.77	Si
SLU 74	5.73	-447.17	-29.88	-35.6854		401	3.98	108	120.73			4.04	Si
SLU 74	7.53	-397.16	-29.88	18.2233		356	3.98	103	114.87			3.84	Si
SLU 84	5.73	-459.76	-31.21	-36.7983		413	3.98	108	120.73			3.87	Si
SLU 84	7.53	-409.75	-31.21	19.5007		368	3.98	105	116.54			3.73	Si
SLU 75	5.73	-447.08	-29.99	-35.8363		401	3.98	108	120.73			4.03	Si
SLU 75	7.53	-397.07	-29.99	18.2669		356	3.98	103	114.85			3.83	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	5.73	-438.26	-29.37	-34.5249		393	3.98	108	120.35			4.1	Si
SLU 76	7.53	-388.25	-29.37	18.4689		348	3.98	102	113.68			3.87	Si
SLU 60	5.73	-414	-28.45	-38.1323		371	3.98	105	117.11			4.12	Si
SLU 60	7.53	-364.51	-28.45	13.2069		327	3.98	99	110.51			3.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	5.73	-332.2	-157.32	-143.5393		298	3.98	143	159.31			1.01	Si
SLV 3	7.53	-291.64	-140.99	127.4073		262	3.98	136	151.19			1.07	Si
SLV 2	5.73	-314.3	-170.32	-138.8215		282	3.98	140	155.73			0.91	No, Vu<V
SLV 2	7.53	-277.99	-151.34	144.0002		249	3.98	133	148.47			0.98	No, Vu<V
SLV 14	5.73	-273.63	117.05	90.6569		246	3.98	132	147.59			1.26	Si
SLV 14	7.53	-237.48	100.72	-107.6167		213	3.98	126	140.36			1.39	Si
SLV 1	5.73	-314.3	-170.32	-138.8215		282	3.98	140	155.73			0.91	No, Vu<V
SLV 1	7.53	-277.99	-151.34	144.0002		249	3.98	133	148.47			0.98	No, Vu<V
SLV 4	5.73	-332.2	-157.32	-143.5393		298	3.98	143	159.31			1.01	Si
SLV 4	7.53	-291.64	-140.99	127.4073		262	3.98	136	151.19			1.07	Si
SLV 6	5.73	-279.19	-84.92	-53		251	3.98	133	148.7			1.75	Si
SLV 6	7.53	-247.89	-75.19	75.2926		222	3.98	128	142.45			1.89	Si
SLV 13	5.73	-273.63	117.05	90.6569		246	3.98	132	147.59			1.26	Si
SLV 13	7.53	-237.48	100.72	-107.6167		213	3.98	126	140.36			1.39	Si
SLV 16	5.73	-291.52	130.05	85.9391		262	3.98	136	151.17			1.16	Si
SLV 16	7.53	-251.13	111.07	-124.2096		225	3.98	128	143.09			1.29	Si
SLV 5	5.73	-279.19	-84.92	-53		251	3.98	133	148.7			1.75	Si
SLV 5	7.53	-247.89	-75.19	75.2926		222	3.98	128	142.45			1.89	Si
SLV 15	5.73	-291.52	130.05	85.9391		262	3.98	136	151.17			1.16	Si
SLV 15	7.53	-251.13	111.07	-124.2096		225	3.98	128	143.09			1.29	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.38	225	-251	4.0535	28.6623	7.07	Si
SLV 9	1438	0.38	225	-251	4.0535	28.6623	7.07	Si
SLV 13	1438	0.38	226	-251.98	4.0535	28.7489	7.09	Si
SLV 14	1438	0.38	226	-251.98	4.0535	28.7489	7.09	Si
SLV 6	1438	0.38	237	-264.42	4.0535	29.8298	7.36	Si
SLV 5	1438	0.38	237	-264.42	4.0535	29.8298	7.36	Si
SLV 16	1438	0.38	239	-266.24	4.0535	29.9853	7.4	Si
SLV 15	1438	0.38	239	-266.24	4.0535	29.9853	7.4	Si
SLV 1	1438	0.38	266	-296.7	4.0535	32.4874	8.01	Si
SLV 2	1438	0.38	266	-296.7	4.0535	32.4874	8.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-183.98	-272.2	5.23	0.022	24.31	0.937	0.34604	10.83091	No
SLV 10	-183.98	-272.2	5.23	0.022	24.31	0.937	0.34604	10.83091	No
SLV 6	-192.48	-284.48	5.27	0.023	25.17	0.939	0.35273	10.83091	No
SLV 5	-192.48	-284.48	5.27	0.023	25.17	0.939	0.35273	10.83091	No
SLV 11	-232.52	-310.93	-5.42	0.025	29.227	0.946	0.3806	10.83091	No
SLV 12	-232.52	-310.93	-5.42	0.025	29.227	0.946	0.3806	10.83091	No
SLV 8	-241.02	-323.21	-5.38	0.025	30.09	0.947	0.38937	10.83091	No
SLV 7	-241.02	-323.21	-5.38	0.025	30.09	0.947	0.38937	10.83091	No
SLV 15	-205.61	-283.05	-1.74	0.038	26.5	0.941	0.5927	10.4105	No
SLV 16	-205.61	-283.05	-1.74	0.038	26.5	0.941	0.5927	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	10.955	SLU 82	Si
V_SLU	3.646	SLU 82	Si
PF_SLV	3.057	SLV 1	Si
V_SLV	0.914	SLV 1	No
PFFP_SLV	7.071	SLV 9	Si
R_SLV	0.032	SLV 9	No

## Maschio 115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-11.938	6.661	-7.958	6.661	L4	L5	3.98	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	5.73	-427.72	39.5783	384	450.1161	11.373	Si
SLU 77	7.53	-378.14	-0.2841	339	439.0373	1000	Si
SLU 83	5.73	-434.57	38.3873	390	450.7987	11.743	Si
SLU 83	7.53	-384.98	1.4875	345	441.2087	296.606	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	5.73	-413.66	36.5311	371	448.0695	12.265	Si
SLU 76	7.53	-364.07	0.8628	327	433.9333	502.928	Si
SLU 38	5.73	-358.39	34.9313	322	431.6238	12.356	Si
SLU 38	7.53	-319.98	-1.643	287	412.3103	250.957	Si
SLU 78	5.73	-427.39	39.569	384	450.0778	11.375	Si
SLU 78	7.53	-377.8	-0.4402	339	438.927	997.164	Si
SLU 84	5.73	-434.24	38.3779	390	450.7704	11.746	Si
SLU 84	7.53	-384.65	1.3315	345	441.1083	331.29	Si
SLU 80	5.73	-419.37	39.3274	376	449.005	11.417	Si
SLU 80	7.53	-369.78	-1.0178	332	436.1101	428.469	Si
SLU 74	5.73	-422.24	36.7882	379	449.4205	12.216	Si
SLU 74	7.53	-372.65	1.7005	334	437.1485	257.065	Si
SLU 79	5.73	-419.7	39.3368	377	449.0549	11.416	Si
SLU 79	7.53	-370.11	-0.8618	332	436.2321	506.19	Si
SLU 75	5.73	-421.9	36.7789	379	449.3743	12.218	Si
SLU 75	7.53	-372.32	1.5445	334	437.0302	282.959	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	5.73	-254.27	-103.8099	228	411.5135	3.964	Si
SLV 1	7.53	-214.18	121.528	192	359.1711	2.955	Si
SLV 14	5.73	-309.48	127.0379	278	475.8857	3.746	Si
SLV 14	7.53	-272.55	-121.3204	245	433.812	3.576	Si
SLV 13	5.73	-309.48	127.0379	278	475.8857	3.746	Si
SLV 13	7.53	-272.55	-121.3204	245	433.812	3.576	Si
SLV 16	5.73	-308.71	149.4541	277	475.0554	3.179	Si
SLV 16	7.53	-272.75	-117.4772	245	434.0489	3.695	Si
SLV 12	5.73	-288.5	94.8097	259	452.474	4.772	Si
SLV 12	7.53	-252.55	-27.9965	227	409.3594	14.622	Si
SLV 11	5.73	-288.5	94.8097	259	452.474	4.772	Si
SLV 11	7.53	-252.55	-27.9965	227	409.3594	14.622	Si
SLV 15	5.73	-308.71	149.4541	277	475.0554	3.179	Si
SLV 15	7.53	-272.75	-117.4772	245	434.0489	3.695	Si
SLV 3	5.73	-253.51	-81.3937	227	410.5599	5.044	Si
SLV 3	7.53	-214.37	125.3712	192	359.4418	2.867	Si
SLV 4	5.73	-253.51	-81.3937	227	410.5599	5.044	Si
SLV 4	7.53	-214.37	125.3712	192	359.4418	2.867	Si
SLV 2	5.73	-254.27	-103.8099	228	411.5135	3.964	Si
SLV 2	7.53	-214.18	121.528	192	359.1711	2.955	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	5.73	-427.72	22.34	39.5783		384	3.98	107	118.94			5.32	Si
SLU 77	7.53	-378.14	22.34	-0.2841		339	3.98	101	112.33			5.03	Si
SLU 38	5.73	-358.39	20.47	34.9313		322	3.98	98	109.7			5.36	Si
SLU 38	7.53	-319.98	20.47	-1.643		287	3.98	94	104.58			5.11	Si
SLU 72	5.73	-371.87	20.7	35.0326		334	3.98	100	111.49			5.39	Si
SLU 72	7.53	-322.28	20.7	-1.8687		289	3.98	94	104.88			5.07	Si
SLU 69	5.73	-380.22	20.43	35.2835		341	3.98	101	112.61			5.51	Si
SLU 69	7.53	-330.63	20.43	-1.135		297	3.98	95	106			5.19	Si
SLU 79	5.73	-419.7	22.53	39.3368		377	3.98	106	117.87			5.23	Si
SLU 79	7.53	-370.11	22.53	-0.8618		332	3.98	100	111.26			4.94	Si
SLU 37	5.73	-358.72	20.39	34.9406		322	3.98	98	109.74			5.38	Si
SLU 37	7.53	-320.31	20.39	-1.4869		287	3.98	94	104.62			5.13	Si
SLU 80	5.73	-419.37	22.61	39.3274		376	3.98	106	117.83			5.21	Si
SLU 80	7.53	-369.78	22.61	-1.0178		332	3.98	100	111.22			4.92	Si
SLU 71	5.73	-372.2	20.62	35.042		334	3.98	100	111.54			5.41	Si
SLU 71	7.53	-322.61	20.62	-1.7126		289	3.98	94	104.93			5.09	Si
SLU 78	5.73	-427.39	22.42	39.569		384	3.98	107	118.9			5.3	Si
SLU 78	7.53	-377.8	22.42	-0.4402		339	3.98	101	112.28			5.01	Si
SLU 70	5.73	-379.89	20.51	35.2742		341	3.98	101	112.56			5.49	Si
SLU 70	7.53	-330.3	20.51	-1.291		296	3.98	95	105.95			5.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	5.73	-254.27	-141.38	-103.8099		228	3.98	129	143.72			1.02	Si
SLV 2	7.53	-214.18	-116.07	121.528		192	3.98	122	135.7			1.17	Si
SLV 1	5.73	-254.27	-141.38	-103.8099		228	3.98	129	143.72			1.02	Si
SLV 1	7.53	-214.18	-116.07	121.528		192	3.98	122	135.7			1.17	Si
SLV 14	5.73	-309.48	145.42	127.0379		278	3.98	139	154.76			1.06	Si
SLV 14	7.53	-272.55	135.11	-121.3204		245	3.98	132	147.38			1.09	Si
SLV 12	5.73	-288.5	87	94.8097		259	3.98	135	150.57			1.73	Si
SLV 12	7.53	-252.55	56.67	-27.9965		227	3.98	129	143.38			2.53	Si
SLV 16	5.73	-308.71	164.79	149.4541		277	3.98	139	154.61			0.94	No, Vu<V
SLV 16	7.53	-272.75	139.48	-117.4772		245	3.98	132	147.42			1.06	Si
SLV 15	5.73	-308.71	164.79	149.4541		277	3.98	139	154.61			0.94	No, Vu<V
SLV 15	7.53	-272.75	139.48	-117.4772		245	3.98	132	147.42			1.06	Si
SLV 4	5.73	-253.51	-122.01	-81.3937		227	3.98	129	143.57			1.18	Si
SLV 4	7.53	-214.37	-111.7	125.3712		192	3.98	122	135.74			1.22	Si
SLV 13	5.73	-309.48	145.42	127.0379		278	3.98	139	154.76			1.06	Si
SLV 13	7.53	-272.55	135.11	-121.3204		245	3.98	132	147.38			1.09	Si
SLV 3	5.73	-253.51	-122.01	-81.3937		227	3.98	129	143.57			1.18	Si
SLV 3	7.53	-214.37	-111.7	125.3712		192	3.98	122	135.74			1.22	Si
SLV 11	5.73	-288.5	87	94.8097		259	3.98	135	150.57			1.73	Si
SLV 11	7.53	-252.55	56.67	-27.9965		227	3.98	129	143.38			2.53	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.38	207	-230.92	4.0535	26.8466	6.62	Si
SLV 2	1438	0.38	207	-230.92	4.0535	26.8466	6.62	Si
SLV 3	1438	0.38	209	-232.49	4.0535	26.9911	6.66	Si
SLV 4	1438	0.38	209	-232.49	4.0535	26.9911	6.66	Si
SLV 6	1438	0.38	224	-249.23	4.0535	28.5062	7.03	Si
SLV 5	1438	0.38	224	-249.23	4.0535	28.5062	7.03	Si
SLV 7	1438	0.38	228	-254.45	4.0535	28.9662	7.15	Si
SLV 8	1438	0.38	228	-254.45	4.0535	28.9662	7.15	Si
SLV 9	1438	0.38	239	-266.49	4.0535	30.0073	7.4	Si
SLV 10	1438	0.38	239	-266.49	4.0535	30.0073	7.4	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 6.59  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-233.97	-258.43	-0.6	0.043	29.374	0.946	0.65678	10.83091	No
SLV 9	-233.97	-258.43	-0.6	0.043	29.374	0.946	0.65678	10.83091	No
SLV 8	-182.71	-245.53	0.72	0.043	24.181	0.936	0.66585	10.83091	No
SLV 7	-182.71	-245.53	0.72	0.043	24.181	0.936	0.66585	10.83091	No
SLV 5	-222.4	-242.94	-0.49	0.043	28.201	0.944	0.66674	10.83091	No
SLV 6	-222.4	-242.94	-0.49	0.043	28.201	0.944	0.66674	10.83091	No
SLV 11	-194.27	-261.02	0.61	0.043	25.352	0.939	0.66908	10.83091	No
SLV 12	-194.27	-261.02	0.61	0.043	25.352	0.939	0.66908	10.83091	No
SLV 13	-233.57	-277.41	-0.3	0.044	29.334	0.946	0.67382	10.4105	No
SLV 14	-233.57	-277.41	-0.3	0.044	29.334	0.946	0.67382	10.4105	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	11.373	SLU 77	Si
V_SLU	4.919	SLU 80	Si
PF_SLV	2.867	SLV 3	Si
V_SLV	0.938	SLV 15	No
PFFP_SLV	6.623	SLV 1	Si
R_SLV	0.061	SLV 9	No

## Maschio 116

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.058	6.661	-5.018	6.661	L4	L5	2.04	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	5.73	-253.39	11.0209	444	117.7055	10.68	Si
SLU 81	7.53	-227.51	-35.7769	398	118.5913	3.315	Si
SLU 76	5.73	-242.46	9.373	424	118.4379	12.636	Si
SLU 76	7.53	-216.58	-32.7233	379	118.0833	3.609	Si
SLU 74	5.73	-247.81	9.4062	434	118.1445	12.56	Si
SLU 74	7.53	-221.94	-33.3501	389	118.3976	3.55	Si
SLU 82	5.73	-253.16	11.1616	443	117.726	10.547	Si
SLU 82	7.53	-227.29	-35.8945	398	118.586	3.304	Si
SLU 73	5.73	-240.52	10.1242	421	118.5129	11.706	Si
SLU 73	7.53	-214.65	-33.6364	376	117.9387	3.506	Si
SLU 75	5.73	-247.59	9.5469	433	118.1595	12.377	Si
SLU 75	7.53	-221.71	-33.4677	388	118.3869	3.537	Si
SLU 78	5.73	-249.52	8.7958	437	118.0244	13.418	Si
SLU 78	7.53	-223.65	-32.5546	392	118.4715	3.639	Si
SLU 84	5.73	-255.1	10.4104	447	117.5436	11.291	Si
SLU 84	7.53	-229.22	-34.9813	401	118.6233	3.391	Si
SLU 77	5.73	-249.75	8.655	437	118.0075	13.635	Si
SLU 77	7.53	-223.87	-32.437	392	118.4803	3.653	Si
SLU 83	5.73	-255.33	10.2697	447	117.5211	11.444	Si
SLU 83	7.53	-229.45	-34.8637	402	118.6266	3.403	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	5.73	-154.9	20.415	271	122.9304	6.022	Si
SLV 10	7.53	-151.82	-43.3198	266	121.171	2.797	Si
SLV 13	5.73	-216.35	51.3985	379	152.2716	2.963	Si
SLV 13	7.53	-204.88	-66.3396	359	147.6311	2.225	Si
SLV 9	5.73	-154.9	20.415	271	122.9304	6.022	Si
SLV 9	7.53	-151.82	-43.3198	266	121.171	2.797	Si
SLV 2	5.73	-97.34	-38.9143	170	85.4401	2.196	Si
SLV 2	7.53	-78.53	16.7816	137	71.0843	4.236	Si
SLV 16	5.73	-233.33	50.8619	408	158.4296	3.115	Si
SLV 16	7.53	-212.45	-61.1346	372	150.7365	2.466	Si
SLV 1	5.73	-97.34	-38.9143	170	85.4401	2.196	Si
SLV 1	7.53	-78.53	16.7816	137	71.0843	4.236	Si
SLV 3	5.73	-114.31	-39.4509	200	97.5022	2.471	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	7.53	-86.1	21.9866	151	76.9862	3.502	Si
SLV 4	5.73	-114.31	-39.4509	200	97.5022	2.471	Si
SLV 4	7.53	-86.1	21.9866	151	76.9862	3.502	Si
SLV 15	5.73	-233.33	50.8619	408	158.4296	3.115	Si
SLV 15	7.53	-212.45	-61.1346	372	150.7365	2.466	Si
SLV 14	5.73	-216.35	51.3985	379	152.2716	2.963	Si
SLV 14	7.53	-204.88	-66.3396	359	147.6311	2.225	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	5.73	-253.16	25.77	11.1616		443	2.04	108	61.88			2.4	Si
SLU 82	7.53	-227.29	25.77	-35.8945		398	2.04	108	61.88			2.4	Si
SLU 75	5.73	-247.59	23.53	9.5469		433	2.04	108	61.88			2.63	Si
SLU 75	7.53	-221.71	23.53	-33.4677		388	2.04	107	61.29			2.61	Si
SLU 84	5.73	-255.1	24.85	10.4104		447	2.04	108	61.88			2.49	Si
SLU 84	7.53	-229.22	24.85	-34.9813		401	2.04	108	61.88			2.49	Si
SLU 73	5.73	-240.52	23.94	10.1242		421	2.04	108	61.88			2.58	Si
SLU 73	7.53	-214.65	23.94	-33.6364		376	2.04	106	60.35			2.52	Si
SLU 40	5.73	-217.53	22.92	10.2922		381	2.04	106	60.74			2.65	Si
SLU 40	7.53	-197.49	22.92	-31.4851		346	2.04	102	58.07			2.53	Si
SLU 83	5.73	-255.33	24.7	10.2697		447	2.04	108	61.88			2.5	Si
SLU 83	7.53	-229.45	24.7	-34.8637		402	2.04	108	61.88			2.5	Si
SLU 60	5.73	-226.63	22.42	9.3959		397	2.04	108	61.88			2.76	Si
SLU 60	7.53	-201.02	22.42	-31.6321		352	2.04	102	58.54			2.61	Si
SLU 39	5.73	-217.76	22.78	10.1514		381	2.04	106	60.77			2.67	Si
SLU 39	7.53	-197.72	22.78	-31.3675		346	2.04	102	58.1			2.55	Si
SLU 81	5.73	-253.39	25.63	11.0209		444	2.04	108	61.88			2.41	Si
SLU 81	7.53	-227.51	25.63	-35.7769		398	2.04	108	61.88			2.41	Si
SLU 61	5.73	-226.4	22.57	9.5366		396	2.04	108	61.88			2.74	Si
SLU 61	7.53	-200.8	22.57	-31.7497		352	2.04	102	58.51			2.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	5.73	-216.35	74.64	51.3985		379	2.04	159	90.87			1.22	Si
SLV 14	7.53	-204.88	63.06	-66.3396		359	2.04	155	88.58			1.4	Si
SLV 9	5.73	-154.9	46.29	20.415		271	2.04	138	78.58			1.7	Si
SLV 9	7.53	-151.82	36.2	-43.3198		266	2.04	136	77.96			2.15	Si
SLV 4	5.73	-114.31	-43.93	-39.4509		202	2.0247	124	70.11			1.6	Si
SLV 4	7.53	-86.1	-32.35	21.9866		151	2.04	113	64.82			2	Si
SLV 1	5.73	-97.34	-35.27	-38.9143		187	1.8607	121	62.88			1.78	Si
SLV 1	7.53	-78.53	-28.04	16.7816		137	2.04	111	63.31			2.26	Si
SLV 10	5.73	-154.9	46.29	20.415		271	2.04	138	78.58			1.7	Si
SLV 10	7.53	-151.82	36.2	-43.3198		266	2.04	136	77.96			2.15	Si
SLV 2	5.73	-97.34	-35.27	-38.9143		187	1.8607	121	62.88			1.78	Si
SLV 2	7.53	-78.53	-28.04	16.7816		137	2.04	111	63.31			2.26	Si
SLV 15	5.73	-233.33	65.98	50.8619		408	2.04	163	92.82			1.41	Si
SLV 15	7.53	-212.45	58.75	-61.1346		372	2.04	158	90.09			1.53	Si
SLV 3	5.73	-114.31	-43.93	-39.4509		202	2.0247	124	70.11			1.6	Si
SLV 3	7.53	-86.1	-32.35	21.9866		151	2.04	113	64.82			2	Si
SLV 16	5.73	-233.33	65.98	50.8619		408	2.04	163	92.82			1.41	Si
SLV 16	7.53	-212.45	58.75	-61.1346		372	2.04	158	90.09			1.53	Si
SLV 13	5.73	-216.35	74.64	51.3985		379	2.04	159	90.87			1.22	Si
SLV 13	7.53	-204.88	63.06	-66.3396		359	2.04	155	88.58			1.4	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.38	154	-87.73	2.0777	10.7382	5.17	Si
SLV 2	1438	0.38	154	-87.73	2.0777	10.7382	5.17	Si
SLV 3	1438	0.38	178	-101.67	2.0777	12.1603	5.85	Si
SLV 4	1438	0.38	178	-101.67	2.0777	12.1603	5.85	Si
SLV 5	1438	0.38	198	-113.03	2.0777	13.2613	6.38	Si
SLV 6	1438	0.38	198	-113.03	2.0777	13.2613	6.38	Si
SLV 9	1438	0.38	260	-148.66	2.0777	16.379	7.88	Si
SLV 10	1438	0.38	260	-148.66	2.0777	16.379	7.88	Si
SLV 7	1438	0.38	279	-159.5	2.0777	17.227	8.29	Si
SLV 8	1438	0.38	279	-159.5	2.0777	17.227	8.29	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-90.5	-136.92	3.09	0.018	12.076	0.935	0.27907	10.83091	No
SLV 5	-90.5	-136.92	3.09	0.018	12.076	0.935	0.27907	10.83091	No
SLV 8	-117.24	-142.88	-3.48	0.019	14.784	0.945	0.29775	10.83091	No
SLV 7	-117.24	-142.88	-3.48	0.019	14.784	0.945	0.29775	10.83091	No
SLV 10	-106.69	-196.56	3.26	0.019	13.715	0.942	0.29956	10.83091	No
SLV 9	-106.69	-196.56	3.26	0.019	13.715	0.942	0.29956	10.83091	No
SLV 12	-133.44	-202.52	-3.31	0.023	16.428	0.95	0.34697	10.83091	No
SLV 11	-133.44	-202.52	-3.31	0.023	16.428	0.95	0.34697	10.83091	No
SLV 3	-88.99	-71.22	-1.38	0.034	11.923	0.934	0.52233	10.4105	No
SLV 4	-88.99	-71.22	-1.38	0.034	11.923	0.934	0.52233	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.304	SLU 82	Si
V_SLU	2.401	SLU 82	Si
PF_SLV	2.196	SLV 1	Si
V_SLV	1.217	SLV 13	Si





Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	5.168	SLV 1	Si
R SLV	0.026	SLV 5	No

## Maschio 117

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-20.668	1.046	-24.678	1.046	L4	L5	4.01	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 80	4.83	-418.83	-73.1697	373	455.2052	6.221	Si
SLU 80	6.93	-406.7	-121.4374	362	452.835	3.729	Si
SLU 83	4.83	-424.25	-77.7991	378	456.0551	5.862	Si
SLU 83	6.93	-415.61	-126.4054	370	454.6384	3.597	Si
SLU 77	4.83	-424.94	-73.3132	378	456.1535	6.222	Si
SLU 77	6.93	-413.18	-126.1984	368	454.1822	3.599	Si
SLU 79	4.83	-418.7	-71.8861	373	455.1826	6.332	Si
SLU 79	6.93	-406.17	-123.7952	362	452.7177	3.657	Si
SLU 74	4.83	-416.53	-73.519	371	454.8045	6.186	Si
SLU 74	6.93	-403.82	-121.0381	360	452.1782	3.736	Si
SLU 81	4.83	-415.84	-78.0048	370	454.6809	5.829	Si
SLU 81	6.93	-406.24	-121.245	362	452.734	3.734	Si
SLU 82	4.83	-415.97	-79.2884	370	454.7052	5.735	Si
SLU 82	6.93	-406.77	-118.8872	362	452.8511	3.809	Si
SLU 78	4.83	-425.07	-74.5968	379	456.1725	6.115	Si
SLU 78	6.93	-413.71	-123.8406	368	454.2833	3.668	Si
SLU 75	4.83	-416.66	-74.8026	371	454.8285	6.08	Si
SLU 75	6.93	-404.34	-118.6803	360	452.3009	3.811	Si
SLU 84	4.83	-424.39	-79.0827	378	456.0745	5.767	Si
SLU 84	6.93	-416.13	-124.0476	371	454.7339	3.666	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLD 4	4.83	-291.46	-19.5987	260	460.2296	23.483	Si
SLD 4	6.93	-293.78	-118.7146	262	462.8956	3.899	Si
SLV 1	4.83	-291.76	17.7633	260	460.5735	25.928	Si
SLV 1	6.93	-335.53	-180.7098	299	508.2029	2.812	Si
SLV 3	4.83	-299.84	17.1092	267	469.7913	27.458	Si
SLV 3	6.93	-329.21	-175.9779	293	501.6781	2.851	Si
SLD 3	4.83	-291.46	-19.5987	260	460.2296	23.483	Si
SLD 3	6.93	-293.78	-118.7146	262	462.8956	3.899	Si
SLV 14	4.83	-271.07	-110.7129	241	436.104	3.939	Si
SLV 14	6.93	-204.7	26.966	182	349.1871	12.949	Si
SLD 2	4.83	-287.88	-19.3601	256	456.0818	23.558	Si
SLD 2	6.93	-296.33	-120.5068	264	465.8104	3.865	Si
SLD 1	4.83	-287.88	-19.3601	256	456.0818	23.558	Si
SLD 1	6.93	-296.33	-120.5068	264	465.8104	3.865	Si
SLV 2	4.83	-291.76	17.7633	260	460.5735	25.928	Si
SLV 2	6.93	-335.53	-180.7098	299	508.2029	2.812	Si
SLV 4	4.83	-299.84	17.1092	267	469.7913	27.458	Si
SLV 4	6.93	-329.21	-175.9779	293	501.6781	2.851	Si
SLV 13	4.83	-271.07	-110.7129	241	436.104	3.939	Si
SLV 13	6.93	-204.7	26.966	182	349.1871	12.949	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	4.83	-356.86	65.05	-69.5268		318	4.01	98	109.96			1.69	Si
SLU 41	6.93	-358.51	65.61	-113.4377		319	4.01	98	110.18			1.68	Si
SLU 77	4.83	-424.94	68.63	-73.3132		378	4.01	106	119.04			1.73	Si
SLU 77	6.93	-413.18	69.29	-126.1984		368	4.01	105	117.47			1.7	Si
SLU 79	4.83	-418.7	67.43	-71.8861		373	4.01	105	118.2			1.75	Si
SLU 79	6.93	-406.17	68.09	-123.7952		362	4.01	104	116.53			1.71	Si
SLU 83	4.83	-424.25	69.56	-77.7991		378	4.01	106	118.94			1.71	Si
SLU 83	6.93	-415.61	70.23	-126.4054		370	4.01	105	117.79			1.68	Si
SLU 42	4.83	-356.99	63.63	-70.8104		318	4.01	98	109.98			1.73	Si
SLU 42	6.93	-359.03	64.36	-111.0799		320	4.01	98	110.25			1.71	Si
SLU 78	4.83	-425.07	67.21	-74.5968		379	4.01	106	119.05			1.77	Si
SLU 78	6.93	-413.71	68.04	-123.8406		368	4.01	105	117.54			1.73	Si
SLU 36	4.83	-357.68	62.71	-66.3246		319	4.01	98	110.07			1.76	Si
SLU 36	6.93	-356.61	63.43	-110.8729		318	4.01	98	109.93			1.73	Si
SLU 35	4.83	-357.55	64.13	-65.041		318	4.01	98	110.05			1.72	Si
SLU 35	6.93	-356.08	64.68	-113.2307		317	4.01	98	109.86			1.7	Si
SLU 37	4.83	-351.31	62.93	-63.6138		313	4.01	97	109.22			1.74	Si
SLU 37	6.93	-349.07	63.48	-110.8275		311	4.01	97	108.92			1.72	Si
SLU 84	4.83	-424.39	68.14	-79.0827		378	4.01	106	118.96			1.75	Si
SLU 84	6.93	-416.13	68.97	-124.0476		371	4.01	105	117.86			1.71	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	4.83	-291.76	185	17.7633		260	4.01	135	151.92			0.82	No, Vu<V
SLV 1	6.93	-335.53	168.86	-180.7098		299	4.01	143	160.67			0.95	No, Vu<V
SLV 15	4.83	-279.15	-110.22	-111.3671		249	4.01	133	149.4			1.36	Si
SLV 15	6.93	-198.39	-93.18	31.6979		177	4.01	119	133.24			1.43	Si
SLV 16	4.83	-279.15	-110.22	-111.3671		249	4.01	133	149.4			1.36	Si
SLV 16	6.93	-198.39	-93.18	31.6979		177	4.01	119	133.24			1.43	Si
SLV 4	4.83	-299.84	171.99	17.1092		267	4.01	137	153.54			0.89	No, Vu<V
SLV 4	6.93	-329.21	154.67	-175.9779		293	4.01	142	159.41			1.03	Si
SLV 2	4.83	-291.76	185	17.7633		260	4.01	135	151.92			0.82	No, Vu<V
SLV 2	6.93	-335.53	168.86	-180.7098		299	4.01	143	160.67			0.95	No, Vu<V
SLD 1	4.83	-287.88	100.93	-19.3601		256	4.01	135	151.14			1.5	Si
SLD 1	6.93	-296.33	94.27	-120.5068		264	4.01	136	152.83			1.62	Si
SLV 3	4.83	-299.84	171.99	17.1092		267	4.01	137	153.54			0.89	No, Vu<V
SLV 3	6.93	-329.21	154.67	-175.9779		293	4.01	142	159.41			1.03	Si
SLV 5	4.83	-275.09	101.41	-26.4402		245	4.01	132	148.58			1.47	Si
SLV 5	6.93	-297.1	98.67	-113.5439		265	4.01	136	152.99			1.55	Si
SLD 2	4.83	-287.88	100.93	-19.3601		256	4.01	135	151.14			1.5	Si
SLD 2	6.93	-296.33	94.27	-120.5068		264	4.01	136	152.83			1.62	Si
SLV 6	4.83	-275.09	101.41	-26.4402		245	4.01	132	148.58			1.47	Si
SLV 6	6.93	-297.1	98.67	-113.5439		265	4.01	136	152.99			1.55	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.38	183	-205.58	4.1791	24.4681	5.85	Si
SLV 16	1438	0.38	183	-205.58	4.1791	24.4681	5.85	Si
SLV 14	1438	0.38	189	-211.87	4.1791	25.0807	6	Si
SLV 13	1438	0.38	189	-211.87	4.1791	25.0807	6	Si
SLV 12	1438	0.38	217	-243.98	4.1791	28.0828	6.72	Si
SLV 11	1438	0.38	217	-243.98	4.1791	28.0828	6.72	Si
SLV 10	1438	0.38	236	-264.95	4.1791	29.9292	7.16	Si
SLV 9	1438	0.38	236	-264.95	4.1791	29.9292	7.16	Si
SLV 7	1438	0.38	252	-283.19	4.1791	31.4626	7.53	Si
SLV 8	1438	0.38	252	-283.19	4.1791	31.4626	7.53	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-232.47	-295.82	-5.7	0.024	29.265	0.946	0.36583	10.83091	No
SLV 12	-232.47	-295.82	-5.7	0.024	29.265	0.946	0.36583	10.83091	No
SLV 5	-241.67	-275.09	5.71	0.024	30.198	0.947	0.37256	10.83091	No
SLV 6	-241.67	-275.09	5.71	0.024	30.198	0.947	0.37256	10.83091	No
SLV 10	-225.86	-268.88	4.64	0.027	28.595	0.944	0.42209	10.83091	No
SLV 9	-225.86	-268.88	4.64	0.027	28.595	0.944	0.42209	10.83091	No
SLV 8	-248.27	-302.03	-4.63	0.028	30.868	0.948	0.43626	10.83091	No
SLV 7	-248.27	-302.03	-4.63	0.028	30.868	0.948	0.43626	10.83091	No
SLV 16	-211.72	-279.15	-3.33	0.032	27.161	0.942	0.49444	10.4105	No
SLV 15	-211.72	-279.15	-3.33	0.032	27.161	0.942	0.49444	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.597	SLU 83	Si
V_SLU	1.677	SLU 83	Si
PF_SLV	2.812	SLV 1	Si
V_SLV	0.821	SLV 1	No
PFFP_SLV	5.855	SLV 15	Si
R_SLV	0.034	SLV 11	No

## Maschio 118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.283	1.046	-19.868	1.046	L4	L5	7.585	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	4.83	-1095.46	-51.9827	516	1523.848	29.315	Si
SLU 84	7.33	-1018.58	-172.075	480	1588.5683	9.232	Si
SLU 81	4.83	-1068.76	-58.2106	503	1549.2584	26.615	Si
SLU 81	7.33	-988.22	-173.5546	465	1606.9849	9.259	Si
SLU 83	4.83	-1096.05	-49.4206	516	1523.2433	30.822	Si
SLU 83	7.33	-1016.86	-177.6037	479	1589.7157	8.951	Si
SLU 80	4.83	-1075.72	-36.2713	507	1542.9309	42.539	Si
SLU 80	7.33	-994.91	-165.033	468	1603.2723	9.715	Si
SLU 78	4.83	-1093.31	-38.7433	515	1526.0006	39.388	Si
SLU 78	7.33	-1013.49	-169.7906	477	1591.9387	9.376	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	4.83	-1093.91	-36.1812	515	1525.4015	42.16	Si
SLU 77	7.33	-1011.77	-175.3193	476	1593.0478	9.087	Si
SLU 79	4.83	-1076.32	-33.7092	507	1542.3779	45.755	Si
SLU 79	7.33	-993.2	-170.5617	468	1604.2419	9.406	Si
SLU 75	4.83	-1066.02	-47.5332	502	1551.6881	32.644	Si
SLU 75	7.33	-984.85	-165.7416	464	1608.784	9.707	Si
SLU 74	4.83	-1066.62	-44.9712	502	1551.1605	34.492	Si
SLU 74	7.33	-983.13	-171.2703	463	1609.6779	9.398	Si
SLU 82	4.83	-1068.16	-60.7726	503	1549.7916	25.501	Si
SLU 82	7.33	-989.94	-168.0259	466	1606.0527	9.558	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	4.83	-715.46	-465.9484	337	1965.2868	4.218	Si
SLV 14	7.33	-593.29	1.947	279	1735.6369	891.431	Si
SLV 16	4.83	-746.59	-482.7388	352	2016.8313	4.178	Si
SLV 16	7.33	-631.08	-30.4509	297	1811.3236	59.483	Si
SLV 1	4.83	-671.28	420.9113	316	1887.2803	4.484	Si
SLV 1	7.33	-638.87	-186.8621	301	1826.4207	9.774	Si
SLV 2	4.83	-671.28	420.9113	316	1887.2803	4.484	Si
SLV 2	7.33	-638.87	-186.8621	301	1826.4207	9.774	Si
SLV 15	4.83	-746.59	-482.7388	352	2016.8313	4.178	Si
SLV 15	7.33	-631.08	-30.4509	297	1811.3236	59.483	Si
SLV 3	4.83	-702.41	404.121	331	1942.8444	4.808	Si
SLV 3	7.33	-676.66	-219.2601	319	1897.0736	8.652	Si
SLD 15	4.83	-724.5	-224.6174	341	1980.5491	8.817	Si
SLD 15	7.33	-632.78	-73.5468	298	1814.6301	24.673	Si
SLV 13	4.83	-715.46	-465.9484	337	1965.2868	4.218	Si
SLV 13	7.33	-593.29	1.947	279	1735.6369	891.431	Si
SLV 4	4.83	-702.41	404.121	331	1942.8444	4.808	Si
SLV 4	7.33	-676.66	-219.2601	319	1897.0736	8.652	Si
SLD 16	4.83	-724.5	-224.6174	341	1980.5491	8.817	Si
SLD 16	7.33	-632.78	-73.5468	298	1814.6301	24.673	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	4.83	-1020.74	21.39	-55.5592		481	7.585	108	230.08			10.76	Si
SLU 73	7.33	-938.78	14.86	-153.2492		442	7.585	108	230.08			15.49	Si
SLU 60	4.83	-959.75	22.67	-54.8862		452	7.585	108	230.08			10.15	Si
SLU 60	7.33	-870.1	16.29	-156.2524		410	7.585	108	230.08			14.12	Si
SLU 39	4.83	-912.2	21.09	-51.7455		430	7.585	108	230.08			10.91	Si
SLU 39	7.33	-858.82	14.05	-150.5911		404	7.585	108	230.08			16.37	Si
SLU 81	4.83	-1068.76	23.64	-58.2106		503	7.585	108	230.08			9.73	Si
SLU 81	7.33	-988.22	15.75	-173.5546		465	7.585	108	230.08			14.61	Si
SLU 19	4.83	-802.59	20.65	-50.9831		378	7.585	106	225			10.89	Si
SLU 19	7.33	-742.4	15.78	-127.7602		350	7.585	102	216.98			13.75	Si
SLU 61	4.83	-959.15	23.21	-57.4482		452	7.585	108	230.08			9.91	Si
SLU 61	7.33	-871.81	17.47	-150.7237		410	7.585	108	230.08			13.17	Si
SLU 40	4.83	-911.61	21.62	-54.3076		429	7.585	108	230.08			10.64	Si
SLU 40	7.33	-860.53	15.24	-145.0624		405	7.585	108	230.08			15.1	Si
SLU 84	4.83	-1095.46	21	-51.9827		516	7.585	108	230.08			10.96	Si
SLU 84	7.33	-1018.58	12.31	-172.075		480	7.585	108	230.08			18.68	Si
SLU 18	4.83	-803.19	20.12	-48.4211		378	7.585	106	225.08			11.19	Si
SLU 18	7.33	-740.69	14.59	-133.2889		349	7.585	102	216.75			14.85	Si
SLU 82	4.83	-1068.16	24.18	-60.7726		503	7.585	108	230.08			9.52	Si
SLU 82	7.33	-989.94	16.93	-168.0259		466	7.585	108	230.08			13.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	4.83	-746.59	-307.84	-482.7388		352	7.585	154	326.3			1.06	Si
SLV 15	7.33	-631.08	-248.86	-30.4509		297	7.585	143	303.2			1.22	Si
SLV 16	4.83	-746.59	-307.84	-482.7388		352	7.585	154	326.3			1.06	Si
SLV 16	7.33	-631.08	-248.86	-30.4509		297	7.585	143	303.2			1.22	Si
SLV 14	4.83	-715.46	-344.91	-465.9484		337	7.585	151	320.08			0.93	No, Vu<V
SLV 14	7.33	-593.29	-291.72	1.947		279	7.585	139	295.64			1.01	Si
SLV 2	4.83	-671.28	331.83	420.9113		316	7.585	147	311.24			0.94	No, Vu<V
SLV 2	7.33	-638.87	262.45	-186.8621		301	7.585	143	304.76			1.16	Si
SLV 4	4.83	-702.41	368.91	404.121		331	7.585	149	317.47			0.86	No, Vu<V
SLV 4	7.33	-676.66	305.31	-219.2601		319	7.585	147	312.31			1.02	Si
SLV 7	4.83	-754.19	175.3	74.1313		355	7.585	154	327.82			1.87	Si
SLV 7	7.33	-704.79	161.35	-190.9745		332	7.585	150	317.94			1.97	Si
SLV 3	4.83	-702.41	368.91	404.121		331	7.585	149	317.47			0.86	No, Vu<V
SLV 3	7.33	-676.66	305.31	-219.2601		319	7.585	147	312.31			1.02	Si
SLV 8	4.83	-754.19	175.3	74.1313		355	7.585	154	327.82			1.87	Si
SLV 8	7.33	-704.79	161.35	-190.9745		332	7.585	150	317.94			1.97	Si
SLV 13	4.83	-715.46	-344.91	-465.9484		337	7.585	151	320.08			0.93	No, Vu<V
SLV 13	7.33	-593.29	-291.72	1.947		279	7.585	139	295.64			1.01	Si
SLV 1	4.83	-671.28	331.83	420.9113		316	7.585	147	311.24			0.94	No, Vu<V
SLV 1	7.33	-638.87	262.45	-186.8621		301	7.585	143	304.76			1.16	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.38	282	-599.41	7.9048	64.5338	8.16	Si
SLV 6	1438	0.38	282	-599.41	7.9048	64.5338	8.16	Si
SLV 9	1438	0.38	286	-607.66	7.9048	65.1514	8.24	Si
SLV 10	1438	0.38	286	-607.66	7.9048	65.1514	8.24	Si
SLV 2	1438	0.38	296	-629.47	7.9048	66.749	8.44	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.38	296	-629.47	7.9048	66.749	8.44	Si
SLV 13	1438	0.38	309	-656.96	7.9048	68.69	8.69	Si
SLV 14	1438	0.38	309	-656.96	7.9048	68.69	8.69	Si
SLV 4	1438	0.38	312	-663.48	7.9048	69.1381	8.75	Si
SLV 3	1438	0.38	312	-663.48	7.9048	69.1381	8.75	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-536.01	-663.68	11.98	0.024	65.129	0.953	0.37149	10.83091	No
SLV 10	-536.01	-663.68	11.98	0.024	65.129	0.953	0.37149	10.83091	No
SLV 5	-544.36	-650.43	11.66	0.025	65.977	0.953	0.38252	10.83091	No
SLV 6	-544.36	-650.43	11.66	0.025	65.977	0.953	0.38252	10.83091	No
SLV 7	-649.28	-754.19	-11.95	0.027	76.643	0.959	0.40642	10.83091	No
SLV 8	-649.28	-754.19	-11.95	0.027	76.643	0.959	0.40642	10.83091	No
SLV 12	-640.93	-767.45	-11.63	0.027	75.793	0.959	0.41118	10.83091	No
SLV 11	-640.93	-767.45	-11.63	0.027	75.793	0.959	0.41118	10.83091	No
SLV 13	-562.99	-715.46	4.09	0.038	67.87	0.954	0.57143	10.4105	No
SLV 14	-562.99	-715.46	4.09	0.038	67.87	0.954	0.57143	10.4105	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.951	SLU 83	Si
V_SLU	9.516	SLU 82	Si
PF_SLV	4.178	SLV 15	Si
V_SLV	0.861	SLV 3	No
PFFP_SLV	8.164	SLV 5	Si
R_SLV	0.034	SLV 9	No

## Maschio 119

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-10.466	1.046	-11.163	1.046	L4	L5	0.696	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	4.83	-130.26	-2.8244	668	8.158	2.888	Si
SLU 74	7.33	-119.34	2.2573	612	10.3318	4.577	Si
SLU 84	4.83	-134.78	-2.9348	691	7.1054	2.421	Si
SLU 84	7.33	-123.75	2.3807	635	9.5168	3.998	Si
SLU 82	4.83	-133.49	-3.013	685	7.415	2.461	Si
SLU 82	7.33	-120.5	2.4899	618	10.1256	4.067	Si
SLU 83	4.83	-134.4	-2.7615	689	7.1987	2.607	Si
SLU 83	7.33	-124.18	2.1927	637	9.4319	4.302	Si
SLU 77	4.83	-131.55	-2.7462	675	7.8666	2.865	Si
SLU 77	7.33	-122.59	2.1481	629	9.7396	4.534	Si
SLU 76	4.83	-128.24	-3.0047	658	8.6005	2.862	Si
SLU 76	7.33	-116.54	2.4698	598	10.8036	4.374	Si
SLU 78	4.83	-131.94	-2.9195	677	7.7781	2.664	Si
SLU 78	7.33	-122.15	2.3361	626	9.8215	4.204	Si
SLU 75	4.83	-130.65	-2.9977	670	8.0717	2.693	Si
SLU 75	7.33	-118.9	2.4454	610	10.4075	4.256	Si
SLU 81	4.83	-133.11	-2.8397	683	7.5062	2.643	Si
SLU 81	7.33	-120.93	2.3019	620	10.0468	4.365	Si
SLU 73	4.83	-126.95	-3.083	651	8.8731	2.878	Si
SLU 73	7.33	-113.29	2.5791	581	11.3096	4.385	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	4.83	-114.4	-23.4475	587	20.7058	0.883	No, M>Mu
SLV 15	7.33	-79.45	23.4116	407	18.438	0.788	No, M>Mu
SLV 16	4.83	-114.4	-23.4475	587	20.7058	0.883	No, M>Mu
SLV 16	7.33	-79.45	23.4116	407	18.438	0.788	No, M>Mu
SLV 1	4.83	-59.01	19.1507	303	15.4566	0.807	No, M>Mu
SLV 1	7.33	-73.61	-19.8548	378	17.7111	0.892	No, M>Mu
SLV 12	4.83	-133.84	-11.0495	686	20.422	1.848	Si
SLV 12	7.33	-75.7	12.3578	388	17.9827	1.455	Si
SLV 3	4.83	-84.6	17.4949	434	18.9967	1.086	Si
SLV 3	7.33	-72.49	-17.1584	372	17.5597	1.023	Si
SLV 14	4.83	-88.81	-21.7916	455	19.3953	0.89	No, M>Mu
SLV 14	7.33	-80.57	20.7152	413	18.5666	0.896	No, M>Mu
SLV 2	4.83	-59.01	19.1507	303	15.4566	0.807	No, M>Mu
SLV 2	7.33	-73.61	-19.8548	378	17.7111	0.892	No, M>Mu
SLV 13	4.83	-88.81	-21.7916	455	19.3953	0.89	No, M>Mu
SLV 13	7.33	-80.57	20.7152	413	18.5666	0.896	No, M>Mu
SLV 11	4.83	-133.84	-11.0495	686	20.422	1.848	Si
SLV 11	7.33	-75.7	12.3578	388	17.9827	1.455	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	4.83	-84.6	17.4949	434	18.9967	1.086	Si
SLV 4	7.33	-72.49	-17.1584	372	17.5597	1.023	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	4.83	-120.48	-2.33	-3.07		618	0.6964	108	21.12			9.06	Si
SLU 60	7.33	-105.58	-2.55	2.6495		541	0.6964	108	21.12			8.29	Si
SLU 55	4.83	-115.61	-2.49	-3.2351		593	0.6964	108	21.12			8.49	Si
SLU 55	7.33	-101.19	-2.63	2.8173		519	0.6964	108	21.12			8.04	Si
SLU 63	4.83	-122.15	-2.32	-3.1651		626	0.6964	108	21.12			9.12	Si
SLU 63	7.33	-108.4	-2.53	2.7282		556	0.6964	108	21.12			8.35	Si
SLU 43	4.83	-97.8	-2.44	-2.9178		502	0.6964	108	21.12			8.67	Si
SLU 43	7.33	-82.53	-2.42	2.5288		423	0.6964	108	21.12			8.72	Si
SLU 44	4.83	-98.44	-2.79	-3.2068		505	0.6964	108	21.12			7.58	Si
SLU 44	7.33	-81.81	-2.77	2.8421		420	0.6964	108	21.12			7.64	Si
SLU 54	4.83	-118.02	-2.48	-3.2281		605	0.6964	108	21.12			8.52	Si
SLU 54	7.33	-103.55	-2.62	2.7929		531	0.6964	108	21.12			8.06	Si
SLU 61	4.83	-120.86	-2.54	-3.2434		620	0.6964	108	21.12			8.31	Si
SLU 61	7.33	-105.15	-2.75	2.8375		539	0.6964	108	21.12			7.67	Si
SLU 52	4.83	-114.32	-2.71	-3.3133		586	0.6964	108	21.12			7.79	Si
SLU 52	7.33	-97.94	-2.85	2.9266		502	0.6964	108	21.12			7.4	Si
SLU 46	4.83	-102.15	-2.55	-3.1216		524	0.6964	108	21.12			8.28	Si
SLU 46	7.33	-87.42	-2.53	2.7084		448	0.6964	108	21.12			8.35	Si
SLU 47	4.83	-99.73	-2.56	-3.1286		512	0.6964	108	21.12			8.25	Si
SLU 47	7.33	-85.06	-2.54	2.7329		436	0.6964	108	21.12			8.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	4.83	-84.6	16.45	17.4949		712	0.4242	163	19.3			1.17	Si
SLV 3	7.33	-72.49	12.3	-17.1584		774	0.3344	163	15.22			1.24	Si
SLV 11	4.83	-133.84	-12.52	-11.0495		686	0.6964	163	31.68			2.53	Si
SLV 11	7.33	-75.7	-12.08	12.3578		487	0.5548	163	25.24			2.09	Si
SLV 13	4.83	-88.81	-19.64	-21.7916		1028	0.3084	163	14.03			0.71	No, Vu<V
SLV 13	7.33	-80.57	-15.58	20.7152		1053	0.2733	163	12.43			0.8	No, Vu<V
SLV 2	4.83	-59.01	19.48	19.1507		2973	0.0709	163	3.23			0.17	No, Vu<V
SLV 2	7.33	-73.61	15.75	-19.8548		1117	0.2354	163	10.71			0.68	No, Vu<V
SLV 12	4.83	-133.84	-12.52	-11.0495		686	0.6964	163	31.68			2.53	Si
SLV 12	7.33	-75.7	-12.08	12.3578		487	0.5548	163	25.24			2.09	Si
SLV 15	4.83	-114.4	-22.67	-23.4475		951	0.4297	163	19.55			0.86	No, Vu<V
SLV 15	7.33	-79.45	-19.02	23.4116		1768	0.1605	163	7.3			0.38	No, Vu<V
SLV 16	4.83	-114.4	-22.67	-23.4475		951	0.4297	163	19.55			0.86	No, Vu<V
SLV 16	7.33	-79.45	-19.02	23.4116		1768	0.1605	163	7.3			0.38	No, Vu<V
SLV 14	4.83	-88.81	-19.64	-21.7916		1028	0.3084	163	14.03			0.71	No, Vu<V
SLV 14	7.33	-80.57	-15.58	20.7152		1053	0.2733	163	12.43			0.8	No, Vu<V
SLV 1	4.83	-59.01	19.48	19.1507		2973	0.0709	163	3.23			0.17	No, Vu<V
SLV 1	7.33	-73.61	15.75	-19.8548		1117	0.2354	163	10.71			0.68	No, Vu<V
SLV 4	4.83	-84.6	16.45	17.4949		712	0.4242	163	19.3			1.17	Si
SLV 4	7.33	-72.49	12.3	-17.1584		774	0.3344	163	15.22			1.24	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.38	343	-66.94	0.7257	6.7387	9.29	Si
SLV 6	1438	0.38	343	-66.94	0.7257	6.7387	9.29	Si
SLV 9	1438	0.38	347	-67.75	0.7257	6.7878	9.35	Si
SLV 10	1438	0.38	347	-67.75	0.7257	6.7878	9.35	Si
SLV 1	1438	0.38	373	-72.7	0.7257	7.0724	9.75	Si
SLV 2	1438	0.38	373	-72.7	0.7257	7.0724	9.75	Si
SLV 13	1438	0.38	387	-75.4	0.7257	7.215	9.94	Si
SLV 14	1438	0.38	387	-75.4	0.7257	7.215	9.94	Si
SLV 3	1438	0.38	402	-78.45	0.7257	7.3664	10.15	Si
SLV 4	1438	0.38	402	-78.45	0.7257	7.3664	10.15	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-39.92	-39.57	2.26	0	5.036	0.945	0	10.83091	No
SLV 10	-44.14	-48.52	2.5	0	5.464	0.949	0	10.83091	No
SLV 9	-44.14	-48.52	2.5	0	5.464	0.949	0	10.83091	No
SLV 7	-46.79	-124.89	-2.52	0	5.734	0.951	0	10.83091	No
SLV 8	-46.79	-124.89	-2.52	0	5.734	0.951	0	10.83091	No
SLV 6	-39.92	-39.57	2.26	0	5.036	0.945	0	10.83091	No
SLV 11	-51.01	-133.84	-2.28	0.004	6.163	0.954	0.06534	10.83091	No
SLV 12	-51.01	-133.84	-2.28	0.004	6.163	0.954	0.06534	10.83091	No
SLV 4	-39.46	-84.6	-1.14	0.02	4.99	0.945	0.31131	10.4105	No
SLV 3	-39.46	-84.6	-1.14	0.02	4.99	0.945	0.31131	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.421	SLU 84	Si
V_SLU	7.401	SLU 52	Si
PF_SLV	0.788	SLV 15	No
V_SLV	0.166	SLV 1	No
PFFP_SLV	9.285	SLV 5	Si
R_SLV	0	SLV 5	No



## Maschio 120

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.278	1.046	-9.386	1.046	L4	L5	2.109	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 76	4.83	-368.84	-17.8653	625	90.6412	5.074	Si
SLU 76	7.33	-315.77	37.929	535	114.3388	3.015	Si
SLU 83	4.83	-387.71	-15.7926	657	79.2398	5.018	Si
SLU 83	7.33	-332.82	39.3296	564	108.0697	2.748	Si
SLU 75	4.83	-375.04	-17.2124	635	87.0715	5.059	Si
SLU 75	7.33	-321.38	38.3046	544	112.4146	2.935	Si
SLU 74	4.83	-375.09	-15.1803	635	87.0423	5.734	Si
SLU 74	7.33	-320.72	37.5687	543	112.6506	2.999	Si
SLU 80	4.83	-378.27	-15.4218	641	85.1419	5.521	Si
SLU 80	7.33	-323.81	37.4047	548	111.542	2.982	Si
SLU 82	4.83	-378.27	-18.9135	641	85.1394	4.502	Si
SLU 82	7.33	-325	40.0991	550	111.102	2.771	Si
SLU 81	4.83	-378.32	-16.8814	641	85.1095	5.042	Si
SLU 81	7.33	-324.34	39.3633	549	111.3486	2.829	Si
SLU 78	4.83	-384.43	-16.1236	651	81.337	5.045	Si
SLU 78	7.33	-329.87	38.2708	559	109.2455	2.855	Si
SLU 77	4.83	-384.48	-14.0915	651	81.3058	5.77	Si
SLU 77	7.33	-329.2	37.535	558	109.5064	2.917	Si
SLU 84	4.83	-387.66	-17.8247	657	79.2717	4.447	Si
SLU 84	7.33	-333.49	40.0654	565	107.7982	2.691	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 13	4.83	-213.61	-91.4471	362	158.5263	1.734	Si
SLV 13	7.33	-198.58	56.8273	336	151.7352	2.67	Si
SLV 4	4.83	-277.96	70.6765	471	180.1421	2.549	Si
SLV 4	7.33	-213.71	-8.0501	362	158.571	19.698	Si
SLV 1	4.83	-264.05	84.9777	447	176.4947	2.077	Si
SLV 1	7.33	-193.93	-18.1578	328	149.4996	8.233	Si
SLV 15	4.83	-227.52	-105.7482	385	164.2245	1.553	Si
SLV 15	7.33	-218.36	66.935	370	160.5377	2.398	Si
SLV 3	4.83	-277.96	70.6765	471	180.1421	2.549	Si
SLV 3	7.33	-213.71	-8.0501	362	158.571	19.698	Si
SLV 14	4.83	-213.61	-91.4471	362	158.5263	1.734	Si
SLV 14	7.33	-198.58	56.8273	336	151.7352	2.67	Si
SLV 11	4.83	-261.4	-60.6843	443	175.7371	2.896	Si
SLV 11	7.33	-239.81	52.4826	406	168.7903	3.216	Si
SLV 12	4.83	-261.4	-60.6843	443	175.7371	2.896	Si
SLV 12	7.33	-239.81	52.4826	406	168.7903	3.216	Si
SLV 2	4.83	-264.05	84.9777	447	176.4947	2.077	Si
SLV 2	7.33	-193.93	-18.1578	328	149.4996	8.233	Si
SLV 16	4.83	-227.52	-105.7482	385	164.2245	1.553	Si
SLV 16	7.33	-218.36	66.935	370	160.5377	2.398	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	4.83	-368.84	-15.91	-17.8653	625	2.1086	108	63.96				4.02	Si
SLU 76	7.33	-315.77	-9.17	37.929	535	2.1086	108	63.96				6.97	Si
SLU 82	4.83	-378.27	-17.17	-18.9135	641	2.1086	108	63.96				3.73	Si
SLU 82	7.33	-325	-10.2	40.0991	550	2.1086	108	63.96				6.27	Si
SLU 52	4.83	-315.84	-15.81	-18.4677	535	2.1086	108	63.96				4.05	Si
SLU 52	7.33	-266.95	-10.07	33.8385	452	2.1086	108	63.96				6.35	Si
SLU 81	4.83	-378.32	-15.68	-16.8814	641	2.1086	108	63.96				4.08	Si
SLU 81	7.33	-324.34	-9.26	39.3633	549	2.1086	108	63.96				6.91	Si
SLU 75	4.83	-375.04	-15.55	-17.2124	635	2.1086	108	63.96				4.11	Si
SLU 75	7.33	-321.38	-8.75	38.3046	544	2.1086	108	63.96				7.31	Si
SLU 84	4.83	-387.66	-16.33	-17.8247	657	2.1086	108	63.96				3.92	Si
SLU 84	7.33	-333.49	-9.28	40.0654	565	2.1086	108	63.96				6.89	Si
SLU 61	4.83	-334.66	-16.23	-18.4271	567	2.1086	108	63.96				3.94	Si
SLU 61	7.33	-284.68	-10.17	35.9749	482	2.1086	108	63.96				6.29	Si
SLU 63	4.83	-344.05	-15.4	-17.3383	583	2.1086	108	63.96				4.15	Si
SLU 63	7.33	-293.16	-9.25	35.9411	497	2.1086	108	63.96				6.91	Si
SLU 40	4.83	-326.99	-15.1	-16.2692	554	2.1086	108	63.96				4.24	Si
SLU 40	7.33	-284.08	-8.63	35.0754	481	2.1086	108	63.96				7.41	Si
SLU 73	4.83	-359.45	-16.74	-18.9541	609	2.1086	108	63.96				3.82	Si
SLU 73	7.33	-307.28	-10.09	37.9627	520	2.1086	108	63.96				6.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	4.83	-277.96	58.01	70.6765	471	2.1086	163	95.94				1.65	Si
SLV 3	7.33	-213.71	26.93	-8.0501	362	2.1086	156	91.94				3.41	Si
SLV 1	4.83	-264.05	69.42	84.9777	447	2.1086	163	95.94				1.38	Si
SLV 1	7.33	-193.93	35.82	-18.1578	328	2.1086	149	87.99				2.46	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	4.83	-277.96	58.01	70.6765		471	2.1086	163	95.94			1.65	Si
SLV 4	7.33	-213.71	26.93	-8.0501		362	2.1086	156	91.94			3.41	Si
SLV 12	4.83	-261.4	-50.04	-60.6843		443	2.1086	163	95.94			1.92	Si
SLV 12	7.33	-239.81	-31.69	52.4826		406	2.1086	163	95.94			3.03	Si
SLV 11	4.83	-261.4	-50.04	-60.6843		443	2.1086	163	95.94			1.92	Si
SLV 11	7.33	-239.81	-31.69	52.4826		406	2.1086	163	95.94			3.03	Si
SLV 14	4.83	-213.61	-76.34	-91.4471		406	1.8786	163	85.48			1.12	Si
SLV 14	7.33	-198.58	-38.41	56.8273		336	2.1086	151	88.92			2.31	Si
SLV 16	4.83	-227.52	-87.75	-105.7482		459	1.7686	163	80.47			0.92	No, Vu<V
SLV 16	7.33	-218.36	-47.3	66.935		370	2.1086	157	92.87			1.96	Si
SLV 13	4.83	-213.61	-76.34	-91.4471		406	1.8786	163	85.48			1.12	Si
SLV 13	7.33	-198.58	-38.41	56.8273		336	2.1086	151	88.92			2.31	Si
SLV 15	4.83	-227.52	-87.75	-105.7482		459	1.7686	163	80.47			0.92	No, Vu<V
SLV 15	7.33	-218.36	-47.3	66.935		370	2.1086	157	92.87			1.96	Si
SLV 2	4.83	-264.05	69.42	84.9777		447	2.1086	163	95.94			1.38	Si
SLV 2	7.33	-193.93	35.82	-18.1578		328	2.1086	149	87.99			2.46	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.38	323	-190.7	2.1975	19.6406	8.94	Si
SLV 9	1438	0.38	323	-190.7	2.1975	19.6406	8.94	Si
SLV 14	1438	0.38	327	-192.87	2.1975	19.7831	9	Si
SLV 13	1438	0.38	327	-192.87	2.1975	19.7831	9	Si
SLV 5	1438	0.38	349	-206.18	2.1975	20.6154	9.38	Si
SLV 6	1438	0.38	349	-206.18	2.1975	20.6154	9.38	Si
SLV 15	1438	0.38	356	-210.21	2.1975	20.8543	9.49	Si
SLV 16	1438	0.38	356	-210.21	2.1975	20.8543	9.49	Si
SLV 2	1438	0.38	414	-244.46	2.1975	22.6271	10.3	Si
SLV 1	1438	0.38	414	-244.46	2.1975	22.6271	10.3	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-169.1	-215.03	3.83	0.023	20.148	0.957	0.35463	10.83091	No
SLV 10	-169.1	-215.03	3.83	0.023	20.148	0.957	0.35463	10.83091	No
SLV 5	-163.2	-230.16	3.62	0.024	19.548	0.956	0.3647	10.83091	No
SLV 6	-163.2	-230.16	3.62	0.024	19.548	0.956	0.3647	10.83091	No
SLV 8	-192.91	-276.53	-3.83	0.025	22.569	0.961	0.38061	10.83091	No
SLV 7	-192.91	-276.53	-3.83	0.025	22.569	0.961	0.38061	10.83091	No
SLV 11	-198.82	-261.4	-3.62	0.027	23.169	0.962	0.40097	10.83091	No
SLV 12	-198.82	-261.4	-3.62	0.027	23.169	0.962	0.40097	10.83091	No
SLV 4	-175.62	-277.96	-1.47	0.036	20.811	0.958	0.54621	10.4105	No
SLV 3	-175.62	-277.96	-1.47	0.036	20.811	0.958	0.54621	10.4105	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.691	SLU 84	Si
V_SLU	3.726	SLU 82	Si
PF_SLV	1.553	SLV 15	Si
V_SLV	0.917	SLV 15	No
PFFP_SLV	8.938	SLV 9	Si
R_SLV	0.033	SLV 9	No

## Maschio 121

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-4.968	1.046	-6.478	1.046	L4	L5	1.51	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	f $\nu_0$	$\mu$	$\phi$	f $\nu_{lim}$	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	4.83	-239.25	-10.4758	566	55.1531	5.265	Si
SLU 84	6.93	-248.3	18.3839	587	52.3124	2.846	Si
SLU 75	4.83	-233.42	-10.1028	552	56.7924	5.621	Si
SLU 75	6.93	-239.8	17.6009	567	54.9906	3.124	Si
SLU 81	4.83	-233.19	-10.0691	552	56.8531	5.646	Si
SLU 81	6.93	-240.69	17.6524	569	54.7232	3.1	Si
SLU 79	4.83	-237.16	-10.1967	561	55.7572	5.468	Si
SLU 79	6.93	-238.15	17.7226	563	55.4725	3.13	Si
SLU 77	4.83	-240.66	-10.5571	569	54.7328	5.184	Si
SLU 77	6.93	-242.21	18.2449	573	54.2637	2.974	Si
SLU 80	4.83	-236.56	-10.1729	560	55.9256	5.498	Si
SLU 80	6.93	-240.75	17.7663	569	54.7065	3.079	Si
SLU 74	4.83	-234.01	-10.1266	553	56.6321	5.592	Si
SLU 74	6.93	-237.2	17.5572	561	55.7457	3.175	Si
SLU 83	4.83	-239.84	-10.4996	567	54.9776	5.236	Si
SLU 83	6.93	-245.7	18.3402	581	53.1644	2.899	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	4.83	-232.6	-10.0453	550	57.0112	5.675	Si
SLU 82	6.93	-243.29	17.6961	575	53.9282	3.047	Si
SLU 78	4.83	-240.07	-10.5333	568	54.9104	5.213	Si
SLU 78	6.93	-244.8	18.2886	579	53.4515	2.923	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	4.83	-166.93	-35.6869	395	85.3091	2.39	Si
SLV 11	6.93	-168.85	32.9735	399	85.8162	2.603	Si
SLV 14	4.83	-146.49	-58.4165	346	79.237	1.356	Si
SLV 14	6.93	-145.89	58.502	345	79.04	1.351	Si
SLV 3	4.83	-166.21	46.2398	393	85.1157	1.841	Si
SLV 3	6.93	-164.25	-37.351	388	84.5805	2.264	Si
SLV 1	4.83	-158.76	53.8913	375	83.0278	1.541	Si
SLV 1	6.93	-155.14	-41.7657	367	81.956	1.962	Si
SLV 2	4.83	-158.76	53.8913	375	83.0278	1.541	Si
SLV 2	6.93	-155.14	-41.7657	367	81.956	1.962	Si
SLV 15	4.83	-153.94	-66.0679	364	81.5924	1.235	Si
SLV 15	6.93	-154.99	62.9167	367	81.9108	1.302	Si
SLV 4	4.83	-166.21	46.2398	393	85.1157	1.841	Si
SLV 4	6.93	-164.25	-37.351	388	84.5805	2.264	Si
SLV 16	4.83	-153.94	-66.0679	364	81.5924	1.235	Si
SLV 16	6.93	-154.99	62.9167	367	81.9108	1.302	Si
SLV 13	4.83	-146.49	-58.4165	346	79.237	1.356	Si
SLV 13	6.93	-145.89	58.502	345	79.04	1.351	Si
SLV 12	4.83	-166.93	-35.6869	395	85.3091	2.39	Si
SLV 12	6.93	-168.85	32.9735	399	85.8162	2.603	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	4.83	-237.16	-17.7	-10.1967		561	1.51	108	45.8			2.59	Si
SLU 79	6.93	-238.15	-17.69	17.7226		563	1.51	108	45.8			2.59	Si
SLU 35	4.83	-205.99	-16.45	-9.3951		487	1.51	108	45.8			2.79	Si
SLU 35	6.93	-210.39	-16.44	16.3599		498	1.51	108	45.8			2.79	Si
SLU 83	4.83	-239.84	-18.14	-10.4996		567	1.51	108	45.8			2.52	Si
SLU 83	6.93	-245.7	-18.13	18.3402		581	1.51	108	45.8			2.53	Si
SLU 80	4.83	-236.56	-16.49	-10.1729		560	1.51	108	45.8			2.78	Si
SLU 80	6.93	-240.75	-16.45	17.7663		569	1.51	108	45.8			2.78	Si
SLU 78	4.83	-240.07	-17.03	-10.5333		568	1.51	108	45.8			2.69	Si
SLU 78	6.93	-244.8	-16.99	18.2886		579	1.51	108	45.8			2.7	Si
SLU 84	4.83	-239.25	-16.93	-10.4758		566	1.51	108	45.8			2.71	Si
SLU 84	6.93	-248.3	-16.89	18.3839		587	1.51	108	45.8			2.71	Si
SLU 41	4.83	-205.17	-16.34	-9.3376		485	1.51	108	45.8			2.8	Si
SLU 41	6.93	-213.89	-16.34	16.4551		506	1.51	108	45.8			2.8	Si
SLU 81	4.83	-233.19	-17.29	-10.0691		552	1.51	108	45.8			2.65	Si
SLU 81	6.93	-240.69	-17.28	17.6524		569	1.51	108	45.8			2.65	Si
SLU 77	4.83	-240.66	-18.24	-10.5571		569	1.51	108	45.8			2.51	Si
SLU 77	6.93	-242.21	-18.24	18.2449		573	1.51	108	45.8			2.51	Si
SLU 74	4.83	-234.01	-17.39	-10.1266		553	1.51	108	45.8			2.63	Si
SLU 74	6.93	-237.2	-17.38	17.5572		561	1.51	108	45.8			2.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	4.83	-166.21	46.62	46.2398		415	1.4304	163	65.08			1.4	Si
SLV 4	6.93	-164.25	40.16	-37.351		388	1.51	161	68.08			1.7	Si
SLV 1	4.83	-158.76	65.38	53.8913		455	1.2466	163	56.72			0.87	No, Vu<V
SLV 1	6.93	-155.14	60.44	-41.7657		380	1.4574	159	65.03			1.08	Si
SLV 2	4.83	-158.76	65.38	53.8913		455	1.2466	163	56.72			0.87	No, Vu<V
SLV 2	6.93	-155.14	60.44	-41.7657		380	1.4574	159	65.03			1.08	Si
SLV 13	4.83	-146.49	-67.24	-58.4165		490	1.0686	163	48.62			0.72	No, Vu<V
SLV 13	6.93	-145.89	-60.77	58.502		491	1.062	163	48.32			0.8	No, Vu<V
SLV 16	4.83	-153.94	-86	-66.0679		562	0.9775	163	44.48			0.52	No, Vu<V
SLV 16	6.93	-154.99	-81.05	62.9167		529	1.0472	163	47.65			0.59	No, Vu<V
SLV 14	4.83	-146.49	-67.24	-58.4165		490	1.0686	163	48.62			0.72	No, Vu<V
SLV 14	6.93	-145.89	-60.77	58.502		491	1.062	163	48.32			0.8	No, Vu<V
SLV 3	4.83	-166.21	46.62	46.2398		415	1.4304	163	65.08			1.4	Si
SLV 3	6.93	-164.25	40.16	-37.351		388	1.51	161	68.08			1.7	Si
SLV 15	4.83	-153.94	-86	-66.0679		562	0.9775	163	44.48			0.52	No, Vu<V
SLV 15	6.93	-154.99	-81.05	62.9167		529	1.0472	163	47.65			0.59	No, Vu<V
SLV 11	4.83	-166.93	-61.47	-35.6869		395	1.51	162	68.62			1.12	Si
SLV 11	6.93	-168.85	-62.29	32.9735		399	1.51	163	68.71			1.1	Si
SLV 12	4.83	-166.93	-61.47	-35.6869		395	1.51	162	68.62			1.12	Si
SLV 12	6.93	-168.85	-62.29	32.9735		399	1.51	163	68.71			1.1	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.38	328	-138.85	1.5737	14.214	9.03	Si
SLV 10	1438	0.38	328	-138.85	1.5737	14.214	9.03	Si
SLV 6	1438	0.38	334	-141.34	1.5737	14.3741	9.13	Si
SLV 5	1438	0.38	334	-141.34	1.5737	14.3741	9.13	Si
SLV 13	1438	0.38	343	-144.91	1.5737	14.5968	9.28	Si
SLV 14	1438	0.38	343	-144.91	1.5737	14.5968	9.28	Si
SLV 16	1438	0.38	361	-152.61	1.5737	15.0538	9.57	Si
SLV 15	1438	0.38	361	-152.61	1.5737	15.0538	9.57	Si
SLV 1	1438	0.38	362	-153.24	1.5737	15.0897	9.59	Si
SLV 2	1438	0.38	362	-153.24	1.5737	15.0897	9.59	Si





## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 5	-119.27	-145.77	1.02	0.036	14.243	0.957	0.54814	10.83091	No
SLV 6	-119.27	-145.77	1.02	0.036	14.243	0.957	0.54814	10.83091	No
SLV 10	-118.33	-142.08	1.02	0.036	14.147	0.956	0.54861	10.83091	No
SLV 9	-118.33	-142.08	1.02	0.036	14.147	0.956	0.54861	10.83091	No
SLV 12	-126.63	-166.93	-1.02	0.036	14.99	0.959	0.55077	10.83091	No
SLV 11	-126.63	-166.93	-1.02	0.036	14.99	0.959	0.55077	10.83091	No
SLV 7	-127.57	-170.62	-1.01	0.036	15.086	0.959	0.55166	10.83091	No
SLV 8	-127.57	-170.62	-1.01	0.036	15.086	0.959	0.55166	10.83091	No
SLV 2	-123.27	-158.76	0.32	0.041	14.649	0.958	0.62731	10.4105	No
SLV 1	-123.27	-158.76	0.32	0.041	14.649	0.958	0.62731	10.4105	No

### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.846	SLU 84	Si
V_SLU	2.511	SLU 77	Si
PF_SLV	1.235	SLV 15	Si
V_SLV	0.517	SLV 15	No
PFFP_SLV	9.032	SLV 9	Si
R_SLV	0.051	SLV 5	No

## Maschio 122

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-0.123	1.046	-4.168	1.046	L4	L5	4.045	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 77	4.83	-514.82	19.8694	455	460.2094	23.162	Si
SLU 77	6.93	-494.92	92.7449	437	464.0094	5.003	Si
SLU 80	4.83	-510.97	19.6075	451	461.0788	23.515	Si
SLU 80	6.93	-489.35	88.7353	432	464.7627	5.238	Si
SLU 78	4.83	-518.02	19.9083	457	459.4344	23.078	Si
SLU 78	6.93	-497.22	90.889	439	463.6599	5.101	Si
SLU 83	4.83	-517.52	21.439	457	459.5597	21.436	Si
SLU 83	6.93	-500.88	92.8355	442	463.053	4.988	Si
SLU 84	4.83	-520.72	21.4779	460	458.7467	21.359	Si
SLU 84	6.93	-503.18	90.9795	444	462.6435	5.085	Si
SLU 82	4.83	-512.86	21.4297	453	460.6607	21.496	Si
SLU 82	6.93	-494.69	87.1226	437	464.0436	5.326	Si
SLU 81	4.83	-509.65	21.3909	450	461.3631	21.568	Si
SLU 81	6.93	-492.4	88.9786	435	464.3678	5.219	Si
SLU 74	4.83	-506.95	19.8213	448	461.9196	23.304	Si
SLU 74	6.93	-486.44	88.888	429	465.1025	5.232	Si
SLU 75	4.83	-510.16	19.8602	450	461.2552	23.225	Si
SLU 75	6.93	-488.73	87.0321	432	464.8383	5.341	Si
SLU 79	4.83	-507.77	19.5687	448	461.7547	23.597	Si
SLU 79	6.93	-487.06	90.5913	430	465.0332	5.133	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 2	4.83	-308.07	131.6159	272	484.372	3.68	Si
SLV 2	6.93	-237.54	-23.1319	210	397.9588	17.204	Si
SLV 3	4.83	-305.94	145.6206	270	481.9678	3.31	Si
SLV 3	6.93	-241.11	-7.2918	213	402.6901	55.225	Si
SLV 4	4.83	-305.94	145.6206	270	481.9678	3.31	Si
SLV 4	6.93	-241.11	-7.2918	213	402.6901	55.225	Si
SLV 12	4.83	-357.81	-2.8247	316	536.5676	189.955	Si
SLV 12	6.93	-356.58	100.9198	315	535.3592	5.305	Si
SLV 15	4.83	-389.58	-107.8935	344	566.1201	5.247	Si
SLV 15	6.93	-412.33	130.7567	364	585.4695	4.478	Si
SLV 14	4.83	-391.72	-121.8983	346	568.0019	4.66	Si
SLV 14	6.93	-408.76	114.9166	361	582.528	5.069	Si
SLV 16	4.83	-389.58	-107.8935	344	566.1201	5.247	Si
SLV 16	6.93	-412.33	130.7567	364	585.4695	4.478	Si
SLV 11	4.83	-357.81	-2.8247	316	536.5676	189.955	Si
SLV 11	6.93	-356.58	100.9198	315	535.3592	5.305	Si
SLV 13	4.83	-391.72	-121.8983	346	568.0019	4.66	Si
SLV 13	6.93	-408.76	114.9166	361	582.528	5.069	Si
SLV 1	4.83	-308.07	131.6159	272	484.372	3.68	Si
SLV 1	6.93	-237.54	-23.1319	210	397.9588	17.204	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	4.83	-517.52	-71.86	21.439		457	4.045	108	122.7			1.71	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	6.93	-500.88	-71.96	92.8355		442	4.045	108	122.7			1.7	Si
SLU 78	4.83	-518.02	-67.48	19.9083		457	4.045	108	122.7			1.82	Si
SLU 78	6.93	-497.22	-67.95	90.889		439	4.045	108	122.7			1.81	Si
SLU 82	4.83	-512.86	-67.51	21.4297		453	4.045	108	122.7			1.82	Si
SLU 82	6.93	-494.69	-67.97	87.1226		437	4.045	108	122.7			1.81	Si
SLU 84	4.83	-520.72	-69.92	21.4779		460	4.045	108	122.7			1.75	Si
SLU 84	6.93	-503.18	-70.38	90.9795		444	4.045	108	122.7			1.74	Si
SLU 41	4.83	-435.47	-67.44	20.1231		384	4.045	107	120.98			1.79	Si
SLU 41	6.93	-430.3	-67.53	83.8716		380	4.045	106	120.3			1.78	Si
SLU 79	4.83	-507.77	-67.76	19.5687		448	4.045	108	122.7			1.81	Si
SLU 79	6.93	-487.06	-67.87	90.5913		430	4.045	108	122.7			1.81	Si
SLU 42	4.83	-438.67	-65.5	20.162		387	4.045	107	121.41			1.85	Si
SLU 42	6.93	-432.59	-65.95	82.0156		382	4.045	106	120.6			1.83	Si
SLU 77	4.83	-514.82	-69.43	19.8694		455	4.045	108	122.7			1.77	Si
SLU 77	6.93	-494.92	-69.53	92.7449		437	4.045	108	122.7			1.76	Si
SLU 74	4.83	-506.95	-67.02	19.8213		448	4.045	108	122.7			1.83	Si
SLU 74	6.93	-486.44	-67.12	88.888		429	4.045	108	122.7			1.83	Si
SLU 81	4.83	-509.65	-69.46	21.3909		450	4.045	108	122.7			1.77	Si
SLU 81	6.93	-492.4	-69.55	88.9786		435	4.045	108	122.7			1.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	4.83	-391.72	-179.31	-121.8983		346	4.045	153	172.73			0.96	No, Vu<V
SLV 13	6.93	-408.76	-164.29	114.9166		361	4.045	156	176.13			1.07	Si
SLV 2	4.83	-308.07	96.43	131.6159		272	4.045	138	156			1.62	Si
SLV 2	6.93	-237.54	82.24	-23.1319		210	4.045	125	141.89			1.73	Si
SLV 16	4.83	-389.58	-172.74	-107.8935		344	4.045	152	172.3			1	No, Vu<V
SLV 16	6.93	-412.33	-158.68	130.7567		364	4.045	156	176.85			1.11	Si
SLD 14	4.83	-367.47	-99.11	-45.4067		324	4.045	148	167.88			1.69	Si
SLD 14	6.93	-361.34	-92.46	80.705		319	4.045	147	166.65			1.8	Si
SLV 14	4.83	-391.72	-179.31	-121.8983		346	4.045	153	172.73			0.96	No, Vu<V
SLV 14	6.93	-408.76	-164.29	114.9166		361	4.045	156	176.13			1.07	Si
SLD 13	4.83	-367.47	-99.11	-45.4067		324	4.045	148	167.88			1.69	Si
SLD 13	6.93	-361.34	-92.46	80.705		319	4.045	147	166.65			1.8	Si
SLV 4	4.83	-305.94	103	145.6206		270	4.045	137	155.57			1.51	Si
SLV 4	6.93	-241.11	87.85	-7.2918		213	4.045	126	142.61			1.62	Si
SLV 3	4.83	-305.94	103	145.6206		270	4.045	137	155.57			1.51	Si
SLV 3	6.93	-241.11	87.85	-7.2918		213	4.045	126	142.61			1.62	Si
SLV 1	4.83	-308.07	96.43	131.6159		272	4.045	138	156			1.62	Si
SLV 1	6.93	-237.54	82.24	-23.1319		210	4.045	125	141.89			1.73	Si
SLV 15	4.83	-389.58	-172.74	-107.8935		344	4.045	152	172.3			1	No, Vu<V
SLV 15	6.93	-412.33	-158.68	130.7567		364	4.045	156	176.85			1.11	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.38	222	-251.36	4.2156	28.7984	6.83	Si
SLV 3	1438	0.38	222	-251.36	4.2156	28.7984	6.83	Si
SLV 2	1438	0.38	222	-251.48	4.2156	28.8095	6.83	Si
SLV 1	1438	0.38	222	-251.48	4.2156	28.8095	6.83	Si
SLV 7	1438	0.38	269	-305.2	4.2156	33.3051	7.9	Si
SLV 8	1438	0.38	269	-305.2	4.2156	33.3051	7.9	Si
SLV 6	1438	0.38	270	-305.62	4.2156	33.3375	7.91	Si
SLV 5	1438	0.38	270	-305.62	4.2156	33.3375	7.91	Si
SLV 11	1438	0.38	310	-351.48	4.2156	36.7096	8.71	Si
SLV 12	1438	0.38	310	-351.48	4.2156	36.7096	8.71	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	-276.49	-332.72	-5.23	0.028	33.782	0.952	0.42134	10.83091	No
SLV 7	-276.49	-332.72	-5.23	0.028	33.782	0.952	0.42134	10.83091	No
SLV 10	-281.47	-364.94	5.25	0.028	34.288	0.952	0.42336	10.83091	No
SLV 9	-281.47	-364.94	5.25	0.028	34.288	0.952	0.42336	10.83091	No
SLV 6	-259.11	-339.84	4.86	0.028	32.018	0.949	0.43055	10.83091	No
SLV 5	-259.11	-339.84	4.86	0.028	32.018	0.949	0.43055	10.83091	No
SLV 12	-298.85	-357.81	-4.85	0.03	36.054	0.954	0.44993	10.83091	No
SLV 11	-298.85	-357.81	-4.85	0.03	36.054	0.954	0.44993	10.83091	No
SLV 3	-244.32	-305.94	-2.14	0.037	30.517	0.947	0.57099	10.4105	No
SLV 4	-244.32	-305.94	-2.14	0.037	30.517	0.947	0.57099	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.988	SLU 83	Si
V_SLU	1.705	SLU 83	Si
PF_SLV	3.31	SLV 3	Si
V_SLV	0.963	SLV 13	No
PFFP_SLV	6.831	SLV 3	Si
R_SLV	0.039	SLV 7	No

## Maschio 124

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-9.448	-3.359	-11.003	-3.359	L4	L5	1.555	0.28	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 40	4.83	-117.94	3.0423	271	61.2062	20.119	Si
SLU 40	6.93	-119.64	-11.4389	275	61.6425	5.389	Si
SLU 73	4.83	-138.32	3.0599	318	65.6022	21.439	Si
SLU 73	6.93	-137.4	-12.0869	316	65.4432	5.414	Si
SLU 39	4.83	-118.17	2.5475	271	61.2644	24.048	Si
SLU 39	6.93	-119.07	-10.9112	273	61.4966	5.636	Si
SLU 76	4.83	-143.69	2.4527	330	66.4573	27.096	Si
SLU 76	6.93	-141.37	-11.7087	325	66.1032	5.646	Si
SLU 83	4.83	-148.91	1.8741	342	67.1672	35.839	Si
SLU 83	6.93	-145.8	-11.8389	335	66.7583	5.639	Si
SLU 42	4.83	-123.31	2.435	283	62.5411	25.684	Si
SLU 42	6.93	-123.61	-11.0606	284	62.6114	5.661	Si
SLU 31	4.83	-112.95	3.1261	259	59.8514	19.146	Si
SLU 31	6.93	-114.64	-10.781	263	60.3227	5.595	Si
SLU 81	4.83	-143.54	2.4814	330	66.4348	26.774	Si
SLU 81	6.93	-141.83	-12.2171	326	66.1753	5.417	Si
SLU 82	4.83	-143.32	2.9761	329	66.4016	22.312	Si
SLU 82	6.93	-142.41	-12.7449	327	66.2639	5.199	Si
SLU 84	4.83	-148.69	2.3689	341	67.1392	28.342	Si
SLU 84	6.93	-146.37	-12.3666	336	66.8369	5.405	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLV 3	4.83	-52.46	35.4833	120	36.7662	1.036	Si
SLV 3	6.93	-117.66	-29.7392	270	71.2467	2.396	Si
SLV 7	4.83	-39.93	18.5883	92	28.716	1.545	Si
SLV 7	6.93	-69.94	-12.7562	161	47.227	3.702	Si
SLV 14	4.83	-146.41	-32.999	336	82.5048	2.5	Si
SLV 14	6.93	-74.93	15.4302	172	50.0547	3.244	Si
SLV 15	4.83	-116.47	-28.335	267	70.7282	2.496	Si
SLV 15	6.93	-53.33	16.2041	122	37.3067	2.302	Si
SLV 13	4.83	-146.41	-32.999	336	82.5048	2.5	Si
SLV 13	6.93	-74.93	15.4302	172	50.0547	3.244	Si
SLV 8	4.83	-39.93	18.5883	92	28.716	1.545	Si
SLV 8	6.93	-69.94	-12.7562	161	47.227	3.702	Si
SLV 4	4.83	-52.46	35.4833	120	36.7662	1.036	Si
SLV 4	6.93	-117.66	-29.7392	270	71.2467	2.396	Si
SLV 2	4.83	-82.4	30.8193	189	54.1442	1.757	Si
SLV 2	6.93	-139.26	-30.5131	320	79.9324	2.62	Si
SLV 16	4.83	-116.47	-28.335	267	70.7282	2.496	Si
SLV 16	6.93	-53.33	16.2041	122	37.3067	2.302	Si
SLV 1	4.83	-82.4	30.8193	189	54.1442	1.757	Si
SLV 1	6.93	-139.26	-30.5131	320	79.9324	2.62	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt <sub>lim</sub>	c.s.	Verifica
SLU 40	4.83	-117.94	12.02	3.0423	271	1.555		92	39.91			3.32	Si
SLU 40	6.93	-119.64	18.4	-11.4389	275	1.555		92	40.14			2.18	Si
SLU 73	4.83	-138.32	13.31	3.0599	318	1.555		98	42.63			3.2	Si
SLU 73	6.93	-137.4	20.57	-12.0869	316	1.555		98	42.51			2.07	Si
SLU 39	4.83	-118.17	11.25	2.5475	271	1.555		92	39.94			3.55	Si
SLU 39	6.93	-119.07	17.82	-10.9112	273	1.555		92	40.06			2.25	Si
SLU 81	4.83	-143.54	12.54	2.4814	330	1.555		100	43.33			3.45	Si
SLU 81	6.93	-141.83	20.5	-12.2171	326	1.555		99	43.1			2.1	Si
SLU 75	4.83	-144.2	12.25	2.2592	331	1.555		100	43.42			3.54	Si
SLU 75	6.93	-141.83	19.23	-11.6145	326	1.555		99	43.1			2.24	Si
SLU 76	4.83	-143.69	12.43	2.4527	330	1.555		100	43.35			3.49	Si
SLU 76	6.93	-141.37	19.11	-11.7087	325	1.555		99	43.04			2.25	Si
SLU 84	4.83	-148.69	12.42	2.3689	341	1.555		101	44.01			3.54	Si
SLU 84	6.93	-146.37	19.62	-12.3666	336	1.555		100	43.71			2.23	Si
SLU 65	4.83	-127.02	12.13	2.4859	292	1.555		94	41.12			3.39	Si
SLU 65	6.93	-124.84	18.49	-9.7309	287	1.555		94	40.83			2.21	Si
SLU 82	4.83	-143.32	13.31	2.9761	329	1.555		99	43.3			3.25	Si
SLU 82	6.93	-142.41	21.08	-12.7449	327	1.555		99	43.18			2.05	Si
SLU 31	4.83	-112.95	12.02	3.1261	259	1.555		90	39.25			3.26	Si
SLU 31	6.93	-114.64	17.9	-10.781	263	1.555		91	39.47			2.21	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt <sub>lim</sub>	c.s.	Verifica
SLV 13	4.83	-146.41	-47.89	-32.999	336	1.555		151	65.56			1.37	Si
SLV 13	6.93	-74.93	-34.61	15.4302	172	1.555		118	51.27			1.48	Si
SLV 4	4.83	-52.46	64.17	35.4833	618	0.3034		163	13.8			0.22	No, Vu<V
SLV 4	6.93	-117.66	61.53	-29.7392	270	1.555		137	59.81			0.97	No, Vu<V
SLV 15	4.83	-116.47	-40.23	-28.335	267	1.555		137	59.58			1.48	Si
SLV 15	6.93	-53.33	-22.65	16.2041	134	1.4209		110	43.82			1.93	Si
SLV 1	4.83	-82.4	56.51	30.8193	243	1.2105		132	44.72			0.79	No, Vu<V
SLV 1	6.93	-139.26	49.57	-30.5131	320	1.555		147	64.14			1.29	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	4.83	-39.93	36.57	18.5883		152	0.936	114	29.83			0.82	No, Vu<V
SLV 8	6.93	-69.94	46.03	-12.7562		161	1.555	115	50.27			1.09	Si
SLV 2	4.83	-82.4	56.51	30.8193		243	1.2105	132	44.72			0.79	No, Vu<V
SLV 2	6.93	-139.26	49.57	-30.5131		320	1.555	147	64.14			1.29	Si
SLV 7	4.83	-39.93	36.57	18.5883		152	0.936	114	29.83			0.82	No, Vu<V
SLV 7	6.93	-69.94	46.03	-12.7562		161	1.555	115	50.27			1.09	Si
SLV 3	4.83	-52.46	64.17	35.4833		618	0.3034	163	13.8			0.22	No, Vu<V
SLV 3	6.93	-117.66	61.53	-29.7392		270	1.555	137	59.81			0.97	No, Vu<V
SLV 14	4.83	-146.41	-47.89	-32.999		336	1.555	151	65.56			1.37	Si
SLV 14	6.93	-74.93	-34.61	15.4302		172	1.555	118	51.27			1.48	Si
SLV 16	4.83	-116.47	-40.23	-28.335		267	1.555	137	59.58			1.48	Si
SLV 16	6.93	-53.33	-22.65	16.2041		134	1.4209	110	43.82			1.93	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.38	119	-51.8	1.5837	6.5456	4.13	Si
SLV 12	1438	0.38	119	-51.8	1.5837	6.5456	4.13	Si
SLV 15	1438	0.38	140	-60.81	1.5837	7.5398	4.76	Si
SLV 16	1438	0.38	140	-60.81	1.5837	7.5398	4.76	Si
SLV 7	1438	0.38	154	-67.19	1.5837	8.2184	5.19	Si
SLV 8	1438	0.38	154	-67.19	1.5837	8.2184	5.19	Si
SLV 13	1438	0.38	193	-83.92	1.5837	9.8951	6.25	Si
SLV 14	1438	0.38	193	-83.92	1.5837	9.8951	6.25	Si
SLV 4	1438	0.38	257	-112.11	1.5837	12.3875	7.82	Si
SLV 3	1438	0.38	257	-112.11	1.5837	12.3875	7.82	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-29.14	-39.93	-2.34	0	5.214	0.902	0	10.83091	No
SLV 8	-29.14	-39.93	-2.34	0	5.214	0.902	0	10.83091	No
SLV 12	-37.26	-59.13	-2	0.011	6.018	0.91	0.18153	10.83091	No
SLV 11	-37.26	-59.13	-2	0.011	6.018	0.91	0.18153	10.83091	No
SLV 9	-116.98	-158.94	2.83	0.022	14.073	0.955	0.33984	10.83091	No
SLV 10	-116.98	-158.94	2.83	0.022	14.073	0.955	0.33984	10.83091	No
SLV 6	-108.86	-139.74	2.49	0.024	13.247	0.952	0.36562	10.83091	No
SLV 5	-108.86	-139.74	2.49	0.024	13.247	0.952	0.36562	10.83091	No
SLV 13	-98.56	-146.41	1.54	0.031	12.202	0.949	0.47421	10.4105	No
SLV 14	-98.56	-146.41	1.54	0.031	12.202	0.949	0.47421	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.199	SLU 82	Si
V_SLU	2.049	SLU 82	Si
PF_SLV	1.036	SLV 3	Si
V_SLV	0.215	SLV 3	No
PFFP_SLV	4.133	SLV 11	Si
R_SLV	0	SLV 7	No

## Maschio 125

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-6.268	-3.359	-6.268	1.046	L4	L5	4.405	0.14	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	4.83	-312.98	25.0318	508	259.8616	10.381	Si
SLU 73	8.35	-199.54	43.5431	324	264.9174	6.084	Si
SLU 82	4.83	-325.6	28.9125	528	252.3246	8.727	Si
SLU 82	8.35	-209.09	42.5945	339	268.843	6.312	Si
SLU 75	4.83	-320.91	29.4275	520	255.2884	8.675	Si
SLU 75	8.35	-209.66	42.6828	340	269.0519	6.304	Si
SLU 31	4.83	-265.91	22.7356	431	275.6567	12.124	Si
SLU 31	8.35	-169.21	39.2042	274	247.1551	6.304	Si
SLU 80	4.83	-323.26	30.7802	524	253.8289	8.246	Si
SLU 80	8.35	-211.78	42.2991	343	269.8038	6.378	Si
SLU 76	4.83	-319.07	27.0761	517	256.3984	9.47	Si
SLU 76	8.35	-205.5	44.4563	333	267.4623	6.016	Si
SLU 34	4.83	-272	24.78	441	274.7073	11.086	Si
SLU 34	8.35	-175.18	40.1174	284	251.2861	6.264	Si
SLU 68	4.83	-285.18	21.8939	462	271.5378	12.402	Si
SLU 68	8.35	-183.94	39.5055	298	256.789	6.5	Si
SLU 84	4.83	-331.69	30.9568	538	248.1875	8.017	Si
SLU 84	8.35	-215.06	43.5077	349	270.8883	6.226	Si
SLU 78	4.83	-327	31.4718	530	251.4017	7.988	Si
SLU 78	8.35	-215.63	43.596	350	271.0673	6.218	Si



### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	4.83	-251.59	-8.8902	408	369.1121	41.519	Si
SLV 6	8.35	-150.88	40.4503	245	265.7715	6.57	Si
SLV 2	4.83	-251.25	36.2942	407	368.8678	10.163	Si
SLV 2	8.35	-136.47	53.4791	221	246.1387	4.603	Si
SLV 8	4.83	-192.76	63.0411	313	315.9488	5.012	Si
SLV 8	8.35	-122.81	23.6615	199	226.409	9.569	Si
SLV 5	4.83	-251.59	-8.8902	408	369.1121	41.519	Si
SLV 5	8.35	-150.88	40.4503	245	265.7715	6.57	Si
SLV 12	4.83	-175.4	45.8911	284	296.3916	6.459	Si
SLV 12	8.35	-126.74	7.4574	206	232.1986	31.137	Si
SLV 3	4.83	-233.61	57.8735	379	355.0086	6.134	Si
SLV 3	8.35	-128.05	48.4424	208	234.1042	4.833	Si
SLV 11	4.83	-175.4	45.8911	284	296.3916	6.459	Si
SLV 11	8.35	-126.74	7.4574	206	232.1986	31.137	Si
SLV 7	4.83	-192.76	63.0411	313	315.9488	5.012	Si
SLV 7	8.35	-122.81	23.6615	199	226.409	9.569	Si
SLV 1	4.83	-251.25	36.2942	407	368.8678	10.163	Si
SLV 1	8.35	-136.47	53.4791	221	246.1387	4.603	Si
SLV 4	4.83	-233.61	57.8735	379	355.0086	6.134	Si
SLV 4	8.35	-128.05	48.4424	208	234.1042	4.833	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	4.83	-199.19	-13.38	10.9972		323	4.405	99	60.82			4.54	Si
SLU 2	8.35	-125.55	-6.51	28.6		204	4.405	83	51			7.84	Si
SLU 44	4.83	-246.26	-12.74	13.2933		399	4.405	108	66.81			5.24	Si
SLU 44	8.35	-155.88	-5.89	32.939		253	4.405	89	55.04			9.35	Si
SLU 71	4.83	-286.52	12.26	28.0876		465	4.405	108	66.81			5.45	Si
SLU 71	8.35	-190.69	12.14	32.7428		309	4.405	97	59.69			4.92	Si
SLU 27	4.83	-243.19	10.94	26.4831		394	4.405	108	66.69			6.09	Si
SLU 27	8.35	-164.21	10.84	29.7007		266	4.405	91	56.16			5.18	Si
SLU 29	4.83	-239.45	11.62	25.7915		388	4.405	107	66.19			5.7	Si
SLU 29	8.35	-160.37	11.52	28.4038		260	4.405	90	55.64			4.83	Si
SLU 50	4.83	-253.68	11.08	21.5314		411	4.405	108	66.81			6.03	Si
SLU 50	8.35	-168.59	10.96	27.0894		273	4.405	92	56.74			5.17	Si
SLU 8	4.83	-206.61	10.44	19.2353		335	4.405	100	61.81			5.92	Si
SLU 8	8.35	-138.27	10.35	22.7505		224	4.405	85	52.7			5.09	Si
SLU 52	4.83	-280.14	-12.94	18.4756		454	4.405	108	66.81			5.16	Si
SLU 52	8.35	-177.44	-6.1	37.8898		288	4.405	94	57.92			9.49	Si
SLU 10	4.83	-233.07	-13.58	16.1794		378	4.405	106	65.34			4.81	Si
SLU 10	8.35	-147.11	-6.72	33.5508		239	4.405	87	53.88			8.01	Si
SLU 37	4.83	-273.33	11.42	30.9737		443	4.405	108	66.81			5.85	Si
SLU 37	8.35	-181.93	11.3	33.3546		295	4.405	95	58.52			5.18	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	4.83	-251.59	-98.24	-8.8902		408	4.405	163	100.21			1.02	Si
SLV 5	8.35	-150.88	-82.02	40.4503		245	4.405	132	81.57			0.99	No, Vu<V
SLD 8	4.83	-204.6	48.72	37.2553		332	4.405	150	92.31			1.89	Si
SLD 8	8.35	-132.28	41.2	23.613		214	4.405	126	77.85			1.89	Si
SLV 9	4.83	-234.22	-102.17	-26.0402		380	4.405	159	98.24			0.96	No, Vu<V
SLV 9	8.35	-154.81	-85.59	24.2462		251	4.405	134	82.35			0.96	No, Vu<V
SLV 8	4.83	-192.76	109.69	63.0411		313	4.405	146	89.94			0.82	No, Vu<V
SLV 8	8.35	-122.81	92.95	23.6615		199	4.405	123	75.95			0.82	No, Vu<V
SLV 11	4.83	-175.4	105.76	45.8911		284	4.405	140	86.47			0.82	No, Vu<V
SLV 11	8.35	-126.74	89.37	7.4574		206	4.405	124	76.74			0.86	No, Vu<V
SLD 7	4.83	-204.6	48.72	37.2553		332	4.405	150	92.31			1.89	Si
SLD 7	8.35	-132.28	41.2	23.613		214	4.405	126	77.85			1.89	Si
SLV 7	4.83	-192.76	109.69	63.0411		313	4.405	146	89.94			0.82	No, Vu<V
SLV 7	8.35	-122.81	92.95	23.6615		199	4.405	123	75.95			0.82	No, Vu<V
SLV 10	4.83	-234.22	-102.17	-26.0402		380	4.405	159	98.24			0.96	No, Vu<V
SLV 10	8.35	-154.81	-85.59	24.2462		251	4.405	134	82.35			0.96	No, Vu<V
SLV 6	4.83	-251.59	-98.24	-8.8902		408	4.405	163	100.21			1.02	Si
SLV 6	8.35	-150.88	-82.02	40.4503		245	4.405	132	81.57			0.99	No, Vu<V
SLV 12	4.83	-175.4	105.76	45.8911		284	4.405	140	86.47			0.82	No, Vu<V
SLV 12	8.35	-126.74	89.37	7.4574		206	4.405	124	76.74			0.86	No, Vu<V

### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.38	253	-156.18	2.3997	8.6665	3.61	Si
SLV 8	1438	0.38	253	-156.18	2.3997	8.6665	3.61	Si
SLV 12	1438	0.38	256	-157.72	2.3997	8.7297	3.64	Si
SLV 11	1438	0.38	256	-157.72	2.3997	8.7297	3.64	Si
SLV 3	1438	0.38	278	-171.5	2.3997	9.2729	3.86	Si
SLV 4	1438	0.38	278	-171.5	2.3997	9.2729	3.86	Si
SLV 16	1438	0.38	286	-176.67	2.3997	9.4673	3.95	Si
SLV 15	1438	0.38	286	-176.67	2.3997	9.4673	3.95	Si
SLV 2	1438	0.38	302	-186.19	2.3997	9.813	4.09	Si
SLV 1	1438	0.38	302	-186.19	2.3997	9.813	4.09	Si

### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-154.81	-234.22	0.26	0.021	18.827	0.953	0.31438	16.49646	No
SLV 10	-154.81	-234.22	0.26	0.021	18.827	0.953	0.31438	16.49646	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 6	-150.88	-251.59	0.27	0.021	18.428	0.952	0.31464	16.49646	No
SLV 5	-150.88	-251.59	0.27	0.021	18.428	0.952	0.31464	16.49646	No
SLV 11	-126.74	-175.4	-0.27	0.021	15.978	0.945	0.31846	16.49646	No
SLV 12	-126.74	-175.4	-0.27	0.021	15.978	0.945	0.31846	16.49646	No
SLV 8	-122.81	-192.76	-0.26	0.021	15.58	0.944	0.31956	16.49646	No
SLV 7	-122.81	-192.76	-0.26	0.021	15.58	0.944	0.31956	16.49646	No
SLV 14	-149.57	-193.38	0.07	0.022	18.295	0.951	0.33223	16.49646	No
SLV 13	-149.57	-193.38	0.07	0.022	18.295	0.951	0.33223	16.49646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.016	SLU 76	Si
V_SLU	4.545	SLU 2	Si
PF_SLV	4.603	SLV 1	Si
V_SLV	0.817	SLV 7	No
PFFP_SLV	3.611	SLV 7	Si
R_SLV	0.019	SLV 9	No

## Maschio 126

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.413	-3.359	-8.548	-3.359	L4	L5	1.135	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 81	5.73	-121.22	0.5438	381	36.5798	67.266	Si
SLU 81	7.53	-99.6	-10.5424	313	34.7768	3.299	Si
SLU 84	5.73	-124.05	0.782	390	36.6643	46.884	Si
SLU 84	7.53	-99.14	-10.4852	312	34.7154	3.311	Si
SLU 83	5.73	-125.07	-0.1231	394	36.686	298.118	Si
SLU 83	7.53	-101.53	-10.2746	319	35.0208	3.408	Si
SLU 75	5.73	-120.47	0.9822	379	36.5517	37.216	Si
SLU 75	7.53	-95.89	-10.3297	302	34.2604	3.317	Si
SLU 52	5.73	-106.13	1.8929	334	35.5371	18.774	Si
SLU 52	7.53	-81.68	-9.5312	257	31.7273	3.329	Si
SLU 65	5.73	-105.01	2.0369	330	35.4202	17.389	Si
SLU 65	7.53	-80.56	-9.4903	253	31.4902	3.318	Si
SLU 76	5.73	-119.02	1.3808	375	36.4901	26.427	Si
SLU 76	7.53	-93.03	-10.2047	293	33.8214	3.314	Si
SLU 61	5.73	-111.16	1.2941	350	35.9956	27.816	Si
SLU 61	7.53	-87.79	-9.8117	276	32.9254	3.356	Si
SLU 82	5.73	-120.21	1.4489	378	36.541	25.22	Si
SLU 82	7.53	-97.21	-10.7531	306	34.4511	3.204	Si
SLU 73	5.73	-115.18	2.0477	362	36.2819	17.719	Si
SLU 73	7.53	-91.1	-10.4725	287	33.5054	3.199	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 11	5.73	-43.7	-19.425	138	22.0107	1.133	Si
SLV 11	7.53	23.71	14.4762	0	0	0	No, Trazione
SLV 3	5.73	-44.47	23.3128	140	22.3452	0.958	No, M>Mu
SLV 3	7.53	-54.18	-18.9428	170	26.4581	1.397	Si
SLV 2	5.73	-72.46	30.4244	228	33.4468	1.099	Si
SLV 2	7.53	-105.5	-28.8667	332	43.6051	1.511	Si
SLV 4	5.73	-44.47	23.3128	140	22.3452	0.958	No, M>Mu
SLV 4	7.53	-54.18	-18.9428	170	26.4581	1.397	Si
SLV 16	5.73	-93.53	-29.6733	294	40.2945	1.358	Si
SLV 16	7.53	-26.45	14.6589	83	13.9899	0.954	No, M>Mu
SLV 7	5.73	-28.98	-3.5292	91	15.2209	4.313	Si
SLV 7	7.53	15.39	4.3957	0	0	0	No, Trazione
SLV 15	5.73	-93.53	-29.6733	294	40.2945	1.358	Si
SLV 15	7.53	-26.45	14.6589	83	13.9899	0.954	No, M>Mu
SLV 8	5.73	-28.98	-3.5292	91	15.2209	4.313	Si
SLV 8	7.53	15.39	4.3957	0	0	0	No, Trazione
SLV 1	5.73	-72.46	30.4244	228	33.4468	1.099	Si
SLV 1	7.53	-105.5	-28.8667	332	43.6051	1.511	Si
SLV 12	5.73	-43.7	-19.425	138	22.0107	1.133	Si
SLV 12	7.53	23.71	14.4762	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 47	5.73	-99.82	2.76	1.2153		314	1.135	97	30.96			11.22	Si
SLU 47	7.53	-73.07	2.84	-8.2811		230	1.135	86	27.4			9.65	Si
SLU 73	5.73	-115.18	4.03	2.0477		362	1.135	104	33.01			8.19	Si
SLU 73	7.53	-91.1	2.97	-10.4725		287	1.135	94	29.8			10.05	Si
SLU 65	5.73	-105.01	4.24	2.0369		330	1.135	100	31.66			7.47	Si
SLU 65	7.53	-80.56	3.17	-9.4903		253	1.135	89	28.4			8.95	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	5.73	-95.02	3.9	2.0023		299	1.135	95	30.33			7.78	Si
SLU 31	7.53	-76.24	2.47	-8.829		240	1.135	88	27.82			11.28	Si
SLU 2	5.73	-75.82	3.75	1.8367		239	1.135	87	27.76			7.41	Si
SLU 2	7.53	-56.28	2.97	-6.9054		177	1.135	79	25.16			8.47	Si
SLU 44	5.73	-95.97	3.88	1.8821		302	1.135	96	30.45			7.84	Si
SLU 44	7.53	-71.14	3.47	-8.5489		224	1.135	85	27.14			7.82	Si
SLU 52	5.73	-106.13	3.68	1.8929		334	1.135	100	31.81			8.65	Si
SLU 52	7.53	-81.68	3.26	-9.5312		257	1.135	90	28.55			8.75	Si
SLU 23	5.73	-84.86	4.1	1.9915		267	1.135	91	28.97			7.06	Si
SLU 23	7.53	-65.71	2.67	-7.8467		207	1.135	83	26.42			9.88	Si
SLU 26	5.73	-88.71	2.98	1.3247		279	1.135	93	29.48			9.9	Si
SLU 26	7.53	-67.63	2.04	-7.5789		213	1.135	84	26.67			13.04	Si
SLU 10	5.73	-85.98	3.54	1.8475		271	1.135	92	29.12			8.22	Si
SLU 10	7.53	-66.82	2.76	-7.8876		210	1.135	84	26.57			9.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	5.73	-72.46	49.72	30.4244		584	0.4428	163	20.15			0.41	No, Vu<V
SLV 1	7.53	-105.5	16.95	-28.8667		427	0.8817	163	40.12			2.37	Si
SLV 16	5.73	-93.53	-47.92	-29.6733		445	0.7508	163	34.16			0.71	No, Vu<V
SLV 16	7.53	-26.45	-14.58	14.6589		2354	0.0401	163	1.83			0.13	No, Vu<V
SLV 3	5.73	-44.47	45.55	23.3128		1225	0.1297	163	5.9			0.13	No, Vu<V
SLV 3	7.53	-54.18	16.72	-18.9428		296	0.6537	143	26.09			1.56	Si
SLV 8	5.73	-28.98	7.97	-3.5292		91	1.135	102	32.28			4.05	Si
SLV 8	7.53	15.39	5.49	4.3957		0	0	83	0			0	No, Vu<V
SLV 4	5.73	-44.47	45.55	23.3128		1225	0.1297	163	5.9			0.13	No, Vu<V
SLV 4	7.53	-54.18	16.72	-18.9428		296	0.6537	143	26.09			1.56	Si
SLV 11	5.73	-43.7	-20.07	-19.425		423	0.3691	163	16.79			0.84	No, Vu<V
SLV 11	7.53	23.71	-3.89	14.4762		0	0	83	0			0	No, Vu<V
SLV 12	5.73	-43.7	-20.07	-19.425		423	0.3691	163	16.79			0.84	No, Vu<V
SLV 12	7.53	23.71	-3.89	14.4762		0	0	83	0			0	No, Vu<V
SLV 7	5.73	-28.98	7.97	-3.5292		91	1.135	102	32.28			4.05	Si
SLV 7	7.53	15.39	5.49	4.3957		0	0	83	0			0	No, Vu<V
SLV 2	5.73	-72.46	49.72	30.4244		584	0.4428	163	20.15			0.41	No, Vu<V
SLV 2	7.53	-105.5	16.95	-28.8667		427	0.8817	163	40.12			2.37	Si
SLV 15	5.73	-93.53	-47.92	-29.6733		445	0.7508	163	34.16			0.71	No, Vu<V
SLV 15	7.53	-26.45	-14.58	14.6589		2354	0.0401	163	1.83			0.13	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.38	0	-6.85	1.156	0	0	No, e>t/2
SLV 8	1438	0.38	0	-6.85	1.156	0	0	No, e>t/2
SLV 11	1438	0.38	83	-26.49	1.156	3.4561	2.99	Si
SLV 12	1438	0.38	83	-26.49	1.156	3.4561	2.99	Si
SLV 4	1438	0.38	88	-27.86	1.156	3.6211	3.13	Si
SLV 3	1438	0.38	88	-27.86	1.156	3.6211	3.13	Si
SLV 2	1438	0.38	206	-65.53	1.156	7.6257	6.6	Si
SLV 1	1438	0.38	206	-65.53	1.156	7.6257	6.6	Si
SLV 15	1438	0.38	294	-93.36	1.156	9.9276	8.59	Si
SLV 16	1438	0.38	294	-93.36	1.156	9.9276	8.59	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	6.68	-64.6	-0.82	0	0	0	0	10.83091	No, Trazione
SLV 12	15.98	-52.48	-0.67	0	0	0	0	10.83091	No, Trazione
SLV 11	15.98	-52.48	-0.67	0	0	0	0	10.83091	No, Trazione
SLV 8	6.68	-64.6	-0.82	0	0	0	0	10.83091	No, Trazione
SLV 9	-109.14	-84.07	0.81	0.036	12.687	0.963	0.54849	10.83091	No
SLV 10	-109.14	-84.07	0.81	0.036	12.687	0.963	0.54849	10.83091	No
SLV 5	-118.44	-96.19	0.66	0.038	13.634	0.965	0.56891	10.83091	No
SLV 6	-118.44	-96.19	0.66	0.038	13.634	0.965	0.56891	10.83091	No
SLV 4	-47.96	-89.79	-0.48	0.038	6.477	0.933	0.59724	10.4105	No
SLV 3	-47.96	-89.79	-0.48	0.038	6.477	0.933	0.59724	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.199	SLU 73	Si
V_SLU	7.061	SLU 23	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 7	No
PFFP_SLV	0	SLV 7	No
R_SLV	0	SLV 12	No

## Maschio 127

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	1.046	-5.158	5.811	L4	L5	4.765	0.14	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 27	4.83	-311.33	6.0672	467	316.7828	52.212	Si
SLU 27	8.35	-249.25	33.8109	374	321.457	9.507	Si
SLU 28	4.83	-310.56	5.3534	466	317.048	59.223	Si
SLU 28	8.35	-249.15	31.9485	373	321.4378	10.061	Si
SLU 71	4.83	-361.75	6.9686	542	288.1194	41.345	Si
SLU 71	8.35	-283.61	36.0824	425	323.0464	8.953	Si
SLU 6	4.83	-267.86	6.4285	402	323.6031	50.339	Si
SLU 6	8.35	-215.13	30.8302	322	309.6345	10.043	Si
SLU 50	4.83	-318.28	7.3299	477	314.1562	42.86	Si
SLU 50	8.35	-249.49	33.1017	374	321.5039	9.713	Si
SLU 8	4.83	-265.53	8.3462	398	323.5008	38.76	Si
SLU 8	8.35	-216.2	37.0793	324	310.159	8.365	Si
SLU 30	4.83	-308.23	7.2711	462	317.818	43.71	Si
SLU 30	8.35	-250.22	38.1976	375	321.6439	8.421	Si
SLU 72	4.83	-360.98	6.2548	541	288.7252	46.161	Si
SLU 72	8.35	-283.51	34.22	425	323.0565	9.441	Si
SLU 29	4.83	-309	7.9849	463	317.5686	39.771	Si
SLU 29	8.35	-250.32	40.06	375	321.6621	8.03	Si
SLU 9	4.83	-264.76	7.6324	397	323.4565	42.38	Si
SLU 9	8.35	-216.1	35.2169	324	310.1117	8.806	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 9	4.83	-184.88	-57.2965	277	340.5691	5.944	Si
SLV 9	8.35	-113.44	-37.1965	170	232.6594	6.255	Si
SLV 13	4.83	-225.55	-51.6321	338	388.6711	7.528	Si
SLV 13	8.35	-155.7	-18.2209	233	300.093	16.47	Si
SLV 3	4.83	-271.36	41.6751	407	431.2815	10.349	Si
SLV 3	8.35	-175.13	-4.9877	263	327.5971	65.681	Si
SLV 8	4.83	-312.02	47.3396	468	458.8255	9.692	Si
SLV 8	8.35	-217.38	13.988	326	379.7929	27.151	Si
SLV 4	4.83	-271.36	41.6751	407	431.2815	10.349	Si
SLV 4	8.35	-175.13	-4.9877	263	327.5971	65.681	Si
SLV 10	4.83	-184.88	-57.2965	277	340.5691	5.944	Si
SLV 10	8.35	-113.44	-37.1965	170	232.6594	6.255	Si
SLV 5	4.83	-187.41	-36.8846	281	343.8418	9.322	Si
SLV 5	8.35	-109.57	-37.8962	164	225.954	5.962	Si
SLV 7	4.83	-312.02	47.3396	468	458.8255	9.692	Si
SLV 7	8.35	-217.38	13.988	326	379.7929	27.151	Si
SLV 6	4.83	-187.41	-36.8846	281	343.8418	9.322	Si
SLV 6	8.35	-109.57	-37.8962	164	225.954	5.962	Si
SLV 14	4.83	-225.55	-51.6321	338	388.6711	7.528	Si
SLV 14	8.35	-155.7	-18.2209	233	300.093	16.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	4.83	-347.43	16.2	1.5921		521	4.765	108	72.27			4.46	Si
SLU 36	8.35	-269.09	9.69	22.8352		403	4.765	108	72.27			7.46	Si
SLU 80	4.83	-397.84	16.34	2.4934		596	4.765	108	72.27			4.42	Si
SLU 80	8.35	-303.45	8.91	25.1067		455	4.765	108	72.27			8.11	Si
SLU 83	4.83	-394.39	16.58	-4.4782		591	4.765	108	72.27			4.36	Si
SLU 83	8.35	-278.98	7.68	-0.4023		418	4.765	108	72.27			9.4	Si
SLU 78	4.83	-400.17	16.6	0.5758		600	4.765	108	72.27			4.35	Si
SLU 78	8.35	-302.38	8.84	18.8576		453	4.765	108	72.27			8.17	Si
SLU 77	4.83	-400.94	17.28	1.2896		601	4.765	108	72.27			4.18	Si
SLU 77	8.35	-302.48	9.71	20.72		453	4.765	108	72.27			7.44	Si
SLU 35	4.83	-348.2	16.87	2.3059		522	4.765	108	72.27			4.28	Si
SLU 35	8.35	-269.19	10.56	24.6976		404	4.765	108	72.27			6.85	Si
SLU 41	4.83	-341.65	16.17	-3.4618		512	4.765	108	72.27			4.47	Si
SLU 41	8.35	-245.69	8.53	3.5753		368	4.765	105	69.82			8.18	Si
SLU 37	4.83	-345.87	16.61	4.2235		518	4.765	108	72.27			4.35	Si
SLU 37	8.35	-270.25	10.62	30.9467		405	4.765	108	72.27			6.8	Si
SLU 79	4.83	-398.61	17.02	3.2072		598	4.765	108	72.27			4.25	Si
SLU 79	8.35	-303.55	9.77	26.9691		455	4.765	108	72.27			7.39	Si
SLU 38	4.83	-345.1	15.93	3.5097		517	4.765	108	72.27			4.54	Si
SLU 38	8.35	-270.16	9.76	29.0843		405	4.765	108	72.27			7.41	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	4.83	-312.02	102.1	47.3396		468	4.765	163	108.4			1.06	Si
SLV 7	8.35	-217.38	88.15	13.988		326	4.765	149	99.07			1.12	Si
SLV 12	4.83	-309.49	124.15	26.9276		464	4.765	163	108.4			0.87	No, Vu<V
SLV 12	8.35	-221.26	104.89	14.6876		332	4.765	150	99.84			0.95	No, Vu<V
SLV 8	4.83	-312.02	102.1	47.3396		468	4.765	163	108.4			1.06	Si
SLV 8	8.35	-217.38	88.15	13.988		326	4.765	149	99.07			1.12	Si
SLV 11	4.83	-309.49	124.15	26.9276		464	4.765	163	108.4			0.87	No, Vu<V
SLV 11	8.35	-221.26	104.89	14.6876		332	4.765	150	99.84			0.95	No, Vu<V
SLV 5	4.83	-187.41	-109	-36.8846		281	4.765	140	93.07			0.85	No, Vu<V
SLV 5	8.35	-109.57	-101.77	-37.8962		164	4.765	116	77.51			0.76	No, Vu<V
SLV 10	4.83	-184.88	-86.96	-57.2965		277	4.765	139	92.57			1.06	Si
SLV 10	8.35	-113.44	-85.02	-37.1965		170	4.765	117	78.28			0.92	No, Vu<V
SLV 16	4.83	-262.93	75.98	-26.3648		394	4.765	162	108.18			1.42	Si
SLV 16	8.35	-188.04	57.96	-2.6556		282	4.765	140	93.2			1.61	Si
SLV 9	4.83	-184.88	-86.96	-57.2965		277	4.765	139	92.57			1.06	Si
SLV 9	8.35	-113.44	-85.02	-37.1965		170	4.765	117	78.28			0.92	No, Vu<V





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	4.83	-262.93	75.98	-26.3648		394	4.765	162	108.18			1.42	Si
SLV 15	8.35	-188.04	57.96	-2.6556		282	4.765	140	93.2			1.61	Si
SLV 6	4.83	-187.41	-109	-36.8846		281	4.765	140	93.07			0.85	No, Vu<V
SLV 6	8.35	-109.57	-101.77	-37.8962		164	4.765	116	77.51			0.76	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.38	219	-146.01	2.5958	8.3899	3.23	Si
SLV 10	1438	0.38	219	-146.01	2.5958	8.3899	3.23	Si
SLV 13	1438	0.38	239	-159.35	2.5958	8.9741	3.46	Si
SLV 14	1438	0.38	239	-159.35	2.5958	8.9741	3.46	Si
SLV 6	1438	0.38	243	-162.1	2.5958	9.0902	3.5	Si
SLV 5	1438	0.38	243	-162.1	2.5958	9.0902	3.5	Si
SLV 16	1438	0.38	280	-186.88	2.5958	10.0824	3.88	Si
SLV 15	1438	0.38	280	-186.88	2.5958	10.0824	3.88	Si
SLV 2	1438	0.38	319	-212.97	2.5958	11.0129	4.24	Si
SLV 1	1438	0.38	319	-212.97	2.5958	11.0129	4.24	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 13	-155.7	-225.55	0.58	0.019	19.171	0.95	0.29073	16.49646	No
SLV 14	-155.7	-225.55	0.58	0.019	19.171	0.95	0.29073	16.49646	No
SLV 4	-175.13	-271.36	-0.57	0.019	21.145	0.954	0.2913	16.49646	No
SLV 3	-175.13	-271.36	-0.57	0.019	21.145	0.954	0.2913	16.49646	No
SLV 8	-217.38	-312.02	-0.43	0.02	25.441	0.961	0.30033	16.49646	No
SLV 7	-217.38	-312.02	-0.43	0.02	25.441	0.961	0.30033	16.49646	No
SLV 16	-188.04	-262.93	0.41	0.02	22.457	0.957	0.30313	16.49646	No
SLV 15	-188.04	-262.93	0.41	0.02	22.457	0.957	0.30313	16.49646	No
SLV 9	-113.44	-184.88	0.43	0.02	14.887	0.938	0.30675	16.49646	No
SLV 10	-113.44	-184.88	0.43	0.02	14.887	0.938	0.30675	16.49646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.03	SLU 29	Si
V_SLU	4.182	SLU 77	Si
PF_SLV	5.944	SLV 9	Si
V_SLV	0.762	SLV 5	No
PFFP_SLV	3.232	SLV 9	Si
R_SLV	0.018	SLV 13	No

## Maschio 128

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	5.951	-5.158	6.006	L4	L5	0.055	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	6.83	-8.27	0.0158	537	0.0775	4.918	Si
SLU 83	7.63	-10.52	0.2651	683	0.0466	0.176	No, M>Mu
SLU 61	6.83	-6.19	-0.0115	402	0.0862	7.53	Si
SLU 61	7.63	-7.97	0.2209	0	0	0	No, e>l/2
SLU 78	6.83	-9	0.0376	584	0.07	1.86	Si
SLU 78	7.63	-11.3	0.2667	734	0.0309	0.116	No, M>Mu
SLU 18	6.83	-5.21	-0.0109	338	0.0838	7.704	Si
SLU 18	7.63	-6.77	0.1887	0	0	0	No, e>l/2
SLU 77	6.83	-9.06	0.0392	588	0.0693	1.768	Si
SLU 77	7.63	-11.35	0.2664	737	0.0297	0.111	No, M>Mu
SLU 80	6.83	-9.08	0.0423	589	0.069	1.63	Si
SLU 80	7.63	-11.36	0.2642	738	0.0295	0.112	No, M>Mu
SLU 10	6.83	-4.92	-0.0083	319	0.0822	9.886	Si
SLU 10	7.63	-6.35	0.1755	0	0	0	No, e>l/2
SLU 79	6.83	-9.13	0.0439	593	0.0683	1.556	Si
SLU 79	7.63	-11.41	0.264	741	0.0284	0.107	No, M>Mu
SLU 19	6.83	-5.15	-0.0124	335	0.0835	6.714	Si
SLU 19	7.63	-6.71	0.1889	0	0	0	No, e>l/2
SLU 40	6.83	-6.12	-0.0098	398	0.0862	8.822	Si
SLU 40	7.63	-7.99	0.221	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	6.83	-0.77	-0.2611	0	0	0	No, e>l/2
SLV 13	7.63	-7.61	0.4199	0	0	0	No, e>l/2
SLV 9	6.83	-0.82	-0.1725	0	0	0	No, e>l/2
SLV 9	7.63	-3.32	0.2936	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	6.83	-7.25	0.2046	0	0	0	No, $e \geq l/2$
SLV 2	7.63	-2.69	-0.061	174	0.0633	1.038	Si
SLV 10	6.83	-0.82	-0.1725	0	0	0	No, $e \geq l/2$
SLV 10	7.63	-3.32	0.2936	0	0	0	No, $e \geq l/2$
SLV 3	6.83	-9.15	0.2684	0	0	0	No, $e \geq l/2$
SLV 3	7.63	-4.89	-0.0971	317	0.0995	1.025	Si
SLV 4	6.83	-9.15	0.2684	0	0	0	No, $e \geq l/2$
SLV 4	7.63	-4.89	-0.0971	317	0.0995	1.025	Si
SLV 5	6.83	-2.77	-0.0328	180	0.0649	1.981	Si
SLV 5	7.63	-1.84	0.1494	0	0	0	No, $e \geq l/2$
SLD 16	6.83	-3.97	-0.0835	258	0.0861	1.03	Si
SLD 16	7.63	-7.79	0.2582	0	0	0	No, $e \geq l/2$
SLV 14	6.83	-0.77	-0.2611	0	0	0	No, $e \geq l/2$
SLV 14	7.63	-7.61	0.4199	0	0	0	No, $e \geq l/2$
SLV 6	6.83	-2.77	-0.0328	180	0.0649	1.981	Si
SLV 6	7.63	-1.84	0.1494	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	6.83	-5.89	-0.1	-0.0057		382	0.055	107	1.64			16.69	Si
SLU 31	7.63	-7.63	-1.43	0.2075		0	0	56	0			0	No, $V_u < V$
SLU 81	6.83	-7.21	-0.12	-0.0072		468	0.055	108	1.67			13.62	Si
SLU 81	7.63	-9.31	-1.74	0.2527		0	0	56	0			0	No, $V_u < V$
SLU 39	6.83	-6.18	-0.12	-0.0082		401	0.055	108	1.67			13.93	Si
SLU 39	7.63	-8.05	-1.52	0.2207		0	0	56	0			0	No, $V_u < V$
SLU 52	6.83	-5.95	-0.11	-0.0073		386	0.055	107	1.65			14.91	Si
SLU 52	7.63	-7.61	-1.43	0.2075		0	0	56	0			0	No, $V_u < V$
SLU 40	6.83	-6.12	-0.13	-0.0098		398	0.055	108	1.67			12.78	Si
SLU 40	7.63	-7.99	-1.52	0.221		0	0	56	0			0	No, $V_u < V$
SLU 10	6.83	-4.92	-0.11	-0.0083		319	0.055	98	1.51			14	Si
SLU 10	7.63	-6.35	-1.21	0.1755		0	0	56	0			0	No, $V_u < V$
SLU 60	6.83	-6.24	-0.13	-0.0099		405	0.055	108	1.67			12.63	Si
SLU 60	7.63	-8.03	-1.52	0.2206		0	0	56	0			0	No, $V_u < V$
SLU 18	6.83	-5.21	-0.13	-0.0109		338	0.055	101	1.55			11.98	Si
SLU 18	7.63	-6.77	-1.3	0.1887		0	0	56	0			0	No, $V_u < V$
SLU 19	6.83	-5.15	-0.14	-0.0124		335	0.055	100	1.54			11	Si
SLU 19	7.63	-6.71	-1.3	0.1889		0	0	56	0			0	No, $V_u < V$
SLU 73	6.83	-6.92	-0.1	-0.0047		449	0.055	108	1.67			16.53	Si
SLU 73	7.63	-8.89	-1.65	0.2395		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	6.83	-9.15	1.71	0.2684		0	0	83	0			0	No, $V_u < V$
SLV 4	7.63	-4.89	0.4	-0.0971		763	0.0229	163	1.04			2.61	Si
SLV 5	6.83	-2.77	-0.35	-0.0328		210	0.047	125	1.65			4.7	Si
SLV 5	7.63	-1.84	-0.12	0.1494		0	0	83	0			0	No, $V_u < V$
SLV 6	6.83	-2.77	-0.35	-0.0328		210	0.047	125	1.65			4.7	Si
SLV 6	7.63	-1.84	-0.12	0.1494		0	0	83	0			0	No, $V_u < V$
SLV 13	6.83	-0.77	-1.75	-0.2611		0	0	83	0			0	No, $V_u < V$
SLV 13	7.63	-7.61	-2.62	0.4199		0	0	83	0			0	No, $V_u < V$
SLV 14	6.83	-0.77	-1.75	-0.2611		0	0	83	0			0	No, $V_u < V$
SLV 14	7.63	-7.61	-2.62	0.4199		0	0	83	0			0	No, $V_u < V$
SLV 9	6.83	-0.82	-1.25	-0.1725		0	0	83	0			0	No, $V_u < V$
SLV 9	7.63	-3.32	-1.11	0.2936		0	0	83	0			0	No, $V_u < V$
SLV 3	6.83	-9.15	1.71	0.2684		0	0	83	0			0	No, $V_u < V$
SLV 3	7.63	-4.89	0.4	-0.0971		763	0.0229	163	1.04			2.61	Si
SLV 10	6.83	-0.82	-1.25	-0.1725		0	0	83	0			0	No, $V_u < V$
SLV 10	7.63	-3.32	-1.11	0.2936		0	0	83	0			0	No, $V_u < V$
SLD 16	6.83	-3.97	-0.57	-0.0835		734	0.0193	163	0.88			1.53	Si
SLD 16	7.63	-7.79	-1.9	0.2582		0	0	83	0			0	No, $V_u < V$
SLV 2	6.83	-7.25	1.24	0.2046		0	0	83	0			0	No, $V_u < V$
SLV 2	7.63	-2.69	0.7	-0.061		669	0.0143	163	0.65			0.94	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.38	0	-0.23	0.0573	0	0	No, $e \geq t/2$
SLV 13	1438	0.38	0	-0.23	0.0573	0	0	No, $e \geq t/2$
SLV 16	1438	0.38	50	-0.77	0.0573	0.1038	1.81	Si
SLV 15	1438	0.38	50	-0.77	0.0573	0.1038	1.81	Si
SLV 10	1438	0.38	51	-0.78	0.0573	0.1045	1.82	Si
SLV 9	1438	0.38	51	-0.78	0.0573	0.1045	1.82	Si
SLV 5	1438	0.38	116	-1.79	0.0573	0.2264	3.95	Si
SLV 6	1438	0.38	116	-1.79	0.0573	0.2264	3.95	Si
SLV 12	1438	0.38	168	-2.58	0.0573	0.3117	5.44	Si
SLV 11	1438	0.38	168	-2.58	0.0573	0.3117	5.44	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 2	-1.49	-3.85	-0.22	0	0.23	0.915	0	10.4105	No
SLV 4	-2.04	-4.74	-0.25	0	0.286	0.928	0	10.4105	No
SLV 9	-0.68	-1.53	0.12	0	0.15	0.891	0	10.83091	No
SLV 15	-1.79	-2.79	0.22	0	0.26	0.922	0	10.4105	No
SLV 3	-2.04	-4.74	-0.25	0	0.286	0.928	0	10.4105	No
SLV 14	-1.24	-1.89	0.25	0	0.205	0.908	0	10.4105	No
SLV 1	-1.49	-3.85	-0.22	0	0.23	0.915	0	10.4105	No
SLV 10	-0.68	-1.53	0.12	0	0.15	0.891	0	10.83091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-1.24	-1.89	0.25	0	0.205	0.908	0	10.4105	No
SLV 16	-1.79	-2.79	0.22	0	0.26	0.922	0	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 10	No
V_SLU	0	SLU 10	No
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 13	No
R_SLV	0	SLV 1	No

## Maschio 129

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-5.158	6.506	-5.158	6.661	L4	L5	0.155	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 84	6.83	-29.08	-0.2931	670	0.4	1.365	Si
SLU 84	7.63	-28.24	0.056	651	0.4402	7.857	Si
SLU 80	6.83	-31.78	-0.295	732	0.2488	0.843	No, M>Mu
SLU 80	7.63	-30.95	0.0391	713	0.2989	7.646	Si
SLU 79	6.83	-31.96	-0.2948	736	0.2375	0.806	No, M>Mu
SLU 79	7.63	-31.13	0.0376	717	0.2883	7.673	Si
SLU 72	6.83	-29.79	-0.2617	686	0.3634	1.388	Si
SLU 72	7.63	-28.95	0.0227	667	0.4062	17.889	Si
SLU 83	6.83	-29.26	-0.2929	674	0.3909	1.335	Si
SLU 83	7.63	-28.42	0.0545	655	0.4318	7.921	Si
SLU 77	6.83	-31.73	-0.2971	731	0.2521	0.849	No, M>Mu
SLU 77	7.63	-30.89	0.0411	712	0.302	7.352	Si
SLU 70	6.83	-29.55	-0.2641	681	0.3757	1.423	Si
SLU 70	7.63	-28.72	0.0262	662	0.4177	15.932	Si
SLU 71	6.83	-29.97	-0.2615	691	0.3537	1.353	Si
SLU 71	7.63	-29.13	0.0212	671	0.3972	18.744	Si
SLU 69	6.83	-29.73	-0.2639	685	0.3663	1.388	Si
SLU 69	7.63	-28.9	0.0247	666	0.4089	16.553	Si
SLU 78	6.83	-31.55	-0.2973	727	0.2632	0.885	No, M>Mu
SLU 78	7.63	-30.71	0.0426	708	0.3124	7.335	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 1	6.83	-12.66	0.3104	292	0.7471	2.407	Si
SLV 1	7.63	-12.36	-0.4257	285	0.7348	1.726	Si
SLD 16	6.83	-19.41	-0.3899	447	0.9537	2.446	Si
SLD 16	7.63	-18.62	0.2349	429	0.9364	3.986	Si
SLV 14	6.83	-18.3	-0.6271	422	0.9289	1.481	Si
SLV 14	7.63	-17.26	0.5509	398	0.9024	1.638	Si
SLD 15	6.83	-19.41	-0.3899	447	0.9537	2.446	Si
SLD 15	7.63	-18.62	0.2349	429	0.9364	3.986	Si
SLV 16	6.83	-22.08	-0.6666	509	0.9987	1.498	Si
SLV 16	7.63	-21.1	0.495	486	0.9846	1.989	Si
SLV 4	6.83	-16.44	0.271	379	0.8792	3.245	Si
SLV 4	7.63	-16.2	-0.4815	373	0.872	1.811	Si
SLV 3	6.83	-16.44	0.271	379	0.8792	3.245	Si
SLV 3	7.63	-16.2	-0.4815	373	0.872	1.811	Si
SLV 2	6.83	-12.66	0.3104	292	0.7471	2.407	Si
SLV 2	7.63	-12.36	-0.4257	285	0.7348	1.726	Si
SLV 13	6.83	-18.3	-0.6271	422	0.9289	1.481	Si
SLV 13	7.63	-17.26	0.5509	398	0.9024	1.638	Si
SLV 15	6.83	-22.08	-0.6666	509	0.9987	1.498	Si
SLV 15	7.63	-21.1	0.495	486	0.9846	1.989	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	6.83	-29.26	-0.43	-0.2929		674	0.155	108	4.7			10.83	Si
SLU 83	7.63	-28.42	-0.43	0.0545		655	0.155	108	4.7			10.83	Si
SLU 82	6.83	-25.52	-0.43	-0.2769		588	0.155	108	4.7			10.97	Si
SLU 82	7.63	-24.68	-0.43	0.066		569	0.155	108	4.7			10.97	Si
SLU 81	6.83	-25.7	-0.43	-0.2767		592	0.155	108	4.7			11.03	Si
SLU 81	7.63	-24.86	-0.43	0.0644		573	0.155	108	4.7			11.03	Si
SLU 78	6.83	-31.55	-0.42	-0.2973		727	0.155	108	4.7			11.06	Si
SLU 78	7.63	-30.71	-0.42	0.0426		708	0.155	108	4.7			11.06	Si
SLU 74	6.83	-28.17	-0.41	-0.281		649	0.155	108	4.7			11.33	Si
SLU 74	7.63	-27.33	-0.41	0.051		630	0.155	108	4.7			11.33	Si
SLU 75	6.83	-27.99	-0.42	-0.2812		645	0.155	108	4.7			11.27	Si
SLU 75	7.63	-27.15	-0.42	0.0525		626	0.155	108	4.7			11.27	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	6.83	-31.73	-0.42	-0.2971		731	0.155	108	4.7			11.12	Si
SLU 77	7.63	-30.89	-0.42	-0.0411		712	0.155	108	4.7			11.12	Si
SLU 79	6.83	-31.96	-0.42	-0.2948		736	0.155	108	4.7			11.32	Si
SLU 79	7.63	-31.13	-0.42	0.0376		717	0.155	108	4.7			11.32	Si
SLU 84	6.83	-29.08	-0.44	-0.2931		670	0.155	108	4.7			10.77	Si
SLU 84	7.63	-28.24	-0.44	0.056		651	0.155	108	4.7			10.77	Si
SLU 80	6.83	-31.78	-0.42	-0.295		732	0.155	108	4.7			11.26	Si
SLU 80	7.63	-30.95	-0.42	0.0391		713	0.155	108	4.7			11.26	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	6.83	-12.66	0.74	0.3104		292	0.155	142	6.15			8.36	Si
SLV 1	7.63	-12.36	0.5	-0.4257		342	0.1292	152	5.49			10.97	Si
SLV 14	6.83	-18.3	-1.06	-0.6271		504	0.1297	163	5.9			5.54	Si
SLV 14	7.63	-17.26	-1.08	0.5509		451	0.1368	163	6.22			5.79	Si
SLV 11	6.83	-24.52	-0.87	-0.3844		565	0.155	163	7.05			8.07	Si
SLV 11	7.63	-23.86	-0.43	0.0881		550	0.155	163	7.05			16.36	Si
SLV 2	6.83	-12.66	0.74	0.3104		292	0.155	142	6.15			8.36	Si
SLV 2	7.63	-12.36	0.5	-0.4257		342	0.1292	152	5.49			10.97	Si
SLD 15	6.83	-19.41	-0.7	-0.3899		447	0.155	163	7.05			10.06	Si
SLD 15	7.63	-18.62	-0.6	0.2349		429	0.155	163	7.05			11.67	Si
SLV 12	6.83	-24.52	-0.87	-0.3844		565	0.155	163	7.05			8.07	Si
SLV 12	7.63	-23.86	-0.43	0.0881		550	0.155	163	7.05			16.36	Si
SLV 16	6.83	-22.08	-1.27	-0.6666		556	0.1419	163	6.46			5.1	Si
SLV 16	7.63	-21.1	-1.03	0.495		486	0.155	163	7.05			6.83	Si
SLV 15	6.83	-22.08	-1.27	-0.6666		556	0.1419	163	6.46			5.1	Si
SLV 15	7.63	-21.1	-1.03	0.495		486	0.155	163	7.05			6.83	Si
SLV 13	6.83	-18.3	-1.06	-0.6271		504	0.1297	163	5.9			5.54	Si
SLV 13	7.63	-17.26	-1.08	0.5509		451	0.1368	163	6.22			5.79	Si
SLD 16	6.83	-19.41	-0.7	-0.3899		447	0.155	163	7.05			10.06	Si
SLD 16	7.63	-18.62	-0.6	0.2349		429	0.155	163	7.05			11.67	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.38	138	-6	0.1615	0.7448	4.61	Si
SLV 10	1438	0.38	138	-6	0.1615	0.7448	4.61	Si
SLV 5	1438	0.38	161	-7	0.1615	0.8503	5.26	Si
SLV 6	1438	0.38	161	-7	0.1615	0.8503	5.26	Si
SLV 13	1438	0.38	172	-7.47	0.1615	0.8982	5.56	Si
SLV 14	1438	0.38	172	-7.47	0.1615	0.8982	5.56	Si
SLV 16	1438	0.38	224	-9.72	0.1615	1.1118	6.88	Si
SLV 15	1438	0.38	224	-9.72	0.1615	1.1118	6.88	Si
SLV 2	1438	0.38	249	-10.8	0.1615	1.2037	7.45	Si
SLV 1	1438	0.38	249	-10.8	0.1615	1.2037	7.45	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-15.26	2.87	-0.52	0	0	0	0	10.83091	No, Trazione
SLV 9	-29.06	17.64	-3.88	0	0	0	0	10.83091	No, Trazione
SLV 4	7.43	-27.13	6.34	0	0	0	0	10.4105	No, Trazione
SLV 2	4.39	-21.23	4.98	0	0	0	0	10.4105	No, Trazione
SLV 8	-5.12	-16.78	4	0	0.74	0.923	0	10.83091	No
SLV 6	-15.26	2.87	-0.52	0	0	0	0	10.83091	No, Trazione
SLV 10	-29.06	17.64	-3.88	0	0	0	0	10.83091	No, Trazione
SLV 3	7.43	-27.13	6.34	0	0	0	0	10.4105	No, Trazione
SLV 1	4.39	-21.23	4.98	0	0	0	0	10.4105	No, Trazione
SLV 7	-5.12	-16.78	4	0	0.74	0.923	0	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.806	SLU 79	No
V_SLU	10.775	SLU 84	Si
PF_SLV	1.481	SLV 13	Si
V_SLV	5.095	SLV 15	Si
PFFP_SLV	4.611	SLV 9	Si
R_SLV	0	SLV 16	No

## Maschio 130

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-6.008	-3.359	-6.513	-3.359	L4	L5	0.505	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	6.83	-55.62	-0.4696	393	7.2623	15.466	Si
SLU 76	7.63	-49.43	-3.0899	350	7.1248	2.306	Si
SLU 84	6.83	-59.3	-0.5624	419	7.2644	12.917	Si
SLU 84	7.63	-53.21	-3.2361	376	7.2288	2.234	Si
SLU 78	6.83	-59.06	-0.6145	418	7.2661	11.824	Si
SLU 78	7.63	-52.83	-3.1452	374	7.2212	2.296	Si
SLU 74	6.83	-59.28	-0.6785	419	7.2646	10.708	Si
SLU 74	7.63	-53.22	-3.1169	376	7.229	2.319	Si
SLU 82	6.83	-57.7	-0.5011	408	7.2708	14.511	Si
SLU 82	7.63	-51.65	-3.2225	365	7.1935	2.232	Si
SLU 73	6.83	-54.02	-0.4083	382	7.2428	17.741	Si
SLU 73	7.63	-47.87	-3.0764	339	7.0635	2.296	Si
SLU 77	6.83	-60.88	-0.7398	431	7.2471	9.796	Si
SLU 77	7.63	-54.78	-3.1304	387	7.2536	2.317	Si
SLU 75	6.83	-57.46	-0.5532	406	7.2708	13.143	Si
SLU 75	7.63	-51.27	-3.1317	363	7.1833	2.294	Si
SLU 81	6.83	-59.52	-0.6263	421	7.2627	11.595	Si
SLU 81	7.63	-53.6	-3.2077	379	7.236	2.256	Si
SLU 83	6.83	-61.12	-0.6876	432	7.2435	10.534	Si
SLU 83	7.63	-55.16	-3.2213	390	7.2579	2.253	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 4	6.83	-28.83	1.8189	204	6.0656	3.335	Si
SLD 4	7.63	-32.81	-4.075	232	6.7109	1.647	Si
SLV 8	6.83	-20.39	1.9558	144	4.5414	2.322	Si
SLV 8	7.63	-40.69	-4.3963	288	7.8549	1.787	Si
SLV 1	6.83	-21.94	4.2412	155	4.8369	1.14	Si
SLV 1	7.63	-24.98	-6.1084	177	5.3963	0.883	No, M>Mu
SLV 7	6.83	-20.39	1.9558	144	4.5414	2.322	Si
SLV 7	7.63	-40.69	-4.3963	288	7.8549	1.787	Si
SLV 2	6.83	-21.94	4.2412	155	4.8369	1.14	Si
SLV 2	7.63	-24.98	-6.1084	177	5.3963	0.883	No, M>Mu
SLD 3	6.83	-28.83	1.8189	204	6.0656	3.335	Si
SLD 3	7.63	-32.81	-4.075	232	6.7109	1.647	Si
SLV 4	6.83	-14.16	4.7932	0	0	0	No, e>l/2
SLV 4	7.63	-29.64	-6.7103	210	6.1995	0.924	No, M>Mu
SLD 2	6.83	-32.03	1.5637	226	6.5875	4.213	Si
SLD 2	7.63	-30.91	-3.8429	219	6.4083	1.668	Si
SLD 1	6.83	-32.03	1.5637	226	6.5875	4.213	Si
SLD 1	7.63	-30.91	-3.8429	219	6.4083	1.668	Si
SLV 3	6.83	-14.16	4.7932	0	0	0	No, e>l/2
SLV 3	7.63	-29.64	-6.7103	210	6.1995	0.924	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	6.83	-59.06	-0.33	-0.6145		418	0.505	108	15.32			45.86	Si
SLU 78	7.63	-52.83	2.29	-3.1452		374	0.505	105	14.9			6.49	Si
SLU 35	6.83	-51.7	-0.75	-0.6202		366	0.505	104	14.75			19.64	Si
SLU 35	7.63	-46.94	2.18	-2.6704		332	0.505	100	14.11			6.47	Si
SLU 79	6.83	-60.26	-0.9	-0.7397		426	0.505	108	15.32			16.98	Si
SLU 79	7.63	-54.24	2.45	-3.0788		384	0.505	107	15.09			6.16	Si
SLU 77	6.83	-60.88	-0.83	-0.7398		431	0.505	108	15.32			18.46	Si
SLU 77	7.63	-54.78	2.42	-3.1304		387	0.505	107	15.16			6.27	Si
SLU 81	6.83	-59.52	-0.29	-0.6263		421	0.505	108	15.32			53.49	Si
SLU 81	7.63	-53.6	2.28	-3.2077		379	0.505	106	15			6.58	Si
SLU 37	6.83	-51.08	-0.82	-0.6201		361	0.505	104	14.67			17.82	Si
SLU 37	7.63	-46.4	2.21	-2.6188		328	0.505	99	14.04			6.34	Si
SLU 41	6.83	-51.94	-0.51	-0.5681		367	0.505	105	14.78			29.08	Si
SLU 41	7.63	-47.32	2.22	-2.7613		335	0.505	100	14.17			6.38	Si
SLU 83	6.83	-61.12	-0.59	-0.6876		432	0.505	108	15.32			26.08	Si
SLU 83	7.63	-55.16	2.46	-3.2213		390	0.505	108	15.21			6.19	Si
SLU 80	6.83	-58.43	-0.41	-0.6144		413	0.505	108	15.32			37.71	Si
SLU 80	7.63	-52.29	2.33	-3.0936		370	0.505	105	14.83			6.37	Si
SLU 84	6.83	-59.3	-0.09	-0.5624		419	0.505	108	15.32			167.58	Si
SLU 84	7.63	-53.21	2.33	-3.2361		376	0.505	106	14.95			6.41	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	6.83	-57.89	-17.51	-5.1536		422	0.4904	163	22.32			1.27	Si
SLV 15	7.63	-45.72	0.16	1.9079		323	0.505	148	20.93			132.61	Si
SLV 3	6.83	-14.16	18.78	4.7932		0	0	83	0			0	No, Vu<V
SLV 3	7.63	-29.64	5.31	-6.7103		1353	0.0782	163	3.56			0.67	No, Vu<V
SLV 16	6.83	-57.89	-17.51	-5.1536		422	0.4904	163	22.32			1.27	Si
SLV 16	7.63	-45.72	0.16	1.9079		323	0.505	148	20.93			132.61	Si
SLV 14	6.83	-65.67	-19.27	-5.7056		472	0.4969	163	22.61			1.17	Si
SLV 14	7.63	-41.07	-2.62	2.5098		290	0.505	141	20			7.64	Si
SLV 7	6.83	-20.39	8.14	1.9558		155	0.4698	114	15.04			1.85	Si
SLV 7	7.63	-40.69	6.74	-4.3963		335	0.4334	150	18.25			2.71	Si
SLV 13	6.83	-65.67	-19.27	-5.7056		472	0.4969	163	22.61			1.17	Si
SLV 13	7.63	-41.07	-2.62	2.5098		290	0.505	141	20			7.64	Si
SLV 2	6.83	-21.94	17.01	4.2412		441	0.1777	163	8.08			0.48	No, Vu<V
SLV 2	7.63	-24.98	2.53	-6.1084		3711	0.024	163	1.09			0.43	No, Vu<V
SLV 4	6.83	-14.16	18.78	4.7932		0	0	83	0			0	No, Vu<V
SLV 4	7.63	-29.64	5.31	-6.7103		1353	0.0782	163	3.56			0.67	No, Vu<V
SLV 1	6.83	-21.94	17.01	4.2412		441	0.1777	163	8.08			0.48	No, Vu<V
SLV 1	7.63	-24.98	2.53	-6.1084		3711	0.024	163	1.09			0.43	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scor.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	6.83	-20.39	8.14	1.9558		155	0.4698	114	15.04			1.85	Si
SLV 8	7.63	-40.69	6.74	-4.3963		335	0.4334	150	18.25			2.71	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.38	90	-12.73	0.5143	1.6503	3.21	Si
SLV 8	1438	0.38	90	-12.73	0.5143	1.6503	3.21	Si
SLV 4	1438	0.38	124	-17.57	0.5143	2.21	4.3	Si
SLV 3	1438	0.38	124	-17.57	0.5143	2.21	4.3	Si
SLV 12	1438	0.38	126	-17.84	0.5143	2.2394	4.35	Si
SLV 11	1438	0.38	126	-17.84	0.5143	2.2394	4.35	Si
SLV 1	1438	0.38	190	-26.84	0.5143	3.1739	6.17	Si
SLV 2	1438	0.38	190	-26.84	0.5143	3.1739	6.17	Si
SLV 16	1438	0.38	245	-34.61	0.5143	3.875	7.53	Si
SLV 15	1438	0.38	245	-34.61	0.5143	3.875	7.53	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-18.88	-11.73	-0.14	0.042	2.634	0.928	0.65072	10.83091	No
SLV 11	-18.88	-11.73	-0.14	0.042	2.634	0.928	0.65072	10.83091	No
SLV 15	-24.53	-23.77	-0.12	0.042	3.205	0.939	0.64695	10.4105	No
SLV 16	-24.53	-23.77	-0.12	0.042	3.205	0.939	0.64695	10.4105	No
SLV 5	-15.97	-40.12	0.11	0.043	2.341	0.921	0.68343	10.83091	No
SLV 6	-15.97	-40.12	0.11	0.043	2.341	0.921	0.68343	10.83091	No
SLV 9	-20.37	-41.51	0.06	0.044	2.784	0.931	0.69444	10.83091	No
SLV 10	-20.37	-41.51	0.06	0.044	2.784	0.931	0.69444	10.83091	No
SLV 7	-14.48	-10.34	-0.09	0.044	2.192	0.917	0.70237	10.83091	No
SLV 8	-14.48	-10.34	-0.09	0.044	2.192	0.917	0.70237	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.232	SLU 82	Si
V_SLU	6.155	SLU 79	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	3.209	SLV 7	Si
R_SLV	0.06	SLV 11	No

## Maschio 131

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-3.183	-3.359	-5.508	-3.359	L4	L5	2.325	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	6.83	-191.02	22.3652	293	142.0713	6.352	Si
SLU 77	7.63	-169.19	24.0134	260	133.9318	5.577	Si
SLU 76	6.83	-172.1	23.6107	264	135.1388	5.724	Si
SLU 76	7.63	-152.48	23.1505	234	126.2883	5.455	Si
SLU 81	6.83	-188.4	22.7704	289	141.2045	6.201	Si
SLU 81	7.63	-166.99	23.9427	257	132.9967	5.555	Si
SLU 73	6.83	-168.2	23.4183	258	133.5122	5.701	Si
SLU 73	7.63	-148.96	22.8243	229	124.5225	5.456	Si
SLU 82	6.83	-181.01	23.7598	278	138.5997	5.833	Si
SLU 82	7.63	-160.65	23.8554	247	130.1783	5.457	Si
SLU 84	6.83	-184.92	23.9522	284	140.0068	5.845	Si
SLU 84	7.63	-164.17	24.1816	252	131.7637	5.449	Si
SLU 80	6.83	-180.93	23.1436	278	138.5697	5.987	Si
SLU 80	7.63	-160.23	23.5349	246	129.9846	5.523	Si
SLU 83	6.83	-192.31	22.9628	295	142.4852	6.205	Si
SLU 83	7.63	-170.51	24.2689	262	134.4842	5.541	Si
SLU 75	6.83	-179.73	23.1621	276	138.1222	5.963	Si
SLU 75	7.63	-159.33	23.5999	245	129.5686	5.49	Si
SLU 78	6.83	-183.64	23.3546	282	139.5514	5.975	Si
SLU 78	7.63	-162.85	23.9261	250	131.1744	5.482	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	6.83	-135.75	6.226	209	130.8811	21.022	Si
SLV 14	7.63	-131.05	50.6838	201	127.2433	2.511	Si
SLV 16	6.83	-102.34	6.9834	157	103.6662	14.845	Si
SLV 16	7.63	-102.93	45.7108	158	104.1709	2.279	Si
SLV 8	6.83	-72.42	19.0657	111	76.5259	4.014	Si
SLV 8	7.63	-61.82	-1.8319	95	66.2761	36.179	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	6.83	-72.42	19.0657	111	76.5259	4.014	Si
SLV 7	7.63	-61.82	-1.8319	95	66.2761	36.179	Si
SLD 16	6.83	-115.94	11.7802	178	115.1331	9.773	Si
SLD 16	7.63	-107.37	28.94	165	107.9693	3.731	Si
SLD 13	6.83	-129.89	11.3427	200	126.3402	11.138	Si
SLD 13	7.63	-119.22	31.0445	183	117.8232	3.795	Si
SLD 15	6.83	-115.94	11.7802	178	115.1331	9.773	Si
SLD 15	7.63	-107.37	28.94	165	107.9693	3.731	Si
SLV 15	6.83	-102.34	6.9834	157	103.6662	14.845	Si
SLV 15	7.63	-102.93	45.7108	158	104.1709	2.279	Si
SLD 14	6.83	-129.89	11.3427	200	126.3402	11.138	Si
SLD 14	7.63	-119.22	31.0445	183	117.8232	3.795	Si
SLV 13	6.83	-135.75	6.226	209	130.8811	21.022	Si
SLV 13	7.63	-131.05	50.6838	201	127.2433	2.511	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	6.83	-181.01	9.8	23.7598		278	2.325	93	60.3			6.16	Si
SLU 82	7.63	-160.65	9.78	23.8554		247	2.325	88	57.59			5.89	Si
SLU 80	6.83	-180.93	9.94	23.1436		278	2.325	93	60.29			6.07	Si
SLU 80	7.63	-160.23	9.59	23.5349		246	2.325	88	57.53			6	Si
SLU 78	6.83	-183.64	9.81	23.3546		282	2.325	93	60.65			6.18	Si
SLU 78	7.63	-162.85	9.56	23.9261		250	2.325	89	57.88			6.05	Si
SLU 84	6.83	-184.92	10.17	23.9522		284	2.325	93	60.82			5.98	Si
SLU 84	7.63	-164.17	9.99	24.1816		252	2.325	89	58.06			5.81	Si
SLU 63	6.83	-167.04	9.48	22.1447		257	2.325	90	58.44			6.17	Si
SLU 63	7.63	-147.32	9.16	21.9859		226	2.325	86	55.81			6.09	Si
SLU 83	6.83	-192.31	10.28	22.9628		295	2.325	95	61.81			6.01	Si
SLU 83	7.63	-170.51	9.74	24.2689		262	2.325	90	58.9			6.05	Si
SLU 73	6.83	-168.2	9.11	23.4183		258	2.325	90	58.59			6.43	Si
SLU 73	7.63	-148.96	9.34	22.8243		229	2.325	86	56.03			6	Si
SLU 79	6.83	-188.32	10.04	22.1543		289	2.325	94	61.28			6.1	Si
SLU 79	7.63	-166.57	9.34	23.6222		256	2.325	90	58.38			6.25	Si
SLU 76	6.83	-172.1	9.49	23.6107		264	2.325	91	59.11			6.23	Si
SLU 76	7.63	-152.48	9.55	23.1505		234	2.325	87	56.5			5.91	Si
SLU 81	6.83	-188.4	9.9	22.7704		289	2.325	94	61.29			6.19	Si
SLU 81	7.63	-166.99	9.53	23.9427		257	2.325	90	58.43			6.13	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	6.83	-149.69	69.79	23.4548		230	2.325	129	84.19			1.21	Si
SLV 1	7.63	-118.26	55.39	-13.5329		182	2.325	120	77.9			1.41	Si
SLV 3	6.83	-116.28	86.23	24.2122		179	2.325	119	77.51			0.9	No, Vu < V
SLV 3	7.63	-90.15	70.59	-18.5059		138	2.325	111	72.28			1.02	Si
SLV 7	6.83	-72.42	55.22	19.0657		111	2.325	106	68.73			1.24	Si
SLV 7	7.63	-61.82	48.42	-1.8319		95	2.325	102	66.61			1.38	Si
SLV 8	6.83	-72.42	55.22	19.0657		111	2.325	106	68.73			1.24	Si
SLV 8	7.63	-61.82	48.42	-1.8319		95	2.325	102	66.61			1.38	Si
SLV 2	6.83	-149.69	69.79	23.4548		230	2.325	129	84.19			1.21	Si
SLV 2	7.63	-118.26	55.39	-13.5329		182	2.325	120	77.9			1.41	Si
SLV 15	6.83	-102.34	-57.16	6.9834		157	2.325	115	74.72			1.31	Si
SLV 15	7.63	-102.93	-43.41	45.7108		171	2.1552	117	70.87			1.63	Si
SLV 16	6.83	-102.34	-57.16	6.9834		157	2.325	115	74.72			1.31	Si
SLV 16	7.63	-102.93	-43.41	45.7108		171	2.1552	117	70.87			1.63	Si
SLV 4	6.83	-116.28	86.23	24.2122		179	2.325	119	77.51			0.9	No, Vu < V
SLV 4	7.63	-90.15	70.59	-18.5059		138	2.325	111	72.28			1.02	Si
SLV 13	6.83	-135.75	-73.6	6.226		209	2.325	125	81.4			1.11	Si
SLV 13	7.63	-131.05	-58.61	50.6838		201	2.325	124	80.46			1.37	Si
SLV 14	6.83	-135.75	-73.6	6.226		209	2.325	125	81.4			1.11	Si
SLV 14	7.63	-131.05	-58.61	50.6838		201	2.325	124	80.46			1.37	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.38	97	-63.42	2.368	8.171	3.45	Si
SLV 8	1438	0.38	97	-63.42	2.368	8.171	3.45	Si
SLV 11	1438	0.38	101	-65.88	2.368	8.4599	3.57	Si
SLV 12	1438	0.38	101	-65.88	2.368	8.4599	3.57	Si
SLV 3	1438	0.38	151	-98.16	2.368	12.0462	5.09	Si
SLV 4	1438	0.38	151	-98.16	2.368	12.0462	5.09	Si
SLV 16	1438	0.38	163	-106.37	2.368	12.9005	5.45	Si
SLV 15	1438	0.38	163	-106.37	2.368	12.9005	5.45	Si
SLV 2	1438	0.38	200	-130.4	2.368	15.2628	6.45	Si
SLV 1	1438	0.38	200	-130.4	2.368	15.2628	6.45	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-131.56	-167.88	0.63	0.041	16.64	0.945	0.63093	10.83091	No
SLV 9	-131.56	-167.88	0.63	0.041	16.64	0.945	0.63093	10.83091	No
SLV 5	-128.74	-162.65	0.46	0.042	16.355	0.944	0.64972	10.83091	No
SLV 6	-128.74	-162.65	0.46	0.042	16.355	0.944	0.64972	10.83091	No
SLV 8	-60.59	-39.06	-0.62	0.042	9.483	0.913	0.6717	10.83091	No
SLV 7	-60.59	-39.06	-0.62	0.042	9.483	0.913	0.6717	10.83091	No
SLV 14	-110.99	-130.72	0.46	0.043	14.557	0.938	0.65908	10.4105	No
SLV 13	-110.99	-130.72	0.46	0.043	14.557	0.938	0.65908	10.4105	No
SLV 12	-63.41	-44.29	-0.45	0.044	9.764	0.915	0.70186	10.83091	No
SLV 11	-63.41	-44.29	-0.45	0.044	9.764	0.915	0.70186	10.83091	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.449	SLU 84	Si
V_SLU	5.811	SLU 84	Si
PF_SLV	2.279	SLV 15	Si
V_SLV	0.899	SLV 3	No
PFFP_SLV	3.451	SLV 7	Si
R_SLV	0.058	SLV 9	No

## Maschio 132

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	-3.359	-2.283	-3.359	L4	L5	2.16	0.28	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	5.73	-152.81	-21.3711	253	113.8446	5.327	Si
SLU 73	7.53	-179.01	18.5732	296	123.0832	6.627	Si
SLU 26	5.73	-118.26	-17.6103	196	97.06	5.512	Si
SLU 26	7.53	-138.03	13.5394	228	107.306	7.925	Si
SLU 10	5.73	-112.47	-17.4306	186	93.7378	5.378	Si
SLU 10	7.53	-132.72	13.7565	219	104.7211	7.612	Si
SLU 76	5.73	-156.82	-21.3049	259	115.4543	5.419	Si
SLU 76	7.53	-183.22	18.5548	303	124.2874	6.698	Si
SLU 2	5.73	-100.23	-15.7293	166	86.2261	5.482	Si
SLU 2	7.53	-114.67	11.164	190	95.0204	8.511	Si
SLU 65	5.73	-140.57	-19.6699	232	108.4975	5.516	Si
SLU 65	7.53	-160.97	15.9806	266	117.0445	7.324	Si
SLU 34	5.73	-130.5	-19.3115	216	103.6044	5.365	Si
SLU 34	7.53	-156.07	16.1319	258	115.1593	7.139	Si
SLU 13	5.73	-116.48	-17.3644	193	96.057	5.532	Si
SLU 13	7.53	-136.93	13.7381	226	106.7801	7.773	Si
SLU 23	5.73	-114.24	-17.6765	189	94.772	5.361	Si
SLU 23	7.53	-133.82	13.5578	221	105.2674	7.764	Si
SLU 31	5.73	-126.48	-19.3778	209	101.5317	5.24	Si
SLU 31	7.53	-151.86	16.1504	251	113.4538	7.025	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	5.73	-42.26	-20.7293	70	43.0265	2.076	Si
SLV 11	7.53	-80.1	18.122	132	77.1347	4.256	Si
SLV 16	5.73	-105.17	-38.0614	174	97.4209	2.56	Si
SLV 16	7.53	-149.72	40.3086	248	128.9388	3.199	Si
SLV 15	5.73	-105.17	-38.0614	174	97.4209	2.56	Si
SLV 15	7.53	-149.72	40.3086	248	128.9388	3.199	Si
SLV 3	5.73	-73.06	16.6728	121	71.1036	4.265	Si
SLV 3	7.53	-62.71	-17.5077	104	61.9838	3.54	Si
SLD 15	5.73	-108.72	-22.022	180	100.1413	4.547	Si
SLD 15	7.53	-134.6	24.4251	223	118.8921	4.868	Si
SLV 14	5.73	-149.47	-36.4973	247	128.7754	3.528	Si
SLV 14	7.53	-183.29	41.9808	303	148.8567	3.546	Si
SLV 4	5.73	-73.06	16.6728	121	71.1036	4.265	Si
SLV 4	7.53	-62.71	-17.5077	104	61.9838	3.54	Si
SLD 16	5.73	-108.72	-22.022	180	100.1413	4.547	Si
SLD 16	7.53	-134.6	24.4251	223	118.8921	4.868	Si
SLV 12	5.73	-42.26	-20.7293	70	43.0265	2.076	Si
SLV 12	7.53	-80.1	18.122	132	77.1347	4.256	Si
SLV 13	5.73	-149.47	-36.4973	247	128.7754	3.528	Si
SLV 13	7.53	-183.29	41.9808	303	148.8567	3.546	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	5.73	-152.81	-53.55	-21.3711		253	2.16	89	53.97			1.01	Si
SLU 73	7.53	-179.01	-52.98	18.5732		296	2.16	95	57.47			1.08	Si
SLU 52	5.73	-138.79	-47.87	-19.4239		229	2.16	86	52.11			1.09	Si
SLU 52	7.53	-159.87	-47.3	16.1793		264	2.16	91	54.92			1.16	Si
SLU 75	5.73	-160.26	-51.06	-18.75		265	2.16	91	54.97			1.08	Si
SLU 75	7.53	-184.78	-50.71	18.7377		306	2.16	96	58.24			1.15	Si
SLU 84	5.73	-163.48	-53.02	-19.2902		270	2.16	92	55.4			1.04	Si
SLU 84	7.53	-190.04	-52.67	19.525		314	2.16	97	58.94			1.12	Si
SLU 34	5.73	-130.5	-47.23	-19.3115		216	2.16	84	51			1.08	Si
SLU 34	7.53	-156.07	-46.66	16.1319		258	2.16	90	54.41			1.17	Si
SLU 78	5.73	-164.28	-51.13	-18.6837		272	2.16	92	55.5			1.09	Si
SLU 78	7.53	-188.99	-50.78	18.7192		312	2.16	97	58.8			1.16	Si
SLU 80	5.73	-162.24	-50.58	-18.4948		268	2.16	91	55.23			1.09	Si
SLU 80	7.53	-186.51	-50.23	18.3955		308	2.16	97	58.47			1.16	Si
SLU 76	5.73	-156.82	-53.63	-21.3049		259	2.16	90	54.51			1.02	Si
SLU 76	7.53	-183.22	-53.05	18.5548		303	2.16	96	58.03			1.09	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	5.73	-126.48	-47.16	-19.3778		209	2.16	83	50.46			1.07	Si
SLU 31	7.53	-151.86	-46.58	16.1504		251	2.16	89	53.85			1.16	Si
SLU 82	5.73	-159.47	-52.95	-19.3564		264	2.16	91	54.86			1.04	Si
SLU 82	7.53	-185.82	-52.6	19.5434		307	2.16	97	58.38			1.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	5.73	-105.17	-79.02	-38.0614		174	2.1543	118	71.3			0.9	No, Vu<V
SLV 16	7.53	-149.72	-76.09	40.3086		248	2.16	133	80.34			1.06	Si
SLV 15	5.73	-105.17	-79.02	-38.0614		174	2.1543	118	71.3			0.9	No, Vu<V
SLV 15	7.53	-149.72	-76.09	40.3086		248	2.16	133	80.34			1.06	Si
SLV 9	5.73	-189.91	-65.77	-15.5154		314	2.16	146	88.38			1.34	Si
SLV 9	7.53	-192.01	-45	23.6959		317	2.16	147	88.8			1.97	Si
SLD 16	5.73	-108.72	-52.06	-22.022		180	2.16	119	72.14			1.39	Si
SLD 16	7.53	-134.6	-50.61	24.4251		223	2.16	128	77.32			1.53	Si
SLD 15	5.73	-108.72	-52.06	-22.022		180	2.16	119	72.14			1.39	Si
SLD 15	7.53	-134.6	-50.61	24.4251		223	2.16	128	77.32			1.53	Si
SLV 14	5.73	-149.47	-90.19	-36.4973		247	2.16	133	80.29			0.89	No, Vu<V
SLV 14	7.53	-183.29	-76.31	41.9808		303	2.16	144	87.06			1.14	Si
SLD 14	5.73	-127.35	-56.61	-21.4611		211	2.16	125	75.87			1.34	Si
SLD 14	7.53	-148.82	-50.63	25.1499		246	2.16	133	80.16			1.58	Si
SLD 13	5.73	-127.35	-56.61	-21.4611		211	2.16	125	75.87			1.34	Si
SLD 13	7.53	-148.82	-50.63	25.1499		246	2.16	133	80.16			1.58	Si
SLV 10	5.73	-189.91	-65.77	-15.5154		314	2.16	146	88.38			1.34	Si
SLV 10	7.53	-192.01	-45	23.6959		317	2.16	147	88.8			1.97	Si
SLV 13	5.73	-149.47	-90.19	-36.4973		247	2.16	133	80.29			0.89	No, Vu<V
SLV 13	7.53	-183.29	-76.31	41.9808		303	2.16	144	87.06			1.14	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.38	80	-48.29	2.1999	6.3194	2.87	Si
SLV 8	1438	0.38	80	-48.29	2.1999	6.3194	2.87	Si
SLV 12	1438	0.38	107	-64.78	2.1999	8.2747	3.76	Si
SLV 11	1438	0.38	107	-64.78	2.1999	8.2747	3.76	Si
SLV 4	1438	0.38	121	-73.33	2.1999	9.2478	4.2	Si
SLV 3	1438	0.38	121	-73.33	2.1999	9.2478	4.2	Si
SLV 1	1438	0.38	184	-111.28	2.1999	13.2337	6.02	Si
SLV 2	1438	0.38	184	-111.28	2.1999	13.2337	6.02	Si
SLV 15	1438	0.38	212	-128.3	2.1999	14.8435	6.75	Si
SLV 16	1438	0.38	212	-128.3	2.1999	14.8435	6.75	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-64.87	-55.11	-0.99	0.037	9.668	0.919	0.58621	10.83091	No
SLV 11	-64.87	-55.11	-0.99	0.037	9.668	0.919	0.58621	10.83091	No
SLV 6	-134.91	-172.2	0.98	0.038	16.747	0.948	0.58817	10.83091	No
SLV 5	-134.91	-172.2	0.98	0.038	16.747	0.948	0.58817	10.83091	No
SLV 15	-111.46	-135.89	-0.91	0.039	14.369	0.941	0.59681	10.4105	No
SLV 16	-111.46	-135.89	-0.91	0.039	14.369	0.941	0.59681	10.4105	No
SLV 10	-149.46	-198.45	0.58	0.041	18.224	0.952	0.62402	10.83091	No
SLV 9	-149.46	-198.45	0.58	0.041	18.224	0.952	0.62402	10.83091	No
SLV 1	-88.32	-91.42	0.9	0.039	12.028	0.932	0.60081	10.4105	No
SLV 2	-88.32	-91.42	0.9	0.039	12.028	0.932	0.60081	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.24	SLU 31	Si
V_SLU	1.008	SLU 73	Si
PF_SLV	2.076	SLV 11	Si
V_SLV	0.89	SLV 13	No
PFFP_SLV	2.873	SLV 7	Si
R_SLV	0.054	SLV 11	No

## Maschio 133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-2.963	5.951	-5.158	5.951	L4	L5	2.195	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 30	5.73	-161.73	2.3404	263	120.1577	51.341	Si
SLU 30	7.53	-147.14	12.1252	239	114.0242	9.404	Si
SLU 72	5.73	-191.66	0.6731	312	129.8191	192.873	Si
SLU 72	7.53	-174.11	12.4156	283	124.6315	10.038	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 8	5.73	-142.79	1.5799	232	112.0176	70.903	Si
SLU 8	7.53	-127.35	10.5054	207	104.2135	9.92	Si
SLU 71	5.73	-193.28	0.3566	314	130.2303	365.235	Si
SLU 71	7.53	-175.66	12.1642	286	125.1449	10.288	Si
SLU 29	5.73	-163.35	2.0239	266	120.7817	59.679	Si
SLU 29	7.53	-148.69	11.8738	242	114.7212	9.662	Si
SLU 28	5.73	-163.36	1.4634	266	120.785	82.536	Si
SLU 28	7.53	-149.51	11.4952	243	115.0835	10.011	Si
SLU 9	5.73	-141.17	1.8964	230	111.2475	58.663	Si
SLU 9	7.53	-125.8	10.7567	205	103.3712	9.61	Si
SLU 7	5.73	-142.8	1.0194	232	112.0217	109.887	Si
SLU 7	7.53	-128.17	10.1267	209	104.6522	10.334	Si
SLU 51	5.73	-171.1	0.2291	278	123.6059	539.57	Si
SLU 51	7.53	-152.77	11.0471	249	116.5023	10.546	Si
SLU 27	5.73	-164.98	1.1469	268	121.3974	105.847	Si
SLU 27	7.53	-151.06	11.2438	246	115.7644	10.296	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	5.73	-66.64	-2.659	108	66.6447	25.064	Si
SLV 10	7.53	-77.25	15.9339	126	76.0634	4.774	Si
SLV 5	5.73	-73.4	20.034	119	72.6866	3.628	Si
SLV 5	7.53	-107.94	1.6491	176	101.4334	61.509	Si
SLV 15	5.73	-141.74	-47.2872	231	126.2002	2.669	Si
SLV 15	7.53	-84.95	24.7258	138	82.6891	3.344	Si
SLV 16	5.73	-141.74	-47.2872	231	126.2002	2.669	Si
SLV 16	7.53	-84.95	24.7258	138	82.6891	3.344	Si
SLV 9	5.73	-66.64	-2.659	108	66.6447	25.064	Si
SLV 9	7.53	-77.25	15.9339	126	76.0634	4.774	Si
SLV 14	5.73	-103.43	-38.9088	168	97.8837	2.516	Si
SLV 14	7.53	-64.88	28.3598	106	65.0523	2.294	Si
SLV 13	5.73	-103.43	-38.9088	168	97.8837	2.516	Si
SLV 13	7.53	-64.88	28.3598	106	65.0523	2.294	Si
SLV 6	5.73	-73.4	20.034	119	72.6866	3.628	Si
SLV 6	7.53	-107.94	1.6491	176	101.4334	61.509	Si
SLV 2	5.73	-125.99	36.7345	205	115.0768	3.133	Si
SLV 2	7.53	-167.15	-19.2563	272	142.6175	7.406	Si
SLV 1	5.73	-125.99	36.7345	205	115.0768	3.133	Si
SLV 1	7.53	-167.15	-19.2563	272	142.6175	7.406	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	5.73	-165.9	4.86	-6.0547		270	2.195	92	56.26			11.58	Si
SLU 40	7.53	-162.38	4.87	3.2111		264	2.195	91	55.79			11.47	Si
SLU 52	5.73	-167.08	4.68	-7.4255		272	2.195	92	56.42			12.07	Si
SLU 52	7.53	-158.49	4.68	2.5828		258	2.195	90	55.28			11.81	Si
SLU 60	5.73	-176.9	5.24	-8.4825		288	2.195	94	57.73			11.01	Si
SLU 60	7.53	-169.56	5.25	1.8817		276	2.195	92	56.75			10.82	Si
SLU 61	5.73	-175.27	5.32	-8.166		285	2.195	94	57.51			10.81	Si
SLU 61	7.53	-168.01	5.33	2.1331		273	2.195	92	56.55			10.62	Si
SLU 19	5.73	-145.35	4.69	-6.4987		236	2.195	87	53.52			11.41	Si
SLU 19	7.53	-141.04	4.7	1.8427		229	2.195	86	52.95			11.27	Si
SLU 18	5.73	-146.97	4.61	-6.8152		239	2.195	87	53.74			11.65	Si
SLU 18	7.53	-142.59	4.62	1.5914		232	2.195	86	53.16			11.51	Si
SLU 82	5.73	-195.83	5.49	-7.722		319	2.195	98	60.26			10.98	Si
SLU 82	7.53	-189.35	5.5	3.5015		308	2.195	97	59.39			10.81	Si
SLU 39	5.73	-167.52	4.78	-6.3712		273	2.195	92	56.48			11.81	Si
SLU 39	7.53	-163.93	4.79	2.9598		267	2.195	91	56			11.7	Si
SLU 81	5.73	-197.45	5.41	-8.0385		321	2.195	98	60.47			11.18	Si
SLU 81	7.53	-190.9	5.41	3.2502		311	2.195	97	59.6			11.01	Si
SLU 73	5.73	-187.63	4.84	-6.9815		305	2.195	96	59.16			12.22	Si
SLU 73	7.53	-179.83	4.85	3.9512		293	2.195	95	58.12			11.98	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	5.73	-103.43	-48.65	-38.9088		171	2.164	117	71.18			1.46	Si
SLV 13	7.53	-64.88	-41.38	28.3598		117	1.9811	107	59.2			1.43	Si
SLV 6	5.73	-73.4	64.44	20.034		119	2.195	107	65.9			1.02	Si
SLV 6	7.53	-107.94	58.77	1.6491		176	2.195	118	72.8			1.24	Si
SLV 5	5.73	-73.4	64.44	20.034		119	2.195	107	65.9			1.02	Si
SLV 5	7.53	-107.94	58.77	1.6491		176	2.195	118	72.8			1.24	Si
SLV 1	5.73	-125.99	79.69	36.7345		205	2.195	124	76.41			0.96	No, Vu<V
SLV 1	7.53	-167.15	70.5	-19.2563		272	2.195	138	84.65			1.2	Si
SLV 14	5.73	-103.43	-48.65	-38.9088		171	2.164	117	71.18			1.46	Si
SLV 14	7.53	-64.88	-41.38	28.3598		117	1.9811	107	59.2			1.43	Si
SLV 2	5.73	-125.99	79.69	36.7345		205	2.195	124	76.41			0.96	No, Vu<V
SLV 2	7.53	-167.15	70.5	-19.2563		272	2.195	138	84.65			1.2	Si
SLV 12	5.73	-194.33	-58.85	-30.5867		316	2.195	147	90.08			1.53	Si
SLV 12	7.53	-144.17	-53.17	3.8204		235	2.195	130	80.05			1.51	Si
SLV 16	5.73	-141.74	-74.09	-47.2872		231	2.195	129	79.57			1.07	Si
SLV 16	7.53	-84.95	-64.89	24.7258		138	2.195	111	68.21			1.05	Si
SLV 15	5.73	-141.74	-74.09	-47.2872		231	2.195	129	79.57			1.07	Si
SLV 15	7.53	-84.95	-64.89	24.7258		138	2.195	111	68.21			1.05	Si
SLV 11	5.73	-194.33	-58.85	-30.5867		316	2.195	147	90.08			1.53	Si
SLV 11	7.53	-144.17	-53.17	3.8204		235	2.195	130	80.05			1.51	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.38	111	-67.94	2.2356	8.6507	3.87	Si
SLV 9	1438	0.38	111	-67.94	2.2356	8.6507	3.87	Si
SLV 13	1438	0.38	131	-80.72	2.2356	10.0864	4.51	Si
SLV 14	1438	0.38	131	-80.72	2.2356	10.0864	4.51	Si
SLV 6	1438	0.38	145	-88.93	2.2356	10.9756	4.91	Si
SLV 5	1438	0.38	145	-88.93	2.2356	10.9756	4.91	Si
SLV 16	1438	0.38	183	-112.67	2.2356	13.4076	6	Si
SLV 15	1438	0.38	183	-112.67	2.2356	13.4076	6	Si
SLV 2	1438	0.38	245	-150.69	2.2356	16.8635	7.54	Si
SLV 1	1438	0.38	245	-150.69	2.2356	16.8635	7.54	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-81.83	-66.22	-3.84	0.01	11.424	0.928	0.14915	10.83091	No
SLV 9	-81.83	-66.22	-3.84	0.01	11.424	0.928	0.14915	10.83091	No
SLV 11	-83.57	-181.38	3.43	0.014	11.599	0.929	0.21847	10.83091	No
SLV 12	-83.57	-181.38	3.43	0.014	11.599	0.929	0.21847	10.83091	No
SLV 7	-111.18	-196.03	3.91	0.016	14.39	0.94	0.24405	10.83091	No
SLV 8	-111.18	-196.03	3.91	0.016	14.39	0.94	0.24405	10.83091	No
SLV 6	-109.44	-80.87	-3.37	0.02	14.214	0.94	0.3043	10.83091	No
SLV 5	-109.44	-80.87	-3.37	0.02	14.214	0.94	0.3043	10.83091	No
SLV 13	-50.23	-89.44	-1.85	0.024	8.258	0.909	0.39028	10.4105	No
SLV 14	-50.23	-89.44	-1.85	0.024	8.258	0.909	0.39028	10.4105	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.404	SLU 30	Si
V_SLU	10.617	SLU 61	Si
PF_SLV	2.294	SLV 13	Si
V_SLV	0.959	SLV 1	No
PFFP_SLV	3.87	SLV 9	Si
R_SLV	0.014	SLV 9	No

## Maschio 134

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	5.951	-2.063	5.951	L4	L5	1.94	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 31	5.73	-119.18	1.3416	219	84.4665	62.959	Si
SLU 31	7.53	-131.07	10.476	241	89.4764	8.541	Si
SLU 40	5.73	-127.04	1.024	234	87.8472	85.789	Si
SLU 40	7.53	-140.34	11.398	258	92.9531	8.155	Si
SLU 61	5.73	-140.21	0.8865	258	92.9083	104.809	Si
SLU 61	7.53	-149.33	11.3728	275	95.9649	8.438	Si
SLU 19	5.73	-114.27	0.6782	210	82.2191	121.236	Si
SLU 19	7.53	-124.2	9.954	229	86.6575	8.706	Si
SLU 84	5.73	-155.29	2.5847	286	97.7656	37.825	Si
SLU 84	7.53	-166.16	11.4422	306	100.6519	8.797	Si
SLU 39	5.73	-131.06	0.8231	241	89.4727	108.705	Si
SLU 39	7.53	-143.1	11.2425	263	93.9174	8.354	Si
SLU 60	5.73	-144.23	0.6855	266	94.3016	137.557	Si
SLU 60	7.53	-152.09	11.2173	280	96.8201	8.631	Si
SLU 81	5.73	-156.99	1.0314	289	98.2534	95.266	Si
SLU 81	7.53	-168.23	12.6613	310	101.142	7.988	Si
SLU 73	5.73	-145.12	1.5499	267	94.598	61.036	Si
SLU 73	7.53	-156.2	11.8948	288	98.0271	8.241	Si
SLU 82	5.73	-152.97	1.2323	282	97.0851	78.785	Si
SLU 82	7.53	-165.47	12.8168	305	100.4824	7.84	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	5.73	-119.21	27.7018	219	94.865	3.425	Si
SLV 4	7.53	-91.45	-10.2484	168	76.4851	7.463	Si
SLV 5	5.73	-30.62	9.0969	56	28.3325	3.115	Si
SLV 5	7.53	-37.41	-3.0746	69	34.2442	11.138	Si
SLV 2	5.73	-74.71	27.7239	138	64.3128	2.32	Si
SLV 2	7.53	-53.88	-13.1291	99	48.0171	3.657	Si
SLV 14	5.73	-97.07	-25.5701	179	80.3854	3.144	Si
SLV 14	7.53	-132.09	25.2004	243	102.6285	4.073	Si
SLV 1	5.73	-74.71	27.7239	138	64.3128	2.32	Si
SLV 1	7.53	-53.88	-13.1291	99	48.0171	3.657	Si
SLV 13	5.73	-97.07	-25.5701	179	80.3854	3.144	Si
SLV 13	7.53	-132.09	25.2004	243	102.6285	4.073	Si
SLV 6	5.73	-30.62	9.0969	56	28.3325	3.115	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	7.53	-37.41	-3.0746	69	34.2442	11.138	Si
SLV 15	5.73	-141.57	-25.5923	261	108.0299	4.221	Si
SLV 15	7.53	-169.67	28.0811	312	122.506	4.363	Si
SLV 16	5.73	-141.57	-25.5923	261	108.0299	4.221	Si
SLV 16	7.53	-169.67	28.0811	312	122.506	4.363	Si
SLV 3	5.73	-119.21	27.7018	219	94.865	3.425	Si
SLV 3	7.53	-91.45	-10.2484	168	76.4851	7.463	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	5.73	-127.04	-22.41	1.024		234	1.94	87	47.12			2.1	Si
SLU 40	7.53	-140.34	-22.37	11.398		258	1.94	90	48.89			2.19	Si
SLU 61	5.73	-140.21	-22.79	0.8865		258	1.94	90	48.87			2.14	Si
SLU 61	7.53	-149.33	-22.75	11.3728		275	1.94	92	50.09			2.2	Si
SLU 84	5.73	-155.29	-22.99	2.5847		286	1.94	94	50.88			2.21	Si
SLU 84	7.53	-166.16	-22.95	11.4422		306	1.94	96	52.33			2.28	Si
SLU 73	5.73	-145.12	-23.94	1.5499		267	1.94	91	49.53			2.07	Si
SLU 73	7.53	-156.2	-23.88	11.8948		288	1.94	94	51			2.14	Si
SLU 52	5.73	-132.35	-21.35	1.2041		244	1.94	88	47.82			2.24	Si
SLU 52	7.53	-140.06	-21.28	10.4507		258	1.94	90	48.85			2.3	Si
SLU 60	5.73	-144.23	-22.11	0.6855		266	1.94	91	49.41			2.23	Si
SLU 60	7.53	-152.09	-22.12	11.2173		280	1.94	93	50.46			2.28	Si
SLU 39	5.73	-131.06	-21.73	0.8231		241	1.94	88	47.65			2.19	Si
SLU 39	7.53	-143.1	-21.74	11.2425		263	1.94	91	49.26			2.27	Si
SLU 82	5.73	-152.97	-25.38	1.2323		282	1.94	93	50.57			1.99	Si
SLU 82	7.53	-165.47	-25.34	12.8168		305	1.94	96	52.24			2.06	Si
SLU 81	5.73	-156.99	-24.7	1.0314		289	1.94	94	51.11			2.07	Si
SLU 81	7.53	-168.23	-24.71	12.6613		310	1.94	97	52.61			2.13	Si
SLU 31	5.73	-119.18	-20.97	1.3416		219	1.94	85	46.07			2.2	Si
SLU 31	7.53	-131.07	-20.9	10.476		241	1.94	88	47.65			2.28	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	5.73	-103.4	-37.68	-10.4124		190	1.94	121	65.95			1.75	Si
SLD 13	7.53	-120.7	-31.77	15.2203		222	1.94	128	69.41			2.18	Si
SLV 3	5.73	-119.21	37.8	27.7018		219	1.94	127	69.11			1.83	Si
SLV 3	7.53	-91.45	24.23	-10.2484		168	1.94	117	63.56			2.62	Si
SLV 13	5.73	-97.07	-67.52	-25.5701		179	1.94	119	64.68			0.96	No, Vu<V
SLV 13	7.53	-132.09	-53.96	25.2004		243	1.94	132	71.68			1.33	Si
SLV 15	5.73	-141.57	-55.26	-25.5923		261	1.94	135	73.58			1.33	Si
SLV 15	7.53	-169.67	-52.85	28.0811		312	1.94	146	79.2			1.5	Si
SLV 16	5.73	-141.57	-55.26	-25.5923		261	1.94	135	73.58			1.33	Si
SLV 16	7.53	-169.67	-52.85	28.0811		312	1.94	146	79.2			1.5	Si
SLV 14	5.73	-97.07	-67.52	-25.5701		179	1.94	119	64.68			0.96	No, Vu<V
SLV 14	7.53	-132.09	-53.96	25.2004		243	1.94	132	71.68			1.33	Si
SLV 9	5.73	-37.33	-49.26	-6.8913		69	1.94	97	52.73			1.07	Si
SLV 9	7.53	-60.88	-28.27	8.4242		112	1.94	106	57.44			2.03	Si
SLD 14	5.73	-103.4	-37.68	-10.4124		190	1.94	121	65.95			1.75	Si
SLD 14	7.53	-120.7	-31.77	15.2203		222	1.94	128	69.41			2.18	Si
SLV 4	5.73	-119.21	37.8	27.7018		219	1.94	127	69.11			1.83	Si
SLV 4	7.53	-91.45	24.23	-10.2484		168	1.94	117	63.56			2.62	Si
SLV 10	5.73	-37.33	-49.26	-6.8913		69	1.94	97	52.73			1.07	Si
SLV 10	7.53	-60.88	-28.27	8.4242		112	1.94	106	57.44			2.03	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.38	69	-37.65	1.9758	4.9722	2.52	Si
SLV 5	1438	0.38	69	-37.65	1.9758	4.9722	2.52	Si
SLV 9	1438	0.38	100	-54.24	1.9758	6.9725	3.53	Si
SLV 10	1438	0.38	100	-54.24	1.9758	6.9725	3.53	Si
SLV 2	1438	0.38	120	-64.95	1.9758	8.2035	4.15	Si
SLV 1	1438	0.38	120	-64.95	1.9758	8.2035	4.15	Si
SLV 3	1438	0.38	193	-104.94	1.9758	12.3686	6.26	Si
SLV 4	1438	0.38	193	-104.94	1.9758	12.3686	6.26	Si
SLV 14	1438	0.38	221	-120.23	1.9758	13.7835	6.98	Si
SLV 13	1438	0.38	221	-120.23	1.9758	13.7835	6.98	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-128.6	-164.35	-0.23	0.043	15.795	0.951	0.6555	10.83091	No
SLV 8	-128.6	-164.35	-0.23	0.043	15.795	0.951	0.6555	10.83091	No
SLV 12	-144.31	-186.42	-0.15	0.043	17.391	0.955	0.65601	10.83091	No
SLV 11	-144.31	-186.42	-0.15	0.043	17.391	0.955	0.65601	10.83091	No
SLV 16	-131.18	-160.3	0.09	0.044	16.057	0.951	0.66936	10.4105	No
SLV 15	-131.18	-160.3	0.09	0.044	16.057	0.951	0.66936	10.4105	No
SLV 13	-104.22	-115.85	0.2	0.044	13.322	0.943	0.67437	10.4105	No
SLV 14	-104.22	-115.85	0.2	0.044	13.322	0.943	0.67437	10.4105	No
SLV 4	-78.82	-86.74	-0.19	0.045	10.753	0.931	0.70039	10.4105	No
SLV 3	-78.82	-86.74	-0.19	0.045	10.753	0.931	0.70039	10.4105	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	7.84	SLU 82	Si
V SLU	1.993	SLU 82	Si
PF SLV	2.32	SLV 1	Si
V SLV	0.958	SLV 13	No



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	2.516	SLV 5	Si
R SLV	0.061	SLV 7	No

## Maschio 135

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	-3.359	-0.123	5.951	L4	L5	9.31	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 65	4.83	-1010.57	-179.9945	388	2465.435	13.697	Si
SLU 65	8.35	-632.42	-35.5422	243	2067.1346	58.16	Si
SLU 68	4.83	-1023.83	-195.2866	393	2468.0235	12.638	Si
SLU 68	8.35	-646.74	-37.1631	248	2093.6512	56.337	Si
SLU 73	4.83	-1106.13	-185.6378	424	2466.8497	13.289	Si
SLU 73	8.35	-691.25	-36.2615	265	2170.2824	59.851	Si
SLU 55	4.83	-1021.53	-184.2297	392	2467.629	13.394	Si
SLU 55	8.35	-640.84	-33.8483	246	2082.8298	61.534	Si
SLU 34	4.83	-938.25	-192.2914	360	2437.7478	12.677	Si
SLU 34	8.35	-592.98	-40.6937	227	1989.4914	48.889	Si
SLU 76	4.83	-1119.39	-200.9298	429	2463.883	12.262	Si
SLU 76	8.35	-705.57	-37.8823	271	2193.1037	57.893	Si
SLU 47	4.83	-925.97	-178.5865	355	2430.7692	13.611	Si
SLU 47	8.35	-582.01	-33.1291	223	1966.6793	59.364	Si
SLU 26	4.83	-842.69	-186.6481	323	2365.9978	12.676	Si
SLU 26	8.35	-534.15	-39.9745	205	1860.9961	46.555	Si
SLU 5	4.83	-744.83	-169.9481	286	2251.0232	13.245	Si
SLU 5	8.35	-469.41	-35.9404	180	1702.0661	47.358	Si
SLU 13	4.83	-840.39	-175.5913	322	2363.7736	13.462	Si
SLU 13	8.35	-528.24	-36.6597	203	1847.2593	50.389	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 1	4.83	-479.9	-303.6648	184	1897.3601	6.248	Si
SLV 1	8.35	-350.1	-179.1654	134	1450.5777	8.096	Si
SLV 5	4.83	-661.77	-865.6267	254	2440.5179	2.819	Si
SLV 5	8.35	-424.82	-413.498	163	1713.7782	4.145	Si
SLV 9	4.83	-832.06	-861.6761	319	2861.4316	3.321	Si
SLV 9	8.35	-501.68	-375.5872	192	1967.4995	5.238	Si
SLV 11	4.83	-880.04	757.098	338	2964.726	3.916	Si
SLV 11	8.35	-544.4	420.3038	209	2101.0625	4.999	Si
SLV 10	4.83	-832.06	-861.6761	319	2861.4316	3.321	Si
SLV 10	8.35	-501.68	-375.5872	192	1967.4995	5.238	Si
SLV 7	4.83	-709.75	753.1474	272	2567.6932	3.409	Si
SLV 7	8.35	-467.54	382.393	179	1856.9397	4.856	Si
SLV 2	4.83	-479.9	-303.6648	184	1897.3601	6.248	Si
SLV 2	8.35	-350.1	-179.1654	134	1450.5777	8.096	Si
SLV 12	4.83	-880.04	757.098	338	2964.726	3.916	Si
SLV 12	8.35	-544.4	420.3038	209	2101.0625	4.999	Si
SLV 8	4.83	-709.75	753.1474	272	2567.6932	3.409	Si
SLV 8	8.35	-467.54	382.393	179	1856.9397	4.856	Si
SLV 6	4.83	-661.77	-865.6267	254	2440.5179	2.819	Si
SLV 6	8.35	-424.82	-413.498	163	1713.7782	4.145	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 64	4.83	-994.64	8.66	-73.219		382	9.31	106	277.44			32.04	Si
SLU 64	8.35	-626.64	8.72	3.5384		240	9.31	88	228.37			26.19	Si
SLU 79	4.83	-1116.72	9.13	-109.4463		428	9.31	108	282.4			30.93	Si
SLU 79	8.35	-714.12	9.22	-0.4226		274	9.31	92	240.04			26.03	Si
SLU 74	4.83	-1116.13	9.57	-93.7904		428	9.31	108	282.4			29.5	Si
SLU 74	8.35	-709.38	9.65	0.2914		272	9.31	92	239.41			24.81	Si
SLU 83	4.83	-1144.41	9.83	-96.5729		439	9.31	108	282.4			28.73	Si
SLU 83	8.35	-725.01	9.91	0.89		278	9.31	93	241.49			24.37	Si
SLU 77	4.83	-1129.39	9.31	-109.0824		433	9.31	108	282.4			30.34	Si
SLU 77	8.35	-723.71	9.4	-1.3295		278	9.31	93	241.32			25.69	Si
SLU 53	4.83	-1018.27	8.55	-77.0903		391	9.31	108	280.59			32.81	Si
SLU 53	8.35	-644.65	8.62	4.3254		247	9.31	89	230.78			26.77	Si
SLU 62	4.83	-1046.55	8.81	-79.8728		401	9.31	108	282.4			32.06	Si
SLU 62	8.35	-660.27	8.88	4.9241		253	9.31	89	232.86			26.23	Si
SLU 81	4.83	-1131.15	10.1	-81.2808		434	9.31	108	282.4			27.97	Si
SLU 81	8.35	-710.68	10.17	2.5109		273	9.31	92	239.58			23.57	Si
SLU 39	4.83	-950.02	8.6	-72.6424		364	9.31	104	271.49			31.55	Si
SLU 39	8.35	-598.09	8.66	-0.3005		229	9.31	86	224.57			25.92	Si
SLU 60	4.83	-1033.29	9.07	-64.5808		396	9.31	108	282.4			31.12	Si
SLU 60	8.35	-645.95	9.13	6.5449		248	9.31	89	230.95			25.28	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	4.83	-880.04	225.48	757.098		338	9.31	151	393.24			1.74	Si
SLV 12	8.35	-544.4	153.51	420.3038		209	9.31	125	326.11			2.12	Si
SLV 7	4.83	-709.75	229.81	753.1474		272	9.31	138	359.18			1.56	Si
SLV 7	8.35	-467.54	156.38	382.393		179	9.31	119	310.74			1.99	Si
SLV 6	4.83	-661.77	-212.04	-865.6267		254	9.31	134	349.59			1.65	Si
SLV 6	8.35	-424.82	-139.97	-413.498		163	9.31	116	302.2			2.16	Si
SLV 5	4.83	-661.77	-212.04	-865.6267		254	9.31	134	349.59			1.65	Si
SLV 5	8.35	-424.82	-139.97	-413.498		163	9.31	116	302.2			2.16	Si
SLD 8	4.83	-745.26	104.1	286.7177		286	9.31	141	366.29			3.52	Si
SLD 8	8.35	-477.51	71.77	163.9672		183	9.31	120	312.74			4.36	Si
SLV 8	4.83	-709.75	229.81	753.1474		272	9.31	138	359.18			1.56	Si
SLV 8	8.35	-467.54	156.38	382.393		179	9.31	119	310.74			1.99	Si
SLD 7	4.83	-745.26	104.1	286.7177		286	9.31	141	366.29			3.52	Si
SLD 7	8.35	-477.51	71.77	163.9672		183	9.31	120	312.74			4.36	Si
SLV 10	4.83	-832.06	-216.36	-861.6761		319	9.31	147	383.64			1.77	Si
SLV 10	8.35	-501.68	-142.84	-375.5872		192	9.31	122	317.57			2.22	Si
SLV 11	4.83	-880.04	225.48	757.098		338	9.31	151	393.24			1.74	Si
SLV 11	8.35	-544.4	153.51	420.3038		209	9.31	125	326.11			2.12	Si
SLV 9	4.83	-832.06	-216.36	-861.6761		319	9.31	147	383.64			1.77	Si
SLV 9	8.35	-501.68	-142.84	-375.5872		192	9.31	122	317.57			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 6.59 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.38	160	-416.51	9.482	50.6863	5.35	Si
SLV 2	1438	0.38	160	-416.51	9.482	50.6863	5.35	Si
SLV 3	1438	0.38	164	-426.96	9.482	51.7618	5.46	Si
SLV 4	1438	0.38	164	-426.96	9.482	51.7618	5.46	Si
SLV 5	1438	0.38	209	-544.25	9.482	63.1761	6.66	Si
SLV 6	1438	0.38	209	-544.25	9.482	63.1761	6.66	Si
SLV 7	1438	0.38	222	-579.08	9.482	66.3325	7	Si
SLV 8	1438	0.38	222	-579.08	9.482	66.3325	7	Si
SLV 10	1438	0.38	255	-664.2	9.482	73.5974	7.76	Si
SLV 9	1438	0.38	255	-664.2	9.482	73.5974	7.76	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 6.59 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 11	-544.4	-880.04	-0.54	0.044	68.419	0.946	0.67832	10.83091	No
SLV 12	-544.4	-880.04	-0.54	0.044	68.419	0.946	0.67832	10.83091	No
SLV 10	-501.68	-832.06	0.39	0.045	64.087	0.943	0.68956	10.83091	No
SLV 9	-501.68	-832.06	0.39	0.045	64.087	0.943	0.68956	10.83091	No
SLV 8	-467.54	-709.75	-0.43	0.045	60.629	0.94	0.69525	10.83091	No
SLV 7	-467.54	-709.75	-0.43	0.045	60.629	0.94	0.69525	10.83091	No
SLV 15	-619.12	-1061.91	-0.35	0.044	76.002	0.951	0.67196	10.4105	No
SLV 16	-619.12	-1061.91	-0.35	0.044	76.002	0.951	0.67196	10.4105	No
SLV 5	-424.82	-661.77	0.5	0.045	56.305	0.936	0.70254	10.83091	No
SLV 6	-424.82	-661.77	0.5	0.045	56.305	0.936	0.70254	10.83091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	12.262	SLU 76	Si
V_SLU	23.568	SLU 81	Si
PF_SLV	2.819	SLV 5	Si
V_SLV	1.563	SLV 7	Si
PFFP_SLV	5.346	SLV 1	Si
R_SLV	0.063	SLV 11	No

## Maschio 136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.678	-3.359	-24.678	1.266	L5	L6	4.626	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	8.35	-318.61	-53.3542	246	514.3611	9.64	Si
SLU 37	10.45	-204.66	-64.8068	158	381.5306	5.887	Si
SLU 35	8.35	-323	-52.3083	249	518.3417	9.909	Si
SLU 35	10.45	-207.35	-64.71	160	385.3118	5.954	Si
SLU 29	8.35	-288.47	-52.0763	223	484.7664	9.309	Si
SLU 29	10.45	-189.09	-56.2345	146	358.9517	6.383	Si
SLU 77	8.35	-381.32	-61.5539	294	563.1786	9.149	Si
SLU 77	10.45	-245.86	-69.9914	190	436.1263	6.231	Si
SLU 38	8.35	-324.98	-58.8299	251	520.1092	8.841	Si
SLU 38	10.45	-209.77	-64.2262	162	388.703	6.052	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	8.35	-383.3	-68.0756	296	564.4397	8.291	Si
SLU 80	10.45	-248.29	-69.5076	192	439.1081	6.317	Si
SLU 36	8.35	-329.37	-57.784	254	523.9671	9.068	Si
SLU 36	10.45	-212.45	-64.1293	164	392.4241	6.119	Si
SLU 78	8.35	-387.69	-67.0296	299	567.1746	8.462	Si
SLU 78	10.45	-250.97	-69.4108	194	442.3762	6.373	Si
SLU 41	8.35	-321.02	-47.823	248	516.5562	10.801	Si
SLU 41	10.45	-202.25	-60.8136	156	378.1023	6.217	Si
SLU 79	8.35	-376.92	-62.5999	291	560.321	8.951	Si
SLU 79	10.45	-243.18	-70.0882	188	432.7981	6.175	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	8.35	-331.61	-140.5551	256	606.2566	4.313	Si
SLV 5	10.45	-224.49	-48.2957	173	445.5671	9.226	Si
SLV 6	8.35	-331.61	-140.5551	256	606.2566	4.313	Si
SLV 6	10.45	-224.49	-48.2957	173	445.5671	9.226	Si
SLV 11	8.35	-171.82	66.0544	133	354.241	5.363	Si
SLV 11	10.45	-97.88	-22.873	76	212.3754	9.285	Si
SLV 3	8.35	-293.27	-10.0197	226	552.5932	55.15	Si
SLV 3	10.45	-162.49	-63.94	125	337.2336	5.274	Si
SLV 10	8.35	-295.54	-138.4849	228	555.8936	4.014	Si
SLV 10	10.45	-213.32	-30.588	165	426.8727	13.956	Si
SLV 7	8.35	-207.89	63.9843	161	417.6481	6.527	Si
SLV 7	10.45	-109.05	-40.5808	84	234.8402	5.787	Si
SLV 8	8.35	-207.89	63.9843	161	417.6481	6.527	Si
SLV 8	10.45	-109.05	-40.5808	84	234.8402	5.787	Si
SLV 12	8.35	-171.82	66.0544	133	354.241	5.363	Si
SLV 12	10.45	-97.88	-22.873	76	212.3754	9.285	Si
SLV 4	8.35	-293.27	-10.0197	226	552.5932	55.15	Si
SLV 4	10.45	-162.49	-63.94	125	337.2336	5.274	Si
SLV 9	8.35	-295.54	-138.4849	228	555.8936	4.014	Si
SLV 9	10.45	-213.32	-30.588	165	426.8727	13.956	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	8.35	-375.2	-24.73	-56.4654		290	4.6257	94	121.98			4.93	Si
SLU 82	10.45	-236.78	-23.21	-57.8474		183	4.6257	80	103.53			4.46	Si
SLU 73	8.35	-366.54	-24.81	-59.5682		283	4.6257	93	120.83			4.87	Si
SLU 73	10.45	-233.51	-22.3	-53.7864		180	4.6257	80	103.09			4.62	Si
SLU 78	8.35	-387.69	-23.58	-67.0296		299	4.6257	95	123.65			5.24	Si
SLU 78	10.45	-250.97	-22.05	-69.4108		194	4.6257	81	105.42			4.78	Si
SLU 76	8.35	-377.04	-24.7	-65.6471		291	4.6257	94	122.23			4.95	Si
SLU 76	10.45	-242.6	-22.18	-61.4535		187	4.6257	81	104.3			4.7	Si
SLU 81	8.35	-368.83	-22.72	-50.9897		285	4.6257	94	121.13			5.33	Si
SLU 81	10.45	-231.68	-22.69	-58.428		179	4.6257	79	102.85			4.53	Si
SLU 84	8.35	-385.71	-24.62	-62.5443		298	4.6257	95	123.38			5.01	Si
SLU 84	10.45	-245.87	-23.09	-65.5144		190	4.6257	81	104.74			4.54	Si
SLU 80	8.35	-383.3	-23.25	-68.0756		296	4.6257	95	123.06			5.29	Si
SLU 80	10.45	-248.29	-21.72	-69.5076		192	4.6257	81	105.06			4.84	Si
SLU 75	8.35	-377.18	-23.69	-60.9507		291	4.6257	94	122.25			5.16	Si
SLU 75	10.45	-241.88	-22.17	-61.7437		187	4.6257	80	104.21			4.7	Si
SLU 74	8.35	-370.81	-21.69	-55.475		286	4.6257	94	121.4			5.6	Si
SLU 74	10.45	-236.77	-21.65	-62.3243		183	4.6257	80	103.52			4.78	Si
SLU 83	8.35	-379.34	-22.61	-57.0686		293	4.6257	95	122.53			5.42	Si
SLU 83	10.45	-240.77	-22.57	-66.095		186	4.6257	80	104.06			4.61	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	8.35	-331.61	-105.08	-140.5551		256	4.6257	135	174.26			1.66	Si
SLV 5	10.45	-224.49	-83.75	-48.2957		173	4.6257	118	152.83			1.82	Si
SLV 10	8.35	-295.54	-101.99	-138.4849		228	4.6257	129	167.04			1.64	Si
SLV 10	10.45	-213.32	-77.88	-30.588		165	4.6257	116	150.6			1.93	Si
SLV 9	8.35	-295.54	-101.99	-138.4849		228	4.6257	129	167.04			1.64	Si
SLV 9	10.45	-213.32	-77.88	-30.588		165	4.6257	116	150.6			1.93	Si
SLV 12	8.35	-171.82	76	66.0544		133	4.6257	110	142.3			1.87	Si
SLV 12	10.45	-97.88	54.72	-22.873		76	4.6257	98	127.51			2.33	Si
SLV 6	8.35	-331.61	-105.08	-140.5551		256	4.6257	135	174.26			1.66	Si
SLV 6	10.45	-224.49	-83.75	-48.2957		173	4.6257	118	152.83			1.82	Si
SLV 7	8.35	-207.89	72.92	63.9843		161	4.6257	115	149.51			2.05	Si
SLV 7	10.45	-109.05	48.84	-40.5808		84	4.6257	100	129.74			2.66	Si
SLV 8	8.35	-207.89	72.92	63.9843		161	4.6257	115	149.51			2.05	Si
SLV 8	10.45	-109.05	48.84	-40.5808		84	4.6257	100	129.74			2.66	Si
SLD 6	8.35	-285.8	-54.06	-81.6425		221	4.6257	127	165.09			3.05	Si
SLD 6	10.45	-188.43	-44.69	-40.4544		145	4.6257	112	145.62			3.26	Si
SLD 5	8.35	-285.8	-54.06	-81.6425		221	4.6257	127	165.09			3.05	Si
SLD 5	10.45	-188.43	-44.69	-40.4544		145	4.6257	112	145.62			3.26	Si
SLV 11	8.35	-171.82	76	66.0544		133	4.6257	110	142.3			1.87	Si
SLV 11	10.45	-97.88	54.72	-22.873		76	4.6257	98	127.51			2.33	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.46	82	-106.05	5.6195	13.8517	2.46	Si
SLV 11	1438	0.46	82	-106.05	5.6195	13.8517	2.46	Si
SLV 8	1438	0.46	90	-117.19	5.6195	15.192	2.7	Si
SLV 7	1438	0.46	90	-117.19	5.6195	15.192	2.7	Si
SLV 16	1438	0.46	103	-133.48	5.6195	17.1112	3.04	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.46	103	-133.48	5.6195	17.1112	3.04	Si
SLV 14	1438	0.46	130	-168.14	5.6195	21.0387	3.74	Si
SLV 13	1438	0.46	130	-168.14	5.6195	21.0387	3.74	Si
SLV 4	1438	0.46	132	-170.63	5.6195	21.3128	3.79	Si
SLV 3	1438	0.46	132	-170.63	5.6195	21.3128	3.79	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$a_0^*$	aLim	Verifica
SLV 6	-124.99	-331.61	-0.7	0.045	19.31	0.915	0.72071	12.41353	No
SLV 5	-124.99	-331.61	-0.7	0.045	19.31	0.915	0.72071	12.41353	No
SLV 2	-107.58	-330.39	-0.99	0.044	17.575	0.909	0.70451	11.93169	No
SLV 1	-107.58	-330.39	-0.99	0.044	17.575	0.909	0.70451	11.93169	No
SLV 10	-123.06	-295.54	-0.22	0.048	19.117	0.914	0.76866	12.41353	No
SLV 9	-123.06	-295.54	-0.22	0.048	19.117	0.914	0.76866	12.41353	No
SLV 16	-84.26	-173.04	0.83	0.046	15.272	0.901	0.74438	11.93169	No
SLV 15	-84.26	-173.04	0.83	0.046	15.272	0.901	0.74438	11.93169	No
SLV 3	-90.71	-293.27	-0.76	0.046	15.907	0.903	0.74617	11.93169	No
SLV 4	-90.71	-293.27	-0.76	0.046	15.907	0.903	0.74617	11.93169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.887	SLU 37	Si
V_SLU	4.46	SLU 82	Si
PF_SLV	4.014	SLV 9	Si
V_SLV	1.638	SLV 9	Si
PFFP_SLV	2.465	SLV 11	Si
R_SLV	0.058	SLV 5	No

## Maschio 137

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.678	2.066	-24.678	5.951	L5	L6	3.885	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 32	8.35	-240.35	57.3537	221	340.2415	5.932	Si
SLU 32	10.45	-189.48	-0.0411	174	289.3599	1000	Si
SLU 35	8.35	-250.17	59.9969	230	348.7601	5.813	Si
SLU 35	10.45	-199.62	7.7182	184	300.4058	38.922	Si
SLU 39	8.35	-236.64	57.3494	218	336.9137	5.875	Si
SLU 39	10.45	-184.57	-8.368	170	283.8501	33.921	Si
SLU 77	8.35	-297.58	68.5223	274	383.9237	5.603	Si
SLU 77	10.45	-234.36	7.5991	215	334.8426	44.063	Si
SLU 74	8.35	-287.76	65.879	265	377.4468	5.729	Si
SLU 74	10.45	-224.23	-0.1602	206	325.3412	1000	Si
SLU 79	8.35	-295.22	67.7689	271	382.4051	5.643	Si
SLU 79	10.45	-232.33	8.991	214	332.9777	37.035	Si
SLU 83	8.35	-293.87	68.5179	270	381.5269	5.568	Si
SLU 83	10.45	-229.45	-0.7278	211	330.2987	453.809	Si
SLU 81	8.35	-284.05	65.8747	261	374.8903	5.691	Si
SLU 81	10.45	-219.32	-8.4872	202	320.5791	37.772	Si
SLU 41	8.35	-246.46	59.9926	227	345.5921	5.761	Si
SLU 41	10.45	-194.71	-0.6087	179	295.1142	484.809	Si
SLU 37	8.35	-247.81	59.2436	228	346.7506	5.853	Si
SLU 37	10.45	-197.59	9.1101	182	298.2318	32.736	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 12	8.35	-210.37	68.1915	193	343.9683	5.044	Si
SLD 12	10.45	-169.43	-9.573	156	287.1704	29.998	Si
SLV 11	8.35	-227.91	102.0065	210	366.7968	3.596	Si
SLV 11	10.45	-194.3	-17.554	179	322.2571	18.358	Si
SLV 4	8.35	-278.2	102.3028	256	427.2957	4.177	Si
SLV 4	10.45	-220.44	-15.5414	203	357.1917	22.983	Si
SLD 8	8.35	-227.24	78.0573	209	365.9452	4.688	Si
SLD 8	10.45	-182.81	-11.5931	168	306.2644	26.418	Si
SLD 7	8.35	-227.24	78.0573	209	365.9452	4.688	Si
SLD 7	10.45	-182.81	-11.5931	168	306.2644	26.418	Si
SLV 8	8.35	-267.4	125.1262	246	414.9295	3.316	Si
SLV 8	10.45	-225.62	-22.1839	207	363.8758	16.403	Si
SLV 12	8.35	-227.91	102.0065	210	366.7968	3.596	Si
SLV 12	10.45	-194.3	-17.554	179	322.2571	18.358	Si
SLV 3	8.35	-278.2	102.3028	256	427.2957	4.177	Si
SLV 3	10.45	-220.44	-15.5414	203	357.1917	22.983	Si
SLD 11	8.35	-210.37	68.1915	193	343.9683	5.044	Si
SLD 11	10.45	-169.43	-9.573	156	287.1704	29.998	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	8.35	-267.4	125.1262	246	414.9295	3.316	Si
SLV 7	10.45	-225.62	-22.1839	207	363.8758	16.403	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 62	8.35	-270.37	21.87	60.2932		249	3.885	89	96.48			4.41	Si
SLU 62	10.45	-208.66	21.88	-0.0561		192	3.885	81	88.25			4.03	Si
SLU 83	8.35	-293.87	24.13	68.5179		270	3.885	92	99.62			4.13	Si
SLU 83	10.45	-229.45	24.14	-0.7278		211	3.885	84	91.03			3.77	Si
SLU 53	8.35	-264.25	21.16	57.6543		243	3.885	88	95.67			4.52	Si
SLU 53	10.45	-203.43	21.17	0.5115		187	3.885	80	87.56			4.14	Si
SLU 39	8.35	-236.64	22.43	57.3494		218	3.885	85	91.99			4.1	Si
SLU 39	10.45	-184.57	22.43	-8.368		170	3.885	78	85.04			3.79	Si
SLU 64	8.35	-255.8	21.53	54.5674		235	3.885	87	94.54			4.39	Si
SLU 64	10.45	-195.12	21.54	-1.9556		179	3.885	79	86.45			4.01	Si
SLU 18	8.35	-213.14	20.17	49.1247		196	3.885	82	88.85			4.41	Si
SLU 18	10.45	-163.78	20.17	-7.6963		151	3.885	76	82.27			4.08	Si
SLU 74	8.35	-287.76	23.42	65.879		265	3.885	91	98.8			4.22	Si
SLU 74	10.45	-224.23	23.43	-0.1602		206	3.885	83	90.33			3.86	Si
SLU 60	8.35	-260.54	24.02	57.65		240	3.885	87	95.17			3.96	Si
SLU 60	10.45	-198.52	24.02	-7.8154		182	3.885	80	86.9			3.62	Si
SLU 81	8.35	-284.05	26.28	65.8747		261	3.885	90	98.31			3.74	Si
SLU 81	10.45	-219.32	26.29	-8.4872		202	3.885	82	89.68			3.41	Si
SLU 82	8.35	-281.74	22.37	60.8273		259	3.885	90	98			4.38	Si
SLU 82	10.45	-216.17	22.37	-6.9451		199	3.885	82	89.26			3.99	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	8.35	-227.91	79.77	102.0065		210	3.885	125	136.23			1.71	Si
SLV 12	10.45	-194.3	62.9	-17.554		179	3.885	119	129.51			2.06	Si
SLV 9	8.35	-127.1	-53.08	-40.2687		117	3.885	107	116.07			2.19	Si
SLV 9	10.45	-75.1	-32.91	16.858		69	3.885	97	105.67			3.21	Si
SLV 5	8.35	-166.6	-45.74	-17.1491		153	3.885	114	123.97			2.71	Si
SLV 5	10.45	-106.42	-28.86	12.228		98	3.885	103	111.93			3.88	Si
SLV 8	8.35	-267.4	87.11	125.1262		246	3.885	132	144.13			1.65	Si
SLV 8	10.45	-225.62	66.95	-22.1839		207	3.885	125	135.77			2.03	Si
SLV 11	8.35	-227.91	79.77	102.0065		210	3.885	125	136.23			1.71	Si
SLV 11	10.45	-194.3	62.9	-17.554		179	3.885	119	129.51			2.06	Si
SLD 7	8.35	-227.24	47.62	78.0573		209	3.885	125	136.1			2.86	Si
SLD 7	10.45	-182.81	38.82	-11.5931		168	3.885	117	127.21			3.28	Si
SLV 6	8.35	-166.6	-45.74	-17.1491		153	3.885	114	123.97			2.71	Si
SLV 6	10.45	-106.42	-28.86	12.228		98	3.885	103	111.93			3.88	Si
SLD 8	8.35	-227.24	47.62	78.0573		209	3.885	125	136.1			2.86	Si
SLD 8	10.45	-182.81	38.82	-11.5931		168	3.885	117	127.21			3.28	Si
SLV 7	8.35	-267.4	87.11	125.1262		246	3.885	132	144.13			1.65	Si
SLV 7	10.45	-225.62	66.95	-22.1839		207	3.885	125	135.77			2.03	Si
SLV 10	8.35	-127.1	-53.08	-40.2687		117	3.885	107	116.07			2.19	Si
SLV 10	10.45	-75.1	-32.91	16.858		69	3.885	97	105.67			3.21	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.46	75	-82.04	4.7197	10.7769	2.28	Si
SLV 10	1438	0.46	75	-82.04	4.7197	10.7769	2.28	Si
SLV 14	1438	0.46	80	-87.01	4.7197	11.3835	2.41	Si
SLV 13	1438	0.46	80	-87.01	4.7197	11.3835	2.41	Si
SLV 5	1438	0.46	104	-113.48	4.7197	14.531	3.08	Si
SLV 6	1438	0.46	104	-113.48	4.7197	14.531	3.08	Si
SLV 15	1438	0.46	113	-122.7	4.7197	15.5923	3.3	Si
SLV 16	1438	0.46	113	-122.7	4.7197	15.5923	3.3	Si
SLV 2	1438	0.46	176	-191.81	4.7197	22.9778	4.87	Si
SLV 1	1438	0.46	176	-191.81	4.7197	22.9778	4.87	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-127.32	-278.2	0.68	0.044	18.457	0.923	0.69401	11.93169	No
SLV 3	-127.32	-278.2	0.68	0.044	18.457	0.923	0.69401	11.93169	No
SLV 8	-130.03	-267.4	0.34	0.046	18.73	0.924	0.72471	12.41353	No
SLV 7	-130.03	-267.4	0.34	0.046	18.73	0.924	0.72471	12.41353	No
SLV 2	-110.83	-247.96	0.56	0.045	16.804	0.917	0.71871	11.93169	No
SLV 1	-110.83	-247.96	0.56	0.045	16.804	0.917	0.71871	11.93169	No
SLV 16	-80.12	-146.54	-0.68	0.046	13.748	0.905	0.73537	11.93169	No
SLV 15	-80.12	-146.54	-0.68	0.046	13.748	0.905	0.73537	11.93169	No
SLV 11	-115.87	-227.91	-0.07	0.048	17.308	0.919	0.76595	12.41353	No
SLV 12	-115.87	-227.91	-0.07	0.048	17.308	0.919	0.76595	12.41353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.568	SLU 83	Si
V_SLU	3.412	SLU 81	Si
PF_SLV	3.316	SLV 7	Si
V_SLV	1.655	SLV 7	Si
PFFP_SLV	2.283	SLV 9	Si
R_SLV	0.058	SLV 3	No



## Maschio 138

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.713	5.951	-24.678	5.951	L5	L6	1.965	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 60	9.25	-123.09	4.2733	224	87.7221	20.528	Si
SLU 60	11.05	-107.78	-9.5179	196	80.4283	8.45	Si
SLU 18	9.25	-100.11	3.8678	182	76.3895	19.75	Si
SLU 18	11.05	-89.78	-8.06	163	70.5381	8.752	Si
SLU 73	9.25	-126.22	4.8688	229	89.0862	18.297	Si
SLU 73	11.05	-112.97	-9.1587	205	83.0143	9.064	Si
SLU 81	9.25	-133.33	5.5402	242	92.0256	16.611	Si
SLU 81	11.05	-119.99	-9.8802	218	86.3266	8.737	Si
SLU 82	9.25	-131.19	5.3297	238	91.1651	17.105	Si
SLU 82	11.05	-118.62	-9.9488	216	85.7	8.614	Si
SLU 52	9.25	-115.98	3.6019	211	84.4636	23.45	Si
SLU 52	11.05	-100.76	-8.7964	183	76.7403	8.724	Si
SLU 40	9.25	-108.21	4.9242	197	80.6486	16.378	Si
SLU 40	11.05	-100.62	-8.4909	183	76.6657	9.029	Si
SLU 10	9.25	-93	3.1964	169	72.4149	22.655	Si
SLU 10	11.05	-82.76	-7.3385	150	66.2961	9.034	Si
SLU 61	9.25	-120.95	4.0627	220	86.7657	21.356	Si
SLU 61	11.05	-106.42	-9.5865	193	79.7288	8.317	Si
SLU 19	9.25	-97.98	3.6573	178	75.2178	20.567	Si
SLU 19	11.05	-88.41	-8.1286	161	69.731	8.578	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 16	9.25	-89.02	-17.171	162	75.8794	4.419	Si
SLV 16	11.05	-61.05	10.5763	111	54.5368	5.157	Si
SLV 13	9.25	-66.68	-19.3626	121	59.0179	3.048	Si
SLV 13	11.05	-41.47	13.7474	75	38.2337	2.781	Si
SLV 3	9.25	-120.48	26.1127	219	97.1573	3.721	Si
SLV 3	11.05	-119.74	-25.6164	218	96.6914	3.775	Si
SLV 15	9.25	-89.02	-17.171	162	75.8794	4.419	Si
SLV 15	11.05	-61.05	10.5763	111	54.5368	5.157	Si
SLV 4	9.25	-120.48	26.1127	219	97.1573	3.721	Si
SLV 4	11.05	-119.74	-25.6164	218	96.6914	3.775	Si
SLD 3	9.25	-104.98	13.1374	191	87.0375	6.625	Si
SLD 3	11.05	-97.33	-14.4043	177	81.779	5.677	Si
SLV 1	9.25	-98.14	23.9211	178	82.3496	3.443	Si
SLV 1	11.05	-100.16	-22.4453	182	83.7471	3.731	Si
SLV 2	9.25	-98.14	23.9211	178	82.3496	3.443	Si
SLV 2	11.05	-100.16	-22.4453	182	83.7471	3.731	Si
SLV 14	9.25	-66.68	-19.3626	121	59.0179	3.048	Si
SLV 14	11.05	-41.47	13.7474	75	38.2337	2.781	Si
SLD 4	9.25	-104.98	13.1374	191	87.0375	6.625	Si
SLD 4	11.05	-97.33	-14.4043	177	81.779	5.677	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	9.25	-137.39	13.58	7.0427		250	1.965	89	48.89			3.6	Si
SLU 83	11.05	-123.97	13.6	-6.6598		225	1.965	86	47.1			3.46	Si
SLU 39	9.25	-110.35	13.26	5.1347		201	1.965	82	45.28			3.41	Si
SLU 39	11.05	-101.99	13.27	-8.4223		185	1.965	80	44.16			3.33	Si
SLU 40	9.25	-108.21	13.62	4.9242		197	1.965	82	45			3.3	Si
SLU 40	11.05	-100.62	13.6	-8.4909		183	1.965	80	43.98			3.23	Si
SLU 31	9.25	-103.24	12.56	4.4633		188	1.965	81	44.33			3.53	Si
SLU 31	11.05	-94.97	12.52	-7.7008		173	1.965	79	43.23			3.45	Si
SLU 82	9.25	-131.19	14.94	5.3297		238	1.965	87	48.06			3.22	Si
SLU 82	11.05	-118.62	14.92	-9.9488		216	1.965	84	46.38			3.11	Si
SLU 61	9.25	-120.95	12.82	4.0627		220	1.965	85	46.69			3.64	Si
SLU 61	11.05	-106.42	12.8	-9.5865		193	1.965	81	44.76			3.5	Si
SLU 42	9.25	-112.28	12.62	6.4268		204	1.965	83	45.54			3.61	Si
SLU 42	11.05	-104.61	12.61	-5.2705		190	1.965	81	44.51			3.53	Si
SLU 81	9.25	-133.33	14.58	5.5402		242	1.965	88	48.34			3.32	Si
SLU 81	11.05	-119.99	14.59	-9.8802		218	1.965	85	46.56			3.19	Si
SLU 73	9.25	-126.22	13.88	4.8688		229	1.965	86	47.4			3.42	Si
SLU 73	11.05	-112.97	13.84	-9.1587		205	1.965	83	45.63			3.3	Si
SLU 84	9.25	-135.26	13.94	6.8322		246	1.965	88	48.6			3.49	Si
SLU 84	11.05	-122.61	13.93	-6.7284		223	1.965	85	46.91			3.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	9.25	-98.14	40.91	23.9211		178	1.965	119	65.48			1.6	Si
SLV 2	11.05	-100.16	34.25	-22.4453		182	1.965	120	65.88			1.92	Si
SLV 3	9.25	-120.48	43.37	26.1127		219	1.965	127	69.95			1.61	Si
SLV 3	11.05	-119.74	37.48	-25.6164		218	1.965	127	69.8			1.86	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 3	9.25	-104.98	23.4	13.1374		191	1.965	121	66.85			2.86	Si
SLD 3	11.05	-97.33	20.82	-14.4043		177	1.965	119	65.32			3.14	Si
SLV 1	9.25	-98.14	40.91	23.9211		178	1.965	119	65.48			1.6	Si
SLV 1	11.05	-100.16	34.25	-22.4453		182	1.965	120	65.88			1.92	Si
SLD 4	9.25	-104.98	23.4	13.1374		191	1.965	121	66.85			2.86	Si
SLD 4	11.05	-97.33	20.82	-14.4043		177	1.965	119	65.32			3.14	Si
SLV 14	9.25	-66.68	-26.79	-19.3626		121	1.965	108	59.19			2.21	Si
SLV 14	11.05	-41.47	-20.89	13.7474		76	1.9531	99	53.87			2.58	Si
SLV 4	9.25	-120.48	43.37	26.1127		219	1.965	127	69.95			1.61	Si
SLV 4	11.05	-119.74	37.48	-25.6164		218	1.965	127	69.8			1.86	Si
SLV 15	9.25	-89.02	-24.33	-17.171		162	1.965	116	63.65			2.62	Si
SLV 15	11.05	-61.05	-17.67	10.5763		111	1.965	106	58.06			3.29	Si
SLV 13	9.25	-66.68	-26.79	-19.3626		121	1.965	108	59.19			2.21	Si
SLV 13	11.05	-41.47	-20.89	13.7474		76	1.9531	99	53.87			2.58	Si
SLV 16	9.25	-89.02	-24.33	-17.171		162	1.965	116	63.65			2.62	Si
SLV 16	11.05	-61.05	-17.67	10.5763		111	1.965	106	58.06			3.29	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.46	89	-48.94	2.3872	6.3534	2.66	Si
SLV 10	1438	0.46	89	-48.94	2.3872	6.3534	2.66	Si
SLV 14	1438	0.46	102	-56.36	2.3872	7.2285	3.03	Si
SLV 13	1438	0.46	102	-56.36	2.3872	7.2285	3.03	Si
SLV 6	1438	0.46	113	-62.39	2.3872	7.9239	3.32	Si
SLV 5	1438	0.46	113	-62.39	2.3872	7.9239	3.32	Si
SLV 15	1438	0.46	138	-76.15	2.3872	9.4538	3.96	Si
SLV 16	1438	0.46	138	-76.15	2.3872	9.4538	3.96	Si
SLV 1	1438	0.46	184	-101.17	2.3872	12.0323	5.04	Si
SLV 2	1438	0.46	184	-101.17	2.3872	12.0323	5.04	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-35.85	-48.15	1.46	0.025	6.494	0.901	0.41029	12.41353	No
SLV 9	-35.85	-48.15	1.46	0.025	6.494	0.901	0.41029	12.41353	No
SLV 8	-87.73	-149.15	-1.45	0.033	11.688	0.935	0.50599	12.41353	No
SLV 7	-87.73	-149.15	-1.45	0.033	11.688	0.935	0.50599	12.41353	No
SLV 5	-46	-70.63	1.17	0.032	7.496	0.909	0.51674	12.41353	No
SLV 6	-46	-70.63	1.17	0.032	7.496	0.909	0.51674	12.41353	No
SLV 12	-77.58	-126.67	-1.16	0.035	10.663	0.93	0.54474	12.41353	No
SLV 11	-77.58	-126.67	-1.16	0.035	10.663	0.93	0.54474	12.41353	No
SLV 13	-38.61	-49.41	0.88	0.036	6.765	0.903	0.58562	11.93169	No
SLV 14	-38.61	-49.41	0.88	0.036	6.765	0.903	0.58562	11.93169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.317	SLU 61	Si
V_SLU	3.109	SLU 82	Si
PF_SLV	2.781	SLV 13	Si
V_SLV	1.601	SLV 1	Si
PFFP_SLV	2.661	SLV 9	Si
R_SLV	0.033	SLV 9	No

## Maschio 139

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	5.951	-21.813	5.951	L5	L6	2.195	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 9	9.25	-20.53	29.9379	0	0	0	No, e>l/2
SLU 9	11.05	-0.18	11.3672	0	0	0	No, e>l/2
SLU 27	9.25	-30.17	32.8233	49	31.1199	0.948	No, M>Mu
SLU 27	11.05	-9.51	12.6254	0	0	0	No, e>l/2
SLU 7	9.25	-28.29	28.8757	46	29.2949	1.015	Si
SLU 7	11.05	-7.93	11.0792	0	0	0	No, e>l/2
SLU 6	9.25	-28.09	29.6192	46	29.0961	0.982	No, M>Mu
SLU 6	11.05	-7.73	11.1443	0	0	0	No, e>l/2
SLU 8	9.25	-20.33	30.6814	0	0	0	No, e>l/2
SLU 8	11.05	0.03	11.4323	0	0	0	No, Trazione
SLU 30	9.25	-22.62	33.142	0	0	0	No, e>l/2
SLU 30	11.05	-1.96	12.8483	0	0	0	No, e>l/2
SLU 50	9.25	-38.26	34.6216	62	38.7854	1.12	Si
SLU 50	11.05	-11.91	12.8303	19	12.7556	0.994	No, M>Mu
SLU 28	9.25	-30.38	32.0798	49	31.3168	0.976	No, M>Mu
SLU 28	11.05	-9.71	12.5603	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 51	9.25	-38.47	33.8781	63	38.9751	1.15	Si
SLU 51	11.05	-12.11	12.7652	20	12.9689	1.016	Si
SLU 29	9.25	-22.42	33.8855	0	0	0	No, $e \geq l/2$
SLU 29	11.05	-1.75	12.9134	0	0	0	No, $e \geq l/2$

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	9.25	-26.11	66.5639	0	0	0	No, $e \geq l/2$
SLV 4	11.05	-0.23	-9.4186	0	0	0	No, $e \geq l/2$
SLD 7	9.25	-55.29	34.5244	90	56.2151	1.628	Si
SLD 7	11.05	-34.09	3.7834	55	35.7193	9.441	Si
SLD 3	9.25	-49.05	38.5053	80	50.3176	1.307	Si
SLD 3	11.05	-26.25	-0.2023	43	27.806	137.475	Si
SLD 8	9.25	-55.29	34.5244	90	56.2151	1.628	Si
SLD 8	11.05	-34.09	3.7834	55	35.7193	9.441	Si
SLV 7	9.25	-40.41	57.685	0	0	0	No, $e \geq l/2$
SLV 7	11.05	-18.11	-0.1751	29	19.3963	110.756	Si
SLV 2	9.25	-35.15	49.8263	0	0	0	No, $e \geq l/2$
SLV 2	11.05	-9.43	-7.9868	15	10.2155	1.279	Si
SLV 3	9.25	-26.11	66.5639	0	0	0	No, $e \geq l/2$
SLV 3	11.05	-0.23	-9.4186	0	0	0	No, $e \geq l/2$
SLV 8	9.25	-40.41	57.685	0	0	0	No, $e \geq l/2$
SLV 8	11.05	-18.11	-0.1751	29	19.3963	110.756	Si
SLV 1	9.25	-35.15	49.8263	0	0	0	No, $e \geq l/2$
SLV 1	11.05	-9.43	-7.9868	15	10.2155	1.279	Si
SLD 4	9.25	-49.05	38.5053	80	50.3176	1.307	Si
SLD 4	11.05	-26.25	-0.2023	43	27.806	137.475	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 8	9.25	-20.33	10.51	30.6814		0	0	56	0			0	No, $V_u < V$
SLU 8	11.05	0.03	10.51	11.4323		0	0	56	0			0	No, $V_u < V$
SLU 50	9.25	-38.26	11.87	34.6216		236	0.5781	87	14.09			1.19	Si
SLU 50	11.05	-11.91	11.87	12.8303		715	0.0595	108	1.8			0.15	No, $V_u < V$
SLU 28	9.25	-30.38	10.67	32.0798		872	0.1244	108	3.77			0.35	No, $V_u < V$
SLU 28	11.05	-9.71	10.67	12.5603		0	0	56	0			0	No, $V_u < V$
SLU 51	9.25	-38.47	11.49	33.8781		211	0.6505	84	15.25			1.33	Si
SLU 51	11.05	-12.11	11.49	12.7652		332	0.1301	100	3.64			0.32	No, $V_u < V$
SLU 7	9.25	-28.29	9.71	28.8757		438	0.2305	108	6.99			0.72	No, $V_u < V$
SLU 7	11.05	-7.93	9.71	11.0792		0	0	56	0			0	No, $V_u < V$
SLU 30	9.25	-22.62	11.1	33.142		0	0	56	0			0	No, $V_u < V$
SLU 30	11.05	-1.96	11.1	12.8483		0	0	56	0			0	No, $V_u < V$
SLU 9	9.25	-20.53	10.14	29.9379		0	0	56	0			0	No, $V_u < V$
SLU 9	11.05	-0.18	10.14	11.3672		0	0	56	0			0	No, $V_u < V$
SLU 27	9.25	-30.17	11.05	32.8233		3705	0.0291	108	0.88			0.08	No, $V_u < V$
SLU 27	11.05	-9.51	11.05	12.6254		0	0	56	0			0	No, $V_u < V$
SLU 6	9.25	-28.09	10.08	29.6192		779	0.1288	108	3.91			0.39	No, $V_u < V$
SLU 6	11.05	-7.73	10.08	11.1443		0	0	56	0			0	No, $V_u < V$
SLU 29	9.25	-22.42	11.48	33.8855		0	0	56	0			0	No, $V_u < V$
SLU 29	11.05	-1.75	11.48	12.9134		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	9.25	-26.11	47.6	66.5639		0	0	83	0			0	No, $V_u < V$
SLV 4	11.05	-0.23	41.4	-9.4186		0	0	83	0			0	No, $V_u < V$
SLV 2	9.25	-35.15	35.85	49.8263		0	0	83	0			0	No, $V_u < V$
SLV 2	11.05	-9.43	30.83	-7.9868		45	0.7506	92	19.4			0.63	No, $V_u < V$
SLV 3	9.25	-26.11	47.6	66.5639		0	0	83	0			0	No, $V_u < V$
SLV 3	11.05	-0.23	41.4	-9.4186		0	0	83	0			0	No, $V_u < V$
SLD 3	9.25	-49.05	23.75	38.5053		187	0.9375	121	31.69			1.33	Si
SLD 3	11.05	-26.25	21.02	-0.2023		43	2.195	92	56.47			2.69	Si
SLV 8	9.25	-40.41	36.16	57.685		0	0	83	0			0	No, $V_u < V$
SLV 8	11.05	-18.11	32.5	-0.1751		29	2.195	89	54.84			1.69	Si
SLV 1	9.25	-35.15	35.85	49.8263		0	0	83	0			0	No, $V_u < V$
SLV 1	11.05	-9.43	30.83	-7.9868		45	0.7506	92	19.4			0.63	No, $V_u < V$
SLV 14	9.25	-106.18	-36.04	-31.3341		173	2.195	118	72.45			2.01	Si
SLV 14	11.05	-91.17	-29.84	23.196		148	2.195	113	69.45			2.33	Si
SLD 4	9.25	-49.05	23.75	38.5053		187	0.9375	121	31.69			1.33	Si
SLD 4	11.05	-26.25	21.02	-0.2023		43	2.195	92	56.47			2.69	Si
SLV 13	9.25	-106.18	-36.04	-31.3341		173	2.195	118	72.45			2.01	Si
SLV 13	11.05	-91.17	-29.84	23.196		148	2.195	113	69.45			2.33	Si
SLV 7	9.25	-40.41	36.16	57.685		0	0	83	0			0	No, $V_u < V$
SLV 7	11.05	-18.11	32.5	-0.1751		29	2.195	89	54.84			1.69	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.46	0	-15.93	2.6666	0	0	No, $e \geq t/2$
SLV 3	1438	0.46	0	-15.93	2.6666	0	0	No, $e \geq t/2$
SLV 1	1438	0.46	40	-24.66	2.6666	3.3385	1.25	Si
SLV 2	1438	0.46	40	-24.66	2.6666	3.3385	1.25	Si
SLV 7	1438	0.46	51	-31.56	2.6666	4.2327	1.59	Si
SLV 8	1438	0.46	51	-31.56	2.6666	4.2327	1.59	Si
SLV 11	1438	0.46	87	-53.68	2.6666	6.9777	2.62	Si
SLV 12	1438	0.46	87	-53.68	2.6666	6.9777	2.62	Si
SLV 6	1438	0.46	99	-60.64	2.6666	7.8038	2.93	Si
SLV 5	1438	0.46	99	-60.64	2.6666	7.8038	2.93	Si



## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 4	-9.58	6.04	-0.81	0	0	0	0	11.93169	No, Trazione
SLV 3	-9.58	6.04	-0.81	0	0	0	0	11.93169	No, Trazione
SLV 8	-17.53	-20.17	-0.95	0.035	5.119	0.889	0.57324	12.41353	No
SLV 7	-17.53	-20.17	-0.95	0.035	5.119	0.889	0.57324	12.41353	No
SLV 10	-52.24	-107.41	0.86	0.039	8.459	0.91	0.61716	12.41353	No
SLV 9	-52.24	-107.41	0.86	0.039	8.459	0.91	0.61716	12.41353	No
SLV 13	-60.2	-133.63	0.72	0.04	9.252	0.915	0.64261	11.93169	No
SLV 14	-60.2	-133.63	0.72	0.04	9.252	0.915	0.64261	11.93169	No
SLV 12	-30.79	-57.59	-0.62	0.043	6.354	0.894	0.69572	12.41353	No
SLV 11	-30.79	-57.59	-0.62	0.043	6.354	0.894	0.69572	12.41353	No

### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 8	No
V_SLU	0	SLU 6	No
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 3	No
R_SLV	0	SLV 4	No

## Maschio 140

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.493	-3.359	-24.678	-3.359	L5	L6	2.185	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 52	9.25	-134.41	17.3938	220	107.2376	6.165	Si
SLU 52	11.05	-125.84	-22.4162	206	102.7675	4.585	Si
SLU 81	9.25	-149.9	17.967	245	114.5083	6.373	Si
SLU 81	11.05	-144.27	-24.9553	236	111.9885	4.488	Si
SLU 84	9.25	-156.58	21.2172	256	117.3176	5.529	Si
SLU 84	11.05	-152.7	-24.658	250	115.7069	4.692	Si
SLU 75	9.25	-154.72	20.1173	253	116.5564	5.794	Si
SLU 75	11.05	-149.71	-24.291	245	114.4268	4.711	Si
SLU 40	9.25	-125.09	18.0739	204	102.3589	5.663	Si
SLU 40	11.05	-124.99	-22.2875	204	102.3018	4.59	Si
SLU 60	9.25	-137.59	15.0116	225	108.8144	7.249	Si
SLU 60	11.05	-128.52	-22.3385	210	104.1972	4.664	Si
SLU 73	9.25	-146.72	20.3492	240	113.1031	5.558	Si
SLU 73	11.05	-141.6	-25.0331	231	110.7434	4.424	Si
SLU 82	9.25	-150.45	19.9933	246	114.7453	5.739	Si
SLU 82	11.05	-146.1	-25.769	239	112.8195	4.378	Si
SLU 31	9.25	-121.37	18.4297	198	100.3027	5.442	Si
SLU 31	11.05	-120.49	-21.5516	197	99.8096	4.631	Si
SLU 61	9.25	-138.13	17.0379	226	109.0809	6.402	Si
SLU 61	11.05	-130.34	-23.1522	213	105.1541	4.542	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 5	9.25	-145.18	32.8889	237	127.8059	3.886	Si
SLV 5	11.05	-145.9	-29.1833	238	128.2829	4.396	Si
SLD 4	9.25	-108.19	15.1371	177	101.0876	6.678	Si
SLD 4	11.05	-102.81	-23.0194	168	96.8704	4.208	Si
SLV 6	9.25	-145.18	32.8889	237	127.8059	3.886	Si
SLV 6	11.05	-145.9	-29.1833	238	128.2829	4.396	Si
SLV 2	9.25	-133.55	30.5142	218	119.8341	3.927	Si
SLV 2	11.05	-135.39	-36.3971	221	121.1235	3.328	Si
SLD 2	9.25	-117.19	19.4557	192	107.956	5.549	Si
SLD 2	11.05	-113.22	-24.8507	185	104.9576	4.224	Si
SLV 4	9.25	-112.63	20.0726	184	104.5076	5.206	Si
SLV 4	11.05	-110.6	-31.8296	181	102.9505	3.234	Si
SLV 1	9.25	-133.55	30.5142	218	119.8341	3.927	Si
SLV 1	11.05	-135.39	-36.3971	221	121.1235	3.328	Si
SLV 3	9.25	-112.63	20.0726	184	104.5076	5.206	Si
SLV 3	11.05	-110.6	-31.8296	181	102.9505	3.234	Si
SLD 3	9.25	-108.19	15.1371	177	101.0876	6.678	Si
SLD 3	11.05	-102.81	-23.0194	168	96.8704	4.208	Si
SLD 1	9.25	-117.19	19.4557	192	107.956	5.549	Si
SLD 1	11.05	-113.22	-24.8507	185	104.9576	4.224	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	9.25	-125.09	35.56	18.0739		204	2.185	83	50.67			1.43	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	11.05	-124.99	35.26	-22.2875		204	2.185	83	50.65			1.44	Si
SLU 81	9.25	-149.9	37.26	17.967		245	2.185	88	53.98			1.45	Si
SLU 81	11.05	-144.27	37.26	-24.9553		236	2.185	87	53.23			1.43	Si
SLU 84	9.25	-156.58	40.11	21.2172		256	2.185	90	54.87			1.37	Si
SLU 84	11.05	-152.7	39.82	-24.658		250	2.185	89	54.35			1.36	Si
SLU 82	9.25	-150.45	39.77	19.9933		246	2.185	88	54.05			1.36	Si
SLU 82	11.05	-146.1	39.47	-25.769		239	2.185	87	53.47			1.35	Si
SLU 31	9.25	-121.37	34.98	18.4297		198	2.185	82	50.17			1.43	Si
SLU 31	11.05	-120.49	34.48	-21.5516		197	2.185	82	50.05			1.45	Si
SLU 42	9.25	-131.22	35.9	19.2978		214	2.185	84	51.49			1.43	Si
SLU 42	11.05	-131.59	35.61	-21.1765		215	2.185	84	51.53			1.45	Si
SLU 75	9.25	-154.72	38.61	20.1173		253	2.185	89	54.62			1.41	Si
SLU 75	11.05	-149.71	38.33	-24.291		245	2.185	88	53.95			1.41	Si
SLU 73	9.25	-146.72	39.2	20.3492		240	2.185	88	53.55			1.37	Si
SLU 73	11.05	-141.6	38.7	-25.0331		231	2.185	86	52.87			1.37	Si
SLU 78	9.25	-160.86	38.95	21.3412		263	2.185	91	55.44			1.42	Si
SLU 78	11.05	-156.31	38.68	-23.1799		255	2.185	90	54.83			1.42	Si
SLU 76	9.25	-152.86	39.54	21.5731		250	2.185	89	54.37			1.38	Si
SLU 76	11.05	-148.2	39.05	-23.922		242	2.185	88	53.75			1.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	9.25	-145.18	38.63	32.8889		237	2.185	131	80.02			2.07	Si
SLV 6	11.05	-145.9	35.96	-29.1833		238	2.185	131	80.16			2.23	Si
SLD 3	9.25	-108.19	34.29	15.1371		177	2.185	119	72.62			2.12	Si
SLD 3	11.05	-102.81	31.24	-23.0194		168	2.185	117	71.54			2.29	Si
SLV 1	9.25	-133.55	53.04	30.5142		218	2.185	127	77.69			1.46	Si
SLV 1	11.05	-135.39	45.73	-36.3971		221	2.185	128	78.06			1.71	Si
SLD 2	9.25	-117.19	35.98	19.4557		192	2.185	122	74.42			2.07	Si
SLD 2	11.05	-113.22	32.8	-24.8507		185	2.185	120	73.63			2.24	Si
SLV 4	9.25	-112.63	48.77	20.0726		184	2.185	120	73.51			1.51	Si
SLV 4	11.05	-110.6	41.78	-31.8296		181	2.185	119	73.1			1.75	Si
SLD 1	9.25	-117.19	35.98	19.4557		192	2.185	122	74.42			2.07	Si
SLD 1	11.05	-113.22	32.8	-24.8507		185	2.185	120	73.63			2.24	Si
SLD 4	9.25	-108.19	34.29	15.1371		177	2.185	119	72.62			2.12	Si
SLD 4	11.05	-102.81	31.24	-23.0194		168	2.185	117	71.54			2.29	Si
SLV 3	9.25	-112.63	48.77	20.0726		184	2.185	120	73.51			1.51	Si
SLV 3	11.05	-110.6	41.78	-31.8296		181	2.185	119	73.1			1.75	Si
SLV 2	9.25	-133.55	53.04	30.5142		218	2.185	127	77.69			1.46	Si
SLV 2	11.05	-135.39	45.73	-36.3971		221	2.185	128	78.06			1.71	Si
SLV 5	9.25	-145.18	38.63	32.8889		237	2.185	131	80.02			2.07	Si
SLV 5	11.05	-145.9	35.96	-29.1833		238	2.185	131	80.16			2.23	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11  $W_a 0.0005$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.46	85	-51.71	2.6544	6.7384	2.54	Si
SLV 12	1438	0.46	85	-51.71	2.6544	6.7384	2.54	Si
SLV 16	1438	0.46	107	-65.45	2.6544	8.3612	3.15	Si
SLV 15	1438	0.46	107	-65.45	2.6544	8.3612	3.15	Si
SLV 7	1438	0.46	108	-65.77	2.6544	8.398	3.16	Si
SLV 8	1438	0.46	108	-65.77	2.6544	8.398	3.16	Si
SLV 13	1438	0.46	149	-91.3	2.6544	11.2211	4.23	Si
SLV 14	1438	0.46	149	-91.3	2.6544	11.2211	4.23	Si
SLV 4	1438	0.46	184	-112.34	2.6544	13.3639	5.03	Si
SLV 3	1438	0.46	184	-112.34	2.6544	13.3639	5.03	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-99.78	-176.58	-0.46	0.042	13.223	0.936	0.65812	12.41353	No
SLV 6	-99.78	-176.58	-0.46	0.042	13.223	0.936	0.65812	12.41353	No
SLV 10	-90.47	-154.56	-0.49	0.042	12.281	0.932	0.65958	12.41353	No
SLV 9	-90.47	-154.56	-0.49	0.042	12.281	0.932	0.65958	12.41353	No
SLV 8	-48.7	-79.43	0.47	0.044	8.092	0.908	0.70773	12.41353	No
SLV 7	-48.7	-79.43	0.47	0.044	8.092	0.908	0.70773	12.41353	No
SLV 12	-39.38	-57.41	0.44	0.045	7.173	0.9	0.73398	12.41353	No
SLV 11	-39.38	-57.41	0.44	0.045	7.173	0.9	0.73398	12.41353	No
SLV 1	-92.77	-168.26	-0.09	0.046	12.514	0.933	0.71335	11.93169	No
SLV 2	-92.77	-168.26	-0.09	0.046	12.514	0.933	0.71335	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.378	SLU 82	Si
V_SLU	1.355	SLU 82	Si
PF_SLV	3.234	SLV 3	Si
V_SLV	1.465	SLV 1	Si
PFFP_SLV	2.539	SLV 11	Si
R_SLV	0.053	SLV 5	No

## Maschio 141

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.368	-3.359	-21.593	-3.359	L5	L6	2.225	0.28	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 5	10.35	-57.11	2.0709	92	56.3879	27.228	Si
SLU 5	11.15	-50.17	-9.3427	81	50.2948	5.383	Si
SLU 26	10.35	-65.51	2.2186	105	63.4694	28.608	Si
SLU 26	11.15	-58.79	-10.8998	94	57.8232	5.305	Si
SLU 65	10.35	-81.33	1.2398	131	75.9817	61.287	Si
SLU 65	11.15	-71.54	-12.7596	115	68.3691	5.358	Si
SLU 34	10.35	-74.2	1.7249	119	70.482	40.861	Si
SLU 34	11.15	-67.51	-12.1067	108	65.1171	5.379	Si
SLU 72	10.35	-85.65	2.996	137	79.2036	26.436	Si
SLU 72	11.15	-76.18	-13.5096	122	72.0288	5.332	Si
SLU 47	10.35	-73.54	2.1159	118	69.9539	33.061	Si
SLU 47	11.15	-63.93	-11.5495	103	62.1633	5.382	Si
SLU 76	10.35	-90.63	1.7699	145	82.8174	46.792	Si
SLU 76	11.15	-81.28	-14.3135	130	75.9389	5.305	Si
SLU 73	10.35	-90.03	0.7461	145	82.3907	110.427	Si
SLU 73	11.15	-80.27	-13.9664	129	75.1749	5.383	Si
SLU 80	10.35	-94.35	2.5024	151	85.4481	34.147	Si
SLU 80	11.15	-84.91	-14.7165	136	78.6569	5.345	Si
SLU 68	10.35	-81.93	2.2636	132	76.431	33.766	Si
SLU 68	11.15	-72.55	-13.1066	116	69.1718	5.278	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 2	10.35	-66.08	8.2814	106	67.1356	8.107	Si
SLV 2	11.15	-66.45	-31.3967	107	67.4687	2.149	Si
SLV 6	10.35	-76.25	9.1178	122	76.3336	8.372	Si
SLV 6	11.15	-74.86	-25.8716	120	75.092	2.902	Si
SLV 1	10.35	-66.08	8.2814	106	67.1356	8.107	Si
SLV 1	11.15	-66.45	-31.3967	107	67.4687	2.149	Si
SLV 4	10.35	-60.82	4.0092	98	62.2596	15.529	Si
SLV 4	11.15	-58.24	-25.1298	93	59.8317	2.381	Si
SLD 1	10.35	-67.84	3.6556	109	68.7485	18.806	Si
SLD 1	11.15	-63.11	-19.1027	101	64.3854	3.37	Si
SLD 3	10.35	-65.6	1.8241	105	66.6883	36.559	Si
SLD 3	11.15	-59.64	-16.5509	96	61.1505	3.695	Si
SLV 5	10.35	-76.25	9.1178	122	76.3336	8.372	Si
SLV 5	11.15	-74.86	-25.8716	120	75.092	2.902	Si
SLD 4	10.35	-65.6	1.8241	105	66.6883	36.559	Si
SLD 4	11.15	-59.64	-16.5509	96	61.1505	3.695	Si
SLV 3	10.35	-60.82	4.0092	98	62.2596	15.529	Si
SLV 3	11.15	-58.24	-25.1298	93	59.8317	2.381	Si
SLD 2	10.35	-67.84	3.6556	109	68.7485	18.806	Si
SLD 2	11.15	-63.11	-19.1027	101	64.3854	3.37	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	10.35	-99.04	23.05	2.0653		159	2.225	77	47.82			2.07	Si
SLU 79	11.15	-88.85	16.36	-14.8005		143	2.225	75	46.46			2.84	Si
SLU 76	10.35	-90.63	23.31	1.7699		145	2.225	75	46.69			2	Si
SLU 76	11.15	-81.28	16.28	-14.3135		130	2.225	73	45.45			2.79	Si
SLU 72	10.35	-85.65	23.61	2.996		137	2.225	74	46.03			1.95	Si
SLU 72	11.15	-76.18	16.83	-13.5096		122	2.225	72	44.77			2.66	Si
SLU 80	10.35	-94.35	24.61	2.5024		151	2.225	76	47.19			1.92	Si
SLU 80	11.15	-84.91	17.36	-14.7165		136	2.225	74	45.93			2.65	Si
SLU 70	10.35	-89.49	23.5	2.7058		144	2.225	75	46.54			1.98	Si
SLU 70	11.15	-79.86	16.64	-13.8726		128	2.225	73	45.26			2.72	Si
SLU 38	10.35	-77.93	21.97	2.4574		125	2.225	72	45			2.05	Si
SLU 38	11.15	-71.15	15.44	-12.5097		114	2.225	71	44.1			2.86	Si
SLU 68	10.35	-81.93	22.31	2.2636		132	2.225	73	45.53			2.04	Si
SLU 68	11.15	-72.55	15.75	-13.1066		116	2.225	71	44.28			2.81	Si
SLU 30	10.35	-69.23	20.97	2.951		111	2.225	70	43.84			2.09	Si
SLU 30	11.15	-62.42	14.91	-11.3028		100	2.225	69	42.93			2.88	Si
SLU 36	10.35	-81.77	21.86	2.1671		131	2.225	73	45.51			2.08	Si
SLU 36	11.15	-74.83	15.24	-12.8727		120	2.225	72	44.59			2.93	Si
SLU 78	10.35	-98.19	24.5	2.2121		158	2.225	77	47.7			1.95	Si
SLU 78	11.15	-88.59	17.17	-15.0795		142	2.225	75	46.42			2.7	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	10.35	-72.35	-38.12	-7.8417		116	2.225	107	66.39			1.74	Si
SLV 15	11.15	-54.91	-29.97	11.5461		88	2.225	101	62.9			2.1	Si
SLV 3	10.35	-60.82	47.03	4.0092		98	2.225	103	64.08			1.36	Si
SLV 3	11.15	-58.24	35.24	-25.1298		102	2.043	104	59.32			1.68	Si
SLV 6	10.35	-76.25	54.38	9.1178		122	2.225	108	67.17			1.24	Si
SLV 6	11.15	-74.86	41.06	-25.8716		120	2.225	107	66.89			1.63	Si
SLD 1	10.35	-67.84	34.92	3.6556		109	2.225	105	65.49			1.88	Si
SLD 1	11.15	-63.11	26	-19.1027		101	2.225	104	64.54			2.48	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	10.35	-66.08	64.18	8.2814		106	2.225	105	65.13			1.01	Si
SLV 2	11.15	-66.45	48.46	-31.3967		124	1.92	108	58.09			1.2	Si
SLV 16	10.35	-72.35	-38.12	-7.8417		116	2.225	107	66.39			1.74	Si
SLV 16	11.15	-54.91	-29.97	11.5461		88	2.225	101	62.9			2.1	Si
SLV 4	10.35	-60.82	47.03	4.0092		98	2.225	103	64.08			1.36	Si
SLV 4	11.15	-58.24	35.24	-25.1298		102	2.043	104	59.32			1.68	Si
SLD 2	10.35	-67.84	34.92	3.6556		109	2.225	105	65.49			1.88	Si
SLD 2	11.15	-63.11	26	-19.1027		101	2.225	104	64.54			2.48	Si
SLV 5	10.35	-76.25	54.38	9.1178		122	2.225	108	67.17			1.24	Si
SLV 5	11.15	-74.86	41.06	-25.8716		120	2.225	107	66.89			1.63	Si
SLV 1	10.35	-66.08	64.18	8.2814		106	2.225	105	65.13			1.01	Si
SLV 1	11.15	-66.45	48.46	-31.3967		124	1.92	108	58.09			1.2	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.46	89	-55.55	2.703	7.2092	2.67	Si
SLV 12	1438	0.46	89	-55.55	2.703	7.2092	2.67	Si
SLV 8	1438	0.46	90	-56.34	2.703	7.3038	2.7	Si
SLV 7	1438	0.46	90	-56.34	2.703	7.3038	2.7	Si
SLV 15	1438	0.46	101	-63.09	2.703	8.1002	3	Si
SLV 16	1438	0.46	101	-63.09	2.703	8.1002	3	Si
SLV 3	1438	0.46	105	-65.73	2.703	8.4071	3.11	Si
SLV 4	1438	0.46	105	-65.73	2.703	8.4071	3.11	Si
SLV 13	1438	0.46	113	-70.34	2.703	8.9377	3.31	Si
SLV 14	1438	0.46	113	-70.34	2.703	8.9377	3.31	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-44.07	-63.38	1.02	0.036	7.694	0.903	0.57999	11.93169	No
SLV 4	-44.07	-63.38	1.02	0.036	7.694	0.903	0.57999	11.93169	No
SLV 14	-50.83	-66.46	-0.98	0.037	8.362	0.908	0.59312	11.93169	No
SLV 13	-50.83	-66.46	-0.98	0.037	8.362	0.908	0.59312	11.93169	No
SLV 8	-37.94	-44.71	0.87	0.038	7.093	0.899	0.62019	12.41353	No
SLV 7	-37.94	-44.71	0.87	0.038	7.093	0.899	0.62019	12.41353	No
SLV 9	-56.96	-85.13	-0.82	0.039	8.972	0.913	0.62604	12.41353	No
SLV 10	-56.96	-85.13	-0.82	0.039	8.972	0.913	0.62604	12.41353	No
SLV 1	-49.67	-76.4	0.66	0.042	8.248	0.908	0.66483	11.93169	No
SLV 2	-49.67	-76.4	0.66	0.042	8.248	0.908	0.66483	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.278	SLU 68	Si
V_SLU	1.917	SLU 80	Si
PF_SLV	2.149	SLV 1	Si
V_SLV	1.015	SLV 1	Si
PFFP_SLV	2.667	SLV 11	Si
R_SLV	0.049	SLV 3	No

## Maschio 142

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.263	-3.359	-18.868	-3.359	L5	L6	0.605	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 51	10.35	-25.57	1.9392	151	6.3017	3.25	Si
SLU 51	11.15	-17.83	-0.1825	105	4.6959	25.733	Si
SLU 26	10.35	-20.35	1.5917	120	5.2481	3.297	Si
SLU 26	11.15	-14.32	0.0062	85	3.8815	628.234	Si
SLU 68	10.35	-25.55	1.8958	151	6.2977	3.322	Si
SLU 68	11.15	-18.09	0.1096	107	4.7546	43.369	Si
SLU 28	10.35	-24.25	1.8435	143	6.0461	3.28	Si
SLU 28	11.15	-17.63	-0.1872	104	4.6509	24.846	Si
SLU 72	10.35	-28.45	2.1453	168	6.8322	3.185	Si
SLU 72	11.15	-20.37	-0.1932	120	5.2531	27.188	Si
SLU 30	10.35	-23.25	1.8412	137	5.8487	3.176	Si
SLU 30	11.15	-16.6	-0.2967	98	4.4178	14.891	Si
SLU 70	10.35	-29.45	2.1476	174	7.0069	3.263	Si
SLU 70	11.15	-21.4	-0.0837	126	5.4693	65.315	Si
SLU 80	10.35	-31.16	2.219	184	7.2968	3.288	Si
SLU 80	11.15	-23.23	-0.0411	137	5.8441	142.299	Si
SLU 71	10.35	-31.05	2.1938	183	7.2789	3.318	Si
SLU 71	11.15	-22.95	-0.1877	135	5.7868	30.826	Si
SLU 9	10.35	-20.37	1.6351	120	5.2526	3.212	Si
SLU 9	11.15	-14.05	-0.2859	83	3.8185	13.354	Si





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	10.35	-5.69	-3.3946	0	0	0	No, $e \geq l/2$
SLV 16	11.15	-15	4.4918	89	4.2093	0.937	No, $M > Mu$
SLV 9	10.35	-17.26	3.0023	102	4.785	1.594	Si
SLV 9	11.15	-5.11	0.9746	30	1.5065	1.546	Si
SLV 6	10.35	-27.18	5.3263	160	7.1418	1.341	Si
SLV 6	11.15	-8.19	-1.392	48	2.3795	1.709	Si
SLV 13	10.35	-5.69	-1.6936	34	1.6726	0.988	No, $M > Mu$
SLV 13	11.15	-8.77	4.1428	0	0	0	No, $e \geq l/2$
SLV 2	10.35	-38.75	6.053	229	9.5281	1.574	Si
SLV 2	11.15	-19.05	-3.7459	112	5.2332	1.397	Si
SLV 14	10.35	-5.69	-1.6936	34	1.6726	0.988	No, $M > Mu$
SLV 14	11.15	-8.77	4.1428	0	0	0	No, $e \geq l/2$
SLV 5	10.35	-27.18	5.3263	160	7.1418	1.341	Si
SLV 5	11.15	-8.19	-1.392	48	2.3795	1.709	Si
SLV 15	10.35	-5.69	-3.3946	0	0	0	No, $e \geq l/2$
SLV 15	11.15	-15	4.4918	89	4.2093	0.937	No, $M > Mu$
SLV 10	10.35	-17.26	3.0023	102	4.785	1.594	Si
SLV 10	11.15	-5.11	0.9746	30	1.5065	1.546	Si
SLV 1	10.35	-38.75	6.053	229	9.5281	1.574	Si
SLV 1	11.15	-19.05	-3.7459	112	5.2332	1.397	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 69	10.35	-32.04	5.71	2.196		189	0.605	81	13.68			2.4	Si
SLU 69	11.15	-23.97	1.05	-0.0782		141	0.605	74	12.61			11.97	Si
SLU 71	10.35	-31.05	5.85	2.1938		183	0.605	80	13.55			2.31	Si
SLU 71	11.15	-22.95	1.1	-0.1877		135	0.605	74	12.47			11.35	Si
SLU 79	10.35	-33.75	5.9	2.2675		199	0.605	82	13.91			2.36	Si
SLU 79	11.15	-25.8	0.82	-0.0356		152	0.605	76	12.85			15.62	Si
SLU 72	10.35	-28.45	5.56	2.1453		168	0.605	78	13.2			2.38	Si
SLU 72	11.15	-20.37	1.35	-0.1932		120	0.605	72	12.13			8.97	Si
SLU 70	10.35	-29.45	5.42	2.1476		174	0.605	79	13.34			2.46	Si
SLU 70	11.15	-21.4	1.31	-0.0837		126	0.605	72	12.26			9.38	Si
SLU 77	10.35	-34.75	5.76	2.2697		205	0.605	83	14.04			2.44	Si
SLU 77	11.15	-26.83	0.78	0.0739		158	0.605	77	12.99			16.71	Si
SLU 50	10.35	-28.17	5.29	1.9877		166	0.605	78	13.17			2.49	Si
SLU 50	11.15	-20.4	1.11	-0.177		120	0.605	72	12.13			10.88	Si
SLU 80	10.35	-31.16	5.61	2.219		184	0.605	80	13.57			2.42	Si
SLU 80	11.15	-23.23	1.08	-0.0411		137	0.605	74	12.51			11.62	Si
SLU 29	10.35	-25.85	5.28	1.8897		153	0.605	76	12.86			2.44	Si
SLU 29	11.15	-19.17	0.88	-0.2912		113	0.605	71	11.97			13.63	Si
SLU 37	10.35	-28.55	5.32	1.9634		169	0.605	78	13.22			2.48	Si
SLU 37	11.15	-22.03	0.6	-0.139		130	0.605	73	12.35			20.5	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	10.35	-5.69	-13.68	-3.3946		0	0	83	0			0	No, $V_u < V$
SLV 16	11.15	-15	-6.65	4.4918		5772	0.0093	163	0.42			0.06	No, $V_u < V$
SLV 14	10.35	-5.69	-11.09	-1.6936		1465	0.0139	163	0.63			0.06	No, $V_u < V$
SLV 14	11.15	-8.77	-2.57	4.1428		0	0	83	0			0	No, $V_u < V$
SLV 1	10.35	-38.75	19.19	6.053		315	0.4389	146	17.99			0.94	No, $V_u < V$
SLV 1	11.15	-19.05	7.91	-3.7459		214	0.3177	126	11.22			1.42	Si
SLV 6	10.35	-27.18	11.61	5.3263		304	0.3196	144	12.89			1.11	Si
SLV 6	11.15	-8.19	9.01	-1.392		74	0.3976	98	10.92			1.21	Si
SLV 5	10.35	-27.18	11.61	5.3263		304	0.3196	144	12.89			1.11	Si
SLV 5	11.15	-8.19	9.01	-1.392		74	0.3976	98	10.92			1.21	Si
SLV 4	10.35	-38.76	16.59	4.3519		243	0.5706	132	21.07			1.27	Si
SLV 4	11.15	-25.28	3.83	-3.3968		179	0.5044	119	16.83			4.39	Si
SLV 13	10.35	-5.69	-11.09	-1.6936		1465	0.0139	163	0.63			0.06	No, $V_u < V$
SLV 13	11.15	-8.77	-2.57	4.1428		0	0	83	0			0	No, $V_u < V$
SLV 15	10.35	-5.69	-13.68	-3.3946		0	0	83	0			0	No, $V_u < V$
SLV 15	11.15	-15	-6.65	4.4918		5772	0.0093	163	0.42			0.06	No, $V_u < V$
SLV 2	10.35	-38.75	19.19	6.053		315	0.4389	146	17.99			0.94	No, $V_u < V$
SLV 2	11.15	-19.05	7.91	-3.7459		214	0.3177	126	11.22			1.42	Si
SLV 3	10.35	-38.76	16.59	4.3519		243	0.5706	132	21.07			1.27	Si
SLV 3	11.15	-25.28	3.83	-3.3968		179	0.5044	119	16.83			4.39	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.46	56	-9.5	0.735	1.269	1.73	Si
SLV 15	1438	0.46	56	-9.5	0.735	1.269	1.73	Si
SLV 13	1438	0.46	62	-10.44	0.735	1.3883	1.89	Si
SLV 14	1438	0.46	62	-10.44	0.735	1.3883	1.89	Si
SLV 12	1438	0.46	79	-13.42	0.735	1.7574	2.39	Si
SLV 11	1438	0.46	79	-13.42	0.735	1.7574	2.39	Si
SLV 9	1438	0.46	98	-16.57	0.735	2.1337	2.9	Si
SLV 10	1438	0.46	98	-16.57	0.735	2.1337	2.9	Si
SLV 7	1438	0.46	105	-17.73	0.735	2.2695	3.09	Si
SLV 8	1438	0.46	105	-17.73	0.735	2.2695	3.09	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 15	-6.09	-12.59	-0.68	0	1.525	0.889	0	11.93169	No
SLV 13	-4.08	-12.89	-0.61	0	1.345	0.891	0	11.93169	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-4.08	-12.89	-0.61	0	1.345	0.891	0	11.93169	No
SLV 16	-6.09	-12.59	-0.68	0	1.525	0.889	0	11.93169	No
SLV 2	-13.22	-14.78	0.64	0.017	2.214	0.907	0.26729	11.93169	No
SLV 1	-13.22	-14.78	0.64	0.017	2.214	0.907	0.26729	11.93169	No
SLV 4	-15.23	-14.48	0.58	0.022	2.414	0.912	0.3538	11.93169	No
SLV 3	-15.23	-14.48	0.58	0.022	2.414	0.912	0.3538	11.93169	No
SLV 12	-11.64	-12.9	-0.32	0.034	2.059	0.903	0.54327	12.41353	No
SLV 11	-11.64	-12.9	-0.32	0.034	2.059	0.903	0.54327	12.41353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.176	SLU 30	Si
V_SLU	2.315	SLU 71	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	1.727	SLV 15	Si
R_SLV	0	SLV 13	No

## Maschio 143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	1.046	-19.618	5.811	L5	L6	4.765	0.14	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 38	8.35	-242.44	40.8173	363	319.9312	7.838	Si
SLU 38	11.87	-164.01	75.2825	246	272.827	3.624	Si
SLU 9	8.35	-197.86	41.839	297	299.7765	7.165	Si
SLU 9	11.87	-138.53	67.4438	208	245.9184	3.646	Si
SLU 27	8.35	-225.66	42.4416	338	314.3893	7.408	Si
SLU 27	11.87	-155.46	72.0055	233	264.432	3.672	Si
SLU 30	8.35	-227.4	47.3165	341	315.0775	6.659	Si
SLU 30	11.87	-158.7	78.2141	238	267.6912	3.423	Si
SLU 8	8.35	-197.7	43.0938	296	299.6726	6.954	Si
SLU 8	11.87	-138.07	68.5374	207	245.3811	3.58	Si
SLU 37	8.35	-242.28	42.0721	363	319.89	7.603	Si
SLU 37	11.87	-163.55	76.3761	245	272.3923	3.566	Si
SLU 72	8.35	-256.84	43.6963	385	322.718	7.385	Si
SLU 72	11.87	-173.56	76.674	260	281.4491	3.671	Si
SLU 28	8.35	-225.82	41.1868	338	314.4539	7.635	Si
SLU 28	11.87	-155.92	70.9119	234	264.8993	3.736	Si
SLU 71	8.35	-256.68	44.951	385	322.697	7.179	Si
SLU 71	11.87	-173.1	77.7676	259	281.0529	3.614	Si
SLU 29	8.35	-227.24	48.5712	341	315.0151	6.486	Si
SLU 29	11.87	-158.24	79.3077	237	267.2351	3.37	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 9	8.35	-101.13	-58.8057	152	211.0571	3.589	Si
SLV 9	11.87	-69.68	6.6157	104	151.8343	22.951	Si
SLV 14	8.35	-120.39	-32.8264	180	244.4794	7.448	Si
SLV 14	11.87	-77.5	3.4533	116	167.0896	48.386	Si
SLV 13	8.35	-120.39	-32.8264	180	244.4794	7.448	Si
SLV 13	11.87	-77.5	3.4533	116	167.0896	48.386	Si
SLV 6	8.35	-108.5	-51.6089	163	224.1071	4.342	Si
SLV 6	11.87	-69.23	9.9928	104	150.9393	15.105	Si
SLV 12	8.35	-180.75	39.4104	271	335.1511	8.504	Si
SLV 12	11.87	-90.5	8.837	136	191.6832	21.691	Si
SLV 5	8.35	-108.5	-51.6089	163	224.1071	4.342	Si
SLV 5	11.87	-69.23	9.9928	104	150.9393	15.105	Si
SLV 10	8.35	-101.13	-58.8057	152	211.0571	3.589	Si
SLV 10	11.87	-69.68	6.6157	104	151.8343	22.951	Si
SLV 7	8.35	-188.12	46.6072	282	344.7694	7.397	Si
SLV 7	11.87	-90.05	12.2141	135	190.8434	15.625	Si
SLV 8	8.35	-188.12	46.6072	282	344.7694	7.397	Si
SLV 8	11.87	-90.05	12.2141	135	190.8434	15.625	Si
SLV 11	8.35	-180.75	39.4104	271	335.1511	8.504	Si
SLV 11	11.87	-90.5	8.837	136	191.6832	21.691	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 7	8.35	-196.29	-8.24	35.7094		294	4.7652	95	63.23			7.67	Si
SLU 7	11.87	-135.75	-1.54	60.1416		203	4.7652	83	55.16			35.75	Si
SLU 30	8.35	-227.4	-8.72	47.3165		341	4.7652	101	67.38			7.73	Si
SLU 30	11.87	-158.7	-0.58	78.2141		238	4.7652	87	58.22			99.82	Si
SLU 50	8.35	-227.14	-9.58	39.4736		340	4.7652	101	67.35			7.03	Si
SLU 50	11.87	-152.93	-2.14	66.9973		229	4.7652	86	57.45			26.9	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 48	8.35	-225.57	-8.68	33.344		338	4.7652	101	67.14			7.73	Si
SLU 48	11.87	-150.15	-1.75	59.6951		225	4.7652	86	57.08			32.58	Si
SLU 51	8.35	-227.3	-10.09	38.2189		341	4.7652	101	67.37			6.68	Si
SLU 51	11.87	-153.39	-2.77	65.9037		230	4.7652	86	57.51			20.75	Si
SLU 8	8.35	-197.7	-8.63	43.0938		296	4.7652	95	63.42			7.34	Si
SLU 8	11.87	-138.07	-1.29	68.5374		207	4.7652	83	55.47			42.98	Si
SLU 9	8.35	-197.86	-9.14	41.839		297	4.7652	95	63.44			6.94	Si
SLU 9	11.87	-138.53	-1.93	67.4438		208	4.7652	83	55.53			28.82	Si
SLU 49	8.35	-225.73	-9.19	32.0892		338	4.7652	101	67.16			7.31	Si
SLU 49	11.87	-150.61	-2.39	58.6015		226	4.7652	86	57.14			23.93	Si
SLU 72	8.35	-256.84	-9.66	43.6963		385	4.7652	107	71.31			7.38	Si
SLU 72	11.87	-173.56	-1.43	76.674		260	4.7652	90	60.2			42.15	Si
SLU 71	8.35	-256.68	-9.16	44.951		385	4.7652	107	71.29			7.78	Si
SLU 71	11.87	-173.1	-0.79	77.7676		259	4.7652	90	60.14			75.91	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	8.35	-188.12	81.91	46.6072		282	4.7652	140	93.22			1.14	Si
SLV 7	11.87	-90.05	68.72	12.2141		135	4.7652	110	73.6			1.07	Si
SLV 10	8.35	-101.13	-85.75	-58.8057		152	4.7652	114	75.82			0.88	No, Vu<V
SLV 10	11.87	-69.68	-69.55	6.6157		104	4.7652	104	69.53			1	No, Vu<V
SLV 11	8.35	-180.75	65.9	39.4104		271	4.7652	138	91.74			1.39	Si
SLV 11	11.87	-90.5	59.94	8.837		136	4.7652	110	73.69			1.23	Si
SLV 12	8.35	-180.75	65.9	39.4104		271	4.7652	138	91.74			1.39	Si
SLV 12	11.87	-90.5	59.94	8.837		136	4.7652	110	73.69			1.23	Si
SLV 13	8.35	-120.39	-51.35	-32.8264		180	4.7652	119	79.67			1.55	Si
SLV 13	11.87	-77.5	-34.47	3.4533		116	4.7652	107	71.09			2.06	Si
SLV 5	8.35	-108.5	-69.73	-51.6089		163	4.7652	116	77.29			1.11	Si
SLV 5	11.87	-69.23	-60.77	9.9928		104	4.7652	104	69.44			1.14	Si
SLV 6	8.35	-108.5	-69.73	-51.6089		163	4.7652	116	77.29			1.11	Si
SLV 6	11.87	-69.23	-60.77	9.9928		104	4.7652	104	69.44			1.14	Si
SLV 14	8.35	-120.39	-51.35	-32.8264		180	4.7652	119	79.67			1.55	Si
SLV 14	11.87	-77.5	-34.47	3.4533		116	4.7652	107	71.09			2.06	Si
SLV 9	8.35	-101.13	-85.75	-58.8057		152	4.7652	114	75.82			0.88	No, Vu<V
SLV 9	11.87	-69.68	-69.55	6.6157		104	4.7652	104	69.53			1	No, Vu<V
SLV 8	8.35	-188.12	81.91	46.6072		282	4.7652	140	93.22			1.14	Si
SLV 8	11.87	-90.05	68.72	12.2141		135	4.7652	110	73.6			1.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.46	128	-85.07	3.0964	5.3334	1.72	Si
SLV 9	1438	0.46	128	-85.07	3.0964	5.3334	1.72	Si
SLV 5	1438	0.46	128	-85.35	3.0964	5.3492	1.73	Si
SLV 6	1438	0.46	128	-85.35	3.0964	5.3492	1.73	Si
SLV 13	1438	0.46	156	-103.87	3.0964	6.3445	2.05	Si
SLV 14	1438	0.46	156	-103.87	3.0964	6.3445	2.05	Si
SLV 2	1438	0.46	157	-104.82	3.0964	6.3939	2.06	Si
SLV 1	1438	0.46	157	-104.82	3.0964	6.3939	2.06	Si
SLV 16	1438	0.46	180	-120.27	3.0964	7.1768	2.32	Si
SLV 15	1438	0.46	180	-120.27	3.0964	7.1768	2.32	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	-90.05	-188.12	0.14	0.022	12.524	0.929	0.3502	18.90693	No
SLV 7	-90.05	-188.12	0.14	0.022	12.524	0.929	0.3502	18.90693	No
SLV 11	-90.5	-180.75	0.12	0.023	12.569	0.929	0.35375	18.90693	No
SLV 12	-90.5	-180.75	0.12	0.023	12.569	0.929	0.35375	18.90693	No
SLV 4	-82.23	-168.86	0.09	0.023	11.737	0.925	0.36332	18.90693	No
SLV 3	-82.23	-168.86	0.09	0.023	11.737	0.925	0.36332	18.90693	No
SLV 9	-69.68	-101.13	-0.14	0.023	10.477	0.918	0.36407	18.90693	No
SLV 10	-69.68	-101.13	-0.14	0.023	10.477	0.918	0.36407	18.90693	No
SLV 14	-77.5	-120.39	-0.08	0.023	11.261	0.922	0.36768	18.90693	No
SLV 13	-77.5	-120.39	-0.08	0.023	11.261	0.922	0.36768	18.90693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.37	SLU 29	Si
V_SLU	6.68	SLU 51	Si
PF_SLV	3.589	SLV 9	Si
V_SLV	0.884	SLV 9	No
PFFP_SLV	1.722	SLV 9	Si
R_SLV	0.019	SLV 7	No

## Maschio 144

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	5.811	-19.618	6.521	L5	L6	0.71	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 72	8.35	-112.15	4.0134	564	12.2402	3.05	Si
SLU 72	11.87	-103.25	1.7762	519	13.284	7.479	Si
SLU 69	8.35	-107.85	3.7423	543	12.7879	3.417	Si
SLU 69	11.87	-99.15	1.695	499	13.6479	8.052	Si
SLU 70	8.35	-107.21	3.7276	539	12.8631	3.451	Si
SLU 70	11.87	-98.72	1.6884	497	13.6812	8.103	Si
SLU 38	8.35	-103.73	3.621	522	13.2363	3.655	Si
SLU 38	11.87	-100.18	1.7991	504	13.5627	7.539	Si
SLU 71	8.35	-112.8	4.0282	567	12.151	3.016	Si
SLU 71	11.87	-103.67	1.7828	521	13.2423	7.428	Si
SLU 29	8.35	-106.27	3.9621	535	12.9689	3.273	Si
SLU 29	11.87	-99.73	1.7618	502	13.6002	7.719	Si
SLU 37	8.35	-104.38	3.6358	525	13.1709	3.623	Si
SLU 37	11.87	-100.61	1.8057	506	13.5267	7.491	Si
SLU 79	8.35	-110.91	3.7019	558	12.4072	3.352	Si
SLU 79	11.87	-104.54	1.8267	526	13.1538	7.201	Si
SLU 80	8.35	-110.26	3.6871	555	12.491	3.388	Si
SLU 80	11.87	-104.12	1.82	524	13.1971	7.251	Si
SLU 30	8.35	-105.62	3.9473	531	13.0396	3.303	Si
SLU 30	11.87	-99.31	1.7552	500	13.6346	7.768	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 15	8.35	-43.64	5.837	220	12.7085	2.177	Si
SLV 15	11.87	-31.01	0.4066	156	9.6028	23.617	Si
SLV 16	8.35	-43.64	5.837	220	12.7085	2.177	Si
SLV 16	11.87	-31.01	0.4066	156	9.6028	23.617	Si
SLV 14	8.35	-21.28	5.6699	107	6.8925	1.216	Si
SLV 14	11.87	-21.97	0.3257	111	7.0952	21.787	Si
SLV 5	8.35	-3.44	-1.0818	17	1.203	1.112	Si
SLV 5	11.87	-19.56	0.3566	98	6.3844	17.903	Si
SLV 9	8.35	0.37	1.9443	0	0	0	No, Trazione
SLV 9	11.87	-15.81	0.2987	80	5.247	17.564	Si
SLV 13	8.35	-21.28	5.6699	107	6.8925	1.216	Si
SLV 13	11.87	-21.97	0.3257	111	7.0952	21.787	Si
SLV 1	8.35	-33.96	-4.4173	171	10.3705	2.348	Si
SLV 1	11.87	-34.47	0.5186	173	10.5013	20.251	Si
SLV 2	8.35	-33.96	-4.4173	171	10.3705	2.348	Si
SLV 2	11.87	-34.47	0.5186	173	10.5013	20.251	Si
SLV 6	8.35	-3.44	-1.0818	17	1.203	1.112	Si
SLV 6	11.87	-19.56	0.3566	98	6.3844	17.903	Si
SLV 10	8.35	0.37	1.9443	0	0	0	No, Trazione
SLV 10	11.87	-15.81	0.2987	80	5.247	17.564	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 71	8.35	-112.8	4.39	4.0282		567	0.71	108	21.54			4.9	Si
SLU 71	11.87	-103.67	-3.86	1.7828		521	0.71	108	21.54			5.58	Si
SLU 29	8.35	-106.27	4.48	3.9621		535	0.71	108	21.54			4.81	Si
SLU 29	11.87	-99.73	-3.72	1.7618		502	0.71	108	21.54			5.8	Si
SLU 30	8.35	-105.62	4.46	3.9473		531	0.71	108	21.54			4.82	Si
SLU 30	11.87	-99.31	-3.74	1.7552		500	0.71	108	21.54			5.76	Si
SLU 28	8.35	-100.68	4.05	3.6615		506	0.71	108	21.54			5.32	Si
SLU 28	11.87	-94.79	-3.65	1.6674		477	0.71	108	21.54			5.91	Si
SLU 9	8.35	-93.32	4.11	3.5394		469	0.71	108	21.54			5.24	Si
SLU 9	11.87	-85.75	-3.16	1.4891		431	0.71	108	21.54			6.82	Si
SLU 79	8.35	-110.91	3.63	3.7019		558	0.71	108	21.54			5.93	Si
SLU 79	11.87	-104.54	-4.11	1.8267		526	0.71	108	21.54			5.24	Si
SLU 72	8.35	-112.15	4.37	4.0134		564	0.71	108	21.54			4.92	Si
SLU 72	11.87	-103.25	-3.88	1.7762		519	0.71	108	21.54			5.55	Si
SLU 80	8.35	-110.26	3.61	3.6871		555	0.71	108	21.54			5.96	Si
SLU 80	11.87	-104.12	-4.13	1.82		524	0.71	108	21.54			5.21	Si
SLU 27	8.35	-101.32	4.06	3.6762		510	0.71	108	21.54			5.3	Si
SLU 27	11.87	-95.21	-3.62	1.6741		479	0.71	108	21.54			5.95	Si
SLU 8	8.35	-93.97	4.12	3.5541		473	0.71	108	21.54			5.22	Si
SLU 8	11.87	-86.18	-3.13	1.4958		433	0.71	108	21.54			6.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	8.35	-33.96	-9.29	-4.4173		180	0.6748	119	22.54			2.43	Si
SLV 1	11.87	-34.47	-1.88	0.5186		173	0.71	118	23.46			12.49	Si
SLV 5	8.35	-3.44	-7.06	-1.0818		102	0.1208	104	3.51			0.5	No, Vu<V
SLV 5	11.87	-19.56	-3.31	0.3566		98	0.71	103	20.48			6.18	Si
SLV 10	8.35	0.37	-2.33	1.9443		0	0	83	0			0	No, Vu<V
SLV 10	11.87	-15.81	-3.37	0.2987		80	0.71	99	19.73			5.86	Si
SLV 14	8.35	-21.28	6.46	5.6699		286	0.2657	141	10.45			1.62	Si
SLV 14	11.87	-21.97	-2.05	0.3257		111	0.71	105	20.96			10.22	Si
SLV 16	8.35	-43.64	9.28	5.837		235	0.6637	130	24.21			2.61	Si
SLV 16	11.87	-31.01	-0.87	0.4066		156	0.71	115	22.77			26.12	Si
SLV 2	8.35	-33.96	-9.29	-4.4173		180	0.6748	119	22.54			2.43	Si
SLV 2	11.87	-34.47	-1.88	0.5186		173	0.71	118	23.46			12.49	Si
SLV 9	8.35	0.37	-2.33	1.9443		0	0	83	0			0	No, Vu<V
SLV 9	11.87	-15.81	-3.37	0.2987		80	0.71	99	19.73			5.86	Si
SLV 6	8.35	-3.44	-7.06	-1.0818		102	0.1208	104	3.51			0.5	No, Vu<V
SLV 6	11.87	-19.56	-3.31	0.3566		98	0.71	103	20.48			6.18	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	8.35	-43.64	9.28	5.837		235	0.6637	130	24.21			2.61	Si
SLV 15	11.87	-31.01	-0.87	0.4066		156	0.71	115	22.77			26.12	Si
SLV 13	8.35	-21.28	6.46	5.6699		286	0.2657	141	10.45			1.62	Si
SLV 13	11.87	-21.97	-2.05	0.3257		111	0.71	105	20.96			10.22	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.46	58	-11.54	0.8826	1.5383	1.74	Si
SLV 9	1438	0.46	58	-11.54	0.8826	1.5383	1.74	Si
SLV 6	1438	0.46	80	-15.97	0.8826	2.0891	2.37	Si
SLV 5	1438	0.46	80	-15.97	0.8826	2.0891	2.37	Si
SLV 13	1438	0.46	110	-21.79	0.8826	2.777	3.15	Si
SLV 14	1438	0.46	110	-21.79	0.8826	2.777	3.15	Si
SLV 15	1438	0.46	176	-35.02	0.8826	4.1956	4.75	Si
SLV 16	1438	0.46	176	-35.02	0.8826	4.1956	4.75	Si
SLV 1	1438	0.46	184	-36.58	0.8826	4.3498	4.93	Si
SLV 2	1438	0.46	184	-36.58	0.8826	4.3498	4.93	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-15.81	0.37	0.11	0	0	0	0	12.41353	No, Trazione
SLV 9	-15.81	0.37	0.11	0	0	0	0	12.41353	No, Trazione
SLV 11	-45.92	-74.16	-0.16	0.041	5.665	0.95	0.63438	12.41353	No
SLV 12	-45.92	-74.16	-0.16	0.041	5.665	0.95	0.63438	12.41353	No
SLV 8	-49.67	-77.97	-0.09	0.043	6.046	0.952	0.65043	12.41353	No
SLV 7	-49.67	-77.97	-0.09	0.043	6.046	0.952	0.65043	12.41353	No
SLV 1	-34.47	-33.96	0.17	0.042	4.504	0.939	0.64613	11.93169	No
SLV 2	-34.47	-33.96	0.17	0.042	4.504	0.939	0.64613	11.93169	No
SLV 6	-19.56	-3.44	0.18	0.042	3.001	0.916	0.6733	12.41353	No
SLV 5	-19.56	-3.44	0.18	0.042	3.001	0.916	0.6733	12.41353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	3.016	SLV 71	Si
V_SLV	4.805	SLV 29	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLV 9	No
PFFP_SLV	1.743	SLV 9	Si
R_SLV	0	SLV 10	No

## Maschio 145

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.333	-3.359	-17.363	-3.359	L5	L6	1.03	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 31	9.25	-39.11	-3.7344	136	16.7894	4.496	Si
SLU 31	11.05	-38.84	5.1821	135	16.6954	3.222	Si
SLU 61	9.25	-50.72	-3.5812	176	20.4808	5.719	Si
SLU 61	11.05	-44.02	5.7052	153	18.423	3.229	Si
SLU 44	9.25	-42.33	-3.699	147	17.8727	4.832	Si
SLU 44	11.05	-35.93	5.2082	125	15.6739	3.009	Si
SLU 10	9.25	-35.15	-3.6213	122	15.3921	4.25	Si
SLU 10	11.05	-34.08	4.8948	118	15.0059	3.066	Si
SLU 82	9.25	-54.69	-3.6943	190	21.6072	5.849	Si
SLU 82	11.05	-48.78	5.9924	169	19.9052	3.322	Si
SLU 2	9.25	-31.65	-3.2495	110	14.1044	4.34	Si
SLU 2	11.05	-28.68	4.2921	99	12.9664	3.021	Si
SLU 73	9.25	-49.79	-4.1838	173	20.2084	4.83	Si
SLU 73	11.05	-46.09	6.0982	160	19.0799	3.129	Si
SLU 65	9.25	-46.3	-3.8121	161	19.1451	5.022	Si
SLU 65	11.05	-40.69	5.4955	141	17.3249	3.153	Si
SLU 23	9.25	-35.62	-3.3626	124	15.5625	4.628	Si
SLU 23	11.05	-33.44	4.5794	116	14.7687	3.225	Si
SLU 52	9.25	-45.83	-4.0707	159	18.9969	4.667	Si
SLU 52	11.05	-41.33	5.8109	143	17.5416	3.019	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	9.25	-27.49	-23.1176	0	0	0	No, e>1/2
SLV 14	11.05	-57.82	16.9325	201	24.893	1.47	Si
SLV 8	9.25	-41.11	15.1246	143	18.7017	1.237	Si
SLV 8	11.05	5.62	-7.2011	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	9.25	-23.8	-16.2044	0	0	0	No, $e \geq l/2$
SLV 16	11.05	-37.69	12.4171	131	17.3349	1.396	Si
SLV 3	9.25	-57.05	19.5856	198	24.6247	1.257	Si
SLV 3	11.05	-7.2	-9.6601	0	0	0	No, $e \geq l/2$
SLV 10	9.25	-43.43	-18.6566	151	19.609	1.051	Si
SLV 10	11.05	-70.64	14.4735	245	29.0871	2.01	Si
SLV 13	9.25	-27.49	-23.1176	0	0	0	No, $e \geq l/2$
SLV 13	11.05	-57.82	16.9325	201	24.893	1.47	Si
SLV 9	9.25	-43.43	-18.6566	151	19.609	1.051	Si
SLV 9	11.05	-70.64	14.4735	245	29.0871	2.01	Si
SLV 4	9.25	-57.05	19.5856	198	24.6247	1.257	Si
SLV 4	11.05	-7.2	-9.6601	0	0	0	No, $e \geq l/2$
SLV 15	9.25	-23.8	-16.2044	0	0	0	No, $e \geq l/2$
SLV 15	11.05	-37.69	12.4171	131	17.3349	1.396	Si
SLV 7	9.25	-41.11	15.1246	143	18.7017	1.237	Si
SLV 7	11.05	5.62	-7.2011	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	9.25	-49.79	-6.23	-4.1838		173	1.03	79	22.66			3.64	Si
SLU 73	11.05	-46.09	-5.47	6.0982		160	1.03	77	22.17			4.06	Si
SLU 31	9.25	-39.11	-5.3	-3.7344		136	1.03	74	21.24			4.01	Si
SLU 31	11.05	-38.84	-4.49	5.1821		135	1.03	74	21.2			4.72	Si
SLU 44	9.25	-42.33	-5.56	-3.699		147	1.03	75	21.67			3.9	Si
SLU 44	11.05	-35.93	-5.27	5.2082		125	1.03	72	20.81			3.95	Si
SLU 2	9.25	-31.65	-4.63	-3.2495		110	1.03	70	20.24			4.37	Si
SLU 2	11.05	-28.68	-4.29	4.2921		99	1.03	69	19.85			4.62	Si
SLU 10	9.25	-35.15	-5.05	-3.6213		122	1.03	72	20.71			4.1	Si
SLU 10	11.05	-34.08	-4.76	4.8948		118	1.03	71	20.57			4.32	Si
SLU 52	9.25	-45.83	-5.98	-4.0707		159	1.03	77	22.13			3.7	Si
SLU 52	11.05	-41.33	-5.73	5.8109		143	1.03	75	21.53			3.76	Si
SLU 65	9.25	-46.3	-5.81	-3.8121		161	1.03	77	22.2			3.82	Si
SLU 65	11.05	-40.69	-5	5.4955		141	1.03	74	21.45			4.29	Si
SLU 61	9.25	-50.72	-5.67	-3.5812		176	1.03	79	22.78			4.02	Si
SLU 61	11.05	-44.02	-5.39	5.7052		153	1.03	76	21.89			4.06	Si
SLU 23	9.25	-35.62	-4.88	-3.3626		124	1.03	72	20.77			4.26	Si
SLU 23	11.05	-33.44	-4.03	4.5794		116	1.03	71	20.48			5.09	Si
SLU 82	9.25	-54.69	-5.92	-3.6943		190	1.03	81	23.31			3.94	Si
SLU 82	11.05	-48.78	-5.13	5.9924		169	1.03	78	22.53			4.39	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	9.25	-27.49	-38.97	-23.1176		0	0	83	0			0	No, $V_u < V$
SLV 14	11.05	-57.82	-11.75	16.9325		310	0.6665	145	27.12			2.31	Si
SLV 9	9.25	-43.43	-28.68	-18.6566		605	0.2562	163	11.66			0.41	No, $V_u < V$
SLV 9	11.05	-70.64	-3.61	14.4735		271	0.9303	138	35.84			9.92	Si
SLV 16	9.25	-23.8	-29.42	-16.2044		0	0	83	0			0	No, $V_u < V$
SLV 16	11.05	-37.69	-13.08	12.4171		242	0.5567	132	20.53			1.57	Si
SLV 10	9.25	-43.43	-28.68	-18.6566		605	0.2562	163	11.66			0.41	No, $V_u < V$
SLV 10	11.05	-70.64	-3.61	14.4735		271	0.9303	138	35.84			9.92	Si
SLV 4	9.25	-57.05	31.81	19.5856		396	0.5151	162	23.43			0.74	No, $V_u < V$
SLV 4	11.05	-7.2	5.74	-9.6601		0	0	83	0			0	No, $V_u < V$
SLV 7	9.25	-41.11	21.52	15.1246		333	0.4413	150	18.52			0.86	No, $V_u < V$
SLV 7	11.05	5.62	-2.39	-7.2011		0	0	83	0			0	No, $V_u < V$
SLV 8	9.25	-41.11	21.52	15.1246		333	0.4413	150	18.52			0.86	No, $V_u < V$
SLV 8	11.05	5.62	-2.39	-7.2011		0	0	83	0			0	No, $V_u < V$
SLV 3	9.25	-57.05	31.81	19.5856		396	0.5151	162	23.43			0.74	No, $V_u < V$
SLV 3	11.05	-7.2	5.74	-9.6601		0	0	83	0			0	No, $V_u < V$
SLV 15	9.25	-23.8	-29.42	-16.2044		0	0	83	0			0	No, $V_u < V$
SLV 15	11.05	-37.69	-13.08	12.4171		242	0.5567	132	20.53			1.57	Si
SLV 13	9.25	-27.49	-38.97	-23.1176		0	0	83	0			0	No, $V_u < V$
SLV 13	11.05	-57.82	-11.75	16.9325		310	0.6665	145	27.12			2.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11  $W_a 0.0005$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.46	0	-7.47	1.2513	0	0	No, $e \geq t/2$
SLV 11	1438	0.46	0	-7.47	1.2513	0	0	No, $e \geq t/2$
SLV 15	1438	0.46	55	-15.83	1.2513	2.1172	1.69	Si
SLV 16	1438	0.46	55	-15.83	1.2513	2.1172	1.69	Si
SLV 8	1438	0.46	56	-16.02	1.2513	2.1403	1.71	Si
SLV 7	1438	0.46	56	-16.02	1.2513	2.1403	1.71	Si
SLV 14	1438	0.46	109	-31.55	1.2513	4.0221	3.21	Si
SLV 13	1438	0.46	109	-31.55	1.2513	4.0221	3.21	Si
SLV 3	1438	0.46	154	-44.33	1.2513	5.4254	4.34	Si
SLV 4	1438	0.46	154	-44.33	1.2513	5.4254	4.34	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	11.29	-6.83	-0.88	0	0	0	0	12.41353	No, Trazione
SLV 12	2.57	-14.97	-0.92	0	0	0	0	12.41353	No, Trazione
SLV 11	2.57	-14.97	-0.92	0	0	0	0	12.41353	No, Trazione
SLV 7	11.29	-6.83	-0.88	0	0	0	0	12.41353	No, Trazione
SLV 5	-54	-75.99	0.89	0.031	6.938	0.942	0.48424	12.41353	No
SLV 6	-54	-75.99	0.89	0.031	6.938	0.942	0.48424	12.41353	No
SLV 9	-62.72	-84.13	0.85	0.033	7.822	0.947	0.5056	12.41353	No
SLV 10	-62.72	-84.13	0.85	0.033	7.822	0.947	0.5056	12.41353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	-30.45	-48.68	-0.35	0.04	4.562	0.918	0.63569	11.93169	No
SLV 16	-30.45	-48.68	-0.35	0.04	4.562	0.918	0.63569	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.009	SLU 44	Si
V_SLU	3.636	SLU 73	Si
PF_SLV	0	SLV 8	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0	SLV 12	No

## Maschio 146

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.448	-3.359	-18.448	1.046	L5	L6	4.406	0.14	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 26	8.35	-115.5	39.5166	187	195.936	4.958	Si
SLU 26	11.87	-63.32	27.8321	103	121.8978	4.38	Si
SLU 34	8.35	-130.67	44.356	212	212.9859	4.802	Si
SLU 34	11.87	-69.69	29.742	113	132.2242	4.446	Si
SLU 5	8.35	-100.02	33.1939	162	176.4674	5.316	Si
SLU 5	11.87	-55.1	24.4376	89	108.0585	4.422	Si
SLU 13	8.35	-115.19	38.0333	187	195.5767	5.142	Si
SLU 13	11.87	-61.47	26.3475	100	118.8444	4.511	Si
SLU 28	8.35	-124.1	42.1463	201	205.8521	4.884	Si
SLU 28	11.87	-71.28	29.433	116	134.7369	4.578	Si
SLU 76	8.35	-154.77	49.6327	251	235.9109	4.753	Si
SLU 76	11.87	-82.45	33.3061	134	151.8178	4.558	Si
SLU 38	8.35	-135.73	46.2876	220	218.2173	4.714	Si
SLU 38	11.87	-74.86	30.606	121	140.3306	4.585	Si
SLU 30	8.35	-120.55	41.4482	195	201.84	4.87	Si
SLU 30	11.87	-68.48	28.6961	111	130.293	4.54	Si
SLU 36	8.35	-139.28	46.9858	226	221.757	4.72	Si
SLU 36	11.87	-77.65	31.3429	126	144.6182	4.614	Si
SLU 68	8.35	-139.59	44.7932	226	222.0674	4.958	Si
SLU 68	11.87	-76.07	31.3962	123	142.2047	4.529	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 11	8.35	-92.95	50.5831	151	179.4969	3.549	Si
SLV 11	11.87	-55.63	4.7032	90	113.4895	24.13	Si
SLV 14	8.35	-91.24	33.606	148	176.647	5.256	Si
SLV 14	11.87	-52.43	36.6262	85	107.4605	2.934	Si
SLV 15	8.35	-86.19	45.1098	140	168.1545	3.728	Si
SLV 15	11.87	-52.78	26.5102	86	108.1209	4.078	Si
SLV 10	8.35	-109.76	12.2371	178	206.5636	16.88	Si
SLV 10	11.87	-54.46	38.4233	88	111.3048	2.897	Si
SLV 16	8.35	-86.19	45.1098	140	168.1545	3.728	Si
SLV 16	11.87	-52.78	26.5102	86	108.1209	4.078	Si
SLV 5	8.35	-120.59	5.4247	196	223.1319	41.132	Si
SLV 5	11.87	-56.56	29.8476	92	115.2334	3.861	Si
SLV 13	8.35	-91.24	33.606	148	176.647	5.256	Si
SLV 13	11.87	-52.43	36.6262	85	107.4605	2.934	Si
SLV 9	8.35	-109.76	12.2371	178	206.5636	16.88	Si
SLV 9	11.87	-54.46	38.4233	88	111.3048	2.897	Si
SLV 12	8.35	-92.95	50.5831	151	179.4969	3.549	Si
SLV 12	11.87	-55.63	4.7032	90	113.4895	24.13	Si
SLV 6	8.35	-120.59	5.4247	196	223.1319	41.132	Si
SLV 6	11.87	-56.56	29.8476	92	115.2334	3.861	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	8.35	-121.86	10.94	38.6849		198	4.4057	82	50.51			4.62	Si
SLU 29	11.87	-69.33	10.8	25.3473		112	4.4057	71	43.51			4.03	Si
SLU 27	8.35	-125.41	10.26	39.3831		203	4.4057	83	50.99			4.97	Si
SLU 27	11.87	-72.13	10.12	26.0842		117	4.4057	71	43.88			4.34	Si
SLU 30	8.35	-120.55	6.2	41.4482		195	4.4057	82	50.34			8.12	Si
SLU 30	11.87	-68.48	10.08	28.6961		111	4.4057	70	43.4			4.31	Si
SLU 8	8.35	-106.38	9.83	32.3623		172	4.4057	79	48.45			4.93	Si
SLU 8	11.87	-61.12	9.66	21.9528		99	4.4057	69	42.42			4.39	Si
SLU 69	8.35	-149.5	10.82	44.6597		242	4.4057	88	54.2			5.01	Si
SLU 69	11.87	-84.89	10.59	29.6484		138	4.4057	74	45.58			4.3	Si
SLU 79	8.35	-161.13	11.23	48.801		261	4.4057	90	55.75			4.96	Si
SLU 79	11.87	-88.47	11.01	30.8214		143	4.4057	75	46.06			4.18	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	8.35	-137.03	10.67	43.5244		222	4.4057	85	52.54			4.92	Si
SLU 37	11.87	-75.71	10.54	27.2572		123	4.4057	72	44.36			4.21	Si
SLU 71	8.35	-145.95	11.5	43.9616		237	4.4057	87	53.73			4.67	Si
SLU 71	11.87	-82.09	11.27	28.9115		133	4.4057	73	45.21			4.01	Si
SLU 50	8.35	-130.48	10.39	37.6389		212	4.4057	84	51.66			4.97	Si
SLU 50	11.87	-73.87	10.13	25.5169		120	4.4057	72	44.12			4.35	Si
SLU 72	8.35	-144.65	6.76	46.7248		235	4.4057	87	53.55			7.93	Si
SLU 72	11.87	-81.24	10.55	32.2602		132	4.4057	73	45.1			4.27	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	8.35	-109.76	-82.2	12.2371		178	4.4057	119	73.35			0.89	No, Vu<V
SLV 9	11.87	-54.46	-57.92	38.4233		88	4.4057	101	62.29			1.08	Si
SLV 11	8.35	-92.95	102.54	50.5831		151	4.4057	113	69.99			0.68	No, Vu<V
SLV 11	11.87	-55.63	71.91	4.7032		90	4.4057	101	62.52			0.87	No, Vu<V
SLV 7	8.35	-103.78	88.93	43.7708		168	4.4057	117	72.16			0.81	No, Vu<V
SLV 7	11.87	-57.72	64.18	-3.8724		94	4.4057	102	62.94			0.98	No, Vu<V
SLV 10	8.35	-109.76	-82.2	12.2371		178	4.4057	119	73.35			0.89	No, Vu<V
SLV 10	11.87	-54.46	-57.92	38.4233		88	4.4057	101	62.29			1.08	Si
SLV 15	8.35	-86.19	53.76	45.1098		140	4.4057	111	68.64			1.28	Si
SLV 15	11.87	-52.78	35.49	26.5102		86	4.4057	100	61.96			1.75	Si
SLV 16	8.35	-86.19	53.76	45.1098		140	4.4057	111	68.64			1.28	Si
SLV 16	11.87	-52.78	35.49	26.5102		86	4.4057	100	61.96			1.75	Si
SLV 5	8.35	-120.59	-95.81	5.4247		196	4.4057	122	75.52			0.79	No, Vu<V
SLV 5	11.87	-56.56	-65.65	29.8476		92	4.4057	102	62.71			0.96	No, Vu<V
SLV 8	8.35	-103.78	88.93	43.7708		168	4.4057	117	72.16			0.81	No, Vu<V
SLV 8	11.87	-57.72	64.18	-3.8724		94	4.4057	102	62.94			0.98	No, Vu<V
SLV 6	8.35	-120.59	-95.81	5.4247		196	4.4057	122	75.52			0.79	No, Vu<V
SLV 6	11.87	-56.56	-65.65	29.8476		92	4.4057	102	62.71			0.96	No, Vu<V
SLV 12	8.35	-92.95	102.54	50.5831		151	4.4057	113	69.99			0.68	No, Vu<V
SLV 12	11.87	-55.63	71.91	4.7032		90	4.4057	101	62.52			0.87	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.46	118	-72.96	2.8628	4.6125	1.61	Si
SLV 15	1438	0.46	118	-72.96	2.8628	4.6125	1.61	Si
SLV 13	1438	0.46	121	-74.79	2.8628	4.716	1.65	Si
SLV 14	1438	0.46	121	-74.79	2.8628	4.716	1.65	Si
SLV 11	1438	0.46	126	-77.46	2.8628	4.8647	1.7	Si
SLV 12	1438	0.46	126	-77.46	2.8628	4.8647	1.7	Si
SLV 7	1438	0.46	135	-83.15	2.8628	5.1786	1.81	Si
SLV 8	1438	0.46	135	-83.15	2.8628	5.1786	1.81	Si
SLV 10	1438	0.46	136	-83.59	2.8628	5.2021	1.82	Si
SLV 9	1438	0.46	136	-83.59	2.8628	5.2021	1.82	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-57.72	-103.78	0.1	0.024	9.015	0.914	0.37502	18.90693	No
SLV 7	-57.72	-103.78	0.1	0.024	9.015	0.914	0.37502	18.90693	No
SLV 9	-54.46	-109.76	-0.1	0.024	8.691	0.911	0.37927	18.90693	No
SLV 10	-54.46	-109.76	-0.1	0.024	8.691	0.911	0.37927	18.90693	No
SLV 4	-59.75	-122.3	0.07	0.024	9.218	0.915	0.38007	18.90693	No
SLV 3	-59.75	-122.3	0.07	0.024	9.218	0.915	0.38007	18.90693	No
SLV 5	-56.56	-120.59	-0.08	0.024	8.9	0.913	0.38189	18.90693	No
SLV 6	-56.56	-120.59	-0.08	0.024	8.9	0.913	0.38189	18.90693	No
SLV 11	-55.63	-92.95	0.08	0.024	8.807	0.912	0.38224	18.90693	No
SLV 12	-55.63	-92.95	0.08	0.024	8.807	0.912	0.38224	18.90693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.38	SLU 26	Si
V_SLU	4.011	SLU 71	Si
PF_SLV	2.897	SLV 9	Si
V_SLV	0.683	SLV 11	No
PFFP_SLV	1.611	SLV 15	Si
R_SLV	0.02	SLV 7	No

## Maschio 147

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.893	-3.359	-15.433	-3.359	L5	L6	1.54	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 40	8.35	-75.45	-7.2467	175	45.6176	6.295	Si
SLU 40	10.45	-92.91	11.2871	215	52.6182	4.662	Si
SLU 73	8.35	-90.2	-8.0213	209	51.6165	6.435	Si
SLU 73	10.45	-106.49	12.5633	247	57.1364	4.548	Si
SLU 82	8.35	-93.11	-7.8118	216	52.689	6.745	Si
SLU 82	10.45	-110.08	12.976	255	58.1979	4.485	Si
SLU 76	8.35	-90.48	-7.0039	210	51.7218	7.385	Si
SLU 76	10.45	-104.23	12.2396	242	56.4416	4.611	Si
SLU 81	8.35	-93.67	-6.7568	217	52.8931	7.828	Si
SLU 81	10.45	-108.89	12.7011	253	57.854	4.555	Si
SLU 83	8.35	-93.96	-5.7394	218	52.9941	9.233	Si
SLU 83	10.45	-106.64	12.3774	247	57.183	4.62	Si
SLU 84	8.35	-93.39	-6.7944	217	52.7907	7.77	Si
SLU 84	10.45	-107.83	12.6523	250	57.5386	4.548	Si
SLU 78	8.35	-93	-5.5655	216	52.6508	9.46	Si
SLU 78	10.45	-104.69	12.0224	243	56.586	4.707	Si
SLU 75	8.35	-92.72	-6.5829	215	52.5487	7.983	Si
SLU 75	10.45	-106.95	12.3461	248	57.2762	4.639	Si
SLU 74	8.35	-93.29	-5.5279	216	52.7538	9.543	Si
SLU 74	10.45	-105.76	12.0712	245	56.9161	4.715	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 10	8.35	-33.3	-8.5324	77	24.0233	2.816	Si
SLD 10	10.45	-35.85	20.8169	83	25.7264	1.236	Si
SLV 10	8.35	11.34	-14.5184	0	0	0	No, Trazione
SLV 10	10.45	14.83	37.2902	0	0	0	No, Trazione
SLD 6	8.35	-36.59	-3.3187	85	26.219	7.9	Si
SLD 6	10.45	-28.41	15.3903	66	20.6973	1.345	Si
SLV 5	8.35	3.73	-2.3694	0	0	0	No, Trazione
SLV 5	10.45	32.33	24.6481	0	0	0	No, Trazione
SLD 9	8.35	-33.3	-8.5324	77	24.0233	2.816	Si
SLD 9	10.45	-35.85	20.8169	83	25.7264	1.236	Si
SLV 6	8.35	3.73	-2.3694	0	0	0	No, Trazione
SLV 6	10.45	32.33	24.6481	0	0	0	No, Trazione
SLD 5	8.35	-36.59	-3.3187	85	26.219	7.9	Si
SLD 5	10.45	-28.41	15.3903	66	20.6973	1.345	Si
SLV 13	8.35	-31.51	-25.5726	0	0	0	No, $e \geq l/2$
SLV 13	10.45	-73.48	36.1647	170	48.6869	1.346	Si
SLV 14	8.35	-31.51	-25.5726	0	0	0	No, $e \geq l/2$
SLV 14	10.45	-73.48	36.1647	170	48.6869	1.346	Si
SLV 9	8.35	11.34	-14.5184	0	0	0	No, Trazione
SLV 9	10.45	14.83	37.2902	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	8.35	-93.11	-21.13	-7.8118		216	1.54	84	36.37			1.72	Si
SLU 82	10.45	-110.08	-32.77	12.976		255	1.54	90	38.63			1.18	Si
SLU 39	8.35	-76.02	-17.45	-6.1917		176	1.54	79	34.09			1.95	Si
SLU 39	10.45	-91.73	-27.85	11.0123		213	1.54	84	36.19			1.3	Si
SLU 84	8.35	-93.39	-19.81	-6.7944		217	1.54	84	36.41			1.84	Si
SLU 84	10.45	-107.83	-30.49	12.6523		250	1.54	89	38.33			1.26	Si
SLU 76	8.35	-90.48	-19.82	-7.0039		210	1.54	84	36.02			1.82	Si
SLU 76	10.45	-104.23	-29.07	12.2396		242	1.54	88	37.85			1.3	Si
SLU 81	8.35	-93.67	-19.85	-6.7568		217	1.54	85	36.45			1.84	Si
SLU 81	10.45	-108.89	-31.97	12.7011		253	1.54	89	38.47			1.2	Si
SLU 61	8.35	-89.04	-18.03	-6.5696		207	1.54	83	35.83			1.99	Si
SLU 61	10.45	-100.8	-29.22	11.391		234	1.54	87	37.4			1.28	Si
SLU 73	8.35	-90.2	-21.14	-8.0213		209	1.54	83	35.98			1.7	Si
SLU 73	10.45	-106.49	-31.35	12.5633		247	1.54	88	38.15			1.22	Si
SLU 40	8.35	-75.45	-18.73	-7.2467		175	1.54	79	34.02			1.82	Si
SLU 40	10.45	-92.91	-28.64	11.2871		215	1.54	84	36.34			1.27	Si
SLU 75	8.35	-92.72	-19.76	-6.5829		215	1.54	84	36.32			1.84	Si
SLU 75	10.45	-106.95	-29.62	12.3461		248	1.54	89	38.22			1.29	Si
SLU 83	8.35	-93.96	-18.52	-5.7394		218	1.54	85	36.48			1.97	Si
SLU 83	10.45	-106.64	-29.7	12.3774		247	1.54	89	38.17			1.29	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 10	8.35	-33.3	-22.77	-8.5324		77	1.54	99	42.59			1.87	Si
SLD 10	10.45	-35.85	-19.28	20.8169		225	0.568	128	20.42			1.06	Si
SLD 9	8.35	-33.3	-22.77	-8.5324		77	1.54	99	42.59			1.87	Si
SLD 9	10.45	-35.85	-19.28	20.8169		225	0.568	128	20.42			1.06	Si
SLV 13	8.35	-31.51	-54.12	-25.5726		0	0	83	0			0	No, $V_u < V$
SLV 13	10.45	-73.48	-45.55	36.1647		315	0.8334	146	34.14			0.75	No, $V_u < V$
SLV 14	8.35	-31.51	-54.12	-25.5726		0	0	83	0			0	No, $V_u < V$
SLV 14	10.45	-73.48	-45.55	36.1647		315	0.8334	146	34.14			0.75	No, $V_u < V$
SLV 5	8.35	3.73	-13.58	-2.3694		0	0	83	0			0	No, $V_u < V$
SLV 5	10.45	32.33	-0.47	24.6481		0	0	83	0			0	No, $V_u < V$
SLV 16	8.35	-75.84	-47	-22.8988		193	1.4042	122	47.93			1.02	Si
SLV 16	10.45	-131.67	-52.17	22.5578		305	1.54	144	62.27			1.19	Si
SLV 9	8.35	11.34	-36.12	-14.5184		0	0	83	0			0	No, $V_u < V$
SLV 9	10.45	14.83	-17.71	37.2902		0	0	83	0			0	No, $V_u < V$
SLV 10	8.35	11.34	-36.12	-14.5184		0	0	83	0			0	No, $V_u < V$
SLV 10	10.45	14.83	-17.71	37.2902		0	0	83	0			0	No, $V_u < V$
SLV 15	8.35	-75.84	-47	-22.8988		193	1.4042	122	47.93			1.02	Si
SLV 15	10.45	-131.67	-52.17	22.5578		305	1.54	144	62.27			1.19	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	8.35	3.73	-13.58	-2.3694		0	0	83	0			0	No, Vu<V
SLV 6	10.45	32.33	-0.47	24.6481		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.46	0	10.13	1.8709	0	0	No, Trazione
SLV 6	1438	0.46	0	28.35	1.8709	0	0	No, Trazione
SLV 5	1438	0.46	0	28.35	1.8709	0	0	No, Trazione
SLV 9	1438	0.46	0	10.13	1.8709	0	0	No, Trazione
SLV 2	1438	0.46	38	-16.39	1.8709	2.2237	1.19	Si
SLV 1	1438	0.46	38	-16.39	1.8709	2.2237	1.19	Si
SLV 3	1438	0.46	169	-72.97	1.8709	8.8007	4.7	Si
SLV 4	1438	0.46	169	-72.97	1.8709	8.8007	4.7	Si
SLV 14	1438	0.46	179	-77.13	1.8709	9.2179	4.93	Si
SLV 13	1438	0.46	179	-77.13	1.8709	9.2179	4.93	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	27.19	11.34	1.44	0	0	0	0	12.41353	No, Trazione
SLV 10	27.19	11.34	1.44	0	0	0	0	12.41353	No, Trazione
SLV 6	33.72	3.73	1.27	0	0	0	0	12.41353	No, Trazione
SLV 5	33.72	3.73	1.27	0	0	0	0	12.41353	No, Trazione
SLV 7	-113.22	-144.04	-1.47	0.032	13.67	0.954	0.49432	12.41353	No
SLV 8	-113.22	-144.04	-1.47	0.032	13.67	0.954	0.49432	12.41353	No
SLV 12	-119.74	-136.44	-1.31	0.034	14.333	0.956	0.51765	12.41353	No
SLV 11	-119.74	-136.44	-1.31	0.034	14.333	0.956	0.51765	12.41353	No
SLV 3	-54.18	-101.2	-0.7	0.037	7.69	0.926	0.58714	11.93169	No
SLV 4	-54.18	-101.2	-0.7	0.037	7.69	0.926	0.58714	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.485	SLU 82	Si
V_SLU	1.179	SLU 82	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLV 5	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 10	No

## Maschio 148

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-15.058	1.046	-15.058	1.406	L5	L6	0.36	0.14	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 37	8.35	-31.04	1.8246	616	1.3632	0.747	No, M>Mu
SLU 37	10.45	-3.99	-1.5197	0	0	0	No, e>l/2
SLU 83	8.35	-34.69	1.9418	688	0.9682	0.499	No, M>Mu
SLU 83	10.45	-5.72	-1.5711	0	0	0	No, e>l/2
SLU 40	8.35	-28.53	1.6322	566	1.5666	0.96	No, M>Mu
SLU 40	10.45	-4.3	-1.3138	0	0	0	No, e>l/2
SLU 55	8.35	-28.55	1.4691	567	1.5652	1.065	Si
SLU 55	10.45	-6.19	-1.177	0	0	0	No, e>l/2
SLU 41	8.35	-30.69	1.8046	609	1.3944	0.773	No, M>Mu
SLU 41	10.45	-3.99	-1.4788	0	0	0	No, e>l/2
SLU 39	8.35	-28.55	1.6356	566	1.5654	0.957	No, M>Mu
SLU 39	10.45	-4.31	-1.3114	0	0	0	No, e>l/2
SLU 56	8.35	-31.32	1.6576	621	1.3369	0.806	No, M>Mu
SLU 56	10.45	-6.33	-1.3481	0	0	0	No, e>l/2
SLU 42	8.35	-30.68	1.8012	609	1.396	0.775	No, M>Mu
SLU 42	10.45	-3.98	-1.4811	0	0	0	No, e>l/2
SLU 36	8.35	-31.61	1.8352	627	1.3087	0.713	No, M>Mu
SLU 36	10.45	-4.42	-1.5298	0	0	0	No, e>l/2
SLU 38	8.35	-31.02	1.8212	615	1.3648	0.749	No, M>Mu
SLU 38	10.45	-3.98	-1.5221	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	8.35	-50.15	5.2357	995	1.6753	0.32	No, M>Mu
SLV 8	10.45	13.95	-2.9864	0	0	0	No, Trazione
SLV 7	8.35	-50.15	5.2357	995	1.6753	0.32	No, M>Mu
SLV 7	10.45	13.95	-2.9864	0	0	0	No, Trazione
SLV 9	8.35	8.81	-3.2132	0	0	0	No, Trazione
SLV 9	10.45	-24.5	1.4261	486	2.6556	1.862	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	8.35	-26.17	1.7969	519	2.7089	1.507	Si
SLV 4	10.45	-3.23	-1.0097	0	0	0	No, e>l/2
SLV 11	8.35	-52.36	5.5533	1039	1.4114	0.254	No, M>Mu
SLV 11	10.45	16.41	-3.2714	0	0	0	No, Trazione
SLV 5	8.35	11.01	-3.5308	0	0	0	No, Trazione
SLV 5	10.45	-26.96	1.7112	535	2.7283	1.594	Si
SLD 16	8.35	-26.09	1.7854	518	2.7066	1.516	Si
SLD 16	10.45	-0.91	-1.2852	0	0	0	No, e>l/2
SLV 6	8.35	11.01	-3.5308	0	0	0	No, Trazione
SLV 6	10.45	-26.96	1.7112	535	2.7283	1.594	Si
SLV 10	8.35	8.81	-3.2132	0	0	0	No, Trazione
SLV 10	10.45	-24.5	1.4261	486	2.6556	1.862	Si
SLV 12	8.35	-52.36	5.5533	1039	1.4114	0.254	No, M>Mu
SLV 12	10.45	16.41	-3.2714	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	8.35	-34.69	3.94	1.9418		688	0.36	108	5.46			1.39	Si
SLU 83	10.45	-5.72	4.01	-1.5711		0	0	56	0			0	No, Vu<V
SLU 36	8.35	-31.61	3.76	1.8352		627	0.36	108	5.46			1.45	Si
SLU 36	10.45	-4.42	3.84	-1.5298		0	0	56	0			0	No, Vu<V
SLU 39	8.35	-28.55	3.32	1.6356		566	0.36	108	5.46			1.64	Si
SLU 39	10.45	-4.31	3.35	-1.3114		0	0	56	0			0	No, Vu<V
SLU 40	8.35	-28.53	3.31	1.6322		566	0.36	108	5.46			1.65	Si
SLU 40	10.45	-4.3	3.36	-1.3138		0	0	56	0			0	No, Vu<V
SLU 38	8.35	-31.02	3.73	1.8212		615	0.36	108	5.46			1.46	Si
SLU 38	10.45	-3.98	3.82	-1.5221		0	0	56	0			0	No, Vu<V
SLU 55	8.35	-28.55	2.93	1.4691		567	0.36	108	5.46			1.86	Si
SLU 55	10.45	-6.19	3.05	-1.177		0	0	56	0			0	No, Vu<V
SLU 56	8.35	-31.32	3.35	1.6576		621	0.36	108	5.46			1.63	Si
SLU 56	10.45	-6.33	3.44	-1.3481		0	0	56	0			0	No, Vu<V
SLU 37	8.35	-31.04	3.74	1.8246		616	0.36	108	5.46			1.46	Si
SLU 37	10.45	-3.99	3.81	-1.5197		0	0	56	0			0	No, Vu<V
SLU 41	8.35	-30.69	3.69	1.8046		609	0.36	108	5.46			1.48	Si
SLU 41	10.45	-3.99	3.74	-1.4788		0	0	56	0			0	No, Vu<V
SLU 42	8.35	-30.68	3.68	1.8012		609	0.36	108	5.46			1.48	Si
SLU 42	10.45	-3.98	3.75	-1.4811		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	8.35	-52.36	15.54	5.5533		1686	0.2218	163	5.05			0.32	No, Vu<V
SLV 12	10.45	16.41	7.43	-3.2714		0	0	83	0			0	No, Vu<V
SLV 7	8.35	-50.15	14.53	5.2357		1579	0.2268	163	5.16			0.36	No, Vu<V
SLV 7	10.45	13.95	6.72	-2.9864		0	0	83	0			0	No, Vu<V
SLV 10	8.35	8.81	-10.55	-3.2132		0	0	83	0			0	No, Vu<V
SLV 10	10.45	-24.5	-2.62	1.4261		486	0.36	163	8.19			3.13	Si
SLD 16	8.35	-26.09	4.33	1.7854		557	0.3347	163	7.61			1.76	Si
SLD 16	10.45	-0.91	3.2	-1.2852		0	0	83	0			0	No, Vu<V
SLV 8	8.35	-50.15	14.53	5.2357		1579	0.2268	163	5.16			0.36	No, Vu<V
SLV 8	10.45	13.95	6.72	-2.9864		0	0	83	0			0	No, Vu<V
SLV 6	8.35	11.01	-11.56	-3.5308		0	0	83	0			0	No, Vu<V
SLV 6	10.45	-26.96	-3.33	1.7112		551	0.3496	163	7.95			2.39	Si
SLV 11	8.35	-52.36	15.54	5.5533		1686	0.2218	163	5.05			0.32	No, Vu<V
SLV 11	10.45	16.41	7.43	-3.2714		0	0	83	0			0	No, Vu<V
SLV 5	8.35	11.01	-11.56	-3.5308		0	0	83	0			0	No, Vu<V
SLV 5	10.45	-26.96	-3.33	1.7112		551	0.3496	163	7.95			2.39	Si
SLV 4	8.35	-26.17	4.22	1.7969		560	0.334	163	7.6			1.8	Si
SLV 4	10.45	-3.23	2.37	-1.0097		0	0	83	0			0	No, Vu<V
SLV 9	8.35	8.81	-10.55	-3.2132		0	0	83	0			0	No, Vu<V
SLV 9	10.45	-24.5	-2.62	1.4261		486	0.36	163	8.19			3.13	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.46	0	4.54	0.2339	0	0	No, Trazione
SLV 11	1438	0.46	0	15.95	0.2339	0	0	No, Trazione
SLV 7	1438	0.46	0	13.5	0.2339	0	0	No, Trazione
SLV 8	1438	0.46	0	13.5	0.2339	0	0	No, Trazione
SLV 12	1438	0.46	0	15.95	0.2339	0	0	No, Trazione
SLV 16	1438	0.46	0	4.54	0.2339	0	0	No, Trazione
SLV 3	1438	0.46	72	-3.62	0.2339	0.2386	1.02	Si
SLV 4	1438	0.46	72	-3.62	0.2339	0.2386	1.02	Si
SLV 13	1438	0.46	153	-7.69	0.2339	0.4709	2.01	Si
SLV 14	1438	0.46	153	-7.69	0.2339	0.4709	2.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	$\alpha_0^*$	$\alpha_{lim}$	Verifica
SLV 10	0.92	8.81	0.15	0	0	0	0	18.90693	No, Trazione
SLV 5	1.76	11.01	0.18	0	0	0	0	18.90693	No, Trazione
SLV 9	0.92	8.81	0.15	0	0	0	0	18.90693	No, Trazione
SLV 6	1.76	11.01	0.18	0	0	0	0	18.90693	No, Trazione
SLV 2	-5.16	-7.82	0.09	0.011	0.781	0.917	0.17377	18.90693	No
SLV 1	-5.16	-7.82	0.09	0.011	0.781	0.917	0.17377	18.90693	No
SLV 12	-21.66	-52.36	-0.18	0.014	2.455	0.969	0.20377	18.90693	No
SLV 11	-21.66	-52.36	-0.18	0.014	2.455	0.969	0.20377	18.90693	No
SLV 8	-20.81	-50.15	-0.15	0.015	2.369	0.968	0.21775	18.90693	No
SLV 7	-20.81	-50.15	-0.15	0.015	2.369	0.968	0.21775	18.90693	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 6	No
V_SLU	0	SLU 6	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 3	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 10	No

## Maschio 149

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-15.058	2.206	-15.058	6.521	L5	L6	4.315	0.14	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	$\bar{v}_0$	$\mu$	$\phi$	$f_v, \text{lim}$	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 9	8.35	-134.35	-8.9077	222	210.7209	23.656	Si
SLU 9	10.45	-111.04	-22.6835	184	185.5129	8.178	Si
SLU 72	8.35	-185.11	-14.0266	306	249.1429	17.762	Si
SLU 72	10.45	-153.88	-28.1208	255	228.1768	8.114	Si
SLU 8	8.35	-134.43	-9.0117	223	210.8059	23.393	Si
SLU 8	10.45	-111.13	-22.7019	184	185.6156	8.176	Si
SLU 37	8.35	-172.48	-13.2983	286	241.6968	18.175	Si
SLU 37	10.45	-147.75	-26.7311	245	223.0621	8.345	Si
SLU 38	8.35	-172.4	-13.1943	285	241.6407	18.314	Si
SLU 38	10.45	-147.67	-26.7127	244	222.9872	8.348	Si
SLU 27	8.35	-157.68	-11.2662	261	231.1874	20.52	Si
SLU 27	10.45	-132.95	-25.3314	220	209.3423	8.264	Si
SLU 29	8.35	-154.21	-10.4134	255	228.4473	21.938	Si
SLU 29	10.45	-129.48	-26.0827	214	205.85	7.892	Si
SLU 30	8.35	-154.13	-10.3094	255	228.3774	22.152	Si
SLU 30	10.45	-129.39	-26.0643	214	205.7613	7.894	Si
SLU 71	8.35	-185.2	-14.1306	307	249.1893	17.635	Si
SLU 71	10.45	-153.96	-28.1392	255	228.2469	8.111	Si
SLU 28	8.35	-157.59	-11.1622	261	231.1201	20.706	Si
SLU 28	10.45	-132.86	-25.313	220	209.2561	8.267	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	8.35	-99.26	-67.9141	164	185.3561	2.729	Si
SLV 9	10.45	-85.47	90.4741	141	163.0468	1.802	Si
SLV 7	8.35	-174.27	37.479	288	287.2131	7.663	Si
SLV 7	10.45	-140.63	-114.2139	233	245.6041	2.15	Si
SLV 11	8.35	-174.59	45.0324	289	287.5816	6.386	Si
SLV 11	10.45	-140.56	-123.8242	233	245.5042	1.983	Si
SLV 15	8.35	-148.6	14.3135	246	256.0632	17.89	Si
SLV 15	10.45	-121.19	-60.0319	201	218.5356	3.64	Si
SLV 12	8.35	-174.59	45.0324	289	287.5816	6.386	Si
SLV 12	10.45	-140.56	-123.8242	233	245.5042	1.983	Si
SLV 8	8.35	-174.27	37.479	288	287.2131	7.663	Si
SLV 8	10.45	-140.63	-114.2139	233	245.6041	2.15	Si
SLV 10	8.35	-99.26	-67.9141	164	185.3561	2.729	Si
SLV 10	10.45	-85.47	90.4741	141	163.0468	1.802	Si
SLV 16	8.35	-148.6	14.3135	246	256.0632	17.89	Si
SLV 16	10.45	-121.19	-60.0319	201	218.5356	3.64	Si
SLV 6	8.35	-98.94	-75.4675	164	184.845	2.449	Si
SLV 6	10.45	-85.54	100.0845	142	163.1708	1.63	Si
SLV 5	8.35	-98.94	-75.4675	164	184.845	2.449	Si
SLV 5	10.45	-85.54	100.0845	142	163.1708	1.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	8.35	-185.11	6.97	-14.0266		306	4.315	96	58.24			8.36	Si
SLU 72	10.45	-153.88	6.97	-28.1208		255	4.315	90	54.08			7.76	Si
SLU 27	8.35	-157.68	6.89	-11.2662		261	4.315	90	54.59			7.92	Si
SLU 27	10.45	-132.95	6.89	-25.3314		220	4.315	85	51.29			7.44	Si
SLU 8	8.35	-134.43	6.72	-9.0117		223	4.315	85	51.49			7.67	Si
SLU 8	10.45	-111.13	6.72	-22.7019		184	4.315	80	48.38			7.2	Si
SLU 71	8.35	-185.2	6.93	-14.1306		307	4.315	96	58.25			8.41	Si
SLU 71	10.45	-153.96	6.93	-28.1392		255	4.315	90	54.09			7.81	Si
SLU 29	8.35	-154.21	7.66	-10.4134		255	4.315	90	54.12			7.07	Si
SLU 29	10.45	-129.48	7.66	-26.0827		214	4.315	84	50.83			6.64	Si
SLU 9	8.35	-134.35	6.76	-8.9077		222	4.315	85	51.47			7.62	Si
SLU 9	10.45	-111.04	6.76	-22.6835		184	4.315	80	48.37			7.16	Si
SLU 38	8.35	-172.4	6.63	-13.1943		285	4.315	94	56.55			8.53	Si
SLU 38	10.45	-147.67	6.63	-26.7127		244	4.315	88	53.25			8.03	Si
SLU 30	8.35	-154.13	7.7	-10.3094		255	4.315	90	54.11			7.03	Si
SLU 30	10.45	-129.39	7.7	-26.0643		214	4.315	84	50.81			6.6	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 28	8.35	-157.59	6.93	-11.1622		261	4.315	90	54.57			7.87	Si
SLU 28	10.45	-132.86	6.93	-25.313		220	4.315	85	51.28			7.4	Si
SLU 37	8.35	-172.48	6.59	-13.2983		286	4.315	94	56.56			8.58	Si
SLU 37	10.45	-147.75	6.59	-26.7311		245	4.315	88	53.26			8.08	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	8.35	-124.92	-31.23	-44.7485		207	4.315	125	75.33			2.41	Si
SLV 1	10.45	-104.91	-37.1	36.2922		174	4.315	118	71.32			1.92	Si
SLV 9	8.35	-99.26	-49.66	-67.9141		164	4.315	116	70.19			1.41	Si
SLV 9	10.45	-85.47	-74.56	90.4741		185	3.2968	120	55.56			0.75	No, Vu<V
SLV 2	8.35	-124.92	-31.23	-44.7485		207	4.315	125	75.33			2.41	Si
SLV 2	10.45	-104.91	-37.1	36.2922		174	4.315	118	71.32			1.92	Si
SLV 10	8.35	-99.26	-49.66	-67.9141		164	4.315	116	70.19			1.41	Si
SLV 10	10.45	-85.47	-74.56	90.4741		185	3.2968	120	55.56			0.75	No, Vu<V
SLV 6	8.35	-98.94	-58.11	-75.4675		169	4.1841	117	68.6			1.18	Si
SLV 6	10.45	-85.54	-82.14	100.0845		206	2.9625	125	51.67			0.63	No, Vu<V
SLV 5	8.35	-98.94	-58.11	-75.4675		169	4.1841	117	68.6			1.18	Si
SLV 5	10.45	-85.54	-82.14	100.0845		206	2.9625	125	51.67			0.63	No, Vu<V
SLV 8	8.35	-174.27	46.86	37.479		288	4.315	141	85.19			1.82	Si
SLV 8	10.45	-140.63	71.77	-114.2139		249	4.036	133	75.21			1.05	Si
SLV 12	8.35	-174.59	55.31	45.0324		289	4.315	141	85.26			1.54	Si
SLV 12	10.45	-140.56	79.34	-123.8242		262	3.8296	136	72.79			0.92	No, Vu<V
SLV 11	8.35	-174.59	55.31	45.0324		289	4.315	141	85.26			1.54	Si
SLV 11	10.45	-140.56	79.34	-123.8242		262	3.8296	136	72.79			0.92	No, Vu<V
SLV 7	8.35	-174.27	46.86	37.479		288	4.315	141	85.19			1.82	Si
SLV 7	10.45	-140.63	71.77	-114.2139		249	4.036	133	75.21			1.05	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.46	146	-88.24	2.8039	5.4385	1.94	Si
SLV 9	1438	0.46	146	-88.24	2.8039	5.4385	1.94	Si
SLV 5	1438	0.46	146	-88.33	2.8039	5.4429	1.94	Si
SLV 6	1438	0.46	146	-88.33	2.8039	5.4429	1.94	Si
SLV 14	1438	0.46	180	-108.75	2.8039	6.4907	2.31	Si
SLV 13	1438	0.46	180	-108.75	2.8039	6.4907	2.31	Si
SLV 1	1438	0.46	180	-109.02	2.8039	6.5043	2.32	Si
SLV 2	1438	0.46	180	-109.02	2.8039	6.5043	2.32	Si
SLV 15	1438	0.46	209	-126.4	2.8039	7.333	2.62	Si
SLV 16	1438	0.46	209	-126.4	2.8039	7.333	2.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 13	-75.33	-126	0.88	0.015	10.716	0.925	0.22913	18.90693	No
SLV 14	-75.33	-126	0.88	0.015	10.716	0.925	0.22913	18.90693	No
SLV 4	-84.73	-147.52	-0.89	0.015	11.662	0.93	0.23441	18.90693	No
SLV 3	-84.73	-147.52	-0.89	0.015	11.662	0.93	0.23441	18.90693	No
SLV 16	-68	-148.6	0.64	0.017	9.979	0.921	0.26643	18.90693	No
SLV 15	-68	-148.6	0.64	0.017	9.979	0.921	0.26643	18.90693	No
SLV 8	-70.32	-174.27	-0.63	0.017	10.211	0.922	0.26915	18.90693	No
SLV 7	-70.32	-174.27	-0.63	0.017	10.211	0.922	0.26915	18.90693	No
SLV 1	-92.06	-124.92	-0.65	0.017	12.403	0.933	0.27204	18.90693	No
SLV 2	-92.06	-124.92	-0.65	0.017	12.403	0.933	0.27204	18.90693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	7.892	SLU 29	Si
V_SLV	6.602	SLU 30	Si
PF_SLV	1.63	SLV 5	Si
V_SLV	0.629	SLV 5	No
PFFP_SLV	1.94	SLV 9	Si
R_SLV	0.012	SLV 13	No

## Maschio 150

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-13.753	-0.354	-13.753	-0.228	L5	L6	0.126	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 59	8.35	-9.33	0.9808	0	0	0	No, e>l/2
SLU 59	10.45	-9.74	-1.0152	0	0	0	No, e>l/2
SLU 57	8.35	-9.32	0.9713	0	0	0	No, e>l/2
SLU 57	10.45	-9.71	-1.0078	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	8.35	-5.09	0.465	0	0	0	No, $e \geq l/2$
SLU 1	10.45	-5.76	-0.5861	0	0	0	No, $e \geq l/2$
SLU 53	8.35	-8.78	0.993	0	0	0	No, $e \geq l/2$
SLU 53	10.45	-9	-0.9471	0	0	0	No, $e \geq l/2$
SLU 55	8.35	-8.52	1.0294	0	0	0	No, $e \geq l/2$
SLU 55	10.45	-8.71	-0.9246	0	0	0	No, $e \geq l/2$
SLU 61	8.35	-8.7	1.2416	0	0	0	No, $e \geq l/2$
SLU 61	10.45	-8.36	-0.9206	0	0	0	No, $e \geq l/2$
SLU 54	8.35	-8.62	1.0091	0	0	0	No, $e \geq l/2$
SLU 54	10.45	-8.8	-0.9291	0	0	0	No, $e \geq l/2$
SLU 58	8.35	-9.49	0.9647	0	0	0	No, $e \geq l/2$
SLU 58	10.45	-9.94	-1.0332	0	0	0	No, $e \geq l/2$
SLU 56	8.35	-9.48	0.9551	0	0	0	No, $e \geq l/2$
SLU 56	10.45	-9.9	-1.0257	0	0	0	No, $e \geq l/2$
SLU 60	8.35	-8.85	1.2255	0	0	0	No, $e \geq l/2$
SLU 60	10.45	-8.55	-0.9386	0	0	0	No, $e \geq l/2$

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	8.35	-18.37	0.0233	522	0.6613	28.351	Si
SLV 6	10.45	-23.13	-2.2508	0	0	0	No, $e \geq l/2$
SLV 8	8.35	8.36	1.2146	0	0	0	No, Trazione
SLV 8	10.45	7.8	0.6921	0	0	0	No, Trazione
SLV 12	8.35	6.6	1.1469	0	0	0	No, Trazione
SLV 12	10.45	10.47	0.9415	0	0	0	No, Trazione
SLV 10	8.35	-20.13	-0.0443	572	0.6729	15.173	Si
SLV 10	10.45	-20.47	-2.0014	0	0	0	No, $e \geq l/2$
SLV 11	8.35	6.6	1.1469	0	0	0	No, Trazione
SLV 11	10.45	10.47	0.9415	0	0	0	No, Trazione
SLV 13	8.35	-12.83	0.2936	364	0.5657	1.927	Si
SLV 13	10.45	-6.53	-0.6804	0	0	0	No, $e \geq l/2$
SLV 14	8.35	-12.83	0.2936	364	0.5657	1.927	Si
SLV 14	10.45	-6.53	-0.6804	0	0	0	No, $e \geq l/2$
SLV 9	8.35	-20.13	-0.0443	572	0.6729	15.173	Si
SLV 9	10.45	-20.47	-2.0014	0	0	0	No, $e \geq l/2$
SLD 1	8.35	-6.33	0.5583	0	0	0	No, $e \geq l/2$
SLD 1	10.45	-10.22	-1.0217	0	0	0	No, $e \geq l/2$
SLV 7	8.35	8.36	1.2146	0	0	0	No, Trazione
SLV 7	10.45	7.8	0.6921	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 56	8.35	-9.48	0.59	0.9551		0	0	56	0			0	No, $V_u < V$
SLU 56	10.45	-9.9	-0.32	-1.0257		0	0	56	0			0	No, $V_u < V$
SLU 60	8.35	-8.85	1.35	1.2255		0	0	56	0			0	No, $V_u < V$
SLU 60	10.45	-8.55	0	-0.9386		0	0	56	0			0	No, $V_u < V$
SLU 58	8.35	-9.49	0.61	0.9647		0	0	56	0			0	No, $V_u < V$
SLU 58	10.45	-9.94	-0.32	-1.0332		0	0	56	0			0	No, $V_u < V$
SLU 53	8.35	-8.78	0.81	0.993		0	0	56	0			0	No, $V_u < V$
SLU 53	10.45	-9	-0.17	-0.9471		0	0	56	0			0	No, $V_u < V$
SLU 54	8.35	-8.62	0.89	1.0091		0	0	56	0			0	No, $V_u < V$
SLU 54	10.45	-8.8	-0.14	-0.9291		0	0	56	0			0	No, $V_u < V$
SLU 1	8.35	-5.09	0.24	0.465		0	0	56	0			0	No, $V_u < V$
SLU 1	10.45	-5.76	-0.1	-0.5861		0	0	56	0			0	No, $V_u < V$
SLU 59	8.35	-9.33	0.68	0.9808		0	0	56	0			0	No, $V_u < V$
SLU 59	10.45	-9.74	-0.29	-1.0152		0	0	56	0			0	No, $V_u < V$
SLU 55	8.35	-8.52	0.96	1.0294		0	0	56	0			0	No, $V_u < V$
SLU 55	10.45	-8.71	-0.13	-0.9246		0	0	56	0			0	No, $V_u < V$
SLU 61	8.35	-8.7	1.42	1.2416		0	0	56	0			0	No, $V_u < V$
SLU 61	10.45	-8.36	0.03	-0.9206		0	0	56	0			0	No, $V_u < V$
SLU 57	8.35	-9.32	0.66	0.9713		0	0	56	0			0	No, $V_u < V$
SLU 57	10.45	-9.71	-0.29	-1.0078		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	8.35	-20.13	-3.92	-0.0443		572	0.1257	163	5.72			1.46	Si
SLV 9	10.45	-20.47	-2.27	-2.0014		0	0	83	0			0	No, $V_u < V$
SLV 7	8.35	8.36	4.66	1.2146		0	0	83	0			0	No, $V_u < V$
SLV 7	10.45	7.8	2.05	0.6921		0	0	83	0			0	No, $V_u < V$
SLV 14	8.35	-12.83	-2.47	0.2936		382	0.1199	160	5.36			2.17	Si
SLV 14	10.45	-6.53	-0.14	-0.6804		0	0	83	0			0	No, $V_u < V$
SLV 11	8.35	6.6	3.63	1.1469		0	0	83	0			0	No, $V_u < V$
SLV 11	10.45	10.47	2.46	0.9415		0	0	83	0			0	No, $V_u < V$
SLV 8	8.35	8.36	4.66	1.2146		0	0	83	0			0	No, $V_u < V$
SLV 8	10.45	7.8	2.05	0.6921		0	0	83	0			0	No, $V_u < V$
SLV 13	8.35	-12.83	-2.47	0.2936		382	0.1199	160	5.36			2.17	Si
SLV 13	10.45	-6.53	-0.14	-0.6804		0	0	83	0			0	No, $V_u < V$
SLD 1	8.35	-6.33	0.63	0.5583		0	0	83	0			0	No, $V_u < V$
SLD 1	10.45	-10.22	-0.7	-1.0217		0	0	83	0			0	No, $V_u < V$
SLV 6	8.35	-18.37	-2.89	0.0233		522	0.1257	163	5.72			1.98	Si
SLV 6	10.45	-23.13	-2.68	-2.2508		0	0	83	0			0	No, $V_u < V$
SLV 12	8.35	6.6	3.63	1.1469		0	0	83	0			0	No, $V_u < V$
SLV 12	10.45	10.47	2.46	0.9415		0	0	83	0			0	No, $V_u < V$
SLV 10	8.35	-20.13	-3.92	-0.0443		572	0.1257	163	5.72			1.46	Si
SLV 10	10.45	-20.47	-2.27	-2.0014		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.46	0	10.22	0.1563	0	0	No, Trazione
SLV 15	1438	0.46	0	2.5	0.1563	0	0	No, Trazione
SLV 11	1438	0.46	0	10.22	0.1563	0	0	No, Trazione
SLV 16	1438	0.46	0	2.5	0.1563	0	0	No, Trazione
SLV 7	1438	0.46	0	7.56	0.1563	0	0	No, Trazione
SLV 8	1438	0.46	0	7.56	0.1563	0	0	No, Trazione
SLV 3	1438	0.46	181	-6.38	0.1563	0.7603	4.87	Si
SLV 4	1438	0.46	181	-6.38	0.1563	0.7603	4.87	Si
SLV 13	1438	0.46	193	-6.78	0.1563	0.7996	5.12	Si
SLV 14	1438	0.46	193	-6.78	0.1563	0.7996	5.12	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-1.31	-20.13	0.83	0	0.321	0.89	0	12.41353	No
SLV 2	-3.29	-6.96	1.13	0	0.514	0.914	0	11.93169	No
SLV 8	-2.73	8.36	-0.73	0	0	0	0	12.41353	No, Trazione
SLV 6	-2.13	-18.37	1.3	0	0.399	0.899	0	12.41353	No
SLV 5	-2.13	-18.37	1.3	0	0.399	0.899	0	12.41353	No
SLV 7	-2.73	8.36	-0.73	0	0	0	0	12.41353	No, Trazione
SLV 1	-3.29	-6.96	1.13	0	0.514	0.914	0	11.93169	No
SLV 9	-1.31	-20.13	0.83	0	0.321	0.89	0	12.41353	No
SLV 3	-3.47	1.06	0.52	0	0	0	0	11.93169	No, Trazione
SLV 4	-3.47	1.06	0.52	0	0	0	0	11.93169	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 12	No

## Maschio 151

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	0.672	-13.753	1.046	L5	L6	0.374	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	8.35	-61.56	-2.6523	587	3.2138	1.212	Si
SLU 78	10.45	-26.81	1.8801	256	3.4418	1.831	Si
SLU 79	8.35	-61.32	-2.7572	585	3.2331	1.173	Si
SLU 79	10.45	-25.32	1.9663	242	3.3331	1.695	Si
SLU 80	8.35	-60.4	-2.6334	576	3.3068	1.256	Si
SLU 80	10.45	-25.89	1.8574	247	3.3762	1.818	Si
SLU 70	8.35	-57.6	-2.6415	550	3.5067	1.328	Si
SLU 70	10.45	-22.81	1.984	218	3.1286	1.577	Si
SLU 77	8.35	-62.48	-2.776	596	3.1354	1.129	Si
SLU 77	10.45	-26.23	1.9891	250	3.4009	1.71	Si
SLU 71	8.35	-57.37	-2.7464	547	3.522	1.282	Si
SLU 71	10.45	-21.32	2.0702	203	2.9938	1.446	Si
SLU 29	8.35	-50.41	-2.6257	481	3.8637	1.471	Si
SLU 29	10.45	-16.33	2.0464	156	2.472	1.208	Si
SLU 27	8.35	-51.57	-2.6446	492	3.8214	1.445	Si
SLU 27	10.45	-17.25	2.0692	165	2.5759	1.245	Si
SLU 69	8.35	-58.53	-2.7652	558	3.4444	1.246	Si
SLU 69	10.45	-22.24	2.093	212	3.0777	1.47	Si
SLU 30	8.35	-49.49	-2.502	472	3.8931	1.556	Si
SLU 30	10.45	-16.91	1.9375	161	2.5379	1.31	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	8.35	-50.95	-3.5393	486	5.7418	1.622	Si
SLD 1	10.45	-8.79	3.0241	0	0	0	No, $e > l/2$
SLV 10	8.35	-83.42	-8.8933	796	5.442	0.612	No, $M > Mu$
SLV 10	10.45	20.96	6.472	0	0	0	No, Trazione
SLV 7	8.35	12.03	6.4849	0	0	0	No, Trazione
SLV 7	10.45	-58.98	-4.9956	563	5.9544	1.192	Si
SLV 9	8.35	-83.42	-8.8933	796	5.442	0.612	No, $M > Mu$
SLV 9	10.45	20.96	6.472	0	0	0	No, Trazione
SLV 2	8.35	-71.38	-6.6627	681	5.9128	0.887	No, $M > Mu$
SLV 2	10.45	4.88	6.0599	0	0	0	No, Trazione
SLV 5	8.35	-95.18	-10.6282	908	4.5732	0.43	No, $M > Mu$
SLV 5	10.45	27.51	8.4545	0	0	0	No, Trazione
SLV 6	8.35	-95.18	-10.6282	908	4.5732	0.43	No, $M > Mu$



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	10.45	27.51	8.4545	0	0	0	No, Trazione
SLV 11	8.35	23.79	8.2198	0	0	0	No, Trazione
SLV 11	10.45	-65.53	-6.9781	625	5.9884	0.858	No, M>Mu
SLV 12	8.35	23.79	8.2198	0	0	0	No, Trazione
SLV 12	10.45	-65.53	-6.9781	625	5.9884	0.858	No, M>Mu
SLV 8	8.35	12.03	6.4849	0	0	0	No, Trazione
SLV 8	10.45	-58.98	-4.9956	563	5.9544	1.192	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	8.35	-54.37	-4.86	-2.6365		519	0.3743	108	11.35			2.34	Si
SLU 37	10.45	-20.33	-4.9	1.9425		264	0.2748	91	6.99			1.43	Si
SLU 27	8.35	-51.57	-4.94	-2.6446		492	0.3743	108	11.35			2.3	Si
SLU 27	10.45	-17.25	-5	2.0692		306	0.2016	96	5.44			1.09	Si
SLU 30	8.35	-49.49	-4.64	-2.502		472	0.3743	108	11.35			2.45	Si
SLU 30	10.45	-16.91	-4.72	1.9375		277	0.2177	93	5.64			1.2	Si
SLU 69	8.35	-58.53	-5.07	-2.7652		558	0.3743	108	11.35			2.24	Si
SLU 69	10.45	-22.24	-5.14	2.093		285	0.2791	93	7.31			1.42	Si
SLU 35	8.35	-55.53	-4.91	-2.6553		530	0.3743	108	11.35			2.31	Si
SLU 35	10.45	-21.24	-4.94	1.9653		267	0.2839	91	7.25			1.47	Si
SLU 29	8.35	-50.41	-4.89	-2.6257		481	0.3743	108	11.35			2.32	Si
SLU 29	10.45	-16.33	-4.96	2.0464		314	0.1856	97	5.06			1.02	Si
SLU 70	8.35	-57.6	-4.82	-2.6415		550	0.3743	108	11.35			2.36	Si
SLU 70	10.45	-22.81	-4.9	1.984		271	0.3005	92	7.72			1.57	Si
SLU 71	8.35	-57.37	-5.03	-2.7464		547	0.3743	108	11.35			2.26	Si
SLU 71	10.45	-21.32	-5.11	2.0702		282	0.2702	93	7.05			1.38	Si
SLU 72	8.35	-56.44	-4.77	-2.6227		539	0.3743	108	11.35			2.38	Si
SLU 72	10.45	-21.9	-4.86	1.9613		267	0.2928	91	7.47			1.54	Si
SLU 28	8.35	-50.65	-4.69	-2.5208		483	0.3743	108	11.35			2.42	Si
SLU 28	10.45	-17.83	-4.76	1.9602		275	0.2315	92	5.98			1.26	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	8.35	-83.42	-18.77	-8.8933		1233	0.2417	163	11			0.59	No, Vu<V
SLV 10	10.45	20.96	-15.06	6.472		0	0	83	0			0	No, Vu<V
SLV 7	8.35	12.03	14.68	6.4849		0	0	83	0			0	No, Vu<V
SLV 7	10.45	-58.98	10.9	-4.9956		685	0.3074	163	13.98			1.28	Si
SLV 5	8.35	-95.18	-22.41	-10.6282		1501	0.2265	163	10.31			0.46	No, Vu<V
SLV 5	10.45	27.51	-18.16	8.4545		0	0	83	0			0	No, Vu<V
SLV 8	8.35	12.03	14.68	6.4849		0	0	83	0			0	No, Vu<V
SLV 8	10.45	-58.98	10.9	-4.9956		685	0.3074	163	13.98			1.28	Si
SLV 11	8.35	23.79	18.31	8.2198		0	0	83	0			0	No, Vu<V
SLV 11	10.45	-65.53	14	-6.9781		967	0.242	163	11.01			0.79	No, Vu<V
SLV 9	8.35	-83.42	-18.77	-8.8933		1233	0.2417	163	11			0.59	No, Vu<V
SLV 9	10.45	20.96	-15.06	6.472		0	0	83	0			0	No, Vu<V
SLV 6	8.35	-95.18	-22.41	-10.6282		1501	0.2265	163	10.31			0.46	No, Vu<V
SLV 6	10.45	27.51	-18.16	8.4545		0	0	83	0			0	No, Vu<V
SLV 2	8.35	-71.38	-13.67	-6.6627		906	0.2814	163	12.81			0.94	No, Vu<V
SLV 2	10.45	4.88	-11.6	6.0599		0	0	83	0			0	No, Vu<V
SLD 1	8.35	-50.95	-7.02	-3.5393		515	0.3531	163	16.07			2.29	Si
SLD 1	10.45	-8.79	-6.15	3.0241		0	0	83	0			0	No, Vu<V
SLV 12	8.35	23.79	18.31	8.2198		0	0	83	0			0	No, Vu<V
SLV 12	10.45	-65.53	14	-6.9781		967	0.242	163	11.01			0.79	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.46	0	23.07	0.4653	0	0	No, Trazione
SLV 10	1438	0.46	0	23.8	0.4653	0	0	No, Trazione
SLV 9	1438	0.46	0	23.8	0.4653	0	0	No, Trazione
SLV 6	1438	0.46	0	23.07	0.4653	0	0	No, Trazione
SLV 14	1438	0.46	54	-5.61	0.4653	0.7511	1.61	Si
SLV 13	1438	0.46	54	-5.61	0.4653	0.7511	1.61	Si
SLV 2	1438	0.46	77	-8.05	0.4653	1.056	2.27	Si
SLV 1	1438	0.46	77	-8.05	0.4653	1.056	2.27	Si
SLV 15	1438	0.46	301	-31.56	0.4653	3.3292	7.15	Si
SLV 16	1438	0.46	301	-31.56	0.4653	3.3292	7.15	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-14.57	23.79	-0.23	0	0	0	0	12.41353	No, Trazione
SLV 11	-14.57	23.79	-0.23	0	0	0	0	12.41353	No, Trazione
SLV 7	-17.27	12.03	-0.01	0	0	0	0	12.41353	No, Trazione
SLV 8	-17.27	12.03	-0.01	0	0	0	0	12.41353	No, Trazione
SLV 16	-9.26	-0.02	-0.41	0.018	1.477	0.911	0.28742	11.93169	No
SLV 15	-9.26	-0.02	-0.41	0.018	1.477	0.911	0.28742	11.93169	No
SLV 14	-7.41	-32.18	-0.34	0.02	1.294	0.903	0.32193	11.93169	No
SLV 13	-7.41	-32.18	-0.34	0.02	1.294	0.903	0.32193	11.93169	No
SLV 2	-16.42	-71.38	0.38	0.027	2.197	0.935	0.42652	11.93169	No
SLV 1	-16.42	-71.38	0.38	0.027	2.197	0.935	0.42652	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	1.129	SLU 77	Si
V SLU	1.022	SLU 29	Si
PF SLV	0	SLV 12	No
V SLV	0	SLD 1	No





Stato limite	Coeff.s.	Comb.	Verifica
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 12	No

## Maschio 152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.758	6.661	-17.718	6.661	L5	L6	2.04	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 8	9.25	-43.66	2.6081	76	40.3549	15.473	Si
SLU 8	11.05	-23.96	13.7992	42	23.1772	1.68	Si
SLU 9	9.25	-43.65	2.5378	76	40.3431	15.897	Si
SLU 9	11.05	-23.94	13.8605	42	23.1642	1.671	Si
SLU 38	9.25	-63.01	0.99	110	55.5645	56.127	Si
SLU 38	11.05	-43.04	17.6356	75	39.8378	2.259	Si
SLU 28	9.25	-57.29	2.0035	100	51.2419	25.576	Si
SLU 28	11.05	-37.32	15.989	65	35.0148	2.19	Si
SLU 27	9.25	-57.31	2.0738	100	51.2528	24.715	Si
SLU 27	11.05	-37.34	15.9277	65	35.027	2.199	Si
SLU 29	9.25	-49.6	2.2268	87	45.2008	20.298	Si
SLU 29	11.05	-29.63	16.3704	52	28.3005	1.729	Si
SLU 30	9.25	-49.59	2.1566	87	45.1893	20.954	Si
SLU 30	11.05	-29.62	16.4317	52	28.2878	1.722	Si
SLU 37	9.25	-63.02	1.0603	110	55.575	52.417	Si
SLU 37	11.05	-43.05	17.5742	75	39.8496	2.268	Si
SLU 6	9.25	-51.36	2.455	90	46.6077	18.985	Si
SLU 6	11.05	-31.66	13.3565	55	30.0955	2.253	Si
SLU 7	9.25	-51.35	2.3847	90	46.5963	19.54	Si
SLU 7	11.05	-31.65	13.4178	55	30.0829	2.242	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 16	9.25	-62.41	22.4843	109	57.9655	2.578	Si
SLV 16	11.05	-34.37	-9.003	60	33.3289	3.702	Si
SLV 1	9.25	-100.55	-22.5347	176	87.7823	3.895	Si
SLV 1	11.05	-89.03	24.8955	156	79.2248	3.182	Si
SLV 10	9.25	-54.55	-0.2712	96	51.2934	189.103	Si
SLV 10	11.05	-37.38	16.9249	65	36.0849	2.132	Si
SLV 14	9.25	-50.74	18.6317	89	47.9893	2.576	Si
SLV 14	11.05	-25.49	-1.2616	45	25.0546	19.859	Si
SLV 9	9.25	-54.55	-0.2712	96	51.2934	189.103	Si
SLV 9	11.05	-37.38	16.9249	65	36.0849	2.132	Si
SLV 6	9.25	-69.49	-12.6212	122	63.8261	5.057	Si
SLV 6	11.05	-56.44	24.7721	99	52.9127	2.136	Si
SLV 15	9.25	-62.41	22.4843	109	57.9655	2.578	Si
SLV 15	11.05	-34.37	-9.003	60	33.3289	3.702	Si
SLV 5	9.25	-69.49	-12.6212	122	63.8261	5.057	Si
SLV 5	11.05	-56.44	24.7721	99	52.9127	2.136	Si
SLV 13	9.25	-50.74	18.6317	89	47.9893	2.576	Si
SLV 13	11.05	-25.49	-1.2616	45	25.0546	19.859	Si
SLV 2	9.25	-100.55	-22.5347	176	87.7823	3.895	Si
SLV 2	11.05	-89.03	24.8955	156	79.2248	3.182	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	9.25	-63.02	-9	1.0603		110	2.04	70	40.14			4.46	Si
SLU 37	11.05	-43.05	-9	17.5742		84	1.8354	67	34.29			3.81	Si
SLU 79	9.25	-83.77	-9.47	1.3161		147	2.04	75	42.9			4.53	Si
SLU 79	11.05	-57.98	-9.47	18.753		102	2.04	69	39.46			4.17	Si
SLU 30	9.25	-49.59	-7.76	2.1566		87	2.04	67	38.35			4.94	Si
SLU 30	11.05	-29.62	-7.76	16.4317		76	1.3957	66	25.66			3.31	Si
SLU 28	9.25	-57.29	-7.6	2.0035		100	2.04	69	39.37			5.18	Si
SLU 28	11.05	-37.32	-7.6	15.989		75	1.7748	66	32.58			4.29	Si
SLU 80	9.25	-83.75	-9.54	1.2458		147	2.04	75	42.9			4.5	Si
SLU 80	11.05	-57.96	-9.54	18.8143		101	2.04	69	39.46			4.14	Si
SLU 72	9.25	-70.33	-8.22	2.4124		123	2.04	72	41.11			5	Si
SLU 72	11.05	-44.54	-8.22	17.6104		85	1.874	67	35.09			4.27	Si
SLU 9	9.25	-43.65	-6.12	2.5378		76	2.04	66	37.55			6.14	Si
SLU 9	11.05	-23.94	-6.12	13.8605		65	1.3232	64	23.78			3.88	Si
SLU 29	9.25	-49.6	-7.69	2.2268		87	2.04	67	38.35			4.99	Si
SLU 29	11.05	-29.63	-7.69	16.3704		75	1.4027	66	25.77			3.35	Si
SLU 8	9.25	-43.66	-6.05	2.6081		76	2.04	66	37.55			6.21	Si
SLU 8	11.05	-23.96	-6.05	13.7992		64	1.3319	64	23.91			3.95	Si
SLU 38	9.25	-63.01	-9.08	0.99		110	2.04	70	40.13			4.42	Si
SLU 38	11.05	-43.04	-9.08	17.6356		84	1.8307	67	34.22			3.77	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	9.25	-50.74	19.83	18.6317		93	1.9583	102	55.84			2.82	Si
SLV 14	11.05	-25.49	12.29	-1.2616		45	2.04	92	52.7			4.29	Si
SLV 15	9.25	-62.41	22.58	22.4843		113	1.9792	106	58.66			2.6	Si
SLV 15	11.05	-34.37	16.54	-9.003		60	2.04	95	54.47			3.29	Si
SLV 6	9.25	-69.49	-16.48	-12.6212		122	2.04	108	61.5			3.73	Si
SLV 6	11.05	-56.44	-16.94	24.7721		116	1.7433	106	51.96			3.07	Si
SLV 4	9.25	-112.22	-28.35	-18.6822		196	2.04	123	70.04			2.47	Si
SLV 4	11.05	-97.9	-20.8	17.1541		171	2.04	118	67.18			3.23	Si
SLV 13	9.25	-50.74	19.83	18.6317		93	1.9583	102	55.84			2.82	Si
SLV 13	11.05	-25.49	12.29	-1.2616		45	2.04	92	52.7			4.29	Si
SLV 5	9.25	-69.49	-16.48	-12.6212		122	2.04	108	61.5			3.73	Si
SLV 5	11.05	-56.44	-16.94	24.7721		116	1.7433	106	51.96			3.07	Si
SLV 2	9.25	-100.55	-31.1	-22.5347		176	2.04	119	67.71			2.18	Si
SLV 2	11.05	-89.03	-25.05	24.8955		156	2.04	115	65.41			2.61	Si
SLV 16	9.25	-62.41	22.58	22.4843		113	1.9792	106	58.66			2.6	Si
SLV 16	11.05	-34.37	16.54	-9.003		60	2.04	95	54.47			3.29	Si
SLV 1	9.25	-100.55	-31.1	-22.5347		176	2.04	119	67.71			2.18	Si
SLV 1	11.05	-89.03	-25.05	24.8955		156	2.04	115	65.41			2.61	Si
SLV 3	9.25	-112.22	-28.35	-18.6822		196	2.04	123	70.04			2.47	Si
SLV 3	11.05	-97.9	-20.8	17.1541		171	2.04	118	67.18			3.23	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.46	67	-38.09	2.4783	5.0417	2.03	Si
SLV 13	1438	0.46	67	-38.09	2.4783	5.0417	2.03	Si
SLV 9	1438	0.46	77	-44.07	2.4783	5.78	2.33	Si
SLV 10	1438	0.46	77	-44.07	2.4783	5.78	2.33	Si
SLV 16	1438	0.46	86	-49.08	2.4783	6.3876	2.58	Si
SLV 15	1438	0.46	86	-49.08	2.4783	6.3876	2.58	Si
SLV 6	1438	0.46	105	-60.18	2.4783	7.6984	3.11	Si
SLV 5	1438	0.46	105	-60.18	2.4783	7.6984	3.11	Si
SLV 12	1438	0.46	141	-80.69	2.4783	9.9902	4.03	Si
SLV 11	1438	0.46	141	-80.69	2.4783	9.9902	4.03	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	-69.51	-110.94	4.37	0	9.959	0.924	0	12.41353	No
SLV 6	-29.97	-88.9	-3.97	0	6.036	0.895	0	12.41353	No
SLV 5	-29.97	-88.9	-3.97	0	6.036	0.895	0	12.41353	No
SLV 9	-18.48	-59.5	-4.21	0	4.954	0.889	0	12.41353	No
SLV 12	-58.02	-81.53	4.13	0	8.806	0.917	0	12.41353	No
SLV 11	-58.02	-81.53	4.13	0	8.806	0.917	0	12.41353	No
SLV 10	-18.48	-59.5	-4.21	0	4.954	0.889	0	12.41353	No
SLV 7	-69.51	-110.94	4.37	0	9.959	0.924	0	12.41353	No
SLV 14	-18.93	-32.9	-1.58	0.016	4.994	0.889	0.2695	11.93169	No
SLV 13	-18.93	-32.9	-1.58	0.016	4.994	0.889	0.2695	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.671	SLU 9	Si
V_SLU	3.307	SLU 30	Si
PF_SLV	2.132	SLV 9	Si
V_SLV	2.177	SLV 1	Si
PFFP_SLV	2.034	SLV 13	Si
R_SLV	0	SLV 5	No

## Maschio 153

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.818	6.661	-12.838	6.661	L5	L6	3.98	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>med</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	9.25	-212.55	4.646	191	323.9356	69.723	Si
SLU 37	11.05	-177.12	34.8171	159	283.6948	8.148	Si
SLU 30	9.25	-190.42	6.5249	171	299.4447	45.892	Si
SLU 30	11.05	-154.99	31.9346	139	255.766	8.009	Si
SLU 8	9.25	-167.21	6.0146	150	271.4611	45.133	Si
SLU 8	11.05	-132.4	26.7673	119	225.053	8.408	Si
SLU 80	9.25	-253.22	2.9417	227	363.3442	123.514	Si
SLU 80	11.05	-207.56	37.3124	186	318.602	8.539	Si
SLU 38	9.25	-212.55	4.544	191	323.9331	71.288	Si
SLU 38	11.05	-177.12	34.9131	159	283.6918	8.126	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 36	9.25	-221.02	3.4712	198	332.7375	95.856	Si
SLU 36	11.05	-185.59	34.3958	167	293.8119	8.542	Si
SLU 27	9.25	-198.89	5.5542	178	309.0735	55.647	Si
SLU 27	11.05	-163.46	31.3213	147	266.7108	8.515	Si
SLU 29	9.25	-190.42	6.627	171	299.4474	45.186	Si
SLU 29	11.05	-154.99	31.8387	139	255.7691	8.033	Si
SLU 28	9.25	-198.89	5.4522	178	309.0708	56.688	Si
SLU 28	11.05	-163.46	31.4173	147	266.7077	8.489	Si
SLU 9	9.25	-167.21	5.9126	150	271.4581	45.912	Si
SLU 9	11.05	-132.4	26.8633	119	225.0496	8.378	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	9.25	-183.87	-63.9238	165	316.4891	4.951	Si
SLV 1	11.05	-153.63	90.6654	138	271.2291	2.992	Si
SLD 2	9.25	-178.88	-30.7217	161	309.2073	10.065	Si
SLD 2	11.05	-145.93	48.7205	131	259.2852	5.322	Si
SLV 15	9.25	-166.24	53.8594	149	290.4263	5.392	Si
SLV 15	11.05	-126.5	-58.4786	114	228.3521	3.905	Si
SLV 2	9.25	-183.87	-63.9238	165	316.4891	4.951	Si
SLV 2	11.05	-153.63	90.6654	138	271.2291	2.992	Si
SLV 4	9.25	-188.25	-66.3029	169	322.8259	4.869	Si
SLV 4	11.05	-147.39	84.824	132	261.5588	3.084	Si
SLV 3	9.25	-188.25	-66.3029	169	322.8259	4.869	Si
SLV 3	11.05	-147.39	84.824	132	261.5588	3.084	Si
SLV 14	9.25	-161.86	56.2385	145	283.8076	5.046	Si
SLV 14	11.05	-132.74	-52.6372	119	238.4033	4.529	Si
SLV 16	9.25	-166.24	53.8594	149	290.4263	5.392	Si
SLV 16	11.05	-126.5	-58.4786	114	228.3521	3.905	Si
SLD 1	9.25	-178.88	-30.7217	161	309.2073	10.065	Si
SLD 1	11.05	-145.93	48.7205	131	259.2852	5.322	Si
SLV 13	9.25	-161.86	56.2385	145	283.8076	5.046	Si
SLV 13	11.05	-132.74	-52.6372	119	238.4033	4.529	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	9.25	-259.13	-17.63	-3.459		233	3.98	87	96.46			5.47	Si
SLU 75	11.05	-213.47	-17.63	30.3081		192	3.98	81	90.37			5.13	Si
SLU 84	9.25	-260.15	-18.5	-3.2352		233	3.98	87	96.6			5.22	Si
SLU 84	11.05	-214.49	-18.5	32.1019		192	3.98	81	90.51			4.89	Si
SLU 81	9.25	-257.59	-17.75	-8.461		231	3.98	86	96.26			5.42	Si
SLU 81	11.05	-211.93	-17.75	25.519		190	3.98	81	90.17			5.08	Si
SLU 82	9.25	-257.59	-17.86	-8.5631		231	3.98	86	96.26			5.39	Si
SLU 82	11.05	-211.93	-17.86	25.615		190	3.98	81	90.17			5.05	Si
SLU 77	9.25	-261.69	-18.16	1.971		235	3.98	87	96.8			5.33	Si
SLU 77	11.05	-216.03	-18.16	36.6991		194	3.98	81	90.72			4.99	Si
SLU 76	9.25	-250.66	-17.39	-2.4542		225	3.98	86	95.33			5.48	Si
SLU 76	11.05	-205	-17.39	30.8894		184	3.98	80	89.24			5.13	Si
SLU 80	9.25	-253.22	-17.97	2.9417		227	3.98	86	95.67			5.33	Si
SLU 80	11.05	-207.56	-17.97	37.3124		186	3.98	80	89.59			4.99	Si
SLU 79	9.25	-253.22	-17.86	3.0438		227	3.98	86	95.67			5.36	Si
SLU 79	11.05	-207.56	-17.86	37.2164		186	3.98	80	89.59			5.02	Si
SLU 78	9.25	-261.69	-18.27	1.8689		235	3.98	87	96.8			5.3	Si
SLU 78	11.05	-216.03	-18.27	36.7951		194	3.98	81	90.71			4.96	Si
SLU 83	9.25	-260.15	-18.39	-3.1331		233	3.98	87	96.6			5.25	Si
SLU 83	11.05	-214.49	-18.39	32.006		192	3.98	81	90.51			4.92	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	9.25	-171.05	-51.91	-19.0914		153	3.98	114	127.08			2.45	Si
SLV 6	11.05	-153.6	-36.81	47.3244		138	3.98	111	123.59			3.36	Si
SLV 2	9.25	-183.87	-97.08	-63.9238		165	3.98	116	129.64			1.34	Si
SLV 2	11.05	-153.63	-79.22	90.6654		138	3.98	111	123.59			1.56	Si
SLV 15	9.25	-166.24	75.34	53.8594		149	3.98	113	126.11			1.67	Si
SLV 15	11.05	-126.5	57.49	-58.4786		114	3.98	106	118.17			2.06	Si
SLV 5	9.25	-171.05	-51.91	-19.0914		153	3.98	114	127.08			2.45	Si
SLV 5	11.05	-153.6	-36.81	47.3244		138	3.98	111	123.59			3.36	Si
SLV 13	9.25	-161.86	65.34	56.2385		145	3.98	112	125.24			1.92	Si
SLV 13	11.05	-132.74	53.9	-52.6372		119	3.98	107	119.41			2.22	Si
SLV 4	9.25	-188.25	-87.07	-66.3029		169	3.98	117	130.52			1.5	Si
SLV 4	11.05	-147.39	-75.64	84.824		132	3.98	110	122.34			1.62	Si
SLV 16	9.25	-166.24	75.34	53.8594		149	3.98	113	126.11			1.67	Si
SLV 16	11.05	-126.5	57.49	-58.4786		114	3.98	106	118.17			2.06	Si
SLV 1	9.25	-183.87	-97.08	-63.9238		165	3.98	116	129.64			1.34	Si
SLV 1	11.05	-153.63	-79.22	90.6654		138	3.98	111	123.59			1.56	Si
SLV 3	9.25	-188.25	-87.07	-66.3029		169	3.98	117	130.52			1.5	Si
SLV 3	11.05	-147.39	-75.64	84.824		132	3.98	110	122.34			1.62	Si
SLV 14	9.25	-161.86	65.34	56.2385		145	3.98	112	125.24			1.92	Si
SLV 14	11.05	-132.74	53.9	-52.6372		119	3.98	107	119.41			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.46	132	-147.02	4.8351	18.36	3.8	Si
SLV 15	1438	0.46	132	-147.02	4.8351	18.36	3.8	Si
SLV 13	1438	0.46	133	-148.12	4.8351	18.4809	3.82	Si
SLV 14	1438	0.46	133	-148.12	4.8351	18.4809	3.82	Si
SLV 11	1438	0.46	137	-152.66	4.8351	18.9762	3.92	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.46	137	-152.66	4.8351	18.9762	3.92	Si
SLV 9	1438	0.46	140	-156.33	4.8351	19.374	4.01	Si
SLV 10	1438	0.46	140	-156.33	4.8351	19.374	4.01	Si
SLV 7	1438	0.46	142	-158.6	4.8351	19.6177	4.06	Si
SLV 8	1438	0.46	142	-158.6	4.8351	19.6177	4.06	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-99.59	-177.65	-6.61	0.001	15.821	0.912	0.01932	12.41353	No
SLV 11	-99.59	-177.65	-6.61	0.001	15.821	0.912	0.01932	12.41353	No
SLV 7	-100.4	-184.69	-6.6	0.002	15.902	0.912	0.02408	12.41353	No
SLV 8	-100.4	-184.69	-6.6	0.002	15.902	0.912	0.02408	12.41353	No
SLV 9	-101.32	-178.31	6.17	0.005	15.994	0.913	0.07738	12.41353	No
SLV 10	-101.32	-178.31	6.17	0.005	15.994	0.913	0.07738	12.41353	No
SLV 5	-102.14	-185.35	6.18	0.005	16.075	0.913	0.07963	12.41353	No
SLV 6	-102.14	-185.35	6.18	0.005	16.075	0.913	0.07963	12.41353	No
SLV 16	-99.24	-169.68	-2.14	0.034	15.786	0.912	0.54642	11.93169	No
SLV 15	-99.24	-169.68	-2.14	0.034	15.786	0.912	0.54642	11.93169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.009	SLU 30	Si
V_SLU	4.892	SLU 84	Si
PF_SLV	2.992	SLV 1	Si
V_SLV	1.335	SLV 1	Si
PFFP_SLV	3.797	SLV 15	Si
R_SLV	0.002	SLV 11	No

## Maschio 154

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.938	6.661	-7.958	6.661	L5	L6	3.98	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 27	9.25	-206	9.4983	185	316.9079	33.365	Si
SLU 27	11.05	-171.68	-19.9294	154	277.0298	13.901	Si
SLU 71	9.25	-236.55	10.1204	212	348.0696	34.393	Si
SLU 71	11.05	-192.34	-21.5066	173	301.6624	14.026	Si
SLU 38	9.25	-221.18	10.8723	198	332.9075	30.62	Si
SLU 38	11.05	-186.87	-20.9068	168	295.3143	14.125	Si
SLU 29	9.25	-196.98	9.4936	177	306.9351	32.331	Si
SLU 29	11.05	-162.67	-21.2747	146	265.701	12.489	Si
SLU 7	9.25	-180.28	7.7292	162	287.5085	37.197	Si
SLU 7	11.05	-146.59	-17.3291	132	244.6111	14.116	Si
SLU 30	9.25	-196.81	9.521	177	306.7446	32.218	Si
SLU 30	11.05	-162.5	-21.4534	146	265.4851	12.375	Si
SLU 8	9.25	-171.44	7.6971	154	276.729	35.952	Si
SLU 8	11.05	-137.75	-18.4956	124	232.5256	12.572	Si
SLU 9	9.25	-171.27	7.7245	154	276.5196	35.798	Si
SLU 9	11.05	-137.58	-18.6744	123	232.2911	12.439	Si
SLU 72	9.25	-236.38	10.1479	212	347.9084	34.284	Si
SLU 72	11.05	-192.18	-21.6853	172	301.4685	13.902	Si
SLU 28	9.25	-205.83	9.5257	185	316.7241	33.249	Si
SLU 28	11.05	-171.51	-20.1081	154	276.8205	13.767	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	9.25	-153.82	25.0012	138	271.5177	10.86	Si
SLV 11	11.05	-131.3	-33.6052	118	236.0905	7.025	Si
SLV 14	9.25	-196.55	62.9886	176	334.6755	5.313	Si
SLV 14	11.05	-159.22	-73.2566	143	279.7958	3.819	Si
SLV 1	9.25	-169.5	-54.3221	152	295.3183	5.436	Si
SLV 1	11.05	-132.28	68.7159	119	237.6652	3.459	Si
SLV 13	9.25	-196.55	62.9886	176	334.6755	5.313	Si
SLV 13	11.05	-159.22	-73.2566	143	279.7958	3.819	Si
SLV 16	9.25	-181.2	64.4062	163	312.598	4.854	Si
SLV 16	11.05	-150.68	-77.89	135	266.6778	3.424	Si
SLV 4	9.25	-154.15	-52.9045	138	272.0269	5.142	Si
SLV 4	11.05	-123.75	64.0825	111	223.8753	3.494	Si
SLV 2	9.25	-169.5	-54.3221	152	295.3183	5.436	Si
SLV 2	11.05	-132.28	68.7159	119	237.6652	3.459	Si
SLV 3	9.25	-154.15	-52.9045	138	272.0269	5.142	Si
SLV 3	11.05	-123.75	64.0825	111	223.8753	3.494	Si
SLV 12	9.25	-153.82	25.0012	138	271.5177	10.86	Si
SLV 12	11.05	-131.3	-33.6052	118	236.0905	7.025	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	9.25	-181.2	64.4062	163	312.598	4.854	Si
SLV 15	11.05	-150.68	-77.89	135	266.6778	3.424	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 28	9.25	-205.83	16.23	9.5257		185	3.98	80	89.35			5.51	Si
SLU 28	11.05	-171.51	16.23	-20.1081		154	3.98	76	84.78			5.22	Si
SLU 72	9.25	-236.38	17.38	10.1479		212	3.98	84	93.43			5.37	Si
SLU 72	11.05	-192.18	17.38	-21.6853		172	3.98	79	87.53			5.04	Si
SLU 79	9.25	-260.92	17.72	11.4718		234	3.98	87	96.7			5.46	Si
SLU 79	11.05	-216.71	17.72	-20.96		194	3.98	81	90.81			5.13	Si
SLU 37	9.25	-221.35	17.31	10.8449		199	3.98	82	91.42			5.28	Si
SLU 37	11.05	-187.03	17.31	-20.7281		168	3.98	78	86.85			5.02	Si
SLU 38	9.25	-221.18	17.42	10.8723		198	3.98	82	91.4			5.25	Si
SLU 38	11.05	-186.87	17.42	-20.9068		168	3.98	78	86.83			4.98	Si
SLU 29	9.25	-196.98	16.86	9.4936		177	3.98	79	88.18			5.23	Si
SLU 29	11.05	-162.67	16.86	-21.2747		146	3.98	75	83.6			4.96	Si
SLU 30	9.25	-196.81	16.98	9.521		177	3.98	79	88.15			5.19	Si
SLU 30	11.05	-162.5	16.98	-21.4534		146	3.98	75	83.58			4.92	Si
SLU 71	9.25	-236.55	17.27	10.1204		212	3.98	84	93.45			5.41	Si
SLU 71	11.05	-192.34	17.27	-21.5066		173	3.98	79	87.56			5.07	Si
SLU 80	9.25	-260.75	17.83	11.4992		234	3.98	87	96.68			5.42	Si
SLU 80	11.05	-216.54	17.83	-21.1387		194	3.98	81	90.78			5.09	Si
SLU 27	9.25	-206	16.12	9.4983		185	3.98	80	89.38			5.55	Si
SLU 27	11.05	-171.68	16.12	-19.9294		154	3.98	76	84.8			5.26	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 16	9.25	-178.01	40.84	30.8909		160	3.98	115	128.47			3.15	Si
SLD 16	11.05	-145.6	33.85	-36.6587		131	3.98	109	121.99			3.6	Si
SLV 15	9.25	-181.2	86.88	64.4062		163	3.98	116	129.11			1.49	Si
SLV 15	11.05	-150.68	70.96	-77.89		135	3.98	110	123			1.73	Si
SLV 4	9.25	-154.15	-76.7	-52.9045		138	3.98	111	123.7			1.61	Si
SLV 4	11.05	-123.75	-60.95	64.0825		111	3.98	106	117.62			1.93	Si
SLV 3	9.25	-154.15	-76.7	-52.9045		138	3.98	111	123.7			1.61	Si
SLV 3	11.05	-123.75	-60.95	64.0825		111	3.98	106	117.62			1.93	Si
SLV 13	9.25	-196.55	86.93	62.9886		176	3.98	119	132.18			1.52	Si
SLV 13	11.05	-159.22	71.19	-73.2566		143	3.98	112	124.71			1.75	Si
SLV 2	9.25	-169.5	-76.64	-54.3221		152	3.98	114	126.77			1.65	Si
SLV 2	11.05	-132.28	-60.72	68.7159		119	3.98	107	119.32			1.97	Si
SLV 14	9.25	-196.55	86.93	62.9886		176	3.98	119	132.18			1.52	Si
SLV 14	11.05	-159.22	71.19	-73.2566		143	3.98	112	124.71			1.75	Si
SLV 1	9.25	-169.5	-76.64	-54.3221		152	3.98	114	126.77			1.65	Si
SLV 1	11.05	-132.28	-60.72	68.7159		119	3.98	107	119.32			1.97	Si
SLV 16	9.25	-181.2	86.88	64.4062		163	3.98	116	129.11			1.49	Si
SLV 16	11.05	-150.68	70.96	-77.89		135	3.98	110	123			1.73	Si
SLD 15	9.25	-178.01	40.84	30.8909		160	3.98	115	128.47			3.15	Si
SLD 15	11.05	-145.6	33.85	-36.6587		131	3.98	109	121.99			3.6	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.46	120	-133.96	4.8351	16.9096	3.5	Si
SLV 8	1438	0.46	120	-133.96	4.8351	16.9096	3.5	Si
SLV 3	1438	0.46	125	-138.77	4.8351	17.4474	3.61	Si
SLV 4	1438	0.46	125	-138.77	4.8351	17.4474	3.61	Si
SLV 11	1438	0.46	128	-142.25	4.8351	17.8346	3.69	Si
SLV 12	1438	0.46	128	-142.25	4.8351	17.8346	3.69	Si
SLV 1	1438	0.46	136	-151.17	4.8351	18.8143	3.89	Si
SLV 2	1438	0.46	136	-151.17	4.8351	18.8143	3.89	Si
SLV 15	1438	0.46	149	-166.39	4.8351	20.4483	4.23	Si
SLV 16	1438	0.46	149	-166.39	4.8351	20.4483	4.23	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 6	-119.86	-183.71	0.99	0.042	17.847	0.919	0.67074	12.41353	No
SLV 5	-119.86	-183.71	0.99	0.042	17.847	0.919	0.67074	12.41353	No
SLV 10	-125.72	-192.51	0.84	0.043	18.435	0.921	0.68257	12.41353	No
SLV 9	-125.72	-192.51	0.84	0.043	18.435	0.921	0.68257	12.41353	No
SLV 2	-105.18	-159.34	0.72	0.045	16.379	0.914	0.71031	11.93169	No
SLV 1	-105.18	-159.34	0.72	0.045	16.379	0.914	0.71031	11.93169	No
SLV 12	-103.33	-152.18	-0.45	0.047	16.194	0.913	0.74222	12.41353	No
SLV 11	-103.33	-152.18	-0.45	0.047	16.194	0.913	0.74222	12.41353	No
SLV 8	-97.47	-143.39	-0.3	0.048	15.609	0.911	0.76699	12.41353	No
SLV 7	-97.47	-143.39	-0.3	0.048	15.609	0.911	0.76699	12.41353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	12.375	SLU 30	Si
V_SLU	4.923	SLU 30	Si
PF_SLV	3.424	SLV 15	Si
V_SLV	1.486	SLV 15	Si
PFFP_SLV	3.497	SLV 7	Si
R_SLV	0.054	SLV 5	No



## Maschio 155

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.058	6.661	-5.018	6.661	L5	L6	2.04	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 71	9.25	-113.78	7.9131	199	87.6758	11.08	Si
SLU 71	11.05	-87.96	-19.4846	154	72.7554	3.734	Si
SLU 72	9.25	-113.68	8.0391	199	87.6228	10.9	Si
SLU 72	11.05	-87.85	-19.5488	154	72.6908	3.718	Si
SLU 79	9.25	-129.84	10.5615	227	95.4791	9.04	Si
SLU 79	11.05	-104.01	-22.2059	182	82.3768	3.71	Si
SLU 30	9.25	-91.36	7.1436	160	74.8929	10.484	Si
SLU 30	11.05	-71.35	-17.3043	125	61.6168	3.561	Si
SLU 37	9.25	-107.52	9.666	188	84.3302	8.724	Si
SLU 37	11.05	-87.51	-19.9614	153	72.4721	3.631	Si
SLU 8	9.25	-78.82	5.0453	138	66.7762	13.235	Si
SLU 8	11.05	-59.11	-14.2802	103	52.6302	3.686	Si
SLU 29	9.25	-91.47	7.0176	160	74.9559	10.681	Si
SLU 29	11.05	-71.45	-17.2402	125	61.6888	3.578	Si
SLU 9	9.25	-78.72	5.1713	138	66.7075	12.9	Si
SLU 9	11.05	-59	-14.3443	103	52.5527	3.664	Si
SLU 38	9.25	-107.42	9.792	188	84.2743	8.606	Si
SLU 38	11.05	-87.41	-20.0256	153	72.4073	3.616	Si
SLU 80	9.25	-129.74	10.6875	227	95.4332	8.929	Si
SLU 80	11.05	-103.91	-22.2701	182	82.3194	3.696	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 9	9.25	-108.52	20.6982	190	93.4807	4.516	Si
SLV 9	11.05	-79.48	-28.8981	139	71.8369	2.486	Si
SLV 6	9.25	-92.62	8.1485	162	81.9332	10.055	Si
SLV 6	11.05	-62.1	-18.9032	109	57.7035	3.053	Si
SLV 16	9.25	-122.48	25.1162	214	103.0068	4.101	Si
SLV 16	11.05	-108.14	-25.7221	189	93.2126	3.624	Si
SLV 14	9.25	-124.6	29.8346	218	104.4044	3.499	Si
SLV 14	11.05	-104.27	-32.5699	183	90.4675	2.778	Si
SLV 13	9.25	-124.6	29.8346	218	104.4044	3.499	Si
SLV 13	11.05	-104.27	-32.5699	183	90.4675	2.778	Si
SLV 15	9.25	-122.48	25.1162	214	103.0068	4.101	Si
SLV 15	11.05	-108.14	-25.7221	189	93.2126	3.624	Si
SLV 5	9.25	-92.62	8.1485	162	81.9332	10.055	Si
SLV 5	11.05	-62.1	-18.9032	109	57.7035	3.053	Si
SLV 10	9.25	-108.52	20.6982	190	93.4807	4.516	Si
SLV 10	11.05	-79.48	-28.8981	139	71.8369	2.486	Si
SLD 9	9.25	-102	12.6258	179	88.8343	7.036	Si
SLD 9	11.05	-78.32	-19.5191	137	70.9184	3.633	Si
SLD 10	9.25	-102	12.6258	179	88.8343	7.036	Si
SLD 10	11.05	-78.32	-19.5191	137	70.9184	3.633	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	9.25	-136.19	18.19	10.8801		238	2.04	87	49.89			2.74	Si
SLU 78	11.05	-110.36	18.19	-22.3829		193	2.04	81	46.45			2.55	Si
SLU 38	9.25	-107.42	16.34	9.792		188	2.04	81	46.06			2.82	Si
SLU 38	11.05	-87.41	16.34	-20.0256		153	2.04	76	43.39			2.66	Si
SLU 79	9.25	-129.84	17.91	10.5615		227	2.04	86	49.05			2.74	Si
SLU 79	11.05	-104.01	17.91	-22.2059		182	2.04	80	45.6			2.55	Si
SLU 37	9.25	-107.52	16.23	9.666		188	2.04	81	46.07			2.84	Si
SLU 37	11.05	-87.51	16.23	-19.9614		153	2.04	76	43.4			2.67	Si
SLU 84	9.25	-141.63	18.4	11.9195		248	2.04	89	50.62			2.75	Si
SLU 84	11.05	-115.8	18.4	-21.7284		203	2.04	83	47.17			2.56	Si
SLU 77	9.25	-136.29	18.08	10.754		239	2.04	87	49.91			2.76	Si
SLU 77	11.05	-110.47	18.08	-22.3187		193	2.04	81	46.46			2.57	Si
SLU 42	9.25	-119.31	16.72	11.024		209	2.04	83	47.64			2.85	Si
SLU 42	11.05	-99.3	16.72	-19.484		174	2.04	79	44.97			2.69	Si
SLU 83	9.25	-141.73	18.3	11.7934		248	2.04	89	50.63			2.77	Si
SLU 83	11.05	-115.9	18.3	-21.6643		203	2.04	83	47.19			2.58	Si
SLU 36	9.25	-113.88	16.51	9.9846		199	2.04	82	46.92			2.84	Si
SLU 36	11.05	-93.86	16.51	-20.1384		164	2.04	77	44.25			2.68	Si
SLU 80	9.25	-129.74	18.02	10.6875		227	2.04	86	49.03			2.72	Si
SLU 80	11.05	-103.91	18.02	-22.2701		182	2.04	80	45.59			2.53	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	9.25	-124.6	37.68	29.8346		218	2.04	127	72.52			1.92	Si
SLV 14	11.05	-104.27	30.37	-32.5699		183	2.04	120	68.45			2.25	Si
SLV 13	9.25	-124.6	37.68	29.8346		218	2.04	127	72.52			1.92	Si
SLV 13	11.05	-104.27	30.37	-32.5699		183	2.04	120	68.45			2.25	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	9.25	-122.48	33.59	25.1162		214	2.04	126	72.1			2.15	Si
SLV 16	11.05	-108.14	26.32	-25.7221		189	2.04	121	69.23			2.63	Si
SLD 13	9.25	-108.97	22.27	16.6536		191	2.04	121	69.39			3.12	Si
SLD 13	11.05	-89.01	19.06	-21.2232		156	2.04	114	65.4			3.43	Si
SLV 10	9.25	-108.52	24.76	20.6982		190	2.04	121	69.3			2.8	Si
SLV 10	11.05	-79.48	22.52	-28.8981		144	1.9692	112	61.84			2.75	Si
SLD 14	9.25	-108.97	22.27	16.6536		191	2.04	121	69.39			3.12	Si
SLD 14	11.05	-89.01	19.06	-21.2232		156	2.04	114	65.4			3.43	Si
SLV 9	9.25	-108.52	24.76	20.6982		190	2.04	121	69.3			2.8	Si
SLV 9	11.05	-79.48	22.52	-28.8981		144	1.9692	112	61.84			2.75	Si
SLD 16	9.25	-108.06	20.54	14.6503		189	2.04	121	69.21			3.37	Si
SLD 16	11.05	-90.63	17.33	-18.315		159	2.04	115	65.73			3.79	Si
SLD 15	9.25	-108.06	20.54	14.6503		189	2.04	121	69.21			3.37	Si
SLD 15	11.05	-90.63	17.33	-18.315		159	2.04	115	65.73			3.79	Si
SLV 15	9.25	-122.48	33.59	25.1162		214	2.04	126	72.1			2.15	Si
SLV 15	11.05	-108.14	26.32	-25.7221		189	2.04	121	69.23			2.63	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.46	105	-59.82	2.4783	7.6573	3.09	Si
SLV 1	1438	0.46	105	-59.82	2.4783	7.6573	3.09	Si
SLV 3	1438	0.46	108	-61.41	2.4783	7.8408	3.16	Si
SLV 4	1438	0.46	108	-61.41	2.4783	7.8408	3.16	Si
SLV 5	1438	0.46	135	-76.99	2.4783	9.5894	3.87	Si
SLV 6	1438	0.46	135	-76.99	2.4783	9.5894	3.87	Si
SLV 8	1438	0.46	144	-82.28	2.4783	10.1609	4.1	Si
SLV 7	1438	0.46	144	-82.28	2.4783	10.1609	4.1	Si
SLV 10	1438	0.46	163	-93.29	2.4783	11.3147	4.57	Si
SLV 9	1438	0.46	163	-93.29	2.4783	11.3147	4.57	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-51.66	-115.81	0.34	0.045	8.171	0.912	0.71962	12.41353	No
SLV 10	-51.66	-115.81	0.34	0.045	8.171	0.912	0.71962	12.41353	No
SLV 14	-65.37	-149.72	0.32	0.045	9.542	0.922	0.7017	11.93169	No
SLV 13	-65.37	-149.72	0.32	0.045	9.542	0.922	0.7017	11.93169	No
SLV 8	-59.84	-93.59	-0.17	0.047	8.988	0.918	0.74058	12.41353	No
SLV 7	-59.84	-93.59	-0.17	0.047	8.988	0.918	0.74058	12.41353	No
SLV 15	-69.97	-151.3	0.2	0.046	10.005	0.925	0.71758	11.93169	No
SLV 16	-69.97	-151.3	0.2	0.046	10.005	0.925	0.71758	11.93169	No
SLV 11	-66.99	-121.08	-0.07	0.047	9.705	0.923	0.74746	12.41353	No
SLV 12	-66.99	-121.08	-0.07	0.047	9.705	0.923	0.74746	12.41353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.561	SLU 30	Si
V_SLU	2.53	SLU 80	Si
PF_SLV	2.486	SLV 9	Si
V_SLV	1.925	SLV 13	Si
PFFP_SLV	3.09	SLV 1	Si
R_SLV	0.058	SLV 9	No

## Maschio 156

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-20.668	1.046	-24.678	1.046	L5	L6	4.01	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 38	8.35	-219.63	-22.8243	196	334.6159	14.661	Si
SLU 38	10.45	-220.08	-72.5812	196	335.0812	4.617	Si
SLU 37	8.35	-218.44	-21.9815	195	333.3732	15.166	Si
SLU 37	10.45	-219	-74.1363	195	333.9568	4.505	Si
SLU 35	8.35	-226.61	-23.8682	202	341.7758	14.319	Si
SLU 35	10.45	-228.43	-76.4939	203	343.6156	4.492	Si
SLU 78	8.35	-272.92	-29.3192	243	383.9197	13.094	Si
SLU 78	10.45	-265.48	-83.2241	236	377.7838	4.539	Si
SLU 77	8.35	-271.73	-28.4764	242	382.955	13.448	Si
SLU 77	10.45	-264.4	-84.7793	235	376.8741	4.445	Si
SLU 69	8.35	-257.34	-26.244	229	370.7909	14.129	Si
SLU 69	10.45	-239.32	-75.8592	213	354.2784	4.67	Si
SLU 79	8.35	-263.57	-26.5896	235	376.1673	14.147	Si
SLU 79	10.45	-254.97	-82.4217	227	368.7027	4.473	Si
SLU 83	8.35	-263.44	-27.3981	235	376.0552	13.726	Si
SLU 83	10.45	-258.37	-79.6189	230	371.6945	4.668	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 36	8.35	-227.8	-24.7111	203	342.9759	13.879	Si
SLU 36	10.45	-229.51	-74.9387	204	344.6954	4.6	Si
SLU 80	8.35	-264.76	-27.4324	236	377.1747	13.749	Si
SLU 80	10.45	-256.05	-80.8666	228	369.657	4.571	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	8.35	-199.4	35.2841	178	341.6858	9.684	Si
SLV 1	10.45	-221.53	-125.3694	197	372.442	2.971	Si
SLV 3	8.35	-202.86	30.48	181	346.5923	11.371	Si
SLV 3	10.45	-211.56	-128.7554	188	358.7603	2.786	Si
SLV 7	8.35	-193.43	-11.2506	172	333.1446	29.611	Si
SLV 7	10.45	-164.97	-76.2404	147	290.9928	3.817	Si
SLV 4	8.35	-202.86	30.48	181	346.5923	11.371	Si
SLV 4	10.45	-211.56	-128.7554	188	358.7603	2.786	Si
SLV 2	8.35	-199.4	35.2841	178	341.6858	9.684	Si
SLV 2	10.45	-221.53	-125.3694	197	372.442	2.971	Si
SLV 15	8.35	-164.37	-72.7367	146	290.0802	3.988	Si
SLV 15	10.45	-111.7	32.5739	99	205.7172	6.315	Si
SLV 8	8.35	-193.43	-11.2506	172	333.1446	29.611	Si
SLV 8	10.45	-164.97	-76.2404	147	290.9928	3.817	Si
SLV 16	8.35	-164.37	-72.7367	146	290.0802	3.988	Si
SLV 16	10.45	-111.7	32.5739	99	205.7172	6.315	Si
SLD 4	8.35	-190.86	2.1896	170	329.4314	150.455	Si
SLD 4	10.45	-185.91	-81.7331	166	322.2358	3.943	Si
SLD 3	8.35	-190.86	2.1896	170	329.4314	150.455	Si
SLD 3	10.45	-185.91	-81.7331	166	322.2358	3.943	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	8.35	-218.31	68.78	-22.79		194	4.01	81	91.49			1.33	Si
SLU 41	10.45	-222.4	68.84	-71.3335		198	4.01	82	92.03			1.34	Si
SLU 37	8.35	-218.44	67.12	-21.9815		195	4.01	81	91.5			1.36	Si
SLU 37	10.45	-219	67.21	-74.1363		195	4.01	82	91.58			1.36	Si
SLU 35	8.35	-226.61	68.55	-23.8682		202	4.01	82	92.59			1.35	Si
SLU 35	10.45	-228.43	68.64	-76.4939		203	4.01	83	92.84			1.35	Si
SLU 42	8.35	-219.5	67.4	-23.6328		195	4.01	82	91.64			1.36	Si
SLU 42	10.45	-223.48	67.72	-69.7783		199	4.01	82	92.18			1.36	Si
SLU 80	8.35	-264.76	70.47	-27.4324		236	4.01	87	97.68			1.39	Si
SLU 80	10.45	-256.05	70.83	-80.8666		228	4.01	86	96.52			1.36	Si
SLU 78	8.35	-272.92	71.91	-29.3192		243	4.01	88	98.77			1.37	Si
SLU 78	10.45	-265.48	72.26	-83.2241		236	4.01	87	97.78			1.35	Si
SLU 77	8.35	-271.73	73.29	-28.4764		242	4.01	88	98.61			1.35	Si
SLU 77	10.45	-264.4	73.38	-84.7793		235	4.01	87	97.63			1.33	Si
SLU 79	8.35	-263.57	71.85	-26.5896		235	4.01	87	97.52			1.36	Si
SLU 79	10.45	-254.97	71.95	-82.4217		227	4.01	86	96.37			1.34	Si
SLU 84	8.35	-264.63	72.14	-28.2409		236	4.01	87	97.66			1.35	Si
SLU 84	10.45	-259.45	72.46	-78.0637		231	4.01	86	96.97			1.34	Si
SLU 83	8.35	-263.44	73.51	-27.3981		235	4.01	87	97.5			1.33	Si
SLU 83	10.45	-258.37	73.58	-79.6189		230	4.01	86	96.83			1.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 1	8.35	-189.34	83.7	4.1678		169	4.01	117	131.43			1.57	Si
SLD 1	10.45	-190.07	79	-80.175		169	4.01	117	131.58			1.67	Si
SLD 3	8.35	-190.86	78.61	2.1896		170	4.01	117	131.74			1.68	Si
SLD 3	10.45	-185.91	73.79	-81.7331		166	4.01	116	130.75			1.77	Si
SLD 2	8.35	-189.34	83.7	4.1678		169	4.01	117	131.43			1.57	Si
SLD 2	10.45	-190.07	79	-80.175		169	4.01	117	131.58			1.67	Si
SLV 4	8.35	-202.86	130.89	30.48		181	4.01	119	134.14			1.02	Si
SLV 4	10.45	-211.56	119.97	-128.7554		188	4.01	121	135.88			1.13	Si
SLV 1	8.35	-199.4	143.05	35.2841		178	4.01	119	133.45			0.93	No, Vu<V
SLV 1	10.45	-221.53	132.4	-125.3694		197	4.01	123	137.87			1.04	Si
SLV 3	8.35	-202.86	130.89	30.48		181	4.01	119	134.14			1.02	Si
SLV 3	10.45	-211.56	119.97	-128.7554		188	4.01	121	135.88			1.13	Si
SLV 5	8.35	-181.89	88.99	4.7629		162	4.01	116	129.94			1.46	Si
SLV 5	10.45	-198.21	86.22	-64.9539		177	4.01	119	133.21			1.54	Si
SLD 4	8.35	-190.86	78.61	2.1896		170	4.01	117	131.74			1.68	Si
SLD 4	10.45	-185.91	73.79	-81.7331		166	4.01	116	130.75			1.77	Si
SLV 2	8.35	-199.4	143.05	35.2841		178	4.01	119	133.45			0.93	No, Vu<V
SLV 2	10.45	-221.53	132.4	-125.3694		197	4.01	123	137.87			1.04	Si
SLV 6	8.35	-181.89	88.99	4.7629		162	4.01	116	129.94			1.46	Si
SLV 6	10.45	-198.21	86.22	-64.9539		177	4.01	119	133.21			1.54	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.46	107	-119.67	4.9848	15.2922	3.07	Si
SLV 15	1438	0.46	107	-119.67	4.9848	15.2922	3.07	Si
SLV 13	1438	0.46	113	-127.23	4.9848	16.1604	3.24	Si
SLV 14	1438	0.46	113	-127.23	4.9848	16.1604	3.24	Si
SLV 12	1438	0.46	130	-145.9	4.9848	18.2542	3.66	Si
SLV 11	1438	0.46	130	-145.9	4.9848	18.2542	3.66	Si
SLV 9	1438	0.46	152	-171.11	4.9848	20.968	4.21	Si
SLV 10	1438	0.46	152	-171.11	4.9848	20.968	4.21	Si
SLV 8	1438	0.46	157	-175.95	4.9848	21.4743	4.31	Si
SLV 7	1438	0.46	157	-175.95	4.9848	21.4743	4.31	Si





## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	-154.59	-193.43	6.19	0.015	21.385	0.929	0.22965	12.41353	No
SLV 8	-154.59	-193.43	6.19	0.015	21.385	0.929	0.22965	12.41353	No
SLV 9	-153.87	-170.34	-6.13	0.015	21.311	0.929	0.23245	12.41353	No
SLV 10	-153.87	-170.34	-6.13	0.015	21.311	0.929	0.23245	12.41353	No
SLV 12	-140.44	-181.88	5.52	0.016	19.959	0.925	0.25834	12.41353	No
SLV 11	-140.44	-181.88	5.52	0.016	19.959	0.925	0.25834	12.41353	No
SLV 6	-168.02	-181.89	-5.47	0.02	22.739	0.933	0.30947	12.41353	No
SLV 5	-168.02	-181.89	-5.47	0.02	22.739	0.933	0.30947	12.41353	No
SLV 14	-132.66	-160.91	-2.83	0.031	19.176	0.923	0.49362	11.93169	No
SLV 13	-132.66	-160.91	-2.83	0.031	19.176	0.923	0.49362	11.93169	No

### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.445	SLU 77	Si
V_SLU	1.316	SLU 83	Si
PF_SLV	2.786	SLV 3	Si
V_SLV	0.933	SLV 1	No
PFFP_SLV	3.068	SLV 15	Si
R_SLV	0.018	SLV 7	No

## Maschio 157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.283	1.046	-19.868	1.046	L5	L6	7.585	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 56	8.35	-689.83	-76.7172	325	1572.9947	20.504	Si
SLU 56	10.85	-615.67	-151.1003	290	1503.9873	9.954	Si
SLU 66	8.35	-673.72	-76.6027	317	1560.0581	20.366	Si
SLU 66	10.85	-592.42	-147.0129	279	1477.3766	10.049	Si
SLU 79	8.35	-733.24	-85.503	345	1602.2065	18.739	Si
SLU 79	10.85	-669.94	-162.3678	315	1556.853	9.588	Si
SLU 78	8.35	-755.4	-82.8322	356	1613.9326	19.484	Si
SLU 78	10.85	-692.61	-160.6857	326	1575.1174	9.802	Si
SLU 74	8.35	-722.88	-87.4966	340	1595.9865	18.241	Si
SLU 74	10.85	-653.65	-157.7355	308	1542.3433	9.778	Si
SLU 69	8.35	-703.45	-77.5526	331	1583.0484	20.413	Si
SLU 69	10.85	-629.15	-158.9815	296	1518.3232	9.55	Si
SLU 83	8.35	-724.58	-89.2219	341	1597.042	17.9	Si
SLU 83	10.85	-659.45	-154.9946	311	1547.6388	9.985	Si
SLU 71	8.35	-684.08	-74.6091	322	1568.5108	21.023	Si
SLU 71	10.85	-608.7	-151.6452	287	1496.2589	9.867	Si
SLU 77	8.35	-752.6	-88.4466	354	1612.5709	18.232	Si
SLU 77	10.85	-690.39	-169.7041	325	1573.4266	9.272	Si
SLU 35	8.35	-639.5	-77.4677	301	1528.7882	19.735	Si
SLU 35	10.85	-603.82	-149.4328	284	1490.7253	9.976	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 14	8.35	-457.02	-212.7712	215	1427.9922	6.711	Si
SLV 14	10.85	-354.75	154.3969	167	1161.4797	7.523	Si
SLV 3	8.35	-504.46	99.8416	238	1541.2525	15.437	Si
SLV 3	10.85	-470.83	-348.8204	222	1461.6348	4.19	Si
SLD 1	8.35	-477.85	25.8106	225	1478.5321	57.284	Si
SLD 1	10.85	-433.9	-204.7231	204	1370.4262	6.694	Si
SLV 4	8.35	-504.46	99.8416	238	1541.2525	15.437	Si
SLV 4	10.85	-470.83	-348.8204	222	1461.6348	4.19	Si
SLV 16	8.35	-488.61	-250.9415	230	1504.1445	5.994	Si
SLV 16	10.85	-364.2	152.3822	171	1187.3696	7.792	Si
SLV 13	8.35	-457.02	-212.7712	215	1427.9922	6.711	Si
SLV 13	10.85	-354.75	154.3969	167	1161.4797	7.523	Si
SLV 15	8.35	-488.61	-250.9415	230	1504.1445	5.994	Si
SLV 15	10.85	-364.2	152.3822	171	1187.3696	7.792	Si
SLV 1	8.35	-472.87	138.0118	223	1466.5638	10.626	Si
SLV 1	10.85	-461.38	-346.8057	217	1438.6878	4.148	Si
SLD 2	8.35	-477.85	25.8106	225	1478.5321	57.284	Si
SLD 2	10.85	-433.9	-204.7231	204	1370.4262	6.694	Si
SLV 2	8.35	-472.87	138.0118	223	1466.5638	10.626	Si
SLV 2	10.85	-461.38	-346.8057	217	1438.6878	4.148	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	8.35	-570.98	-10.63	-63.6303		269	7.585	91	194.12			18.27	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	10.85	-522.13	-10.91	-131.3738		246	7.585	88	187.61			17.2	Si
SLU 19	8.35	-521.78	5.7	-59.9494		246	7.585	88	187.56			32.89	Si
SLU 19	10.85	-463.65	8.48	-95.1324		218	7.585	85	179.81			21.2	Si
SLU 30	8.35	-573.78	-10.26	-58.016		270	7.585	92	194.49			18.96	Si
SLU 30	10.85	-524.36	-10.39	-122.3554		247	7.585	88	187.9			18.09	Si
SLU 72	8.35	-686.88	-9.76	-68.9948		323	7.585	99	209.57			21.48	Si
SLU 72	10.85	-610.92	-10.07	-142.6267		288	7.585	94	199.45			19.81	Si
SLU 9	8.35	-511	-8.06	-46.2866		241	7.585	88	186.12			23.08	Si
SLU 9	10.85	-449.64	-9.08	-103.7515		212	7.585	84	177.94			19.59	Si
SLU 50	8.35	-621.31	-7.93	-62.8798		293	7.585	95	200.83			25.34	Si
SLU 50	10.85	-533.99	-9.28	-133.0413		251	7.585	89	189.19			20.38	Si
SLU 71	8.35	-684.08	-10.12	-74.6091		322	7.585	99	209.2			20.67	Si
SLU 71	10.85	-608.7	-10.59	-151.6452		287	7.585	94	199.15			18.81	Si
SLU 51	8.35	-624.1	-7.56	-57.2654		294	7.585	95	201.2			26.61	Si
SLU 51	10.85	-536.21	-8.76	-124.0229		252	7.585	89	189.48			21.62	Si
SLU 8	8.35	-508.2	-8.43	-51.901		239	7.585	87	185.75			22.04	Si
SLU 8	10.85	-447.42	-9.6	-112.77		211	7.585	84	177.64			18.5	Si
SLU 61	8.35	-634.88	6.21	-70.9282		299	7.585	95	202.64			32.65	Si
SLU 61	10.85	-550.22	8.8	-115.4038		259	7.585	90	191.35			21.74	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	8.35	-472.87	216.66	138.0118		223	7.585	128	271.56			1.25	Si
SLV 2	10.85	-461.38	172.2	-346.8057		217	7.585	127	269.26			1.56	Si
SLV 13	8.35	-457.02	-262.37	-212.7712		215	7.585	126	268.39			1.02	Si
SLV 13	10.85	-354.75	-211.32	154.3969		167	7.585	117	247.93			1.17	Si
SLV 15	8.35	-488.61	-217.11	-250.9415		230	7.585	129	274.71			1.27	Si
SLV 15	10.85	-364.2	-170.43	152.3822		171	7.585	118	249.82			1.47	Si
SLV 1	8.35	-472.87	216.66	138.0118		223	7.585	128	271.56			1.25	Si
SLV 1	10.85	-461.38	172.2	-346.8057		217	7.585	127	269.26			1.56	Si
SLV 16	8.35	-488.61	-217.11	-250.9415		230	7.585	129	274.71			1.27	Si
SLV 16	10.85	-364.2	-170.43	152.3822		171	7.585	118	249.82			1.47	Si
SLV 10	8.35	-425.71	-147.52	-45.4652		200	7.585	123	262.12			1.78	Si
SLV 10	10.85	-381.06	-124.8	-18.6736		179	7.585	119	253.19			2.03	Si
SLV 14	8.35	-457.02	-262.37	-212.7712		215	7.585	126	268.39			1.02	Si
SLV 14	10.85	-354.75	-211.32	154.3969		167	7.585	117	247.93			1.17	Si
SLV 4	8.35	-504.46	261.92	99.8416		238	7.585	131	277.88			1.06	Si
SLV 4	10.85	-470.83	213.09	-348.8204		222	7.585	128	271.15			1.27	Si
SLV 3	8.35	-504.46	261.92	99.8416		238	7.585	131	277.88			1.06	Si
SLV 3	10.85	-470.83	213.09	-348.8204		222	7.585	128	271.15			1.27	Si
SLV 9	8.35	-425.71	-147.52	-45.4652		200	7.585	123	262.12			1.78	Si
SLV 9	10.85	-381.06	-124.8	-18.6736		179	7.585	119	253.19			2.03	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11  $W_a 0.0005$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.46	195	-413.73	9.4289	48.6875	5.16	Si
SLV 13	1438	0.46	195	-413.73	9.4289	48.6875	5.16	Si
SLV 16	1438	0.46	198	-421.32	9.4289	49.4086	5.24	Si
SLV 15	1438	0.46	198	-421.32	9.4289	49.4086	5.24	Si
SLV 9	1438	0.46	200	-424.63	9.4289	49.7205	5.27	Si
SLV 10	1438	0.46	200	-424.63	9.4289	49.7205	5.27	Si
SLV 5	1438	0.46	208	-441.57	9.4289	51.3004	5.44	Si
SLV 6	1438	0.46	208	-441.57	9.4289	51.3004	5.44	Si
SLV 12	1438	0.46	212	-449.95	9.4289	52.0704	5.52	Si
SLV 11	1438	0.46	212	-449.95	9.4289	52.0704	5.52	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-359.94	-425.71	13.14	0.015	47.272	0.938	0.23682	12.41353	No
SLV 9	-359.94	-425.71	13.14	0.015	47.272	0.938	0.23682	12.41353	No
SLV 8	-382.49	-535.77	-13.1	0.017	49.555	0.94	0.25658	12.41353	No
SLV 7	-382.49	-535.77	-13.1	0.017	49.555	0.94	0.25658	12.41353	No
SLV 12	-357.91	-531.01	-12.01	0.018	47.067	0.938	0.27626	12.41353	No
SLV 11	-357.91	-531.01	-12.01	0.018	47.067	0.938	0.27626	12.41353	No
SLV 5	-384.52	-430.46	12.05	0.019	49.761	0.94	0.29402	12.41353	No
SLV 6	-384.52	-430.46	12.05	0.019	49.761	0.94	0.29402	12.41353	No
SLV 14	-330.56	-457.02	5.61	0.032	44.3	0.934	0.50399	11.93169	No
SLV 13	-330.56	-457.02	5.61	0.032	44.3	0.934	0.50399	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.272	SLU 77	Si
V_SLU	17.197	SLU 29	Si
PF_SLV	4.148	SLV 1	Si
V_SLV	1.023	SLV 13	Si
PFFP_SLV	5.164	SLV 13	Si
R_SLV	0.019	SLV 9	No

## Maschio 158

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-10.466	1.046	-11.163	1.046	L5	L6	0.696	0.28	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 39	8.35	-60.21	1.6591	309	13.0169	7.846	Si
SLU 39	10.85	-67.59	-0.841	347	13.5191	16.075	Si
SLU 35	8.35	-64.2	1.8064	329	13.318	7.373	Si
SLU 35	10.85	-76.09	-1.0835	390	13.8013	12.738	Si
SLU 32	8.35	-62.24	1.581	319	13.1789	8.336	Si
SLU 32	10.85	-71.22	-0.8596	365	13.6782	15.912	Si
SLU 83	8.35	-74.47	1.5574	382	13.772	8.843	Si
SLU 83	10.85	-82.56	-0.7011	423	13.8038	19.688	Si
SLU 36	8.35	-64.3	1.6436	330	13.3245	8.107	Si
SLU 36	10.85	-75.6	-0.9399	388	13.7937	14.676	Si
SLU 42	8.35	-62.27	1.7217	319	13.1808	7.656	Si
SLU 42	10.85	-71.98	-0.9212	369	13.7043	14.876	Si
SLU 37	8.35	-61.81	1.8652	317	13.1462	7.048	Si
SLU 37	10.85	-73.93	-1.15	379	13.7596	11.965	Si
SLU 40	8.35	-60.31	1.4963	309	13.0251	8.705	Si
SLU 40	10.85	-67.1	-0.6974	344	13.4933	19.348	Si
SLU 38	8.35	-61.91	1.7024	318	13.1538	7.727	Si
SLU 38	10.85	-73.44	-1.0064	377	13.7473	13.66	Si
SLU 41	8.35	-62.17	1.8844	319	13.1735	6.991	Si
SLU 41	10.85	-72.47	-1.0648	372	13.7197	12.884	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 15	8.35	-65.15	-19.6459	334	16.4815	0.839	No, M>Mu
SLV 15	10.85	-46.51	17.5117	0	0	0	No, e>l/2
SLV 13	8.35	-56.35	-18.4592	289	14.9803	0.812	No, M>Mu
SLV 13	10.85	-59.77	16.5168	307	15.5896	0.944	No, M>Mu
SLV 4	8.35	-44.06	19.1833	0	0	0	No, e>l/2
SLV 4	10.85	-42.17	-16.3983	0	0	0	No, e>l/2
SLV 2	8.35	-35.26	20.37	0	0	0	No, e>l/2
SLV 2	10.85	-55.42	-17.3932	284	14.8085	0.851	No, M>Mu
SLV 6	8.35	-32.38	8.1643	166	9.7415	1.193	Si
SLV 6	10.85	-72.41	-6.6854	371	17.5493	2.625	Si
SLV 14	8.35	-56.35	-18.4592	289	14.9803	0.812	No, M>Mu
SLV 14	10.85	-59.77	16.5168	307	15.5896	0.944	No, M>Mu
SLV 5	8.35	-32.38	8.1643	166	9.7415	1.193	Si
SLV 5	10.85	-72.41	-6.6854	371	17.5493	2.625	Si
SLV 16	8.35	-65.15	-19.6459	334	16.4815	0.839	No, M>Mu
SLV 16	10.85	-46.51	17.5117	0	0	0	No, e>l/2
SLV 1	8.35	-35.26	20.37	0	0	0	No, e>l/2
SLV 1	10.85	-55.42	-17.3932	284	14.8085	0.851	No, M>Mu
SLV 3	8.35	-44.06	19.1833	0	0	0	No, e>l/2
SLV 3	10.85	-42.17	-16.3983	0	0	0	No, e>l/2

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	8.35	-62.17	2.9	1.8844		319	0.6964	98	19.12			6.6	Si
SLU 41	10.85	-72.47	2.61	-1.0648		372	0.6964	105	20.49			7.84	Si
SLU 37	8.35	-61.81	3.01	1.8652		317	0.6964	98	19.07			6.34	Si
SLU 37	10.85	-73.93	2.8	-1.15		379	0.6964	106	20.69			7.38	Si
SLU 77	8.35	-76.5	2.7	1.4793		392	0.6964	108	21.03			7.78	Si
SLU 77	10.85	-86.19	2.5	-0.7197		442	0.6964	108	21.12			8.46	Si
SLU 38	8.35	-61.91	2.84	1.7024		318	0.6964	98	19.09			6.72	Si
SLU 38	10.85	-73.44	2.64	-1.0064		377	0.6964	106	20.62			7.82	Si
SLU 35	8.35	-64.2	2.94	1.8064		329	0.6964	99	19.39			6.59	Si
SLU 35	10.85	-76.09	2.74	-1.0835		390	0.6964	108	20.98			7.66	Si
SLU 32	8.35	-62.24	2.54	1.581		319	0.6964	98	19.13			7.54	Si
SLU 32	10.85	-71.22	2.33	-0.8596		365	0.6964	104	20.33			8.71	Si
SLU 79	8.35	-74.12	2.77	1.5381		380	0.6964	106	20.71			7.48	Si
SLU 79	10.85	-84.03	2.56	-0.7863		431	0.6964	108	21.12			8.24	Si
SLU 36	8.35	-64.3	2.77	1.6436		330	0.6964	100	19.41			7	Si
SLU 36	10.85	-75.6	2.57	-0.9399		388	0.6964	107	20.91			8.13	Si
SLU 42	8.35	-62.27	2.73	1.7217		319	0.6964	98	19.13			7.02	Si
SLU 42	10.85	-71.98	2.45	-0.9212		369	0.6964	105	20.43			8.35	Si
SLU 39	8.35	-60.21	2.49	1.6591		309	0.6964	97	18.86			7.56	Si
SLU 39	10.85	-67.59	2.21	-0.841		347	0.6964	102	19.84			8.99	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	8.35	-32.38	10.04	8.1643		401	0.2881	163	13.11			1.31	Si
SLV 6	10.85	-72.41	9.45	-6.6854		371	0.6964	158	30.73			3.25	Si
SLV 4	8.35	-44.06	17.03	19.1833		0	0	83	0			0	No, Vu<V
SLV 4	10.85	-42.17	12.48	-16.3983		0	0	83	0			0	No, Vu<V
SLV 3	8.35	-44.06	17.03	19.1833		0	0	83	0			0	No, Vu<V
SLV 3	10.85	-42.17	12.48	-16.3983		0	0	83	0			0	No, Vu<V
SLV 2	8.35	-35.26	19.38	20.37		0	0	83	0			0	No, Vu<V
SLV 2	10.85	-55.42	15.28	-17.3932		1920	0.1031	163	4.69			0.31	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	8.35	-56.35	-15.13	-18.4592		3253	0.0619	163	2.82			0.19	No, Vu<V
SLV 13	10.85	-59.77	-10.74	16.5168		991	0.2155	163	9.81			0.91	No, Vu<V
SLV 15	8.35	-65.15	-17.48	-19.6459		1663	0.1399	163	6.37			0.36	No, Vu<V
SLV 15	10.85	-46.51	-13.54	17.5117		0	0	83	0			0	No, Vu<V
SLV 5	8.35	-32.38	10.04	8.1643		401	0.2881	163	13.11			1.31	Si
SLV 5	10.85	-72.41	9.45	-6.6854		371	0.6964	158	30.73			3.25	Si
SLV 1	8.35	-35.26	19.38	20.37		0	0	83	0			0	No, Vu<V
SLV 1	10.85	-55.42	15.28	-17.3932		1920	0.1031	163	4.69			0.31	No, Vu<V
SLV 14	8.35	-56.35	-15.13	-18.4592		3253	0.0619	163	2.82			0.19	No, Vu<V
SLV 14	10.85	-59.77	-10.74	16.5168		991	0.2155	163	9.81			0.91	No, Vu<V
SLV 16	8.35	-65.15	-17.48	-19.6459		1663	0.1399	163	6.37			0.36	No, Vu<V
SLV 16	10.85	-46.51	-13.54	17.5117		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.46	173	-33.7	0.8657	4.0502	4.68	Si
SLV 8	1438	0.46	173	-33.7	0.8657	4.0502	4.68	Si
SLV 11	1438	0.46	174	-33.96	0.8657	4.0772	4.71	Si
SLV 12	1438	0.46	174	-33.96	0.8657	4.0772	4.71	Si
SLV 4	1438	0.46	231	-44.96	0.8657	5.1067	5.9	Si
SLV 3	1438	0.46	231	-44.96	0.8657	5.1067	5.9	Si
SLV 16	1438	0.46	235	-45.86	0.8657	5.1845	5.99	Si
SLV 15	1438	0.46	235	-45.86	0.8657	5.1845	5.99	Si
SLV 1	1438	0.46	281	-54.89	0.8657	5.9139	6.83	Si
SLV 2	1438	0.46	281	-54.89	0.8657	5.9139	6.83	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-18.78	-44.06	-1.4	0	2.903	0.915	0	11.93169	No
SLV 4	-18.78	-44.06	-1.4	0	2.903	0.915	0	11.93169	No
SLV 10	-34.11	-38.71	3.86	0	4.448	0.939	0	12.41353	No
SLV 11	-22.19	-68.04	-3.72	0	3.245	0.922	0	12.41353	No
SLV 5	-30.61	-32.38	3.71	0	4.094	0.935	0	12.41353	No
SLV 6	-30.61	-32.38	3.71	0	4.094	0.935	0	12.41353	No
SLV 9	-34.11	-38.71	3.86	0	4.448	0.939	0	12.41353	No
SLV 8	-18.69	-61.71	-3.88	0	2.894	0.915	0	12.41353	No
SLV 12	-22.19	-68.04	-3.72	0	3.245	0.922	0	12.41353	No
SLV 7	-18.69	-61.71	-3.88	0	2.894	0.915	0	12.41353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.991	SLU 41	Si
V_SLU	6.337	SLU 37	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	4.679	SLV 7	Si
R_SLV	0	SLV 3	No

## Maschio 159

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.278	1.046	-9.386	1.046	L5	L6	2.109	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	8.35	-231.02	-18.3897	391	126.5708	6.883	Si
SLU 73	10.85	-187.1	24.3755	317	120.5225	4.944	Si
SLU 78	8.35	-258.86	-15.5256	438	126.0255	8.117	Si
SLU 78	10.85	-212.44	25.0026	360	125.0441	5.001	Si
SLU 61	8.35	-215.26	-18.3858	365	125.3727	6.819	Si
SLU 61	10.85	-173.37	23.5839	294	116.8959	4.957	Si
SLU 82	8.35	-238.12	-19.2204	403	126.7544	6.595	Si
SLU 82	10.85	-194.14	25.4538	329	122.0601	4.795	Si
SLU 75	8.35	-247.96	-16.9262	420	126.6437	7.482	Si
SLU 75	10.85	-202.69	24.9019	343	123.6366	4.965	Si
SLU 76	8.35	-241.92	-16.9891	410	126.762	7.461	Si
SLU 76	10.85	-196.86	24.4762	333	122.5965	5.009	Si
SLU 84	8.35	-249.01	-17.8199	422	126.6066	7.105	Si
SLU 84	10.85	-203.89	25.5545	345	123.8333	4.846	Si
SLU 63	8.35	-226.15	-16.9852	383	126.3172	7.437	Si
SLU 63	10.85	-183.13	23.6846	310	119.5573	5.048	Si
SLU 81	8.35	-237.11	-18.0564	402	126.7418	7.019	Si
SLU 81	10.85	-192.96	24.8696	327	121.819	4.898	Si
SLU 83	8.35	-248.01	-16.6558	420	126.642	7.603	Si
SLU 83	10.85	-202.72	24.9703	343	123.6422	4.952	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	8.35	-170.93	-66.8652	290	137.5169	2.057	Si
SLV 15	10.85	-168.83	60.7169	286	136.3432	2.246	Si
SLV 11	8.35	-173.76	-49.2464	294	139.0732	2.824	Si
SLV 11	10.85	-159.35	43.6436	270	130.8925	2.999	Si
SLV 14	8.35	-165.24	-52.5399	280	134.3122	2.556	Si
SLV 14	10.85	-156.72	51.3052	265	129.3361	2.521	Si
SLD 15	8.35	-166.28	-34.6804	282	134.9032	3.89	Si
SLD 15	10.85	-146.2	35.1299	248	122.9058	3.499	Si
SLV 13	8.35	-165.24	-52.5399	280	134.3122	2.556	Si
SLV 13	10.85	-156.72	51.3052	265	129.3361	2.521	Si
SLV 2	8.35	-154.34	45.5504	261	127.9129	2.808	Si
SLV 2	10.85	-89.25	-28.8484	151	82.4545	2.858	Si
SLV 1	8.35	-154.34	45.5504	261	127.9129	2.808	Si
SLV 1	10.85	-89.25	-28.8484	151	82.4545	2.858	Si
SLD 16	8.35	-166.28	-34.6804	282	134.9032	3.89	Si
SLD 16	10.85	-146.2	35.1299	248	122.9058	3.499	Si
SLV 12	8.35	-173.76	-49.2464	294	139.0732	2.824	Si
SLV 12	10.85	-159.35	43.6436	270	130.8925	2.999	Si
SLV 16	8.35	-170.93	-66.8652	290	137.5169	2.057	Si
SLV 16	10.85	-168.83	60.7169	286	136.3432	2.246	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	8.35	-214.25	-13.9	-17.2217		363	2.1086	104	61.37			4.42	Si
SLU 60	10.85	-172.2	-8.15	22.9996		292	2.1086	94	55.76			6.84	Si
SLU 61	8.35	-215.26	-14.7	-18.3858		365	2.1086	104	61.5			4.18	Si
SLU 61	10.85	-173.37	-8.68	23.5839		294	2.1086	95	55.92			6.44	Si
SLU 19	8.35	-177.81	-12.69	-15.8676		301	2.1086	96	56.51			4.45	Si
SLU 19	10.85	-145.12	-7.58	19.8986		246	2.1086	88	52.15			6.88	Si
SLU 81	8.35	-237.11	-14.53	-18.0564		402	2.1086	108	63.96			4.4	Si
SLU 81	10.85	-192.96	-8.33	24.8696		327	2.1086	99	58.53			7.03	Si
SLU 63	8.35	-226.15	-13.71	-16.9852		383	2.1086	107	62.95			4.59	Si
SLU 63	10.85	-183.13	-7.43	23.6846		310	2.1086	97	57.22			7.7	Si
SLU 52	8.35	-208.16	-13.91	-17.555		353	2.1086	103	60.56			4.35	Si
SLU 52	10.85	-166.33	-8.08	22.5055		282	2.1086	93	54.98			6.8	Si
SLU 73	8.35	-231.02	-14.55	-18.3897		391	2.1086	108	63.67			4.37	Si
SLU 73	10.85	-187.1	-8.26	24.3755		317	2.1086	98	57.75			6.99	Si
SLU 40	8.35	-200.68	-13.32	-16.7023		340	2.1086	101	59.56			4.47	Si
SLU 40	10.85	-165.89	-7.76	21.7685		281	2.1086	93	54.92			7.08	Si
SLU 82	8.35	-238.12	-15.34	-19.2204		403	2.1086	108	63.96			4.17	Si
SLU 82	10.85	-194.14	-8.86	25.4538		329	2.1086	99	58.69			6.62	Si
SLU 84	8.35	-249.01	-14.35	-17.8199		422	2.1086	108	63.96			4.46	Si
SLU 84	10.85	-203.89	-7.61	25.5545		345	2.1086	102	59.99			7.89	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	8.35	-173.76	-43.02	-49.2464		294	2.1086	142	83.95			1.95	Si
SLV 12	10.85	-159.35	-27.35	43.6436		270	2.1086	137	81.07			2.96	Si
SLV 2	8.35	-154.34	46.65	45.5504		261	2.1086	136	80.07			1.72	Si
SLV 2	10.85	-89.25	25.61	-28.8484		151	2.1086	114	67.05			2.62	Si
SLV 11	8.35	-173.76	-43.02	-49.2464		294	2.1086	142	83.95			1.95	Si
SLV 11	10.85	-159.35	-27.35	43.6436		270	2.1086	137	81.07			2.96	Si
SLV 3	8.35	-160.04	34.81	31.2251		271	2.1086	138	81.21			2.33	Si
SLV 3	10.85	-101.36	16.55	-19.4366		172	2.1086	118	69.47			4.2	Si
SLV 1	8.35	-154.34	46.65	45.5504		261	2.1086	136	80.07			1.72	Si
SLV 1	10.85	-89.25	25.61	-28.8484		151	2.1086	114	67.05			2.62	Si
SLV 13	8.35	-165.24	-51.85	-52.5399		280	2.1086	139	82.25			1.59	Si
SLV 13	10.85	-156.72	-25.68	51.3052		265	2.1086	136	80.54			3.14	Si
SLV 4	8.35	-160.04	34.81	31.2251		271	2.1086	138	81.21			2.33	Si
SLV 4	10.85	-101.36	16.55	-19.4366		172	2.1086	118	69.47			4.2	Si
SLV 14	8.35	-165.24	-51.85	-52.5399		280	2.1086	139	82.25			1.59	Si
SLV 14	10.85	-156.72	-25.68	51.3052		265	2.1086	136	80.54			3.14	Si
SLV 15	8.35	-170.93	-63.69	-66.8652		307	1.9894	145	80.61			1.27	Si
SLV 15	10.85	-168.83	-34.73	60.7169		289	2.084	141	82.39			2.37	Si
SLV 16	8.35	-170.93	-63.69	-66.8652		307	1.9894	145	80.61			1.27	Si
SLV 16	10.85	-168.83	-34.73	60.7169		289	2.084	141	82.39			2.37	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.46	223	-131.49	2.6212	15.0529	5.74	Si
SLV 2	1438	0.46	223	-131.49	2.6212	15.0529	5.74	Si
SLV 5	1438	0.46	224	-132.33	2.6212	15.1277	5.77	Si
SLV 6	1438	0.46	224	-132.33	2.6212	15.1277	5.77	Si
SLV 3	1438	0.46	232	-136.8	2.6212	15.5199	5.92	Si
SLV 4	1438	0.46	232	-136.8	2.6212	15.5199	5.92	Si
SLV 9	1438	0.46	234	-138.36	2.6212	15.6553	5.97	Si
SLV 10	1438	0.46	234	-138.36	2.6212	15.6553	5.97	Si
SLV 8	1438	0.46	254	-150.03	2.6212	16.636	6.35	Si
SLV 7	1438	0.46	254	-150.03	2.6212	16.636	6.35	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-89.59	-151.52	4.15	0.008	12.083	0.933	0.12973	12.41353	No
SLV 5	-89.59	-151.52	4.15	0.008	12.083	0.933	0.12973	12.41353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	-105.78	-170.49	-4.34	0.011	13.72	0.94	0.16789	12.41353	No
SLV 8	-105.78	-170.49	-4.34	0.011	13.72	0.94	0.16789	12.41353	No
SLV 9	-109.53	-154.79	4.36	0.012	14.1	0.941	0.17817	12.41353	No
SLV 10	-109.53	-154.79	4.36	0.012	14.1	0.941	0.17817	12.41353	No
SLV 12	-125.72	-173.76	-4.13	0.016	15.741	0.947	0.25088	12.41353	No
SLV 11	-125.72	-173.76	-4.13	0.016	15.741	0.947	0.25088	12.41353	No
SLV 3	-76.86	-160.04	-1.62	0.031	10.798	0.927	0.47944	11.93169	No
SLV 4	-76.86	-160.04	-1.62	0.031	10.798	0.927	0.47944	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.795	SLU 82	Si
V_SLU	4.17	SLU 82	Si
PF_SLV	2.057	SLV 15	Si
V_SLV	1.266	SLV 15	Si
PFFP_SLV	5.743	SLV 1	Si
R_SLV	0.01	SLV 5	No

## Maschio 160

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-4.968	1.046	-6.478	1.046	L5	L6	1.51	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 35	8.35	-140.5	-11.5043	332	62.8028	5.459	Si
SLU 35	10.45	-139.42	15.8026	330	62.651	3.965	Si
SLU 77	8.35	-166.1	-13.0171	393	64.925	4.988	Si
SLU 77	10.45	-160.82	17.7486	380	64.7226	3.647	Si
SLU 36	8.35	-142.23	-11.3876	336	63.0371	5.536	Si
SLU 36	10.45	-142.18	15.8544	336	63.03	3.976	Si
SLU 83	8.35	-160.62	-13.1063	380	64.7124	4.938	Si
SLU 83	10.45	-158.62	17.0702	375	64.602	3.784	Si
SLU 79	8.35	-161.89	-12.6406	383	64.7734	5.124	Si
SLU 79	10.45	-155.98	17.3903	369	64.4298	3.705	Si
SLU 75	8.35	-162.17	-12.4688	384	64.7857	5.196	Si
SLU 75	10.45	-158.99	16.522	376	64.6241	3.911	Si
SLU 78	8.35	-167.83	-12.9004	397	64.9647	5.036	Si
SLU 78	10.45	-163.57	17.8004	387	64.8433	3.643	Si
SLU 84	8.35	-162.35	-12.9895	384	64.7938	4.988	Si
SLU 84	10.45	-161.37	17.1221	382	64.7494	3.782	Si
SLU 74	8.35	-160.43	-12.5855	379	64.7029	5.141	Si
SLU 74	10.45	-156.24	16.4702	370	64.4481	3.913	Si
SLU 80	8.35	-163.62	-12.5238	387	64.8452	5.178	Si
SLU 80	10.45	-158.73	17.4421	375	64.6089	3.704	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 15	8.35	-107.88	-52.49	255	64.4395	1.228	Si
SLV 15	10.45	-104.27	51.2977	247	62.8341	1.225	Si
SLV 2	8.35	-107.8	37.0373	255	64.4055	1.739	Si
SLV 2	10.45	-97.69	-31.4936	231	59.8068	1.899	Si
SLV 1	8.35	-107.8	37.0373	255	64.4055	1.739	Si
SLV 1	10.45	-97.69	-31.4936	231	59.8068	1.899	Si
SLV 11	8.35	-111.36	-33.3671	263	65.9524	1.977	Si
SLV 11	10.45	-107.61	33.1594	255	64.3223	1.94	Si
SLD 15	8.35	-107.97	-26.8566	255	64.4814	2.401	Si
SLD 15	10.45	-102.51	27.5802	242	62.0383	2.249	Si
SLV 13	8.35	-105.56	-44.4383	250	63.4146	1.427	Si
SLV 13	10.45	-100.55	44.1514	238	61.1379	1.385	Si
SLD 16	8.35	-107.97	-26.8566	255	64.4814	2.401	Si
SLD 16	10.45	-102.51	27.5802	242	62.0383	2.249	Si
SLV 14	8.35	-105.56	-44.4383	250	63.4146	1.427	Si
SLV 14	10.45	-100.55	44.1514	238	61.1379	1.385	Si
SLV 16	8.35	-107.88	-52.49	255	64.4395	1.228	Si
SLV 16	10.45	-104.27	51.2977	247	62.8341	1.225	Si
SLV 12	8.35	-111.36	-33.3671	263	65.9524	1.977	Si
SLV 12	10.45	-107.61	33.1594	255	64.3223	1.94	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	8.35	-166.1	-18.13	-13.0171		393	1.51	108	45.64			2.52	Si
SLU 77	10.45	-160.82	-18.13	17.7486		380	1.51	106	44.93			2.48	Si
SLU 35	8.35	-140.5	-16.31	-11.5043		332	1.51	100	42.22			2.59	Si
SLU 35	10.45	-139.42	-16.31	15.8026		330	1.51	100	42.08			2.58	Si
SLU 74	8.35	-160.43	-16.73	-12.5855		379	1.51	106	44.88			2.68	Si
SLU 74	10.45	-156.24	-16.73	16.4702		370	1.51	105	44.32			2.65	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	8.35	-135.01	-15.6	-11.5935		319	1.51	98	41.49			2.66	Si
SLU 41	10.45	-137.22	-15.6	15.1243		325	1.51	99	41.78			2.68	Si
SLU 79	8.35	-161.89	-17.75	-12.6406		383	1.51	107	45.07			2.54	Si
SLU 79	10.45	-155.98	-17.76	17.3903		369	1.51	105	44.29			2.49	Si
SLU 78	8.35	-167.83	-17.6	-12.9004		397	1.51	108	45.8			2.6	Si
SLU 78	10.45	-163.57	-17.57	17.8004		387	1.51	107	45.3			2.58	Si
SLU 80	8.35	-163.62	-17.23	-12.5238		387	1.51	107	45.31			2.63	Si
SLU 80	10.45	-158.73	-17.2	17.4421		375	1.51	106	44.65			2.6	Si
SLU 83	8.35	-160.62	-17.41	-13.1063		380	1.51	106	44.9			2.58	Si
SLU 83	10.45	-158.62	-17.42	17.0702		375	1.51	106	44.64			2.56	Si
SLU 56	8.35	-152.41	-15.98	-11.5573		360	1.51	104	43.81			2.74	Si
SLU 56	10.45	-143.43	-15.99	15.8048		339	1.51	101	42.61			2.67	Si
SLU 37	8.35	-136.28	-15.94	-11.1278		322	1.51	99	41.66			2.61	Si
SLU 37	10.45	-134.58	-15.94	15.4444		318	1.51	98	41.43			2.6	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	8.35	-104.32	31.1	17.9144		247	1.51	133	56.1			1.8	Si
SLV 5	10.45	-94.34	33.13	-13.3552		223	1.51	128	54.1			1.63	Si
SLV 6	8.35	-104.32	31.1	17.9144		247	1.51	133	56.1			1.8	Si
SLV 6	10.45	-94.34	33.13	-13.3552		223	1.51	128	54.1			1.63	Si
SLV 1	8.35	-107.8	46.76	37.0373		312	1.2343	146	50.36			1.08	Si
SLV 1	10.45	-97.69	41.99	-31.4936		269	1.2978	137	49.82			1.19	Si
SLV 12	8.35	-111.36	-50.77	-33.3671		291	1.3661	142	54.15			1.07	Si
SLV 12	10.45	-107.61	-52.8	33.1594		287	1.3406	141	52.8			1	Si
SLV 13	8.35	-105.56	-50.63	-44.4383		376	1.0021	159	44.5			0.88	No, Vu<V
SLV 13	10.45	-100.55	-43.59	44.1514		379	0.9477	159	42.22			0.97	No, Vu<V
SLV 15	8.35	-107.88	-66.43	-52.49		478	0.8053	163	36.64			0.55	No, Vu<V
SLV 15	10.45	-104.27	-61.66	51.2977		472	0.7891	163	35.9			0.58	No, Vu<V
SLV 16	8.35	-107.88	-66.43	-52.49		478	0.8053	163	36.64			0.55	No, Vu<V
SLV 16	10.45	-104.27	-61.66	51.2977		472	0.7891	163	35.9			0.58	No, Vu<V
SLV 2	8.35	-107.8	46.76	37.0373		312	1.2343	146	50.36			1.08	Si
SLV 2	10.45	-97.69	41.99	-31.4936		269	1.2978	137	49.82			1.19	Si
SLV 11	8.35	-111.36	-50.77	-33.3671		291	1.3661	142	54.15			1.07	Si
SLV 11	10.45	-107.61	-52.8	33.1594		287	1.3406	141	52.8			1	Si
SLV 14	8.35	-105.56	-50.63	-44.4383		376	1.0021	159	44.5			0.88	No, Vu<V
SLV 14	10.45	-100.55	-43.59	44.1514		379	0.9477	159	42.22			0.97	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.46	229	-96.7	1.8771	11.0036	5.86	Si
SLV 6	1438	0.46	229	-96.7	1.8771	11.0036	5.86	Si
SLV 9	1438	0.46	232	-98.27	1.8771	11.1409	5.94	Si
SLV 10	1438	0.46	232	-98.27	1.8771	11.1409	5.94	Si
SLV 2	1438	0.46	235	-99.17	1.8771	11.2189	5.98	Si
SLV 1	1438	0.46	235	-99.17	1.8771	11.2189	5.98	Si
SLV 3	1438	0.46	243	-102.87	1.8771	11.534	6.14	Si
SLV 4	1438	0.46	243	-102.87	1.8771	11.534	6.14	Si
SLV 14	1438	0.46	247	-104.42	1.8771	11.6641	6.21	Si
SLV 13	1438	0.46	247	-104.42	1.8771	11.6641	6.21	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-69.9	-104.32	1.34	0.03	9.233	0.937	0.46676	12.41353	No
SLV 6	-69.9	-104.32	1.34	0.03	9.233	0.937	0.46676	12.41353	No
SLV 10	-71.36	-103.65	1.35	0.03	9.381	0.938	0.46737	12.41353	No
SLV 9	-71.36	-103.65	1.35	0.03	9.381	0.938	0.46737	12.41353	No
SLV 7	-76.36	-112.03	-1.35	0.031	9.887	0.94	0.47456	12.41353	No
SLV 8	-76.36	-112.03	-1.35	0.031	9.887	0.94	0.47456	12.41353	No
SLV 12	-77.82	-111.36	-1.34	0.031	10.035	0.941	0.47788	12.41353	No
SLV 11	-77.82	-111.36	-1.34	0.031	10.035	0.941	0.47788	12.41353	No
SLV 13	-75.32	-105.56	0.42	0.041	9.782	0.94	0.6351	11.93169	No
SLV 14	-75.32	-105.56	0.42	0.041	9.782	0.94	0.6351	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.643	SLU 78	Si
V_SLU	2.478	SLU 77	Si
PF_SLV	1.225	SLV 15	Si
V_SLV	0.552	SLV 15	No
PFFP_SLV	5.862	SLV 5	Si
R_SLV	0.038	SLV 5	No

## Maschio 161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	1.046	-4.168	1.046	L5	L6	4.045	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 84	8.35	-320.36	23.1815	283	422.9409	18.245	Si
SLU 84	10.45	-293.25	83.9954	259	404.5796	4.817	Si
SLU 35	8.35	-269.69	20.2277	238	386.0012	19.083	Si
SLU 35	10.45	-253.48	78.9761	224	371.8084	4.708	Si
SLU 80	8.35	-319.15	22.3502	282	422.1896	18.89	Si
SLU 80	10.45	-288.11	83.2732	254	400.7377	4.812	Si
SLU 83	8.35	-317.56	22.4164	280	421.1954	18.79	Si
SLU 83	10.45	-291.53	84.7225	257	403.3097	4.76	Si
SLU 79	8.35	-316.35	21.5851	279	420.4293	19.478	Si
SLU 79	10.45	-286.4	84.0003	253	399.4292	4.755	Si
SLU 37	8.35	-261.52	18.432	231	378.9929	20.562	Si
SLU 37	10.45	-244.19	75.1513	216	363.1597	4.832	Si
SLU 36	8.35	-272.48	20.9927	241	388.3338	18.498	Si
SLU 36	10.45	-255.19	78.249	225	373.3644	4.771	Si
SLU 78	8.35	-327.31	24.1458	289	427.1342	17.69	Si
SLU 78	10.45	-297.4	87.0981	263	407.5985	4.68	Si
SLU 77	8.35	-324.52	23.3807	287	425.474	18.198	Si
SLU 77	10.45	-295.68	87.8252	261	406.3599	4.627	Si
SLU 74	8.35	-318.27	23.2409	281	421.6428	18.142	Si
SLU 74	10.45	-289.21	83.5534	255	401.5655	4.806	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	8.35	-238.98	-44.4099	211	399.8764	9.004	Si
SLV 13	10.45	-232.99	114.5573	206	391.8921	3.421	Si
SLD 16	8.35	-231.3	-6.5839	204	389.6153	59.177	Si
SLD 16	10.45	-212.8	82.0997	188	364.208	4.436	Si
SLV 16	8.35	-245.79	-35.5903	217	408.8233	11.487	Si
SLV 16	10.45	-242.2	125.2614	214	404.1245	3.226	Si
SLV 12	8.35	-238.28	13.0187	210	398.9481	30.644	Si
SLV 12	10.45	-220.14	88.6718	194	374.4155	4.222	Si
SLV 15	8.35	-245.79	-35.5903	217	408.8233	11.487	Si
SLV 15	10.45	-242.2	125.2614	214	404.1245	3.226	Si
SLV 14	8.35	-238.98	-44.4099	211	399.8764	9.004	Si
SLV 14	10.45	-232.99	114.5573	206	391.8921	3.421	Si
SLV 11	8.35	-238.28	13.0187	210	398.9481	30.644	Si
SLV 11	10.45	-220.14	88.6718	194	374.4155	4.222	Si
SLD 14	8.35	-228.44	-10.2195	202	385.7598	37.747	Si
SLD 14	10.45	-208.92	77.6472	184	358.7568	4.62	Si
SLD 15	8.35	-231.3	-6.5839	204	389.6153	59.177	Si
SLD 15	10.45	-212.8	82.0997	188	364.208	4.436	Si
SLD 13	8.35	-228.44	-10.2195	202	385.7598	37.747	Si
SLD 13	10.45	-208.92	77.6472	184	358.7568	4.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	8.35	-261.52	-54.08	18.432		231	4.045	86	97.79			1.81	Si
SLU 37	10.45	-244.19	-54.2	75.1513		216	4.045	84	95.48			1.76	Si
SLU 77	8.35	-324.52	-59.09	23.3807		287	4.045	94	106.19			1.8	Si
SLU 77	10.45	-295.68	-59.21	87.8252		261	4.045	90	102.35			1.73	Si
SLU 39	8.35	-256.48	-55.65	19.1235		226	4.045	86	97.12			1.75	Si
SLU 39	10.45	-242.85	-55.7	71.6017		214	4.045	84	95.3			1.71	Si
SLU 84	8.35	-320.36	-58.85	23.1815		283	4.045	93	105.64			1.79	Si
SLU 84	10.45	-293.25	-59.3	83.9954		259	4.045	90	102.02			1.72	Si
SLU 40	8.35	-259.28	-53.72	19.8886		229	4.045	86	97.49			1.81	Si
SLU 40	10.45	-244.57	-54.12	70.8746		216	4.045	84	95.53			1.77	Si
SLU 35	8.35	-269.69	-56.12	20.2277		238	4.045	87	98.88			1.76	Si
SLU 35	10.45	-253.48	-56.24	78.9761		224	4.045	85	96.72			1.72	Si
SLU 81	8.35	-311.31	-58.61	22.2766		275	4.045	92	104.43			1.78	Si
SLU 81	10.45	-285.06	-58.66	80.4508		252	4.045	89	100.93			1.72	Si
SLU 41	8.35	-262.73	-57.82	19.2634		232	4.045	86	97.95			1.69	Si
SLU 41	10.45	-249.33	-57.91	75.8734		220	4.045	85	96.17			1.66	Si
SLU 83	8.35	-317.56	-60.78	22.4164		280	4.045	93	105.26			1.73	Si
SLU 83	10.45	-291.53	-60.87	84.7225		257	4.045	90	101.79			1.67	Si
SLU 42	8.35	-265.53	-55.89	20.0284		234	4.045	87	98.33			1.76	Si
SLU 42	10.45	-251.04	-56.33	75.1463		222	4.045	85	96.39			1.71	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	8.35	-245.79	-125.51	-35.5903		217	4.045	127	143.54			1.14	Si
SLV 16	10.45	-242.2	-111.77	125.2614		214	4.045	126	142.82			1.28	Si
SLD 13	8.35	-228.44	-68.35	-10.2195		202	4.045	124	140.07			2.05	Si
SLD 13	10.45	-208.92	-63.56	77.6472		184	4.045	120	136.17			2.14	Si
SLV 11	8.35	-238.28	-69.98	13.0187		210	4.045	125	142.04			2.03	Si
SLV 11	10.45	-220.14	-61.85	88.6718		194	4.045	122	138.41			2.24	Si
SLV 12	8.35	-238.28	-69.98	13.0187		210	4.045	125	142.04			2.03	Si
SLV 12	10.45	-220.14	-61.85	88.6718		194	4.045	122	138.41			2.24	Si
SLD 14	8.35	-228.44	-68.35	-10.2195		202	4.045	124	140.07			2.05	Si
SLD 14	10.45	-208.92	-63.56	77.6472		184	4.045	120	136.17			2.14	Si
SLV 13	8.35	-238.98	-118.59	-44.4099		211	4.045	126	142.18			1.2	Si
SLV 13	10.45	-232.99	-107.51	114.5573		206	4.045	124	140.98			1.31	Si
SLD 15	8.35	-231.3	-71.24	-6.5839		204	4.045	124	140.64			1.97	Si
SLD 15	10.45	-212.8	-65.33	82.0997		188	4.045	121	136.94			2.1	Si
SLV 14	8.35	-238.98	-118.59	-44.4099		211	4.045	126	142.18			1.2	Si
SLV 14	10.45	-232.99	-107.51	114.5573		206	4.045	124	140.98			1.31	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	8.35	-245.79	-125.51	-35.5903		217	4.045	127	143.54			1.14	Si
SLV 15	10.45	-242.2	-111.77	125.2614		214	4.045	126	142.82			1.28	Si
SLD 16	8.35	-231.3	-71.24	-6.5839		204	4.045	124	140.64			1.97	Si
SLD 16	10.45	-212.8	-65.33	82.0997		188	4.045	121	136.94			2.1	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.46	130	-146.95	5.0283	18.388	3.66	Si
SLV 2	1438	0.46	130	-146.95	5.0283	18.388	3.66	Si
SLV 4	1438	0.46	138	-156.13	5.0283	19.3926	3.86	Si
SLV 3	1438	0.46	138	-156.13	5.0283	19.3926	3.86	Si
SLV 5	1438	0.46	149	-168.68	5.0283	20.7373	4.12	Si
SLV 6	1438	0.46	149	-168.68	5.0283	20.7373	4.12	Si
SLV 10	1438	0.46	173	-196.51	5.0283	23.6044	4.69	Si
SLV 9	1438	0.46	173	-196.51	5.0283	23.6044	4.69	Si
SLV 8	1438	0.46	176	-199.31	5.0283	23.8848	4.75	Si
SLV 7	1438	0.46	176	-199.31	5.0283	23.8848	4.75	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-145.72	-215.59	5.32	0.018	20.541	0.927	0.28727	12.41353	No
SLV 10	-145.72	-215.59	5.32	0.018	20.541	0.927	0.28727	12.41353	No
SLV 5	-134.51	-202.34	5.05	0.018	19.413	0.923	0.29101	12.41353	No
SLV 6	-134.51	-202.34	5.05	0.018	19.413	0.923	0.29101	12.41353	No
SLV 8	-153.75	-225.04	-5.32	0.019	21.351	0.929	0.30079	12.41353	No
SLV 7	-153.75	-225.04	-5.32	0.019	21.351	0.929	0.30079	12.41353	No
SLV 12	-164.96	-238.28	-5.05	0.022	22.482	0.932	0.33872	12.41353	No
SLV 11	-164.96	-238.28	-5.05	0.022	22.482	0.932	0.33872	12.41353	No
SLV 4	-133.94	-201.64	-2.01	0.036	19.356	0.923	0.57245	11.93169	No
SLV 3	-133.94	-201.64	-2.01	0.036	19.356	0.923	0.57245	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	4.627	SLV 77	Si
V_SLV	1.661	SLV 41	Si
PF_SLV	3.226	SLV 15	Si
V_SLV	1.144	SLV 15	Si
PFFP_SLV	3.657	SLV 1	Si
R_SLV	0.023	SLV 9	No

## Maschio 162

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-3.509	-11.003	-3.314	L5	L6	0.196	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	8.35	-7.75	-0.921	0	0	0	No, e>1/2
SLU 1	11.87	-1.91	-0.2962	0	0	0	No, e>1/2
SLU 53	8.35	-11.33	-1.3684	0	0	0	No, e>1/2
SLU 53	11.87	-2.68	-0.4209	0	0	0	No, e>1/2
SLU 58	8.35	-11.79	-1.4576	0	0	0	No, e>1/2
SLU 58	11.87	-2.91	-0.4132	0	0	0	No, e>1/2
SLU 61	8.35	-11.27	-1.3345	0	0	0	No, e>1/2
SLU 61	11.87	-2.45	-0.4128	0	0	0	No, e>1/2
SLU 54	8.35	-11.38	-1.3692	0	0	0	No, e>1/2
SLU 54	11.87	-2.68	-0.4233	0	0	0	No, e>1/2
SLU 55	8.35	-11.38	-1.371	0	0	0	No, e>1/2
SLU 55	11.87	-2.67	-0.4096	0	0	0	No, e>1/2
SLU 56	8.35	-11.83	-1.4564	0	0	0	No, e>1/2
SLU 56	11.87	-2.92	-0.4286	0	0	0	No, e>1/2
SLU 59	8.35	-11.85	-1.4584	0	0	0	No, e>1/2
SLU 59	11.87	-2.9	-0.4157	0	0	0	No, e>1/2
SLU 57	8.35	-11.88	-1.4572	0	0	0	No, e>1/2
SLU 57	11.87	-2.91	-0.4311	0	0	0	No, e>1/2
SLU 60	8.35	-11.22	-1.3336	0	0	0	No, e>1/2
SLU 60	11.87	-2.46	-0.4103	0	0	0	No, e>1/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	8.35	-5.13	-0.1265	94	0.4635	3.664	Si
SLV 7	11.87	-1.19	-0.6733	0	0	0	No, e>1/2
SLV 8	8.35	-5.13	-0.1265	94	0.4635	3.664	Si
SLV 8	11.87	-1.19	-0.6733	0	0	0	No, e>1/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	8.35	-9.02	-1.2577	0	0	0	No, $e \geq l/2$
SLD 1	11.87	-2.11	-0.2611	0	0	0	No, $e \geq l/2$
SLV 13	8.35	-8.59	-0.9292	0	0	0	No, $e \geq l/2$
SLV 13	11.87	-2.19	-0.2378	0	0	0	No, $e \geq l/2$
SLV 9	8.35	-11.44	-1.846	0	0	0	No, $e \geq l/2$
SLV 9	11.87	-2.79	0.0357	51	0.2613	7.33	Si
SLV 11	8.35	-4.7	0.0812	86	0.4279	5.273	Si
SLV 11	11.87	-1.16	-0.69	0	0	0	No, $e \geq l/2$
SLV 14	8.35	-8.59	-0.9292	0	0	0	No, $e \geq l/2$
SLV 14	11.87	-2.19	-0.2378	0	0	0	No, $e \geq l/2$
SLV 10	8.35	-11.44	-1.846	0	0	0	No, $e \geq l/2$
SLV 10	11.87	-2.79	0.0357	51	0.2613	7.33	Si
SLV 12	8.35	-4.7	0.0812	86	0.4279	5.273	Si
SLV 12	11.87	-1.16	-0.69	0	0	0	No, $e \geq l/2$
SLV 6	8.35	-11.87	-2.0537	0	0	0	No, $e \geq l/2$
SLV 6	11.87	-2.81	0.0523	51	0.2637	5.041	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 53	8.35	-11.33	-0.45	-1.3684		0	0	56	0			0	No, $V_u < V$
SLU 53	11.87	-2.68	0.38	-0.4209		0	0	56	0			0	No, $V_u < V$
SLU 61	8.35	-11.27	-0.34	-1.3345		0	0	56	0			0	No, $V_u < V$
SLU 61	11.87	-2.45	0.41	-0.4128		0	0	56	0			0	No, $V_u < V$
SLU 59	8.35	-11.85	-0.57	-1.4584		0	0	56	0			0	No, $V_u < V$
SLU 59	11.87	-2.9	0.31	-0.4157		0	0	56	0			0	No, $V_u < V$
SLU 1	8.35	-7.75	-0.22	-0.921		0	0	56	0			0	No, $V_u < V$
SLU 1	11.87	-1.91	0.27	-0.2962		0	0	56	0			0	No, $V_u < V$
SLU 58	8.35	-11.79	-0.59	-1.4576		0	0	56	0			0	No, $V_u < V$
SLU 58	11.87	-2.91	0.31	-0.4132		0	0	56	0			0	No, $V_u < V$
SLU 56	8.35	-11.83	-0.58	-1.4564		0	0	56	0			0	No, $V_u < V$
SLU 56	11.87	-2.92	0.34	-0.4286		0	0	56	0			0	No, $V_u < V$
SLU 55	8.35	-11.38	-0.43	-1.371		0	0	56	0			0	No, $V_u < V$
SLU 55	11.87	-2.67	0.35	-0.4096		0	0	56	0			0	No, $V_u < V$
SLU 60	8.35	-11.22	-0.36	-1.3336		0	0	56	0			0	No, $V_u < V$
SLU 60	11.87	-2.46	0.4	-0.4103		0	0	56	0			0	No, $V_u < V$
SLU 54	8.35	-11.38	-0.43	-1.3692		0	0	56	0			0	No, $V_u < V$
SLU 54	11.87	-2.68	0.39	-0.4233		0	0	56	0			0	No, $V_u < V$
SLU 57	8.35	-11.88	-0.56	-1.4572		0	0	56	0			0	No, $V_u < V$
SLU 57	11.87	-2.91	0.35	-0.4311		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	8.35	-4.7	3.23	0.0812		86	0.1957	101	5.51			1.71	Si
SLV 11	11.87	-1.16	1.46	-0.69		0	0	83	0			0	No, $V_u < V$
SLD 1	8.35	-9.02	-1.45	-1.2577		0	0	83	0			0	No, $V_u < V$
SLD 1	11.87	-2.11	-0.08	-0.2611		0	0	83	0			0	No, $V_u < V$
SLV 13	8.35	-8.59	0.75	-0.9292		0	0	83	0			0	No, $V_u < V$
SLV 13	11.87	-2.19	0.6	-0.2378		0	0	83	0			0	No, $V_u < V$
SLV 14	8.35	-8.59	0.75	-0.9292		0	0	83	0			0	No, $V_u < V$
SLV 14	11.87	-2.19	0.6	-0.2378		0	0	83	0			0	No, $V_u < V$
SLV 7	8.35	-5.13	2.1	-0.1265		94	0.1957	102	5.59			2.67	Si
SLV 7	11.87	-1.19	1.1	-0.6733		0	0	83	0			0	No, $V_u < V$
SLV 6	8.35	-11.87	-3.76	-2.0537		0	0	83	0			0	No, $V_u < V$
SLV 6	11.87	-2.81	-0.85	0.0523		51	0.1957	94	5.13			6.02	Si
SLV 10	8.35	-11.44	-2.62	-1.846		0	0	83	0			0	No, $V_u < V$
SLV 10	11.87	-2.79	-0.5	0.0357		51	0.1957	94	5.12			10.26	Si
SLV 12	8.35	-4.7	3.23	0.0812		86	0.1957	101	5.51			1.71	Si
SLV 12	11.87	-1.16	1.46	-0.69		0	0	83	0			0	No, $V_u < V$
SLV 8	8.35	-5.13	2.1	-0.1265		94	0.1957	102	5.59			2.67	Si
SLV 8	11.87	-1.19	1.1	-0.6733		0	0	83	0			0	No, $V_u < V$
SLV 9	8.35	-11.44	-2.62	-1.846		0	0	83	0			0	No, $V_u < V$
SLV 9	11.87	-2.79	-0.5	0.0357		51	0.1957	94	5.12			10.26	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11  $W_a$  0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.46	33	-1.79	0.2433	0.2438	1	Si
SLV 7	1438	0.46	33	-1.79	0.2433	0.2438	1	Si
SLV 11	1438	0.46	47	-2.56	0.2433	0.3442	1.41	Si
SLV 12	1438	0.46	47	-2.56	0.2433	0.3442	1.41	Si
SLV 4	1438	0.46	48	-2.61	0.2433	0.3505	1.44	Si
SLV 3	1438	0.46	48	-2.61	0.2433	0.3505	1.44	Si
SLV 2	1438	0.46	74	-4.07	0.2433	0.5353	2.2	Si
SLV 1	1438	0.46	74	-4.07	0.2433	0.5353	2.2	Si
SLV 15	1438	0.46	94	-5.16	0.2433	0.6669	2.74	Si
SLV 16	1438	0.46	94	-5.16	0.2433	0.6669	2.74	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11  $W_a$  = 0.0005  $T_a$  = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 13	-2.19	-8.59	-0.27	0	0.513	0.89	0	11.93169	No
SLV 2	-2.28	-10.01	0.33	0	0.522	0.891	0	11.93169	No
SLV 14	-2.19	-8.59	-0.27	0	0.513	0.89	0	11.93169	No
SLV 3	-1.79	-7.99	0.28	0	0.476	0.889	0	11.93169	No
SLV 15	-1.7	-6.57	-0.32	0	0.468	0.889	0	11.93169	No
SLV 1	-2.28	-10.01	0.33	0	0.522	0.891	0	11.93169	No
SLV 16	-1.7	-6.57	-0.32	0	0.468	0.889	0	11.93169	No
SLV 4	-1.79	-7.99	0.28	0	0.476	0.889	0	11.93169	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 11	-1.16	-4.7	-0.16	0.007	0.421	0.893	0.11792	12.41353	No
SLV 12	-1.16	-4.7	-0.16	0.007	0.421	0.893	0.11792	12.41353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	1.002	SLV 7	Si
R_SLV	0	SLV 1	No

## Maschio 163

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-11.003	-3.314	-11.003	-0.354	L5	Z medio 1098 cm	2.96	0.28	2.63	1.74	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 18	8.35	-177.67	-4.3213	214	193.7493	44.836	Si
SLU 18	10.09	-144.94	-6.7696	175	168.4584	24.885	Si
SLU 19	8.35	-177.64	-4.4162	214	193.7297	43.868	Si
SLU 19	10.09	-144.72	-6.8648	175	168.2731	24.513	Si
SLU 21	8.35	-186	-5.7893	224	199.4409	34.45	Si
SLU 21	10.09	-152.11	-7.124	184	174.3997	24.48	Si
SLU 63	8.35	-223.28	-7.09	269	221.1631	31.193	Si
SLU 63	10.09	-181.82	-6.9365	219	196.6245	28.346	Si
SLU 20	8.35	-186.03	-5.6945	224	199.4595	35.027	Si
SLU 20	10.09	-152.33	-7.0289	184	174.5779	24.837	Si
SLU 59	8.35	-222.61	-8.1006	269	220.8289	27.261	Si
SLU 59	10.09	-181.02	-4.7301	218	196.0775	41.453	Si
SLU 62	8.35	-223.3	-6.9952	269	221.1771	31.618	Si
SLU 62	10.09	-182.04	-6.8413	220	196.7741	28.763	Si
SLU 58	8.35	-222.64	-8.0058	269	220.843	27.585	Si
SLU 58	10.09	-181.24	-4.6349	219	196.2278	42.337	Si
SLU 61	8.35	-214.91	-5.7169	259	216.8188	37.926	Si
SLU 61	10.09	-174.43	-6.6772	210	191.4604	28.674	Si
SLU 51	8.35	-201.54	-7.2547	243	209.2379	28.842	Si
SLU 51	10.09	-161.92	1.0232	195	182.1669	178.036	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 1	8.35	-149.96	-18.3987	181	189.0744	10.277	Si
SLV 1	10.09	-118.03	-0.9959	142	154.3231	154.953	Si
SLV 9	8.35	-190.28	-25.3726	230	228.6972	9.014	Si
SLV 9	10.09	-150.08	-7.2138	181	189.2033	26.228	Si
SLV 8	8.35	-128.56	19.275	155	166.1191	8.618	Si
SLV 8	10.09	-105.44	7.2371	127	139.7985	19.317	Si
SLV 10	8.35	-190.28	-25.3726	230	228.6972	9.014	Si
SLV 10	10.09	-150.08	-7.2138	181	189.2033	26.228	Si
SLV 6	8.35	-179.97	-30.1355	217	219.023	7.268	Si
SLV 6	10.09	-141.04	-6.5752	170	179.6673	27.325	Si
SLV 11	8.35	-138.87	24.038	168	177.3416	7.378	Si
SLV 11	10.09	-114.48	6.5985	138	150.2755	22.774	Si
SLV 5	8.35	-179.97	-30.1355	217	219.023	7.268	Si
SLV 5	10.09	-141.04	-6.5752	170	179.6673	27.325	Si
SLV 12	8.35	-138.87	24.038	168	177.3416	7.378	Si
SLV 12	10.09	-114.48	6.5985	138	150.2755	22.774	Si
SLV 2	8.35	-149.96	-18.3987	181	189.0744	10.277	Si
SLV 2	10.09	-118.03	-0.9959	142	154.3231	154.953	Si
SLV 7	8.35	-128.56	19.275	155	166.1191	8.618	Si
SLV 7	10.09	-105.44	7.2371	127	139.7985	19.317	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	8.35	-205.86	4.84	-5.4176		248	2.96	89	73.49			15.19	Si
SLU 52	10.09	-166.1	8.39	-4.275		200	2.96	82	68.19			8.13	Si
SLU 40	8.35	-198.05	4.1	-3.3461		239	2.96	87	72.45			17.67	Si
SLU 40	10.09	-161	8.61	-6.1436		194	2.96	81	67.51			7.84	Si
SLU 81	8.35	-235.35	3.61	-4.552		284	2.96	93	77.42			21.43	Si
SLU 81	10.09	-190.93	8.59	-5.8608		230	2.96	86	71.5			8.33	Si
SLU 82	8.35	-235.32	4.62	-4.6468		284	2.96	93	77.42			16.75	Si
SLU 82	10.09	-190.71	9.44	-5.956		230	2.96	86	71.47			7.57	Si
SLU 31	8.35	-189	4.47	-3.0468		228	2.96	86	71.24			15.95	Si
SLU 31	10.09	-152.67	7.93	-3.7413		184	2.96	80	66.4			8.37	Si
SLU 60	8.35	-214.94	3.46	-5.622		259	2.96	90	74.7			21.59	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	10.09	-174.65	8.21	-6.5821		211	2.96	84	69.33			8.45	Si
SLU 61	8.35	-214.91	4.47	-5.7169		259	2.96	90	74.7			16.71	Si
SLU 61	10.09	-174.43	9.07	-6.6772		210	2.96	84	69.3			7.64	Si
SLU 73	8.35	-226.27	4.99	-4.3475		273	2.96	92	76.21			15.27	Si
SLU 73	10.09	-182.38	8.77	-3.5538		220	2.96	85	70.36			8.03	Si
SLU 10	8.35	-168.59	4.31	-4.1169		203	2.96	83	68.52			15.88	Si
SLU 10	10.09	-136.39	7.55	-4.4625		165	2.96	77	64.23			8.5	Si
SLU 19	8.35	-177.64	3.95	-4.4162		214	2.96	84	69.73			17.67	Si
SLU 19	10.09	-144.72	8.23	-6.8648		175	2.96	79	65.34			7.94	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	8.35	-128.56	83.49	19.275		155	2.96	114	94.78			1.14	Si
SLV 7	10.09	-105.44	80.34	7.2371		127	2.96	109	90.15			1.12	Si
SLV 5	8.35	-179.97	-66.59	-30.1355		217	2.96	127	105.06			1.58	Si
SLV 5	10.09	-141.04	-58.69	-6.5752		170	2.96	117	97.27			1.66	Si
SLV 10	8.35	-190.28	-79.16	-25.3726		230	2.96	129	107.12			1.35	Si
SLV 10	10.09	-150.08	-72.03	-7.2138		181	2.96	120	99.08			1.38	Si
SLV 4	8.35	-134.54	45.63	-3.5755		162	2.96	116	95.97			2.1	Si
SLV 4	10.09	-107.35	47.25	3.1477		130	2.96	109	90.54			1.92	Si
SLV 12	8.35	-138.87	70.92	24.038		168	2.96	117	96.84			1.37	Si
SLV 12	10.09	-114.48	67	6.5985		138	2.96	111	91.96			1.37	Si
SLV 3	8.35	-134.54	45.63	-3.5755		162	2.96	116	95.97			2.1	Si
SLV 3	10.09	-107.35	47.25	3.1477		130	2.96	109	90.54			1.92	Si
SLV 6	8.35	-179.97	-66.59	-30.1355		217	2.96	127	105.06			1.58	Si
SLV 6	10.09	-141.04	-58.69	-6.5752		170	2.96	117	97.27			1.66	Si
SLV 8	8.35	-128.56	83.49	19.275		155	2.96	114	94.78			1.14	Si
SLV 8	10.09	-105.44	80.34	7.2371		127	2.96	109	90.15			1.12	Si
SLV 11	8.35	-138.87	70.92	24.038		168	2.96	117	96.84			1.37	Si
SLV 11	10.09	-114.48	67	6.5985		138	2.96	111	91.96			1.37	Si
SLV 9	8.35	-190.28	-79.16	-25.3726		230	2.96	129	107.12			1.35	Si
SLV 9	10.09	-150.08	-72.03	-7.2138		181	2.96	120	99.08			1.38	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 9.22 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.44	141	-116.94	1.9702	14.481	7.35	Si
SLV 8	1438	0.44	141	-116.94	1.9702	14.481	7.35	Si
SLV 4	1438	0.44	144	-119.64	1.9702	14.7708	7.5	Si
SLV 3	1438	0.44	144	-119.64	1.9702	14.7708	7.5	Si
SLV 11	1438	0.44	155	-128.43	1.9702	15.6995	7.97	Si
SLV 12	1438	0.44	155	-128.43	1.9702	15.6995	7.97	Si
SLV 2	1438	0.44	161	-133.44	1.9702	16.2202	8.23	Si
SLV 1	1438	0.44	161	-133.44	1.9702	16.2202	8.23	Si
SLV 16	1438	0.44	191	-157.93	1.9702	18.6621	9.47	Si
SLV 15	1438	0.44	191	-157.93	1.9702	18.6621	9.47	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 9.22 Wa = 0.0005 Ta = 0.0413

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-107.35	-134.54	-3.06	0.037	14.026	0.939	0.57878	6.73448	No
SLV 3	-107.35	-134.54	-3.06	0.037	14.026	0.939	0.57878	6.73448	No
SLV 7	-105.44	-128.56	-2.56	0.041	13.833	0.938	0.63748	6.88642	No
SLV 8	-105.44	-128.56	-2.56	0.041	13.833	0.938	0.63748	6.88642	No
SLV 2	-118.03	-149.96	-2.75	0.041	15.108	0.942	0.62965	6.73448	No
SLV 1	-118.03	-149.96	-2.75	0.041	15.108	0.942	0.62965	6.73448	No
SLV 11	-114.48	-138.87	-1.82	0.047	14.748	0.941	0.7324	6.88642	No
SLV 12	-114.48	-138.87	-1.82	0.047	14.748	0.941	0.7324	6.88642	No
SLV 5	-141.04	-179.97	-1.54	0.05	17.442	0.949	0.76798	6.88642	No
SLV 6	-141.04	-179.97	-1.54	0.05	17.442	0.949	0.76798	6.88642	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	24.48	SLU 21	Si
V_SLU	7.569	SLU 82	Si
PF_SLV	7.268	SLV 5	Si
V_SLV	1.122	SLV 7	Si
PFFP_SLV	7.35	SLV 7	Si
R_SLV	0.086	SLV 3	No

## Maschio 165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-0.354	-11.003	1.046	L5	L6	1.4	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	8.35	-157.63	-6.8492	402	55.8718	8.157	Si
SLU 77	11.87	-90.49	8.017	231	45.3931	5.662	Si
SLU 72	8.35	-142.78	-8.918	364	55.2566	6.196	Si
SLU 72	11.87	-81.1	7.9177	207	42.3508	5.349	Si
SLU 29	8.35	-120.07	-7.7995	306	52.4449	6.724	Si
SLU 29	11.87	-69.39	7.2401	177	38.0168	5.251	Si
SLU 71	8.35	-143.19	-8.9656	365	55.2863	6.166	Si
SLU 71	11.87	-81.51	8.0103	208	42.4929	5.305	Si
SLU 70	8.35	-146.45	-8.8939	374	55.498	6.24	Si
SLU 70	11.87	-84.13	8.2146	215	43.3758	5.28	Si
SLU 27	8.35	-123.73	-7.7755	316	53.0511	6.823	Si
SLU 27	11.87	-72.42	7.5369	185	39.1976	5.201	Si
SLU 69	8.35	-146.85	-8.9416	375	55.5212	6.209	Si
SLU 69	11.87	-84.55	8.3071	216	43.5124	5.238	Si
SLU 28	8.35	-123.32	-7.7278	315	52.9867	6.857	Si
SLU 28	11.87	-72.01	7.4443	184	39.039	5.244	Si
SLU 30	8.35	-119.66	-7.7519	305	52.374	6.756	Si
SLU 30	11.87	-68.97	7.1475	176	37.8528	5.296	Si
SLU 24	8.35	-118.71	-7.0972	303	52.2047	7.356	Si
SLU 24	11.87	-67.03	6.5736	171	37.0702	5.639	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	8.35	-103.28	-11.2816	263	56.7068	5.027	Si
SLV 16	11.87	-60.52	3.16	154	37.0096	11.712	Si
SLV 9	8.35	-103.82	-16.392	265	56.922	3.473	Si
SLV 9	11.87	-74.16	11.4976	189	43.8737	3.816	Si
SLD 5	8.35	-102.54	-7.5568	262	56.4102	7.465	Si
SLD 5	11.87	-59.85	7.1329	153	36.6622	5.14	Si
SLV 13	8.35	-104.02	-16.5177	265	57.0024	3.451	Si
SLV 13	11.87	-70.45	7.3043	180	42.06	5.758	Si
SLD 6	8.35	-102.54	-7.5568	262	56.4102	7.465	Si
SLD 6	11.87	-59.85	7.1329	153	36.6622	5.14	Si
SLV 14	8.35	-104.02	-16.5177	265	57.0024	3.451	Si
SLV 14	11.87	-70.45	7.3043	180	42.06	5.758	Si
SLV 6	8.35	-102.9	-11.0482	263	56.5564	5.119	Si
SLV 6	11.87	-67.41	10.9474	172	40.5459	3.704	Si
SLV 10	8.35	-103.82	-16.392	265	56.922	3.473	Si
SLV 10	11.87	-74.16	11.4976	189	43.8737	3.816	Si
SLV 15	8.35	-103.28	-11.2816	263	56.7068	5.027	Si
SLV 15	11.87	-60.52	3.16	154	37.0096	11.712	Si
SLV 5	8.35	-102.9	-11.0482	263	56.5564	5.119	Si
SLV 5	11.87	-67.41	10.9474	172	40.5459	3.704	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	8.35	-120.07	-11.97	-7.7995		306	1.4	96	37.79			3.16	Si
SLU 29	11.87	-69.39	-17.73	7.2401		177	1.4	79	31.03			1.75	Si
SLU 70	8.35	-146.45	-11.49	-8.8939		374	1.4	105	41.3			3.59	Si
SLU 70	11.87	-84.13	-18.84	8.2146		215	1.4	84	33			1.75	Si
SLU 69	8.35	-146.85	-11.96	-8.9416		375	1.4	106	41.36			3.46	Si
SLU 69	11.87	-84.55	-19.1	8.3071		216	1.4	84	33.05			1.73	Si
SLU 77	8.35	-157.63	-11.92	-6.8492		402	1.4	108	42.47			3.56	Si
SLU 77	11.87	-90.49	-18.92	8.017		231	1.4	86	33.84			1.79	Si
SLU 71	8.35	-143.19	-12.23	-8.9656		365	1.4	104	40.87			3.34	Si
SLU 71	11.87	-81.51	-18.93	8.0103		208	1.4	83	32.65			1.72	Si
SLU 30	8.35	-119.66	-11.51	-7.7519		305	1.4	96	37.73			3.28	Si
SLU 30	11.87	-68.97	-17.47	7.1475		176	1.4	79	30.97			1.77	Si
SLU 28	8.35	-123.32	-11.23	-7.7278		315	1.4	98	38.22			3.4	Si
SLU 28	11.87	-72.01	-17.64	7.4443		184	1.4	80	31.38			1.78	Si
SLU 27	8.35	-123.73	-11.7	-7.7755		316	1.4	98	38.28			3.27	Si
SLU 27	11.87	-72.42	-17.9	7.5369		185	1.4	80	31.43			1.76	Si
SLU 72	8.35	-142.78	-11.77	-8.918		364	1.4	104	40.82			3.47	Si
SLU 72	11.87	-81.1	-18.67	7.9177		207	1.4	83	32.59			1.75	Si
SLU 79	8.35	-153.97	-12.2	-6.8733		393	1.4	108	42.31			3.47	Si
SLU 79	11.87	-87.46	-18.75	7.7202		223	1.4	85	33.44			1.78	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	8.35	-103.82	-46.4	-16.392		265	1.4	136	53.43			1.15	Si
SLV 10	11.87	-74.16	-37.99	11.4976		189	1.4	121	47.5			1.25	Si
SLV 8	8.35	-100.42	36.05	6.4056		256	1.4	135	52.75			1.46	Si
SLV 8	11.87	-34.31	20.25	-2.867		88	1.4	101	39.53			1.95	Si
SLV 13	8.35	-104.02	-28.06	-16.5177		265	1.4	136	53.47			1.91	Si
SLV 13	11.87	-70.45	-27.76	7.3043		180	1.4	119	46.76			1.68	Si
SLV 7	8.35	-100.42	36.05	6.4056		256	1.4	135	52.75			1.46	Si
SLV 7	11.87	-34.31	20.25	-2.867		88	1.4	101	39.53			1.95	Si
SLV 9	8.35	-103.82	-46.4	-16.392		265	1.4	136	53.43			1.15	Si
SLV 9	11.87	-74.16	-37.99	11.4976		189	1.4	121	47.5			1.25	Si
SLV 11	8.35	-101.34	29.12	1.0617		259	1.4	135	52.93			1.82	Si
SLV 11	11.87	-41.06	13.56	-2.3169		105	1.4	104	40.88			3.02	Si
SLV 6	8.35	-102.9	-39.46	-11.0482		263	1.4	136	53.25			1.35	Si
SLV 6	11.87	-67.41	-31.3	10.9474		172	1.4	118	46.15			1.47	Si
SLV 5	8.35	-102.9	-39.46	-11.0482		263	1.4	136	53.25			1.35	Si
SLV 5	11.87	-67.41	-31.3	10.9474		172	1.4	118	46.15			1.47	Si
SLV 14	8.35	-104.02	-28.06	-16.5177		265	1.4	136	53.47			1.91	Si
SLV 14	11.87	-70.45	-27.76	7.3043		180	1.4	119	46.76			1.68	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	8.35	-101.34	29.12	1.0617		259	1.4	135	52.93			1.82	Si
SLV 12	11.87	-41.06	13.56	-2.3169		105	1.4	104	40.88			3.02	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.46	131	-51.5	1.7403	6.435	3.7	Si
SLV 3	1438	0.46	131	-51.5	1.7403	6.435	3.7	Si
SLV 8	1438	0.46	143	-56.14	1.7403	6.9385	3.99	Si
SLV 7	1438	0.46	143	-56.14	1.7403	6.9385	3.99	Si
SLV 1	1438	0.46	160	-62.81	1.7403	7.6404	4.39	Si
SLV 2	1438	0.46	160	-62.81	1.7403	7.6404	4.39	Si
SLV 11	1438	0.46	182	-71.43	1.7403	8.5085	4.89	Si
SLV 12	1438	0.46	182	-71.43	1.7403	8.5085	4.89	Si
SLV 6	1438	0.46	239	-93.84	1.7403	10.5635	6.07	Si
SLV 5	1438	0.46	239	-93.84	1.7403	10.5635	6.07	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-34.31	-100.42	3.27	0	5.493	0.911	0	12.41353	No
SLV 8	-34.31	-100.42	3.27	0	5.493	0.911	0	12.41353	No
SLV 11	-41.06	-101.34	2.45	0.003	6.167	0.918	0.05144	12.41353	No
SLV 12	-41.06	-101.34	2.45	0.003	6.167	0.918	0.05144	12.41353	No
SLV 4	-38.02	-100.22	2.24	0.005	5.863	0.915	0.08101	11.93169	No
SLV 3	-38.02	-100.22	2.24	0.005	5.863	0.915	0.08101	11.93169	No
SLV 9	-74.16	-103.82	-3.22	0.008	9.507	0.942	0.12775	12.41353	No
SLV 10	-74.16	-103.82	-3.22	0.008	9.507	0.942	0.12775	12.41353	No
SLV 6	-67.41	-102.9	-2.4	0.016	8.824	0.938	0.24636	12.41353	No
SLV 5	-67.41	-102.9	-2.4	0.016	8.824	0.938	0.24636	12.41353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.201	SLU 27	Si
V_SLU	1.724	SLU 71	Si
PF_SLV	3.451	SLV 13	Si
V_SLV	1.152	SLV 9	Si
PFFP_SLV	3.698	SLV 3	Si
R_SLV	0	SLV 7	No

## Maschio 166

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-9.448	-3.359	-11.003	-3.359	L5	L6	1.555	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	8.35	-90.6	5.8695	208	52.4465	8.935	Si
SLU 82	10.45	-85.25	-15.1761	196	50.351	3.318	Si
SLU 73	8.35	-87.82	5.9705	202	51.3724	8.604	Si
SLU 73	10.45	-82.59	-14.1962	190	49.2589	3.47	Si
SLU 42	8.35	-78.42	4.9081	180	47.489	9.676	Si
SLU 42	10.45	-75.3	-13.0566	173	46.1155	3.532	Si
SLU 40	8.35	-73.27	5.6562	168	45.1987	7.991	Si
SLU 40	10.45	-71.47	-13.6263	164	44.3689	3.256	Si
SLU 61	8.35	-86.1	4.603	198	50.6916	11.013	Si
SLU 61	10.45	-77.38	-13.1478	178	47.0345	3.577	Si
SLU 84	8.35	-95.75	5.1214	220	54.3458	10.611	Si
SLU 84	10.45	-89.09	-14.6064	205	51.866	3.551	Si
SLU 31	8.35	-70.49	5.7572	162	43.9134	7.628	Si
SLU 31	10.45	-68.8	-12.6465	158	43.1156	3.409	Si
SLU 39	8.35	-74.32	4.8592	171	45.6772	9.4	Si
SLU 39	10.45	-71.55	-13.3632	164	44.4056	3.323	Si
SLU 19	8.35	-68.77	4.3897	158	43.1021	9.819	Si
SLU 19	10.45	-63.59	-11.598	146	40.5763	3.499	Si
SLU 81	8.35	-91.65	5.0725	211	52.8449	10.418	Si
SLU 81	10.45	-85.33	-14.9129	196	50.383	3.378	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 2	8.35	-60.87	12.0786	140	41.9123	3.47	Si
SLD 2	10.45	-71.74	-19.5064	165	48.2555	2.474	Si
SLV 1	8.35	-55.05	24.4564	126	38.3707	1.569	Si
SLV 1	10.45	-89.21	-33.9838	205	57.7294	1.699	Si
SLV 15	8.35	-76.1	-18.8423	175	50.7015	2.691	Si
SLV 15	10.45	-28.69	16.3166	66	21.1024	1.293	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	8.35	-55.05	24.4564	126	38.3707	1.569	Si
SLV 2	10.45	-89.21	-33.9838	205	57.7294	1.699	Si
SLV 4	8.35	-29.66	26.9592	0	0	0	No, $e \geq l/2$
SLV 4	10.45	-72.06	-29.5031	166	48.4384	1.642	Si
SLV 16	8.35	-76.1	-18.8423	175	50.7015	2.691	Si
SLV 16	10.45	-28.69	16.3166	66	21.1024	1.293	Si
SLV 7	8.35	-16.29	13.8486	0	0	0	No, $e \geq l/2$
SLV 7	10.45	-36.87	-8.2388	85	26.6828	3.239	Si
SLV 3	8.35	-29.66	26.9592	0	0	0	No, $e \geq l/2$
SLV 3	10.45	-72.06	-29.5031	166	48.4384	1.642	Si
SLV 8	8.35	-16.29	13.8486	0	0	0	No, $e \geq l/2$
SLV 8	10.45	-36.87	-8.2388	85	26.6828	3.239	Si
SLD 1	8.35	-60.87	12.0786	140	41.9123	3.47	Si
SLD 1	10.45	-71.74	-19.5064	165	48.2555	2.474	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	8.35	-90.6	13.86	5.8695		208	1.555	83	36.27			2.62	Si
SLU 82	10.45	-85.25	25.32	-15.1761		196	1.555	82	35.56			1.4	Si
SLU 75	8.35	-94.03	12.95	4.9404		216	1.555	84	36.73			2.84	Si
SLU 75	10.45	-87.58	22.4	-13.9829		201	1.555	82	35.87			1.6	Si
SLU 83	8.35	-96.8	11.94	4.3245		222	1.555	85	37.1			3.11	Si
SLU 83	10.45	-89.16	23.41	-14.3432		205	1.555	83	36.08			1.54	Si
SLU 61	8.35	-86.1	11.03	4.603		198	1.555	82	35.67			3.23	Si
SLU 61	10.45	-77.38	22.29	-13.1478		178	1.555	79	34.51			1.55	Si
SLU 39	8.35	-74.32	11.76	4.8592		171	1.555	78	34.1			2.9	Si
SLU 39	10.45	-71.55	22.35	-13.3632		164	1.555	77	33.73			1.51	Si
SLU 73	8.35	-87.82	13.93	5.9705		202	1.555	82	35.9			2.58	Si
SLU 73	10.45	-82.59	23.47	-14.1962		190	1.555	81	35.2			1.5	Si
SLU 60	8.35	-87.15	10.1	3.806		200	1.555	82	35.81			3.55	Si
SLU 60	10.45	-77.45	22.03	-12.8846		178	1.555	79	34.52			1.57	Si
SLU 81	8.35	-91.65	12.92	5.0725		211	1.555	84	36.41			2.82	Si
SLU 81	10.45	-85.33	25.07	-14.9129		196	1.555	82	35.57			1.42	Si
SLU 40	8.35	-73.27	12.69	5.6562		168	1.555	78	33.96			2.68	Si
SLU 40	10.45	-71.47	22.6	-13.6263		164	1.555	77	33.72			1.49	Si
SLU 84	8.35	-95.75	12.87	5.1214		220	1.555	85	36.95			2.87	Si
SLU 84	10.45	-89.09	23.66	-14.6064		205	1.555	83	36.07			1.52	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	8.35	-30.22	2.45	0.1082		69	1.555	97	42.33			17.31	Si
SLV 11	10.45	-23.86	25.22	5.5071		55	1.555	94	41.06			1.63	Si
SLD 3	8.35	-50.48	25.03	13.1364		116	1.5517	107	46.3			1.85	Si
SLD 3	10.45	-64.81	31.34	-17.795		153	1.5088	114	48.17			1.54	Si
SLD 4	8.35	-50.48	25.03	13.1364		116	1.5517	107	46.3			1.85	Si
SLD 4	10.45	-64.81	31.34	-17.795		153	1.5088	114	48.17			1.54	Si
SLV 7	8.35	-16.29	24.86	13.8486		0	0	83	0			0	No, $V_u < V$
SLV 7	10.45	-36.87	44.93	-8.2388		85	1.555	100	43.66			0.97	No, $V_u < V$
SLV 3	8.35	-29.66	47.26	26.9592		0	0	83	0			0	No, $V_u < V$
SLV 3	10.45	-72.06	53.72	-29.5031		233	1.1042	130	40.18			0.75	No, $V_u < V$
SLV 2	8.35	-55.05	44.04	24.4564		197	0.9997	123	34.33			0.78	No, $V_u < V$
SLV 2	10.45	-89.21	41.53	-33.9838		268	1.1897	137	45.6			1.1	Si
SLV 8	8.35	-16.29	24.86	13.8486		0	0	83	0			0	No, $V_u < V$
SLV 8	10.45	-36.87	44.93	-8.2388		85	1.555	100	43.66			0.97	No, $V_u < V$
SLV 12	8.35	-30.22	2.45	0.1082		69	1.555	97	42.33			17.31	Si
SLV 12	10.45	-23.86	25.22	5.5071		55	1.555	94	41.06			1.63	Si
SLV 4	8.35	-29.66	47.26	26.9592		0	0	83	0			0	No, $V_u < V$
SLV 4	10.45	-72.06	53.72	-29.5031		233	1.1042	130	40.18			0.75	No, $V_u < V$
SLV 1	8.35	-55.05	44.04	24.4564		197	0.9997	123	34.33			0.78	No, $V_u < V$
SLV 1	10.45	-89.21	41.53	-33.9838		268	1.1897	137	45.6			1.1	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11  $W_a 0.0005$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.46	66	-28.78	1.8891	3.8117	2.02	Si
SLV 11	1438	0.46	66	-28.78	1.8891	3.8117	2.02	Si
SLV 16	1438	0.46	73	-31.88	1.8891	4.1955	2.22	Si
SLV 15	1438	0.46	73	-31.88	1.8891	4.1955	2.22	Si
SLV 7	1438	0.46	97	-42.18	1.8891	5.4373	2.88	Si
SLV 8	1438	0.46	97	-42.18	1.8891	5.4373	2.88	Si
SLV 13	1438	0.46	110	-47.93	1.8891	6.1057	3.23	Si
SLV 14	1438	0.46	110	-47.93	1.8891	6.1057	3.23	Si
SLV 3	1438	0.46	176	-76.54	1.8891	9.1741	4.86	Si
SLV 4	1438	0.46	176	-76.54	1.8891	9.1741	4.86	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-21.36	-16.29	-2.24	0	4.458	0.893	0	12.41353	No
SLV 8	-21.36	-16.29	-2.24	0	4.458	0.893	0	12.41353	No
SLV 12	-23.12	-30.22	-1.99	0.001	4.628	0.895	0.00997	12.41353	No
SLV 11	-23.12	-30.22	-1.99	0.001	4.628	0.895	0.00997	12.41353	No
SLV 10	-53.06	-114.85	2.23	0.015	7.599	0.924	0.23063	12.41353	No
SLV 9	-53.06	-114.85	2.23	0.015	7.599	0.924	0.23063	12.41353	No
SLV 6	-51.3	-100.92	1.98	0.018	7.421	0.923	0.28087	12.41353	No
SLV 5	-51.3	-100.92	1.98	0.018	7.421	0.923	0.28087	12.41353	No
SLV 3	-29.77	-29.66	-1.06	0.028	5.276	0.902	0.45161	11.93169	No
SLV 4	-29.77	-29.66	-1.06	0.028	5.276	0.902	0.45161	11.93169	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.256	SLU 40	Si
V_SLU	1.404	SLU 82	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.018	SLV 11	Si
R_SLV	0	SLV 7	No

## Maschio 167

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-6.268	-3.359	-6.268	1.046	L5	L6	4.405	0.14	3.52	3.52	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 68	8.35	-177.37	40.9783	288	252.7272	6.167	Si
SLU 68	11.87	-94.81	31.3797	154	169.403	5.398	Si
SLU 70	8.35	-187.44	42.8447	304	258.7948	6.04	Si
SLU 70	11.87	-104.09	32.8237	169	181.761	5.537	Si
SLU 76	8.35	-196.39	45.3811	318	263.4465	5.805	Si
SLU 76	11.87	-102.67	32.8617	166	179.9157	5.475	Si
SLU 5	8.35	-127.51	30.1482	207	209.5545	6.951	Si
SLU 5	11.87	-68.98	24.4754	112	131.0665	5.355	Si
SLU 23	8.35	-141.63	33.4358	230	223.9912	6.699	Si
SLU 23	11.87	-73.29	24.9967	119	137.8668	5.515	Si
SLU 2	8.35	-121.61	27.6357	197	203.0075	7.346	Si
SLU 2	11.87	-62.87	21.8913	102	121.1459	5.534	Si
SLU 34	8.35	-166.54	40.3511	270	245.1988	6.077	Si
SLU 34	11.87	-87.26	29.0628	141	158.8052	5.464	Si
SLU 47	8.35	-157.36	35.1782	255	238.0175	6.766	Si
SLU 47	11.87	-84.39	28.2743	137	154.6472	5.47	Si
SLU 26	8.35	-147.52	35.9483	239	229.5032	6.384	Si
SLU 26	11.87	-79.39	27.5808	129	147.2297	5.338	Si
SLU 13	8.35	-146.52	34.551	238	228.587	6.616	Si
SLU 13	11.87	-76.84	25.9574	125	143.3602	5.523	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	8.35	-130.94	38.6683	212	238.2761	6.162	Si
SLV 2	11.87	-57.75	22.284	94	117.4432	5.27	Si
SLV 12	8.35	-121.16	44.6435	196	223.9449	5.016	Si
SLV 12	11.87	-69.33	7.2417	112	138.6567	19.147	Si
SLV 5	8.35	-145.89	7.9777	237	259.1136	32.48	Si
SLV 5	11.87	-67.66	27.804	110	135.6416	4.878	Si
SLV 7	8.35	-117.01	56.4177	190	217.6892	3.859	Si
SLV 7	11.87	-62.41	8.3473	101	126.0771	15.104	Si
SLV 3	8.35	-122.27	53.2002	198	225.6033	4.241	Si
SLV 3	11.87	-56.17	16.447	91	114.4995	6.962	Si
SLV 11	8.35	-121.16	44.6435	196	223.9449	5.016	Si
SLV 11	11.87	-69.33	7.2417	112	138.6567	19.147	Si
SLV 4	8.35	-122.27	53.2002	198	225.6033	4.241	Si
SLV 4	11.87	-56.17	16.447	91	114.4995	6.962	Si
SLV 1	8.35	-130.94	38.6683	212	238.2761	6.162	Si
SLV 1	11.87	-57.75	22.284	94	117.4432	5.27	Si
SLV 6	8.35	-145.89	7.9777	237	259.1136	32.48	Si
SLV 6	11.87	-67.66	27.804	110	135.6416	4.878	Si
SLV 8	8.35	-117.01	56.4177	190	217.6892	3.859	Si
SLV 8	11.87	-62.41	8.3473	101	126.0771	15.104	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 8	8.35	-134.17	10.33	28.4205		218	4.405	85	52.15			5.05	Si
SLU 8	11.87	-75.49	10.23	21.3803		122	4.405	72	44.33			4.33	Si
SLU 30	8.35	-153.73	6.56	36.7647		249	4.405	89	54.76			8.34	Si
SLU 30	11.87	-85.66	10.46	27.8932		139	4.405	74	45.68			4.37	Si
SLU 72	8.35	-183.58	7.18	41.7947		298	4.405	95	58.74			8.19	Si
SLU 72	11.87	-101.07	11.03	31.6921		164	4.405	77	47.74			4.33	Si
SLU 71	8.35	-184.03	12.12	39.2506		298	4.405	95	58.8			4.85	Si
SLU 71	11.87	-101.32	11.98	28.2847		164	4.405	77	47.77			3.99	Si
SLU 69	8.35	-187.89	11.44	40.3006		305	4.405	96	59.31			5.18	Si
SLU 69	11.87	-104.34	11.3	29.4162		169	4.405	78	48.17			4.26	Si
SLU 50	8.35	-164.02	10.95	33.4505		266	4.405	91	56.13			5.13	Si
SLU 50	11.87	-90.9	10.8	25.1792		147	4.405	75	46.38			4.3	Si
SLU 79	8.35	-203.05	11.91	43.6534		329	4.405	99	61.33			5.15	Si
SLU 79	11.87	-109.18	11.76	29.7666		177	4.405	79	48.82			4.15	Si
SLU 37	8.35	-173.2	11.29	38.6233		281	4.405	93	57.35			5.08	Si
SLU 37	11.87	-93.77	11.19	25.9677		152	4.405	76	46.76			4.18	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	8.35	-154.18	11.51	34.2206		250	4.405	89	54.82			4.76	Si
SLU 29	11.87	-85.9	11.41	24.4857		139	4.405	74	45.71			4.01	Si
SLU 27	8.35	-158.04	10.83	35.2705		256	4.405	90	55.33			5.11	Si
SLU 27	11.87	-88.92	10.73	25.6173		144	4.405	75	46.12			4.3	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	8.35	-150.04	-78.79	-3.7965		243	4.405	132	81.4			1.03	Si
SLV 9	11.87	-74.58	-57.88	26.6984		121	4.405	108	66.31			1.15	Si
SLV 8	8.35	-117.01	86.11	56.4177		190	4.405	121	74.79			0.87	No, Vu<V
SLV 8	11.87	-62.41	64.93	8.3473		101	4.405	104	63.87			0.98	No, Vu<V
SLV 7	8.35	-117.01	86.11	56.4177		190	4.405	121	74.79			0.87	No, Vu<V
SLV 7	11.87	-62.41	64.93	8.3473		101	4.405	104	63.87			0.98	No, Vu<V
SLV 10	8.35	-150.04	-78.79	-3.7965		243	4.405	132	81.4			1.03	Si
SLV 10	11.87	-74.58	-57.88	26.6984		121	4.405	108	66.31			1.15	Si
SLV 12	8.35	-121.16	83.42	44.6435		196	4.405	123	75.62			0.91	No, Vu<V
SLV 12	11.87	-69.33	63.28	7.2417		112	4.405	106	65.26			1.03	Si
SLV 6	8.35	-145.89	-76.11	7.9777		237	4.405	131	80.57			1.06	Si
SLV 6	11.87	-67.66	-56.23	27.804		110	4.405	105	64.92			1.15	Si
SLV 11	8.35	-121.16	83.42	44.6435		196	4.405	123	75.62			0.91	No, Vu<V
SLV 11	11.87	-69.33	63.28	7.2417		112	4.405	106	65.26			1.03	Si
SLD 7	8.35	-126.82	38.24	38.7176		206	4.405	124	76.76			2.01	Si
SLD 7	11.87	-66.06	29.12	13.5776		107	4.405	105	64.6			2.22	Si
SLV 5	8.35	-145.89	-76.11	7.9777		237	4.405	131	80.57			1.06	Si
SLV 5	11.87	-67.66	-56.23	27.804		110	4.405	105	64.92			1.15	Si
SLD 8	8.35	-126.82	38.24	38.7176		206	4.405	124	76.76			2.01	Si
SLD 8	11.87	-66.06	29.12	13.5776		107	4.405	105	64.6			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.46	133	-82.2	2.8624	5.1264	1.79	Si
SLV 4	1438	0.46	133	-82.2	2.8624	5.1264	1.79	Si
SLV 1	1438	0.46	139	-85.62	2.8624	5.3122	1.86	Si
SLV 2	1438	0.46	139	-85.62	2.8624	5.3122	1.86	Si
SLV 7	1438	0.46	151	-93.36	2.8624	5.7254	2	Si
SLV 8	1438	0.46	151	-93.36	2.8624	5.7254	2	Si
SLV 5	1438	0.46	170	-104.74	2.8624	6.3128	2.21	Si
SLV 6	1438	0.46	170	-104.74	2.8624	6.3128	2.21	Si
SLV 12	1438	0.46	172	-106.34	2.8624	6.3931	2.23	Si
SLV 11	1438	0.46	172	-106.34	2.8624	6.3931	2.23	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-62.41	-117.01	-0.57	0.018	9.484	0.917	0.27959	18.90693	No
SLV 7	-62.41	-117.01	-0.57	0.018	9.484	0.917	0.27959	18.90693	No
SLV 9	-74.58	-150.04	0.57	0.018	10.705	0.924	0.28263	18.90693	No
SLV 10	-74.58	-150.04	0.57	0.018	10.705	0.924	0.28263	18.90693	No
SLV 12	-69.33	-121.16	-0.56	0.018	10.178	0.921	0.28295	18.90693	No
SLV 11	-69.33	-121.16	-0.56	0.018	10.178	0.921	0.28295	18.90693	No
SLV 6	-67.66	-145.89	0.56	0.018	10.01	0.92	0.28337	18.90693	No
SLV 5	-67.66	-145.89	0.56	0.018	10.01	0.92	0.28337	18.90693	No
SLV 13	-80.82	-144.78	0.19	0.022	11.333	0.927	0.34339	18.90693	No
SLV 14	-80.82	-144.78	0.19	0.022	11.333	0.927	0.34339	18.90693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	5.338	SLU 26	Si
V_SLV	3.987	SLU 71	Si
PF_SLV	3.859	SLV 7	Si
V_SLV	0.869	SLV 7	No
PFFP_SLV	1.791	SLV 3	Si
R_SLV	0.015	SLV 7	No

## Maschio 168

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-7.413	-3.359	-8.548	-3.359	L5	L6	1.135	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 65	9.25	-57.58	2.659	181	25.4073	9.555	Si
SLU 65	11.05	-48.41	-6.4204	152	22.3339	3.479	Si
SLU 44	9.25	-52.32	2.5033	165	23.6921	9.464	Si
SLU 44	11.05	-42.33	-5.8843	133	20.0932	3.415	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	9.25	-61.87	2.8563	195	26.7198	9.355	Si
SLU 73	11.05	-54.25	-7.0431	171	24.3338	3.455	Si
SLU 23	9.25	-45.09	2.4968	142	21.1319	8.464	Si
SLU 23	11.05	-40.03	-5.4132	126	19.2043	3.548	Si
SLU 10	9.25	-44.13	2.5384	139	20.7757	8.185	Si
SLU 10	11.05	-39.79	-5.4998	125	19.1103	3.475	Si
SLU 82	9.25	-66.82	2.292	210	28.1331	12.275	Si
SLU 82	11.05	-57.12	-6.947	180	25.2616	3.636	Si
SLU 2	9.25	-39.84	2.3411	125	19.1293	8.171	Si
SLU 2	11.05	-33.95	-4.8771	107	16.7404	3.432	Si
SLU 52	9.25	-56.62	2.7006	178	25.1035	9.295	Si
SLU 52	11.05	-48.17	-6.507	152	22.2487	3.419	Si
SLU 31	9.25	-49.38	2.6941	155	22.6795	8.418	Si
SLU 31	11.05	-45.87	-6.0359	144	21.4186	3.549	Si
SLU 61	9.25	-61.57	2.1363	194	26.6309	12.466	Si
SLU 61	11.05	-51.04	-6.4109	161	23.2531	3.627	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	9.25	21.52	-4.6676	0	0	0	No, Trazione
SLV 11	11.05	4.34	6.4415	0	0	0	No, Trazione
SLV 1	9.25	-55.83	19.9509	176	27.1294	1.36	Si
SLV 1	11.05	-62.71	-19.174	197	29.8389	1.556	Si
SLV 7	9.25	32.12	6.861	0	0	0	No, Trazione
SLV 7	11.05	-3.34	-1.24	10	1.8773	1.514	Si
SLV 8	9.25	32.12	6.861	0	0	0	No, Trazione
SLV 8	11.05	-3.34	-1.24	10	1.8773	1.514	Si
SLV 12	9.25	21.52	-4.6676	0	0	0	No, Trazione
SLV 12	11.05	4.34	6.4415	0	0	0	No, Trazione
SLV 4	9.25	-9.54	20.1171	0	0	0	No, $e \geq l/2$
SLV 4	11.05	-39.44	-15.033	124	20.1086	1.338	Si
SLV 15	9.25	-44.86	-18.3115	141	22.5172	1.23	Si
SLV 15	11.05	-13.84	10.5721	0	0	0	No, $e \geq l/2$
SLV 2	9.25	-55.83	19.9509	176	27.1294	1.36	Si
SLV 2	11.05	-62.71	-19.174	197	29.8389	1.556	Si
SLV 3	9.25	-9.54	20.1171	0	0	0	No, $e \geq l/2$
SLV 3	11.05	-39.44	-15.033	124	20.1086	1.338	Si
SLV 16	9.25	-44.86	-18.3115	141	22.5172	1.23	Si
SLV 16	11.05	-13.84	10.5721	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	9.25	-39.84	2.81	2.3411		125	1.135	72	22.97			8.17	Si
SLU 2	11.05	-33.95	1.51	-4.8771		107	1.135	70	22.18			14.69	Si
SLU 52	9.25	-56.62	3.42	2.7006		178	1.135	79	25.2			7.37	Si
SLU 52	11.05	-48.17	1.71	-6.507		152	1.135	76	24.08			14.1	Si
SLU 31	9.25	-49.38	3.32	2.6941		155	1.135	76	24.24			7.31	Si
SLU 31	11.05	-45.87	0.92	-6.0359		144	1.135	75	23.77			25.7	Si
SLU 65	9.25	-57.58	3.56	2.659		181	1.135	80	25.33			7.11	Si
SLU 65	11.05	-48.41	1.4	-6.4204		152	1.135	76	24.11			17.23	Si
SLU 10	9.25	-44.13	2.99	2.5384		139	1.135	74	23.54			7.87	Si
SLU 10	11.05	-39.79	1.37	-5.4998		125	1.135	72	22.96			16.74	Si
SLU 23	9.25	-45.09	3.14	2.4968		142	1.135	74	23.67			7.55	Si
SLU 23	11.05	-40.03	1.06	-5.4132		126	1.135	72	22.99			21.63	Si
SLU 82	9.25	-66.82	3.41	2.292		210	1.135	84	26.57			7.79	Si
SLU 82	11.05	-57.12	0.84	-6.947		180	1.135	80	25.27			30.05	Si
SLU 73	9.25	-61.87	3.74	2.8563		195	1.135	82	25.9			6.92	Si
SLU 73	11.05	-54.25	1.26	-7.0431		171	1.135	78	24.89			19.74	Si
SLU 40	9.25	-54.34	2.98	2.1297		171	1.135	78	24.9			8.35	Si
SLU 40	11.05	-48.74	0.51	-5.9398		153	1.135	76	24.15			47.8	Si
SLU 44	9.25	-52.32	3.24	2.5033		165	1.135	78	24.63			7.61	Si
SLU 44	11.05	-42.33	1.85	-5.8843		133	1.135	73	23.3			12.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	9.25	-55.83	37.26	19.9509		316	0.6305	147	25.88			0.69	No, $V_u < V$
SLV 2	11.05	-62.71	11.77	-19.174		285	0.7852	140	30.86			2.62	Si
SLV 15	9.25	-44.86	-33.4	-18.3115		335	0.4779	150	20.12			0.6	No, $V_u < V$
SLV 15	11.05	-13.84	-10.88	10.5721		0	0	83	0			0	No, $V_u < V$
SLV 3	9.25	-9.54	34.54	20.1171		0	0	83	0			0	No, $V_u < V$
SLV 3	11.05	-39.44	11.81	-15.033		252	0.559	134	20.93			1.77	Si
SLV 8	9.25	32.12	7.59	6.861		0	0	83	0			0	No, $V_u < V$
SLV 8	11.05	-3.34	3.91	-1.24		20	0.5876	87	14.38			3.68	Si
SLV 4	9.25	-9.54	34.54	20.1171		0	0	83	0			0	No, $V_u < V$
SLV 4	11.05	-39.44	11.81	-15.033		252	0.559	134	20.93			1.77	Si
SLV 11	9.25	21.52	-12.79	-4.6676		0	0	83	0			0	No, $V_u < V$
SLV 11	11.05	4.34	-2.89	6.4415		0	0	83	0			0	No, $V_u < V$
SLV 1	9.25	-55.83	37.26	19.9509		316	0.6305	147	25.88			0.69	No, $V_u < V$
SLV 1	11.05	-62.71	11.77	-19.174		285	0.7852	140	30.86			2.62	Si
SLV 16	9.25	-44.86	-33.4	-18.3115		335	0.4779	150	20.12			0.6	No, $V_u < V$
SLV 16	11.05	-13.84	-10.88	10.5721		0	0	83	0			0	No, $V_u < V$
SLV 7	9.25	32.12	7.59	6.861		0	0	83	0			0	No, $V_u < V$
SLV 7	11.05	-3.34	3.91	-1.24		20	0.5876	87	14.38			3.68	Si
SLV 12	9.25	21.52	-12.79	-4.6676		0	0	83	0			0	No, $V_u < V$
SLV 12	11.05	4.34	-2.89	6.4415		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11  $W_a 0.0005$  denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.46	0	6.84	1.3789	0	0	No, Trazione
SLV 8	1438	0.46	0	6.84	1.3789	0	0	No, Trazione
SLV 11	1438	0.46	0	-3.55	1.3789	0	0	No, $e > t/2$
SLV 12	1438	0.46	0	-3.55	1.3789	0	0	No, $e > t/2$
SLV 4	1438	0.46	46	-14.78	1.3789	1.9898	1.44	Si
SLV 3	1438	0.46	46	-14.78	1.3789	1.9898	1.44	Si
SLV 1	1438	0.46	138	-43.7	1.3789	5.4299	3.94	Si
SLV 2	1438	0.46	138	-43.7	1.3789	5.4299	3.94	Si
SLV 16	1438	0.46	156	-49.43	1.3789	6.0396	4.38	Si
SLV 15	1438	0.46	156	-49.43	1.3789	6.0396	4.38	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	8.34	13.81	-0.86	0	0	0	0	12.41353	No, Trazione
SLV 11	8.34	13.81	-0.86	0	0	0	0	12.41353	No, Trazione
SLV 7	0.42	5.55	-1.07	0	0	0	0	12.41353	No, Trazione
SLV 8	0.42	5.55	-1.07	0	0	0	0	12.41353	No, Trazione
SLV 10	-58.59	-102.23	1.03	0.031	7.552	0.941	0.47333	12.41353	No
SLV 9	-58.59	-102.23	1.03	0.031	7.552	0.941	0.47333	12.41353	No
SLV 6	-66.51	-110.49	0.82	0.034	8.355	0.946	0.52644	12.41353	No
SLV 5	-66.51	-110.49	0.82	0.034	8.355	0.946	0.52644	12.41353	No
SLV 4	-32.25	-44.71	-0.65	0.034	4.896	0.917	0.53861	11.93169	No
SLV 3	-32.25	-44.71	-0.65	0.034	4.896	0.917	0.53861	11.93169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.415	SLU 44	Si
V_SLU	6.924	SLU 73	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 8	No
R_SLV	0	SLV 12	No

## Maschio 169

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	1.046	-5.158	5.811	L5	L6	4.765	0.14	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	8.35	-259.65	21.8308	389	323.0306	14.797	Si
SLU 37	11.87	-178.81	66.9172	268	285.8359	4.271	Si
SLU 28	8.35	-241.13	22.2091	361	319.5685	14.389	Si
SLU 28	11.87	-170.01	62.3225	255	278.3272	4.466	Si
SLU 27	8.35	-241.12	24.3262	361	319.5679	13.137	Si
SLU 27	11.87	-169.76	63.9924	254	278.1054	4.346	Si
SLU 8	8.35	-210.5	28.013	316	307.243	10.968	Si
SLU 8	11.87	-150.41	63.0528	225	259.1624	4.11	Si
SLU 9	8.35	-210.5	25.896	316	307.2443	11.865	Si
SLU 9	11.87	-150.66	61.3829	226	259.4263	4.226	Si
SLU 38	8.35	-259.65	19.7137	389	323.0309	16.386	Si
SLU 38	11.87	-179.06	65.2473	268	286.0379	4.384	Si
SLU 29	8.35	-242.33	30.7472	363	319.8851	10.404	Si
SLU 29	11.87	-172.51	72.2443	259	280.5248	3.883	Si
SLU 30	8.35	-242.33	28.6302	363	319.8857	11.173	Si
SLU 30	11.87	-172.76	70.5744	259	280.7407	3.978	Si
SLU 72	8.35	-274.65	22.1753	412	323.6296	14.594	Si
SLU 72	11.87	-189.57	67.2207	284	294.0911	4.375	Si
SLU 71	8.35	-274.65	24.2923	412	323.6297	13.322	Si
SLU 71	11.87	-189.32	68.8906	284	293.9119	4.266	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	8.35	-110.53	-67.9029	166	227.622	3.352	Si
SLV 10	11.87	-71.37	-1.1847	107	155.148	130.96	Si
SLV 6	8.35	-105.46	-73.8123	158	218.7516	2.964	Si
SLV 6	11.87	-69.71	-3.1792	105	151.8896	47.775	Si
SLD 9	8.35	-138.01	-40.0803	207	273.1368	6.815	Si
SLD 9	11.87	-81.8	-0.0248	123	175.3375	1000	Si
SLV 5	8.35	-105.46	-73.8123	158	218.7516	2.964	Si
SLV 5	11.87	-69.71	-3.1792	105	151.8896	47.775	Si
SLV 9	8.35	-110.53	-67.9029	166	227.622	3.352	Si
SLV 9	11.87	-71.37	-1.1847	107	155.148	130.96	Si
SLV 2	8.35	-134.66	-45.2167	202	267.8292	5.923	Si
SLV 2	11.87	-81	-3.6781	121	173.8081	47.254	Si
SLD 5	8.35	-135.82	-42.605	204	269.6732	6.33	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 5	11.87	-81.12	-0.8163	122	174.043	213.21	Si
SLD 10	8.35	-138.01	-40.0803	207	273.1368	6.815	Si
SLD 10	11.87	-81.8	-0.0248	123	175.3375	1000	Si
SLV 1	8.35	-134.66	-45.2167	202	267.8292	5.923	Si
SLV 1	11.87	-81	-3.6781	121	173.8081	47.254	Si
SLD 6	8.35	-135.82	-42.605	204	269.6732	6.33	Si
SLD 6	11.87	-81.12	-0.8163	122	174.043	213.21	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 38	8.35	-259.65	2.88	19.7137		389	4.765	107	71.68			24.91	Si
SLU 38	11.87	-179.06	11.73	65.2473		268	4.765	91	60.94			5.2	Si
SLU 79	8.35	-291.97	2.47	15.3759		438	4.765	108	72.27			29.29	Si
SLU 79	11.87	-195.63	11.33	63.5634		293	4.765	95	63.14			5.57	Si
SLU 35	8.35	-258.44	3.92	15.4098		387	4.765	107	71.52			18.25	Si
SLU 35	11.87	-176.07	12.16	58.6652		264	4.765	91	60.54			4.98	Si
SLU 37	8.35	-259.65	3.72	21.8308		389	4.765	107	71.68			19.29	Si
SLU 37	11.87	-178.81	12.88	66.9172		268	4.765	91	60.9			4.73	Si
SLU 29	8.35	-242.33	1.96	30.7472		363	4.765	104	69.37			35.32	Si
SLU 29	11.87	-172.51	12.45	72.2443		259	4.765	90	60.06			4.82	Si
SLU 27	8.35	-241.12	2.17	24.3262		361	4.765	104	69.21			31.94	Si
SLU 27	11.87	-169.76	11.73	63.9924		254	4.765	89	59.7			5.09	Si
SLU 71	8.35	-274.65	0.71	24.2923		412	4.765	108	72.27			101.16	Si
SLU 71	11.87	-189.32	10.9	68.8906		284	4.765	93	62.3			5.72	Si
SLU 36	8.35	-258.45	3.08	13.2927		387	4.765	107	71.52			23.22	Si
SLU 36	11.87	-176.32	11.01	56.9954		264	4.765	91	60.57			5.5	Si
SLU 30	8.35	-242.33	1.13	28.6302		363	4.765	104	69.37			61.65	Si
SLU 30	11.87	-172.76	11.29	70.5744		259	4.765	90	60.1			5.32	Si
SLU 28	8.35	-241.13	1.33	22.2091		361	4.765	104	69.21			52.12	Si
SLU 28	11.87	-170.01	10.57	62.3225		255	4.765	90	59.73			5.65	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	8.35	-210.84	85.81	33.4966		316	4.765	147	97.76			1.14	Si
SLV 12	11.87	-109.13	76.43	4.0384		164	4.765	116	77.42			1.01	Si
SLV 9	8.35	-110.53	-73.91	-67.9029		166	4.765	116	77.7			1.05	Si
SLV 9	11.87	-71.37	-70.7	-1.1847		107	4.765	105	69.87			0.99	No, Vu<V
SLV 6	8.35	-105.46	-88.05	-73.8123		158	4.765	115	76.68			0.87	No, Vu<V
SLV 6	11.87	-69.71	-78.45	-3.1792		105	4.765	104	69.53			0.89	No, Vu<V
SLV 7	8.35	-205.78	71.67	27.5872		308	4.765	145	96.75			1.35	Si
SLV 7	11.87	-107.48	68.68	2.0438		161	4.765	116	77.09			1.12	Si
SLV 2	8.35	-134.66	-48.65	-45.2167		202	4.765	124	82.52			1.7	Si
SLV 2	11.87	-81	-36	-3.6781		121	4.765	108	71.79			1.99	Si
SLV 8	8.35	-205.78	71.67	27.5872		308	4.765	145	96.75			1.35	Si
SLV 8	11.87	-107.48	68.68	2.0438		161	4.765	116	77.09			1.12	Si
SLV 5	8.35	-105.46	-88.05	-73.8123		158	4.765	115	76.68			0.87	No, Vu<V
SLV 5	11.87	-69.71	-78.45	-3.1792		105	4.765	104	69.53			0.89	No, Vu<V
SLV 1	8.35	-134.66	-48.65	-45.2167		202	4.765	124	82.52			1.7	Si
SLV 1	11.87	-81	-36	-3.6781		121	4.765	108	71.79			1.99	Si
SLV 11	8.35	-210.84	85.81	33.4966		316	4.765	147	97.76			1.14	Si
SLV 11	11.87	-109.13	76.43	4.0384		164	4.765	116	77.42			1.01	Si
SLV 10	8.35	-110.53	-73.91	-67.9029		166	4.765	116	77.7			1.05	Si
SLV 10	11.87	-71.37	-70.7	-1.1847		107	4.765	105	69.87			0.99	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.46	132	-87.79	3.0963	5.4835	1.77	Si
SLV 10	1438	0.46	132	-87.79	3.0963	5.4835	1.77	Si
SLV 6	1438	0.46	134	-89.18	3.0963	5.5595	1.8	Si
SLV 5	1438	0.46	134	-89.18	3.0963	5.5595	1.8	Si
SLV 13	1438	0.46	166	-110.77	3.0963	6.7004	2.16	Si
SLV 14	1438	0.46	166	-110.77	3.0963	6.7004	2.16	Si
SLV 2	1438	0.46	173	-115.39	3.0963	6.934	2.24	Si
SLV 1	1438	0.46	173	-115.39	3.0963	6.934	2.24	Si
SLV 15	1438	0.46	198	-131.86	3.0963	7.737	2.5	Si
SLV 16	1438	0.46	198	-131.86	3.0963	7.737	2.5	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0003 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-109.13	-210.84	0.08	0.022	14.451	0.936	0.34908	18.90693	No
SLV 11	-109.13	-210.84	0.08	0.022	14.451	0.936	0.34908	18.90693	No
SLV 8	-107.48	-205.78	0.09	0.022	14.284	0.936	0.34916	18.90693	No
SLV 7	-107.48	-205.78	0.09	0.022	14.284	0.936	0.34916	18.90693	No
SLV 15	-97.84	-181.64	0.01	0.023	13.31	0.932	0.36338	18.90693	No
SLV 16	-97.84	-181.64	0.01	0.023	13.31	0.932	0.36338	18.90693	No
SLV 3	-92.33	-164.76	0.03	0.023	12.754	0.93	0.3644	18.90693	No
SLV 4	-92.33	-164.76	0.03	0.023	12.754	0.93	0.3644	18.90693	No
SLV 14	-86.51	-151.55	-0.04	0.023	12.168	0.927	0.36748	18.90693	No
SLV 13	-86.51	-151.55	-0.04	0.023	12.168	0.927	0.36748	18.90693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.883	SLU 29	Si
V_SLU	4.728	SLU 37	Si
PF_SLV	2.964	SLV 5	Si
V_SLV	0.871	SLV 5	No



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	1.771	SLV 9	Si
R SLV	0.018	SLV 11	No

## Maschio 170

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	5.811	-5.158	6.006	L5	L6	0.195	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 69	10.35	-46.63	1.0822	854	0	0	No, Rottura per schiacciamento
SLU 69	11.15	-47.73	1.5346	874	0	0	No, Rottura per schiacciamento
SLU 30	10.35	-46.42	1.1051	850	0	0	No, Rottura per schiacciamento
SLU 30	11.15	-47.49	1.5179	870	0	0	No, Rottura per schiacciamento
SLU 72	10.35	-48.51	1.1342	888	0	0	No, Rottura per schiacciamento
SLU 72	11.15	-49.61	1.5919	909	0	0	No, Rottura per schiacciamento
SLU 29	10.35	-46.9	1.1244	859	0	0	No, Rottura per schiacciamento
SLU 29	11.15	-47.92	1.5264	878	0	0	No, Rottura per schiacciamento
SLU 70	10.35	-46.14	1.063	845	0	0	No, Rottura per schiacciamento
SLU 70	11.15	-47.31	1.5261	866	0	0	No, Rottura per schiacciamento
SLU 71	10.35	-48.99	1.1535	897	0	0	No, Rottura per schiacciamento
SLU 71	11.15	-50.04	1.6004	916	0	0	No, Rottura per schiacciamento
SLU 28	10.35	-44.05	1.0339	807	0.0407	0.039	No, M>Mu
SLU 28	11.15	-45.19	1.4522	828	0	0	No, Rottura per schiacciamento
SLU 38	10.35	-45.74	1.0436	838	0	0	No, Rottura per schiacciamento
SLU 38	11.15	-47.3	1.5411	866	0	0	No, Rottura per schiacciamento
SLU 27	10.35	-44.54	1.0531	816	0	0	No, Rottura per schiacciamento
SLU 27	11.15	-45.61	1.4607	835	0	0	No, Rottura per schiacciamento
SLU 36	10.35	-43.38	0.9724	794	0.1047	0.108	No, M>Mu
SLU 36	11.15	-44.99	1.4753	824	0	0	No, Rottura per schiacciamento

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 1	10.35	-7.62	-0.1099	140	0.6584	5.993	Si
SLV 1	11.15	-10.22	0.5118	187	0.844	1.649	Si
SLD 5	10.35	-8.9	-0.0459	163	0.7519	16.399	Si
SLD 5	11.15	-11.32	0.532	207	0.9165	1.723	Si
SLV 2	10.35	-7.62	-0.1099	140	0.6584	5.993	Si
SLV 2	11.15	-10.22	0.5118	187	0.844	1.649	Si
SLV 10	10.35	-2.31	-0.3703	0	0	0	No, e>l/2
SLV 10	11.15	-6.57	0.5212	120	0.5772	1.107	Si
SLV 5	10.35	-0.33	-0.4706	0	0	0	No, e>l/2
SLV 5	11.15	-5.03	0.507	0	0	0	No, e>l/2
SLV 6	10.35	-0.33	-0.4706	0	0	0	No, e>l/2
SLV 6	11.15	-5.03	0.507	0	0	0	No, e>l/2
SLD 6	10.35	-8.9	-0.0459	163	0.7519	16.399	Si
SLD 6	11.15	-11.32	0.532	207	0.9165	1.723	Si
SLV 9	10.35	-2.31	-0.3703	0	0	0	No, e>l/2
SLV 9	11.15	-6.57	0.5212	120	0.5772	1.107	Si
SLV 11	10.35	-29.72	0.9946	544	1.6068	1.615	Si
SLV 11	11.15	-26.5	0.5828	485	1.5574	2.672	Si
SLV 12	10.35	-29.72	0.9946	544	1.6068	1.615	Si
SLV 12	11.15	-26.5	0.5828	485	1.5574	2.672	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	10.35	-46.23	4.04	1.0629		847	0.195	108	5.91			1.46	Si
SLU 37	11.15	-47.72	-5.82	1.5496		874	0.195	108	5.91			1.02	Si
SLU 78	10.35	-45.46	3.79	1.0015		833	0.195	108	5.91			1.56	Si
SLU 78	11.15	-47.11	-5.84	1.5493		868	0.1938	108	5.88			1.01	Si
SLU 69	10.35	-46.63	4.11	1.0822		854	0.195	108	5.91			1.44	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 69	11.15	-47.73	-5.77	1.5346		874	0.195	108	5.91			1.03	Si
SLU 77	10.35	-45.95	3.87	1.0207		842	0.195	108	5.91			1.53	Si
SLU 77	11.15	-47.53	-5.87	1.5578		874	0.1942	108	5.89			1	Si
SLU 72	10.35	-48.51	4.31	1.1342		888	0.195	108	5.91			1.37	Si
SLU 72	11.15	-49.61	-5.98	1.5919		909	0.195	108	5.91			0.99	No, Vu<V
SLU 79	10.35	-48.31	4.14	1.092		885	0.195	108	5.91			1.43	Si
SLU 79	11.15	-49.84	-6.11	1.6235		914	0.1948	108	5.91			0.97	No, Vu<V
SLU 70	10.35	-46.14	4.04	1.063		845	0.195	108	5.91			1.46	Si
SLU 70	11.15	-47.31	-5.74	1.5261		866	0.195	108	5.91			1.03	Si
SLU 71	10.35	-48.99	4.39	1.1535		897	0.195	108	5.91			1.35	Si
SLU 71	11.15	-50.04	-6.01	1.6004		916	0.195	108	5.91			0.98	No, Vu<V
SLU 38	10.35	-45.74	3.96	1.0436		838	0.195	108	5.91			1.49	Si
SLU 38	11.15	-47.3	-5.79	1.5411		867	0.1947	108	5.91			1.02	Si
SLU 80	10.35	-47.83	4.07	1.0727		876	0.195	108	5.91			1.45	Si
SLU 80	11.15	-49.42	-6.08	1.6151		908	0.1945	108	5.9			0.97	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	10.35	-29.72	3.95	0.9946		553	0.1921	163	8.74			2.21	Si
SLV 12	11.15	-26.5	-2.54	0.5828		485	0.195	163	8.87			3.5	Si
SLV 5	10.35	-0.33	-2.02	-0.4706		0	0	83	0			0	No, Vu<V
SLV 5	11.15	-5.03	-1.62	0.507		0	0	83	0			0	No, Vu<V
SLV 7	10.35	-27.75	3.54	0.8943		508	0.195	163	8.87			2.51	Si
SLV 7	11.15	-24.97	-2.39	0.5685		457	0.195	163	8.87			3.71	Si
SLV 8	10.35	-27.75	3.54	0.8943		508	0.195	163	8.87			2.51	Si
SLV 8	11.15	-24.97	-2.39	0.5685		457	0.195	163	8.87			3.71	Si
SLV 9	10.35	-2.31	-1.6	-0.3703		0	0	83	0			0	No, Vu<V
SLV 9	11.15	-6.57	-1.77	0.5212		431	0.0544	163	2.47			1.4	Si
SLV 6	10.35	-0.33	-2.02	-0.4706		0	0	83	0			0	No, Vu<V
SLV 6	11.15	-5.03	-1.62	0.507		0	0	83	0			0	No, Vu<V
SLD 6	10.35	-8.9	-0.29	-0.0459		163	0.195	116	6.33			22.02	Si
SLD 6	11.15	-11.32	-1.9	0.532		267	0.1515	137	5.8			3.06	Si
SLV 11	10.35	-29.72	3.95	0.9946		553	0.1921	163	8.74			2.21	Si
SLV 11	11.15	-26.5	-2.54	0.5828		485	0.195	163	8.87			3.5	Si
SLD 5	10.35	-8.9	-0.29	-0.0459		163	0.195	116	6.33			22.02	Si
SLD 5	11.15	-11.32	-1.9	0.532		267	0.1515	137	5.8			3.06	Si
SLV 10	10.35	-2.31	-1.6	-0.3703		0	0	83	0			0	No, Vu<V
SLV 10	11.15	-6.57	-1.77	0.5212		431	0.0544	163	2.47			1.4	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.46	0	-0.68	0.2424	0	0	No, $e>t/2$
SLV 10	1438	0.46	0	-0.68	0.2424	0	0	No, $e>t/2$
SLV 6	1438	0.46	0	0.4	0.2424	0	0	No, Trazione
SLV 5	1438	0.46	0	0.4	0.2424	0	0	No, Trazione
SLV 1	1438	0.46	70	-3.81	0.2424	0.5024	2.07	Si
SLV 2	1438	0.46	70	-3.81	0.2424	0.5024	2.07	Si
SLV 13	1438	0.46	136	-7.43	0.2424	0.924	3.81	Si
SLV 14	1438	0.46	136	-7.43	0.2424	0.924	3.81	Si
SLV 3	1438	0.46	156	-8.5	0.2424	1.0384	4.28	Si
SLV 4	1438	0.46	156	-8.5	0.2424	1.0384	4.28	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-4.13	2.5	-0.06	0	0	0	0	12.41353	No, Trazione
SLV 5	-3.55	5.46	-0.02	0	0	0	0	12.41353	No, Trazione
SLV 2	-5.23	1.66	0.04	0	0	0	0	11.93169	No, Trazione
SLV 9	-4.13	2.5	-0.06	0	0	0	0	12.41353	No, Trazione
SLV 1	-5.23	1.66	0.04	0	0	0	0	11.93169	No, Trazione
SLV 6	-3.55	5.46	-0.02	0	0	0	0	12.41353	No, Trazione
SLV 8	-10.3	-15.24	0.05	0.041	1.322	0.942	0.63557	12.41353	No
SLV 7	-10.3	-15.24	0.05	0.041	1.322	0.942	0.63557	12.41353	No
SLV 13	-7.18	-8.19	-0.07	0.04	1.006	0.927	0.6215	11.93169	No
SLV 14	-7.18	-8.19	-0.07	0.04	1.006	0.927	0.6215	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 27	No
V_SLU	0.967	SLU 79	No
PF_SLV	0	SLV 5	No
V_SLV	0	SLV 5	No
PFFP_SLV	0	SLV 6	No
R_SLV	0	SLV 10	No

## Maschio 171

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	6.506	-5.158	6.521	L5	L6	0.015	0.28	3.52	3.52	3.52			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	10.35	-5.48	-0.0002	1304	0	0	No, Rottura per schiacciamento
SLU 42	11.15	-5.41	0.0003	1289	0	0	No, Rottura per schiacciamento
SLU 54	10.35	-4.41	-0.0001	1051	0	0	No, Rottura per schiacciamento
SLU 54	11.15	-4.33	0.0002	1032	0	0	No, Rottura per schiacciamento
SLU 58	10.35	-7.34	-0.0002	1747	0	0	No, Rottura per schiacciamento
SLU 58	11.15	-7.26	0.0003	1728	0	0	No, Rottura per schiacciamento
SLU 51	10.35	-7.35	-0.0002	1750	0	0	No, Rottura per schiacciamento
SLU 51	11.15	-7.27	0.0003	1731	0	0	No, Rottura per schiacciamento
SLU 59	10.35	-7.25	-0.0002	1726	0	0	No, Rottura per schiacciamento
SLU 59	11.15	-7.17	0.0003	1707	0	0	No, Rottura per schiacciamento
SLU 50	10.35	-7.44	-0.0002	1771	0	0	No, Rottura per schiacciamento
SLU 50	11.15	-7.36	0.0003	1752	0	0	No, Rottura per schiacciamento
SLU 55	10.35	-4.78	-0.0001	1137	0	0	No, Rottura per schiacciamento
SLU 55	11.15	-4.7	0.0002	1118	0	0	No, Rottura per schiacciamento
SLU 56	10.35	-6.92	-0.0002	1647	0	0	No, Rottura per schiacciamento
SLU 56	11.15	-6.84	0.0003	1628	0	0	No, Rottura per schiacciamento
SLU 53	10.35	-4.5	-0.0001	1071	0	0	No, Rottura per schiacciamento
SLU 53	11.15	-4.42	0.0002	1052	0	0	No, Rottura per schiacciamento
SLU 57	10.35	-6.83	-0.0002	1627	0	0	No, Rottura per schiacciamento
SLU 57	11.15	-6.75	0.0003	1608	0	0	No, Rottura per schiacciamento

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	10.35	-4.83	0.0009	1150	0.0021	2.499	Si
SLV 11	11.15	-4.76	0.0006	1134	0.0026	4.258	Si
SLV 5	10.35	-0.23	-0.001	55	0.0017	1.641	Si
SLV 5	11.15	-0.18	-0.0004	42	0.0013	3.501	Si
SLV 9	10.35	-0.56	-0.0008	134	0.0038	5	Si
SLV 9	11.15	-0.48	-0.0005	114	0.0033	7.156	Si
SLV 2	10.35	-1.34	-0.0008	319	0.0074	9.864	Si
SLV 2	11.15	-1.32	0.0001	315	0.0074	68.191	Si
SLV 1	10.35	-1.34	-0.0008	319	0.0074	9.864	Si
SLV 1	11.15	-1.32	0.0001	315	0.0074	68.191	Si
SLV 8	10.35	-4.5	0.0006	1071	0.0042	7.02	Si
SLV 8	11.15	-4.46	0.0007	1062	0.0044	6.309	Si
SLV 7	10.35	-4.5	0.0006	1071	0.0042	7.02	Si
SLV 7	11.15	-4.46	0.0007	1062	0.0044	6.309	Si
SLV 12	10.35	-4.83	0.0009	1150	0.0021	2.499	Si
SLV 12	11.15	-4.76	0.0006	1134	0.0026	4.258	Si
SLV 10	10.35	-0.56	-0.0008	134	0.0038	5	Si
SLV 10	11.15	-0.48	-0.0005	114	0.0033	7.156	Si
SLV 6	10.35	-0.23	-0.001	55	0.0017	1.641	Si
SLV 6	11.15	-0.18	-0.0004	42	0.0013	3.501	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 30	10.35	-8.04	0	-0.0002		1914	0.015	108	0.46			633.74	Si
SLU 30	11.15	-7.98	0	0.0004		1899	0.015	108	0.46			633.77	Si
SLU 80	10.35	-8.27	0	-0.0002		1969	0.015	108	0.46			583.98	Si
SLU 80	11.15	-8.19	0	0.0004		1950	0.015	108	0.46			584	Si
SLU 38	10.35	-7.94	0	-0.0002		1890	0.015	108	0.46			604.12	Si
SLU 38	11.15	-7.88	0	0.0004		1875	0.015	108	0.46			604.14	Si
SLU 36	10.35	-7.52	0	-0.0002		1790	0.015	108	0.46			627.88	Si
SLU 36	11.15	-7.46	0	0.0004		1775	0.015	108	0.46			627.89	Si
SLU 78	10.35	-7.85	0	-0.0002		1869	0.015	108	0.46			606.16	Si
SLU 78	11.15	-7.77	0	0.0004		1850	0.015	108	0.46			606.17	Si
SLU 79	10.35	-8.35	0	-0.0002		1989	0.015	108	0.46			589.7	Si
SLU 79	11.15	-8.27	0	0.0004		1970	0.015	108	0.46			589.72	Si
SLU 37	10.35	-8.02	0	-0.0002		1910	0.015	108	0.46			610.23	Si
SLU 37	11.15	-7.96	0	0.0004		1895	0.015	108	0.46			610.25	Si
SLU 77	10.35	-7.94	0	-0.0002		1889	0.015	108	0.46			612.32	Si
SLU 77	11.15	-7.85	0	0.0004		1870	0.015	108	0.46			612.33	Si
SLU 71	10.35	-8.46	0	-0.0002		2013	0.015	108	0.46			617.9	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 71	11.15	-8.37	0	0.0004		1994	0.015	108	0.46			617.92	Si
SLU 72	10.35	-8.37	0	-0.0002		1993	0.015	108	0.46			611.62	Si
SLU 72	11.15	-8.29	0	0.0004		1974	0.015	108	0.46			611.65	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	10.35	-1.34	0	-0.0008		319	0.015	147	0.62			418.29	Si
SLV 2	11.15	-1.32	0	0.0001		315	0.015	146	0.61			1000	Si
SLV 12	10.35	-4.83	0	0.0009		1150	0.015	163	0.68			346.77	Si
SLV 12	11.15	-4.76	0	0.0006		1134	0.015	163	0.68			1000	Si
SLV 10	10.35	-0.56	0	-0.0008		134	0.015	110	0.46			220.71	Si
SLV 10	11.15	-0.48	0	-0.0005		114	0.015	106	0.45			1000	Si
SLV 1	10.35	-1.34	0	-0.0008		319	0.015	147	0.62			418.29	Si
SLV 1	11.15	-1.32	0	0.0001		315	0.015	146	0.61			1000	Si
SLV 11	10.35	-4.83	0	0.0009		1150	0.015	163	0.68			346.77	Si
SLV 11	11.15	-4.76	0	0.0006		1134	0.015	163	0.68			1000	Si
SLV 9	10.35	-0.56	0	-0.0008		134	0.015	110	0.46			220.71	Si
SLV 9	11.15	-0.48	0	-0.0005		114	0.015	106	0.45			1000	Si
SLV 7	10.35	-4.5	0	0.0006		1071	0.015	163	0.68			427.21	Si
SLV 7	11.15	-4.46	0	0.0007		1062	0.015	163	0.68			1000	Si
SLV 5	10.35	-0.23	0	-0.001		88	0.0094	101	0.27			107.74	Si
SLV 5	11.15	-0.18	0	-0.0004		42	0.015	92	0.39			1000	Si
SLV 8	10.35	-4.5	0	0.0006		1071	0.015	163	0.68			427.21	Si
SLV 8	11.15	-4.46	0	0.0007		1062	0.015	163	0.68			1000	Si
SLV 6	10.35	-0.23	0	-0.001		88	0.0094	101	0.27			107.74	Si
SLV 6	11.15	-0.18	0	-0.0004		42	0.015	92	0.39			1000	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.46	0	-0.05	0.0186	0	0	No, $e > t/2$
SLV 1	1438	0.46	0	-0.05	0.0186	0	0	No, $e > t/2$
SLV 5	1438	0.46	0	-0.02	0.0186	0	0	No, $e > t/2$
SLV 13	1438	0.46	0	-0.1	0.0186	0	0	No, $e > t/2$
SLV 14	1438	0.46	0	-0.1	0.0186	0	0	No, $e > t/2$
SLV 4	1438	0.46	0	-0.08	0.0186	0	0	No, $e > t/2$
SLV 3	1438	0.46	0	-0.08	0.0186	0	0	No, $e > t/2$
SLV 6	1438	0.46	0	-0.02	0.0186	0	0	No, $e > t/2$
SLV 10	1438	0.46	0	-0.04	0.0186	0	0	No, $e > t/2$
SLV 9	1438	0.46	0	-0.04	0.0186	0	0	No, $e > t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-0.05	0.42	0	0	0	0	0	12.41353	No, Trazione
SLV 9	-0.08	0.64	-0.01	0	0	0	0	12.41353	No, Trazione
SLV 2	-0.11	-0.39	0.02	0	0.034	0.89	0	11.93169	No
SLV 14	-0.18	0.33	-0.03	0	0	0	0	11.93169	No, Trazione
SLV 13	-0.18	0.33	-0.03	0	0	0	0	11.93169	No, Trazione
SLV 10	-0.08	0.64	-0.01	0	0	0	0	12.41353	No, Trazione
SLV 6	-0.05	0.42	0	0	0	0	0	12.41353	No, Trazione
SLV 3	-0.18	-0.87	0.03	0	0.04	0.891	0	11.93169	No
SLV 4	-0.18	-0.87	0.03	0	0.04	0.891	0	11.93169	No
SLV 1	-0.11	-0.39	0.02	0	0.034	0.89	0	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 3	No
V_SLU	583.983	SLU 80	Si
PF_SLV	1.641	SLV 5	Si
V_SLV	107.743	SLV 5	Si
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 14	No

## Maschio 172

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-6.008	-3.359	-6.513	-3.359	L5	L6	0.505	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	t <sub>0</sub>	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	10.35	-28.84	-0.6713	204	5.4584	8.131	Si
SLU 73	11.15	-24.61	-1.3334	174	4.8865	3.665	Si
SLU 82	10.35	-31.4	-0.7127	222	5.7672	8.092	Si
SLU 82	11.15	-27.3	-1.4369	193	5.2591	3.66	Si
SLU 10	10.35	-20.47	-0.4612	145	4.2494	9.214	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 10	11.15	-17.25	-0.9857	122	3.7026	3.756	Si
SLU 81	10.35	-33.42	-0.7694	236	5.9897	7.785	Si
SLU 81	11.15	-29.32	-1.4646	207	5.5188	3.768	Si
SLU 40	10.35	-26.19	-0.5725	185	5.1096	8.925	Si
SLU 40	11.15	-23.15	-1.238	164	4.6709	3.773	Si
SLU 60	10.35	-30.25	-0.6995	214	5.6326	8.053	Si
SLU 60	11.15	-26.1	-1.3158	185	5.0968	3.874	Si
SLU 19	10.35	-23.03	-0.5026	163	4.6523	9.257	Si
SLU 19	11.15	-19.93	-1.0892	141	4.1619	3.821	Si
SLU 61	10.35	-28.24	-0.6428	200	5.3821	8.373	Si
SLU 61	11.15	-24.08	-1.2881	170	4.8085	3.733	Si
SLU 31	10.35	-23.63	-0.5311	167	4.7422	8.93	Si
SLU 31	11.15	-20.47	-1.1345	145	4.2495	3.746	Si
SLU 52	10.35	-25.67	-0.6014	182	5.0377	8.377	Si
SLU 52	11.15	-21.39	-1.1846	151	4.3981	3.713	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	10.35	-9.68	1.6115	68	2.3063	1.431	Si
SLV 8	11.15	-28.79	-2.1215	204	6.0574	2.855	Si
SLV 4	10.35	-6.31	2.9886	0	0	0	No, $e > l/2$
SLV 4	11.15	-16.91	-3.7745	120	3.8517	1.02	Si
SLV 1	10.35	-11.66	2.2543	82	2.745	1.218	Si
SLV 1	11.15	-10.19	-3.5526	0	0	0	No, $e > l/2$
SLV 7	10.35	-9.68	1.6115	68	2.3063	1.431	Si
SLV 7	11.15	-28.79	-2.1215	204	6.0574	2.855	Si
SLD 1	10.35	-17.9	0.6386	127	4.0511	6.344	Si
SLD 1	11.15	-15.48	-2.0486	110	3.5595	1.738	Si
SLV 2	10.35	-11.66	2.2543	82	2.745	1.218	Si
SLV 2	11.15	-10.19	-3.5526	0	0	0	No, $e > l/2$
SLV 5	10.35	-27.49	-0.836	194	5.8364	6.981	Si
SLV 5	11.15	-6.37	-1.382	45	1.5502	1.122	Si
SLD 2	10.35	-17.9	0.6386	127	4.0511	6.344	Si
SLD 2	11.15	-15.48	-2.0486	110	3.5595	1.738	Si
SLV 6	10.35	-27.49	-0.836	194	5.8364	6.981	Si
SLV 6	11.15	-6.37	-1.382	45	1.5502	1.122	Si
SLV 3	10.35	-6.31	2.9886	0	0	0	No, $e > l/2$
SLV 3	11.15	-16.91	-3.7745	120	3.8517	1.02	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	10.35	-32.18	-2.21	-0.8619		228	0.505	86	12.15			5.49	Si
SLU 58	11.15	-27.96	1.14	-1.1697		198	0.505	82	11.58			10.13	Si
SLU 69	10.35	-33.29	-2.36	-0.9299		235	0.505	87	12.29			5.21	Si
SLU 69	11.15	-28.79	1.05	-1.1812		204	0.505	83	11.69			11.11	Si
SLU 77	10.35	-36.13	-2.36	-0.9383		256	0.505	90	12.67			5.37	Si
SLU 77	11.15	-31.91	1.35	-1.3798		226	0.505	86	12.11			9	Si
SLU 79	10.35	-35.34	-2.41	-0.9317		250	0.505	89	12.57			5.21	Si
SLU 79	11.15	-31.18	1.35	-1.3185		221	0.505	85	12.01			8.88	Si
SLU 48	10.35	-30.12	-2.16	-0.86		213	0.505	84	11.87			5.5	Si
SLU 48	11.15	-25.57	0.84	-1.0324		181	0.505	80	11.27			13.36	Si
SLU 29	10.35	-27.28	-2.15	-0.7831		193	0.505	81	11.49			5.35	Si
SLU 29	11.15	-23.92	1	-0.921		169	0.505	78	11.04			11	Si
SLU 71	10.35	-32.49	-2.41	-0.9233		230	0.505	86	12.19			5.06	Si
SLU 71	11.15	-28.06	1.06	-1.1199		198	0.505	82	11.6			10.95	Si
SLU 27	10.35	-28.08	-2.1	-0.7897		199	0.505	82	11.6			5.53	Si
SLU 27	11.15	-24.65	1	-0.9823		174	0.505	79	11.14			11.18	Si
SLU 37	10.35	-30.13	-2.15	-0.7915		213	0.505	84	11.87			5.52	Si
SLU 37	11.15	-27.04	1.3	-1.1196		191	0.505	81	11.46			8.84	Si
SLU 50	10.35	-29.33	-2.21	-0.8534		207	0.505	83	11.77			5.33	Si
SLU 50	11.15	-24.84	0.85	-0.9711		176	0.505	79	11.17			13.14	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	10.35	-39.07	-13.61	-4.1277		317	0.4406	147	18.09			1.33	Si
SLV 13	11.15	-21.71	-1.58	1.9097		157	0.4936	115	15.86			10.01	Si
SLV 2	10.35	-11.66	9.87	2.2543		235	0.1774	130	6.47			0.66	No, $V_u < V$
SLV 2	11.15	-10.19	0.51	-3.5526		0	0	83	0			0	No, $V_u < V$
SLV 6	10.35	-27.49	-0.02	-0.836		194	0.505	122	17.28			1000	Si
SLV 6	11.15	-6.37	-2.81	-1.382		213	0.1071	126	3.77			1.34	Si
SLV 14	10.35	-39.07	-13.61	-4.1277		317	0.4406	147	18.09			1.33	Si
SLV 14	11.15	-21.71	-1.58	1.9097		157	0.4936	115	15.86			10.01	Si
SLV 16	10.35	-33.73	-12.17	-3.3935		264	0.4557	136	17.38			1.43	Si
SLV 16	11.15	-28.43	0.63	1.6878		201	0.505	124	17.78			27.78	Si
SLV 1	10.35	-11.66	9.87	2.2543		235	0.1774	130	6.47			0.66	No, $V_u < V$
SLV 1	11.15	-10.19	0.51	-3.5526		0	0	83	0			0	No, $V_u < V$
SLV 15	10.35	-33.73	-12.17	-3.3935		264	0.4557	136	17.38			1.43	Si
SLV 15	11.15	-28.43	0.63	1.6878		201	0.505	124	17.47			27.78	Si
SLV 3	10.35	-6.31	11.31	2.9886		0	0	83	0			0	No, $V_u < V$
SLV 3	11.15	-16.91	2.72	-3.7745		688	0.0878	163	4			1.47	Si
SLV 4	10.35	-6.31	11.31	2.9886		0	0	83	0			0	No, $V_u < V$
SLV 4	11.15	-16.91	2.72	-3.7745		688	0.0878	163	4			1.47	Si
SLV 5	10.35	-27.49	-0.02	-0.836		194	0.505	122	17.28			1000	Si
SLV 5	11.15	-6.37	-2.81	-1.382		213	0.1071	126	3.77			1.34	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.46	0	-3.77	0.6135	0	0	No, $e > t/2$
SLV 8	1438	0.46	0	-3.77	0.6135	0	0	No, $e > t/2$
SLV 4	1438	0.46	52	-7.42	0.6135	0.9944	1.62	Si
SLV 3	1438	0.46	52	-7.42	0.6135	0.9944	1.62	Si
SLV 12	1438	0.46	54	-7.59	0.6135	1.0158	1.66	Si
SLV 11	1438	0.46	54	-7.59	0.6135	1.0158	1.66	Si
SLV 1	1438	0.46	102	-14.37	0.6135	1.8443	3.01	Si
SLV 2	1438	0.46	102	-14.37	0.6135	1.8443	3.01	Si
SLV 16	1438	0.46	142	-20.15	0.6135	2.4918	4.06	Si
SLV 15	1438	0.46	142	-20.15	0.6135	2.4918	4.06	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-11.46	-10.91	-0.15	0.041	1.89	0.908	0.66187	12.41353	No
SLV 11	-11.46	-10.91	-0.15	0.041	1.89	0.908	0.66187	12.41353	No
SLV 8	-8.2	-10.55	-0.13	0.044	1.57	0.897	0.70638	12.41353	No
SLV 7	-8.2	-10.55	-0.13	0.044	1.57	0.897	0.70638	12.41353	No
SLV 16	-14.76	-13.49	-0.09	0.044	2.22	0.918	0.69812	11.93169	No
SLV 15	-14.76	-13.49	-0.09	0.044	2.22	0.918	0.69812	11.93169	No
SLV 10	-10.05	-17.1	0.09	0.046	1.751	0.904	0.73628	12.41353	No
SLV 9	-10.05	-17.1	0.09	0.046	1.751	0.904	0.73628	12.41353	No
SLV 6	-6.8	-16.74	0.11	0.045	1.435	0.893	0.73931	12.41353	No
SLV 5	-6.8	-16.74	0.11	0.045	1.435	0.893	0.73931	12.41353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.66	SLU 82	Si
V_SLU	5.064	SLU 71	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 7	No
R_SLV	0.053	SLV 11	No

## Maschio 173

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-3.183	-3.359	-5.508	-3.359	L5	L6	2.325	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	10.35	-113.59	7.3725	174	103.7647	14.075	Si
SLU 82	11.15	-99.76	8.7031	153	94.1568	10.819	Si
SLU 44	10.35	-85.46	5.0557	131	83.3339	16.483	Si
SLU 44	11.15	-72.2	6.8786	111	72.5062	10.541	Si
SLU 23	10.35	-78.1	4.463	120	77.419	17.347	Si
SLU 23	11.15	-67.76	6.5581	104	68.7054	10.476	Si
SLU 52	10.35	-95.49	6.0401	147	91.0217	15.07	Si
SLU 52	11.15	-82.15	7.5062	126	80.7066	10.752	Si
SLU 31	10.35	-88.14	5.4474	135	85.4307	15.683	Si
SLU 31	11.15	-77.71	7.1858	119	77.0996	10.73	Si
SLU 76	10.35	-110.33	6.4062	169	101.5759	15.856	Si
SLU 76	11.15	-96.53	8.5572	148	91.7928	10.727	Si
SLU 2	10.35	-67.06	3.8658	103	68.0975	17.616	Si
SLU 2	11.15	-56.94	5.579	87	59.0828	10.59	Si
SLU 73	10.35	-106.54	6.6373	164	98.9667	14.911	Si
SLU 73	11.15	-92.97	8.4853	143	89.1328	10.504	Si
SLU 68	10.35	-100.29	5.4218	154	94.5411	17.437	Si
SLU 68	11.15	-86.58	7.9295	133	84.2199	10.621	Si
SLU 65	10.35	-96.5	5.6529	148	91.7648	16.233	Si
SLU 65	11.15	-83.02	7.8577	128	81.4046	10.36	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	10.35	-100.15	-3.3141	154	101.7631	30.706	Si
SLV 9	11.15	-90.44	27.8184	139	93.1863	3.35	Si
SLV 3	10.35	-78.63	12.5446	121	82.3678	6.566	Si
SLV 3	11.15	-63.61	-20.6409	98	68.0284	3.296	Si
SLV 10	10.35	-100.15	-3.3141	154	101.7631	30.706	Si
SLV 10	11.15	-90.44	27.8184	139	93.1863	3.35	Si
SLV 16	10.35	-68.27	1.733	105	72.5494	41.865	Si
SLV 16	11.15	-61.85	23.2677	95	66.3094	2.85	Si
SLV 15	10.35	-68.27	1.733	105	72.5494	41.865	Si
SLV 15	11.15	-61.85	23.2677	95	66.3094	2.85	Si
SLV 14	10.35	-81.31	-2.3429	125	84.8582	36.219	Si
SLV 14	11.15	-74.76	32.4609	115	78.7435	2.426	Si
SLV 4	10.35	-78.63	12.5446	121	82.3678	6.566	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	11.15	-63.61	-20.6409	98	68.0284	3.296	Si
SLV 13	10.35	-81.31	-2.3429	125	84.8582	36.219	Si
SLV 13	11.15	-74.76	32.4609	115	78.7435	2.426	Si
SLV 8	10.35	-59.79	13.5158	92	64.2779	4.756	Si
SLV 8	11.15	-47.92	-15.9984	74	52.3555	3.273	Si
SLV 7	10.35	-59.79	13.5158	92	64.2779	4.756	Si
SLV 7	11.15	-47.92	-15.9984	74	52.3555	3.273	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	10.35	-88.14	-2.51	5.4474		135	2.325	74	47.92			19.05	Si
SLU 31	11.15	-77.71	-1.47	7.1858		119	2.325	71	46.53			31.72	Si
SLU 5	10.35	-70.86	-2.76	3.6346		109	2.325	70	45.61			16.5	Si
SLU 5	11.15	-60.5	-1.93	5.6508		93	2.325	68	44.23			22.95	Si
SLU 26	10.35	-81.9	-3.12	4.2319		126	2.325	72	47.09			15.08	Si
SLU 26	11.15	-71.32	-2.11	6.6299		110	2.325	70	45.68			21.62	Si
SLU 34	10.35	-91.94	-2.55	5.2163		141	2.325	74	48.42			19.02	Si
SLU 34	11.15	-81.27	-1.47	7.2576		125	2.325	72	47			31.9	Si
SLU 2	10.35	-67.06	-2.73	3.8658		103	2.325	69	45.11			16.5	Si
SLU 2	11.15	-56.94	-1.92	5.579		87	2.325	67	43.76			22.78	Si
SLU 44	10.35	-85.46	-2.82	5.0557		131	2.325	73	47.56			16.86	Si
SLU 44	11.15	-72.2	-1.96	6.8786		111	2.325	70	45.79			23.38	Si
SLU 23	10.35	-78.1	-3.09	4.463		120	2.325	72	46.58			15.07	Si
SLU 23	11.15	-67.76	-2.11	6.5581		104	2.325	69	45.2			21.46	Si
SLU 65	10.35	-96.5	-3.18	5.6529		148	2.325	75	49.03			15.43	Si
SLU 65	11.15	-83.02	-2.14	7.8577		128	2.325	73	47.24			22.03	Si
SLU 47	10.35	-89.25	-2.85	4.8245		137	2.325	74	48.07			16.86	Si
SLU 47	11.15	-75.76	-1.97	6.9504		116	2.325	71	46.27			23.54	Si
SLU 68	10.35	-100.29	-3.21	5.4218		154	2.325	76	49.54			15.44	Si
SLU 68	11.15	-86.58	-2.15	7.9295		133	2.325	73	47.71			22.18	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	10.35	-78.63	47.98	12.5446		121	2.325	107	69.98			1.46	Si
SLV 3	11.15	-63.61	41.26	-20.6409		98	2.325	103	66.97			1.62	Si
SLV 8	10.35	-59.79	35.85	13.5158		92	2.325	102	66.21			1.85	Si
SLV 8	11.15	-47.92	31.73	-15.9984		74	2.325	98	63.83			2.01	Si
SLV 13	10.35	-81.31	-49.25	-2.3429		125	2.325	108	70.51			1.43	Si
SLV 13	11.15	-74.76	-41.68	32.4609		122	2.185	108	65.93			1.58	Si
SLV 9	10.35	-100.15	-37.12	-3.3141		154	2.325	114	74.28			2	Si
SLV 9	11.15	-90.44	-32.15	27.8184		139	2.325	111	72.34			2.25	Si
SLV 14	10.35	-81.31	-49.25	-2.3429		125	2.325	108	70.51			1.43	Si
SLV 14	11.15	-74.76	-41.68	32.4609		122	2.185	108	65.93			1.58	Si
SLV 15	10.35	-68.27	-34.82	1.733		105	2.325	104	67.9			1.95	Si
SLV 15	11.15	-61.85	-28.82	23.2677		95	2.325	102	66.62			2.31	Si
SLV 4	10.35	-78.63	47.98	12.5446		121	2.325	107	69.98			1.46	Si
SLV 4	11.15	-63.61	41.26	-20.6409		98	2.325	103	66.97			1.62	Si
SLV 16	10.35	-68.27	-34.82	1.733		105	2.325	104	67.9			1.95	Si
SLV 16	11.15	-61.85	-28.82	23.2677		95	2.325	102	66.62			2.31	Si
SLV 10	10.35	-100.15	-37.12	-3.3141		154	2.325	114	74.28			2	Si
SLV 10	11.15	-90.44	-32.15	27.8184		139	2.325	111	72.34			2.25	Si
SLV 7	10.35	-59.79	35.85	13.5158		92	2.325	102	66.21			1.85	Si
SLV 7	11.15	-47.92	31.73	-15.9984		74	2.325	98	63.83			2.01	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.46	82	-53.64	2.8245	7.0034	2.48	Si
SLV 7	1438	0.46	82	-53.64	2.8245	7.0034	2.48	Si
SLV 12	1438	0.46	84	-54.98	2.8245	7.1648	2.54	Si
SLV 11	1438	0.46	84	-54.98	2.8245	7.1648	2.54	Si
SLV 3	1438	0.46	106	-68.77	2.8245	8.7958	3.11	Si
SLV 4	1438	0.46	106	-68.77	2.8245	8.7958	3.11	Si
SLV 15	1438	0.46	112	-73.22	2.8245	9.3077	3.3	Si
SLV 16	1438	0.46	112	-73.22	2.8245	9.3077	3.3	Si
SLV 2	1438	0.46	128	-83.08	2.8245	10.4162	3.69	Si
SLV 1	1438	0.46	128	-83.08	2.8245	10.4162	3.69	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	-49.55	-79.8	1.56	0.029	8.386	0.906	0.47001	11.93169	No
SLV 15	-49.55	-79.8	1.56	0.029	8.386	0.906	0.47001	11.93169	No
SLV 2	-59.02	-77.38	-1.53	0.031	9.327	0.912	0.49152	11.93169	No
SLV 1	-59.02	-77.38	-1.53	0.031	9.327	0.912	0.49152	11.93169	No
SLV 11	-38.55	-52.35	1.17	0.034	7.305	0.898	0.54724	12.41353	No
SLV 12	-38.55	-52.35	1.17	0.034	7.305	0.898	0.54724	12.41353	No
SLV 6	-70.03	-104.82	-1.15	0.036	10.427	0.919	0.57171	12.41353	No
SLV 5	-70.03	-104.82	-1.15	0.036	10.427	0.919	0.57171	12.41353	No
SLV 14	-59	-97.33	1.1	0.036	9.324	0.912	0.57847	11.93169	No
SLV 13	-59	-97.33	1.1	0.036	9.324	0.912	0.57847	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	10.36	SLU 65	Si
V SLU	15.066	SLU 23	Si
PF SLV	2.426	SLV 13	Si
V SLV	1.432	SLV 13	Si



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	2.479	SLV 7	Si
R SLV	0.039	SLV 15	No

## Maschio 174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	-3.359	-2.283	-3.359	L5	L6	2.16	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 84	9.25	-116.14	-9.1346	192	95.8637	10.495	Si
SLU 84	11.05	-118.8	17.6268	196	97.3668	5.524	Si
SLU 73	9.25	-108.56	-9.6328	179	91.4069	9.489	Si
SLU 73	11.05	-110.07	17.4362	182	92.3173	5.295	Si
SLU 81	9.25	-111.72	-7.6595	185	93.2939	12.18	Si
SLU 81	11.05	-112.78	17.5644	186	93.9203	5.347	Si
SLU 31	9.25	-89.4	-9.0974	148	79.0308	8.687	Si
SLU 31	11.05	-93.71	15.273	155	81.9545	5.366	Si
SLU 19	9.25	-83.31	-7.0816	138	74.76	10.557	Si
SLU 19	11.05	-84.91	13.6359	140	75.9005	5.566	Si
SLU 82	9.25	-111.5	-9.1957	184	93.1673	10.132	Si
SLU 82	11.05	-113.85	18.0815	188	94.5405	5.229	Si
SLU 75	9.25	-115.47	-8.595	191	95.4786	11.109	Si
SLU 75	11.05	-116.94	17.3708	193	96.3171	5.545	Si
SLU 61	9.25	-102.47	-7.617	169	87.6476	11.507	Si
SLU 61	11.05	-101.28	15.7991	167	86.8943	5.5	Si
SLU 40	9.25	-92.35	-8.6603	153	81.0386	9.358	Si
SLU 40	11.05	-97.48	15.9182	161	84.4484	5.305	Si
SLU 39	9.25	-92.56	-7.1241	153	81.1832	11.396	Si
SLU 39	11.05	-96.42	15.4012	159	83.7519	5.438	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 15	9.25	-70.14	-14.7239	116	68.5601	4.656	Si
SLV 15	11.05	-84.37	25.5657	140	80.7201	3.157	Si
SLD 16	9.25	-75.01	-8.8307	124	72.7848	8.242	Si
SLD 16	11.05	-79.32	17.3462	131	76.4699	4.408	Si
SLD 13	9.25	-84.81	-9.193	140	81.085	8.82	Si
SLD 13	11.05	-86.88	17.8347	144	82.7951	4.642	Si
SLV 11	9.25	-41.06	-6.1188	68	41.8836	6.845	Si
SLV 11	11.05	-50.9	13.4722	84	51.1864	3.799	Si
SLD 14	9.25	-84.81	-9.193	140	81.085	8.82	Si
SLD 14	11.05	-86.88	17.8347	144	82.7951	4.642	Si
SLV 13	9.25	-93.23	-15.6472	154	87.985	5.623	Si
SLV 13	11.05	-102.34	26.8773	169	95.2233	3.543	Si
SLV 16	9.25	-70.14	-14.7239	116	68.5601	4.656	Si
SLV 16	11.05	-84.37	25.5657	140	80.7201	3.157	Si
SLV 12	9.25	-41.06	-6.1188	68	41.8836	6.845	Si
SLV 12	11.05	-50.9	13.4722	84	51.1864	3.799	Si
SLV 14	9.25	-93.23	-15.6472	154	87.985	5.623	Si
SLV 14	11.05	-102.34	26.8773	169	95.2233	3.543	Si
SLD 15	9.25	-75.01	-8.8307	124	72.7848	8.242	Si
SLD 15	11.05	-79.32	17.3462	131	76.4699	4.408	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	9.25	-108.56	-32.31	-9.6328		179	2.16	79	48.07			1.49	Si
SLU 73	11.05	-110.07	-31.81	17.4362		182	2.16	80	48.28			1.52	Si
SLU 78	9.25	-120.11	-31.45	-8.5339		199	2.16	82	49.61			1.58	Si
SLU 78	11.05	-121.9	-31.18	16.9162		202	2.16	82	49.85			1.6	Si
SLU 82	9.25	-111.5	-32.81	-9.1957		184	2.16	80	48.47			1.48	Si
SLU 82	11.05	-113.85	-32.52	18.0815		188	2.16	81	48.78			1.5	Si
SLU 40	9.25	-92.35	-29.36	-8.6603		153	2.16	76	45.91			1.56	Si
SLU 40	11.05	-97.48	-29.06	15.9182		161	2.16	77	46.6			1.6	Si
SLU 75	9.25	-115.47	-31.55	-8.595		191	2.16	81	49			1.55	Si
SLU 75	11.05	-116.94	-31.27	17.3708		193	2.16	81	49.19			1.57	Si
SLU 76	9.25	-113.2	-32.21	-9.5717		187	2.16	81	48.69			1.51	Si
SLU 76	11.05	-115.03	-31.72	16.9815		190	2.16	81	48.94			1.54	Si
SLU 42	9.25	-96.99	-29.26	-8.5992		160	2.16	77	46.53			1.59	Si
SLU 42	11.05	-102.44	-28.97	15.4636		169	2.16	78	47.26			1.63	Si
SLU 81	9.25	-111.72	-30.74	-7.6595		185	2.16	80	48.5			1.58	Si
SLU 81	11.05	-112.78	-30.75	17.5644		186	2.16	80	48.64			1.58	Si
SLU 31	9.25	-89.4	-28.85	-9.0974		148	2.16	75	45.52			1.58	Si
SLU 31	11.05	-93.71	-28.35	15.273		155	2.16	76	46.09			1.63	Si
SLU 84	9.25	-116.14	-32.71	-9.1346		192	2.16	81	49.09			1.5	Si
SLU 84	11.05	-118.8	-32.43	17.6268		196	2.16	82	49.44			1.52	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 15	9.25	-75.01	-31.12	-8.8307		124	2.16	108	65.4			2.1	Si
SLD 15	11.05	-79.32	-28.43	17.3462		131	2.16	110	66.26			2.33	Si
SLV 16	9.25	-70.14	-47.24	-14.7239		116	2.16	107	64.43			1.36	Si
SLV 16	11.05	-84.37	-40.99	25.5657		140	2.16	111	67.27			1.64	Si
SLV 13	9.25	-93.23	-44.5	-15.6472		154	2.16	114	69.05			1.55	Si
SLV 13	11.05	-102.34	-36.72	26.8773		169	2.16	117	70.87			1.93	Si
SLD 16	9.25	-75.01	-31.12	-8.8307		124	2.16	108	65.4			2.1	Si
SLD 16	11.05	-79.32	-28.43	17.3462		131	2.16	110	66.26			2.33	Si
SLD 14	9.25	-84.81	-29.94	-9.193		140	2.16	111	67.36			2.25	Si
SLD 14	11.05	-86.88	-26.59	17.8347		144	2.16	112	67.78			2.55	Si
SLV 15	9.25	-70.14	-47.24	-14.7239		116	2.16	107	64.43			1.36	Si
SLV 15	11.05	-84.37	-40.99	25.5657		140	2.16	111	67.27			1.64	Si
SLV 14	9.25	-93.23	-44.5	-15.6472		154	2.16	114	69.05			1.55	Si
SLV 14	11.05	-102.34	-36.72	26.8773		169	2.16	117	70.87			1.93	Si
SLV 12	9.25	-41.06	-31.69	-6.1188		68	2.16	97	58.61			1.85	Si
SLV 12	11.05	-50.9	-32.16	13.4722		84	2.16	100	60.58			1.88	Si
SLV 11	9.25	-41.06	-31.69	-6.1188		68	2.16	97	58.61			1.85	Si
SLV 11	11.05	-50.9	-32.16	13.4722		84	2.16	100	60.58			1.88	Si
SLD 13	9.25	-84.81	-29.94	-9.193		140	2.16	111	67.36			2.25	Si
SLD 13	11.05	-86.88	-26.59	17.8347		144	2.16	112	67.78			2.55	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.46	71	-42.96	2.6241	5.6642	2.16	Si
SLV 8	1438	0.46	71	-42.96	2.6241	5.6642	2.16	Si
SLV 11	1438	0.46	84	-50.94	2.6241	6.6394	2.53	Si
SLV 12	1438	0.46	84	-50.94	2.6241	6.6394	2.53	Si
SLV 3	1438	0.46	93	-56.17	2.6241	7.2661	2.77	Si
SLV 4	1438	0.46	93	-56.17	2.6241	7.2661	2.77	Si
SLV 2	1438	0.46	125	-75.48	2.6241	9.4875	3.62	Si
SLV 1	1438	0.46	125	-75.48	2.6241	9.4875	3.62	Si
SLV 15	1438	0.46	137	-82.77	2.6241	10.2898	3.92	Si
SLV 16	1438	0.46	137	-82.77	2.6241	10.2898	3.92	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 6	-74.55	-117.85	-0.42	0.043	10.64	0.925	0.6822	12.41353	No
SLV 5	-74.55	-117.85	-0.42	0.043	10.64	0.925	0.6822	12.41353	No
SLV 10	-78.86	-128.21	-0.27	0.045	11.074	0.927	0.70138	12.41353	No
SLV 9	-78.86	-128.21	-0.27	0.045	11.074	0.927	0.70138	12.41353	No
SLV 11	-39.12	-46.39	0.41	0.046	7.109	0.901	0.73871	12.41353	No
SLV 12	-39.12	-46.39	0.41	0.046	7.109	0.901	0.73871	12.41353	No
SLV 15	-58.06	-87.12	0.34	0.045	8.986	0.915	0.71832	11.93169	No
SLV 16	-58.06	-87.12	0.34	0.045	8.986	0.915	0.71832	11.93169	No
SLV 2	-55.61	-77.12	-0.35	0.045	8.742	0.913	0.72053	11.93169	No
SLV 1	-55.61	-77.12	-0.35	0.045	8.742	0.913	0.72053	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.229	SLU 82	Si
V_SLU	1.477	SLU 82	Si
PF_SLV	3.157	SLV 15	Si
V_SLV	1.364	SLV 15	Si
PFFP_SLV	2.159	SLV 7	Si
R_SLV	0.055	SLV 5	No

## Maschio 175

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2.963	5.951	-5.158	5.951	L5	L6	2.195	0.28	3.52	3.52	3.52			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 30	9.25	-42.87	-19.9108	70	43.0226	2.161	Si
SLU 30	11.05	-23.03	-10.785	37	24.1094	2.235	Si
SLU 27	9.25	-50.05	-19.4747	81	49.436	2.538	Si
SLU 27	11.05	-30.2	-10.6626	49	31.1471	2.921	Si
SLU 71	9.25	-61.82	-22.2077	101	59.4675	2.678	Si
SLU 71	11.05	-36.23	-12.2475	59	36.8841	3.012	Si
SLU 29	9.25	-43.52	-20.2459	71	43.6109	2.154	Si
SLU 29	11.05	-23.67	-10.898	39	24.754	2.271	Si
SLU 28	9.25	-49.4	-19.1396	80	48.8663	2.553	Si
SLU 28	11.05	-29.55	-10.5497	48	30.5209	2.893	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 8	9.25	-38.54	-18.5105	63	39.0437	2.109	Si
SLU 8	11.05	-19.02	-9.6984	31	20.0858	2.071	Si
SLU 7	9.25	-44.42	-17.4042	72	44.4273	2.553	Si
SLU 7	11.05	-24.9	-9.35	41	25.9725	2.778	Si
SLU 9	9.25	-37.89	-18.1754	62	38.4412	2.115	Si
SLU 9	11.05	-18.38	-9.5854	30	19.4279	2.027	Si
SLU 72	9.25	-61.17	-21.8726	100	58.9312	2.694	Si
SLU 72	11.05	-35.58	-12.1345	58	36.2751	2.989	Si
SLU 6	9.25	-45.07	-17.7393	73	45.0112	2.537	Si
SLU 6	11.05	-25.55	-9.463	42	26.6119	2.812	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	9.25	-55.2	-28.3348	90	56.1266	1.981	Si
SLD 15	11.05	-32.99	-2.1461	54	34.6135	16.129	Si
SLV 12	9.25	-48.6	-54.1589	0	0	0	No, $e \geq l/2$
SLV 12	11.05	-22.86	7.5629	37	24.3263	3.217	Si
SLV 15	9.25	-33.22	-54.8995	0	0	0	No, $e \geq l/2$
SLV 15	11.05	-7.51	13.4039	0	0	0	No, $e \geq l/2$
SLD 16	9.25	-55.2	-28.3348	90	56.1266	1.981	Si
SLD 16	11.05	-32.99	-2.1461	54	34.6135	16.129	Si
SLV 7	9.25	-69.27	-32.7134	113	69.0098	2.11	Si
SLV 7	11.05	-46.34	-2.6897	75	47.7227	17.743	Si
SLV 14	9.25	-40.71	-34.0889	66	42.2617	1.24	Si
SLV 14	11.05	-17.83	8.1578	29	19.1058	2.342	Si
SLV 16	9.25	-33.22	-54.8995	0	0	0	No, $e \geq l/2$
SLV 16	11.05	-7.51	13.4039	0	0	0	No, $e \geq l/2$
SLV 11	9.25	-48.6	-54.1589	0	0	0	No, $e \geq l/2$
SLV 11	11.05	-22.86	7.5629	37	24.3263	3.217	Si
SLV 8	9.25	-69.27	-32.7134	113	69.0098	2.11	Si
SLV 8	11.05	-46.34	-2.6897	75	47.7227	17.743	Si
SLV 13	9.25	-40.71	-34.0889	66	42.2617	1.24	Si
SLV 13	11.05	-17.83	8.1578	29	19.1058	2.342	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 9	9.25	-37.89	-4.95	-18.1754		73	1.8536	65	33.89			6.84	Si
SLU 9	11.05	-18.38	-4.95	-9.5854		38	1.7277	61	29.32			5.92	Si
SLU 71	9.25	-61.82	-5.77	-22.2077		101	2.195	69	42.39			7.35	Si
SLU 71	11.05	-36.23	-5.77	-12.2475		59	2.195	63	38.97			6.75	Si
SLU 29	9.25	-43.52	-5.38	-20.2459		82	1.8969	66	35.31			6.57	Si
SLU 29	11.05	-23.67	-5.38	-10.898		44	1.9115	61	32.89			6.12	Si
SLU 69	9.25	-68.35	-5.47	-21.4366		111	2.195	70	43.26			7.9	Si
SLU 69	11.05	-42.76	-5.47	-12.0121		70	2.195	65	39.85			7.28	Si
SLU 30	9.25	-42.87	-5.25	-19.9108		81	1.8992	66	35.26			6.71	Si
SLU 30	11.05	-23.03	-5.25	-10.785		44	1.8874	61	32.43			6.17	Si
SLU 51	9.25	-56.19	-5.35	-20.1372		91	2.195	68	41.64			7.79	Si
SLU 51	11.05	-30.93	-5.35	-10.9349		50	2.195	62	38.27			7.16	Si
SLU 50	9.25	-56.84	-5.47	-20.4723		92	2.195	68	41.72			7.63	Si
SLU 50	11.05	-31.58	-5.47	-11.0478		51	2.195	62	38.35			7.01	Si
SLU 70	9.25	-67.7	-5.35	-21.1015		110	2.195	70	43.17			8.07	Si
SLU 70	11.05	-42.11	-5.35	-11.8991		69	2.195	65	39.76			7.43	Si
SLU 8	9.25	-38.54	-5.08	-18.5105		74	1.8517	65	33.94			6.69	Si
SLU 8	11.05	-19.02	-5.08	-9.6984		39	1.7631	61	29.96			5.9	Si
SLU 72	9.25	-61.17	-5.65	-21.8726		100	2.195	69	42.3			7.49	Si
SLU 72	11.05	-35.58	-5.65	-12.1345		58	2.195	63	38.89			6.89	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	9.25	-48.6	-38.66	-54.1589		0	0	83	0			0	No, $V_u < V$
SLV 12	11.05	-22.86	-33.29	7.5629		37	2.195	91	55.79			1.68	Si
SLV 16	9.25	-33.22	-43.02	-54.8995		0	0	83	0			0	No, $V_u < V$
SLV 16	11.05	-7.51	-36.99	13.4039		0	0	83	0			0	No, $V_u < V$
SLV 11	9.25	-48.6	-38.66	-54.1589		0	0	83	0			0	No, $V_u < V$
SLV 11	11.05	-22.86	-33.29	7.5629		37	2.195	91	55.79			1.68	Si
SLV 14	9.25	-40.71	-26.75	-34.0889		186	0.7807	121	26.36			0.99	No, $V_u < V$
SLV 14	11.05	-17.83	-23.06	8.1578		33	1.92	90	48.37			2.1	Si
SLV 2	9.25	-109.61	39.94	37.3958		178	2.195	119	73.14			1.83	Si
SLV 2	11.05	-96.1	33.9	-26.0175		156	2.195	115	70.44			2.08	Si
SLV 13	9.25	-40.71	-26.75	-34.0889		186	0.7807	121	26.36			0.99	No, $V_u < V$
SLV 13	11.05	-17.83	-23.06	8.1578		33	1.92	90	48.37			2.1	Si
SLV 5	9.25	-94.24	35.58	36.6552		158	2.1256	115	68.45			1.92	Si
SLV 5	11.05	-80.75	30.21	-20.1765		131	2.195	110	67.37			2.23	Si
SLV 6	9.25	-94.24	35.58	36.6552		158	2.1256	115	68.45			1.92	Si
SLV 6	11.05	-80.75	30.21	-20.1765		131	2.195	110	67.37			2.23	Si
SLV 15	9.25	-33.22	-43.02	-54.8995		0	0	83	0			0	No, $V_u < V$
SLV 15	11.05	-7.51	-36.99	13.4039		0	0	83	0			0	No, $V_u < V$
SLV 1	9.25	-109.61	39.94	37.3958		178	2.195	119	73.14			1.83	Si
SLV 1	11.05	-96.1	33.9	-26.0175		156	2.195	115	70.44			2.08	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.46	39	-23.74	2.6666	3.2189	1.21	Si
SLV 15	1438	0.46	39	-23.74	2.6666	3.2189	1.21	Si
SLV 14	1438	0.46	53	-32.38	2.6666	4.3375	1.63	Si
SLV 13	1438	0.46	53	-32.38	2.6666	4.3375	1.63	Si
SLV 11	1438	0.46	62	-38.04	2.6666	5.0561	1.9	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.46	62	-38.04	2.6666	5.0561	1.9	Si
SLV 8	1438	0.46	96	-58.93	2.6666	7.6031	2.85	Si
SLV 7	1438	0.46	96	-58.93	2.6666	7.6031	2.85	Si
SLV 10	1438	0.46	109	-66.83	2.6666	8.5231	3.2	Si
SLV 9	1438	0.46	109	-66.83	2.6666	8.5231	3.2	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 10.11  $W_a = 0.0005$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-30.18	-40.8	-0.9	0.037	6.296	0.894	0.60708	12.41353	No
SLV 11	-30.18	-40.8	-0.9	0.037	6.296	0.894	0.60708	12.41353	No
SLV 5	-48.79	-108.32	0.8	0.039	8.115	0.907	0.63201	12.41353	No
SLV 6	-48.79	-108.32	0.8	0.039	8.115	0.907	0.63201	12.41353	No
SLV 8	-41.04	-75.77	-0.65	0.042	7.351	0.902	0.67364	12.41353	No
SLV 7	-41.04	-75.77	-0.65	0.042	7.351	0.902	0.67364	12.41353	No
SLV 1	-58.75	-137.72	0.57	0.042	9.107	0.915	0.67295	11.93169	No
SLV 2	-58.75	-137.72	0.57	0.042	9.107	0.915	0.67295	11.93169	No
SLV 9	-37.92	-73.35	0.55	0.044	7.046	0.899	0.70552	12.41353	No
SLV 10	-37.92	-73.35	0.55	0.044	7.046	0.899	0.70552	12.41353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.027	SLU 9	Si
V_SLU	5.902	SLU 8	Si
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	1.207	SLV 15	Si
R_SLV	0.049	SLV 11	No

## Maschio 176

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	5.951	-2.063	5.951	L5	L6	1.94	0.28	3.52	3.52	3.52			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	9.25	-97.36	-3.0187	179	73.662	24.401	Si
SLU 60	11.05	-93.25	8.036	172	71.3893	8.884	Si
SLU 18	9.25	-79.16	-2.7939	146	63.0505	22.567	Si
SLU 18	11.05	-77.89	6.8808	143	62.2553	9.048	Si
SLU 19	9.25	-77.23	-2.8545	142	61.8362	21.663	Si
SLU 19	11.05	-76.98	6.9863	142	61.6783	8.828	Si
SLU 81	9.25	-105.56	-3.7858	194	77.9668	20.595	Si
SLU 81	11.05	-103.93	8.5091	191	77.1329	9.065	Si
SLU 10	9.25	-73.2	-2.5446	135	59.257	23.287	Si
SLU 10	11.05	-72.02	6.3099	133	58.4871	9.269	Si
SLU 52	9.25	-91.4	-2.7695	168	70.3445	25.4	Si
SLU 52	11.05	-87.37	7.4651	161	68.0167	9.111	Si
SLU 61	9.25	-95.43	-3.0794	176	72.6022	23.577	Si
SLU 61	11.05	-92.33	8.1415	170	70.874	8.705	Si
SLU 40	9.25	-85.42	-3.6215	157	66.8647	18.463	Si
SLU 40	11.05	-87.66	7.4594	161	68.1838	9.141	Si
SLU 73	9.25	-99.6	-3.5365	183	74.8636	21.169	Si
SLU 73	11.05	-98.05	7.9382	181	74.0354	9.326	Si
SLU 82	9.25	-103.63	-3.8464	191	76.9766	20.013	Si
SLU 82	11.05	-103.01	8.6147	190	76.6604	8.899	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	9.25	-85.99	18.7482	158	72.6028	3.873	Si
SLV 3	11.05	-56.87	-8.9943	105	50.4347	5.607	Si
SLV 14	9.25	-62.42	-22.9059	115	54.8547	2.395	Si
SLV 14	11.05	-81.82	19.0432	151	69.5828	3.654	Si
SLV 15	9.25	-88.44	-23.8055	163	74.3548	3.123	Si
SLV 15	11.05	-102.88	24.9337	189	84.324	3.382	Si
SLV 2	9.25	-59.97	19.6478	110	52.9164	2.693	Si
SLV 2	11.05	-35.81	-14.8847	66	32.8616	2.208	Si
SLV 16	9.25	-88.44	-23.8055	163	74.3548	3.123	Si
SLV 16	11.05	-102.88	24.9337	189	84.324	3.382	Si
SLV 6	9.25	-30.48	5.8035	56	28.2049	4.86	Si
SLV 6	11.05	-27.35	-9.8821	50	25.4343	2.574	Si
SLV 1	9.25	-59.97	19.6478	110	52.9164	2.693	Si
SLV 1	11.05	-35.81	-14.8847	66	32.8616	2.208	Si
SLV 4	9.25	-85.99	18.7482	158	72.6028	3.873	Si
SLV 4	11.05	-56.87	-8.9943	105	50.4347	5.607	Si
SLV 5	9.25	-30.48	5.8035	56	28.2049	4.86	Si
SLV 5	11.05	-27.35	-9.8821	50	25.4343	2.574	Si



Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 13	9.25	-62.42	-22.9059	115	54.8547	2.395	Si
SLV 13	11.05	-81.82	19.0432	151	69.5828	3.654	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	9.25	-95.43	-16.49	-3.0794		176	1.94	79	42.9			2.6	Si
SLU 61	11.05	-92.33	-16.44	8.1415		170	1.94	78	42.49			2.58	Si
SLU 73	9.25	-99.6	-17.63	-3.5365		183	1.94	80	43.46			2.46	Si
SLU 73	11.05	-98.05	-17.56	7.9382		181	1.94	80	43.25			2.46	Si
SLU 83	9.25	-108.66	-16.45	-4.1019		200	1.94	82	44.67			2.71	Si
SLU 83	11.05	-106.28	-16.44	6.1043		196	1.94	82	44.35			2.7	Si
SLU 60	9.25	-97.36	-15.82	-3.0187		179	1.94	79	43.16			2.73	Si
SLU 60	11.05	-93.25	-15.82	8.036		172	1.94	78	42.61			2.69	Si
SLU 81	9.25	-105.56	-18.01	-3.7858		194	1.94	81	44.25			2.46	Si
SLU 81	11.05	-103.93	-18	8.5091		191	1.94	81	44.03			2.45	Si
SLU 82	9.25	-103.63	-18.67	-3.8464		191	1.94	81	43.99			2.36	Si
SLU 82	11.05	-103.01	-18.62	8.6147		190	1.94	81	43.91			2.36	Si
SLU 40	9.25	-85.42	-16.73	-3.6215		157	1.94	77	41.57			2.48	Si
SLU 40	11.05	-87.66	-16.69	7.4594		161	1.94	77	41.87			2.51	Si
SLU 31	9.25	-81.4	-15.7	-3.3116		150	1.94	76	41.03			2.61	Si
SLU 31	11.05	-82.7	-15.62	6.783		152	1.94	76	41.2			2.64	Si
SLU 39	9.25	-87.36	-16.07	-3.5609		161	1.94	77	41.83			2.6	Si
SLU 39	11.05	-88.57	-16.06	7.3539		163	1.94	77	41.99			2.61	Si
SLU 84	9.25	-106.72	-17.11	-4.1625		196	1.94	82	44.41			2.59	Si
SLU 84	11.05	-105.36	-17.06	6.2098		194	1.94	81	44.23			2.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	9.25	-88.44	-51.24	-23.8055		163	1.94	116	62.95			1.23	Si
SLV 16	11.05	-102.88	-43.18	24.9337		189	1.94	121	65.84			1.53	Si
SLV 1	9.25	-59.97	30.11	19.6478		111	1.9272	106	56.96			1.89	Si
SLV 1	11.05	-35.81	22.05	-14.8847		77	1.663	99	45.97			2.08	Si
SLV 14	9.25	-62.42	-43.32	-22.9059		123	1.8091	108	54.7			1.26	Si
SLV 14	11.05	-81.82	-38.21	19.0432		151	1.94	113	61.63			1.61	Si
SLV 13	9.25	-62.42	-43.32	-22.9059		123	1.8091	108	54.7			1.26	Si
SLV 13	11.05	-81.82	-38.21	19.0432		151	1.94	113	61.63			1.61	Si
SLV 2	9.25	-59.97	30.11	19.6478		111	1.9272	106	56.96			1.89	Si
SLV 2	11.05	-35.81	22.05	-14.8847		77	1.663	99	45.97			2.08	Si
SLD 15	9.25	-80.24	-27.91	-11.3064		148	1.94	113	61.31			2.2	Si
SLD 15	11.05	-83.59	-24.43	13.5059		154	1.94	114	61.98			2.54	Si
SLV 11	9.25	-117.93	-34.78	-9.9613		217	1.94	127	68.85			1.98	Si
SLV 11	11.05	-111.34	-27.87	19.931		205	1.94	124	67.53			2.42	Si
SLV 12	9.25	-117.93	-34.78	-9.9613		217	1.94	127	68.85			1.98	Si
SLV 12	11.05	-111.34	-27.87	19.931		205	1.94	124	67.53			2.42	Si
SLD 16	9.25	-80.24	-27.91	-11.3064		148	1.94	113	61.31			2.2	Si
SLD 16	11.05	-83.59	-24.43	13.5059		154	1.94	114	61.98			2.54	Si
SLV 15	9.25	-88.44	-51.24	-23.8055		163	1.94	116	62.95			1.23	Si
SLV 15	11.05	-102.88	-43.18	24.9337		189	1.94	121	65.84			1.53	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.46	62	-33.59	2.3568	4.4645	1.89	Si
SLV 5	1438	0.46	62	-33.59	2.3568	4.4645	1.89	Si
SLV 10	1438	0.46	78	-42.16	2.3568	5.5273	2.35	Si
SLV 9	1438	0.46	78	-42.16	2.3568	5.5273	2.35	Si
SLV 1	1438	0.46	91	-49.35	2.3568	6.3949	2.71	Si
SLV 2	1438	0.46	91	-49.35	2.3568	6.3949	2.71	Si
SLV 3	1438	0.46	131	-71.42	2.3568	8.923	3.79	Si
SLV 4	1438	0.46	131	-71.42	2.3568	8.923	3.79	Si
SLV 13	1438	0.46	143	-77.91	2.3568	9.6271	4.08	Si
SLV 14	1438	0.46	143	-77.91	2.3568	9.6271	4.08	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	$\alpha 0^*$	aLim	Verifica
SLV 6	-31.6	-26.71	1.46	0.024	6.04	0.898	0.38512	12.41353	No
SLV 5	-31.6	-26.71	1.46	0.024	6.04	0.898	0.38512	12.41353	No
SLV 10	-37.75	-38.47	1.26	0.029	6.643	0.903	0.47197	12.41353	No
SLV 9	-37.75	-38.47	1.26	0.029	6.643	0.903	0.47197	12.41353	No
SLV 11	-76.44	-122.96	-1.46	0.032	10.512	0.93	0.49257	12.41353	No
SLV 12	-76.44	-122.96	-1.46	0.032	10.512	0.93	0.49257	12.41353	No
SLV 7	-70.28	-111.19	-1.25	0.033	9.891	0.927	0.52222	12.41353	No
SLV 8	-70.28	-111.19	-1.25	0.033	9.891	0.927	0.52222	12.41353	No
SLV 15	-70.08	-107.12	-0.75	0.039	9.871	0.927	0.61264	11.93169	No
SLV 16	-70.08	-107.12	-0.75	0.039	9.871	0.927	0.61264	11.93169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.705	SLU 61	Si
V_SLU	2.356	SLU 82	Si
PF_SLV	2.208	SLV 1	Si
V_SLV	1.229	SLV 15	Si
PFFP_SLV	1.894	SLV 5	Si
R_SLV	0.031	SLV 5	No





## Maschio 177

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	-3.359	-0.123	5.951	L5	L6	9.31	0.28	3.52	3.52	3.52			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 8	8.35	-468.24	8.9695	180	1699.0282	189.422	Si
SLU 8	11.87	-238.07	42.7799	91	983.9562	23	Si
SLU 71	8.35	-639.68	10.3897	245	2080.6927	200.264	Si
SLU 71	11.87	-321.67	54.2506	123	1270.5519	23.42	Si
SLU 16	8.35	-521.91	9.1155	200	1832.358	201.017	Si
SLU 16	11.87	-260.85	44.8254	100	1065.0819	23.761	Si
SLU 29	8.35	-528.48	6.3549	203	1847.8219	290.769	Si
SLU 29	11.87	-269.82	47.8971	104	1096.4107	22.891	Si
SLU 79	8.35	-693.35	10.5357	266	2173.6839	206.317	Si
SLU 79	11.87	-344.45	56.2961	132	1343.3275	23.862	Si
SLU 27	8.35	-537.74	5.4478	206	1869.2894	343.124	Si
SLU 27	11.87	-275.07	46.502	106	1114.5899	23.969	Si
SLU 37	8.35	-582.15	6.5009	223	1966.9776	302.572	Si
SLU 37	11.87	-292.6	49.9425	112	1174.3652	23.514	Si
SLU 50	8.35	-579.44	13.0043	222	1961.2684	150.816	Si
SLU 50	11.87	-289.92	49.1335	111	1165.316	23.717	Si
SLU 58	8.35	-633.11	13.1503	243	2068.4338	157.292	Si
SLU 58	11.87	-312.7	51.1789	120	1241.2629	24.253	Si
SLU 6	8.35	-477.5	8.0624	183	1722.9421	213.7	Si
SLU 6	11.87	-243.32	41.3849	93	1002.8668	24.233	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 6	8.35	-416.47	-416.435	160	1685.1835	4.047	Si
SLV 6	11.87	-212.42	-136.2758	81	922.8686	6.772	Si
SLV 11	8.35	-527.64	435.9467	202	2049.2899	4.701	Si
SLV 11	11.87	-237.01	194.4219	91	1021.1737	5.252	Si
SLV 2	8.35	-350.07	-184.8709	134	1450.4804	7.846	Si
SLV 2	11.87	-201.05	-50.2896	77	876.8226	17.435	Si
SLV 9	8.35	-485.9	-372.4111	186	1916.8313	5.147	Si
SLV 9	11.87	-225.59	-116.655	87	975.7402	8.364	Si
SLV 8	8.35	-458.21	391.9229	176	1826.1124	4.659	Si
SLV 8	11.87	-223.84	174.8012	86	968.7415	5.542	Si
SLV 10	8.35	-485.9	-372.4111	186	1916.8313	5.147	Si
SLV 10	11.87	-225.59	-116.655	87	975.7402	8.364	Si
SLV 5	8.35	-416.47	-416.435	160	1685.1835	4.047	Si
SLV 5	11.87	-212.42	-136.2758	81	922.8686	6.772	Si
SLV 1	8.35	-350.07	-184.8709	134	1450.4804	7.846	Si
SLV 1	11.87	-201.05	-50.2896	77	876.8226	17.435	Si
SLV 7	8.35	-458.21	391.9229	176	1826.1124	4.659	Si
SLV 7	11.87	-223.84	174.8012	86	968.7415	5.542	Si
SLV 12	8.35	-527.64	435.9467	202	2049.2899	4.701	Si
SLV 12	11.87	-237.01	194.4219	91	1021.1737	5.252	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 64	8.35	-610.95	8.73	11.8814		234	9.31	87	226.28			25.93	Si
SLU 64	11.87	-292.74	8.69	38.4973		112	9.31	71	183.85			21.16	Si
SLU 39	8.35	-576.42	8.67	8.0551		221	9.31	85	221.68			25.57	Si
SLU 39	11.87	-273.43	8.63	35.0658		105	9.31	70	181.28			21	Si
SLU 60	8.35	-627.38	9.14	14.7045		241	9.31	88	228.47			25	Si
SLU 60	11.87	-293.53	9.11	36.3022		113	9.31	71	183.96			20.2	Si
SLU 53	8.35	-628	8.63	12.989		241	9.31	88	228.56			26.49	Si
SLU 53	11.87	-303.49	8.58	41.9072		116	9.31	71	185.29			21.6	Si
SLU 77	8.35	-702.61	9.41	9.6286		270	9.31	91	238.5			25.35	Si
SLU 77	11.87	-349.71	9.33	54.901		134	9.31	73	191.45			20.52	Si
SLU 81	8.35	-687.62	10.17	12.0899		264	9.31	91	236.5			23.25	Si
SLU 81	11.87	-325.28	10.13	41.4194		125	9.31	72	188.19			18.57	Si
SLU 83	8.35	-701.98	9.92	11.344		269	9.31	91	238.42			24.03	Si
SLU 83	11.87	-339.75	9.86	49.296		130	9.31	73	190.12			19.28	Si
SLU 74	8.35	-688.24	9.66	10.3744		264	9.31	91	236.59			24.49	Si
SLU 74	11.87	-335.24	9.6	47.0244		129	9.31	73	189.52			19.74	Si
SLU 62	8.35	-641.74	8.89	13.9586		246	9.31	88	230.39			25.92	Si
SLU 62	11.87	-308	8.84	44.1789		118	9.31	71	185.89			21.04	Si
SLU 79	8.35	-693.35	9.24	10.5357		266	9.31	91	237.27			25.69	Si
SLU 79	11.87	-344.45	9.15	56.2961		132	9.31	73	190.75			20.84	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	8.35	-416.47	-130.28	-416.435		160	9.31	115	300.53			2.31	Si
SLV 6	11.87	-212.42	-77.18	-136.2758		81	9.31	100	259.72			3.36	Si
SLV 7	8.35	-458.21	147.5	391.9229		176	9.31	118	308.87			2.09	Si
SLV 7	11.87	-223.84	93.88	174.8012		86	9.31	101	262			2.79	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	8.35	-416.47	-130.28	-416.435		160	9.31	115	300.53			2.31	Si
SLV 5	11.87	-212.42	-77.18	-136.2758		81	9.31	100	259.72			3.36	Si
SLD 8	8.35	-466.27	67.8	172.1042		179	9.31	119	310.49			4.58	Si
SLD 8	11.87	-224.35	44.14	91.0037		86	9.31	101	262.1			5.94	Si
SLV 8	8.35	-458.21	147.5	391.9229		176	9.31	118	308.87			2.09	Si
SLV 8	11.87	-223.84	93.88	174.8012		86	9.31	101	262			2.79	Si
SLV 10	8.35	-485.9	-133.95	-372.4111		186	9.31	121	314.41			2.35	Si
SLV 10	11.87	-225.59	-80.38	-116.655		87	9.31	101	262.35			3.26	Si
SLV 12	8.35	-527.64	143.83	435.9467		202	9.31	124	322.76			2.24	Si
SLV 12	11.87	-237.01	90.68	194.4219		91	9.31	102	264.63			2.92	Si
SLV 11	8.35	-527.64	143.83	435.9467		202	9.31	124	322.76			2.24	Si
SLV 11	11.87	-237.01	90.68	194.4219		91	9.31	102	264.63			2.92	Si
SLV 9	8.35	-485.9	-133.95	-372.4111		186	9.31	121	314.41			2.35	Si
SLV 9	11.87	-225.59	-80.38	-116.655		87	9.31	101	262.35			3.26	Si
SLD 7	8.35	-466.27	67.8	172.1042		179	9.31	119	310.49			4.58	Si
SLD 7	11.87	-224.35	44.14	91.0037		86	9.31	101	262.1			5.94	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 10.11 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.46	107	-279.08	11.3103	35.6484	3.15	Si
SLV 1	1438	0.46	107	-279.08	11.3103	35.6484	3.15	Si
SLV 3	1438	0.46	110	-286.71	11.3103	36.5266	3.23	Si
SLV 4	1438	0.46	110	-286.71	11.3103	36.5266	3.23	Si
SLV 6	1438	0.46	119	-310.52	11.3103	39.235	3.47	Si
SLV 5	1438	0.46	119	-310.52	11.3103	39.235	3.47	Si
SLV 8	1438	0.46	129	-335.95	11.3103	42.0721	3.72	Si
SLV 7	1438	0.46	129	-335.95	11.3103	42.0721	3.72	Si
SLV 9	1438	0.46	132	-345.1	11.3103	43.0791	3.81	Si
SLV 10	1438	0.46	132	-345.1	11.3103	43.0791	3.81	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 10.11 Wa = 0.0005 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	-248.37	-594.04	-1.87	0.044	38.546	0.914	0.69998	11.93169	No
SLV 15	-248.37	-594.04	-1.87	0.044	38.546	0.914	0.69998	11.93169	No
SLV 14	-244.95	-581.52	-1.86	0.044	38.204	0.914	0.7018	11.93169	No
SLV 13	-244.95	-581.52	-1.86	0.044	38.204	0.914	0.7018	11.93169	No
SLV 4	-204.48	-362.59	1.97	0.044	34.178	0.907	0.71059	11.93169	No
SLV 3	-204.48	-362.59	1.97	0.044	34.178	0.907	0.71059	11.93169	No
SLV 1	-201.05	-350.07	1.98	0.044	33.839	0.906	0.71115	11.93169	No
SLV 2	-201.05	-350.07	1.98	0.044	33.839	0.906	0.71115	11.93169	No
SLV 11	-237.01	-527.64	-0.54	0.048	37.412	0.913	0.76999	12.41353	No
SLV 12	-237.01	-527.64	-0.54	0.048	37.412	0.913	0.76999	12.41353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	22.891	SLU 29	Si
V_SLU	18.575	SLU 81	Si
PF_SLV	4.047	SLV 5	Si
V_SLV	2.094	SLV 7	Si
PFFP_SLV	3.152	SLV 1	Si
R_SLV	0.059	SLV 15	No

## Maschio 178

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.678	-3.359	-24.678	1.266	L6	L7	4.626	0.28	3.16	3.16	3.16			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	11.87	-108.36	-95.6856	84	224.882	2.35	Si
SLU 37	13.97	-45.44	-66.7517	35	100.5605	1.506	Si
SLU 39	11.87	-96.11	-77.332	74	202.0312	2.613	Si
SLU 39	13.97	-34.82	-50.1639	27	77.876	1.552	Si
SLU 38	11.87	-110.94	-97.6147	86	229.614	2.352	Si
SLU 38	13.97	-47.54	-66.8372	37	105.0006	1.571	Si
SLU 32	11.87	-102.13	-85.0474	79	213.3533	2.509	Si
SLU 32	13.97	-39.9	-57.4221	31	88.8025	1.546	Si
SLU 40	11.87	-98.69	-79.2611	76	206.902	2.61	Si
SLU 40	13.97	-36.93	-50.2495	29	82.4141	1.64	Si
SLU 42	11.87	-105.17	-91.5945	81	218.9903	2.391	Si
SLU 42	13.97	-42.12	-60.4191	33	93.5328	1.548	Si
SLU 41	11.87	-102.58	-89.6653	79	214.1928	2.389	Si
SLU 41	13.97	-40.02	-60.3335	31	89.0427	1.476	Si
SLU 36	11.87	-111.2	-99.3099	86	230.073	2.317	Si
SLU 36	13.97	-47.21	-67.6773	36	104.2966	1.541	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 33	11.87	-104.72	-86.9765	81	218.1559	2.508	Si
SLU 33	13.97	-42.01	-57.5076	32	93.2937	1.622	Si
SLU 35	11.87	-108.61	-97.3807	84	225.3438	2.314	Si
SLU 35	13.97	-45.1	-67.5917	35	99.8534	1.477	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 3	11.87	-87.1	-52.2545	67	190.3516	3.643	Si
SLD 3	13.97	-27.97	-42.7956	22	63.5384	1.485	Si
SLD 7	11.87	-82.16	-23.8723	63	180.1599	7.547	Si
SLD 7	13.97	-24.52	-34.277	19	55.8218	1.629	Si
SLV 7	11.87	-71.32	7.6201	55	157.5241	20.672	Si
SLV 7	13.97	-12.12	-37.3525	0	0	0	No, $e \geq l/2$
SLD 8	11.87	-82.16	-23.8723	63	180.1599	7.547	Si
SLD 8	13.97	-24.52	-34.277	19	55.8218	1.629	Si
SLV 3	11.87	-82.81	-58.9644	64	181.497	3.078	Si
SLV 3	13.97	-20.06	-57.9108	0	0	0	No, $e \geq l/2$
SLD 4	11.87	-87.1	-52.2545	67	190.3516	3.643	Si
SLD 4	13.97	-27.97	-42.7956	22	63.5384	1.485	Si
SLV 4	11.87	-82.81	-58.9644	64	181.497	3.078	Si
SLV 4	13.97	-20.06	-57.9108	0	0	0	No, $e \geq l/2$
SLV 1	11.87	-93.8	-97.5553	72	204.09	2.092	Si
SLV 1	13.97	-31.62	-59.2785	24	71.6812	1.209	Si
SLV 8	11.87	-71.32	7.6201	55	157.5241	20.672	Si
SLV 8	13.97	-12.12	-37.3525	0	0	0	No, $e \geq l/2$
SLV 2	11.87	-93.8	-97.5553	72	204.09	2.092	Si
SLV 2	13.97	-31.62	-59.2785	24	71.6812	1.209	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	11.87	-108.61	1.81	-97.3807		91	4.2488	68	80.57			44.55	Si
SLU 35	13.97	-45.1	2.38	-67.5917		66	2.4426	64	44.01			18.45	Si
SLU 69	11.87	-131.5	2.8	-87.8009		102	4.6257	69	89.49			32	Si
SLU 69	13.97	-54.82	3.38	-62.3464		56	3.5267	63	62.17			18.41	Si
SLU 78	11.87	-135.72	1.43	-104.4607		105	4.6257	70	90.05			63.13	Si
SLU 78	13.97	-56.41	3.02	-71.1855		64	3.1526	64	56.56			18.75	Si
SLU 27	11.87	-106.98	2.28	-82.6501		83	4.6207	67	86.14			37.75	Si
SLU 27	13.97	-45.62	2.86	-58.8382		53	3.0693	63	53.83			18.84	Si
SLU 77	11.87	-133.13	2.32	-102.5315		103	4.6257	69	89.71			38.62	Si
SLU 77	13.97	-54.3	2.9	-71.1		64	3.0106	64	54.07			18.62	Si
SLU 71	11.87	-131.24	2.55	-86.1058		101	4.6257	69	89.45			35.13	Si
SLU 71	13.97	-55.16	3.16	-61.5064		55	3.5931	63	63.25			20.01	Si
SLU 70	11.87	-134.08	1.9	-89.73		104	4.6257	69	89.83			47.28	Si
SLU 70	13.97	-56.93	3.49	-62.432		56	3.6484	63	64.34			18.44	Si
SLU 72	11.87	-133.83	1.65	-88.0349		103	4.6257	69	89.8			54.42	Si
SLU 72	13.97	-57.26	3.27	-61.5919		55	3.7116	63	65.37			19.97	Si
SLU 28	11.87	-109.56	1.39	-84.5792		85	4.6225	67	86.51			62.43	Si
SLU 28	13.97	-47.72	2.97	-58.9237		53	3.2346	63	56.68			19.09	Si
SLU 36	11.87	-111.2	0.91	-99.3099		93	4.2592	68	81.08			88.88	Si
SLU 36	13.97	-47.21	2.5	-67.6773		64	2.6376	64	47.32			18.96	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	11.87	-109.13	-40.44	-102.5348		95	4.1198	102	117.95			2.92	Si
SLV 10	13.97	-55.45	-25.2	-25.6575		43	4.6257	92	119.02			4.72	Si
SLV 4	11.87	-82.81	15.72	-58.9644		64	4.6257	96	124.49			7.92	Si
SLV 4	13.97	-20.06	9.93	-57.9108		0	0	83	0			0	No, $V_u < V$
SLV 3	11.87	-82.81	15.72	-58.9644		64	4.6257	96	124.49			7.92	Si
SLV 3	13.97	-20.06	9.93	-57.9108		0	0	83	0			0	No, $V_u < V$
SLV 5	11.87	-107.97	-39.26	-121.0163		108	3.5762	105	105.04			2.68	Si
SLV 5	13.97	-50.68	-24.94	-41.9113		41	4.4577	91	114.15			4.58	Si
SLV 8	11.87	-71.32	43.2	7.6201		55	4.6257	94	122.2			2.83	Si
SLV 8	13.97	-12.12	28.25	-37.3525		0	0	83	0			0	No, $V_u < V$
SLV 9	11.87	-109.13	-40.44	-102.5348		95	4.1198	102	117.95			2.92	Si
SLV 9	13.97	-55.45	-25.2	-25.6575		43	4.6257	92	119.02			4.72	Si
SLV 6	11.87	-107.97	-39.26	-121.0163		108	3.5762	105	105.04			2.68	Si
SLV 6	13.97	-50.68	-24.94	-41.9113		41	4.4577	91	114.15			4.58	Si
SLV 11	11.87	-72.48	42.01	26.1016		56	4.6257	95	122.43			2.91	Si
SLV 11	13.97	-16.88	27.99	-21.0987		19	3.1898	87	77.8			2.78	Si
SLV 7	11.87	-71.32	43.2	7.6201		55	4.6257	94	122.2			2.83	Si
SLV 7	13.97	-12.12	28.25	-37.3525		0	0	83	0			0	No, $V_u < V$
SLV 12	11.87	-72.48	42.01	26.1016		56	4.6257	95	122.43			2.91	Si
SLV 12	13.97	-16.88	27.99	-21.0987		19	3.1898	87	77.8			2.78	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.53	0	-26.02	5.2235	0	0	No, $e > t/2$
SLV 12	1438	0.53	0	-26.02	5.2235	0	0	No, $e > t/2$
SLV 3	1438	0.53	0	-31.34	5.2235	0	0	No, $e > t/2$
SLV 4	1438	0.53	0	-31.34	5.2235	0	0	No, $e > t/2$
SLV 7	1438	0.53	0	-22	5.2235	0	0	No, $e > t/2$
SLV 8	1438	0.53	0	-22	5.2235	0	0	No, $e > t/2$
SLV 2	1438	0.53	33	-43.36	5.2235	5.9046	1.13	Si
SLV 1	1438	0.53	33	-43.36	5.2235	5.9046	1.13	Si
SLV 15	1438	0.53	35	-44.74	5.2235	6.0859	1.17	Si
SLV 16	1438	0.53	35	-44.74	5.2235	6.0859	1.17	Si



## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 13.45  $W_a = 0.0005$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	3.95	-71.32	-2.56	0	0	0	0	10.9083	No, Trazione
SLV 2	-5.44	-93.8	-5.66	0	7.636	0.947	0	10.55091	No
SLV 12	2.98	-72.48	1.57	0	0	0	0	10.9083	No, Trazione
SLV 4	-0.58	-82.81	-6.46	0	7.512	0.992	0	10.55091	No
SLV 9	-13.22	-109.13	4.22	0	8.073	0.911	0	10.9083	No
SLV 10	-13.22	-109.13	4.22	0	8.073	0.911	0	10.9083	No
SLV 11	2.98	-72.48	1.57	0	0	0	0	10.9083	No, Trazione
SLV 3	-0.58	-82.81	-6.46	0	7.512	0.992	0	10.55091	No
SLV 1	-5.44	-93.8	-5.66	0	7.636	0.947	0	10.55091	No
SLV 8	3.95	-71.32	-2.56	0	0	0	0	10.9083	No, Trazione

### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.476	SLU 41	Si
V_SLU	18.407	SLU 69	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 3	No
R_SLV	0	SLV 12	No

## Maschio 179

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-24.678	2.066	-24.678	5.951	L6	L7	3.885	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 41	11.87	-115.51	51.7959	106	195.1254	3.767	Si
SLU 41	13.97	-55.01	14.287	51	100.221	7.015	Si
SLU 29	11.87	-118.12	50.8034	109	198.8557	3.914	Si
SLU 29	13.97	-57.91	21.6375	53	105.1372	4.859	Si
SLU 27	11.87	-118.34	51.479	109	199.1727	3.869	Si
SLU 27	13.97	-57.74	21.2199	53	104.8496	4.941	Si
SLU 36	11.87	-123.14	54.9312	113	205.9543	3.749	Si
SLU 36	13.97	-59.52	21.4974	55	107.8484	5.017	Si
SLU 77	11.87	-146.36	62.2202	135	237.3406	3.815	Si
SLU 77	13.97	-69.94	21.5895	64	125.143	5.796	Si
SLU 35	11.87	-123.74	57.8052	114	206.8057	3.578	Si
SLU 35	13.97	-60.57	20.7043	56	109.6116	5.294	Si
SLU 37	11.87	-123.52	57.1296	114	206.4939	3.614	Si
SLU 37	13.97	-60.74	21.1219	56	109.8971	5.203	Si
SLU 79	11.87	-146.13	61.5446	134	237.0509	3.852	Si
SLU 79	13.97	-70.12	22.0071	64	125.4215	5.699	Si
SLU 38	11.87	-122.91	54.2556	113	205.642	3.79	Si
SLU 38	13.97	-59.69	21.915	55	108.1348	4.934	Si
SLU 32	11.87	-113.41	49.7603	104	192.108	3.861	Si
SLU 32	13.97	-53.63	14.0903	49	97.8641	6.945	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 7	11.87	-117.04	73.5403	108	207.3301	2.819	Si
SLV 7	13.97	-59.6	1.5227	55	110.5807	72.62	Si
SLV 4	11.87	-114.7	58.5634	105	203.5849	3.476	Si
SLV 4	13.97	-51.38	3.038	47	95.9544	31.585	Si
SLV 3	11.87	-114.7	58.5634	105	203.5849	3.476	Si
SLV 3	13.97	-51.38	3.038	47	95.9544	31.585	Si
SLV 8	11.87	-117.04	73.5403	108	207.3301	2.819	Si
SLV 8	13.97	-59.6	1.5227	55	110.5807	72.62	Si
SLV 12	11.87	-106.86	63.2529	98	190.8793	3.018	Si
SLV 12	13.97	-56.24	2.7944	52	104.6176	37.438	Si
SLV 11	11.87	-106.86	63.2529	98	190.8793	3.018	Si
SLV 11	13.97	-56.24	2.7944	52	104.6176	37.438	Si
SLD 7	11.87	-102.43	48.5247	94	183.6436	3.785	Si
SLD 7	13.97	-48.75	4.0763	45	91.2192	22.378	Si
SLD 8	11.87	-102.43	48.5247	94	183.6436	3.785	Si
SLD 8	13.97	-48.75	4.0763	45	91.2192	22.378	Si
SLV 10	11.87	-66.24	-13.8295	61	122.2503	8.84	Si
SLV 10	13.97	-21.55	11.3627	20	41.1893	3.625	Si
SLV 9	11.87	-66.24	-13.8295	61	122.2503	8.84	Si
SLV 9	13.97	-21.55	11.3627	20	41.1893	3.625	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	11.87	-130.04	-5.42	43.6882		120	3.885	71	77.77			14.36	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	13.97	-60.11	-6.6	20.3508		55	3.885	63	68.45			10.37	Si
SLU 9	11.87	-107.2	-5.87	38.5976		99	3.885	69	74.73			12.72	Si
SLU 9	13.97	-50.9	-7.13	19.8832		47	3.885	62	67.22			9.43	Si
SLU 30	11.87	-117.51	-6.02	47.9294		108	3.885	70	76.1			12.64	Si
SLU 30	13.97	-56.86	-7.48	22.4306		52	3.885	63	68.01			9.09	Si
SLU 72	11.87	-140.12	-5.7	52.3444		129	3.885	73	79.12			13.89	Si
SLU 72	13.97	-66.24	-7.17	23.3158		61	3.885	64	69.26			9.66	Si
SLU 38	11.87	-122.91	-5.15	54.2556		113	3.885	71	76.82			14.93	Si
SLU 38	13.97	-59.69	-6.61	21.915		55	3.885	63	68.39			10.35	Si
SLU 51	11.87	-129.82	-5.55	43.0126		119	3.885	71	77.74			14.01	Si
SLU 51	13.97	-60.28	-6.82	20.7684		55	3.885	63	68.47			10.04	Si
SLU 7	11.87	-107.43	-5.74	39.2732		99	3.885	69	74.76			13.03	Si
SLU 7	13.97	-50.73	-6.91	19.4656		47	3.885	62	67.2			9.72	Si
SLU 70	11.87	-140.34	-5.56	53.02		129	3.885	73	79.15			14.23	Si
SLU 70	13.97	-66.07	-6.96	22.8982		61	3.885	64	69.24			9.95	Si
SLU 36	11.87	-123.14	-5.01	54.9312		113	3.885	71	76.85			15.33	Si
SLU 36	13.97	-59.52	-6.39	21.4974		55	3.885	63	68.37			10.7	Si
SLU 28	11.87	-117.73	-5.89	48.6051		108	3.885	70	76.13			12.93	Si
SLU 28	13.97	-56.69	-7.27	22.013		52	3.885	63	67.99			9.36	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	11.87	-106.86	30.95	63.2529		98	3.885	103	112.02			3.62	Si
SLV 11	13.97	-56.24	18	2.7944		52	3.885	94	101.9			5.66	Si
SLV 12	11.87	-106.86	30.95	63.2529		98	3.885	103	112.02			3.62	Si
SLV 12	13.97	-56.24	18	2.7944		52	3.885	94	101.9			5.66	Si
SLV 10	11.87	-66.24	-29.07	-13.8295		61	3.885	96	103.9			3.57	Si
SLV 10	13.97	-21.55	-16.84	11.3627		20	3.885	87	94.96			5.64	Si
SLV 5	11.87	-76.42	-28.71	-3.5421		70	3.885	97	105.93			3.69	Si
SLV 5	13.97	-24.92	-16.43	10.0911		23	3.885	88	95.63			5.82	Si
SLD 7	11.87	-102.43	14.27	48.5247		94	3.885	102	111.14			7.79	Si
SLD 7	13.97	-48.75	8.32	4.0763		45	3.885	92	100.4			12.07	Si
SLV 6	11.87	-76.42	-28.71	-3.5421		70	3.885	97	105.93			3.69	Si
SLV 6	13.97	-24.92	-16.43	10.0911		23	3.885	88	95.63			5.82	Si
SLV 8	11.87	-117.04	31.31	73.5403		108	3.885	105	114.06			3.64	Si
SLV 8	13.97	-59.6	18.4	1.5227		55	3.885	94	102.57			5.57	Si
SLD 8	11.87	-102.43	14.27	48.5247		94	3.885	102	111.14			7.79	Si
SLD 8	13.97	-48.75	8.32	4.0763		45	3.885	92	100.4			12.07	Si
SLV 9	11.87	-66.24	-29.07	-13.8295		61	3.885	96	103.9			3.57	Si
SLV 9	13.97	-21.55	-16.84	11.3627		20	3.885	87	94.96			5.64	Si
SLV 7	11.87	-117.04	31.31	73.5403		108	3.885	105	114.06			3.64	Si
SLV 7	13.97	-59.6	18.4	1.5227		55	3.885	94	102.57			5.57	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.53	0	-31.05	4.3871	0	0	No, $e > t/2$
SLV 10	1438	0.53	0	-31.05	4.3871	0	0	No, $e > t/2$
SLV 6	1438	0.53	32	-35.31	4.3871	4.8115	1.1	Si
SLV 5	1438	0.53	32	-35.31	4.3871	4.8115	1.1	Si
SLV 14	1438	0.53	36	-38.77	4.3871	5.2698	1.2	Si
SLV 13	1438	0.53	36	-38.77	4.3871	5.2698	1.2	Si
SLV 16	1438	0.53	46	-49.65	4.3871	6.6916	1.53	Si
SLV 15	1438	0.53	46	-49.65	4.3871	6.6916	1.53	Si
SLV 1	1438	0.53	49	-52.97	4.3871	7.1198	1.62	Si
SLV 2	1438	0.53	49	-52.97	4.3871	7.1198	1.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 13	-2.61	-68.57	4.06	0	6.346	0.965	0	10.55091	No
SLV 11	-11.69	-106.86	5.09	0	6.82	0.909	0	10.9083	No
SLV 10	3.27	-66.24	-0.28	0	0	0	0	10.9083	No, Trazione
SLV 9	3.27	-66.24	-0.28	0	0	0	0	10.9083	No, Trazione
SLV 6	3.82	-76.42	-2.39	0	0	0	0	10.9083	No, Trazione
SLV 5	3.82	-76.42	-2.39	0	0	0	0	10.9083	No, Trazione
SLV 2	-0.78	-102.52	-2.97	0	6.311	0.988	0	10.55091	No
SLV 12	-11.69	-106.86	5.09	0	6.82	0.909	0	10.9083	No
SLV 1	-0.78	-102.52	-2.97	0	6.311	0.988	0	10.55091	No
SLV 14	-2.61	-68.57	4.06	0	6.346	0.965	0	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.578	SLU 35	Si
V_SLU	9.09	SLU 30	Si
PF_SLV	2.819	SLV 7	Si
V_SLV	3.574	SLV 9	Si
PFFP_SLV	0	SLV 9	No
R_SLV	0	SLV 10	No

## Maschio 180

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.713	5.951	-24.678	5.951	L6	L7	1.965	0.28	3.16	3.16	3.16			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 37	12.77	-37.29	29.3945	68	33.5897	1.143	Si
SLU 37	14.57	-30.05	-8.4433	55	27.5442	3.262	Si
SLU 34	12.77	-33.22	23.9236	60	30.216	1.263	Si
SLU 34	14.57	-25.27	-5.7679	46	23.4316	4.062	Si
SLU 29	12.77	-38.33	26.892	70	34.4392	1.281	Si
SLU 29	14.57	-29.37	-8.9323	53	26.9684	3.019	Si
SLU 38	12.77	-36.8	29.046	67	33.1898	1.143	Si
SLU 38	14.57	-29.84	-8.7132	54	27.3701	3.141	Si
SLU 42	12.77	-33.1	25.2285	60	30.1151	1.194	Si
SLU 42	14.57	-25.7	-5.3785	47	23.8025	4.426	Si
SLU 16	12.77	-35.65	25.1539	65	32.2439	1.282	Si
SLU 16	14.57	-26.63	-7.3751	48	24.6056	3.336	Si
SLU 79	12.77	-45.78	31.802	83	40.3853	1.27	Si
SLU 79	14.57	-34	-8.5612	62	30.8708	3.606	Si
SLU 30	12.77	-37.84	26.5435	69	34.0415	1.282	Si
SLU 30	14.57	-29.17	-9.2022	53	26.7936	2.912	Si
SLU 41	12.77	-33.58	25.577	61	30.523	1.193	Si
SLU 41	14.57	-25.9	-5.1086	47	23.9804	4.694	Si
SLU 80	12.77	-45.29	31.4535	82	40.0035	1.272	Si
SLU 80	14.57	-33.8	-8.8311	61	30.7002	3.476	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 11	12.77	-34.65	26.8834	63	32.2862	1.201	Si
SLV 11	14.57	-23.98	4.5495	44	22.7236	4.995	Si
SLV 2	12.77	-26.36	24.1364	48	24.8847	1.031	Si
SLV 2	14.57	-17.96	-8.067	33	17.1715	2.129	Si
SLV 3	12.77	-28.41	33.9519	0	0	0	No, e>l/2
SLV 3	14.57	-21.68	-5.1379	39	20.6115	4.012	Si
SLV 8	12.77	-32.87	35.431	0	0	0	No, e>l/2
SLV 8	14.57	-24.92	1.6557	45	23.579	14.241	Si
SLV 4	12.77	-28.41	33.9519	0	0	0	No, e>l/2
SLV 4	14.57	-21.68	-5.1379	39	20.6115	4.012	Si
SLV 1	12.77	-26.36	24.1364	48	24.8847	1.031	Si
SLV 1	14.57	-17.96	-8.067	33	17.1715	2.129	Si
SLD 4	12.77	-29.53	22.9251	54	27.7372	1.21	Si
SLD 4	14.57	-19.73	-3.1768	36	18.8201	5.924	Si
SLV 7	12.77	-32.87	35.431	0	0	0	No, e>l/2
SLV 7	14.57	-24.92	1.6557	45	23.579	14.241	Si
SLD 3	12.77	-29.53	22.9251	54	27.7372	1.21	Si
SLD 3	14.57	-19.73	-3.1768	36	18.8201	5.924	Si
SLV 12	12.77	-34.65	26.8834	63	32.2862	1.201	Si
SLV 12	14.57	-23.98	4.5495	44	22.7236	4.995	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	12.77	-45.29	30.22	31.4535		187	0.8642	81	19.48			0.64	No, Vu<V
SLU 80	14.57	-33.8	28.03	-8.8311		61	1.965	64	35.07			1.25	Si
SLU 35	12.77	-40.51	28.03	28.218		169	0.8579	78	18.75			0.67	No, Vu<V
SLU 35	14.57	-33.87	25.99	-8.8413		62	1.965	64	35.08			1.35	Si
SLU 29	12.77	-38.33	26.13	26.892		162	0.8428	77	18.22			0.7	No, Vu<V
SLU 29	14.57	-29.37	23.96	-8.9323		53	1.965	63	34.48			1.44	Si
SLU 37	12.77	-37.29	28.18	29.3945		229	0.5827	86	14.04			0.5	No, Vu<V
SLU 37	14.57	-30.05	26.02	-8.4433		55	1.965	63	34.57			1.33	Si
SLU 30	12.77	-37.84	26.24	26.5435		160	0.8433	77	18.16			0.69	No, Vu<V
SLU 30	14.57	-29.17	24.07	-9.2022		53	1.965	63	34.46			1.43	Si
SLU 41	12.77	-33.58	23.69	25.577		181	0.6627	80	14.79			0.62	No, Vu<V
SLU 41	14.57	-25.9	22.25	-5.1086		47	1.965	62	34.02			1.53	Si
SLU 36	12.77	-40.02	28.15	27.8695		166	0.8585	78	18.69			0.66	No, Vu<V
SLU 36	14.57	-33.67	26.1	-9.1112		61	1.965	64	35.06			1.34	Si
SLU 79	12.77	-45.78	30.11	31.802		189	0.8635	81	19.54			0.65	No, Vu<V
SLU 79	14.57	-34	27.92	-8.5612		62	1.965	64	35.1			1.26	Si
SLU 38	12.77	-36.8	28.3	29.046		227	0.5798	86	13.93			0.49	No, Vu<V
SLU 38	14.57	-29.84	26.13	-8.7132		54	1.965	63	34.55			1.32	Si
SLU 42	12.77	-33.1	23.8	25.2285		179	0.6606	79	14.69			0.62	No, Vu<V
SLU 42	14.57	-25.7	22.36	-5.3785		47	1.965	62	33.99			1.52	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	12.77	-26.36	26.46	24.1364		469	0.2007	163	9.13			0.35	No, Vu<V
SLV 1	14.57	-17.96	21.89	-8.067		40	1.5998	91	40.92			1.87	Si
SLV 8	12.77	-32.87	26.05	35.431		0	0	83	0			0	No, Vu<V
SLV 8	14.57	-24.92	17.86	1.6557		45	1.965	92	50.83			2.85	Si
SLV 7	12.77	-32.87	26.05	35.431		0	0	83	0			0	No, Vu<V
SLV 7	14.57	-24.92	17.86	1.6557		45	1.965	92	50.83			2.85	Si
SLD 8	12.77	-31.43	18.47	23.5092		160	0.7038	115	22.71			1.23	Si
SLD 8	14.57	-21.07	14.74	-0.326		38	1.965	91	50.06			3.4	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	12.77	-28.41	31.43	33.9519		0	0	83	0			0	No, Vu<V
SLV 4	14.57	-21.68	23.29	-5.1379		39	1.965	91	50.19			2.15	Si
SLD 3	12.77	-29.53	20.81	22.9251		171	0.6184	117	20.33			0.98	No, Vu<V
SLD 3	14.57	-19.73	16.99	-3.1768		36	1.965	91	49.8			2.93	Si
SLV 3	12.77	-28.41	31.43	33.9519		0	0	83	0			0	No, Vu<V
SLV 3	14.57	-21.68	23.29	-5.1379		39	1.965	91	50.19			2.15	Si
SLD 4	12.77	-29.53	20.81	22.9251		171	0.6184	117	20.33			0.98	No, Vu<V
SLD 4	14.57	-19.73	16.99	-3.1768		36	1.965	91	49.8			2.93	Si
SLV 2	12.77	-26.36	26.46	24.1364		469	0.2007	163	9.13			0.35	No, Vu<V
SLV 2	14.57	-17.96	21.89	-8.067		40	1.5998	91	40.92			1.87	Si
SLD 7	12.77	-31.43	18.47	23.5092		160	0.7038	115	22.71			1.23	Si
SLD 7	14.57	-21.07	14.74	-0.326		38	1.965	91	50.06			3.4	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.53	41	-22.74	2.2189	3.0759	1.39	Si
SLV 9	1438	0.53	41	-22.74	2.2189	3.0759	1.39	Si
SLV 5	1438	0.53	42	-22.86	2.2189	3.0913	1.39	Si
SLV 6	1438	0.53	42	-22.86	2.2189	3.0913	1.39	Si
SLV 14	1438	0.53	48	-26.42	2.2189	3.5539	1.6	Si
SLV 13	1438	0.53	48	-26.42	2.2189	3.5539	1.6	Si
SLV 2	1438	0.53	49	-26.82	2.2189	3.6046	1.62	Si
SLV 1	1438	0.53	49	-26.82	2.2189	3.6046	1.62	Si
SLV 16	1438	0.53	54	-29.7	2.2189	3.9741	1.79	Si
SLV 15	1438	0.53	54	-29.7	2.2189	3.9741	1.79	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-18.48	-29.81	-1.68	0.016	4.514	0.89	0.25371	10.9083	No
SLV 5	-18.48	-29.81	-1.68	0.016	4.514	0.89	0.25371	10.9083	No
SLV 9	-15.4	-22.45	-1.56	0.016	4.231	0.889	0.26908	10.9083	No
SLV 10	-15.4	-22.45	-1.56	0.016	4.231	0.889	0.26908	10.9083	No
SLV 1	-21.74	-49.43	-1.36	0.026	4.82	0.892	0.43046	10.55091	No
SLV 2	-21.74	-49.43	-1.36	0.026	4.82	0.892	0.43046	10.55091	No
SLV 13	-11.47	-24.91	-0.97	0.034	3.885	0.891	0.55555	10.55091	No
SLV 14	-11.47	-24.91	-0.97	0.034	3.885	0.891	0.55555	10.55091	No
SLV 3	-21.45	-58.89	-0.98	0.037	4.792	0.891	0.59782	10.55091	No
SLV 4	-21.45	-58.89	-0.98	0.037	4.792	0.891	0.59782	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.143	SLU 38	Si
V_SLU	0.492	SLU 38	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	1.386	SLV 9	Si
R_SLV	0.023	SLV 5	No

## Maschio 181

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota s.	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.758	5.951	-21.813	5.951	L6	L7	2.055	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	12.77	-16.74	11.4818	29	16.5825	1.444	Si
SLU 1	14.57	3.27	9.9343	0	0	0	No, Trazione
SLU 53	12.77	-12.6	21.2423	0	0	0	No, e>l/2
SLU 53	14.57	13.32	24.2846	0	0	0	No, Trazione
SLU 60	12.77	-23.49	14.5963	41	22.9271	1.571	Si
SLU 60	14.57	2.42	10.4198	0	0	0	No, Trazione
SLU 57	12.77	6.19	29.0318	0	0	0	No, Trazione
SLU 57	14.57	32.1	39.6199	0	0	0	No, Trazione
SLU 59	12.77	13.79	29.8287	0	0	0	No, Trazione
SLU 59	14.57	39.71	40.862	0	0	0	No, Trazione
SLU 54	12.77	-12.51	21.2616	0	0	0	No, e>l/2
SLU 54	14.57	13.4	24.6241	0	0	0	No, Trazione
SLU 58	12.77	13.7	29.8093	0	0	0	No, Trazione
SLU 58	14.57	39.62	40.5225	0	0	0	No, Trazione
SLU 56	12.77	6.1	29.0124	0	0	0	No, Trazione
SLU 56	14.57	32.02	39.2804	0	0	0	No, Trazione
SLU 55	12.77	-4.85	22.0714	0	0	0	No, e>l/2
SLU 55	14.57	21.07	26.0926	0	0	0	No, Trazione
SLU 61	12.77	-23.4	14.6156	41	22.8458	1.563	Si
SLU 61	14.57	2.51	10.7593	0	0	0	No, Trazione



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	12.77	-14.22	16.881	0	0	0	No, $e \geq l/2$
SLD 1	14.57	5.34	9.0373	0	0	0	No, Trazione
SLV 13	12.77	-11.52	-4.4104	20	11.6406	2.639	Si
SLV 13	14.57	13.4	30.4421	0	0	0	No, Trazione
SLV 7	12.77	-21.64	30.1213	0	0	0	No, $e \geq l/2$
SLV 7	14.57	-8.71	-13.7949	0	0	0	No, $e \geq l/2$
SLV 10	12.77	-7.53	-4.3529	13	7.6505	1.758	Si
SLV 10	14.57	19.71	37.0555	0	0	0	No, Trazione
SLV 8	12.77	-21.64	30.1213	0	0	0	No, $e \geq l/2$
SLV 8	14.57	-8.71	-13.7949	0	0	0	No, $e \geq l/2$
SLV 9	12.77	-7.53	-4.3529	13	7.6505	1.758	Si
SLV 9	14.57	19.71	37.0555	0	0	0	No, Trazione
SLV 11	12.77	-21.01	22.1278	0	0	0	No, $e \geq l/2$
SLV 11	14.57	-6.31	-6.4207	11	6.428	1.001	Si
SLV 12	12.77	-21.01	22.1278	0	0	0	No, $e \geq l/2$
SLV 12	14.57	-6.31	-6.4207	11	6.428	1.001	Si
SLV 6	12.77	-8.15	3.6407	14	8.278	2.274	Si
SLV 6	14.57	17.32	29.6812	0	0	0	No, Trazione
SLV 14	12.77	-11.52	-4.4104	20	11.6406	2.639	Si
SLV 14	14.57	13.4	30.4421	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	12.77	13.7	-5.52	29.8093		0	0	56	0			0	No, $V_u < V$
SLU 58	14.57	39.62	-5.52	40.5225		0	0	56	0			0	No, $V_u < V$
SLU 54	12.77	-12.51	-1.44	21.2616		0	0	56	0			0	No, $V_u < V$
SLU 54	14.57	13.4	-1.44	24.6241		0	0	56	0			0	No, $V_u < V$
SLU 1	12.77	-16.74	1.19	11.4818		58	1.0244	63	18.17			15.25	Si
SLU 1	14.57	3.27	1.19	9.9343		0	0	56	0			0	No, $V_u < V$
SLU 59	12.77	13.79	-5.7	29.8287		0	0	56	0			0	No, $V_u < V$
SLU 59	14.57	39.71	-5.7	40.862		0	0	56	0			0	No, $V_u < V$
SLU 61	12.77	-23.4	2.57	14.6156		69	1.2089	65	21.93			8.52	Si
SLU 61	14.57	2.51	2.57	10.7593		0	0	56	0			0	No, $V_u < V$
SLU 60	12.77	-23.49	2.75	14.5963		69	1.2184	65	22.09			8.03	Si
SLU 60	14.57	2.42	2.75	10.4198		0	0	56	0			0	No, $V_u < V$
SLU 53	12.77	-12.6	-1.26	21.2423		0	0	56	0			0	No, $V_u < V$
SLU 53	14.57	13.32	-1.26	24.2846		0	0	56	0			0	No, $V_u < V$
SLU 56	12.77	6.1	-5.27	29.0124		0	0	56	0			0	No, $V_u < V$
SLU 56	14.57	32.02	-5.27	39.2804		0	0	56	0			0	No, $V_u < V$
SLU 55	12.77	-4.85	-1.8	22.0714		0	0	56	0			0	No, $V_u < V$
SLU 55	14.57	21.07	-1.8	26.0926		0	0	56	0			0	No, $V_u < V$
SLU 57	12.77	6.19	-5.45	29.0318		0	0	56	0			0	No, $V_u < V$
SLU 57	14.57	32.1	-5.45	39.6199		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	12.77	-21.01	13.35	22.1278		0	0	83	0			0	No, $V_u < V$
SLV 12	14.57	-6.31	18.2	-6.4207		724	0.0312	163	1.42			0.08	No, $V_u < V$
SLV 7	12.77	-21.64	22.53	30.1213		0	0	83	0			0	No, $V_u < V$
SLV 7	14.57	-8.71	25.95	-13.7949		0	0	83	0			0	No, $V_u < V$
SLV 6	12.77	-8.15	-11.3	3.6407		17	1.7425	87	42.29			3.74	Si
SLV 6	14.57	17.32	-16.15	29.6812		0	0	83	0			0	No, $V_u < V$
SLV 14	12.77	-11.52	-19.34	-4.4104		21	1.9337	88	47.42			2.45	Si
SLV 14	14.57	13.4	-18.19	30.4421		0	0	83	0			0	No, $V_u < V$
SLV 11	12.77	-21.01	13.35	22.1278		0	0	83	0			0	No, $V_u < V$
SLV 11	14.57	-6.31	18.2	-6.4207		724	0.0312	163	1.42			0.08	No, $V_u < V$
SLV 9	12.77	-7.53	-20.48	-4.3529		20	1.3474	87	32.95			1.61	Si
SLV 9	14.57	19.71	-23.89	37.0555		0	0	83	0			0	No, $V_u < V$
SLV 10	12.77	-7.53	-20.48	-4.3529		20	1.3474	87	32.95			1.61	Si
SLV 10	14.57	19.71	-23.89	37.0555		0	0	83	0			0	No, $V_u < V$
SLV 13	12.77	-11.52	-19.34	-4.4104		21	1.9337	88	47.42			2.45	Si
SLV 13	14.57	13.4	-18.19	30.4421		0	0	83	0			0	No, $V_u < V$
SLD 1	12.77	-14.22	5.43	16.881		0	0	83	0			0	No, $V_u < V$
SLD 1	14.57	5.34	3.96	9.0373		0	0	83	0			0	No, $V_u < V$
SLV 8	12.77	-21.64	22.53	30.1213		0	0	83	0			0	No, $V_u < V$
SLV 8	14.57	-8.71	25.95	-13.7949		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45  $W_a = 0.0005$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.53	0	2.04	2.3206	0	0	No, Trazione
SLV 14	1438	0.53	0	-4.75	2.3206	0	0	No, $e \geq t/2$
SLV 1	1438	0.53	0	-4.62	2.3206	0	0	No, $e \geq t/2$
SLV 4	1438	0.53	0	-10.38	2.3206	0	0	No, $e \geq t/2$
SLV 3	1438	0.53	0	-10.38	2.3206	0	0	No, $e \geq t/2$
SLV 2	1438	0.53	0	-4.62	2.3206	0	0	No, $e \geq t/2$
SLV 6	1438	0.53	0	2.04	2.3206	0	0	No, Trazione
SLV 10	1438	0.53	0	2.01	2.3206	0	0	No, Trazione
SLV 13	1438	0.53	0	-4.75	2.3206	0	0	No, $e \geq t/2$
SLV 9	1438	0.53	0	2.01	2.3206	0	0	No, Trazione

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45  $W_a = 0.0005$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	28.37	-26.78	-4.87	0	0	0	0	10.9083	No, Trazione
SLV 7	-11.15	-4.57	4.73	0	3.992	0.892	0	10.9083	No





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 5	21.88	-18.64	-4.64	0	0	0	0	10.9083	No, Trazione
SLV 12	-4.66	-12.71	4.51	0	3.509	0.921	0	10.9083	No
SLV 8	-11.15	-4.57	4.73	0	3.992	0.892	0	10.9083	No
SLV 1	2.75	-4.23	-1.1	0	0	0	0	10.55091	No, Trazione
SLV 6	21.88	-18.64	-4.64	0	0	0	0	10.9083	No, Trazione
SLV 11	-4.66	-12.71	4.51	0	3.509	0.921	0	10.9083	No
SLV 9	28.37	-26.78	-4.87	0	0	0	0	10.9083	No, Trazione
SLV 2	2.75	-4.23	-1.1	0	0	0	0	10.55091	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 16	No

## Maschio 182

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-22.493	-3.359	-24.678	-3.359	L6	L7	2.185	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 34	12.77	-37.15	28.6691	61	37.5627	1.31	Si
SLU 34	14.57	-26.03	2.0979	43	26.9549	12.848	Si
SLU 42	12.77	-37.27	28.637	61	37.6757	1.316	Si
SLU 42	14.57	-26.6	1.7082	43	27.5081	16.104	Si
SLU 40	12.77	-32.92	23.602	54	33.5923	1.423	Si
SLU 40	14.57	-21.64	0.7211	35	22.6189	31.368	Si
SLU 17	12.77	-40	27.4544	65	40.1885	1.464	Si
SLU 17	14.57	-27.6	2.0808	45	28.484	13.689	Si
SLU 36	12.77	-45.05	31.1858	74	44.7717	1.436	Si
SLU 36	14.57	-35	1.4659	57	35.5513	24.252	Si
SLU 41	12.77	-38.09	26.5892	62	38.4311	1.445	Si
SLU 41	14.57	-26.99	0.871	44	27.8867	32.015	Si
SLU 38	12.77	-42.05	32.3389	69	42.0593	1.301	Si
SLU 38	14.57	-31.25	2.5269	51	31.9962	12.662	Si
SLU 37	12.77	-42.86	30.2911	70	42.7977	1.413	Si
SLU 37	14.57	-31.63	1.6898	52	32.3669	19.154	Si
SLU 31	12.77	-32.8	23.634	54	33.477	1.416	Si
SLU 31	14.57	-21.08	1.1108	34	22.0534	19.853	Si
SLU 80	12.77	-51.27	34.3319	84	50.2505	1.464	Si
SLU 80	14.57	-35.21	2.0369	58	35.7446	17.548	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 10	12.77	-34.63	22.7758	57	36.0767	1.584	Si
SLD 10	14.57	-20.22	1.6827	33	21.4962	12.775	Si
SLV 5	12.77	-38.15	39.7879	62	39.5551	0.994	No, M>Mu
SLV 5	14.57	-24.59	6.6871	40	25.9825	3.885	Si
SLD 5	12.77	-35.46	25.1921	58	36.904	1.465	Si
SLD 5	14.57	-21.12	2.3372	35	22.4205	9.593	Si
SLV 2	12.77	-37.79	30.7015	62	39.1987	1.277	Si
SLV 2	14.57	-23.64	3.7794	39	25.0111	6.618	Si
SLD 9	12.77	-34.63	22.7758	57	36.0767	1.584	Si
SLD 9	14.57	-20.22	1.6827	33	21.4962	12.775	Si
SLV 9	12.77	-36.2	34.1123	59	37.6312	1.103	Si
SLV 9	14.57	-22.46	5.11	37	23.7972	4.657	Si
SLV 10	12.77	-36.2	34.1123	59	37.6312	1.103	Si
SLV 10	14.57	-22.46	5.11	37	23.7972	4.657	Si
SLV 6	12.77	-38.15	39.7879	62	39.5551	0.994	No, M>Mu
SLV 6	14.57	-24.59	6.6871	40	25.9825	3.885	Si
SLD 6	12.77	-35.46	25.1921	58	36.904	1.465	Si
SLD 6	14.57	-21.12	2.3372	35	22.4205	9.593	Si
SLV 1	12.77	-37.79	30.7015	62	39.1987	1.277	Si
SLV 1	14.57	-23.64	3.7794	39	25.0111	6.618	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	12.77	-54.28	26.07	33.1788		134	1.4437	73	29.69			1.14	Si
SLU 78	14.57	-38.96	24.61	0.9759		64	2.185	64	39.18			1.59	Si
SLU 84	12.77	-46.5	24.01	30.6301		128	1.3013	73	26.44			1.1	Si
SLU 84	14.57	-30.56	22.93	1.2182		50	2.185	62	38.06			1.66	Si
SLU 36	12.77	-45.05	24.07	31.1858		134	1.2009	73	24.69			1.03	Si
SLU 36	14.57	-35	22.63	1.4659		57	2.185	63	38.66			1.71	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	12.77	-42.86	22.66	30.2911		132	1.1573	73	23.72			1.05	Si
SLU 37	14.57	-31.63	21.34	1.6898		52	2.185	62	38.21			1.79	Si
SLU 34	12.77	-37.15	21.61	28.6691		138	0.9625	74	19.93			0.92	No, Vu<V
SLU 34	14.57	-26.03	20.41	2.0979		43	2.185	61	37.46			1.84	Si
SLU 76	12.77	-46.38	23.61	30.6621		128	1.2941	73	26.31			1.11	Si
SLU 76	14.57	-29.99	22.4	1.6079		49	2.185	62	37.99			1.7	Si
SLU 42	12.77	-37.27	22.01	28.637		137	0.9726	74	20.1			0.91	No, Vu<V
SLU 42	14.57	-26.6	20.94	1.7082		43	2.185	61	37.54			1.79	Si
SLU 38	12.77	-42.05	23.7	32.3389		155	0.9701	76	20.7			0.87	No, Vu<V
SLU 38	14.57	-31.25	22.18	2.5269		51	2.185	62	38.16			1.72	Si
SLU 41	12.77	-38.09	20.98	26.5892		115	1.1832	71	23.48			1.12	Si
SLU 41	14.57	-26.99	20.1	0.871		44	2.185	61	37.59			1.87	Si
SLU 80	12.77	-51.27	25.69	34.3319		144	1.2686	75	26.57			1.03	Si
SLU 80	14.57	-35.21	24.16	2.0369		58	2.185	63	38.68			1.6	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	12.77	-38.15	24.31	39.7879		915	0.149	163	6.78			0.28	No, Vu<V
SLV 6	14.57	-24.59	19.45	6.6871		40	2.185	91	55.9			2.87	Si
SLD 5	12.77	-35.46	17.52	25.1921		110	1.1463	105	33.84			1.93	Si
SLD 5	14.57	-21.12	15.35	2.3372		35	2.185	90	55.21			3.6	Si
SLV 5	12.77	-38.15	24.31	39.7879		915	0.149	163	6.78			0.28	No, Vu<V
SLV 5	14.57	-24.59	19.45	6.6871		40	2.185	91	55.9			2.87	Si
SLD 1	12.77	-35.28	17.21	21.3794		86	1.4597	101	41.12			2.39	Si
SLD 1	14.57	-20.72	14.79	1.0753		34	2.185	90	55.13			3.73	Si
SLV 1	12.77	-37.79	23.47	30.7015		161	0.8402	115	27.16			1.16	Si
SLV 1	14.57	-23.64	18.08	3.7794		39	2.185	91	55.71			3.08	Si
SLV 2	12.77	-37.79	23.47	30.7015		161	0.8402	115	27.16			1.16	Si
SLV 2	14.57	-23.64	18.08	3.7794		39	2.185	91	55.71			3.08	Si
SLD 2	12.77	-35.28	17.21	21.3794		86	1.4597	101	41.12			2.39	Si
SLD 2	14.57	-20.72	14.79	1.0753		34	2.185	90	55.13			3.73	Si
SLV 9	12.77	-36.2	19.49	34.1123		287	0.4503	141	17.75			0.91	No, Vu<V
SLV 9	14.57	-22.46	17.08	5.11		37	2.185	91	55.47			3.25	Si
SLD 6	12.77	-35.46	17.52	25.1921		110	1.1463	105	33.84			1.93	Si
SLD 6	14.57	-21.12	15.35	2.3372		35	2.185	90	55.21			3.6	Si
SLV 10	12.77	-36.2	19.49	34.1123		287	0.4503	141	17.75			0.91	No, Vu<V
SLV 10	14.57	-22.46	17.08	5.11		37	2.185	91	55.47			3.25	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.53	40	-24.4	2.4674	3.3039	1.34	Si
SLV 11	1438	0.53	40	-24.4	2.4674	3.3039	1.34	Si
SLV 8	1438	0.53	42	-25.87	2.4674	3.4968	1.42	Si
SLV 7	1438	0.53	42	-25.87	2.4674	3.4968	1.42	Si
SLV 16	1438	0.53	42	-25.89	2.4674	3.4992	1.42	Si
SLV 15	1438	0.53	42	-25.89	2.4674	3.4992	1.42	Si
SLV 13	1438	0.53	47	-28.65	2.4674	3.8573	1.56	Si
SLV 14	1438	0.53	47	-28.65	2.4674	3.8573	1.56	Si
SLV 4	1438	0.53	50	-30.81	2.4674	4.1362	1.68	Si
SLV 3	1438	0.53	50	-30.81	2.4674	4.1362	1.68	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-18.24	-57.17	3.19	0	4.806	0.889	0	10.55091	No
SLV 7	-16.65	-33.05	2.45	0	4.662	0.889	0	10.9083	No
SLV 2	-16.31	-69.45	2.54	0	4.632	0.889	0	10.55091	No
SLV 3	-18.24	-57.17	3.19	0	4.806	0.889	0	10.55091	No
SLV 8	-16.65	-33.05	2.45	0	4.662	0.889	0	10.9083	No
SLV 1	-16.31	-69.45	2.54	0	4.632	0.889	0	10.55091	No
SLV 13	-5.34	-41.44	-1.74	0.002	3.754	0.918	0.02504	10.55091	No
SLV 14	-5.34	-41.44	-1.74	0.002	3.754	0.918	0.02504	10.55091	No
SLV 11	-13.36	-24.65	1.17	0.031	4.372	0.891	0.5121	10.9083	No
SLV 12	-13.36	-24.65	1.17	0.031	4.372	0.891	0.5121	10.9083	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.301	SLU 38	Si
V_SLU	0.873	SLU 38	No
PF_SLV	0.994	SLV 5	No
V_SLV	0.279	SLV 5	No
PFFP_SLV	1.339	SLV 11	Si
R_SLV	0	SLV 1	No

## Maschio 183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-19.368	-3.359	-21.593	-3.359	L6	L7	2.225	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 10	13.87	-16.17	1.6344	26	17.4148	10.656	Si
SLU 10	14.67	-8.56	-3.2689	14	9.3674	2.866	Si
SLU 34	13.87	-19.16	3.868	31	20.5108	5.303	Si
SLU 34	14.67	-12.36	-4.1857	20	13.4137	3.205	Si
SLU 2	13.87	-16.59	1.9337	27	17.8569	9.235	Si
SLU 2	14.67	-8.63	-2.8897	14	9.442	3.268	Si
SLU 52	13.87	-21.45	2.1217	34	22.8506	10.77	Si
SLU 52	14.67	-11.13	-3.7366	18	12.1148	3.242	Si
SLU 31	13.87	-17.62	2.1401	28	18.9179	8.84	Si
SLU 31	14.67	-10.34	-3.9051	17	11.2715	2.886	Si
SLU 13	13.87	-17.71	3.3623	28	19.0176	5.656	Si
SLU 13	14.67	-10.58	-3.5495	17	11.5253	3.247	Si
SLU 73	13.87	-22.89	2.6274	37	24.3202	9.256	Si
SLU 73	14.67	-12.91	-4.3728	21	13.9988	3.201	Si
SLU 40	13.87	-18.49	2.1193	30	19.8256	9.355	Si
SLU 40	14.67	-11.1	-3.8262	18	12.0759	3.156	Si
SLU 23	13.87	-18.04	2.4394	29	19.3573	7.935	Si
SLU 23	14.67	-10.41	-3.5259	17	11.3456	3.218	Si
SLU 19	13.87	-17.05	1.6136	27	18.3281	11.359	Si
SLU 19	14.67	-9.32	-3.19	15	10.1777	3.19	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 2	13.87	-16.37	10.6436	26	17.8171	1.674	Si
SLV 2	14.67	-10.26	-4.9436	16	11.263	2.278	Si
SLV 1	13.87	-16.37	10.6436	26	17.8171	1.674	Si
SLV 1	14.67	-10.26	-4.9436	16	11.263	2.278	Si
SLV 6	13.87	-16.04	13.2261	26	17.4669	1.321	Si
SLV 6	14.67	-11.13	-9.86	18	12.1981	1.237	Si
SLD 5	13.87	-18	6.9064	29	19.5519	2.831	Si
SLD 5	14.67	-11.05	-5.5742	18	12.1178	2.174	Si
SLD 9	13.87	-18.6	5.4812	30	20.1916	3.684	Si
SLD 9	14.67	-11.29	-5.5252	18	12.3746	2.24	Si
SLD 6	13.87	-18	6.9064	29	19.5519	2.831	Si
SLD 6	14.67	-11.05	-5.5742	18	12.1178	2.174	Si
SLV 9	13.87	-17.44	9.8683	28	18.9537	1.921	Si
SLV 9	14.67	-11.68	-9.7398	19	12.792	1.313	Si
SLV 10	13.87	-17.44	9.8683	28	18.9537	1.921	Si
SLV 10	14.67	-11.68	-9.7398	19	12.792	1.313	Si
SLD 10	13.87	-18.6	5.4812	30	20.1916	3.684	Si
SLD 10	14.67	-11.29	-5.5252	18	12.3746	2.24	Si
SLV 5	13.87	-16.04	13.2261	26	17.4669	1.321	Si
SLV 5	14.67	-11.13	-9.86	18	12.1981	1.237	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	13.87	-26.54	15.86	5.5011		43	2.225	61	38.15			2.4	Si
SLU 36	14.67	-19.42	7.21	-4.3094		31	2.225	60	37.2			5.16	Si
SLU 78	13.87	-31.82	16.96	5.9884		51	2.225	62	38.85			2.29	Si
SLU 78	14.67	-21.99	7.9	-4.7771		35	2.225	60	37.54			4.75	Si
SLU 80	13.87	-27.04	17.89	6.1908		43	2.225	61	38.22			2.14	Si
SLU 80	14.67	-17.73	8.22	-4.6927		28	2.225	59	36.97			4.5	Si
SLU 38	13.87	-21.76	16.8	5.7035		35	2.225	60	37.51			2.23	Si
SLU 38	14.67	-15.16	7.53	-4.225		24	2.225	59	36.63			4.86	Si
SLU 71	13.87	-29.06	16.39	6.6514		47	2.225	62	38.49			2.35	Si
SLU 71	14.67	-18.97	7.44	-3.9514		30	2.225	60	37.14			4.99	Si
SLU 79	13.87	-28.63	17	6.352		46	2.225	62	38.43			2.26	Si
SLU 79	14.67	-18.91	7.85	-4.3306		30	2.225	60	37.13			4.73	Si
SLU 70	13.87	-32.25	16.35	6.2878		52	2.225	62	38.91			2.38	Si
SLU 70	14.67	-22.06	7.49	-4.3979		35	2.225	60	37.55			5.02	Si
SLU 37	13.87	-23.36	15.91	5.8647		37	2.225	61	37.73			2.37	Si
SLU 37	14.67	-16.34	7.17	-3.8629		26	2.225	59	36.79			5.13	Si
SLU 72	13.87	-27.47	17.28	6.4902		44	2.225	61	38.27			2.21	Si
SLU 72	14.67	-17.8	7.81	-4.3135		29	2.225	59	36.98			4.74	Si
SLU 30	13.87	-22.19	16.18	6.0028		36	2.225	60	37.57			2.32	Si
SLU 30	14.67	-15.23	7.12	-3.8457		24	2.225	59	36.64			5.14	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	13.87	-23.04	-24.21	-8.7033		37	2.204	91	56.03			2.31	Si
SLV 12	14.67	-11.04	-20.98	4.7072		19	2.0585	87	50.24			2.39	Si
SLD 6	13.87	-18	20.1	6.9064		29	2.1865	89	54.62			2.72	Si
SLD 6	14.67	-11.05	14.34	-5.5742		22	1.8246	88	44.78			3.12	Si
SLV 5	13.87	-16.04	38.18	13.2261		66	0.8636	97	23.36			0.61	No, Vu<V
SLV 5	14.67	-11.13	28.89	-9.86		59	0.6792	95	18.07			0.63	No, Vu<V
SLV 2	13.87	-16.37	29.17	10.6436		42	1.3866	92	35.63			1.22	Si
SLV 2	14.67	-10.26	19.97	-4.9436		19	1.8923	87	46.21			2.31	Si
SLV 11	13.87	-23.04	-24.21	-8.7033		37	2.204	91	56.03			2.31	Si
SLV 11	14.67	-11.04	-20.98	4.7072		19	2.0585	87	50.24			2.39	Si
SLV 6	13.87	-16.04	38.18	13.2261		66	0.8636	97	23.36			0.61	No, Vu<V
SLV 6	14.67	-11.13	28.89	-9.86		59	0.6792	95	18.07			0.63	No, Vu<V
SLV 9	13.87	-17.44	29.72	9.8683		38	1.6396	91	41.75			1.4	Si
SLV 9	14.67	-11.68	23.26	-9.7398		50	0.8353	93	21.83			0.94	No, Vu<V
SLV 10	13.87	-17.44	29.72	9.8683		38	1.6396	91	41.75			1.4	Si
SLV 10	14.67	-11.68	23.26	-9.7398		50	0.8353	93	21.83			0.94	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	13.87	-16.37	29.17	10.6436		42	1.3866	92	35.63			1.22	Si
SLV 1	14.67	-10.26	19.97	-4.9436		19	1.8923	87	46.21			2.31	Si
SLD 5	13.87	-18	20.1	6.9064		29	2.1865	89	54.62			2.72	Si
SLD 5	14.67	-11.05	14.34	-5.5742		22	1.8246	88	44.78			3.12	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.53	31	-19.07	2.5125	2.6029	1.04	Si
SLV 11	1438	0.53	31	-19.07	2.5125	2.6029	1.04	Si
SLV 8	1438	0.53	33	-20.3	2.5125	2.7662	1.1	Si
SLV 7	1438	0.53	33	-20.3	2.5125	2.7662	1.1	Si
SLV 15	1438	0.53	35	-21.81	2.5125	2.9664	1.18	Si
SLV 16	1438	0.53	35	-21.81	2.5125	2.9664	1.18	Si
SLV 14	1438	0.53	41	-25.4	2.5125	3.4369	1.37	Si
SLV 13	1438	0.53	41	-25.4	2.5125	3.4369	1.37	Si
SLV 3	1438	0.53	42	-25.92	2.5125	3.5046	1.39	Si
SLV 4	1438	0.53	42	-25.92	2.5125	3.5046	1.39	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-3.39	-42.02	-2.82	0	3.708	0.937	0	10.9083	No
SLV 12	-8.77	-20.62	3.34	0	4.057	0.9	0	10.9083	No
SLV 6	-3.39	-42.02	-2.82	0	3.708	0.937	0	10.9083	No
SLV 11	-8.77	-20.62	3.34	0	4.057	0.9	0	10.9083	No
SLV 7	-9.01	-22.8	3.25	0	4.076	0.899	0	10.9083	No
SLV 10	-3.15	-39.84	-2.74	0	3.696	0.94	0	10.9083	No
SLV 8	-9.01	-22.8	3.25	0	4.076	0.899	0	10.9083	No
SLV 9	-3.15	-39.84	-2.74	0	3.696	0.94	0	10.9083	No
SLV 15	-6.52	-24.8	1.32	0.022	3.894	0.91	0.35749	10.55091	No
SLV 16	-6.52	-24.8	1.32	0.022	3.894	0.91	0.35749	10.55091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.866	SLU 10	Si
V_SLU	2.136	SLU 80	Si
PF_SLV	1.237	SLV 5	Si
V_SLV	0.612	SLV 5	No
PFFP_SLV	1.036	SLV 11	Si
R_SLV	0	SLV 5	No

## Maschio 184

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.263	-3.359	-18.868	-3.359	L6	L7	0.605	0.28	3.16	3.16	3.16			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	13.87	-4.93	0.8226	29	1.4372	1.747	Si
SLU 1	14.67	1.03	-0.2293	0	0	0	No, Trazione
SLU 56	13.87	-4.66	1.0116	28	1.3623	1.347	Si
SLU 56	14.67	9.1	-0.0007	0	0	0	No, Trazione
SLU 58	13.87	-2.53	0.9352	0	0	0	No, e>l/2
SLU 58	14.67	11.76	0.005	0	0	0	No, Trazione
SLU 57	13.87	-3.31	0.9943	20	0.9773	0.983	No, M>Mu
SLU 57	14.67	10.53	0.0274	0	0	0	No, Trazione
SLU 55	13.87	-2.31	0.9949	0	0	0	No, e>l/2
SLU 55	14.67	8.57	-0.143	0	0	0	No, Trazione
SLU 54	13.87	-5.33	1.0827	31	1.5514	1.433	Si
SLU 54	14.67	4.95	-0.1675	0	0	0	No, Trazione
SLU 59	13.87	-1.18	0.918	0	0	0	No, e>l/2
SLU 59	14.67	13.2	0.0331	0	0	0	No, Trazione
SLU 60	13.87	-6.61	1.15	39	1.9025	1.654	Si
SLU 60	14.67	0.58	-0.4231	0	0	0	No, Trazione
SLU 53	13.87	-6.69	1.0999	39	1.9244	1.75	Si
SLU 53	14.67	3.51	-0.1956	0	0	0	No, Trazione
SLU 61	13.87	-5.25	1.1327	31	1.529	1.35	Si
SLU 61	14.67	2.02	-0.395	0	0	0	No, Trazione

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	13.87	-24	4.3014	142	6.4192	1.492	Si
SLV 9	14.67	-7.77	-2.9949	0	0	0	No, e>l/2
SLV 14	13.87	-5.04	1.3901	30	1.488	1.07	Si
SLV 14	14.67	3.17	0.3198	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	13.87	-24	4.3014	142	6.4192	1.492	Si
SLV 10	14.67	-7.77	-2.9949	0	0	0	No, $e \geq l/2$
SLV 7	13.87	14.33	-2.5289	0	0	0	No, Trazione
SLV 7	14.67	11.06	2.4807	0	0	0	No, Trazione
SLV 8	13.87	14.33	-2.5289	0	0	0	No, Trazione
SLV 8	14.67	11.06	2.4807	0	0	0	No, Trazione
SLD 1	13.87	-10.01	1.579	59	2.8823	1.825	Si
SLD 1	14.67	-1.74	-1.3092	0	0	0	No, $e \geq l/2$
SLV 13	13.87	-5.04	1.3901	30	1.488	1.07	Si
SLV 13	14.67	3.17	0.3198	0	0	0	No, Trazione
SLV 12	13.87	17.99	-2.8722	0	0	0	No, Trazione
SLV 12	14.67	13.93	3.4026	0	0	0	No, Trazione
SLV 6	13.87	-27.66	4.6448	163	7.249	1.561	Si
SLV 6	14.67	-10.63	-3.9169	0	0	0	No, $e \geq l/2$
SLV 11	13.87	17.99	-2.8722	0	0	0	No, Trazione
SLV 11	14.67	13.93	3.4026	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	13.87	-5.33	3.84	1.0827		64	0.2987	64	5.36			1.4	Si
SLU 54	14.67	4.95	-1.78	-0.1675		0	0	56	0			0	No, $V_u < V$
SLU 53	13.87	-6.69	3.9	1.0999		58	0.4139	63	7.33			1.88	Si
SLU 53	14.67	3.51	-1.55	-0.1956		0	0	56	0			0	No, $V_u < V$
SLU 56	13.87	-4.66	4.26	1.0116		65	0.2564	64	4.61			1.08	Si
SLU 56	14.67	9.1	-2.39	-0.0007		0	0	56	0			0	No, $V_u < V$
SLU 58	13.87	-2.53	4.14	0.9352		0	0	56	0			0	No, $V_u < V$
SLU 58	14.67	11.76	-2.39	0.0005		0	0	56	0			0	No, $V_u < V$
SLU 1	13.87	-4.93	2.55	0.8226		43	0.4066	61	6.98			2.74	Si
SLU 1	14.67	1.03	-0.55	-0.2293		0	0	56	0			0	No, $V_u < V$
SLU 57	13.87	-3.31	4.2	0.9943		1854	0.0064	108	0.19			0.05	No, $V_u < V$
SLU 57	14.67	10.53	-2.62	0.0274		0	0	56	0			0	No, $V_u < V$
SLU 61	13.87	-5.25	3.49	1.1327		72	0.2608	65	4.76			1.36	Si
SLU 61	14.67	2.02	-0.98	-0.395		0	0	56	0			0	No, $V_u < V$
SLU 59	13.87	-1.18	4.07	0.918		0	0	56	0			0	No, $V_u < V$
SLU 59	14.67	13.2	-2.62	0.0331		0	0	56	0			0	No, $V_u < V$
SLU 60	13.87	-6.61	3.55	1.15		61	0.3852	64	6.87			1.93	Si
SLU 60	14.67	0.58	-0.75	-0.4231		0	0	56	0			0	No, $V_u < V$
SLU 55	13.87	-2.31	3.67	0.9949		0	0	56	0			0	No, $V_u < V$
SLU 55	14.67	8.57	-1.93	-0.143		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	13.87	-5.04	2.5	1.3901		224	0.0803	128	2.88			1.15	Si
SLV 14	14.67	3.17	-0.27	0.3198		0	0	83	0			0	No, $V_u < V$
SLV 8	13.87	14.33	-7.53	-2.5289		0	0	83	0			0	No, $V_u < V$
SLV 8	14.67	11.06	-7.24	2.4807		0	0	83	0			0	No, $V_u < V$
SLV 12	13.87	17.99	-9.79	-2.8722		0	0	83	0			0	No, $V_u < V$
SLV 12	14.67	13.93	-8.26	3.4026		0	0	83	0			0	No, $V_u < V$
SLV 10	13.87	-24	13.18	4.3014		232	0.3699	130	13.43			1.02	Si
SLV 10	14.67	-7.77	5.86	-2.9949		0	0	83	0			0	No, $V_u < V$
SLV 9	13.87	-24	13.18	4.3014		232	0.3699	130	13.43			1.02	Si
SLV 9	14.67	-7.77	5.86	-2.9949		0	0	83	0			0	No, $V_u < V$
SLV 13	13.87	-5.04	2.5	1.3901		224	0.0803	128	2.88			1.15	Si
SLV 13	14.67	3.17	-0.27	0.3198		0	0	83	0			0	No, $V_u < V$
SLD 1	13.87	-10.01	5.86	1.579		82	0.4344	100	12.14			2.07	Si
SLD 1	14.67	-1.74	0.89	-1.3092		0	0	83	0			0	No, $V_u < V$
SLV 6	13.87	-27.66	15.43	4.6448		245	0.4037	132	14.95			0.97	No, $V_u < V$
SLV 6	14.67	-10.63	6.87	-3.9169		0	0	83	0			0	No, $V_u < V$
SLV 7	13.87	14.33	-7.53	-2.5289		0	0	83	0			0	No, $V_u < V$
SLV 7	14.67	11.06	-7.24	2.4807		0	0	83	0			0	No, $V_u < V$
SLV 11	13.87	17.99	-9.79	-2.8722		0	0	83	0			0	No, $V_u < V$
SLV 11	14.67	13.93	-8.26	3.4026		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.53	0	-1.02	0.6832	0	0	No, $e \geq t/2$
SLV 3	1438	0.53	0	-0.01	0.6832	0	0	No, $e \geq t/2$
SLV 2	1438	0.53	0	-4.8	0.6832	0	0	No, $e \geq t/2$
SLV 8	1438	0.53	0	5.23	0.6832	0	0	No, Trazione
SLV 1	1438	0.53	0	-4.8	0.6832	0	0	No, $e \geq t/2$
SLV 12	1438	0.53	0	4.92	0.6832	0	0	No, Trazione
SLV 11	1438	0.53	0	4.92	0.6832	0	0	No, Trazione
SLV 16	1438	0.53	0	-1.02	0.6832	0	0	No, $e \geq t/2$
SLV 4	1438	0.53	0	-0.01	0.6832	0	0	No, $e \geq t/2$
SLV 7	1438	0.53	0	5.23	0.6832	0	0	No, Trazione

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 15	13.21	-4.24	-0.67	0	0	0	0	10.55091	No, Trazione
SLV 4	6.09	-7.06	-0.36	0	0	0	0	10.55091	No, Trazione
SLV 7	21.93	-6.48	-0.72	0	0	0	0	10.9083	No, Trazione
SLV 12	24.07	-5.63	-0.81	0	0	0	0	10.9083	No, Trazione
SLV 3	6.09	-7.06	-0.36	0	0	0	0	10.55091	No, Trazione
SLV 16	13.21	-4.24	-0.67	0	0	0	0	10.55091	No, Trazione
SLV 8	21.93	-6.48	-0.72	0	0	0	0	10.9083	No, Trazione
SLV 13	1.77	-3.9	-0.45	0	0	0	0	10.55091	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	1.77	-3.9	-0.45	0	0	0	0	10.55091	No, Trazione
SLV 11	24.07	-5.63	-0.81	0	0	0	0	10.9083	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 185

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-17.203	-3.359	-17.363	-3.359	L6	L7	0.16	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 37	12.77	-8.85	0.4196	197	0.5362	1.278	Si
SLU 37	14.57	-2	-0.0917	45	0.1516	1.653	Si
SLU 16	12.77	-8.04	0.3852	179	0.5014	1.302	Si
SLU 16	14.57	-1.78	-0.0751	40	0.1356	1.806	Si
SLU 8	12.77	-8.11	0.4109	181	0.5047	1.228	Si
SLU 8	14.57	-1.75	-0.0637	39	0.133	2.089	Si
SLU 69	12.77	-9.93	0.4514	222	0.5782	1.281	Si
SLU 69	14.57	-2.99	-0.0267	67	0.2195	8.207	Si
SLU 27	12.77	-9.09	0.433	203	0.546	1.261	Si
SLU 27	14.57	-2.55	-0.0448	57	0.1899	4.242	Si
SLU 79	12.77	-9.69	0.4379	216	0.5694	1.3	Si
SLU 79	14.57	-2.44	-0.0737	54	0.1822	2.473	Si
SLU 50	12.77	-8.95	0.4292	200	0.5406	1.259	Si
SLU 50	14.57	-2.18	-0.0456	49	0.1641	3.596	Si
SLU 29	12.77	-8.92	0.4452	199	0.5392	1.211	Si
SLU 29	14.57	-1.97	-0.0803	44	0.149	1.856	Si
SLU 71	12.77	-9.76	0.4636	218	0.5721	1.234	Si
SLU 71	14.57	-2.4	-0.0622	54	0.1797	2.887	Si
SLU 6	12.77	-8.28	0.3986	185	0.512	1.284	Si
SLU 6	14.57	-2.33	-0.0282	52	0.1745	6.194	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 12	12.77	4.95	-0.665	0	0	0	No, Trazione
SLV 12	14.57	-5.63	-0.2034	126	0.4044	1.988	Si
SLV 11	12.77	4.95	-0.665	0	0	0	No, Trazione
SLV 11	14.57	-5.63	-0.2034	126	0.4044	1.988	Si
SLV 14	12.77	2.15	-0.3928	0	0	0	No, Trazione
SLV 14	14.57	-5.21	0.2419	116	0.3775	1.56	Si
SLV 9	12.77	-8.01	0.4712	179	0.5471	1.161	Si
SLV 9	14.57	-0.46	0.3454	0	0	0	No, e>l/2
SLV 6	12.77	-12.83	0.8709	286	0.7859	0.902	No, M>Mu
SLV 6	14.57	2.07	0.2695	0	0	0	No, Trazione
SLV 10	12.77	-8.01	0.4712	179	0.5471	1.161	Si
SLV 10	14.57	-0.46	0.3454	0	0	0	No, e>l/2
SLV 7	12.77	0.13	-0.2653	0	0	0	No, Trazione
SLV 7	14.57	-3.11	-0.2793	0	0	0	No, e>l/2
SLV 8	12.77	0.13	-0.2653	0	0	0	No, Trazione
SLV 8	14.57	-3.11	-0.2793	0	0	0	No, e>l/2
SLD 1	12.77	-8.13	0.4542	181	0.5538	1.219	Si
SLD 1	14.57	0.31	0.0104	0	0	0	No, Trazione
SLV 13	12.77	2.15	-0.3928	0	0	0	No, Trazione
SLV 13	14.57	-5.21	0.2419	116	0.3775	1.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 27	12.77	-9.09	2.13	0.433		334	0.0971	100	2.72			1.28	Si
SLU 27	14.57	-2.55	0.18	-0.0448		57	0.16	63	2.83			15.54	Si
SLU 8	12.77	-8.11	2.03	0.4109		329	0.0881	99	2.45			1.21	Si
SLU 8	14.57	-1.75	0.26	-0.0637		48	0.1306	62	2.26			8.76	Si
SLU 37	12.77	-8.85	2.06	0.4196		323	0.0977	99	2.7			1.31	Si
SLU 37	14.57	-2	0.38	-0.0917		70	0.1028	65	1.87			4.85	Si
SLU 6	12.77	-8.28	1.96	0.3986		309	0.0955	97	2.59			1.32	Si
SLU 6	14.57	-2.33	0.11	-0.0282		52	0.16	62	2.8			25.45	Si
SLU 16	12.77	-8.04	1.89	0.3852		298	0.0962	95	2.57			1.36	Si
SLU 16	14.57	-1.78	0.31	-0.0751		56	0.1136	63	2			6.41	Si
SLU 71	12.77	-9.76	2.28	0.4636		357	0.0976	103	2.82			1.23	Si
SLU 71	14.57	-2.4	0.25	-0.0622		54	0.16	63	2.81			11.14	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	12.77	-9.69	2.15	0.4379		331	0.1044	100	2.92			1.36	Si
SLU 79	14.57	-2.44	0.31	-0.0737		58	0.1494	63	2.65			8.65	Si
SLU 29	12.77	-8.92	2.19	0.4452		353	0.0903	103	2.59			1.18	Si
SLU 29	14.57	-1.97	0.33	-0.0803		60	0.1177	64	2.09			6.33	Si
SLU 50	12.77	-8.95	2.12	0.4292		332	0.0962	100	2.69			1.27	Si
SLU 50	14.57	-2.18	0.18	-0.0456		49	0.16	62	2.78			15.42	Si
SLU 69	12.77	-9.93	2.22	0.4514		342	0.1036	101	2.94			1.32	Si
SLU 69	14.57	-2.99	0.1	-0.0267		67	0.16	64	2.89			27.85	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	12.77	-8.01	5.53	0.4712		450	0.0635	163	2.89			0.52	No, Vu<V
SLV 9	14.57	-0.46	-2.28	0.3454		0	0	83	0			0	No, Vu<V
SLV 7	12.77	0.13	-4.54	-0.2653		0	0	83	0			0	No, Vu<V
SLV 7	14.57	-3.11	1.99	-0.2793		0	0	83	0			0	No, Vu<V
SLV 6	12.77	-12.83	7.61	0.8709		1259	0.0364	163	1.66			0.22	No, Vu<V
SLV 6	14.57	2.07	-1.95	0.2695		0	0	83	0			0	No, Vu<V
SLD 1	12.77	-8.13	2.7	0.4542		401	0.0724	163	3.29			1.22	Si
SLD 1	14.57	0.31	-0.13	0.0104		0	0	83	0			0	No, Vu<V
SLV 11	12.77	4.95	-6.63	-0.665		0	0	83	0			0	No, Vu<V
SLV 11	14.57	-5.63	1.66	-0.2034		153	0.1317	114	4.2			2.52	Si
SLV 13	12.77	2.15	-1.16	-0.3928		0	0	83	0			0	No, Vu<V
SLV 13	14.57	-5.21	-1.28	0.2419		185	0.1008	120	3.4			2.64	Si
SLV 14	12.77	2.15	-1.16	-0.3928		0	0	83	0			0	No, Vu<V
SLV 14	14.57	-5.21	-1.28	0.2419		185	0.1008	120	3.4			2.64	Si
SLV 12	12.77	4.95	-6.63	-0.665		0	0	83	0			0	No, Vu<V
SLV 12	14.57	-5.63	1.66	-0.2034		153	0.1317	114	4.2			2.52	Si
SLV 8	12.77	0.13	-4.54	-0.2653		0	0	83	0			0	No, Vu<V
SLV 8	14.57	-3.11	1.99	-0.2793		0	0	83	0			0	No, Vu<V
SLV 10	12.77	-8.01	5.53	0.4712		450	0.0635	163	2.89			0.52	No, Vu<V
SLV 10	14.57	-0.46	-2.28	0.3454		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.53	0	1.07	0.1807	0	0	No, Trazione
SLV 12	1438	0.53	0	4.35	0.1807	0	0	No, Trazione
SLV 11	1438	0.53	0	4.35	0.1807	0	0	No, Trazione
SLV 8	1438	0.53	0	3.17	0.1807	0	0	No, Trazione
SLV 7	1438	0.53	0	3.17	0.1807	0	0	No, Trazione
SLV 16	1438	0.53	0	1.07	0.1807	0	0	No, Trazione
SLV 4	1438	0.53	64	-2.87	0.1807	0.3804	2.11	Si
SLV 3	1438	0.53	64	-2.87	0.1807	0.3804	2.11	Si
SLV 13	1438	0.53	65	-2.92	0.1807	0.387	2.14	Si
SLV 14	1438	0.53	65	-2.92	0.1807	0.387	2.14	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-1.51	-5.8	0.32	0	0.368	0.89	0	10.9083	No
SLV 7	0.02	2.67	-0.81	0	0	0	0	10.9083	No, Trazione
SLV 5	-1.15	-6.73	0.28	0	0.335	0.889	0	10.9083	No
SLV 9	-1.51	-5.8	0.32	0	0.368	0.89	0	10.9083	No
SLV 8	0.02	2.67	-0.81	0	0	0	0	10.9083	No, Trazione
SLV 1	-0.32	-4.53	-0.15	0	0.27	0.926	0	10.55091	No
SLV 6	-1.15	-6.73	0.28	0	0.335	0.889	0	10.9083	No
SLV 3	0.04	-1.71	-0.47	0	0	0	0	10.55091	No, Trazione
SLV 2	-0.32	-4.53	-0.15	0	0.27	0.926	0	10.55091	No
SLV 4	0.04	-1.71	-0.47	0	0	0	0	10.55091	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.211	SLU 29	Si
V_SLU	1.182	SLU 29	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 16	No

## Maschio 186

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.618	1.046	-19.618	5.811	L6	L7	4.765	0.14	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 17	11.87	-136.06	62.5135	204	243.0078	3.887	Si
SLU 17	15.03	-41.64	75.6751	62	91.608	1.211	Si
SLU 79	11.87	-168.38	73.7403	252	276.875	3.755	Si
SLU 79	15.03	-49.01	88.8327	73	106.248	1.196	Si
SLU 30	11.87	-150.36	74.5142	225	259.1268	3.478	Si
SLU 30	15.03	-48.45	87.7911	73	105.1378	1.198	Si
SLU 38	11.87	-154.15	74.332	231	263.096	3.539	Si
SLU 38	15.03	-48.13	87.4163	72	104.5186	1.196	Si
SLU 37	11.87	-153.68	75.5688	230	262.6088	3.475	Si
SLU 37	15.03	-47.98	87.1942	72	104.2208	1.195	Si
SLU 72	11.87	-165.06	72.6857	247	273.8206	3.767	Si
SLU 72	15.03	-49.48	89.4295	74	107.1608	1.198	Si
SLU 80	11.87	-168.85	72.5035	253	277.3014	3.825	Si
SLU 80	15.03	-49.17	89.0547	74	106.5445	1.196	Si
SLU 71	11.87	-164.59	73.9224	247	273.3786	3.698	Si
SLU 71	15.03	-49.33	89.2075	74	106.8648	1.198	Si
SLU 16	11.87	-135.59	63.7503	203	242.4458	3.803	Si
SLU 16	15.03	-41.49	75.4531	62	91.3015	1.21	Si
SLU 29	11.87	-149.89	75.7509	225	258.624	3.414	Si
SLU 29	15.03	-48.3	87.569	72	104.8404	1.197	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	11.87	-82.48	31.8026	124	176.6337	5.554	Si
SLV 8	15.03	-5.44	-23.6254	0	0	0	No, $e \geq l/2$
SLV 10	11.87	-69.38	-10.3295	104	151.2303	14.641	Si
SLV 10	15.03	-19.83	67.8805	0	0	0	No, $e \geq l/2$
SLD 6	11.87	-72.92	4.5024	109	158.1919	35.135	Si
SLD 6	15.03	-14.69	38.1942	0	0	0	No, $e \geq l/2$
SLV 7	11.87	-82.48	31.8026	124	176.6337	5.554	Si
SLV 7	15.03	-5.44	-23.6254	0	0	0	No, $e \geq l/2$
SLD 9	11.87	-73.16	2.3207	110	158.6733	68.374	Si
SLD 9	15.03	-15.48	40.883	0	0	0	No, $e \geq l/2$
SLD 10	11.87	-73.16	2.3207	110	158.6733	68.374	Si
SLD 10	15.03	-15.48	40.883	0	0	0	No, $e \geq l/2$
SLV 6	11.87	-68.81	-5.1216	103	150.1029	29.308	Si
SLV 6	15.03	-17.93	61.4756	0	0	0	No, $e \geq l/2$
SLV 9	11.87	-69.38	-10.3295	104	151.2303	14.641	Si
SLV 9	15.03	-19.83	67.8805	0	0	0	No, $e \geq l/2$
SLD 5	11.87	-72.92	4.5024	109	158.1919	35.135	Si
SLD 5	15.03	-14.69	38.1942	0	0	0	No, $e \geq l/2$
SLV 5	11.87	-68.81	-5.1216	103	150.1029	29.308	Si
SLV 5	15.03	-17.93	61.4756	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	11.87	-70.46	-2.19	5.3506		106	4.7652	70	46.46			21.2	Si
SLU 2	15.03	-11.12	-1.3	19.2501		41	1.9561	61	16.7			12.88	Si
SLU 39	11.87	-93.19	2.76	18.9702		140	4.7652	74	49.49			17.94	Si
SLU 39	15.03	-16.91	1.19	30.0858		67	1.8103	64	16.33			13.73	Si
SLU 50	11.87	-146.5	-1.48	62.1039		220	4.7652	85	56.6			38.23	Si
SLU 50	15.03	-42.84	-1.29	77.4663		178	1.7229	79	19.11			14.78	Si
SLU 49	11.87	-144.34	-1.77	54.026		216	4.7652	84	56.31			31.81	Si
SLU 49	15.03	-40.77	-1.51	72.3999		160	1.82	77	19.59			13.01	Si
SLU 5	11.87	-101.52	-1.96	33.6109		152	4.7652	76	50.6			25.83	Si
SLU 5	15.03	-26.59	-1.39	47.724		108	1.7634	70	17.26			12.38	Si
SLU 51	11.87	-146.97	-2.13	60.8672		220	4.7652	85	56.66			26.64	Si
SLU 51	15.03	-42.99	-1.67	77.6884		178	1.7265	79	19.16			11.48	Si
SLU 9	11.87	-132.27	-1.3	62.6957		198	4.7652	82	54.7			42.22	Si
SLU 9	15.03	-41.96	-1.24	76.0499		175	1.7099	79	18.89			15.22	Si
SLU 47	11.87	-116.22	-2.79	31.7824		174	4.7652	79	52.56			18.84	Si
SLU 47	15.03	-27.63	-1.82	49.3625		110	1.7873	70	17.58			9.66	Si
SLU 44	11.87	-85.16	-3.02	3.5221		128	4.7652	73	48.42			16.02	Si
SLU 44	15.03	-12.16	-1.72	20.8886		44	1.9941	61	17.13			9.94	Si
SLU 46	11.87	-113.27	-2	25.7657		170	4.7652	78	52.17			26.05	Si
SLU 46	15.03	-25.3	-1.41	43.926		93	1.9393	68	18.46			13.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 5	11.87	-72.92	-23.51	4.5024		109	4.7652	105	70.18			2.98	Si
SLD 5	15.03	-14.69	-11.01	38.1942		0	0	83	0			0	No, $V_u < V$
SLV 8	11.87	-82.48	64.04	31.8026		124	4.7652	108	72.09			1.13	Si
SLV 8	15.03	-5.44	31.12	-23.6254		0	0	83	0			0	No, $V_u < V$
SLV 14	11.87	-74.83	-32.68	-3.482		112	4.7652	106	70.56			2.16	Si
SLV 14	15.03	-17.67	-17.55	45.5676		0	0	83	0			0	No, $V_u < V$
SLV 10	11.87	-69.38	-64.47	-10.3295		104	4.7652	104	69.47			1.08	Si
SLV 10	15.03	-19.83	-31.6	67.8805		0	0	83	0			0	No, $V_u < V$
SLV 9	11.87	-69.38	-64.47	-10.3295		104	4.7652	104	69.47			1.08	Si
SLV 9	15.03	-19.83	-31.6	67.8805		0	0	83	0			0	No, $V_u < V$
SLD 10	11.87	-73.16	-27.17	2.3207		110	4.7652	105	70.23			2.58	Si
SLD 10	15.03	-15.48	-13.21	40.883		0	0	83	0			0	No, $V_u < V$
SLV 7	11.87	-82.48	64.04	31.8026		124	4.7652	108	72.09			1.13	Si
SLV 7	15.03	-5.44	31.12	-23.6254		0	0	83	0			0	No, $V_u < V$
SLD 9	11.87	-73.16	-27.17	2.3207		110	4.7652	105	70.23			2.58	Si
SLD 9	15.03	-15.48	-13.21	40.883		0	0	83	0			0	No, $V_u < V$
SLV 6	11.87	-68.81	-55.78	-5.1216		103	4.7652	104	69.36			1.24	Si
SLV 6	15.03	-17.93	-26.39	61.4756		0	0	83	0			0	No, $V_u < V$





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 6	11.87	-72.92	-23.51	4.5024		109	4.7652	105	70.18			2.98	Si
SLD 6	15.03	-14.69	-11.01	38.1942		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.53	0	-31.43	2.8782	0	0	No, e>t/2
SLV 7	1438	0.53	0	-31.43	2.8782	0	0	No, e>t/2
SLV 3	1438	0.53	0	-31.43	2.8782	0	0	No, e>t/2
SLV 1	1438	0.53	0	-36.07	2.8782	0	0	No, e>t/2
SLV 11	1438	0.53	0	-36.08	2.8782	0	0	No, e>t/2
SLV 2	1438	0.53	0	-36.07	2.8782	0	0	No, e>t/2
SLV 8	1438	0.53	0	-31.43	2.8782	0	0	No, e>t/2
SLV 12	1438	0.53	0	-36.08	2.8782	0	0	No, e>t/2
SLV 6	1438	0.53	70	-46.91	2.8782	3.0949	1.08	Si
SLV 5	1438	0.53	70	-46.91	2.8782	3.0949	1.08	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0003 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-7.34	-83.05	0.28	0.028	4.194	0.909	0.44116	21.19413	No
SLV 11	-7.34	-83.05	0.28	0.028	4.194	0.909	0.44116	21.19413	No
SLV 8	-5.44	-82.48	0.25	0.029	4.07	0.92	0.45905	21.19413	No
SLV 7	-5.44	-82.48	0.25	0.029	4.07	0.92	0.45905	21.19413	No
SLV 6	-17.93	-68.81	-0.2	0.028	5.064	0.889	0.45983	21.19413	No
SLV 5	-17.93	-68.81	-0.2	0.028	5.064	0.889	0.45983	21.19413	No
SLV 10	-19.83	-69.38	-0.17	0.029	5.236	0.889	0.46603	21.19413	No
SLV 9	-19.83	-69.38	-0.17	0.029	5.236	0.889	0.46603	21.19413	No
SLV 15	-13.92	-78.93	0.15	0.03	4.712	0.891	0.4953	21.19251	No
SLV 16	-13.92	-78.93	0.15	0.03	4.712	0.891	0.4953	21.19251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.195	SLU 37	Si
V_SLU	9.655	SLU 47	Si
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 1	No
R_SLV	0.021	SLV 11	No

## Maschio 187

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-19.618	5.811	-19.618	6.521	L6	L7	0.71	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	11.87	-104.36	-0.1468	525	13.173	89.741	Si
SLU 78	15.03	-114.99	13.32	578	11.8347	0.888	No, M>Mu
SLU 29	11.87	-104.32	-0.0582	525	13.1764	226.326	Si
SLU 29	15.03	-116.97	12.6006	588	11.5309	0.915	No, M>Mu
SLU 80	11.87	-109.06	-0.1285	549	12.6426	98.377	Si
SLU 80	15.03	-120.38	13.7993	606	10.9665	0.795	No, M>Mu
SLU 77	11.87	-104.76	-0.1312	527	13.1317	100.083	Si
SLU 77	15.03	-115.14	13.1483	579	11.8119	0.898	No, M>Mu
SLU 79	11.87	-109.46	-0.1129	551	12.5931	111.512	Si
SLU 79	15.03	-120.54	13.6276	606	10.9401	0.803	No, M>Mu
SLU 30	11.87	-103.93	-0.0738	523	13.2169	179.091	Si
SLU 30	15.03	-116.82	12.7722	588	11.5549	0.905	No, M>Mu
SLU 71	11.87	-108.4	-0.0907	545	12.7224	140.233	Si
SLU 71	15.03	-118.52	13.1551	596	11.2812	0.858	No, M>Mu
SLU 37	11.87	-105.38	-0.0804	530	13.066	162.46	Si
SLU 37	15.03	-118.99	13.0731	599	11.2034	0.857	No, M>Mu
SLU 72	11.87	-108	-0.1063	543	12.77	120.127	Si
SLU 72	15.03	-118.37	13.3267	595	11.3063	0.848	No, M>Mu
SLU 38	11.87	-104.98	-0.096	528	13.1084	136.535	Si
SLU 38	15.03	-118.84	13.2447	598	11.2288	0.848	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	11.87	-44.62	0.166	224	12.9304	77.889	Si
SLV 4	15.03	-46.16	8.1959	232	13.272	1.619	Si
SLV 8	11.87	-50.41	0.3602	254	14.1822	39.376	Si
SLV 8	15.03	-38.33	9.1502	193	11.4591	1.252	Si
SLV 7	11.87	-50.41	0.3602	254	14.1822	39.376	Si
SLV 7	15.03	-38.33	9.1502	193	11.4591	1.252	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	11.87	-44.62	0.166	224	12.9304	77.889	Si
SLV 3	15.03	-46.16	8.1959	232	13.272	1.619	Si
SLD 11	11.87	-39.02	0.0452	196	11.626	257.219	Si
SLD 11	15.03	-29.74	5.8347	150	9.2659	1.588	Si
SLV 12	11.87	-46.74	0.2678	235	13.401	50.04	Si
SLV 12	15.03	-29.58	7.7014	149	9.223	1.198	Si
SLD 8	11.87	-40.56	0.0846	204	11.9952	141.778	Si
SLD 8	15.03	-33.45	6.4837	168	10.2389	1.579	Si
SLD 7	11.87	-40.56	0.0846	204	11.9952	141.778	Si
SLD 7	15.03	-33.45	6.4837	168	10.2389	1.579	Si
SLV 11	11.87	-46.74	0.2678	235	13.401	50.04	Si
SLV 11	15.03	-29.58	7.7014	149	9.223	1.198	Si
SLD 12	11.87	-39.02	0.0452	196	11.626	257.219	Si
SLD 12	15.03	-29.74	5.8347	150	9.2659	1.588	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	11.87	-100.68	-4.74	-0.0987		506	0.71	108	21.54			4.55	Si
SLU 35	15.03	-113.6	-1.23	12.5938		571	0.71	108	21.54			17.51	Si
SLU 72	11.87	-108	-4.79	-0.1063		543	0.71	108	21.54			4.5	Si
SLU 72	15.03	-118.37	-2.93	13.3267		595	0.71	108	21.54			7.35	Si
SLU 71	11.87	-108.4	-4.76	-0.0907		545	0.71	108	21.54			4.52	Si
SLU 71	15.03	-118.52	-2.6	13.1551		596	0.71	108	21.54			8.28	Si
SLU 38	11.87	-104.98	-4.89	-0.096		528	0.71	108	21.54			4.4	Si
SLU 38	15.03	-118.84	-1.81	13.2447		598	0.71	108	21.54			11.91	Si
SLU 80	11.87	-109.06	-5.05	-0.1285		549	0.71	108	21.54			4.27	Si
SLU 80	15.03	-120.38	-2.33	13.7993		606	0.71	108	21.54			9.26	Si
SLU 77	11.87	-104.76	-4.89	-0.1312		527	0.71	108	21.54			4.4	Si
SLU 77	15.03	-115.14	-1.75	13.1483		579	0.71	108	21.54			12.31	Si
SLU 36	11.87	-100.28	-4.76	-0.1143		504	0.71	108	21.54			4.52	Si
SLU 36	15.03	-113.44	-1.56	12.7654		571	0.71	108	21.54			13.83	Si
SLU 78	11.87	-104.36	-4.91	-0.1468		525	0.71	108	21.54			4.38	Si
SLU 78	15.03	-114.99	-2.08	13.32		578	0.71	108	21.54			10.37	Si
SLU 79	11.87	-109.46	-5.02	-0.1129		551	0.71	108	21.54			4.29	Si
SLU 79	15.03	-120.54	-2	13.6276		606	0.71	108	21.54			10.77	Si
SLU 37	11.87	-105.38	-4.87	-0.0804		530	0.71	108	21.54			4.42	Si
SLU 37	15.03	-118.99	-1.48	13.0731		599	0.71	108	21.54			14.55	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	11.87	-21.64	-3.28	-0.5025		109	0.71	105	20.89			6.36	Si
SLV 5	15.03	-31.55	-16.27	1.594		159	0.71	115	22.88			1.41	Si
SLV 11	11.87	-46.74	0.08	0.2678		235	0.71	130	25.92			307.53	Si
SLV 11	15.03	-29.58	13.96	7.7014		372	0.284	158	12.54			0.9	No, $V_u < V$
SLV 10	11.87	-17.97	-3.12	-0.5948		90	0.71	101	20.16			6.45	Si
SLV 10	15.03	-22.81	-19.08	0.1452		115	0.71	106	21.13			1.11	Si
SLV 7	11.87	-50.41	-0.08	0.3602		254	0.71	134	26.65			354.55	Si
SLV 7	15.03	-38.33	16.77	9.1502		392	0.3488	162	15.8			0.94	No, $V_u < V$
SLV 12	11.87	-46.74	0.08	0.2678		235	0.71	130	25.92			307.53	Si
SLV 12	15.03	-29.58	13.96	7.7014		372	0.284	158	12.54			0.9	No, $V_u < V$
SLV 14	11.87	-23.76	-1.81	-0.4007		120	0.71	107	21.32			11.75	Si
SLV 14	15.03	-14.98	-10.79	1.0995		75	0.71	98	19.56			1.81	Si
SLV 8	11.87	-50.41	-0.08	0.3602		254	0.71	134	26.65			354.55	Si
SLV 8	15.03	-38.33	16.77	9.1502		392	0.3488	162	15.8			0.94	No, $V_u < V$
SLV 13	11.87	-23.76	-1.81	-0.4007		120	0.71	107	21.32			11.75	Si
SLV 13	15.03	-14.98	-10.79	1.0995		75	0.71	98	19.56			1.81	Si
SLV 9	11.87	-17.97	-3.12	-0.5948		90	0.71	101	20.16			6.45	Si
SLV 9	15.03	-22.81	-19.08	0.1452		115	0.71	106	21.13			1.11	Si
SLV 6	11.87	-21.64	-3.28	-0.5025		109	0.71	105	20.89			6.36	Si
SLV 6	15.03	-31.55	-16.27	1.594		159	0.71	115	22.88			1.41	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.53	90	-17.79	0.8204	2.3087	2.81	Si
SLV 10	1438	0.53	90	-17.79	0.8204	2.3087	2.81	Si
SLV 6	1438	0.53	112	-22.35	0.8204	2.8411	3.46	Si
SLV 5	1438	0.53	112	-22.35	0.8204	2.8411	3.46	Si
SLV 14	1438	0.53	116	-23.04	0.8204	2.9197	3.56	Si
SLV 13	1438	0.53	116	-23.04	0.8204	2.9197	3.56	Si
SLV 15	1438	0.53	161	-32.09	0.8204	3.8994	4.75	Si
SLV 16	1438	0.53	161	-32.09	0.8204	3.8994	4.75	Si
SLV 1	1438	0.53	192	-38.23	0.8204	4.5095	5.5	Si
SLV 2	1438	0.53	192	-38.23	0.8204	4.5095	5.5	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	$\alpha_0^*$	$\alpha_{lim}$	Verifica
SLV 16	-17.01	-32.4	1.67	0	2.64	0.914	0	10.55091	No
SLV 15	-17.01	-32.4	1.67	0	2.64	0.914	0	10.55091	No
SLV 13	-14.98	-23.76	1.83	0	2.437	0.91	0	10.55091	No
SLV 14	-14.98	-23.76	1.83	0	2.437	0.91	0	10.55091	No
SLV 4	-46.16	-44.62	-1.9	0.013	5.586	0.954	0.19051	10.55091	No
SLV 3	-46.16	-44.62	-1.9	0.013	5.586	0.954	0.19051	10.55091	No
SLV 2	-44.12	-35.99	-1.73	0.015	5.38	0.952	0.22146	10.55091	No
SLV 1	-44.12	-35.99	-1.73	0.015	5.38	0.952	0.22146	10.55091	No
SLV 10	-22.81	-17.97	0.78	0.026	3.222	0.926	0.40484	10.9083	No
SLV 9	-22.81	-17.97	0.78	0.026	3.222	0.926	0.40484	10.9083	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.795	SLU 80	No
V_SLU	4.268	SLU 80	Si
PF_SLV	1.198	SLV 11	Si
V_SLV	0.898	SLV 11	No
PFFP_SLV	2.814	SLV 9	Si
R_SLV	0	SLV 13	No

## Maschio 188

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-18.448	-3.359	-18.448	1.046	L6	L7	4.406	0.14	3.16	3.16	3.16			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 9	11.87	-57.14	28.5397	93	111.5595	3.909	Si
SLU 9	15.03	-17.55	-35.8778	28	37.3059	1.04	Si
SLU 37	11.87	-68.3	30.4029	111	130.0078	4.276	Si
SLU 37	15.03	-19.11	-39.8811	31	40.5053	1.016	Si
SLU 38	11.87	-67.83	33.035	110	129.2391	3.912	Si
SLU 38	15.03	-19.86	-41.6158	32	42.0217	1.01	Si
SLU 29	11.87	-64.02	29.2894	104	123.0603	4.202	Si
SLU 29	15.03	-19.31	-39.9072	31	40.8976	1.025	Si
SLU 8	11.87	-57.62	25.9076	93	112.3731	4.337	Si
SLU 8	15.03	-16.8	-34.1431	27	35.7743	1.048	Si
SLU 17	11.87	-61.42	29.6532	100	118.7653	4.005	Si
SLU 17	15.03	-17.36	-35.8517	28	36.9106	1.03	Si
SLU 30	11.87	-63.54	31.9215	103	122.2737	3.83	Si
SLU 30	15.03	-20.05	-41.6418	33	42.4127	1.019	Si
SLU 16	11.87	-61.9	27.0212	100	119.5608	4.425	Si
SLU 16	15.03	-16.61	-34.1171	27	35.3778	1.037	Si
SLU 79	11.87	-80.81	34.0719	131	149.3833	4.384	Si
SLU 79	15.03	-19.68	-39.7686	32	41.6629	1.048	Si
SLU 80	11.87	-80.33	36.7039	130	148.6672	4.05	Si
SLU 80	15.03	-20.43	-41.5033	33	43.1756	1.04	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 12	11.87	-52.51	20.8924	85	107.6098	5.151	Si
SLD 12	15.03	-8.28	-20.7989	0	0	0	No, e>l/2
SLV 6	11.87	-51.57	9.0789	84	105.818	11.655	Si
SLV 6	15.03	1.35	23.6031	0	0	0	No, Trazione
SLV 10	11.87	-50.57	15.8678	82	103.9213	6.549	Si
SLV 10	15.03	-0.43	23.6737	0	0	0	No, e>l/2
SLV 5	11.87	-51.57	9.0789	84	105.818	11.655	Si
SLV 5	15.03	1.35	23.6031	0	0	0	No, Trazione
SLV 3	11.87	-54.02	7.5359	88	110.4668	14.659	Si
SLV 3	15.03	-4.22	-17.4164	0	0	0	No, e>l/2
SLV 4	11.87	-54.02	7.5359	88	110.4668	14.659	Si
SLV 4	15.03	-4.22	-17.4164	0	0	0	No, e>l/2
SLD 11	11.87	-52.51	20.8924	85	107.6098	5.151	Si
SLD 11	15.03	-8.28	-20.7989	0	0	0	No, e>l/2
SLV 8	11.87	-53.55	18.8903	87	109.5863	5.801	Si
SLV 8	15.03	-10.41	-39.3773	0	0	0	No, e>l/2
SLV 9	11.87	-50.57	15.8678	82	103.9213	6.549	Si
SLV 9	15.03	-0.43	23.6737	0	0	0	No, e>l/2
SLV 7	11.87	-53.55	18.8903	87	109.5863	5.801	Si
SLV 7	15.03	-10.41	-39.3773	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 38	11.87	-67.83	10.84	33.035		110	4.4057	70	43.31			3.99	Si
SLU 38	15.03	-19.86	22.18	-41.6158		440	0.3225	108	4.89			0.22	No, Vu<V
SLU 37	11.87	-68.3	10.72	30.4029		111	4.4057	70	43.37			4.05	Si
SLU 37	15.03	-19.11	20.13	-39.8811		391	0.3494	108	5.27			0.26	No, Vu<V
SLU 80	11.87	-80.33	11.31	36.7039		130	4.4057	73	44.98			3.98	Si
SLU 80	15.03	-20.43	22.61	-41.5033		284	0.5143	93	6.72			0.3	No, Vu<V
SLU 16	11.87	-61.9	9.55	27.0212		100	4.4057	69	42.52			4.45	Si
SLU 16	15.03	-16.61	17.53	-34.1171		266	0.4462	91	5.68			0.32	No, Vu<V
SLU 30	11.87	-63.54	11.1	31.9215		103	4.4057	69	42.74			3.85	Si
SLU 30	15.03	-20.05	22.37	-41.6418		378	0.3791	106	5.62			0.25	No, Vu<V
SLU 29	11.87	-64.02	10.97	29.2894		104	4.4057	69	42.8			3.9	Si
SLU 29	15.03	-19.31	20.33	-39.9072		338	0.4078	101	5.75			0.28	No, Vu<V
SLU 72	11.87	-76.05	11.56	35.5904		123	4.4057	72	44.41			3.84	Si
SLU 72	15.03	-20.62	22.81	-41.5293		260	0.5675	90	7.16			0.31	No, Vu<V
SLU 17	11.87	-61.42	9.67	29.6532		100	4.4057	69	42.46			4.39	Si
SLU 17	15.03	-17.36	19.58	-35.8517		301	0.4113	96	5.51			0.28	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	11.87	-70.44	10.16	33.4962		114	4.4057	71	43.66			4.3	Si
SLU 36	15.03	-19.26	20.97	-38.823		245	0.5615	88	6.94			0.33	No, Vu<V
SLU 9	11.87	-57.14	9.92	28.5397		93	4.4057	68	41.89			4.22	Si
SLU 9	15.03	-17.55	19.78	-35.8778		264	0.475	91	6.03			0.31	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	11.87	-54.02	8.92	7.5359		88	4.4057	101	62.2			6.97	Si
SLV 4	15.03	-4.22	11.65	-17.4164		0	0	83	0			0	No, Vu<V
SLV 6	11.87	-51.57	-53.16	9.0789		84	4.4057	100	61.71			1.16	Si
SLV 6	15.03	1.35	-27.05	23.6031		0	0	83	0			0	No, Vu<V
SLV 10	11.87	-50.57	-47.04	15.8678		82	4.4057	100	61.51			1.31	Si
SLV 10	15.03	-0.43	-25.34	23.6737		0	0	83	0			0	No, Vu<V
SLV 3	11.87	-54.02	8.92	7.5359		88	4.4057	101	62.2			6.97	Si
SLV 3	15.03	-4.22	11.65	-17.4164		0	0	83	0			0	No, Vu<V
SLD 12	11.87	-52.51	26.41	20.8924		85	4.4057	100	61.9			2.34	Si
SLD 12	15.03	-8.28	18.38	-20.7989		0	0	83	0			0	No, Vu<V
SLV 5	11.87	-51.57	-53.16	9.0789		84	4.4057	100	61.71			1.16	Si
SLV 5	15.03	1.35	-27.05	23.6031		0	0	83	0			0	No, Vu<V
SLV 8	11.87	-53.55	53.33	18.8903		87	4.4057	101	62.11			1.16	Si
SLV 8	15.03	-10.41	35.56	-39.3773		0	0	83	0			0	No, Vu<V
SLV 7	11.87	-53.55	53.33	18.8903		87	4.4057	101	62.11			1.16	Si
SLV 7	15.03	-10.41	35.56	-39.3773		0	0	83	0			0	No, Vu<V
SLD 11	11.87	-52.51	26.41	20.8924		85	4.4057	100	61.9			2.34	Si
SLD 11	15.03	-8.28	18.38	-20.7989		0	0	83	0			0	No, Vu<V
SLV 9	11.87	-50.57	-47.04	15.8678		82	4.4057	100	61.51			1.31	Si
SLV 9	15.03	-0.43	-25.34	23.6737		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.53	0	-21.31	2.6611	0	0	No, e>t/2
SLV 2	1438	0.53	0	-24.73	2.6611	0	0	No, e>t/2
SLV 3	1438	0.53	0	-28.26	2.6611	0	0	No, e>t/2
SLV 6	1438	0.53	0	-21.31	2.6611	0	0	No, e>t/2
SLV 9	1438	0.53	0	-21.92	2.6611	0	0	No, e>t/2
SLV 10	1438	0.53	0	-21.92	2.6611	0	0	No, e>t/2
SLV 7	1438	0.53	0	-33.1	2.6611	0	0	No, e>t/2
SLV 1	1438	0.53	0	-24.73	2.6611	0	0	No, e>t/2
SLV 4	1438	0.53	0	-28.26	2.6611	0	0	No, e>t/2
SLV 8	1438	0.53	0	-33.1	2.6611	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0003 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	1.35	-51.57	0.07	0	0	0	0	21.19413	No, Trazione
SLV 5	1.35	-51.57	0.07	0	0	0	0	21.19413	No, Trazione
SLV 16	-10.15	-50.7	-0.22	0.028	4.132	0.896	0.45806	21.19251	No
SLV 15	-10.15	-50.7	-0.22	0.028	4.132	0.896	0.45806	21.19251	No
SLV 1	-0.69	-53.42	0.22	0.031	3.581	0.982	0.46262	21.19251	No
SLV 2	-0.69	-53.42	0.22	0.031	3.581	0.982	0.46262	21.19251	No
SLV 13	-6.63	-50.1	-0.22	0.029	3.867	0.91	0.4657	21.19251	No
SLV 14	-6.63	-50.1	-0.22	0.029	3.867	0.91	0.4657	21.19251	No
SLV 4	-4.22	-54.02	0.22	0.03	3.716	0.928	0.46698	21.19251	No
SLV 3	-4.22	-54.02	0.22	0.03	3.716	0.928	0.46698	21.19251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.01	SLU 38	Si
V_SLU	0.221	SLU 38	No
PF_SLV	0	SLV 6	No
V_SLV	0	SLD 3	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 6	No

## Maschio 189

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-15.058	1.046	-15.058	1.406	L6	L7	0.36	0.14	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 54	11.87	-23.12	1.4411	459	1.818	1.262	Si
SLU 54	13.97	4.93	-1.2089	0	0	0	No, Trazione
SLU 53	11.87	-23.15	1.4443	459	1.8173	1.258	Si
SLU 53	13.97	4.91	-1.2105	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 55	11.87	-22.11	1.3929	439	1.8365	1.318	Si
SLU 55	13.97	4.97	-1.1444	0	0	0	No, Trazione
SLU 57	11.87	-25.49	1.6231	506	1.7397	1.072	Si
SLU 57	13.97	5.53	-1.2872	0	0	0	No, Trazione
SLU 61	11.87	-20.97	1.3416	416	1.8466	1.376	Si
SLU 61	13.97	5.43	-1.181	0	0	0	No, Trazione
SLU 60	11.87	-21	1.3448	417	1.8465	1.373	Si
SLU 60	13.97	5.41	-1.1826	0	0	0	No, Trazione
SLU 58	11.87	-24.53	1.5802	487	1.7774	1.125	Si
SLU 58	13.97	5.55	-1.2253	0	0	0	No, Trazione
SLU 56	11.87	-25.52	1.6263	506	1.7383	1.069	Si
SLU 56	13.97	5.52	-1.2888	0	0	0	No, Trazione
SLU 59	11.87	-24.49	1.5771	486	1.7785	1.128	Si
SLU 59	13.97	5.57	-1.2237	0	0	0	No, Trazione
SLU 1	11.87	-13.94	0.783	277	1.6573	2.117	Si
SLU 1	13.97	1.91	-0.6761	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	11.87	-11.78	0.3447	234	1.715	4.975	Si
SLV 13	13.97	2.16	-0.8855	0	0	0	No, Trazione
SLV 11	11.87	-39.34	4.1642	781	2.5577	0.614	No, M>Mu
SLV 11	13.97	15.74	-1.4567	0	0	0	No, Trazione
SLV 7	11.87	-37.59	3.9691	746	2.6361	0.664	No, M>Mu
SLV 7	13.97	14.21	-1.3123	0	0	0	No, Trazione
SLV 12	11.87	-39.34	4.1642	781	2.5577	0.614	No, M>Mu
SLV 12	13.97	15.74	-1.4567	0	0	0	No, Trazione
SLV 14	11.87	-11.78	0.3447	234	1.715	4.975	Si
SLV 14	13.97	2.16	-0.8855	0	0	0	No, Trazione
SLD 1	11.87	-11.6	0.4278	230	1.6945	3.961	Si
SLD 1	13.97	0.54	-0.638	0	0	0	No, Trazione
SLV 10	11.87	6.19	-2.0621	0	0	0	No, Trazione
SLV 10	13.97	-7.92	-0.3186	157	1.2419	3.898	Si
SLV 6	11.87	7.94	-2.2572	0	0	0	No, Trazione
SLV 6	13.97	-9.46	-0.1742	188	1.4406	8.27	Si
SLV 9	11.87	6.19	-2.0621	0	0	0	No, Trazione
SLV 9	13.97	-7.92	-0.3186	157	1.2419	3.898	Si
SLV 8	11.87	-37.59	3.9691	746	2.6361	0.664	No, M>Mu
SLV 8	13.97	14.21	-1.3123	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	11.87	-22.11	3.22	1.3929		450	0.351	108	5.32			1.65	Si
SLU 55	13.97	4.97	3.4	-1.1444		0	0	56	0			0	No, Vu<V
SLU 56	11.87	-25.52	3.76	1.6263		523	0.3488	108	5.29			1.41	Si
SLU 56	13.97	5.52	3.91	-1.2888		0	0	56	0			0	No, Vu<V
SLU 53	11.87	-23.15	3.39	1.4443		469	0.3528	108	5.35			1.58	Si
SLU 53	13.97	4.91	3.52	-1.2105		0	0	56	0			0	No, Vu<V
SLU 1	11.87	-13.94	1.83	0.783		277	0.36	92	4.66			2.55	Si
SLU 1	13.97	1.91	1.94	-0.6761		0	0	56	0			0	No, Vu<V
SLU 61	11.87	-20.97	3.17	1.3416		430	0.348	108	5.28			1.66	Si
SLU 61	13.97	5.43	3.33	-1.181		0	0	56	0			0	No, Vu<V
SLU 59	11.87	-24.49	3.61	1.5771		504	0.3468	108	5.26			1.46	Si
SLU 59	13.97	5.57	3.78	-1.2237		0	0	56	0			0	No, Vu<V
SLU 60	11.87	-21	3.19	1.3448		431	0.3479	108	5.28			1.66	Si
SLU 60	13.97	5.41	3.32	-1.1826		0	0	56	0			0	No, Vu<V
SLU 54	11.87	-23.12	3.37	1.4411		468	0.353	108	5.35			1.59	Si
SLU 54	13.97	4.93	3.53	-1.2089		0	0	56	0			0	No, Vu<V
SLU 57	11.87	-25.49	3.74	1.6231		522	0.3489	108	5.29			1.41	Si
SLU 57	13.97	5.53	3.91	-1.2872		0	0	56	0			0	No, Vu<V
SLU 58	11.87	-24.53	3.62	1.5802		505	0.3467	108	5.26			1.45	Si
SLU 58	13.97	5.55	3.78	-1.2253		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	11.87	-39.34	15.48	4.1642		1263	0.2224	163	5.06			0.33	No, Vu<V
SLV 12	13.97	15.74	0.5	-1.4567		0	0	83	0			0	No, Vu<V
SLV 9	11.87	6.19	-10.09	-2.0621		0	0	83	0			0	No, Vu<V
SLV 9	13.97	-7.92	4.67	-0.3186		157	0.36	115	5.78			1.24	Si
SLV 13	11.87	-11.78	-0.07	0.3447		234	0.36	130	6.56			100.35	Si
SLV 13	13.97	2.16	3.78	-0.8855		0	0	83	0			0	No, Vu<V
SLV 7	11.87	-37.59	14.56	3.9691		1203	0.2232	163	5.08			0.35	No, Vu<V
SLV 7	13.97	14.21	0.01	-1.3123		0	0	83	0			0	No, Vu<V
SLD 1	11.87	-11.6	0.01	0.4278		230	0.36	129	6.52			939.57	Si
SLD 1	13.97	0.54	2.25	-0.638		0	0	83	0			0	No, Vu<V
SLV 10	11.87	6.19	-10.09	-2.0621		0	0	83	0			0	No, Vu<V
SLV 10	13.97	-7.92	4.67	-0.3186		157	0.36	115	5.78			1.24	Si
SLV 11	11.87	-39.34	15.48	4.1642		1263	0.2224	163	5.06			0.33	No, Vu<V
SLV 11	13.97	15.74	0.5	-1.4567		0	0	83	0			0	No, Vu<V
SLV 6	11.87	7.94	-11.01	-2.2572		0	0	83	0			0	No, Vu<V
SLV 6	13.97	-9.46	4.18	-0.1742		188	0.36	121	6.09			1.46	Si
SLV 14	11.87	-11.78	-0.07	0.3447		234	0.36	130	6.56			100.35	Si
SLV 14	13.97	2.16	3.78	-0.8855		0	0	83	0			0	No, Vu<V
SLV 8	11.87	-37.59	14.56	3.9691		1203	0.2232	163	5.08			0.35	No, Vu<V
SLV 8	13.97	14.21	0.01	-1.3123		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0003 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.53	0	-2.25	0.2174	0	0	No, $e > t/2$
SLV 13	1438	0.53	0	-2.25	0.2174	0	0	No, $e > t/2$
SLV 11	1438	0.53	0	9.74	0.2174	0	0	No, Trazione
SLV 4	1438	0.53	0	0.44	0.2174	0	0	No, Trazione
SLV 12	1438	0.53	0	9.74	0.2174	0	0	No, Trazione
SLV 3	1438	0.53	0	0.44	0.2174	0	0	No, Trazione
SLV 15	1438	0.53	0	3.83	0.2174	0	0	No, Trazione
SLV 7	1438	0.53	0	8.72	0.2174	0	0	No, Trazione
SLV 8	1438	0.53	0	8.72	0.2174	0	0	No, Trazione
SLV 16	1438	0.53	0	3.83	0.2174	0	0	No, Trazione

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 13.45  $W_a = 0.0003$   $T_a = 0.1191$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	2.58	7.94	0.13	0	0	0	0	21.19413	No, Trazione
SLV 3	-2.55	-19.61	0.52	0	0.495	0.897	0	21.19251	No
SLV 14	-0.89	-11.78	-0.52	0	0.343	0.894	0	21.19251	No
SLV 10	2.32	6.19	-0.17	0	0	0	0	21.19413	No, Trazione
SLV 1	-0.05	-5.95	0.5	0	0.293	0.985	0	21.19251	No
SLV 4	-2.55	-19.61	0.52	0	0.495	0.897	0	21.19251	No
SLV 13	-0.89	-11.78	-0.52	0	0.343	0.894	0	21.19251	No
SLV 6	2.58	7.94	0.13	0	0	0	0	21.19413	No, Trazione
SLV 9	2.32	6.19	-0.17	0	0	0	0	21.19413	No, Trazione
SLV 2	-0.05	-5.95	0.5	0	0.293	0.985	0	21.19251	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 10	No

## Maschio 190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-15.058	2.206	-15.058	6.661	L6	L7	4.455	0.14	3.16	3.16	3.16			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 19	11.87	-84.39	35.8165	135	156.7622	4.377	Si
SLU 19	13.97	-32.8	-17.544	53	68.3458	3.896	Si
SLU 61	11.87	-100.91	39.4424	162	180.1303	4.567	Si
SLU 61	13.97	-39.09	-19.9837	63	80.3743	4.022	Si
SLU 60	11.87	-100.98	39.4933	162	180.2206	4.563	Si
SLU 60	13.97	-39.08	-19.9076	63	80.3636	4.037	Si
SLU 40	11.87	-95.58	42.3423	153	172.8551	4.082	Si
SLU 40	13.97	-38.56	-20.7096	62	79.3784	3.833	Si
SLU 31	11.87	-90.55	37.4115	145	165.7503	4.43	Si
SLU 31	13.97	-36.99	-19.045	59	76.4033	4.012	Si
SLU 39	11.87	-95.65	42.3932	153	172.9485	4.08	Si
SLU 39	13.97	-38.56	-20.6334	62	79.3676	3.847	Si
SLU 73	11.87	-107.06	41.0375	172	188.2273	4.587	Si
SLU 73	13.97	-43.28	-21.4847	69	88.2005	4.105	Si
SLU 81	11.87	-112.16	46.0191	180	194.6869	4.231	Si
SLU 81	13.97	-44.85	-23.0731	72	91.0786	3.947	Si
SLU 82	11.87	-112.1	45.9682	180	194.6032	4.233	Si
SLU 82	13.97	-44.85	-23.1493	72	91.089	3.935	Si
SLU 18	11.87	-84.46	35.8674	135	156.8622	4.373	Si
SLU 18	13.97	-32.79	-17.4679	53	68.3348	3.912	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	11.87	-80.07	59.1096	128	159.621	2.7	Si
SLV 6	13.97	-9.72	24.9392	0	0	0	No, $e > l/2$
SLV 7	11.87	-74	-6.4004	119	148.8258	23.253	Si
SLV 7	13.97	-51.88	-47.5976	83	107.7021	2.263	Si
SLV 8	11.87	-74	-6.4004	119	148.8258	23.253	Si
SLV 8	13.97	-51.88	-47.5976	83	107.7021	2.263	Si
SLV 10	11.87	-74.71	55.7476	120	150.1058	2.693	Si
SLV 10	13.97	-8.61	20.0014	0	0	0	No, $e > l/2$
SLV 12	11.87	-68.64	-9.7624	110	139.1203	14.251	Si
SLV 12	13.97	-50.77	-52.5353	81	105.5554	2.009	Si
SLV 5	11.87	-80.07	59.1096	128	159.621	2.7	Si
SLV 5	13.97	-9.72	24.9392	0	0	0	No, $e > l/2$
SLV 11	11.87	-68.64	-9.7624	110	139.1203	14.251	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	13.97	-50.77	-52.5353	81	105.5554	2.009	Si
SLV 9	11.87	-74.71	55.7476	120	150.1058	2.693	Si
SLV 9	13.97	-8.61	20.0014	0	0	0	No, $e>l/2$
SLV 15	11.87	-64.51	9.2438	103	131.5321	14.229	Si
SLV 15	13.97	-34.71	-32.9082	56	73.8045	2.243	Si
SLV 16	11.87	-64.51	9.2438	103	131.5321	14.229	Si
SLV 16	13.97	-34.71	-32.9082	56	73.8045	2.243	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	11.87	-112.16	-3.18	46.0191		180	4.455	80	49.61			15.61	Si
SLU 81	13.97	-44.85	-5.71	-23.0731		72	4.455	65	40.63			7.11	Si
SLU 8	11.87	-70.41	5.67	13.5613		113	4.455	71	44.04			7.76	Si
SLU 8	13.97	-38.13	-0.66	-12.2955		61	4.455	64	39.73			60.57	Si
SLU 60	11.87	-100.98	-3.9	39.4933		162	4.455	77	48.11			12.32	Si
SLU 60	13.97	-39.08	-5.39	-19.9076		63	4.455	64	39.86			7.4	Si
SLU 29	11.87	-81.6	6.4	20.0871		131	4.455	73	45.53			7.12	Si
SLU 29	13.97	-43.89	-0.98	-15.461		70	4.455	65	40.5			41.3	Si
SLU 73	11.87	-107.06	-2.56	41.0375		172	4.455	78	48.93			19.13	Si
SLU 73	13.97	-43.28	-5.09	-21.4847		69	4.455	65	40.42			7.94	Si
SLU 30	11.87	-81.53	6.49	20.0363		131	4.455	73	45.52			7.02	Si
SLU 30	13.97	-43.89	-0.89	-15.5372		70	4.455	65	40.5			45.48	Si
SLU 28	11.87	-84.31	5.67	22.9916		135	4.455	74	45.89			8.09	Si
SLU 28	13.97	-44.41	-1.3	-16.1554		71	4.455	65	40.57			31.33	Si
SLU 82	11.87	-112.1	-3.09	45.9682		180	4.455	80	49.6			16.05	Si
SLU 82	13.97	-44.85	-5.62	-23.1493		72	4.455	65	40.63			7.23	Si
SLU 9	11.87	-70.34	5.76	13.5105		113	4.455	71	44.03			7.64	Si
SLU 9	13.97	-38.13	-0.57	-12.3717		61	4.455	64	39.73			70.23	Si
SLU 61	11.87	-100.91	-3.82	39.4424		162	4.455	77	48.1			12.61	Si
SLU 61	13.97	-39.09	-5.3	-19.9837		63	4.455	64	39.86			7.53	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	11.87	-84.2	-22.36	40.1034		135	4.455	110	68.82			3.08	Si
SLV 2	13.97	-25.78	-15.63	5.312		41	4.455	92	57.13			3.65	Si
SLV 8	11.87	-74	28.16	-6.4004		119	4.455	107	66.77			2.37	Si
SLV 8	13.97	-51.88	3.11	-47.5976		94	3.9303	102	56.23			18.08	Si
SLV 5	11.87	-80.07	-38.01	59.1096		128	4.455	109	67.99			1.79	Si
SLV 5	13.97	-9.72	-15.6	24.9392		0	0	83	0			0	No, $Vu < V$
SLV 1	11.87	-84.2	-22.36	40.1034		135	4.455	110	68.82			3.08	Si
SLV 1	13.97	-25.78	-15.63	5.312		41	4.455	92	57.13			3.65	Si
SLV 9	11.87	-74.71	-31.58	55.7476		120	4.444	107	66.79			2.12	Si
SLV 9	13.97	-8.61	-9.96	20.0014		0	0	83	0			0	No, $Vu < V$
SLV 7	11.87	-74	28.16	-6.4004		119	4.455	107	66.77			2.37	Si
SLV 7	13.97	-51.88	3.11	-47.5976		94	3.9303	102	56.23			18.08	Si
SLV 12	11.87	-68.64	34.59	-9.7624		110	4.455	105	65.7			1.9	Si
SLV 12	13.97	-50.77	8.75	-52.5353		101	3.5782	104	51.9			5.93	Si
SLV 10	11.87	-74.71	-31.58	55.7476		120	4.444	107	66.79			2.12	Si
SLV 10	13.97	-8.61	-9.96	20.0014		0	0	83	0			0	No, $Vu < V$
SLV 6	11.87	-80.07	-38.01	59.1096		128	4.455	109	67.99			1.79	Si
SLV 6	13.97	-9.72	-15.6	24.9392		0	0	83	0			0	No, $Vu < V$
SLV 11	11.87	-68.64	34.59	-9.7624		110	4.455	105	65.7			1.9	Si
SLV 11	13.97	-50.77	8.75	-52.5353		101	3.5782	104	51.9			5.93	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.53	0	-28.48	2.6909	0	0	No, $e>t/2$
SLV 13	1438	0.53	0	-28.48	2.6909	0	0	No, $e>t/2$
SLV 6	1438	0.53	0	-17.1	2.6909	0	0	No, $e>t/2$
SLV 9	1438	0.53	0	-15.48	2.6909	0	0	No, $e>t/2$
SLV 10	1438	0.53	0	-15.48	2.6909	0	0	No, $e>t/2$
SLV 1	1438	0.53	0	-33.88	2.6909	0	0	No, $e>t/2$
SLV 2	1438	0.53	0	-33.88	2.6909	0	0	No, $e>t/2$
SLV 5	1438	0.53	0	-17.1	2.6909	0	0	No, $e>t/2$
SLV 15	1438	0.53	66	-41.25	2.6909	2.7309	1.01	Si
SLV 16	1438	0.53	66	-41.25	2.6909	2.7309	1.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0003 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	-11.96	-74	-0.26	0.027	4.317	0.893	0.43268	21.19413	No
SLV 7	-11.96	-74	-0.26	0.027	4.317	0.893	0.43268	21.19413	No
SLV 9	-1.18	-74.71	0.26	0.029	3.63	0.972	0.43339	21.19413	No
SLV 10	-1.18	-74.71	0.26	0.029	3.63	0.972	0.43339	21.19413	No
SLV 11	-10.4	-68.64	-0.23	0.028	4.188	0.896	0.45193	21.19413	No
SLV 12	-10.4	-68.64	-0.23	0.028	4.188	0.896	0.45193	21.19413	No
SLV 5	-2.74	-80.07	0.23	0.03	3.682	0.945	0.45927	21.19413	No
SLV 6	-2.74	-80.07	0.23	0.03	3.682	0.945	0.45927	21.19413	No
SLV 4	-10.56	-82.38	-0.12	0.032	4.201	0.895	0.51523	21.19251	No
SLV 3	-10.56	-82.38	-0.12	0.032	4.201	0.895	0.51523	21.19251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	3.833	SLU 40	Si
V SLU	7.018	SLU 30	Si
PF SLV	0	SLV 5	No
V SLV	0	SLV 5	No



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	0	SLV 1	No
R SLV	0.02	SLV 7	No

## Maschio 191

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)  
Maschio considerato membratura sismica secondaria

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-0.354	-13.753	-0.228	L6	L7	0.126	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 61	11.87	-2	0.0352	57	0.1169	3.324	Si
SLU 61	13.97	-0.29	-0.0624	0	0	0	No, e>l/2
SLU 54	11.87	-2.23	0.0228	63	0.1291	5.664	Si
SLU 54	13.97	-0.29	-0.0523	0	0	0	No, e>l/2
SLU 53	11.87	-2.24	0.0242	64	0.1299	5.363	Si
SLU 53	13.97	-0.29	-0.0502	0	0	0	No, e>l/2
SLU 1	11.87	-2.07	-0.0171	59	0.1207	7.047	Si
SLU 1	13.97	-0.29	-0.0506	0	0	0	No, e>l/2
SLU 57	11.87	-2.29	0.0291	65	0.1325	4.548	Si
SLU 57	13.97	-0.26	-0.0378	0	0	0	No, e>l/2
SLU 55	11.87	-2.25	0.022	64	0.1303	5.925	Si
SLU 55	13.97	-0.29	-0.0518	0	0	0	No, e>l/2
SLU 59	11.87	-2.32	0.0293	66	0.1342	4.583	Si
SLU 59	13.97	-0.26	-0.036	0	0	0	No, e>l/2
SLU 58	11.87	-2.34	0.0307	66	0.135	4.396	Si
SLU 58	13.97	-0.26	-0.034	0	0	0	No, e>l/2
SLU 56	11.87	-2.31	0.0306	66	0.1333	4.361	Si
SLU 56	13.97	-0.26	-0.0358	0	0	0	No, e>l/2
SLU 60	11.87	-2.01	0.0366	57	0.1177	3.217	Si
SLU 60	13.97	-0.29	-0.0603	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	11.87	-2.34	0.01	0.0307		66	0.1257	64	2.27			433.19	Si
SLU 58	13.97	-0.26	-0.1	-0.034		0	0	56	0			0	No, Vu<V
SLU 56	11.87	-2.31	0	0.0306		66	0.1257	64	2.26			458.49	Si
SLU 56	13.97	-0.26	-0.07	-0.0358		0	0	56	0			0	No, Vu<V
SLU 1	11.87	-2.07	0.01	-0.0171		59	0.1257	63	2.23			428.02	Si
SLU 1	13.97	-0.29	-0.01	-0.0506		0	0	56	0			0	No, Vu<V
SLU 61	11.87	-2	0.03	0.0352		57	0.1257	63	2.22			72.02	Si
SLU 61	13.97	-0.29	0.23	-0.0624		0	0	56	0			0	No, Vu<V
SLU 60	11.87	-2.01	0.03	0.0366		57	0.1257	63	2.22			76.06	Si
SLU 60	13.97	-0.29	0.22	-0.0603		0	0	56	0			0	No, Vu<V
SLU 53	11.87	-2.24	0.01	0.0242		64	0.1257	64	2.25			163.3	Si
SLU 53	13.97	-0.29	0.05	-0.0502		0	0	56	0			0	No, Vu<V
SLU 54	11.87	-2.23	0.02	0.0228		63	0.1257	64	2.25			146.07	Si
SLU 54	13.97	-0.29	0.07	-0.0523		0	0	56	0			0	No, Vu<V
SLU 59	11.87	-2.32	0.01	0.0293		66	0.1257	64	2.27			330.75	Si
SLU 59	13.97	-0.26	-0.09	-0.036		0	0	56	0			0	No, Vu<V
SLU 55	11.87	-2.25	0.02	0.022		64	0.1257	64	2.26			134.29	Si
SLU 55	13.97	-0.29	0.05	-0.0518		0	0	56	0			0	No, Vu<V
SLU 57	11.87	-2.29	0.01	0.0291		65	0.1257	64	2.26			345.14	Si
SLU 57	13.97	-0.26	-0.06	-0.0378		0	0	56	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.53	0	0.05	0.1452	0	0	No, Trazione
SLV 11	1438	0.53	0	1.94	0.1452	0	0	No, Trazione
SLV 8	1438	0.53	0	1.56	0.1452	0	0	No, Trazione
SLV 15	1438	0.53	0	0.05	0.1452	0	0	No, Trazione
SLV 12	1438	0.53	0	1.94	0.1452	0	0	No, Trazione
SLV 7	1438	0.53	0	1.56	0.1452	0	0	No, Trazione
SLV 3	1438	0.53	34	-1.21	0.1452	0.1643	1.13	Si
SLV 4	1438	0.53	34	-1.21	0.1452	0.1643	1.13	Si
SLV 13	1438	0.53	55	-1.94	0.1452	0.2589	1.78	Si
SLV 14	1438	0.53	55	-1.94	0.1452	0.2589	1.78	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	1.32	-3.27	0.08	0	0	0	0	10.55091	No, Trazione
SLV 9	2.09	-4.18	0.17	0	0	0	0	10.9083	No, Trazione
SLV 4	0.22	-1.83	-0.02	0	0	0	0	10.55091	No, Trazione
SLV 5	2.33	-4.53	0.19	0	0	0	0	10.9083	No, Trazione
SLV 3	0.22	-1.83	-0.02	0	0	0	0	10.55091	No, Trazione





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	-1.34	0.27	-0.17	0	0	0	0	10.9083	No, Trazione
SLV 1	1.32	-3.27	0.08	0	0	0	0	10.55091	No, Trazione
SLV 8	-1.34	0.27	-0.17	0	0	0	0	10.9083	No, Trazione
SLV 10	2.09	-4.18	0.17	0	0	0	0	10.9083	No, Trazione
SLV 6	2.33	-4.53	0.19	0	0	0	0	10.9083	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU		SLU 1	No
V_SLU		SLU 1	No
PFFP_SLV		SLV 16	No
R_SLV		SLV 14	No

## Maschio 192

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Maschio considerato membratura sismica secondaria

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-13.753	0.672	-13.753	1.046	L6	L7	0.374	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 70	11.87	-17.52	0.4349	167	2.6063	5.993	Si
SLU 70	13.97	-10.96	0.2201	105	1.7874	8.121	Si
SLU 36	11.87	-14.6	0.3988	139	2.2654	5.68	Si
SLU 36	13.97	-9.32	0.2008	89	1.5533	7.737	Si
SLU 30	11.87	-13.31	0.3863	127	2.1031	5.444	Si
SLU 30	13.97	-8.04	0.1955	77	1.3636	6.973	Si
SLU 6	11.87	-13.29	0.3729	127	2.1	5.632	Si
SLU 6	13.97	-8.21	0.1914	78	1.3882	7.252	Si
SLU 69	11.87	-17.41	0.4458	166	2.5942	5.82	Si
SLU 69	13.97	-10.81	0.2263	103	1.7676	7.812	Si
SLU 27	11.87	-13.71	0.4475	131	2.1537	4.813	Si
SLU 27	13.97	-8.3	0.2277	79	1.4016	6.154	Si
SLU 35	11.87	-14.49	0.4097	138	2.2519	5.496	Si
SLU 35	13.97	-9.17	0.2069	88	1.5325	7.406	Si
SLU 29	11.87	-13.2	0.3972	126	2.089	5.259	Si
SLU 29	13.97	-7.9	0.2017	75	1.342	6.654	Si
SLU 7	11.87	-13.4	0.362	128	2.1141	5.841	Si
SLU 7	13.97	-8.35	0.1853	80	1.4095	7.608	Si
SLU 28	11.87	-13.82	0.4366	132	2.1676	4.964	Si
SLU 28	13.97	-8.44	0.2216	80	1.4229	6.421	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 71	11.87	-16.91	0.06	0.3955		161	0.3743	77	8.08			125.88	Si
SLU 71	13.97	-10.42	-0.03	0.2002		99	0.3743	69	7.21			286.38	Si
SLU 27	11.87	-13.71	0.06	0.4475		131	0.3743	73	7.65			120.7	Si
SLU 27	13.97	-8.3	-0.02	0.2277		79	0.3743	66	6.93			306.86	Si
SLU 69	11.87	-17.41	0.06	0.4458		166	0.3743	78	8.14			125.45	Si
SLU 69	13.97	-10.81	-0.03	0.2263		103	0.3743	69	7.26			283.17	Si
SLU 70	11.87	-17.52	0.06	0.4349		167	0.3743	78	8.16			129.69	Si
SLU 70	13.97	-10.96	-0.03	0.2201		105	0.3743	69	7.28			285.12	Si
SLU 72	11.87	-17.02	0.06	0.3846		162	0.3743	77	8.09			130.19	Si
SLU 72	13.97	-10.56	-0.03	0.1941		101	0.3743	69	7.23			288.39	Si
SLU 37	11.87	-13.99	0.06	0.3594		133	0.3743	73	7.69			131.79	Si
SLU 37	13.97	-8.78	-0.02	0.1809		84	0.3743	67	6.99			335.19	Si
SLU 35	11.87	-14.49	0.06	0.4097		138	0.3743	74	7.75			131.23	Si
SLU 35	13.97	-9.17	-0.02	0.2069		88	0.3743	67	7.05			330.25	Si
SLU 28	11.87	-13.82	0.06	0.4366		132	0.3743	73	7.67			124.88	Si
SLU 28	13.97	-8.44	-0.02	0.2216		80	0.3743	66	6.95			309.2	Si
SLU 29	11.87	-13.2	0.06	0.3972		126	0.3743	72	7.58			121.08	Si
SLU 29	13.97	-7.9	-0.02	0.2017		75	0.3743	66	6.88			311.03	Si
SLU 30	11.87	-13.31	0.06	0.3863		127	0.3743	72	7.6			125.34	Si
SLU 30	13.97	-8.04	-0.02	0.1955		77	0.3743	66	6.9			313.44	Si

### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma 0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.53	0	6.39	0.4325	0	0	No, Trazione
SLV 6	1438	0.53	0	6.7	0.4325	0	0	No, Trazione
SLV 5	1438	0.53	0	6.7	0.4325	0	0	No, Trazione
SLV 10	1438	0.53	0	6.39	0.4325	0	0	No, Trazione
SLV 2	1438	0.53	43	-4.51	0.4325	0.6096	1.41	Si
SLV 1	1438	0.53	43	-4.51	0.4325	0.6096	1.41	Si
SLV 14	1438	0.53	53	-5.55	0.4325	0.7432	1.72	Si
SLV 13	1438	0.53	53	-5.55	0.4325	0.7432	1.72	Si
SLV 4	1438	0.53	138	-14.44	0.4325	1.7936	4.15	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.53	138	-14.44	0.4325	1.7936	4.15	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-0.58	5.88	-0.04	0	0	0	0	10.9083	No, Trazione
SLV 6	-1.54	5.1	-0.02	0	0	0	0	10.9083	No, Trazione
SLV 10	-0.58	5.88	-0.04	0	0	0	0	10.9083	No, Trazione
SLV 5	-1.54	5.1	-0.02	0	0	0	0	10.9083	No, Trazione
SLV 7	-5.98	-32.21	0.04	0.054	1.096	0.9	0.8728	10.9083	No
SLV 8	-5.98	-32.21	0.04	0.054	1.096	0.9	0.8728	10.9083	No
SLV 3	-5.55	-20.05	0.04	0.055	1.054	0.898	0.88517	10.55091	No
SLV 4	-5.55	-20.05	0.04	0.055	1.054	0.898	0.88517	10.55091	No
SLV 11	-5.02	-31.44	0.03	0.058	1.002	0.895	0.93353	10.9083	No
SLV 12	-5.02	-31.44	0.03	0.058	1.002	0.895	0.93353	10.9083	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.813	SLU 27	Si
V_SLU	120.696	SLU 27	Si
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 10	No

## Maschio 193

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-19.758	6.661	-17.718	6.661	L6	L7	2.04	0.28	3.16	3.16	3.16			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	12.77	-22.11	4.0069	39	21.4824	5.361	Si
SLU 60	14.57	3.62	20.6805	0	0	0	No, Trazione
SLU 59	12.77	16.18	18.7241	0	0	0	No, Trazione
SLU 59	14.57	41.91	65.9083	0	0	0	No, Trazione
SLU 56	12.77	7.74	18.0352	0	0	0	No, Trazione
SLU 56	14.57	33.47	63.2383	0	0	0	No, Trazione
SLU 54	12.77	-11.43	10.8545	20	11.3762	1.048	Si
SLU 54	14.57	14.3	40.6777	0	0	0	No, Trazione
SLU 55	12.77	-3.04	11.5444	0	0	0	No, e>1/2
SLU 55	14.57	22.69	43.3077	0	0	0	No, Trazione
SLU 61	12.77	-21.97	4.0039	38	21.3501	5.332	Si
SLU 61	14.57	3.77	20.8006	0	0	0	No, Trazione
SLU 53	12.77	-11.58	10.8575	20	11.5152	1.061	Si
SLU 53	14.57	14.16	40.5576	0	0	0	No, Trazione
SLU 1	12.77	-16.2	4.6412	28	15.9493	3.436	Si
SLU 1	14.57	3.67	17.9729	0	0	0	No, Trazione
SLU 58	12.77	16.03	18.7271	0	0	0	No, Trazione
SLU 58	14.57	41.77	65.7882	0	0	0	No, Trazione
SLU 57	12.77	7.88	18.0322	0	0	0	No, Trazione
SLU 57	14.57	33.61	63.3584	0	0	0	No, Trazione

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	12.77	-5.82	21.4566	0	0	0	No, e>1/2
SLV 14	14.57	4.86	18.7026	0	0	0	No, Trazione
SLV 9	12.77	1.44	29.1537	0	0	0	No, Trazione
SLV 9	14.57	15.11	33.4378	0	0	0	No, Trazione
SLD 1	12.77	-13.44	3.4405	24	13.4464	3.908	Si
SLD 1	14.57	9.45	25.7406	0	0	0	No, Trazione
SLV 13	12.77	-5.82	21.4566	0	0	0	No, e>1/2
SLV 13	14.57	4.86	18.7026	0	0	0	No, Trazione
SLV 10	12.77	1.44	29.1537	0	0	0	No, Trazione
SLV 10	14.57	15.11	33.4378	0	0	0	No, Trazione
SLV 6	12.77	-0.74	23.1148	0	0	0	No, e>1/2
SLV 6	14.57	17.78	37.4512	0	0	0	No, Trazione
SLV 7	12.77	-28.78	-19.0066	50	28.1463	1.481	Si
SLV 7	14.57	-2.55	8.7285	0	0	0	No, e>1/2
SLV 4	12.77	-21.52	-11.3095	38	21.2689	1.881	Si
SLV 4	14.57	7.69	23.4637	0	0	0	No, Trazione
SLV 8	12.77	-28.78	-19.0066	50	28.1463	1.481	Si
SLV 8	14.57	-2.55	8.7285	0	0	0	No, e>1/2
SLV 5	12.77	-0.74	23.1148	0	0	0	No, e>1/2
SLV 5	14.57	17.78	37.4512	0	0	0	No, Trazione

#### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 1	12.77	-16.2	-7.08	4.6412		28	2.04	59	33.89			4.79	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 1	14.57	3.67	-7.08	17.9729		0	0	56	0			0	No, Vu<V
SLU 55	12.77	-3.04	-17.23	11.5444		0	0	56	0			0	No, Vu<V
SLU 55	14.57	22.69	-17.23	43.3077		0	0	56	0			0	No, Vu<V
SLU 58	12.77	16.03	-25.72	18.7271		0	0	56	0			0	No, Vu<V
SLU 58	14.57	41.77	-25.72	65.7882		0	0	56	0			0	No, Vu<V
SLU 59	12.77	16.18	-25.79	18.7241		0	0	56	0			0	No, Vu<V
SLU 59	14.57	41.91	-25.79	65.9083		0	0	56	0			0	No, Vu<V
SLU 57	12.77	7.88	-24.76	18.0322		0	0	56	0			0	No, Vu<V
SLU 57	14.57	33.61	-24.76	63.3584		0	0	56	0			0	No, Vu<V
SLU 56	12.77	7.74	-24.69	18.0352		0	0	56	0			0	No, Vu<V
SLU 56	14.57	33.47	-24.69	63.2383		0	0	56	0			0	No, Vu<V
SLU 53	12.77	-11.58	-16.08	10.8575		168	0.2466	78	5.38			0.33	No, Vu<V
SLU 53	14.57	14.16	-16.08	40.5576		0	0	56	0			0	No, Vu<V
SLU 61	12.77	-21.97	-8.91	4.0039		38	2.04	61	34.66			3.89	Si
SLU 61	14.57	3.77	-8.91	20.8006		0	0	56	0			0	No, Vu<V
SLU 60	12.77	-22.11	-8.84	4.0069		39	2.04	61	34.68			3.92	Si
SLU 60	14.57	3.62	-8.84	20.6805		0	0	56	0			0	No, Vu<V
SLU 54	12.77	-11.43	-16.15	10.8545		193	0.2121	81	4.82			0.3	No, Vu<V
SLU 54	14.57	14.3	-16.15	40.6777		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	12.77	-21.52	-18.16	-11.3095		52	1.483	94	38.91			2.14	Si
SLV 4	14.57	7.69	-14.92	23.4637		0	0	83	0			0	No, Vu<V
SLD 1	12.77	-13.44	-12.15	3.4405		24	2.04	88	50.29			4.14	Si
SLD 1	14.57	9.45	-11.09	25.7406		0	0	83	0			0	No, Vu<V
SLV 14	12.77	-5.82	1.02	21.4566		0	0	83	0			0	No, Vu<V
SLV 14	14.57	4.86	-2.22	18.7026		0	0	83	0			0	No, Vu<V
SLV 9	12.77	1.44	-3.62	29.1537		0	0	83	0			0	No, Vu<V
SLV 9	14.57	15.11	-6.12	33.4378		0	0	83	0			0	No, Vu<V
SLV 8	12.77	-28.78	-13.52	-19.0066		95	1.0789	102	30.93			2.29	Si
SLV 8	14.57	-2.55	-11.02	8.7285		0	0	83	0			0	No, Vu<V
SLV 7	12.77	-28.78	-13.52	-19.0066		95	1.0789	102	30.93			2.29	Si
SLV 7	14.57	-2.55	-11.02	8.7285		0	0	83	0			0	No, Vu<V
SLV 5	12.77	-0.74	-8.96	23.1148		0	0	83	0			0	No, Vu<V
SLV 5	14.57	17.78	-9.82	37.4512		0	0	83	0			0	No, Vu<V
SLV 10	12.77	1.44	-3.62	29.1537		0	0	83	0			0	No, Vu<V
SLV 10	14.57	15.11	-6.12	33.4378		0	0	83	0			0	No, Vu<V
SLV 6	12.77	-0.74	-8.96	23.1148		0	0	83	0			0	No, Vu<V
SLV 6	14.57	17.78	-9.82	37.4512		0	0	83	0			0	No, Vu<V
SLV 13	12.77	-5.82	1.02	21.4566		0	0	83	0			0	No, Vu<V
SLV 13	14.57	4.86	-2.22	18.7026		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.53	0	6.17	2.3036	0	0	No, Trazione
SLV 13	1438	0.53	0	-1.53	2.3036	0	0	No, e>t/2
SLV 1	1438	0.53	0	-4.38	2.3036	0	0	No, e>t/2
SLV 10	1438	0.53	0	6.17	2.3036	0	0	No, Trazione
SLV 4	1438	0.53	0	-11.84	2.3036	0	0	No, e>t/2
SLV 5	1438	0.53	0	5.32	2.3036	0	0	No, Trazione
SLV 3	1438	0.53	0	-11.84	2.3036	0	0	No, e>t/2
SLV 6	1438	0.53	0	5.32	2.3036	0	0	No, Trazione
SLV 2	1438	0.53	0	-4.38	2.3036	0	0	No, e>t/2
SLV 14	1438	0.53	0	-1.53	2.3036	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	1.2	-45.22	-2.44	0	0	0	0	10.9083	No, Trazione
SLV 5	27.62	-7.61	2.16	0	0	0	0	10.9083	No, Trazione
SLV 3	16.01	-42.09	-1.14	0	0	0	0	10.55091	No, Trazione
SLV 6	27.62	-7.61	2.16	0	0	0	0	10.9083	No, Trazione
SLV 9	22.86	0.99	2.43	0	0	0	0	10.9083	No, Trazione
SLV 8	1.2	-45.22	-2.44	0	0	0	0	10.9083	No, Trazione
SLV 10	22.86	0.99	2.43	0	0	0	0	10.9083	No, Trazione
SLV 2	23.93	-30.81	0.24	0	0	0	0	10.55091	No, Trazione
SLV 4	16.01	-42.09	-1.14	0	0	0	0	10.55091	No, Trazione
SLV 1	23.93	-30.81	0.24	0	0	0	0	10.55091	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 16	No

## Maschio 194

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.818	6.661	-12.838	6.661	L6	L7	3.98	0.28	3.16	3.16	3.16			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 16	12.77	-62.54	12.0642	56	115.8731	9.605	Si
SLU 16	14.57	-29.8	2.7513	27	57.3494	20.845	Si
SLU 29	12.77	-69.33	14.5324	62	127.4341	8.769	Si
SLU 29	14.57	-33.53	2.8216	30	64.2603	22.774	Si
SLU 8	12.77	-67.28	12.8985	60	123.957	9.61	Si
SLU 8	14.57	-30.46	2.2337	27	58.577	26.224	Si
SLU 17	12.77	-62.61	11.9982	56	115.9986	9.668	Si
SLU 17	14.57	-29.83	2.7589	27	57.4109	20.81	Si
SLU 37	12.77	-64.59	13.6981	58	119.393	8.716	Si
SLU 37	14.57	-32.87	3.3392	29	63.0416	18.879	Si
SLU 35	12.77	-72.72	12.8491	65	133.1195	10.36	Si
SLU 35	14.57	-42.65	3.3497	38	80.8863	24.147	Si
SLU 30	12.77	-69.41	14.4664	62	127.5574	8.818	Si
SLU 30	14.57	-33.56	2.8292	30	64.3214	22.735	Si
SLU 38	12.77	-64.67	13.6321	58	119.5178	8.767	Si
SLU 38	14.57	-32.9	3.3468	30	63.1027	18.855	Si
SLU 27	12.77	-77.46	13.6834	70	140.9917	10.304	Si
SLU 27	14.57	-43.31	2.8321	39	82.0767	28.981	Si
SLU 9	12.77	-67.35	12.8324	60	124.081	9.669	Si
SLU 9	14.57	-30.49	2.2413	27	58.6385	26.163	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 2	12.77	-48.59	-16.7505	44	93.2372	5.566	Si
SLV 2	14.57	-22.24	14.2594	20	43.5343	3.053	Si
SLV 4	12.77	-50.86	-30.4641	46	97.4313	3.198	Si
SLV 4	14.57	-11.79	17.1705	11	23.2639	1.355	Si
SLV 1	12.77	-48.59	-16.7505	44	93.2372	5.566	Si
SLV 1	14.57	-22.24	14.2594	20	43.5343	3.053	Si
SLV 9	12.77	-49.99	32.6181	45	95.8295	2.938	Si
SLV 9	14.57	-43.09	-7.2188	39	83.0294	11.502	Si
SLV 10	12.77	-49.99	32.6181	45	95.8295	2.938	Si
SLV 10	14.57	-43.09	-7.2188	39	83.0294	11.502	Si
SLV 13	12.77	-54.83	34.587	49	104.7141	3.028	Si
SLV 13	14.57	-35.56	-13.5589	32	68.9173	5.083	Si
SLV 8	12.77	-55.7	-28.4951	50	106.3036	3.731	Si
SLV 8	14.57	-4.27	10.8304	0	0	0	No, e>l/2
SLV 7	12.77	-55.7	-28.4951	50	106.3036	3.731	Si
SLV 7	14.57	-4.27	10.8304	0	0	0	No, e>l/2
SLV 3	12.77	-50.86	-30.4641	46	97.4313	3.198	Si
SLV 3	14.57	-11.79	17.1705	11	23.2639	1.355	Si
SLV 14	12.77	-54.83	34.587	49	104.7141	3.028	Si
SLV 14	14.57	-35.56	-13.5589	32	68.9173	5.083	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 27	12.77	-77.46	5.2	13.6834		70	3.98	65	72.24			13.9	Si
SLU 27	14.57	-43.31	5.24	2.8321		39	3.98	61	67.69			12.93	Si
SLU 50	12.77	-82.65	5.09	12.8882		74	3.98	65	72.93			14.32	Si
SLU 50	14.57	-36.3	5.13	2.4791		33	3.98	60	66.75			13.02	Si
SLU 8	12.77	-67.28	5.52	12.8985		60	3.98	64	70.88			12.85	Si
SLU 8	14.57	-30.46	5.55	2.2337		27	3.98	59	65.97			11.89	Si
SLU 9	12.77	-67.35	5.48	12.8324		60	3.98	64	70.89			12.93	Si
SLU 9	14.57	-30.49	5.51	2.2413		27	3.98	59	65.98			11.96	Si
SLU 51	12.77	-82.73	5.06	12.8221		74	3.98	65	72.94			14.43	Si
SLU 51	14.57	-36.33	5.09	2.4867		33	3.98	60	66.76			13.12	Si
SLU 29	12.77	-69.33	5.89	14.5324		62	3.98	64	71.16			12.09	Si
SLU 29	14.57	-33.53	5.93	2.8216		30	3.98	60	66.38			11.2	Si
SLU 28	12.77	-77.53	5.16	13.6174		70	3.98	65	72.25			13.99	Si
SLU 28	14.57	-43.34	5.2	2.8397		39	3.98	61	67.69			13.02	Si
SLU 30	12.77	-69.41	5.85	14.4664		62	3.98	64	71.17			12.16	Si
SLU 30	14.57	-33.56	5.89	2.8292		30	3.98	60	66.39			11.27	Si
SLU 72	12.77	-84.78	5.43	14.4561		76	3.98	66	73.22			13.5	Si
SLU 72	14.57	-39.41	5.47	3.0746		35	3.98	60	67.17			12.29	Si
SLU 71	12.77	-84.71	5.46	14.5221		76	3.98	66	73.21			13.4	Si
SLU 71	14.57	-39.37	5.5	3.067		35	3.98	60	67.16			12.21	Si

## Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	12.77	-55.7	-8.16	-28.4951		50	3.98	93	104.01			12.74	Si
SLV 8	14.57	-4.27	-10.51	10.8304		0	0	83	0			0	No, Vu<V
SLV 14	12.77	-54.83	25.49	34.587		49	3.98	93	103.83			4.07	Si
SLV 14	14.57	-35.56	12.9	-13.5589		32	3.98	90	99.98			7.75	Si
SLV 4	12.77	-50.86	-28	-30.4641		46	3.98	92	103.04			3.68	Si
SLV 4	14.57	-11.79	-15.38	17.1705		26	1.6019	89	39.74			2.58	Si
SLV 13	12.77	-54.83	25.49	34.587		49	3.98	93	103.83			4.07	Si
SLV 13	14.57	-35.56	12.9	-13.5589		32	3.98	90	99.98			7.75	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	12.77	-57.1	26.22	20.8734		51	3.98	94	104.29			3.98	Si
SLV 16	14.57	-25.11	9.58	-10.6478		23	3.98	88	97.89			10.21	Si
SLV 1	12.77	-48.59	-28.73	-16.7505		44	3.98	92	102.58			3.57	Si
SLV 1	14.57	-22.24	-12.07	14.2594		20	3.98	87	97.31			8.06	Si
SLV 3	12.77	-50.86	-28	-30.4641		46	3.98	92	103.04			3.68	Si
SLV 3	14.57	-11.79	-15.38	17.1705		26	1.6019	89	39.74			2.58	Si
SLV 15	12.77	-57.1	26.22	20.8734		51	3.98	94	104.29			3.98	Si
SLV 15	14.57	-25.11	9.58	-10.6478		23	3.98	88	97.89			10.21	Si
SLV 2	12.77	-48.59	-28.73	-16.7505		44	3.98	92	102.58			3.57	Si
SLV 2	14.57	-22.24	-12.07	14.2594		20	3.98	87	97.31			8.06	Si
SLV 7	12.77	-55.7	-8.16	-28.4951		50	3.98	93	104.01			12.74	Si
SLV 7	14.57	-4.27	-10.51	10.8304		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.53	32	-35.93	4.4943	4.897	1.09	Si
SLV 7	1438	0.53	32	-35.93	4.4943	4.897	1.09	Si
SLV 11	1438	0.53	33	-36.67	4.4943	4.9959	1.11	Si
SLV 12	1438	0.53	33	-36.67	4.4943	4.9959	1.11	Si
SLV 3	1438	0.53	38	-41.82	4.4943	5.6753	1.26	Si
SLV 4	1438	0.53	38	-41.82	4.4943	5.6753	1.26	Si
SLV 15	1438	0.53	40	-44.31	4.4943	6.0017	1.34	Si
SLV 16	1438	0.53	40	-44.31	4.4943	6.0017	1.34	Si
SLV 2	1438	0.53	43	-47.62	4.4943	6.4341	1.43	Si
SLV 1	1438	0.53	43	-47.62	4.4943	6.4341	1.43	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	1.53	-73.81	2.91	0	0	0	0	10.9083	No, Trazione
SLV 3	-0.65	-60.73	3.41	0	6.464	0.99	0	10.55091	No
SLV 7	1.53	-73.81	2.91	0	0	0	0	10.9083	No, Trazione
SLV 4	-0.65	-60.73	3.41	0	6.464	0.99	0	10.55091	No
SLV 5	-18.62	-43.37	3.76	0	7.487	0.896	0	10.9083	No
SLV 1	-6.69	-51.6	3.67	0	6.664	0.933	0	10.55091	No
SLV 2	-6.69	-51.6	3.67	0	6.664	0.933	0	10.55091	No
SLV 6	-18.62	-43.37	3.76	0	7.487	0.896	0	10.9083	No
SLV 10	-22.81	-45.45	3.59	0.004	7.833	0.892	0.06761	10.9083	No
SLV 9	-22.81	-45.45	3.59	0.004	7.833	0.892	0.06761	10.9083	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.716	SLU 37	Si
V_SLU	11.202	SLU 29	Si
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	1.09	SLV 7	Si
R_SLV	0	SLV 8	No

## Maschio 195

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota s.	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.938	6.661	-7.958	6.661	L6	L7	3.98	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 9	12.77	-74.93	5.3213	67	136.8101	25.71	Si
SLU 9	14.57	-38.55	-4.7399	35	73.4601	15.498	Si
SLU 38	12.77	-79.25	6.4835	71	143.9446	22.202	Si
SLU 38	14.57	-42.29	-5.5888	38	80.2328	14.356	Si
SLU 8	12.77	-74.95	5.2774	67	136.8335	25.928	Si
SLU 8	14.57	-38.57	-4.7228	35	73.4857	15.56	Si
SLU 29	12.77	-79.76	6.3045	72	144.7821	22.965	Si
SLU 29	14.57	-42.8	-5.6612	38	81.1529	14.335	Si
SLU 30	12.77	-79.75	6.3484	72	144.759	22.803	Si
SLU 30	14.57	-42.78	-5.6783	38	81.1275	14.287	Si
SLU 37	12.77	-79.27	6.4397	71	143.9678	22.356	Si
SLU 37	14.57	-42.3	-5.5717	38	80.2581	14.405	Si
SLU 71	12.77	-96.94	6.2229	87	172.3087	27.689	Si
SLU 71	14.57	-49.26	-5.3778	44	92.7061	17.239	Si
SLU 17	12.77	-74.44	5.4564	67	135.9852	24.922	Si
SLU 17	14.57	-38.06	-4.6504	34	72.5561	15.602	Si
SLU 16	12.77	-74.45	5.4125	67	136.0087	25.128	Si
SLU 16	14.57	-38.07	-4.6333	34	72.5818	15.665	Si
SLU 72	12.77	-96.93	6.2668	87	172.2867	27.492	Si
SLU 72	14.57	-49.24	-5.3949	44	92.6812	17.179	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	12.77	-70.15	-27.8195	63	132.4065	4.759	Si
SLV 1	14.57	-31.14	12.5771	28	60.5465	4.814	Si
SLV 16	12.77	-57.83	30.2875	52	110.1922	3.638	Si
SLV 16	14.57	-23.74	-13.3177	21	46.4253	3.486	Si
SLV 13	12.77	-67.56	24.5592	61	127.7652	5.202	Si
SLV 13	14.57	-29.43	-9.5804	26	57.3081	5.982	Si
SLV 3	12.77	-60.42	-22.0912	54	114.9072	5.201	Si
SLV 3	14.57	-25.45	8.8397	23	49.692	5.621	Si
SLV 12	12.77	-47.39	18.638	43	91.0234	4.884	Si
SLV 12	14.57	-17.7	-9.9228	16	34.7649	3.504	Si
SLV 11	12.77	-47.39	18.638	43	91.0234	4.884	Si
SLV 11	14.57	-17.7	-9.9228	16	34.7649	3.504	Si
SLV 2	12.77	-70.15	-27.8195	63	132.4065	4.759	Si
SLV 2	14.57	-31.14	12.5771	28	60.5465	4.814	Si
SLV 14	12.77	-67.56	24.5592	61	127.7652	5.202	Si
SLV 14	14.57	-29.43	-9.5804	26	57.3081	5.982	Si
SLV 4	12.77	-60.42	-22.0912	54	114.9072	5.201	Si
SLV 4	14.57	-25.45	8.8397	23	49.692	5.621	Si
SLV 15	12.77	-57.83	30.2875	52	110.1922	3.638	Si
SLV 15	14.57	-23.74	-13.3177	21	46.4253	3.486	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 28	12.77	-89.45	5.96	6.0333		80	3.98	66	73.84			12.39	Si
SLU 28	14.57	-52.49	5.96	-5.2596		47	3.98	62	68.91			11.56	Si
SLU 72	12.77	-96.93	6.06	6.2668		87	3.98	67	74.83			12.35	Si
SLU 72	14.57	-49.24	6.06	-5.3949		44	3.98	61	68.48			11.3	Si
SLU 30	12.77	-79.75	6.37	6.3484		72	3.98	65	72.54			11.39	Si
SLU 30	14.57	-42.78	6.37	-5.6783		38	3.98	61	67.62			10.62	Si
SLU 71	12.77	-96.94	6.03	6.2229		87	3.98	67	74.84			12.42	Si
SLU 71	14.57	-49.26	6.03	-5.3778		44	3.98	61	68.48			11.36	Si
SLU 29	12.77	-79.76	6.33	6.3045		72	3.98	65	72.55			11.45	Si
SLU 29	14.57	-42.8	6.33	-5.6612		38	3.98	61	67.62			10.67	Si
SLU 79	12.77	-96.44	6.05	6.3581		87	3.98	67	74.77			12.36	Si
SLU 79	14.57	-48.76	6.05	-5.2883		44	3.98	61	68.41			11.31	Si
SLU 37	12.77	-79.27	6.36	6.4397		71	3.98	65	72.48			11.4	Si
SLU 37	14.57	-42.3	6.36	-5.5717		38	3.98	61	67.55			10.62	Si
SLU 38	12.77	-79.25	6.39	6.4835		71	3.98	65	72.48			11.34	Si
SLU 38	14.57	-42.29	6.39	-5.5888		38	3.98	61	67.55			10.56	Si
SLU 36	12.77	-88.96	5.99	6.1685		80	3.98	66	73.77			12.32	Si
SLU 36	14.57	-51.99	5.99	-5.1701		47	3.98	62	68.84			11.5	Si
SLU 80	12.77	-96.43	6.08	6.4019		87	3.98	67	74.77			12.29	Si
SLU 80	14.57	-48.75	6.08	-5.3054		44	3.98	61	68.41			11.24	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	12.77	-67.56	26.13	24.5592		61	3.98	95	106.38			4.07	Si
SLV 13	14.57	-29.43	17.38	-9.5804		26	3.98	89	98.75			5.68	Si
SLV 15	12.77	-57.83	31.23	30.2875		52	3.98	94	104.43			3.34	Si
SLV 15	14.57	-23.74	23.27	-13.3177		21	3.98	88	97.62			4.2	Si
SLV 1	12.77	-70.15	-30.1	-27.8195		63	3.98	96	106.9			3.55	Si
SLV 1	14.57	-31.14	-22.14	12.5771		28	3.98	89	99.09			4.48	Si
SLV 11	12.77	-47.39	17.5	18.638		43	3.98	92	102.34			5.85	Si
SLV 11	14.57	-17.7	16.31	-9.9228		16	3.98	87	96.41			5.91	Si
SLV 3	12.77	-60.42	-25	-22.0912		54	3.98	94	104.95			4.2	Si
SLV 3	14.57	-25.45	-16.25	8.8397		23	3.98	88	97.96			6.03	Si
SLV 12	12.77	-47.39	17.5	18.638		43	3.98	92	102.34			5.85	Si
SLV 12	14.57	-17.7	16.31	-9.9228		16	3.98	87	96.41			5.91	Si
SLV 14	12.77	-67.56	26.13	24.5592		61	3.98	95	106.38			4.07	Si
SLV 14	14.57	-29.43	17.38	-9.5804		26	3.98	89	98.75			5.68	Si
SLV 4	12.77	-60.42	-25	-22.0912		54	3.98	94	104.95			4.2	Si
SLV 4	14.57	-25.45	-16.25	8.8397		23	3.98	88	97.96			6.03	Si
SLV 16	12.77	-57.83	31.23	30.2875		52	3.98	94	104.43			3.34	Si
SLV 16	14.57	-23.74	23.27	-13.3177		21	3.98	88	97.62			4.2	Si
SLV 2	12.77	-70.15	-30.1	-27.8195		63	3.98	96	106.9			3.55	Si
SLV 2	14.57	-31.14	-22.14	12.5771		28	3.98	89	99.09			4.48	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.53	33	-36.87	4.4943	5.0227	1.12	Si
SLV 11	1438	0.53	33	-36.87	4.4943	5.0227	1.12	Si
SLV 7	1438	0.53	33	-37.24	4.4943	5.071	1.13	Si
SLV 8	1438	0.53	33	-37.24	4.4943	5.071	1.13	Si
SLV 15	1438	0.53	41	-45.32	4.4943	6.1337	1.36	Si
SLV 16	1438	0.53	41	-45.32	4.4943	6.1337	1.36	Si
SLV 3	1438	0.53	42	-46.54	4.4943	6.2927	1.4	Si
SLV 4	1438	0.53	42	-46.54	4.4943	6.2927	1.4	Si
SLV 13	1438	0.53	47	-52.93	4.4943	7.1215	1.58	Si
SLV 14	1438	0.53	47	-52.93	4.4943	7.1215	1.58	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-23.19	-81.45	7.14	0	7.866	0.891	0	10.9083	No
SLV 8	-8.03	-57.9	-6.3	0	6.737	0.925	0	10.9083	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 9	-22.88	-84.4	7.16	0	7.839	0.891	0	10.9083	No
SLV 12	-7.72	-60.85	-6.27	0	6.719	0.927	0	10.9083	No
SLV 10	-22.88	-84.4	7.16	0	7.839	0.891	0	10.9083	No
SLV 6	-23.19	-81.45	7.14	0	7.866	0.891	0	10.9083	No
SLV 11	-7.72	-60.85	-6.27	0	6.719	0.927	0	10.9083	No
SLV 7	-8.03	-57.9	-6.3	0	6.737	0.925	0	10.9083	No
SLV 13	-17.21	-79.59	2.49	0.022	7.375	0.898	0.3567	10.55091	No
SLV 14	-17.21	-79.59	2.49	0.022	7.375	0.898	0.3567	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	14.287	SLU 30	Si
V_SLU	10.565	SLU 38	Si
PF_SLV	3.486	SLV 15	Si
V_SLV	3.344	SLV 15	Si
PFFP_SLV	1.118	SLV 11	Si
R_SLV	0	SLV 5	No

## Maschio 196

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.058	6.661	-5.018	6.661	L6	L7	2.04	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 55	12.77	-17.29	-1.6527	30	16.9784	10.273	Si
SLU 55	14.57	9.62	-33.3448	0	0	0	No, Trazione
SLU 61	12.77	-25.99	0.3449	45	25.0247	72.555	Si
SLU 61	14.57	0.92	-19.9946	0	0	0	No, Trazione
SLU 56	12.77	-15.35	-3.2697	27	15.1412	4.631	Si
SLU 56	14.57	11.56	-45.7573	0	0	0	No, Trazione
SLU 57	12.77	-15.09	-3.2831	26	14.8967	4.537	Si
SLU 57	14.57	11.81	-45.9644	0	0	0	No, Trazione
SLU 60	12.77	-26.24	0.3583	46	25.257	70.485	Si
SLU 60	14.57	0.67	-19.7875	0	0	0	No, Trazione
SLU 58	12.77	-8.65	-3.118	15	8.6582	2.777	Si
SLU 58	14.57	18.26	-46.7964	0	0	0	No, Trazione
SLU 53	12.77	-24.42	-1.782	43	23.5983	13.243	Si
SLU 53	14.57	2.49	-31.9606	0	0	0	No, Trazione
SLU 59	12.77	-8.39	-3.1314	15	8.4062	2.684	Si
SLU 59	14.57	18.51	-47.0035	0	0	0	No, Trazione
SLU 1	12.77	-20.65	-0.9387	36	20.1258	21.441	Si
SLU 1	14.57	0.13	-15.5937	0	0	0	No, Trazione
SLU 54	12.77	-24.16	-1.7954	42	23.364	13.013	Si
SLU 54	14.57	2.75	-32.1677	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 14	12.77	-18.71	3.6968	33	18.5687	5.023	Si
SLV 14	14.57	5.79	-25.2527	0	0	0	No, Trazione
SLV 7	12.77	-30.8	13.8388	54	30.0304	2.17	Si
SLV 7	14.57	11.06	-22.7349	0	0	0	No, Trazione
SLV 10	12.77	-7.78	-14.8962	0	0	0	No, e>l/2
SLV 10	14.57	-7.93	-13.2863	0	0	0	No, e>l/2
SLV 12	12.77	-32.69	19.4668	57	31.7858	1.633	Si
SLV 12	14.57	15.72	-28.4444	0	0	0	No, Trazione
SLD 1	12.77	-16.38	-6.7032	29	16.3155	2.434	Si
SLD 1	14.57	-3.24	-12.9615	0	0	0	No, e>l/2
SLV 9	12.77	-7.78	-14.8962	0	0	0	No, e>l/2
SLV 9	14.57	-7.93	-13.2863	0	0	0	No, e>l/2
SLV 13	12.77	-18.71	3.6968	33	18.5687	5.023	Si
SLV 13	14.57	5.79	-25.2527	0	0	0	No, Trazione
SLV 6	12.77	-5.88	-20.5242	0	0	0	No, e>l/2
SLV 6	14.57	-12.59	-7.5768	22	12.6099	1.664	Si
SLV 11	12.77	-32.69	19.4668	57	31.7858	1.633	Si
SLV 11	14.57	15.72	-28.4444	0	0	0	No, Trazione
SLV 8	12.77	-30.8	13.8388	54	30.0304	2.17	Si
SLV 8	14.57	11.06	-22.7349	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 53	12.77	-24.42	16.64	-1.782		43	2.04	61	34.99			2.1	Si
SLU 53	14.57	2.49	16.64	-31.9606		0	0	56	0			0	No, Vu<V
SLU 61	12.77	-25.99	11.17	0.3449		45	2.04	62	35.2			3.15	Si
SLU 61	14.57	0.92	11.17	-19.9946		0	0	56	0			0	No, Vu<V
SLU 56	12.77	-15.35	23.48	-3.2697		27	2.04	59	33.78			1.44	Si
SLU 56	14.57	11.56	23.48	-45.7573		0	0	56	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	12.77	-24.16	16.75	-1.7954		42	2.04	61	34.95			2.09	Si
SLU 54	14.57	2.75	16.75	-32.1677		0	0	56	0			0	No, Vu<V
SLU 57	12.77	-15.09	23.59	-3.2831		26	2.04	59	33.75			1.43	Si
SLU 57	14.57	11.81	23.59	-45.9644		0	0	56	0			0	No, Vu<V
SLU 1	12.77	-20.65	8.04	-0.9387		36	2.04	60	34.49			4.29	Si
SLU 1	14.57	0.13	8.04	-15.5937		0	0	56	0			0	No, Vu<V
SLU 60	12.77	-26.24	11.07	0.3583		46	2.04	62	35.23			3.18	Si
SLU 60	14.57	0.67	11.07	-19.7875		0	0	56	0			0	No, Vu<V
SLU 58	12.77	-8.65	24.14	-3.118		16	1.9785	58	31.93			1.32	Si
SLU 58	14.57	18.26	24.14	-46.7964		0	0	56	0			0	No, Vu<V
SLU 59	12.77	-8.39	24.25	-3.1314		15	1.9407	58	31.31			1.29	Si
SLU 59	14.57	18.51	24.25	-47.0035		0	0	56	0			0	No, Vu<V
SLU 55	12.77	-17.29	17.48	-1.6527		30	2.04	60	34.04			1.95	Si
SLU 55	14.57	9.62	17.48	-33.3448		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	12.77	-7.78	11.41	-14.8962		0	0	83	0			0	No, Vu<V
SLV 10	14.57	-7.93	1.72	-13.2863		0	0	83	0			0	No, Vu<V
SLV 13	12.77	-18.71	17.65	3.6968		33	2.04	90	51.34			2.91	Si
SLV 13	14.57	5.79	13.34	-25.2527		0	0	83	0			0	No, Vu<V
SLV 14	12.77	-18.71	17.65	3.6968		33	2.04	90	51.34			2.91	Si
SLV 14	14.57	5.79	13.34	-25.2527		0	0	83	0			0	No, Vu<V
SLV 9	12.77	-7.78	11.41	-14.8962		0	0	83	0			0	No, Vu<V
SLV 9	14.57	-7.93	1.72	-13.2863		0	0	83	0			0	No, Vu<V
SLV 7	12.77	-30.8	7.82	13.8388		64	1.7121	96	46.11			5.89	Si
SLV 7	14.57	11.06	17.51	-22.7349		0	0	83	0			0	No, Vu<V
SLV 6	12.77	-5.88	6.46	-20.5242		0	0	83	0			0	No, Vu<V
SLV 6	14.57	-12.59	-2.29	-7.5768		36	1.2545	91	31.79			13.86	Si
SLV 11	12.77	-32.69	12.77	19.4668		92	1.2737	102	36.26			2.84	Si
SLV 11	14.57	15.72	21.52	-28.4444		0	0	83	0			0	No, Vu<V
SLD 1	12.77	-16.38	5.95	-6.7032		32	1.8323	90	46.03			7.74	Si
SLD 1	14.57	-3.24	5.53	-12.9615		0	0	83	0			0	No, Vu<V
SLV 12	12.77	-32.69	12.77	19.4668		92	1.2737	102	36.26			2.84	Si
SLV 12	14.57	15.72	21.52	-28.4444		0	0	83	0			0	No, Vu<V
SLV 8	12.77	-30.8	7.82	13.8388		64	1.7121	96	46.11			5.89	Si
SLV 8	14.57	11.06	17.51	-22.7349		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.53	0	-12.91	2.3036	0	0	No, e>t/2
SLV 1	1438	0.53	0	-7	2.3036	0	0	No, e>t/2
SLV 9	1438	0.53	0	-0.86	2.3036	0	0	No, e>t/2
SLV 10	1438	0.53	0	-0.86	2.3036	0	0	No, e>t/2
SLV 13	1438	0.53	0	-8.17	2.3036	0	0	No, e>t/2
SLV 6	1438	0.53	0	-0.51	2.3036	0	0	No, e>t/2
SLV 4	1438	0.53	0	-12.91	2.3036	0	0	No, e>t/2
SLV 5	1438	0.53	0	-0.51	2.3036	0	0	No, e>t/2
SLV 14	1438	0.53	0	-8.17	2.3036	0	0	No, e>t/2
SLV 2	1438	0.53	0	-7	2.3036	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 13	19.43	-35.52	-1.25	0	0	0	0	10.55091	No, Trazione
SLV 5	22.06	-8.89	-0.27	0	0	0	0	10.9083	No, Trazione
SLV 1	5.97	-15.15	0.64	0	0	0	0	10.55091	No, Trazione
SLV 10	26.1	-15	-0.84	0	0	0	0	10.9083	No, Trazione
SLV 2	5.97	-15.15	0.64	0	0	0	0	10.55091	No, Trazione
SLV 14	19.43	-35.52	-1.25	0	0	0	0	10.55091	No, Trazione
SLV 15	9.67	-47	-1.05	0	0	0	0	10.55091	No, Trazione
SLV 16	9.67	-47	-1.05	0	0	0	0	10.55091	No, Trazione
SLV 6	22.06	-8.89	-0.27	0	0	0	0	10.9083	No, Trazione
SLV 9	26.1	-15	-0.84	0	0	0	0	10.9083	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-20.668	1.046	-24.528	1.046	L6	L7	3.86	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti





fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 31	11.87	-102.79	58.1468	95	175.2218	3.013	Si
SLU 31	13.97	-59.96	-21.831	55	107.8353	4.94	Si
SLU 41	11.87	-108.85	66.1844	101	184.1123	2.782	Si
SLU 41	13.97	-66.02	-30.3911	61	117.8646	3.878	Si
SLU 8	11.87	-104.14	21.2318	96	177.2139	8.347	Si
SLU 8	13.97	-62.52	-38.5376	58	112.0887	2.909	Si
SLU 42	11.87	-109.01	64.5159	101	184.3422	2.857	Si
SLU 42	13.97	-66.18	-30.9424	61	118.1243	3.818	Si
SLU 30	11.87	-112.61	34.7903	104	189.5417	5.448	Si
SLU 30	13.97	-69.78	-42.883	65	123.9998	2.892	Si
SLU 81	11.87	-128.13	71.8389	119	211.2966	2.941	Si
SLU 81	13.97	-73.22	-24.5765	68	129.5648	5.272	Si
SLU 39	11.87	-103.16	69.0005	95	175.7624	2.547	Si
SLU 39	13.97	-60.32	-20.3442	56	108.4445	5.33	Si
SLU 40	11.87	-103.31	67.332	96	175.9963	2.614	Si
SLU 40	13.97	-60.48	-20.8954	56	108.7082	5.202	Si
SLU 29	11.87	-112.45	36.4588	104	189.3142	5.193	Si
SLU 29	13.97	-69.62	-42.3318	64	123.7427	2.923	Si
SLU 9	11.87	-104.3	19.5633	96	177.4471	9.07	Si
SLU 9	13.97	-62.67	-39.0889	58	112.3508	2.874	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 1	11.87	-107.43	54.8416	99	190.4731	3.473	Si
SLD 1	13.97	-64.88	-35.2697	60	119.0748	3.376	Si
SLV 2	11.87	-123.56	79.6191	114	216.1647	2.715	Si
SLV 2	13.97	-80.24	-57.129	74	145.4621	2.546	Si
SLV 1	11.87	-123.56	79.6191	114	216.1647	2.715	Si
SLV 1	13.97	-80.24	-57.129	74	145.4621	2.546	Si
SLV 6	11.87	-110.16	65.5518	102	194.881	2.973	Si
SLV 6	13.97	-68.3	-38.8401	63	125.0084	3.219	Si
SLD 2	11.87	-107.43	54.8416	99	190.4731	3.473	Si
SLD 2	13.97	-64.88	-35.2697	60	119.0748	3.376	Si
SLV 5	11.87	-110.16	65.5518	102	194.881	2.973	Si
SLV 5	13.97	-68.3	-38.8401	63	125.0084	3.219	Si
SLV 4	11.87	-119.46	69.0376	111	209.7068	3.038	Si
SLV 4	13.97	-75.81	-51.6584	70	137.9071	2.67	Si
SLV 16	11.87	-67.51	-6.4263	62	123.6338	19.239	Si
SLV 16	13.97	-26.89	18.831	25	50.8449	2.7	Si
SLV 15	11.87	-67.51	-6.4263	62	123.6338	19.239	Si
SLV 15	13.97	-26.89	18.831	25	50.8449	2.7	Si
SLV 3	11.87	-119.46	69.0376	111	209.7068	3.038	Si
SLV 3	13.97	-75.81	-51.6584	70	137.9071	2.67	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	11.87	-108.85	45.85	66.1844		101	3.86	69	74.56			1.63	Si
SLU 41	13.97	-66.02	45.85	-30.3911		61	3.86	64	68.85			1.5	Si
SLU 80	11.87	-139.05	48.51	56.4654		129	3.86	73	78.58			1.62	Si
SLU 80	13.97	-84.15	48.51	-45.7897		78	3.86	66	71.26			1.47	Si
SLU 81	11.87	-128.13	45.73	71.8389		119	3.86	71	77.13			1.69	Si
SLU 81	13.97	-73.22	45.73	-24.5765		68	3.86	65	69.81			1.53	Si
SLU 78	11.87	-152.4	49.26	58.9025		141	3.86	74	80.36			1.63	Si
SLU 78	13.97	-97.5	49.26	-44.9183		90	3.86	68	73.04			1.48	Si
SLU 77	11.87	-152.24	49.79	60.571		141	3.86	74	80.34			1.61	Si
SLU 77	13.97	-97.34	49.79	-44.3671		90	3.86	68	73.02			1.47	Si
SLU 83	11.87	-133.83	49.17	69.0229		124	3.86	72	77.89			1.58	Si
SLU 83	13.97	-78.92	49.17	-34.6234		73	3.86	65	70.57			1.44	Si
SLU 42	11.87	-109.01	45.32	64.5159		101	3.86	69	74.58			1.65	Si
SLU 42	13.97	-66.18	45.32	-30.9424		61	3.86	64	68.87			1.52	Si
SLU 79	11.87	-138.89	49.04	58.1399		129	3.86	73	78.56			1.6	Si
SLU 79	13.97	-83.99	49.04	-45.2385		78	3.86	66	71.24			1.45	Si
SLU 37	11.87	-113.92	45.72	55.2955		105	3.86	70	75.23			1.65	Si
SLU 37	13.97	-71.09	45.72	-41.0062		66	3.86	64	69.52			1.52	Si
SLU 84	11.87	-133.98	48.64	67.3544		124	3.86	72	77.91			1.6	Si
SLU 84	13.97	-79.08	48.64	-35.1746		73	3.86	65	70.59			1.45	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	11.87	-110.16	47.66	65.5518		102	3.86	104	112.1			2.35	Si
SLV 5	13.97	-68.3	47.05	-38.8401		63	3.86	96	103.73			2.2	Si
SLD 1	11.87	-107.43	39.55	54.8416		99	3.86	103	111.55			2.82	Si
SLD 1	13.97	-64.88	40.36	-35.2697		60	3.86	95	103.04			2.55	Si
SLV 2	11.87	-123.56	57.5	79.6191		114	3.8569	106	114.71			1.99	Si
SLV 2	13.97	-80.24	59.37	-57.129		78	3.6542	99	101.31			1.71	Si
SLD 3	11.87	-105.74	36.27	50.3888		98	3.86	103	111.21			3.07	Si
SLD 3	13.97	-63.06	37.42	-33.0508		58	3.86	95	102.68			2.74	Si
SLD 4	11.87	-105.74	36.27	50.3888		98	3.86	103	111.21			3.07	Si
SLD 4	13.97	-63.06	37.42	-33.0508		58	3.86	95	102.68			2.74	Si
SLV 4	11.87	-119.46	49.63	69.0376		111	3.86	105	113.96			2.3	Si
SLV 4	13.97	-75.81	52.28	-51.6584		72	3.7456	98	102.56			1.96	Si
SLV 6	11.87	-110.16	47.66	65.5518		102	3.86	104	112.1			2.35	Si
SLV 6	13.97	-68.3	47.05	-38.8401		63	3.86	96	103.73			2.2	Si
SLV 1	11.87	-123.56	57.5	79.6191		114	3.8569	106	114.71			1.99	Si
SLV 1	13.97	-80.24	59.37	-57.129		78	3.6542	99	101.31			1.71	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 2	11.87	-107.43	39.55	54.8416		99	3.86	103	111.55			2.82	Si
SLD 2	13.97	-64.88	40.36	-35.2697		60	3.86	95	103.04			2.55	Si
SLV 3	11.87	-119.46	49.63	69.0376		111	3.86	105	113.96			2.3	Si
SLV 3	13.97	-75.81	52.28	-51.6584		72	3.7456	98	102.56			1.96	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	1438	0.53	34	-36.69	4.4602	4.9938	1.12	Si
SLV 16	1438	0.53	34	-36.69	4.4602	4.9938	1.12	Si
SLV 13	1438	0.53	38	-40.92	4.4602	5.5513	1.24	Si
SLV 14	1438	0.53	38	-40.92	4.4602	5.5513	1.24	Si
SLV 12	1438	0.53	46	-49.39	4.4602	6.6562	1.49	Si
SLV 11	1438	0.53	46	-49.39	4.4602	6.6562	1.49	Si
SLV 10	1438	0.53	59	-63.5	4.4602	8.462	1.9	Si
SLV 9	1438	0.53	59	-63.5	4.4602	8.462	1.9	Si
SLV 8	1438	0.53	60	-64.51	4.4602	8.5903	1.93	Si
SLV 7	1438	0.53	60	-64.51	4.4602	8.5903	1.93	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	-16.27	-94.58	3.21	0.005	7.12	0.898	0.08216	10.9083	No
SLV 10	-16.27	-94.58	3.21	0.005	7.12	0.898	0.08216	10.9083	No
SLV 8	-16.43	-96.5	-3.2	0.005	7.132	0.898	0.08686	10.9083	No
SLV 7	-16.43	-96.5	-3.2	0.005	7.132	0.898	0.08686	10.9083	No
SLV 11	-15.33	-80.91	-2.61	0.017	7.047	0.9	0.27799	10.9083	No
SLV 12	-15.33	-80.91	-2.61	0.017	7.047	0.9	0.27799	10.9083	No
SLV 5	-17.37	-110.16	2.62	0.018	7.206	0.897	0.2952	10.9083	No
SLV 6	-17.37	-110.16	2.62	0.018	7.206	0.897	0.2952	10.9083	No
SLV 13	-14.66	-71.61	1.86	0.033	6.996	0.901	0.53834	10.55091	No
SLV 14	-14.66	-71.61	1.86	0.033	6.996	0.901	0.53834	10.55091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.547	SLV 39	Si
V_SLV	1.435	SLV 83	Si
PF_SLV	2.546	SLV 1	Si
V_SLV	1.707	SLV 1	Si
PFFP_SLV	1.12	SLV 15	Si
R_SLV	0.008	SLV 9	No

## Maschio 198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.283	1.046	-19.868	1.046	L6	L7	7.585	0.28	3.16	3.16	3.16			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	11.87	-323.81	-97.3726	152	998.1949	10.251	Si
SLU 81	14.37	-251.4	-81.3705	118	814.8836	10.014	Si
SLU 32	11.87	-325.25	-101.6665	153	1001.5993	9.852	Si
SLU 32	14.37	-281.4	-58.5201	133	893.6319	15.271	Si
SLU 24	11.87	-338.75	-100.9326	159	1033.1432	10.236	Si
SLU 24	14.37	-284.05	-53.7504	134	900.3769	16.751	Si
SLU 35	11.87	-368.41	-110.6807	173	1099.6571	9.935	Si
SLU 35	14.37	-331.99	-38.6078	156	1017.4597	26.354	Si
SLU 41	11.87	-298.08	-93.535	140	935.6864	10.004	Si
SLU 41	14.37	-257.01	-45.6411	121	829.9112	18.183	Si
SLU 39	11.87	-254.92	-84.5209	120	824.3196	9.753	Si
SLU 39	14.37	-206.42	-65.5533	97	689.4534	10.517	Si
SLU 77	11.87	-437.3	-123.5325	206	1239.2517	10.032	Si
SLU 77	14.37	-376.97	-54.425	177	1118.1295	20.544	Si
SLU 18	11.87	-234.12	-65.5587	110	767.7557	11.711	Si
SLU 18	14.37	-178.29	-62.746	84	606.4911	9.666	Si
SLU 74	11.87	-394.14	-114.5183	186	1154.2311	10.079	Si
SLU 74	14.37	-326.38	-74.3373	154	1004.2768	13.51	Si
SLU 60	11.87	-303.02	-78.4105	143	947.9114	12.089	Si
SLU 60	14.37	-223.27	-78.5632	105	737.4684	9.387	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	11.87	-288.81	-96.8722	136	973.3961	10.048	Si
SLV 3	14.37	-250.3	-348.8428	118	857.7087	2.459	Si
SLV 2	11.87	-298.21	-140.3389	140	1000.9877	7.133	Si
SLV 2	14.37	-236.51	-336.0355	111	815.216	2.426	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	11.87	-288.81	-96.8722	136	973.3961	10.048	Si
SLV 4	14.37	-250.3	-348.8428	118	857.7087	2.459	Si
SLV 16	11.87	-212.78	0.0634	100	740.7901	1000	Si
SLV 16	14.37	-142.19	219.8414	67	509.7084	2.319	Si
SLV 13	11.87	-222.18	-43.4033	105	770.4711	17.751	Si
SLV 13	14.37	-128.4	232.6486	60	462.8575	1.99	Si
SLV 1	11.87	-298.21	-140.3389	140	1000.9877	7.133	Si
SLV 1	14.37	-236.51	-336.0355	111	815.216	2.426	Si
SLD 4	11.87	-269.92	-81.8345	127	917.1803	11.208	Si
SLD 4	14.37	-215.48	-182.4578	101	749.3502	4.107	Si
SLD 3	11.87	-269.92	-81.8345	127	917.1803	11.208	Si
SLD 3	14.37	-215.48	-182.4578	101	749.3502	4.107	Si
SLV 14	11.87	-222.18	-43.4033	105	770.4711	17.751	Si
SLV 14	14.37	-128.4	232.6486	60	462.8575	1.99	Si
SLV 15	11.87	-212.78	0.0634	100	740.7901	1000	Si
SLV 15	14.37	-142.19	219.8414	67	509.7084	2.319	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	11.87	-332.31	7.1	-83.0806		156	7.585	76	162.3			22.85	Si
SLU 73	14.37	-254	15.72	-68.0838		120	7.585	72	151.86			9.66	Si
SLU 82	11.87	-325.44	9.6	-88.9861		153	7.585	76	161.38			16.8	Si
SLU 82	14.37	-252.28	19.48	-74.625		119	7.585	71	151.63			7.78	Si
SLU 19	11.87	-235.75	9.79	-57.1722		111	7.585	70	149.42			15.26	Si
SLU 19	14.37	-179.18	17.13	-56.0005		84	7.585	67	141.88			8.28	Si
SLU 60	11.87	-303.02	10.91	-78.4105		143	7.585	75	158.39			14.52	Si
SLU 60	14.37	-223.27	19.02	-78.5632		105	7.585	70	147.76			7.77	Si
SLU 52	11.87	-311.52	8.26	-64.1184		147	7.585	75	159.52			19.31	Si
SLU 52	14.37	-225.87	14.84	-65.2765		106	7.585	70	148.11			9.98	Si
SLU 81	11.87	-323.81	9.75	-97.3726		152	7.585	76	161.16			16.53	Si
SLU 81	14.37	-251.4	19.89	-81.3705		118	7.585	71	151.51			7.62	Si
SLU 61	11.87	-304.65	10.76	-70.024		143	7.585	75	158.61			14.74	Si
SLU 61	14.37	-224.15	18.6	-71.8176		106	7.585	70	147.88			7.95	Si
SLU 18	11.87	-234.12	9.94	-65.5587		110	7.585	70	149.21			15.02	Si
SLU 18	14.37	-178.29	17.54	-62.746		84	7.585	67	141.76			8.08	Si
SLU 40	11.87	-256.55	8.63	-76.1343		121	7.585	72	152.2			17.63	Si
SLU 40	14.37	-207.31	18	-58.8078		98	7.585	69	145.63			8.09	Si
SLU 39	11.87	-254.92	8.78	-84.5209		120	7.585	72	151.98			17.31	Si
SLU 39	14.37	-206.42	18.42	-65.5533		97	7.585	69	145.51			7.9	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	11.87	-251.23	102.03	-12.2336		118	7.585	107	227.23			2.23	Si
SLV 8	14.37	-228.55	87.04	-164.7451		108	7.585	105	222.69			2.56	Si
SLV 4	11.87	-288.81	150.92	-96.8722		136	7.585	111	234.74			1.56	Si
SLV 4	14.37	-250.3	114.03	-348.8428		124	7.1964	108	217.98			1.91	Si
SLV 16	11.87	-212.78	-108.59	0.0634		100	7.585	103	219.54			2.02	Si
SLV 16	14.37	-142.19	-66.12	219.8414		75	6.7392	98	185.69			2.81	Si
SLV 15	11.87	-212.78	-108.59	0.0634		100	7.585	103	219.54			2.02	Si
SLV 15	14.37	-142.19	-66.12	219.8414		75	6.7392	98	185.69			2.81	Si
SLV 2	11.87	-298.21	114.98	-140.3389		140	7.585	111	236.62			2.06	Si
SLV 2	14.37	-236.51	83.12	-336.0355		119	7.1151	107	213.32			2.57	Si
SLV 14	11.87	-222.18	-144.54	-43.4033		105	7.585	104	221.42			1.53	Si
SLV 14	14.37	-128.4	-97.03	232.6486		77	5.9417	99	164.32			1.69	Si
SLV 13	11.87	-222.18	-144.54	-43.4033		105	7.585	104	221.42			1.53	Si
SLV 13	14.37	-128.4	-97.03	232.6486		77	5.9417	99	164.32			1.69	Si
SLV 7	11.87	-251.23	102.03	-12.2336		118	7.585	107	227.23			2.23	Si
SLV 7	14.37	-228.55	87.04	-164.7451		108	7.585	105	222.69			2.56	Si
SLV 3	11.87	-288.81	150.92	-96.8722		136	7.585	111	234.74			1.56	Si
SLV 3	14.37	-250.3	114.03	-348.8428		124	7.1964	108	217.98			1.91	Si
SLV 1	11.87	-298.21	114.98	-140.3389		140	7.585	111	236.62			2.06	Si
SLV 1	14.37	-236.51	83.12	-336.0355		119	7.1151	107	213.32			2.57	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	1438	0.53	78	-165.05	8.7644	21.6377	2.47	Si
SLV 14	1438	0.53	78	-165.05	8.7644	21.6377	2.47	Si
SLV 15	1438	0.53	84	-177.56	8.7644	23.157	2.64	Si
SLV 16	1438	0.53	84	-177.56	8.7644	23.157	2.64	Si
SLV 9	1438	0.53	86	-181.93	8.7644	23.6841	2.7	Si
SLV 10	1438	0.53	86	-181.93	8.7644	23.6841	2.7	Si
SLV 6	1438	0.53	98	-208.89	8.7644	26.8907	3.07	Si
SLV 5	1438	0.53	98	-208.89	8.7644	26.8907	3.07	Si
SLV 11	1438	0.53	105	-223.6	8.7644	28.6069	3.26	Si
SLV 12	1438	0.53	105	-223.6	8.7644	28.6069	3.26	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-167.14	-228.42	9.69	0.013	26.745	0.911	0.21507	10.9083	No
SLV 11	-167.14	-228.42	9.69	0.013	26.745	0.911	0.21507	10.9083	No
SLV 7	-182.72	-251.23	9.56	0.016	28.298	0.915	0.25432	10.9083	No
SLV 8	-182.72	-251.23	9.56	0.016	28.298	0.915	0.25432	10.9083	No
SLV 9	-128.4	-259.76	-7.47	0.019	22.91	0.902	0.30483	10.9083	No
SLV 10	-128.4	-259.76	-7.47	0.019	22.91	0.902	0.30483	10.9083	No
SLV 6	-143.97	-282.57	-7.6	0.02	24.446	0.906	0.32416	10.9083	No
SLV 5	-143.97	-282.57	-7.6	0.02	24.446	0.906	0.32416	10.9083	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	-135.41	-212.78	3.84	0.038	23.6	0.904	0.61706	10.55091	No
SLV 16	-135.41	-212.78	3.84	0.038	23.6	0.904	0.61706	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.387	SLU 60	Si
V_SLU	7.616	SLU 81	Si
PF_SLV	1.99	SLV 13	Si
V_SLV	1.532	SLV 13	Si
PFFP_SLV	2.469	SLV 13	Si
R_SLV	0.02	SLV 11	No

## Maschio 199

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-10.466	1.046	-11.163	1.046	L6	L7	0.696	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 36	11.87	-32.61	2.3213	167	9.0223	3.887	Si
SLU 36	14.37	-57.17	-0.6925	293	12.7405	18.398	Si
SLU 32	11.87	-29.29	2.0518	150	8.318	4.054	Si
SLU 32	14.37	-48.81	-0.5071	250	11.7716	23.216	Si
SLU 41	11.87	-25.39	2.4002	130	7.4275	3.095	Si
SLU 41	14.37	-44.22	-0.7365	227	11.1101	15.085	Si
SLU 39	11.87	-21.99	1.9956	113	6.5974	3.306	Si
SLU 39	14.37	-35.35	-0.4387	181	9.569	21.811	Si
SLU 34	11.87	-26.48	1.9242	136	7.682	3.992	Si
SLU 34	14.37	-44.21	-0.4652	227	11.1085	23.88	Si
SLU 35	11.87	-32.69	2.4564	168	9.0394	3.68	Si
SLU 35	14.37	-57.68	-0.8048	296	12.7895	15.891	Si
SLU 40	11.87	-21.91	1.8605	112	6.5763	3.535	Si
SLU 40	14.37	-34.84	-0.3264	179	9.4704	29.019	Si
SLU 42	11.87	-25.31	2.2651	130	7.4077	3.27	Si
SLU 42	14.37	-43.71	-0.6241	224	11.0312	17.674	Si
SLU 38	11.87	-29.93	2.4188	154	8.4574	3.496	Si
SLU 38	14.37	-53.42	-0.8379	274	12.3439	14.732	Si
SLU 37	11.87	-30.01	2.554	154	8.4756	3.319	Si
SLU 37	14.37	-53.93	-0.9502	277	12.4012	13.051	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 6	11.87	-15.91	6.766	0	0	0	No, e>l/2
SLV 6	14.37	-60.6	-6.3751	311	15.7328	2.468	Si
SLV 12	11.87	-34.01	-5.5816	174	10.1516	1.819	Si
SLV 12	14.37	-6.2	6.8086	0	0	0	No, e>l/2
SLV 4	11.87	-19.08	18.9842	0	0	0	No, e>l/2
SLV 4	14.37	-14.01	-14.2906	0	0	0	No, e>l/2
SLV 8	11.87	-29.28	5.5619	150	8.9412	1.608	Si
SLV 8	14.37	-0.02	-2.2657	0	0	0	No, e>l/2
SLV 7	11.87	-29.28	5.5619	150	8.9412	1.608	Si
SLV 7	14.37	-0.02	-2.2657	0	0	0	No, e>l/2
SLV 5	11.87	-15.91	6.766	0	0	0	No, e>l/2
SLV 5	14.37	-60.6	-6.3751	311	15.7328	2.468	Si
SLV 14	11.87	-30.85	-17.7998	0	0	0	No, e>l/2
SLV 14	14.37	-52.79	14.7241	271	14.3075	0.972	No, M>Mu
SLV 11	11.87	-34.01	-5.5816	174	10.1516	1.819	Si
SLV 11	14.37	-6.2	6.8086	0	0	0	No, e>l/2
SLV 13	11.87	-30.85	-17.7998	0	0	0	No, e>l/2
SLV 13	14.37	-52.79	14.7241	271	14.3075	0.972	No, M>Mu
SLD 1	11.87	-20.74	8.6143	0	0	0	No, e>l/2
SLD 1	14.37	-32.83	-6.5302	168	9.8557	1.509	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	11.87	-37.48	3.89	2.1056		192	0.6964	81	15.83			4.06	Si
SLU 80	14.37	-61.1	3.65	-0.4973		313	0.6964	97	18.98			5.19	Si
SLU 42	11.87	-25.31	3.44	2.2651		130	0.6964	73	14.21			4.13	Si
SLU 42	14.37	-43.71	3.14	-0.6241		224	0.6964	85	16.66			5.3	Si
SLU 36	11.87	-32.61	3.92	2.3213		167	0.6964	78	15.18			3.87	Si
SLU 36	14.37	-57.17	3.69	-0.6925		293	0.6964	95	18.45			5	Si
SLU 77	11.87	-40.24	4.01	2.1432		206	0.6964	83	16.2			4.04	Si
SLU 77	14.37	-65.35	3.77	-0.4642		335	0.6964	100	19.55			5.18	Si
SLU 41	11.87	-25.39	3.58	2.4002		130	0.6964	73	14.22			3.98	Si
SLU 41	14.37	-44.22	3.28	-0.7365		227	0.6964	86	16.73			5.11	Si
SLU 37	11.87	-30.01	4.08	2.554		154	0.6964	76	14.83			3.64	Si
SLU 37	14.37	-53.93	3.84	-0.9502		277	0.6964	92	18.02			4.7	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	11.87	-32.69	4.06	2.4564		168	0.6964	78	15.19			3.74	Si
SLU 35	14.37	-57.68	3.82	-0.8048		296	0.6964	95	18.52			4.84	Si
SLU 79	11.87	-37.57	4.03	2.2407		193	0.6964	81	15.84			3.93	Si
SLU 79	14.37	-61.6	3.78	-0.6096		316	0.6964	98	19.05			5.03	Si
SLU 78	11.87	-40.16	3.88	2.008		206	0.6964	83	16.19			4.18	Si
SLU 78	14.37	-64.85	3.64	-0.3519		333	0.6964	100	19.48			5.35	Si
SLU 38	11.87	-29.93	3.94	2.4188		154	0.6964	76	14.82			3.76	Si
SLU 38	14.37	-53.42	3.71	-0.8379		274	0.6964	92	17.95			4.85	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	11.87	-29.28	3	5.5619		220	0.4746	127	16.93			5.64	Si
SLV 8	14.37	-0.02	0.49	-2.2657		0	0	83	0			0	No, Vu<V
SLV 12	11.87	-34.01	-7.44	-5.5816		220	0.5522	127	19.69			2.65	Si
SLV 12	14.37	-6.2	-5.98	6.8086		0	0	83	0			0	No, Vu<V
SLD 1	11.87	-20.74	9.42	8.6143		0	0	83	0			0	No, Vu<V
SLD 1	14.37	-32.83	6.63	-6.5302		262	0.4478	136	17.02			2.57	Si
SLV 13	11.87	-30.85	-14.73	-17.7998		0	0	83	0			0	No, Vu<V
SLV 13	14.37	-52.79	-8.08	14.7241		907	0.2078	163	9.45			1.17	Si
SLV 5	11.87	-15.91	10.52	6.766		0	0	83	0			0	No, Vu<V
SLV 5	14.37	-60.6	8.89	-6.3751		311	0.6964	145	28.37			3.19	Si
SLV 7	11.87	-29.28	3	5.5619		220	0.4746	127	16.93			5.64	Si
SLV 7	14.37	-0.02	0.49	-2.2657		0	0	83	0			0	No, Vu<V
SLV 4	11.87	-19.08	17.82	18.9842		0	0	83	0			0	No, Vu<V
SLV 4	14.37	-14.01	10.98	-14.2906		0	0	83	0			0	No, Vu<V
SLV 6	11.87	-15.91	10.52	6.766		0	0	83	0			0	No, Vu<V
SLV 6	14.37	-60.6	8.89	-6.3751		311	0.6964	145	28.37			3.19	Si
SLV 14	11.87	-30.85	-14.73	-17.7998		0	0	83	0			0	No, Vu<V
SLV 14	14.37	-52.79	-8.08	14.7241		907	0.2078	163	9.45			1.17	Si
SLV 11	11.87	-34.01	-7.44	-5.5816		220	0.5522	127	19.69			2.65	Si
SLV 11	14.37	-6.2	-5.98	6.8086		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.53	39	-7.63	0.8046	1.0334	1.28	Si
SLV 7	1438	0.53	39	-7.63	0.8046	1.0334	1.28	Si
SLV 12	1438	0.53	63	-12.24	0.8046	1.6252	2.02	Si
SLV 11	1438	0.53	63	-12.24	0.8046	1.6252	2.02	Si
SLV 3	1438	0.53	77	-15.07	0.8046	1.9758	2.46	Si
SLV 4	1438	0.53	77	-15.07	0.8046	1.9758	2.46	Si
SLV 2	1438	0.53	134	-26.05	0.8046	3.2487	4.04	Si
SLV 1	1438	0.53	134	-26.05	0.8046	3.2487	4.04	Si
SLV 16	1438	0.53	156	-30.44	0.8046	3.7168	4.62	Si
SLV 15	1438	0.53	156	-30.44	0.8046	3.7168	4.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-0.66	-29.28	2.27	0	1.144	0.954	0	10.9083	No
SLV 3	-7.17	-19.08	1.43	0	1.658	0.891	0	10.55091	No
SLV 10	-33.28	-20.65	-2.03	0	4.262	0.942	0	10.9083	No
SLV 4	-7.17	-19.08	1.43	0	1.658	0.891	0	10.55091	No
SLV 9	-33.28	-20.65	-2.03	0	4.262	0.942	0	10.9083	No
SLV 12	-3.9	-34.01	1.83	0	1.363	0.892	0	10.9083	No
SLV 8	-0.66	-29.28	2.27	0	1.144	0.954	0	10.9083	No
SLV 11	-3.9	-34.01	1.83	0	1.363	0.892	0	10.9083	No
SLV 6	-30.05	-15.91	-1.59	0.006	3.935	0.938	0.10004	10.9083	No
SLV 5	-30.05	-15.91	-1.59	0.006	3.935	0.938	0.10004	10.9083	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.095	SLU 41	Si
V_SLU	3.639	SLU 37	Si
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	1.284	SLV 7	Si
R_SLV	0	SLV 3	No

## Maschio 200

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.278	1.046	-9.386	1.046	L6	L7	2.109	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	11.87	-98.62	-14.2039	167	82.6538	5.819	Si
SLU 81	14.37	-64.98	12.7157	110	59.2507	4.66	Si
SLU 82	11.87	-99.54	-14.6582	169	83.2287	5.678	Si
SLU 82	14.37	-65.78	12.9232	111	59.8668	4.633	Si
SLU 19	11.87	-73.14	-12.4838	124	65.3869	5.238	Si
SLU 19	14.37	-48.12	10.9315	81	45.6558	4.177	Si
SLU 52	11.87	-101.49	-13.1718	172	84.4238	6.409	Si
SLU 52	14.37	-67.77	13.5137	115	61.3803	4.542	Si
SLU 40	11.87	-75.2	-12.6978	127	66.8869	5.268	Si
SLU 40	14.37	-49.33	9.919	84	46.6777	4.706	Si
SLU 39	11.87	-74.27	-12.2436	126	66.213	5.408	Si
SLU 39	14.37	-48.53	9.7116	82	46.0038	4.737	Si
SLU 18	11.87	-72.21	-12.0296	122	64.7046	5.379	Si
SLU 18	14.37	-47.32	10.7241	80	44.9776	4.194	Si
SLU 61	11.87	-97.49	-14.4441	165	81.9483	5.673	Si
SLU 61	14.37	-64.56	13.9357	109	58.9325	4.229	Si
SLU 60	11.87	-96.56	-13.9899	164	81.365	5.816	Si
SLU 60	14.37	-63.76	13.7282	108	58.3121	4.248	Si
SLU 10	11.87	-77.15	-11.2115	131	68.2899	6.091	Si
SLU 10	14.37	-51.32	10.5096	87	48.3346	4.599	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	11.87	-50.87	10.9137	86	49.855	4.568	Si
SLV 4	14.37	-18.09	-31.4943	0	0	0	No, $e \geq l/2$
SLV 1	11.87	-50.14	25.0039	85	49.1865	1.967	Si
SLV 1	14.37	-11.25	-43.9307	0	0	0	No, $e \geq l/2$
SLV 15	11.87	-113.53	-40.7844	192	100.8589	2.473	Si
SLV 15	14.37	-98.3	61.8123	166	89.5178	1.448	Si
SLV 3	11.87	-50.87	10.9137	86	49.855	4.568	Si
SLV 3	14.37	-18.09	-31.4943	0	0	0	No, $e \geq l/2$
SLV 12	11.87	-92.46	-39.1287	157	84.9883	2.172	Si
SLV 12	14.37	-78.2	43.6642	132	73.5092	1.684	Si
SLV 6	11.87	-71.21	23.3482	121	67.6634	2.898	Si
SLV 6	14.37	-31.36	-25.7826	53	31.6223	1.226	Si
SLV 5	11.87	-71.21	23.3482	121	67.6634	2.898	Si
SLV 5	14.37	-31.36	-25.7826	53	31.6223	1.226	Si
SLV 16	11.87	-113.53	-40.7844	192	100.8589	2.473	Si
SLV 16	14.37	-98.3	61.8123	166	89.5178	1.448	Si
SLV 2	11.87	-50.14	25.0039	85	49.1865	1.967	Si
SLV 2	14.37	-11.25	-43.9307	0	0	0	No, $e \geq l/2$
SLV 11	11.87	-92.46	-39.1287	157	84.9883	2.172	Si
SLV 11	14.37	-78.2	43.6642	132	73.5092	1.684	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	11.87	-111.34	-9.18	-11.6997		189	2.1086	81	47.65			5.19	Si
SLU 83	14.37	-75.82	-13.96	10.9379		128	2.1086	73	42.91			3.07	Si
SLU 40	11.87	-75.2	-10.1	-12.6978		127	2.1086	73	42.83			4.24	Si
SLU 40	14.37	-49.33	-13.55	9.919		84	2.1086	67	39.38			2.91	Si
SLU 39	11.87	-74.27	-9.88	-12.2436		126	2.1086	72	42.7			4.32	Si
SLU 39	14.37	-48.53	-13.45	9.7116		82	2.1086	67	39.27			2.92	Si
SLU 19	11.87	-73.14	-10.53	-12.4838		124	2.1086	72	42.55			4.04	Si
SLU 19	14.37	-48.12	-12.54	10.9315		81	2.1086	66	39.22			3.13	Si
SLU 61	11.87	-97.49	-12.58	-14.4441		165	2.1086	78	45.8			3.64	Si
SLU 61	14.37	-64.56	-14.39	13.9357		109	2.1086	70	41.41			2.88	Si
SLU 84	11.87	-112.27	-9.4	-12.154		190	2.1086	81	47.77			5.08	Si
SLU 84	14.37	-76.62	-14.06	11.1454		130	2.1086	73	43.02			3.06	Si
SLU 82	11.87	-99.54	-12.15	-14.6582		169	2.1086	78	46.07			3.79	Si
SLU 82	14.37	-65.78	-15.4	12.9232		111	2.1086	70	41.57			2.7	Si
SLU 73	11.87	-103.55	-11.1	-13.3858		175	2.1086	79	46.61			4.2	Si
SLU 73	14.37	-68.98	-13.93	12.5012		117	2.1086	71	42			3.01	Si
SLU 60	11.87	-96.56	-12.37	-13.9899		164	2.1086	77	45.68			3.69	Si
SLU 60	14.37	-63.76	-14.29	13.7282		108	2.1086	70	41.3			2.89	Si
SLU 81	11.87	-98.62	-11.94	-14.2039		167	2.1086	78	45.95			3.85	Si
SLU 81	14.37	-64.98	-15.3	12.7157		110	2.1086	70	41.46			2.71	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	11.87	-71.21	24.65	23.3482		121	2.1086	107	63.44			2.57	Si
SLV 5	14.37	-31.36	21.01	-25.7826		161	0.6962	116	22.52			1.07	Si
SLV 15	11.87	-113.53	-50.7	-40.7844		194	2.0852	122	71.36			1.41	Si
SLV 15	14.37	-98.3	-40.47	61.8123		275	1.2765	138	49.45			1.22	Si
SLV 16	11.87	-113.53	-50.7	-40.7844		194	2.0852	122	71.36			1.41	Si
SLV 16	14.37	-98.3	-40.47	61.8123		275	1.2765	138	49.45			1.22	Si
SLV 6	11.87	-71.21	24.65	23.3482		121	2.1086	107	63.44			2.57	Si
SLV 6	14.37	-31.36	21.01	-25.7826		161	0.6962	116	22.52			1.07	Si
SLV 3	11.87	-50.87	24.44	10.9137		86	2.1086	101	59.38			2.43	Si
SLV 3	14.37	-18.09	9.94	-31.4943		0	0	83	0		0	No, $V_u < V$	
SLV 11	11.87	-92.46	-38.67	-39.1287		174	1.8934	118	62.67			1.62	Si
SLV 11	14.37	-78.2	-38.28	43.6642		188	1.4878	121	50.36			1.32	Si
SLV 4	11.87	-50.87	24.44	10.9137		86	2.1086	101	59.38			2.43	Si
SLV 4	14.37	-18.09	9.94	-31.4943		0	0	83	0		0	No, $V_u < V$	
SLV 2	11.87	-50.14	36.67	25.0039		107	1.6668	105	48.92			1.33	Si
SLV 2	14.37	-11.25	23.19	-43.9307		0	0	83	0		0	No, $V_u < V$	
SLV 1	11.87	-50.14	36.67	25.0039		107	1.6668	105	48.92			1.33	Si
SLV 1	14.37	-11.25	23.19	-43.9307		0	0	83	0		0	No, $V_u < V$	



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	11.87	-92.46	-38.67	-39.1287		174	1.8934	118	62.67			1.62	Si
SLV 12	14.37	-78.2	-38.28	43.6642		188	1.4878	121	50.36			1.32	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.53	57	-33.74	2.4365	4.5031	1.85	Si
SLV 2	1438	0.53	57	-33.74	2.4365	4.5031	1.85	Si
SLV 3	1438	0.53	60	-35.35	2.4365	4.7069	1.93	Si
SLV 4	1438	0.53	60	-35.35	2.4365	4.7069	1.93	Si
SLV 6	1438	0.53	89	-52.63	2.4365	6.8305	2.8	Si
SLV 5	1438	0.53	89	-52.63	2.4365	6.8305	2.8	Si
SLV 8	1438	0.53	98	-58	2.4365	7.4667	3.06	Si
SLV 7	1438	0.53	98	-58	2.4365	7.4667	3.06	Si
SLV 9	1438	0.53	119	-70.43	2.4365	8.8972	3.65	Si
SLV 10	1438	0.53	119	-70.43	2.4365	8.8972	3.65	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-49.78	-92.46	-0.93	0.042	7.766	0.914	0.66064	10.9083	No
SLV 12	-49.78	-92.46	-0.93	0.042	7.766	0.914	0.66064	10.9083	No
SLV 8	-36.01	-73.66	-0.81	0.043	6.4	0.902	0.69444	10.9083	No
SLV 7	-36.01	-73.66	-0.81	0.043	6.4	0.902	0.69444	10.9083	No
SLV 5	-26.49	-71.21	0.77	0.044	5.474	0.894	0.70874	10.9083	No
SLV 6	-26.49	-71.21	0.77	0.044	5.474	0.894	0.70874	10.9083	No
SLV 10	-40.26	-90	0.65	0.046	6.82	0.906	0.73606	10.9083	No
SLV 9	-40.26	-90	0.65	0.046	6.82	0.906	0.73606	10.9083	No
SLV 15	-62.52	-113.53	-0.52	0.047	9.042	0.923	0.743	10.55091	No
SLV 16	-62.52	-113.53	-0.52	0.047	9.042	0.923	0.743	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.177	SLU 19	Si
V_SLU	2.7	SLU 82	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	1.848	SLV 1	Si
R_SLV	0.061	SLV 11	No

## Maschio 201

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-4.968	1.046	-6.478	1.046	L6	L7	1.51	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 39	11.87	-53.43	-10.7553	126	34.0799	3.169	Si
SLU 39	13.97	-61.62	10.5346	146	38.1997	3.626	Si
SLU 19	11.87	-51.54	-9.3163	122	33.092	3.552	Si
SLU 19	13.97	-53.83	9.9208	127	34.2887	3.456	Si
SLU 82	11.87	-70.13	-12.0465	166	42.1669	3.5	Si
SLU 82	13.97	-74.76	12.6221	177	44.1902	3.501	Si
SLU 60	11.87	-64.62	-10.946	153	39.6333	3.621	Si
SLU 60	13.97	-64.18	12.2086	152	39.4281	3.23	Si
SLU 18	11.87	-49.73	-9.4855	118	32.1245	3.387	Si
SLU 18	13.97	-52.44	10.021	124	33.563	3.349	Si
SLU 40	11.87	-55.24	-10.586	131	35.018	3.308	Si
SLU 40	13.97	-63.01	10.4345	149	38.8695	3.725	Si
SLU 41	11.87	-62.38	-10.5854	148	38.5661	3.643	Si
SLU 41	13.97	-76.27	10.129	180	44.8311	4.426	Si
SLU 61	11.87	-66.43	-10.7767	157	40.4823	3.756	Si
SLU 61	13.97	-65.57	12.1084	155	40.0823	3.31	Si
SLU 52	11.87	-68.88	-9.7141	163	41.6042	4.283	Si
SLU 52	13.97	-65.66	11.3991	155	40.124	3.52	Si
SLU 81	11.87	-68.32	-12.2157	162	41.3474	3.385	Si
SLU 81	13.97	-73.37	12.7223	174	43.592	3.426	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 16	11.87	-55.42	-17.9418	131	37.3536	2.082	Si
SLD 16	13.97	-58.22	18.0202	138	39.0051	2.165	Si
SLV 14	11.87	-54.81	-24.3506	130	36.9899	1.519	Si
SLV 14	13.97	-55.47	27.1961	131	37.3806	1.374	Si
SLV 12	11.87	-58.51	-26.9069	138	39.173	1.456	Si
SLV 12	13.97	-71.85	20.7742	170	46.7019	2.248	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	11.87	-57.13	-32.3217	135	38.3603	1.187	Si
SLV 16	13.97	-65.5	30.8827	155	43.1829	1.398	Si
SLV 13	11.87	-54.81	-24.3506	130	36.9899	1.519	Si
SLV 13	13.97	-55.47	27.1961	131	37.3806	1.374	Si
SLD 15	11.87	-55.42	-17.9418	131	37.3536	2.082	Si
SLD 15	13.97	-58.22	18.0202	138	39.0051	2.165	Si
SLV 2	11.87	-51.05	17.691	121	34.732	1.963	Si
SLV 2	13.97	-40.16	-13.9741	95	27.9613	2.001	Si
SLV 1	11.87	-51.05	17.691	121	34.732	1.963	Si
SLV 1	13.97	-40.16	-13.9741	95	27.9613	2.001	Si
SLV 15	11.87	-57.13	-32.3217	135	38.3603	1.187	Si
SLV 15	13.97	-65.5	30.8827	155	43.1829	1.398	Si
SLV 11	11.87	-58.51	-26.9069	138	39.173	1.456	Si
SLV 11	13.97	-71.85	20.7742	170	46.7019	2.248	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	11.87	-68.32	-14.72	-12.2157	162	1.51	77	32.6				2.21	Si
SLU 81	13.97	-73.37	-14.72	12.7223	174	1.51	79	33.27				2.26	Si
SLU 37	11.87	-72.57	-14.94	-9.4656	172	1.51	78	33.16				2.22	Si
SLU 37	13.97	-90.08	-14.94	9.0809	213	1.51	84	35.5				2.38	Si
SLU 74	11.87	-82.67	-15.45	-11.4345	196	1.51	82	34.51				2.23	Si
SLU 74	13.97	-92.18	-15.45	12.1168	218	1.51	85	35.78				2.32	Si
SLU 41	11.87	-62.38	-14.32	-10.5854	148	1.51	75	31.81				2.22	Si
SLU 41	13.97	-76.27	-14.32	10.129	180	1.51	80	33.66				2.35	Si
SLU 77	11.87	-91.62	-16.93	-11.2646	217	1.51	84	35.71				2.11	Si
SLU 77	13.97	-106.83	-16.93	11.7112	253	1.51	89	37.73				2.23	Si
SLU 83	11.87	-77.27	-16.2	-12.0458	183	1.51	80	33.79				2.09	Si
SLU 83	13.97	-88.01	-16.2	12.3167	208	1.51	83	35.22				2.17	Si
SLU 80	11.87	-89.27	-16.68	-10.7568	211	1.51	84	35.39				2.12	Si
SLU 80	13.97	-103.21	-16.66	11.1684	244	1.51	88	37.25				2.24	Si
SLU 78	11.87	-93.44	-16.79	-11.0954	221	1.51	85	35.95				2.14	Si
SLU 78	13.97	-108.22	-16.77	11.611	256	1.51	90	37.92				2.26	Si
SLU 84	11.87	-79.08	-16.06	-11.8766	187	1.51	80	34.03				2.12	Si
SLU 84	13.97	-89.4	-16.04	12.2165	211	1.51	84	35.41				2.21	Si
SLU 79	11.87	-87.46	-16.82	-10.9261	207	1.51	83	35.15				2.09	Si
SLU 79	13.97	-101.82	-16.82	11.2685	241	1.51	88	37.07				2.2	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	11.87	-58.51	-39.26	-26.9069	236	0.8854	131	32.36				0.82	No, Vu<V
SLV 11	13.97	-71.85	-36.74	20.7742	184	1.3976	120	46.98				1.28	Si
SLV 16	11.87	-57.13	-42.59	-32.3217	359	0.5676	155	24.67				0.58	No, Vu<V
SLV 16	13.97	-65.5	-34.42	30.8827	275	0.8505	138	32.95				0.96	No, Vu<V
SLD 16	11.87	-55.42	-23.43	-17.9418	153	1.2938	114	41.27				1.76	Si
SLD 16	13.97	-58.22	-19.99	18.0202	156	1.3365	114	42.83				2.14	Si
SLD 15	11.87	-55.42	-23.43	-17.9418	153	1.2938	114	41.27				1.76	Si
SLD 15	13.97	-58.22	-19.99	18.0202	156	1.3365	114	42.83				2.14	Si
SLV 2	11.87	-51.05	23.96	17.691	149	1.2253	113	38.8				1.62	Si
SLV 2	13.97	-40.16	15.79	-13.9741	117	1.221	107	36.52				2.31	Si
SLV 13	11.87	-54.81	-29.43	-24.3506	210	0.9321	125	32.71				1.11	Si
SLV 13	13.97	-55.47	-21.31	27.1961	249	0.794	133	29.62				1.39	Si
SLV 14	11.87	-54.81	-29.43	-24.3506	210	0.9321	125	32.71				1.11	Si
SLV 14	13.97	-55.47	-21.31	27.1961	249	0.794	133	29.62				1.39	Si
SLV 15	11.87	-57.13	-42.59	-32.3217	359	0.5676	155	24.67				0.58	No, Vu<V
SLV 15	13.97	-65.5	-34.42	30.8827	275	0.8505	138	32.95				0.96	No, Vu<V
SLV 12	11.87	-58.51	-39.26	-26.9069	236	0.8854	131	32.36				0.82	No, Vu<V
SLV 12	13.97	-71.85	-36.74	20.7742	184	1.3976	120	46.98				1.28	Si
SLV 1	11.87	-51.05	23.96	17.691	149	1.2253	113	38.8				1.62	Si
SLV 1	13.97	-40.16	15.79	-13.9741	117	1.221	107	36.52				2.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.53	98	-41.25	1.7448	5.3139	3.05	Si
SLV 6	1438	0.53	98	-41.25	1.7448	5.3139	3.05	Si
SLV 10	1438	0.53	105	-44.56	1.7448	5.7006	3.27	Si
SLV 9	1438	0.53	105	-44.56	1.7448	5.7006	3.27	Si
SLV 2	1438	0.53	106	-44.63	1.7448	5.7078	3.27	Si
SLV 1	1438	0.53	106	-44.63	1.7448	5.7078	3.27	Si
SLV 4	1438	0.53	120	-50.83	1.7448	6.4159	3.68	Si
SLV 3	1438	0.53	120	-50.83	1.7448	6.4159	3.68	Si
SLV 13	1438	0.53	132	-55.66	1.7448	6.9532	3.99	Si
SLV 14	1438	0.53	132	-55.66	1.7448	6.9532	3.99	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-44.47	-58.51	0.42	0.046	6.445	0.923	0.73029	10.9083	No
SLV 11	-44.47	-58.51	0.42	0.046	6.445	0.923	0.73029	10.9083	No
SLV 7	-40.85	-57.38	0.34	0.048	6.082	0.919	0.75877	10.9083	No
SLV 8	-40.85	-57.38	0.34	0.048	6.082	0.919	0.75877	10.9083	No
SLV 15	-42.25	-57.13	0.33	0.048	6.222	0.921	0.7592	10.55091	No
SLV 16	-42.25	-57.13	0.33	0.048	6.222	0.921	0.7592	10.55091	No
SLV 14	-36.73	-54.81	0.17	0.052	5.669	0.915	0.82117	10.55091	No
SLV 13	-36.73	-54.81	0.17	0.052	5.669	0.915	0.82117	10.55091	No
SLV 5	-22.44	-49.66	-0.18	0.055	4.255	0.898	0.88318	10.9083	No
SLV 6	-22.44	-49.66	-0.18	0.055	4.255	0.898	0.88318	10.9083	No





Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.169	SLU 39	Si
V_SLU	2.086	SLU 83	Si
PF_SLV	1.187	SLV 15	Si
V_SLV	0.579	SLV 15	No
PFFP_SLV	3.046	SLV 5	Si
R_SLV	0.067	SLV 11	No

## Maschio 202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	1.046	-4.168	1.046	L6	L7	4.045	0.28	3.16	3.16	3.16			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 38	11.87	-93.36	11.43	82	169.7101	14.848	Si
SLU 38	13.97	-67.84	61.116	60	127.1252	2.08	Si
SLU 80	11.87	-119.63	14.1812	106	210.5791	14.849	Si
SLU 80	13.97	-81.52	67.7525	72	150.3119	2.219	Si
SLU 17	11.87	-92.48	11.6055	82	168.2952	14.501	Si
SLU 17	13.97	-61.89	53.1495	55	116.7804	2.197	Si
SLU 41	11.87	-84.43	7.691	75	155.1289	20.17	Si
SLU 41	13.97	-64.07	53.803	57	120.586	2.241	Si
SLU 42	11.87	-85.67	8.3418	76	157.1756	18.842	Si
SLU 42	13.97	-64.34	53.7133	57	121.0555	2.254	Si
SLU 30	11.87	-100.2	13.6871	88	180.6511	13.199	Si
SLU 30	13.97	-66.65	57.2349	59	125.0617	2.185	Si
SLU 37	11.87	-92.12	10.7792	81	167.7052	15.558	Si
SLU 37	13.97	-67.57	61.2057	60	126.6599	2.069	Si
SLU 79	11.87	-118.39	13.5303	105	208.7171	15.426	Si
SLU 79	13.97	-81.25	67.8422	72	149.8627	2.209	Si
SLU 16	11.87	-91.24	10.9546	81	166.2855	15.179	Si
SLU 16	13.97	-61.62	53.2393	54	116.308	2.185	Si
SLU 29	11.87	-98.96	13.0363	87	178.6834	13.707	Si
SLU 29	13.97	-66.38	57.3246	59	124.5949	2.173	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	11.87	-89.93	6.732	79	170.0582	25.261	Si
SLD 15	13.97	-60.25	48.9596	53	116.5552	2.381	Si
SLD 16	11.87	-89.93	6.732	79	170.0582	25.261	Si
SLD 16	13.97	-60.25	48.9596	53	116.5552	2.381	Si
SLV 16	11.87	-94.16	4.534	83	177.4777	39.144	Si
SLV 16	13.97	-68.23	68.5642	60	131.2007	1.914	Si
SLV 15	11.87	-94.16	4.534	83	177.4777	39.144	Si
SLV 15	13.97	-68.23	68.5642	60	131.2007	1.914	Si
SLV 14	11.87	-86.59	-1.3063	76	164.1743	125.677	Si
SLV 14	13.97	-61.78	56.0604	55	119.3676	2.129	Si
SLV 12	11.87	-100.53	16.0104	89	188.5543	11.777	Si
SLV 12	13.97	-68.37	63.7611	60	131.4515	2.062	Si
SLD 11	11.87	-92.62	11.5049	82	174.7886	15.193	Si
SLD 11	13.97	-60.3	46.8586	53	116.644	2.489	Si
SLD 12	11.87	-92.62	11.5049	82	174.7886	15.193	Si
SLD 12	13.97	-60.3	46.8586	53	116.644	2.489	Si
SLV 11	11.87	-100.53	16.0104	89	188.5543	11.777	Si
SLV 11	13.97	-68.37	63.7611	60	131.4515	2.062	Si
SLV 13	11.87	-86.59	-1.3063	76	164.1743	125.677	Si
SLV 13	13.97	-61.78	56.0604	55	119.3676	2.129	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	11.87	-84.43	-46.48	7.691		75	4.045	65	74.18			1.6	Si
SLU 41	13.97	-64.07	-45.48	53.803		64	3.5483	64	63.74			1.4	Si
SLU 77	11.87	-129.06	-48.55	17.3219		114	4.045	71	80.13			1.65	Si
SLU 77	13.97	-94.24	-47.12	70.8149		88	3.8132	67	71.88			1.53	Si
SLU 83	11.87	-110.7	-48.6	10.4421		98	4.045	69	77.68			1.6	Si
SLU 83	13.97	-77.75	-47.57	60.4395		74	3.7355	65	68.47			1.44	Si
SLU 80	11.87	-119.63	-45.36	14.1812		106	4.045	70	78.87			1.74	Si
SLU 80	13.97	-81.52	-44.01	67.7525		81	3.5743	66	66.47			1.51	Si
SLU 42	11.87	-85.67	-45.1	8.3418		76	4.045	66	74.34			1.65	Si
SLU 42	13.97	-64.34	-44.26	53.7133		64	3.5631	64	64			1.45	Si
SLU 84	11.87	-111.94	-47.22	11.0929		99	4.045	69	77.85			1.65	Si
SLU 84	13.97	-78.02	-46.36	60.3497		74	3.747	65	68.69			1.48	Si
SLU 37	11.87	-92.12	-44.62	10.7792		81	4.045	66	75.2			1.69	Si
SLU 37	13.97	-67.57	-43.13	61.2057		72	3.3503	65	61.13			1.42	Si
SLU 35	11.87	-102.79	-46.43	14.5708		91	4.045	68	76.63			1.65	Si
SLU 35	13.97	-80.56	-45.02	64.1784		78	3.6775	66	67.95			1.51	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	11.87	-118.39	-46.74	13.5303		105	4.045	69	78.71			1.68	Si
SLU 79	13.97	-81.25	-45.22	67.8422		81	3.5627	66	66.25			1.47	Si
SLU 38	11.87	-93.36	-43.24	11.43		82	4.045	67	75.37			1.74	Si
SLU 38	13.97	-67.84	-41.91	61.116		72	3.365	65	61.39			1.46	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	11.87	-100.53	-46.47	16.0104		89	4.045	101	114.49			2.46	Si
SLV 12	13.97	-68.37	-39.16	63.7611		75	3.2698	98	89.97			2.3	Si
SLV 15	11.87	-94.16	-57.18	4.534		83	4.045	100	113.21			1.98	Si
SLV 15	13.97	-68.23	-37.89	68.5642		80	3.053	99	84.88			2.24	Si
SLD 15	11.87	-89.93	-38.21	6.732		79	4.045	99	112.37			2.94	Si
SLD 15	13.97	-60.25	-29.87	48.9596		59	3.6298	95	96.75			3.24	Si
SLV 7	11.87	-98.43	-29.24	20.0071		87	4.045	101	114.07			3.9	Si
SLV 7	13.97	-62.03	-33.03	47.1404		58	3.7877	95	100.79			3.05	Si
SLV 11	11.87	-100.53	-46.47	16.0104		89	4.045	101	114.49			2.46	Si
SLV 11	13.97	-68.37	-39.16	63.7611		75	3.2698	98	89.97			2.3	Si
SLV 8	11.87	-98.43	-29.24	20.0071		87	4.045	101	114.07			3.9	Si
SLV 8	13.97	-62.03	-33.03	47.1404		58	3.7877	95	100.79			3.05	Si
SLD 16	11.87	-89.93	-38.21	6.732		79	4.045	99	112.37			2.94	Si
SLD 16	13.97	-60.25	-29.87	48.9596		59	3.6298	95	96.75			3.24	Si
SLV 14	11.87	-86.59	-49.13	-1.3063		76	4.045	99	111.7			2.27	Si
SLV 14	13.97	-61.78	-30.67	56.0604		66	3.3451	97	90.41			2.95	Si
SLV 16	11.87	-94.16	-57.18	4.534		83	4.045	100	113.21			1.98	Si
SLV 16	13.97	-68.23	-37.89	68.5642		80	3.053	99	84.88			2.24	Si
SLV 13	11.87	-86.59	-49.13	-1.3063		76	4.045	99	111.7			2.27	Si
SLV 13	13.97	-61.78	-30.67	56.0604		66	3.3451	97	90.41			2.95	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.53	43	-48.89	4.674	6.6027	1.41	Si
SLV 2	1438	0.53	43	-48.89	4.674	6.6027	1.41	Si
SLV 6	1438	0.53	45	-50.85	4.674	6.8579	1.47	Si
SLV 5	1438	0.53	45	-50.85	4.674	6.8579	1.47	Si
SLV 3	1438	0.53	49	-54.94	4.674	7.3866	1.58	Si
SLV 4	1438	0.53	49	-54.94	4.674	7.3866	1.58	Si
SLV 9	1438	0.53	52	-58.59	4.674	7.8555	1.68	Si
SLV 10	1438	0.53	52	-58.59	4.674	7.8555	1.68	Si
SLV 7	1438	0.53	63	-71.03	4.674	9.4341	2.02	Si
SLV 8	1438	0.53	63	-71.03	4.674	9.4341	2.02	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-18.89	-100.53	-0.23	0.068	7.607	0.896	1.09853	10.9083	No
SLV 12	-18.89	-100.53	-0.23	0.068	7.607	0.896	1.09853	10.9083	No
SLV 5	-15.81	-73.21	0.28	0.068	7.365	0.901	1.10135	10.9083	No
SLV 6	-15.81	-73.21	0.28	0.068	7.365	0.901	1.10135	10.9083	No
SLV 1	-17.37	-79.58	0.28	0.068	7.485	0.898	1.09303	10.55091	No
SLV 2	-17.37	-79.58	0.28	0.068	7.485	0.898	1.09303	10.55091	No
SLV 8	-19.21	-98.43	-0.12	0.07	7.632	0.895	1.13344	10.9083	No
SLV 7	-19.21	-98.43	-0.12	0.07	7.632	0.895	1.13344	10.9083	No
SLV 10	-15.49	-75.31	0.16	0.071	7.341	0.901	1.14249	10.9083	No
SLV 9	-15.49	-75.31	0.16	0.071	7.341	0.901	1.14249	10.9083	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.069	SLU 37	Si
V_SLU	1.401	SLU 41	Si
PF_SLV	1.914	SLV 15	Si
V_SLV	1.98	SLV 15	Si
PFFP_SLV	1.413	SLV 1	Si
R_SLV	0.101	SLV 11	No

## Maschio 203

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-11.003	-3.509	-11.003	1.046	L6	L7	4.556	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 59	11.87	-174.66	45.06	137	330.9661	7.345	Si
SLU 59	15.03	-8.43	20.6019	0	0	0	No, e>l/2
SLU 29	11.87	-156.84	45.8447	123	303.3268	6.616	Si
SLU 29	15.03	-8.45	21.026	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	11.87	-148.04	35.5266	116	289.1708	8.14	Si
SLU 42	15.03	-6.66	15.385	0	0	0	No, e>l/2
SLU 58	11.87	-175.3	45.5806	137	331.9405	7.282	Si
SLU 58	15.03	-8.53	20.8315	0	0	0	No, e>l/2
SLU 27	11.87	-161.97	51.1306	127	311.436	6.091	Si
SLU 27	15.03	-9.48	22.3471	0	0	0	No, e>l/2
SLU 28	11.87	-161.33	50.6099	126	310.4238	6.134	Si
SLU 28	15.03	-9.38	22.1175	0	0	0	No, e>l/2
SLU 34	11.87	-146.82	36.7994	115	287.1852	7.804	Si
SLU 34	15.03	-6.81	15.777	0	0	0	No, e>l/2
SLU 30	11.87	-156.19	45.324	122	302.3002	6.67	Si
SLU 30	15.03	-8.35	20.7964	0	0	0	No, e>l/2
SLU 57	11.87	-179.79	50.3459	141	338.674	6.727	Si
SLU 57	15.03	-9.45	21.9231	0	0	0	No, e>l/2
SLU 26	11.87	-144.99	40.5793	114	284.1769	7.003	Si
SLU 26	15.03	-7.3	17.049	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	11.87	-97.93	28.0303	77	209.0473	7.458	Si
SLV 4	15.03	3.38	-7.9539	0	0	0	No, Trazione
SLV 2	11.87	-115.05	29.7053	90	242.726	8.171	Si
SLV 2	15.03	-2.59	6.5554	0	0	0	No, e>l/2
SLV 10	11.87	-159.61	36.5965	125	326.3377	8.917	Si
SLV 10	15.03	-17.54	40.1707	0	0	0	No, e>l/2
SLV 9	11.87	-159.61	36.5965	125	326.3377	8.917	Si
SLV 9	15.03	-17.54	40.1707	0	0	0	No, e>l/2
SLV 6	11.87	-148.27	34.3179	116	305.6017	8.905	Si
SLV 6	15.03	-13.85	32.4687	0	0	0	No, e>l/2
SLV 7	11.87	-91.18	28.7345	71	195.5478	6.805	Si
SLV 7	15.03	6.04	-15.8956	0	0	0	No, Trazione
SLV 8	11.87	-91.18	28.7345	71	195.5478	6.805	Si
SLV 8	15.03	6.04	-15.8956	0	0	0	No, Trazione
SLV 1	11.87	-115.05	29.7053	90	242.726	8.171	Si
SLV 1	15.03	-2.59	6.5554	0	0	0	No, e>l/2
SLV 5	11.87	-148.27	34.3179	116	305.6017	8.905	Si
SLV 5	15.03	-13.85	32.4687	0	0	0	No, e>l/2
SLV 3	11.87	-97.93	28.0303	77	209.0473	7.458	Si
SLV 3	15.03	3.38	-7.9539	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 30	11.87	-156.19	-22.83	45.324	122	4.5557	72	91.69				4.02	Si
SLU 30	15.03	-8.35	-7.13	20.7964	0	0	56	0				0	No, Vu<V
SLU 29	11.87	-156.84	-23.5	45.8447	123	4.5557	72	91.78				3.91	Si
SLU 29	15.03	-8.45	-7.28	21.026	0	0	56	0				0	No, Vu<V
SLU 59	11.87	-174.66	-19.58	45.06	137	4.5557	74	94.15				4.81	Si
SLU 59	15.03	-8.43	-5.94	20.6019	0	0	56	0				0	No, Vu<V
SLU 27	11.87	-161.97	-22.63	51.1306	127	4.5557	72	92.46				4.09	Si
SLU 27	15.03	-9.48	-6.85	22.3471	0	0	56	0				0	No, Vu<V
SLU 58	11.87	-175.3	-20.25	45.5806	137	4.5557	74	94.24				4.65	Si
SLU 58	15.03	-8.53	-6.09	20.8315	0	0	56	0				0	No, Vu<V
SLU 26	11.87	-144.99	-15.19	40.5793	114	4.5557	71	90.2				5.94	Si
SLU 26	15.03	-7.3	-4.58	17.049	0	0	56	0				0	No, Vu<V
SLU 57	11.87	-179.79	-18.71	50.3459	141	4.5557	74	94.84				5.07	Si
SLU 57	15.03	-9.45	-5.52	21.9231	0	0	56	0				0	No, Vu<V
SLU 28	11.87	-161.33	-21.97	50.6099	126	4.5557	72	92.38				4.21	Si
SLU 28	15.03	-9.38	-6.71	22.1175	0	0	56	0				0	No, Vu<V
SLU 42	11.87	-148.04	-15.27	35.5266	116	4.5557	71	90.61				5.93	Si
SLU 42	15.03	-6.66	-4.69	15.385	0	0	56	0				0	No, Vu<V
SLU 34	11.87	-146.82	-14.94	36.7994	115	4.5557	71	90.44				6.06	Si
SLU 34	15.03	-6.81	-4.59	15.777	0	0	56	0				0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	11.87	-102.53	60.06	31.0131	80	4.5557	99	126.8				2.11	Si
SLV 12	15.03	2.36	25.61	-8.1936	0	0	83	0				0	No, Vu<V
SLV 8	11.87	-91.18	71.33	28.7345	71	4.5557	98	124.54				1.75	Si
SLV 8	15.03	6.04	28.02	-15.8956	0	0	83	0				0	No, Vu<V
SLV 9	11.87	-159.61	-84.41	36.5965	125	4.5557	108	138.22				1.64	Si
SLV 9	15.03	-17.54	-31.08	40.1707	0	0	83	0				0	No, Vu<V
SLV 1	11.87	-115.05	-9.43	29.7053	90	4.5557	101	129.31				13.72	Si
SLV 1	15.03	-2.59	-6.02	6.5554	0	0	83	0				0	No, Vu<V
SLV 6	11.87	-148.27	-73.14	34.3179	116	4.5557	107	135.95				1.86	Si
SLV 6	15.03	-13.85	-28.67	32.4687	0	0	83	0				0	No, Vu<V
SLV 4	11.87	-97.93	33.91	28.0303	77	4.5557	99	125.88				3.71	Si
SLV 4	15.03	3.38	10.98	-7.9539	0	0	83	0				0	No, Vu<V
SLV 11	11.87	-102.53	60.06	31.0131	80	4.5557	99	126.8				2.11	Si
SLV 11	15.03	2.36	25.61	-8.1936	0	0	83	0				0	No, Vu<V
SLV 3	11.87	-97.93	33.91	28.0303	77	4.5557	99	125.88				3.71	Si
SLV 3	15.03	3.38	10.98	-7.9539	0	0	83	0				0	No, Vu<V
SLV 2	11.87	-115.05	-9.43	29.7053	90	4.5557	101	129.31				13.72	Si
SLV 2	15.03	-2.59	-6.02	6.5554	0	0	83	0				0	No, Vu<V
SLV 5	11.87	-148.27	-73.14	34.3179	116	4.5557	107	135.95				1.86	Si
SLV 5	15.03	-13.85	-28.67	32.4687	0	0	83	0				0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.53	29	-37.62	5.2641	5.1393	0.98	No, M>Mu
SLV 7	1438	0.53	29	-37.62	5.2641	5.1393	0.98	No, M>Mu
SLV 4	1438	0.53	34	-42.91	5.2641	5.8416	1.11	Si
SLV 3	1438	0.53	34	-42.91	5.2641	5.8416	1.11	Si
SLV 12	1438	0.53	38	-48.36	5.2641	6.5599	1.25	Si
SLV 11	1438	0.53	38	-48.36	5.2641	6.5599	1.25	Si
SLV 1	1438	0.53	46	-58.18	5.2641	7.8412	1.49	Si
SLV 2	1438	0.53	46	-58.18	5.2641	7.8412	1.49	Si
SLV 16	1438	0.53	62	-78.71	5.2641	10.4623	1.99	Si
SLV 15	1438	0.53	62	-78.71	5.2641	10.4623	1.99	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45  $W_a = 0.0005$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	2.36	-102.53	-0.36	0	0	0	0	10.9083	No, Trazione
SLV 4	3.38	-97.93	0	0	0	0	0	10.55091	No, Trazione
SLV 7	6.04	-91.18	-0.28	0	0	0	0	10.9083	No, Trazione
SLV 8	6.04	-91.18	-0.28	0	0	0	0	10.9083	No, Trazione
SLV 12	2.36	-102.53	-0.36	0	0	0	0	10.9083	No, Trazione
SLV 3	3.38	-97.93	0	0	0	0	0	10.55091	No, Trazione
SLV 5	-13.85	-148.27	0.28	0.071	8.008	0.909	1.13153	10.9083	No
SLV 6	-13.85	-148.27	0.28	0.071	8.008	0.909	1.13153	10.9083	No
SLV 10	-17.54	-159.61	0.2	0.07	8.275	0.901	1.13494	10.9083	No
SLV 9	-17.54	-159.61	0.2	0.07	8.275	0.901	1.13494	10.9083	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 5	No
V_SLU	0	SLU 5	No
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 1	No
PFFP_SLV	0.976	SLV 7	No
R_SLV	0	SLV 12	No

## Maschio 204

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-6.268	-3.359	-6.268	1.046	L6	L7	4.405	0.14	3.16	3.16	3.16			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 30	11.87	-79.22	32.6582	128	146.9679	4.5	Si
SLU 30	15.03	-11.46	-14.3925	19	24.6716	1.714	Si
SLU 38	11.87	-84.54	33.1041	137	154.8627	4.678	Si
SLU 38	15.03	-11.45	-14.1753	19	24.6475	1.739	Si
SLU 16	11.87	-76.25	27.2944	124	142.4492	5.219	Si
SLU 16	15.03	-9.69	-11.1717	16	20.9288	1.873	Si
SLU 17	11.87	-76.27	30.0489	124	142.4796	4.742	Si
SLU 17	15.03	-10.13	-12.1391	16	21.8683	1.801	Si
SLU 29	11.87	-79.2	29.9037	128	146.938	4.914	Si
SLU 29	15.03	-11.02	-13.4251	18	23.7373	1.768	Si
SLU 9	11.87	-70.95	29.603	115	134.1992	4.533	Si
SLU 9	15.03	-10.14	-12.3563	16	21.8925	1.772	Si
SLU 72	11.87	-94.11	36.9432	153	168.447	4.56	Si
SLU 72	15.03	-12.2	-13.8168	20	26.2253	1.898	Si
SLU 8	11.87	-70.93	26.8485	115	134.1679	4.997	Si
SLU 8	15.03	-9.7	-11.3889	16	20.953	1.84	Si
SLU 37	11.87	-84.52	30.3496	137	154.8338	5.102	Si
SLU 37	15.03	-11.01	-13.2079	18	23.7131	1.795	Si
SLU 28	11.87	-82.04	33.6014	133	151.1881	4.499	Si
SLU 28	15.03	-11.52	-13.0994	19	24.8008	1.893	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	11.87	-62.89	28.9916	102	126.9523	4.379	Si
SLV 11	15.03	-6.3	-22.4895	0	0	0	No, e>l/2
SLV 4	11.87	-55.65	27.7379	90	113.5203	4.093	Si
SLV 4	15.03	-5.26	-13.363	0	0	0	No, e>l/2
SLV 10	11.87	-67.05	5.3125	109	134.5451	25.326	Si
SLV 10	15.03	-2.21	23.9177	0	0	0	No, e>l/2
SLV 7	11.87	-58.88	32.2381	95	119.5418	3.708	Si
SLV 7	15.03	-6.48	-25.7738	0	0	0	No, e>l/2
SLV 5	11.87	-63.04	8.5589	102	127.2323	14.865	Si
SLV 5	15.03	-2.39	20.6333	0	0	0	No, e>l/2
SLV 8	11.87	-58.88	32.2381	95	119.5418	3.708	Si
SLV 8	15.03	-6.48	-25.7738	0	0	0	No, e>l/2
SLV 13	11.87	-70.28	9.8127	114	140.3517	14.303	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	15.03	-3.43	11.5069	0	0	0	No, $e \geq l/2$
SLV 9	11.87	-67.05	5.3125	109	134.5451	25.326	Si
SLV 9	15.03	-2.21	23.9177	0	0	0	No, $e \geq l/2$
SLV 12	11.87	-62.89	28.9916	102	126.9523	4.379	Si
SLV 12	15.03	-6.3	-22.4895	0	0	0	No, $e \geq l/2$
SLV 3	11.87	-55.65	27.7379	90	113.5203	4.093	Si
SLV 3	15.03	-5.26	-13.363	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	11.87	-94.11	11.98	36.9432		153	4.405	76	46.81			3.91	Si
SLU 72	15.03	-12.2	18.57	-13.8168		27	3.2109	59	26.6			1.43	Si
SLU 30	11.87	-79.22	11.41	32.6582		128	4.405	73	44.82			3.93	Si
SLU 30	15.03	-11.46	18	-14.3925		29	2.8409	59	23.62			1.31	Si
SLU 9	11.87	-70.95	10.21	29.6033		115	4.405	71	43.72			4.28	Si
SLU 9	15.03	-10.14	16.1	-12.3563		25	2.9535	59	24.32			1.51	Si
SLU 38	11.87	-84.54	11.2	33.1041		137	4.405	74	45.53			4.07	Si
SLU 38	15.03	-11.45	17.81	-14.1753		28	2.894	59	24.04			1.35	Si
SLU 17	11.87	-76.27	9.99	30.0489		124	4.405	72	44.43			4.45	Si
SLU 17	15.03	-10.13	15.91	-12.1391		24	3.0137	59	24.79			1.56	Si
SLU 37	11.87	-84.52	11.31	30.3496		137	4.405	74	45.53			4.02	Si
SLU 37	15.03	-11.01	15.94	-13.2079		26	3.0078	59	24.86			1.56	Si
SLU 28	11.87	-82.04	10.73	33.6014		133	4.405	73	45.2			4.21	Si
SLU 28	15.03	-11.52	17.07	-13.0994		26	3.1976	59	26.41			1.55	Si
SLU 36	11.87	-87.36	10.51	34.0473		142	4.405	74	45.91			4.37	Si
SLU 36	15.03	-11.51	16.88	-12.8822		25	3.2508	59	26.82			1.59	Si
SLU 80	11.87	-99.43	11.76	37.3891		161	4.405	77	47.52			4.04	Si
SLU 80	15.03	-12.19	18.39	-13.5997		27	3.2611	59	26.99			1.47	Si
SLU 29	11.87	-79.2	11.53	29.9037		128	4.405	73	44.82			3.89	Si
SLU 29	15.03	-11.02	16.13	-13.4251		27	2.9525	59	24.43			1.51	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	11.87	-58.88	52.63	32.2381		95	4.405	102	63.17			1.2	Si
SLV 8	15.03	-6.48	39.64	-25.7738		0	0	83	0			0	No, $V_u < V$
SLV 4	11.87	-55.65	19.82	27.7379		90	4.405	101	62.52			3.15	Si
SLV 4	15.03	-5.26	19.68	-13.363		0	0	83	0			0	No, $V_u < V$
SLV 12	11.87	-62.89	51.61	28.9916		102	4.405	104	63.97			1.24	Si
SLV 12	15.03	-6.3	36.62	-22.4895		0	0	83	0			0	No, $V_u < V$
SLV 6	11.87	-63.04	-44.51	8.5589		102	4.405	104	64			1.44	Si
SLV 6	15.03	-2.39	-27.48	20.6333		0	0	83	0			0	No, $V_u < V$
SLV 3	11.87	-55.65	19.82	27.7379		90	4.405	101	62.52			3.15	Si
SLV 3	15.03	-5.26	19.68	-13.363		0	0	83	0			0	No, $V_u < V$
SLV 9	11.87	-67.05	-45.53	5.3125		109	4.405	105	64.8			1.42	Si
SLV 9	15.03	-2.21	-30.5	23.9177		0	0	83	0			0	No, $V_u < V$
SLV 5	11.87	-63.04	-44.51	8.5589		102	4.405	104	64			1.44	Si
SLV 5	15.03	-2.39	-27.48	20.6333		0	0	83	0			0	No, $V_u < V$
SLV 7	11.87	-58.88	52.63	32.2381		95	4.405	102	63.17			1.2	Si
SLV 7	15.03	-6.48	39.64	-25.7738		0	0	83	0			0	No, $V_u < V$
SLV 13	11.87	-70.28	-12.73	9.8127		114	4.405	106	65.45			5.14	Si
SLV 13	15.03	-3.43	-10.53	11.5069		0	0	83	0			0	No, $V_u < V$
SLV 11	11.87	-62.89	51.61	28.9916		102	4.405	104	63.97			1.24	Si
SLV 11	15.03	-6.3	36.62	-22.4895		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	1438	0.53	0	-37.95	2.6606	0	0	No, $e > t/2$
SLV 5	1438	0.53	0	-32.85	2.6606	0	0	No, $e > t/2$
SLV 6	1438	0.53	0	-32.85	2.6606	0	0	No, $e > t/2$
SLV 14	1438	0.53	0	-37.95	2.6606	0	0	No, $e > t/2$
SLV 9	1438	0.53	0	-34.11	2.6606	0	0	No, $e > t/2$
SLV 2	1438	0.53	0	-33.76	2.6606	0	0	No, $e > t/2$
SLV 4	1438	0.53	0	-35.8	2.6606	0	0	No, $e > t/2$
SLV 10	1438	0.53	0	-34.11	2.6606	0	0	No, $e > t/2$
SLV 3	1438	0.53	0	-35.8	2.6606	0	0	No, $e > t/2$
SLV 1	1438	0.53	0	-33.76	2.6606	0	0	No, $e > t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 13.45 Wa = 0.0003 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-6.3	-62.89	-0.02	0.037	3.844	0.911	0.59757	21.19413	No
SLV 12	-6.3	-62.89	-0.02	0.037	3.844	0.911	0.59757	21.19413	No
SLV 7	-6.48	-58.88	-0.02	0.037	3.857	0.91	0.59842	21.19413	No
SLV 8	-6.48	-58.88	-0.02	0.037	3.857	0.91	0.59842	21.19413	No
SLV 16	-4.66	-69.03	-0.01	0.039	3.741	0.923	0.61465	21.19251	No
SLV 15	-4.66	-69.03	-0.01	0.039	3.741	0.923	0.61465	21.19251	No
SLV 3	-5.26	-55.65	0	0.039	3.777	0.918	0.61782	21.19251	No
SLV 4	-5.26	-55.65	0	0.039	3.777	0.918	0.61782	21.19251	No
SLV 2	-4.04	-56.9	0.01	0.04	3.705	0.929	0.62211	21.19251	No
SLV 1	-4.04	-56.9	0.01	0.04	3.705	0.929	0.62211	21.19251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	1.714	SLU 30	Si
V SLU	1.313	SLU 30	Si
PF SLV	0	SLD 5	No
V SLV	0	SLD 5	No



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	0	SLV 1	No
R SLV	0.028	SLV 11	No

## Maschio 205

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	1.046	-5.158	5.811	L6	L7	4.765	0.14	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 79	11.87	-184.81	65.7316	277	290.5659	4.42	Si
SLU 79	15.03	-50.97	90.4175	76	110.0519	1.217	Si
SLU 8	11.87	-143.42	61.9256	215	251.5204	4.062	Si
SLU 8	15.03	-43.55	77.9506	65	95.4343	1.224	Si
SLU 30	11.87	-163.66	70.9114	245	272.4907	3.843	Si
SLU 30	15.03	-50.38	90.0618	76	108.9015	1.209	Si
SLU 80	11.87	-185.13	63.8517	278	290.803	4.554	Si
SLU 80	15.03	-51.14	90.7136	77	110.3676	1.217	Si
SLU 72	11.87	-180.27	66.7804	270	287.0128	4.298	Si
SLU 72	15.03	-51.57	91.5556	77	111.2076	1.215	Si
SLU 29	11.87	-163.35	72.7913	245	272.1949	3.739	Si
SLU 29	15.03	-50.22	89.7656	75	108.5846	1.21	Si
SLU 37	11.87	-168.21	69.8626	252	276.7055	3.961	Si
SLU 37	15.03	-49.78	88.9236	75	107.7395	1.212	Si
SLU 38	11.87	-168.52	67.9827	253	276.988	4.074	Si
SLU 38	15.03	-49.94	89.2198	75	108.0569	1.211	Si
SLU 9	11.87	-143.74	60.0457	215	251.8707	4.195	Si
SLU 9	15.03	-43.71	78.2468	66	95.7607	1.224	Si
SLU 71	11.87	-179.96	68.6604	270	286.7624	4.177	Si
SLU 71	15.03	-51.41	91.2595	77	110.8925	1.215	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLV 11	11.87	-100.55	22.4723	151	210.0055	9.345	Si
SLV 11	15.03	-3.58	-30.617	0	0	0	No, e>l/2
SLV 6	11.87	-69.86	-20.6409	105	152.1805	7.373	Si
SLV 6	15.03	-23.17	73.852	0	0	0	No, e>l/2
SLV 8	11.87	-99.56	20.5334	149	208.2282	10.141	Si
SLV 8	15.03	-6.14	-23.1657	0	0	0	No, e>l/2
SLV 7	11.87	-99.56	20.5334	149	208.2282	10.141	Si
SLV 7	15.03	-6.14	-23.1657	0	0	0	No, e>l/2
SLV 10	11.87	-70.85	-18.7021	106	154.1294	8.241	Si
SLV 10	15.03	-20.61	66.4007	0	0	0	No, e>l/2
SLV 12	11.87	-100.55	22.4723	151	210.0055	9.345	Si
SLV 12	15.03	-3.58	-30.617	0	0	0	No, e>l/2
SLV 9	11.87	-70.85	-18.7021	106	154.1294	8.241	Si
SLV 9	15.03	-20.61	66.4007	0	0	0	No, e>l/2
SLV 1	11.87	-79.1	-8.4919	119	170.1729	20.04	Si
SLV 1	15.03	-20.2	48.589	0	0	0	No, e>l/2
SLV 2	11.87	-79.1	-8.4919	119	170.1729	20.04	Si
SLV 2	15.03	-20.2	48.589	0	0	0	No, e>l/2
SLV 5	11.87	-69.86	-20.6409	105	152.1805	7.373	Si
SLV 5	15.03	-23.17	73.852	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	l'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	11.87	-168.21	10.9	69.8626		252	4.765	89	59.49			5.46	Si
SLU 37	15.03	-49.78	17.81	88.9236		199	1.7887	82	20.55			1.15	Si
SLU 38	11.87	-168.52	9.75	67.9827		253	4.765	89	59.53			6.1	Si
SLU 38	15.03	-49.94	17.23	89.2198		199	1.7884	82	20.57			1.19	Si
SLU 36	11.87	-165.99	9.14	59.7236		249	4.765	89	59.19			6.48	Si
SLU 36	15.03	-47.61	16.64	83.5893		181	1.8799	80	20.97			1.26	Si
SLU 35	11.87	-165.68	10.28	61.6035		248	4.765	89	59.15			5.75	Si
SLU 35	15.03	-47.44	17.22	83.2932		180	1.8805	80	20.95			1.22	Si
SLU 30	11.87	-163.66	9.32	70.9114		245	4.765	88	58.88			6.32	Si
SLU 30	15.03	-50.38	16.05	90.0618		202	1.7845	82	20.6			1.28	Si
SLU 77	11.87	-182.29	8.64	57.4725		273	4.765	92	61.37			7.1	Si
SLU 77	15.03	-48.63	16.81	84.787		181	1.9174	80	21.4			1.27	Si
SLU 71	11.87	-179.96	8.82	68.6604		270	4.765	92	61.06			6.92	Si
SLU 71	15.03	-51.41	16.22	91.2595		202	1.8219	82	21.02			1.3	Si
SLU 80	11.87	-185.13	8.11	63.8517		278	4.765	93	61.74			7.61	Si
SLU 80	15.03	-51.14	16.83	90.7136		200	1.8256	82	21.02			1.25	Si
SLU 29	11.87	-163.35	10.46	72.7913		245	4.765	88	58.84			5.63	Si
SLU 29	15.03	-50.22	16.62	89.7656		201	1.7848	82	20.58			1.24	Si
SLU 79	11.87	-184.81	9.25	65.7316		277	4.765	92	61.7			6.67	Si
SLU 79	15.03	-50.97	17.4	90.4175		199	1.826	82	21			1.21	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	11.87	-69.86	-73.73	-20.6409		105	4.765	104	69.56			0.94	No, Vu<V
SLV 6	15.03	-23.17	-33.66	73.852		0	0	83	0			0	No, Vu<V
SLD 10	11.87	-79.14	-28.39	-7.119		119	4.765	107	71.42			2.52	Si
SLD 10	15.03	-16.3	-9.61	40.2001		0	0	83	0			0	No, Vu<V
SLV 7	11.87	-99.56	61.86	20.5334		149	4.765	113	75.5			1.22	Si
SLV 7	15.03	-6.14	35.44	-23.1657		0	0	83	0			0	No, Vu<V
SLV 5	11.87	-69.86	-73.73	-20.6409		105	4.765	104	69.56			0.94	No, Vu<V
SLV 5	15.03	-23.17	-33.66	73.852		0	0	83	0			0	No, Vu<V
SLV 2	11.87	-79.1	-36.18	-8.4919		119	4.765	107	71.41			1.97	Si
SLV 2	15.03	-20.2	-15.98	48.589		0	0	83	0			0	No, Vu<V
SLD 6	11.87	-78.74	-31.96	-7.8787		118	4.765	107	71.34			2.23	Si
SLD 6	15.03	-17.38	-11.99	43.3633		0	0	83	0			0	No, Vu<V
SLD 9	11.87	-79.14	-28.39	-7.119		119	4.765	107	71.42			2.52	Si
SLD 9	15.03	-16.3	-9.61	40.2001		0	0	83	0			0	No, Vu<V
SLV 9	11.87	-70.85	-65.23	-18.7021		106	4.765	105	69.76			1.07	Si
SLV 9	15.03	-20.61	-28.08	66.4007		0	0	83	0			0	No, Vu<V
SLV 1	11.87	-79.1	-36.18	-8.4919		119	4.765	107	71.41			1.97	Si
SLV 1	15.03	-20.2	-15.98	48.589		0	0	83	0			0	No, Vu<V
SLV 8	11.87	-99.56	61.86	20.5334		149	4.765	113	75.5			1.22	Si
SLV 8	15.03	-6.14	35.44	-23.1657		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0003 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.53	64	-42.82	2.8781	2.8402	0.99	No, M>Mu
SLV 13	1438	0.53	64	-42.82	2.8781	2.8402	0.99	No, M>Mu
SLV 16	1438	0.53	65	-43.69	2.8781	2.8942	1.01	Si
SLV 15	1438	0.53	65	-43.69	2.8781	2.8942	1.01	Si
SLV 10	1438	0.53	67	-44.96	2.8781	2.9735	1.03	Si
SLV 9	1438	0.53	67	-44.96	2.8781	2.9735	1.03	Si
SLV 5	1438	0.53	71	-47.65	2.8781	3.1406	1.09	Si
SLV 6	1438	0.53	71	-47.65	2.8781	3.1406	1.09	Si
SLV 12	1438	0.53	72	-47.84	2.8781	3.1522	1.1	Si
SLV 11	1438	0.53	72	-47.84	2.8781	3.1522	1.1	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0003 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-23.17	-69.86	-0.16	0.028	5.544	0.89	0.46335	21.19413	No
SLV 6	-23.17	-69.86	-0.16	0.028	5.544	0.89	0.46335	21.19413	No
SLV 9	-20.61	-70.85	-0.12	0.03	5.307	0.889	0.48606	21.19413	No
SLV 10	-20.61	-70.85	-0.12	0.03	5.307	0.889	0.48606	21.19413	No
SLV 2	-20.2	-79.1	-0.1	0.03	5.269	0.889	0.49376	21.19251	No
SLV 1	-20.2	-79.1	-0.1	0.03	5.269	0.889	0.49376	21.19251	No
SLV 12	-3.58	-100.55	0.16	0.034	3.968	0.937	0.5232	21.19413	No
SLV 11	-3.58	-100.55	0.16	0.034	3.968	0.937	0.5232	21.19413	No
SLV 7	-6.14	-99.56	0.12	0.034	4.114	0.915	0.54102	21.19413	No
SLV 8	-6.14	-99.56	0.12	0.034	4.114	0.915	0.54102	21.19413	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.209	SLU 30	Si
V_SLU	1.154	SLU 37	Si
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	0.987	SLV 13	No
R_SLV	0.022	SLV 5	No

## Maschio 206

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-5.158	5.811	-5.158	6.006	L6	L7	0.195	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 49	13.87	-53.12	-0.4771	973	0	0	No, Rottura per schiacciamento
SLU 49	14.67	-66.53	3.1593	1218	0	0	No, Rottura per schiacciamento
SLU 48	13.87	-53.48	-0.4624	979	0	0	No, Rottura per schiacciamento
SLU 48	14.67	-66.72	3.1359	1222	0	0	No, Rottura per schiacciamento
SLU 47	13.87	-35.4	-0.3525	648	0.7046	1.999	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 47	14.67	-45.05	2.3274	825	0	0	No, Rottura per schiacciamento
SLU 50	13.87	-56.54	-0.495	1035	0	0	No, Rottura per schiacciamento
SLU 50	14.67	-70.31	3.2443	1288	0	0	No, Rottura per schiacciamento
SLU 38	13.87	-65.27	-0.5353	1195	0	0	No, Rottura per schiacciamento
SLU 38	14.67	-81.83	3.8653	1499	0	0	No, Rottura per schiacciamento
SLU 83	13.87	-46.5	-0.3688	852	0	0	No, Rottura per schiacciamento
SLU 83	14.67	-59.37	3.1292	1087	0	0	No, Rottura per schiacciamento
SLU 42	13.87	-45.06	-0.3624	825	0	0	No, Rottura per schiacciamento
SLU 42	14.67	-57.56	2.9931	1054	0	0	No, Rottura per schiacciamento
SLU 37	13.87	-65.62	-0.5206	1202	0	0	No, Rottura per schiacciamento
SLU 37	14.67	-82.03	3.8419	1502	0	0	No, Rottura per schiacciamento
SLU 51	13.87	-56.18	-0.5097	1029	0	0	No, Rottura per schiacciamento
SLU 51	14.67	-70.11	3.2677	1284	0	0	No, Rottura per schiacciamento
SLU 41	13.87	-45.41	-0.3477	832	0	0	No, Rottura per schiacciamento
SLU 41	14.67	-57.76	2.9698	1058	0	0	No, Rottura per schiacciamento

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	13.87	-23.02	-0.2434	422	1.47	6.041	Si
SLV 12	14.67	-33.86	2.4722	620	1.6258	0.658	No, M>Mu
SLV 11	13.87	-23.02	-0.2434	422	1.47	6.041	Si
SLV 11	14.67	-33.86	2.4722	620	1.6258	0.658	No, M>Mu
SLV 16	13.87	-21.24	-0.0699	389	1.4114	20.193	Si
SLV 16	14.67	-30.29	2.5635	555	1.6124	0.629	No, M>Mu
SLD 15	13.87	-18.82	-0.1233	345	1.3173	10.684	Si
SLD 15	14.67	-25.81	1.8913	473	1.543	0.816	No, M>Mu
SLV 8	13.87	-21.54	-0.3162	394	1.4219	4.498	Si
SLV 8	14.67	-31.04	1.9122	568	1.6183	0.846	No, M>Mu
SLV 15	13.87	-21.24	-0.0699	389	1.4114	20.193	Si
SLV 15	14.67	-30.29	2.5635	555	1.6124	0.629	No, M>Mu
SLV 7	13.87	-21.54	-0.3162	394	1.4219	4.498	Si
SLV 7	14.67	-31.04	1.9122	568	1.6183	0.846	No, M>Mu
SLD 16	13.87	-18.82	-0.1233	345	1.3173	10.684	Si
SLD 16	14.67	-25.81	1.8913	473	1.543	0.816	No, M>Mu
SLV 14	13.87	-18.22	0.006	334	1.2914	215.9	Si
SLV 14	14.67	-24.41	2.0818	447	1.5093	0.725	No, M>Mu
SLV 13	13.87	-18.22	0.006	334	1.2914	215.9	Si
SLV 13	14.67	-24.41	2.0818	447	1.5093	0.725	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	13.87	-65.62	-3.42	-0.5206		1202	0.195	108	5.91			1.73	Si
SLU 37	14.67	-82.03	-11.95	3.8419		1927	0.152	108	4.61			0.39	No, Vu<V
SLU 38	13.87	-65.27	-3.45	-0.5353		1195	0.195	108	5.91			1.71	Si
SLU 38	14.67	-81.83	-12.06	3.8653		1938	0.1508	108	4.57			0.38	No, Vu<V
SLU 70	13.87	-62.5	-3.37	-0.5378		1145	0.195	108	5.91			1.75	Si
SLU 70	14.67	-78.32	-11.66	3.7209		1865	0.15	108	4.55			0.39	No, Vu<V
SLU 79	13.87	-66.71	-3.48	-0.5417		1222	0.195	108	5.91			1.7	Si
SLU 79	14.67	-83.64	-12.55	4.0013		2005	0.149	108	4.52			0.36	No, Vu<V
SLU 72	13.87	-65.56	-3.59	-0.5704		1201	0.195	108	5.91			1.65	Si
SLU 72	14.67	-81.91	-11.93	3.8292		1921	0.1522	108	4.62			0.39	No, Vu<V
SLU 77	13.87	-63.65	-3.26	-0.5092		1166	0.195	108	5.91			1.81	Si
SLU 77	14.67	-80.05	-12.27	3.8929		1950	0.1466	108	4.45			0.36	No, Vu<V
SLU 35	13.87	-62.56	-3.21	-0.488		1146	0.195	108	5.91			1.84	Si
SLU 35	14.67	-78.44	-11.68	3.7335		1871	0.1497	108	4.54			0.39	No, Vu<V
SLU 78	13.87	-63.3	-3.29	-0.5239		1159	0.195	108	5.91			1.8	Si
SLU 78	14.67	-79.85	-12.38	3.9163		1962	0.1454	108	4.41			0.36	No, Vu<V
SLU 36	13.87	-62.21	-3.24	-0.5027		1139	0.195	108	5.91			1.83	Si
SLU 36	14.67	-78.24	-11.78	3.7569		1882	0.1485	108	4.5			0.38	No, Vu<V
SLU 80	13.87	-66.35	-3.51	-0.5564		1215	0.195	108	5.91			1.69	Si
SLU 80	14.67	-83.44	-12.66	4.0247		2016	0.1478	108	4.48			0.35	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	13.87	-18.22	-0.38	0.006		334	0.195	150	8.19			21.55	Si
SLV 14	14.67	-24.41	-6.49	2.0818		2377	0.0367	163	1.67			0.26	No, Vu<V
SLD 15	13.87	-18.82	-0.69	-0.1233		345	0.195	152	8.31			11.97	Si
SLD 15	14.67	-25.81	-6.23	1.8913		1268	0.0727	163	3.31			0.53	No, Vu<V
SLV 13	13.87	-18.22	-0.38	0.006		334	0.195	150	8.19			21.55	Si
SLV 13	14.67	-24.41	-6.49	2.0818		2377	0.0367	163	1.67			0.26	No, Vu<V
SLV 11	13.87	-23.02	-1.04	-0.2434		422	0.195	163	8.87			8.53	Si
SLV 11	14.67	-33.86	-8.42	2.4722		1646	0.0734	163	3.34			0.4	No, Vu<V
SLD 14	13.87	-17.64	-0.62	-0.0922		323	0.195	148	8.08			13.05	Si
SLD 14	14.67	-23.43	-5.49	1.6872		1094	0.0765	163	3.48			0.63	No, Vu<V
SLD 13	13.87	-17.64	-0.62	-0.0922		323	0.195	148	8.08			13.05	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	14.67	-23.43	-5.49	1.6872		1094	0.0765	163	3.48			0.63	No, Vu<V
SLD 16	13.87	-18.82	-0.69	-0.1233		345	0.195	152	8.31			11.97	Si
SLD 16	14.67	-25.81	-6.23	1.8913		1268	0.0727	163	3.31			0.53	No, Vu<V
SLV 12	13.87	-23.02	-1.04	-0.2434		422	0.195	163	8.87			8.53	Si
SLV 12	14.67	-33.86	-8.42	2.4722		1646	0.0734	163	3.34			0.4	No, Vu<V
SLV 16	13.87	-21.24	-0.59	-0.0699		389	0.195	161	8.8			14.91	Si
SLV 16	14.67	-30.29	-8.25	2.5635		2803	0.0386	163	1.76			0.21	No, Vu<V
SLV 15	13.87	-21.24	-0.59	-0.0699		389	0.195	161	8.8			14.91	Si
SLV 15	14.67	-30.29	-8.25	2.5635		2803	0.0386	163	1.76			0.21	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.53	86	-4.72	0.2253	0.6141	2.73	Si
SLV 5	1438	0.53	86	-4.72	0.2253	0.6141	2.73	Si
SLV 9	1438	0.53	96	-5.26	0.2253	0.6788	3.01	Si
SLV 10	1438	0.53	96	-5.26	0.2253	0.6788	3.01	Si
SLV 2	1438	0.53	97	-5.32	0.2253	0.6851	3.04	Si
SLV 1	1438	0.53	97	-5.32	0.2253	0.6851	3.04	Si
SLV 4	1438	0.53	117	-6.37	0.2253	0.8068	3.58	Si
SLV 3	1438	0.53	117	-6.37	0.2253	0.8068	3.58	Si
SLV 14	1438	0.53	131	-7.13	0.2253	0.8911	3.95	Si
SLV 13	1438	0.53	131	-7.13	0.2253	0.8911	3.95	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-7.17	-4.44	1.2	0	0.976	0.932	0	10.9083	No
SLV 15	-13.35	-8.42	1.95	0	1.602	0.955	0	10.55091	No
SLV 13	-12.36	-6.85	2.13	0	1.502	0.953	0	10.55091	No
SLV 4	-1.77	-6.75	-1.35	0	0.442	0.889	0	10.55091	No
SLV 1	-0.79	-5.18	-1.16	0	0.357	0.899	0	10.55091	No
SLV 10	-7.17	-4.44	1.2	0	0.976	0.932	0	10.9083	No
SLV 16	-13.35	-8.42	1.95	0	1.602	0.955	0	10.55091	No
SLV 14	-12.36	-6.85	2.13	0	1.502	0.953	0	10.55091	No
SLV 3	-1.77	-6.75	-1.35	0	0.442	0.889	0	10.55091	No
SLV 2	-0.79	-5.18	-1.16	0	0.357	0.899	0	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0	SLV 6	No
V_SLV	0.354	SLV 80	No
PF_SLV	0.629	SLV 15	No
V_SLV	0.213	SLV 15	No
PFFP_SLV	2.726	SLV 5	Si
R_SLV	0	SLV 1	No

## Maschio 207

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-5.158	6.506	-5.158	6.521	L6	L7	0.015	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	13.87	-6.49	-0.0017	1546	0	0	No, Rottura per schiacciamento
SLU 60	14.67	-6.41	0.0022	1527	0	0	No, Rottura per schiacciamento
SLU 59	13.87	-16.31	-0.0056	3883	0	0	No, Rottura per schiacciamento
SLU 59	14.67	-16.23	0.0079	3864	0	0	No, Rottura per schiacciamento
SLU 1	13.87	-4.85	-0.0015	1155	0	0	No, Rottura per schiacciamento
SLU 1	14.67	-4.79	0.002	1140	0	0	No, Rottura per schiacciamento
SLU 53	13.87	-10.61	-0.0033	2527	0	0	No, Rottura per schiacciamento
SLU 53	14.67	-10.53	0.0046	2508	0	0	No, Rottura per schiacciamento
SLU 56	13.87	-15.69	-0.0052	3736	0	0	No, Rottura per schiacciamento
SLU 56	14.67	-15.61	0.0074	3717	0	0	No, Rottura per schiacciamento
SLU 55	13.87	-11.23	-0.0037	2674	0	0	No, Rottura per schiacciamento
SLU 55	14.67	-11.15	0.0051	2655	0	0	No, Rottura per schiacciamento



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 54	13.87	-10.61	-0.0033	2527	0	0	No, Rottura per schiacciamento
SLU 54	14.67	-10.53	0.0046	2508	0	0	No, Rottura per schiacciamento
SLU 58	13.87	-16.31	-0.0056	3882	0	0	No, Rottura per schiacciamento
SLU 58	14.67	-16.23	0.0079	3863	0	0	No, Rottura per schiacciamento
SLU 57	13.87	-15.69	-0.0053	3737	0	0	No, Rottura per schiacciamento
SLU 57	14.67	-15.61	0.0074	3718	0	0	No, Rottura per schiacciamento
SLU 61	13.87	-6.49	-0.0017	1546	0	0	No, Rottura per schiacciamento
SLU 61	14.67	-6.41	0.0023	1527	0	0	No, Rottura per schiacciamento

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	13.87	-8.39	0.001	1997	0	0	No, Rottura per schiacciamento
SLV 14	14.67	-8.05	0.0016	1917	0	0	No, Rottura per schiacciamento
SLV 8	13.87	-7.33	-0.007	1746	0	0	No, Rottura per schiacciamento
SLV 8	14.67	-7.17	0.0055	1708	0	0	No, Rottura per schiacciamento
SLD 14	13.87	-6.96	-0.0007	1656	0	0	No, Rottura per schiacciamento
SLD 14	14.67	-6.81	0.0021	1621	0	0	No, Rottura per schiacciamento
SLV 7	13.87	-7.33	-0.007	1746	0	0	No, Rottura per schiacciamento
SLV 7	14.67	-7.17	0.0055	1708	0	0	No, Rottura per schiacciamento
SLV 13	13.87	-8.39	0.001	1997	0	0	No, Rottura per schiacciamento
SLV 13	14.67	-8.05	0.0016	1917	0	0	No, Rottura per schiacciamento
SLV 12	13.87	-9.27	-0.0063	2208	0	0	No, Rottura per schiacciamento
SLV 12	14.67	-8.91	0.0056	2122	0	0	No, Rottura per schiacciamento
SLV 11	13.87	-9.27	-0.0063	2208	0	0	No, Rottura per schiacciamento
SLV 11	14.67	-8.91	0.0056	2122	0	0	No, Rottura per schiacciamento
SLD 15	13.87	-7.57	-0.0019	1802	0	0	No, Rottura per schiacciamento
SLD 15	14.67	-7.35	0.0029	1749	0	0	No, Rottura per schiacciamento
SLV 15	13.87	-9.84	-0.0019	2343	0	0	No, Rottura per schiacciamento
SLV 15	14.67	-9.38	0.0035	2234	0	0	No, Rottura per schiacciamento
SLD 16	13.87	-7.57	-0.0019	1802	0	0	No, Rottura per schiacciamento
SLD 16	14.67	-7.35	0.0029	1749	0	0	No, Rottura per schiacciamento

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	13.87	-19.11	-0.02	-0.0064		4549	0.015	108	0.46			23.39	Si
SLU 79	14.67	-19.03	-0.02	0.0091		4530	0.015	108	0.46			23.4	Si
SLU 30	13.87	-17.81	-0.02	-0.0063		4241	0.015	108	0.46			23.92	Si
SLU 30	14.67	-17.75	-0.02	0.0089		4226	0.015	108	0.46			23.92	Si
SLU 38	13.87	-18.61	-0.02	-0.0063		4432	0.015	108	0.46			23.75	Si
SLU 38	14.67	-18.55	-0.02	0.009		4417	0.015	108	0.46			23.75	Si
SLU 80	13.87	-19.11	-0.02	-0.0065		4550	0.015	108	0.46			23.29	Si
SLU 80	14.67	-19.03	-0.02	0.0092		4531	0.015	108	0.46			23.3	Si
SLU 29	13.87	-17.81	-0.02	-0.0063		4240	0.015	108	0.46			24.02	Si
SLU 29	14.67	-17.75	-0.02	0.0089		4226	0.015	108	0.46			24.03	Si
SLU 78	13.87	-18.49	-0.02	-0.0062		4404	0.015	108	0.46			24.51	Si
SLU 78	14.67	-18.41	-0.02	0.0087		4384	0.015	108	0.46			24.52	Si
SLU 72	13.87	-18.31	-0.02	-0.0064		4359	0.015	108	0.46			23.46	Si
SLU 72	14.67	-18.23	-0.02	0.0091		4340	0.015	108	0.46			23.46	Si
SLU 37	13.87	-18.61	-0.02	-0.0063		4432	0.015	108	0.46			23.85	Si
SLU 37	14.67	-18.55	-0.02	0.0089		4417	0.015	108	0.46			23.86	Si
SLU 77	13.87	-18.49	-0.02	-0.0061		4403	0.015	108	0.46			24.62	Si
SLU 77	14.67	-18.41	-0.02	0.0087		4384	0.015	108	0.46			24.63	Si
SLU 71	13.87	-18.31	-0.02	-0.0064		4358	0.015	108	0.46			23.56	Si
SLU 71	14.67	-18.22	-0.02	0.0091		4339	0.015	108	0.46			23.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	13.87	-9.27	-0.01	-0.0063		2208	0.015	163	0.68			100.47	Si
SLV 12	14.67	-8.91	-0.01	0.0056		2122	0.015	163	0.68			73.04	Si
SLD 8	13.87	-6.48	-0.01	-0.0039		1544	0.015	163	0.68			118.36	Si
SLD 8	14.67	-6.34	-0.01	0.0037		1510	0.015	163	0.68			99.8	Si
SLD 11	13.87	-7.31	-0.01	-0.0036		1741	0.015	163	0.68			117.95	Si
SLD 11	14.67	-7.1	-0.01	0.0038		1689	0.015	163	0.68			99.03	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 7	13.87	-6.48	-0.01	-0.0039		1544	0.015	163	0.68			118.36	Si
SLD 7	14.67	-6.34	-0.01	0.0037		1510	0.015	163	0.68			99.8	Si
SLD 12	13.87	-7.31	-0.01	-0.0036		1741	0.015	163	0.68			117.95	Si
SLD 12	14.67	-7.1	-0.01	0.0038		1689	0.015	163	0.68			99.03	Si
SLV 11	13.87	-9.27	-0.01	-0.0063		2208	0.015	163	0.68			100.47	Si
SLV 11	14.67	-8.91	-0.01	0.0056		2122	0.015	163	0.68			73.04	Si
SLV 15	13.87	-9.84	-0.01	-0.0019		2343	0.015	163	0.68			122.61	Si
SLV 15	14.67	-9.38	-0.01	0.0035		2234	0.015	163	0.68			103.86	Si
SLV 16	13.87	-9.84	-0.01	-0.0019		2343	0.015	163	0.68			122.61	Si
SLV 16	14.67	-9.38	-0.01	0.0035		2234	0.015	163	0.68			103.86	Si
SLV 7	13.87	-7.33	-0.01	-0.007		1746	0.015	163	0.68			99.92	Si
SLV 7	14.67	-7.17	-0.01	0.0055		1708	0.015	163	0.68			74	Si
SLV 8	13.87	-7.33	-0.01	-0.007		1746	0.015	163	0.68			99.92	Si
SLV 8	14.67	-7.17	-0.01	0.0055		1708	0.015	163	0.68			74	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.53	0	-0.04	0.0173	0	0	No, $e > t/2$
SLV 5	1438	0.53	0	-0.04	0.0173	0	0	No, $e > t/2$
SLV 2	1438	0.53	0	-0.09	0.0173	0	0	No, $e > t/2$
SLV 1	1438	0.53	0	-0.09	0.0173	0	0	No, $e > t/2$
SLV 10	1438	0.53	35	-0.15	0.0173	0.0198	1.14	Si
SLV 9	1438	0.53	35	-0.15	0.0173	0.0198	1.14	Si
SLV 4	1438	0.53	56	-0.24	0.0173	0.0315	1.82	Si
SLV 3	1438	0.53	56	-0.24	0.0173	0.0315	1.82	Si
SLV 13	1438	0.53	104	-0.44	0.0173	0.0558	3.22	Si
SLV 14	1438	0.53	104	-0.44	0.0173	0.0558	3.22	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	0.24	-0.33	-0.09	0	0	0	0	10.55091	No, Trazione
SLV 3	0.24	-0.33	-0.09	0	0	0	0	10.55091	No, Trazione
SLV 2	0.28	-0.23	-0.09	0	0	0	0	10.55091	No, Trazione
SLV 6	-0.11	-0.16	-0.02	0	0.032	0.889	0	10.9083	No
SLV 14	-0.98	-0.36	0.09	0	0.118	0.954	0	10.55091	No
SLV 1	0.28	-0.23	-0.09	0	0	0	0	10.55091	No, Trazione
SLV 13	-0.98	-0.36	0.09	0	0.118	0.954	0	10.55091	No
SLV 7	-0.25	-0.49	-0.03	0	0.045	0.901	0	10.9083	No
SLV 5	-0.11	-0.16	-0.02	0	0.032	0.889	0	10.9083	No
SLV 8	-0.25	-0.49	-0.03	0	0.045	0.901	0	10.9083	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	23.293	SLU 80	Si
PF_SLV	0	SLD 7	No
V_SLV	73.041	SLV 11	Si
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 4	No

## Maschio 208

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2.963	5.951	-5.018	5.951	L6	L7	2.055	0.28	3.16	3.16	3.16			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 61	12.77	-23.58	-12.1259	41	23.009	1.898	Si
SLU 61	14.57	2.28	-11.0088	0	0	0	No, Trazione
SLU 59	12.77	4.19	-19.8549	0	0	0	No, Trazione
SLU 59	14.57	30.05	-32.0948	0	0	0	No, Trazione
SLU 58	12.77	3.84	-19.3774	0	0	0	No, Trazione
SLU 58	14.57	29.71	-31.7032	0	0	0	No, Trazione
SLU 56	12.77	-2.95	-19.2168	0	0	0	No, $e > l/2$
SLU 56	14.57	22.91	-31.2378	0	0	0	No, Trazione
SLU 53	12.77	-17	-15.1555	30	16.83	1.11	Si
SLU 53	14.57	8.86	-20.6925	0	0	0	No, Trazione
SLU 60	12.77	-23.93	-11.6484	42	23.3294	2.003	Si
SLU 60	14.57	1.93	-10.6173	0	0	0	No, Trazione
SLU 55	12.77	-9.63	-16.112	0	0	0	No, $e > l/2$
SLU 55	14.57	16.23	-21.8105	0	0	0	No, Trazione
SLU 57	12.77	-2.6	-19.6943	0	0	0	No, $e > l/2$
SLU 57	14.57	23.26	-31.6293	0	0	0	No, Trazione
SLU 1	12.77	-17.85	-8.6446	31	17.6393	2.041	Si
SLU 1	14.57	2.12	-9.3598	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 54	12.77	-16.65	-15.6331	29	16.4991	1.055	Si
SLU 54	14.57	9.21	-21.0841	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	12.77	-11.5	-18.7557	0	0	0	No, $e \geq l/2$
SLV 14	14.57	4.55	-7.4998	0	0	0	No, Trazione
SLV 8	12.77	-31.72	-10.6133	55	31.1193	2.932	Si
SLV 8	14.57	-9.04	10.8382	0	0	0	No, $e \geq l/2$
SLV 11	12.77	-31.76	-16.8009	55	31.1622	1.855	Si
SLV 11	14.57	-11.19	17.1809	0	0	0	No, $e \geq l/2$
SLV 7	12.77	-31.72	-10.6133	55	31.1193	2.932	Si
SLV 7	14.57	-9.04	10.8382	0	0	0	No, $e \geq l/2$
SLV 12	12.77	-31.76	-16.8009	55	31.1622	1.855	Si
SLV 12	14.57	-11.19	17.1809	0	0	0	No, $e \geq l/2$
SLV 6	12.77	-0.46	-2.5148	0	0	0	No, $e \geq l/2$
SLV 6	14.57	19.05	-38.5162	0	0	0	No, Trazione
SLV 10	12.77	-0.51	-8.7024	0	0	0	No, $e \geq l/2$
SLV 10	14.57	16.9	-32.1735	0	0	0	No, Trazione
SLV 9	12.77	-0.51	-8.7024	0	0	0	No, $e \geq l/2$
SLV 9	14.57	16.9	-32.1735	0	0	0	No, Trazione
SLD 1	12.77	-14.07	-4.8228	24	14.1639	2.937	Si
SLD 1	14.57	7.31	-18.304	0	0	0	No, Trazione
SLV 13	12.77	-11.5	-18.7557	0	0	0	No, $e \geq l/2$
SLV 13	14.57	4.55	-7.4998	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	12.77	-16.65	2.58	-15.6331		224	0.2655	85	6.35			2.46	Si
SLU 54	14.57	9.21	2.58	-21.0841		0	0	56	0			0	No, $V_u < V$
SLU 60	12.77	-23.93	-1.02	-11.6484		53	1.622	63	28.42			27.95	Si
SLU 60	14.57	1.93	-1.02	-10.6173		0	0	56	0			0	No, $V_u < V$
SLU 59	12.77	4.19	6.36	-19.8549		0	0	56	0			0	No, $V_u < V$
SLU 59	14.57	30.05	6.36	-32.0948		0	0	56	0			0	No, $V_u < V$
SLU 53	12.77	-17	2.63	-15.1555		149	0.4073	75	8.6			3.27	Si
SLU 53	14.57	8.86	2.63	-20.6925		0	0	56	0			0	No, $V_u < V$
SLU 1	12.77	-17.85	0.06	-8.6446		39	1.6294	61	27.73			500.63	Si
SLU 1	14.57	2.12	0.06	-9.3598		0	0	56	0			0	No, $V_u < V$
SLU 61	12.77	-23.58	-1.06	-12.1259		55	1.5397	63	27.1			25.45	Si
SLU 61	14.57	2.28	-1.06	-11.0088		0	0	56	0			0	No, $V_u < V$
SLU 55	12.77	-9.63	2.72	-16.112		0	0	56	0			0	No, $V_u < V$
SLU 55	14.57	16.23	2.72	-21.8105		0	0	56	0			0	No, $V_u < V$
SLU 56	12.77	-2.95	6.23	-19.2168		0	0	56	0			0	No, $V_u < V$
SLU 56	14.57	22.91	6.23	-31.2378		0	0	56	0			0	No, $V_u < V$
SLU 58	12.77	3.84	6.4	-19.3774		0	0	56	0			0	No, $V_u < V$
SLU 58	14.57	29.71	6.4	-31.7032		0	0	56	0			0	No, $V_u < V$
SLU 57	12.77	-2.6	6.19	-19.6943		0	0	56	0			0	No, $V_u < V$
SLU 57	14.57	23.26	6.19	-31.6293		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 1	12.77	-14.07	8.45	-4.8228		24	2.0539	88	50.74			6.01	Si
SLD 1	14.57	7.31	5.49	-18.304		0	0	83	0			0	No, $V_u < V$
SLV 12	12.77	-31.76	-21.19	-16.8009		76	1.4957	99	41.25			1.95	Si
SLV 12	14.57	-11.19	-13.55	17.1809		0	0	83	0			0	No, $V_u < V$
SLV 14	12.77	-11.5	-8.95	-18.7557		0	0	83	0			0	No, $V_u < V$
SLV 14	14.57	4.55	-5.52	-7.4998		0	0	83	0			0	No, $V_u < V$
SLV 13	12.77	-11.5	-8.95	-18.7557		0	0	83	0			0	No, $V_u < V$
SLV 13	14.57	4.55	-5.52	-7.4998		0	0	83	0			0	No, $V_u < V$
SLV 10	12.77	-0.51	13.04	-8.7024		0	0	83	0			0	No, $V_u < V$
SLV 10	14.57	16.9	8.56	-32.1735		0	0	83	0			0	No, $V_u < V$
SLV 8	12.77	-31.72	-12.61	-10.6133		55	2.055	94	54.29			4.31	Si
SLV 8	14.57	-9.04	-8.12	10.8382		0	0	83	0			0	No, $V_u < V$
SLV 6	12.77	-0.46	21.62	-2.5148		0	0	83	0			0	No, $V_u < V$
SLV 6	14.57	19.05	13.99	-38.5162		0	0	83	0			0	No, $V_u < V$
SLV 7	12.77	-31.72	-12.61	-10.6133		55	2.055	94	54.29			4.31	Si
SLV 7	14.57	-9.04	-8.12	10.8382		0	0	83	0			0	No, $V_u < V$
SLV 11	12.77	-31.76	-21.19	-16.8009		76	1.4957	99	41.25			1.95	Si
SLV 11	14.57	-11.19	-13.55	17.1809		0	0	83	0			0	No, $V_u < V$
SLV 9	12.77	-0.51	13.04	-8.7024		0	0	83	0			0	No, $V_u < V$
SLV 9	14.57	16.9	8.56	-32.1735		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.53	0	6.75	2.3206	0	0	No, Trazione
SLV 6	1438	0.53	0	6.75	2.3206	0	0	No, Trazione
SLV 1	1438	0.53	0	-4.37	2.3206	0	0	No, $e \geq t/2$
SLV 3	1438	0.53	0	-13.91	2.3206	0	0	No, $e \geq t/2$
SLV 9	1438	0.53	0	6.75	2.3206	0	0	No, Trazione
SLV 4	1438	0.53	0	-13.91	2.3206	0	0	No, $e \geq t/2$
SLV 13	1438	0.53	0	-4.39	2.3206	0	0	No, $e \geq t/2$
SLV 2	1438	0.53	0	-4.37	2.3206	0	0	No, $e \geq t/2$
SLV 10	1438	0.53	0	6.75	2.3206	0	0	No, Trazione
SLV 14	1438	0.53	0	-4.39	2.3206	0	0	No, $e \geq t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 3	11.64	-31.53	1.21	0	0	0	0	10.55091	No, Trazione
SLV 7	-7.22	-24.7	4.91	0	3.681	0.904	0	10.9083	No
SLV 9	23.05	-13.75	-5.1	0	0	0	0	10.9083	No, Trazione
SLV 8	-7.22	-24.7	4.91	0	3.681	0.904	0	10.9083	No
SLV 1	22.36	-30.36	-1.83	0	0	0	0	10.55091	No, Trazione
SLV 6	28.5	-20.79	-5.23	0	0	0	0	10.9083	No, Trazione
SLV 2	22.36	-30.36	-1.83	0	0	0	0	10.55091	No, Trazione
SLV 5	28.5	-20.79	-5.23	0	0	0	0	10.9083	No, Trazione
SLV 10	23.05	-13.75	-5.1	0	0	0	0	10.9083	No, Trazione
SLV 4	11.64	-31.53	1.21	0	0	0	0	10.55091	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 14	No

## Maschio 209

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	5.951	-2.063	5.951	L6	L7	1.94	0.28	3.16	3.16	3.16			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 40	12.77	-27.01	-16.7124	50	24.5998	1.472	Si
SLU 40	14.57	-19.86	3.552	37	18.3969	5.179	Si
SLU 38	12.77	-33.87	-19.3092	62	30.3363	1.571	Si
SLU 38	14.57	-26.78	11.4032	49	24.4052	2.14	Si
SLU 41	12.77	-30.57	-18.3881	56	27.6047	1.501	Si
SLU 41	14.57	-23.45	7.2103	43	21.5381	2.987	Si
SLU 42	12.77	-30.16	-18.5512	56	27.2602	1.469	Si
SLU 42	14.57	-23.47	7.3862	43	21.5569	2.919	Si
SLU 34	12.77	-30.44	-17.5792	56	27.4977	1.564	Si
SLU 34	14.57	-23.18	7.6863	43	21.3102	2.773	Si
SLU 39	12.77	-27.42	-16.5493	50	24.95	1.508	Si
SLU 39	14.57	-19.84	3.3761	37	18.3777	5.444	Si
SLU 31	12.77	-27.29	-15.7404	50	24.8412	1.578	Si
SLU 31	14.57	-19.57	3.8521	36	18.1457	4.711	Si
SLU 37	12.77	-34.28	-19.1461	63	30.6742	1.602	Si
SLU 37	14.57	-26.76	11.2273	49	24.3866	2.172	Si
SLU 21	12.77	-28.75	-15.7022	53	26.0727	1.66	Si
SLU 21	14.57	-20.45	5.9084	38	18.9189	3.202	Si
SLU 84	12.77	-38.04	-20.6037	70	33.723	1.637	Si
SLU 84	14.57	-27.18	7.6318	50	24.7444	3.242	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 16	12.77	-25.73	-17.3293	47	23.988	1.384	Si
SLD 16	14.57	-18.68	4.5275	34	17.6081	3.889	Si
SLV 11	12.77	-28.3	-26.2331	52	26.2778	1.002	Si
SLV 11	14.57	-21.47	2.0362	40	20.1535	9.898	Si
SLV 13	12.77	-21.53	-18.0964	40	20.2063	1.117	Si
SLV 13	14.57	-18.97	8.1769	35	17.8723	2.186	Si
SLV 12	12.77	-28.3	-26.2331	52	26.2778	1.002	Si
SLV 12	14.57	-21.47	2.0362	40	20.1535	9.898	Si
SLV 14	12.77	-21.53	-18.0964	40	20.2063	1.117	Si
SLV 14	14.57	-18.97	8.1769	35	17.8723	2.186	Si
SLV 8	12.77	-31.74	-20.2637	58	29.3142	1.447	Si
SLV 8	14.57	-19.57	-0.7918	36	18.4192	23.263	Si
SLD 15	12.77	-25.73	-17.3293	47	23.988	1.384	Si
SLD 15	14.57	-18.68	4.5275	34	17.6081	3.889	Si
SLV 16	12.77	-22.8	-25.066	0	0	0	No, $e > l/2$
SLV 16	14.57	-21.15	6.8654	39	19.861	2.893	Si
SLV 15	12.77	-22.8	-25.066	0	0	0	No, $e > l/2$
SLV 15	14.57	-21.15	6.8654	39	19.861	2.893	Si
SLV 7	12.77	-31.74	-20.2637	58	29.3142	1.447	Si
SLV 7	14.57	-19.57	-0.7918	36	18.4192	23.263	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	12.77	-42.15	-25.69	-21.1986		107	1.4014	70	27.42			1.07	Si
SLU 79	14.57	-30.47	-23.62	-11.4728		61	1.7804	64	31.76			1.34	Si
SLU 84	12.77	-38.04	-23.41	-20.6037		106	1.2849	70	25.06			1.07	Si
SLU 84	14.57	-27.18	-22.01	7.6318		50	1.94	62	33.8			1.54	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 34	12.77	-30.44	-20.76	-17.5792		92	1.1776	68	22.38			1.08	Si
SLU 34	14.57	-23.18	-19.37	7.6863		43	1.9154	61	32.89			1.7	Si
SLU 42	12.77	-30.16	-21.43	-18.5512		101	1.0647	69	20.58			0.96	No, Vu<V
SLU 42	14.57	-23.47	-20.05	7.3862		43	1.94	61	33.31			1.66	Si
SLU 41	12.77	-30.57	-21.01	-18.3881		99	1.1055	69	21.27			1.01	Si
SLU 41	14.57	-23.45	-19.63	7.2103		43	1.94	61	33.3			1.7	Si
SLU 83	12.77	-38.45	-22.98	-20.4406		104	1.315	69	25.58			1.11	Si
SLU 83	14.57	-27.16	-21.59	7.4559		50	1.94	62	33.8			1.57	Si
SLU 37	12.77	-34.28	-23.71	-19.1461		99	1.2344	69	23.77			1	Si
SLU 37	14.57	-26.76	-21.66	11.2273		58	1.6513	63	29.25			1.35	Si
SLU 36	12.77	-36.87	-24.35	-18.6539		95	1.3923	68	26.57			1.09	Si
SLU 36	14.57	-30.56	-22.4	11.7642		62	1.755	64	31.37			1.4	Si
SLU 38	12.77	-33.87	-24.14	-19.3092		101	1.1995	69	23.18			0.96	No, Vu<V
SLU 38	14.57	-26.78	-22.08	11.4032		59	1.6326	63	28.97			1.31	Si
SLU 80	12.77	-41.74	-26.12	-21.3617		108	1.3748	70	26.95			1.03	Si
SLU 80	14.57	-30.49	-24.04	11.6488		62	1.7639	64	31.5			1.31	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 12	12.77	-28.07	-17.34	-17.8133		100	1.0061	103	29.09			1.68	Si
SLD 12	14.57	-18.81	-11.93	2.4841		35	1.94	90	49.03			4.11	Si
SLV 14	12.77	-21.53	-26.42	-18.0964		198	0.3884	123	13.37			0.51	No, Vu<V
SLV 14	14.57	-18.97	-20.14	8.1769		42	1.6167	92	41.52			2.06	Si
SLV 11	12.77	-28.3	-24.29	-26.2331		785	0.1288	163	5.86			0.24	No, Vu<V
SLV 11	14.57	-21.47	-12.04	2.0362		40	1.94	91	49.56			4.12	Si
SLV 13	12.77	-21.53	-26.42	-18.0964		198	0.3884	123	13.37			0.51	No, Vu<V
SLV 13	14.57	-18.97	-20.14	8.1769		42	1.6167	92	41.52			2.06	Si
SLV 12	12.77	-28.3	-24.29	-26.2331		785	0.1288	163	5.86			0.24	No, Vu<V
SLV 12	14.57	-21.47	-12.04	2.0362		40	1.94	91	49.56			4.12	Si
SLV 15	12.77	-22.8	-30.71	-25.066		0	0	83	0			0	No, Vu<V
SLV 15	14.57	-21.15	-18.9	6.8654		39	1.9361	91	49.41			2.61	Si
SLV 16	12.77	-22.8	-30.71	-25.066		0	0	83	0			0	No, Vu<V
SLV 16	14.57	-21.15	-18.9	6.8654		39	1.9361	91	49.41			2.61	Si
SLD 11	12.77	-28.07	-17.34	-17.8133		100	1.0061	103	29.09			1.68	Si
SLD 11	14.57	-18.81	-11.93	2.4841		35	1.94	90	49.03			4.11	Si
SLD 16	12.77	-25.73	-20.06	-17.3293		103	0.8893	104	25.89			1.29	Si
SLD 16	14.57	-18.68	-14.82	4.5275		34	1.94	90	49			3.31	Si
SLD 15	12.77	-25.73	-20.06	-17.3293		103	0.8893	104	25.89			1.29	Si
SLD 15	14.57	-18.68	-14.82	4.5275		34	1.94	90	49			3.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	1438	0.53	41	-22.46	2.1907	3.0385	1.39	Si
SLV 10	1438	0.53	41	-22.46	2.1907	3.0385	1.39	Si
SLV 6	1438	0.53	43	-23.2	2.1907	3.1348	1.43	Si
SLV 5	1438	0.53	43	-23.2	2.1907	3.1348	1.43	Si
SLV 14	1438	0.53	44	-23.93	2.1907	3.23	1.47	Si
SLV 13	1438	0.53	44	-23.93	2.1907	3.23	1.47	Si
SLV 15	1438	0.53	48	-25.93	2.1907	3.4889	1.59	Si
SLV 16	1438	0.53	48	-25.93	2.1907	3.4889	1.59	Si
SLV 2	1438	0.53	49	-26.4	2.1907	3.5486	1.62	Si
SLV 1	1438	0.53	49	-26.4	2.1907	3.5486	1.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	-9.27	-24.22	-1.48	0.012	3.665	0.895	0.19756	10.9083	No
SLV 10	-9.27	-24.22	-1.48	0.012	3.665	0.895	0.19756	10.9083	No
SLV 5	-8.65	-20.51	-1.28	0.019	3.616	0.897	0.3157	10.9083	No
SLV 6	-8.65	-20.51	-1.28	0.019	3.616	0.897	0.3157	10.9083	No
SLV 13	-10.71	-38.35	-1.19	0.025	3.784	0.892	0.4074	10.55091	No
SLV 14	-10.71	-38.35	-1.19	0.025	3.784	0.892	0.4074	10.55091	No
SLV 16	-11.32	-46.75	-0.74	0.042	3.835	0.891	0.68584	10.55091	No
SLV 15	-11.32	-46.75	-0.74	0.042	3.835	0.891	0.68584	10.55091	No
SLV 1	-8.64	-25.98	-0.53	0.051	3.614	0.897	0.81847	10.55091	No
SLV 2	-8.64	-25.98	-0.53	0.051	3.614	0.897	0.81847	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.469	SLU 42	Si
V_SLU	0.96	SLU 38	No
PF_SLV	0	SLV 15	No
V_SLV	0	SLV 15	No
PFFP_SLV	1.387	SLV 9	Si
R_SLV	0.018	SLV 9	No

## Maschio 210

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-0.123	-3.359	-0.123	5.951	L6	L7	9.31	0.28	3.16	3.16	3.16			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	11.87	-200.56	28.1892	77	845.4314	29.991	Si
SLU 1	15.03	-11.08	8.9889	4	51.3101	5.708	Si
SLU 39	11.87	-252.92	37.0906	97	1037.1272	27.962	Si
SLU 39	15.03	-18.81	13.1948	7	86.8023	6.579	Si
SLU 60	11.87	-276.93	38.4045	106	1121.0024	29.189	Si
SLU 60	15.03	-14.3	11.8119	5	66.1232	5.598	Si
SLU 62	11.87	-290.72	45.4556	112	1168.036	25.696	Si
SLU 62	15.03	-24.4	16.4183	9	112.2625	6.838	Si
SLU 64	11.87	-278.42	40.1415	107	1126.1262	28.054	Si
SLU 64	15.03	-18.24	13.6819	7	84.1759	6.152	Si
SLU 22	11.87	-227.49	33.5084	87	945.5091	28.217	Si
SLU 22	15.03	-16.92	12.0268	6	78.1183	6.495	Si
SLU 43	11.87	-251.5	34.8223	96	1032.0619	29.638	Si
SLU 43	15.03	-12.4	10.6439	5	57.4016	5.393	Si
SLU 18	11.87	-226	31.7714	87	940.0524	29.588	Si
SLU 18	15.03	-12.98	10.1568	5	60.0427	5.912	Si
SLU 81	11.87	-303.86	43.7236	117	1212.0638	27.721	Si
SLU 81	15.03	-20.14	14.8499	8	92.849	6.253	Si
SLU 45	11.87	-270.08	40.6541	104	1097.3011	26.991	Si
SLU 45	15.03	-21.92	14.5736	8	100.9868	6.929	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	11.87	-213.99	-124.8046	82	929.2191	7.445	Si
SLV 10	15.03	-14.05	-25.3462	5	65.1199	2.569	Si
SLV 8	11.87	-212.69	185.6554	82	923.9551	4.977	Si
SLV 8	15.03	-12.2	45.5271	5	56.5891	1.243	Si
SLV 7	11.87	-212.69	185.6554	82	923.9551	4.977	Si
SLV 7	15.03	-12.2	45.5271	5	56.5891	1.243	Si
SLV 11	11.87	-222.72	205.2001	85	964.2872	4.699	Si
SLV 11	15.03	-10.43	42.634	4	48.4046	1.135	Si
SLV 9	11.87	-213.99	-124.8046	82	929.2191	7.445	Si
SLV 9	15.03	-14.05	-25.3462	5	65.1199	2.569	Si
SLD 7	11.87	-213.08	96.3989	82	925.5306	9.601	Si
SLD 7	15.03	-12.68	25.0083	5	58.786	2.351	Si
SLD 12	11.87	-217.33	104.6933	83	942.6384	9.004	Si
SLD 12	15.03	-11.96	23.7067	5	55.4871	2.341	Si
SLV 12	11.87	-222.72	205.2001	85	964.2872	4.699	Si
SLV 12	15.03	-10.43	42.634	4	48.4046	1.135	Si
SLD 8	11.87	-213.08	96.3989	82	925.5306	9.601	Si
SLD 8	15.03	-12.68	25.0083	5	58.786	2.351	Si
SLD 11	11.87	-217.33	104.6933	83	942.6384	9.004	Si
SLD 11	15.03	-11.96	23.7067	5	55.4871	2.341	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	11.87	-276.93	9.12	38.4045		106	9.31	70	181.75			19.94	Si
SLU 60	15.03	-14.3	8.79	11.8119		5	9.31	56	146.73			16.69	Si
SLU 53	11.87	-287.88	8.6	43.1616		110	9.31	70	183.21			21.3	Si
SLU 53	15.03	-23.25	7.88	15.3912		9	9.31	57	147.92			18.78	Si
SLU 83	11.87	-317.65	9.89	50.7747		122	9.31	72	187.18			18.93	Si
SLU 83	15.03	-30.23	8.87	19.4563		12	9.31	57	148.85			16.78	Si
SLU 62	11.87	-290.72	8.86	45.4556		112	9.31	70	183.59			20.72	Si
SLU 62	15.03	-24.4	8.05	16.4183		9	9.31	57	148.08			18.39	Si
SLU 74	11.87	-314.81	9.63	48.4807		121	9.31	72	186.8			19.4	Si
SLU 74	15.03	-29.08	8.7	18.4292		11	9.31	57	148.7			17.1	Si
SLU 81	11.87	-303.86	10.15	43.7236		117	9.31	71	185.34			18.27	Si
SLU 81	15.03	-20.14	9.61	14.8499		8	9.31	57	147.51			15.34	Si
SLU 82	11.87	-304.85	7.72	35.7472		117	9.31	71	185.47			24.02	Si
SLU 82	15.03	-20.76	8.39	11.8056		8	9.31	57	147.59			17.6	Si
SLU 64	11.87	-278.42	8.7	40.1415		107	9.31	70	181.95			20.91	Si
SLU 64	15.03	-18.24	8.17	13.6819		7	9.31	56	147.25			18.01	Si
SLU 77	11.87	-328.6	9.37	55.5318		126	9.31	72	188.64			20.13	Si
SLU 77	15.03	-39.18	7.95	23.0356		15	9.31	58	150.05			18.86	Si
SLU 39	11.87	-252.92	8.65	37.0906		97	9.31	68	178.55			20.65	Si
SLU 39	15.03	-18.81	8.13	13.1948		7	9.31	57	147.33			18.12	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	11.87	-213.99	-69.6	-124.8046		82	9.31	100	260.03			3.74	Si
SLV 10	15.03	-14.05	-26.71	-25.3462		6	8.5535	85	202.39			7.58	Si
SLD 8	11.87	-213.08	39.45	96.3989		82	9.31	100	259.85			6.59	Si
SLD 8	15.03	-12.68	20.39	25.0083		6	8.0478	84	190.32			9.34	Si
SLD 7	11.87	-213.08	39.45	96.3989		82	9.31	100	259.85			6.59	Si
SLD 7	15.03	-12.68	20.39	25.0083		6	8.0478	84	190.32			9.34	Si
SLV 6	11.87	-203.96	-67.7	-144.3493		78	9.31	99	258.02			3.81	Si
SLV 6	15.03	-15.82	-28.87	-22.4531		6	9.31	85	220.4			7.63	Si
SLV 7	11.87	-212.69	83.11	185.6554		82	9.31	100	259.77			3.13	Si
SLV 7	15.03	-12.2	39.5	45.5271		16	2.7729	86	67.14			1.7	Si
SLV 11	11.87	-222.72	81.21	205.2001		85	9.31	100	261.78			3.22	Si
SLV 11	15.03	-10.43	41.66	42.634		22	1.7051	88	41.87			1.01	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	11.87	-213.99	-69.6	-124.8046		82	9.31	100	260.03			3.74	Si
SLV 9	15.03	-14.05	-26.71	-25.3462		6	8.5535	85	202.39			7.58	Si
SLV 8	11.87	-212.69	83.11	185.6554		82	9.31	100	259.77			3.13	Si
SLV 8	15.03	-12.2	39.5	45.5271		16	2.7729	86	67.14			1.7	Si
SLV 5	11.87	-203.96	-67.7	-144.3493		78	9.31	99	258.02			3.81	Si
SLV 5	15.03	-15.82	-28.87	-22.4531		6	9.31	85	220.4			7.63	Si
SLV 12	11.87	-222.72	81.21	205.2001		85	9.31	100	261.78			3.22	Si
SLV 12	15.03	-10.43	41.66	42.634		22	1.7051	88	41.87			1.01	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.45 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	1438	0.53	39	-101.74	10.8799	13.7888	1.27	Si
SLV 15	1438	0.53	39	-101.74	10.8799	13.7888	1.27	Si
SLV 13	1438	0.53	39	-101.91	10.8799	13.8113	1.27	Si
SLV 14	1438	0.53	39	-101.91	10.8799	13.8113	1.27	Si
SLV 12	1438	0.53	40	-103.15	10.8799	13.9739	1.28	Si
SLV 11	1438	0.53	40	-103.15	10.8799	13.9739	1.28	Si
SLV 9	1438	0.53	40	-103.73	10.8799	14.0487	1.29	Si
SLV 10	1438	0.53	40	-103.73	10.8799	14.0487	1.29	Si
SLV 8	1438	0.53	40	-104.54	10.8799	14.1548	1.3	Si
SLV 7	1438	0.53	40	-104.54	10.8799	14.1548	1.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.45 Wa = 0.0005 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-16.62	-195.31	-7.72	0	15.639	0.93	0	10.55091	No
SLV 4	-15.54	-197.92	-7.95	0	15.582	0.933	0	10.55091	No
SLV 2	-16.62	-195.31	-7.72	0	15.639	0.93	0	10.55091	No
SLV 3	-15.54	-197.92	-7.95	0	15.582	0.933	0	10.55091	No
SLV 8	-12.2	-212.69	-4.77	0.027	15.423	0.943	0.41824	10.9083	No
SLV 7	-12.2	-212.69	-4.77	0.027	15.423	0.943	0.41824	10.9083	No
SLV 5	-15.82	-203.96	-3.98	0.037	15.597	0.932	0.56953	10.9083	No
SLV 6	-15.82	-203.96	-3.98	0.037	15.597	0.932	0.56953	10.9083	No
SLV 13	-10.72	-228.76	2.17	0.057	15.36	0.948	0.88108	10.55091	No
SLV 14	-10.72	-228.76	2.17	0.057	15.36	0.948	0.88108	10.55091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.393	SLU 43	Si
V_SLU	15.344	SLU 81	Si
PF_SLV	1.135	SLV 11	Si
V_SLV	1.005	SLV 11	Si
PFFP_SLV	1.267	SLV 15	Si
R_SLV	0	SLV 1	No

## Maschio 211

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.333	-3.359	-17.203	-3.359	L6	F1	0.87	0.28	3.193	3.193	3.193			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	11.87	-23.07	-4.0813	95	8.8686	2.173	Si
SLU 52	13.97	-16.73	1.4052	69	6.6627	4.741	Si
SLU 39	11.87	-21	-3.786	86	8.1676	2.157	Si
SLU 39	13.97	-12.68	0.7221	52	5.1635	7.151	Si
SLU 31	11.87	-18.63	-3.681	76	7.3428	1.995	Si
SLU 31	13.97	-16.93	1.1417	69	6.7348	5.899	Si
SLU 81	11.87	-26.67	-4.5478	109	10.0434	2.208	Si
SLU 81	13.97	-14.92	0.8909	61	6.0011	6.736	Si
SLU 73	11.87	-24.3	-4.4428	100	9.2776	2.088	Si
SLU 73	13.97	-19.16	1.3105	79	7.5309	5.747	Si
SLU 10	11.87	-17.39	-3.3196	71	6.9031	2.079	Si
SLU 10	13.97	-14.49	1.2364	59	5.8428	4.726	Si
SLU 82	11.87	-25.15	-4.5698	103	9.5537	2.091	Si
SLU 82	13.97	-17.47	1.2079	72	6.9287	5.736	Si
SLU 61	11.87	-23.92	-4.2084	98	9.1493	2.174	Si
SLU 61	13.97	-15.03	1.3026	62	6.0424	4.639	Si
SLU 19	11.87	-18.24	-3.4467	75	7.2048	2.09	Si
SLU 19	13.97	-12.79	1.1338	53	5.2058	4.592	Si
SLU 40	11.87	-19.47	-3.8081	80	7.64	2.006	Si
SLU 40	13.97	-15.23	1.039	63	6.116	5.886	Si





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	11.87	11.6	-0.4218	0	0	0	No, Trazione
SLV 11	13.97	-9.14	-2.0943	38	3.8534	1.84	Si
SLV 13	11.87	-45.58	-8.9834	187	16.7919	1.869	Si
SLV 13	13.97	-0.99	7.7961	0	0	0	No, $e \geq l/2$
SLV 12	11.87	11.6	-0.4218	0	0	0	No, Trazione
SLV 12	13.97	-9.14	-2.0943	38	3.8534	1.84	Si
SLV 7	11.87	20.06	2.3388	0	0	0	No, Trazione
SLV 7	13.97	-14.91	-5.6821	61	6.1605	1.084	Si
SLV 14	11.87	-45.58	-8.9834	187	16.7919	1.869	Si
SLV 14	13.97	-0.99	7.7961	0	0	0	No, $e \geq l/2$
SLV 9	11.87	-61.2	-8.6386	251	21.1472	2.448	Si
SLV 9	13.97	-6.97	6.6819	0	0	0	No, $e \geq l/2$
SLV 10	11.87	-61.2	-8.6386	251	21.1472	2.448	Si
SLV 10	13.97	-6.97	6.6819	0	0	0	No, $e \geq l/2$
SLV 4	11.87	4.44	2.6835	0	0	0	No, Trazione
SLV 4	13.97	-20.88	-6.7963	86	8.4455	1.243	Si
SLV 16	11.87	-23.74	-6.5183	97	9.5047	1.458	Si
SLV 16	13.97	-1.65	5.1632	0	0	0	No, $e \geq l/2$
SLV 8	11.87	20.06	2.3388	0	0	0	No, Trazione
SLV 8	13.97	-14.91	-5.6821	61	6.1605	1.084	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	11.87	-26.67	-10.54	-4.5478		120	0.7935	72	15.9			1.51	Si
SLU 81	13.97	-14.92	0.22	0.8909		61	0.87	64	15.52			71.63	Si
SLU 83	11.87	-28.63	-9.62	-4.2265		119	0.8621	71	17.23			1.79	Si
SLU 83	13.97	-20.55	2.77	-0.1517		84	0.87	67	16.27			5.86	Si
SLU 52	11.87	-23.07	-8.46	-4.0813		106	0.7743	70	15.12			1.79	Si
SLU 52	13.97	-16.73	-0.78	1.4052		69	0.87	65	15.76			20.13	Si
SLU 60	11.87	-25.44	-9.64	-4.1864		112	0.8113	70	16.01			1.66	Si
SLU 60	13.97	-12.48	-0.4	0.9856		51	0.87	62	15.2			37.53	Si
SLU 40	11.87	-19.47	-8.37	-3.8081		97	0.7184	68	13.77			1.65	Si
SLU 40	13.97	-15.23	0.11	1.039		63	0.87	64	15.56			146.53	Si
SLU 73	11.87	-24.3	-9.37	-4.4428		115	0.7566	71	15.01			1.6	Si
SLU 73	13.97	-19.16	-0.16	1.3105		79	0.87	66	16.09			99.8	Si
SLU 82	11.87	-25.15	-10.06	-4.5698		118	0.7599	71	15.17			1.51	Si
SLU 82	13.97	-17.47	-0.07	1.2079		72	0.87	65	15.86			220.61	Si
SLU 39	11.87	-21	-8.85	-3.786		98	0.7641	69	14.69			1.66	Si
SLU 39	13.97	-12.68	0.39	0.7221		52	0.87	62	15.22			38.56	Si
SLU 61	11.87	-23.92	-9.16	-4.2084		110	0.7771	70	15.28			1.67	Si
SLU 61	13.97	-15.03	-0.69	1.3026		62	0.87	64	15.54			22.4	Si
SLU 31	11.87	-18.63	-7.67	-3.681		93	0.7122	68	13.56			1.77	Si
SLU 31	13.97	-16.93	0.02	1.1417		69	0.87	65	15.79			933.93	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	11.87	11.6	0.55	-0.4218		0	0	83	0			0	No, Vu<V
SLV 11	13.97	-9.14	4.39	-2.0943		53	0.6175	94	16.24			3.7	Si
SLV 7	11.87	20.06	5.02	2.3388		0	0	83	0			0	No, Vu<V
SLV 7	13.97	-14.91	11.98	-5.6821		329	0.1616	149	6.75			0.56	No, Vu<V
SLV 14	11.87	-45.58	-17.63	-8.9834		228	0.7138	129	25.77			1.46	Si
SLV 14	13.97	-0.99	-14.81	7.7961		0	0	83	0			0	No, Vu<V
SLV 10	11.87	-61.2	-19.4	-8.6386		251	0.87	134	32.54			1.68	Si
SLV 10	13.97	-6.97	-11.53	6.6819		0	0	83	0			0	No, Vu<V
SLV 9	11.87	-61.2	-19.4	-8.6386		251	0.87	134	32.54			1.68	Si
SLV 9	13.97	-6.97	-11.53	6.6819		0	0	83	0			0	No, Vu<V
SLV 13	11.87	-45.58	-17.63	-8.9834		228	0.7138	129	25.77			1.46	Si
SLV 13	13.97	-0.99	-14.81	7.7961		0	0	83	0			0	No, Vu<V
SLV 8	11.87	20.06	5.02	2.3388		0	0	83	0			0	No, Vu<V
SLV 8	13.97	-14.91	11.98	-5.6821		329	0.1616	149	6.75			0.56	No, Vu<V
SLV 12	11.87	11.6	0.55	-0.4218		0	0	83	0			0	No, Vu<V
SLV 12	13.97	-9.14	4.39	-2.0943		53	0.6175	94	16.24			3.7	Si
SLV 16	11.87	-23.74	-11.65	-6.5183		176	0.4814	119	15.98			1.37	Si
SLV 16	13.97	-1.65	-10.04	5.1632		0	0	83	0			0	No, Vu<V
SLV 4	11.87	4.44	3.25	2.6835		0	0	83	0			0	No, Vu<V
SLV 4	13.97	-20.88	15.26	-6.7963		227	0.3285	129	11.84			0.78	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.467 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	1438	0.53	0	4.27	1.0038	0	0	No, Trazione
SLV 10	1438	0.53	0	18.63	1.0038	0	0	No, Trazione
SLV 9	1438	0.53	0	18.63	1.0038	0	0	No, Trazione
SLV 5	1438	0.53	0	13.74	1.0038	0	0	No, Trazione
SLV 13	1438	0.53	0	4.27	1.0038	0	0	No, Trazione
SLV 6	1438	0.53	0	13.74	1.0038	0	0	No, Trazione
SLV 1	1438	0.53	49	-12.03	1.0038	1.6159	1.61	Si
SLV 2	1438	0.53	49	-12.03	1.0038	1.6159	1.61	Si
SLV 15	1438	0.53	53	-12.93	1.0038	1.7322	1.73	Si
SLV 16	1438	0.53	53	-12.93	1.0038	1.7322	1.73	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.467 Wa = 0.0005 Ta = 0.0608

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-1.31	-61.2	-1.2	0	1.464	0.938	0	11.15306	No
SLV 4	-3.4	4.44	0.26	0	0	0	0	10.78026	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 11	-3.66	11.6	1.87	0	0	0	0	11.15306	No, Trazione
SLV 10	-1.31	-61.2	-1.2	0	1.464	0.938	0	11.15306	No
SLV 12	-3.66	11.6	1.87	0	0	0	0	11.15306	No, Trazione
SLV 3	-3.4	4.44	0.26	0	0	0	0	10.78026	No, Trazione
SLV 5	-1.57	-52.74	-1.45	0	1.477	0.93	0	11.15306	No
SLV 6	-1.57	-52.74	-1.45	0	1.477	0.93	0	11.15306	No
SLV 8	-3.92	20.06	1.62	0	0	0	0	11.15306	No, Trazione
SLV 7	-3.92	20.06	1.62	0	0	0	0	11.15306	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.995	SLU 31	Si
V_SLU	1.508	SLU 82	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 13	No
PFFP_SLV	0	SLV 14	No
R_SLV	0	SLV 12	No

## Maschio 212

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-3.359	-15.433	-3.359	L6	F1	1.68	0.28	3.191	3.191	3.192			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 60	11.87	-44.1	-6.7734	94	32.7798	4.839	Si
SLU 60	13.97	-28.97	9.6684	62	22.4942	2.327	Si
SLU 19	11.87	-34.29	-5.9918	73	26.2245	4.377	Si
SLU 19	13.97	-23.58	8.2174	50	18.5911	2.262	Si
SLU 39	11.87	-35.16	-6.9184	75	26.824	3.877	Si
SLU 39	13.97	-27.55	9.3327	59	21.4757	2.301	Si
SLU 31	11.87	-36.34	-6.5529	77	27.6304	4.217	Si
SLU 31	13.97	-27.74	9.2042	59	21.612	2.348	Si
SLU 61	11.87	-44.51	-6.874	95	33.0445	4.807	Si
SLU 61	13.97	-29.13	9.8205	62	22.6063	2.302	Si
SLU 18	11.87	-33.88	-5.8913	72	25.9414	4.403	Si
SLU 18	13.97	-23.43	8.0653	50	18.4751	2.291	Si
SLU 40	11.87	-35.57	-7.0189	76	27.1048	3.862	Si
SLU 40	13.97	-27.7	9.4848	59	21.5888	2.276	Si
SLU 10	11.87	-35.06	-5.5258	75	26.7544	4.842	Si
SLU 10	13.97	-23.62	7.9368	50	18.6148	2.345	Si
SLU 82	11.87	-45.79	-7.9011	97	33.8674	4.286	Si
SLU 82	13.97	-33.25	11.0879	71	25.504	2.3	Si
SLU 81	11.87	-45.38	-7.8005	96	33.605	4.308	Si
SLU 81	13.97	-33.09	10.9358	70	25.3946	2.322	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 10	11.87	-1.7	-5.682	0	0	0	No, e>l/2
SLD 10	13.97	-20.99	14.8092	45	16.9844	1.147	Si
SLD 9	11.87	-1.7	-5.682	0	0	0	No, e>l/2
SLD 9	13.97	-20.99	14.8092	45	16.9844	1.147	Si
SLD 6	11.87	-1.39	-2.5254	0	0	0	No, e>l/2
SLD 6	13.97	-18.41	11.2807	39	14.9707	1.327	Si
SLV 13	11.87	-12.92	-16.6442	0	0	0	No, e>l/2
SLV 13	13.97	-31.52	25.328	67	25.0285	0.988	No, M>Mu
SLV 14	11.87	-12.92	-16.6442	0	0	0	No, e>l/2
SLV 14	13.97	-31.52	25.328	67	25.0285	0.988	No, M>Mu
SLD 5	11.87	-1.39	-2.5254	0	0	0	No, e>l/2
SLD 5	13.97	-18.41	11.2807	39	14.9707	1.327	Si
SLV 10	11.87	43.93	-7.0809	0	0	0	No, Trazione
SLV 10	13.97	-17.53	25.3293	0	0	0	No, e>l/2
SLV 5	11.87	44.72	0.2943	0	0	0	No, Trazione
SLV 5	13.97	-11.48	17.0591	0	0	0	No, e>l/2
SLV 9	11.87	43.93	-7.0809	0	0	0	No, Trazione
SLV 9	13.97	-17.53	25.3293	0	0	0	No, e>l/2
SLV 6	11.87	44.72	0.2943	0	0	0	No, Trazione
SLV 6	13.97	-11.48	17.0591	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	11.87	-45.38	-13.56	-7.8005		96	1.68	68	32.18			2.37	Si
SLU 81	13.97	-33.09	-13.67	10.9358		77	1.5285	66	28.19			2.06	Si
SLU 75	11.87	-50.81	-14.31	-6.3036		108	1.68	70	32.91			2.3	Si
SLU 75	13.97	-41.36	-14.41	11.6724		88	1.6734	67	31.54			2.19	Si
SLU 77	11.87	-52.32	-15.35	-4.8831		111	1.68	70	33.11			2.16	Si
SLU 77	13.97	-46.96	-15.26	11.68		100	1.68	69	32.39			2.12	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	11.87	-50.13	-14.89	-4.7281		107	1.68	70	32.82			2.2	Si
SLU 80	13.97	-44.69	-14.86	11.0252		95	1.68	68	32.09			2.16	Si
SLU 73	11.87	-46.56	-12.85	-7.435		99	1.68	69	32.34			2.52	Si
SLU 73	13.97	-33.28	-13.09	10.8073		77	1.5457	66	28.48			2.18	Si
SLU 84	11.87	-47.71	-14.54	-6.5811		101	1.68	69	32.5			2.24	Si
SLU 84	13.97	-39.01	-14.63	11.2476		84	1.6549	67	30.94			2.12	Si
SLU 82	11.87	-45.79	-13.53	-7.9011		97	1.68	69	32.24			2.38	Si
SLU 82	13.97	-33.25	-13.72	11.0879		78	1.5195	66	28.07			2.05	Si
SLU 83	11.87	-47.3	-14.57	-6.4806		101	1.68	69	32.44			2.23	Si
SLU 83	13.97	-38.85	-14.57	11.0955		83	1.6632	67	31.05			2.13	Si
SLU 78	11.87	-52.73	-15.32	-4.9837		112	1.68	71	33.16			2.16	Si
SLU 78	13.97	-47.12	-15.31	11.8321		100	1.68	69	32.42			2.12	Si
SLU 79	11.87	-49.72	-14.92	-4.6276		106	1.68	70	32.76			2.2	Si
SLU 79	13.97	-44.54	-14.81	10.8731		95	1.68	68	32.07			2.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	11.87	44.72	-30.09	0.2943		0	0	83	0			0	No, Vu<V
SLV 6	13.97	-11.48	-36.02	17.0591		0	0	83	0			0	No, Vu<V
SLD 5	11.87	-1.39	-17.62	-2.5254		0	0	83	0			0	No, Vu<V
SLD 5	13.97	-18.41	-20.07	11.2807		96	0.682	103	19.6			0.98	No, Vu<V
SLD 10	11.87	-1.7	-23.01	-5.682		0	0	83	0			0	No, Vu<V
SLD 10	13.97	-20.99	-22.26	14.8092		186	0.403	121	13.6			0.61	No, Vu<V
SLV 14	11.87	-12.92	-38	-16.6442		0	0	83	0			0	No, Vu<V
SLV 14	13.97	-31.52	-26.26	25.328		1026	0.1097	163	4.99			0.19	No, Vu<V
SLV 5	11.87	44.72	-30.09	0.2943		0	0	83	0			0	No, Vu<V
SLV 5	13.97	-11.48	-36.02	17.0591		0	0	83	0			0	No, Vu<V
SLV 10	11.87	43.93	-42.69	-7.0809		0	0	83	0			0	No, Vu<V
SLV 10	13.97	-17.53	-41.16	25.3293		0	0	83	0			0	No, Vu<V
SLV 9	11.87	43.93	-42.69	-7.0809		0	0	83	0			0	No, Vu<V
SLV 9	13.97	-17.53	-41.16	25.3293		0	0	83	0			0	No, Vu<V
SLD 6	11.87	-1.39	-17.62	-2.5254		0	0	83	0			0	No, Vu<V
SLD 6	13.97	-18.41	-20.07	11.2807		96	0.682	103	19.6			0.98	No, Vu<V
SLD 9	11.87	-1.7	-23.01	-5.682		0	0	83	0			0	No, Vu<V
SLD 9	13.97	-20.99	-22.26	14.8092		186	0.403	121	13.6			0.61	No, Vu<V
SLV 13	11.87	-12.92	-38	-16.6442		0	0	83	0			0	No, Vu<V
SLV 13	13.97	-31.52	-26.26	25.328		1026	0.1097	163	4.99			0.19	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.465 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.53	0	-7.86	1.9363	0	0	No, $e > t/2$
SLV 9	1438	0.53	0	-7.86	1.9363	0	0	No, $e > t/2$
SLV 5	1438	0.53	0	-4.17	1.9363	0	0	No, $e > t/2$
SLV 6	1438	0.53	0	-4.17	1.9363	0	0	No, $e > t/2$
SLV 2	1438	0.53	34	-15.92	1.9363	2.1674	1.12	Si
SLV 1	1438	0.53	34	-15.92	1.9363	2.1674	1.12	Si
SLV 14	1438	0.53	60	-28.22	1.9363	3.7574	1.94	Si
SLV 13	1438	0.53	60	-28.22	1.9363	3.7574	1.94	Si
SLV 4	1438	0.53	63	-29.68	1.9363	3.9412	2.04	Si
SLV 3	1438	0.53	63	-29.68	1.9363	3.9412	2.04	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.465 Wa = 0.0005 Ta = 0.0607

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-7	43.93	0.12	0	0	0	0	11.14069	No, Trazione
SLV 9	-7	43.93	0.12	0	0	0	0	11.14069	No, Trazione
SLV 16	-15.04	-60.86	2.03	0	3.812	0.889	0	10.76867	No
SLV 6	-5.64	44.72	-0.52	0	0	0	0	11.14069	No, Trazione
SLV 5	-5.64	44.72	-0.52	0	0	0	0	11.14069	No, Trazione
SLV 15	-15.04	-60.86	2.03	0	3.812	0.889	0	10.76867	No
SLV 11	-16.94	-115.86	1.91	0.001	3.989	0.89	0.00867	11.14069	No
SLV 12	-16.94	-115.86	1.91	0.001	3.989	0.89	0.00867	11.14069	No
SLV 14	-12.05	-12.92	1.5	0.009	3.542	0.889	0.13974	10.76867	No
SLV 13	-12.05	-12.92	1.5	0.009	3.542	0.889	0.13974	10.76867	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.262	SLU 19	Si
V_SLU	2.046	SLU 82	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 5	No
R_SLV	0	SLV 10	No

## Maschio 213

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-9.448	-3.359	-11.003	-3.359	L6	F1	1.555	0.28	3.189	3.188	3.189			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 31	11.87	-25.26	4.6485	58	18.2429	3.924	Si
SLU 31	13.97	-25.01	-5.7614	57	18.0765	3.138	Si
SLU 61	11.87	-31.41	4.3624	72	22.2563	5.102	Si
SLU 61	13.97	-25.95	-6.0393	60	18.6994	3.096	Si
SLU 40	11.87	-24.29	5.014	56	17.5907	3.508	Si
SLU 40	13.97	-25.11	-5.8899	58	18.139	3.08	Si
SLU 19	11.87	-23.47	3.9532	54	17.0409	4.311	Si
SLU 19	13.97	-21.07	-5.0068	48	15.4084	3.078	Si
SLU 18	11.87	-23.68	3.9039	54	17.1801	4.401	Si
SLU 18	13.97	-21.11	-4.9673	48	15.4346	3.107	Si
SLU 39	11.87	-24.49	4.9647	56	17.7292	3.571	Si
SLU 39	13.97	-25.15	-5.8504	58	18.1645	3.105	Si
SLU 73	11.87	-33.2	5.0577	76	23.396	4.626	Si
SLU 73	13.97	-29.89	-6.7939	69	21.2831	3.133	Si
SLU 60	11.87	-31.61	4.3131	73	22.3883	5.191	Si
SLU 60	13.97	-25.99	-5.9998	60	18.7248	3.121	Si
SLU 81	11.87	-32.43	5.3739	74	22.9089	4.263	Si
SLU 81	13.97	-30.03	-6.8829	69	21.3683	3.105	Si
SLU 82	11.87	-32.22	5.4232	74	22.7777	4.2	Si
SLU 82	13.97	-29.99	-6.9224	69	21.3437	3.083	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 7	11.87	-6.75	8.5562	0	0	0	No, $e \geq l/2$
SLV 7	13.97	-16.52	-4.5875	38	12.4446	2.713	Si
SLV 16	11.87	-28.68	-7.2781	66	21.0973	2.899	Si
SLV 16	13.97	-6.73	6.7888	0	0	0	No, $e \geq l/2$
SLV 13	11.87	-39.46	-8.5356	91	28.4048	3.328	Si
SLV 13	13.97	-12.33	4.7533	28	9.3636	1.97	Si
SLV 14	11.87	-39.46	-8.5356	91	28.4048	3.328	Si
SLV 14	13.97	-12.33	4.7533	28	9.3636	1.97	Si
SLV 3	11.87	-14.3	14.8254	0	0	0	No, $e \geq l/2$
SLV 3	13.97	-31.83	-14.3666	73	23.2673	1.62	Si
SLV 2	11.87	-25.08	13.568	58	18.5771	1.369	Si
SLV 2	13.97	-37.43	-16.402	86	27.0512	1.649	Si
SLV 8	11.87	-6.75	8.5562	0	0	0	No, $e \geq l/2$
SLV 8	13.97	-16.52	-4.5875	38	12.4446	2.713	Si
SLV 1	11.87	-25.08	13.568	58	18.5771	1.369	Si
SLV 1	13.97	-37.43	-16.402	86	27.0512	1.649	Si
SLV 15	11.87	-28.68	-7.2781	66	21.0973	2.899	Si
SLV 15	13.97	-6.73	6.7888	0	0	0	No, $e \geq l/2$
SLV 4	11.87	-14.3	14.8254	0	0	0	No, $e \geq l/2$
SLV 4	13.97	-31.83	-14.3666	73	23.2673	1.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	11.87	-32.43	13.03	5.3739		74	1.555	65	28.51			2.19	Si
SLU 81	13.97	-30.03	12.75	-6.8829		69	1.555	65	28.19			2.21	Si
SLU 74	11.87	-39.72	13.24	4.404		91	1.555	68	29.48			2.23	Si
SLU 74	13.97	-38.18	12.89	-7.5998		88	1.555	67	29.28			2.27	Si
SLU 40	11.87	-24.29	11.71	5.014		56	1.555	63	27.43			2.34	Si
SLU 40	13.97	-25.11	11.55	-5.8899		58	1.555	63	27.54			2.38	Si
SLU 73	11.87	-33.2	12.39	5.0577		76	1.555	66	28.62			2.31	Si
SLU 73	13.97	-29.89	12.31	-6.7939		69	1.555	65	28.17			2.29	Si
SLU 82	11.87	-32.22	13.07	5.4232		74	1.555	65	28.49			2.18	Si
SLU 82	13.97	-29.99	12.89	-6.9224		69	1.555	65	28.19			2.19	Si
SLU 84	11.87	-37.63	13.2	4.7181		86	1.555	67	29.21			2.21	Si
SLU 84	13.97	-36.38	12.92	-7.0897		84	1.555	67	29.04			2.25	Si
SLU 75	11.87	-39.51	13.28	4.4533		91	1.555	68	29.46			2.22	Si
SLU 75	13.97	-38.14	13.04	-7.6393		88	1.555	67	29.27			2.24	Si
SLU 77	11.87	-45.12	13.37	3.699		104	1.555	69	30.21			2.26	Si
SLU 77	13.97	-44.57	12.92	-7.7671		102	1.555	69	30.13			2.33	Si
SLU 83	11.87	-37.83	13.16	4.6689		87	1.555	67	29.23			2.22	Si
SLU 83	13.97	-36.42	12.77	-7.0502		84	1.555	67	29.04			2.27	Si
SLU 78	11.87	-44.91	13.41	3.7482		103	1.555	69	30.18			2.25	Si
SLU 78	13.97	-44.53	13.07	-7.8065		102	1.555	69	30.13			2.3	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 4	11.87	-21.57	19.29	8.1454		64	1.1996	96	32.3			1.67	Si
SLD 4	13.97	-26.28	14.49	-8.9208		71	1.3142	98	35.92			2.48	Si
SLV 16	11.87	-28.68	-11.03	-7.2781		66	1.555	97	42.02			3.81	Si
SLV 16	13.97	-6.73	2.11	6.7888		0	0	83	0			0	No, $Vu < V$
SLV 1	11.87	-25.08	27.42	13.568		126	0.7092	109	21.56			0.79	No, $Vu < V$
SLV 1	13.97	-37.43	13.94	-16.402		131	1.0177	110	31.23			2.24	Si
SLV 3	11.87	-14.3	34.32	14.8254		0	0	83	0			0	No, $Vu < V$
SLV 3	13.97	-31.83	23.46	-14.3666		116	0.9784	107	29.2			1.24	Si
SLV 15	11.87	-28.68	-11.03	-7.2781		66	1.555	97	42.02			3.81	Si
SLV 15	13.97	-6.73	2.11	6.7888		0	0	83	0			0	No, $Vu < V$
SLV 8	11.87	-6.75	26.5	8.5562		0	0	83	0			0	No, $Vu < V$
SLV 8	13.97	-16.52	27.09	-4.5875		39	1.4994	91	38.29			1.41	Si
SLV 7	11.87	-6.75	26.5	8.5562		0	0	83	0			0	No, $Vu < V$
SLV 7	13.97	-16.52	27.09	-4.5875		39	1.4994	91	38.29			1.41	Si
SLD 3	11.87	-21.57	19.29	8.1454		64	1.1996	96	32.3			1.67	Si
SLD 3	13.97	-26.28	14.49	-8.9208		71	1.3142	98	35.92			2.48	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	11.87	-25.08	27.42	13.568		126	0.7092	109	21.56			0.79	No, Vu<V
SLV 2	13.97	-37.43	13.94	-16.402		131	1.0177	110	31.23			2.24	Si
SLV 4	11.87	-14.3	34.32	14.8254		0	0	83	0			0	No, Vu<V
SLV 4	13.97	-31.83	23.46	-14.3666		116	0.9784	107	29.2			1.24	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.464 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.53	0	-12.39	1.7888	0	0	No, e>t/2
SLV 12	1438	0.53	0	-12.39	1.7888	0	0	No, e>t/2
SLV 15	1438	0.53	0	-10.35	1.7888	0	0	No, e>t/2
SLV 16	1438	0.53	0	-10.35	1.7888	0	0	No, e>t/2
SLV 14	1438	0.53	35	-15.09	1.7888	2.0531	1.15	Si
SLV 13	1438	0.53	35	-15.09	1.7888	2.0531	1.15	Si
SLV 8	1438	0.53	43	-18.88	1.7888	2.5499	1.43	Si
SLV 7	1438	0.53	43	-18.88	1.7888	2.5499	1.43	Si
SLV 10	1438	0.53	65	-28.19	1.7888	3.7381	2.09	Si
SLV 9	1438	0.53	65	-28.19	1.7888	3.7381	2.09	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.464 Wa = 0.0005 Ta = 0.0606

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-9.76	-6.75	1.63	0	3.154	0.89	0	11.11855	No
SLV 4	-10.29	-14.3	1.76	0	3.2	0.89	0	10.74792	No
SLV 7	-9.76	-6.75	1.63	0	3.154	0.89	0	11.11855	No
SLV 3	-10.29	-14.3	1.76	0	3.2	0.89	0	10.74792	No
SLV 2	-10.29	-25.08	1.29	0.012	3.2	0.89	0.18843	10.74792	No
SLV 1	-10.29	-25.08	1.29	0.012	3.2	0.89	0.18843	10.74792	No
SLV 12	-9.31	-11.07	1.03	0.022	3.115	0.891	0.35551	11.11855	No
SLV 11	-9.31	-11.07	1.03	0.022	3.115	0.891	0.35551	11.11855	No
SLV 14	-8.76	-39.46	-0.7	0.037	3.068	0.892	0.59711	10.74792	No
SLV 13	-8.76	-39.46	-0.7	0.037	3.068	0.892	0.59711	10.74792	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.078	SLU 19	Si
V_SLU	2.179	SLU 82	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0	SLV 3	No

## Maschio 214

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.413	-3.359	-8.548	-3.359	L6	F1	1.135	0.28	3.187	3.186	3.187			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	12.77	-27.9	-0.9159	88	14.1246	15.421	Si
SLU 52	14.57	-15.45	-1.7679	49	8.2445	4.663	Si
SLU 19	12.77	-21.9	-1.0014	69	11.3762	11.361	Si
SLU 19	14.57	-12.23	-1.3243	38	6.6147	4.995	Si
SLU 61	12.77	-27.52	-1.1774	87	13.9592	11.856	Si
SLU 61	14.57	-14.28	-1.5521	45	7.6586	4.934	Si
SLU 73	12.77	-30.59	-1.3155	96	15.3104	11.638	Si
SLU 73	14.57	-18.23	-1.864	57	9.6159	5.159	Si
SLU 65	12.77	-30.83	-1.1465	97	15.4137	13.444	Si
SLU 65	14.57	-18	-1.8005	57	9.5032	5.278	Si
SLU 44	12.77	-28.13	-0.7469	89	14.2307	19.053	Si
SLU 44	14.57	-15.22	-1.7044	48	8.129	4.769	Si
SLU 31	12.77	-24.97	-1.1395	79	12.8032	11.236	Si
SLU 31	14.57	-16.18	-1.6362	51	8.6074	5.261	Si
SLU 2	12.77	-22.51	-0.5709	71	11.6628	20.43	Si
SLU 2	14.57	-13.17	-1.4766	41	7.0935	4.804	Si
SLU 10	12.77	-22.27	-0.7399	70	11.5508	15.612	Si
SLU 10	14.57	-13.4	-1.5401	42	7.211	4.682	Si
SLU 37	12.77	-36.53	-3.3084	115	17.8051	5.382	Si
SLU 37	14.57	-23.34	-0.4094	73	12.0508	29.438	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	12.77	-13.79	-8.1322	0	0	0	No, e>l/2
SLV 11	14.57	7.41	7.6916	0	0	0	No, Trazione
SLV 4	12.77	-11.59	6.6489	0	0	0	No, e>l/2
SLV 4	14.57	-8.64	-4.7781	27	4.7931	1.003	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	12.77	-11.59	6.6489	0	0	0	No, $e \geq l/2$
SLV 3	14.57	-8.64	-4.7781	27	4.7931	1.003	Si
SLV 7	12.77	-9.21	-2.6647	29	5.1011	1.914	Si
SLV 7	14.57	5.62	4.1438	0	0	0	No, Trazione
SLV 12	12.77	-13.79	-8.1322	0	0	0	No, $e \geq l/2$
SLV 12	14.57	7.41	7.6916	0	0	0	No, Trazione
SLV 16	12.77	-26.86	-11.5763	85	14.1882	1.226	Si
SLV 16	14.57	-2.67	7.0481	0	0	0	No, $e \geq l/2$
SLV 8	12.77	-9.21	-2.6647	29	5.1011	1.914	Si
SLV 8	14.57	5.62	4.1438	0	0	0	No, Trazione
SLV 15	12.77	-26.86	-11.5763	85	14.1882	1.226	Si
SLV 15	14.57	-2.67	7.0481	0	0	0	No, $e \geq l/2$
SLD 12	12.77	-19.06	-4.0634	60	10.2839	2.531	Si
SLD 12	14.57	-3.65	2.5483	0	0	0	No, $e \geq l/2$
SLD 11	12.77	-19.06	-4.0634	60	10.2839	2.531	Si
SLD 11	14.57	-3.65	2.5483	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	12.77	-42.8	-3.92	-3.0319		135	1.135	74	23.36			5.96	Si
SLU 72	14.57	-27.06	-2.06	-0.9381		85	1.135	67	21.26			10.33	Si
SLU 71	12.77	-42.39	-3.95	-3.3155		133	1.135	73	23.31			5.9	Si
SLU 71	14.57	-25.16	-2.28	-0.5736		79	1.135	66	21.01			9.22	Si
SLU 38	12.77	-36.93	-3.89	-3.0249		116	1.135	71	22.58			5.8	Si
SLU 38	14.57	-25.24	-1.78	-0.7738		79	1.135	66	21.02			11.81	Si
SLU 80	12.77	-42.56	-3.93	-3.2009		134	1.135	73	23.33			5.94	Si
SLU 80	14.57	-27.29	-1.69	-1.0016		86	1.135	67	21.29			12.57	Si
SLU 29	12.77	-36.77	-3.91	-3.1394		116	1.135	71	22.56			5.77	Si
SLU 29	14.57	-23.11	-2.37	-0.3458		73	1.135	65	20.74			8.77	Si
SLU 27	12.77	-38.67	-3.84	-3.1391		122	1.135	72	22.81			5.93	Si
SLU 27	14.57	-24.71	-2.14	-0.5942		78	1.135	66	20.95			9.77	Si
SLU 79	12.77	-42.15	-3.96	-3.4845		133	1.135	73	23.28			5.88	Si
SLU 79	14.57	-25.39	-1.92	-0.6372		80	1.135	66	21.04			10.98	Si
SLU 30	12.77	-37.17	-3.89	-2.8559		117	1.135	71	22.61			5.82	Si
SLU 30	14.57	-25.01	-2.14	-0.7103		79	1.135	66	20.99			9.79	Si
SLU 35	12.77	-38.43	-3.85	-3.3082		121	1.135	72	22.78			5.92	Si
SLU 35	14.57	-24.94	-1.78	-0.6577		78	1.135	66	20.98			11.78	Si
SLU 37	12.77	-36.53	-3.92	-3.3084		115	1.135	71	22.53			5.75	Si
SLU 37	14.57	-23.34	-2	-0.4094		73	1.135	65	20.77			10.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 12	12.77	-19.06	-7.49	-4.0634		64	1.0628	96	28.61			3.82	Si
SLD 12	14.57	-3.65	-4.77	2.5483		0	0	83	0			0	No, $V_u < V$
SLD 11	12.77	-19.06	-7.49	-4.0634		64	1.0628	96	28.61			3.82	Si
SLD 11	14.57	-3.65	-4.77	2.5483		0	0	83	0			0	No, $V_u < V$
SLV 15	12.77	-26.86	-20.26	-11.5763		234	0.4095	130	14.93			0.74	No, $V_u < V$
SLV 15	14.57	-2.67	-4.2	7.0481		0	0	83	0			0	No, $V_u < V$
SLV 11	12.77	-13.79	-17.53	-8.1322		0	0	83	0			0	No, $V_u < V$
SLV 11	14.57	7.41	-12.77	7.6916		0	0	83	0			0	No, $V_u < V$
SLV 4	12.77	-11.59	11.67	6.6489		0	0	83	0			0	No, $V_u < V$
SLV 4	14.57	-8.64	-2.73	-4.7781		716	0.0431	163	1.96			0.72	No, $V_u < V$
SLV 16	12.77	-26.86	-20.26	-11.5763		234	0.4095	130	14.93			0.74	No, $V_u < V$
SLV 16	14.57	-2.67	-4.2	7.0481		0	0	83	0			0	No, $V_u < V$
SLV 7	12.77	-9.21	-7.95	-2.6647		39	0.8342	91	21.31			2.68	Si
SLV 7	14.57	5.62	-12.32	4.1438		0	0	83	0			0	No, $V_u < V$
SLV 8	12.77	-9.21	-7.95	-2.6647		39	0.8342	91	21.31			2.68	Si
SLV 8	14.57	5.62	-12.32	4.1438		0	0	83	0			0	No, $V_u < V$
SLV 3	12.77	-11.59	11.67	6.6489		0	0	83	0			0	No, $V_u < V$
SLV 3	14.57	-8.64	-2.73	-4.7781		716	0.0431	163	1.96			0.72	No, $V_u < V$
SLV 12	12.77	-13.79	-17.53	-8.1322		0	0	83	0			0	No, $V_u < V$
SLV 12	14.57	7.41	-12.77	7.6916		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.463 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.53	0	31.33	1.3042	0	0	No, Trazione
SLV 3	1438	0.53	0	5.26	1.3042	0	0	No, Trazione
SLV 12	1438	0.53	0	25.03	1.3042	0	0	No, Trazione
SLV 11	1438	0.53	0	25.03	1.3042	0	0	No, Trazione
SLV 4	1438	0.53	0	5.26	1.3042	0	0	No, Trazione
SLV 8	1438	0.53	0	31.33	1.3042	0	0	No, Trazione
SLV 16	1438	0.53	50	-15.75	1.3042	2.1158	1.62	Si
SLV 15	1438	0.53	50	-15.75	1.3042	2.1158	1.62	Si
SLV 2	1438	0.53	74	-23.39	1.3042	3.0775	2.36	Si
SLV 1	1438	0.53	74	-23.39	1.3042	3.0775	2.36	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.463 Wa = 0.0005 Ta = 0.0606

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-5.61	13.17	-1.22	0	0	0	0	11.10606	No, Trazione
SLV 10	-7.75	-60.47	1.39	0	2.356	0.89	0	11.10606	No
SLV 16	-6.73	0.49	-0.31	0	0	0	0	10.73622	No, Trazione
SLV 12	-5.82	20.38	-1.22	0	0	0	0	11.10606	No, Trazione
SLV 15	-6.73	0.49	-0.31	0	0	0	0	10.73622	No, Trazione
SLV 9	-7.75	-60.47	1.39	0	2.356	0.89	0	11.10606	No
SLV 6	-7.55	-67.68	1.39	0	2.338	0.89	0	11.10606	No
SLV 8	-5.61	13.17	-1.22	0	0	0	0	11.10606	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 5	-7.55	-67.68	1.39	0	2.338	0.89	0	11.10606	No
SLV 11	-5.82	20.38	-1.22	0	0	0	0	11.10606	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.663	SLU 52	Si
V_SLU	5.747	SLU 37	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 11	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-6.008	-3.359	-6.513	-3.359	L6	F1	0.505	0.28	3.186	3.185	3.186			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 40	13.87	-3.87	-0.4933	27	0.9434	1.912	Si
SLU 40	14.67	-4.69	0.3521	33	1.135	3.223	Si
SLU 26	13.87	-2.64	-0.3341	19	0.6509	1.948	Si
SLU 26	14.67	-6.54	0.4034	46	1.5583	3.863	Si
SLU 73	13.87	-4.48	-0.5473	32	1.0861	1.985	Si
SLU 73	14.67	-4.63	0.369	33	1.121	3.038	Si
SLU 31	13.87	-3.15	-0.4602	22	0.7731	1.68	Si
SLU 31	14.67	-3.94	0.3481	28	0.9597	2.757	Si
SLU 10	13.87	-2.95	-0.3827	21	0.7253	1.895	Si
SLU 10	14.67	-2.45	0.2513	17	0.6063	2.413	Si
SLU 2	13.87	-2.9	-0.3408	21	0.7149	2.098	Si
SLU 2	14.67	-2.29	0.2122	16	0.5671	2.672	Si
SLU 42	13.87	-3.4	-0.4091	24	0.8331	2.036	Si
SLU 42	14.67	-7.46	0.4465	53	1.7607	3.943	Si
SLU 13	13.87	-2.48	-0.2985	18	0.6132	2.054	Si
SLU 13	14.67	-5.22	0.3457	37	1.2591	3.642	Si
SLU 34	13.87	-2.68	-0.376	19	0.6613	1.759	Si
SLU 34	14.67	-6.71	0.4425	47	1.5945	3.604	Si
SLU 23	13.87	-3.1	-0.4183	22	0.7627	1.823	Si
SLU 23	14.67	-3.77	0.309	27	0.9216	2.982	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 7	13.87	2.64	0.2531	0	0	0	No, Trazione
SLD 7	14.67	1.41	-0.135	0	0	0	No, Trazione
SLV 4	13.87	4.3	0.4944	0	0	0	No, Trazione
SLV 4	14.67	1.11	-0.8201	0	0	0	No, Trazione
SLV 7	13.87	13.16	1.2435	0	0	0	No, Trazione
SLV 7	14.67	9.82	-0.6301	0	0	0	No, Trazione
SLV 16	13.87	-3.74	-0.4077	26	0.9237	2.266	Si
SLV 16	14.67	-1.72	0.9042	0	0	0	No, e>l/2
SLV 8	13.87	13.16	1.2435	0	0	0	No, Trazione
SLV 8	14.67	9.82	-0.6301	0	0	0	No, Trazione
SLV 15	13.87	-3.74	-0.4077	26	0.9237	2.266	Si
SLV 15	14.67	-1.72	0.9042	0	0	0	No, e>l/2
SLV 3	13.87	4.3	0.4944	0	0	0	No, Trazione
SLV 3	14.67	1.11	-0.8201	0	0	0	No, Trazione
SLV 12	13.87	10.75	0.9728	0	0	0	No, Trazione
SLV 12	14.67	8.97	-0.1128	0	0	0	No, Trazione
SLV 11	13.87	10.75	0.9728	0	0	0	No, Trazione
SLV 11	14.67	8.97	-0.1128	0	0	0	No, Trazione
SLD 8	13.87	2.64	0.2531	0	0	0	No, Trazione
SLD 8	14.67	1.41	-0.135	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 70	13.87	-5.86	-2.91	-0.4286		41	0.505	61	8.64			2.97	Si
SLU 70	14.67	-11.75	3.95	0.4671		83	0.505	67	9.42			2.39	Si
SLU 36	13.87	-4.58	-2.8	-0.3833		32	0.505	60	8.47			3.03	Si
SLU 36	14.67	-11.23	4.02	0.4852		79	0.505	66	9.35			2.33	Si
SLU 77	13.87	-6.96	-3.14	-0.4933		49	0.505	62	8.78			2.79	Si
SLU 77	14.67	-12.94	4.07	0.4871		91	0.505	68	9.58			2.36	Si
SLU 34	13.87	-2.68	-2.41	-0.376		28	0.3369	59	5.6			2.32	Si
SLU 34	14.67	-6.71	3.43	0.4425		47	0.505	62	8.75			2.55	Si
SLU 31	13.87	-3.15	-2.24	-0.4602		35	0.3189	60	5.38			2.4	Si
SLU 31	14.67	-3.94	2.69	0.3481		29	0.4921	59	8.18			3.04	Si
SLU 38	13.87	-2.92	-2.59	-0.307		24	0.4415	59	7.26			2.8	Si
SLU 38	14.67	-10.16	4.04	0.5241		72	0.505	65	9.21			2.28	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	13.87	-5.91	-3.13	-0.4704		42	0.505	61	8.64			2.76	Si
SLU 78	14.67	-11.92	4.26	0.5062		84	0.505	67	9.44			2.22	Si
SLU 80	13.87	-4.24	-2.92	-0.3941		32	0.4788	60	8.01			2.75	Si
SLU 80	14.67	-10.85	4.28	0.545		77	0.505	66	9.3			2.18	Si
SLU 72	13.87	-4.2	-2.7	-0.3523		30	0.505	60	8.42			3.12	Si
SLU 72	14.67	-10.68	3.97	0.506		76	0.505	66	9.28			2.34	Si
SLU 79	13.87	-5.29	-2.94	-0.417		37	0.505	61	8.56			2.92	Si
SLU 79	14.67	-11.87	4.09	0.5259		84	0.505	67	9.44			2.31	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	13.87	13.16	2.77	1.2435		0	0	83	0			0	No, Vu<V
SLV 8	14.67	9.82	7.11	-0.6301		0	0	83	0			0	No, Vu<V
SLD 7	13.87	2.64	0.05	0.2531		0	0	83	0			0	No, Vu<V
SLD 7	14.67	1.41	3.97	-0.135		0	0	83	0			0	No, Vu<V
SLD 8	13.87	2.64	0.05	0.2531		0	0	83	0			0	No, Vu<V
SLD 8	14.67	1.41	3.97	-0.135		0	0	83	0			0	No, Vu<V
SLV 12	13.87	10.75	0.95	0.9728		0	0	83	0			0	No, Vu<V
SLV 12	14.67	8.97	7.44	-0.1128		0	0	83	0			0	No, Vu<V
SLV 16	13.87	-3.74	-3.73	-0.4077		31	0.4304	90	10.79			2.9	Si
SLV 16	14.67	-1.72	3.93	0.9042		0	0	83	0			0	No, Vu<V
SLV 11	13.87	10.75	0.95	0.9728		0	0	83	0			0	No, Vu<V
SLV 11	14.67	8.97	7.44	-0.1128		0	0	83	0			0	No, Vu<V
SLV 4	13.87	4.3	2.33	0.4944		0	0	83	0			0	No, Vu<V
SLV 4	14.67	1.11	2.85	-0.8201		0	0	83	0			0	No, Vu<V
SLD 12	13.87	1.63	-0.72	0.1412		0	0	83	0			0	No, Vu<V
SLD 12	14.67	1.05	4.1	0.0841		0	0	83	0			0	No, Vu<V
SLV 7	13.87	13.16	2.77	1.2435		0	0	83	0			0	No, Vu<V
SLV 7	14.67	9.82	7.11	-0.6301		0	0	83	0			0	No, Vu<V
SLD 11	13.87	1.63	-0.72	0.1412		0	0	83	0			0	No, Vu<V
SLD 11	14.67	1.05	4.1	0.0841		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.463 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.53	0	-1.19	0.5798	0	0	No, e>t/2
SLV 12	1438	0.53	0	7.25	0.5798	0	0	No, Trazione
SLV 11	1438	0.53	0	7.25	0.5798	0	0	No, Trazione
SLV 8	1438	0.53	0	6.55	0.5798	0	0	No, Trazione
SLV 15	1438	0.53	0	1.15	0.5798	0	0	No, Trazione
SLV 4	1438	0.53	0	-1.19	0.5798	0	0	No, e>t/2
SLV 16	1438	0.53	0	1.15	0.5798	0	0	No, Trazione
SLV 7	1438	0.53	0	6.55	0.5798	0	0	No, Trazione
SLV 13	1438	0.53	34	-4.78	0.5798	0.6512	1.12	Si
SLV 14	1438	0.53	34	-4.78	0.5798	0.6512	1.12	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.463 Wa = 0.0005 Ta = 0.0605

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	0.8	-5.41	-0.32	0	0	0	0	10.7272	No, Trazione
SLV 12	13.76	-4.22	-0.47	0	0	0	0	11.09643	No, Trazione
SLV 7	16.43	-3.94	-0.48	0	0	0	0	11.09643	No, Trazione
SLV 4	9.7	-4.49	-0.33	0	0	0	0	10.7272	No, Trazione
SLV 8	16.43	-3.94	-0.48	0	0	0	0	11.09643	No, Trazione
SLV 2	1.27	-5.24	-0.2	0	0	0	0	10.7272	No, Trazione
SLV 11	13.76	-4.22	-0.47	0	0	0	0	11.09643	No, Trazione
SLV 15	0.8	-5.41	-0.32	0	0	0	0	10.7272	No, Trazione
SLV 1	1.27	-5.24	-0.2	0	0	0	0	10.7272	No, Trazione
SLV 3	9.7	-4.49	-0.33	0	0	0	0	10.7272	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.68	SLU 31	Si
V_SLU	2.175	SLU 80	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 16	No

## Maschio 216

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-3.183	-3.359	-5.508	-3.359	L6	F1	2.325	0.28	3.184	3.183	3.185			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 19	13.87	-20.32	0.8384	31	22.721	27.1	Si
SLU 19	14.67	-11.18	1.428	17	12.725	8.911	Si
SLU 82	13.87	-29.04	0.7722	45	31.912	41.326	Si
SLU 82	14.67	-16.89	1.7148	26	19.011	11.087	Si
SLU 73	13.87	-28.1	0.6487	43	30.9381	47.695	Si
SLU 73	14.67	-16.13	1.7262	25	18.1814	10.532	Si
SLU 52	13.87	-25.11	0.7481	39	27.8085	37.17	Si
SLU 52	14.67	-13.2	1.6814	20	14.9607	8.898	Si
SLU 10	13.87	-19.38	0.7149	30	21.7111	30.371	Si
SLU 10	14.67	-10.42	1.4395	16	11.8763	8.25	Si
SLU 2	13.87	-19.76	0.2193	30	22.1126	100.829	Si
SLU 2	14.67	-10.56	1.1724	16	12.0295	10.261	Si
SLU 61	13.87	-26.05	0.8717	40	28.7948	33.034	Si
SLU 61	14.67	-13.96	1.67	21	15.8001	9.461	Si
SLU 44	13.87	-25.48	0.2526	39	28.2006	111.654	Si
SLU 44	14.67	-13.34	1.4143	20	15.1122	10.685	Si
SLU 40	13.87	-23.32	0.7389	36	25.9133	35.069	Si
SLU 40	14.67	-14.11	1.4729	22	15.9716	10.844	Si
SLU 31	13.87	-22.38	0.6154	34	24.9158	40.487	Si
SLU 31	14.67	-13.35	1.4843	21	15.1327	10.195	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	13.87	-23.13	-4.2078	36	26.1058	6.204	Si
SLV 6	14.67	-14.52	7.8076	22	16.5659	2.122	Si
SLV 5	13.87	-23.13	-4.2078	36	26.1058	6.204	Si
SLV 5	14.67	-14.52	7.8076	22	16.5659	2.122	Si
SLV 11	13.87	-23.38	4.4285	36	26.3773	5.956	Si
SLV 11	14.67	-12.3	-5.9141	19	14.0755	2.38	Si
SLV 10	13.87	-21.19	-6.689	33	23.9775	3.585	Si
SLV 10	14.67	-14.4	8.7304	22	16.4411	1.883	Si
SLV 7	13.87	-25.32	6.9097	39	28.4932	4.124	Si
SLV 7	14.67	-12.41	-6.8369	19	14.201	2.077	Si
SLV 12	13.87	-23.38	4.4285	36	26.3773	5.956	Si
SLV 12	14.67	-12.3	-5.9141	19	14.0755	2.38	Si
SLV 13	13.87	-19.69	-5.6927	30	22.3272	3.922	Si
SLV 13	14.67	-13.54	4.6815	21	15.4687	3.304	Si
SLV 9	13.87	-21.19	-6.689	33	23.9775	3.585	Si
SLV 9	14.67	-14.4	8.7304	22	16.4411	1.883	Si
SLV 14	13.87	-19.69	-5.6927	30	22.3272	3.922	Si
SLV 14	14.67	-13.54	4.6815	21	15.4687	3.304	Si
SLV 8	13.87	-25.32	6.9097	39	28.4932	4.124	Si
SLV 8	14.67	-12.41	-6.8369	19	14.201	2.077	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	13.87	-32.91	-1.77	-0.5869		51	2.325	62	40.56			22.96	Si
SLU 76	14.67	-20.8	-0.25	0.6844		32	2.325	60	38.94			156.42	Si
SLU 65	13.87	-28.48	-1.69	0.1531		44	2.325	61	39.96			23.71	Si
SLU 65	14.67	-16.27	-0.85	1.4591		25	2.325	59	38.34			44.92	Si
SLU 23	13.87	-22.75	-1.72	0.1198		35	2.325	60	39.2			22.74	Si
SLU 23	14.67	-13.49	-0.82	1.2172		21	2.325	58	37.97			46.4	Si
SLU 68	13.87	-33.29	-1.7	-1.0824		51	2.325	62	40.6			23.82	Si
SLU 68	14.67	-20.93	-0.14	0.4174		32	2.325	60	38.96			269.96	Si
SLU 31	13.87	-22.38	-1.79	0.6154		34	2.325	60	39.15			21.92	Si
SLU 31	14.67	-13.35	-0.92	1.4843		21	2.325	58	37.95			41.12	Si
SLU 13	13.87	-24.19	-1.52	-0.5206		37	2.325	61	39.39			25.92	Si
SLU 13	14.67	-15.09	-0.07	0.3977		23	2.325	59	38.18			543.33	Si
SLU 26	13.87	-27.56	-1.74	-1.1157		42	2.325	61	39.84			22.86	Si
SLU 26	14.67	-18.16	-0.11	0.1754		28	2.325	59	38.59			353.6	Si
SLU 73	13.87	-28.1	-1.75	0.6487		43	2.325	61	39.91			22.84	Si
SLU 73	14.67	-16.13	-0.96	1.7262		25	2.325	59	38.32			40	Si
SLU 10	13.87	-19.38	-1.5	0.7149		30	2.325	60	38.75			25.82	Si
SLU 10	14.67	-10.42	-0.78	1.4395		16	2.325	58	37.56			48.19	Si
SLU 34	13.87	-27.19	-1.8	-0.6201		42	2.325	61	39.79			22.05	Si
SLU 34	14.67	-18.02	-0.21	0.4425		28	2.325	59	38.57			180.43	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	13.87	-19.69	-19.35	-5.6927		30	2.325	89	58.19			3.01	Si
SLV 13	14.67	-13.54	-12.85	4.6815		21	2.325	87	56.96			4.43	Si
SLV 9	13.87	-21.19	-24.59	-6.689		33	2.325	90	58.49			2.38	Si
SLV 9	14.67	-14.4	-15.33	8.7304		31	1.6691	89	41.83			2.73	Si
SLV 6	13.87	-23.13	-16.84	-4.2078		36	2.325	90	58.88			3.5	Si
SLV 6	14.67	-14.52	-10.06	7.8076		28	1.8738	89	46.63			4.64	Si
SLV 7	13.87	-25.32	24	6.9097		39	2.325	91	59.31			2.47	Si
SLV 7	14.67	-12.41	14.63	-6.8369		24	1.8347	88	45.29			3.1	Si
SLV 5	13.87	-23.13	-16.84	-4.2078		36	2.325	90	58.88			3.5	Si
SLV 5	14.67	-14.52	-10.06	7.8076		28	1.8738	89	46.63			4.64	Si
SLV 10	13.87	-21.19	-24.59	-6.689		33	2.325	90	58.49			2.38	Si
SLV 10	14.67	-14.4	-15.33	8.7304		31	1.6691	89	41.83			2.73	Si
SLV 4	13.87	-26.81	18.75	5.9134		41	2.325	92	59.61			3.18	Si
SLV 4	14.67	-13.28	12.14	-2.788		20	2.325	87	56.91			4.69	Si
SLV 14	13.87	-19.69	-19.35	-5.6927		30	2.325	89	58.19			3.01	Si
SLV 14	14.67	-13.54	-12.85	4.6815		21	2.325	87	56.96			4.43	Si
SLV 8	13.87	-25.32	24	6.9097		39	2.325	91	59.31			2.47	Si
SLV 8	14.67	-12.41	14.63	-6.8369		24	1.8347	88	45.29			3.1	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	13.87	-26.81	18.75	5.9134		41	2.325	92	59.61			3.18	Si
SLV 3	14.67	-13.28	12.14	-2.788		20	2.325	87	56.91			4.69	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.462 Wa 0.0005 denominatore  $8 \gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.53	33	-21.33	2.6669	2.9058	1.09	Si
SLV 8	1438	0.53	33	-21.33	2.6669	2.9058	1.09	Si
SLV 11	1438	0.53	35	-22.83	2.6669	3.1042	1.16	Si
SLV 12	1438	0.53	35	-22.83	2.6669	3.1042	1.16	Si
SLV 4	1438	0.53	35	-22.96	2.6669	3.121	1.17	Si
SLV 3	1438	0.53	35	-22.96	2.6669	3.121	1.17	Si
SLV 2	1438	0.53	40	-25.85	2.6669	3.5016	1.31	Si
SLV 1	1438	0.53	40	-25.85	2.6669	3.5016	1.31	Si
SLV 15	1438	0.53	43	-27.96	2.6669	3.7766	1.42	Si
SLV 16	1438	0.53	43	-27.96	2.6669	3.7766	1.42	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 13.462 Wa = 0.0005 Ta = 0.0605

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-4.76	-46.6	-2.4	0	3.967	0.925	0	11.08556	No
SLV 4	-8.78	-29.76	2.27	0	4.237	0.902	0	10.71701	No
SLV 12	-10.85	-24.76	3.25	0	4.398	0.896	0	11.08556	No
SLV 3	-8.78	-29.76	2.27	0	4.237	0.902	0	10.71701	No
SLV 11	-10.85	-24.76	3.25	0	4.398	0.896	0	11.08556	No
SLV 10	-4.72	-48.05	-2.94	0	3.965	0.925	0	11.08556	No
SLV 7	-10.88	-23.3	3.8	0	4.401	0.896	0	11.08556	No
SLV 9	-4.72	-48.05	-2.94	0	3.965	0.925	0	11.08556	No
SLV 8	-10.88	-23.3	3.8	0	4.401	0.896	0	11.08556	No
SLV 5	-4.76	-46.6	-2.4	0	3.967	0.925	0	11.08556	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.25	SLU 10	Si
V_SLU	21.922	SLU 31	Si
PF_SLV	1.883	SLV 9	Si
V_SLV	2.378	SLV 9	Si
PFFP_SLV	1.09	SLV 7	Si
R_SLV	0	SLV 3	No

## Maschio 217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-0.123	-3.359	-2.283	-3.359	L6	F1	2.16	0.28	3.182	3.181	3.183			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 34	12.77	-33.09	-13.3943	55	33.3402	2.489	Si
SLU 34	14.57	-26.85	3.2673	44	27.4137	8.39	Si
SLU 13	12.77	-31.14	-11.2571	51	31.5022	2.798	Si
SLU 13	14.57	-22.84	2.5232	38	23.5216	9.322	Si
SLU 82	12.77	-35.54	-13.3684	59	35.6149	2.664	Si
SLU 82	14.57	-24.3	3.1879	40	24.9467	7.825	Si
SLU 31	12.77	-27.74	-12.672	46	28.2768	2.231	Si
SLU 31	14.57	-20.35	2.1495	34	21.0675	9.801	Si
SLU 19	12.77	-25.63	-10.3194	42	26.2434	2.543	Si
SLU 19	14.57	-16.74	1.8301	28	17.4682	9.545	Si
SLU 73	12.77	-35.7	-13.5837	59	35.7576	2.632	Si
SLU 73	14.57	-23.89	2.7632	40	24.553	8.886	Si
SLU 40	12.77	-27.59	-12.4566	46	28.1286	2.258	Si
SLU 40	14.57	-20.75	2.5742	34	21.4674	8.34	Si
SLU 39	12.77	-28.39	-10.7325	47	28.8981	2.693	Si
SLU 39	14.57	-21.06	3.3444	35	21.7751	6.511	Si
SLU 10	12.77	-25.79	-10.5348	43	26.3928	2.505	Si
SLU 10	14.57	-16.34	1.4054	27	17.0612	12.14	Si
SLU 42	12.77	-32.94	-13.1789	54	33.1957	2.519	Si
SLU 42	14.57	-27.25	3.692	45	27.8021	7.53	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	12.77	-36.43	-21.9907	60	37.4008	1.701	Si
SLV 6	14.57	-21.6	-7.4269	36	22.6444	3.049	Si
SLV 12	12.77	-21.25	8.5608	35	22.2885	2.604	Si
SLV 12	14.57	-13.75	13.5263	23	14.5775	1.078	Si
SLV 10	12.77	-34.16	-24.058	56	35.1843	1.462	Si
SLV 10	14.57	-22.99	-4.5635	38	24.0529	5.271	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	12.77	-23.12	-5.2676	38	24.1875	4.592	Si
SLV 16	14.57	-18.6	10.5356	31	19.5868	1.859	Si
SLV 8	12.77	-23.52	10.628	39	24.5906	2.314	Si
SLV 8	14.57	-12.37	10.6629	20	13.1315	1.232	Si
SLV 5	12.77	-36.43	-21.9907	60	37.4008	1.701	Si
SLV 5	14.57	-21.6	-7.4269	36	22.6444	3.049	Si
SLV 9	12.77	-34.16	-24.058	56	35.1843	1.462	Si
SLV 9	14.57	-22.99	-4.5635	38	24.0529	5.271	Si
SLV 11	12.77	-21.25	8.5608	35	22.2885	2.604	Si
SLV 11	14.57	-13.75	13.5263	23	14.5775	1.078	Si
SLV 7	12.77	-23.52	10.628	39	24.5906	2.314	Si
SLV 7	14.57	-12.37	10.6629	20	13.1315	1.232	Si
SLV 15	12.77	-23.12	-5.2676	38	24.1875	4.592	Si
SLV 15	14.57	-18.6	10.5356	31	19.5868	1.859	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 34	12.77	-33.09	-18.1	-13.3943		58	2.0258	63	35.92			1.99	Si
SLU 34	14.57	-26.85	-17	3.2673		44	2.16	61	37.18			2.19	Si
SLU 80	12.77	-46.93	-21.04	-13.8788		78	2.16	66	39.86			1.89	Si
SLU 80	14.57	-37.1	-19.71	5.5124		61	2.16	64	38.55			1.96	Si
SLU 76	12.77	-41.04	-19.83	-14.306		68	2.16	65	39.07			1.97	Si
SLU 76	14.57	-30.39	-18.72	3.8811		50	2.16	62	37.65			2.01	Si
SLU 77	12.77	-50.31	-20.67	-11.616		83	2.16	67	40.31			1.95	Si
SLU 77	14.57	-40.68	-19.61	7.1433		67	2.16	65	39.02			1.99	Si
SLU 40	12.77	-27.59	-16.64	-12.4566		52	1.8855	63	33.01			1.98	Si
SLU 40	14.57	-20.75	-16.04	2.5742		34	2.16	60	36.37			2.27	Si
SLU 36	12.77	-41.56	-19.87	-12.4285		69	2.16	65	39.14			1.97	Si
SLU 36	14.57	-36.82	-18.62	5.7593		61	2.16	64	38.51			2.07	Si
SLU 79	12.77	-47.73	-20.1	-12.1547		79	2.16	66	39.96			1.99	Si
SLU 79	14.57	-37.41	-18.98	6.2826		62	2.16	64	38.59			2.03	Si
SLU 78	12.77	-49.51	-21.61	-13.3402		82	2.16	66	40.2			1.86	Si
SLU 78	14.57	-40.37	-20.34	6.3731		67	2.16	64	38.98			1.92	Si
SLU 84	12.77	-40.89	-20.21	-14.0907		68	2.16	65	39.05			1.93	Si
SLU 84	14.57	-30.8	-19.23	4.3058		51	2.16	62	37.71			1.96	Si
SLU 42	12.77	-32.94	-18.47	-13.1789		58	2.0397	63	36.12			1.96	Si
SLU 42	14.57	-27.25	-17.51	3.692		45	2.16	62	37.23			2.13	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	12.77	-23.12	-18.22	-5.2676		38	2.16	91	55.02			3.02	Si
SLV 16	14.57	-18.6	-10.04	10.5356		43	1.5411	92	39.68			3.95	Si
SLV 12	12.77	-21.25	-10.45	8.5608		37	2.0313	91	51.65			4.94	Si
SLV 12	14.57	-13.75	-14.41	13.5263		170	0.2896	117	9.51			0.66	No, Vu<V
SLV 11	12.77	-21.25	-10.45	8.5608		37	2.0313	91	51.65			4.94	Si
SLV 11	14.57	-13.75	-14.41	13.5263		170	0.2896	117	9.51			0.66	No, Vu<V
SLV 15	12.77	-23.12	-18.22	-5.2676		38	2.16	91	55.02			3.02	Si
SLV 15	14.57	-18.6	-10.04	10.5356		43	1.5411	92	39.68			3.95	Si
SLV 7	12.77	-23.52	-5.5	10.628		45	1.8842	92	48.67			8.85	Si
SLV 7	14.57	-12.37	-15.52	10.6629		68	0.6531	97	17.71			1.14	Si
SLV 14	12.77	-26.99	-19.94	-15.0532		62	1.5669	96	41.96			2.1	Si
SLV 14	14.57	-21.37	-7.39	5.1087		35	2.16	90	54.67			7.4	Si
SLV 8	12.77	-23.52	-5.5	10.628		45	1.8842	92	48.67			8.85	Si
SLV 8	14.57	-12.37	-15.52	10.6629		68	0.6531	97	17.71			1.14	Si
SLV 10	12.77	-34.16	-16.17	-24.058		108	1.127	105	33.13			2.05	Si
SLV 10	14.57	-22.99	-5.6	-4.5635		38	2.16	91	55			9.82	Si
SLV 13	12.77	-26.99	-19.94	-15.0532		62	1.5669	96	41.96			2.1	Si
SLV 13	14.57	-21.37	-7.39	5.1087		35	2.16	90	54.67			7.4	Si
SLV 9	12.77	-34.16	-16.17	-24.058		108	1.127	105	33.13			2.05	Si
SLV 9	14.57	-22.99	-5.6	-4.5635		38	2.16	91	55			9.82	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 13.46 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.53	36	-21.52	2.4738	2.9249	1.18	Si
SLV 12	1438	0.53	36	-21.52	2.4738	2.9249	1.18	Si
SLV 7	1438	0.53	37	-22.29	2.4738	3.0266	1.22	Si
SLV 8	1438	0.53	37	-22.29	2.4738	3.0266	1.22	Si
SLV 16	1438	0.53	37	-22.66	2.4738	3.0745	1.24	Si
SLV 15	1438	0.53	37	-22.66	2.4738	3.0745	1.24	Si
SLV 13	1438	0.53	40	-24.4	2.4738	3.3036	1.34	Si
SLV 14	1438	0.53	40	-24.4	2.4738	3.3036	1.34	Si
SLV 4	1438	0.53	42	-25.23	2.4738	3.4118	1.38	Si
SLV 3	1438	0.53	42	-25.23	2.4738	3.4118	1.38	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 13.46 Wa = 0.0005 Ta = 0.0604

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-12.85	-22.44	2.42	0	4.314	0.891	0	11.06802	No
SLV 5	-3.26	-55.09	-1.75	0	3.622	0.938	0	11.06802	No
SLV 6	-3.26	-55.09	-1.75	0	3.622	0.938	0	11.06802	No
SLV 11	-12.85	-22.44	2.42	0	4.314	0.891	0	11.06802	No
SLV 15	-11.65	-37.59	1.88	0.005	4.212	0.893	0.08821	10.70057	No
SLV 16	-11.65	-37.59	1.88	0.005	4.212	0.893	0.08821	10.70057	No
SLV 8	-11.43	-19.98	1.82	0.007	4.194	0.893	0.11766	11.06802	No
SLV 7	-11.43	-19.98	1.82	0.007	4.194	0.893	0.11766	11.06802	No
SLV 1	-4.46	-39.94	-1.21	0.024	3.686	0.925	0.36985	10.70057	No
SLV 2	-4.46	-39.94	-1.21	0.024	3.686	0.925	0.36985	10.70057	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.231	SLU 31	Si
V_SLU	1.86	SLU 78	Si
PF_SLV	1.078	SLV 11	Si
V_SLV	0.66	SLV 11	No
PFFP_SLV	1.182	SLV 11	Si
R_SLV	0	SLV 5	No

## Maschio 220

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.763	-4.859	-13.143	-4.859	L2	Z medio 313 cm	0.62	0.3	2.74	2.74	2.74			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 75	0.39	-72	1.3595	387	11.7133	8.616	Si
SLU 75	2.89	-113.31	6.8152	609	8.8566	1.3	Si
SLU 76	0.39	-72.05	1.3881	387	11.7142	8.439	Si
SLU 76	2.89	-113.83	6.8947	612	8.776	1.273	Si
SLU 77	0.39	-73.75	1.3268	396	11.734	8.844	Si
SLU 77	2.89	-116.2	6.9981	625	8.3959	1.2	Si
SLU 80	0.39	-73.8	1.3725	397	11.7344	8.55	Si
SLU 80	2.89	-116.85	7.101	628	8.2873	1.167	Si
SLU 84	0.39	-74.33	1.321	400	11.7381	8.885	Si
SLU 84	2.89	-117.74	7.1131	633	8.1367	1.144	Si
SLU 78	0.39	-73.74	1.3781	396	11.7339	8.515	Si
SLU 78	2.89	-116.59	7.0683	627	8.3308	1.179	Si
SLU 79	0.39	-73.81	1.3213	397	11.7345	8.881	Si
SLU 79	2.89	-116.46	7.0308	626	8.3528	1.188	Si
SLU 83	0.39	-74.34	1.2698	400	11.7381	9.244	Si
SLU 83	2.89	-117.34	7.0429	631	8.2036	1.165	Si
SLU 81	0.39	-72.6	1.2512	390	11.7219	9.369	Si
SLU 81	2.89	-114.06	6.7899	613	8.7396	1.287	Si
SLU 82	0.39	-72.59	1.3024	390	11.7217	9	Si
SLU 82	2.89	-114.46	6.8601	615	8.6778	1.265	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 11	0.39	-15.52	-0.135	83	4.4822	33.193	Si
SLV 11	2.89	14.11	-4.3295	0	0	0	No, Trazione
SLV 14	0.39	-93.8	6.2195	504	17.0768	2.746	Si
SLV 14	2.89	7.21	-11.7952	0	0	0	No, Trazione
SLV 4	0.39	-7.71	-4.198	0	0	0	No, e>l/2
SLV 4	2.89	-164.45	21.0957	884	14.0904	0.668	No, M>Mu
SLV 8	0.39	2.36	-2.813	0	0	0	No, Trazione
SLV 8	2.89	-48.45	6.2059	260	11.817	1.904	Si
SLV 12	0.39	-15.52	-0.135	83	4.4822	33.193	Si
SLV 12	2.89	14.11	-4.3295	0	0	0	No, Trazione
SLV 3	0.39	-7.71	-4.198	0	0	0	No, e>l/2
SLV 3	2.89	-164.45	21.0957	884	14.0904	0.668	No, M>Mu
SLV 15	0.39	-67.3	4.7286	362	14.6846	3.105	Si
SLV 15	2.89	44.08	-14.0224	0	0	0	No, Trazione
SLV 16	0.39	-67.3	4.7286	362	14.6846	3.105	Si
SLV 16	2.89	44.08	-14.0224	0	0	0	No, Trazione
SLV 13	0.39	-93.8	6.2195	504	17.0768	2.746	Si
SLV 13	2.89	7.21	-11.7952	0	0	0	No, Trazione
SLV 7	0.39	2.36	-2.813	0	0	0	No, Trazione
SLV 7	2.89	-48.45	6.2059	260	11.817	1.904	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	0.39	-74.34	3.5	1.2698		400	0.62	108	20.15			5.75	Si
SLU 83	2.89	-117.34	-16.96	7.0429		631	0.62	108	20.15			1.19	Si
SLU 79	0.39	-73.81	3.49	1.3213		397	0.62	108	20.15			5.78	Si
SLU 79	2.89	-116.46	-16.9	7.0308		626	0.62	108	20.15			1.19	Si
SLU 84	0.39	-74.33	3.68	1.321		400	0.62	108	20.15			5.47	Si
SLU 84	2.89	-117.74	-17.2	7.1131		633	0.62	108	20.15			1.17	Si
SLU 80	0.39	-73.8	3.67	1.3725		397	0.62	108	20.15			5.5	Si
SLU 80	2.89	-116.85	-17.14	7.101		628	0.62	108	20.15			1.18	Si
SLU 76	0.39	-72.05	3.76	1.3881		387	0.62	107	19.94			5.31	Si
SLU 76	2.89	-113.83	-16.72	6.8947		612	0.62	108	20.15			1.21	Si
SLU 78	0.39	-73.74	3.68	1.3781		396	0.62	108	20.15			5.47	Si
SLU 78	2.89	-116.59	-17.06	7.0683		627	0.62	108	20.15			1.18	Si
SLU 77	0.39	-73.75	3.5	1.3268		396	0.62	108	20.15			5.76	Si
SLU 77	2.89	-116.2	-16.82	6.9981		625	0.62	108	20.15			1.2	Si
SLU 75	0.39	-72	3.65	1.3595		387	0.62	107	19.93			5.46	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	2.89	-113.31	-16.48	6.8152		609	0.62	108	20.15			1.22	Si
SLU 82	0.39	-72.59	3.65	1.3024		390	0.62	108	20.01			5.48	Si
SLU 82	2.89	-114.46	-16.62	6.8601		615	0.62	108	20.15			1.21	Si
SLU 63	0.39	-70.74	3.51	1.257		380	0.62	106	19.77			5.63	Si
SLU 63	2.89	-112.2	-16.51	6.7966		603	0.62	108	20.15			1.22	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	0.39	-67.3	4.41	4.7286		362	0.62	156	28.96			6.57	Si
SLV 15	2.89	44.08	47.96	-14.0224		0	0	83	0			0	No, Vu<V
SLV 14	0.39	-93.8	6.11	6.2195		504	0.62	163	30.23			4.95	Si
SLV 14	2.89	7.21	42.58	-11.7952		0	0	83	0			0	No, Vu<V
SLV 11	0.39	-15.52	0.52	-0.135		83	0.62	100	18.6			35.54	Si
SLV 11	2.89	14.11	14.69	-4.3295		0	0	83	0			0	No, Vu<V
SLV 12	0.39	-15.52	0.52	-0.135		83	0.62	100	18.6			35.54	Si
SLV 12	2.89	14.11	14.69	-4.3295		0	0	83	0			0	No, Vu<V
SLV 7	0.39	2.36	-1.1	-2.813		0	0	83	0			0	No, Vu<V
SLV 7	2.89	-48.45	-19.21	6.2059		296	0.5457	143	23.33			1.21	Si
SLV 4	0.39	-7.71	-1.01	-4.198		0	0	83	0			0	No, Vu<V
SLV 4	2.89	-164.45	-65.04	21.0957		1006	0.5452	163	26.58			0.41	No, Vu<V
SLV 13	0.39	-93.8	6.11	6.2195		504	0.62	163	30.23			4.95	Si
SLV 13	2.89	7.21	42.58	-11.7952		0	0	83	0			0	No, Vu<V
SLV 8	0.39	2.36	-1.1	-2.813		0	0	83	0			0	No, Vu<V
SLV 8	2.89	-48.45	-19.21	6.2059		296	0.5457	143	23.33			1.21	Si
SLV 16	0.39	-67.3	4.41	4.7286		362	0.62	156	28.96			6.57	Si
SLV 16	2.89	44.08	47.96	-14.0224		0	0	83	0			0	No, Vu<V
SLV 3	0.39	-7.71	-1.01	-4.198		0	0	83	0			0	No, Vu<V
SLV 3	2.89	-164.45	-65.04	21.0957		1006	0.5452	163	26.58			0.41	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1.76 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.28	29	-5.41	0.301	0.7915	2.63	Si
SLV 11	1438	0.28	29	-5.41	0.301	0.7915	2.63	Si
SLV 7	1438	0.28	95	-17.67	0.301	2.4444	8.12	Si
SLV 8	1438	0.28	95	-17.67	0.301	2.4444	8.12	Si
SLV 15	1438	0.28	155	-28.91	0.301	3.7853	12.57	Si
SLV 16	1438	0.28	155	-28.91	0.301	3.7853	12.57	Si
SLV 13	1438	0.28	330	-61.33	0.301	6.7168	22.31	Si
SLV 14	1438	0.28	330	-61.33	0.301	6.7168	22.31	Si
SLV 4	1438	0.28	375	-69.79	0.301	7.254	24.1	Si
SLV 3	1438	0.28	375	-69.79	0.301	7.254	24.1	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezziera = 1.76 Wa = 0.0005 Ta = 0.0418

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	6.94	-15.52	-0.28	0	0	0	0	5.00872	No, Trazione
SLV 7	-31.52	2.36	-0.12	0	0	0	0	5.00872	No, Trazione
SLV 15	17.28	-67.3	-0.32	0	0	0	0	4.89658	No, Trazione
SLV 11	6.94	-15.52	-0.28	0	0	0	0	5.00872	No, Trazione
SLV 8	-31.52	2.36	-0.12	0	0	0	0	5.00872	No, Trazione
SLV 16	17.28	-67.3	-0.32	0	0	0	0	4.89658	No, Trazione
SLV 5	-130.18	-85.99	0.3	0.054	13.976	0.984	0.80315	5.00872	No
SLV 6	-130.18	-85.99	0.3	0.054	13.976	0.984	0.80315	5.00872	No
SLV 1	-140.52	-34.21	0.34	0.054	15.029	0.985	0.7989	4.89658	No
SLV 2	-140.52	-34.21	0.34	0.054	15.029	0.985	0.7989	4.89658	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.144	SLU 84	Si
V_SLU	1.171	SLU 84	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.629	SLV 11	Si
R_SLV	0	SLV 16	No

## Maschio 221

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.743	-4.859	-11.013	-4.859	L2	Z medio 313 cm	0.73	0.3	2.74	2.74	2.74			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	0.39	-77.37	0.6779	353	15.9925	23.592	Si
SLU 76	2.89	-115.07	-5.1158	525	14.9092	2.914	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	0.39	-76.45	1.0401	349	15.9457	15.331	Si
SLU 82	2.89	-115.35	-5.1974	527	14.8793	2.863	Si
SLU 84	0.39	-79.35	1.0147	362	16.0799	15.847	Si
SLU 84	2.89	-119.16	-5.2853	544	14.4419	2.732	Si
SLU 81	0.39	-76.42	1.1677	349	15.9446	13.655	Si
SLU 81	2.89	-115.15	-5.1133	526	14.9006	2.914	Si
SLU 78	0.39	-79.96	0.7427	365	16.1037	21.681	Si
SLU 78	2.89	-118.35	-5.153	540	14.5398	2.822	Si
SLU 79	0.39	-80.24	0.8652	366	16.1143	18.625	Si
SLU 79	2.89	-118.54	-5.0634	541	14.5166	2.867	Si
SLU 77	0.39	-79.93	0.8704	365	16.1029	18.501	Si
SLU 77	2.89	-118.15	-5.0688	539	14.5636	2.873	Si
SLU 80	0.39	-80.26	0.7376	366	16.1151	21.849	Si
SLU 80	2.89	-118.74	-5.1476	542	14.4925	2.815	Si
SLU 83	0.39	-79.33	1.1423	362	16.079	14.076	Si
SLU 83	2.89	-118.96	-5.2011	543	14.4664	2.781	Si
SLU 75	0.39	-77.05	0.7681	352	15.9768	20.8	Si
SLU 75	2.89	-114.54	-5.0651	523	14.9645	2.954	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	0.39	2.37	3.0304	0	0	0	No, Trazione
SLV 11	2.89	-39.73	-5.2007	181	12.3472	2.374	Si
SLV 1	0.39	-98.09	-6.5321	448	22.6786	3.472	Si
SLV 1	2.89	3.44	16.767	0	0	0	No, Trazione
SLV 7	0.39	-15.39	-1.0225	70	5.2942	5.178	Si
SLV 7	2.89	22.65	7.7779	0	0	0	No, Trazione
SLV 8	0.39	-15.39	-1.0225	70	5.2942	5.178	Si
SLV 8	2.89	22.65	7.7779	0	0	0	No, Trazione
SLV 15	0.39	-10.3	7.338	0	0	0	No, $e \geq l/2$
SLV 15	2.89	-162.02	-23.6554	740	23.3307	0.986	No, $M > Mu$
SLV 4	0.39	-69.48	-6.1715	317	18.7755	3.042	Si
SLV 4	2.89	45.89	19.6066	0	0	0	No, Trazione
SLV 3	0.39	-69.48	-6.1715	317	18.7755	3.042	Si
SLV 3	2.89	45.89	19.6066	0	0	0	No, Trazione
SLV 16	0.39	-10.3	7.338	0	0	0	No, $e \geq l/2$
SLV 16	2.89	-162.02	-23.6554	740	23.3307	0.986	No, $M > Mu$
SLV 2	0.39	-98.09	-6.5321	448	22.6786	3.472	Si
SLV 2	2.89	3.44	16.767	0	0	0	No, Trazione
SLV 12	0.39	2.37	3.0304	0	0	0	No, Trazione
SLV 12	2.89	-39.73	-5.2007	181	12.3472	2.374	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	0.39	-80.24	3.02	0.8652		366	0.73	104	22.87			7.57	Si
SLU 79	2.89	-118.54	13.33	-5.0634		541	0.73	108	23.73			1.78	Si
SLU 75	0.39	-77.05	2.83	0.7681		352	0.73	102	22.44			7.93	Si
SLU 75	2.89	-114.54	13.26	-5.0651		523	0.73	108	23.73			1.79	Si
SLU 77	0.39	-79.93	3.04	0.8704		365	0.73	104	22.82			7.5	Si
SLU 77	2.89	-118.15	13.32	-5.0688		539	0.73	108	23.73			1.78	Si
SLU 83	0.39	-79.33	3.43	1.1423		362	0.73	104	22.74			6.62	Si
SLU 83	2.89	-118.96	13.73	-5.2011		543	0.73	108	23.73			1.73	Si
SLU 82	0.39	-76.45	3.22	1.0401		349	0.73	102	22.36			6.94	Si
SLU 82	2.89	-115.35	13.68	-5.1974		527	0.73	108	23.73			1.73	Si
SLU 84	0.39	-79.35	3.12	1.0147		362	0.73	104	22.75			7.29	Si
SLU 84	2.89	-119.16	13.91	-5.2853		544	0.73	108	23.73			1.71	Si
SLU 80	0.39	-80.26	2.71	0.7376		366	0.73	104	22.87			8.44	Si
SLU 80	2.89	-118.74	13.5	-5.1476		542	0.73	108	23.73			1.76	Si
SLU 81	0.39	-76.42	3.53	1.1677		349	0.73	102	22.36			6.33	Si
SLU 81	2.89	-115.15	13.5	-5.1133		526	0.73	108	23.73			1.76	Si
SLU 76	0.39	-77.37	2.6	0.6779		353	0.73	103	22.48			8.65	Si
SLU 76	2.89	-115.07	13.39	-5.1158		525	0.73	108	23.73			1.77	Si
SLU 78	0.39	-79.96	2.73	0.7427		365	0.73	104	22.83			8.36	Si
SLU 78	2.89	-118.35	13.5	-5.153		540	0.73	108	23.73			1.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	0.39	-10.3	7.64	7.338		0	0	83	0			0	No, $Vu < V$
SLV 16	2.89	-162.02	60.79	-23.6554		822	0.657	163	32.03			0.53	No, $Vu < V$
SLV 12	0.39	2.37	-1.93	3.0304		0	0	83	0			0	No, $Vu < V$
SLV 12	2.89	-39.73	13.56	-5.2007		189	0.7022	121	25.5			1.88	Si
SLV 2	0.39	-98.09	-3.47	-6.5321		448	0.73	163	35.59			10.25	Si
SLV 2	2.89	3.44	-42.76	16.767		0	0	83	0			0	No, $Vu < V$
SLV 3	0.39	-69.48	-7.22	-6.1715		317	0.73	147	32.15			4.45	Si
SLV 3	2.89	45.89	-50.01	19.6066		0	0	83	0			0	No, $Vu < V$
SLV 8	0.39	-15.39	-6.39	-1.0225		70	0.73	97	21.33			3.34	Si
SLV 8	2.89	22.65	-19.68	7.7779		0	0	83	0			0	No, $Vu < V$
SLV 7	0.39	-15.39	-6.39	-1.0225		70	0.73	97	21.33			3.34	Si
SLV 7	2.89	22.65	-19.68	7.7779		0	0	83	0			0	No, $Vu < V$
SLV 4	0.39	-69.48	-7.22	-6.1715		317	0.73	147	32.15			4.45	Si
SLV 4	2.89	45.89	-50.01	19.6066		0	0	83	0			0	No, $Vu < V$
SLV 1	0.39	-98.09	-3.47	-6.5321		448	0.73	163	35.59			10.25	Si
SLV 1	2.89	3.44	-42.76	16.767		0	0	83	0			0	No, $Vu < V$
SLV 15	0.39	-10.3	7.64	7.338		0	0	83	0			0	No, $Vu < V$
SLV 15	2.89	-162.02	60.79	-23.6554		822	0.657	163	32.03			0.53	No, $Vu < V$
SLV 11	0.39	2.37	-1.93	3.0304		0	0	83	0			0	No, $Vu < V$
SLV 11	2.89	-39.73	13.56	-5.2007		189	0.7022	121	25.5			1.88	Si



## Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1.76 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.28	16	-3.56	0.3544	0.5276	1.49	Si
SLV 7	1438	0.28	16	-3.56	0.3544	0.5276	1.49	Si
SLV 12	1438	0.28	86	-18.92	0.3544	2.6373	7.44	Si
SLV 11	1438	0.28	86	-18.92	0.3544	2.6373	7.44	Si
SLV 3	1438	0.28	128	-27.94	0.3544	3.7531	10.59	Si
SLV 4	1438	0.28	128	-27.94	0.3544	3.7531	10.59	Si
SLV 1	1438	0.28	293	-64.18	0.3544	7.3183	20.65	Si
SLV 2	1438	0.28	293	-64.18	0.3544	7.3183	20.65	Si
SLV 16	1438	0.28	361	-79.12	0.3544	8.359	23.58	Si
SLV 15	1438	0.28	361	-79.12	0.3544	8.359	23.58	Si

## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1.76 Wa = 0.0005 Ta = 0.0418

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	11.25	-15.39	-0.24	0	0	0	0	5.00872	No, Trazione
SLV 3	16.19	-69.48	-0.37	0	0	0	0	4.89658	No, Trazione
SLV 11	-27.19	2.37	-0.04	0	0	0	0	5.00872	No, Trazione
SLV 12	-27.19	2.37	-0.04	0	0	0	0	5.00872	No, Trazione
SLV 7	11.25	-15.39	-0.24	0	0	0	0	5.00872	No, Trazione
SLV 4	16.19	-69.48	-0.37	0	0	0	0	4.89658	No, Trazione
SLV 9	-141.22	-92.99	0.24	0.055	15.227	0.983	0.81554	5.00872	No
SLV 10	-141.22	-92.99	0.24	0.055	15.227	0.983	0.81554	5.00872	No
SLV 14	-146.16	-38.9	0.37	0.054	15.73	0.983	0.80228	4.89658	No
SLV 13	-146.16	-38.9	0.37	0.054	15.73	0.983	0.80228	4.89658	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.732	SLU 84	Si
V_SLU	1.705	SLU 84	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 1	No
PFFP_SLV	1.489	SLV 7	Si
R_SLV	0	SLV 12	No

## Maschio 222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-4.859	-12.933	-4.859	Z medio 313 cm	Z medio 656 cm	0.82	0.3	3.43	3.43	3.43			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 59	4.08	-94.01	1.8932	382	20.463	10.808	Si
SLU 59	6.08	-84.5	3.0812	343	20.0371	6.503	Si
SLU 83	4.08	-98.72	1.9497	401	20.5368	10.533	Si
SLU 83	6.08	-88.17	3.1238	358	20.2453	6.481	Si
SLU 84	4.08	-99.06	1.9792	403	20.5387	10.377	Si
SLU 84	6.08	-88.29	3.1259	359	20.2512	6.479	Si
SLU 79	4.08	-98.73	1.9823	401	20.5369	10.36	Si
SLU 79	6.08	-88.96	3.2061	362	20.2828	6.326	Si
SLU 80	4.08	-99.07	2.0118	403	20.5387	10.209	Si
SLU 80	6.08	-89.08	3.2081	362	20.2883	6.324	Si
SLU 56	4.08	-93.5	1.8639	380	20.4495	10.971	Si
SLU 56	6.08	-83.97	3.0324	341	20.0024	6.596	Si
SLU 57	4.08	-93.84	1.8934	381	20.4586	10.805	Si
SLU 57	6.08	-84.09	3.0344	342	20.0104	6.594	Si
SLU 77	4.08	-98.56	1.9825	401	20.5358	10.359	Si
SLU 77	6.08	-88.55	3.1593	360	20.2636	6.414	Si
SLU 58	4.08	-93.67	1.8637	381	20.4542	10.975	Si
SLU 58	6.08	-84.38	3.0791	343	20.0293	6.505	Si
SLU 78	4.08	-98.9	2.012	402	20.5379	10.208	Si
SLU 78	6.08	-88.67	3.1614	360	20.2693	6.412	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	4.08	-71.28	17.4007	290	22.2958	1.281	Si
SLV 15	6.08	25.05	-17.78	0	0	0	No, Trazione
SLV 11	4.08	-10.95	4.1163	45	4.3279	1.051	Si
SLV 11	6.08	16.86	-4.5435	0	0	0	No, Trazione
SLV 16	4.08	-71.28	17.4007	290	22.2958	1.281	Si
SLV 16	6.08	25.05	-17.78	0	0	0	No, Trazione
SLV 13	4.08	-109.04	18.7615	443	28.4908	1.519	Si
SLV 13	6.08	-8.02	-17.3908	0	0	0	No, e>l/2
SLV 3	4.08	-24.8	-16.0187	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	6.08	-108.56	21.3356	441	28.4362	1.333	Si
SLV 14	4.08	-109.04	18.7615	443	28.4908	1.519	Si
SLV 14	6.08	-8.02	-17.3908	0	0	0	No, $e>l/2$
SLV 8	4.08	2.99	-5.9095	0	0	0	No, Trazione
SLV 8	6.08	-23.22	7.1911	94	8.7856	1.222	Si
SLV 12	4.08	-10.95	4.1163	45	4.3279	1.051	Si
SLV 12	6.08	16.86	-4.5435	0	0	0	No, Trazione
SLV 7	4.08	2.99	-5.9095	0	0	0	No, Trazione
SLV 7	6.08	-23.22	7.1911	94	8.7856	1.222	Si
SLV 4	4.08	-24.8	-16.0187	0	0	0	No, $e>l/2$
SLV 4	6.08	-108.56	21.3356	441	28.4362	1.333	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	4.08	-98.9	-1.51	2.012		402	0.82	108	26.65			17.6	Si
SLU 78	6.08	-88.67	-3.21	3.1614		360	0.82	104	25.49			7.93	Si
SLU 37	4.08	-81.41	-1.35	1.6275		331	0.82	100	24.52			18.22	Si
SLU 37	6.08	-74.02	-3.1	2.6942		301	0.82	96	23.54			7.59	Si
SLU 58	4.08	-93.67	-1.76	1.8637		381	0.82	106	26.16			14.88	Si
SLU 58	6.08	-84.38	-3.14	3.0791		343	0.82	101	24.92			7.94	Si
SLU 35	4.08	-81.24	-1.27	1.6277		330	0.82	100	24.5			19.31	Si
SLU 35	6.08	-73.61	-2.98	2.6475		299	0.82	95	23.48			7.88	Si
SLU 80	4.08	-99.07	-1.59	2.0118		403	0.82	108	26.65			16.74	Si
SLU 80	6.08	-89.08	-3.33	3.2081		362	0.82	104	25.54			7.67	Si
SLU 36	4.08	-81.58	-1.22	1.6572		332	0.82	100	24.54			20.17	Si
SLU 36	6.08	-73.74	-2.94	2.6495		300	0.82	96	23.5			8	Si
SLU 77	4.08	-98.56	-1.57	1.9825		401	0.82	108	26.65			17.02	Si
SLU 77	6.08	-88.55	-3.26	3.1593		360	0.82	104	25.47			7.82	Si
SLU 79	4.08	-98.73	-1.64	1.9823		401	0.82	108	26.65			16.22	Si
SLU 79	6.08	-88.96	-3.38	3.2061		362	0.82	104	25.53			7.56	Si
SLU 38	4.08	-81.75	-1.29	1.657		332	0.82	100	24.57			18.98	Si
SLU 38	6.08	-74.15	-3.06	2.6962		301	0.82	96	23.55			7.71	Si
SLU 16	4.08	-76.36	-1.46	1.5089		310	0.82	97	23.85			16.33	Si
SLU 16	6.08	-69.45	-2.86	2.5673		282	0.82	93	22.93			8.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	4.08	-10.95	5.68	4.1163		355	0.1028	154	4.76			0.84	No, $V_u < V$
SLV 12	6.08	16.86	18.53	-4.5435		0	0	83	0			0	No, $V_u < V$
SLV 13	4.08	-109.04	52.04	18.7615		509	0.7139	163	34.8			0.67	No, $V_u < V$
SLV 13	6.08	-8.02	47.16	-17.3908		0	0	83	0			0	No, $V_u < V$
SLV 11	4.08	-10.95	5.68	4.1163		355	0.1028	154	4.76			0.84	No, $V_u < V$
SLV 11	6.08	16.86	18.53	-4.5435		0	0	83	0			0	No, $V_u < V$
SLV 4	4.08	-24.8	-53.78	-16.0187		0	0	83	0			0	No, $V_u < V$
SLV 4	6.08	-108.56	-50.02	21.3356		565	0.6405	163	31.22			0.62	No, $V_u < V$
SLV 7	4.08	2.99	-24.52	-5.9095		0	0	83	0			0	No, $V_u < V$
SLV 7	6.08	-23.22	-11.51	7.1911		257	0.301	135	12.17			1.06	Si
SLV 3	4.08	-24.8	-53.78	-16.0187		0	0	83	0			0	No, $V_u < V$
SLV 3	6.08	-108.56	-50.02	21.3356		565	0.6405	163	31.22			0.62	No, $V_u < V$
SLV 15	4.08	-71.28	46.91	17.4007		477	0.4977	163	24.26			0.52	No, $V_u < V$
SLV 15	6.08	25.05	50.12	-17.78		0	0	83	0			0	No, $V_u < V$
SLV 16	4.08	-71.28	46.91	17.4007		477	0.4977	163	24.26			0.52	No, $V_u < V$
SLV 16	6.08	25.05	50.12	-17.78		0	0	83	0			0	No, $V_u < V$
SLV 14	4.08	-109.04	52.04	18.7615		509	0.7139	163	34.8			0.67	No, $V_u < V$
SLV 14	6.08	-8.02	47.16	-17.3908		0	0	83	0			0	No, $V_u < V$
SLV 8	4.08	2.99	-24.52	-5.9095		0	0	83	0			0	No, $V_u < V$
SLV 8	6.08	-23.22	-11.51	7.1911		257	0.301	135	12.17			1.06	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 4.845 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.35	0	-3.29	0.7673	0	0	No, $e>t/2$
SLV 12	1438	0.35	0	-3.29	0.7673	0	0	No, $e>t/2$
SLV 7	1438	0.35	38	-9.45	0.7673	1.3727	1.79	Si
SLV 8	1438	0.35	38	-9.45	0.7673	1.3727	1.79	Si
SLV 16	1438	0.35	154	-37.91	0.7673	4.9695	6.48	Si
SLV 15	1438	0.35	154	-37.91	0.7673	4.9695	6.48	Si
SLV 4	1438	0.35	238	-58.43	0.7673	7.0606	9.2	Si
SLV 3	1438	0.35	238	-58.43	0.7673	7.0606	9.2	Si
SLV 13	1438	0.35	300	-73.74	0.7673	8.3474	10.88	Si
SLV 14	1438	0.35	300	-73.74	0.7673	8.3474	10.88	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 4.845 Wa = 0.0005 Ta = 0.0655

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	$\alpha_{lim}$	Verifica
SLV 11	14.95	7.93	0.14	0	0	0	0	8.72212	No, Trazione
SLV 12	14.95	7.93	0.14	0	0	0	0	8.72212	No, Trazione
SLV 15	13.5	17.99	0.05	0	0	0	0	8.41059	No, Trazione
SLV 16	13.5	17.99	0.05	0	0	0	0	8.41059	No, Trazione
SLV 5	-109.29	-137.87	-0.15	0.045	12.315	0.971	0.67856	8.72212	No
SLV 6	-109.29	-137.87	-0.15	0.045	12.315	0.971	0.67856	8.72212	No
SLV 10	-81.58	-97.59	-0.14	0.046	9.494	0.963	0.69317	8.72212	No
SLV 9	-81.58	-97.59	-0.14	0.046	9.494	0.963	0.69317	8.72212	No
SLV 1	-107.83	-147.94	-0.06	0.046	12.167	0.97	0.69047	8.41059	No
SLV 2	-107.83	-147.94	-0.06	0.046	12.167	0.97	0.69047	8.41059	No





Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.324	SLU 80	Si
V_SLU	7.561	SLU 79	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0	SLV 16	No

## Maschio 223

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.933	-4.859	-11.003	-4.859	Z medio 313 cm	Z medio 656 cm	0.93	0.3	3.43	3.43	3.43			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 75	4.08	-101.47	-2.0057	364	26.1157	13.02	Si
SLU 75	6.08	-88.7	-4.7863	318	25.1463	5.254	Si
SLU 74	4.08	-101.3	-1.9519	363	26.1072	13.375	Si
SLU 74	6.08	-88.59	-4.7877	318	25.1351	5.25	Si
SLU 84	4.08	-105.09	-2.028	377	26.269	12.953	Si
SLU 84	6.08	-92.38	-5.016	331	25.4943	5.083	Si
SLU 83	4.08	-104.92	-1.9742	376	26.2631	13.303	Si
SLU 83	6.08	-92.27	-5.0173	331	25.4848	5.079	Si
SLU 80	4.08	-106.49	-2.2061	382	26.3139	11.928	Si
SLU 80	6.08	-92.89	-4.8766	333	25.538	5.237	Si
SLU 82	4.08	-100.67	-1.8576	361	26.0745	14.037	Si
SLU 82	6.08	-88.72	-4.9183	318	25.1488	5.113	Si
SLU 77	4.08	-105.72	-2.1223	379	26.2903	12.388	Si
SLU 77	6.08	-92.25	-4.8853	331	25.4826	5.216	Si
SLU 79	4.08	-106.32	-2.1523	381	26.3089	12.224	Si
SLU 79	6.08	-92.78	-4.8779	333	25.5287	5.233	Si
SLU 78	4.08	-105.89	-2.1761	380	26.2957	12.084	Si
SLU 78	6.08	-92.36	-4.884	331	25.4922	5.22	Si
SLU 81	4.08	-100.5	-1.8038	360	26.0655	14.45	Si
SLU 81	6.08	-88.61	-4.9196	318	25.1376	5.11	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 4	4.08	-77.83	-20.2623	279	27.9273	1.378	Si
SLV 4	6.08	19.92	20.4161	0	0	0	No, Trazione
SLV 16	4.08	-25.73	18.0103	0	0	0	No, e>l/2
SLV 16	6.08	-108.69	-24.1842	390	34.425	1.423	Si
SLV 3	4.08	-77.83	-20.2623	279	27.9273	1.378	Si
SLV 3	6.08	19.92	20.4161	0	0	0	No, Trazione
SLV 2	4.08	-115.16	-20.7765	413	35.4583	1.707	Si
SLV 2	6.08	-13.68	17.6409	0	0	0	No, e>l/2
SLV 12	4.08	-0.41	5.2148	0	0	0	No, e>l/2
SLV 12	6.08	-24.47	-5.3363	88	10.5626	1.979	Si
SLV 15	4.08	-25.73	18.0103	0	0	0	No, e>l/2
SLV 15	6.08	-108.69	-24.1842	390	34.425	1.423	Si
SLV 11	4.08	-0.41	5.2148	0	0	0	No, e>l/2
SLV 11	6.08	-24.47	-5.3363	88	10.5626	1.979	Si
SLV 7	4.08	-16.04	-6.267	58	7.1087	1.134	Si
SLV 7	6.08	14.11	8.0438	0	0	0	No, Trazione
SLV 8	4.08	-16.04	-6.267	58	7.1087	1.134	Si
SLV 8	6.08	14.11	8.0438	0	0	0	No, Trazione
SLV 1	4.08	-115.16	-20.7765	413	35.4583	1.707	Si
SLV 1	6.08	-13.68	17.6409	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	4.08	-105.72	-0.01	-2.1223		379	0.93	106	29.6			1000	Si
SLU 77	6.08	-92.25	4.26	-4.8853		331	0.93	100	27.8			6.53	Si
SLU 42	4.08	-86.76	0.24	-1.6487		311	0.93	97	27.07			112.17	Si
SLU 42	6.08	-76.61	3.94	-4.2045		275	0.93	92	25.71			6.53	Si
SLU 41	4.08	-86.59	0.29	-1.5949		310	0.93	97	27.04			93.63	Si
SLU 41	6.08	-76.5	4.01	-4.2059		274	0.93	92	25.7			6.41	Si
SLU 83	4.08	-104.92	0.32	-1.9742		376	0.93	106	29.49			93.23	Si
SLU 83	6.08	-92.27	4.54	-5.0173		331	0.93	100	27.8			6.13	Si
SLU 79	4.08	-106.32	-0.04	-2.1523		381	0.93	106	29.68			761.08	Si
SLU 79	6.08	-92.78	4.27	-4.8779		333	0.93	100	27.87			6.52	Si
SLU 81	4.08	-100.5	0.52	-1.8038		360	0.93	104	28.9			55.18	Si
SLU 81	6.08	-88.61	4.41	-4.9196		318	0.93	98	27.31			6.2	Si
SLU 39	4.08	-82.17	0.5	-1.4246		295	0.93	95	26.46			53.31	Si
SLU 39	6.08	-72.84	3.88	-4.1082		261	0.93	90	25.21			6.51	Si
SLU 84	4.08	-105.09	0.27	-2.028		377	0.93	106	29.51			109.81	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	6.08	-92.38	4.47	-5.016		331	0.93	100	27.82			6.23	Si
SLU 82	6.08	-100.67	0.48	-1.8576		361	0.93	104	28.92			60.74	Si
SLU 82	4.08	-88.72	4.33	-4.9183		318	0.93	98	27.33			6.31	Si
SLU 62	4.08	-99.8	0.36	-1.8873		358	0.93	103	28.81			80.59	Si
SLU 62	6.08	-87.71	4.17	-4.7311		314	0.93	97	27.19			6.51	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	4.08	-0.41	21.95	5.2148		0	0	83	0			0	No, Vu<V
SLV 12	6.08	-24.47	16.81	-5.3363		110	0.7408	105	23.41			1.39	Si
SLV 8	4.08	-16.04	-6.44	-6.267		240	0.223	131	8.78			1.36	Si
SLV 8	6.08	14.11	-16.85	8.0438		0	0	83	0			0	No, Vu<V
SLV 1	4.08	-115.16	-49.46	-20.7765		450	0.8537	163	41.62			0.84	No, Vu<V
SLV 1	6.08	-13.68	-52.78	17.6409		0	0	83	0			0	No, Vu<V
SLV 15	4.08	-25.73	49.72	18.0103		0	0	83	0			0	No, Vu<V
SLV 15	6.08	-108.69	57.88	-24.1842		498	0.7274	163	35.46			0.61	No, Vu<V
SLV 16	4.08	-25.73	49.72	18.0103		0	0	83	0			0	No, Vu<V
SLV 16	6.08	-108.69	57.88	-24.1842		498	0.7274	163	35.46			0.61	No, Vu<V
SLV 11	4.08	-0.41	21.95	5.2148		0	0	83	0			0	No, Vu<V
SLV 11	6.08	-24.47	16.81	-5.3363		110	0.7408	105	23.41			1.39	Si
SLV 4	4.08	-77.83	-44.89	-20.2623		423	0.6139	163	29.93			0.67	No, Vu<V
SLV 4	6.08	19.92	-54.32	20.4161		0	0	83	0			0	No, Vu<V
SLV 3	4.08	-77.83	-44.89	-20.2623		423	0.6139	163	29.93			0.67	No, Vu<V
SLV 3	6.08	19.92	-54.32	20.4161		0	0	83	0			0	No, Vu<V
SLV 2	4.08	-115.16	-49.46	-20.7765		450	0.8537	163	41.62			0.84	No, Vu<V
SLV 2	6.08	-13.68	-52.78	17.6409		0	0	83	0			0	No, Vu<V
SLV 7	4.08	-16.04	-6.44	-6.267		240	0.223	131	8.78			1.36	Si
SLV 7	6.08	14.11	-16.85	8.0438		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 4.845 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.35	38	-10.57	0.8701	1.5356	1.76	Si
SLV 7	1438	0.35	38	-10.57	0.8701	1.5356	1.76	Si
SLV 12	1438	0.35	44	-12.24	0.8701	1.7705	2.03	Si
SLV 11	1438	0.35	44	-12.24	0.8701	1.7705	2.03	Si
SLV 4	1438	0.35	177	-49.25	0.8701	6.3197	7.26	Si
SLV 3	1438	0.35	177	-49.25	0.8701	6.3197	7.26	Si
SLV 15	1438	0.35	197	-54.84	0.8701	6.9024	7.93	Si
SLV 16	1438	0.35	197	-54.84	0.8701	6.9024	7.93	Si
SLV 1	1438	0.35	301	-84.08	0.8701	9.5011	10.92	Si
SLV 2	1438	0.35	301	-84.08	0.8701	9.5011	10.92	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 4.845 Wa = 0.0005 Ta = 0.0655

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-1.45	2.68	0.09	0	0	0	0	8.41059	No, Trazione
SLV 7	5.09	7.83	0.18	0	0	0	0	8.72212	No, Trazione
SLV 8	5.09	7.83	0.18	0	0	0	0	8.72212	No, Trazione
SLV 3	-1.45	2.68	0.09	0	0	0	0	8.41059	No, Trazione
SLV 10	-102.72	-142.75	-0.19	0.045	11.806	0.966	0.68367	8.72212	No
SLV 9	-102.72	-142.75	-0.19	0.045	11.806	0.966	0.68367	8.72212	No
SLV 6	-82.16	-111.4	-0.16	0.046	9.713	0.959	0.69833	8.72212	No
SLV 5	-82.16	-111.4	-0.16	0.046	9.713	0.959	0.69833	8.72212	No
SLV 13	-96.18	-137.61	-0.1	0.046	11.14	0.964	0.69982	8.41059	No
SLV 14	-96.18	-137.61	-0.1	0.046	11.14	0.964	0.69982	8.41059	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.079	SLU 83	Si
V_SLU	6.126	SLU 83	Si
PF_SLV	0	SLV 8	No
V_SLV	0	SLV 1	No
PFFP_SLV	1.765	SLV 7	Si
R_SLV	0	SLV 8	No

## Maschio 224

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-4.859	-12.933	-4.859	Z medio 656 cm	Z medio 1009 cm	0.82	0.3	3.53	3.53	3.53			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	7.51	-69.55	2.3721	283	18.6202	7.85	Si
SLU 84	9.51	-50.69	1.8813	206	15.5275	8.254	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	7.51	-72.18	2.459	293	18.936	7.701	Si
SLU 79	9.51	-55.27	1.834	225	16.4127	8.949	Si
SLU 70	7.51	-67.48	2.3417	274	18.3519	7.837	Si
SLU 70	9.51	-51.1	1.6511	208	15.6104	9.455	Si
SLU 78	7.51	-71.59	2.4397	291	18.8673	7.733	Si
SLU 78	9.51	-53.88	1.8506	219	16.1516	8.728	Si
SLU 77	7.51	-71.69	2.4409	291	18.8793	7.735	Si
SLU 77	9.51	-54.2	1.813	220	16.2129	8.943	Si
SLU 83	7.51	-69.65	2.3732	283	18.6331	7.851	Si
SLU 83	9.51	-51.02	1.8437	207	15.593	8.458	Si
SLU 71	7.51	-68.07	2.361	277	18.4306	7.806	Si
SLU 71	9.51	-52.5	1.6345	213	15.8874	9.72	Si
SLU 80	7.51	-72.08	2.4579	293	18.9242	7.699	Si
SLU 80	9.51	-54.95	1.8716	223	16.3528	8.737	Si
SLU 72	7.51	-67.97	2.3599	276	18.4171	7.804	Si
SLU 72	9.51	-52.18	1.6721	212	15.8238	9.463	Si
SLU 69	7.51	-67.58	2.3429	275	18.3656	7.839	Si
SLU 69	9.51	-51.43	1.6135	209	15.6754	9.715	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	7.51	12.82	2.0862	0	0	0	No, Trazione
SLV 11	9.51	60.14	-1.2046	0	0	0	No, Trazione
SLV 15	7.51	-61.21	12.5261	249	19.9882	1.596	Si
SLV 15	9.51	50.03	-11.0817	0	0	0	No, Trazione
SLV 12	7.51	12.82	2.0862	0	0	0	No, Trazione
SLV 12	9.51	60.14	-1.2046	0	0	0	No, Trazione
SLV 7	7.51	34.49	-5.0138	0	0	0	No, Trazione
SLV 7	9.51	24.2	6.4093	0	0	0	No, Trazione
SLV 14	7.51	-103.01	14.3747	419	27.7633	1.931	Si
SLV 14	9.51	5.42	-11.9339	0	0	0	No, Trazione
SLV 3	7.51	10.99	-11.1405	0	0	0	No, Trazione
SLV 3	9.51	-69.77	14.298	284	21.9674	1.536	Si
SLV 4	7.51	10.99	-11.1405	0	0	0	No, Trazione
SLV 4	9.51	-69.77	14.298	284	21.9674	1.536	Si
SLV 8	7.51	34.49	-5.0138	0	0	0	No, Trazione
SLV 8	9.51	24.2	6.4093	0	0	0	No, Trazione
SLV 13	7.51	-103.01	14.3747	419	27.7633	1.931	Si
SLV 13	9.51	5.42	-11.9339	0	0	0	No, Trazione
SLD 16	7.51	-52.61	6.2738	214	17.7954	2.836	Si
SLD 16	9.51	2.97	-4.0528	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	7.51	-61.03	3	2.1056		248	0.82	89	21.8			7.28	Si
SLU 61	9.51	-42.38	0.09	1.7346		172	0.82	79	19.32			227.11	Si
SLU 65	7.51	-59.33	3.02	2.1035		241	0.82	88	21.58			7.14	Si
SLU 65	9.51	-41.07	0.31	1.5455		167	0.82	78	19.14			61.73	Si
SLU 75	7.51	-67.3	3.05	2.3119		274	0.82	92	22.64			7.43	Si
SLU 75	9.51	-48.43	0.16	1.7747		197	0.82	82	20.12			129.64	Si
SLU 31	7.51	-51.8	2.8	1.7842		211	0.82	84	20.57			7.35	Si
SLU 31	9.51	-35.66	0.13	1.4378		145	0.82	75	18.42			144.08	Si
SLU 73	7.51	-63.43	3.29	2.2015		258	0.82	90	22.13			6.73	Si
SLU 73	9.51	-43.84	0.18	1.745		178	0.82	79	19.51			106.24	Si
SLU 52	7.51	-59.2	2.98	2.0628		241	0.82	88	21.56			7.23	Si
SLU 52	9.51	-40.98	0.06	1.6742		167	0.82	78	19.13			300.76	Si
SLU 82	7.51	-65.26	3.3	2.2443		265	0.82	91	22.37			6.78	Si
SLU 82	9.51	-45.25	0.21	1.8054		184	0.82	80	19.7			96.04	Si
SLU 81	7.51	-65.37	3.15	2.2454		266	0.82	91	22.38			7.11	Si
SLU 81	9.51	-45.57	0.32	1.7678		185	0.82	80	19.74			61.97	Si
SLU 76	7.51	-67.72	3.03	2.3293		275	0.82	92	22.7			7.49	Si
SLU 76	9.51	-49.29	-0.03	1.8208		200	0.82	82	20.24			621.99	Si
SLU 40	7.51	-53.63	2.81	1.8269		218	0.82	85	20.82			7.41	Si
SLU 40	9.51	-37.06	0.15	1.4982		151	0.82	76	18.61			124.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	7.51	10.99	-45.2	-11.1405		0	0	83	0			0	No, Vu<V
SLV 4	9.51	-69.77	-37.08	14.298		378	0.6153	159	29.34			0.79	No, Vu<V
SLV 11	7.51	12.82	14.62	2.0862		0	0	83	0			0	No, Vu<V
SLV 11	9.51	60.14	10.86	-1.2046		0	0	83	0			0	No, Vu<V
SLV 13	7.51	-103.01	49.48	14.3747		423	0.8114	163	39.56			0.8	No, Vu<V
SLV 13	9.51	5.42	37.72	-11.9339		0	0	83	0			0	No, Vu<V
SLD 16	7.51	-52.61	21.97	6.2738		214	0.82	126	31.02			1.41	Si
SLD 16	9.51	2.97	16.13	-4.0528		0	0	83	0			0	No, Vu<V
SLV 15	7.51	-61.21	48.53	12.5261		331	0.6162	150	27.65			0.57	No, Vu<V
SLV 15	9.51	50.03	37.34	-11.0817		0	0	83	0			0	No, Vu<V
SLV 14	7.51	-103.01	49.48	14.3747		423	0.8114	163	39.56			0.8	No, Vu<V
SLV 14	9.51	5.42	37.72	-11.9339		0	0	83	0			0	No, Vu<V
SLV 7	7.51	34.49	-13.5	-5.0138		0	0	83	0			0	No, Vu<V
SLV 7	9.51	24.2	-11.47	6.4093		0	0	83	0			0	No, Vu<V
SLV 12	7.51	12.82	14.62	2.0862		0	0	83	0			0	No, Vu<V
SLV 12	9.51	60.14	10.86	-1.2046		0	0	83	0			0	No, Vu<V
SLV 3	7.51	10.99	-45.2	-11.1405		0	0	83	0			0	No, Vu<V
SLV 3	9.51	-69.77	-37.08	14.298		378	0.6153	159	29.34			0.79	No, Vu<V
SLV 8	7.51	34.49	-13.5	-5.0138		0	0	83	0			0	No, Vu<V
SLV 8	9.51	24.2	-11.47	6.4093		0	0	83	0			0	No, Vu<V



## Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 8.325 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.42	0	30.29	0.9839	0	0	No, Trazione
SLV 11	1438	0.42	0	30.29	0.9839	0	0	No, Trazione
SLV 7	1438	0.42	0	34.62	0.9839	0	0	No, Trazione
SLV 8	1438	0.42	0	34.62	0.9839	0	0	No, Trazione
SLV 3	1438	0.42	51	-12.49	0.9839	1.7963	1.83	Si
SLV 4	1438	0.42	51	-12.49	0.9839	1.7963	1.83	Si
SLV 15	1438	0.42	109	-26.91	0.9839	3.6749	3.73	Si
SLV 16	1438	0.42	109	-26.91	0.9839	3.6749	3.73	Si
SLV 2	1438	0.42	233	-57.2	0.9839	6.9473	7.06	Si
SLV 1	1438	0.42	233	-57.2	0.9839	6.9473	7.06	Si

## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 8.325 Wa = 0.0005 Ta = 0.0694

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	29.6	-1.18	0.32	0	0	0	0	10.7666	No, Trazione
SLV 16	30.74	-4.84	0.09	0	0	0	0	10.36455	No, Trazione
SLV 15	30.74	-4.84	0.09	0	0	0	0	10.36455	No, Trazione
SLV 11	50.68	12.17	0.31	0	0	0	0	10.7666	No, Trazione
SLV 7	29.6	-1.18	0.32	0	0	0	0	10.7666	No, Trazione
SLV 12	50.68	12.17	0.31	0	0	0	0	10.7666	No, Trazione
SLV 6	-97.67	-94.29	-0.32	0.043	11.167	0.967	0.64118	10.7666	No
SLV 5	-97.67	-94.29	-0.32	0.043	11.167	0.967	0.64118	10.7666	No
SLV 10	-76.59	-80.94	-0.32	0.043	9.021	0.96	0.64596	10.7666	No
SLV 9	-76.59	-80.94	-0.32	0.043	9.021	0.96	0.64596	10.7666	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.699	SLU 80	Si
V_SLU	6.73	SLU 73	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 225

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.933	-4.859	-11.143	-4.859	Z medio 656 cm	Z medio 1009 cm	0.79	0.3	3.53	3.53	3.53			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	7.51	-62.21	-1.9502	263	16.6537	8.54	Si
SLU 80	9.51	-52.44	-2.5922	221	15.0865	5.82	Si
SLU 75	7.51	-57.96	-1.7016	245	16.0192	9.414	Si
SLU 75	9.51	-48.82	-2.4273	206	14.4054	5.935	Si
SLU 77	7.51	-61.49	-1.9187	259	16.5509	8.626	Si
SLU 77	9.51	-51.67	-2.564	218	14.9465	5.829	Si
SLU 78	7.51	-61.54	-1.911	260	16.5588	8.665	Si
SLU 78	9.51	-51.85	-2.576	219	14.9789	5.815	Si
SLU 81	7.51	-56.39	-1.5518	238	15.7661	10.16	Si
SLU 81	9.51	-47.7	-2.3911	201	14.1841	5.932	Si
SLU 79	7.51	-62.16	-1.9578	262	16.6459	8.502	Si
SLU 79	9.51	-52.27	-2.5802	221	15.0546	5.835	Si
SLU 76	7.51	-58.66	-1.7357	248	16.1297	9.293	Si
SLU 76	9.51	-49.53	-2.4514	209	14.5431	5.933	Si
SLU 83	7.51	-59.97	-1.7613	253	16.3287	9.271	Si
SLU 83	9.51	-50.73	-2.5398	214	14.7715	5.816	Si
SLU 84	7.51	-60.03	-1.7536	253	16.337	9.316	Si
SLU 84	9.51	-50.91	-2.5518	215	14.8045	5.802	Si
SLU 82	7.51	-56.44	-1.5442	238	15.7752	10.216	Si
SLU 82	9.51	-47.87	-2.4031	202	14.2193	5.917	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	7.51	8.46	3.5591	0	0	0	No, Trazione
SLV 12	9.51	-9.39	-1.0757	40	3.587	3.334	Si
SLV 3	7.51	-67.37	-12.9124	284	20.4176	1.581	Si
SLV 3	9.51	19.66	11.5863	0	0	0	No, Trazione
SLV 14	7.51	-12.74	10.6205	0	0	0	No, e>l/2
SLV 14	9.51	-86.2	-14.782	364	23.9114	1.618	Si
SLV 16	7.51	9.46	11.2673	0	0	0	No, Trazione
SLV 16	9.51	-64.31	-12.3174	271	19.7599	1.604	Si
SLV 13	7.51	-12.74	10.6205	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	9.51	-86.2	-14.782	364	23.9114	1.618	Si
SLV 4	7.51	-67.37	-12.9124	284	20.4176	1.581	Si
SLV 4	9.51	19.66	11.5863	0	0	0	No, Trazione
SLV 8	7.51	-14.58	-3.6948	62	5.4693	1.48	Si
SLV 8	9.51	15.81	6.0954	0	0	0	No, Trazione
SLV 2	7.51	-89.56	-13.5592	378	24.4335	1.802	Si
SLV 2	9.51	-2.22	9.1217	0	0	0	No, $e \geq l/2$
SLV 11	7.51	8.46	3.5591	0	0	0	No, Trazione
SLV 11	9.51	-9.39	-1.0757	40	3.587	3.334	Si
SLV 7	7.51	-14.58	-3.6948	62	5.4693	1.48	Si
SLV 7	9.51	15.81	6.0954	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	7.51	-56.44	-0.12	-1.5442		238	0.79	87	20.69			167.77	Si
SLU 82	9.51	-47.87	2.32	-2.4031		202	0.79	82	19.55			8.41	Si
SLU 76	7.51	-58.66	-0.49	-1.7357		248	0.79	89	20.99			42.59	Si
SLU 76	9.51	-49.53	2.29	-2.4514		209	0.79	83	19.77			8.64	Si
SLU 84	7.51	-60.03	-0.34	-1.7536		253	0.79	89	21.17			63.1	Si
SLU 84	9.51	-50.91	2.41	-2.5518		215	0.79	84	19.95			8.27	Si
SLU 78	7.51	-61.54	-0.59	-1.911		260	0.79	90	21.37			36.08	Si
SLU 78	9.51	-51.85	2.29	-2.576		219	0.79	85	20.08			8.78	Si
SLU 73	7.51	-55.08	-0.28	-1.5262		232	0.79	87	20.51			73.08	Si
SLU 73	9.51	-46.49	2.2	-2.3027		196	0.79	82	19.36			8.81	Si
SLU 83	7.51	-59.97	-0.22	-1.7613		253	0.79	89	21.16			97.74	Si
SLU 83	9.51	-50.73	2.29	-2.5398		214	0.79	84	19.93			8.69	Si
SLU 80	7.51	-62.21	-0.63	-1.9502		263	0.79	91	21.46			34.3	Si
SLU 80	9.51	-52.44	2.3	-2.5922		221	0.79	85	20.16			8.78	Si
SLU 42	7.51	-49.59	-0.3	-1.4579		209	0.79	83	19.78			65.08	Si
SLU 42	9.51	-42.36	2.14	-2.1639		179	0.79	79	18.81			8.78	Si
SLU 63	7.51	-57	-0.28	-1.6474		241	0.79	88	20.77			75.26	Si
SLU 63	9.51	-48.27	2.25	-2.3891		204	0.79	83	19.6			8.71	Si
SLU 81	7.51	-56.39	0	-1.5518		238	0.79	87	20.68			1000	Si
SLU 81	9.51	-47.7	2.2	-2.3911		201	0.79	82	19.53			8.87	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	7.51	-14.58	-11.95	-3.6948		114	0.4248	106	13.54			1.13	Si
SLV 7	9.51	15.81	-12.29	6.0954		0	0	83	0			0	No, $V_u < V$
SLV 12	7.51	8.46	16.22	3.5591		0	0	83	0			0	No, $V_u < V$
SLV 12	9.51	-9.39	9.88	-1.0757		40	0.79	91	21.63			2.19	Si
SLV 3	7.51	-67.37	-46.41	-12.9124		368	0.6099	157	28.72			0.62	No, $V_u < V$
SLV 3	9.51	19.66	-36.43	11.5863		0	0	83	0			0	No, $V_u < V$
SLV 16	7.51	9.46	47.5	11.2673		0	0	83	0			0	No, $V_u < V$
SLV 16	9.51	-64.31	37.48	-12.3174		351	0.6103	154	28.12			0.75	No, $V_u < V$
SLV 2	7.51	-89.56	-47.77	-13.5592		409	0.7307	163	35.62			0.75	No, $V_u < V$
SLV 2	9.51	-2.22	-34.95	9.1217		0	0	83	0			0	No, $V_u < V$
SLV 4	7.51	-67.37	-46.41	-12.9124		368	0.6099	157	28.72			0.62	No, $V_u < V$
SLV 4	9.51	19.66	-36.43	11.5863		0	0	83	0			0	No, $V_u < V$
SLV 11	7.51	8.46	16.22	3.5591		0	0	83	0			0	No, $V_u < V$
SLV 11	9.51	-9.39	9.88	-1.0757		40	0.79	91	21.63			2.19	Si
SLV 13	7.51	-12.74	46.13	10.6205		0	0	83	0			0	No, $V_u < V$
SLV 13	9.51	-86.2	38.97	-14.782		429	0.6705	163	32.68			0.84	No, $V_u < V$
SLV 14	7.51	-12.74	46.13	10.6205		0	0	83	0			0	No, $V_u < V$
SLV 14	9.51	-86.2	38.97	-14.782		429	0.6705	163	32.68			0.84	No, $V_u < V$
SLV 8	7.51	-14.58	-11.95	-3.6948		114	0.4248	106	13.54			1.13	Si
SLV 8	9.51	15.81	-12.29	6.0954		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 8,325 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	1438	0.42	0	3.4	0.9478	0	0	No, Trazione
SLV 7	1438	0.42	0	-5.29	0.9478	0	0	No, $e > t/2$
SLV 8	1438	0.42	0	-5.29	0.9478	0	0	No, $e > t/2$
SLV 12	1438	0.42	0	3.4	0.9478	0	0	No, Trazione
SLV 16	1438	0.42	53	-12.66	0.9478	1.8158	1.92	Si
SLV 15	1438	0.42	53	-12.66	0.9478	1.8158	1.92	Si
SLV 14	1438	0.42	148	-35.11	0.9478	4.6276	4.88	Si
SLV 13	1438	0.42	148	-35.11	0.9478	4.6276	4.88	Si
SLV 4	1438	0.42	176	-41.62	0.9478	5.3456	5.64	Si
SLV 3	1438	0.42	176	-41.62	0.9478	5.3456	5.64	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 8,325 Wa = 0.0005 Ta = 0.0694

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	6.69	-0.2	0.33	0	0	0	0	10.7666	No, Trazione
SLV 8	6.69	-0.2	0.33	0	0	0	0	10.7666	No, Trazione
SLV 4	3.78	-11.64	0.07	0	0	0	0	10.36455	No, Trazione
SLV 3	3.78	-11.64	0.07	0	0	0	0	10.36455	No, Trazione
SLV 9	-54.58	-70.16	-0.33	0.042	6.739	0.949	0.64734	10.7666	No
SLV 10	-54.58	-70.16	-0.33	0.042	6.739	0.949	0.64734	10.7666	No
SLV 6	-42.35	-61.56	-0.35	0.042	5.5	0.94	0.6481	10.7666	No
SLV 5	-42.35	-61.56	-0.35	0.042	5.5	0.94	0.6481	10.7666	No
SLV 11	-5.53	-8.81	0.34	0.041	1.871	0.891	0.66606	10.7666	No
SLV 12	-5.53	-8.81	0.34	0.041	1.871	0.891	0.66606	10.7666	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.802	SLU 84	Si
V_SLU	8.269	SLU 84	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 8	No

## Maschio 226

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.013	-4.784	-13.763	-4.784	L1	L2	2.75	0.45	1.98	1.98	1.98			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	-1.59	-337.9	5.5249	273	308.8741	55.906	Si
SLU 52	0.39	-198.98	0.8653	161	219.5949	253.768	Si
SLU 65	-1.59	-322.81	4.9134	261	301.7254	61.409	Si
SLU 65	0.39	-185.38	1.738	150	208.0232	119.688	Si
SLU 73	-1.59	-355.74	5.5032	287	316.5239	57.516	Si
SLU 73	0.39	-210.91	0.615	170	229.3227	372.905	Si
SLU 44	-1.59	-304.98	4.9351	246	292.4734	59.264	Si
SLU 44	0.39	-173.46	1.9884	140	197.4652	99.308	Si
SLU 10	-1.59	-271.86	4.4627	220	272.994	61.173	Si
SLU 10	0.39	-162.05	0.3669	131	187.0023	509.682	Si
SLU 19	-1.59	-286.61	4.5727	232	282.0407	61.679	Si
SLU 19	0.39	-173.07	-0.1603	140	197.1165	1000	Si
SLU 82	-1.59	-370.49	5.6133	299	322.1947	57.399	Si
SLU 82	0.39	-221.93	0.0878	179	237.9684	1000	Si
SLU 60	-1.59	-353.62	5.4209	286	315.6587	58.23	Si
SLU 60	0.39	-210.12	0.2694	170	228.6951	849.054	Si
SLU 61	-1.59	-352.65	5.635	285	315.2629	55.948	Si
SLU 61	0.39	-210	0.3382	170	228.599	676.025	Si
SLU 81	-1.59	-371.45	5.3992	300	322.5437	59.739	Si
SLU 81	0.39	-222.05	0.019	179	238.0606	1000	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	-1.59	-193.76	-0.0659	157	232.2839	1000	Si
SLV 15	0.39	-110.15	97.0608	89	140.4268	1.447	Si
SLV 2	-1.59	-316.31	7.4226	256	343.9456	46.338	Si
SLV 2	0.39	-184.7	-95.095	149	222.9425	2.344	Si
SLV 4	-1.59	-185.3	7.0087	150	223.5661	31.898	Si
SLV 4	0.39	-101.31	-92.3358	82	129.9703	1.408	Si
SLV 16	-1.59	-193.76	-0.0659	157	232.2839	1000	Si
SLV 16	0.39	-110.15	97.0608	89	140.4268	1.447	Si
SLV 11	-1.59	-37.96	1.9274	31	50.8806	26.399	Si
SLV 11	0.39	-9.77	33.9909	0	0	0	No, e>l/2
SLV 12	-1.59	-37.96	1.9274	31	50.8806	26.399	Si
SLV 12	0.39	-9.77	33.9909	0	0	0	No, e>l/2
SLV 7	-1.59	-35.42	4.0497	29	47.5596	11.744	Si
SLV 7	0.39	-7.12	-22.828	0	0	0	No, e>l/2
SLV 3	-1.59	-185.3	7.0087	150	223.5661	31.898	Si
SLV 3	0.39	-101.31	-92.3358	82	129.9703	1.408	Si
SLV 8	-1.59	-35.42	4.0497	29	47.5596	11.744	Si
SLV 8	0.39	-7.12	-22.828	0	0	0	No, e>l/2
SLV 1	-1.59	-316.31	7.4226	256	343.9456	46.338	Si
SLV 1	0.39	-184.7	-95.095	149	222.9425	2.344	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	-1.59	-371.45	-6.15	5.3992		300	2.75	96	118.28			19.22	Si
SLU 81	0.39	-222.05	-7.48	0.019		179	2.75	79	98.36			13.15	Si
SLU 84	-1.59	-380.41	-5.36	4.1861		307	2.75	97	119.47			22.29	Si
SLU 84	0.39	-228.33	-6.86	-1.5506		185	2.75	80	99.19			14.46	Si
SLU 61	-1.59	-352.65	-5.92	5.635		285	2.75	94	115.77			19.55	Si
SLU 61	0.39	-210	-7.16	0.3382		170	2.75	78	96.75			13.51	Si
SLU 73	-1.59	-355.74	-5.74	5.5032		287	2.75	94	116.18			20.23	Si
SLU 73	0.39	-210.91	-6.98	0.615		170	2.75	78	96.87			13.87	Si
SLU 74	-1.59	-366.62	-5.43	4.0138		296	2.75	95	117.63			21.68	Si
SLU 74	0.39	-217.04	-6.73	-0.7761		175	2.75	79	97.69			14.52	Si
SLU 82	-1.59	-370.49	-6.03	5.6133		299	2.75	95	118.15			19.59	Si
SLU 82	0.39	-221.93	-7.39	0.0878		179	2.75	79	98.34			13.3	Si
SLU 62	-1.59	-363.54	-5.37	3.9936		294	2.75	95	117.22			21.83	Si
SLU 62	0.39	-216.53	-6.72	-1.369		175	2.75	79	97.62			14.53	Si
SLU 52	-1.59	-337.9	-5.63	5.5249		273	2.75	92	113.8			20.21	Si
SLU 52	0.39	-198.98	-6.75	0.8653		161	2.75	77	95.28			14.11	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	-1.59	-381.37	-5.48	3.972		308	2.75	97	119.6			21.82	Si
SLU 83	0.39	-228.45	-6.95	-1.6194		185	2.75	80	99.21			14.28	Si
SLU 60	-1.59	-353.62	-6.04	5.4209		286	2.75	94	115.9			19.18	Si
SLU 60	0.39	-210.12	-7.25	0.2694		170	2.75	78	96.77			13.35	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-1.59	-37.96	-22.92	1.9274		31	2.75	89	110.72			4.83	Si
SLV 12	0.39	-9.77	-15.62	33.9909		0	0	83	0			0	No, Vu<V
SLV 3	-1.59	-185.3	72.27	7.0087		150	2.75	113	140.19			1.94	Si
SLV 3	0.39	-101.31	52.57	-92.3358		162	1.3908	116	72.42			1.38	Si
SLV 14	-1.59	-324.77	-80.9	0.348		262	2.75	136	168.08			2.08	Si
SLV 14	0.39	-193.54	-62.66	94.3016		161	2.6633	116	138.58			2.21	Si
SLV 16	-1.59	-193.76	-78.5	-0.0659		157	2.75	115	141.88			1.81	Si
SLV 16	0.39	-110.15	-58.97	97.0608		165	1.4816	116	77.59			1.32	Si
SLV 7	-1.59	-35.42	22.31	4.0497		29	2.75	89	110.21			4.94	Si
SLV 7	0.39	-7.12	17.84	-22.828		0	0	83	0			0	No, Vu<V
SLV 15	-1.59	-193.76	-78.5	-0.0659		157	2.75	115	141.88			1.81	Si
SLV 15	0.39	-110.15	-58.97	97.0608		165	1.4816	116	77.59			1.32	Si
SLV 13	-1.59	-324.77	-80.9	0.348		262	2.75	136	168.08			2.08	Si
SLV 13	0.39	-193.54	-62.66	94.3016		161	2.6633	116	138.58			2.21	Si
SLV 8	-1.59	-35.42	22.31	4.0497		29	2.75	89	110.21			4.94	Si
SLV 8	0.39	-7.12	17.84	-22.828		0	0	83	0			0	No, Vu<V
SLV 11	-1.59	-37.96	-22.92	1.9274		31	2.75	89	110.72			4.83	Si
SLV 11	0.39	-9.77	-15.62	33.9909		0	0	83	0			0	No, Vu<V
SLV 4	-1.59	-185.3	72.27	7.0087		150	2.75	113	140.19			1.94	Si
SLV 4	0.39	-101.31	52.57	-92.3358		162	1.3908	116	72.42			1.38	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -0.6 Wa 0.0008 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.24	16	-19.46	0.889	4.3224	4.86	Si
SLV 8	1438	0.24	16	-19.46	0.889	4.3224	4.86	Si
SLV 12	1438	0.24	19	-23.26	0.889	5.1526	5.8	Si
SLV 11	1438	0.24	19	-23.26	0.889	5.1526	5.8	Si
SLV 3	1438	0.24	115	-142.58	0.889	29.0561	32.69	Si
SLV 4	1438	0.24	115	-142.58	0.889	29.0561	32.69	Si
SLV 16	1438	0.24	125	-155.24	0.889	31.3429	35.26	Si
SLV 15	1438	0.24	125	-155.24	0.889	31.3429	35.26	Si
SLV 1	1438	0.24	204	-251.91	0.889	47.2375	53.14	Si
SLV 2	1438	0.24	204	-251.91	0.889	47.2375	53.14	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -0.6 Wa = 0.0008 Ta = 0.0145

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-285.08	-472.12	-12.33	0.082	32.474	0.968	1.2261	2.85203	No
SLV 6	-285.08	-472.12	-12.33	0.082	32.474	0.968	1.2261	2.85203	No
SLV 10	-287.74	-474.66	-12.38	0.082	32.744	0.968	1.22738	2.85203	No
SLV 9	-287.74	-474.66	-12.38	0.082	32.744	0.968	1.22738	2.85203	No
SLV 1	-184.7	-316.31	-7.86	0.088	22.263	0.955	1.33574	2.83212	No
SLV 2	-184.7	-316.31	-7.86	0.088	22.263	0.955	1.33574	2.83212	No
SLV 13	-193.54	-324.77	-8.04	0.088	23.162	0.956	1.33748	2.83212	No
SLV 14	-193.54	-324.77	-8.04	0.088	23.162	0.956	1.33748	2.83212	No
SLV 16	-110.15	-193.76	-4.26	0.1	14.703	0.935	1.56049	2.83212	No
SLV 15	-110.15	-193.76	-4.26	0.1	14.703	0.935	1.56049	2.83212	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	55.906	SLU 52	Si
V_SLU	13.148	SLU 81	Si
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	4.862	SLV 7	Si
R_SLV	0.43	SLV 5	No

## Maschio 227

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-13.753	-4.859	-12.933	-4.859	Z medio 1009 cm	F1	0.82	0.3	4.274	4.275	4.274			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 70	11.04	-37.17	1.3332	151	12.415	9.312	Si
SLU 70	13.04	-21.76	0.7405	88	7.9532	10.741	Si
SLU 72	11.04	-38.13	1.3519	155	12.66	9.364	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 72	13.04	-22.49	0.7834	91	8.186	10.449	Si
SLU 68	11.04	-32.68	1.1985	133	11.2131	9.356	Si
SLU 68	13.04	-18.25	0.6001	74	6.8017	11.334	Si
SLU 26	11.04	-27.55	1.0232	112	9.7418	9.521	Si
SLU 26	13.04	-15.9	0.5297	65	6.0031	11.333	Si
SLU 65	11.04	-27.41	1.0394	111	9.7019	9.334	Si
SLU 65	13.04	-14.14	0.4184	57	5.3891	12.881	Si
SLU 69	11.04	-37.46	1.3246	152	12.4895	9.429	Si
SLU 69	13.04	-21.95	0.7428	89	8.0148	10.79	Si
SLU 71	11.04	-38.42	1.3434	156	12.7333	9.478	Si
SLU 71	13.04	-22.68	0.7858	92	8.2471	10.495	Si
SLU 23	11.04	-22.28	0.864	91	8.1201	9.398	Si
SLU 23	13.04	-11.79	0.348	48	4.551	13.079	Si
SLU 66	11.04	-32.2	1.1655	131	11.0815	9.508	Si
SLU 66	13.04	-17.84	0.5611	73	6.6645	11.878	Si
SLU 67	11.04	-31.91	1.174	130	11.0008	9.37	Si
SLU 67	13.04	-17.65	0.5587	72	6.5996	11.812	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 11	11.04	5.06	0.1223	0	0	0	No, Trazione
SLD 11	13.04	-2.29	0.8826	9	0.9315	1.055	Si
SLD 7	11.04	9.25	-1.3425	0	0	0	No, Trazione
SLD 7	13.04	-5.24	2.1286	21	2.1128	0.993	No, M>Mu
SLV 13	11.04	-56.98	7.415	232	18.9342	2.554	Si
SLV 13	13.04	-4.19	-5.3636	0	0	0	No, $e \geq l/2$
SLD 12	11.04	5.06	0.1223	0	0	0	No, Trazione
SLD 12	13.04	-2.29	0.8826	9	0.9315	1.055	Si
SLD 8	11.04	9.25	-1.3425	0	0	0	No, Trazione
SLD 8	13.04	-5.24	2.1286	21	2.1128	0.993	No, M>Mu
SLV 14	11.04	-56.98	7.415	232	18.9342	2.554	Si
SLV 14	13.04	-4.19	-5.3636	0	0	0	No, $e \geq l/2$
SLV 8	11.04	49.62	-4.1416	0	0	0	No, Trazione
SLV 8	13.04	2.22	4.5167	0	0	0	No, Trazione
SLV 16	11.04	-17.56	5.5034	71	6.779	1.232	Si
SLV 16	13.04	5.68	-3.719	0	0	0	No, Trazione
SLV 12	11.04	39.84	-0.7194	0	0	0	No, Trazione
SLV 12	13.04	9.13	1.6011	0	0	0	No, Trazione
SLV 11	11.04	39.84	-0.7194	0	0	0	No, Trazione
SLV 11	13.04	9.13	1.6011	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	11.04	-19.64	1.42	0.7402		80	0.82	66	16.29			11.48	Si
SLU 2	13.04	-9.79	0.22	0.2933		40	0.82	61	14.97			68.26	Si
SLU 10	11.04	-19.97	1.34	0.7195		81	0.82	66	16.33			12.21	Si
SLU 10	13.04	-10.11	0.13	0.3112		41	0.82	61	15.02			118.82	Si
SLU 44	11.04	-24.77	1.71	0.9155		101	0.82	69	16.97			9.91	Si
SLU 44	13.04	-12.14	0.29	0.3637		49	0.82	62	15.29			52.55	Si
SLU 55	11.04	-30.37	1.39	1.054		123	0.82	72	17.72			12.71	Si
SLU 55	13.04	-16.57	0.44	0.5634		67	0.82	65	15.88			36.36	Si
SLU 73	11.04	-27.75	1.57	1.0187		113	0.82	71	17.37			11.04	Si
SLU 73	13.04	-14.46	0.35	0.4363		59	0.82	63	15.6			44.42	Si
SLU 61	11.04	-25.44	1.39	0.8803		103	0.82	69	17.06			12.23	Si
SLU 61	13.04	-12.73	0.24	0.3909		52	0.82	62	15.36			65.18	Si
SLU 52	11.04	-25.1	1.63	0.8949		102	0.82	69	17.01			10.43	Si
SLU 52	13.04	-12.46	0.2	0.3816		51	0.82	62	15.33			77.45	Si
SLU 23	11.04	-22.28	1.36	0.864		91	0.82	68	16.64			12.24	Si
SLU 23	13.04	-11.79	0.37	0.348		48	0.82	62	15.24			40.91	Si
SLU 47	11.04	-30.03	1.47	1.0747		122	0.82	72	17.67			11.98	Si
SLU 47	13.04	-16.25	0.53	0.5455		66	0.82	64	15.83			29.9	Si
SLU 65	11.04	-27.41	1.65	1.0394		111	0.82	70	17.32			10.47	Si
SLU 65	13.04	-14.14	0.44	0.4184		57	0.82	63	15.55			35.03	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	11.04	-17.56	22.29	5.5034		202	0.2898	124	10.76			0.48	No, Vu<V
SLV 16	13.04	5.68	2.25	-3.719		0	0	83	0			0	No, Vu<V
SLD 11	11.04	5.06	-1.43	0.1223		0	0	83	0			0	No, Vu<V
SLD 11	13.04	-2.29	-4.72	0.8826		104	0.0735	104	2.29			0.49	No, Vu<V
SLV 4	11.04	15.04	-28.35	-5.9041		0	0	83	0			0	No, Vu<V
SLV 4	13.04	-17.36	-9.69	5.9994		300	0.1931	143	8.3			0.86	No, Vu<V
SLV 11	11.04	39.84	-4.54	-0.7194		0	0	83	0			0	No, Vu<V
SLV 11	13.04	9.13	-11.62	1.6011		0	0	83	0			0	No, Vu<V
SLD 12	11.04	5.06	-1.43	0.1223		0	0	83	0			0	No, Vu<V
SLD 12	13.04	-2.29	-4.72	0.8826		104	0.0735	104	2.29			0.49	No, Vu<V
SLV 12	11.04	39.84	-4.54	-0.7194		0	0	83	0			0	No, Vu<V
SLV 12	13.04	9.13	-11.62	1.6011		0	0	83	0			0	No, Vu<V
SLV 7	11.04	49.62	-19.73	-4.1416		0	0	83	0			0	No, Vu<V
SLV 7	13.04	2.22	-15.21	4.5167		0	0	83	0			0	No, Vu<V
SLD 7	11.04	9.25	-7.92	-1.3425		0	0	83	0			0	No, Vu<V
SLD 7	13.04	-5.24	-6.26	2.1286		1407	0.0124	163	0.61			0.1	No, Vu<V
SLV 3	11.04	15.04	-28.35	-5.9041		0	0	83	0			0	No, Vu<V
SLV 3	13.04	-17.36	-9.69	5.9994		300	0.1931	143	8.3			0.86	No, Vu<V
SLV 15	11.04	-17.56	22.29	5.5034		202	0.2898	124	10.76			0.48	No, Vu<V
SLV 15	13.04	5.68	2.25	-3.719		0	0	83	0			0	No, Vu<V





## Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 12.227 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.5	0	22.15	1.7242	0	0	No, Trazione
SLV 12	1438	0.5	0	23.85	1.7242	0	0	No, Trazione
SLV 16	1438	0.5	0	-1.29	1.7242	0	0	No, $e > t/2$
SLV 3	1438	0.5	0	-6.95	1.7242	0	0	No, $e > t/2$
SLV 4	1438	0.5	0	-6.95	1.7242	0	0	No, $e > t/2$
SLV 15	1438	0.5	0	-1.29	1.7242	0	0	No, $e > t/2$
SLV 7	1438	0.5	0	22.15	1.7242	0	0	No, Trazione
SLV 11	1438	0.5	0	23.85	1.7242	0	0	No, Trazione
SLV 14	1438	0.5	100	-24.54	1.7242	3.3803	1.96	Si
SLV 13	1438	0.5	100	-24.54	1.7242	3.3803	1.96	Si

## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 12.227 Wa = 0.0005 Ta = 0.1017

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	4.06	-16.04	0.39	0	0	0	0	18.6776	No, Trazione
SLV 2	1.58	-51.09	0.7	0	0	0	0	18.6776	No, Trazione
SLV 7	4.24	34.41	-0.45	0	0	0	0	19.22222	No, Trazione
SLV 16	-3.7	11.26	-0.96	0	0	0	0	18.6776	No, Trazione
SLV 4	4.06	-16.04	0.39	0	0	0	0	18.6776	No, Trazione
SLV 12	1.91	42.6	-0.85	0	0	0	0	19.22222	No, Trazione
SLV 1	1.58	-51.09	0.7	0	0	0	0	18.6776	No, Trazione
SLV 11	1.91	42.6	-0.85	0	0	0	0	19.22222	No, Trazione
SLV 15	-3.7	11.26	-0.96	0	0	0	0	18.6776	No, Trazione
SLV 8	4.24	34.41	-0.45	0	0	0	0	19.22222	No, Trazione

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.312	SLU 70	Si
V_SLU	9.909	SLU 44	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 228

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.933	-4.859	-11.143	-4.859	Z medio 1009 cm	F1	0.79	0.3	4.273	4.273	4.273			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	11.04	-29.73	-0.4143	125	9.9352	23.982	Si
SLU 77	13.04	-23.66	-1.8547	100	8.1995	4.421	Si
SLU 80	11.04	-30.47	-0.4507	129	10.1358	22.491	Si
SLU 80	13.04	-24.21	-1.8891	102	8.3626	4.427	Si
SLU 37	11.04	-25.73	-0.4049	109	8.8074	21.751	Si
SLU 37	13.04	-21.73	-1.7324	92	7.616	4.396	Si
SLU 79	11.04	-30.42	-0.4521	128	10.1209	22.388	Si
SLU 79	13.04	-24.32	-1.8962	103	8.3961	4.428	Si
SLU 36	11.04	-25.1	-0.3657	106	8.6248	23.582	Si
SLU 36	13.04	-20.95	-1.6838	88	7.3774	4.381	Si
SLU 41	11.04	-22.68	-0.2162	96	7.9065	36.578	Si
SLU 41	13.04	-18.05	-1.4569	76	6.4615	4.435	Si
SLU 35	11.04	-25.04	-0.3671	106	8.6087	23.448	Si
SLU 35	13.04	-21.07	-1.6909	89	7.4124	4.384	Si
SLU 78	11.04	-29.79	-0.4129	126	9.9503	24.099	Si
SLU 78	13.04	-23.55	-1.8476	99	8.1657	4.42	Si
SLU 38	11.04	-25.78	-0.4035	109	8.8234	21.866	Si
SLU 38	13.04	-21.61	-1.7253	91	7.5814	4.394	Si
SLU 42	11.04	-22.74	-0.2148	96	7.9232	36.893	Si
SLU 42	13.04	-17.93	-1.4498	76	6.4251	4.432	Si

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	11.04	-46.11	-5.6533	195	15.3125	2.709	Si
SLV 2	13.04	-7.56	3.2996	0	0	0	No, $e > t/2$
SLV 3	11.04	-35.83	-5.4804	151	12.4013	2.263	Si
SLV 3	13.04	3.68	4.9614	0	0	0	No, Trazione
SLV 16	11.04	9.91	5.3327	0	0	0	No, Trazione
SLV 16	13.04	-16.27	-5.0365	69	6.0643	1.204	Si
SLV 14	11.04	-0.37	5.1598	0	0	0	No, $e > t/2$
SLV 14	13.04	-27.51	-6.6984	116	9.8328	1.468	Si
SLV 8	11.04	-7.83	-1.4942	33	3.009	2.014	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	13.04	9.82	3.4009	0	0	0	No, Trazione
SLV 13	11.04	-0.37	5.1598	0	0	0	No, $e \geq l/2$
SLV 13	13.04	-27.51	-6.6984	116	9.8328	1.468	Si
SLV 4	11.04	-35.83	-5.4804	151	12.4013	2.263	Si
SLV 4	13.04	3.68	4.9614	0	0	0	No, Trazione
SLV 7	11.04	-7.83	-1.4942	33	3.009	2.014	Si
SLV 7	13.04	9.82	3.4009	0	0	0	No, Trazione
SLV 11	11.04	5.89	1.7498	0	0	0	No, Trazione
SLV 11	13.04	3.83	0.4015	0	0	0	No, Trazione
SLV 12	11.04	5.89	1.7498	0	0	0	No, Trazione
SLV 12	13.04	3.83	0.4015	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	11.04	-25.1	1.75	-0.3657		106	0.79	70	16.51			9.46	Si
SLU 36	13.04	-20.95	2.14	-1.6838		88	0.79	67	15.96			7.46	Si
SLU 84	11.04	-27.43	1.36	-0.2619		116	0.79	71	16.82			12.33	Si
SLU 84	13.04	-20.53	2.06	-1.6136		87	0.79	67	15.9			7.72	Si
SLU 77	11.04	-29.73	2.12	-0.4143		125	0.79	72	17.13			8.06	Si
SLU 77	13.04	-23.66	2.19	-1.8547		100	0.79	69	16.32			7.45	Si
SLU 78	11.04	-29.79	1.72	-0.4129		126	0.79	72	17.14			9.94	Si
SLU 78	13.04	-23.55	2.27	-1.8476		99	0.79	69	16.31			7.17	Si
SLU 76	11.04	-27.37	0.95	-0.3013		116	0.79	71	16.82			17.72	Si
SLU 76	13.04	-20.21	1.99	-1.5633		85	0.79	67	15.86			7.95	Si
SLU 80	11.04	-30.47	1.78	-0.4507		129	0.79	73	17.23			9.66	Si
SLU 80	13.04	-24.21	2.28	-1.8891		102	0.79	69	16.39			7.19	Si
SLU 37	11.04	-25.73	2.21	-0.4049		109	0.79	70	16.6			7.52	Si
SLU 37	13.04	-21.73	2.07	-1.7324		92	0.79	68	16.06			7.78	Si
SLU 79	11.04	-30.42	2.18	-0.4521		128	0.79	73	17.22			7.89	Si
SLU 79	13.04	-24.32	2.2	-1.8962		103	0.79	69	16.41			7.46	Si
SLU 35	11.04	-25.04	2.15	-0.3671		106	0.79	70	16.51			7.69	Si
SLU 35	13.04	-21.07	2.06	-1.6909		89	0.79	67	15.97			7.76	Si
SLU 38	11.04	-25.78	1.8	-0.4035		109	0.79	70	16.6			9.2	Si
SLU 38	13.04	-21.61	2.15	-1.7253		91	0.79	68	16.05			7.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	11.04	-7.83	-11.8	-1.4942		43	0.6124	92	16.88			1.43	Si
SLV 7	13.04	9.82	-3.24	3.4009		0	0	83	0			0	No, $Vu < V$
SLV 14	11.04	-0.37	29.26	5.1598		0	0	83	0			0	No, $Vu < V$
SLV 14	13.04	-27.51	8.15	-6.6984		202	0.4544	124	16.86			2.07	Si
SLV 8	11.04	-7.83	-11.8	-1.4942		43	0.6124	92	16.88			1.43	Si
SLV 8	13.04	9.82	-3.24	3.4009		0	0	83	0			0	No, $Vu < V$
SLV 12	11.04	5.89	4.68	1.7498		0	0	83	0			0	No, $Vu < V$
SLV 12	13.04	3.83	0.66	0.4015		0	0	83	0			0	No, $Vu < V$
SLV 3	11.04	-35.83	-28.14	-5.4804		164	0.7261	116	25.32			0.9	No, $Vu < V$
SLV 3	13.04	3.68	-6.22	4.9614		0	0	83	0			0	No, $Vu < V$
SLV 4	11.04	-35.83	-28.14	-5.4804		164	0.7261	116	25.32			0.9	No, $Vu < V$
SLV 4	13.04	3.68	-6.22	4.9614		0	0	83	0			0	No, $Vu < V$
SLV 2	11.04	-46.11	-25.67	-5.6533		195	0.79	122	28.97			1.13	Si
SLV 2	13.04	-7.56	-4.87	3.2996		0	0	83	0			0	No, $Vu < V$
SLV 11	11.04	5.89	4.68	1.7498		0	0	83	0			0	No, $Vu < V$
SLV 11	13.04	3.83	0.66	0.4015		0	0	83	0			0	No, $Vu < V$
SLV 16	11.04	9.91	26.79	5.3327		0	0	83	0			0	No, $Vu < V$
SLV 16	13.04	-16.27	6.8	-5.0365		212	0.2561	126	9.66			1.42	Si
SLV 13	11.04	-0.37	29.26	5.1598		0	0	83	0			0	No, $Vu < V$
SLV 13	13.04	-27.51	8.15	-6.6984		202	0.4544	124	16.86			2.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 12.226 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.5	0	4.33	1.6598	0	0	No, Trazione
SLV 11	1438	0.5	0	4.33	1.6598	0	0	No, Trazione
SLV 7	1438	0.5	0	3.07	1.6598	0	0	No, Trazione
SLV 15	1438	0.5	0	-7.26	1.6598	0	0	No, $e \geq t/2$
SLV 8	1438	0.5	0	3.07	1.6598	0	0	No, Trazione
SLV 16	1438	0.5	0	-7.26	1.6598	0	0	No, $e \geq t/2$
SLV 3	1438	0.5	48	-11.47	1.6598	1.6519	1	No, $M > Mu$
SLV 4	1438	0.5	48	-11.47	1.6598	1.6519	1	No, $M > Mu$
SLV 14	1438	0.5	78	-18.46	1.6598	2.592	1.56	Si
SLV 13	1438	0.5	78	-18.46	1.6598	2.592	1.56	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 12.226 Wa = 0.0005 Ta = 0.1016

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	1.07	-23.53	-0.78	0	0	0	0	18.66608	No, Trazione
SLV 3	2.49	-13.01	-0.76	0	0	0	0	18.66608	No, Trazione
SLV 12	0.66	-2.38	-0.51	0	0	0	0	19.21194	No, Trazione
SLV 7	2.27	-1.62	-0.61	0	0	0	0	19.21194	No, Trazione
SLV 8	2.27	-1.62	-0.61	0	0	0	0	19.21194	No, Trazione
SLV 4	2.49	-13.01	-0.76	0	0	0	0	18.66608	No, Trazione
SLV 2	1.07	-23.53	-0.78	0	0	0	0	18.66608	No, Trazione
SLV 11	0.66	-2.38	-0.51	0	0	0	0	19.21194	No, Trazione
SLV 6	-2.45	-36.69	-0.69	0.003	1.945	0.923	0.05224	19.21194	No
SLV 5	-2.45	-36.69	-0.69	0.003	1.945	0.923	0.05224	19.21194	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.381	SLU 36	Si
V_SLU	7.174	SLU 78	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 12	No

## Maschio 229

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-17.053	-5.009	-17.053	-4.862	L3	F1	0.147	0.3	13.222	13.187	13.256			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 47	11.87	-1.82	0.1106	41	0.1266	1.144	Si
SLU 47	13.99	-1.63	0.1245	0	0	0	No, e>l/2
SLU 55	11.87	-1.84	0.113	42	0.1282	1.134	Si
SLU 55	13.99	-1.82	0.1467	0	0	0	No, e>l/2
SLU 56	11.87	-1.6	0.1029	36	0.1122	1.091	Si
SLU 56	13.99	0.24	0.0177	0	0	0	No, Trazione
SLU 50	11.87	-1.58	0.1005	36	0.1105	1.1	Si
SLU 50	13.99	0.57	-0.0117	0	0	0	No, Trazione
SLU 58	11.87	-1.6	0.1029	36	0.1122	1.09	Si
SLU 58	13.99	0.38	0.0106	0	0	0	No, Trazione
SLU 42	11.87	-1.36	0.0866	31	0.0963	1.112	Si
SLU 42	13.99	-0.88	0.1116	0	0	0	No, e>l/2
SLU 49	11.87	-1.68	0.1047	38	0.1174	1.121	Si
SLU 49	13.99	-0.4	0.0632	0	0	0	No, e>l/2
SLU 51	11.87	-1.68	0.1048	38	0.1173	1.12	Si
SLU 51	13.99	-0.26	0.0561	0	0	0	No, e>l/2
SLU 54	11.87	-1.77	0.1102	40	0.1238	1.124	Si
SLU 54	13.99	-1.41	0.1087	0	0	0	No, e>l/2
SLU 57	11.87	-1.7	0.1072	39	0.119	1.11	Si
SLU 57	13.99	-0.59	0.0855	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$ 

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	11.87	-0.37	0.049	0	0	0	No, e>l/2
SLD 1	13.99	0.31	-0.0026	0	0	0	No, Trazione
SLV 7	11.87	-5.36	0.2282	122	0.354	1.551	Si
SLV 7	13.99	-11.61	1.1548	0	0	0	No, e>l/2
SLV 9	11.87	2.72	-0.063	0	0	0	No, Trazione
SLV 9	13.99	10.07	-1.081	0	0	0	No, Trazione
SLV 6	11.87	3.32	-0.0837	0	0	0	No, Trazione
SLV 6	13.99	9.78	-0.959	0	0	0	No, Trazione
SLV 5	11.87	3.32	-0.0837	0	0	0	No, Trazione
SLV 5	13.99	9.78	-0.959	0	0	0	No, Trazione
SLV 2	11.87	0.99	0.0012	0	0	0	No, Trazione
SLV 2	13.99	1.96	-0.0769	0	0	0	No, Trazione
SLV 10	11.87	2.72	-0.063	0	0	0	No, Trazione
SLV 10	13.99	10.07	-1.081	0	0	0	No, Trazione
SLV 8	11.87	-5.36	0.2282	122	0.354	1.551	Si
SLV 8	13.99	-11.61	1.1548	0	0	0	No, e>l/2
SLV 4	11.87	-1.62	0.0948	37	0.115	1.213	Si
SLV 4	13.99	-4.46	0.5573	0	0	0	No, e>l/2
SLV 3	11.87	-1.62	0.0948	37	0.115	1.213	Si
SLV 3	13.99	-4.46	0.5573	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$ 

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	11.87	-1.77	0.13	0.1102		174	0.0339	79	0.8			6.33	Si
SLU 54	13.99	-1.41	0.43	0.1087		0	0	56	0			0	No, Vu<V
SLU 49	11.87	-1.68	0.13	0.1047		170	0.0329	78	0.77			5.86	Si
SLU 49	13.99	-0.4	0.13	0.0632		0	0	56	0			0	No, Vu<V
SLU 56	11.87	-1.6	0.14	0.1029		195	0.0273	82	0.67			4.91	Si
SLU 56	13.99	0.24	-0.12	0.0177		0	0	56	0			0	No, Vu<V
SLU 57	11.87	-1.7	0.12	0.1072		181	0.0313	80	0.75			6.02	Si
SLU 57	13.99	-0.59	0.26	0.0855		0	0	56	0			0	No, Vu<V
SLU 42	11.87	-1.36	0.08	0.0866		153	0.0297	76	0.68			8.13	Si
SLU 42	13.99	-0.88	0.47	0.1116		0	0	56	0			0	No, Vu<V
SLU 51	11.87	-1.68	0.13	0.1048		171	0.0327	78	0.77			5.75	Si
SLU 51	13.99	-0.26	0.09	0.0561		0	0	56	0			0	No, Vu<V
SLU 50	11.87	-1.58	0.15	0.1005		183	0.0288	80	0.69			4.74	Si
SLU 50	13.99	0.57	-0.29	-0.0117		0	0	56	0			0	No, Vu<V
SLU 47	11.87	-1.82	0.13	0.1106		161	0.0375	77	0.87			6.76	Si
SLU 47	13.99	-1.63	0.5	0.1245		0	0	56	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	11.87	-1.6	0.14	0.1029		197	0.0271	82	0.67			4.82	Si
SLU 58	13.99	0.38	-0.16	0.0106		0	0	56	0			0	No, Vu<V
SLU 55	11.87	-1.84	0.12	0.113		171	0.036	78	0.85			6.99	Si
SLU 55	13.99	-1.82	0.63	0.1467		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	11.87	-1.62	-0.1	0.0948		122	0.0442	108	1.43			14.02	Si
SLV 3	13.99	-4.46	1.55	0.5573		0	0	83	0			0	No, Vu<V
SLV 2	11.87	0.99	-0.52	0.0012		0	0	83	0			0	No, Vu<V
SLV 2	13.99	1.96	-0.54	-0.0769		0	0	83	0			0	No, Vu<V
SLV 9	11.87	2.72	-0.46	-0.063		0	0	83	0			0	No, Vu<V
SLV 9	13.99	10.07	-3.52	-1.081		0	0	83	0			0	No, Vu<V
SLV 4	11.87	-1.62	-0.1	0.0948		122	0.0442	108	1.43			14.02	Si
SLV 4	13.99	-4.46	1.55	0.5573		0	0	83	0			0	No, Vu<V
SLD 1	11.87	-0.37	-0.16	0.049		0	0	83	0			0	No, Vu<V
SLD 1	13.99	0.31	-0.14	-0.0026		0	0	83	0			0	No, Vu<V
SLV 8	11.87	-5.36	0.68	0.2282		193	0.0924	122	3.38			4.94	Si
SLV 8	13.99	-11.61	3.69	1.1548		0	0	83	0			0	No, Vu<V
SLV 6	11.87	3.32	-0.72	-0.0837		0	0	83	0			0	No, Vu<V
SLV 6	13.99	9.78	-3.27	-0.959		0	0	83	0			0	No, Vu<V
SLV 10	11.87	2.72	-0.46	-0.063		0	0	83	0			0	No, Vu<V
SLV 10	13.99	10.07	-3.52	-1.081		0	0	83	0			0	No, Vu<V
SLV 7	11.87	-5.36	0.68	0.2282		193	0.0924	122	3.38			4.94	Si
SLV 7	13.99	-11.61	3.69	1.1548		0	0	83	0			0	No, Vu<V
SLV 5	11.87	3.32	-0.72	-0.0837		0	0	83	0			0	No, Vu<V
SLV 5	13.99	9.78	-3.27	-0.959		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.704 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.41	0	-4.13	2.3423	0	0	No, e>t/2
SLV 6	1438	0.41	0	-1.13	2.3423	0	0	No, e>t/2
SLV 8	1438	0.41	0	-5.46	2.3423	0	0	No, e>t/2
SLV 5	1438	0.41	0	-1.13	2.3423	0	0	No, e>t/2
SLV 10	1438	0.41	0	-0.97	2.3423	0	0	No, e>t/2
SLV 9	1438	0.41	0	-0.97	2.3423	0	0	No, e>t/2
SLV 4	1438	0.41	0	-4.13	2.3423	0	0	No, e>t/2
SLV 7	1438	0.41	0	-5.46	2.3423	0	0	No, e>t/2
SLV 1	1438	0.41	0	-2.83	2.3423	0	0	No, e>t/2
SLV 2	1438	0.41	0	-2.83	2.3423	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 7.704 Wa = 0.0005 Ta = 0.9731

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	0.76	15.54	-0.55	0	0	0	0	2.39674	No, Trazione
SLV 1	3.07	16.4	-0.44	0	0	0	0	2.39674	No, Trazione
SLV 9	-0.99	12.32	-0.33	0	0	0	0	2.39674	No, Trazione
SLV 7	1.54	7.27	0.49	0	0	0	0	2.39674	No, Trazione
SLV 10	-0.99	12.32	-0.33	0	0	0	0	2.39674	No, Trazione
SLV 4	3.31	13.92	-0.12	0	0	0	0	2.39674	No, Trazione
SLV 3	3.31	13.92	-0.12	0	0	0	0	2.39674	No, Trazione
SLV 5	0.76	15.54	-0.55	0	0	0	0	2.39674	No, Trazione
SLV 2	3.07	16.4	-0.44	0	0	0	0	2.39674	No, Trazione
SLV 8	1.54	7.27	0.49	0	0	0	0	2.39674	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 79	No
V_SLU	0	SLU 3	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 230

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-17.053	-3.772	-17.053	-3.499	L3	F1	0.273	0.3	13.825	13.762	13.888			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 46	11.87	-9.07	-0.3988	111	1.0676	2.677	Si
SLU 46	13.99	-0.63	0.2128	0	0	0	No, e>l/2
SLU 39	11.87	-5.21	-0.2569	64	0.6549	2.549	Si
SLU 39	13.99	-0.12	0.1478	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 36	11.87	-8.41	-0.5131	103	1.0007	1.95	Si
SLU 36	13.99	0.61	0.2597	0	0	0	No, Trazione
SLU 38	11.87	-8.11	-0.4888	99	0.9701	1.985	Si
SLU 38	13.99	0.79	0.244	0	0	0	No, Trazione
SLU 44	11.87	-8.91	-0.7111	109	1.0516	1.479	Si
SLU 44	13.99	1.97	0.314	0	0	0	No, Trazione
SLU 40	11.87	-6.54	-0.6647	80	0.8037	1.209	Si
SLU 40	13.99	2.51	0.2969	0	0	0	No, Trazione
SLU 49	11.87	-9.82	-0.334	120	1.1405	3.414	Si
SLU 49	13.99	-1.3	0.1954	0	0	0	No, e>l/2
SLU 41	11.87	-5.96	-0.1921	73	0.7395	3.849	Si
SLU 41	13.99	-0.79	0.1304	0	0	0	No, e>l/2
SLU 42	11.87	-7.29	-0.5999	89	0.8843	1.474	Si
SLU 42	13.99	1.84	0.2795	0	0	0	No, Trazione
SLU 47	11.87	-9.66	-0.6463	118	1.125	1.741	Si
SLU 47	13.99	1.3	0.2966	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	11.87	34.56	3.8582	0	0	0	No, Trazione
SLV 9	13.99	24.81	3.3652	0	0	0	No, Trazione
SLV 10	11.87	34.56	3.8582	0	0	0	No, Trazione
SLV 10	13.99	24.81	3.3652	0	0	0	No, Trazione
SLV 5	11.87	28.57	3.6137	0	0	0	No, Trazione
SLV 5	13.99	27.37	3.3808	0	0	0	No, Trazione
SLV 4	11.87	-26.26	-1.6441	321	2.6371	1.604	Si
SLV 4	13.99	-5.38	-0.8838	0	0	0	No, e>l/2
SLD 14	11.87	3.35	0.5297	0	0	0	No, Trazione
SLD 14	13.99	0.09	0.4607	0	0	0	No, Trazione
SLD 1	11.87	-5.1	0.1885	62	0.6589	3.495	Si
SLD 1	13.99	3.55	0.468	0	0	0	No, Trazione
SLV 3	11.87	-26.26	-1.6441	321	2.6371	1.604	Si
SLV 3	13.99	-5.38	-0.8838	0	0	0	No, e>l/2
SLV 1	11.87	-4.18	0.6509	0	0	0	No, e>l/2
SLV 1	13.99	11.11	1.0928	0	0	0	No, Trazione
SLD 13	11.87	3.35	0.5297	0	0	0	No, Trazione
SLD 13	13.99	0.09	0.4607	0	0	0	No, Trazione
SLV 2	11.87	-4.18	0.6509	0	0	0	No, e>l/2
SLV 2	13.99	11.11	1.0928	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 42	11.87	-7.29	-2.08	-0.5999		150	0.1618	76	3.67			1.77	Si
SLU 42	13.99	1.84	1.27	0.2795		0	0	56	0			0	No, Vu<V
SLU 38	11.87	-8.11	-1.71	-0.4888		119	0.2279	71	4.88			2.86	Si
SLU 38	13.99	0.79	0.38	0.244		0	0	56	0			0	No, Vu<V
SLU 36	11.87	-8.41	-1.78	-0.5131		124	0.2256	72	4.88			2.74	Si
SLU 36	13.99	0.61	0.53	0.2597		0	0	56	0			0	No, Vu<V
SLU 46	11.87	-9.07	-1.21	-0.3988		111	0.2725	70	5.75			4.73	Si
SLU 46	13.99	-0.63	0.89	0.2128		0	0	56	0			0	No, Vu<V
SLU 44	11.87	-8.91	-2.23	-0.7111		175	0.1693	79	4.01			1.8	Si
SLU 44	13.99	1.97	2.24	0.314		0	0	56	0			0	No, Vu<V
SLU 41	11.87	-5.96	-0.73	-0.1921		73	0.2725	65	5.34			7.35	Si
SLU 41	13.99	-0.79	0.08	0.1304		0	0	56	0			0	No, Vu<V
SLU 39	11.87	-5.21	-0.92	-0.2569		67	0.2609	64	5.04			5.51	Si
SLU 39	13.99	-0.12	0.8	0.1478		0	0	56	0			0	No, Vu<V
SLU 40	11.87	-6.54	-2.27	-0.6647		210	0.1039	84	2.6			1.15	Si
SLU 40	13.99	2.51	1.98	0.2969		0	0	56	0			0	No, Vu<V
SLU 47	11.87	-9.66	-2.04	-0.6463		155	0.208	76	4.75			2.33	Si
SLU 47	13.99	1.3	1.52	0.2966		0	0	56	0			0	No, Vu<V
SLU 49	11.87	-9.82	-1.03	-0.334		120	0.2725	72	5.85			5.71	Si
SLU 49	13.99	-1.3	0.18	0.1954		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	11.87	34.56	-8.37	3.8582		0	0	83	0			0	No, Vu<V
SLV 9	13.99	24.81	22.05	3.3652		0	0	83	0			0	No, Vu<V
SLV 5	11.87	28.57	-10.36	3.6137		0	0	83	0			0	No, Vu<V
SLV 5	13.99	27.37	22.73	3.3808		0	0	83	0			0	No, Vu<V
SLD 9	11.87	10.57	-3.39	1.4563		0	0	83	0			0	No, Vu<V
SLD 9	13.99	8.82	8.82	1.3634		0	0	83	0			0	No, Vu<V
SLV 6	11.87	28.57	-10.36	3.6137		0	0	83	0			0	No, Vu<V
SLV 6	13.99	27.37	22.73	3.3808		0	0	83	0			0	No, Vu<V
SLD 1	11.87	-5.1	-2.67	0.1885		62	0.2725	96	7.83			2.93	Si
SLD 1	13.99	3.55	3.36	0.468		0	0	83	0			0	No, Vu<V
SLV 3	11.87	-26.26	-0.83	-1.6441		396	0.2209	163	10.77			12.9	Si
SLV 3	13.99	-5.38	-5.15	-0.8838		0	0	83	0			0	No, Vu<V
SLD 14	11.87	3.35	0.05	0.5297		0	0	83	0			0	No, Vu<V
SLD 14	13.99	0.09	2.48	0.4607		0	0	83	0			0	No, Vu<V
SLD 10	11.87	10.57	-3.39	1.4563		0	0	83	0			0	No, Vu<V
SLD 10	13.99	8.82	8.82	1.3634		0	0	83	0			0	No, Vu<V
SLD 13	11.87	3.35	0.05	0.5297		0	0	83	0			0	No, Vu<V
SLD 13	13.99	0.09	2.48	0.4607		0	0	83	0			0	No, Vu<V
SLV 4	11.87	-26.26	-0.83	-1.6441		396	0.2209	163	10.77			12.9	Si
SLV 4	13.99	-5.38	-5.15	-0.8838		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.991 Wa 0.0005 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.41	0	-1.17	4.8241	0	0	No, $e>t/2$
SLV 2	1438	0.41	0	-9.91	4.8241	0	0	No, $e>t/2$
SLV 1	1438	0.41	0	-9.91	4.8241	0	0	No, $e>t/2$
SLV 8	1438	0.41	0	-24.18	4.8241	0	0	No, $e>t/2$
SLV 9	1438	0.41	0	-0.57	4.8241	0	0	No, $e>t/2$
SLV 5	1438	0.41	0	-1.17	4.8241	0	0	No, $e>t/2$
SLV 4	1438	0.41	0	-16.82	4.8241	0	0	No, $e>t/2$
SLV 10	1438	0.41	0	-0.57	4.8241	0	0	No, $e>t/2$
SLV 3	1438	0.41	0	-16.82	4.8241	0	0	No, $e>t/2$
SLV 7	1438	0.41	0	-24.18	4.8241	0	0	No, $e>t/2$

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.991  $W_a = 0.0005$   $T_a = 1.0639$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	5.02	-212.12	0.18	0	0	0	0	2.39674	No, Trazione
SLV 6	5.02	-212.12	0.18	0	0	0	0	2.39674	No, Trazione
SLV 2	1.8	-98.05	-0.16	0	0	0	0	2.39674	No, Trazione
SLV 1	1.8	-98.05	-0.16	0	0	0	0	2.39674	No, Trazione
SLV 7	-0.8	96.32	-0.27	0	0	0	0	2.39674	No, Trazione
SLV 9	6.03	-217.36	0.35	0	0	0	0	2.39674	No, Trazione
SLV 4	0.05	-5.51	-0.3	0	0	0	0	2.39674	No, Trazione
SLV 10	6.03	-217.36	0.35	0	0	0	0	2.39674	No, Trazione
SLV 3	0.05	-5.51	-0.3	0	0	0	0	2.39674	No, Trazione
SLV 8	-0.8	96.32	-0.27	0	0	0	0	2.39674	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-3.359	-13.893	-3.359	L4	L6	0.14	0.28	7.04	7.04	7.04			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 57	4.83	-13.8	1.3026	0	0	0	No, $e>l/2$
SLU 57	11.87	-5.08	0.9273	0	0	0	No, $e>l/2$
SLU 55	4.83	-13.66	1.2558	0	0	0	No, $e>l/2$
SLU 55	11.87	-5.09	0.8813	0	0	0	No, $e>l/2$
SLU 58	4.83	-13.56	1.3025	0	0	0	No, $e>l/2$
SLU 58	11.87	-4.74	0.8865	0	0	0	No, $e>l/2$
SLU 59	4.83	-13.69	1.3006	0	0	0	No, $e>l/2$
SLU 59	11.87	-4.81	0.8919	0	0	0	No, $e>l/2$
SLU 54	4.83	-13.67	1.2591	0	0	0	No, $e>l/2$
SLU 54	11.87	-5.31	0.913	0	0	0	No, $e>l/2$
SLU 56	4.83	-13.67	1.3045	0	0	0	No, $e>l/2$
SLU 56	11.87	-5.01	0.9219	0	0	0	No, $e>l/2$
SLU 53	4.83	-13.54	1.261	0	0	0	No, $e>l/2$
SLU 53	11.87	-5.24	0.9075	0	0	0	No, $e>l/2$
SLU 1	4.83	-9.51	0.8876	0	0	0	No, $e>l/2$
SLU 1	11.87	-3.81	0.6161	0	0	0	No, $e>l/2$
SLU 60	4.83	-13.84	1.2468	0	0	0	No, $e>l/2$
SLU 60	11.87	-5.38	0.8989	0	0	0	No, $e>l/2$
SLU 61	4.83	-13.97	1.2449	0	0	0	No, $e>l/2$
SLU 61	11.87	-5.45	0.9044	0	0	0	No, $e>l/2$

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	4.83	-8.21	0.8009	0	0	0	No, $e>l/2$
SLV 7	11.87	-13.83	1.3745	0	0	0	No, $e>l/2$
SLV 6	4.83	-11.67	1.4307	0	0	0	No, $e>l/2$
SLV 6	11.87	7.05	-0.1557	0	0	0	No, Trazione
SLV 10	4.83	-12.04	1.0351	0	0	0	No, $e>l/2$
SLV 10	11.87	5.73	-0.0226	0	0	0	No, Trazione
SLV 12	4.83	-8.57	0.4054	219	0.4926	1.215	Si
SLV 12	11.87	-15.14	1.5076	0	0	0	No, $e>l/2$
SLV 8	4.83	-8.21	0.8009	0	0	0	No, $e>l/2$
SLV 8	11.87	-13.83	1.3745	0	0	0	No, $e>l/2$
SLD 1	4.83	-10.07	1.2388	0	0	0	No, $e>l/2$
SLD 1	11.87	-1.77	0.4836	0	0	0	No, $e>l/2$
SLV 13	4.83	-11.25	0.3533	287	0.6024	1.705	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	11.87	-3.1	0.6683	0	0	0	No, $e \geq l/2$
SLV 11	4.83	-8.57	0.4054	219	0.4926	1.215	Si
SLV 11	11.87	-15.14	1.5076	0	0	0	No, $e \geq l/2$
SLV 9	4.83	-12.04	1.0351	0	0	0	No, $e \geq l/2$
SLV 9	11.87	5.73	-0.0226	0	0	0	No, Trazione
SLV 14	4.83	-11.25	0.3533	287	0.6024	1.705	Si
SLV 14	11.87	-3.1	0.6683	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	4.83	-13.66	-3.29	1.2558		0	0	56	0			0	No, $V_u < V$
SLU 55	11.87	-5.09	-0.81	0.8813		0	0	56	0			0	No, $V_u < V$
SLU 56	4.83	-13.67	-3.02	1.3045		0	0	56	0			0	No, $V_u < V$
SLU 56	11.87	-5.01	-1.03	0.9219		0	0	56	0			0	No, $V_u < V$
SLU 59	4.83	-13.69	-3.06	1.3006		0	0	56	0			0	No, $V_u < V$
SLU 59	11.87	-4.81	-1.01	0.8919		0	0	56	0			0	No, $V_u < V$
SLU 57	4.83	-13.8	-3.14	1.3026		0	0	56	0			0	No, $V_u < V$
SLU 57	11.87	-5.08	-1.02	0.9273		0	0	56	0			0	No, $V_u < V$
SLU 54	4.83	-13.67	-3.29	1.2591		0	0	56	0			0	No, $V_u < V$
SLU 54	11.87	-5.31	-0.83	0.913		0	0	56	0			0	No, $V_u < V$
SLU 53	4.83	-13.54	-3.18	1.261		0	0	56	0			0	No, $V_u < V$
SLU 53	11.87	-5.24	-0.84	0.9075		0	0	56	0			0	No, $V_u < V$
SLU 1	4.83	-9.51	-2.27	0.8876		0	0	56	0			0	No, $V_u < V$
SLU 1	11.87	-3.81	-0.44	0.6161		0	0	56	0			0	No, $V_u < V$
SLU 61	4.83	-13.97	-3.57	1.2449		0	0	56	0			0	No, $V_u < V$
SLU 61	11.87	-5.45	-0.7	0.9044		0	0	56	0			0	No, $V_u < V$
SLU 60	4.83	-13.84	-3.45	1.2468		0	0	56	0			0	No, $V_u < V$
SLU 60	11.87	-5.38	-0.71	0.8989		0	0	56	0			0	No, $V_u < V$
SLU 58	4.83	-13.56	-2.95	1.3025		0	0	56	0			0	No, $V_u < V$
SLU 58	11.87	-4.74	-1.03	0.8865		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	4.83	-8.57	-4.76	0.4054		449	0.0681	163	3.1			0.65	No, $V_u < V$
SLV 11	11.87	-15.14	2.05	1.5076		0	0	83	0			0	No, $V_u < V$
SLV 13	4.83	-11.25	-5.54	0.3533		347	0.1158	153	4.95			0.89	No, $V_u < V$
SLV 13	11.87	-3.1	-2.5	0.6683		0	0	83	0			0	No, $V_u < V$
SLV 7	4.83	-8.21	-2.74	0.8009		0	0	83	0			0	No, $V_u < V$
SLV 7	11.87	-13.83	2.7	1.3745		0	0	83	0			0	No, $V_u < V$
SLV 6	4.83	-11.67	-0.3	1.4307		0	0	83	0			0	No, $V_u < V$
SLV 6	11.87	7.05	-3.14	-0.1557		0	0	83	0			0	No, $V_u < V$
SLV 12	4.83	-8.57	-4.76	0.4054		449	0.0681	163	3.1			0.65	No, $V_u < V$
SLV 12	11.87	-15.14	2.05	1.5076		0	0	83	0			0	No, $V_u < V$
SLV 9	4.83	-12.04	-2.32	1.0351		0	0	83	0			0	No, $V_u < V$
SLV 9	11.87	5.73	-3.79	-0.0226		0	0	83	0			0	No, $V_u < V$
SLV 14	4.83	-11.25	-5.54	0.3533		347	0.1158	153	4.95			0.89	No, $V_u < V$
SLV 14	11.87	-3.1	-2.5	0.6683		0	0	83	0			0	No, $V_u < V$
SLV 8	4.83	-8.21	-2.74	0.8009		0	0	83	0			0	No, $V_u < V$
SLV 8	11.87	-13.83	2.7	1.3745		0	0	83	0			0	No, $V_u < V$
SLD 1	4.83	-10.07	-0.92	1.2388		0	0	83	0			0	No, $V_u < V$
SLD 1	11.87	-1.77	-0.45	0.4836		0	0	83	0			0	No, $V_u < V$
SLV 10	4.83	-12.04	-2.32	1.0351		0	0	83	0			0	No, $V_u < V$
SLV 10	11.87	5.73	-3.79	-0.0226		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 8.35  $W_a$  0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	1438	0.42	0	1.67	0.6253	0	0	No, Trazione
SLV 9	1438	0.42	0	1.67	0.6253	0	0	No, Trazione
SLV 5	1438	0.42	0	2.46	0.6253	0	0	No, Trazione
SLV 6	1438	0.42	0	2.46	0.6253	0	0	No, Trazione
SLV 2	1438	0.42	127	-4.96	0.6253	0.6227	1	No, $M > Mu$
SLV 1	1438	0.42	127	-4.96	0.6253	0.6227	1	No, $M > Mu$
SLV 13	1438	0.42	194	-7.62	0.6253	0.897	1.43	Si
SLV 14	1438	0.42	194	-7.62	0.6253	0.897	1.43	Si
SLV 3	1438	0.42	309	-12.12	0.6253	1.2677	2.03	Si
SLV 4	1438	0.42	309	-12.12	0.6253	1.2677	2.03	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 8.35  $W_a$  = 0.0005  $T_a$  = 0.2956

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	1.27	-10.04	-0.06	0	0	0	0	10.54528	No, Trazione
SLV 9	5.73	-12.04	0.14	0	0	0	0	9.60353	No, Trazione
SLV 10	5.73	-12.04	0.14	0	0	0	0	9.60353	No, Trazione
SLV 2	1.27	-10.04	-0.06	0	0	0	0	10.54528	No, Trazione
SLV 5	7.05	-11.67	0.08	0	0	0	0	9.60353	No, Trazione
SLV 6	7.05	-11.67	0.08	0	0	0	0	9.60353	No, Trazione
SLV 14	-3.1	-11.25	0.13	0.005	0.732	0.89	0.08022	10.54528	No
SLV 13	-3.1	-11.25	0.13	0.005	0.732	0.89	0.08022	10.54528	No
SLV 3	-4.99	-9	-0.12	0.01	0.914	0.9	0.15999	10.54528	No
SLV 4	-4.99	-9	-0.12	0.01	0.914	0.9	0.15999	10.54528	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 1	No



Stato limite	Coeff.s.	Comb.	Verifica
PFFP SLV	0	SLV 10	No
R SLV	0	SLV 10	No

## Maschio 232

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-16.278	-4.859	-17.053	-4.859	L3	F1	0.775	0.3	13.257	13.256	13.257			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 10	11.87	-20.76	-0.2726	89	7.1571	26.259	Si
SLU 10	13.99	-6.39	0.6278	27	2.391	3.808	Si
SLU 27	11.87	-14.51	0.8051	62	5.187	6.442	Si
SLU 27	13.99	-3.86	-0.421	17	1.4647	3.479	Si
SLU 2	11.87	-19.44	-0.362	84	6.7546	18.66	Si
SLU 2	13.99	-5.93	0.6929	26	2.2249	3.211	Si
SLU 14	11.87	-15.15	0.7839	65	5.3974	6.885	Si
SLU 14	13.99	-3.99	-0.4049	17	1.5137	3.739	Si
SLU 29	11.87	-14.34	0.8576	62	5.1341	5.987	Si
SLU 29	13.99	-3.82	-0.4569	16	1.4498	3.173	Si
SLU 35	11.87	-15.83	0.8945	68	5.6162	6.278	Si
SLU 35	13.99	-4.32	-0.4861	19	1.6346	3.363	Si
SLU 8	11.87	-13.67	0.747	59	4.9112	6.575	Si
SLU 8	13.99	-3.49	-0.3757	15	1.3283	3.535	Si
SLU 37	11.87	-15.66	0.947	67	5.5642	5.876	Si
SLU 37	13.99	-4.28	-0.522	18	1.6198	3.103	Si
SLU 44	11.87	-23.6	-0.3484	102	8.0005	22.962	Si
SLU 44	13.99	-6.91	0.741	30	2.5768	3.477	Si
SLU 16	11.87	-14.99	0.8364	65	5.345	6.39	Si
SLU 16	13.99	-3.95	-0.4408	17	1.4989	3.4	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 6	11.87	-30.01	10.015	129	10.3945	1.038	Si
SLV 6	13.99	11.94	-4.4677	0	0	0	No, Trazione
SLV 10	11.87	-24.14	7.888	104	8.554	1.084	Si
SLV 10	13.99	13.25	-1.5743	0	0	0	No, Trazione
SLV 13	11.87	-8.99	-0.6993	39	3.372	4.822	Si
SLV 13	13.99	3.27	3.934	0	0	0	No, Trazione
SLV 7	11.87	-6.31	-7.4305	0	0	0	No, e>l/2
SLV 7	13.99	-20.94	1.6259	90	7.5114	4.62	Si
SLV 9	11.87	-24.14	7.888	104	8.554	1.084	Si
SLV 9	13.99	13.25	-1.5743	0	0	0	No, Trazione
SLV 12	11.87	-0.43	-9.5575	0	0	0	No, e>l/2
SLV 12	13.99	-19.63	4.5192	84	7.0756	1.566	Si
SLV 11	11.87	-0.43	-9.5575	0	0	0	No, e>l/2
SLV 11	13.99	-19.63	4.5192	84	7.0756	1.566	Si
SLV 8	11.87	-6.31	-7.4305	0	0	0	No, e>l/2
SLV 8	13.99	-20.94	1.6259	90	7.5114	4.62	Si
SLV 14	11.87	-8.99	-0.6993	39	3.372	4.822	Si
SLV 14	13.99	3.27	3.934	0	0	0	No, Trazione
SLD 1	11.87	-20.89	2.779	90	7.4941	2.697	Si
SLD 1	13.99	-2.85	-2.4168	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	11.87	-25.11	0.02	0.1393		108	0.7745	70	16.26			777.82	Si
SLU 76	13.99	-7.63	-2.53	0.3731		33	0.7745	60	13.93			5.51	Si
SLU 38	11.87	-18.54	1.27	0.6269		80	0.7745	66	15.38			12.07	Si
SLU 38	13.99	-5.67	-2.83	-0.1468		24	0.7745	59	13.66			4.84	Si
SLU 84	11.87	-23.76	0.54	0.3911		102	0.7745	69	16.08			29.7	Si
SLU 84	13.99	-6.9	-2.55	0.0951		30	0.7745	60	13.83			5.43	Si
SLU 36	11.87	-18.7	1.15	0.5744		80	0.7745	66	15.4			13.38	Si
SLU 36	13.99	-5.71	-2.77	-0.1109		25	0.7745	59	13.67			4.93	Si
SLU 80	11.87	-22.7	1.2	0.6404		98	0.7745	69	15.94			13.33	Si
SLU 80	13.99	-6.64	-2.78	-0.0987		29	0.7745	59	13.79			4.97	Si
SLU 35	11.87	-15.83	1.83	0.8945		68	0.7745	65	15.02			8.2	Si
SLU 35	13.99	-4.32	-2.42	-0.4861		19	0.7745	58	13.48			5.58	Si
SLU 78	11.87	-22.86	1.07	0.588		98	0.7745	69	15.96			14.88	Si
SLU 78	13.99	-6.68	-2.72	-0.0628		29	0.7745	59	13.8			5.07	Si
SLU 37	11.87	-15.66	1.96	0.947		67	0.7745	65	15			7.67	Si
SLU 37	13.99	-4.28	-2.47	-0.522		18	0.7745	58	13.48			5.45	Si
SLU 42	11.87	-19.59	0.62	0.3775		84	0.7745	67	15.52			25.04	Si
SLU 42	13.99	-5.93	-2.6	0.047		26	0.7745	59	13.7			5.28	Si
SLU 34	11.87	-20.94	0.1	0.1257		90	0.7745	68	15.7			157.92	Si
SLU 34	13.99	-6.65	-2.58	0.325		29	0.7745	59	13.8			5.35	Si





Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	11.87	-8.99	-5.18	-0.6993		39	0.7745	91	21.16			4.09	Si
SLV 14	13.99	3.27	-5.11	3.934		0	0	83	0			0	No, Vu<V
SLV 13	11.87	-8.99	-5.18	-0.6993		39	0.7745	91	21.16			4.09	Si
SLV 13	13.99	3.27	-5.11	3.934		0	0	83	0			0	No, Vu<V
SLV 11	11.87	-0.43	-11.1	-9.5575		0	0	83	0			0	No, Vu<V
SLV 11	13.99	-19.63	11.78	4.5192		139	0.471	111	15.7			1.33	Si
SLV 7	11.87	-6.31	-6.27	-7.4305		0	0	83	0			0	No, Vu<V
SLV 7	13.99	-20.94	12.14	1.6259		90	0.7745	101	23.55			1.94	Si
SLD 1	11.87	-20.89	4.72	2.779		91	0.7627	102	23.24			4.93	Si
SLD 1	13.99	-2.85	-2	-2.4168		0	0	83	0			0	No, Vu<V
SLV 12	11.87	-0.43	-11.1	-9.5575		0	0	83	0			0	No, Vu<V
SLV 12	13.99	-19.63	11.78	4.5192		139	0.471	111	15.7			1.33	Si
SLV 9	11.87	-24.14	6.67	7.888		443	0.1816	163	8.85			1.33	Si
SLV 9	13.99	13.25	-13.58	-1.5743		0	0	83	0			0	No, Vu<V
SLV 6	11.87	-30.01	11.49	10.015		622	0.1607	163	7.84			0.68	No, Vu<V
SLV 6	13.99	11.94	-13.22	-4.4677		0	0	83	0			0	No, Vu<V
SLV 10	11.87	-24.14	6.67	7.888		443	0.1816	163	8.85			1.33	Si
SLV 10	13.99	13.25	-13.58	-1.5743		0	0	83	0			0	No, Vu<V
SLV 8	11.87	-6.31	-6.27	-7.4305		0	0	83	0			0	No, Vu<V
SLV 8	13.99	-20.94	12.14	1.6259		90	0.7745	101	23.55			1.94	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.738 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.41	0	7.85	12.4457	0	0	No, Trazione
SLV 11	1438	0.41	0	7.85	12.4457	0	0	No, Trazione
SLV 8	1438	0.41	0	-0.38	12.4457	0	0	No, e>t/2
SLV 10	1438	0.41	0	-76.26	12.4457	0	0	No, e>t/2
SLV 2	1438	0.41	0	-64.66	12.4457	0	0	No, e>t/2
SLV 1	1438	0.41	0	-64.66	12.4457	0	0	No, e>t/2
SLV 7	1438	0.41	0	-0.38	12.4457	0	0	No, e>t/2
SLV 4	1438	0.41	0	-39.42	12.4457	0	0	No, e>t/2
SLV 3	1438	0.41	0	-39.42	12.4457	0	0	No, e>t/2
SLV 9	1438	0.41	0	-76.26	12.4457	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.738 Wa = 0.0005 Ta = 0.9783

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	15.63	-115.27	-0.36	0	0	0	0	2.39674	No, Trazione
SLV 14	6.7	-63.97	-0.25	0	0	0	0	2.39674	No, Trazione
SLV 6	13.49	-135.54	-0.29	0	0	0	0	2.39674	No, Trazione
SLV 9	15.63	-115.27	-0.36	0	0	0	0	2.39674	No, Trazione
SLV 5	13.49	-135.54	-0.29	0	0	0	0	2.39674	No, Trazione
SLV 13	6.7	-63.97	-0.25	0	0	0	0	2.39674	No, Trazione
SLV 7	-19.17	-56.54	0.25	0.013	6.786	0.892	0.20639	2.39674	No
SLV 8	-19.17	-56.54	0.25	0.013	6.786	0.892	0.20639	2.39674	No
SLV 12	-17.03	-36.26	0.18	0.014	6.609	0.895	0.2306	2.39674	No
SLV 11	-17.03	-36.26	0.18	0.014	6.609	0.895	0.2306	2.39674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.103	SLU 37	Si
V_SLU	4.836	SLU 38	Si
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 14	No

## Maschio 233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-4.859	-14.438	-4.859	L3	F1	0.685	0.3	13.255	13.255	13.255			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	11.87	-11.95	-0.3978	58	3.8034	9.561	Si
SLU 1	13.99	-2.98	0.3767	14	1.0025	2.661	Si
SLU 52	11.87	-15.43	-0.4299	75	4.8006	11.166	Si
SLU 52	13.99	-3.8	0.527	18	1.2724	2.414	Si
SLU 43	11.87	-14.96	-0.5487	73	4.6689	8.508	Si
SLU 43	13.99	-3.78	0.5304	18	1.2663	2.387	Si
SLU 2	11.87	-11.99	-0.417	58	3.8165	9.151	Si
SLU 2	13.99	-2.95	0.5255	14	0.9929	1.889	Si
SLU 46	11.87	-17.58	-0.4464	85	5.3922	12.079	Si
SLU 46	13.99	-4.17	0.4839	20	1.3924	2.878	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 10	11.87	-12.42	-0.279	60	3.941	14.126	Si
SLU 10	13.99	-3	0.3733	15	1.0086	2.702	Si
SLU 23	11.87	-13.68	-0.3248	67	4.3046	13.251	Si
SLU 23	13.99	-3.21	0.4069	16	1.0807	2.656	Si
SLU 44	11.87	-15	-0.568	73	4.6814	8.242	Si
SLU 44	13.99	-3.75	0.6792	18	1.2568	1.85	Si
SLU 47	11.87	-18.1	-0.4287	88	5.5335	12.908	Si
SLU 47	13.99	-4.23	0.5213	21	1.4126	2.71	Si
SLU 65	11.87	-16.68	-0.4758	81	5.1487	10.821	Si
SLU 65	13.99	-4.02	0.5606	20	1.3438	2.397	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	11.87	-45.31	2.291	220	12.7285	5.556	Si
SLV 6	13.99	-5.03	-3.2856	0	0	0	No, $e \geq l/2$
SLV 13	11.87	-32.62	-0.4956	159	9.7281	19.629	Si
SLV 13	13.99	-6.33	3.4255	0	0	0	No, $e \geq l/2$
SLV 5	11.87	-45.31	2.291	220	12.7285	5.556	Si
SLV 5	13.99	-5.03	-3.2856	0	0	0	No, $e \geq l/2$
SLV 8	11.87	25.84	-2.4318	0	0	0	No, Trazione
SLV 8	13.99	0.37	1.5715	0	0	0	No, Trazione
SLV 14	11.87	-32.62	-0.4956	159	9.7281	19.629	Si
SLV 14	13.99	-6.33	3.4255	0	0	0	No, $e \geq l/2$
SLV 7	11.87	25.84	-2.4318	0	0	0	No, Trazione
SLV 7	13.99	0.37	1.5715	0	0	0	No, Trazione
SLV 12	11.87	20.2	-2.9551	0	0	0	No, Trazione
SLV 12	13.99	-1.1	3.8843	0	0	0	No, $e \geq l/2$
SLV 4	11.87	7.51	-0.1684	0	0	0	No, Trazione
SLV 4	13.99	0.2	-2.8268	0	0	0	No, Trazione
SLV 11	11.87	20.2	-2.9551	0	0	0	No, Trazione
SLV 11	13.99	-1.1	3.8843	0	0	0	No, $e \geq l/2$
SLD 1	11.87	-13.11	0.3389	64	4.2574	12.563	Si
SLD 1	13.99	-2.36	-1.6556	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 65	11.87	-16.68	-1	-0.4758		81	0.6855	66	13.65			13.71	Si
SLU 65	13.99	-4.02	1.09	0.5606		22	0.6096	58	10.69			9.82	Si
SLU 38	11.87	-20.28	1.08	0.0995		99	0.6855	69	14.13			13.08	Si
SLU 38	13.99	-4.23	-0.39	-0.1207		21	0.6855	58	11.99			30.43	Si
SLU 23	11.87	-13.68	-0.62	-0.3248		67	0.6855	64	13.25			21.52	Si
SLU 23	13.99	-3.21	0.84	0.4069		17	0.6485	58	11.24			13.43	Si
SLU 52	11.87	-15.43	-1.01	-0.4299		75	0.6855	66	13.48			13.29	Si
SLU 52	13.99	-3.8	0.99	0.527		21	0.612	58	10.71			10.81	Si
SLU 37	11.87	-20.25	1.16	0.1111		98	0.6855	69	14.12			12.2	Si
SLU 37	13.99	-4.25	-0.69	-0.21		21	0.6855	58	11.99			17.41	Si
SLU 2	11.87	-11.99	-0.98	-0.417		58	0.6855	63	13.02			13.29	Si
SLU 2	13.99	-2.95	1.07	0.5255		20	0.4936	58	8.62			8.07	Si
SLU 44	11.87	-15	-1.36	-0.568		73	0.6855	65	13.42			9.87	Si
SLU 44	13.99	-3.75	1.32	0.6792		26	0.485	59	8.58			6.5	Si
SLU 47	11.87	-18.1	-0.71	-0.4287		88	0.6855	67	13.84			19.46	Si
SLU 47	13.99	-4.23	0.97	0.5213		21	0.6583	58	11.54			11.89	Si
SLU 43	11.87	-14.96	-1.23	-0.5487		73	0.6855	65	13.42			10.91	Si
SLU 43	13.99	-3.78	0.83	0.5304		21	0.6072	58	10.62			12.81	Si
SLU 35	11.87	-19.75	1.04	0.0857		96	0.6855	68	14.06			13.53	Si
SLU 35	13.99	-4.17	-0.64	-0.1879		20	0.6855	58	11.98			18.67	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	11.87	-32.62	-9.75	-0.4956		159	0.6855	115	23.66			2.43	Si
SLV 14	13.99	-6.33	-7.13	3.4255		0	0	83	0			0	No, $V_u < V$
SLV 5	11.87	-45.31	10.42	2.291		220	0.6855	127	26.2			2.51	Si
SLV 5	13.99	-5.03	-1.12	-3.2856		0	0	83	0			0	No, $V_u < V$
SLD 1	11.87	-13.11	5.21	0.3389		64	0.6855	96	19.76			3.8	Si
SLD 1	13.99	-2.36	2.78	-1.6556		0	0	83	0			0	No, $V_u < V$
SLV 7	11.87	25.84	-4.88	-2.4318		0	0	83	0			0	No, $V_u < V$
SLV 7	13.99	0.37	5.85	1.5715		0	0	83	0			0	No, $V_u < V$
SLV 13	11.87	-32.62	-9.75	-0.4956		159	0.6855	115	23.66			2.43	Si
SLV 13	13.99	-6.33	-7.13	3.4255		0	0	83	0			0	No, $V_u < V$
SLV 6	11.87	-45.31	10.42	2.291		220	0.6855	127	26.2			2.51	Si
SLV 6	13.99	-5.03	-1.12	-3.2856		0	0	83	0			0	No, $V_u < V$
SLV 12	11.87	20.2	-11.71	-2.9551		0	0	83	0			0	No, $V_u < V$
SLV 12	13.99	-1.1	1.95	3.8843		0	0	83	0			0	No, $V_u < V$
SLV 11	11.87	20.2	-11.71	-2.9551		0	0	83	0			0	No, $V_u < V$
SLV 11	13.99	-1.1	1.95	3.8843		0	0	83	0			0	No, $V_u < V$
SLV 8	11.87	25.84	-4.88	-2.4318		0	0	83	0			0	No, $V_u < V$
SLV 8	13.99	0.37	5.85	1.5715		0	0	83	0			0	No, $V_u < V$
SLV 4	11.87	7.51	8.46	-0.1684		0	0	83	0			0	No, $V_u < V$
SLV 4	13.99	0.2	7.96	-2.8268		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.737 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.41	0	-43.91	11.0108	0	0	No, $e \geq t/2$
SLV 7	1438	0.41	0	15.04	11.0108	0	0	No, Trazione
SLV 11	1438	0.41	0	30.13	11.0108	0	0	No, Trazione
SLV 13	1438	0.41	0	-29.04	11.0108	0	0	No, $e \geq t/2$
SLV 15	1438	0.41	0	6.39	11.0108	0	0	No, Trazione



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	1438	0.41	0	30.13	11.0108	0	0	No, Trazione
SLV 4	1438	0.41	0	-43.91	11.0108	0	0	No, $e > t/2$
SLV 16	1438	0.41	0	6.39	11.0108	0	0	No, Trazione
SLV 14	1438	0.41	0	-29.04	11.0108	0	0	No, $e > t/2$
SLV 8	1438	0.41	0	15.04	11.0108	0	0	No, Trazione

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.737 Wa = 0.0005 Ta = 0.978

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	2.07	-122.36	0.12	0	0	0	0	2.39674	No, Trazione
SLV 8	2.18	-27.67	-0.09	0	0	0	0	2.39674	No, Trazione
SLV 11	0.67	15.67	-0.17	0	0	0	0	2.39674	No, Trazione
SLV 3	2.07	-122.36	0.12	0	0	0	0	2.39674	No, Trazione
SLV 12	0.67	15.67	-0.17	0	0	0	0	2.39674	No, Trazione
SLV 15	-2.98	22.12	-0.12	0	0	0	0	2.39674	No, Trazione
SLV 7	2.18	-27.67	-0.09	0	0	0	0	2.39674	No, Trazione
SLV 1	0.45	-160.17	0.23	0	0	0	0	2.39674	No, Trazione
SLV 2	0.45	-160.17	0.23	0	0	0	0	2.39674	No, Trazione
SLV 16	-2.98	22.12	-0.12	0	0	0	0	2.39674	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.85	SLU 44	Si
V_SLU	6.495	SLU 44	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 16	No

## Maschio 234

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-4.859	-13.753	-3.499	Z medio 313 cm	F1	1.359	0.28	11.55	11.235	11.866			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	3.13	-175.96	0.2348	462	51.7177	220.26	Si
SLU 60	14.36	-4.7	0.9684	12	3.1446	3.247	Si
SLU 1	3.13	-120.65	0.0787	317	50.0904	636.665	Si
SLU 1	14.36	-3.33	0.6841	9	2.2409	3.276	Si
SLU 19	3.13	-143.65	0.3055	377	52.3961	171.523	Si
SLU 19	14.36	-3.93	0.7147	10	2.6401	3.694	Si
SLU 64	3.13	-163.73	0.2101	430	52.5127	249.956	Si
SLU 64	14.36	-4.8	0.8822	13	3.2136	3.643	Si
SLU 61	3.13	-176.26	0.2728	463	51.69	189.459	Si
SLU 61	14.36	-4.69	0.9237	12	3.1388	3.398	Si
SLU 18	3.13	-143.35	0.2674	377	52.381	195.855	Si
SLU 18	14.36	-3.94	0.7594	10	2.6459	3.484	Si
SLU 43	3.13	-153.26	0.046	403	52.6724	1000	Si
SLU 43	14.36	-4.09	0.8931	11	2.7416	3.07	Si
SLU 2	3.13	-121.15	0.1421	318	50.165	353.138	Si
SLU 2	14.36	-3.32	0.6095	9	2.2312	3.661	Si
SLU 44	3.13	-153.76	0.1094	404	52.6757	481.453	Si
SLU 44	14.36	-4.07	0.8185	11	2.7319	3.338	Si
SLU 52	3.13	-169.65	0.2416	446	52.2099	216.145	Si
SLU 52	14.36	-4.5	0.8712	12	3.0143	3.46	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	3.13	-116.97	-2.6547	307	59.5033	22.414	Si
SLD 15	14.36	-1.33	-0.7889	3	0.8995	1.14	Si
SLV 15	3.13	-101.57	-6.3413	267	53.9548	8.508	Si
SLV 15	14.36	1.88	-2.8234	0	0	0	No, Trazione
SLD 16	3.13	-116.97	-2.6547	307	59.5033	22.414	Si
SLD 16	14.36	-1.33	-0.7889	3	0.8995	1.14	Si
SLD 11	3.13	-93.17	1.8291	245	50.6361	27.684	Si
SLD 11	14.36	-0.33	-0.9084	0	0	0	No, $e > l/2$
SLV 11	3.13	-45.82	4.212	120	28.0733	6.665	Si
SLV 11	14.36	4.07	-3.0514	0	0	0	No, Trazione
SLV 16	3.13	-101.57	-6.3413	267	53.9548	8.508	Si
SLV 16	14.36	1.88	-2.8234	0	0	0	No, Trazione
SLD 12	3.13	-93.17	1.8291	245	50.6361	27.684	Si
SLD 12	14.36	-0.33	-0.9084	0	0	0	No, $e > l/2$
SLV 7	3.13	-47.08	9.3016	124	28.7572	3.092	Si
SLV 7	14.36	1.95	-1.4721	0	0	0	No, Trazione
SLV 12	3.13	-45.82	4.212	120	28.0733	6.665	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	14.36	4.07	-3.0514	0	0	0	No, Trazione
SLV 8	3.13	-47.08	9.3016	124	28.7572	3.092	Si
SLV 8	14.36	1.95	-1.4721	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	3.13	-187.44	-9.51	0.0688		492	1.3593	108	41.23			4.34	Si
SLU 79	14.36	-6.64	-10.47	0.3479		17	1.3593	58	22.03			2.1	Si
SLU 78	3.13	-187.95	-9.38	0.1813		494	1.3593	108	41.23			4.4	Si
SLU 78	14.36	-6.8	-10.3	0.4494		18	1.3593	58	22.05			2.14	Si
SLU 77	3.13	-187.65	-9.63	0.1433		493	1.3593	108	41.23			4.28	Si
SLU 77	14.36	-6.81	-10.23	0.4941		18	1.3593	58	22.05			2.16	Si
SLU 36	3.13	-155.34	-8.39	0.214		408	1.3593	108	41.23			4.92	Si
SLU 36	14.36	-6.05	-10.18	0.2404		16	1.3593	58	21.95			2.16	Si
SLU 72	3.13	-171.85	-6.72	-0.0254		452	1.3593	108	41.23			6.14	Si
SLU 72	14.36	-6.21	-9.36	0.2504		16	1.3593	58	21.97			2.35	Si
SLU 71	3.13	-171.55	-6.97	-0.0634		451	1.3593	108	41.23			5.92	Si
SLU 71	14.36	-6.21	-9.29	0.2952		16	1.3593	58	21.97			2.36	Si
SLU 80	3.13	-187.74	-9.26	0.1068		493	1.3593	108	41.23			4.45	Si
SLU 80	14.36	-6.63	-10.53	0.3032		17	1.3593	58	22.03			2.09	Si
SLU 38	3.13	-155.14	-8.27	0.1394		408	1.3593	108	41.23			4.99	Si
SLU 38	14.36	-5.88	-10.42	0.0942		15	1.3593	58	21.93			2.11	Si
SLU 37	3.13	-154.84	-8.52	0.1014		407	1.3593	108	41.23			4.84	Si
SLU 37	14.36	-5.89	-10.35	0.1389		15	1.3593	58	21.93			2.12	Si
SLU 35	3.13	-155.04	-8.64	0.176		407	1.3593	108	41.23			4.77	Si
SLU 35	14.36	-6.06	-10.11	0.2852		16	1.3593	58	21.95			2.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 11	3.13	-93.17	3.92	1.8291		245	1.3593	132	50.35			12.85	Si
SLD 11	14.36	-0.33	6.33	-0.9084		0	0	83	0			0	No, Vu<V
SLV 5	3.13	-210.55	-28.76	-3.8854		553	1.3593	163	61.85			2.15	Si
SLV 5	14.36	-11.39	-25.21	4.4435		47	0.8688	93	22.55			0.89	No, Vu<V
SLV 8	3.13	-47.08	32.23	9.3016		124	1.3593	108	41.13			1.28	Si
SLV 8	14.36	1.95	21.48	-1.4721		0	0	83	0			0	No, Vu<V
SLV 11	3.13	-45.82	16.85	4.212		120	1.3593	107	40.88			2.43	Si
SLV 11	14.36	4.07	18.9	-3.0514		0	0	83	0			0	No, Vu<V
SLV 16	3.13	-101.57	-22.45	-6.3413		267	1.3593	137	52.03			2.32	Si
SLV 16	14.36	1.88	-0.46	-2.8234		0	0	83	0			0	No, Vu<V
SLV 6	3.13	-210.55	-28.76	-3.8854		553	1.3593	163	61.85			2.15	Si
SLV 6	14.36	-11.39	-25.21	4.4435		47	0.8688	93	22.55			0.89	No, Vu<V
SLV 12	3.13	-45.82	16.85	4.212		120	1.3593	107	40.88			2.43	Si
SLV 12	14.36	4.07	18.9	-3.0514		0	0	83	0			0	No, Vu<V
SLV 7	3.13	-47.08	32.23	9.3016		124	1.3593	108	41.13			1.28	Si
SLV 7	14.36	1.95	21.48	-1.4721		0	0	83	0			0	No, Vu<V
SLV 15	3.13	-101.57	-22.45	-6.3413		267	1.3593	137	52.03			2.32	Si
SLV 15	14.36	1.88	-0.46	-2.8234		0	0	83	0			0	No, Vu<V
SLD 12	3.13	-93.17	3.92	1.8291		245	1.3593	132	50.35			12.85	Si
SLD 12	14.36	-0.33	6.33	-0.9084		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 8.747 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.43	0	-58.36	17.0551	0	0	No, $e>t/2$
SLV 6	1438	0.43	0	-80.12	17.0551	0	0	No, $e>t/2$
SLV 8	1438	0.43	0	-45.36	17.0551	0	0	No, $e>t/2$
SLV 2	1438	0.43	0	-68.79	17.0551	0	0	No, $e>t/2$
SLV 10	1438	0.43	0	-79.4	17.0551	0	0	No, $e>t/2$
SLV 9	1438	0.43	0	-79.4	17.0551	0	0	No, $e>t/2$
SLV 1	1438	0.43	0	-68.79	17.0551	0	0	No, $e>t/2$
SLV 5	1438	0.43	0	-80.12	17.0551	0	0	No, $e>t/2$
SLV 3	1438	0.43	0	-58.36	17.0551	0	0	No, $e>t/2$
SLV 7	1438	0.43	0	-45.36	17.0551	0	0	No, $e>t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 8.747 Wa = 0.0005 Ta = 0.7956

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	a0*	aLim	Verifica
SLV 7	1.95	-47.08	-0.34	0	0	0	0	2.39674	No, Trazione
SLV 11	4.07	-45.82	-0.64	0	0	0	0	2.39674	No, Trazione
SLV 12	4.07	-45.82	-0.64	0	0	0	0	2.39674	No, Trazione
SLV 16	1.88	-101.57	-0.57	0	0	0	0	2.39674	No, Trazione
SLV 15	1.88	-101.57	-0.57	0	0	0	0	2.39674	No, Trazione
SLV 8	1.95	-47.08	-0.34	0	0	0	0	2.39674	No, Trazione
SLV 5	-11.39	-210.55	0.82	0.005	8.491	0.92	0.085	2.39674	No
SLV 6	-11.39	-210.55	0.82	0.005	8.491	0.92	0.085	2.39674	No
SLV 2	-9.19	-154.8	0.76	0.006	8.364	0.929	0.0999	2.39674	No
SLV 1	-9.19	-154.8	0.76	0.006	8.364	0.929	0.0999	2.39674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.07	SLU 43	Si
V_SLU	2.091	SLU 80	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 11	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No



## Maschio 235

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)  
Maschio considerato membratura sismica secondaria

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-13.753	-3.499	-13.753	-3.314	L4	L7	0.186	0.28	10.2	10.2	10.2			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 54	4.83	-19.74	2.5361	0	0	0	No, e>l/2
SLU 54	15.03	0	0	0	0	1000	Si
SLU 61	4.83	-20.22	2.6242	0	0	0	No, e>l/2
SLU 61	15.03	0	0	0	0	1000	Si
SLU 58	4.83	-19.77	2.494	0	0	0	No, e>l/2
SLU 58	15.03	0	0	0	0	1000	Si
SLU 57	4.83	-20.01	2.5481	0	0	0	No, e>l/2
SLU 57	15.03	0	0	0	0	1000	Si
SLU 56	4.83	-19.88	2.5152	0	0	0	No, e>l/2
SLU 56	15.03	0	0	0	0	1000	Si
SLU 60	4.83	-20.1	2.5914	0	0	0	No, e>l/2
SLU 60	15.03	0	0	0	0	1000	Si
SLU 1	4.83	-13.59	1.7359	0	0	0	No, e>l/2
SLU 1	15.03	0	0	0	0	1000	Si
SLU 53	4.83	-19.62	2.5033	0	0	0	No, e>l/2
SLU 53	15.03	0	0	0	0	1000	Si
SLU 59	4.83	-19.89	2.5269	0	0	0	No, e>l/2
SLU 59	15.03	0	0	0	0	1000	Si
SLU 55	4.83	-19.71	2.5368	0	0	0	No, e>l/2
SLU 55	15.03	0	0	0	0	1000	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	4.83	-19.74	1.5	2.5361	0	0	0	56	0	0	0	0	No, Vu<V
SLU 54	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 53	4.83	-19.62	1.38	2.5033	0	0	0	56	0	0	0	0	No, Vu<V
SLU 53	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 59	4.83	-19.89	1.35	2.5269	0	0	0	56	0	0	0	0	No, Vu<V
SLU 59	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 61	4.83	-20.22	1.65	2.6242	0	0	0	56	0	0	0	0	No, Vu<V
SLU 61	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 58	4.83	-19.77	1.22	2.494	0	0	0	56	0	0	0	0	No, Vu<V
SLU 58	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 55	4.83	-19.71	1.54	2.5368	0	0	0	56	0	0	0	0	No, Vu<V
SLU 55	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 57	4.83	-20.01	1.39	2.5481	0	0	0	56	0	0	0	0	No, Vu<V
SLU 57	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 1	4.83	-13.59	1.02	1.7359	0	0	0	56	0	0	0	0	No, Vu<V
SLU 1	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 56	4.83	-19.88	1.27	2.5152	0	0	0	56	0	0	0	0	No, Vu<V
SLU 56	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si
SLU 60	4.83	-20.1	1.52	2.5914	0	0	0	56	0	0	0	0	No, Vu<V
SLU 60	15.03	0	0	0	0	0	0	56	0	0	0	1000	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 9.93 Wa 0.0005 denominatore 8 γM = 2

Comb.	fd	Sa	σ0	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.45	0	10.99	1.9221	0	0	No, Trazione
SLV 1	1438	0.45	0	-2.03	1.9221	0	0	No, e>t/2
SLV 9	1438	0.45	0	10.3	1.9221	0	0	No, Trazione
SLV 10	1438	0.45	0	10.3	1.9221	0	0	No, Trazione
SLV 13	1438	0.45	0	-4.33	1.9221	0	0	No, e>t/2
SLV 2	1438	0.45	0	-2.03	1.9221	0	0	No, e>t/2
SLV 14	1438	0.45	0	-4.33	1.9221	0	0	No, e>t/2
SLV 6	1438	0.45	0	10.99	1.9221	0	0	No, Trazione
SLV 3	1438	0.45	267	-13.88	1.9221	1.5185	0.79	No, M>Mu
SLV 4	1438	0.45	267	-13.88	1.9221	1.5185	0.79	No, M>Mu

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 9.93 Wa = 0.0005 Ta = 0.6205

Comb.	N top	N base	V orto	α0	M*	e*	a0*	aLim	Verifica
SLV 8	0	-10.28	0	0.027	0.973	1	0.39895	2.39674	No
SLV 1	0	-12.26	0	0.027	0.973	1	0.39895	2.39674	No
SLV 3	0	-10.29	0	0.027	0.973	1	0.39895	2.39674	No
SLV 6	0	-16.86	0	0.027	0.973	1	0.39895	2.39674	No
SLV 5	0	-16.86	0	0.027	0.973	1	0.39895	2.39674	No
SLV 2	0	-12.26	0	0.027	0.973	1	0.39895	2.39674	No
SLV 10	0	-18.82	0	0.027	0.973	1	0.39895	2.39674	No
SLV 9	0	-18.82	0	0.027	0.973	1	0.39895	2.39674	No
SLV 4	0	-10.29	0	0.027	0.973	1	0.39895	2.39674	No
SLV 7	0	-10.28	0	0.027	0.973	1	0.39895	2.39674	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0.166	SLV 1	No

## Maschio 236

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-3.314	-13.753	-0.354	Z medio 570 cm	Z medio 922 cm	2.96	0.28	3.525	3.53	3.52			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fν0	μ	φ	fν,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 83	6.56	-292.59	48.9249	353	245.362	5.015	Si
SLU 83	8.35	-198.23	-1.8414	239	207.2376	112.547	Si
SLU 84	6.56	-293.44	47.5039	354	245.5281	5.169	Si
SLU 84	8.35	-199.49	-3.2682	241	208.0043	63.646	Si
SLU 35	6.56	-238.88	43.4601	288	228.4474	5.256	Si
SLU 35	8.35	-156.56	0.6187	189	177.9739	287.664	Si
SLU 39	6.56	-241.32	42.9516	291	229.4891	5.343	Si
SLU 39	8.35	-164.75	-3.046	199	184.3245	60.514	Si
SLU 41	6.56	-243.77	46.0171	294	230.5099	5.009	Si
SLU 41	8.35	-163.3	0.1318	197	183.2249	1000	Si
SLU 37	6.56	-236.14	43.1803	285	227.2481	5.263	Si
SLU 37	8.35	-154.62	1.8457	187	176.4257	95.585	Si
SLU 77	6.56	-287.7	46.3678	347	244.3458	5.27	Si
SLU 77	8.35	-191.49	-1.3545	231	203.0192	149.886	Si
SLU 79	6.56	-284.97	46.0881	344	243.7317	5.288	Si
SLU 79	8.35	-189.55	-0.1274	229	201.7681	1000	Si
SLU 81	6.56	-290.14	45.8593	350	244.8657	5.339	Si
SLU 81	8.35	-199.67	-5.0192	241	208.1158	41.464	Si
SLU 42	6.56	-244.62	44.5961	295	230.858	5.177	Si
SLU 42	8.35	-164.56	-1.295	199	184.1847	142.23	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 8	6.56	-204.33	-35.0207	247	241.3873	6.893	Si
SLV 8	8.35	-203.73	-83.6858	246	240.8598	2.878	Si
SLV 10	6.56	-194.59	80.3884	235	232.6507	2.894	Si
SLV 10	8.35	-71.04	70.6852	86	97.7579	1.383	Si
SLV 2	6.56	-147.02	21.0264	177	186.0042	8.846	Si
SLV 2	8.35	-95.14	39.4364	115	127.5726	3.235	Si
SLV 11	6.56	-232.38	-24.5791	280	265.0051	10.782	Si
SLV 11	8.35	-216.03	-96.2258	261	251.5174	2.614	Si
SLV 1	6.56	-147.02	21.0264	177	186.0042	8.846	Si
SLV 1	8.35	-95.14	39.4364	115	127.5726	3.235	Si
SLV 7	6.56	-204.33	-35.0207	247	241.3873	6.893	Si
SLV 7	8.35	-203.73	-83.6858	246	240.8598	2.878	Si
SLV 6	6.56	-166.53	69.9469	201	205.9332	2.944	Si
SLV 6	8.35	-58.74	83.2253	71	81.888	0.984	No, M>Mu
SLV 12	6.56	-232.38	-24.5791	280	265.0051	10.782	Si
SLV 12	8.35	-216.03	-96.2258	261	251.5174	2.614	Si
SLV 9	6.56	-194.59	80.3884	235	232.6507	2.894	Si
SLV 9	8.35	-71.04	70.6852	86	97.7579	1.383	Si
SLV 5	6.56	-166.53	69.9469	201	205.9332	2.944	Si
SLV 5	8.35	-58.74	83.2253	71	81.888	0.984	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 19	6.56	-221.17	12.1	35.1911		267	2.96	91	75.53			6.24	Si
SLU 19	8.35	-154.72	6.75	-3.8435		187	2.96	80	66.67			9.87	Si
SLU 82	6.56	-290.99	13.51	44.4384		351	2.96	102	84.84			6.28	Si
SLU 82	8.35	-200.94	9.13	-6.446		242	2.96	88	72.84			7.97	Si
SLU 52	6.56	-260.48	14.21	31.2492		314	2.96	97	80.78			5.69	Si
SLU 52	8.35	-183.25	9.71	-8.2318		221	2.96	85	70.48			7.26	Si
SLU 61	6.56	-269.99	13.93	38.0988		326	2.96	99	82.04			5.89	Si
SLU 61	8.35	-189.65	8.24	-5.8167		229	2.96	86	71.33			8.66	Si
SLU 23	6.56	-209.16	9.04	20.909		252	2.96	89	73.93			8.18	Si
SLU 23	8.35	-142.72	9.81	-10.3037		172	2.96	79	65.07			6.63	Si
SLU 10	6.56	-211.66	12.38	28.3415		255	2.96	90	74.27			6	Si
SLU 10	8.35	-148.32	8.23	-6.2586		179	2.96	79	65.82			8	Si
SLU 44	6.56	-236.98	11.28	17.4772		286	2.96	94	77.64			6.88	Si
SLU 44	8.35	-166.36	10.4	-11.6476		201	2.96	82	68.23			6.56	Si
SLU 65	6.56	-257.98	10.87	23.8167		311	2.96	97	80.44			7.4	Si
SLU 65	8.35	-177.65	11.29	-12.2769		214	2.96	84	69.73			6.17	Si
SLU 73	6.56	-281.48	13.79	37.5888		340	2.96	101	83.58			6.06	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	8.35	-194.54	10.61	-8.8611		235	2.96	87	71.98			6.79	Si
SLU 31	6.56	-232.66	11.96	34.681		281	2.96	93	77.07			6.44	Si
SLU 31	8.35	-159.61	9.12	-6.8879		193	2.96	81	67.33			7.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	6.56	-232.38	157.6	-24.5791		280	2.96	139	115.54			0.73	No, Vu<V
SLV 11	8.35	-216.03	141.21	-96.2258		261	2.96	135	112.27			0.8	No, Vu<V
SLV 1	6.56	-147.02	-76.82	21.0264		177	2.96	119	98.47			1.28	Si
SLV 1	8.35	-95.14	-74.68	39.4364		115	2.96	106	88.09			1.18	Si
SLV 9	6.56	-194.59	-120	80.3884		235	2.96	130	107.98			0.9	No, Vu<V
SLV 9	8.35	-71.04	-102.68	70.6852		174	1.4548	118	48.15			0.47	No, Vu<V
SLV 2	6.56	-147.02	-76.82	21.0264		177	2.96	119	98.47			1.28	Si
SLV 2	8.35	-95.14	-74.68	39.4364		115	2.96	106	88.09			1.18	Si
SLV 6	6.56	-166.53	-144.92	69.9469		201	2.96	124	102.37			0.71	No, Vu<V
SLV 6	8.35	-58.74	-129.15	83.2253		1109	0.1892	163	8.61			0.07	No, Vu<V
SLV 10	6.56	-194.59	-120	80.3884		235	2.96	130	107.98			0.9	No, Vu<V
SLV 10	8.35	-71.04	-102.68	70.6852		174	1.4548	118	48.15			0.47	No, Vu<V
SLV 7	6.56	-204.33	132.69	-35.0207		247	2.96	133	109.93			0.83	No, Vu<V
SLV 7	8.35	-203.73	114.73	-83.6858		246	2.96	132	109.81			0.96	No, Vu<V
SLV 5	6.56	-166.53	-144.92	69.9469		201	2.96	124	102.37			0.71	No, Vu<V
SLV 5	8.35	-58.74	-129.15	83.2253		1109	0.1892	163	8.61			0.07	No, Vu<V
SLV 12	6.56	-232.38	157.6	-24.5791		280	2.96	139	115.54			0.73	No, Vu<V
SLV 12	8.35	-216.03	141.21	-96.2258		261	2.96	135	112.27			0.8	No, Vu<V
SLV 8	6.56	-204.33	132.69	-35.0207		247	2.96	133	109.93			0.83	No, Vu<V
SLV 8	8.35	-203.73	114.73	-83.6858		246	2.96	132	109.81			0.96	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.455 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	1438	0.4	132	-109.18	3.2401	13.637	4.21	Si
SLV 5	1438	0.4	132	-109.18	3.2401	13.637	4.21	Si
SLV 10	1438	0.4	144	-119.7	3.2401	14.7769	4.56	Si
SLV 9	1438	0.4	144	-119.7	3.2401	14.7769	4.56	Si
SLV 2	1438	0.4	158	-131.27	3.2401	15.9952	4.94	Si
SLV 1	1438	0.4	158	-131.27	3.2401	15.9952	4.94	Si
SLV 4	1438	0.4	194	-160.72	3.2401	18.9297	5.84	Si
SLV 3	1438	0.4	194	-160.72	3.2401	18.9297	5.84	Si
SLV 14	1438	0.4	201	-166.33	3.2401	19.4616	6.01	Si
SLV 13	1438	0.4	201	-166.33	3.2401	19.4616	6.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.455 Wa = 0.0005 Ta = 0.0741

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-71.04	-194.59	1.75	0.032	11.471	0.91	0.51771	11.25854	No
SLV 10	-71.04	-194.59	1.75	0.032	11.471	0.91	0.51771	11.25854	No
SLV 6	-58.74	-166.53	1.55	0.034	10.253	0.904	0.54299	11.25854	No
SLV 5	-58.74	-166.53	1.55	0.034	10.253	0.904	0.54299	11.25854	No
SLV 8	-203.73	-204.33	-1.19	0.039	24.869	0.952	0.5966	11.25854	No
SLV 7	-203.73	-204.33	-1.19	0.039	24.869	0.952	0.5966	11.25854	No
SLV 11	-216.03	-232.38	-0.99	0.04	26.118	0.954	0.60857	11.25854	No
SLV 12	-216.03	-232.38	-0.99	0.04	26.118	0.954	0.60857	11.25854	No
SLV 13	-136.13	-240.55	1.03	0.04	18.015	0.936	0.61771	10.82091	No
SLV 14	-136.13	-240.55	1.03	0.04	18.015	0.936	0.61771	10.82091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.009	SLU 41	Si
V_SLU	5.686	SLU 52	Si
PF_SLV	0.984	SLV 5	No
V_SLV	0.067	SLV 5	No
PFFP_SLV	4.209	SLV 5	Si
R_SLV	0.046	SLV 9	No

## Maschio 237

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Maschio considerato membratura sismica secondaria

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-13.753	-3.314	-13.753	-0.354	Z medio 922 cm	L7	2.96	0.28	5.81	4.94	6.68			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 58	10.09	-111.62	15.2513	135	137.8833	9.041	Si
SLU 58	15.03	0.51	-1.0729	0	0	0	No, Trazione
SLU 56	10.09	-111.41	15.1064	134	137.672	9.113	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 56	15.03	0.49	-1.0469	0	0	0	No, Trazione
SLU 57	10.09	-110.91	14.4965	134	137.1772	9.463	Si
SLU 57	15.03	0.47	-1.0085	0	0	0	No, Trazione
SLU 54	10.09	-108.69	11.7891	131	134.9601	11.448	Si
SLU 54	15.03	0.38	-0.8556	0	0	0	No, Trazione
SLU 61	10.09	-108.9	9.442	131	135.1756	14.316	Si
SLU 61	15.03	0.34	-0.7708	0	0	0	No, Trazione
SLU 60	10.09	-109.4	10.0518	132	135.6748	13.498	Si
SLU 60	15.03	0.36	-0.8091	0	0	0	No, Trazione
SLU 55	10.09	-108.57	11.5274	131	134.8405	11.697	Si
SLU 55	15.03	0.38	-0.8561	0	0	0	No, Trazione
SLU 53	10.09	-109.18	12.3989	132	135.4597	10.925	Si
SLU 53	15.03	0.4	-0.894	0	0	0	No, Trazione
SLU 59	10.09	-111.12	14.6415	134	137.389	9.384	Si
SLU 59	15.03	0.49	-1.0345	0	0	0	No, Trazione
SLU 1	10.09	-79.67	7.8102	96	103.9977	13.316	Si
SLU 1	15.03	0.2	-0.5491	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 56	10.09	-111.41	-1.76	15.1064		134	2.96	73	60.9			34.68	Si
SLU 56	15.03	0.49	0.79	-1.0469		0	0	56	0			0	No, Vu<V
SLU 57	10.09	-110.91	-1.65	14.4965		134	2.96	73	60.83			36.81	Si
SLU 57	15.03	0.47	0.72	-1.0085		0	0	56	0			0	No, Vu<V
SLU 53	10.09	-109.18	-1.07	12.3989		132	2.96	73	60.6			56.84	Si
SLU 53	15.03	0.4	0.3	-0.894		0	0	56	0			0	No, Vu<V
SLU 59	10.09	-111.12	-1.6	14.6415		134	2.96	73	60.86			38.11	Si
SLU 59	15.03	0.49	0.81	-1.0345		0	0	56	0			0	No, Vu<V
SLU 54	10.09	-108.69	-0.96	11.7891		131	2.96	73	60.54			62.88	Si
SLU 54	15.03	0.38	0.23	-0.8556		0	0	56	0			0	No, Vu<V
SLU 60	10.09	-109.4	-0.08	10.0518		132	2.96	73	60.63			783.13	Si
SLU 60	15.03	0.36	-0.2	-0.8091		0	0	56	0			0	No, Vu<V
SLU 58	10.09	-111.62	-1.7	15.2513		135	2.96	74	60.93			35.83	Si
SLU 58	15.03	0.51	0.88	-1.0729		0	0	56	0			0	No, Vu<V
SLU 55	10.09	-108.57	-0.84	11.5274		131	2.96	73	60.52			72.22	Si
SLU 55	15.03	0.38	0.28	-0.8561		0	0	56	0			0	No, Vu<V
SLU 61	10.09	-108.9	0.03	9.442		131	2.96	73	60.56			1000	Si
SLU 61	15.03	0.34	-0.26	-0.7708		0	0	56	0			0	No, Vu<V
SLU 1	10.09	-79.67	-0.84	7.8102		96	2.96	68	56.67			67.44	Si
SLU 1	15.03	0.2	0.16	-0.5491		0	0	56	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 12.56 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.51	0	-41.77	11.1524	0	0	No, e>t/2
SLV 2	1438	0.51	0	-44.53	11.1524	0	0	No, e>t/2
SLV 1	1438	0.51	0	-44.53	11.1524	0	0	No, e>t/2
SLV 3	1438	0.51	0	-41.77	11.1524	0	0	No, e>t/2
SLV 9	1438	0.51	0	-45.99	11.1524	0	0	No, e>t/2
SLV 10	1438	0.51	0	-45.99	11.1524	0	0	No, e>t/2
SLV 8	1438	0.51	0	-37.6	11.1524	0	0	No, e>t/2
SLV 5	1438	0.51	0	-46.8	11.1524	0	0	No, e>t/2
SLV 6	1438	0.51	0	-46.8	11.1524	0	0	No, e>t/2
SLV 7	1438	0.51	0	-37.6	11.1524	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 12.56 Wa = 0.0005 Ta = 0.2013

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	a0*	aLim	Verifica
SLV 14	0.42	-83.2	-0.14	0	0	0	0	20.58467	No, Trazione
SLV 9	2.47	-120.82	0.16	0	0	0	0	20.58467	No, Trazione
SLV 4	0.02	-81.73	0.13	0	0	0	0	20.58467	No, Trazione
SLV 5	2.78	-127.92	0.29	0	0	0	0	20.58467	No, Trazione
SLV 1	1.46	-106.88	0.27	0	0	0	0	20.58467	No, Trazione
SLV 3	0.02	-81.73	0.13	0	0	0	0	20.58467	No, Trazione
SLV 6	2.78	-127.92	0.29	0	0	0	0	20.58467	No, Trazione
SLV 2	1.46	-106.88	0.27	0	0	0	0	20.58467	No, Trazione
SLV 10	2.47	-120.82	0.16	0	0	0	0	20.58467	No, Trazione
SLV 13	0.42	-83.2	-0.14	0	0	0	0	20.58467	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 14	No

## Maschio 238

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-4.859	-11.003	-4.709	I3	F1	0.15	0.28	13.287	13.253	13.322			





## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 55	1.11	-27.39	3.7726	0	0	0	No, e>l/2
SLU 55	14.36	-0.51	0.0356	12	0.0378	1.063	Si
SLU 54	1.11	-27.34	3.7553	0	0	0	No, e>l/2
SLU 54	14.36	-0.48	0.0358	11	0.0355	0.99	No, M>Mu
SLU 56	1.11	-28.45	3.874	0	0	0	No, e>l/2
SLU 56	14.36	-0.59	0.061	0	0	0	No, e>l/2
SLU 59	1.11	-28.49	3.8934	0	0	0	No, e>l/2
SLU 59	14.36	-0.63	0.0595	0	0	0	No, e>l/2
SLU 1	1.11	-18.85	2.5928	0	0	0	No, e>l/2
SLU 1	14.36	-0.28	0.0148	7	0.0208	1.411	Si
SLU 53	1.11	-27.4	3.7487	0	0	0	No, e>l/2
SLU 53	14.36	-0.45	0.0398	0	0	0	No, e>l/2
SLU 60	1.11	-27.51	3.7783	0	0	0	No, e>l/2
SLU 60	14.36	-0.33	0.024	8	0.0249	1.037	Si
SLU 61	1.11	-27.44	3.7849	0	0	0	No, e>l/2
SLU 61	14.36	-0.36	0.02	9	0.0267	1.339	Si
SLU 57	1.11	-28.39	3.8806	0	0	0	No, e>l/2
SLU 57	14.36	-0.61	0.0571	0	0	0	No, e>l/2
SLU 58	1.11	-28.55	3.8868	0	0	0	No, e>l/2
SLU 58	14.36	-0.6	0.0635	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	1.11	-17.64	2.3234	0	0	0	No, e>l/2
SLD 1	14.36	-0.23	0.0765	0	0	0	No, e>l/2
SLV 9	1.11	-40.3	5.0126	0	0	0	No, e>l/2
SLV 9	14.36	-0.1	0.2182	0	0	0	No, e>l/2
SLV 7	1.11	0.31	0.4713	0	0	0	No, Trazione
SLV 7	14.36	-0.5	-0.1763	0	0	0	No, e>l/2
SLV 10	1.11	-40.3	5.0126	0	0	0	No, e>l/2
SLV 10	14.36	-0.1	0.2182	0	0	0	No, e>l/2
SLV 6	1.11	-33.92	4.0966	0	0	0	No, e>l/2
SLV 6	14.36	-0.04	0.258	0	0	0	No, e>l/2
SLV 13	1.11	-35.78	4.8124	0	0	0	No, e>l/2
SLV 13	14.36	-0.32	0.0199	8	0.0242	1.213	Si
SLV 14	1.11	-35.78	4.8124	0	0	0	No, e>l/2
SLV 14	14.36	-0.32	0.0199	8	0.0242	1.213	Si
SLV 11	1.11	-6.08	1.3873	0	0	0	No, e>l/2
SLV 11	14.36	-0.56	-0.216	0	0	0	No, e>l/2
SLV 8	1.11	0.31	0.4713	0	0	0	No, Trazione
SLV 8	14.36	-0.5	-0.1763	0	0	0	No, e>l/2
SLV 12	1.11	-6.08	1.3873	0	0	0	No, e>l/2
SLV 12	14.36	-0.56	-0.216	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	1.11	-27.39	2.16	3.7726		0	0	56	0			0	No, Vu<V
SLU 55	14.36	-0.51	-0.25	0.0356		110	0.0166	70	0.33			1.28	Si
SLU 1	1.11	-18.85	1.46	2.5928		0	0	56	0			0	No, Vu<V
SLU 1	14.36	-0.28	0	0.0148		15	0.0668	58	1.08			604.3	Si
SLU 56	1.11	-28.45	2.01	3.874		0	0	56	0			0	No, Vu<V
SLU 56	14.36	-0.59	-0.5	0.061		0	0	56	0			0	No, Vu<V
SLU 60	1.11	-27.51	2.07	3.7783		0	0	56	0			0	No, Vu<V
SLU 60	14.36	-0.33	-0.08	0.024		117	0.0102	71	0.2			2.52	Si
SLU 53	1.11	-27.4	2.01	3.7487		0	0	56	0			0	No, Vu<V
SLU 53	14.36	-0.45	-0.25	0.0398		0	0	56	0			0	No, Vu<V
SLU 61	1.11	-27.44	2.16	3.7849		0	0	56	0			0	No, Vu<V
SLU 61	14.36	-0.36	-0.06	0.02		22	0.0588	58	0.96			16.27	Si
SLU 59	1.11	-28.49	2.11	3.8934		0	0	56	0			0	No, Vu<V
SLU 59	14.36	-0.63	-0.52	0.0595		0	0	56	0			0	No, Vu<V
SLU 57	1.11	-28.39	2.1	3.8806		0	0	56	0			0	No, Vu<V
SLU 57	14.36	-0.61	-0.48	0.0571		0	0	56	0			0	No, Vu<V
SLU 54	1.11	-27.34	2.1	3.7553		0	0	56	0			0	No, Vu<V
SLU 54	14.36	-0.48	-0.23	0.0358		0	0	56	0			0	No, Vu<V
SLU 58	1.11	-28.55	2.02	3.8868		0	0	56	0			0	No, Vu<V
SLU 58	14.36	-0.6	-0.54	0.0635		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1.11	-6.08	3.27	1.3873		0	0	83	0			0	No, Vu<V
SLV 12	14.36	-0.56	2.92	-0.216		0	0	83	0			0	No, Vu<V
SLV 14	1.11	-35.78	4.09	4.8124		0	0	83	0			0	No, Vu<V
SLV 14	14.36	-0.32	-0.03	0.0199		28	0.0407	89	1.01			39.6	Si
SLV 8	1.11	0.31	1.55	0.4713		0	0	83	0			0	No, Vu<V
SLV 8	14.36	-0.5	2.39	-0.1763		0	0	83	0			0	No, Vu<V
SLV 7	1.11	0.31	1.55	0.4713		0	0	83	0			0	No, Vu<V
SLV 7	14.36	-0.5	2.39	-0.1763		0	0	83	0			0	No, Vu<V
SLV 13	1.11	-35.78	4.09	4.8124		0	0	83	0			0	No, Vu<V
SLV 13	14.36	-0.32	-0.03	0.0199		28	0.0407	89	1.01			39.6	Si
SLV 11	1.11	-6.08	3.27	1.3873		0	0	83	0			0	No, Vu<V
SLV 11	14.36	-0.56	2.92	-0.216		0	0	83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	1.11	-40.3	1.44	5.0126		0	0	83	0			0	No, Vu<V
SLV 9	14.36	-0.1	-2.55	0.2182		0	0	83	0			0	No, Vu<V
SLV 6	1.11	-33.92	-0.28	4.0966		0	0	83	0			0	No, Vu<V
SLV 6	14.36	-0.04	-3.08	0.258		0	0	83	0			0	No, Vu<V
SLV 10	1.11	-40.3	1.44	5.0126		0	0	83	0			0	No, Vu<V
SLV 10	14.36	-0.1	-2.55	0.2182		0	0	83	0			0	No, Vu<V
SLD 1	1.11	-17.64	0.14	2.3234		0	0	83	0			0	No, Vu<V
SLD 1	14.36	-0.23	-0.8	0.0765		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.736 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.41	0	-4.62	2.3674	0	0	No, e>t/2
SLV 9	1438	0.41	0	-12.15	2.3674	0	0	No, e>t/2
SLV 8	1438	0.41	0	-1.68	2.3674	0	0	No, e>t/2
SLV 5	1438	0.41	0	-11.67	2.3674	0	0	No, e>t/2
SLV 6	1438	0.41	0	-11.67	2.3674	0	0	No, e>t/2
SLV 1	1438	0.41	0	-7.62	2.3674	0	0	No, e>t/2
SLV 10	1438	0.41	0	-12.15	2.3674	0	0	No, e>t/2
SLV 7	1438	0.41	0	-1.68	2.3674	0	0	No, e>t/2
SLV 4	1438	0.41	0	-4.62	2.3674	0	0	No, e>t/2
SLV 2	1438	0.41	0	-7.62	2.3674	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.736 Wa = 0.0005 Ta = 1.053

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-0.13	-14.49	0.16	0	1.025	0.988	0	2.39674	No
SLV 10	-0.1	-40.3	-0.32	0	1.024	0.991	0	2.39674	No
SLV 6	-0.04	-33.92	-0.18	0	1.024	0.996	0	2.39674	No
SLV 2	-0.13	-14.49	0.16	0	1.025	0.988	0	2.39674	No
SLV 5	-0.04	-33.92	-0.18	0	1.024	0.996	0	2.39674	No
SLV 8	-0.5	0.31	0.33	0	0	0	0	2.39674	No, Trazione
SLV 7	-0.5	0.31	0.33	0	0	0	0	2.39674	No, Trazione
SLV 9	-0.1	-40.3	-0.32	0	1.024	0.991	0	2.39674	No
SLV 4	-0.27	-4.22	0.32	0	1.027	0.976	0	2.39674	No
SLV 3	-0.27	-4.22	0.32	0	1.027	0.976	0	2.39674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 8	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 8	No

## Maschio 239

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-4.709	-11.003	-3.509	Z medio 313 cm	F1	1.2	0.28	11.581	11.302	11.859			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	3.13	-141.54	-2.3242	421	41.0068	17.644	Si
SLU 52	14.43	-3.93	0.9254	12	2.3239	2.511	Si
SLU 2	3.13	-100.98	-1.4703	301	38.2337	26.005	Si
SLU 2	14.43	-3.11	0.7541	9	1.8475	2.45	Si
SLU 44	3.13	-128.19	-1.9254	382	40.8906	21.238	Si
SLU 44	14.43	-3.54	0.9141	11	2.0979	2.295	Si
SLU 43	3.13	-128.7	-1.9861	383	40.9095	20.598	Si
SLU 43	14.43	-3.58	0.961	11	2.1224	2.209	Si
SLU 1	3.13	-101.49	-1.531	302	38.3137	25.025	Si
SLU 1	14.43	-3.16	0.8009	9	1.8721	2.338	Si
SLU 46	3.13	-133.42	-2.1532	397	41.0292	19.055	Si
SLU 46	14.43	-5.89	1.3819	18	3.4575	2.502	Si
SLU 45	3.13	-133.72	-2.1896	398	41.0336	18.74	Si
SLU 45	14.43	-5.91	1.41	18	3.472	2.462	Si
SLU 61	3.13	-147.46	-2.5194	439	40.8081	16.198	Si
SLU 61	14.43	-4.11	0.9489	12	2.4303	2.561	Si
SLU 64	3.13	-138.13	-1.9984	411	41.0514	20.542	Si
SLU 64	14.43	-5.1	1.1949	15	3.0022	2.513	Si
SLU 60	3.13	-147.77	-2.5558	440	40.7936	15.961	Si
SLU 60	14.43	-4.14	0.977	12	2.445	2.502	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	3.13	-99.63	1.8736	297	45.2718	24.164	Si
SLD 15	14.43	-0.59	1.4227	0	0	0	No, $e \geq l/2$
SLV 3	3.13	-82.45	-6.996	245	39.5368	5.651	Si
SLV 3	14.43	-1.3	-1.8771	0	0	0	No, $e \geq l/2$
SLV 12	3.13	-34.08	5.1174	101	18.749	3.664	Si
SLV 12	14.43	13.13	-0.8898	0	0	0	No, Trazione
SLD 16	3.13	-99.63	1.8736	297	45.2718	24.164	Si
SLD 16	14.43	-0.59	1.4227	0	0	0	No, $e \geq l/2$
SLD 12	3.13	-76.53	1.2165	228	37.3568	30.707	Si
SLD 12	14.43	3.48	0.115	0	0	0	No, Trazione
SLV 15	3.13	-88.63	6.5404	264	41.6971	6.375	Si
SLV 15	14.43	3.56	2.196	0	0	0	No, Trazione
SLV 8	3.13	-32.22	1.0565	96	17.8174	16.865	Si
SLV 8	14.43	11.67	-2.1118	0	0	0	No, Trazione
SLV 4	3.13	-82.45	-6.996	245	39.5368	5.651	Si
SLV 4	14.43	-1.3	-1.8771	0	0	0	No, $e \geq l/2$
SLV 11	3.13	-34.08	5.1174	101	18.749	3.664	Si
SLV 11	14.43	13.13	-0.8898	0	0	0	No, Trazione
SLV 7	3.13	-32.22	1.0565	96	17.8174	16.865	Si
SLV 7	14.43	11.67	-2.1118	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	3.13	-134.52	-11.51	-2.4381		400	1.2	108	36.4			3.16	Si
SLU 35	14.43	-9.91	-7.07	1.9565		29	1.2	59	19.99			2.83	Si
SLU 78	3.13	-161.43	-12.29	-2.8568		480	1.2	108	36.4			2.96	Si
SLU 78	14.43	-10.31	-7.01	2.0885		31	1.1923	60	19.92			2.84	Si
SLU 36	3.13	-134.22	-11.18	-2.4017		399	1.2	108	36.4			3.26	Si
SLU 36	14.43	-9.88	-7.13	1.9284		29	1.2	59	19.98			2.8	Si
SLU 79	3.13	-161.96	-12.64	-2.9823		482	1.2	108	36.4			2.88	Si
SLU 79	14.43	-10.52	-7.21	2.1289		32	1.1932	60	19.96			2.77	Si
SLU 80	3.13	-161.65	-12.3	-2.9459		481	1.2	108	36.4			2.96	Si
SLU 80	14.43	-10.5	-7.28	2.1008		31	1.1997	60	20.06			2.76	Si
SLU 77	3.13	-161.74	-12.62	-2.8932		481	1.2	108	36.4			2.88	Si
SLU 77	14.43	-10.34	-6.95	2.1166		31	1.1856	60	19.82			2.85	Si
SLU 30	3.13	-121.09	-8.88	-2.092		360	1.2	104	34.81			3.92	Si
SLU 30	14.43	-9.68	-6.88	1.9295		29	1.2	59	19.96			2.9	Si
SLU 38	3.13	-134.44	-11.19	-2.4908		400	1.2	108	36.4			3.25	Si
SLU 38	14.43	-10.07	-7.4	1.9407		30	1.2	60	20.01			2.71	Si
SLU 37	3.13	-134.74	-11.53	-2.5272		401	1.2	108	36.4			3.16	Si
SLU 37	14.43	-10.1	-7.33	1.9688		30	1.2	60	20.01			2.73	Si
SLU 83	3.13	-162.44	-12.59	-2.8607		483	1.2	108	36.4			2.89	Si
SLU 83	14.43	-8.17	-5.24	1.6723		25	1.186	59	19.54			3.73	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	3.13	-82.45	-17.06	-6.996		245	1.2	132	44.49			2.61	Si
SLV 4	14.43	-1.3	-12.78	-1.8771		0	0	83	0			0	No, $Vu < V$
SLV 12	3.13	-34.08	26.71	5.1174		101	1.2	104	34.82			1.3	Si
SLV 12	14.43	13.13	11.57	-0.8898		0	0	83	0			0	No, $Vu < V$
SLV 11	3.13	-34.08	26.71	5.1174		101	1.2	104	34.82			1.3	Si
SLV 11	14.43	13.13	11.57	-0.8898		0	0	83	0			0	No, $Vu < V$
SLV 3	3.13	-82.45	-17.06	-6.996		245	1.2	132	44.49			2.61	Si
SLV 3	14.43	-1.3	-12.78	-1.8771		0	0	83	0			0	No, $Vu < V$
SLD 15	3.13	-99.63	5.12	1.8736		297	1.2	143	47.93			9.37	Si
SLD 15	14.43	-0.59	5.41	1.4227		0	0	83	0			0	No, $Vu < V$
SLD 16	3.13	-99.63	5.12	1.8736		297	1.2	143	47.93			9.37	Si
SLD 16	14.43	-0.59	5.41	1.4227		0	0	83	0			0	No, $Vu < V$
SLV 15	3.13	-88.63	20.41	6.5404		264	1.2	136	45.73			2.24	Si
SLV 15	14.43	3.56	14.93	2.196		0	0	83	0			0	No, $Vu < V$
SLV 7	3.13	-32.22	15.47	1.0565		96	1.2	103	34.45			2.23	Si
SLV 7	14.43	11.67	3.25	-2.1118		0	0	83	0			0	No, $Vu < V$
SLV 8	3.13	-32.22	15.47	1.0565		96	1.2	103	34.45			2.23	Si
SLV 8	14.43	11.67	3.25	-2.1118		0	0	83	0			0	No, $Vu < V$
SLD 12	3.13	-76.53	7.84	1.2165		228	1.2	129	43.31			5.52	Si
SLD 12	14.43	3.48	3.99	0.115		0	0	83	0			0	No, $Vu < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 8.781 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	1438	0.43	0	-45.96	15.1613	0	0	No, $e > t/2$
SLV 5	1438	0.43	0	-74.42	15.1613	0	0	No, $e > t/2$
SLV 3	1438	0.43	0	-45.96	15.1613	0	0	No, $e > t/2$
SLV 9	1438	0.43	0	-72.51	15.1613	0	0	No, $e > t/2$
SLV 10	1438	0.43	0	-72.51	15.1613	0	0	No, $e > t/2$
SLV 6	1438	0.43	0	-74.42	15.1613	0	0	No, $e > t/2$
SLV 1	1438	0.43	0	-60.12	15.1613	0	0	No, $e > t/2$
SLV 8	1438	0.43	0	-27.23	15.1613	0	0	No, $e > t/2$
SLV 7	1438	0.43	0	-27.23	15.1613	0	0	No, $e > t/2$
SLV 2	1438	0.43	0	-60.12	15.1613	0	0	No, $e > t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 8.781 Wa = 0.0005 Ta = 0.7999

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	3.56	-88.63	0.01	0	0	0	0	2.39674	No, Trazione
SLV 7	11.67	-32.22	0.23	0	0	0	0	2.39674	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	3.56	-88.63	0.01	0	0	0	0	2.39674	No, Trazione
SLV 11	13.13	-34.08	0.21	0	0	0	0	2.39674	No, Trazione
SLV 8	11.67	-32.22	0.23	0	0	0	0	2.39674	No, Trazione
SLV 12	13.13	-34.08	0.21	0	0	0	0	2.39674	No, Trazione
SLV 9	-19.07	-183.76	-0.31	0.014	8.153	0.898	0.22923	2.39674	No
SLV 10	-19.07	-183.76	-0.31	0.014	8.153	0.898	0.22923	2.39674	No
SLV 6	-20.53	-181.91	-0.3	0.014	8.269	0.896	0.2325	2.39674	No
SLV 5	-20.53	-181.91	-0.3	0.014	8.269	0.896	0.2325	2.39674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.209	SLU 43	Si
V_SLU	2.705	SLU 38	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-3.509	-11.003	-3.314	Z medio 313 cm	L5	0.195	0.28	5.22	5.22	5.22			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 83	3.13	-28.59	-0.3278	524	0.9957	3.038	Si
SLU 83	8.35	-15.48	-0.2419	284	0.984	4.068	Si
SLU 39	3.13	-22.43	-0.3474	411	1.084	3.12	Si
SLU 39	8.35	-12.35	-0.2074	226	0.8699	4.195	Si
SLU 40	3.13	-22.36	-0.3299	409	1.0841	3.286	Si
SLU 40	8.35	-12.41	-0.217	227	0.8722	4.019	Si
SLU 21	3.13	-21.38	-0.3409	392	1.0825	3.175	Si
SLU 21	8.35	-11.94	-0.1936	219	0.8516	4.399	Si
SLU 62	3.13	-26.67	-0.3077	489	1.041	3.383	Si
SLU 62	8.35	-14.38	-0.2365	263	0.9486	4.01	Si
SLU 42	3.13	-23.3	-0.361	427	1.0816	2.996	Si
SLU 42	8.35	-13.04	-0.199	239	0.8988	4.518	Si
SLU 84	3.13	-28.51	-0.3102	522	0.9978	3.217	Si
SLU 84	8.35	-15.54	-0.2516	285	0.9856	3.918	Si
SLU 20	3.13	-21.46	-0.3585	393	1.0828	3.02	Si
SLU 20	8.35	-11.88	-0.1839	218	0.8491	4.617	Si
SLU 41	3.13	-23.37	-0.3786	428	1.0813	2.856	Si
SLU 41	8.35	-12.99	-0.1893	238	0.8966	4.736	Si
SLU 18	3.13	-20.52	-0.3273	376	1.0776	3.292	Si
SLU 18	8.35	-11.25	-0.202	206	0.8193	4.056	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 12	3.13	-16.44	0.4771	301	1.2081	2.532	Si
SLD 12	8.35	-8.48	-0.4188	155	0.722	1.724	Si
SLV 7	3.13	-8.09	0.9986	0	0	0	No, e>l/2
SLV 7	8.35	-6.01	-0.5915	0	0	0	No, e>l/2
SLV 6	3.13	-29.46	-0.9539	539	1.6039	1.681	Si
SLV 6	8.35	-14.35	0.364	263	1.0982	3.017	Si
SLV 15	3.13	-22.21	0.4174	407	1.4445	3.461	Si
SLV 15	8.35	-9.1	-0.575	167	0.7663	1.333	Si
SLV 5	3.13	-29.46	-0.9539	539	1.6039	1.681	Si
SLV 5	8.35	-14.35	0.364	263	1.0982	3.017	Si
SLV 12	3.13	-11.16	1.0457	204	0.906	0.866	No, M>Mu
SLV 12	8.35	-6.09	-0.7383	0	0	0	No, e>l/2
SLV 16	3.13	-22.21	0.4174	407	1.4445	3.461	Si
SLV 16	8.35	-9.1	-0.575	167	0.7663	1.333	Si
SLV 11	3.13	-11.16	1.0457	204	0.906	0.866	No, M>Mu
SLV 11	8.35	-6.09	-0.7383	0	0	0	No, e>l/2
SLV 8	3.13	-8.09	0.9986	0	0	0	No, e>l/2
SLV 8	8.35	-6.01	-0.5915	0	0	0	No, e>l/2
SLD 11	3.13	-16.44	0.4771	301	1.2081	2.532	Si
SLD 11	8.35	-8.48	-0.4188	155	0.722	1.724	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	3.13	-23.37	-1.65	-0.3786		428	0.195	108	5.91			3.59	Si
SLU 41	8.35	-12.99	-0.39	-0.1893		238	0.195	87	4.77			12.2	Si
SLU 78	3.13	-29.21	-1.61	-0.1919		535	0.195	108	5.91			3.67	Si
SLU 78	8.35	-15.72	-0.53	-0.2274		288	0.195	94	5.13			9.65	Si
SLU 83	3.13	-28.59	-1.71	-0.3278		524	0.195	108	5.91			3.45	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	8.35	-15.48	-0.41	-0.2419		284	0.195	93	5.1			12.37	Si
SLU 77	3.13	-29.29	-1.74	-0.2095		536	0.195	108	5.91			3.4	Si
SLU 77	8.35	-15.66	-0.57	-0.2178		287	0.195	94	5.12			9	Si
SLU 58	3.13	-27.33	-1.61	-0.1967		501	0.195	108	5.91			3.67	Si
SLU 58	8.35	-14.51	-0.54	-0.2123		266	0.195	91	4.97			9.12	Si
SLU 84	3.13	-28.51	-1.59	-0.3102		522	0.195	108	5.91			3.73	Si
SLU 84	8.35	-15.54	-0.37	-0.2516		285	0.195	93	5.1			13.63	Si
SLU 37	3.13	-24.03	-1.7	-0.2676		440	0.195	108	5.91			3.49	Si
SLU 37	8.35	-13.12	-0.57	-0.1651		240	0.195	88	4.78			8.38	Si
SLU 35	3.13	-24.08	-1.67	-0.2603		441	0.195	108	5.91			3.54	Si
SLU 35	8.35	-13.17	-0.55	-0.1652		241	0.195	88	4.79			8.75	Si
SLU 80	3.13	-29.17	-1.64	-0.1992		534	0.195	108	5.91			3.62	Si
SLU 80	8.35	-15.67	-0.55	-0.2273		287	0.195	94	5.12			9.23	Si
SLU 79	3.13	-29.24	-1.76	-0.2168		536	0.195	108	5.91			3.36	Si
SLU 79	8.35	-15.61	-0.59	-0.2177		286	0.195	94	5.12			8.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	3.13	-32.52	-9.13	-0.9068		596	0.195	163	8.87			0.97	No, Vu<V
SLV 10	8.35	-14.43	-3.8	0.2173		264	0.195	136	7.44			1.96	Si
SLV 8	3.13	-8.09	7.93	0.9986		0	0	83	0			0	No, Vu<V
SLV 8	8.35	-6.01	3.5	-0.5915		0	0	83	0			0	No, Vu<V
SLV 9	3.13	-32.52	-9.13	-0.9068		596	0.195	163	8.87			0.97	No, Vu<V
SLV 9	8.35	-14.43	-3.8	0.2173		264	0.195	136	7.44			1.96	Si
SLV 5	3.13	-29.46	-8.82	-0.9539		539	0.195	163	8.87			1.01	Si
SLV 5	8.35	-14.35	-4.71	0.364		263	0.195	136	7.42			1.57	Si
SLV 7	3.13	-8.09	7.93	0.9986		0	0	83	0			0	No, Vu<V
SLV 7	8.35	-6.01	3.5	-0.5915		0	0	83	0			0	No, Vu<V
SLV 15	3.13	-22.21	1.4	0.4174		407	0.195	163	8.87			6.35	Si
SLV 15	8.35	-9.1	2.62	-0.575		316	0.103	146	4.22			1.61	Si
SLV 11	3.13	-11.16	7.62	1.0457		3508	0.0114	163	0.52			0.07	No, Vu<V
SLV 11	8.35	-6.09	4.42	-0.7383		0	0	83	0			0	No, Vu<V
SLV 6	3.13	-29.46	-8.82	-0.9539		539	0.195	163	8.87			1.01	Si
SLV 6	8.35	-14.35	-4.71	0.364		263	0.195	136	7.42			1.57	Si
SLV 16	3.13	-22.21	1.4	0.4174		407	0.195	163	8.87			6.35	Si
SLV 16	8.35	-9.1	2.62	-0.575		316	0.103	146	4.22			1.61	Si
SLV 12	3.13	-11.16	7.62	1.0457		3508	0.0114	163	0.52			0.07	No, Vu<V
SLV 12	8.35	-6.09	4.42	-0.7383		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 5.74 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	1438	0.36	159	-8.66	0.4261	1.0546	2.47	Si
SLV 8	1438	0.36	159	-8.66	0.4261	1.0546	2.47	Si
SLV 12	1438	0.36	160	-8.76	0.4261	1.0649	2.5	Si
SLV 11	1438	0.36	160	-8.76	0.4261	1.0649	2.5	Si
SLV 3	1438	0.36	205	-11.17	0.4261	1.302	3.06	Si
SLV 4	1438	0.36	205	-11.17	0.4261	1.302	3.06	Si
SLV 15	1438	0.36	211	-11.5	0.4261	1.3326	3.13	Si
SLV 16	1438	0.36	211	-11.5	0.4261	1.3326	3.13	Si
SLV 2	1438	0.36	246	-13.42	0.4261	1.5012	3.52	Si
SLV 1	1438	0.36	246	-13.42	0.4261	1.5012	3.52	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 5.74 Wa = 0.0005 Ta = 0.1625

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-6.01	-8.09	0.24	0.007	1.028	0.905	0.10945	15.91439	No
SLV 7	-6.01	-8.09	0.24	0.007	1.028	0.905	0.10945	15.91439	No
SLV 12	-6.09	-11.16	0.24	0.008	1.036	0.906	0.12111	15.91439	No
SLV 11	-6.09	-11.16	0.24	0.008	1.036	0.906	0.12111	15.91439	No
SLV 9	-14.43	-32.52	-0.23	0.017	1.874	0.94	0.26819	15.91439	No
SLV 10	-14.43	-32.52	-0.23	0.017	1.874	0.94	0.26819	15.91439	No
SLV 5	-14.35	-29.46	-0.23	0.018	1.866	0.94	0.27187	15.91439	No
SLV 6	-14.35	-29.46	-0.23	0.018	1.866	0.94	0.27187	15.91439	No
SLV 4	-8.83	-12	0.08	0.026	1.309	0.92	0.40424	15.91439	No
SLV 3	-8.83	-12	0.08	0.026	1.309	0.92	0.40424	15.91439	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.856	SLU 41	Si
V_SLU	3.357	SLU 79	Si
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	2.475	SLV 7	Si
R_SLV	0.007	SLV 7	No

## Maschio 241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-3.314	-11.003	-0.354	Z medio 398 cm	Z medio 746 cm	2.96	0.28	3.475	1.73	3.52			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	4.83	-366.59	13.6509	442	247.9489	18.164	Si
SLU 81	6.56	-323.59	10.0391	390	249.3681	24.84	Si
SLU 67	4.83	-324.76	13.1451	392	249.4366	18.976	Si
SLU 67	6.56	-282.5	13.5623	341	243.1507	17.928	Si
SLU 66	4.83	-324.78	13.0287	392	249.4379	19.145	Si
SLU 66	6.56	-282.57	13.7931	341	243.166	17.629	Si
SLU 70	4.83	-333.76	11.9658	403	249.7643	20.873	Si
SLU 70	6.56	-291.4	13.7125	352	245.125	17.876	Si
SLU 75	4.83	-362.55	13.6319	437	248.4276	18.224	Si
SLU 75	6.56	-319.76	11.8838	386	249.1016	20.962	Si
SLU 73	4.83	-350.36	13.6364	423	249.4372	18.292	Si
SLU 73	6.56	-307.52	10.3737	371	247.8171	23.889	Si
SLU 27	4.83	-277.25	10.6585	335	241.8225	22.688	Si
SLU 27	6.56	-243.16	12.7565	293	230.2594	18.05	Si
SLU 24	4.83	-268.26	11.8378	324	239.2659	20.212	Si
SLU 24	6.56	-234.26	12.6063	283	226.4033	17.96	Si
SLU 82	4.83	-366.57	13.7674	442	247.9518	18.01	Si
SLU 82	6.56	-323.53	9.8083	390	249.3642	25.424	Si
SLU 69	4.83	-333.78	11.8493	403	249.7647	21.078	Si
SLU 69	6.56	-291.47	13.9434	352	245.1377	17.581	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 11	4.83	-230.64	29.0804	278	263.6039	9.065	Si
SLD 11	6.56	-204.4	12.5629	247	241.4572	19.22	Si
SLV 8	4.83	-205.06	51.0012	247	242.0383	4.746	Si
SLV 8	6.56	-180.26	16.0596	217	219.293	13.655	Si
SLV 12	4.83	-212.18	55.7568	256	248.2303	4.452	Si
SLV 12	6.56	-193.41	18.7772	233	231.5744	12.333	Si
SLV 6	4.83	-276.47	-37.146	334	297.4655	8.008	Si
SLV 6	6.56	-231.31	-2.0986	279	264.1417	125.863	Si
SLV 7	4.83	-205.06	51.0012	247	242.0383	4.746	Si
SLV 7	6.56	-180.26	16.0596	217	219.293	13.655	Si
SLD 12	4.83	-230.64	29.0804	278	263.6039	9.065	Si
SLD 12	6.56	-204.4	12.5629	247	241.4572	19.22	Si
SLV 16	4.83	-245.47	30.4534	296	275.2357	9.038	Si
SLV 16	6.56	-226.62	15.5923	273	260.3393	16.697	Si
SLV 11	4.83	-212.18	55.7568	256	248.2303	4.452	Si
SLV 11	6.56	-193.41	18.7772	233	231.5744	12.333	Si
SLV 5	4.83	-276.47	-37.146	334	297.4655	8.008	Si
SLV 5	6.56	-231.31	-2.0986	279	264.1417	125.863	Si
SLV 15	4.83	-245.47	30.4534	296	275.2357	9.038	Si
SLV 15	6.56	-226.62	15.5923	273	260.3393	16.697	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	4.83	-315.04	-8.98	11.1452		380	2.96	106	88.05			9.8	Si
SLU 35	6.56	-280.42	-3.34	11.078		338	2.96	101	83.43			25	Si
SLU 79	4.83	-368.39	-9.28	11.0836		444	2.96	108	89.79			9.67	Si
SLU 79	6.56	-325.42	-3.26	11.0589		393	2.96	108	89.43			27.42	Si
SLU 6	4.83	-245.68	-7.96	7.0207		296	2.96	95	78.8			9.9	Si
SLU 6	6.56	-214.68	-5.78	9.3527		259	2.96	90	74.67			12.91	Si
SLU 8	4.83	-242.5	-8.54	5.7682		293	2.96	95	78.38			9.18	Si
SLU 8	6.56	-211.37	-6.47	8.1468		255	2.96	90	74.23			11.48	Si
SLU 27	4.83	-277.25	-8.73	10.6585		335	2.96	100	83.01			9.51	Si
SLU 27	6.56	-243.16	-5.86	12.7565		293	2.96	95	78.47			13.4	Si
SLU 37	4.83	-311.86	-9.56	9.8927		376	2.96	106	87.63			9.17	Si
SLU 37	6.56	-277.11	-4.02	9.8721		334	2.96	100	82.99			20.65	Si
SLU 71	4.83	-330.6	-9.03	10.5968		399	2.96	108	89.79			9.95	Si
SLU 71	6.56	-288.16	-5.78	12.7375		348	2.96	102	84.47			14.61	Si
SLU 16	4.83	-280.29	-8.79	6.2549		338	2.96	101	83.42			9.49	Si
SLU 16	6.56	-248.63	-3.95	6.4682		300	2.96	96	79.19			20.06	Si
SLU 29	4.83	-274.08	-9.3	9.406		331	2.96	100	82.59			8.88	Si
SLU 29	6.56	-239.85	-6.54	11.5506		289	2.96	94	78.02			11.94	Si
SLU 14	4.83	-283.47	-8.22	7.5074		342	2.96	101	83.84			10.21	Si
SLU 14	6.56	-251.93	-3.27	7.6741		304	2.96	96	79.64			24.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	4.83	-221.75	59.15	14.6015		268	2.96	137	113.42			1.92	Si
SLV 3	6.56	-182.78	61.4	6.5337		221	2.96	127	105.62			1.72	Si
SLV 5	4.83	-276.47	-87.04	-37.146		334	2.96	150	124.36			1.43	Si
SLV 5	6.56	-231.31	-79.08	-2.0986		279	2.96	139	115.33			1.46	Si
SLV 10	4.83	-283.58	-105.4	-32.3905		342	2.96	152	125.78			1.19	Si
SLV 10	6.56	-244.46	-97.57	0.6189		295	2.96	142	117.96			1.21	Si
SLV 11	4.83	-212.18	86.56	55.7568		256	2.96	135	111.5			1.29	Si
SLV 11	6.56	-193.41	85.36	18.7772		233	2.96	130	107.75			1.26	Si
SLV 7	4.83	-205.06	104.92	51.0012		247	2.96	133	110.08			1.05	Si
SLV 7	6.56	-180.26	103.86	16.0596		217	2.96	127	105.12			1.01	Si
SLV 9	4.83	-283.58	-105.4	-32.3905		342	2.96	152	125.78			1.19	Si
SLV 9	6.56	-244.46	-97.57	0.6189		295	2.96	142	117.96			1.21	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	4.83	-276.47	-87.04	-37.146		334	2.96	150	124.36			1.43	Si
SLV 6	6.56	-231.31	-79.08	-2.0986		279	2.96	139	115.33			1.46	Si
SLV 8	4.83	-205.06	104.92	51.0012		247	2.96	133	110.08			1.05	Si
SLV 8	6.56	-180.26	103.86	16.0596		217	2.96	127	105.12			1.01	Si
SLV 12	4.83	-212.18	86.56	55.7568		256	2.96	135	111.5			1.29	Si
SLV 12	6.56	-193.41	85.36	18.7772		233	2.96	130	107.75			1.26	Si
SLV 4	4.83	-221.75	59.15	14.6015		268	2.96	137	113.42			1.92	Si
SLV 4	6.56	-182.78	61.4	6.5337		221	2.96	127	105.62			1.72	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 5.695 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	1438	0.36	240	-199.09	2.859	22.3929	7.83	Si
SLV 7	1438	0.36	240	-199.09	2.859	22.3929	7.83	Si
SLV 4	1438	0.36	244	-202.29	2.859	22.6634	7.93	Si
SLV 3	1438	0.36	244	-202.29	2.859	22.6634	7.93	Si
SLV 12	1438	0.36	255	-211.31	2.859	23.4102	8.19	Si
SLV 11	1438	0.36	255	-211.31	2.859	23.4102	8.19	Si
SLV 2	1438	0.36	262	-217.25	2.859	23.8902	8.36	Si
SLV 1	1438	0.36	262	-217.25	2.859	23.8902	8.36	Si
SLV 16	1438	0.36	293	-243.02	2.859	25.858	9.04	Si
SLV 15	1438	0.36	293	-243.02	2.859	25.858	9.04	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 5.695 Wa = 0.0005 Ta = 0.072

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-180.26	-205.06	-2.78	0.032	22.427	0.948	0.48826	10.1101	No
SLV 7	-180.26	-205.06	-2.78	0.032	22.427	0.948	0.48826	10.1101	No
SLV 12	-193.41	-212.18	-2.35	0.034	23.762	0.95	0.52467	10.1101	No
SLV 11	-193.41	-212.18	-2.35	0.034	23.762	0.95	0.52467	10.1101	No
SLV 4	-182.78	-221.75	-2.37	0.034	22.683	0.948	0.51993	9.72319	No
SLV 3	-182.78	-221.75	-2.37	0.034	22.683	0.948	0.51993	9.72319	No
SLV 1	-198.1	-243.17	-1.59	0.038	24.238	0.951	0.57848	9.72319	No
SLV 2	-198.1	-243.17	-1.59	0.038	24.238	0.951	0.57848	9.72319	No
SLV 16	-226.62	-245.47	-0.94	0.041	27.135	0.956	0.61891	9.72319	No
SLV 15	-226.62	-245.47	-0.94	0.041	27.135	0.956	0.61891	9.72319	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	17.581	SLU 69	Si
V_SLU	8.876	SLU 29	Si
PF_SLV	4.452	SLV 11	Si
V_SLV	1.012	SLV 7	Si
PFFP_SLV	7.832	SLV 7	Si
R_SLV	0.048	SLV 7	No

## Maschio 242

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-11.003	-0.354	-11.003	1.046	L3	L5	1.4	0.28	7.24	7.24	7.24			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	1.11	-230.07	15.1394	587	45.0112	2.973	Si
SLU 83	8.35	-169.11	-2.1165	431	55.685	26.31	Si
SLU 81	1.11	-228.54	15.5449	583	45.4797	2.926	Si
SLU 81	8.35	-164.42	-2.3616	419	55.8311	23.641	Si
SLU 76	1.11	-217.92	14.4101	556	48.4395	3.361	Si
SLU 76	8.35	-159.34	-1.619	406	55.8806	34.515	Si
SLU 74	1.11	-219.98	14.4087	561	47.9041	3.325	Si
SLU 74	8.35	-163.39	-1.3949	417	55.8502	40.038	Si
SLU 82	1.11	-228.91	15.7575	584	45.3663	2.879	Si
SLU 82	8.35	-164.03	-2.4678	418	55.839	22.627	Si
SLU 77	1.11	-221.51	14.0031	565	47.4932	3.392	Si
SLU 77	8.35	-168.08	-1.1498	429	55.7253	48.464	Si
SLU 73	1.11	-216.39	14.8157	552	48.8262	3.296	Si
SLU 73	8.35	-154.65	-1.8642	395	55.8258	29.947	Si
SLU 75	1.11	-220.35	14.6213	562	47.8048	3.27	Si
SLU 75	8.35	-163	-1.5011	416	55.8564	37.21	Si
SLU 84	1.11	-230.45	15.3519	588	44.8953	2.924	Si
SLU 84	8.35	-168.71	-2.2226	430	55.7011	25.061	Si
SLU 78	1.11	-221.89	14.2157	566	47.3913	3.334	Si
SLU 78	8.35	-167.68	-1.256	428	55.7396	44.379	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	1.11	-210.74	29.1777	538	82.6138	2.831	Si
SLV 8	8.35	-104.95	-4.9533	268	57.3679	11.582	Si
SLV 4	1.11	-207.45	17.652	529	82.3213	4.664	Si
SLV 4	8.35	-98.24	1.7181	251	54.6628	31.815	Si
SLV 7	1.11	-210.74	29.1777	538	82.6138	2.831	Si
SLV 7	8.35	-104.95	-4.9533	268	57.3679	11.582	Si
SLD 8	1.11	-173.84	17.9663	443	77.5234	4.315	Si
SLD 8	8.35	-105	-2.5168	268	57.3878	22.802	Si
SLV 12	1.11	-183.22	27.7021	467	79.1935	2.859	Si
SLV 12	8.35	-109.55	-7.3784	279	59.1453	8.016	Si
SLV 3	1.11	-207.45	17.652	529	82.3213	4.664	Si
SLV 3	8.35	-98.24	1.7181	251	54.6628	31.815	Si
SLD 7	1.11	-173.84	17.9663	443	77.5234	4.315	Si
SLD 7	8.35	-105	-2.5168	268	57.3878	22.802	Si
SLD 12	1.11	-162.19	17.3154	414	75.0879	4.336	Si
SLD 12	8.35	-107.01	-3.5557	273	58.1709	16.36	Si
SLD 11	1.11	-162.19	17.3154	414	75.0879	4.336	Si
SLD 11	8.35	-107.01	-3.5557	273	58.1709	16.36	Si
SLV 11	1.11	-183.22	27.7021	467	79.1935	2.859	Si
SLV 11	8.35	-109.55	-7.3784	279	59.1453	8.016	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	1.11	-189.39	-4.13	11.3346		483	1.4	108	42.47			10.28	Si
SLU 72	8.35	-143.03	-10.8	0.2704		365	1.4	104	40.85			3.78	Si
SLU 30	1.11	-158.09	-4.27	9.4504		403	1.4	108	42.47			9.95	Si
SLU 30	8.35	-120.78	-10.57	0.6118		308	1.4	97	37.88			3.58	Si
SLU 35	1.11	-190.21	-4.7	12.119		485	1.4	108	42.47			9.03	Si
SLU 35	8.35	-145.84	-10.58	-0.8084		372	1.4	105	41.22			3.9	Si
SLU 71	1.11	-189.02	-4.86	11.1221		482	1.4	108	42.47			8.74	Si
SLU 71	8.35	-143.42	-11.24	0.3766		366	1.4	104	40.9			3.64	Si
SLU 79	1.11	-218.83	-4.87	13.6503		558	1.4	108	42.47			8.71	Si
SLU 79	8.35	-164.69	-11.08	-1.197		420	1.4	108	42.47			3.83	Si
SLU 69	1.11	-191.7	-4.55	11.4749		489	1.4	108	42.47			9.34	Si
SLU 69	8.35	-146.82	-10.97	0.4237		375	1.4	105	41.35			3.77	Si
SLU 27	1.11	-160.4	-4.69	9.5907		409	1.4	108	42.47			9.06	Si
SLU 27	8.35	-124.57	-10.74	0.7651		318	1.4	98	38.39			3.57	Si
SLU 29	1.11	-157.72	-5	9.2379		402	1.4	108	42.47			8.5	Si
SLU 29	8.35	-121.18	-11.01	0.718		309	1.4	97	37.94			3.45	Si
SLU 37	1.11	-187.53	-5.01	11.7661		478	1.4	108	42.47			8.47	Si
SLU 37	8.35	-142.44	-10.85	-0.8556		363	1.4	104	40.77			3.76	Si
SLU 28	1.11	-160.77	-3.96	9.8033		410	1.4	108	42.47			10.73	Si
SLU 28	8.35	-124.18	-10.3	0.659		317	1.4	98	38.33			3.72	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	1.11	-109.58	-47.23	-8.6717		280	1.4	139	54.58			1.16	Si
SLV 5	8.35	-101.1	-36.93	6.0242		258	1.4	135	52.89			1.43	Si
SLV 8	1.11	-210.74	40.07	29.1777		538	1.4	163	63.7			1.59	Si
SLV 8	8.35	-104.95	34.15	-4.9533		268	1.4	137	53.66			1.57	Si
SLV 7	1.11	-210.74	40.07	29.1777		538	1.4	163	63.7			1.59	Si
SLV 7	8.35	-104.95	34.15	-4.9533		268	1.4	137	53.66			1.57	Si
SLV 14	1.11	-85.34	-6.63	1.3785		218	1.4	127	49.73			7.5	Si
SLV 14	8.35	-112.41	-26.71	-3.0723		287	1.4	141	55.15			2.06	Si
SLV 6	1.11	-109.58	-47.23	-8.6717		280	1.4	139	54.58			1.16	Si
SLV 6	8.35	-101.1	-36.93	6.0242		258	1.4	135	52.89			1.43	Si
SLV 10	1.11	-82.05	-42.6	-10.1473		209	1.4	125	49.08			1.15	Si
SLV 10	8.35	-105.7	-43.7	3.5991		270	1.4	137	53.81			1.23	Si
SLV 12	1.11	-183.22	44.71	27.7021		467	1.4	163	63.7			1.42	Si
SLV 12	8.35	-109.55	27.38	-7.3784		279	1.4	139	54.58			1.99	Si
SLV 11	1.11	-183.22	44.71	27.7021		467	1.4	163	63.7			1.42	Si
SLV 11	8.35	-109.55	27.38	-7.3784		279	1.4	139	54.58			1.99	Si
SLV 9	1.11	-82.05	-42.6	-10.1473		209	1.4	125	49.08			1.15	Si
SLV 9	8.35	-105.7	-43.7	3.5991		270	1.4	137	53.81			1.23	Si
SLV 13	1.11	-85.34	-6.63	1.3785		218	1.4	127	49.73			7.5	Si
SLV 13	8.35	-112.41	-26.71	-3.0723		287	1.4	141	55.15			2.06	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 4.73 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.34	289	-113.4	5.5436	12.1175	2.19	Si
SLV 6	1438	0.34	289	-113.4	5.5436	12.1175	2.19	Si
SLV 9	1438	0.34	303	-118.83	5.5436	12.5086	2.26	Si
SLV 10	1438	0.34	303	-118.83	5.5436	12.5086	2.26	Si
SLV 2	1438	0.34	315	-123.37	5.5436	12.8229	2.31	Si
SLV 1	1438	0.34	315	-123.37	5.5436	12.8229	2.31	Si
SLV 3	1438	0.34	350	-137.33	5.5436	13.7138	2.47	Si
SLV 4	1438	0.34	350	-137.33	5.5436	13.7138	2.47	Si
SLV 13	1438	0.34	361	-141.44	5.5436	13.9545	2.52	Si
SLV 14	1438	0.34	361	-141.44	5.5436	13.9545	2.52	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 4.73 Wa = 0.0005 Ta = 0.3126

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-98.24	-207.45	2.19	0.006	14.069	0.924	0.08819	7.7147	No
SLV 3	-98.24	-207.45	2.19	0.006	14.069	0.924	0.08819	7.7147	No





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-112.41	-85.34	-2.34	0.006	15.497	0.93	0.09319	7.7147	No
SLV 13	-112.41	-85.34	-2.34	0.006	15.497	0.93	0.09319	7.7147	No
SLV 2	-97.08	-177.1	2.07	0.006	13.953	0.924	0.10166	7.7147	No
SLV 1	-97.08	-177.1	2.07	0.006	13.953	0.924	0.10166	7.7147	No
SLV 16	-113.57	-115.69	-2.22	0.007	15.614	0.93	0.10841	7.7147	No
SLV 15	-113.57	-115.69	-2.22	0.007	15.614	0.93	0.10841	7.7147	No
SLV 10	-105.7	-82.05	-0.94	0.016	14.821	0.927	0.25034	6.98169	No
SLV 9	-105.7	-82.05	-0.94	0.016	14.821	0.927	0.25034	6.98169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.879	SLU 82	Si
V_SLU	3.445	SLU 29	Si
PF_SLV	2.831	SLV 7	Si
V_SLV	1.152	SLV 9	Si
PFFP_SLV	2.186	SLV 5	Si
R_SLV	0.011	SLV 3	No

## Maschio 243

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-10.518	-4.859	-11.003	-4.859	L3	F1	0.485	0.3	13.252	13.252	13.253			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 23	11.87	-8.95	0.1959	62	2.0047	10.234	Si
SLU 23	13.99	-2.42	-0.3182	17	0.575	1.807	Si
SLU 46	11.87	-10.93	0.3088	75	2.4028	7.781	Si
SLU 46	13.99	-3.23	-0.408	22	0.7608	1.865	Si
SLU 44	11.87	-10.14	0.3462	70	2.2463	6.489	Si
SLU 44	13.99	-2.81	-0.4512	19	0.6648	1.473	Si
SLU 10	11.87	-8.59	0.1486	59	1.9309	12.997	Si
SLU 10	13.99	-2.15	-0.2748	15	0.5119	1.863	Si
SLU 65	11.87	-10.98	0.2917	76	2.413	8.271	Si
SLU 65	13.99	-3.03	-0.4223	21	0.7143	1.691	Si
SLU 1	11.87	-7.71	0.2573	53	1.7467	6.788	Si
SLU 1	13.99	-2.25	-0.3141	16	0.5355	1.705	Si
SLU 52	11.87	-10.62	0.2444	73	2.3422	9.583	Si
SLU 52	13.99	-2.75	-0.3789	19	0.6518	1.72	Si
SLU 2	11.87	-8.11	0.2503	56	1.8311	7.315	Si
SLU 2	13.99	-2.21	-0.3471	15	0.5251	1.513	Si
SLU 64	11.87	-10.58	0.2987	73	2.3333	7.81	Si
SLU 64	13.99	-3.07	-0.3893	21	0.7246	1.861	Si
SLU 43	11.87	-9.74	0.3532	67	2.1653	6.131	Si
SLU 43	13.99	-2.86	-0.4182	20	0.6752	1.614	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 8	11.87	-7.58	1.1946	52	1.7575	1.471	Si
SLV 8	13.99	-1.7	-1.3208	0	0	0	No, e>l/2
SLV 3	11.87	-15.61	1.6475	107	3.449	2.093	Si
SLV 3	13.99	-3.63	-2.4936	0	0	0	No, e>l/2
SLD 1	11.87	-12.08	0.6719	83	2.7268	4.058	Si
SLD 1	13.99	-3.14	-1.1271	0	0	0	No, e>l/2
SLV 7	11.87	-7.58	1.1946	52	1.7575	1.471	Si
SLV 7	13.99	-1.7	-1.3208	0	0	0	No, e>l/2
SLV 13	11.87	-0.57	-1.2222	0	0	0	No, e>l/2
SLV 13	13.99	-0.97	1.9234	0	0	0	No, e>l/2
SLV 4	11.87	-15.61	1.6475	107	3.449	2.093	Si
SLV 4	13.99	-3.63	-2.4936	0	0	0	No, e>l/2
SLV 14	11.87	-0.57	-1.2222	0	0	0	No, e>l/2
SLV 14	13.99	-0.97	1.9234	0	0	0	No, e>l/2
SLV 10	11.87	-8.6	-0.7692	59	1.9823	2.577	Si
SLV 10	13.99	-2.89	0.7505	0	0	0	No, e>l/2
SLV 9	11.87	-8.6	-0.7692	59	1.9823	2.577	Si
SLV 9	13.99	-2.89	0.7505	0	0	0	No, e>l/2
SLV 2	11.87	-17.43	1.2839	120	3.8087	2.966	Si
SLV 2	13.99	-4.28	-2.2476	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	11.87	-11.46	0.31	0.19		79	0.4845	66	9.6			31.08	Si
SLU 73	13.99	-2.97	-1.34	-0.35		27	0.3732	59	6.62			4.93	Si
SLU 46	11.87	-10.93	0.65	0.3088		75	0.4845	66	9.53			14.65	Si
SLU 46	13.99	-3.23	-1.17	-0.408		31	0.3477	60	6.23			5.3	Si
SLU 47	11.87	-11.34	0.6	0.2938		78	0.4845	66	9.59			15.95	Si
SLU 47	13.99	-3.28	-1.35	-0.4092		31	0.3526	60	6.31			4.67	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	11.87	-8.11	0.62	0.2503		56	0.4845	63	9.16			14.67	Si
SLU 2	13.99	-2.21	-1.53	-0.3471		29	0.2553	59	4.55			2.98	Si
SLU 10	11.87	-8.59	0.28	0.1486		59	0.4845	63	9.22			32.46	Si
SLU 10	13.99	-2.15	-1.23	-0.2748		21	0.3438	58	6.02			4.91	Si
SLU 44	11.87	-10.14	0.89	0.3462		70	0.4845	65	9.43			10.61	Si
SLU 44	13.99	-2.81	-1.83	-0.4512		38	0.2452	61	4.46			2.43	Si
SLU 52	11.87	-10.62	0.55	0.2444		73	0.4845	65	9.49			17.3	Si
SLU 52	13.99	-2.75	-1.53	-0.3789		29	0.3141	59	5.6			3.65	Si
SLU 43	11.87	-9.74	0.87	0.3532		67	0.4845	64	9.37			10.74	Si
SLU 43	13.99	-2.86	-1.12	-0.4182		33	0.2875	60	5.17			4.64	Si
SLU 23	11.87	-8.95	0.38	0.1959		62	0.4845	64	9.27			24.11	Si
SLU 23	13.99	-2.42	-1.33	-0.3182		24	0.3329	59	5.87			4.4	Si
SLU 65	11.87	-10.98	0.65	0.2917		76	0.4845	66	9.54			14.69	Si
SLU 65	13.99	-3.03	-1.64	-0.4223		33	0.308	60	5.54			3.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	11.87	-7.58	5.09	1.1946		100	0.2539	103	7.86			1.55	Si
SLV 8	13.99	-1.7	-2.18	-1.3208		0	0	83	0			0	No, Vu<V
SLD 1	11.87	-12.08	4.06	0.6719		83	0.4845	100	14.53			3.58	Si
SLD 1	13.99	-3.14	2.85	-1.1271		0	0	83	0			0	No, Vu<V
SLV 7	11.87	-7.58	5.09	1.1946		100	0.2539	103	7.86			1.55	Si
SLV 7	13.99	-1.7	-2.18	-1.3208		0	0	83	0			0	No, Vu<V
SLV 4	11.87	-15.61	10.05	1.6475		127	0.4101	109	13.37			1.33	Si
SLV 4	13.99	-3.63	5.4	-2.4936		0	0	83	0			0	No, Vu<V
SLV 14	11.87	-0.57	-9.16	-1.2222		0	0	83	0			0	No, Vu<V
SLV 14	13.99	-0.97	-6.73	1.9234		0	0	83	0			0	No, Vu<V
SLV 9	11.87	-8.6	-4.2	-0.7692		63	0.4584	96	13.18			3.14	Si
SLV 9	13.99	-2.89	0.84	0.7505		0	0	83	0			0	No, Vu<V
SLV 13	11.87	-0.57	-9.16	-1.2222		0	0	83	0			0	No, Vu<V
SLV 13	13.99	-0.97	-6.73	1.9234		0	0	83	0			0	No, Vu<V
SLV 2	11.87	-17.43	8.88	1.2839		120	0.4845	107	15.6			1.76	Si
SLV 2	13.99	-4.28	7.59	-2.2476		0	0	83	0			0	No, Vu<V
SLV 10	11.87	-8.6	-4.2	-0.7692		63	0.4584	96	13.18			3.14	Si
SLV 10	13.99	-2.89	0.84	0.7505		0	0	83	0			0	No, Vu<V
SLV 3	11.87	-15.61	10.05	1.6475		127	0.4101	109	13.37			1.33	Si
SLV 3	13.99	-3.63	5.4	-2.4936		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.736 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	1438	0.41	0	-39.46	7.7797	0	0	No, e>t/2
SLV 7	1438	0.41	0	-7.39	7.7797	0	0	No, e>t/2
SLV 4	1438	0.41	0	-14.64	7.7797	0	0	No, e>t/2
SLV 8	1438	0.41	0	-7.39	7.7797	0	0	No, e>t/2
SLV 3	1438	0.41	0	-14.64	7.7797	0	0	No, e>t/2
SLV 9	1438	0.41	0	-42.87	7.7797	0	0	No, e>t/2
SLV 10	1438	0.41	0	-42.87	7.7797	0	0	No, e>t/2
SLV 2	1438	0.41	0	-24.26	7.7797	0	0	No, e>t/2
SLV 1	1438	0.41	0	-24.26	7.7797	0	0	No, e>t/2
SLV 6	1438	0.41	0	-39.46	7.7797	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.736 Wa = 0.0005 Ta = 0.9776

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-0.77	20.42	0	0	0	0	0	2.39674	No, Trazione
SLV 8	-0.5	15.84	-0.09	0	0	0	0	2.39674	No, Trazione
SLV 4	-0.77	20.42	0	0	0	0	0	2.39674	No, Trazione
SLV 7	-0.5	15.84	-0.09	0	0	0	0	2.39674	No, Trazione
SLV 6	-0.72	-78.27	0.15	0.014	3.54	0.981	0.20796	2.39674	No
SLV 5	-0.72	-78.27	0.15	0.014	3.54	0.981	0.20796	2.39674	No
SLV 9	-0.54	-110.43	0.14	0.014	3.538	0.985	0.21052	2.39674	No
SLV 10	-0.54	-110.43	0.14	0.014	3.538	0.985	0.21052	2.39674	No
SLV 12	-0.33	-16.33	-0.09	0.017	3.536	0.991	0.25359	2.39674	No
SLV 11	-0.33	-16.33	-0.09	0.017	3.536	0.991	0.25359	2.39674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.473	SLU 44	Si
V_SLU	2.432	SLU 44	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 8	No

## Maschio 244

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.723	-4.859	-8.678	-4.859	L3	F1	0.955	0.3	13.25	13.25	13.251			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 2	11.87	-22.25	0.5212	78	9.6151	18.449	Si
SLU 2	13.99	-7.78	-1.6119	27	3.5914	2.228	Si
SLU 65	11.87	-28.08	0.5529	98	11.8025	21.345	Si
SLU 65	13.99	-9.55	-1.6511	33	4.3773	2.651	Si
SLU 10	11.87	-23.57	0.4324	82	10.1218	23.407	Si
SLU 10	13.99	-8.53	-1.6484	30	3.9284	2.383	Si
SLU 44	11.87	-27.3	0.5541	95	11.5172	20.785	Si
SLU 44	13.99	-9	-1.7146	31	4.1343	2.411	Si
SLU 23	11.87	-23.03	0.52	80	9.9166	19.071	Si
SLU 23	13.99	-8.33	-1.5484	29	3.8371	2.478	Si
SLU 19	11.87	-22.33	0.2293	78	9.6471	42.068	Si
SLU 19	13.99	-7.63	-1.1271	27	3.5279	3.13	Si
SLU 8	11.87	-17.67	-0.0453	62	7.8032	172.262	Si
SLU 8	13.99	-4.92	0.7217	17	2.3022	3.19	Si
SLU 73	11.87	-29.4	0.4642	103	12.2777	26.45	Si
SLU 73	13.99	-10.31	-1.6876	36	4.7087	2.79	Si
SLU 52	11.87	-28.62	0.4654	100	11.9965	25.778	Si
SLU 52	13.99	-9.76	-1.7511	34	4.4675	2.551	Si
SLU 31	11.87	-24.35	0.4312	85	10.4191	24.161	Si
SLU 31	13.99	-9.09	-1.5849	32	4.1724	2.633	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 4	11.87	7.38	0.7485	0	0	0	No, Trazione
SLV 4	13.99	-3.28	-5.6416	0	0	0	No, $e \geq l/2$
SLV 9	11.87	-58.19	1.7015	203	23.1811	13.624	Si
SLV 9	13.99	15.82	11.0615	0	0	0	No, Trazione
SLD 1	11.87	-16.15	0.889	56	7.3597	8.278	Si
SLD 1	13.99	1.37	0.0101	0	0	0	No, Trazione
SLV 6	11.87	-49.12	2.4606	171	20.1742	8.199	Si
SLV 6	13.99	21.15	9.7544	0	0	0	No, Trazione
SLV 2	11.87	-13.81	1.9475	48	6.338	3.254	Si
SLV 2	13.99	10.86	0.7604	0	0	0	No, Trazione
SLV 3	11.87	7.38	0.7485	0	0	0	No, Trazione
SLV 3	13.99	-3.28	-5.6416	0	0	0	No, $e \geq l/2$
SLV 5	11.87	-49.12	2.4606	171	20.1742	8.199	Si
SLV 5	13.99	21.15	9.7544	0	0	0	No, Trazione
SLV 10	11.87	-58.19	1.7015	203	23.1811	13.624	Si
SLV 10	13.99	15.82	11.0615	0	0	0	No, Trazione
SLV 7	11.87	21.51	-1.5359	0	0	0	No, Trazione
SLV 7	13.99	-25.99	-11.5856	91	11.4968	0.992	No, $M > Mu$
SLV 8	11.87	21.51	-1.5359	0	0	0	No, Trazione
SLV 8	13.99	-25.99	-11.5856	91	11.4968	0.992	No, $M > Mu$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 44	11.87	-27.3	1.94	0.5541		95	0.9555	68	19.56			10.11	Si
SLU 44	13.99	-9	0.68	-1.7146		35	0.8617	60	15.56			23	Si
SLU 80	11.87	-27.53	0.04	0.1453		96	0.9555	68	19.6			533.6	Si
SLU 80	13.99	-9.3	1.61	-0.1593		32	0.9555	60	17.16			10.67	Si
SLU 84	11.87	-28.13	0.55	0.1842		98	0.9555	69	19.68			35.61	Si
SLU 84	13.99	-9.52	1.61	-0.6706		33	0.9555	60	17.19			10.66	Si
SLU 36	11.87	-22.52	-0.04	0.1476		79	0.9555	66	18.93			529.5	Si
SLU 36	13.99	-8.1	1.7	-0.1748		28	0.9555	59	17			10.03	Si
SLU 52	11.87	-28.62	1.81	0.4654		100	0.9555	69	19.74			10.93	Si
SLU 52	13.99	-9.76	1.2	-1.7511		36	0.8949	60	16.22			13.5	Si
SLU 42	11.87	-23.08	0.34	0.1512		81	0.9555	66	19			55.14	Si
SLU 42	13.99	-8.29	1.74	-0.5679		29	0.9555	59	17.03			9.78	Si
SLU 31	11.87	-24.35	1.45	0.4312		85	0.9555	67	19.17			13.2	Si
SLU 31	13.99	-9.09	1.64	-1.5849		33	0.91	60	16.38			9.96	Si
SLU 34	11.87	-24.31	0.88	0.3543		85	0.9555	67	19.17			21.76	Si
SLU 34	13.99	-9.19	1.86	-1.0891		32	0.9555	60	17.15			9.2	Si
SLU 76	11.87	-29.37	1.09	0.3873		102	0.9555	69	19.84			18.23	Si
SLU 76	13.99	-10.42	1.74	-1.1918		36	0.9555	60	17.31			9.97	Si
SLU 38	11.87	-22.48	-0.17	0.1124		78	0.9555	66	18.92			110.57	Si
SLU 38	13.99	-8.07	1.74	-0.0566		28	0.9555	59	17			9.79	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	11.87	7.38	9.65	0.7485		0	0	83	0			0	No, $Vu < V$
SLV 4	13.99	-3.28	-4.87	-5.6416		0	0	83	0			0	No, $Vu < V$
SLV 9	11.87	-58.19	-7.55	1.7015		203	0.9555	124	35.52			4.7	Si
SLV 9	13.99	15.82	1.22	11.0615		0	0	83	0			0	No, $Vu < V$
SLV 3	11.87	7.38	9.65	0.7485		0	0	83	0			0	No, $Vu < V$
SLV 3	13.99	-3.28	-4.87	-5.6416		0	0	83	0			0	No, $Vu < V$
SLV 1	11.87	-13.81	6.2	1.9475		48	0.9555	93	26.65			4.3	Si
SLV 1	13.99	10.86	-5.18	0.7604		0	0	83	0			0	No, $Vu < V$
SLD 1	11.87	-16.15	2.98	0.889		56	0.9555	95	27.12			9.1	Si
SLD 1	13.99	1.37	-2.08	0.0101		0	0	83	0			0	No, $Vu < V$
SLV 8	11.87	21.51	8.45	-1.5359		0	0	83	0			0	No, $Vu < V$
SLV 8	13.99	-25.99	-0.88	-11.5856		901	0.0961	163	4.69			5.35	Si
SLV 11	11.87	12.43	3.96	-2.295		0	0	83	0			0	No, $Vu < V$
SLV 11	13.99	-31.32	2.24	-10.2785		233	0.4487	130	17.48			7.8	Si
SLV 7	11.87	21.51	8.45	-1.5359		0	0	83	0			0	No, $Vu < V$
SLV 7	13.99	-25.99	-0.88	-11.5856		901	0.0961	163	4.69			5.35	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	11.87	-13.81	6.2	1.9475		48	0.9555	93	26.65			4.3	Si
SLV 2	13.99	10.86	-5.18	0.7604		0	0	83	0			0	No, Vu<V
SLV 10	11.87	-58.19	-7.55	1.7015		203	0.9555	124	35.52			4.7	Si
SLV 10	13.99	15.82	1.22	11.0615		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.735 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	1438	0.41	0	-35.89	15.3359	0	0	No, e>t/2
SLV 2	1438	0.41	0	-35.89	15.3359	0	0	No, e>t/2
SLV 3	1438	0.41	0	-12.57	15.3359	0	0	No, e>t/2
SLV 10	1438	0.41	0	-91.65	15.3359	0	0	No, e>t/2
SLV 9	1438	0.41	0	-91.65	15.3359	0	0	No, e>t/2
SLV 8	1438	0.41	0	-0.73	15.3359	0	0	No, e>t/2
SLV 4	1438	0.41	0	-12.57	15.3359	0	0	No, e>t/2
SLV 6	1438	0.41	0	-78.47	15.3359	0	0	No, e>t/2
SLV 7	1438	0.41	0	-0.73	15.3359	0	0	No, e>t/2
SLV 5	1438	0.41	0	-78.47	15.3359	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.735 Wa = 0.0005 Ta = 0.9773

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	9.22	-134.15	0.1	0	0	0	0	2.39674	No, Trazione
SLV 5	10.58	-114.78	-0.19	0	0	0	0	2.39674	No, Trazione
SLV 2	4.28	-65.56	-0.54	0	0	0	0	2.39674	No, Trazione
SLV 10	9.22	-134.15	0.1	0	0	0	0	2.39674	No, Trazione
SLV 6	10.58	-114.78	-0.19	0	0	0	0	2.39674	No, Trazione
SLV 1	4.28	-65.56	-0.54	0	0	0	0	2.39674	No, Trazione
SLV 4	-2.48	-42.74	-0.56	0.007	7.001	0.969	0.09821	2.39674	No
SLV 3	-2.48	-42.74	-0.56	0.007	7.001	0.969	0.09821	2.39674	No
SLV 13	-0.25	-130.12	0.41	0.011	6.969	0.996	0.15325	2.39674	No
SLV 14	-0.25	-130.12	0.41	0.011	6.969	0.996	0.15325	2.39674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.228	SLU 2	Si
V_SLU	9.198	SLU 34	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 10	No

## Maschio 245

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.723	-5.009	-7.723	-4.861	L3	F1	0.147	0.3	13.215	13.18	13.249			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 28	11.87	-1.26	0.0738	28	0.0894	1.211	Si
SLU 28	13.99	-0.12	0.032	0	0	0	No, e>l/2
SLU 50	11.87	-1.58	0.0944	36	0.1117	1.184	Si
SLU 50	13.99	-0.05	0.0163	0	0	0	No, e>l/2
SLU 35	11.87	-1.19	0.0723	27	0.0848	1.173	Si
SLU 35	13.99	0.15	0.0228	0	0	0	No, Trazione
SLU 32	11.87	-1.24	0.0748	28	0.0884	1.181	Si
SLU 32	13.99	-0.21	0.0174	0	0	0	No, e>l/2
SLU 41	11.87	-1.25	0.0756	28	0.0889	1.176	Si
SLU 41	13.99	-0.18	0.0192	0	0	0	No, e>l/2
SLU 27	11.87	-1.18	0.0709	27	0.0839	1.184	Si
SLU 27	13.99	0.2	0.0201	0	0	0	No, Trazione
SLU 29	11.87	-1.18	0.071	27	0.0841	1.184	Si
SLU 29	13.99	0.25	0.0208	0	0	0	No, Trazione
SLU 24	11.87	-1.23	0.0734	28	0.0874	1.191	Si
SLU 24	13.99	-0.16	0.0147	0	0	0	No, e>l/2
SLU 30	11.87	-1.26	0.0739	28	0.0896	1.211	Si
SLU 30	13.99	-0.08	0.0326	0	0	0	No, e>l/2
SLU 56	11.87	-1.6	0.0957	36	0.1125	1.175	Si
SLU 56	13.99	-0.14	0.0183	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	11.87	-5.91	0.2333	134	0.3881	1.664	Si
SLV 7	13.99	-4.44	1.9728	0	0	0	No, e>l/2
SLV 11	11.87	-5.36	0.2159	121	0.3562	1.65	Si
SLV 11	13.99	-4	2.0333	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	11.87	-5.91	0.2333	134	0.3881	1.664	Si
SLV 8	13.99	-4.44	1.9728	0	0	0	No, $e \geq l/2$
SLV 9	11.87	3.32	-0.0798	0	0	0	No, Trazione
SLV 9	13.99	3.32	-1.9578	0	0	0	No, Trazione
SLV 14	11.87	0.92	0.0035	0	0	0	No, Trazione
SLV 14	13.99	1.27	-0.4902	0	0	0	No, Trazione
SLV 10	11.87	3.32	-0.0798	0	0	0	No, Trazione
SLV 10	13.99	3.32	-1.9578	0	0	0	No, Trazione
SLD 1	11.87	-1.15	0.071	26	0.083	1.17	Si
SLD 1	13.99	-0.49	-0.2692	0	0	0	No, $e \geq l/2$
SLV 13	11.87	0.92	0.0035	0	0	0	No, Trazione
SLV 13	13.99	1.27	-0.4902	0	0	0	No, Trazione
SLV 12	11.87	-5.36	0.2159	121	0.3562	1.65	Si
SLV 12	13.99	-4	2.0333	0	0	0	No, $e \geq l/2$
SLV 6	11.87	2.77	-0.0625	0	0	0	No, Trazione
SLV 6	13.99	2.88	-2.0183	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 30	11.87	-1.26	0.09	0.0739		93	0.045	68	0.92			10.18	Si
SLU 30	13.99	-0.08	0.5	0.0326		0	0	56	0			0	No, $V_u < V$
SLU 41	11.87	-1.25	0.09	0.0756		105	0.0396	70	0.83			9.17	Si
SLU 41	13.99	-0.18	0.4	0.0192		0	0	56	0			0	No, $V_u < V$
SLU 56	11.87	-1.6	0.13	0.0957		129	0.0413	73	0.9			7	Si
SLU 56	13.99	-0.14	0.29	0.0183		0	0	56	0			0	No, $V_u < V$
SLU 27	11.87	-1.18	0.1	0.0709		97	0.0405	68	0.83			8.22	Si
SLU 27	13.99	0.2	0.18	0.0201		0	0	56	0			0	No, $V_u < V$
SLU 58	11.87	-1.6	0.13	0.0959		129	0.0413	73	0.9			6.86	Si
SLU 58	13.99	-0.1	0.26	0.019		0	0	56	0			0	No, $V_u < V$
SLU 29	11.87	-1.18	0.1	0.071		97	0.0405	68	0.83			8.02	Si
SLU 29	13.99	0.25	0.15	0.0208		0	0	56	0			0	No, $V_u < V$
SLU 28	11.87	-1.26	0.09	0.0738		93	0.0449	68	0.92			10.48	Si
SLU 28	13.99	-0.12	0.53	0.032		0	0	56	0			0	No, $V_u < V$
SLU 24	11.87	-1.23	0.1	0.0734		98	0.0418	69	0.86			8.76	Si
SLU 24	13.99	-0.16	0.26	0.0147		0	0	56	0			0	No, $V_u < V$
SLU 59	11.87	-1.68	0.12	0.0988		125	0.0446	72	0.97			8.21	Si
SLU 59	13.99	-0.42	0.61	0.0308		0	0	56	0			0	No, $V_u < V$
SLU 32	11.87	-1.24	0.09	0.0748		103	0.0403	69	0.84			9.22	Si
SLU 32	13.99	-0.21	0.38	0.0174		0	0	56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	11.87	0.92	-0.28	0.0035		0	0	83	0			0	No, $V_u < V$
SLV 13	13.99	1.27	0.72	-0.4902		0	0	83	0			0	No, $V_u < V$
SLV 11	11.87	-5.36	0.7	0.2159		178	0.1004	119	3.58			5.09	Si
SLV 11	13.99	-4	2.65	2.0333		0	0	83	0			0	No, $V_u < V$
SLV 8	11.87	-5.91	0.81	0.2333		192	0.1028	122	3.75			4.62	Si
SLV 8	13.99	-4.44	2.02	1.9728		0	0	83	0			0	No, $V_u < V$
SLD 1	11.87	-1.15	0.09	0.071		106	0.0361	105	1.13			12.14	Si
SLD 1	13.99	-0.49	-0.37	-0.2692		0	0	83	0			0	No, $V_u < V$
SLV 10	11.87	3.32	-0.62	-0.0798		0	0	83	0			0	No, $V_u < V$
SLV 10	13.99	3.32	-1.43	-1.9578		0	0	83	0			0	No, $V_u < V$
SLV 14	11.87	0.92	-0.28	0.0035		0	0	83	0			0	No, $V_u < V$
SLV 14	13.99	1.27	0.72	-0.4902		0	0	83	0			0	No, $V_u < V$
SLV 12	11.87	-5.36	0.7	0.2159		178	0.1004	119	3.58			5.09	Si
SLV 12	13.99	-4	2.65	2.0333		0	0	83	0			0	No, $V_u < V$
SLV 9	11.87	3.32	-0.62	-0.0798		0	0	83	0			0	No, $V_u < V$
SLV 9	13.99	3.32	-1.43	-1.9578		0	0	83	0			0	No, $V_u < V$
SLV 6	11.87	2.77	-0.51	-0.0625		0	0	83	0			0	No, $V_u < V$
SLV 6	13.99	2.88	-2.06	-2.0183		0	0	83	0			0	No, $V_u < V$
SLV 7	11.87	-5.91	0.81	0.2333		192	0.1028	122	3.75			4.62	Si
SLV 7	13.99	-4.44	2.02	1.9728		0	0	83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.7  $W_a$  0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	1438	0.41	0	-3.59	2.3505	0	0	No, $e \geq t/2$
SLV 6	1438	0.41	0	-1.81	2.3505	0	0	No, $e \geq t/2$
SLV 10	1438	0.41	0	-1.84	2.3505	0	0	No, $e \geq t/2$
SLV 1	1438	0.41	0	-2.75	2.3505	0	0	No, $e \geq t/2$
SLV 2	1438	0.41	0	-2.75	2.3505	0	0	No, $e \geq t/2$
SLV 5	1438	0.41	0	-1.81	2.3505	0	0	No, $e \geq t/2$
SLV 4	1438	0.41	0	-3.59	2.3505	0	0	No, $e \geq t/2$
SLV 7	1438	0.41	0	-4.6	2.3505	0	0	No, $e \geq t/2$
SLV 9	1438	0.41	0	-1.84	2.3505	0	0	No, $e \geq t/2$
SLV 8	1438	0.41	0	-4.6	2.3505	0	0	No, $e \geq t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 7.7  $W_a = 0.0005$   $T_a = 0.972$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	2.74	-28.68	-0.07	0	0	0	0	2.39674	No, Trazione
SLV 10	2.74	-28.68	-0.07	0	0	0	0	2.39674	No, Trazione
SLV 7	-2.87	17.02	0.07	0	0	0	0	2.39674	No, Trazione
SLV 5	3.16	-27.03	-0.12	0	0	0	0	2.39674	No, Trazione
SLV 6	3.16	-27.03	-0.12	0	0	0	0	2.39674	No, Trazione
SLV 1	1.53	-9.68	-0.1	0	0	0	0	2.39674	No, Trazione
SLV 4	-0.28	3.53	-0.05	0	0	0	0	2.39674	No, Trazione
SLV 3	-0.28	3.53	-0.05	0	0	0	0	2.39674	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 8	-2.87	17.02	0.07	0	0	0	0	2.39674	No, Trazione
SLV 2	1.53	-9.68	-0.1	0	0	0	0	2.39674	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 71	No
V_SLU	0	SLU 6	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 14	No

## Maschio 246

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-7.723	-3.771	-7.723	-3.499	L3	F1	0.273	0.3	13.818	13.755	13.882			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
6000			3450	90	200	0.58	0.77	325	3200000	1280000	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 57	11.87	-9.22	-0.5954	113	1.082	1.817	Si
SLU 57	13.99	0.94	0.3005	0	0	0	No, Trazione
SLU 53	11.87	-7.17	-0.2536	88	0.8717	3.437	Si
SLU 53	13.99	-1.04	0.1623	0	0	0	No, e>l/2
SLU 55	11.87	-9.05	-0.8584	111	1.0653	1.241	Si
SLU 55	13.99	3.14	0.393	0	0	0	No, Trazione
SLU 52	11.87	-8.3	-0.8908	102	0.9901	1.111	Si
SLU 52	13.99	3.53	0.4019	0	0	0	No, Trazione
SLU 42	11.87	-7.02	-0.7116	86	0.8558	1.203	Si
SLU 42	13.99	2.82	0.3303	0	0	0	No, Trazione
SLU 60	11.87	-6.08	-0.3128	74	0.7523	2.405	Si
SLU 60	13.99	-0.06	0.1754	0	0	0	No, e>l/2
SLU 51	11.87	-9.06	-0.4698	111	1.0669	2.271	Si
SLU 51	13.99	0.3	0.2421	0	0	0	No, Trazione
SLU 54	11.87	-8.47	-0.6278	104	1.0073	1.604	Si
SLU 54	13.99	1.33	0.3095	0	0	0	No, Trazione
SLU 49	11.87	-9.35	-0.4887	114	1.0953	2.241	Si
SLU 49	13.99	0.08	0.2566	0	0	0	No, Trazione
SLU 59	11.87	-8.93	-0.5765	109	1.0534	1.827	Si
SLU 59	13.99	1.17	0.2859	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 9	11.87	29.2	3.1164	0	0	0	No, Trazione
SLV 9	13.99	27.51	3.309	0	0	0	No, Trazione
SLV 14	11.87	-4.02	-0.0686	49	0.5258	7.659	Si
SLV 14	13.99	13.04	1.3578	0	0	0	No, Trazione
SLV 10	11.87	29.2	3.1164	0	0	0	No, Trazione
SLV 10	13.99	27.51	3.309	0	0	0	No, Trazione
SLV 13	11.87	-4.02	-0.0686	49	0.5258	7.659	Si
SLV 13	13.99	13.04	1.3578	0	0	0	No, Trazione
SLV 2	11.87	16.48	1.8373	0	0	0	No, Trazione
SLV 2	13.99	1.76	0.7367	0	0	0	No, Trazione
SLV 5	11.87	35.35	3.6882	0	0	0	No, Trazione
SLV 5	13.99	24.12	3.1227	0	0	0	No, Trazione
SLD 1	11.87	3.76	0.6118	0	0	0	No, Trazione
SLD 1	13.99	0.36	0.3604	0	0	0	No, Trazione
SLV 1	11.87	16.48	1.8373	0	0	0	No, Trazione
SLV 1	13.99	1.76	0.7367	0	0	0	No, Trazione
SLV 15	11.87	-26.34	-2.2269	322	2.6427	1.187	Si
SLV 15	13.99	-2.74	-0.501	0	0	0	No, e>l/2
SLV 6	11.87	35.35	3.6882	0	0	0	No, Trazione
SLV 6	13.99	24.12	3.1227	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	11.87	-9.35	-1.69	-0.4887		124	0.252	72	5.45			3.23	Si
SLU 49	13.99	0.08	1.44	0.2566		0	0	56	0			0	No, Vu<V
SLU 60	11.87	-6.08	-1.13	-0.3128		80	0.2543	66	5.05			4.48	Si
SLU 60	13.99	-0.06	1.57	0.1754		0	0	56	0			0	No, Vu<V
SLU 51	11.87	-9.06	-1.63	-0.4698		119	0.2532	71	5.43			3.32	Si
SLU 51	13.99	0.3	1.34	0.2421		0	0	56	0			0	No, Vu<V
SLU 52	11.87	-8.3	-3.03	-0.8908		319	0.0868	98	2.55			0.84	No, Vu<V
SLU 52	13.99	3.53	3.16	0.4019		0	0	56	0			0	No, Vu<V
SLU 42	11.87	-7.02	-2.59	-0.7116		224	0.1047	85	2.68			1.04	Si
SLU 42	13.99	2.82	2.24	0.3303		0	0	56	0			0	No, Vu<V
SLU 55	11.87	-9.05	-2.96	-0.8584		243	0.1241	88	3.28			1.11	Si
SLU 55	13.99	3.14	2.8	0.393		0	0	56	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 53	11.87	-7.17	-0.93	-0.2536		88	0.2725	67	5.5			5.91	Si
SLU 53	13.99	-1.04	1.14	0.1623		0	0	56	0			0	No, Vu<V
SLU 54	11.87	-8.47	-2.18	-0.6278		151	0.1864	76	4.24			1.94	Si
SLU 54	13.99	1.33	2.19	0.3095		0	0	56	0			0	No, Vu<V
SLU 57	11.87	-9.22	-2.11	-0.5954		143	0.215	75	4.81			2.28	Si
SLU 57	13.99	0.94	1.83	0.3005		0	0	56	0			0	No, Vu<V
SLU 59	11.87	-8.93	-2.06	-0.5765		138	0.215	74	4.77			2.32	Si
SLU 59	13.99	1.17	1.74	0.2859		0	0	56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	11.87	16.48	-1.9	1.8373		0	0	83	0			0	No, Vu<V
SLV 1	13.99	1.76	5.75	0.7367		0	0	83	0			0	No, Vu<V
SLV 5	11.87	35.35	-10	3.6882		0	0	83	0			0	No, Vu<V
SLV 5	13.99	24.12	22.39	3.1227		0	0	83	0			0	No, Vu<V
SLV 15	11.87	-26.34	0.51	-2.2269		566	0.1552	163	7.56			14.91	Si
SLV 15	13.99	-2.74	-3.78	-0.501		0	0	83	0			0	No, Vu<V
SLV 14	11.87	-4.02	-5.39	-0.0686		49	0.2725	93	7.62			1.41	Si
SLV 14	13.99	13.04	9.39	1.3578		0	0	83	0			0	No, Vu<V
SLV 2	11.87	16.48	-1.9	1.8373		0	0	83	0			0	No, Vu<V
SLV 2	13.99	1.76	5.75	0.7367		0	0	83	0			0	No, Vu<V
SLV 9	11.87	29.2	-11.04	3.1164		0	0	83	0			0	No, Vu<V
SLV 9	13.99	27.51	23.48	3.309		0	0	83	0			0	No, Vu<V
SLV 6	11.87	35.35	-10	3.6882		0	0	83	0			0	No, Vu<V
SLV 6	13.99	24.12	22.39	3.1227		0	0	83	0			0	No, Vu<V
SLV 10	11.87	29.2	-11.04	3.1164		0	0	83	0			0	No, Vu<V
SLV 10	13.99	27.51	23.48	3.309		0	0	83	0			0	No, Vu<V
SLD 1	11.87	3.76	-1.18	0.6118		0	0	83	0			0	No, Vu<V
SLD 1	13.99	0.36	2.87	0.3604		0	0	83	0			0	No, Vu<V
SLV 13	11.87	-4.02	-5.39	-0.0686		49	0.2725	93	7.62			1.41	Si
SLV 13	13.99	13.04	9.39	1.3578		0	0	83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.988 Wa 0.0005 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	1438	0.41	0	0.79	4.8186	0	0	No, Trazione
SLV 7	1438	0.41	0	-21.41	4.8186	0	0	No, e>t/2
SLV 1	1438	0.41	0	0.79	4.8186	0	0	No, Trazione
SLV 5	1438	0.41	0	1.49	4.8186	0	0	No, Trazione
SLV 3	1438	0.41	0	-6.08	4.8186	0	0	No, e>t/2
SLV 9	1438	0.41	0	-4.79	4.8186	0	0	No, e>t/2
SLV 10	1438	0.41	0	-4.79	4.8186	0	0	No, e>t/2
SLV 6	1438	0.41	0	1.49	4.8186	0	0	No, Trazione
SLV 4	1438	0.41	0	-6.08	4.8186	0	0	No, e>t/2
SLV 8	1438	0.41	0	-21.41	4.8186	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.988 Wa = 0.0005 Ta = 1.0629

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	2.83	2.63	-0.36	0	0	0	0	2.39674	No, Trazione
SLV 2	3.32	-66.3	-0.22	0	0	0	0	2.39674	No, Trazione
SLV 3	2.83	2.63	-0.36	0	0	0	0	2.39674	No, Trazione
SLV 1	3.32	-66.3	-0.22	0	0	0	0	2.39674	No, Trazione
SLV 9	2.07	-165.58	0.19	0	0	0	0	2.39674	No, Trazione
SLV 7	1.27	72.9	-0.4	0	0	0	0	2.39674	No, Trazione
SLV 5	2.91	-156.88	0.08	0	0	0	0	2.39674	No, Trazione
SLV 8	1.27	72.9	-0.4	0	0	0	0	2.39674	No, Trazione
SLV 6	2.91	-156.88	0.08	0	0	0	0	2.39674	No, Trazione
SLV 10	2.07	-165.58	0.19	0	0	0	0	2.39674	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 6	No
R_SLV	0	SLV 16	No

## 2.6 Verifiche travi di accoppiamento in muratura

Le unità di misura elencate nel capitolo sono in [m, kN] ove non espressamente specificato.

**X ini.:** coordinata punto iniziale. [m]

**Y ini.:** coordinata punto iniziale. [m]

**Z ini.inf.:** coordinata punto iniziale. [m]

**Z ini.sup.:** coordinata punto iniziale. [m]

**H ini.:** altezza della sezione iniziale. [m]

**X fin.:** coordinata punto finale. [m]

**Y fin.:** coordinata punto finale. [m]

**Z fin.inf.:** coordinata punto finale. [m]



**Z fin.sup:** coordinata punto finale. [m]

**H fin.:** altezza della sezione finale. [m]

**Luce:** lunghezza della trave. [m]

**Spessore:** spessore. [m]

**R. Trazione:** resistenza a trazione dell'elemento teso disposto orizzontalmente. [kN]

**fb :** resistenza normalizzata a compressione in direzione orizzontale dei blocchi. [kN/m<sup>2</sup>]

**fhk:** resistenza caratteristica a compressione della muratura utilizzata in direzione orizzontale. [kN/m<sup>2</sup>]

**fvk0:** resistenza caratteristica a taglio in assenza di carichi verticali. [kN/m<sup>2</sup>]

**fhmedio:** resistenza media a compressione della muratura utilizzata in direzione orizzontale. [kN/m<sup>2</sup>]

**τ0:** resistenza media a taglio in assenza di azioni normali [C8.7.1.16]. [kN/m<sup>2</sup>]

**fv0:** resistenza media a taglio in assenza di azioni normali [C8.7.1.17]. [kN/m<sup>2</sup>]

**μ:** coefficiente di attrito [C8.7.1.17].

**φ:** coefficiente di ammortamento o ingranamento secondo Circolare 7 21-01-19 §C8.7.1.3.1.1.

**fvk,lim:** valore caratteristico massimo della resistenza a taglio che può essere impiegata nel calcolo (§11.10.3.3). [kN/m<sup>2</sup>]

**E:** modulo di elasticità longitudinale della muratura utilizzato. [kN/m<sup>2</sup>]

**G:** modulo di elasticità tangenziale della muratura utilizzato. [kN/m<sup>2</sup>]

**FC:** fattore di confidenza della muratura.

**Sezione:** sezione di verifica.

**γM:** fattore parziale di sicurezza del materiale.

**N:** sforzo normale. [kN]

**M:** momento flettente nel piano. [kN\*m]

**Mu:** momento ultimo. [kN\*m]

**Comb.:** combinazione.

**c.s.:** coefficiente di sicurezza.

**Verifica:** stato di verifica.

**M:** momento flettente. [kN\*m]

**V:** taglio nel piano. [kN]

**Vt:** resistenza a taglio secondo [7.8.4]. [kN]

**Vp:** resistenza a taglio secondo [7.8.6]. [kN]

**Vt fess. diag.:** resistenza a taglio per fessurazione diagonale secondo §C8.7.1.3.1.1 formule [C8.7.1.16] ovvero [C8.7.1.17]. [kN]

**Vt,lim:** taglio limite [C8.1.7.18]. [kN]

**Stato limite:** pF\_SLV=Presso flessione per azioni sismiche; V\_SLV=Taglio per azioni sismiche.

**Coeff.s.:** coefficiente di sicurezza.

## Trave di accoppiamento 1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-24.653	2.271	0.61	1.11	0.5	-24.653	1.271	0.61	1.11	0.5	1	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-9.31	-3.9177	5.4081	SLU 81	1.38	Si
fin.	3	10.35	-0.2927	5.4081	SLU 81	18.48	Si
ini.	3	-9.32	-3.773	5.4081	SLU 78	1.43	Si
fin.	3	8.71	-0.4755	5.4081	SLU 78	11.37	Si
ini.	3	-8.94	-3.8348	5.4081	SLU 77	1.41	Si
fin.	3	10.2	-0.4203	5.4081	SLU 77	12.87	Si
ini.	3	-9.34	-3.9559	5.4081	SLU 83	1.37	Si
fin.	3	10.48	-0.3226	5.4081	SLU 83	16.76	Si
ini.	3	-9.71	-3.8941	5.4081	SLU 84	1.39	Si
fin.	3	8.99	-0.3779	5.4081	SLU 84	14.31	Si
ini.	3	-8.91	-3.7965	5.4081	SLU 74	1.42	Si
fin.	3	10.07	-0.3904	5.4081	SLU 74	13.85	Si
ini.	3	-9.29	-3.7347	5.4081	SLU 75	1.45	Si
fin.	3	8.58	-0.4456	5.4081	SLU 75	12.14	Si
ini.	3	-9.68	-3.8558	5.4081	SLU 82	1.4	Si
fin.	3	8.87	-0.3479	5.4081	SLU 82	15.54	Si
ini.	3	-9.23	-3.734	5.4081	SLU 80	1.45	Si
fin.	3	8.55	-0.4859	5.4081	SLU 80	11.13	Si
ini.	3	-8.85	-3.7958	5.4081	SLU 79	1.42	Si
fin.	3	10.04	-0.4307	5.4081	SLU 79	12.56	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.8558	39.8			5.78	2.17	SLU 82	0.05	No
fin.	3	0	-0.3479	-14.24			5.78	2.17	SLU 82	0.15	No
ini.	3	0	-3.7347	39.04			5.78	2.17	SLU 75	0.06	No
fin.	3	0	-0.4456	-14.74			5.78	2.17	SLU 75	0.15	No
ini.	3	0	-3.8348	40.3			5.78	2.17	SLU 77	0.05	No
fin.	3	0	-0.4203	-14.58			5.78	2.17	SLU 77	0.15	No
ini.	3	0	-3.7965	39.8			5.78	2.17	SLU 74	0.05	No
fin.	3	0	-0.3904	-14.25			5.78	2.17	SLU 74	0.15	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.9559	41.07			5.78	2.17	SLU 83	0.05	No
fin.	3	0	-0.3226	-14.08			5.78	2.17	SLU 83	0.15	No
ini.	3	0	-3.9177	40.57			5.78	2.17	SLU 81	0.05	No
fin.	3	0	-0.2927	-13.75			5.78	2.17	SLU 81	0.16	No
ini.	3	0	-3.734	39.18			5.78	2.17	SLU 80	0.06	No
fin.	3	0	-0.4859	-15.06			5.78	2.17	SLU 80	0.14	No
ini.	3	0	-3.773	39.54			5.78	2.17	SLU 78	0.05	No
fin.	3	0	-0.4755	-15.07			5.78	2.17	SLU 78	0.14	No
ini.	3	0	-3.7958	39.94			5.78	2.17	SLU 79	0.05	No
fin.	3	0	-0.4307	-14.57			5.78	2.17	SLU 79	0.15	No
ini.	3	0	-3.8941	40.3			5.78	2.17	SLU 84	0.05	No
fin.	3	0	-0.3779	-14.56			5.78	2.17	SLU 84	0.15	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-30.72	-7.7567	6.5221	SLV 11	0.84	No
fin.	2	11	7.0919	6.5221	SLV 11	0.92	No
ini.	2	27.51	3.281	6.5221	SLV 10	1.99	Si
fin.	2	-25.46	-6.0543	6.5221	SLV 10	1.08	Si
ini.	2	-30.72	-7.7567	6.5221	SLV 12	0.84	No
fin.	2	11	7.0919	6.5221	SLV 12	0.92	No
ini.	2	-11.65	-1.9059	6.5221	SLV 1	3.42	Si
fin.	2	47.32	-5.4314	6.5221	SLV 1	1.2	Si
ini.	2	-39.39	-8.3677	6.5221	SLV 7	0.78	No
fin.	2	38.71	5.2558	6.5221	SLV 7	1.24	Si
ini.	2	-11.65	-1.9059	6.5221	SLV 2	3.42	Si
fin.	2	47.32	-5.4314	6.5221	SLV 2	1.2	Si
ini.	2	-39.39	-8.3677	6.5221	SLV 8	0.78	No
fin.	2	38.71	5.2558	6.5221	SLV 8	1.24	Si
ini.	2	27.51	3.281	6.5221	SLV 9	1.99	Si
fin.	2	-25.46	-6.0543	6.5221	SLV 9	1.08	Si
ini.	2	18.84	2.6701	6.5221	SLV 6	2.44	Si
fin.	2	2.24	-7.8904	6.5221	SLV 6	0.83	No
ini.	2	18.84	2.6701	6.5221	SLV 5	2.44	Si
fin.	2	2.24	-7.8904	6.5221	SLV 5	0.83	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	0.1306	-2.62			8.67	3.26	SLV 13	1.25	Si
fin.	2	0	0.689	-48.89			8.67	3.26	SLV 13	0.07	No
ini.	2	0	-8.3677	69.68			8.67	3.26	SLV 8	0.05	No
fin.	2	0	5.2558	32.08			8.67	3.26	SLV 8	0.1	No
ini.	2	0	3.281	-15.06			8.67	3.26	SLV 10	0.22	No
fin.	2	0	-6.0543	-53.86			8.67	3.26	SLV 10	0.06	No
ini.	2	0	-7.7567	58.33			8.67	3.26	SLV 12	0.06	No
fin.	2	0	7.0919	15.52			8.67	3.26	SLV 12	0.21	No
ini.	2	0	-8.3677	69.68			8.67	3.26	SLV 7	0.05	No
fin.	2	0	5.2558	32.08			8.67	3.26	SLV 7	0.1	No
ini.	2	0	-5.2172	57.23			8.67	3.26	SLV 3	0.06	No
fin.	2	0	-1.4876	27.1			8.67	3.26	SLV 3	0.12	No
ini.	2	0	-7.7567	58.33			8.67	3.26	SLV 11	0.06	No
fin.	2	0	7.0919	15.52			8.67	3.26	SLV 11	0.21	No
ini.	2	0	3.281	-15.06			8.67	3.26	SLV 9	0.22	No
fin.	2	0	-6.0543	-53.86			8.67	3.26	SLV 9	0.06	No
ini.	2	0	0.1306	-2.62			8.67	3.26	SLV 14	1.25	Si
fin.	2	0	0.689	-48.89			8.67	3.26	SLV 14	0.07	No
ini.	2	0	-5.2172	57.23			8.67	3.26	SLV 4	0.06	No
fin.	2	0	-1.4876	27.1			8.67	3.26	SLV 4	0.12	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.779	SLV 7	No
V_SLV	0.047	SLV 7	No
PF_SLU	1.367	SLU 83	Si
V_SLU	0.053	SLU 83	No

## Trave di accoppiamento 2

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.763	5.876	-1.59	0.41	2	-22.763	5.876	-1.59	0.41	2	1	0.45	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-15.56	-20.6832	31.6581	SLU 74	1.53	Si
fin.	3	-7.18	-11.0165	31.6581	SLU 74	2.87	Si
ini.	3	-16.08	-21.3835	31.6581	SLU 83	1.48	Si
fin.	3	-7.32	-11.3833	31.6581	SLU 83	2.78	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-15.37	-20.4858	31.6581	SLU 76	1.55	Si
fin.	3	-7.07	-10.7741	31.6581	SLU 76	2.94	Si
ini.	3	-15.5	-20.6775	31.6581	SLU 75	1.53	Si
fin.	3	-7.15	-10.903	31.6581	SLU 75	2.9	Si
ini.	3	-15.85	-21.4121	31.6581	SLU 81	1.48	Si
fin.	3	-7.57	-11.111	31.6581	SLU 81	2.85	Si
ini.	3	-15.79	-20.6545	31.6581	SLU 77	1.53	Si
fin.	3	-6.93	-11.2888	31.6581	SLU 77	2.8	Si
ini.	3	-15.79	-21.4064	31.6581	SLU 82	1.48	Si
fin.	3	-7.54	-10.9975	31.6581	SLU 82	2.88	Si
ini.	3	-15.14	-20.5144	31.6581	SLU 73	1.54	Si
fin.	3	-7.32	-10.5018	31.6581	SLU 73	3.01	Si
ini.	3	-16.01	-21.3778	31.6581	SLU 84	1.48	Si
fin.	3	-7.29	-11.2697	31.6581	SLU 84	2.81	Si
ini.	3	-15.73	-20.6488	31.6581	SLU 78	1.53	Si
fin.	3	-6.9	-11.1753	31.6581	SLU 78	2.83	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-20.6488	-32.28			34.66	13.04	SLU 78	0.4	No
fin.	3	0	-11.1753	39.81			34.66	13.04	SLU 78	0.33	No
ini.	3	0	-20.6545	-32.5			34.66	13.04	SLU 77	0.4	No
fin.	3	0	-11.2888	39.82			34.66	13.04	SLU 77	0.33	No
ini.	3	0	-21.4121	-32.03			34.66	13.04	SLU 81	0.41	No
fin.	3	0	-11.111	42.58			34.66	13.04	SLU 81	0.31	No
ini.	3	0	-20.6775	-31.28			34.66	13.04	SLU 75	0.42	No
fin.	3	0	-10.903	40.33			34.66	13.04	SLU 75	0.32	No
ini.	3	0	-20.6832	-31.5			34.66	13.04	SLU 74	0.41	No
fin.	3	0	-11.0165	40.34			34.66	13.04	SLU 74	0.32	No
ini.	3	0	-20.5144	-30.06			34.66	13.04	SLU 73	0.43	No
fin.	3	0	-10.5018	40.53			34.66	13.04	SLU 73	0.32	No
ini.	3	0	-21.3778	-32.82			34.66	13.04	SLU 84	0.4	No
fin.	3	0	-11.2697	42.04			34.66	13.04	SLU 84	0.31	No
ini.	3	0	-20.4858	-31.06			34.66	13.04	SLU 76	0.42	No
fin.	3	0	-10.7741	40.01			34.66	13.04	SLU 76	0.33	No
ini.	3	0	-21.3835	-33.04			34.66	13.04	SLU 83	0.39	No
fin.	3	0	-11.3833	42.06			34.66	13.04	SLU 83	0.31	No
ini.	3	0	-21.4064	-31.82			34.66	13.04	SLU 82	0.41	No
fin.	3	0	-10.9975	42.56			34.66	13.04	SLU 82	0.31	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-78.49	37.1431	32.7721	SLV 8	0.88	No
fin.	2	53.07	-53.9332	32.7721	SLV 8	0.61	No
ini.	2	15.95	-45.6282	32.7721	SLV 15	0.72	No
fin.	2	-42.28	17.7769	32.7721	SLV 15	1.84	Si
ini.	2	15.95	-45.6282	32.7721	SLV 16	0.72	No
fin.	2	-42.28	17.7769	32.7721	SLV 16	1.84	Si
ini.	2	57.04	-65.8988	32.7721	SLV 10	0.5	No
fin.	2	-63.79	38.8872	32.7721	SLV 10	0.84	No
ini.	2	-70.3	40.0721	32.7721	SLV 3	0.82	No
fin.	2	57.63	-54.1918	32.7721	SLV 3	0.6	No
ini.	2	48.84	-68.8278	32.7721	SLV 13	0.48	No
fin.	2	-68.35	39.1458	32.7721	SLV 13	0.84	No
ini.	2	-70.3	40.0721	32.7721	SLV 4	0.82	No
fin.	2	57.63	-54.1918	32.7721	SLV 4	0.6	No
ini.	2	57.04	-65.8988	32.7721	SLV 9	0.5	No
fin.	2	-63.79	38.8872	32.7721	SLV 9	0.84	No
ini.	2	48.84	-68.8278	32.7721	SLV 14	0.48	No
fin.	2	-68.35	39.1458	32.7721	SLV 14	0.84	No
ini.	2	-78.49	37.1431	32.7721	SLV 7	0.88	No
fin.	2	53.07	-53.9332	32.7721	SLV 7	0.61	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-65.8988	85.77			51.99	19.57	SLV 10	0.23	No
fin.	2	0	38.8872	138.71			51.99	19.57	SLV 10	0.14	No
ini.	2	0	16.8726	-183.8			51.99	19.57	SLV 2	0.11	No
fin.	2	0	-32.8229	-124.74			51.99	19.57	SLV 2	0.16	No
ini.	2	0	-68.8278	173.97			51.99	19.57	SLV 14	0.11	No
fin.	2	0	39.1458	216.6			51.99	19.57	SLV 14	0.09	No
ini.	2	0	-45.6282	142.25			51.99	19.57	SLV 16	0.14	No
fin.	2	0	17.7769	180.96			51.99	19.57	SLV 16	0.11	No
ini.	2	0	40.0721	-215.53			51.99	19.57	SLV 3	0.09	No
fin.	2	0	-54.1918	-160.38			51.99	19.57	SLV 3	0.12	No
ini.	2	0	-68.8278	173.97			51.99	19.57	SLV 13	0.11	No
fin.	2	0	39.1458	216.6			51.99	19.57	SLV 13	0.09	No
ini.	2	0	-65.8988	85.77			51.99	19.57	SLV 9	0.23	No
fin.	2	0	38.8872	138.71			51.99	19.57	SLV 9	0.14	No
ini.	2	0	40.0721	-215.53			51.99	19.57	SLV 4	0.09	No
fin.	2	0	-54.1918	-160.38			51.99	19.57	SLV 4	0.12	No
ini.	2	0	-45.6282	142.25			51.99	19.57	SLV 15	0.14	No
fin.	2	0	17.7769	180.96			51.99	19.57	SLV 15	0.11	No
ini.	2	0	16.8726	-183.8			51.99	19.57	SLV 1	0.11	No
fin.	2	0	-32.8229	-124.74			51.99	19.57	SLV 1	0.16	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.476	SLV 13	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.09	SLV 13	No
PF SLU	1.479	SLU 81	Si
V SLU	0.306	SLU 81	No

### Trave di accoppiamento 3

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.763	5.876	0.81	1.11	0.3	-22.763	5.876	0.81	1.11	0.3	1	0.45	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	12.4	-2.4955	2.0548	SLU 78	0.82	No
fin.	3	10.4	-1.3359	2.0548	SLU 78	1.54	Si
ini.	3	11.94	-2.4969	2.0548	SLU 76	0.82	No
fin.	3	10.21	-1.3002	2.0548	SLU 76	1.58	Si
ini.	3	12.24	-2.4957	2.0548	SLU 74	0.82	No
fin.	3	10.43	-1.3107	2.0548	SLU 74	1.57	Si
ini.	3	12.42	-2.6429	2.0548	SLU 83	0.78	No
fin.	3	10.51	-1.4239	2.0548	SLU 83	1.44	Si
ini.	3	12.32	-2.6526	2.0548	SLU 84	0.77	No
fin.	3	10.46	-1.4159	2.0548	SLU 84	1.45	Si
ini.	3	11.68	-2.5068	2.0548	SLU 73	0.82	No
fin.	3	10.2	-1.2669	2.0548	SLU 73	1.62	Si
ini.	3	12.07	-2.6625	2.0548	SLU 82	0.77	No
fin.	3	10.45	-1.3826	2.0548	SLU 82	1.49	Si
ini.	3	12.17	-2.6528	2.0548	SLU 81	0.77	No
fin.	3	10.49	-1.3907	2.0548	SLU 81	1.48	Si
ini.	3	12.49	-2.4858	2.0548	SLU 77	0.83	No
fin.	3	10.45	-1.344	2.0548	SLU 77	1.53	Si
ini.	3	12.14	-2.5054	2.0548	SLU 75	0.82	No
fin.	3	10.39	-1.3026	2.0548	SLU 75	1.58	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.6528	16.43			3.47	1.3	SLU 81	0.08	No
fin.	3	0	-1.3907	-10.06			3.47	1.3	SLU 81	0.13	No
ini.	3	0	-2.6526	16.5			3.47	1.3	SLU 84	0.08	No
fin.	3	0	-1.4159	-10.15			3.47	1.3	SLU 84	0.13	No
ini.	3	0	-2.4957	15.56			3.47	1.3	SLU 74	0.08	No
fin.	3	0	-1.3107	-9.48			3.47	1.3	SLU 74	0.14	No
ini.	3	0	-2.4969	15.54			3.47	1.3	SLU 76	0.08	No
fin.	3	0	-1.3002	-9.42			3.47	1.3	SLU 76	0.14	No
ini.	3	0	-2.6429	16.46			3.47	1.3	SLU 83	0.08	No
fin.	3	0	-1.4239	-10.19			3.47	1.3	SLU 83	0.13	No
ini.	3	0	-2.4805	15.55			3.47	1.3	SLU 80	0.08	No
fin.	3	0	-1.3388	-9.57			3.47	1.3	SLU 80	0.14	No
ini.	3	0	-2.4858	15.59			3.47	1.3	SLU 77	0.08	No
fin.	3	0	-1.344	-9.6			3.47	1.3	SLU 77	0.14	No
ini.	3	0	-2.4955	15.63			3.47	1.3	SLU 78	0.08	No
fin.	3	0	-1.3359	-9.57			3.47	1.3	SLU 78	0.14	No
ini.	3	0	-2.5054	15.6			3.47	1.3	SLU 75	0.08	No
fin.	3	0	-1.3026	-9.44			3.47	1.3	SLU 75	0.14	No
ini.	3	0	-2.6625	16.47			3.47	1.3	SLU 82	0.08	No
fin.	3	0	-1.3826	-10.03			3.47	1.3	SLU 82	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	23.5	-10.9023	3.0221	SLV 6	0.28	No
fin.	2	77.56	-3.5719	3.0221	SLV 6	0.85	No
ini.	2	33.45	8.2044	3.0221	SLV 3	0.37	No
fin.	2	-41.56	-7.5056	3.0221	SLV 3	0.4	No
ini.	2	-16.37	-11.5382	3.0221	SLV 13	0.26	No
fin.	2	56.58	5.8773	3.0221	SLV 13	0.51	No
ini.	2	9.76	11.4771	3.0221	SLV 7	0.26	No
fin.	2	-77.99	-2.1952	3.0221	SLV 7	1.38	Si
ini.	2	7.32	-14.811	3.0221	SLV 10	0.2	No
fin.	2	93.01	0.5668	3.0221	SLV 10	5.33	Si
ini.	2	23.5	-10.9023	3.0221	SLV 5	0.28	No
fin.	2	77.56	-3.5719	3.0221	SLV 5	0.85	No
ini.	2	33.45	8.2044	3.0221	SLV 4	0.37	No
fin.	2	-41.56	-7.5056	3.0221	SLV 4	0.4	No
ini.	2	-16.37	-11.5382	3.0221	SLV 14	0.26	No
fin.	2	56.58	5.8773	3.0221	SLV 14	0.51	No
ini.	2	7.32	-14.811	3.0221	SLV 9	0.2	No
fin.	2	93.01	0.5668	3.0221	SLV 9	5.33	Si
ini.	2	9.76	11.4771	3.0221	SLV 8	0.26	No
fin.	2	-77.99	-2.1952	3.0221	SLV 8	1.38	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-11.5382	34.32			5.2	1.96	SLV 13	0.06	No
fin.	2	0	5.8773	19.01			5.2	1.96	SLV 13	0.1	No
ini.	2	0	-14.811	26.28			5.2	1.96	SLV 10	0.07	No
fin.	2	0	0.5668	5.57			5.2	1.96	SLV 10	0.35	No
ini.	2	0	8.2044	-13.55			5.2	1.96	SLV 4	0.14	No
fin.	2	0	-7.5056	-31.23			5.2	1.96	SLV 4	0.06	No
ini.	2	0	-14.811	26.28			5.2	1.96	SLV 9	0.07	No
fin.	2	0	0.5668	5.57			5.2	1.96	SLV 9	0.35	No
ini.	2	0	1.4905	-7.8			5.2	1.96	SLV 1	0.25	No
fin.	2	0	-7.9187	-28.49			5.2	1.96	SLV 1	0.07	No
ini.	2	0	-4.8244	28.57			5.2	1.96	SLV 16	0.07	No
fin.	2	0	6.2903	16.27			5.2	1.96	SLV 16	0.12	No
ini.	2	0	-4.8244	28.57			5.2	1.96	SLV 15	0.07	No
fin.	2	0	6.2903	16.27			5.2	1.96	SLV 15	0.12	No
ini.	2	0	8.2044	-13.55			5.2	1.96	SLV 3	0.14	No
fin.	2	0	-7.5056	-31.23			5.2	1.96	SLV 3	0.06	No
ini.	2	0	-11.5382	34.32			5.2	1.96	SLV 14	0.06	No
fin.	2	0	5.8773	19.01			5.2	1.96	SLV 14	0.1	No
ini.	2	0	1.4905	-7.8			5.2	1.96	SLV 2	0.25	No
fin.	2	0	-7.9187	-28.49			5.2	1.96	SLV 2	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.204	SLV 9	No
V_SLV	0.057	SLV 13	No
PF_SLU	0.772	SLU 82	No
V_SLU	0.079	SLU 84	No

#### Trave di accoppiamento 4

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-19.618	1.271	0.41	1.11	0.7	-19.618	2.071	0.41	1.11	0.7	0.8	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	5.39	0.5313	7.2372	SLU 74	13.62	Si
fin.	3	-1.73	-7.8702	7.2372	SLU 74	0.92	No
ini.	3	5.83	0.4264	7.2372	SLU 78	16.97	Si
fin.	3	-1.04	-7.8183	7.2372	SLU 78	0.93	No
ini.	3	5.86	0.4209	7.2372	SLU 79	17.19	Si
fin.	3	-0.97	-7.7933	7.2372	SLU 79	0.93	No
ini.	3	5.31	0.598	7.2372	SLU 82	12.1	Si
fin.	3	-2.18	-8.1044	7.2372	SLU 82	0.89	No
ini.	3	5.72	0.5216	7.2372	SLU 84	13.87	Si
fin.	3	-1.63	-8.1365	7.2372	SLU 84	0.89	No
ini.	3	5.28	0.6265	7.2372	SLU 81	11.55	Si
fin.	3	-2.31	-8.1884	7.2372	SLU 81	0.88	No
ini.	3	5.8	0.4549	7.2372	SLU 77	15.91	Si
fin.	3	-1.17	-7.9023	7.2372	SLU 77	0.92	No
ini.	3	5.89	0.3925	7.2372	SLU 80	18.44	Si
fin.	3	-0.83	-7.7092	7.2372	SLU 80	0.94	No
ini.	3	5.69	0.5501	7.2372	SLU 83	13.16	Si
fin.	3	-1.76	-8.2206	7.2372	SLU 83	0.88	No
ini.	3	5.42	0.5028	7.2372	SLU 75	14.39	Si
fin.	3	-1.59	-7.7862	7.2372	SLU 75	0.93	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.598	5.13			7.08	2.66	SLU 82	0.52	No
fin.	3	0	-8.1044	-34.64			7.08	2.66	SLU 82	0.08	No
ini.	3	0	0.5313	5.11			7.08	2.66	SLU 74	0.52	No
fin.	3	0	-7.8702	-33.5			7.08	2.66	SLU 74	0.08	No
ini.	3	0	0.4549	5.5			7.08	2.66	SLU 77	0.48	No
fin.	3	0	-7.9023	-33.67			7.08	2.66	SLU 77	0.08	No
ini.	3	0	0.5216	5.51			7.08	2.66	SLU 84	0.48	No
fin.	3	0	-8.1365	-34.81			7.08	2.66	SLU 84	0.08	No
ini.	3	0	0.5028	5.19			7.08	2.66	SLU 75	0.51	No
fin.	3	0	-7.7862	-33.21			7.08	2.66	SLU 75	0.08	No
ini.	3	0	0.4209	5.6			7.08	2.66	SLU 79	0.48	No
fin.	3	0	-7.7933	-33.28			7.08	2.66	SLU 79	0.08	No
ini.	3	0	0.4264	5.57			7.08	2.66	SLU 78	0.48	No
fin.	3	0	-7.8183	-33.37			7.08	2.66	SLU 78	0.08	No
ini.	3	0	0.5501	5.43			7.08	2.66	SLU 83	0.49	No
fin.	3	0	-8.2206	-35.11			7.08	2.66	SLU 83	0.08	No
ini.	3	0	0.6265	5.05			7.08	2.66	SLU 81	0.53	No
fin.	3	0	-8.1884	-34.94			7.08	2.66	SLU 81	0.08	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.3925	5.68			7.08	2.66	SLU 80	0.47	No
fin.	3	0	-7.7092	-32.98			7.08	2.66	SLU 80	0.08	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-26.28	6.548	8.9081	SLV 8	1.36	Si
fin.	2	-52.42	-19.3482	8.9081	SLV 8	0.46	No
ini.	2	-8.24	2.3659	8.9081	SLD 11	3.77	Si
fin.	2	-20.57	-10.3967	8.9081	SLD 11	0.86	No
ini.	2	-26.28	6.548	8.9081	SLV 7	1.36	Si
fin.	2	-52.42	-19.3482	8.9081	SLV 7	0.46	No
ini.	2	-23.68	4.9263	8.9081	SLV 11	1.81	Si
fin.	2	-45.75	-17.1241	8.9081	SLV 11	0.52	No
ini.	2	-9.36	3.0627	8.9081	SLD 8	2.91	Si
fin.	2	-23.45	-11.3552	8.9081	SLD 8	0.78	No
ini.	2	-9.4	4.6815	8.9081	SLV 3	1.9	Si
fin.	2	-26.73	-12.8324	8.9081	SLV 3	0.69	No
ini.	2	-9.36	3.0627	8.9081	SLD 7	2.91	Si
fin.	2	-23.45	-11.3552	8.9081	SLD 7	0.78	No
ini.	2	-8.24	2.3659	8.9081	SLD 12	3.77	Si
fin.	2	-20.57	-10.3967	8.9081	SLD 12	0.86	No
ini.	2	-9.4	4.6815	8.9081	SLV 4	1.9	Si
fin.	2	-26.73	-12.8324	8.9081	SLV 4	0.69	No
ini.	2	-23.68	4.9263	8.9081	SLV 12	1.81	Si
fin.	2	-45.75	-17.1241	8.9081	SLV 12	0.52	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.6815	-9.32			10.61	3.99	SLV 4	0.43	No
fin.	2	0	-12.8324	-46.76			10.61	3.99	SLV 4	0.09	No
ini.	2	0	2.3659	-7.36			10.61	3.99	SLD 12	0.54	No
fin.	2	0	-10.3967	-37.21			10.61	3.99	SLD 12	0.11	No
ini.	2	0	4.9263	-21.49			10.61	3.99	SLV 12	0.19	No
fin.	2	0	-17.1241	-56.73			10.61	3.99	SLV 12	0.07	No
ini.	2	0	6.548	-24.36			10.61	3.99	SLV 8	0.16	No
fin.	2	0	-19.3482	-64.54			10.61	3.99	SLV 8	0.06	No
ini.	2	0	3.0627	-8.59			10.61	3.99	SLD 7	0.46	No
fin.	2	0	-11.3552	-40.59			10.61	3.99	SLD 7	0.1	No
ini.	2	0	4.9263	-21.49			10.61	3.99	SLV 11	0.19	No
fin.	2	0	-17.1241	-56.73			10.61	3.99	SLV 11	0.07	No
ini.	2	0	2.3659	-7.36			10.61	3.99	SLD 11	0.54	No
fin.	2	0	-10.3967	-37.21			10.61	3.99	SLD 11	0.11	No
ini.	2	0	3.0627	-8.59			10.61	3.99	SLD 8	0.46	No
fin.	2	0	-11.3552	-40.59			10.61	3.99	SLD 8	0.1	No
ini.	2	0	4.6815	-9.32			10.61	3.99	SLV 3	0.43	No
fin.	2	0	-12.8324	-46.76			10.61	3.99	SLV 3	0.09	No
ini.	2	0	6.548	-24.36			10.61	3.99	SLV 7	0.16	No
fin.	2	0	-19.3482	-64.54			10.61	3.99	SLV 7	0.06	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 7	No
V_SLV	0.062	SLV 7	No
PF_SLU	0.88	SLU 83	No
V_SLU	0.076	SLU 83	No

### Trave di accoppiamento 5

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-19.618	4.851	0.41	1.11	0.7	-19.618	5.651	0.41	1.11	0.7	0.8	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-24.24	-2.4307	7.2372	SLU 74	2.98	Si
fin.	3	-22.6	0.2635	7.2372	SLU 74	27.46	Si
ini.	3	-23.57	-2.4371	7.2372	SLU 80	2.97	Si
fin.	3	-21.92	0.2737	7.2372	SLU 80	26.44	Si
ini.	3	-24.18	-2.4248	7.2372	SLU 75	2.98	Si
fin.	3	-22.57	0.2648	7.2372	SLU 75	27.33	Si
ini.	3	-23.63	-2.443	7.2372	SLU 79	2.96	Si
fin.	3	-21.95	0.2725	7.2372	SLU 79	26.56	Si
ini.	3	-25.51	-2.4887	7.2372	SLU 82	2.91	Si
fin.	3	-23.71	0.2834	7.2372	SLU 82	25.54	Si
ini.	3	-23.86	-2.449	7.2372	SLU 78	2.96	Si
fin.	3	-22.27	0.2585	7.2372	SLU 78	28	Si
ini.	3	-25.19	-2.5129	7.2372	SLU 84	2.88	Si
fin.	3	-23.4	0.2771	7.2372	SLU 84	26.12	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-25.57	-2.4946	7.2372	SLU 81	2.9	Si
fin.	3	-23.74	0.2821	7.2372	SLU 81	25.65	Si
ini.	3	-25.25	-2.5187	7.2372	SLU 83	2.87	Si
fin.	3	-23.44	0.2758	7.2372	SLU 83	26.24	Si
ini.	3	-23.92	-2.4548	7.2372	SLU 77	2.95	Si
fin.	3	-22.3	0.2572	7.2372	SLU 77	28.14	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.4307	78.54			7.08	2.66	SLU 74	0.03	No
fin.	3	0	0.2635	-31.58			7.08	2.66	SLU 74	0.08	No
ini.	3	0	-2.4371	79.07			7.08	2.66	SLU 80	0.03	No
fin.	3	0	0.2737	-31.71			7.08	2.66	SLU 80	0.08	No
ini.	3	0	-2.4887	80.46			7.08	2.66	SLU 82	0.03	No
fin.	3	0	0.2834	-32.26			7.08	2.66	SLU 82	0.08	No
ini.	3	0	-2.443	79.18			7.08	2.66	SLU 79	0.03	No
fin.	3	0	0.2725	-31.73			7.08	2.66	SLU 79	0.08	No
ini.	3	0	-2.4946	80.57			7.08	2.66	SLU 81	0.03	No
fin.	3	0	0.2821	-32.27			7.08	2.66	SLU 81	0.08	No
ini.	3	0	-2.5187	81.74			7.08	2.66	SLU 83	0.03	No
fin.	3	0	0.2758	-32.74			7.08	2.66	SLU 83	0.08	No
ini.	3	0	-2.4548	79.71			7.08	2.66	SLU 77	0.03	No
fin.	3	0	0.2572	-32.04			7.08	2.66	SLU 77	0.08	No
ini.	3	0	-2.5129	81.63			7.08	2.66	SLU 84	0.03	No
fin.	3	0	0.2771	-32.72			7.08	2.66	SLU 84	0.08	No
ini.	3	0	-2.449	79.6			7.08	2.66	SLU 78	0.03	No
fin.	3	0	0.2585	-32.02			7.08	2.66	SLU 78	0.08	No
ini.	3	0	-2.4248	78.43			7.08	2.66	SLU 75	0.03	No
fin.	3	0	0.2648	-31.56			7.08	2.66	SLU 75	0.08	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-58.14	-11.3764	8.9081	SLV 10	0.78	No
fin.	2	-1.49	14.7167	8.9081	SLV 10	0.61	No
ini.	2	-58.14	-11.3764	8.9081	SLV 9	0.78	No
fin.	2	-1.49	14.7167	8.9081	SLV 9	0.61	No
ini.	2	24.78	8.012	8.9081	SLV 7	1.11	Si
fin.	2	-29.5	-14.2614	8.9081	SLV 7	0.62	No
ini.	2	20.61	6.7661	8.9081	SLV 11	1.32	Si
fin.	2	-23.97	-11.6428	8.9081	SLV 11	0.77	No
ini.	2	-35.44	-6.48	8.9081	SLV 13	1.37	Si
fin.	2	-2.91	8.5459	8.9081	SLV 13	1.04	Si
ini.	2	20.61	6.7661	8.9081	SLV 12	1.32	Si
fin.	2	-23.97	-11.6428	8.9081	SLV 12	0.77	No
ini.	2	-35.44	-6.48	8.9081	SLV 14	1.37	Si
fin.	2	-2.91	8.5459	8.9081	SLV 14	1.04	Si
ini.	2	-53.98	-10.1305	8.9081	SLV 6	0.88	No
fin.	2	-7.02	12.0981	8.9081	SLV 6	0.74	No
ini.	2	-53.98	-10.1305	8.9081	SLV 5	0.88	No
fin.	2	-7.02	12.0981	8.9081	SLV 5	0.74	No
ini.	2	24.78	8.012	8.9081	SLV 8	1.11	Si
fin.	2	-29.5	-14.2614	8.9081	SLV 8	0.62	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-5.8945	79.51			10.61	3.99	SLD 10	0.05	No
fin.	2	0	6.4669	1.99			10.61	3.99	SLD 10	2.01	Si
ini.	2	0	-5.3597	76.25			10.61	3.99	SLD 5	0.05	No
fin.	2	0	5.3368	0.51			10.61	3.99	SLD 5	7.9	Si
ini.	2	0	-6.48	82.94			10.61	3.99	SLV 13	0.05	No
fin.	2	0	8.5459	0.27			10.61	3.99	SLV 13	14.8	Si
ini.	2	0	-6.48	82.94			10.61	3.99	SLV 14	0.05	No
fin.	2	0	8.5459	0.27			10.61	3.99	SLV 14	14.8	Si
ini.	2	0	-10.1305	106.68			10.61	3.99	SLV 5	0.04	No
fin.	2	0	12.0981	29.3			10.61	3.99	SLV 5	0.14	No
ini.	2	0	-11.3764	114.27			10.61	3.99	SLV 10	0.03	No
fin.	2	0	14.7167	32.81			10.61	3.99	SLV 10	0.12	No
ini.	2	0	-10.1305	106.68			10.61	3.99	SLV 6	0.04	No
fin.	2	0	12.0981	29.3			10.61	3.99	SLV 6	0.14	No
ini.	2	0	-5.3597	76.25			10.61	3.99	SLD 6	0.05	No
fin.	2	0	5.3368	0.51			10.61	3.99	SLD 6	7.9	Si
ini.	2	0	-11.3764	114.27			10.61	3.99	SLV 9	0.03	No
fin.	2	0	14.7167	32.81			10.61	3.99	SLV 9	0.12	No
ini.	2	0	-5.8945	79.51			10.61	3.99	SLD 9	0.05	No
fin.	2	0	6.4669	1.99			10.61	3.99	SLD 9	2.01	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.605	SLV 9	No
V_SLV	0.035	SLV 9	No
PF_SLU	2.873	SLU 83	Si
V_SLU	0.033	SLU 83	No

## Trave di accoppiamento 6

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.543	-3.284	-1.59	0.41	2	-22.543	-3.284	-1.59	0.41	2	1	0.45	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-19.21	-5.9506	31.6581	SLU 56	5.32	Si
fin.	3	-1.39	-14.842	31.6581	SLU 56	2.13	Si
ini.	3	-20.48	-7.1175	31.6581	SLU 81	4.45	Si
fin.	3	-1.84	-15.8403	31.6581	SLU 81	2	Si
ini.	3	-20.19	-6.6434	31.6581	SLU 74	4.77	Si
fin.	3	-1.38	-15.8517	31.6581	SLU 74	2	Si
ini.	3	-18.83	-5.7342	31.6581	SLU 69	5.52	Si
fin.	3	-0.9	-14.9979	31.6581	SLU 69	2.11	Si
ini.	3	-21.05	-6.8298	31.6581	SLU 83	4.64	Si
fin.	3	-1.46	-16.3788	31.6581	SLU 83	1.93	Si
ini.	3	-20.79	-6.2758	31.6581	SLU 79	5.04	Si
fin.	3	-1.04	-16.3206	31.6581	SLU 79	1.94	Si
ini.	3	-19.25	-5.8708	31.6581	SLU 58	5.39	Si
fin.	3	-1.44	-14.7723	31.6581	SLU 58	2.14	Si
ini.	3	-19.51	-6.4248	31.6581	SLU 62	4.93	Si
fin.	3	-1.86	-14.8305	31.6581	SLU 62	2.13	Si
ini.	3	-18.86	-5.6544	31.6581	SLU 71	5.6	Si
fin.	3	-0.94	-14.9282	31.6581	SLU 71	2.12	Si
ini.	3	-20.76	-6.3556	31.6581	SLU 77	4.98	Si
fin.	3	-1	-16.3902	31.6581	SLU 77	1.93	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.3873	-64.18			34.66	13.04	SLU 82	0.2	No
fin.	3	0	-11.6354	-1.69			34.66	13.04	SLU 82	7.7	Si
ini.	3	0	-2.9131	-63.27			34.66	13.04	SLU 75	0.21	No
fin.	3	0	-11.6469	-3.37			34.66	13.04	SLU 75	3.87	Si
ini.	3	0	-3.0995	-66.09			34.66	13.04	SLU 84	0.2	No
fin.	3	0	-12.174	-3.33			34.66	13.04	SLU 84	3.92	Si
ini.	3	0	-2.6253	-65.17			34.66	13.04	SLU 78	0.2	No
fin.	3	0	-12.1854	-5			34.66	13.04	SLU 78	2.61	Si
ini.	3	0	-6.6434	-64.82			34.66	13.04	SLU 74	0.2	No
fin.	3	0	-15.8517	-4.12			34.66	13.04	SLU 74	3.17	Si
ini.	3	0	-6.2758	-66.59			34.66	13.04	SLU 79	0.2	No
fin.	3	0	-16.3206	-5.84			34.66	13.04	SLU 79	2.23	Si
ini.	3	0	-6.3556	-66.72			34.66	13.04	SLU 77	0.2	No
fin.	3	0	-16.3902	-5.76			34.66	13.04	SLU 77	2.27	Si
ini.	3	0	-6.8298	-67.63			34.66	13.04	SLU 83	0.19	No
fin.	3	0	-16.3788	-4.08			34.66	13.04	SLU 83	3.2	Si
ini.	3	0	-2.5455	-65.04			34.66	13.04	SLU 80	0.2	No
fin.	3	0	-12.1157	-5.09			34.66	13.04	SLU 80	2.56	Si
ini.	3	0	-7.1175	-65.73			34.66	13.04	SLU 81	0.2	No
fin.	3	0	-15.8403	-2.45			34.66	13.04	SLU 81	5.33	Si

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-100.03	38.1781	32.7721	SLV 2	0.86	No
fin.	2	8.97	-46.9978	32.7721	SLV 2	0.7	No
ini.	2	72.33	-47.9395	32.7721	SLV 15	0.68	No
fin.	2	-11.82	25.5732	32.7721	SLV 15	1.28	Si
ini.	2	78.79	-49.0795	32.7721	SLV 11	0.67	No
fin.	2	72.38	-30.5005	32.7721	SLV 11	1.07	Si
ini.	2	-100.03	38.1781	32.7721	SLV 1	0.86	No
fin.	2	8.97	-46.9978	32.7721	SLV 1	0.7	No
ini.	2	40.29	-29.4317	32.7721	SLV 8	1.11	Si
fin.	2	93.83	-58.3391	32.7721	SLV 8	0.56	No
ini.	2	-55.99	17.5531	32.7721	SLV 3	1.87	Si
fin.	2	59.69	-67.2223	32.7721	SLV 3	0.49	No
ini.	2	78.79	-49.0795	32.7721	SLV 12	0.67	No
fin.	2	72.38	-30.5005	32.7721	SLV 12	1.07	Si
ini.	2	40.29	-29.4317	32.7721	SLV 7	1.11	Si
fin.	2	93.83	-58.3391	32.7721	SLV 7	0.56	No
ini.	2	-55.99	17.5531	32.7721	SLV 4	1.87	Si
fin.	2	59.69	-67.2223	32.7721	SLV 4	0.49	No
ini.	2	72.33	-47.9395	32.7721	SLV 16	0.68	No
fin.	2	-11.82	25.5732	32.7721	SLV 16	1.28	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-27.3145	129.54			51.99	19.57	SLV 14	0.15	No
fin.	2	0	45.7976	165.7			51.99	19.57	SLV 14	0.12	No
ini.	2	0	-47.9395	150.34			51.99	19.57	SLV 15	0.13	No
fin.	2	0	25.5732	179.98			51.99	19.57	SLV 15	0.11	No
ini.	2	0	-47.9395	150.34			51.99	19.57	SLV 16	0.13	No
fin.	2	0	25.5732	179.98			51.99	19.57	SLV 16	0.11	No
ini.	2	0	39.3181	-133.24			51.99	19.57	SLV 6	0.15	No
fin.	2	0	9.0758	-78.19			51.99	19.57	SLV 6	0.25	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	39.3181	-133.24			51.99	19.57	SLV 5	0.15	No
fin.	2	0	9.0758	-78.19			51.99	19.57	SLV 5	0.25	No
ini.	2	0	-27.3145	129.54			51.99	19.57	SLV 13	0.15	No
fin.	2	0	45.7976	165.7			51.99	19.57	SLV 13	0.12	No
ini.	2	0	17.5531	-216.62			51.99	19.57	SLV 3	0.09	No
fin.	2	0	-67.2223	-169.59			51.99	19.57	SLV 3	0.12	No
ini.	2	0	38.1781	-237.41			51.99	19.57	SLV 2	0.08	No
fin.	2	0	-46.9978	-183.87			51.99	19.57	SLV 2	0.11	No
ini.	2	0	17.5531	-216.62			51.99	19.57	SLV 4	0.09	No
fin.	2	0	-67.2223	-169.59			51.99	19.57	SLV 4	0.12	No
ini.	2	0	38.1781	-237.41			51.99	19.57	SLV 1	0.08	No
fin.	2	0	-46.9978	-183.87			51.99	19.57	SLV 1	0.11	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.488	SLV 3	No
V_SLV	0.082	SLV 1	No
PF_SLU	1.932	SLU 77	Si
V_SLU	0.193	SLU 83	No

## Trave di accoppiamento 7

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.543	-3.284	0.81	1.11	0.3	-22.543	-3.284	0.81	1.11	0.3	1	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	5.49	-1.0768	2.0548	SLU 79	1.91	Si
fin.	3	0.99	-1.9882	2.0548	SLU 79	1.03	Si
ini.	3	5.1	-1.3146	2.0548	SLU 81	1.56	Si
fin.	3	0.99	-1.9567	2.0548	SLU 81	1.05	Si
ini.	3	4.28	-1.0867	2.0548	SLU 41	1.89	Si
fin.	3	0.48	-1.8029	2.0548	SLU 41	1.14	Si
ini.	3	5.3	-1.2462	2.0548	SLU 83	1.65	Si
fin.	3	0.91	-2.0326	2.0548	SLU 83	1.01	Si
ini.	3	5.56	-1.0864	2.0548	SLU 77	1.89	Si
fin.	3	1.06	-1.9873	2.0548	SLU 77	1.03	Si
ini.	3	4.47	-0.9173	2.0548	SLU 37	2.24	Si
fin.	3	0.55	-1.7584	2.0548	SLU 37	1.17	Si
ini.	3	4.98	-1.1123	2.0548	SLU 62	1.85	Si
fin.	3	1.09	-1.7714	2.0548	SLU 62	1.16	Si
ini.	3	5.36	-1.1548	2.0548	SLU 74	1.78	Si
fin.	3	1.13	-1.9114	2.0548	SLU 74	1.08	Si
ini.	3	5.17	-0.9429	2.0548	SLU 58	2.18	Si
fin.	3	1.17	-1.727	2.0548	SLU 58	1.19	Si
ini.	3	4.54	-0.9269	2.0548	SLU 35	2.22	Si
fin.	3	0.62	-1.7575	2.0548	SLU 35	1.17	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.1551	8.29			3.47	1.3	SLU 39	0.16	No
fin.	3	0	-1.7269	-8.34			3.47	1.3	SLU 39	0.16	No
ini.	3	0	-1.1123	8.46			3.47	1.3	SLU 62	0.15	No
fin.	3	0	-1.7714	-8.61			3.47	1.3	SLU 62	0.15	No
ini.	3	0	-1.1807	8.63			3.47	1.3	SLU 60	0.15	No
fin.	3	0	-1.6955	-8.4			3.47	1.3	SLU 60	0.16	No
ini.	3	0	-1.0864	8.7			3.47	1.3	SLU 77	0.15	No
fin.	3	0	-1.9873	-9.4			3.47	1.3	SLU 77	0.14	No
ini.	3	0	-1.1548	8.86			3.47	1.3	SLU 74	0.15	No
fin.	3	0	-1.9114	-9.18			3.47	1.3	SLU 74	0.14	No
ini.	3	0	-1.0768	8.65			3.47	1.3	SLU 79	0.15	No
fin.	3	0	-1.9882	-9.39			3.47	1.3	SLU 79	0.14	No
ini.	3	0	-1.3146	9.57			3.47	1.3	SLU 81	0.14	No
fin.	3	0	-1.9567	-9.54			3.47	1.3	SLU 81	0.14	No
ini.	3	0	-0.9525	7.75			3.47	1.3	SLU 56	0.17	No
fin.	3	0	-1.7261	-8.26			3.47	1.3	SLU 56	0.16	No
ini.	3	0	-1.2462	9.41			3.47	1.3	SLU 83	0.14	No
fin.	3	0	-2.0326	-9.75			3.47	1.3	SLU 83	0.13	No
ini.	3	0	-1.0867	8.12			3.47	1.3	SLU 41	0.16	No
fin.	3	0	-1.8029	-8.55			3.47	1.3	SLU 41	0.15	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	6.75	-7.7472	3.0221	SLV 15	0.39	No
fin.	2	31.79	5.191	3.0221	SLV 15	0.58	No
ini.	2	69.42	1.9111	3.0221	SLV 7	1.58	Si
fin.	2	50.49	-6.309	3.0221	SLV 7	0.48	No





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	69.42	1.9111	3.0221	SLV 8	1.58	Si
fin.	2	50.49	-6.309	3.0221	SLV 8	0.48	No
ini.	2	0.92	6.1667	3.0221	SLV 1	0.49	No
fin.	2	-29.6	-7.6297	3.0221	SLV 1	0.4	No
ini.	2	-29.83	-8.0854	3.0221	SLV 13	0.37	No
fin.	2	-0.47	6.9341	3.0221	SLV 13	0.44	No
ini.	2	-29.83	-8.0854	3.0221	SLV 14	0.37	No
fin.	2	-0.47	6.9341	3.0221	SLV 14	0.44	No
ini.	2	37.5	6.5048	3.0221	SLV 3	0.46	No
fin.	2	2.66	-9.3728	3.0221	SLV 3	0.32	No
ini.	2	0.92	6.1667	3.0221	SLV 2	0.49	No
fin.	2	-29.6	-7.6297	3.0221	SLV 2	0.4	No
ini.	2	6.75	-7.7472	3.0221	SLV 16	0.39	No
fin.	2	31.79	5.191	3.0221	SLV 16	0.58	No
ini.	2	37.5	6.5048	3.0221	SLV 4	0.46	No
fin.	2	2.66	-9.3728	3.0221	SLV 4	0.32	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	6.5048	-12.15			5.2	1.96	SLV 3	0.16	No
fin.	2	0	-9.3728	-29.62			5.2	1.96	SLV 3	0.07	No
ini.	2	0	6.1667	-13.59			5.2	1.96	SLV 2	0.14	No
fin.	2	0	-7.6297	-21.67			5.2	1.96	SLV 2	0.09	No
ini.	2	0	-7.7472	25.67			5.2	1.96	SLV 16	0.08	No
fin.	2	0	5.191	9.65			5.2	1.96	SLV 16	0.2	No
ini.	2	0	-7.7472	25.67			5.2	1.96	SLV 15	0.08	No
fin.	2	0	5.191	9.65			5.2	1.96	SLV 15	0.2	No
ini.	2	0	1.9111	2.76			5.2	1.96	SLV 7	0.71	No
fin.	2	0	-6.309	-25.15			5.2	1.96	SLV 7	0.08	No
ini.	2	0	6.5048	-12.15			5.2	1.96	SLV 4	0.16	No
fin.	2	0	-9.3728	-29.62			5.2	1.96	SLV 4	0.07	No
ini.	2	0	1.9111	2.76			5.2	1.96	SLV 8	0.71	No
fin.	2	0	-6.309	-25.15			5.2	1.96	SLV 8	0.08	No
ini.	2	0	-8.0854	24.23			5.2	1.96	SLV 14	0.08	No
fin.	2	0	6.9341	17.6			5.2	1.96	SLV 14	0.11	No
ini.	2	0	-8.0854	24.23			5.2	1.96	SLV 13	0.08	No
fin.	2	0	6.9341	17.6			5.2	1.96	SLV 13	0.11	No
ini.	2	0	6.1667	-13.59			5.2	1.96	SLV 1	0.14	No
fin.	2	0	-7.6297	-21.67			5.2	1.96	SLV 1	0.09	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.322	SLV 3	No
V_SLV	0.066	SLV 3	No
PF_SLU	1.011	SLU 83	Si
V_SLU	0.134	SLU 83	No

## Trave di accoppiamento 8

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.313	-3.284	-1.59	0.41	2	-18.313	-3.284	-1.59	0.41	2	1	0.45	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.13	-48.2309	31.6581	SLU 84	0.66	No
fin.	3	5.52	-34.3342	31.6581	SLU 84	0.92	No
ini.	3	2.04	-47.0271	31.6581	SLU 75	0.67	No
fin.	3	6.01	-33.2841	31.6581	SLU 75	0.95	No
ini.	3	5.69	-46.5271	31.6581	SLU 52	0.68	No
fin.	3	9.59	-32.6933	31.6581	SLU 52	0.97	No
ini.	3	5.47	-50.0748	31.6581	SLU 73	0.63	No
fin.	3	9.81	-35.211	31.6581	SLU 73	0.9	No
ini.	3	6.65	-45.9493	31.6581	SLU 65	0.69	No
fin.	3	10.53	-32.3684	31.6581	SLU 65	0.98	No
ini.	3	2.1	-49.098	31.6581	SLU 82	0.64	No
fin.	3	5.38	-33.9597	31.6581	SLU 82	0.93	No
ini.	3	4.49	-49.2077	31.6581	SLU 76	0.64	No
fin.	3	9.96	-35.5855	31.6581	SLU 76	0.89	No
ini.	3	4.71	-45.66	31.6581	SLU 55	0.69	No
fin.	3	9.74	-33.0678	31.6581	SLU 55	0.96	No
ini.	3	0.66	-45.5958	31.6581	SLU 80	0.69	No
fin.	3	5.98	-33.4904	31.6581	SLU 80	0.95	No
ini.	3	1.06	-46.1601	31.6581	SLU 78	0.69	No
fin.	3	6.15	-33.6586	31.6581	SLU 78	0.94	No



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-45.5958	-83.53			34.66	13.04	SLU 80	0.16	No
fin.	3	0	-33.4904	74.67			34.66	13.04	SLU 80	0.17	No
ini.	3	0	-41.4785	-79.71			34.66	13.04	SLU 79	0.16	No
fin.	3	0	-29.786	74.27			34.66	13.04	SLU 79	0.18	No
ini.	3	0	-48.2309	-85.09			34.66	13.04	SLU 84	0.15	No
fin.	3	0	-34.3342	80.6			34.66	13.04	SLU 84	0.16	No
ini.	3	0	-46.1601	-83.5			34.66	13.04	SLU 78	0.16	No
fin.	3	0	-33.6586	75.75			34.66	13.04	SLU 78	0.17	No
ini.	3	0	-50.0748	-81.63			34.66	13.04	SLU 73	0.16	No
fin.	3	0	-35.211	79.97			34.66	13.04	SLU 73	0.16	No
ini.	3	0	-44.1137	-81.26			34.66	13.04	SLU 83	0.16	No
fin.	3	0	-30.6298	80.2			34.66	13.04	SLU 83	0.16	No
ini.	3	0	-47.0271	-81.28			34.66	13.04	SLU 75	0.16	No
fin.	3	0	-33.2841	78.27			34.66	13.04	SLU 75	0.17	No
ini.	3	0	-44.9808	-79.04			34.66	13.04	SLU 81	0.17	No
fin.	3	0	-30.2554	82.72			34.66	13.04	SLU 81	0.16	No
ini.	3	0	-49.2077	-83.86			34.66	13.04	SLU 76	0.16	No
fin.	3	0	-35.5855	77.45			34.66	13.04	SLU 76	0.17	No
ini.	3	0	-49.098	-82.86			34.66	13.04	SLU 82	0.16	No
fin.	3	0	-33.9597	83.12			34.66	13.04	SLU 82	0.16	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	74	-105.2455	32.7721	SLV 15	0.31	No
fin.	2	-11.54	0.8312	32.7721	SLV 15	39.43	Si
ini.	2	-84.91	64.3216	32.7721	SLV 3	0.51	No
fin.	2	-7.38	-24.5129	32.7721	SLV 3	1.34	Si
ini.	2	-84.91	64.3216	32.7721	SLV 4	0.51	No
fin.	2	-7.38	-24.5129	32.7721	SLV 4	1.34	Si
ini.	2	35.94	-71.612	32.7721	SLD 13	0.46	No
fin.	2	2.78	-18.3717	32.7721	SLD 13	1.78	Si
ini.	2	83.58	-125.2538	32.7721	SLV 14	0.26	No
fin.	2	7.19	-16.304	32.7721	SLV 14	2.01	Si
ini.	2	83.58	-125.2538	32.7721	SLV 13	0.26	No
fin.	2	7.19	-16.304	32.7721	SLV 13	2.01	Si
ini.	2	39.14	-89.2483	32.7721	SLV 10	0.37	No
fin.	2	30.49	-45.1654	32.7721	SLV 10	0.73	No
ini.	2	39.14	-89.2483	32.7721	SLV 9	0.37	No
fin.	2	30.49	-45.1654	32.7721	SLV 9	0.73	No
ini.	2	35.94	-71.612	32.7721	SLD 14	0.46	No
fin.	2	2.78	-18.3717	32.7721	SLD 14	1.78	Si
ini.	2	74	-105.2455	32.7721	SLV 16	0.31	No
fin.	2	-11.54	0.8312	32.7721	SLV 16	39.43	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	44.3133	-207.19			51.99	19.57	SLV 1	0.09	No
fin.	2	0	-41.648	-129.83			51.99	19.57	SLV 1	0.15	No
ini.	2	0	-125.2538	95.81			51.99	19.57	SLV 14	0.2	No
fin.	2	0	-16.304	267.05			51.99	19.57	SLV 14	0.07	No
ini.	2	0	-89.2483	-18.51			51.99	19.57	SLV 10	1.06	Si
fin.	2	0	-45.1654	157.97			51.99	19.57	SLV 10	0.12	No
ini.	2	0	44.3133	-207.19			51.99	19.57	SLV 2	0.09	No
fin.	2	0	-41.648	-129.83			51.99	19.57	SLV 2	0.15	No
ini.	2	0	-89.2483	-18.51			51.99	19.57	SLV 9	1.06	Si
fin.	2	0	-45.1654	157.97			51.99	19.57	SLV 9	0.12	No
ini.	2	0	-105.2455	102.9			51.99	19.57	SLV 15	0.19	No
fin.	2	0	0.8312	241.49			51.99	19.57	SLV 15	0.08	No
ini.	2	0	64.3216	-200.1			51.99	19.57	SLV 3	0.1	No
fin.	2	0	-24.5129	-155.39			51.99	19.57	SLV 3	0.13	No
ini.	2	0	-125.2538	95.81			51.99	19.57	SLV 13	0.2	No
fin.	2	0	-16.304	267.05			51.99	19.57	SLV 13	0.07	No
ini.	2	0	64.3216	-200.1			51.99	19.57	SLV 4	0.1	No
fin.	2	0	-24.5129	-155.39			51.99	19.57	SLV 4	0.13	No
ini.	2	0	-105.2455	102.9			51.99	19.57	SLV 16	0.19	No
fin.	2	0	0.8312	241.49			51.99	19.57	SLV 16	0.08	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.262	SLV 13	No
V_SLV	0.073	SLV 13	No
PF_SLU	0.632	SLU 73	No
V_SLU	0.153	SLU 84	No

#### Trave di accoppiamento 9

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.313	-3.284	0.81	1.11	0.3	-18.313	-3.284	0.81	1.11	0.3	1	0.45	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	20.47	-2.4591	2.0548	SLU 76	0.84	No
fin.	3	34.63	-3.3711	2.0548	SLU 76	0.61	No
ini.	3	20.46	-2.6284	2.0548	SLU 82	0.78	No
fin.	3	31.26	-3.4154	2.0548	SLU 82	0.6	No
ini.	3	20.47	-2.5494	2.0548	SLU 84	0.81	No
fin.	3	30.65	-3.5173	2.0548	SLU 84	0.58	No
ini.	3	19.64	-2.3331	2.0548	SLU 78	0.88	No
fin.	3	29.39	-3.4347	2.0548	SLU 78	0.6	No
ini.	3	18.15	-2.1916	2.0548	SLU 79	0.94	No
fin.	3	21.62	-3.388	2.0548	SLU 79	0.61	No
ini.	3	19.62	-2.4121	2.0548	SLU 75	0.85	No
fin.	3	30	-3.3327	2.0548	SLU 75	0.62	No
ini.	3	19.08	-2.4363	2.0548	SLU 83	0.84	No
fin.	3	23.21	-3.4664	2.0548	SLU 83	0.59	No
ini.	3	19.55	-2.3047	2.0548	SLU 80	0.89	No
fin.	3	29.06	-3.439	2.0548	SLU 80	0.6	No
ini.	3	19.06	-2.5153	2.0548	SLU 81	0.82	No
fin.	3	23.82	-3.3644	2.0548	SLU 81	0.61	No
ini.	3	18.24	-2.2201	2.0548	SLU 77	0.93	No
fin.	3	21.95	-3.3837	2.0548	SLU 77	0.61	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-2.5494	23.79			3.47	1.3	SLU 84	0.05	No
fin.	3	0	-3.5173	-41.27			3.47	1.3	SLU 84	0.03	No
ini.	3	0	-2.4363	22.11			3.47	1.3	SLU 83	0.06	No
fin.	3	0	-3.4664	-40.95			3.47	1.3	SLU 83	0.03	No
ini.	3	0	-2.4121	22.68			3.47	1.3	SLU 75	0.06	No
fin.	3	0	-3.3327	-39.33			3.47	1.3	SLU 75	0.03	No
ini.	3	0	-2.1916	20.63			3.47	1.3	SLU 79	0.06	No
fin.	3	0	-3.388	-39.29			3.47	1.3	SLU 79	0.03	No
ini.	3	0	-2.3331	22.47			3.47	1.3	SLU 78	0.06	No
fin.	3	0	-3.4347	-39.75			3.47	1.3	SLU 78	0.03	No
ini.	3	0	-2.3047	22.31			3.47	1.3	SLU 80	0.06	No
fin.	3	0	-3.439	-39.61			3.47	1.3	SLU 80	0.03	No
ini.	3	0	-2.5153	22.31			3.47	1.3	SLU 81	0.06	No
fin.	3	0	-3.3644	-40.52			3.47	1.3	SLU 81	0.03	No
ini.	3	0	-2.2201	20.78			3.47	1.3	SLU 77	0.06	No
fin.	3	0	-3.3837	-39.44			3.47	1.3	SLU 77	0.03	No
ini.	3	0	-2.6284	24			3.47	1.3	SLU 82	0.05	No
fin.	3	0	-3.4154	-40.84			3.47	1.3	SLU 82	0.03	No
ini.	3	0	-2.4591	23.65			3.47	1.3	SLU 76	0.06	No
fin.	3	0	-3.3711	-39.39			3.47	1.3	SLU 76	0.03	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.73	6.7985	3.0221	SLV 7	0.44	No
fin.	2	-75.51	-5.6882	3.0221	SLV 7	0.53	No
ini.	2	17.97	-8.4024	3.0221	SLV 14	0.36	No
fin.	2	104.61	1.834	3.0221	SLV 14	1.65	Si
ini.	2	7	5.2887	3.0221	SLV 4	0.57	No
fin.	2	-72.54	-6.1825	3.0221	SLV 4	0.49	No
ini.	2	19.24	-9.9122	3.0221	SLV 10	0.3	No
fin.	2	107.58	1.3398	3.0221	SLV 10	2.26	Si
ini.	2	16.96	-7.0514	3.0221	SLV 6	0.43	No
fin.	2	67.28	-0.6079	3.0221	SLV 6	4.97	Si
ini.	2	7	5.2887	3.0221	SLV 3	0.57	No
fin.	2	-72.54	-6.1825	3.0221	SLV 3	0.49	No
ini.	2	16.96	-7.0514	3.0221	SLV 5	0.43	No
fin.	2	67.28	-0.6079	3.0221	SLV 5	4.97	Si
ini.	2	17.97	-8.4024	3.0221	SLV 13	0.36	No
fin.	2	104.61	1.834	3.0221	SLV 13	1.65	Si
ini.	2	19.24	-9.9122	3.0221	SLV 9	0.3	No
fin.	2	107.58	1.3398	3.0221	SLV 9	2.26	Si
ini.	2	5.73	6.7985	3.0221	SLV 8	0.44	No
fin.	2	-75.51	-5.6882	3.0221	SLV 8	0.53	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-7.0514	9.02			5.2	1.96	SLV 6	0.22	No
fin.	2	0	-0.6079	-42.17			5.2	1.96	SLV 6	0.05	No
ini.	2	0	1.1337	-3.91			5.2	1.96	SLV 1	0.5	No
fin.	2	0	-4.6584	-47.66			5.2	1.96	SLV 1	0.04	No
ini.	2	0	-3.7999	12.04			5.2	1.96	SLD 5	0.16	No
fin.	2	0	-1.625	-33.04			5.2	1.96	SLD 5	0.06	No
ini.	2	0	1.1337	-3.91			5.2	1.96	SLV 2	0.5	No
fin.	2	0	-4.6584	-47.66			5.2	1.96	SLV 2	0.04	No
ini.	2	0	-0.3444	6.3			5.2	1.96	SLD 1	0.31	No
fin.	2	0	-3.3294	-35.58			5.2	1.96	SLD 1	0.05	No
ini.	2	0	5.2887	-4.05			5.2	1.96	SLV 4	0.48	No
fin.	2	0	-6.1825	-41.46			5.2	1.96	SLV 4	0.05	No
ini.	2	0	-0.3444	6.3			5.2	1.96	SLD 2	0.31	No
fin.	2	0	-3.3294	-35.58			5.2	1.96	SLD 2	0.05	No
ini.	2	0	-7.0514	9.02			5.2	1.96	SLV 5	0.22	No
fin.	2	0	-0.6079	-42.17			5.2	1.96	SLV 5	0.05	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5.2887	-4.05			5.2	1.96	SLV 3	0.48	No
fin.	2	0	-6.1825	-41.46			5.2	1.96	SLV 3	0.05	No
ini.	2	0	-3.7999	12.04			5.2	1.96	SLD 6	0.16	No
fin.	2	0	-1.625	-33.04			5.2	1.96	SLD 6	0.06	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.305	SLV 9	No
V_SLV	0.041	SLV 1	No
PF_SLU	0.584	SLU 84	No
V_SLU	0.032	SLU 84	No

## Trave di accoppiamento 10

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-14.223	-3.284	0.51	1.11	0.6	-16.523	-3.284	0.51	1.11	0.6	2.3	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	11.92	-14.0348	7.1581	SLU 81	0.51	No
fin.	3	31.03	-7.2426	7.1581	SLU 81	0.99	No
ini.	3	12.4	-13.9525	7.1581	SLU 73	0.51	No
fin.	3	30.77	-5.9194	7.1581	SLU 73	1.21	Si
ini.	3	11.39	-13.3577	7.1581	SLU 74	0.54	No
fin.	3	29.62	-7.0153	7.1581	SLU 74	1.02	Si
ini.	3	11.62	-13.9676	7.1581	SLU 83	0.51	No
fin.	3	30.54	-7.5811	7.1581	SLU 83	0.94	No
ini.	3	12.1	-13.8853	7.1581	SLU 76	0.52	No
fin.	3	30.28	-6.2579	7.1581	SLU 76	1.14	Si
ini.	3	12.46	-14.4093	7.1581	SLU 82	0.5	No
fin.	3	31.64	-6.7433	7.1581	SLU 82	1.06	Si
ini.	3	11.63	-13.6651	7.1581	SLU 78	0.52	No
fin.	3	29.73	-6.8545	7.1581	SLU 78	1.04	Si
ini.	3	12.16	-14.3422	7.1581	SLU 84	0.5	No
fin.	3	31.14	-7.0818	7.1581	SLU 84	1.01	Si
ini.	3	11.44	-13.5685	7.1581	SLU 80	0.53	No
fin.	3	29.38	-6.9293	7.1581	SLU 80	1.03	Si
ini.	3	11.93	-13.7322	7.1581	SLU 75	0.52	No
fin.	3	30.23	-6.516	7.1581	SLU 75	1.1	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-13.6651	36.64			6.93	2.61	SLU 78	0.07	No
fin.	3	0	-6.8545	-29.81			6.93	2.61	SLU 78	0.09	No
ini.	3	0	-14.4093	38.46			6.93	2.61	SLU 82	0.07	No
fin.	3	0	-6.7433	-30.88			6.93	2.61	SLU 82	0.08	No
ini.	3	0	-13.5685	36.46			6.93	2.61	SLU 80	0.07	No
fin.	3	0	-6.9293	-29.84			6.93	2.61	SLU 80	0.09	No
ini.	3	0	-13.8853	36.88			6.93	2.61	SLU 76	0.07	No
fin.	3	0	-6.2579	-29.37			6.93	2.61	SLU 76	0.09	No
ini.	3	0	-13.9525	36.92			6.93	2.61	SLU 73	0.07	No
fin.	3	0	-5.9194	-28.9			6.93	2.61	SLU 73	0.09	No
ini.	3	0	-13.7322	36.68			6.93	2.61	SLU 75	0.07	No
fin.	3	0	-6.516	-29.33			6.93	2.61	SLU 75	0.09	No
ini.	3	0	-13.9676	37.86			6.93	2.61	SLU 83	0.07	No
fin.	3	0	-7.5811	-31.35			6.93	2.61	SLU 83	0.08	No
ini.	3	0	-13.3577	36.11			6.93	2.61	SLU 74	0.07	No
fin.	3	0	-7.0153	-29.33			6.93	2.61	SLU 74	0.09	No
ini.	3	0	-14.3422	38.42			6.93	2.61	SLU 84	0.07	No
fin.	3	0	-7.0818	-31.35			6.93	2.61	SLU 84	0.08	No
ini.	3	0	-14.0348	37.9			6.93	2.61	SLU 81	0.07	No
fin.	3	0	-7.2426	-30.88			6.93	2.61	SLU 81	0.08	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16.71	-16.6431	8.2721	SLV 10	0.5	No
fin.	2	47.87	3.1845	8.2721	SLV 10	2.6	Si
ini.	2	41.4	-18.5964	8.2721	SLV 15	0.44	No
fin.	2	58.09	14.9063	8.2721	SLV 15	0.55	No
ini.	2	40.61	-21.1428	8.2721	SLV 13	0.39	No
fin.	2	66.79	15.9263	8.2721	SLV 13	0.52	No
ini.	2	-24.23	2.7479	8.2721	SLV 4	3.01	Si
fin.	2	-25	-24.8988	8.2721	SLV 4	0.33	No
ini.	2	-25.02	0.2015	8.2721	SLV 1	41.04	Si
fin.	2	-16.3	-23.8788	8.2721	SLV 1	0.35	No
ini.	2	41.4	-18.5964	8.2721	SLV 16	0.44	No
fin.	2	58.09	14.9063	8.2721	SLV 16	0.55	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	40.61	-21.1428	8.2721	SLV 14	0.39	No
fin.	2	66.79	15.9263	8.2721	SLV 14	0.52	No
ini.	2	-25.02	0.2015	8.2721	SLV 2	41.04	Si
fin.	2	-16.3	-23.8788	8.2721	SLV 2	0.35	No
ini.	2	-24.23	2.7479	8.2721	SLV 3	3.01	Si
fin.	2	-25	-24.8988	8.2721	SLV 3	0.33	No
ini.	2	16.71	-16.6431	8.2721	SLV 9	0.5	No
fin.	2	47.87	3.1845	8.2721	SLV 9	2.6	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	2.7479	2.63			10.4	3.91	SLV 4	1.49	Si
fin.	2	0	-24.8988	-42.4			10.4	3.91	SLV 4	0.09	No
ini.	2	0	-21.1428	46.9			10.4	3.91	SLV 13	0.08	No
fin.	2	0	15.9263	3.87			10.4	3.91	SLV 13	1.01	Si
ini.	2	0	-1.7518	17.45			10.4	3.91	SLV 8	0.22	No
fin.	2	0	-12.157	-37.51			10.4	3.91	SLV 8	0.1	No
ini.	2	0	-18.5964	46.46			10.4	3.91	SLV 16	0.08	No
fin.	2	0	14.9063	-3.58			10.4	3.91	SLV 16	1.09	Si
ini.	2	0	2.7479	2.63			10.4	3.91	SLV 3	1.49	Si
fin.	2	0	-24.8988	-42.4			10.4	3.91	SLV 3	0.09	No
ini.	2	0	0.2015	3.07			10.4	3.91	SLV 1	1.27	Si
fin.	2	0	-23.8788	-34.95			10.4	3.91	SLV 1	0.11	No
ini.	2	0	0.2015	3.07			10.4	3.91	SLV 2	1.27	Si
fin.	2	0	-23.8788	-34.95			10.4	3.91	SLV 2	0.11	No
ini.	2	0	-1.7518	17.45			10.4	3.91	SLV 7	0.22	No
fin.	2	0	-12.157	-37.51			10.4	3.91	SLV 7	0.1	No
ini.	2	0	-21.1428	46.9			10.4	3.91	SLV 14	0.08	No
fin.	2	0	15.9263	3.87			10.4	3.91	SLV 14	1.01	Si
ini.	2	0	-18.5964	46.46			10.4	3.91	SLV 15	0.08	No
fin.	2	0	14.9063	-3.58			10.4	3.91	SLV 15	1.09	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.332	SLV 3	No
V_SLV	0.083	SLV 13	No
PF_SLU	0.497	SLU 82	No
V_SLU	0.068	SLU 82	No

## Trave di accoppiamento 11

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.838	1.046	0.51	1.11	0.6	-19.638	1.046	0.51	1.11	0.6	0.8	0.45	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-30.71	-3.5601	7.1581	SLU 80	2.01	Si
fin.	3	-50.44	0.1936	7.1581	SLU 80	36.98	Si
ini.	3	-30.43	-3.5632	7.1581	SLU 73	2.01	Si
fin.	3	-49.05	0.0648	7.1581	SLU 73	110.49	Si
ini.	3	-32.28	-3.4375	7.1581	SLU 81	2.08	Si
fin.	3	-53.33	-0.0352	7.1581	SLU 81	203.28	Si
ini.	3	-32.43	-3.6769	7.1581	SLU 84	1.95	Si
fin.	3	-53	0.1045	7.1581	SLU 84	68.49	Si
ini.	3	-32.42	-3.4962	7.1581	SLU 83	2.05	Si
fin.	3	-53.77	0.048	7.1581	SLU 83	149.08	Si
ini.	3	-30.69	-3.3793	7.1581	SLU 79	2.12	Si
fin.	3	-51.2	0.1371	7.1581	SLU 79	52.22	Si
ini.	3	-30.95	-3.5287	7.1581	SLU 78	2.03	Si
fin.	3	-51.1	0.1673	7.1581	SLU 78	42.79	Si
ini.	3	-30.8	-3.47	7.1581	SLU 75	2.06	Si
fin.	3	-50.66	0.0841	7.1581	SLU 75	85.16	Si
ini.	3	-30.57	-3.6219	7.1581	SLU 76	1.98	Si
fin.	3	-49.49	0.148	7.1581	SLU 76	48.36	Si
ini.	3	-32.29	-3.6182	7.1581	SLU 82	1.98	Si
fin.	3	-52.56	0.0213	7.1581	SLU 82	336.28	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.6182	37.34			7.8	2.93	SLU 82	0.08	No
fin.	3	0	0.0213	-125.04			7.8	2.93	SLU 82	0.02	No
ini.	3	0	-3.2892	36.22			7.8	2.93	SLU 74	0.08	No
fin.	3	0	0.0276	-124.18			7.8	2.93	SLU 74	0.02	No
ini.	3	0	-3.4375	37.01			7.8	2.93	SLU 81	0.08	No
fin.	3	0	-0.0352	-126.64			7.8	2.93	SLU 81	0.02	No
ini.	3	0	-3.5287	37.52			7.8	2.93	SLU 78	0.08	No
fin.	3	0	0.1673	-125.61			7.8	2.93	SLU 78	0.02	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.47	36.55			7.8	2.93	SLU 75	0.08	No
fin.	3	0	0.0841	-122.58			7.8	2.93	SLU 75	0.02	No
ini.	3	0	-3.5601	37.45			7.8	2.93	SLU 80	0.08	No
fin.	3	0	0.1936	-124.42			7.8	2.93	SLU 80	0.02	No
ini.	3	0	-3.4962	37.97			7.8	2.93	SLU 83	0.08	No
fin.	3	0	0.048	-129.67			7.8	2.93	SLU 83	0.02	No
ini.	3	0	-3.6769	38.31			7.8	2.93	SLU 84	0.08	No
fin.	3	0	0.1045	-128.07			7.8	2.93	SLU 84	0.02	No
ini.	3	0	-3.3793	37.11			7.8	2.93	SLU 79	0.08	No
fin.	3	0	0.1371	-126.02			7.8	2.93	SLU 79	0.02	No
ini.	3	0	-3.3479	37.19			7.8	2.93	SLU 77	0.08	No
fin.	3	0	0.1108	-127.21			7.8	2.93	SLU 77	0.02	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-38.69	12.6265	8.2721	SLV 2	0.66	No
fin.	2	-122.55	-5.5863	8.2721	SLV 2	1.48	Si
ini.	2	-14.77	-11.8471	8.2721	SLV 9	0.7	No
fin.	2	17.35	4.2688	8.2721	SLV 9	1.94	Si
ini.	2	-38.69	12.6265	8.2721	SLV 1	0.66	No
fin.	2	-122.55	-5.5863	8.2721	SLV 1	1.48	Si
ini.	2	-14.77	-11.8471	8.2721	SLV 10	0.7	No
fin.	2	17.35	4.2688	8.2721	SLV 10	1.94	Si
ini.	2	-2.21	-19.9252	8.2721	SLV 14	0.42	No
fin.	2	68.11	6.9772	8.2721	SLV 14	1.19	Si
ini.	2	-38.86	15.4679	8.2721	SLV 3	0.53	No
fin.	2	-136.24	-7.0339	8.2721	SLV 3	1.18	Si
ini.	2	-2.38	-17.0838	8.2721	SLV 16	0.48	No
fin.	2	54.42	5.5297	8.2721	SLV 16	1.5	Si
ini.	2	-38.86	15.4679	8.2721	SLV 4	0.53	No
fin.	2	-136.24	-7.0339	8.2721	SLV 4	1.18	Si
ini.	2	-2.38	-17.0838	8.2721	SLV 15	0.48	No
fin.	2	54.42	5.5297	8.2721	SLV 15	1.5	Si
ini.	2	-2.21	-19.9252	8.2721	SLV 13	0.42	No
fin.	2	68.11	6.9772	8.2721	SLV 13	1.19	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.2661	5.06			11.7	4.4	SLD 1	0.87	No
fin.	2	0	-2.4526	-124.49			11.7	4.4	SLD 1	0.04	No
ini.	2	0	15.4679	-32.96			11.7	4.4	SLV 4	0.13	No
fin.	2	0	-7.0339	-178.18			11.7	4.4	SLV 4	0.02	No
ini.	2	0	5.495	-0.75			11.7	4.4	SLD 4	5.9	Si
fin.	2	0	-3.0951	-123.86			11.7	4.4	SLD 4	0.04	No
ini.	2	0	-2.0816	31.72			11.7	4.4	SLV 6	0.14	No
fin.	2	0	0.4997	-113.54			11.7	4.4	SLV 6	0.04	No
ini.	2	0	-2.0816	31.72			11.7	4.4	SLV 5	0.14	No
fin.	2	0	0.4997	-113.54			11.7	4.4	SLV 5	0.04	No
ini.	2	0	4.2661	5.06			11.7	4.4	SLD 2	0.87	No
fin.	2	0	-2.4526	-124.49			11.7	4.4	SLD 2	0.04	No
ini.	2	0	12.6265	-19.33			11.7	4.4	SLV 1	0.23	No
fin.	2	0	-5.5863	-179.85			11.7	4.4	SLV 1	0.02	No
ini.	2	0	15.4679	-32.96			11.7	4.4	SLV 3	0.13	No
fin.	2	0	-7.0339	-178.18			11.7	4.4	SLV 3	0.02	No
ini.	2	0	12.6265	-19.33			11.7	4.4	SLV 2	0.23	No
fin.	2	0	-5.5863	-179.85			11.7	4.4	SLV 2	0.02	No
ini.	2	0	5.495	-0.75			11.7	4.4	SLD 3	5.9	Si
fin.	2	0	-3.0951	-123.86			11.7	4.4	SLD 3	0.04	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.415	SLV 13	No
V_SLV	0.024	SLV 1	No
PF_SLU	1.947	SLU 84	Si
V_SLU	0.023	SLU 83	No

## Trave di accoppiamento 12

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-14.063	1.046	0.51	1.11	0.6	-15.063	1.046	0.51	1.11	0.6	1	0.45	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-13.93	-4.2132	7.1581	SLU 78	1.7	Si
fin.	3	-14.46	-6.1956	7.1581	SLU 78	1.16	Si
ini.	3	-13.56	-4.2099	7.1581	SLU 82	1.7	Si
fin.	3	-15.62	-6.6253	7.1581	SLU 82	1.08	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-12.64	-3.9732	7.1581	SLU 73	1.8	Si
fin.	3	-14.53	-6.2206	7.1581	SLU 73	1.15	Si
ini.	3	-13.35	-4.121	7.1581	SLU 75	1.74	Si
fin.	3	-14.56	-6.2455	7.1581	SLU 75	1.15	Si
ini.	3	-13.77	-4.1467	7.1581	SLU 74	1.73	Si
fin.	3	-14.58	-6.1976	7.1581	SLU 74	1.15	Si
ini.	3	-13.22	-4.0654	7.1581	SLU 76	1.76	Si
fin.	3	-14.44	-6.1707	7.1581	SLU 76	1.16	Si
ini.	3	-14.14	-4.3021	7.1581	SLU 84	1.66	Si
fin.	3	-15.53	-6.5753	7.1581	SLU 84	1.09	Si
ini.	3	-13.98	-4.2356	7.1581	SLU 81	1.69	Si
fin.	3	-15.65	-6.5774	7.1581	SLU 81	1.09	Si
ini.	3	-14.56	-4.3278	7.1581	SLU 83	1.65	Si
fin.	3	-15.56	-6.5274	7.1581	SLU 83	1.1	Si
ini.	3	-14.35	-4.2389	7.1581	SLU 77	1.69	Si
fin.	3	-14.49	-6.1476	7.1581	SLU 77	1.16	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4.2132	101.48			6.93	2.61	SLU 78	0.03	No
fin.	3	0	-6.1956	-54.19			6.93	2.61	SLU 78	0.05	No
ini.	3	0	-4.2005	100.67			6.93	2.61	SLU 79	0.03	No
fin.	3	0	-6.0408	-53.33			6.93	2.61	SLU 79	0.05	No
ini.	3	0	-4.2389	101.68			6.93	2.61	SLU 77	0.03	No
fin.	3	0	-6.1476	-54.02			6.93	2.61	SLU 77	0.05	No
ini.	3	0	-4.1748	100.48			6.93	2.61	SLU 80	0.03	No
fin.	3	0	-6.0888	-53.5			6.93	2.61	SLU 80	0.05	No
ini.	3	0	-4.3278	104.86			6.93	2.61	SLU 83	0.02	No
fin.	3	0	-6.5274	-56.33			6.93	2.61	SLU 83	0.05	No
ini.	3	0	-4.2099	103.2			6.93	2.61	SLU 82	0.03	No
fin.	3	0	-6.6253	-56.32			6.93	2.61	SLU 82	0.05	No
ini.	3	0	-4.121	100.02			6.93	2.61	SLU 75	0.03	No
fin.	3	0	-6.2455	-54.01			6.93	2.61	SLU 75	0.05	No
ini.	3	0	-4.1467	100.22			6.93	2.61	SLU 74	0.03	No
fin.	3	0	-6.1976	-53.83			6.93	2.61	SLU 74	0.05	No
ini.	3	0	-4.3021	104.66			6.93	2.61	SLU 84	0.02	No
fin.	3	0	-6.5753	-56.5			6.93	2.61	SLU 84	0.05	No
ini.	3	0	-4.2356	103.4			6.93	2.61	SLU 81	0.03	No
fin.	3	0	-6.5774	-56.15			6.93	2.61	SLU 81	0.05	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16.57	-6.8687	8.2721	SLV 14	1.2	Si
fin.	2	91.29	15.8092	8.2721	SLV 14	0.52	No
ini.	2	-43.98	1.0707	8.2721	SLV 2	7.73	Si
fin.	2	-108.31	-22.2808	8.2721	SLV 2	0.37	No
ini.	2	-34.81	1.3825	8.2721	SLV 4	5.98	Si
fin.	2	-110.61	-23.9845	8.2721	SLV 4	0.34	No
ini.	2	25.74	-6.5569	8.2721	SLV 16	1.26	Si
fin.	2	88.99	14.1055	8.2721	SLV 16	0.59	No
ini.	2	-20.33	-0.9354	8.2721	SLD 3	8.84	Si
fin.	2	-53.82	-12.7978	8.2721	SLD 3	0.65	No
ini.	2	-34.81	1.3825	8.2721	SLV 3	5.98	Si
fin.	2	-110.61	-23.9845	8.2721	SLV 3	0.34	No
ini.	2	25.74	-6.5569	8.2721	SLV 15	1.26	Si
fin.	2	88.99	14.1055	8.2721	SLV 15	0.59	No
ini.	2	-20.33	-0.9354	8.2721	SLD 4	8.84	Si
fin.	2	-53.82	-12.7978	8.2721	SLD 4	0.65	No
ini.	2	16.57	-6.8687	8.2721	SLV 13	1.2	Si
fin.	2	91.29	15.8092	8.2721	SLV 13	0.52	No
ini.	2	-43.98	1.0707	8.2721	SLV 1	7.73	Si
fin.	2	-108.31	-22.2808	8.2721	SLV 1	0.37	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1.3825	15.78			10.4	3.91	SLV 4	0.25	No
fin.	2	0	-23.9845	-92.43			10.4	3.91	SLV 4	0.04	No
ini.	2	0	-4.4137	89.37			10.4	3.91	SLD 16	0.04	No
fin.	2	0	3.8734	-15.92			10.4	3.91	SLD 16	0.25	No
ini.	2	0	-6.8687	116.83			10.4	3.91	SLV 13	0.03	No
fin.	2	0	15.8092	20.61			10.4	3.91	SLV 13	0.19	No
ini.	2	0	-4.5508	88.41			10.4	3.91	SLD 13	0.04	No
fin.	2	0	4.6225	-11.26			10.4	3.91	SLD 13	0.35	No
ini.	2	0	-6.5569	119.16			10.4	3.91	SLV 15	0.03	No
fin.	2	0	14.1055	9.7			10.4	3.91	SLV 15	0.4	No
ini.	2	0	-4.5508	88.41			10.4	3.91	SLD 14	0.04	No
fin.	2	0	4.6225	-11.26			10.4	3.91	SLD 14	0.35	No
ini.	2	0	1.3825	15.78			10.4	3.91	SLV 3	0.25	No
fin.	2	0	-23.9845	-92.43			10.4	3.91	SLV 3	0.04	No
ini.	2	0	-4.4137	89.37			10.4	3.91	SLD 15	0.04	No
fin.	2	0	3.8734	-15.92			10.4	3.91	SLD 15	0.25	No
ini.	2	0	-6.8687	116.83			10.4	3.91	SLV 14	0.03	No
fin.	2	0	15.8092	20.61			10.4	3.91	SLV 14	0.19	No
ini.	2	0	-6.5569	119.16			10.4	3.91	SLV 16	0.03	No
fin.	2	0	14.1055	9.7			10.4	3.91	SLV 16	0.4	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.345	SLV 3	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.033	SLV 15	No
PF SLU	1.08	SLU 82	Si
V SLU	0.025	SLU 83	No

## Trave di accoppiamento 13

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.613	1.046	0.57	1.11	0.54	-13.583	1.046	0.57	1.11	0.54	0.97	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fmed	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-25.22	-7.8693	6.1081	SLU 84	0.78	No
fin.	3	-8.46	-6.998	6.1081	SLU 84	0.87	No
ini.	3	-24.81	-7.4534	6.1081	SLU 80	0.82	No
fin.	3	-8.6	-6.7114	6.1081	SLU 80	0.91	No
ini.	3	-24.57	-7.8405	6.1081	SLU 82	0.78	No
fin.	3	-7.98	-6.8949	6.1081	SLU 82	0.89	No
ini.	3	-24.93	-7.8237	6.1081	SLU 81	0.78	No
fin.	3	-8.37	-6.9238	6.1081	SLU 81	0.88	No
ini.	3	-25.58	-7.8525	6.1081	SLU 83	0.78	No
fin.	3	-8.85	-7.0268	6.1081	SLU 83	0.87	No
ini.	3	-24.05	-7.5079	6.1081	SLU 75	0.81	No
fin.	3	-7.93	-6.6731	6.1081	SLU 75	0.92	No
ini.	3	-24.41	-7.4911	6.1081	SLU 74	0.82	No
fin.	3	-8.32	-6.7019	6.1081	SLU 74	0.91	No
ini.	3	-24.71	-7.5367	6.1081	SLU 78	0.81	No
fin.	3	-8.4	-6.7761	6.1081	SLU 78	0.9	No
ini.	3	-25.17	-7.4366	6.1081	SLU 79	0.82	No
fin.	3	-8.99	-6.7403	6.1081	SLU 79	0.91	No
ini.	3	-25.06	-7.5199	6.1081	SLU 77	0.81	No
fin.	3	-8.79	-6.805	6.1081	SLU 77	0.9	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-7.5079	77.86			6.24	2.35	SLU 75	0.03	No
fin.	3	0	-6.6731	-62.61			6.24	2.35	SLU 75	0.04	No
ini.	3	0	-7.4911	77.72			6.24	2.35	SLU 74	0.03	No
fin.	3	0	-6.7019	-62.61			6.24	2.35	SLU 74	0.04	No
ini.	3	0	-7.4534	77.67			6.24	2.35	SLU 80	0.03	No
fin.	3	0	-6.7114	-62.57			6.24	2.35	SLU 80	0.04	No
ini.	3	0	-7.8525	81.22			6.24	2.35	SLU 83	0.03	No
fin.	3	0	-7.0268	-65.52			6.24	2.35	SLU 83	0.04	No
ini.	3	0	-7.5199	78.42			6.24	2.35	SLU 77	0.03	No
fin.	3	0	-6.805	-63.32			6.24	2.35	SLU 77	0.04	No
ini.	3	0	-7.8405	80.67			6.24	2.35	SLU 82	0.03	No
fin.	3	0	-6.8949	-64.81			6.24	2.35	SLU 82	0.04	No
ini.	3	0	-7.5367	78.56			6.24	2.35	SLU 78	0.03	No
fin.	3	0	-6.7761	-63.32			6.24	2.35	SLU 78	0.04	No
ini.	3	0	-7.8237	80.52			6.24	2.35	SLU 81	0.03	No
fin.	3	0	-6.9238	-64.81			6.24	2.35	SLU 81	0.04	No
ini.	3	0	-7.4366	77.53			6.24	2.35	SLU 79	0.03	No
fin.	3	0	-6.7403	-62.57			6.24	2.35	SLU 79	0.04	No
ini.	3	0	-7.8693	81.36			6.24	2.35	SLU 84	0.03	No
fin.	3	0	-6.998	-65.52			6.24	2.35	SLU 84	0.04	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4.78	-7.5321	7.2221	SLV 11	0.96	No
fin.	2	15.7	-4.1424	7.2221	SLV 11	1.74	Si
ini.	2	-11.41	-6.08	7.2221	SLD 11	1.19	Si
fin.	2	3.68	-4.2853	7.2221	SLD 11	1.69	Si
ini.	2	-13.58	-6.1245	7.2221	SLD 7	1.18	Si
fin.	2	-3.3	-4.39	7.2221	SLD 7	1.65	Si
ini.	2	-22.02	-5.9527	7.2221	SLV 3	1.21	Si
fin.	2	-28.22	-4.7546	7.2221	SLV 3	1.52	Si
ini.	2	-13.58	-6.1245	7.2221	SLD 8	1.18	Si
fin.	2	-3.3	-4.39	7.2221	SLD 8	1.65	Si
ini.	2	-9.76	-7.6418	7.2221	SLV 7	0.95	No
fin.	2	-0.29	-4.3736	7.2221	SLV 7	1.65	Si
ini.	2	-11.41	-6.08	7.2221	SLD 12	1.19	Si
fin.	2	3.68	-4.2853	7.2221	SLD 12	1.69	Si
ini.	2	-9.76	-7.6418	7.2221	SLV 8	0.95	No
fin.	2	-0.29	-4.3736	7.2221	SLV 8	1.65	Si
ini.	2	-22.02	-5.9527	7.2221	SLV 4	1.21	Si
fin.	2	-28.22	-4.7546	7.2221	SLV 4	1.52	Si
ini.	2	-4.78	-7.5321	7.2221	SLV 12	0.96	No
fin.	2	15.7	-4.1424	7.2221	SLV 12	1.74	Si





## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.0295	69.85			9.36	3.52	SLV 13	0.05	No
fin.	2	0	-4.0796	-51.78			9.36	3.52	SLV 13	0.07	No
ini.	2	0	-5.2502	64.02			9.36	3.52	SLD 16	0.06	No
fin.	2	0	-4.2186	-48.04			9.36	3.52	SLD 16	0.07	No
ini.	2	0	-6.08	62.02			9.36	3.52	SLD 12	0.06	No
fin.	2	0	-4.2853	-46.65			9.36	3.52	SLD 12	0.08	No
ini.	2	0	-4.0295	69.85			9.36	3.52	SLV 14	0.05	No
fin.	2	0	-4.0796	-51.78			9.36	3.52	SLV 14	0.07	No
ini.	2	0	-5.587	80.01			9.36	3.52	SLV 15	0.04	No
fin.	2	0	-3.9841	-56.87			9.36	3.52	SLV 15	0.06	No
ini.	2	0	-5.587	80.01			9.36	3.52	SLV 16	0.04	No
fin.	2	0	-3.9841	-56.87			9.36	3.52	SLV 16	0.06	No
ini.	2	0	-7.5321	75.66			9.36	3.52	SLV 11	0.05	No
fin.	2	0	-4.1424	-53.77			9.36	3.52	SLV 11	0.07	No
ini.	2	0	-6.08	62.02			9.36	3.52	SLD 11	0.06	No
fin.	2	0	-4.2853	-46.65			9.36	3.52	SLD 11	0.08	No
ini.	2	0	-7.5321	75.66			9.36	3.52	SLV 12	0.05	No
fin.	2	0	-4.1424	-53.77			9.36	3.52	SLV 12	0.07	No
ini.	2	0	-5.2502	64.02			9.36	3.52	SLD 15	0.06	No
fin.	2	0	-4.2186	-48.04			9.36	3.52	SLD 15	0.07	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.945	SLV 7	No
V_SLV	0.044	SLV 15	No
PF_SLU	0.776	SLU 84	No
V_SLU	0.029	SLU 84	No

## Trave di accoppiamento 14

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-11.238	1.046	0.57	1.11	0.54	-12.238	1.046	0.57	1.11	0.54	1	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-36.74	0.1074	6.1081	SLU 75	56.9	Si
fin.	3	-42.89	-6.2741	6.1081	SLU 75	0.97	No
ini.	3	-37.98	0.1386	6.1081	SLU 81	44.08	Si
fin.	3	-44.15	-6.6359	6.1081	SLU 81	0.92	No
ini.	3	-38.74	0.0762	6.1081	SLU 83	80.2	Si
fin.	3	-45.28	-6.559	6.1081	SLU 83	0.93	No
ini.	3	-37.07	0.0952	6.1081	SLU 74	64.19	Si
fin.	3	-43.35	-6.2319	6.1081	SLU 74	0.98	No
ini.	3	-37.66	0.1507	6.1081	SLU 82	40.52	Si
fin.	3	-43.69	-6.6781	6.1081	SLU 82	0.91	No
ini.	3	-36.49	0.1153	6.1081	SLU 76	52.96	Si
fin.	3	-42.59	-6.2021	6.1081	SLU 76	0.98	No
ini.	3	-35.74	0.1777	6.1081	SLU 73	34.37	Si
fin.	3	-41.46	-6.279	6.1081	SLU 73	0.97	No
ini.	3	-37.49	0.045	6.1081	SLU 78	135.87	Si
fin.	3	-44.02	-6.1972	6.1081	SLU 78	0.99	No
ini.	3	-37.82	0.0328	6.1081	SLU 77	186.4	Si
fin.	3	-44.48	-6.155	6.1081	SLU 77	0.99	No
ini.	3	-38.41	0.0884	6.1081	SLU 84	69.13	Si
fin.	3	-44.82	-6.6012	6.1081	SLU 84	0.93	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.0762	-3.76			6.24	2.35	SLU 83	0.62	No
fin.	3	0	-6.559	-5.92			6.24	2.35	SLU 83	0.4	No
ini.	3	0	0.1507	-4			6.24	2.35	SLU 82	0.59	No
fin.	3	0	-6.6781	-6.28			6.24	2.35	SLU 82	0.37	No
ini.	3	0	0.1777	-3.81			6.24	2.35	SLU 73	0.62	No
fin.	3	0	-6.279	-5.87			6.24	2.35	SLU 73	0.4	No
ini.	3	0	0.0462	-3.03			6.24	2.35	SLU 63	0.77	No
fin.	3	0	-5.8985	-5.72			6.24	2.35	SLU 63	0.41	No
ini.	3	0	0.0964	-3.13			6.24	2.35	SLU 60	0.75	No
fin.	3	0	-5.9332	-5.89			6.24	2.35	SLU 60	0.4	No
ini.	3	0	0.034	-2.96			6.24	2.35	SLU 62	0.79	No
fin.	3	0	-5.8563	-5.63			6.24	2.35	SLU 62	0.42	No
ini.	3	0	0.1386	-3.93			6.24	2.35	SLU 81	0.6	No
fin.	3	0	-6.6359	-6.19			6.24	2.35	SLU 81	0.38	No
ini.	3	0	0.0884	-3.83			6.24	2.35	SLU 84	0.61	No
fin.	3	0	-6.6012	-6.01			6.24	2.35	SLU 84	0.39	No
ini.	3	0	0.1074	-3.72			6.24	2.35	SLU 75	0.63	No
fin.	3	0	-6.2741	-5.63			6.24	2.35	SLU 75	0.42	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.1086	-3.2			6.24	2.35	SLU 61	0.73	No
fin.	3	0	-5.9754	-5.99			6.24	2.35	SLU 61	0.39	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-27.97	3.2779	7.2221	SLD 3	2.2	Si
fin.	2	-23.55	-8.3271	7.2221	SLD 3	0.87	No
ini.	2	-35.43	6.1889	7.2221	SLV 1	1.17	Si
fin.	2	-23.93	-10.9536	7.2221	SLV 1	0.66	No
ini.	2	-27.97	3.2779	7.2221	SLD 4	2.2	Si
fin.	2	-23.55	-8.3271	7.2221	SLD 4	0.87	No
ini.	2	-35.43	6.1889	7.2221	SLV 2	1.17	Si
fin.	2	-23.93	-10.9536	7.2221	SLV 2	0.66	No
ini.	2	-21.68	4.0995	7.2221	SLV 8	1.76	Si
fin.	2	-13.58	-11.313	7.2221	SLV 8	0.64	No
ini.	2	-23.53	1.8514	7.2221	SLD 7	3.9	Si
fin.	2	-22.39	-7.2347	7.2221	SLD 7	1	No
ini.	2	-23.53	1.8514	7.2221	SLD 8	3.9	Si
fin.	2	-22.39	-7.2347	7.2221	SLD 8	1	No
ini.	2	-21.68	4.0995	7.2221	SLV 7	1.76	Si
fin.	2	-13.58	-11.313	7.2221	SLV 7	0.64	No
ini.	2	-31.88	7.3722	7.2221	SLV 4	0.98	No
fin.	2	-16.22	-13.777	7.2221	SLV 4	0.52	No
ini.	2	-31.88	7.3722	7.2221	SLV 3	0.98	No
fin.	2	-16.22	-13.777	7.2221	SLV 3	0.52	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.2779	-10.37			9.36	3.52	SLD 4	0.34	No
fin.	2	0	-8.3271	-13.98			9.36	3.52	SLD 4	0.25	No
ini.	2	0	7.3722	-20.7			9.36	3.52	SLV 3	0.17	No
fin.	2	0	-13.777	-27.28			9.36	3.52	SLV 3	0.13	No
ini.	2	0	6.1889	-16.47			9.36	3.52	SLV 1	0.21	No
fin.	2	0	-10.9536	-20.84			9.36	3.52	SLV 1	0.17	No
ini.	2	0	4.0995	-14.31			9.36	3.52	SLV 8	0.25	No
fin.	2	0	-11.313	-20.62			9.36	3.52	SLV 8	0.17	No
ini.	2	0	7.3722	-20.7			9.36	3.52	SLV 4	0.17	No
fin.	2	0	-13.777	-27.28			9.36	3.52	SLV 4	0.13	No
ini.	2	0	3.2779	-10.37			9.36	3.52	SLD 3	0.34	No
fin.	2	0	-8.3271	-13.98			9.36	3.52	SLD 3	0.25	No
ini.	2	0	4.0995	-14.31			9.36	3.52	SLV 7	0.25	No
fin.	2	0	-11.313	-20.62			9.36	3.52	SLV 7	0.17	No
ini.	2	0	6.1889	-16.47			9.36	3.52	SLV 2	0.21	No
fin.	2	0	-10.9536	-20.84			9.36	3.52	SLV 2	0.17	No
ini.	2	0	-7.106	15.9			9.36	3.52	SLV 13	0.22	No
fin.	2	0	5.498	19.68			9.36	3.52	SLV 13	0.18	No
ini.	2	0	-7.106	15.9			9.36	3.52	SLV 14	0.22	No
fin.	2	0	5.498	19.68			9.36	3.52	SLV 14	0.18	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.524	SLV 3	No
V_SLV	0.129	SLV 3	No
PF_SLU	0.915	SLU 82	No
V_SLU	0.374	SLU 82	No

## Trave di accoppiamento 15

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-9.713	1.046	0.51	1.11	0.6	-10.713	1.046	0.51	1.11	0.6	1	0.45	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-41.96	-3.9811	7.1581	SLU 84	1.8	Si
fin.	3	-19.73	-3.6797	7.1581	SLU 84	1.95	Si
ini.	3	-41.79	-3.9433	7.1581	SLU 83	1.82	Si
fin.	3	-20.11	-3.7672	7.1581	SLU 83	1.9	Si
ini.	3	-40.53	-3.9238	7.1581	SLU 78	1.82	Si
fin.	3	-19.72	-3.6203	7.1581	SLU 78	1.98	Si
ini.	3	-39.92	-3.8498	7.1581	SLU 73	1.86	Si
fin.	3	-18.1	-3.2635	7.1581	SLU 73	2.19	Si
ini.	3	-40.22	-3.8749	7.1581	SLU 74	1.85	Si
fin.	3	-19.32	-3.5505	7.1581	SLU 74	2.02	Si
ini.	3	-41.82	-3.97	7.1581	SLU 82	1.8	Si
fin.	3	-18.96	-3.5225	7.1581	SLU 82	2.03	Si
ini.	3	-40.36	-3.886	7.1581	SLU 77	1.84	Si
fin.	3	-20.1	-3.7078	7.1581	SLU 77	1.93	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-41.64	-3.9322	7.1581	SLU 81	1.82	Si
fin.	3	-19.34	-3.6099	7.1581	SLU 81	1.98	Si
ini.	3	-40.07	-3.8609	7.1581	SLU 76	1.85	Si
fin.	3	-18.87	-3.4207	7.1581	SLU 76	2.09	Si
ini.	3	-40.39	-3.9127	7.1581	SLU 75	1.83	Si
fin.	3	-18.95	-3.463	7.1581	SLU 75	2.07	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.886	117.36			6.93	2.61	SLU 77	0.02	No
fin.	3	0	-3.7078	-49.02			6.93	2.61	SLU 77	0.05	No
ini.	3	0	-3.9238	117.65			6.93	2.61	SLU 78	0.02	No
fin.	3	0	-3.6203	-48.7			6.93	2.61	SLU 78	0.05	No
ini.	3	0	-3.8467	116.14			6.93	2.61	SLU 80	0.02	No
fin.	3	0	-3.6363	-48.38			6.93	2.61	SLU 80	0.05	No
ini.	3	0	-3.8089	115.85			6.93	2.61	SLU 79	0.02	No
fin.	3	0	-3.7238	-48.7			6.93	2.61	SLU 79	0.05	No
ini.	3	0	-3.97	122.25			6.93	2.61	SLU 82	0.02	No
fin.	3	0	-3.5225	-49.65			6.93	2.61	SLU 82	0.05	No
ini.	3	0	-3.8749	116.81			6.93	2.61	SLU 74	0.02	No
fin.	3	0	-3.5505	-48.22			6.93	2.61	SLU 74	0.05	No
ini.	3	0	-3.9127	117.1			6.93	2.61	SLU 75	0.02	No
fin.	3	0	-3.463	-47.9			6.93	2.61	SLU 75	0.05	No
ini.	3	0	-3.9811	122.8			6.93	2.61	SLU 84	0.02	No
fin.	3	0	-3.6797	-50.45			6.93	2.61	SLU 84	0.05	No
ini.	3	0	-3.9433	122.51			6.93	2.61	SLU 83	0.02	No
fin.	3	0	-3.7672	-50.77			6.93	2.61	SLU 83	0.05	No
ini.	3	0	-3.9322	121.96			6.93	2.61	SLU 81	0.02	No
fin.	3	0	-3.6099	-49.97			6.93	2.61	SLU 81	0.05	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-69.97	-8.4005	8.2721	SLD 16	0.98	No
fin.	2	-23.38	-0.5808	8.2721	SLD 16	14.24	Si
ini.	2	-114.16	-13.6824	8.2721	SLV 13	0.6	No
fin.	2	-44.62	-0.6337	8.2721	SLV 13	13.05	Si
ini.	2	-69.97	-8.4005	8.2721	SLD 15	0.98	No
fin.	2	-23.38	-0.5808	8.2721	SLD 15	14.24	Si
ini.	2	69.95	10.3735	8.2721	SLV 2	0.8	No
fin.	2	9.97	-6.1703	8.2721	SLV 2	1.34	Si
ini.	2	-124.76	-15.7552	8.2721	SLV 15	0.53	No
fin.	2	-36.45	1.5897	8.2721	SLV 15	5.2	Si
ini.	2	-114.16	-13.6824	8.2721	SLV 14	0.6	No
fin.	2	-44.62	-0.6337	8.2721	SLV 14	13.05	Si
ini.	2	-72.69	-9.754	8.2721	SLV 11	0.85	No
fin.	2	-7.8	2.2459	8.2721	SLV 11	3.68	Si
ini.	2	-124.76	-15.7552	8.2721	SLV 16	0.53	No
fin.	2	-36.45	1.5897	8.2721	SLV 16	5.2	Si
ini.	2	69.95	10.3735	8.2721	SLV 1	0.8	No
fin.	2	9.97	-6.1703	8.2721	SLV 1	1.34	Si
ini.	2	-72.69	-9.754	8.2721	SLV 12	0.85	No
fin.	2	-7.8	2.2459	8.2721	SLV 12	3.68	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-9.754	135.97			10.4	3.91	SLV 11	0.03	No
fin.	2	0	2.2459	-21.07			10.4	3.91	SLV 11	0.19	No
ini.	2	0	-15.7552	156.24			10.4	3.91	SLV 16	0.03	No
fin.	2	0	1.5897	0.15			10.4	3.91	SLV 16	25.84	Si
ini.	2	0	-13.6824	133.13			10.4	3.91	SLV 13	0.03	No
fin.	2	0	-0.6337	-0.54			10.4	3.91	SLV 13	7.23	Si
ini.	2	0	-8.4005	111.73			10.4	3.91	SLD 15	0.04	No
fin.	2	0	-0.5808	-17.71			10.4	3.91	SLD 15	0.22	No
ini.	2	0	-8.4005	111.73			10.4	3.91	SLD 16	0.04	No
fin.	2	0	-0.5808	-17.71			10.4	3.91	SLD 16	0.22	No
ini.	2	0	-5.7719	102.67			10.4	3.91	SLD 11	0.04	No
fin.	2	0	-0.3083	-26.98			10.4	3.91	SLD 11	0.15	No
ini.	2	0	-15.7552	156.24			10.4	3.91	SLV 15	0.03	No
fin.	2	0	1.5897	0.15			10.4	3.91	SLV 15	25.84	Si
ini.	2	0	-13.6824	133.13			10.4	3.91	SLV 14	0.03	No
fin.	2	0	-0.6337	-0.54			10.4	3.91	SLV 14	7.23	Si
ini.	2	0	-9.754	135.97			10.4	3.91	SLV 12	0.03	No
fin.	2	0	2.2459	-21.07			10.4	3.91	SLV 12	0.19	No
ini.	2	0	-5.7719	102.67			10.4	3.91	SLD 12	0.04	No
fin.	2	0	-0.3083	-26.98			10.4	3.91	SLD 12	0.15	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.525	SLV 15	No
V_SLV	0.025	SLV 15	No
PF_SLU	1.798	SLU 84	Si
V_SLU	0.021	SLU 84	No

## Trave di accoppiamento 16

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.528	1.046	0.51	1.11	0.6	-7.428	1.046	0.51	1.11	0.6	0.9	0.45	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-34.15	-7.5174	7.1581	SLU 83	0.95	No
fin.	3	-19.33	-3.7226	7.1581	SLU 83	1.92	Si
ini.	3	-33.65	-7.2698	7.1581	SLU 75	0.98	No
fin.	3	-18.55	-3.3083	7.1581	SLU 75	2.16	Si
ini.	3	-33.47	-7.3115	7.1581	SLU 78	0.98	No
fin.	3	-18.44	-3.3966	7.1581	SLU 78	2.11	Si
ini.	3	-32.37	-7.1954	7.1581	SLU 77	0.99	No
fin.	3	-18.44	-3.6681	7.1581	SLU 77	1.95	Si
ini.	3	-34.23	-7.2279	7.1581	SLU 73	0.99	No
fin.	3	-18.64	-3.0602	7.1581	SLU 73	2.34	Si
ini.	3	-35.44	-7.5918	7.1581	SLU 82	0.94	No
fin.	3	-19.44	-3.3629	7.1581	SLU 82	2.13	Si
ini.	3	-35.26	-7.6335	7.1581	SLU 84	0.94	No
fin.	3	-19.32	-3.4511	7.1581	SLU 84	2.07	Si
ini.	3	-33.14	-7.2338	7.1581	SLU 80	0.99	No
fin.	3	-18.42	-3.4178	7.1581	SLU 80	2.09	Si
ini.	3	-34.05	-7.2696	7.1581	SLU 76	0.98	No
fin.	3	-18.53	-3.1485	7.1581	SLU 76	2.27	Si
ini.	3	-34.33	-7.4758	7.1581	SLU 81	0.96	No
fin.	3	-19.44	-3.6344	7.1581	SLU 81	1.97	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-7.3115	83.75			6.93	2.61	SLU 78	0.03	No
fin.	3	0	-3.3966	-31.03			6.93	2.61	SLU 78	0.08	No
ini.	3	0	-7.5174	86.57			6.93	2.61	SLU 83	0.03	No
fin.	3	0	-3.7226	-32.87			6.93	2.61	SLU 83	0.08	No
ini.	3	0	-7.2338	82.9			6.93	2.61	SLU 80	0.03	No
fin.	3	0	-3.4178	-30.92			6.93	2.61	SLU 80	0.08	No
ini.	3	0	-7.1954	83.4			6.93	2.61	SLU 77	0.03	No
fin.	3	0	-3.6681	-32.11			6.93	2.61	SLU 77	0.08	No
ini.	3	0	-7.6335	86.93			6.93	2.61	SLU 84	0.03	No
fin.	3	0	-3.4511	-31.78			6.93	2.61	SLU 84	0.08	No
ini.	3	0	-7.1538	82.46			6.93	2.61	SLU 74	0.03	No
fin.	3	0	-3.5798	-31.5			6.93	2.61	SLU 74	0.08	No
ini.	3	0	-7.4758	85.64			6.93	2.61	SLU 81	0.03	No
fin.	3	0	-3.6344	-32.26			6.93	2.61	SLU 81	0.08	No
ini.	3	0	-7.1178	82.55			6.93	2.61	SLU 79	0.03	No
fin.	3	0	-3.6893	-32			6.93	2.61	SLU 79	0.08	No
ini.	3	0	-7.2698	82.81			6.93	2.61	SLU 75	0.03	No
fin.	3	0	-3.3083	-30.42			6.93	2.61	SLU 75	0.09	No
ini.	3	0	-7.5918	85.99			6.93	2.61	SLU 82	0.03	No
fin.	3	0	-3.3629	-31.18			6.93	2.61	SLU 82	0.08	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16.8	0.1707	8.2721	SLV 4	48.46	Si
fin.	2	-38.25	-21.1745	8.2721	SLV 4	0.39	No
ini.	2	-53.5	-9.4709	8.2721	SLV 15	0.87	No
fin.	2	18.68	16.3305	8.2721	SLV 15	0.51	No
ini.	2	-60.77	-9.6174	8.2721	SLV 13	0.86	No
fin.	2	12.02	16.2112	8.2721	SLV 13	0.51	No
ini.	2	9.53	0.0242	8.2721	SLV 2	341.83	Si
fin.	2	-44.92	-21.2937	8.2721	SLV 2	0.39	No
ini.	2	-53.5	-9.4709	8.2721	SLV 16	0.87	No
fin.	2	18.68	16.3305	8.2721	SLV 16	0.51	No
ini.	2	16.8	0.1707	8.2721	SLV 3	48.46	Si
fin.	2	-38.25	-21.1745	8.2721	SLV 3	0.39	No
ini.	2	-8.19	-2.6548	8.2721	SLD 1	3.12	Si
fin.	2	-26.98	-10.6996	8.2721	SLD 1	0.77	No
ini.	2	-60.77	-9.6174	8.2721	SLV 14	0.86	No
fin.	2	12.02	16.2112	8.2721	SLV 14	0.51	No
ini.	2	-8.19	-2.6548	8.2721	SLD 2	3.12	Si
fin.	2	-26.98	-10.6996	8.2721	SLD 2	0.77	No
ini.	2	9.53	0.0242	8.2721	SLV 1	341.83	Si
fin.	2	-44.92	-21.2937	8.2721	SLV 1	0.39	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-5.9254	75.01			10.4	3.91	SLV 11	0.05	No
fin.	2	0	3.3429	-10.62			10.4	3.91	SLV 11	0.37	No
ini.	2	0	-5.9254	75.01			10.4	3.91	SLV 12	0.05	No
fin.	2	0	3.3429	-10.62			10.4	3.91	SLV 12	0.37	No
ini.	2	0	0.0242	11.86			10.4	3.91	SLV 2	0.33	No
fin.	2	0	-21.2937	-75.72			10.4	3.91	SLV 2	0.05	No
ini.	2	0	-9.4709	96.56			10.4	3.91	SLV 16	0.04	No
fin.	2	0	16.3305	33.25			10.4	3.91	SLV 16	0.12	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-9.4709	96.56			10.4	3.91	SLV 15	0.04	No
fin.	2	0	16.3305	33.25			10.4	3.91	SLV 15	0.12	No
ini.	2	0	-9.6174	91.23			10.4	3.91	SLV 13	0.04	No
fin.	2	0	16.2112	37.03			10.4	3.91	SLV 13	0.11	No
ini.	2	0	0.0242	11.86			10.4	3.91	SLV 1	0.33	No
fin.	2	0	-21.2937	-75.72			10.4	3.91	SLV 1	0.05	No
ini.	2	0	0.1707	17.2			10.4	3.91	SLV 4	0.23	No
fin.	2	0	-21.1745	-79.5			10.4	3.91	SLV 4	0.05	No
ini.	2	0	0.1707	17.2			10.4	3.91	SLV 3	0.23	No
fin.	2	0	-21.1745	-79.5			10.4	3.91	SLV 3	0.05	No
ini.	2	0	-9.6174	91.23			10.4	3.91	SLV 14	0.04	No
fin.	2	0	16.2112	37.03			10.4	3.91	SLV 14	0.11	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.388	SLV 1	No
V_SLV	0.041	SLV 15	No
PF_SLU	0.938	SLU 84	No
V_SLU	0.03	SLU 84	No

## Trave di accoppiamento 17

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.088	1.046	0.51	1.11	0.6	-5.988	1.046	0.51	1.11	0.6	0.9	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-60.55	-5.506	7.1581	SLU 79	1.3	Si
fin.	3	-35.25	-4.7998	7.1581	SLU 79	1.49	Si
ini.	3	-62.34	-5.5884	7.1581	SLU 81	1.28	Si
fin.	3	-37.66	-5.0966	7.1581	SLU 81	1.4	Si
ini.	3	-60.2	-5.3808	7.1581	SLU 75	1.33	Si
fin.	3	-36.89	-4.949	7.1581	SLU 75	1.45	Si
ini.	3	-62.93	-5.605	7.1581	SLU 84	1.28	Si
fin.	3	-38.68	-5.2157	7.1581	SLU 84	1.37	Si
ini.	3	-61.05	-5.4879	7.1581	SLU 78	1.3	Si
fin.	3	-36.78	-4.9535	7.1581	SLU 78	1.45	Si
ini.	3	-60.46	-5.4714	7.1581	SLU 74	1.31	Si
fin.	3	-35.75	-4.8344	7.1581	SLU 74	1.48	Si
ini.	3	-63.19	-5.6956	7.1581	SLU 83	1.26	Si
fin.	3	-37.54	-5.1011	7.1581	SLU 83	1.4	Si
ini.	3	-60.29	-5.4153	7.1581	SLU 80	1.32	Si
fin.	3	-36.39	-4.9143	7.1581	SLU 80	1.46	Si
ini.	3	-62.08	-5.4978	7.1581	SLU 82	1.3	Si
fin.	3	-38.79	-5.2112	7.1581	SLU 82	1.37	Si
ini.	3	-61.32	-5.5786	7.1581	SLU 77	1.28	Si
fin.	3	-35.64	-4.8389	7.1581	SLU 77	1.48	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-5.4714	113.94			6.93	2.61	SLU 74	0.02	No
fin.	3	0	-4.8344	-75.13			6.93	2.61	SLU 74	0.03	No
ini.	3	0	-5.4153	113.19			6.93	2.61	SLU 80	0.02	No
fin.	3	0	-4.9143	-75.47			6.93	2.61	SLU 80	0.03	No
ini.	3	0	-5.506	114.89			6.93	2.61	SLU 79	0.02	No
fin.	3	0	-4.7998	-75.31			6.93	2.61	SLU 79	0.03	No
ini.	3	0	-5.605	117.25			6.93	2.61	SLU 84	0.02	No
fin.	3	0	-5.2157	-78.92			6.93	2.61	SLU 84	0.03	No
ini.	3	0	-5.4978	115.14			6.93	2.61	SLU 82	0.02	No
fin.	3	0	-5.2112	-78.13			6.93	2.61	SLU 82	0.03	No
ini.	3	0	-5.3808	112.24			6.93	2.61	SLU 75	0.02	No
fin.	3	0	-4.949	-75.28			6.93	2.61	SLU 75	0.03	No
ini.	3	0	-5.5786	116.06			6.93	2.61	SLU 77	0.02	No
fin.	3	0	-4.8389	-75.92			6.93	2.61	SLU 77	0.03	No
ini.	3	0	-5.5884	116.84			6.93	2.61	SLU 81	0.02	No
fin.	3	0	-5.0966	-77.97			6.93	2.61	SLU 81	0.03	No
ini.	3	0	-5.6956	118.95			6.93	2.61	SLU 83	0.02	No
fin.	3	0	-5.1011	-78.77			6.93	2.61	SLU 83	0.03	No
ini.	3	0	-5.4879	114.35			6.93	2.61	SLU 78	0.02	No
fin.	3	0	-4.9535	-76.07			6.93	2.61	SLU 78	0.03	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-180.07	-16.4111	8.2721	SLV 16	0.5	No
fin.	2	-70.69	-1.3652	8.2721	SLV 16	6.06	Si
ini.	2	-180.07	-16.4111	8.2721	SLV 15	0.5	No
fin.	2	-70.69	-1.3652	8.2721	SLV 15	6.06	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-163.15	-14.3576	8.2721	SLV 14	0.58	No
fin.	2	-74.83	-2.2745	8.2721	SLV 14	3.64	Si
ini.	2	-107.57	-10.5586	8.2721	SLV 11	0.78	No
fin.	2	-31.72	-1.2782	8.2721	SLV 11	6.47	Si
ini.	2	-101.15	-9.2037	8.2721	SLD 15	0.9	No
fin.	2	-44.39	-2.4051	8.2721	SLD 15	3.44	Si
ini.	2	100.41	9.2087	8.2721	SLV 1	0.9	No
fin.	2	22.7	-5.0574	8.2721	SLV 1	1.64	Si
ini.	2	100.41	9.2087	8.2721	SLV 2	0.9	No
fin.	2	22.7	-5.0574	8.2721	SLV 2	1.64	Si
ini.	2	-163.15	-14.3576	8.2721	SLV 13	0.58	No
fin.	2	-74.83	-2.2745	8.2721	SLV 13	3.64	Si
ini.	2	-107.57	-10.5586	8.2721	SLV 12	0.78	No
fin.	2	-31.72	-1.2782	8.2721	SLV 12	6.47	Si
ini.	2	-101.15	-9.2037	8.2721	SLD 16	0.9	No
fin.	2	-44.39	-2.4051	8.2721	SLD 16	3.44	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-8.3094	111.88			10.4	3.91	SLD 13	0.03	No
fin.	2	0	-2.799	-39.67			10.4	3.91	SLD 13	0.1	No
ini.	2	0	-10.5586	112.09			10.4	3.91	SLV 12	0.03	No
fin.	2	0	-1.2782	-20.45			10.4	3.91	SLV 12	0.19	No
ini.	2	0	-9.2037	114.62			10.4	3.91	SLD 16	0.03	No
fin.	2	0	-2.4051	-34.31			10.4	3.91	SLD 16	0.11	No
ini.	2	0	-14.3576	158.89			10.4	3.91	SLV 13	0.02	No
fin.	2	0	-2.2745	-26.43			10.4	3.91	SLV 13	0.15	No
ini.	2	0	-8.3094	111.88			10.4	3.91	SLD 14	0.03	No
fin.	2	0	-2.799	-39.67			10.4	3.91	SLD 14	0.1	No
ini.	2	0	-9.2037	114.62			10.4	3.91	SLD 15	0.03	No
fin.	2	0	-2.4051	-34.31			10.4	3.91	SLD 15	0.11	No
ini.	2	0	-16.4111	165.38			10.4	3.91	SLV 15	0.02	No
fin.	2	0	-1.3652	-14.08			10.4	3.91	SLV 15	0.28	No
ini.	2	0	-10.5586	112.09			10.4	3.91	SLV 11	0.03	No
fin.	2	0	-1.2782	-20.45			10.4	3.91	SLV 11	0.19	No
ini.	2	0	-14.3576	158.89			10.4	3.91	SLV 14	0.02	No
fin.	2	0	-2.2745	-26.43			10.4	3.91	SLV 14	0.15	No
ini.	2	0	-16.4111	165.38			10.4	3.91	SLV 16	0.02	No
fin.	2	0	-1.3652	-14.08			10.4	3.91	SLV 16	0.28	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.504	SLV 15	No
V_SLV	0.024	SLV 15	No
PF_SLU	1.257	SLU 83	Si
V_SLU	0.022	SLU 83	No

## Trave di accoppiamento 18

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.768	6.576	-1.59	0.41	2	-16.768	6.576	-1.59	0.41	2	1	0.45	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-37.25	-34.5825	31.6581	SLU 81	0.92	No
fin.	3	-61.71	4.7567	31.6581	SLU 81	6.66	Si
ini.	3	-37.98	-34.2354	31.6581	SLU 84	0.92	No
fin.	3	-62.22	4.525	31.6581	SLU 84	7	Si
ini.	3	-37.63	-32.6876	31.6581	SLU 78	0.97	No
fin.	3	-60.75	4.0728	31.6581	SLU 78	7.77	Si
ini.	3	-36.9	-33.0346	31.6581	SLU 74	0.96	No
fin.	3	-60.24	4.3045	31.6581	SLU 74	7.35	Si
ini.	3	-38.01	-34.2176	31.6581	SLU 83	0.93	No
fin.	3	-62.25	4.5223	31.6581	SLU 83	7	Si
ini.	3	-37.22	-34.6004	31.6581	SLU 82	0.91	No
fin.	3	-61.68	4.7594	31.6581	SLU 82	6.65	Si
ini.	3	-36.66	-32.5821	31.6581	SLU 76	0.97	No
fin.	3	-59.66	4.1806	31.6581	SLU 76	7.57	Si
ini.	3	-37.66	-32.6697	31.6581	SLU 77	0.97	No
fin.	3	-60.78	4.0701	31.6581	SLU 77	7.78	Si
ini.	3	-36.88	-33.0525	31.6581	SLU 75	0.96	No
fin.	3	-60.21	4.3072	31.6581	SLU 75	7.35	Si
ini.	3	-35.9	-32.9471	31.6581	SLU 73	0.96	No
fin.	3	-59.12	4.415	31.6581	SLU 73	7.17	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-32.5821	34.4			34.66	13.04	SLU 76	0.38	No
fin.	3	0	4.1806	96.45			34.66	13.04	SLU 76	0.14	No
ini.	3	0	-32.9471	35.49			34.66	13.04	SLU 73	0.37	No
fin.	3	0	4.415	96.85			34.66	13.04	SLU 73	0.13	No
ini.	3	0	-32.6876	33.97			34.66	13.04	SLU 78	0.38	No
fin.	3	0	4.0728	97.38			34.66	13.04	SLU 78	0.13	No
ini.	3	0	-33.0525	35.05			34.66	13.04	SLU 75	0.37	No
fin.	3	0	4.3072	97.78			34.66	13.04	SLU 75	0.13	No
ini.	3	0	-34.6004	37.42			34.66	13.04	SLU 82	0.35	No
fin.	3	0	4.7594	101.9			34.66	13.04	SLU 82	0.13	No
ini.	3	0	-32.6697	33.93			34.66	13.04	SLU 77	0.38	No
fin.	3	0	4.0701	97.36			34.66	13.04	SLU 77	0.13	No
ini.	3	0	-33.0346	35.02			34.66	13.04	SLU 74	0.37	No
fin.	3	0	4.3045	97.77			34.66	13.04	SLU 74	0.13	No
ini.	3	0	-34.2176	36.31			34.66	13.04	SLU 83	0.36	No
fin.	3	0	4.5223	101.48			34.66	13.04	SLU 83	0.13	No
ini.	3	0	-34.2354	36.34			34.66	13.04	SLU 84	0.36	No
fin.	3	0	4.525	101.5			34.66	13.04	SLU 84	0.13	No
ini.	3	0	-34.5825	37.39			34.66	13.04	SLU 81	0.35	No
fin.	3	0	4.7567	101.88			34.66	13.04	SLU 81	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-35.11	-50.6013	32.7721	SLV 8	0.65	No
fin.	2	-74.66	17.2624	32.7721	SLV 8	1.9	Si
ini.	2	-14.77	-44.9639	32.7721	SLD 1	0.73	No
fin.	2	-53.35	18.8941	32.7721	SLD 1	1.73	Si
ini.	2	-10.33	-80.4699	32.7721	SLV 3	0.41	No
fin.	2	-82.56	41.4661	32.7721	SLV 3	0.79	No
ini.	2	-14.77	-44.9639	32.7721	SLD 2	0.73	No
fin.	2	-53.35	18.8941	32.7721	SLD 2	1.73	Si
ini.	2	-18.77	-47.9448	32.7721	SLD 4	0.68	No
fin.	2	-59.22	19.666	32.7721	SLD 4	1.67	Si
ini.	2	-35.11	-50.6013	32.7721	SLV 7	0.65	No
fin.	2	-74.66	17.2624	32.7721	SLV 7	1.9	Si
ini.	2	-1	-73.5084	32.7721	SLV 2	0.45	No
fin.	2	-68.77	39.611	32.7721	SLV 2	0.83	No
ini.	2	-1	-73.5084	32.7721	SLV 1	0.45	No
fin.	2	-68.77	39.611	32.7721	SLV 1	0.83	No
ini.	2	-18.77	-47.9448	32.7721	SLD 3	0.68	No
fin.	2	-59.22	19.666	32.7721	SLD 3	1.67	Si
ini.	2	-10.33	-80.4699	32.7721	SLV 4	0.41	No
fin.	2	-82.56	41.4661	32.7721	SLV 4	0.79	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-50.6013	68.37			51.99	19.57	SLV 7	0.29	No
fin.	2	0	17.2624	140.05			51.99	19.57	SLV 7	0.14	No
ini.	2	0	-47.9448	86.61			51.99	19.57	SLD 3	0.23	No
fin.	2	0	19.666	135.14			51.99	19.57	SLD 3	0.14	No
ini.	2	0	-44.9639	86.33			51.99	19.57	SLD 1	0.23	No
fin.	2	0	18.8941	127.73			51.99	19.57	SLD 1	0.15	No
ini.	2	0	-44.9639	86.33			51.99	19.57	SLD 2	0.23	No
fin.	2	0	18.8941	127.73			51.99	19.57	SLD 2	0.15	No
ini.	2	0	-50.6013	68.37			51.99	19.57	SLV 8	0.29	No
fin.	2	0	17.2624	140.05			51.99	19.57	SLV 8	0.14	No
ini.	2	0	-47.9448	86.61			51.99	19.57	SLD 4	0.23	No
fin.	2	0	19.666	135.14			51.99	19.57	SLD 4	0.14	No
ini.	2	0	-73.5084	166.3			51.99	19.57	SLV 2	0.12	No
fin.	2	0	39.611	206.6			51.99	19.57	SLV 2	0.09	No
ini.	2	0	-80.4699	167.12			51.99	19.57	SLV 3	0.12	No
fin.	2	0	41.4661	223.95			51.99	19.57	SLV 3	0.09	No
ini.	2	0	-80.4699	167.12			51.99	19.57	SLV 4	0.12	No
fin.	2	0	41.4661	223.95			51.99	19.57	SLV 4	0.09	No
ini.	2	0	-73.5084	166.3			51.99	19.57	SLV 1	0.12	No
fin.	2	0	39.611	206.6			51.99	19.57	SLV 1	0.09	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.407	SLV 3	No
V_SLV	0.087	SLV 3	No
PF_SLU	0.915	SLU 82	No
V_SLU	0.128	SLU 82	No

#### Trave di accoppiamento 19

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.768	6.576	0.81	1.11	0.3	-16.768	6.576	0.81	1.11	0.3	1	0.45	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	11.97	-3.1708	2.0548	SLU 75	0.65	No
fin.	3	23.07	0.152	2.0548	SLU 75	13.52	Si
ini.	3	12.43	-3.2831	2.0548	SLU 84	0.63	No
fin.	3	23.98	0.1676	2.0548	SLU 84	12.26	Si
ini.	3	12.14	-3.1433	2.0548	SLU 78	0.65	No
fin.	3	22.91	0.093	2.0548	SLU 78	22.08	Si
ini.	3	12.43	-3.2816	2.0548	SLU 83	0.63	No
fin.	3	23.97	0.1656	2.0548	SLU 83	12.41	Si
ini.	3	12.26	-3.3107	2.0548	SLU 82	0.62	No
fin.	3	24.14	0.2265	2.0548	SLU 82	9.07	Si
ini.	3	12.14	-3.1418	2.0548	SLU 77	0.65	No
fin.	3	22.9	0.0911	2.0548	SLU 77	22.56	Si
ini.	3	11.97	-3.1693	2.0548	SLU 74	0.65	No
fin.	3	23.06	0.15	2.0548	SLU 74	13.7	Si
ini.	3	12.26	-3.3092	2.0548	SLU 81	0.62	No
fin.	3	24.12	0.2245	2.0548	SLU 81	9.15	Si
ini.	3	11.86	-3.1265	2.0548	SLU 76	0.66	No
fin.	3	22.75	0.1353	2.0548	SLU 76	15.18	Si
ini.	3	11.69	-3.1541	2.0548	SLU 73	0.65	No
fin.	3	22.9	0.1942	2.0548	SLU 73	10.58	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-3.3092	15.74			3.47	1.3	SLU 81	0.08	No
fin.	3	0	0.2245	-3.61			3.47	1.3	SLU 81	0.36	No
ini.	3	0	-3.1418	15.13			3.47	1.3	SLU 77	0.09	No
fin.	3	0	0.0911	-3.98			3.47	1.3	SLU 77	0.33	No
ini.	3	0	-3.1433	15.14			3.47	1.3	SLU 78	0.09	No
fin.	3	0	0.093	-3.98			3.47	1.3	SLU 78	0.33	No
ini.	3	0	-3.2831	15.69			3.47	1.3	SLU 84	0.08	No
fin.	3	0	0.1676	-3.83			3.47	1.3	SLU 84	0.34	No
ini.	3	0	-3.1265	15			3.47	1.3	SLU 76	0.09	No
fin.	3	0	0.1353	-3.77			3.47	1.3	SLU 76	0.35	No
ini.	3	0	-3.1708	15.19			3.47	1.3	SLU 75	0.09	No
fin.	3	0	0.152	-3.76			3.47	1.3	SLU 75	0.35	No
ini.	3	0	-3.1693	15.18			3.47	1.3	SLU 74	0.09	No
fin.	3	0	0.15	-3.76			3.47	1.3	SLU 74	0.35	No
ini.	3	0	-3.1541	15.06			3.47	1.3	SLU 73	0.09	No
fin.	3	0	0.1942	-3.55			3.47	1.3	SLU 73	0.37	No
ini.	3	0	-3.3107	15.74			3.47	1.3	SLU 82	0.08	No
fin.	3	0	0.2265	-3.6			3.47	1.3	SLU 82	0.36	No
ini.	3	0	-3.2816	15.68			3.47	1.3	SLU 83	0.08	No
fin.	3	0	0.1656	-3.83			3.47	1.3	SLU 83	0.34	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3.66	-4.4343	3.0221	SLD 3	0.68	No
fin.	2	28.22	2.2139	3.0221	SLD 3	1.37	Si
ini.	2	18.06	3.0014	3.0221	SLV 13	1.01	Si
fin.	2	-13.09	-4.7841	3.0221	SLV 13	0.63	No
ini.	2	-1.91	-7.3546	3.0221	SLV 3	0.41	No
fin.	2	44.38	4.9851	3.0221	SLV 3	0.61	No
ini.	2	-11.93	-7.2306	3.0221	SLV 2	0.42	No
fin.	2	37.07	5.2122	3.0221	SLV 2	0.58	No
ini.	2	3.66	-4.4343	3.0221	SLD 4	0.68	No
fin.	2	28.22	2.2139	3.0221	SLD 4	1.37	Si
ini.	2	-11.93	-7.2306	3.0221	SLV 1	0.42	No
fin.	2	37.07	5.2122	3.0221	SLV 1	0.58	No
ini.	2	-1.91	-7.3546	3.0221	SLV 4	0.41	No
fin.	2	44.38	4.9851	3.0221	SLV 4	0.61	No
ini.	2	28.07	2.8774	3.0221	SLV 15	1.05	Si
fin.	2	-5.78	-5.0112	3.0221	SLV 15	0.6	No
ini.	2	18.06	3.0014	3.0221	SLV 14	1.01	Si
fin.	2	-13.09	-4.7841	3.0221	SLV 14	0.63	No
ini.	2	28.07	2.8774	3.0221	SLV 16	1.05	Si
fin.	2	-5.78	-5.0112	3.0221	SLV 16	0.6	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-7.2306	27.55			5.2	1.96	SLV 1	0.07	No
fin.	2	0	5.2122	13.91			5.2	1.96	SLV 1	0.14	No
ini.	2	0	-7.3546	30.35			5.2	1.96	SLV 4	0.06	No
fin.	2	0	4.9851	11.38			5.2	1.96	SLV 4	0.17	No
ini.	2	0	-7.3546	30.35			5.2	1.96	SLV 3	0.06	No
fin.	2	0	4.9851	11.38			5.2	1.96	SLV 3	0.17	No
ini.	2	0	2.8774	-6.57			5.2	1.96	SLV 16	0.3	No
fin.	2	0	-5.0112	-19.19			5.2	1.96	SLV 16	0.1	No
ini.	2	0	-4.4343	19.13			5.2	1.96	SLD 4	0.1	No
fin.	2	0	2.2139	3.48			5.2	1.96	SLD 4	0.56	No
ini.	2	0	-3.918	20.7			5.2	1.96	SLV 7	0.09	No
fin.	2	0	1.2213	-2.27			5.2	1.96	SLV 7	0.86	No
ini.	2	0	2.8774	-6.57			5.2	1.96	SLV 15	0.3	No
fin.	2	0	-5.0112	-19.19			5.2	1.96	SLV 15	0.1	No
ini.	2	0	-7.2306	27.55			5.2	1.96	SLV 2	0.07	No
fin.	2	0	5.2122	13.91			5.2	1.96	SLV 2	0.14	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.4343	19.13			5.2	1.96	SLD 3	0.1	No
fin.	2	0	2.2139	3.48			5.2	1.96	SLD 3	0.56	No
ini.	2	0	-3.918	20.7			5.2	1.96	SLV 8	0.09	No
fin.	2	0	1.2213	-2.27			5.2	1.96	SLV 8	0.86	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.411	SLV 3	No
V_SLV	0.064	SLV 3	No
PF_SLU	0.621	SLU 82	No
V_SLU	0.083	SLU 82	No

## Trave di accoppiamento 20

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.888	6.576	-1.59	0.41	2	-11.888	6.576	-1.59	0.41	2	1	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-62.92	-5.015	31.6581	SLU 83	6.31	Si
fin.	3	-62.27	0.0796	31.6581	SLU 83	397.56	Si
ini.	3	-62.86	-5.0244	31.6581	SLU 84	6.3	Si
fin.	3	-62.19	0.0657	31.6581	SLU 84	481.93	Si
ini.	3	-61.61	-5.2985	31.6581	SLU 81	5.97	Si
fin.	3	-61.37	0.093	31.6581	SLU 81	340.42	Si
ini.	3	-61.55	-5.3078	31.6581	SLU 82	5.96	Si
fin.	3	-61.3	0.0791	31.6581	SLU 82	400.45	Si
ini.	3	-60.41	-4.762	31.6581	SLU 76	6.65	Si
fin.	3	-59.68	0.0423	31.6581	SLU 76	748.15	Si
ini.	3	-55.96	-4.8989	31.6581	SLU 60	6.46	Si
fin.	3	-55.83	0.0455	31.6581	SLU 60	696.23	Si
ini.	3	-60.82	-4.8695	31.6581	SLU 75	6.5	Si
fin.	3	-60.18	0.0663	31.6581	SLU 75	477.77	Si
ini.	3	-59.1	-5.0454	31.6581	SLU 73	6.27	Si
fin.	3	-58.79	0.0557	31.6581	SLU 73	568.57	Si
ini.	3	-55.9	-4.9083	31.6581	SLU 61	6.45	Si
fin.	3	-55.76	0.0315	31.6581	SLU 61	1004.06	Si
ini.	3	-60.88	-4.8602	31.6581	SLU 74	6.51	Si
fin.	3	-60.26	0.0802	31.6581	SLU 74	394.73	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-5.015	-50.94			34.66	13.04	SLU 83	0.26	No
fin.	3	0	0.0796	56.16			34.66	13.04	SLU 83	0.23	No
ini.	3	0	-4.8695	-49.23			34.66	13.04	SLU 75	0.26	No
fin.	3	0	0.0663	54.21			34.66	13.04	SLU 75	0.24	No
ini.	3	0	-5.0244	-50.92			34.66	13.04	SLU 84	0.26	No
fin.	3	0	0.0657	56.1			34.66	13.04	SLU 84	0.23	No
ini.	3	0	-5.2985	-49.63			34.66	13.04	SLU 81	0.26	No
fin.	3	0	0.093	56.29			34.66	13.04	SLU 81	0.23	No
ini.	3	0	-5.3078	-49.62			34.66	13.04	SLU 82	0.26	No
fin.	3	0	0.0791	56.23			34.66	13.04	SLU 82	0.23	No
ini.	3	0	-5.0454	-47.65			34.66	13.04	SLU 73	0.27	No
fin.	3	0	0.0557	53.63			34.66	13.04	SLU 73	0.24	No
ini.	3	0	-4.762	-48.96			34.66	13.04	SLU 76	0.27	No
fin.	3	0	0.0423	53.5			34.66	13.04	SLU 76	0.24	No
ini.	3	0	-4.8602	-49.25			34.66	13.04	SLU 74	0.26	No
fin.	3	0	0.0802	54.27			34.66	13.04	SLU 74	0.24	No
ini.	3	0	-4.5767	-50.55			34.66	13.04	SLU 77	0.26	No
fin.	3	0	0.0668	54.14			34.66	13.04	SLU 77	0.24	No
ini.	3	0	-4.586	-50.54			34.66	13.04	SLU 78	0.26	No
fin.	3	0	0.0529	54.09			34.66	13.04	SLU 78	0.24	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5.51	-22.4923	32.7721	SLV 5	1.46	Si
fin.	2	-29.02	-0.4157	32.7721	SLV 5	78.84	Si
ini.	2	4.51	-38.1398	32.7721	SLV 2	0.86	No
fin.	2	-73.46	29.7957	32.7721	SLV 2	1.1	Si
ini.	2	4.51	-38.1398	32.7721	SLV 1	0.86	No
fin.	2	-73.46	29.7957	32.7721	SLV 1	1.1	Si
ini.	2	-73.02	25.5026	32.7721	SLV 14	1.29	Si
fin.	2	5.28	-35.9105	32.7721	SLV 14	0.91	No
ini.	2	-87.69	31.1832	32.7721	SLV 15	1.05	Si
fin.	2	-9.19	-29.7269	32.7721	SLV 15	1.1	Si
ini.	2	-10.16	-32.4592	32.7721	SLV 4	1.01	Si
fin.	2	-87.94	35.9792	32.7721	SLV 4	0.91	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-87.69	31.1832	32.7721	SLV 16	1.05	Si
fin.	2	-9.19	-29.7269	32.7721	SLV 16	1.1	Si
ini.	2	-10.16	-32.4592	32.7721	SLV 3	1.01	Si
fin.	2	-87.94	35.9792	32.7721	SLV 3	0.91	No
ini.	2	-73.02	25.5026	32.7721	SLV 13	1.29	Si
fin.	2	5.28	-35.9105	32.7721	SLV 13	0.91	No
ini.	2	-5.51	-22.4923	32.7721	SLV 6	1.46	Si
fin.	2	-29.02	-0.4157	32.7721	SLV 6	78.84	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	31.1832	-186.27			51.99	19.57	SLV 15	0.11	No
fin.	2	0	-29.7269	-115.06			51.99	19.57	SLV 15	0.17	No
ini.	2	0	-38.1398	119.4			51.99	19.57	SLV 1	0.16	No
fin.	2	0	29.7957	189.63			51.99	19.57	SLV 1	0.1	No
ini.	2	0	-32.4592	108.74			51.99	19.57	SLV 3	0.18	No
fin.	2	0	35.9792	174.97			51.99	19.57	SLV 3	0.11	No
ini.	2	0	31.1832	-186.27			51.99	19.57	SLV 16	0.11	No
fin.	2	0	-29.7269	-115.06			51.99	19.57	SLV 16	0.17	No
ini.	2	0	-32.4592	108.74			51.99	19.57	SLV 4	0.18	No
fin.	2	0	35.9792	174.97			51.99	19.57	SLV 4	0.11	No
ini.	2	0	25.5026	-175.61			51.99	19.57	SLV 13	0.11	No
fin.	2	0	-35.9105	-100.4			51.99	19.57	SLV 13	0.19	No
ini.	2	0	-22.4923	28.58			51.99	19.57	SLV 6	0.68	No
fin.	2	0	-0.4157	105.22			51.99	19.57	SLV 6	0.19	No
ini.	2	0	-38.1398	119.4			51.99	19.57	SLV 2	0.16	No
fin.	2	0	29.7957	189.63			51.99	19.57	SLV 2	0.1	No
ini.	2	0	25.5026	-175.61			51.99	19.57	SLV 14	0.11	No
fin.	2	0	-35.9105	-100.4			51.99	19.57	SLV 14	0.19	No
ini.	2	0	-22.4923	28.58			51.99	19.57	SLV 5	0.68	No
fin.	2	0	-0.4157	105.22			51.99	19.57	SLV 5	0.19	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.859	SLV 1	No
V_SLV	0.103	SLV 1	No
PF_SLU	5.964	SLU 82	Si
V_SLU	0.232	SLU 81	No

## Trave di accoppiamento 21

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.888	6.576	0.81	1.11	0.3	-11.888	6.576	0.81	1.11	0.3	1	0.45	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.85	-1.4295	2.0548	SLU 80	1.44	Si
fin.	3	2.24	-1.6492	2.0548	SLU 80	1.25	Si
ini.	3	0.85	-1.48	2.0548	SLU 74	1.39	Si
fin.	3	2.52	-1.6194	2.0548	SLU 74	1.27	Si
ini.	3	0.84	-1.4301	2.0548	SLU 79	1.44	Si
fin.	3	2.23	-1.6507	2.0548	SLU 79	1.24	Si
ini.	3	0.97	-1.5528	2.0548	SLU 82	1.32	Si
fin.	3	2.9	-1.6331	2.0548	SLU 82	1.26	Si
ini.	3	0.97	-1.5254	2.0548	SLU 84	1.35	Si
fin.	3	2.69	-1.6745	2.0548	SLU 84	1.23	Si
ini.	3	0.86	-1.4794	2.0548	SLU 75	1.39	Si
fin.	3	2.53	-1.6179	2.0548	SLU 75	1.27	Si
ini.	3	0.87	-1.452	2.0548	SLU 78	1.42	Si
fin.	3	2.33	-1.6593	2.0548	SLU 78	1.24	Si
ini.	3	0.85	-1.4526	2.0548	SLU 77	1.41	Si
fin.	3	2.32	-1.6608	2.0548	SLU 77	1.24	Si
ini.	3	0.96	-1.526	2.0548	SLU 83	1.35	Si
fin.	3	2.68	-1.6759	2.0548	SLU 83	1.23	Si
ini.	3	0.95	-1.5534	2.0548	SLU 81	1.32	Si
fin.	3	2.89	-1.6346	2.0548	SLU 81	1.26	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.526	8.62			3.47	1.3	SLU 83	0.15	No
fin.	3	0	-1.6759	-10.79			3.47	1.3	SLU 83	0.12	No
ini.	3	0	-1.48	8.38			3.47	1.3	SLU 74	0.16	No
fin.	3	0	-1.6194	-10.45			3.47	1.3	SLU 74	0.12	No
ini.	3	0	-1.5528	8.72			3.47	1.3	SLU 82	0.15	No
fin.	3	0	-1.6331	-10.62			3.47	1.3	SLU 82	0.12	No
ini.	3	0	-1.4526	8.28			3.47	1.3	SLU 77	0.16	No
fin.	3	0	-1.6608	-10.61			3.47	1.3	SLU 77	0.12	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.4295	8.17			3.47	1.3	SLU 80	0.16	No
fin.	3	0	-1.6492	-10.52			3.47	1.3	SLU 80	0.12	No
ini.	3	0	-1.452	8.27			3.47	1.3	SLU 78	0.16	No
fin.	3	0	-1.6593	-10.6			3.47	1.3	SLU 78	0.12	No
ini.	3	0	-1.5254	8.62			3.47	1.3	SLU 84	0.15	No
fin.	3	0	-1.6745	-10.78			3.47	1.3	SLU 84	0.12	No
ini.	3	0	-1.4301	8.17			3.47	1.3	SLU 79	0.16	No
fin.	3	0	-1.6507	-10.53			3.47	1.3	SLU 79	0.12	No
ini.	3	0	-1.4794	8.37			3.47	1.3	SLU 75	0.16	No
fin.	3	0	-1.6179	-10.44			3.47	1.3	SLU 75	0.12	No
ini.	3	0	-1.5534	8.72			3.47	1.3	SLU 81	0.15	No
fin.	3	0	-1.6346	-10.63			3.47	1.3	SLU 81	0.12	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3.95	-6.0072	3.0221	SLV 6	0.5	No
fin.	2	27.34	-0.0936	3.0221	SLV 6	32.3	Si
ini.	2	-19.49	-7.6342	3.0221	SLV 1	0.4	No
fin.	2	32.39	4.1405	3.0221	SLV 1	0.73	No
ini.	2	-20.53	-5.6616	3.0221	SLV 4	0.53	No
fin.	2	21.53	4.5153	3.0221	SLV 4	0.67	No
ini.	2	21.44	3.5898	3.0221	SLV 13	0.84	No
fin.	2	-18.19	-6.7075	3.0221	SLV 13	0.45	No
ini.	2	20.4	5.5625	3.0221	SLV 15	0.54	No
fin.	2	-29.05	-6.3326	3.0221	SLV 15	0.48	No
ini.	2	21.44	3.5898	3.0221	SLV 14	0.84	No
fin.	2	-18.19	-6.7075	3.0221	SLV 14	0.45	No
ini.	2	20.4	5.5625	3.0221	SLV 16	0.54	No
fin.	2	-29.05	-6.3326	3.0221	SLV 16	0.48	No
ini.	2	-19.49	-7.6342	3.0221	SLV 2	0.4	No
fin.	2	32.39	4.1405	3.0221	SLV 2	0.73	No
ini.	2	-20.53	-5.6616	3.0221	SLV 3	0.53	No
fin.	2	21.53	4.5153	3.0221	SLV 3	0.67	No
ini.	2	-3.95	-6.0072	3.0221	SLV 5	0.5	No
fin.	2	27.34	-0.0936	3.0221	SLV 5	32.3	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5.5625	-14.88			5.2	1.96	SLV 15	0.13	No
fin.	2	0	-6.3326	-25.1			5.2	1.96	SLV 15	0.08	No
ini.	2	0	-6.0072	18.63			5.2	1.96	SLV 5	0.11	No
fin.	2	0	-0.0936	-4.97			5.2	1.96	SLV 5	0.39	No
ini.	2	0	3.5898	-10.59			5.2	1.96	SLV 13	0.18	No
fin.	2	0	-6.7075	-27.21			5.2	1.96	SLV 13	0.07	No
ini.	2	0	-7.6342	26.66			5.2	1.96	SLV 1	0.07	No
fin.	2	0	4.1405	10.79			5.2	1.96	SLV 1	0.18	No
ini.	2	0	-6.0072	18.63			5.2	1.96	SLV 6	0.11	No
fin.	2	0	-0.0936	-4.97			5.2	1.96	SLV 6	0.39	No
ini.	2	0	-7.6342	26.66			5.2	1.96	SLV 2	0.07	No
fin.	2	0	4.1405	10.79			5.2	1.96	SLV 2	0.18	No
ini.	2	0	5.5625	-14.88			5.2	1.96	SLV 16	0.13	No
fin.	2	0	-6.3326	-25.1			5.2	1.96	SLV 16	0.08	No
ini.	2	0	-5.6616	22.37			5.2	1.96	SLV 4	0.09	No
fin.	2	0	4.5153	12.9			5.2	1.96	SLV 4	0.15	No
ini.	2	0	-5.6616	22.37			5.2	1.96	SLV 3	0.09	No
fin.	2	0	4.5153	12.9			5.2	1.96	SLV 3	0.15	No
ini.	2	0	3.5898	-10.59			5.2	1.96	SLV 14	0.18	No
fin.	2	0	-6.7075	-27.21			5.2	1.96	SLV 14	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.396	SLV 1	No
V_SLV	0.072	SLV 13	No
PF_SLU	1.226	SLU 83	Si
V_SLU	0.121	SLU 83	No

## Trave di accoppiamento 22

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.008	6.576	-1.59	0.41	2	-7.008	6.576	-1.59	0.41	2	1	0.45	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-50.34	9.8407	31.6581	SLU 77	3.22	Si
fin.	3	-26.88	-21.5732	31.6581	SLU 77	1.47	Si
ini.	3	-49.27	9.6213	31.6581	SLU 74	3.29	Si
fin.	3	-26.04	-21.5213	31.6581	SLU 74	1.47	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-50.94	10.093	31.6581	SLU 84	3.14	Si
fin.	3	-26.74	-22.3995	31.6581	SLU 84	1.41	Si
ini.	3	-49.86	9.8736	31.6581	SLU 82	3.21	Si
fin.	3	-25.9	-22.3477	31.6581	SLU 82	1.42	Si
ini.	3	-49.96	9.7292	31.6581	SLU 80	3.25	Si
fin.	3	-26.75	-21.3125	31.6581	SLU 80	1.49	Si
ini.	3	-51.01	10.0931	31.6581	SLU 83	3.14	Si
fin.	3	-26.82	-22.3678	31.6581	SLU 83	1.42	Si
ini.	3	-49.19	9.6212	31.6581	SLU 75	3.29	Si
fin.	3	-25.95	-21.553	31.6581	SLU 75	1.47	Si
ini.	3	-50.27	9.8406	31.6581	SLU 78	3.22	Si
fin.	3	-26.79	-21.6048	31.6581	SLU 78	1.47	Si
ini.	3	-48.83	9.5097	31.6581	SLU 76	3.33	Si
fin.	3	-25.85	-21.2818	31.6581	SLU 76	1.49	Si
ini.	3	-49.94	9.8737	31.6581	SLU 81	3.21	Si
fin.	3	-25.98	-22.316	31.6581	SLU 81	1.42	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	9.8406	-84.93			34.66	13.04	SLU 78	0.15	No
fin.	3	0	-21.6048	-25.36			34.66	13.04	SLU 78	0.51	No
ini.	3	0	9.8407	-84.94			34.66	13.04	SLU 77	0.15	No
fin.	3	0	-21.5732	-25.27			34.66	13.04	SLU 77	0.52	No
ini.	3	0	10.0931	-87.26			34.66	13.04	SLU 83	0.15	No
fin.	3	0	-22.3678	-26.5			34.66	13.04	SLU 83	0.49	No
ini.	3	0	9.7293	-84.01			34.66	13.04	SLU 79	0.16	No
fin.	3	0	-21.2809	-24.87			34.66	13.04	SLU 79	0.52	No
ini.	3	0	9.8736	-86.08			34.66	13.04	SLU 82	0.15	No
fin.	3	0	-22.3477	-26.75			34.66	13.04	SLU 82	0.49	No
ini.	3	0	9.6212	-83.76			34.66	13.04	SLU 75	0.16	No
fin.	3	0	-21.553	-25.52			34.66	13.04	SLU 75	0.51	No
ini.	3	0	9.8737	-86.09			34.66	13.04	SLU 81	0.15	No
fin.	3	0	-22.316	-26.67			34.66	13.04	SLU 81	0.49	No
ini.	3	0	9.6213	-83.77			34.66	13.04	SLU 74	0.16	No
fin.	3	0	-21.5213	-25.43			34.66	13.04	SLU 74	0.51	No
ini.	3	0	10.093	-87.26			34.66	13.04	SLU 84	0.15	No
fin.	3	0	-22.3995	-26.59			34.66	13.04	SLU 84	0.49	No
ini.	3	0	9.7292	-84			34.66	13.04	SLU 80	0.16	No
fin.	3	0	-21.3125	-24.96			34.66	13.04	SLU 80	0.52	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-51.09	40.6828	32.7721	SLV 13	0.81	No
fin.	2	16.01	-78.366	32.7721	SLV 13	0.42	No
ini.	2	-13.54	10.651	32.7721	SLV 9	3.08	Si
fin.	2	18.7	-43.5584	32.7721	SLV 9	0.75	No
ini.	2	0.76	-32.1596	32.7721	SLV 2	1.02	Si
fin.	2	-34.44	42.8382	32.7721	SLV 2	0.77	No
ini.	2	-51.09	40.6828	32.7721	SLV 14	0.81	No
fin.	2	16.01	-78.366	32.7721	SLV 14	0.42	No
ini.	2	-15.87	-28.2708	32.7721	SLV 4	1.16	Si
fin.	2	-51.88	49.3644	32.7721	SLV 4	0.66	No
ini.	2	-67.72	44.5717	32.7721	SLV 16	0.74	No
fin.	2	-1.43	-71.8398	32.7721	SLV 16	0.46	No
ini.	2	-67.72	44.5717	32.7721	SLV 15	0.74	No
fin.	2	-1.43	-71.8398	32.7721	SLV 15	0.46	No
ini.	2	0.76	-32.1596	32.7721	SLV 1	1.02	Si
fin.	2	-34.44	42.8382	32.7721	SLV 1	0.77	No
ini.	2	-15.87	-28.2708	32.7721	SLV 3	1.16	Si
fin.	2	-51.88	49.3644	32.7721	SLV 3	0.66	No
ini.	2	-13.54	10.651	32.7721	SLV 10	3.08	Si
fin.	2	18.7	-43.5584	32.7721	SLV 10	0.75	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	40.6828	-211.15			51.99	19.57	SLV 14	0.09	No
fin.	2	0	-78.366	-165.3			51.99	19.57	SLV 14	0.12	No
ini.	2	0	40.6828	-211.15			51.99	19.57	SLV 13	0.09	No
fin.	2	0	-78.366	-165.3			51.99	19.57	SLV 13	0.12	No
ini.	2	0	21.2891	-123.56			51.99	19.57	SLD 14	0.16	No
fin.	2	0	-42.3224	-81.77			51.99	19.57	SLD 14	0.24	No
ini.	2	0	44.5717	-220.15			51.99	19.57	SLV 16	0.09	No
fin.	2	0	-71.8398	-155.89			51.99	19.57	SLV 16	0.13	No
ini.	2	0	22.9186	-127.52			51.99	19.57	SLD 15	0.15	No
fin.	2	0	-39.5755	-77.71			51.99	19.57	SLD 15	0.25	No
ini.	2	0	44.5717	-220.15			51.99	19.57	SLV 15	0.09	No
fin.	2	0	-71.8398	-155.89			51.99	19.57	SLV 15	0.13	No
ini.	2	0	21.2891	-123.56			51.99	19.57	SLD 13	0.16	No
fin.	2	0	-42.3224	-81.77			51.99	19.57	SLD 13	0.24	No
ini.	2	0	22.9186	-127.52			51.99	19.57	SLD 16	0.15	No
fin.	2	0	-39.5755	-77.71			51.99	19.57	SLD 16	0.25	No
ini.	2	0	-28.2708	99.7			51.99	19.57	SLV 4	0.2	No
fin.	2	0	49.3644	131.09			51.99	19.57	SLV 4	0.15	No
ini.	2	0	-28.2708	99.7			51.99	19.57	SLV 3	0.2	No
fin.	2	0	49.3644	131.09			51.99	19.57	SLV 3	0.15	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.418	SLV 13	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.089	SLV 15	No
PF SLU	1.413	SLU 84	Si
V SLU	0.149	SLU 83	No

## Trave di accoppiamento 23

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.008	6.576	0.81	1.11	0.3	-7.008	6.576	0.81	1.11	0.3	1	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	10.51	0.0414	2.0548	SLU 83	49.6	Si
fin.	3	-4.13	-3.3933	2.0548	SLU 83	0.61	No
ini.	3	10.03	0.024	2.0548	SLU 74	85.56	Si
fin.	3	-3.99	-3.2651	2.0548	SLU 74	0.63	No
ini.	3	9.75	0.0194	2.0548	SLU 79	105.94	Si
fin.	3	-4.21	-3.2875	2.0548	SLU 79	0.63	No
ini.	3	10.55	0.0445	2.0548	SLU 84	46.18	Si
fin.	3	-4.11	-3.3915	2.0548	SLU 84	0.61	No
ini.	3	10.65	0.0432	2.0548	SLU 82	47.61	Si
fin.	3	-3.89	-3.3356	2.0548	SLU 82	0.62	No
ini.	3	9.93	0.0254	2.0548	SLU 77	81.05	Si
fin.	3	-4.22	-3.321	2.0548	SLU 77	0.62	No
ini.	3	10.61	0.0401	2.0548	SLU 81	51.25	Si
fin.	3	-3.91	-3.3374	2.0548	SLU 81	0.62	No
ini.	3	9.78	0.0225	2.0548	SLU 80	91.48	Si
fin.	3	-4.19	-3.2857	2.0548	SLU 80	0.63	No
ini.	3	10.06	0.0271	2.0548	SLU 75	75.88	Si
fin.	3	-3.97	-3.2633	2.0548	SLU 75	0.63	No
ini.	3	9.96	0.0284	2.0548	SLU 78	72.31	Si
fin.	3	-4.2	-3.3192	2.0548	SLU 78	0.62	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.0432	4.49			3.47	1.3	SLU 82	0.29	No
fin.	3	0	-3.3356	-16.44			3.47	1.3	SLU 82	0.08	No
ini.	3	0	0.0225	4.41			3.47	1.3	SLU 80	0.3	No
fin.	3	0	-3.2857	-16.34			3.47	1.3	SLU 80	0.08	No
ini.	3	0	0.024	4.44			3.47	1.3	SLU 74	0.29	No
fin.	3	0	-3.2651	-16.18			3.47	1.3	SLU 74	0.08	No
ini.	3	0	0.0271	4.43			3.47	1.3	SLU 75	0.29	No
fin.	3	0	-3.2633	-16.17			3.47	1.3	SLU 75	0.08	No
ini.	3	0	0.0445	4.5			3.47	1.3	SLU 84	0.29	No
fin.	3	0	-3.3915	-16.76			3.47	1.3	SLU 84	0.08	No
ini.	3	0	0.0401	4.5			3.47	1.3	SLU 81	0.29	No
fin.	3	0	-3.3374	-16.46			3.47	1.3	SLU 81	0.08	No
ini.	3	0	0.0414	4.51			3.47	1.3	SLU 83	0.29	No
fin.	3	0	-3.3933	-16.77			3.47	1.3	SLU 83	0.08	No
ini.	3	0	0.0284	4.43			3.47	1.3	SLU 78	0.29	No
fin.	3	0	-3.3192	-16.48			3.47	1.3	SLU 78	0.08	No
ini.	3	0	0.0194	4.42			3.47	1.3	SLU 79	0.3	No
fin.	3	0	-3.2875	-16.35			3.47	1.3	SLU 79	0.08	No
ini.	3	0	0.0254	4.45			3.47	1.3	SLU 77	0.29	No
fin.	3	0	-3.321	-16.5			3.47	1.3	SLU 77	0.08	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	46.59	3.9168	3.0221	SLV 14	0.77	No
fin.	2	-1.99	-7.7364	3.0221	SLV 14	0.39	No
ini.	2	46.59	3.9168	3.0221	SLV 13	0.77	No
fin.	2	-1.99	-7.7364	3.0221	SLV 13	0.39	No
ini.	2	44.43	5.8059	3.0221	SLV 16	0.52	No
fin.	2	-18.06	-7.7163	3.0221	SLV 16	0.39	No
ini.	2	-31.18	-5.851	3.0221	SLV 1	0.52	No
fin.	2	12.78	3.3513	3.0221	SLV 1	0.9	No
ini.	2	-1.45	-4.6362	3.0221	SLV 5	0.65	No
fin.	2	26.36	-0.5528	3.0221	SLV 5	5.47	Si
ini.	2	23.96	1.7148	3.0221	SLD 13	1.76	Si
fin.	2	-2.42	-4.6032	3.0221	SLD 13	0.66	No
ini.	2	-1.45	-4.6362	3.0221	SLV 6	0.65	No
fin.	2	26.36	-0.5528	3.0221	SLV 6	5.47	Si
ini.	2	44.43	5.8059	3.0221	SLV 15	0.52	No
fin.	2	-18.06	-7.7163	3.0221	SLV 15	0.39	No
ini.	2	23.96	1.7148	3.0221	SLD 14	1.76	Si
fin.	2	-2.42	-4.6032	3.0221	SLD 14	0.66	No
ini.	2	-31.18	-5.851	3.0221	SLV 2	0.52	No
fin.	2	12.78	3.3513	3.0221	SLV 2	0.9	No



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1.7059	7.94			5.2	1.96	SLV 9	0.25	No
fin.	2	0	-3.8791	-24.17			5.2	1.96	SLV 9	0.08	No
ini.	2	0	-5.851	22.77			5.2	1.96	SLV 1	0.09	No
fin.	2	0	3.3513	8.22			5.2	1.96	SLV 1	0.24	No
ini.	2	0	-1.7059	7.94			5.2	1.96	SLV 10	0.25	No
fin.	2	0	-3.8791	-24.17			5.2	1.96	SLV 10	0.08	No
ini.	2	0	3.9168	-10.51			5.2	1.96	SLV 14	0.19	No
fin.	2	0	-7.7364	-34.17			5.2	1.96	SLV 14	0.06	No
ini.	2	0	1.7148	-2.8			5.2	1.96	SLD 13	0.7	No
fin.	2	0	-4.6032	-21.03			5.2	1.96	SLD 13	0.09	No
ini.	2	0	-5.851	22.77			5.2	1.96	SLV 2	0.09	No
fin.	2	0	3.3513	8.22			5.2	1.96	SLV 2	0.24	No
ini.	2	0	1.7148	-2.8			5.2	1.96	SLD 14	0.7	No
fin.	2	0	-4.6032	-21.03			5.2	1.96	SLD 14	0.09	No
ini.	2	0	5.8059	-16.33			5.2	1.96	SLV 15	0.12	No
fin.	2	0	-7.7163	-30.02			5.2	1.96	SLV 15	0.07	No
ini.	2	0	3.9168	-10.51			5.2	1.96	SLV 13	0.19	No
fin.	2	0	-7.7364	-34.17			5.2	1.96	SLV 13	0.06	No
ini.	2	0	5.8059	-16.33			5.2	1.96	SLV 16	0.12	No
fin.	2	0	-7.7163	-30.02			5.2	1.96	SLV 16	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.391	SLV 13	No
V_SLV	0.057	SLV 13	No
PF_SLU	0.606	SLU 83	No
V_SLU	0.078	SLU 83	No

#### Trave di accoppiamento 24

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-9.728	1.271	0.61	1.11	0.5	-9.728	2.201	0.61	1.11	0.5	0.93	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3.33	2.3481	3.8051	SLU 79	1.62	Si
fin.	3	3.73	-5.7873	3.8051	SLU 79	0.66	No
ini.	3	-3.72	2.6176	3.8051	SLU 84	1.45	Si
fin.	3	3.82	-6.0886	3.8051	SLU 84	0.62	No
ini.	3	-3.74	2.6255	3.8051	SLU 82	1.45	Si
fin.	3	3.77	-6.0438	3.8051	SLU 82	0.63	No
ini.	3	-3.32	2.3459	3.8051	SLU 80	1.62	Si
fin.	3	3.73	-5.777	3.8051	SLU 80	0.66	No
ini.	3	-3.31	2.3362	3.8051	SLU 78	1.63	Si
fin.	3	3.78	-5.8378	3.8051	SLU 78	0.65	No
ini.	3	-3.32	2.3384	3.8051	SLU 77	1.63	Si
fin.	3	3.78	-5.848	3.8051	SLU 77	0.65	No
ini.	3	-3.75	2.6277	3.8051	SLU 81	1.45	Si
fin.	3	3.77	-6.054	3.8051	SLU 81	0.63	No
ini.	3	-3.73	2.6198	3.8051	SLU 83	1.45	Si
fin.	3	3.82	-6.0988	3.8051	SLU 83	0.62	No
ini.	3	-3.33	2.3441	3.8051	SLU 75	1.62	Si
fin.	3	3.73	-5.793	3.8051	SLU 75	0.66	No
ini.	3	-3.34	2.3463	3.8051	SLU 74	1.62	Si
fin.	3	3.73	-5.8033	3.8051	SLU 74	0.66	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.6255	12.84			3.85	1.45	SLU 82	0.11	No
fin.	3	0	-6.0438	-43.35			3.85	1.45	SLU 82	0.03	No
ini.	3	0	2.4261	11.92			3.85	1.45	SLU 42	0.12	No
fin.	3	0	-5.3098	-39.61			3.85	1.45	SLU 42	0.04	No
ini.	3	0	2.4283	11.9			3.85	1.45	SLU 41	0.12	No
fin.	3	0	-5.32	-39.62			3.85	1.45	SLU 41	0.04	No
ini.	3	0	2.4362	11.95			3.85	1.45	SLU 39	0.12	No
fin.	3	0	-5.2753	-39.6			3.85	1.45	SLU 39	0.04	No
ini.	3	0	2.6277	12.82			3.85	1.45	SLU 81	0.11	No
fin.	3	0	-6.054	-43.36			3.85	1.45	SLU 81	0.03	No
ini.	3	0	2.6198	12.77			3.85	1.45	SLU 83	0.11	No
fin.	3	0	-6.0988	-43.38			3.85	1.45	SLU 83	0.03	No
ini.	3	0	2.6176	12.79			3.85	1.45	SLU 84	0.11	No
fin.	3	0	-6.0886	-43.37			3.85	1.45	SLU 84	0.03	No
ini.	3	0	2.3362	11.36			3.85	1.45	SLU 78	0.13	No
fin.	3	0	-5.8378	-39.58			3.85	1.45	SLU 78	0.04	No
ini.	3	0	2.434	11.97			3.85	1.45	SLU 40	0.12	No
fin.	3	0	-5.265	-39.59			3.85	1.45	SLU 40	0.04	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.3384	11.35			3.85	1.45	SLU 77	0.13	No
fin.	3	0	-5.848	-39.59			3.85	1.45	SLU 77	0.04	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.41	2.2578	5.4081	SLD 7	2.4	Si
fin.	2	-4.61	-8.5444	5.4081	SLD 7	0.63	No
ini.	2	-19.59	3.4412	5.4081	SLV 8	1.57	Si
fin.	2	-14.08	-14.8444	5.4081	SLV 8	0.36	No
ini.	2	-10.19	2.7008	5.4081	SLD 11	2	Si
fin.	2	-4.8	-7.9126	5.4081	SLD 11	0.68	No
ini.	2	-21.46	4.4899	5.4081	SLV 11	1.2	Si
fin.	2	-14.51	-13.3916	5.4081	SLV 11	0.4	No
ini.	2	-4.46	0.4403	5.4081	SLV 4	12.28	Si
fin.	2	-1.78	-9.3363	5.4081	SLV 4	0.58	No
ini.	2	-21.46	4.4899	5.4081	SLV 12	1.2	Si
fin.	2	-14.51	-13.3916	5.4081	SLV 12	0.4	No
ini.	2	-10.19	2.7008	5.4081	SLD 12	2	Si
fin.	2	-4.8	-7.9126	5.4081	SLD 12	0.68	No
ini.	2	-9.41	2.2578	5.4081	SLD 8	2.4	Si
fin.	2	-4.61	-8.5444	5.4081	SLD 8	0.63	No
ini.	2	-4.46	0.4403	5.4081	SLV 3	12.28	Si
fin.	2	-1.78	-9.3363	5.4081	SLV 3	0.58	No
ini.	2	-19.59	3.4412	5.4081	SLV 7	1.57	Si
fin.	2	-14.08	-14.8444	5.4081	SLV 7	0.36	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	2.7008	0.36			5.78	2.17	SLD 11	5.97	Si
fin.	2	0	-7.9126	-28.51			5.78	2.17	SLD 11	0.08	No
ini.	2	0	4.4899	-8.39			5.78	2.17	SLV 11	0.26	No
fin.	2	0	-13.3916	-33.77			5.78	2.17	SLV 11	0.06	No
ini.	2	0	3.4412	-10.62			5.78	2.17	SLV 7	0.2	No
fin.	2	0	-14.8444	-34.88			5.78	2.17	SLV 7	0.06	No
ini.	2	0	2.2578	-0.6			5.78	2.17	SLD 7	3.64	Si
fin.	2	0	-8.5444	-28.99			5.78	2.17	SLD 7	0.07	No
ini.	2	0	0.4403	-1.74			5.78	2.17	SLV 3	1.25	Si
fin.	2	0	-9.3363	-29.35			5.78	2.17	SLV 3	0.07	No
ini.	2	0	3.4412	-10.62			5.78	2.17	SLV 8	0.2	No
fin.	2	0	-14.8444	-34.88			5.78	2.17	SLV 8	0.06	No
ini.	2	0	2.2578	-0.6			5.78	2.17	SLD 8	3.64	Si
fin.	2	0	-8.5444	-28.99			5.78	2.17	SLD 8	0.07	No
ini.	2	0	4.4899	-8.39			5.78	2.17	SLV 12	0.26	No
fin.	2	0	-13.3916	-33.77			5.78	2.17	SLV 12	0.06	No
ini.	2	0	2.7008	0.36			5.78	2.17	SLD 12	5.97	Si
fin.	2	0	-7.9126	-28.51			5.78	2.17	SLD 12	0.08	No
ini.	2	0	0.4403	-1.74			5.78	2.17	SLV 4	1.25	Si
fin.	2	0	-9.3363	-29.35			5.78	2.17	SLV 4	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 7	No
V_SLV	0.062	SLV 7	No
PF_SLU	0.624	SLU 83	No
V_SLU	0.033	SLU 83	No

## Trave di accoppiamento 25

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-10.553	-3.284	0.46	1.11	0.65	-8.253	-3.284	0.46	1.11	0.65	2.3	0.45	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	5.75	-9.7097	8.0331	SLU 75	0.83	No
fin.	3	19.91	-8.4797	8.0331	SLU 75	0.95	No
ini.	3	5.53	-9.8086	8.0331	SLU 83	0.82	No
fin.	3	20.54	-9.4505	8.0331	SLU 83	0.85	No
ini.	3	5.89	-9.7844	8.0331	SLU 73	0.82	No
fin.	3	19.77	-7.9658	8.0331	SLU 73	1.01	Si
ini.	3	5.64	-9.743	8.0331	SLU 80	0.82	No
fin.	3	19.9	-8.7855	8.0331	SLU 80	0.91	No
ini.	3	5.44	-9.4925	8.0331	SLU 77	0.85	No
fin.	3	19.91	-9.1633	8.0331	SLU 77	0.88	No
ini.	3	5.85	-9.8619	8.0331	SLU 76	0.81	No
fin.	3	19.87	-8.2388	8.0331	SLU 76	0.98	No
ini.	3	5.8	-10.1033	8.0331	SLU 84	0.8	No
fin.	3	20.65	-9.0399	8.0331	SLU 84	0.89	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	5.57	-9.731	8.0331	SLU 81	0.83	No
fin.	3	20.44	-9.1775	8.0331	SLU 81	0.88	No
ini.	3	5.71	-9.7873	8.0331	SLU 78	0.82	No
fin.	3	20.01	-8.7527	8.0331	SLU 78	0.92	No
ini.	3	5.84	-10.0258	8.0331	SLU 82	0.8	No
fin.	3	20.55	-8.7669	8.0331	SLU 82	0.92	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-9.7097	34.29			7.51	2.83	SLU 75	0.08	No
fin.	3	0	-8.4797	-26.1			7.51	2.83	SLU 75	0.11	No
ini.	3	0	-9.743	34.56			7.51	2.83	SLU 80	0.08	No
fin.	3	0	-8.7855	-26.5			7.51	2.83	SLU 80	0.11	No
ini.	3	0	-10.1033	35.96			7.51	2.83	SLU 84	0.08	No
fin.	3	0	-9.0399	-27.36			7.51	2.83	SLU 84	0.1	No
ini.	3	0	-9.7844	34.15			7.51	2.83	SLU 73	0.08	No
fin.	3	0	-7.9658	-25.72			7.51	2.83	SLU 73	0.11	No
ini.	3	0	-10.0258	35.61			7.51	2.83	SLU 82	0.08	No
fin.	3	0	-8.7669	-26.95			7.51	2.83	SLU 82	0.1	No
ini.	3	0	-9.4925	34.22			7.51	2.83	SLU 77	0.08	No
fin.	3	0	-9.1633	-26.47			7.51	2.83	SLU 77	0.11	No
ini.	3	0	-9.8619	34.49			7.51	2.83	SLU 76	0.08	No
fin.	3	0	-8.2388	-26.13			7.51	2.83	SLU 76	0.11	No
ini.	3	0	-9.8086	35.54			7.51	2.83	SLU 83	0.08	No
fin.	3	0	-9.4505	-27.32			7.51	2.83	SLU 83	0.1	No
ini.	3	0	-9.7873	34.64			7.51	2.83	SLU 78	0.08	No
fin.	3	0	-8.7527	-26.51			7.51	2.83	SLU 78	0.11	No
ini.	3	0	-9.731	35.19			7.51	2.83	SLU 81	0.08	No
fin.	3	0	-9.1775	-26.91			7.51	2.83	SLU 81	0.11	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-18.21	4.4294	9.1471	SLV 13	2.07	Si
fin.	2	-32.99	-29.6928	9.1471	SLV 13	0.31	No
ini.	2	26.09	-17.3737	9.1471	SLV 4	0.53	No
fin.	2	60.36	17.8952	9.1471	SLV 4	0.51	No
ini.	2	-18.39	6.7871	9.1471	SLV 15	1.35	Si
fin.	2	-43.16	-26.1296	9.1471	SLV 15	0.35	No
ini.	2	-18.21	4.4294	9.1471	SLV 14	2.07	Si
fin.	2	-32.99	-29.6928	9.1471	SLV 14	0.31	No
ini.	2	26.09	-17.3737	9.1471	SLV 3	0.53	No
fin.	2	60.36	17.8952	9.1471	SLV 3	0.51	No
ini.	2	-2.43	-6.7775	9.1471	SLV 9	1.35	Si
fin.	2	15.1	-18.4412	9.1471	SLV 9	0.5	No
ini.	2	-2.43	-6.7775	9.1471	SLV 10	1.35	Si
fin.	2	15.1	-18.4412	9.1471	SLV 10	0.5	No
ini.	2	26.27	-19.7314	9.1471	SLV 2	0.46	No
fin.	2	70.53	14.332	9.1471	SLV 2	0.64	No
ini.	2	26.27	-19.7314	9.1471	SLV 1	0.46	No
fin.	2	70.53	14.332	9.1471	SLV 1	0.64	No
ini.	2	-18.39	6.7871	9.1471	SLV 16	1.35	Si
fin.	2	-43.16	-26.1296	9.1471	SLV 16	0.35	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-19.7314	47.35			11.26	4.24	SLV 1	0.09	No
fin.	2	0	14.332	8.7			11.26	4.24	SLV 1	0.49	No
ini.	2	0	-12.2231	33.65			11.26	4.24	SLD 2	0.13	No
fin.	2	0	2.9939	-6.3			11.26	4.24	SLD 2	0.67	No
ini.	2	0	-17.3737	46.6			11.26	4.24	SLV 3	0.09	No
fin.	2	0	17.8952	8.92			11.26	4.24	SLV 3	0.48	No
ini.	2	0	4.4294	-0.41			11.26	4.24	SLV 13	10.24	Si
fin.	2	0	-29.6928	-44.61			11.26	4.24	SLV 13	0.1	No
ini.	2	0	4.4294	-0.41			11.26	4.24	SLV 14	10.24	Si
fin.	2	0	-29.6928	-44.61			11.26	4.24	SLV 14	0.1	No
ini.	2	0	-12.2231	33.65			11.26	4.24	SLD 1	0.13	No
fin.	2	0	2.9939	-6.3			11.26	4.24	SLD 1	0.67	No
ini.	2	0	6.7871	-1.16			11.26	4.24	SLV 16	3.64	Si
fin.	2	0	-26.1296	-44.39			11.26	4.24	SLV 16	0.1	No
ini.	2	0	-19.7314	47.35			11.26	4.24	SLV 2	0.09	No
fin.	2	0	14.332	8.7			11.26	4.24	SLV 2	0.49	No
ini.	2	0	-17.3737	46.6			11.26	4.24	SLV 4	0.09	No
fin.	2	0	17.8952	8.92			11.26	4.24	SLV 4	0.48	No
ini.	2	0	6.7871	-1.16			11.26	4.24	SLV 15	3.64	Si
fin.	2	0	-26.1296	-44.39			11.26	4.24	SLV 15	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.308	SLV 13	No
V_SLV	0.09	SLV 1	No
PF_SLU	0.795	SLU 84	No
V_SLU	0.079	SLU 84	No

## Trave di accoppiamento 26

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.463	-3.284	-1.59	0.41	2	-6.463	-3.284	-1.59	0.41	2	1	0.45	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6.63	-42.1294	31.6581	SLU 82	0.75	No
fin.	3	-6.12	-24.2849	31.6581	SLU 82	1.3	Si
ini.	3	-6.97	-40.5402	31.6581	SLU 80	0.78	No
fin.	3	-5.4	-24.1822	31.6581	SLU 80	1.31	Si
ini.	3	-3.63	-43.0822	31.6581	SLU 73	0.73	No
fin.	3	-2.04	-25.48	31.6581	SLU 73	1.24	Si
ini.	3	-6.3	-40.9105	31.6581	SLU 75	0.77	No
fin.	3	-5.43	-23.8571	31.6581	SLU 75	1.33	Si
ini.	3	-6.8	-40.8584	31.6581	SLU 78	0.77	No
fin.	3	-5.36	-24.2602	31.6581	SLU 78	1.3	Si
ini.	3	-4.13	-43.03	31.6581	SLU 76	0.74	No
fin.	3	-1.97	-25.8831	31.6581	SLU 76	1.22	Si
ini.	3	-2.07	-39.6173	31.6581	SLU 65	0.8	No
fin.	3	-0.69	-23.3594	31.6581	SLU 65	1.36	Si
ini.	3	-3.66	-39.7603	31.6581	SLU 55	0.8	No
fin.	3	-1.47	-23.9814	31.6581	SLU 55	1.32	Si
ini.	3	-7.14	-42.0772	31.6581	SLU 84	0.75	No
fin.	3	-6.05	-24.688	31.6581	SLU 84	1.28	Si
ini.	3	-3.16	-39.8124	31.6581	SLU 52	0.8	No
fin.	3	-1.54	-23.5783	31.6581	SLU 52	1.34	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-43.0822	-69.99			34.66	13.04	SLU 73	0.19	No
fin.	3	0	-25.48	87.64			34.66	13.04	SLU 73	0.15	No
ini.	3	0	-38.4728	-66.94			34.66	13.04	SLU 81	0.19	No
fin.	3	0	-21.1291	89.4			34.66	13.04	SLU 81	0.15	No
ini.	3	0	-42.0772	-72.43			34.66	13.04	SLU 84	0.18	No
fin.	3	0	-24.688	89.88			34.66	13.04	SLU 84	0.15	No
ini.	3	0	-37.2539	-65.46			34.66	13.04	SLU 74	0.2	No
fin.	3	0	-20.7013	86.06			34.66	13.04	SLU 74	0.15	No
ini.	3	0	-38.4206	-68.65			34.66	13.04	SLU 83	0.19	No
fin.	3	0	-21.5321	88.82			34.66	13.04	SLU 83	0.15	No
ini.	3	0	-43.03	-71.7			34.66	13.04	SLU 76	0.18	No
fin.	3	0	-25.8831	87.06			34.66	13.04	SLU 76	0.15	No
ini.	3	0	-40.5402	-70.88			34.66	13.04	SLU 80	0.18	No
fin.	3	0	-24.1822	85.77			34.66	13.04	SLU 80	0.15	No
ini.	3	0	-40.8584	-70.95			34.66	13.04	SLU 78	0.18	No
fin.	3	0	-24.2602	86.54			34.66	13.04	SLU 78	0.15	No
ini.	3	0	-42.1294	-70.73			34.66	13.04	SLU 82	0.18	No
fin.	3	0	-24.2849	90.46			34.66	13.04	SLU 82	0.14	No
ini.	3	0	-40.9105	-69.25			34.66	13.04	SLU 75	0.19	No
fin.	3	0	-23.8571	87.12			34.66	13.04	SLU 75	0.15	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	67.57	-95.6234	32.7721	SLV 4	0.34	No
fin.	2	-0.41	-5.5346	32.7721	SLV 4	5.92	Si
ini.	2	26.82	-64.5603	32.7721	SLD 2	0.51	No
fin.	2	-11.93	-7.1178	32.7721	SLD 2	4.6	Si
ini.	2	69.76	-114.4846	32.7721	SLV 1	0.29	No
fin.	2	-18.13	2.192	32.7721	SLV 1	14.95	Si
ini.	2	67.57	-95.6234	32.7721	SLV 3	0.34	No
fin.	2	-0.41	-5.5346	32.7721	SLV 3	5.92	Si
ini.	2	69.76	-114.4846	32.7721	SLV 2	0.29	No
fin.	2	-18.13	2.192	32.7721	SLV 2	14.95	Si
ini.	2	-82.61	62.3681	32.7721	SLV 16	0.53	No
fin.	2	3.06	-30.4134	32.7721	SLV 16	1.08	Si
ini.	2	-82.61	62.3681	32.7721	SLV 15	0.53	No
fin.	2	3.06	-30.4134	32.7721	SLV 15	1.08	Si
ini.	2	19.75	-81.1923	32.7721	SLV 6	0.4	No
fin.	2	-37.58	2.4987	32.7721	SLV 6	13.12	Si
ini.	2	19.75	-81.1923	32.7721	SLV 5	0.4	No
fin.	2	-37.58	2.4987	32.7721	SLV 5	13.12	Si
ini.	2	26.82	-64.5603	32.7721	SLD 1	0.51	No
fin.	2	-11.93	-7.1178	32.7721	SLD 1	4.6	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-114.4846	104.2			51.99	19.57	SLV 2	0.19	No
fin.	2	0	2.192	264.59			51.99	19.57	SLV 2	0.07	No
ini.	2	0	-114.4846	104.2			51.99	19.57	SLV 1	0.19	No
fin.	2	0	2.192	264.59			51.99	19.57	SLV 1	0.07	No
ini.	2	0	43.5069	-201.19			51.99	19.57	SLV 14	0.1	No
fin.	2	0	-22.6869	-111.86			51.99	19.57	SLV 14	0.17	No
ini.	2	0	-81.1923	-13.02			51.99	19.57	SLV 6	1.5	Si
fin.	2	0	2.4987	169.83			51.99	19.57	SLV 6	0.12	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-81.1923	-13.02			51.99	19.57	SLV 5	1.5	Si
fin.	2	0	2.4987	169.83			51.99	19.57	SLV 5	0.12	No
ini.	2	0	62.3681	-192.34			51.99	19.57	SLV 16	0.1	No
fin.	2	0	-30.4134	-143.58			51.99	19.57	SLV 16	0.14	No
ini.	2	0	62.3681	-192.34			51.99	19.57	SLV 15	0.1	No
fin.	2	0	-30.4134	-143.58			51.99	19.57	SLV 15	0.14	No
ini.	2	0	-95.6234	113.05			51.99	19.57	SLV 4	0.17	No
fin.	2	0	-5.5346	232.88			51.99	19.57	SLV 4	0.08	No
ini.	2	0	43.5069	-201.19			51.99	19.57	SLV 13	0.1	No
fin.	2	0	-22.6869	-111.86			51.99	19.57	SLV 13	0.17	No
ini.	2	0	-95.6234	113.05			51.99	19.57	SLV 3	0.17	No
fin.	2	0	-5.5346	232.88			51.99	19.57	SLV 3	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.286	SLV 1	No
V_SLV	0.074	SLV 1	No
PF_SLU	0.735	SLU 73	No
V_SLU	0.144	SLU 82	No

## Trave di accoppiamento 27

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.463	-3.284	0.81	1.11	0.3	-6.463	-3.284	0.81	1.11	0.3	1	0.45	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	12.57	-2.5431	2.0548	SLU 61	0.81	No
fin.	3	20.26	-1.6731	2.0548	SLU 61	1.23	Si
ini.	3	13.81	-2.8362	2.0548	SLU 82	0.72	No
fin.	3	21.7	-1.9013	2.0548	SLU 82	1.08	Si
ini.	3	13.96	-2.766	2.0548	SLU 73	0.74	No
fin.	3	25.06	-1.6802	2.0548	SLU 73	1.22	Si
ini.	3	13.6	-2.5942	2.0548	SLU 80	0.79	No
fin.	3	20.95	-1.9211	2.0548	SLU 80	1.07	Si
ini.	3	12.84	-2.6638	2.0548	SLU 83	0.77	No
fin.	3	15.69	-2.104	2.0548	SLU 83	0.98	No
ini.	3	13.61	-2.6169	2.0548	SLU 78	0.79	No
fin.	3	21.11	-1.9091	2.0548	SLU 78	1.08	Si
ini.	3	14.02	-2.7935	2.0548	SLU 84	0.74	No
fin.	3	21.61	-1.9806	2.0548	SLU 84	1.04	Si
ini.	3	14.17	-2.7234	2.0548	SLU 76	0.75	No
fin.	3	24.98	-1.7595	2.0548	SLU 76	1.17	Si
ini.	3	12.63	-2.7064	2.0548	SLU 81	0.76	No
fin.	3	15.77	-2.0247	2.0548	SLU 81	1.01	Si
ini.	3	13.4	-2.6595	2.0548	SLU 75	0.77	No
fin.	3	21.19	-1.8298	2.0548	SLU 75	1.12	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.8362	24.31			3.47	1.3	SLU 82	0.05	No
fin.	3	0	-1.9013	-19.13			3.47	1.3	SLU 82	0.07	No
ini.	3	0	-2.5942	23.09			3.47	1.3	SLU 80	0.06	No
fin.	3	0	-1.9211	-18.74			3.47	1.3	SLU 80	0.07	No
ini.	3	0	-2.7064	22.75			3.47	1.3	SLU 81	0.06	No
fin.	3	0	-2.0247	-19.38			3.47	1.3	SLU 81	0.07	No
ini.	3	0	-2.5431	22.06			3.47	1.3	SLU 61	0.06	No
fin.	3	0	-1.6731	-17.2			3.47	1.3	SLU 61	0.08	No
ini.	3	0	-2.6169	23.21			3.47	1.3	SLU 78	0.06	No
fin.	3	0	-1.9091	-18.76			3.47	1.3	SLU 78	0.07	No
ini.	3	0	-2.766	24.15			3.47	1.3	SLU 73	0.05	No
fin.	3	0	-1.6802	-17.88			3.47	1.3	SLU 73	0.07	No
ini.	3	0	-2.7234	24.14			3.47	1.3	SLU 76	0.05	No
fin.	3	0	-1.7595	-18.23			3.47	1.3	SLU 76	0.07	No
ini.	3	0	-2.7935	24.3			3.47	1.3	SLU 84	0.05	No
fin.	3	0	-1.9806	-19.47			3.47	1.3	SLU 84	0.07	No
ini.	3	0	-2.6638	22.74			3.47	1.3	SLU 83	0.06	No
fin.	3	0	-2.104	-19.72			3.47	1.3	SLU 83	0.07	No
ini.	3	0	-2.6595	23.22			3.47	1.3	SLU 75	0.06	No
fin.	3	0	-1.8298	-18.41			3.47	1.3	SLU 75	0.07	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	10.75	-8.1974	3.0221	SLV 10	0.37	No
fin.	2	60.82	-1.0846	3.0221	SLV 10	2.79	Si
ini.	2	10.8	-7.927	3.0221	SLV 1	0.38	No
fin.	2	78.18	5.4274	3.0221	SLV 1	0.56	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	11.74	-10.5443	3.0221	SLV 5	0.29	No
fin.	2	89.68	2.5614	3.0221	SLV 5	1.18	Si
ini.	2	10.8	-7.927	3.0221	SLV 2	0.38	No
fin.	2	78.18	5.4274	3.0221	SLV 2	0.56	No
ini.	2	10.75	-8.1974	3.0221	SLV 9	0.37	No
fin.	2	60.82	-1.0846	3.0221	SLV 9	2.79	Si
ini.	2	5.7	4.4867	3.0221	SLV 16	0.67	No
fin.	2	-56.74	-7.9154	3.0221	SLV 16	0.38	No
ini.	2	4.76	7.1041	3.0221	SLV 11	0.43	No
fin.	2	-68.24	-5.0494	3.0221	SLV 11	0.6	No
ini.	2	4.76	7.1041	3.0221	SLV 12	0.43	No
fin.	2	-68.24	-5.0494	3.0221	SLV 12	0.6	No
ini.	2	5.7	4.4867	3.0221	SLV 15	0.67	No
fin.	2	-56.74	-7.9154	3.0221	SLV 15	0.38	No
ini.	2	11.74	-10.5443	3.0221	SLV 6	0.29	No
fin.	2	89.68	2.5614	3.0221	SLV 6	1.18	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-0.1037	-18.51			5.2	1.96	SLV 13	0.11	No
fin.	2	0	-6.726	-32.67			5.2	1.96	SLV 13	0.06	No
ini.	2	0	-7.927	49.18			5.2	1.96	SLV 1	0.04	No
fin.	2	0	5.4274	5.84			5.2	1.96	SLV 1	0.34	No
ini.	2	0	-3.3365	47.95			5.2	1.96	SLV 3	0.04	No
fin.	2	0	4.2379	7.8			5.2	1.96	SLV 3	0.25	No
ini.	2	0	-0.1037	-18.51			5.2	1.96	SLV 14	0.11	No
fin.	2	0	-6.726	-32.67			5.2	1.96	SLV 14	0.06	No
ini.	2	0	-4.3795	29.62			5.2	1.96	SLD 2	0.07	No
fin.	2	0	1.6426	-4.41			5.2	1.96	SLD 2	0.44	No
ini.	2	0	-4.3795	29.62			5.2	1.96	SLD 1	0.07	No
fin.	2	0	1.6426	-4.41			5.2	1.96	SLD 1	0.44	No
ini.	2	0	4.4867	-19.74			5.2	1.96	SLV 15	0.1	No
fin.	2	0	-7.9154	-30.71			5.2	1.96	SLV 15	0.06	No
ini.	2	0	4.4867	-19.74			5.2	1.96	SLV 16	0.1	No
fin.	2	0	-7.9154	-30.71			5.2	1.96	SLV 16	0.06	No
ini.	2	0	-3.3365	47.95			5.2	1.96	SLV 4	0.04	No
fin.	2	0	4.2379	7.8			5.2	1.96	SLV 4	0.25	No
ini.	2	0	-7.927	49.18			5.2	1.96	SLV 2	0.04	No
fin.	2	0	5.4274	5.84			5.2	1.96	SLV 2	0.34	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.287	SLV 5	No
V_SLV	0.04	SLV 1	No
PF_SLU	0.724	SLU 82	No
V_SLU	0.054	SLU 82	No

## Trave di accoppiamento 28

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-3.233	-3.284	-1.59	0.41	2	-2.233	-3.284	-1.59	0.41	2	1	0.45	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-30.92	-3.1999	31.6581	SLU 81	9.89	Si
fin.	3	-21.82	-23.5677	31.6581	SLU 81	1.34	Si
ini.	3	-28.16	-2.7436	31.6581	SLU 58	11.54	Si
fin.	3	-20	-21.2052	31.6581	SLU 58	1.49	Si
ini.	3	-28.61	-3.0198	31.6581	SLU 60	10.48	Si
fin.	3	-20.36	-21.4738	31.6581	SLU 60	1.47	Si
ini.	3	-28.27	-2.7668	31.6581	SLU 56	11.44	Si
fin.	3	-20.07	-21.3796	31.6581	SLU 56	1.48	Si
ini.	3	-31.3	-3.1012	31.6581	SLU 83	10.21	Si
fin.	3	-22.03	-23.8945	31.6581	SLU 83	1.32	Si
ini.	3	-30.2	-3.0455	31.6581	SLU 74	10.39	Si
fin.	3	-21.33	-23.1468	31.6581	SLU 74	1.37	Si
ini.	3	-30.58	-2.9469	31.6581	SLU 77	10.74	Si
fin.	3	-21.54	-23.4735	31.6581	SLU 77	1.35	Si
ini.	3	-28.99	-2.9211	31.6581	SLU 62	10.84	Si
fin.	3	-20.56	-21.8006	31.6581	SLU 62	1.45	Si
ini.	3	-27.75	-2.7631	31.6581	SLU 69	11.46	Si
fin.	3	-19.75	-21.3218	31.6581	SLU 69	1.48	Si
ini.	3	-30.47	-2.9238	31.6581	SLU 79	10.83	Si
fin.	3	-21.47	-23.2991	31.6581	SLU 79	1.36	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	0.557	-55.23			34.66	13.04	SLU 80	0.24	No
fin.	3	0	-19.2681	-9.19			34.66	13.04	SLU 80	1.42	Si
ini.	3	0	-3.0455	-55.68			34.66	13.04	SLU 74	0.23	No
fin.	3	0	-23.1468	-10.09			34.66	13.04	SLU 74	1.29	Si
ini.	3	0	-3.1999	-57.26			34.66	13.04	SLU 81	0.23	No
fin.	3	0	-23.5677	-9.7			34.66	13.04	SLU 81	1.35	Si
ini.	3	0	-2.9238	-56.2			34.66	13.04	SLU 79	0.23	No
fin.	3	0	-23.2991	-10.38			34.66	13.04	SLU 79	1.26	Si
ini.	3	0	-2.9469	-56.55			34.66	13.04	SLU 77	0.23	No
fin.	3	0	-23.4735	-10.45			34.66	13.04	SLU 77	1.25	Si
ini.	3	0	0.5339	-55.58			34.66	13.04	SLU 78	0.23	No
fin.	3	0	-19.4425	-9.25			34.66	13.04	SLU 78	1.41	Si
ini.	3	0	0.3796	-57.15			34.66	13.04	SLU 84	0.23	No
fin.	3	0	-19.8635	-8.86			34.66	13.04	SLU 84	1.47	Si
ini.	3	0	-3.1012	-58.12			34.66	13.04	SLU 83	0.22	No
fin.	3	0	-23.8945	-10.06			34.66	13.04	SLU 83	1.3	Si
ini.	3	0	0.2809	-56.29			34.66	13.04	SLU 82	0.23	No
fin.	3	0	-19.5367	-8.5			34.66	13.04	SLU 82	1.53	Si
ini.	3	0	0.4352	-54.71			34.66	13.04	SLU 75	0.24	No
fin.	3	0	-19.1158	-8.89			34.66	13.04	SLU 75	1.47	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-120.03	40.7343	32.7721	SLV 9	0.8	No
fin.	2	-46.73	-48.8197	32.7721	SLV 9	0.67	No
ini.	2	-46.75	34.4259	32.7721	SLV 16	0.95	No
fin.	2	7.32	-65.4804	32.7721	SLV 16	0.5	No
ini.	2	-120.03	40.7343	32.7721	SLV 10	0.8	No
fin.	2	-46.73	-48.8197	32.7721	SLV 10	0.67	No
ini.	2	-97.02	52.039	32.7721	SLV 13	0.63	No
fin.	2	-13.83	-75.4064	32.7721	SLV 13	0.43	No
ini.	2	-46.75	34.4259	32.7721	SLV 15	0.95	No
fin.	2	7.32	-65.4804	32.7721	SLV 15	0.5	No
ini.	2	55.07	-56.5838	32.7721	SLV 4	0.58	No
fin.	2	-16.18	43.5683	32.7721	SLV 4	0.75	No
ini.	2	78.08	-45.279	32.7721	SLV 8	0.72	No
fin.	2	16.71	16.9816	32.7721	SLV 8	1.93	Si
ini.	2	78.08	-45.279	32.7721	SLV 7	0.72	No
fin.	2	16.71	16.9816	32.7721	SLV 7	1.93	Si
ini.	2	-97.02	52.039	32.7721	SLV 14	0.63	No
fin.	2	-13.83	-75.4064	32.7721	SLV 14	0.43	No
ini.	2	55.07	-56.5838	32.7721	SLV 3	0.58	No
fin.	2	-16.18	43.5683	32.7721	SLV 3	0.75	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-56.5838	139.17			51.99	19.57	SLV 3	0.14	No
fin.	2	0	43.5683	143.36			51.99	19.57	SLV 3	0.14	No
ini.	2	0	52.039	-214.15			51.99	19.57	SLV 13	0.09	No
fin.	2	0	-75.4064	-158.03			51.99	19.57	SLV 13	0.12	No
ini.	2	0	34.4259	-207.38			51.99	19.57	SLV 15	0.09	No
fin.	2	0	-65.4804	-172.25			51.99	19.57	SLV 15	0.11	No
ini.	2	0	34.4259	-207.38			51.99	19.57	SLV 16	0.09	No
fin.	2	0	-65.4804	-172.25			51.99	19.57	SLV 16	0.11	No
ini.	2	0	-38.9707	132.41			51.99	19.57	SLV 2	0.15	No
fin.	2	0	33.6423	157.58			51.99	19.57	SLV 2	0.12	No
ini.	2	0	21.1002	-114.77			51.99	19.57	SLD 13	0.17	No
fin.	2	0	-41.8069	-73.46			51.99	19.57	SLD 13	0.27	No
ini.	2	0	-38.9707	132.41			51.99	19.57	SLV 1	0.15	No
fin.	2	0	33.6423	157.58			51.99	19.57	SLV 1	0.12	No
ini.	2	0	52.039	-214.15			51.99	19.57	SLV 14	0.09	No
fin.	2	0	-75.4064	-158.03			51.99	19.57	SLV 14	0.12	No
ini.	2	0	21.1002	-114.77			51.99	19.57	SLD 14	0.17	No
fin.	2	0	-41.8069	-73.46			51.99	19.57	SLD 14	0.27	No
ini.	2	0	-56.5838	139.17			51.99	19.57	SLV 4	0.14	No
fin.	2	0	43.5683	143.36			51.99	19.57	SLV 4	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.435	SLV 13	No
V_SLV	0.091	SLV 13	No
PF_SLU	1.325	SLU 83	Si
V_SLU	0.224	SLU 83	No

#### Trave di accoppiamento 29

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-3.233	-3.284	0.81	1.11	0.3	-2.233	-3.284	0.81	1.11	0.3	1	0.45	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	10.07	-0.9929	2.0548	SLU 62	2.07	Si
fin.	3	5.56	-1.9766	2.0548	SLU 62	1.04	Si
ini.	3	10.79	-1.036	2.0548	SLU 79	1.98	Si
fin.	3	5.88	-2.1388	2.0548	SLU 79	0.96	No
ini.	3	10.92	-1.0354	2.0548	SLU 77	1.98	Si
fin.	3	5.97	-2.1489	2.0548	SLU 77	0.96	No
ini.	3	8.9	-1.0113	2.0548	SLU 41	2.03	Si
fin.	3	4.58	-1.9656	2.0548	SLU 41	1.05	Si
ini.	3	8.73	-1.0221	2.0548	SLU 39	2.01	Si
fin.	3	4.51	-1.9357	2.0548	SLU 39	1.06	Si
ini.	3	10.17	-0.892	2.0548	SLU 56	2.3	Si
fin.	3	5.73	-1.8832	2.0548	SLU 56	1.09	Si
ini.	3	10.74	-1.0462	2.0548	SLU 74	1.96	Si
fin.	3	5.9	-2.119	2.0548	SLU 74	0.97	No
ini.	3	10.65	-1.1472	2.0548	SLU 81	1.79	Si
fin.	3	5.72	-2.2124	2.0548	SLU 81	0.93	No
ini.	3	10.82	-1.1363	2.0548	SLU 83	1.81	Si
fin.	3	5.79	-2.2423	2.0548	SLU 83	0.92	No
ini.	3	9.9	-1.0038	2.0548	SLU 60	2.05	Si
fin.	3	5.49	-1.9467	2.0548	SLU 60	1.06	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-1.0113	11.94			3.47	1.3	SLU 41	0.11	No
fin.	3	0	-1.9656	-12.53			3.47	1.3	SLU 41	0.1	No
ini.	3	0	-1.1472	13.71			3.47	1.3	SLU 81	0.1	No
fin.	3	0	-2.2124	-14.27			3.47	1.3	SLU 81	0.09	No
ini.	3	0	-1.0354	12.95			3.47	1.3	SLU 77	0.1	No
fin.	3	0	-2.1489	-13.77			3.47	1.3	SLU 77	0.09	No
ini.	3	0	-1.0038	12.23			3.47	1.3	SLU 60	0.11	No
fin.	3	0	-1.9467	-12.68			3.47	1.3	SLU 60	0.1	No
ini.	3	0	-1.036	12.91			3.47	1.3	SLU 79	0.1	No
fin.	3	0	-2.1388	-13.72			3.47	1.3	SLU 79	0.1	No
ini.	3	0	-1.1363	13.73			3.47	1.3	SLU 83	0.1	No
fin.	3	0	-2.2423	-14.41			3.47	1.3	SLU 83	0.09	No
ini.	3	0	-0.892	11.46			3.47	1.3	SLU 56	0.11	No
fin.	3	0	-1.8832	-12.19			3.47	1.3	SLU 56	0.11	No
ini.	3	0	-1.0221	11.93			3.47	1.3	SLU 39	0.11	No
fin.	3	0	-1.9357	-12.39			3.47	1.3	SLU 39	0.11	No
ini.	3	0	-0.9929	12.24			3.47	1.3	SLU 62	0.11	No
fin.	3	0	-1.9766	-12.82			3.47	1.3	SLU 62	0.1	No
ini.	3	0	-1.0462	12.93			3.47	1.3	SLU 74	0.1	No
fin.	3	0	-2.119	-13.64			3.47	1.3	SLU 74	0.1	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4.76	-12.8042	3.0221	SLV 8	0.24	No
fin.	2	39.19	-7.0769	3.0221	SLV 8	0.43	No
ini.	2	-20.7	-10.4342	3.0221	SLV 3	0.29	No
fin.	2	41.01	4.3266	3.0221	SLV 3	0.7	No
ini.	2	33.38	3.0078	3.0221	SLV 15	1	Si
fin.	2	-16.55	-11.9877	3.0221	SLV 15	0.25	No
ini.	2	33.38	3.0078	3.0221	SLV 16	1	Si
fin.	2	-16.55	-11.9877	3.0221	SLV 16	0.25	No
ini.	2	20	11.4418	3.0221	SLV 9	0.26	No
fin.	2	-30.44	4.2959	3.0221	SLV 9	0.7	No
ini.	2	-4.76	-12.8042	3.0221	SLV 7	0.24	No
fin.	2	39.19	-7.0769	3.0221	SLV 7	0.43	No
ini.	2	11.46	-8.7716	3.0221	SLV 11	0.34	No
fin.	2	21.92	-11.9712	3.0221	SLV 11	0.25	No
ini.	2	11.46	-8.7716	3.0221	SLV 12	0.34	No
fin.	2	21.92	-11.9712	3.0221	SLV 12	0.25	No
ini.	2	20	11.4418	3.0221	SLV 10	0.26	No
fin.	2	-30.44	4.2959	3.0221	SLV 10	0.7	No
ini.	2	-20.7	-10.4342	3.0221	SLV 4	0.29	No
fin.	2	41.01	4.3266	3.0221	SLV 4	0.7	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-12.8042	28.03			5.2	1.96	SLV 8	0.07	No
fin.	2	0	-7.0769	-11.87			5.2	1.96	SLV 8	0.16	No
ini.	2	0	-4.3702	25.67			5.2	1.96	SLV 1	0.08	No
fin.	2	0	9.2067	15.57			5.2	1.96	SLV 1	0.13	No
ini.	2	0	9.0718	-16.25			5.2	1.96	SLV 13	0.12	No
fin.	2	0	-7.1076	-28.11			5.2	1.96	SLV 13	0.07	No
ini.	2	0	-10.4342	33.53			5.2	1.96	SLV 3	0.06	No
fin.	2	0	4.3266	9.96			5.2	1.96	SLV 3	0.2	No
ini.	2	0	-12.8042	28.03			5.2	1.96	SLV 7	0.07	No
fin.	2	0	-7.0769	-11.87			5.2	1.96	SLV 7	0.16	No
ini.	2	0	-4.3702	25.67			5.2	1.96	SLV 2	0.08	No
fin.	2	0	9.2067	15.57			5.2	1.96	SLV 2	0.13	No
ini.	2	0	9.0718	-16.25			5.2	1.96	SLV 14	0.12	No
fin.	2	0	-7.1076	-28.11			5.2	1.96	SLV 14	0.07	No
ini.	2	0	-10.4342	33.53			5.2	1.96	SLV 4	0.06	No
fin.	2	0	4.3266	9.96			5.2	1.96	SLV 4	0.2	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.0078	-8.39			5.2	1.96	SLV 15	0.23	No
fin.	2	0	-11.9877	-33.72			5.2	1.96	SLV 15	0.06	No
ini.	2	0	3.0078	-8.39			5.2	1.96	SLV 16	0.23	No
fin.	2	0	-11.9877	-33.72			5.2	1.96	SLV 16	0.06	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.236	SLV 7	No
V_SLV	0.058	SLV 15	No
PF_SLU	0.916	SLU 83	No
V_SLU	0.091	SLU 83	No

## Trave di accoppiamento 30

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	1.271	0.51	1.11	0.6	-5.158	2.071	0.51	1.11	0.6	0.8	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	f0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.77	1.7546	5.4794	SLU 75	3.12	Si
fin.	3	-8.28	-7.7644	5.4794	SLU 75	0.71	No
ini.	3	2.66	1.8238	5.4794	SLU 78	3	Si
fin.	3	-8.78	-8.0136	5.4794	SLU 78	0.68	No
ini.	3	2.58	1.8704	5.4794	SLU 77	2.93	Si
fin.	3	-9.08	-8.1303	5.4794	SLU 77	0.67	No
ini.	3	2.54	1.8564	5.4794	SLU 79	2.95	Si
fin.	3	-9.03	-8.0748	5.4794	SLU 79	0.68	No
ini.	3	2.8	1.8566	5.4794	SLU 84	2.95	Si
fin.	3	-8.84	-8.1476	5.4794	SLU 84	0.67	No
ini.	3	2.9	1.7874	5.4794	SLU 82	3.07	Si
fin.	3	-8.34	-7.8984	5.4794	SLU 82	0.69	No
ini.	3	2.82	1.8339	5.4794	SLU 81	2.99	Si
fin.	3	-8.63	-8.0151	5.4794	SLU 81	0.68	No
ini.	3	2.68	1.8012	5.4794	SLU 74	3.04	Si
fin.	3	-8.58	-7.8811	5.4794	SLU 74	0.7	No
ini.	3	2.63	1.8098	5.4794	SLU 80	3.03	Si
fin.	3	-8.73	-7.9582	5.4794	SLU 80	0.69	No
ini.	3	2.71	1.9032	5.4794	SLU 83	2.88	Si
fin.	3	-9.13	-8.2643	5.4794	SLU 83	0.66	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	1.8704	1.26			5.2	1.96	SLU 77	1.55	Si
fin.	3	0	-8.1303	-35.31			5.2	1.96	SLU 77	0.06	No
ini.	3	0	1.9032	1.39			5.2	1.96	SLU 83	1.41	Si
fin.	3	0	-8.2643	-36			5.2	1.96	SLU 83	0.05	No
ini.	3	0	1.7546	1.56			5.2	1.96	SLU 75	1.26	Si
fin.	3	0	-7.7644	-33.93			5.2	1.96	SLU 75	0.06	No
ini.	3	0	1.8339	1.55			5.2	1.96	SLU 81	1.26	Si
fin.	3	0	-8.0151	-35.05			5.2	1.96	SLU 81	0.06	No
ini.	3	0	1.7874	1.69			5.2	1.96	SLU 82	1.16	Si
fin.	3	0	-7.8984	-34.62			5.2	1.96	SLU 82	0.06	No
ini.	3	0	1.8564	1.26			5.2	1.96	SLU 79	1.55	Si
fin.	3	0	-8.0748	-35.07			5.2	1.96	SLU 79	0.06	No
ini.	3	0	1.8012	1.42			5.2	1.96	SLU 74	1.38	Si
fin.	3	0	-7.8811	-34.36			5.2	1.96	SLU 74	0.06	No
ini.	3	0	1.8566	1.53			5.2	1.96	SLU 84	1.28	Si
fin.	3	0	-8.1476	-35.57			5.2	1.96	SLU 84	0.06	No
ini.	3	0	1.8098	1.4			5.2	1.96	SLU 80	1.4	Si
fin.	3	0	-7.9582	-34.64			5.2	1.96	SLU 80	0.06	No
ini.	3	0	1.8238	1.4			5.2	1.96	SLU 78	1.4	Si
fin.	3	0	-8.0136	-34.88			5.2	1.96	SLU 78	0.06	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-24.04	4.2375	7.1581	SLV 7	1.69	Si
fin.	2	-46.83	-13.4435	7.1581	SLV 7	0.53	No
ini.	2	-24.04	4.2375	7.1581	SLV 8	1.69	Si
fin.	2	-46.83	-13.4435	7.1581	SLV 8	0.53	No
ini.	2	-9.22	2.5106	7.1581	SLD 7	2.85	Si
fin.	2	-23.28	-8.753	7.1581	SLD 7	0.82	No
ini.	2	-28.43	5.514	7.1581	SLV 11	1.3	Si
fin.	2	-53.31	-14.5159	7.1581	SLV 11	0.49	No
ini.	2	-28.43	5.514	7.1581	SLV 12	1.3	Si
fin.	2	-53.31	-14.5159	7.1581	SLV 12	0.49	No
ini.	2	-13.78	4.3849	7.1581	SLV 15	1.63	Si
fin.	2	-29.45	-9.5616	7.1581	SLV 15	0.75	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-13.78	4.3849	7.1581	SLV 16	1.63	Si
fin.	2	-29.45	-9.5616	7.1581	SLV 16	0.75	No
ini.	2	-9.22	2.5106	7.1581	SLD 8	2.85	Si
fin.	2	-23.28	-8.753	7.1581	SLD 8	0.82	No
ini.	2	-11.07	3.0668	7.1581	SLD 12	2.33	Si
fin.	2	-26.05	-9.2121	7.1581	SLD 12	0.78	No
ini.	2	-11.07	3.0668	7.1581	SLD 11	2.33	Si
fin.	2	-26.05	-9.2121	7.1581	SLD 11	0.78	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.2375	-16.97			7.8	2.93	SLV 7	0.17	No
fin.	2	0	-13.4435	-48.98			7.8	2.93	SLV 7	0.06	No
ini.	2	0	2.5106	-6.63			7.8	2.93	SLD 7	0.44	No
fin.	2	0	-8.753	-34.03			7.8	2.93	SLD 7	0.09	No
ini.	2	0	2.5106	-6.63			7.8	2.93	SLD 8	0.44	No
fin.	2	0	-8.753	-34.03			7.8	2.93	SLD 8	0.09	No
ini.	2	0	4.2375	-16.97			7.8	2.93	SLV 8	0.17	No
fin.	2	0	-13.4435	-48.98			7.8	2.93	SLV 8	0.06	No
ini.	2	0	3.0668	-6.55			7.8	2.93	SLD 11	0.45	No
fin.	2	0	-9.2121	-35.95			7.8	2.93	SLD 11	0.08	No
ini.	2	0	5.514	-16.8			7.8	2.93	SLV 12	0.17	No
fin.	2	0	-14.5159	-53.44			7.8	2.93	SLV 12	0.05	No
ini.	2	0	3.0668	-6.55			7.8	2.93	SLD 12	0.45	No
fin.	2	0	-9.2121	-35.95			7.8	2.93	SLD 12	0.08	No
ini.	2	0	5.514	-16.8			7.8	2.93	SLV 11	0.17	No
fin.	2	0	-14.5159	-53.44			7.8	2.93	SLV 11	0.05	No
ini.	2	0	4.3849	-3.89			7.8	2.93	SLV 16	0.75	No
fin.	2	0	-9.5616	-38.53			7.8	2.93	SLV 16	0.08	No
ini.	2	0	4.3849	-3.89			7.8	2.93	SLV 15	0.75	No
fin.	2	0	-9.5616	-38.53			7.8	2.93	SLV 15	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.493	SLV 11	No
V_SLV	0.055	SLV 11	No
PF_SLU	0.663	SLU 83	No
V_SLU	0.054	SLU 83	No

## Trave di accoppiamento 31

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-3.013	5.876	-1.59	0.41	2	-2.013	5.876	-1.59	0.41	2	1	0.45	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-29.41	-0.3515	31.6581	SLU 81	90.06	Si
fin.	3	-23.99	-20.2823	31.6581	SLU 81	1.56	Si
ini.	3	-29.43	-0.4326	31.6581	SLU 84	73.18	Si
fin.	3	-23.85	-20.0697	31.6581	SLU 84	1.58	Si
ini.	3	-28.5	-0.3496	31.6581	SLU 75	90.54	Si
fin.	3	-23.13	-19.4393	31.6581	SLU 75	1.63	Si
ini.	3	-28.92	-0.3259	31.6581	SLU 74	97.14	Si
fin.	3	-23.66	-19.7012	31.6581	SLU 74	1.61	Si
ini.	3	-28.74	-0.502	31.6581	SLU 80	63.07	Si
fin.	3	-23.41	-19.2965	31.6581	SLU 80	1.64	Si
ini.	3	-29.15	-0.4782	31.6581	SLU 79	66.2	Si
fin.	3	-23.94	-19.5584	31.6581	SLU 79	1.62	Si
ini.	3	-28.99	-0.3753	31.6581	SLU 82	84.36	Si
fin.	3	-23.46	-20.0204	31.6581	SLU 82	1.58	Si
ini.	3	-29.36	-0.3832	31.6581	SLU 77	82.61	Si
fin.	3	-24.05	-19.7505	31.6581	SLU 77	1.6	Si
ini.	3	-28.94	-0.407	31.6581	SLU 78	77.79	Si
fin.	3	-23.53	-19.4886	31.6581	SLU 78	1.62	Si
ini.	3	-29.85	-0.4089	31.6581	SLU 83	77.43	Si
fin.	3	-24.38	-20.3316	31.6581	SLU 83	1.56	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.3753	-52.64			34.66	13.04	SLU 82	0.25	No
fin.	3	0	-20.0204	-3.29			34.66	13.04	SLU 82	3.96	Si
ini.	3	0	-0.3515	-53.17			34.66	13.04	SLU 81	0.25	No
fin.	3	0	-20.2823	-3.15			34.66	13.04	SLU 81	4.14	Si
ini.	3	0	-0.4326	-53.18			34.66	13.04	SLU 84	0.25	No
fin.	3	0	-20.0697	-2.95			34.66	13.04	SLU 84	4.42	Si
ini.	3	0	-0.502	-51			34.66	13.04	SLU 80	0.26	No
fin.	3	0	-19.2965	-2.79			34.66	13.04	SLU 80	4.68	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.4782	-51.53			34.66	13.04	SLU 79	0.25	No
fin.	3	0	-19.5584	-2.64			34.66	13.04	SLU 79	4.93	Si
ini.	3	0	-0.3496	-50.99			34.66	13.04	SLU 75	0.26	No
fin.	3	0	-19.4393	-3.37			34.66	13.04	SLU 75	3.88	Si
ini.	3	0	-0.3832	-52.06			34.66	13.04	SLU 77	0.25	No
fin.	3	0	-19.7505	-2.88			34.66	13.04	SLU 77	4.52	Si
ini.	3	0	-0.407	-51.53			34.66	13.04	SLU 78	0.25	No
fin.	3	0	-19.4886	-3.03			34.66	13.04	SLU 78	4.31	Si
ini.	3	0	-0.3259	-51.51			34.66	13.04	SLU 74	0.25	No
fin.	3	0	-19.7012	-3.22			34.66	13.04	SLU 74	4.05	Si
ini.	3	0	-0.4089	-53.71			34.66	13.04	SLU 83	0.24	No
fin.	3	0	-20.3316	-2.81			34.66	13.04	SLU 83	4.64	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-113.78	67.7384	32.7721	SLV 11	0.48	No
fin.	2	-51.82	-58.4746	32.7721	SLV 11	0.56	No
ini.	2	39.61	-72.3108	32.7721	SLV 1	0.45	No
fin.	2	-20.94	52.5813	32.7721	SLV 1	0.62	No
ini.	2	-79.42	71.6877	32.7721	SLV 15	0.46	No
fin.	2	-11.94	-79.9058	32.7721	SLV 15	0.41	No
ini.	2	-79.42	71.6877	32.7721	SLV 16	0.46	No
fin.	2	-11.94	-79.9058	32.7721	SLV 16	0.41	No
ini.	2	73.97	-68.3615	32.7721	SLV 6	0.48	No
fin.	2	18.94	31.1501	32.7721	SLV 6	1.05	Si
ini.	2	-29.29	41.0612	32.7721	SLV 13	0.8	No
fin.	2	12.27	-63.4624	32.7721	SLV 13	0.52	No
ini.	2	-29.29	41.0612	32.7721	SLV 14	0.8	No
fin.	2	12.27	-63.4624	32.7721	SLV 14	0.52	No
ini.	2	39.61	-72.3108	32.7721	SLV 2	0.45	No
fin.	2	-20.94	52.5813	32.7721	SLV 2	0.62	No
ini.	2	-113.78	67.7384	32.7721	SLV 12	0.48	No
fin.	2	-51.82	-58.4746	32.7721	SLV 12	0.56	No
ini.	2	73.97	-68.3615	32.7721	SLV 5	0.48	No
fin.	2	18.94	31.1501	32.7721	SLV 5	1.05	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	67.7384	-117.6			51.99	19.57	SLV 12	0.17	No
fin.	2	0	-58.4746	-37.84			51.99	19.57	SLV 12	0.52	No
ini.	2	0	-41.6843	132.58			51.99	19.57	SLV 3	0.15	No
fin.	2	0	36.1379	171.71			51.99	19.57	SLV 3	0.11	No
ini.	2	0	41.0612	-201.52			51.99	19.57	SLV 14	0.1	No
fin.	2	0	-63.4624	-177.32			51.99	19.57	SLV 14	0.11	No
ini.	2	0	67.7384	-117.6			51.99	19.57	SLV 11	0.17	No
fin.	2	0	-58.4746	-37.84			51.99	19.57	SLV 11	0.52	No
ini.	2	0	71.6877	-219.7			51.99	19.57	SLV 15	0.09	No
fin.	2	0	-79.9058	-167.79			51.99	19.57	SLV 15	0.12	No
ini.	2	0	41.0612	-201.52			51.99	19.57	SLV 13	0.1	No
fin.	2	0	-63.4624	-177.32			51.99	19.57	SLV 13	0.11	No
ini.	2	0	-41.6843	132.58			51.99	19.57	SLV 4	0.15	No
fin.	2	0	36.1379	171.71			51.99	19.57	SLV 4	0.11	No
ini.	2	0	-72.3108	150.75			51.99	19.57	SLV 1	0.13	No
fin.	2	0	52.5813	162.17			51.99	19.57	SLV 1	0.12	No
ini.	2	0	-72.3108	150.75			51.99	19.57	SLV 2	0.13	No
fin.	2	0	52.5813	162.17			51.99	19.57	SLV 2	0.12	No
ini.	2	0	71.6877	-219.7			51.99	19.57	SLV 16	0.09	No
fin.	2	0	-79.9058	-167.79			51.99	19.57	SLV 16	0.12	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.41	SLV 15	No
V_SLV	0.089	SLV 15	No
PF_SLU	1.557	SLU 83	Si
V_SLU	0.243	SLU 83	No

### Trave di accoppiamento 32

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-3.013	5.876	0.81	1.11	0.3	-2.013	5.876	0.81	1.11	0.3	1	0.45	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.7	-2.118	2.0548	SLU 77	0.97	No
fin.	3	0.69	-2.5142	2.0548	SLU 77	0.82	No
ini.	3	2.43	-2.2141	2.0548	SLU 84	0.93	No
fin.	3	0.29	-2.63	2.0548	SLU 84	0.78	No





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.61	-2.0671	2.0548	SLU 75	0.99	No
fin.	3	0.53	-2.4879	2.0548	SLU 75	0.83	No
ini.	3	2.43	-2.1309	2.0548	SLU 80	0.96	No
fin.	3	0.5	-2.4626	2.0548	SLU 80	0.83	No
ini.	3	2.62	-2.205	2.0548	SLU 83	0.93	No
fin.	3	0.47	-2.6623	2.0548	SLU 83	0.77	No
ini.	3	2.8	-2.058	2.0548	SLU 74	1	No
fin.	3	0.71	-2.5202	2.0548	SLU 74	0.82	No
ini.	3	2.73	-2.145	2.0548	SLU 81	0.96	No
fin.	3	0.5	-2.6683	2.0548	SLU 81	0.77	No
ini.	3	2.5	-2.1271	2.0548	SLU 78	0.97	No
fin.	3	0.51	-2.4819	2.0548	SLU 78	0.83	No
ini.	3	2.53	-2.1541	2.0548	SLU 82	0.95	No
fin.	3	0.32	-2.636	2.0548	SLU 82	0.78	No
ini.	3	2.62	-2.1218	2.0548	SLU 79	0.97	No
fin.	3	0.68	-2.4949	2.0548	SLU 79	0.82	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.2141	16.43			3.47	1.3	SLU 84	0.08	No
fin.	3	0	-2.63	-14.28			3.47	1.3	SLU 84	0.09	No
ini.	3	0	-2.145	16.05			3.47	1.3	SLU 81	0.08	No
fin.	3	0	-2.6683	-14.47			3.47	1.3	SLU 81	0.09	No
ini.	3	0	-2.205	16.42			3.47	1.3	SLU 83	0.08	No
fin.	3	0	-2.6623	-14.45			3.47	1.3	SLU 83	0.09	No
ini.	3	0	-2.1218	15.81			3.47	1.3	SLU 79	0.08	No
fin.	3	0	-2.4949	-13.54			3.47	1.3	SLU 79	0.1	No
ini.	3	0	-2.1271	15.84			3.47	1.3	SLU 78	0.08	No
fin.	3	0	-2.4819	-13.46			3.47	1.3	SLU 78	0.1	No
ini.	3	0	-2.118	15.83			3.47	1.3	SLU 77	0.08	No
fin.	3	0	-2.5142	-13.62			3.47	1.3	SLU 77	0.1	No
ini.	3	0	-2.0671	15.48			3.47	1.3	SLU 75	0.08	No
fin.	3	0	-2.4879	-13.48			3.47	1.3	SLU 75	0.1	No
ini.	3	0	-2.1541	16.07			3.47	1.3	SLU 82	0.08	No
fin.	3	0	-2.636	-14.31			3.47	1.3	SLU 82	0.09	No
ini.	3	0	-2.0769	15.47			3.47	1.3	SLU 76	0.08	No
fin.	3	0	-2.447	-13.3			3.47	1.3	SLU 76	0.1	No
ini.	3	0	-2.1309	15.83			3.47	1.3	SLU 80	0.08	No
fin.	3	0	-2.4626	-13.38			3.47	1.3	SLU 80	0.1	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	100.35	0.253	3.0221	SLV 9	11.95	Si
fin.	2	75.29	-5.1993	3.0221	SLV 9	0.58	No
ini.	2	46.91	4.9412	3.0221	SLV 13	0.61	No
fin.	2	-2.32	-9.4409	3.0221	SLV 13	0.32	No
ini.	2	100.35	0.253	3.0221	SLV 10	11.95	Si
fin.	2	75.29	-5.1993	3.0221	SLV 10	0.58	No
ini.	2	-8.9	5.1445	3.0221	SLV 16	0.59	No
fin.	2	-52.01	-8.6558	3.0221	SLV 16	0.35	No
ini.	2	13.55	-7.7758	3.0221	SLV 2	0.39	No
fin.	2	53.8	5.2948	3.0221	SLV 2	0.57	No
ini.	2	-8.9	5.1445	3.0221	SLV 15	0.59	No
fin.	2	-52.01	-8.6558	3.0221	SLV 15	0.35	No
ini.	2	-42.26	-7.5724	3.0221	SLV 3	0.4	No
fin.	2	4.11	6.08	3.0221	SLV 3	0.5	No
ini.	2	46.91	4.9412	3.0221	SLV 14	0.61	No
fin.	2	-2.32	-9.4409	3.0221	SLV 14	0.32	No
ini.	2	13.55	-7.7758	3.0221	SLV 1	0.39	No
fin.	2	53.8	5.2948	3.0221	SLV 1	0.57	No
ini.	2	-42.26	-7.5724	3.0221	SLV 4	0.4	No
fin.	2	4.11	6.08	3.0221	SLV 4	0.5	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-7.7758	27.63			5.2	1.96	SLV 1	0.07	No
fin.	2	0	5.2948	16.27			5.2	1.96	SLV 1	0.12	No
ini.	2	0	4.9412	-11.42			5.2	1.96	SLV 14	0.17	No
fin.	2	0	-9.4409	-31.19			5.2	1.96	SLV 14	0.06	No
ini.	2	0	-2.8842	22.51			5.2	1.96	SLV 7	0.09	No
fin.	2	0	1.8384	-7.49			5.2	1.96	SLV 7	0.26	No
ini.	2	0	5.1445	-7.47			5.2	1.96	SLV 16	0.26	No
fin.	2	0	-8.6558	-34.49			5.2	1.96	SLV 16	0.06	No
ini.	2	0	-7.7758	27.63			5.2	1.96	SLV 2	0.07	No
fin.	2	0	5.2948	16.27			5.2	1.96	SLV 2	0.12	No
ini.	2	0	-7.5724	31.57			5.2	1.96	SLV 4	0.06	No
fin.	2	0	6.08	12.97			5.2	1.96	SLV 4	0.15	No
ini.	2	0	-7.5724	31.57			5.2	1.96	SLV 3	0.06	No
fin.	2	0	6.08	12.97			5.2	1.96	SLV 3	0.15	No
ini.	2	0	5.1445	-7.47			5.2	1.96	SLV 15	0.26	No
fin.	2	0	-8.6558	-34.49			5.2	1.96	SLV 15	0.06	No
ini.	2	0	-2.8842	22.51			5.2	1.96	SLV 8	0.09	No
fin.	2	0	1.8384	-7.49			5.2	1.96	SLV 8	0.26	No
ini.	2	0	4.9412	-11.42			5.2	1.96	SLV 13	0.17	No
fin.	2	0	-9.4409	-31.19			5.2	1.96	SLV 13	0.06	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.32	SLV 13	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.057	SLV 15	No
PF SLU	0.77	SLU 81	No
V SLU	0.079	SLU 84	No

## Trave di accoppiamento 33

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.763	5.951	1.11	2.01	0.9	-22.763	5.951	1.11	2.01	0.9	1	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	51.87	9.4041	10.3792	SLU 83	1.1	Si
fin.	3	53.78	-4.2888	10.3792	SLU 83	2.42	Si
ini.	3	50.39	9.5159	10.3792	SLU 78	1.09	Si
fin.	3	52.38	-4.3918	10.3792	SLU 78	2.36	Si
ini.	3	50.7	8.9856	10.3792	SLU 82	1.16	Si
fin.	3	52.32	-4.0335	10.3792	SLU 82	2.57	Si
ini.	3	50.85	9.505	10.3792	SLU 77	1.09	Si
fin.	3	52.89	-4.3677	10.3792	SLU 77	2.38	Si
ini.	3	50.14	9.0755	10.3792	SLU 74	1.14	Si
fin.	3	51.94	-4.0881	10.3792	SLU 74	2.54	Si
ini.	3	49.68	9.0864	10.3792	SLU 75	1.14	Si
fin.	3	51.43	-4.1123	10.3792	SLU 75	2.52	Si
ini.	3	51.41	9.415	10.3792	SLU 84	1.1	Si
fin.	3	53.27	-4.313	10.3792	SLU 84	2.41	Si
ini.	3	50.5	9.4636	10.3792	SLU 79	1.1	Si
fin.	3	52.56	-4.3544	10.3792	SLU 79	2.38	Si
ini.	3	49.03	9.0524	10.3792	SLU 76	1.15	Si
fin.	3	50.75	-4.1151	10.3792	SLU 76	2.52	Si
ini.	3	50.04	9.4746	10.3792	SLU 80	1.1	Si
fin.	3	52.04	-4.3785	10.3792	SLU 80	2.37	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	9.4746	-17.32			8.73	3.29	SLU 80	0.19	No
fin.	3	0	-4.3785	-17.3			8.73	3.29	SLU 80	0.19	No
ini.	3	0	9.415	-17.17			8.73	3.29	SLU 84	0.19	No
fin.	3	0	-4.313	-17.2			8.73	3.29	SLU 84	0.19	No
ini.	3	0	9.0755	-16.48			8.73	3.29	SLU 74	0.2	No
fin.	3	0	-4.0881	-16.53			8.73	3.29	SLU 74	0.2	No
ini.	3	0	9.0524	-16.41			8.73	3.29	SLU 76	0.2	No
fin.	3	0	-4.1151	-16.54			8.73	3.29	SLU 76	0.2	No
ini.	3	0	9.0864	-16.51			8.73	3.29	SLU 75	0.2	No
fin.	3	0	-4.1123	-16.56			8.73	3.29	SLU 75	0.2	No
ini.	3	0	9.505	-17.41			8.73	3.29	SLU 77	0.19	No
fin.	3	0	-4.3677	-17.31			8.73	3.29	SLU 77	0.19	No
ini.	3	0	8.9856	-16.24			8.73	3.29	SLU 82	0.2	No
fin.	3	0	-4.0335	-16.43			8.73	3.29	SLU 82	0.2	No
ini.	3	0	9.4041	-17.15			8.73	3.29	SLU 83	0.19	No
fin.	3	0	-4.2888	-17.18			8.73	3.29	SLU 83	0.19	No
ini.	3	0	9.5159	-17.43			8.73	3.29	SLU 78	0.19	No
fin.	3	0	-4.3918	-17.33			8.73	3.29	SLU 78	0.19	No
ini.	3	0	9.4636	-17.3			8.73	3.29	SLU 79	0.19	No
fin.	3	0	-4.3544	-17.28			8.73	3.29	SLU 79	0.19	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-81.69	-35.9956	12.1694	SLV 5	0.34	No
fin.	2	-153.58	-20.388	12.1694	SLV 5	0.6	No
ini.	2	-67.46	-51.5302	12.1694	SLV 9	0.24	No
fin.	2	-159	-4.1842	12.1694	SLV 9	2.91	Si
ini.	2	136.18	63.4856	12.1694	SLV 7	0.19	No
fin.	2	229.79	-0.9133	12.1694	SLV 7	13.32	Si
ini.	2	150.42	47.951	12.1694	SLV 11	0.25	No
fin.	2	224.37	15.2905	12.1694	SLV 11	0.8	No
ini.	2	-67.46	-51.5302	12.1694	SLV 10	0.24	No
fin.	2	-159	-4.1842	12.1694	SLV 10	2.91	Si
ini.	2	43.31	46.7909	12.1694	SLV 3	0.26	No
fin.	2	101.93	-26.6339	12.1694	SLV 3	0.46	No
ini.	2	-81.69	-35.9956	12.1694	SLV 6	0.34	No
fin.	2	-153.58	-20.388	12.1694	SLV 6	0.6	No
ini.	2	43.31	46.7909	12.1694	SLV 4	0.26	No
fin.	2	101.93	-26.6339	12.1694	SLV 4	0.46	No
ini.	2	150.42	47.951	12.1694	SLV 12	0.25	No
fin.	2	224.37	15.2905	12.1694	SLV 12	0.8	No
ini.	2	136.18	63.4856	12.1694	SLV 8	0.19	No
fin.	2	229.79	-0.9133	12.1694	SLV 8	13.32	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-51.5302	65.71			13.1	4.93	SLV 10	0.08	No
fin.	2	0	-4.1842	42.21			13.1	4.93	SLV 10	0.12	No
ini.	2	0	16.9465	-63.87			13.1	4.93	SLV 2	0.08	No
fin.	2	0	-32.4763	-67.45			13.1	4.93	SLV 2	0.07	No
ini.	2	0	-34.8356	75.95			13.1	4.93	SLV 14	0.06	No
fin.	2	0	21.5364	65.49			13.1	4.93	SLV 14	0.08	No
ini.	2	0	63.4856	-86.79			13.1	4.93	SLV 8	0.06	No
fin.	2	0	-0.9133	-64.1			13.1	4.93	SLV 8	0.08	No
ini.	2	0	63.4856	-86.79			13.1	4.93	SLV 7	0.06	No
fin.	2	0	-0.9133	-64.1			13.1	4.93	SLV 7	0.08	No
ini.	2	0	16.9465	-63.87			13.1	4.93	SLV 1	0.08	No
fin.	2	0	-32.4763	-67.45			13.1	4.93	SLV 1	0.07	No
ini.	2	0	46.7909	-97.04			13.1	4.93	SLV 3	0.05	No
fin.	2	0	-26.6339	-87.38			13.1	4.93	SLV 3	0.06	No
ini.	2	0	-34.8356	75.95			13.1	4.93	SLV 13	0.06	No
fin.	2	0	21.5364	65.49			13.1	4.93	SLV 13	0.08	No
ini.	2	0	46.7909	-97.04			13.1	4.93	SLV 4	0.05	No
fin.	2	0	-26.6339	-87.38			13.1	4.93	SLV 4	0.06	No
ini.	2	0	-51.5302	65.71			13.1	4.93	SLV 9	0.08	No
fin.	2	0	-4.1842	42.21			13.1	4.93	SLV 9	0.12	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.192	SLV 7	No
V_SLV	0.051	SLV 3	No
PF_SLU	1.091	SLU 78	Si
V_SLU	0.189	SLU 78	No

#### Trave di accoppiamento 34

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.763	5.951	3.91	4.83	0.92	-22.763	5.951	3.91	4.83	0.92	1	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-9.76	2.5103	10.7292	SLU 79	4.27	Si
fin.	3	-4.11	-1.3131	10.7292	SLU 79	8.17	Si
ini.	3	-9.64	2.4981	10.7292	SLU 80	4.29	Si
fin.	3	-4.29	-1.3875	10.7292	SLU 80	7.73	Si
ini.	3	-8.49	2.3719	10.7292	SLU 74	4.52	Si
fin.	3	-2.62	-1.1139	10.7292	SLU 74	9.63	Si
ini.	3	-7.64	2.3624	10.7292	SLU 81	4.54	Si
fin.	3	-1.51	-1.0085	10.7292	SLU 81	10.64	Si
ini.	3	-8.38	2.3597	10.7292	SLU 75	4.55	Si
fin.	3	-2.8	-1.1883	10.7292	SLU 75	9.03	Si
ini.	3	-9.47	2.4958	10.7292	SLU 78	4.3	Si
fin.	3	-4.09	-1.3818	10.7292	SLU 78	7.76	Si
ini.	3	-9.58	2.508	10.7292	SLU 77	4.28	Si
fin.	3	-3.91	-1.3075	10.7292	SLU 77	8.21	Si
ini.	3	-8.48	2.3539	10.7292	SLU 76	4.56	Si
fin.	3	-3.11	-1.2436	10.7292	SLU 76	8.63	Si
ini.	3	-8.73	2.4985	10.7292	SLU 83	4.29	Si
fin.	3	-2.81	-1.202	10.7292	SLU 83	8.93	Si
ini.	3	-8.62	2.4863	10.7292	SLU 84	4.32	Si
fin.	3	-2.98	-1.2764	10.7292	SLU 84	8.41	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.4985	39.39			9.13	3.43	SLU 83	0.09	No
fin.	3	0	-1.202	-25.63			9.13	3.43	SLU 83	0.13	No
ini.	3	0	2.508	37.99			9.13	3.43	SLU 77	0.09	No
fin.	3	0	-1.3075	-25.32			9.13	3.43	SLU 77	0.14	No
ini.	3	0	2.4958	37.59			9.13	3.43	SLU 78	0.09	No
fin.	3	0	-1.3818	-25.36			9.13	3.43	SLU 78	0.14	No
ini.	3	0	2.4863	38.98			9.13	3.43	SLU 84	0.09	No
fin.	3	0	-1.2764	-25.67			9.13	3.43	SLU 84	0.13	No
ini.	3	0	2.3624	39.28			9.13	3.43	SLU 81	0.09	No
fin.	3	0	-1.0085	-24.75			9.13	3.43	SLU 81	0.14	No
ini.	3	0	2.5103	37.63			9.13	3.43	SLU 79	0.09	No
fin.	3	0	-1.3131	-25.19			9.13	3.43	SLU 79	0.14	No
ini.	3	0	2.3719	37.88			9.13	3.43	SLU 74	0.09	No
fin.	3	0	-1.1139	-24.43			9.13	3.43	SLU 74	0.14	No
ini.	3	0	2.4981	37.22			9.13	3.43	SLU 80	0.09	No
fin.	3	0	-1.3875	-25.23			9.13	3.43	SLU 80	0.14	No
ini.	3	0	2.3597	37.48			9.13	3.43	SLU 75	0.09	No
fin.	3	0	-1.1883	-24.47			9.13	3.43	SLU 75	0.14	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.3502	38.87			9.13	3.43	SLU 82	0.09	No
fin.	3	0	-1.0829	-24.79			9.13	3.43	SLU 82	0.14	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	40.46	11.884	12.5194	SLV 2	1.05	Si
fin.	2	-22.15	-15.0163	12.5194	SLV 2	0.83	No
ini.	2	39.02	14.225	12.5194	SLV 4	0.88	No
fin.	2	-27.99	-17.5268	12.5194	SLV 4	0.71	No
ini.	2	40.46	11.884	12.5194	SLV 1	1.05	Si
fin.	2	-22.15	-15.0163	12.5194	SLV 1	0.83	No
ini.	2	-51.66	-8.86	12.5194	SLV 15	1.41	Si
fin.	2	20.06	13.8965	12.5194	SLV 15	0.9	No
ini.	2	5.61	8.8765	12.5194	SLV 7	1.41	Si
fin.	2	-17.99	-9.4576	12.5194	SLV 7	1.32	Si
ini.	2	5.61	8.8765	12.5194	SLV 8	1.41	Si
fin.	2	-17.99	-9.4576	12.5194	SLV 8	1.32	Si
ini.	2	-51.66	-8.86	12.5194	SLV 16	1.41	Si
fin.	2	20.06	13.8965	12.5194	SLV 16	0.9	No
ini.	2	-50.22	-11.2011	12.5194	SLV 14	1.12	Si
fin.	2	25.9	16.4071	12.5194	SLV 14	0.76	No
ini.	2	39.02	14.225	12.5194	SLV 3	0.88	No
fin.	2	-27.99	-17.5268	12.5194	SLV 3	0.71	No
ini.	2	-50.22	-11.2011	12.5194	SLV 13	1.12	Si
fin.	2	25.9	16.4071	12.5194	SLV 13	0.76	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-5.8526	57.63			13.69	5.15	SLV 10	0.09	No
fin.	2	0	8.3379	14.39			13.69	5.15	SLV 10	0.36	No
ini.	2	0	-5.8526	57.63			13.69	5.15	SLV 9	0.09	No
fin.	2	0	8.3379	14.39			13.69	5.15	SLV 9	0.36	No
ini.	2	0	-11.2011	91.18			13.69	5.15	SLV 13	0.06	No
fin.	2	0	16.4071	48.02			13.69	5.15	SLV 13	0.11	No
ini.	2	0	14.225	-39.57			13.69	5.15	SLV 3	0.13	No
fin.	2	0	-17.5268	-79.63			13.69	5.15	SLV 3	0.06	No
ini.	2	0	14.225	-39.57			13.69	5.15	SLV 4	0.13	No
fin.	2	0	-17.5268	-79.63			13.69	5.15	SLV 4	0.06	No
ini.	2	0	-8.86	83.12			13.69	5.15	SLV 16	0.06	No
fin.	2	0	13.8965	40.74			13.69	5.15	SLV 16	0.13	No
ini.	2	0	-11.2011	91.18			13.69	5.15	SLV 14	0.06	No
fin.	2	0	16.4071	48.02			13.69	5.15	SLV 14	0.11	No
ini.	2	0	11.884	-31.52			13.69	5.15	SLV 2	0.16	No
fin.	2	0	-15.0163	-72.35			13.69	5.15	SLV 2	0.07	No
ini.	2	0	11.884	-31.52			13.69	5.15	SLV 1	0.16	No
fin.	2	0	-15.0163	-72.35			13.69	5.15	SLV 1	0.07	No
ini.	2	0	-8.86	83.12			13.69	5.15	SLV 15	0.06	No
fin.	2	0	13.8965	40.74			13.69	5.15	SLV 15	0.13	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.714	SLV 3	No
V_SLV	0.057	SLV 13	No
PF_SLU	4.274	SLU 79	Si
V_SLU	0.087	SLU 83	No

## Trave di accoppiamento 35

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.543	-3.359	1.11	2.01	0.9	-22.543	-3.359	1.11	2.01	0.9	1	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	91.4	15.9962	10.3792	SLU 78	0.65	No
fin.	3	95.64	-13.1417	10.3792	SLU 78	0.79	No
ini.	3	90.86	15.9131	10.3792	SLU 80	0.65	No
fin.	3	95.1	-13.0564	10.3792	SLU 80	0.79	No
ini.	3	107.57	16.1627	10.3792	SLU 73	0.64	No
fin.	3	111.08	-12.1506	10.3792	SLU 73	0.85	No
ini.	3	90.98	15.6037	10.3792	SLU 75	0.67	No
fin.	3	94.95	-12.7572	10.3792	SLU 75	0.81	No
ini.	3	92.7	15.7129	10.3792	SLU 82	0.66	No
fin.	3	96.54	-12.8569	10.3792	SLU 82	0.81	No
ini.	3	107.99	16.5552	10.3792	SLU 76	0.63	No
fin.	3	111.77	-12.5352	10.3792	SLU 76	0.83	No
ini.	3	102.12	15.159	10.3792	SLU 55	0.68	No
fin.	3	105.42	-11.1389	10.3792	SLU 55	0.93	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	101.33	14.7985	10.3792	SLU 65	0.7	No
fin.	3	104.46	-10.8217	10.3792	SLU 65	0.96	No
ini.	3	101.75	15.191	10.3792	SLU 68	0.68	No
fin.	3	105.15	-11.2062	10.3792	SLU 68	0.93	No
ini.	3	93.11	16.1053	10.3792	SLU 84	0.64	No
fin.	3	97.24	-13.2414	10.3792	SLU 84	0.78	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	15.9962	-29.74			8.73	3.29	SLU 78	0.11	No
fin.	3	0	-13.1417	-35.04			8.73	3.29	SLU 78	0.09	No
ini.	3	0	14.7985	-24.14			8.73	3.29	SLU 65	0.14	No
fin.	3	0	-10.8217	-32.51			8.73	3.29	SLU 65	0.1	No
ini.	3	0	15.191	-25.06			8.73	3.29	SLU 68	0.13	No
fin.	3	0	-11.2062	-33.39			8.73	3.29	SLU 68	0.1	No
ini.	3	0	15.6037	-28.82			8.73	3.29	SLU 75	0.11	No
fin.	3	0	-12.7572	-34.16			8.73	3.29	SLU 75	0.1	No
ini.	3	0	15.7129	-29.02			8.73	3.29	SLU 82	0.11	No
fin.	3	0	-12.8569	-34.37			8.73	3.29	SLU 82	0.1	No
ini.	3	0	15.9131	-29.53			8.73	3.29	SLU 80	0.11	No
fin.	3	0	-13.0564	-34.88			8.73	3.29	SLU 80	0.09	No
ini.	3	0	16.1627	-27.23			8.73	3.29	SLU 73	0.12	No
fin.	3	0	-12.1506	-35.4			8.73	3.29	SLU 73	0.09	No
ini.	3	0	16.5552	-28.15			8.73	3.29	SLU 76	0.12	No
fin.	3	0	-12.5352	-36.28			8.73	3.29	SLU 76	0.09	No
ini.	3	0	16.1053	-29.94			8.73	3.29	SLU 84	0.11	No
fin.	3	0	-13.2414	-35.24			8.73	3.29	SLU 84	0.09	No
ini.	3	0	15.159	-24.94			8.73	3.29	SLU 55	0.13	No
fin.	3	0	-11.1389	-33.25			8.73	3.29	SLU 55	0.1	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	228.76	26.5739	12.1694	SLV 6	0.46	No
fin.	2	230.94	-13.5893	12.1694	SLV 6	0.9	No
ini.	2	60.73	23.6279	12.1694	SLD 1	0.52	No
fin.	2	71.45	-21.3939	12.1694	SLD 1	0.57	No
ini.	2	-26.65	37.3266	12.1694	SLV 4	0.33	No
fin.	2	-2.14	-40.2609	12.1694	SLV 4	0.3	No
ini.	2	86.45	42.1387	12.1694	SLV 2	0.29	No
fin.	2	107.06	-37.7557	12.1694	SLV 2	0.32	No
ini.	2	228.76	26.5739	12.1694	SLV 5	0.46	No
fin.	2	230.94	-13.5893	12.1694	SLV 5	0.9	No
ini.	2	-26.65	37.3266	12.1694	SLV 3	0.33	No
fin.	2	-2.14	-40.2609	12.1694	SLV 3	0.3	No
ini.	2	60.73	23.6279	12.1694	SLD 2	0.52	No
fin.	2	71.45	-21.3939	12.1694	SLD 2	0.57	No
ini.	2	2.94	-23.1848	12.1694	SLV 15	0.52	No
fin.	2	-12.19	20.4354	12.1694	SLV 15	0.6	No
ini.	2	86.45	42.1387	12.1694	SLV 1	0.29	No
fin.	2	107.06	-37.7557	12.1694	SLV 1	0.32	No
ini.	2	2.94	-23.1848	12.1694	SLV 16	0.52	No
fin.	2	-12.19	20.4354	12.1694	SLV 16	0.6	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-18.3727	52.8			13.1	4.93	SLV 13	0.09	No
fin.	2	0	22.9406	47.16			13.1	4.93	SLV 13	0.1	No
ini.	2	0	42.1387	-88.44			13.1	4.93	SLV 1	0.06	No
fin.	2	0	-37.7557	-92.95			13.1	4.93	SLV 1	0.05	No
ini.	2	0	-23.1848	49.16			13.1	4.93	SLV 16	0.1	No
fin.	2	0	20.4354	51.37			13.1	4.93	SLV 16	0.1	No
ini.	2	0	23.6279	-49.71			13.1	4.93	SLD 1	0.1	No
fin.	2	0	-21.3939	-52.2			13.1	4.93	SLD 1	0.09	No
ini.	2	0	23.6279	-49.71			13.1	4.93	SLD 2	0.1	No
fin.	2	0	-21.3939	-52.2			13.1	4.93	SLD 2	0.09	No
ini.	2	0	42.1387	-88.44			13.1	4.93	SLV 2	0.06	No
fin.	2	0	-37.7557	-92.95			13.1	4.93	SLV 2	0.05	No
ini.	2	0	37.3266	-92.07			13.1	4.93	SLV 4	0.05	No
fin.	2	0	-40.2609	-88.74			13.1	4.93	SLV 4	0.06	No
ini.	2	0	37.3266	-92.07			13.1	4.93	SLV 3	0.05	No
fin.	2	0	-40.2609	-88.74			13.1	4.93	SLV 3	0.06	No
ini.	2	0	-23.1848	49.16			13.1	4.93	SLV 15	0.1	No
fin.	2	0	20.4354	51.37			13.1	4.93	SLV 15	0.1	No
ini.	2	0	-18.3727	52.8			13.1	4.93	SLV 14	0.09	No
fin.	2	0	22.9406	47.16			13.1	4.93	SLV 14	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.289	SLV 1	No
V_SLV	0.053	SLV 1	No
PF_SLU	0.627	SLU 76	No
V_SLU	0.091	SLU 76	No

## Trave di accoppiamento 36

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.543	-3.359	3.91	4.83	0.92	-22.543	-3.359	3.91	4.83	0.92	1	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	20.59	8.5504	10.7292	SLU 80	1.25	Si
fin.	3	-9.51	-5.5889	10.7292	SLU 80	1.92	Si
ini.	3	21.16	8.6952	10.7292	SLU 84	1.23	Si
fin.	3	-9.42	-5.6726	10.7292	SLU 84	1.89	Si
ini.	3	21.27	8.7356	10.7292	SLU 73	1.23	Si
fin.	3	-9.08	-5.2395	10.7292	SLU 73	2.05	Si
ini.	3	21.58	8.9222	10.7292	SLU 76	1.2	Si
fin.	3	-9.52	-5.4175	10.7292	SLU 76	1.98	Si
ini.	3	20.89	8.6018	10.7292	SLU 78	1.25	Si
fin.	3	-9.47	-5.6277	10.7292	SLU 78	1.91	Si
ini.	3	20.84	8.5086	10.7292	SLU 82	1.26	Si
fin.	3	-8.98	-5.4946	10.7292	SLU 82	1.95	Si
ini.	3	19.52	8.1487	10.7292	SLU 68	1.32	Si
fin.	3	-8.71	-4.8068	10.7292	SLU 68	2.23	Si
ini.	3	19.2	7.962	10.7292	SLU 65	1.35	Si
fin.	3	-8.27	-4.6287	10.7292	SLU 65	2.32	Si
ini.	3	20.57	8.4151	10.7292	SLU 75	1.27	Si
fin.	3	-9.04	-5.4496	10.7292	SLU 75	1.97	Si
ini.	3	19.15	8.1067	10.7292	SLU 55	1.32	Si
fin.	3	-8.74	-4.7829	10.7292	SLU 55	2.24	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	7.8575	8.64			9.13	3.43	SLU 83	0.4	No
fin.	3	0	-5.6627	-51.05			9.13	3.43	SLU 83	0.07	No
ini.	3	0	8.5504	2.98			9.13	3.43	SLU 80	1.15	Si
fin.	3	0	-5.5889	-50.35			9.13	3.43	SLU 80	0.07	No
ini.	3	0	8.4151	3.42			9.13	3.43	SLU 75	1	Si
fin.	3	0	-5.4496	-49.65			9.13	3.43	SLU 75	0.07	No
ini.	3	0	7.764	7.77			9.13	3.43	SLU 77	0.44	No
fin.	3	0	-5.6177	-50.16			9.13	3.43	SLU 77	0.07	No
ini.	3	0	8.5086	4.28			9.13	3.43	SLU 82	0.8	No
fin.	3	0	-5.4946	-50.54			9.13	3.43	SLU 82	0.07	No
ini.	3	0	7.6708	8.97			9.13	3.43	SLU 81	0.38	No
fin.	3	0	-5.4847	-49.96			9.13	3.43	SLU 81	0.07	No
ini.	3	0	8.6018	3.09			9.13	3.43	SLU 78	1.11	Si
fin.	3	0	-5.6277	-50.74			9.13	3.43	SLU 78	0.07	No
ini.	3	0	8.6952	3.95			9.13	3.43	SLU 84	0.87	No
fin.	3	0	-5.6726	-51.63			9.13	3.43	SLU 84	0.07	No
ini.	3	0	8.9222	0.19			9.13	3.43	SLU 76	18.23	Si
fin.	3	0	-5.4175	-49.64			9.13	3.43	SLU 76	0.07	No
ini.	3	0	7.7126	7.67			9.13	3.43	SLU 79	0.45	No
fin.	3	0	-5.5789	-49.77			9.13	3.43	SLU 79	0.07	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	40.47	15.7217	12.5194	SLV 6	0.8	No
fin.	2	-22.13	-10.1414	12.5194	SLV 6	1.23	Si
ini.	2	-23.6	-5.7008	12.5194	SLV 13	2.2	Si
fin.	2	32.34	12.6244	12.5194	SLV 13	0.99	No
ini.	2	-23.6	-5.7008	12.5194	SLV 14	2.2	Si
fin.	2	32.34	12.6244	12.5194	SLV 14	0.99	No
ini.	2	-33.17	-9.7695	12.5194	SLV 16	1.28	Si
fin.	2	35.2	13.5582	12.5194	SLV 16	0.92	No
ini.	2	57.78	19.9542	12.5194	SLV 2	0.63	No
fin.	2	-46.32	-20.7239	12.5194	SLV 2	0.6	No
ini.	2	48.21	15.8855	12.5194	SLV 3	0.79	No
fin.	2	-43.46	-19.7901	12.5194	SLV 3	0.63	No
ini.	2	40.47	15.7217	12.5194	SLV 5	0.8	No
fin.	2	-22.13	-10.1414	12.5194	SLV 5	1.23	Si
ini.	2	57.78	19.9542	12.5194	SLV 1	0.63	No
fin.	2	-46.32	-20.7239	12.5194	SLV 1	0.6	No
ini.	2	48.21	15.8855	12.5194	SLV 4	0.79	No
fin.	2	-43.46	-19.7901	12.5194	SLV 4	0.63	No
ini.	2	-33.17	-9.7695	12.5194	SLV 15	1.28	Si
fin.	2	35.2	13.5582	12.5194	SLV 15	0.92	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-9.7695	81.22			13.69	5.15	SLV 16	0.06	No
fin.	2	0	13.5582	38.43			13.69	5.15	SLV 16	0.13	No
ini.	2	0	-5.7008	68.67			13.69	5.15	SLV 14	0.08	No
fin.	2	0	12.6244	35.04			13.69	5.15	SLV 14	0.15	No
ini.	2	0	15.8855	-57.68			13.69	5.15	SLV 3	0.09	No
fin.	2	0	-19.7901	-100.48			13.69	5.15	SLV 3	0.05	No
ini.	2	0	19.9542	-70.23			13.69	5.15	SLV 1	0.07	No
fin.	2	0	-20.7239	-103.87			13.69	5.15	SLV 1	0.05	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	11.5081	-27.32			13.69	5.15	SLD 1	0.19	No
fin.	2	0	-11.0701	-63.81			13.69	5.15	SLD 1	0.08	No
ini.	2	0	-5.7008	68.67			13.69	5.15	SLV 13	0.08	No
fin.	2	0	12.6244	35.04			13.69	5.15	SLV 13	0.15	No
ini.	2	0	-9.7695	81.22			13.69	5.15	SLV 15	0.06	No
fin.	2	0	13.5582	38.43			13.69	5.15	SLV 15	0.13	No
ini.	2	0	11.5081	-27.32			13.69	5.15	SLD 2	0.19	No
fin.	2	0	-11.0701	-63.81			13.69	5.15	SLD 2	0.08	No
ini.	2	0	19.9542	-70.23			13.69	5.15	SLV 2	0.07	No
fin.	2	0	-20.7239	-103.87			13.69	5.15	SLV 2	0.05	No
ini.	2	0	15.8855	-57.68			13.69	5.15	SLV 4	0.09	No
fin.	2	0	-19.7901	-100.48			13.69	5.15	SLV 4	0.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.604	SLV 1	No
V_SLV	0.05	SLV 1	No
PF_SLU	1.203	SLU 76	Si
V_SLU	0.067	SLU 84	No

## Trave di accoppiamento 37

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	1.11	3.11	2	-19.368	-3.359	1.11	3.11	2	0.5	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-25.05	-14.3745	29.6292	SLU 82	2.06	Si
fin.	3	12.21	42.8302	29.6292	SLU 82	0.69	No
ini.	3	-25.11	-14.5058	29.6292	SLU 75	2.04	Si
fin.	3	11.8	41.3467	29.6292	SLU 75	0.72	No
ini.	3	-25.39	-14.5438	29.6292	SLU 84	2.04	Si
fin.	3	12.3	42.6858	29.6292	SLU 84	0.69	No
ini.	3	-29.98	-19.8704	29.6292	SLU 73	1.49	Si
fin.	3	13.56	42.255	29.6292	SLU 73	0.7	No
ini.	3	-17.1	-6.1206	29.6292	SLU 74	4.84	Si
fin.	3	8.92	39.6324	29.6292	SLU 74	0.75	No
ini.	3	-25.45	-14.6751	29.6292	SLU 78	2.02	Si
fin.	3	11.88	41.2024	29.6292	SLU 78	0.72	No
ini.	3	-30.33	-20.0398	29.6292	SLU 76	1.48	Si
fin.	3	13.65	42.1107	29.6292	SLU 76	0.7	No
ini.	3	-17.38	-6.1585	29.6292	SLU 83	4.81	Si
fin.	3	9.42	40.9716	29.6292	SLU 83	0.72	No
ini.	3	-17.03	-5.9892	29.6292	SLU 81	4.95	Si
fin.	3	9.34	41.1159	29.6292	SLU 81	0.72	No
ini.	3	-25.33	-14.6189	29.6292	SLU 80	2.03	Si
fin.	3	11.81	40.8235	29.6292	SLU 80	0.73	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-6.2899	13.7			21.57	8.12	SLU 77	0.59	No
fin.	3	0	39.4881	70.56			21.57	8.12	SLU 77	0.12	No
ini.	3	0	-14.5058	13.92			21.57	8.12	SLU 75	0.58	No
fin.	3	0	41.3467	70.94			21.57	8.12	SLU 75	0.11	No
ini.	3	0	-6.1585	14.8			21.57	8.12	SLU 83	0.55	No
fin.	3	0	40.9716	73.53			21.57	8.12	SLU 83	0.11	No
ini.	3	0	-5.9892	15.61			21.57	8.12	SLU 81	0.52	No
fin.	3	0	41.1159	74.26			21.57	8.12	SLU 81	0.11	No
ini.	3	0	-14.6751	13.12			21.57	8.12	SLU 78	0.62	No
fin.	3	0	41.2024	70.22			21.57	8.12	SLU 78	0.12	No
ini.	3	0	-19.8704	14.12			21.57	8.12	SLU 73	0.57	No
fin.	3	0	42.255	70.64			21.57	8.12	SLU 73	0.11	No
ini.	3	0	-20.0398	13.31			21.57	8.12	SLU 76	0.61	No
fin.	3	0	42.1107	69.92			21.57	8.12	SLU 76	0.12	No
ini.	3	0	-14.3745	15.03			21.57	8.12	SLU 82	0.54	No
fin.	3	0	42.8302	73.91			21.57	8.12	SLU 82	0.11	No
ini.	3	0	-6.1206	14.51			21.57	8.12	SLU 74	0.56	No
fin.	3	0	39.6324	71.29			21.57	8.12	SLU 74	0.11	No
ini.	3	0	-14.5438	14.22			21.57	8.12	SLU 84	0.57	No
fin.	3	0	42.6858	73.19			21.57	8.12	SLU 84	0.11	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-107.58	-71.3369	31.4194	SLV 9	0.44	No
fin.	2	-8.61	50.7464	31.4194	SLV 9	0.62	No
ini.	2	83.27	62.6342	31.4194	SLV 8	0.5	No
fin.	2	20.18	4.5183	31.4194	SLV 8	6.95	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	96.11	66.2688	31.4194	SLV 12	0.47	No
fin.	2	11.67	19.1359	31.4194	SLV 12	1.64	Si
ini.	2	-120.42	-74.9715	31.4194	SLV 6	0.42	No
fin.	2	-0.1	36.1288	31.4194	SLV 6	0.87	No
ini.	2	83.27	62.6342	31.4194	SLV 7	0.5	No
fin.	2	20.18	4.5183	31.4194	SLV 7	6.95	Si
ini.	2	-21.3	-18.9345	31.4194	SLV 14	1.66	Si
fin.	2	-11.44	56.7366	31.4194	SLV 14	0.55	No
ini.	2	96.11	66.2688	31.4194	SLV 11	0.47	No
fin.	2	11.67	19.1359	31.4194	SLV 11	1.64	Si
ini.	2	-120.42	-74.9715	31.4194	SLV 5	0.42	No
fin.	2	-0.1	36.1288	31.4194	SLV 5	0.87	No
ini.	2	-107.58	-71.3369	31.4194	SLV 10	0.44	No
fin.	2	-8.61	50.7464	31.4194	SLV 10	0.62	No
ini.	2	-21.3	-18.9345	31.4194	SLV 13	1.66	Si
fin.	2	-11.44	56.7366	31.4194	SLV 13	0.55	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-18.9345	115.35			32.35	12.17	SLV 13	0.11	No
fin.	2	0	56.7366	171.74			32.35	12.17	SLV 13	0.07	No
ini.	2	0	-18.9345	115.35			32.35	12.17	SLV 14	0.11	No
fin.	2	0	56.7366	171.74			32.35	12.17	SLV 14	0.07	No
ini.	2	0	6.5137	62			32.35	12.17	SLD 16	0.2	No
fin.	2	0	36.5042	100.62			32.35	12.17	SLD 16	0.12	No
ini.	2	0	-9.9064	56.59			32.35	12.17	SLD 13	0.22	No
fin.	2	0	40.3985	103.1			32.35	12.17	SLD 13	0.12	No
ini.	2	0	-9.9064	56.59			32.35	12.17	SLD 14	0.22	No
fin.	2	0	40.3985	103.1			32.35	12.17	SLD 14	0.12	No
ini.	2	0	22.3472	128.4			32.35	12.17	SLV 15	0.09	No
fin.	2	0	47.2535	165.37			32.35	12.17	SLV 15	0.07	No
ini.	2	0	6.5137	62			32.35	12.17	SLV 15	0.2	No
fin.	2	0	36.5042	100.62			32.35	12.17	SLD 15	0.12	No
ini.	2	0	22.3472	128.4			32.35	12.17	SLV 16	0.09	No
fin.	2	0	47.2535	165.37			32.35	12.17	SLV 16	0.07	No
ini.	2	0	-31.0499	-106.71			32.35	12.17	SLV 1	0.11	No
fin.	2	0	8.0112	-65.2			32.35	12.17	SLV 1	0.19	No
ini.	2	0	-31.0499	-106.71			32.35	12.17	SLV 2	0.11	No
fin.	2	0	8.0112	-65.2			32.35	12.17	SLV 2	0.19	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.419	SLV 5	No
V_SLV	0.071	SLV 13	No
PF_SLU	0.692	SLU 82	No
V_SLU	0.109	SLU 81	No

## Trave di accoppiamento 38

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	3.91	4.83	0.92	-19.368	-3.359	3.91	4.83	0.92	0.5	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	22.54	-1.6751	10.7292	SLU 52	6.4	Si
fin.	3	26.17	5.6295	10.7292	SLU 52	1.91	Si
ini.	3	23.03	-1.9676	10.7292	SLU 76	5.45	Si
fin.	3	27.06	5.8017	10.7292	SLU 76	1.85	Si
ini.	3	22.57	-1.5937	10.7292	SLU 65	6.73	Si
fin.	3	26.08	5.5775	10.7292	SLU 65	1.92	Si
ini.	3	22	-1.8241	10.7292	SLU 75	5.88	Si
fin.	3	25.63	5.3987	10.7292	SLU 75	1.99	Si
ini.	3	22.09	-1.9554	10.7292	SLU 84	5.49	Si
fin.	3	25.91	5.4863	10.7292	SLU 84	1.96	Si
ini.	3	21.6	-1.663	10.7292	SLU 61	6.45	Si
fin.	3	25.02	5.3141	10.7292	SLU 61	2.02	Si
ini.	3	23.39	-1.8001	10.7292	SLU 82	5.96	Si
fin.	3	27.07	5.691	10.7292	SLU 82	1.89	Si
ini.	3	24.33	-1.8123	10.7292	SLU 73	5.92	Si
fin.	3	28.22	6.0065	10.7292	SLU 73	1.79	Si
ini.	3	21.24	-1.8304	10.7292	SLU 55	5.86	Si
fin.	3	25.01	5.4247	10.7292	SLU 55	1.98	Si
ini.	3	21.26	-1.749	10.7292	SLU 68	6.13	Si
fin.	3	24.92	5.3727	10.7292	SLU 68	2	Si





#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-1.9676	28.45			9.92	3.73	SLU 76	0.13	No
fin.	3	0	5.8017	-1.24			9.92	3.73	SLU 76	3.02	Si
ini.	3	0	-1.6751	26.23			9.92	3.73	SLU 52	0.14	No
fin.	3	0	5.6295	-0.2			9.92	3.73	SLU 52	18.52	Si
ini.	3	0	-2.017	27.19			9.92	3.73	SLU 80	0.14	No
fin.	3	0	5.0976	-3.42			9.92	3.73	SLU 80	1.09	Si
ini.	3	0	-1.8123	28.36			9.92	3.73	SLU 73	0.13	No
fin.	3	0	6.0065	-1.14			9.92	3.73	SLU 73	3.28	Si
ini.	3	0	-1.7967	26.23			9.92	3.73	SLU 83	0.14	No
fin.	3	0	4.7373	-6.86			9.92	3.73	SLU 83	0.54	No
ini.	3	0	-1.9554	28.25			9.92	3.73	SLU 84	0.13	No
fin.	3	0	5.4863	-3.74			9.92	3.73	SLU 84	1	No
ini.	3	0	-1.8241	27.29			9.92	3.73	SLU 75	0.14	No
fin.	3	0	5.3987	-3.46			9.92	3.73	SLU 75	1.08	Si
ini.	3	0	-1.9794	27.37			9.92	3.73	SLU 78	0.14	No
fin.	3	0	5.1939	-3.56			9.92	3.73	SLU 78	1.05	Si
ini.	3	0	-1.8304	26.31			9.92	3.73	SLU 55	0.14	No
fin.	3	0	5.4247	-0.3			9.92	3.73	SLU 55	12.44	Si
ini.	3	0	-1.8001	28.16			9.92	3.73	SLU 82	0.13	No
fin.	3	0	5.691	-3.64			9.92	3.73	SLU 82	1.03	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-45.14	-1.9812	12.5194	SLV 4	6.32	Si
fin.	2	-38.17	-10.198	12.5194	SLV 4	1.23	Si
ini.	2	54.46	-3.7565	12.5194	SLV 16	3.33	Si
fin.	2	51.63	12.3266	12.5194	SLV 16	1.02	Si
ini.	2	60.99	4.7265	12.5194	SLV 9	2.65	Si
fin.	2	61.44	14.4339	12.5194	SLV 9	0.87	No
ini.	2	60.99	4.7265	12.5194	SLV 10	2.65	Si
fin.	2	61.44	14.4339	12.5194	SLV 10	0.87	No
ini.	2	-45.14	-1.9812	12.5194	SLV 3	6.32	Si
fin.	2	-38.17	-10.198	12.5194	SLV 3	1.23	Si
ini.	2	39.71	-0.7313	12.5194	SLD 14	17.12	Si
fin.	2	39.76	9.2039	12.5194	SLD 14	1.36	Si
ini.	2	73.56	-0.1281	12.5194	SLV 13	97.75	Si
fin.	2	70.67	16.9378	12.5194	SLV 13	0.74	No
ini.	2	39.71	-0.7313	12.5194	SLD 13	17.12	Si
fin.	2	39.76	9.2039	12.5194	SLD 13	1.36	Si
ini.	2	54.46	-3.7565	12.5194	SLV 15	3.33	Si
fin.	2	51.63	12.3266	12.5194	SLV 15	1.02	Si
ini.	2	73.56	-0.1281	12.5194	SLV 14	97.75	Si
fin.	2	70.67	16.9378	12.5194	SLV 14	0.74	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-1.9812	-19.55			14.88	5.6	SLV 3	0.29	No
fin.	2	0	-10.198	-37.22			14.88	5.6	SLV 3	0.15	No
ini.	2	0	4.7265	35.25			14.88	5.6	SLV 9	0.16	No
fin.	2	0	14.4339	-11.17			14.88	5.6	SLV 9	0.5	No
ini.	2	0	-0.1281	54.48			14.88	5.6	SLV 14	0.1	No
fin.	2	0	16.9378	28.81			14.88	5.6	SLV 14	0.19	No
ini.	2	0	-0.1281	54.48			14.88	5.6	SLV 13	0.1	No
fin.	2	0	16.9378	28.81			14.88	5.6	SLV 13	0.19	No
ini.	2	0	4.7265	35.25			14.88	5.6	SLV 10	0.16	No
fin.	2	0	14.4339	-11.17			14.88	5.6	SLV 10	0.5	No
ini.	2	0	1.6472	-15.15			14.88	5.6	SLV 2	0.37	No
fin.	2	0	-5.5869	-48.34			14.88	5.6	SLV 2	0.12	No
ini.	2	0	-1.9812	-19.55			14.88	5.6	SLV 4	0.29	No
fin.	2	0	-10.198	-37.22			14.88	5.6	SLV 4	0.15	No
ini.	2	0	-3.7565	50.08			14.88	5.6	SLV 15	0.11	No
fin.	2	0	12.3266	39.93			14.88	5.6	SLV 15	0.14	No
ini.	2	0	1.6472	-15.15			14.88	5.6	SLV 1	0.37	No
fin.	2	0	-5.5869	-48.34			14.88	5.6	SLV 1	0.12	No
ini.	2	0	-3.7565	50.08			14.88	5.6	SLV 16	0.11	No
fin.	2	0	12.3266	39.93			14.88	5.6	SLV 16	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.739	SLV 13	No
V_SLV	0.103	SLV 13	No
PF_SLU	1.786	SLU 73	Si
V_SLU	0.131	SLU 76	No

#### Trave di accoppiamento 39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.313	-3.359	1.11	2.01	0.9	-18.313	-3.359	1.11	2.01	0.9	1	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-22.32	-15.6143	10.3792	SLU 61	0.66	No
fin.	3	-32.9	-3.4111	10.3792	SLU 61	3.04	Si
ini.	3	-24.33	-16.2541	10.3792	SLU 84	0.64	No
fin.	3	-34.5	-4.0746	10.3792	SLU 84	2.55	Si
ini.	3	-23.57	-15.9603	10.3792	SLU 75	0.65	No
fin.	3	-33.95	-3.9146	10.3792	SLU 75	2.65	Si
ini.	3	-19.51	-15.8428	10.3792	SLU 81	0.66	No
fin.	3	-24.27	-1.4789	10.3792	SLU 81	7.02	Si
ini.	3	-25.38	-16.9412	10.3792	SLU 73	0.61	No
fin.	3	-40.18	-4.9901	10.3792	SLU 73	2.08	Si
ini.	3	-24.45	-15.3463	10.3792	SLU 78	0.68	No
fin.	3	-34.2	-4.3671	10.3792	SLU 78	2.38	Si
ini.	3	-23.44	-16.8681	10.3792	SLU 82	0.62	No
fin.	3	-34.25	-3.6221	10.3792	SLU 82	2.87	Si
ini.	3	-23.79	-15.5167	10.3792	SLU 65	0.67	No
fin.	3	-38.51	-4.8482	10.3792	SLU 65	2.14	Si
ini.	3	-26.27	-16.3272	10.3792	SLU 76	0.64	No
fin.	3	-40.44	-5.4426	10.3792	SLU 76	1.91	Si
ini.	3	-24.26	-15.6874	10.3792	SLU 52	0.66	No
fin.	3	-38.84	-4.779	10.3792	SLU 52	2.17	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-15.6874	10.52			8.73	3.29	SLU 52	0.31	No
fin.	3	0	-4.779	40.62			8.73	3.29	SLU 52	0.08	No
ini.	3	0	-15.5167	10.48			8.73	3.29	SLU 65	0.31	No
fin.	3	0	-4.8482	40.1			8.73	3.29	SLU 65	0.08	No
ini.	3	0	-16.3272	9.66			8.73	3.29	SLU 76	0.34	No
fin.	3	0	-5.4426	42.44			8.73	3.29	SLU 76	0.08	No
ini.	3	0	-15.3463	8.09			8.73	3.29	SLU 78	0.41	No
fin.	3	0	-4.3671	40.05			8.73	3.29	SLU 78	0.08	No
ini.	3	0	-15.8428	9.85			8.73	3.29	SLU 81	0.33	No
fin.	3	0	-1.4789	40.34			8.73	3.29	SLU 81	0.08	No
ini.	3	0	-16.9412	11.07			8.73	3.29	SLU 73	0.3	No
fin.	3	0	-4.9901	43.63			8.73	3.29	SLU 73	0.08	No
ini.	3	0	-16.8681	10.74			8.73	3.29	SLU 82	0.31	No
fin.	3	0	-3.6221	43.23			8.73	3.29	SLU 82	0.08	No
ini.	3	0	-16.2541	9.32			8.73	3.29	SLU 84	0.35	No
fin.	3	0	-4.0746	42.03			8.73	3.29	SLU 84	0.08	No
ini.	3	0	-15.9603	9.51			8.73	3.29	SLU 75	0.35	No
fin.	3	0	-3.9146	41.25			8.73	3.29	SLU 75	0.08	No
ini.	3	0	-15.6143	10.18			8.73	3.29	SLU 61	0.32	No
fin.	3	0	-3.4111	40.21			8.73	3.29	SLU 61	0.08	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	34.67	-32.215	12.1694	SLV 15	0.38	No
fin.	2	20.81	16.9317	12.1694	SLV 15	0.72	No
ini.	2	7.17	-20.0658	12.1694	SLD 15	0.61	No
fin.	2	-1.72	6.6852	12.1694	SLD 15	1.82	Si
ini.	2	7.17	-20.0658	12.1694	SLD 16	0.61	No
fin.	2	-1.72	6.6852	12.1694	SLD 16	1.82	Si
ini.	2	-9.94	-39.443	12.1694	SLV 14	0.31	No
fin.	2	-46.7	14.5392	12.1694	SLV 14	0.84	No
ini.	2	-9.94	-39.443	12.1694	SLV 13	0.31	No
fin.	2	-46.7	14.5392	12.1694	SLV 13	0.84	No
ini.	2	34.67	-32.215	12.1694	SLV 16	0.38	No
fin.	2	20.81	16.9317	12.1694	SLV 16	0.72	No
ini.	2	-11.14	-23.2591	12.1694	SLD 14	0.52	No
fin.	2	-28.85	5.7945	12.1694	SLD 14	2.1	Si
ini.	2	-11.14	-23.2591	12.1694	SLD 13	0.52	No
fin.	2	-28.85	5.7945	12.1694	SLD 13	2.1	Si
ini.	2	-80.06	-30.3222	12.1694	SLV 9	0.4	No
fin.	2	-128.31	0.05	12.1694	SLV 9	243.28	Si
ini.	2	-80.06	-30.3222	12.1694	SLV 10	0.4	No
fin.	2	-128.31	0.05	12.1694	SLV 10	243.28	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	8.8167	-76.92			13.1	4.93	SLV 7	0.06	No
fin.	2	0	-2.0018	-26.92			13.1	4.93	SLV 7	0.18	No
ini.	2	0	17.9374	-71.94			13.1	4.93	SLV 3	0.07	No
fin.	2	0	-16.4909	-40.49			13.1	4.93	SLV 3	0.12	No
ini.	2	0	-39.443	85.89			13.1	4.93	SLV 13	0.06	No
fin.	2	0	14.5392	95.47			13.1	4.93	SLV 13	0.05	No
ini.	2	0	-39.443	85.89			13.1	4.93	SLV 14	0.06	No
fin.	2	0	14.5392	95.47			13.1	4.93	SLV 14	0.05	No
ini.	2	0	-30.3222	90.87			13.1	4.93	SLV 9	0.05	No
fin.	2	0	0.05	81.89			13.1	4.93	SLV 9	0.06	No
ini.	2	0	-32.215	46.19			13.1	4.93	SLV 16	0.11	No
fin.	2	0	16.9317	73.05			13.1	4.93	SLV 16	0.07	No
ini.	2	0	-30.3222	90.87			13.1	4.93	SLV 10	0.05	No
fin.	2	0	0.05	81.89			13.1	4.93	SLV 10	0.06	No
ini.	2	0	-32.215	46.19			13.1	4.93	SLV 15	0.11	No
fin.	2	0	16.9317	73.05			13.1	4.93	SLV 15	0.07	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	17.9374	-71.94			13.1	4.93	SLV 4	0.07	No
fin.	2	0	-16.4909	-40.49			13.1	4.93	SLV 4	0.12	No
ini.	2	0	8.8167	-76.92			13.1	4.93	SLV 8	0.06	No
fin.	2	0	-2.0018	-26.92			13.1	4.93	SLV 8	0.18	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.309	SLV 13	No
V_SLV	0.052	SLV 13	No
PF_SLU	0.613	SLU 73	No
V_SLU	0.075	SLU 73	No

## Trave di accoppiamento 40

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.313	-3.359	3.91	4.83	0.92	-18.313	-3.359	3.91	4.83	0.92	1	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.37	-2.2285	10.7292	SLU 52	4.81	Si
fin.	3	22.57	3.3959	10.7292	SLU 52	3.16	Si
ini.	3	2.74	-2.0594	10.7292	SLU 65	5.21	Si
fin.	3	22.7	3.4167	10.7292	SLU 65	3.14	Si
ini.	3	2.78	-1.9847	10.7292	SLU 68	5.41	Si
fin.	3	21.13	3.0295	10.7292	SLU 68	3.54	Si
ini.	3	3.09	-2.241	10.7292	SLU 76	4.79	Si
fin.	3	22.8	3.1759	10.7292	SLU 76	3.38	Si
ini.	3	1.75	-2.5702	10.7292	SLU 61	4.17	Si
fin.	3	21.48	3.1614	10.7292	SLU 61	3.39	Si
ini.	3	2.46	-2.5064	10.7292	SLU 75	4.28	Si
fin.	3	21.71	3.0098	10.7292	SLU 75	3.56	Si
ini.	3	2.43	-2.6575	10.7292	SLU 82	4.04	Si
fin.	3	23.28	3.3287	10.7292	SLU 82	3.22	Si
ini.	3	2.06	-1.9722	10.7292	SLU 44	5.44	Si
fin.	3	20.9	3.2495	10.7292	SLU 44	3.3	Si
ini.	3	3.2	-1.7498	10.7292	SLU 31	6.13	Si
fin.	3	21.06	3.0289	10.7292	SLU 31	3.54	Si
ini.	3	3.05	-2.3157	10.7292	SLU 73	4.63	Si
fin.	3	24.37	3.5632	10.7292	SLU 73	3.01	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.241	43.23			9.13	3.43	SLU 76	0.08	No
fin.	3	0	3.1759	-14.56			9.13	3.43	SLU 76	0.24	No
ini.	3	0	-2.3157	44.02			9.13	3.43	SLU 73	0.08	No
fin.	3	0	3.5632	-13.08			9.13	3.43	SLU 73	0.26	No
ini.	3	0	-2.8542	43.08			9.13	3.43	SLU 74	0.08	No
fin.	3	0	2.564	-16.43			9.13	3.43	SLU 74	0.21	No
ini.	3	0	-2.5828	44.76			9.13	3.43	SLU 84	0.08	No
fin.	3	0	2.9415	-16.41			9.13	3.43	SLU 84	0.21	No
ini.	3	0	-2.5064	43.52			9.13	3.43	SLU 75	0.08	No
fin.	3	0	3.0098	-15.16			9.13	3.43	SLU 75	0.23	No
ini.	3	0	-2.9306	44.33			9.13	3.43	SLU 83	0.08	No
fin.	3	0	2.4956	-17.68			9.13	3.43	SLU 83	0.19	No
ini.	3	0	-2.6575	45.56			9.13	3.43	SLU 82	0.08	No
fin.	3	0	3.3287	-14.92			9.13	3.43	SLU 82	0.23	No
ini.	3	0	-2.4317	42.73			9.13	3.43	SLU 78	0.08	No
fin.	3	0	2.6225	-16.65			9.13	3.43	SLU 78	0.21	No
ini.	3	0	-2.7796	42.29			9.13	3.43	SLU 77	0.08	No
fin.	3	0	2.1767	-17.92			9.13	3.43	SLU 77	0.19	No
ini.	3	0	-3.0053	45.12			9.13	3.43	SLU 81	0.08	No
fin.	3	0	2.8829	-16.19			9.13	3.43	SLU 81	0.21	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-16.11	-12.452	12.5194	SLV 5	1.01	Si
fin.	2	33.13	6.7415	12.5194	SLV 5	1.86	Si
ini.	2	-15.79	-14.7952	12.5194	SLV 9	0.85	No
fin.	2	62.7	14.0471	12.5194	SLV 9	0.89	No
ini.	2	5.03	5.2829	12.5194	SLV 4	2.37	Si
fin.	2	-45.36	-12.6141	12.5194	SLV 4	0.99	No
ini.	2	5.03	5.2829	12.5194	SLV 3	2.37	Si
fin.	2	-45.36	-12.6141	12.5194	SLV 3	0.99	No
ini.	2	6.09	-2.5276	12.5194	SLV 15	4.95	Si
fin.	2	53.19	11.7381	12.5194	SLV 15	1.07	Si
ini.	2	-3.84	-9.4513	12.5194	SLV 13	1.32	Si
fin.	2	73.5	16.7376	12.5194	SLV 13	0.75	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3.84	-9.4513	12.5194	SLV 14	1.32	Si
fin.	2	73.5	16.7376	12.5194	SLV 14	0.75	No
ini.	2	-16.11	-12.452	12.5194	SLV 6	1.01	Si
fin.	2	33.13	6.7415	12.5194	SLV 6	1.86	Si
ini.	2	-15.79	-14.7952	12.5194	SLV 10	0.85	No
fin.	2	62.7	14.0471	12.5194	SLV 10	0.89	No
ini.	2	6.09	-2.5276	12.5194	SLV 16	4.95	Si
fin.	2	53.19	11.7381	12.5194	SLV 16	1.07	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-9.4513	74.11			13.69	5.15	SLV 14	0.07	No
fin.	2	0	16.7376	45.95			13.69	5.15	SLV 14	0.11	No
ini.	2	0	5.2829	-13.1			13.69	5.15	SLV 3	0.39	No
fin.	2	0	-12.6141	-66.23			13.69	5.15	SLV 3	0.08	No
ini.	2	0	-12.452	66.24			13.69	5.15	SLV 5	0.08	No
fin.	2	0	6.7415	8.55			13.69	5.15	SLV 5	0.6	No
ini.	2	0	10.6268	-23.33			13.69	5.15	SLV 7	0.22	No
fin.	2	0	-9.9236	-56.61			13.69	5.15	SLV 7	0.09	No
ini.	2	0	-12.452	66.24			13.69	5.15	SLV 6	0.08	No
fin.	2	0	6.7415	8.55			13.69	5.15	SLV 6	0.6	No
ini.	2	0	-9.4513	74.11			13.69	5.15	SLV 13	0.07	No
fin.	2	0	16.7376	45.95			13.69	5.15	SLV 13	0.11	No
ini.	2	0	-14.7952	84.34			13.69	5.15	SLV 9	0.06	No
fin.	2	0	14.0471	36.34			13.69	5.15	SLV 9	0.14	No
ini.	2	0	5.2829	-13.1			13.69	5.15	SLV 4	0.39	No
fin.	2	0	-12.6141	-66.23			13.69	5.15	SLV 4	0.08	No
ini.	2	0	10.6268	-23.33			13.69	5.15	SLV 8	0.22	No
fin.	2	0	-9.9236	-56.61			13.69	5.15	SLV 8	0.09	No
ini.	2	0	-14.7952	84.34			13.69	5.15	SLV 10	0.06	No
fin.	2	0	14.0471	36.34			13.69	5.15	SLV 10	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.748	SLV 13	No
V_SLV	0.061	SLV 9	No
PF_SLU	3.011	SLU 73	Si
V_SLU	0.075	SLU 82	No

## Trave di accoppiamento 41

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.053	-4.862	4.37	4.83	0.46	-17.053	-3.772	4.37	4.83	0.46	1.09	0.3	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6.42	0.5999	3.2207	SLU 55	5.37	Si
fin.	3	9.77	-2.1061	3.2207	SLU 55	1.53	Si
ini.	3	-6.32	0.5885	3.2207	SLU 68	5.47	Si
fin.	3	10.2	-2.2727	3.2207	SLU 68	1.42	Si
ini.	3	-6.38	0.5996	3.2207	SLU 65	5.37	Si
fin.	3	9.51	-2.0397	3.2207	SLU 65	1.58	Si
ini.	3	-5.05	0.4642	3.2207	SLU 13	6.94	Si
fin.	3	9.03	-2.0288	3.2207	SLU 13	1.59	Si
ini.	3	-6.22	0.5759	3.2207	SLU 47	5.59	Si
fin.	3	10.51	-2.4251	3.2207	SLU 47	1.33	Si
ini.	3	-4.84	0.4402	3.2207	SLU 5	7.32	Si
fin.	3	9.78	-2.3479	3.2207	SLU 5	1.37	Si
ini.	3	-5	0.4639	3.2207	SLU 23	6.94	Si
fin.	3	8.78	-1.9624	3.2207	SLU 23	1.64	Si
ini.	3	-6.27	0.587	3.2207	SLU 44	5.49	Si
fin.	3	9.82	-2.1921	3.2207	SLU 44	1.47	Si
ini.	3	-4.95	0.4528	3.2207	SLU 26	7.11	Si
fin.	3	9.47	-2.1954	3.2207	SLU 26	1.47	Si
ini.	3	-4.9	0.4513	3.2207	SLU 2	7.14	Si
fin.	3	9.09	-2.1148	3.2207	SLU 2	1.52	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.6125	-1.09			3.54	1.33	SLU 76	1.22	Si
fin.	3	0	-1.9537	11.45			3.54	1.33	SLU 76	0.12	No
ini.	3	0	0.64	0.06			3.54	1.33	SLU 82	22.29	Si
fin.	3	0	-0.7713	11.82			3.54	1.33	SLU 82	0.11	No
ini.	3	0	0.6289	-0.14			3.54	1.33	SLU 84	9.37	Si
fin.	3	0	-1.0043	11.64			3.54	1.33	SLU 84	0.11	No
ini.	3	0	0.6075	-0.46			3.54	1.33	SLU 80	2.91	Si
fin.	3	0	-1.3741	10.8			3.54	1.33	SLU 80	0.12	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.6492	1.31			3.54	1.33	SLU 81	1.02	Si
fin.	3	0	0.4475	11.11			3.54	1.33	SLU 81	0.12	No
ini.	3	0	0.6275	-0.06			3.54	1.33	SLU 61	23.17	Si
fin.	3	0	-0.9238	10.68			3.54	1.33	SLU 61	0.12	No
ini.	3	0	0.6116	-0.39			3.54	1.33	SLU 78	3.38	Si
fin.	3	0	-1.2974	11.01			3.54	1.33	SLU 78	0.12	No
ini.	3	0	0.6381	1.11			3.54	1.33	SLU 83	1.2	Si
fin.	3	0	0.2145	10.93			3.54	1.33	SLU 83	0.12	No
ini.	3	0	0.6228	-0.19			3.54	1.33	SLU 75	6.93	Si
fin.	3	0	-1.0644	11.18			3.54	1.33	SLU 75	0.12	No
ini.	3	0	0.6236	-0.89			3.54	1.33	SLU 73	1.5	Si
fin.	3	0	-1.7207	11.63			3.54	1.33	SLU 73	0.11	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2.31	-1.261	4.7081	SLV 6	3.73	Si
fin.	2	-58.37	19.1268	4.7081	SLV 6	0.25	No
ini.	2	-9.28	2.2571	4.7081	SLV 8	2.09	Si
fin.	2	68.47	-21.0441	4.7081	SLV 8	0.22	No
ini.	2	-0.41	-0.1204	4.7081	SLV 13	39.09	Si
fin.	2	-28.07	9.4435	4.7081	SLV 13	0.5	No
ini.	2	-0.41	-0.1204	4.7081	SLV 14	39.09	Si
fin.	2	-28.07	9.4435	4.7081	SLV 14	0.5	No
ini.	2	-9.28	2.2571	4.7081	SLV 7	2.09	Si
fin.	2	68.47	-21.0441	4.7081	SLV 7	0.22	No
ini.	2	-2.31	-1.261	4.7081	SLV 5	3.73	Si
fin.	2	-58.37	19.1268	4.7081	SLV 5	0.25	No
ini.	2	-7.28	2.2152	4.7081	SLV 12	2.13	Si
fin.	2	61.97	-19.0241	4.7081	SLV 12	0.25	No
ini.	2	-7.28	2.2152	4.7081	SLV 11	2.13	Si
fin.	2	61.97	-19.0241	4.7081	SLV 11	0.25	No
ini.	2	-0.31	-1.3029	4.7081	SLV 10	3.61	Si
fin.	2	-64.88	21.1467	4.7081	SLV 10	0.22	No
ini.	2	-0.31	-1.3029	4.7081	SLV 9	3.61	Si
fin.	2	-64.88	21.1467	4.7081	SLV 9	0.22	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	0.935	-2.84			5.31	2	SLV 16	0.7	No
fin.	2	0	-2.6077	9.92			5.31	2	SLV 16	0.2	No
ini.	2	0	2.2571	-20.09			5.31	2	SLV 7	0.1	No
fin.	2	0	-21.0441	7.22			5.31	2	SLV 7	0.28	No
ini.	2	0	2.2152	-18.63			5.31	2	SLV 12	0.11	No
fin.	2	0	-19.0241	8.78			5.31	2	SLV 12	0.23	No
ini.	2	0	2.2571	-20.09			5.31	2	SLV 8	0.1	No
fin.	2	0	-21.0441	7.22			5.31	2	SLV 8	0.28	No
ini.	2	0	0.935	-2.84			5.31	2	SLV 15	0.7	No
fin.	2	0	-2.6077	9.92			5.31	2	SLV 15	0.2	No
ini.	2	0	-1.3029	21.63			5.31	2	SLV 9	0.09	No
fin.	2	0	21.1467	6.86			5.31	2	SLV 9	0.29	No
ini.	2	0	2.2152	-18.63			5.31	2	SLV 11	0.11	No
fin.	2	0	-19.0241	8.78			5.31	2	SLV 11	0.23	No
ini.	2	0	-1.261	20.17			5.31	2	SLV 6	0.1	No
fin.	2	0	19.1268	5.3			5.31	2	SLV 6	0.38	No
ini.	2	0	-1.261	20.17			5.31	2	SLV 5	0.1	No
fin.	2	0	19.1268	5.3			5.31	2	SLV 5	0.38	No
ini.	2	0	-1.3029	21.63			5.31	2	SLV 10	0.09	No
fin.	2	0	21.1467	6.86			5.31	2	SLV 10	0.29	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.223	SLV 9	No
V_SLV	0.092	SLV 9	No
PF_SLU	1.328	SLU 47	Si
V_SLU	0.113	SLU 82	No

## Trave di accoppiamento 42

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.483	-3.359	3.21	4.83	1.62	-16.383	-3.359	3.21	4.83	1.62	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-22.68	-10.3715	22.9792	SLU 83	2.22	Si
fin.	3	-19.54	-14.737	22.9792	SLU 83	1.56	Si
ini.	3	-22.13	-9.4247	22.9792	SLU 59	2.44	Si
fin.	3	-18.91	-14.4656	22.9792	SLU 59	1.59	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-22.75	-11.4996	22.9792	SLU 78	2	Si
fin.	3	-19.25	-15.1021	22.9792	SLU 78	1.52	Si
ini.	3	-22.5	-8.9732	22.9792	SLU 77	2.56	Si
fin.	3	-19.49	-15.003	22.9792	SLU 77	1.53	Si
ini.	3	-21.75	-15.671	22.9792	SLU 73	1.47	Si
fin.	3	-17.6	-13.4171	22.9792	SLU 73	1.71	Si
ini.	3	-22.93	-12.8979	22.9792	SLU 84	1.78	Si
fin.	3	-19.3	-14.8361	22.9792	SLU 84	1.55	Si
ini.	3	-22.66	-8.3504	22.9792	SLU 79	2.75	Si
fin.	3	-19.74	-15.0924	22.9792	SLU 79	1.52	Si
ini.	3	-20.16	-14.5834	22.9792	SLU 65	1.58	Si
fin.	3	-16.05	-12.0989	22.9792	SLU 65	1.9	Si
ini.	3	-22.91	-10.8768	22.9792	SLU 80	2.11	Si
fin.	3	-19.5	-15.1915	22.9792	SLU 80	1.51	Si
ini.	3	-22.27	-14.4528	22.9792	SLU 82	1.59	Si
fin.	3	-18.43	-13.9159	22.9792	SLU 82	1.65	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-8.9194	7.68			17.47	6.57	SLU 62	0.86	No
fin.	3	0	-14.0112	-48.04			17.47	6.57	SLU 62	0.14	No
ini.	3	0	-12.8979	13.13			17.47	6.57	SLU 84	0.5	No
fin.	3	0	-14.8361	-49.98			17.47	6.57	SLU 84	0.13	No
ini.	3	0	-10.3715	9.92			17.47	6.57	SLU 83	0.66	No
fin.	3	0	-14.737	-52.05			17.47	6.57	SLU 83	0.13	No
ini.	3	0	-6.8983	4.16			17.47	6.57	SLU 58	1.58	Si
fin.	3	0	-14.3665	-47.97			17.47	6.57	SLU 58	0.14	No
ini.	3	0	-11.4996	10.52			17.47	6.57	SLU 78	0.62	No
fin.	3	0	-15.1021	-49.62			17.47	6.57	SLU 78	0.13	No
ini.	3	0	-8.9732	7.31			17.47	6.57	SLU 77	0.9	No
fin.	3	0	-15.003	-51.69			17.47	6.57	SLU 77	0.13	No
ini.	3	0	-11.9265	12.89			17.47	6.57	SLU 81	0.51	No
fin.	3	0	-13.8168	-49.54			17.47	6.57	SLU 81	0.13	No
ini.	3	0	-8.3504	6.4			17.47	6.57	SLU 79	1.03	Si
fin.	3	0	-15.0924	-51.98			17.47	6.57	SLU 79	0.13	No
ini.	3	0	-10.5282	10.28			17.47	6.57	SLU 74	0.64	No
fin.	3	0	-14.0828	-49.18			17.47	6.57	SLU 74	0.13	No
ini.	3	0	-10.8768	9.61			17.47	6.57	SLU 80	0.68	No
fin.	3	0	-15.1915	-49.91			17.47	6.57	SLU 80	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-38.42	36.9188	24.7694	SLV 2	0.67	No
fin.	2	-48.9	-43.8358	24.7694	SLV 2	0.57	No
ini.	2	-24.62	49.0876	24.7694	SLV 3	0.5	No
fin.	2	-32.9	-34.1677	24.7694	SLV 3	0.72	No
ini.	2	-33.65	-43.5442	24.7694	SLV 10	0.57	No
fin.	2	-31.25	-16.6291	24.7694	SLV 10	1.49	Si
ini.	2	-24.62	49.0876	24.7694	SLV 4	0.5	No
fin.	2	-32.9	-34.1677	24.7694	SLV 4	0.72	No
ini.	2	-33.65	-43.5442	24.7694	SLV 9	0.57	No
fin.	2	-31.25	-16.6291	24.7694	SLV 9	1.49	Si
ini.	2	7.48	-52.8601	24.7694	SLV 16	0.47	No
fin.	2	22.96	25.042	24.7694	SLV 16	0.99	No
ini.	2	7.48	-52.8601	24.7694	SLV 15	0.47	No
fin.	2	22.96	25.042	24.7694	SLV 15	0.99	No
ini.	2	-6.32	-65.0289	24.7694	SLV 13	0.38	No
fin.	2	6.97	15.3738	24.7694	SLV 13	1.61	Si
ini.	2	-38.42	36.9188	24.7694	SLV 1	0.67	No
fin.	2	-48.9	-43.8358	24.7694	SLV 1	0.57	No
ini.	2	-6.32	-65.0289	24.7694	SLV 14	0.38	No
fin.	2	6.97	15.3738	24.7694	SLV 14	1.61	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	49.0876	-90.74			26.2	9.86	SLV 4	0.11	No
fin.	2	0	-34.1677	-103			26.2	9.86	SLV 4	0.1	No
ini.	2	0	-65.0289	107.48			26.2	9.86	SLV 13	0.09	No
fin.	2	0	15.3738	38.29			26.2	9.86	SLV 13	0.26	No
ini.	2	0	-52.8601	109.71			26.2	9.86	SLV 16	0.09	No
fin.	2	0	25.042	54.92			26.2	9.86	SLV 16	0.18	No
ini.	2	0	-12.9598	-25.41			26.2	9.86	SLV 6	0.39	No
fin.	2	0	-34.392	-83.76			26.2	9.86	SLV 6	0.12	No
ini.	2	0	-12.9598	-25.41			26.2	9.86	SLV 5	0.39	No
fin.	2	0	-34.392	-83.76			26.2	9.86	SLV 5	0.12	No
ini.	2	0	49.0876	-90.74			26.2	9.86	SLV 3	0.11	No
fin.	2	0	-34.1677	-103			26.2	9.86	SLV 3	0.1	No
ini.	2	0	36.9188	-92.97			26.2	9.86	SLV 1	0.11	No
fin.	2	0	-43.8358	-119.63			26.2	9.86	SLV 1	0.08	No
ini.	2	0	36.9188	-92.97			26.2	9.86	SLV 2	0.11	No
fin.	2	0	-43.8358	-119.63			26.2	9.86	SLV 2	0.08	No
ini.	2	0	-52.8601	109.71			26.2	9.86	SLV 15	0.09	No
fin.	2	0	25.042	54.92			26.2	9.86	SLV 15	0.18	No
ini.	2	0	-65.0289	107.48			26.2	9.86	SLV 14	0.09	No
fin.	2	0	15.3738	38.29			26.2	9.86	SLV 14	0.26	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.381	SLV 13	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.082	SLV 1	No
PF SLU	1.466	SLU 73	Si
V SLU	0.126	SLU 83	No

## Trave di accoppiamento 43

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-14.438	-4.859	4.37	4.83	0.46	-16.278	-4.859	4.37	4.83	0.46	1.84	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.23	-1.0535	3.2207	SLU 47	3.06	Si
fin.	3	-1.18	0.3365	3.2207	SLU 47	9.57	Si
ini.	3	-1.24	0.303	3.2207	SLU 37	10.63	Si
fin.	3	0.57	-0.8541	3.2207	SLU 37	3.77	Si
ini.	3	1.14	-1.0164	3.2207	SLU 65	3.17	Si
fin.	3	-1.15	0.3045	3.2207	SLU 65	10.58	Si
ini.	3	1	-1.0038	3.2207	SLU 64	3.21	Si
fin.	3	-1.11	0.1915	3.2207	SLU 64	16.82	Si
ini.	3	1.04	-0.9138	3.2207	SLU 1	3.52	Si
fin.	3	-1.04	0.2786	3.2207	SLU 1	11.56	Si
ini.	3	1.53	-1.2839	3.2207	SLU 43	2.51	Si
fin.	3	-1.47	0.4512	3.2207	SLU 43	7.14	Si
ini.	3	1.23	-1.0812	3.2207	SLU 46	2.98	Si
fin.	3	-1.21	0.3221	3.2207	SLU 46	10	Si
ini.	3	1.18	-0.9264	3.2207	SLU 2	3.48	Si
fin.	3	-1.08	0.3916	3.2207	SLU 2	8.22	Si
ini.	3	1.67	-1.2965	3.2207	SLU 44	2.48	Si
fin.	3	-1.51	0.5642	3.2207	SLU 44	5.71	Si
ini.	3	1.15	-1.0736	3.2207	SLU 45	3	Si
fin.	3	-1.18	0.2543	3.2207	SLU 45	12.67	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.8382	1.67			3.54	1.33	SLU 49	0.8	No
fin.	3	0	0.0944	-0.85			3.54	1.33	SLU 49	1.57	Si
ini.	3	0	-1.0812	1.95			3.54	1.33	SLU 46	0.69	No
fin.	3	0	0.3221	-0.59			3.54	1.33	SLU 46	2.25	Si
ini.	3	0	-1.2839	2.14			3.54	1.33	SLU 43	0.62	No
fin.	3	0	0.4512	-0.42			3.54	1.33	SLU 43	3.21	Si
ini.	3	0	-0.9264	1.64			3.54	1.33	SLU 2	0.81	No
fin.	3	0	0.3916	-0.32			3.54	1.33	SLU 2	4.23	Si
ini.	3	0	-0.8458	1.67			3.54	1.33	SLU 52	0.8	No
fin.	3	0	0.1466	-0.74			3.54	1.33	SLU 52	1.8	Si
ini.	3	0	-1.0164	1.88			3.54	1.33	SLU 65	0.71	No
fin.	3	0	0.3045	-0.6			3.54	1.33	SLU 65	2.24	Si
ini.	3	0	-1.0736	1.89			3.54	1.33	SLU 45	0.7	No
fin.	3	0	0.2543	-0.64			3.54	1.33	SLU 45	2.1	Si
ini.	3	0	-1.0038	1.79			3.54	1.33	SLU 64	0.75	No
fin.	3	0	0.1915	-0.67			3.54	1.33	SLU 64	2	Si
ini.	3	0	-1.2965	2.23			3.54	1.33	SLU 44	0.6	No
fin.	3	0	0.5642	-0.34			3.54	1.33	SLU 44	3.87	Si
ini.	3	0	-1.0535	1.95			3.54	1.33	SLU 47	0.68	No
fin.	3	0	0.3365	-0.6			3.54	1.33	SLU 47	2.21	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-29.24	12.9282	4.7081	SLV 3	0.36	No
fin.	2	15.55	-13.4227	4.7081	SLV 3	0.35	No
ini.	2	30.8	-16.0371	4.7081	SLV 15	0.29	No
fin.	2	-19.63	14.9118	4.7081	SLV 15	0.32	No
ini.	2	30.52	-14.3381	4.7081	SLV 13	0.33	No
fin.	2	-17.09	13.5927	4.7081	SLV 13	0.35	No
ini.	2	10.11	-7.8814	4.7081	SLV 12	0.6	No
fin.	2	-10.28	6.5336	4.7081	SLV 12	0.72	No
ini.	2	-29.52	14.6272	4.7081	SLV 2	0.32	No
fin.	2	18.09	-14.7417	4.7081	SLV 2	0.32	No
ini.	2	-29.24	12.9282	4.7081	SLV 4	0.36	No
fin.	2	15.55	-13.4227	4.7081	SLV 4	0.35	No
ini.	2	10.11	-7.8814	4.7081	SLV 11	0.6	No
fin.	2	-10.28	6.5336	4.7081	SLV 11	0.72	No
ini.	2	-29.52	14.6272	4.7081	SLV 1	0.32	No
fin.	2	18.09	-14.7417	4.7081	SLV 1	0.32	No
ini.	2	30.52	-14.3381	4.7081	SLV 14	0.33	No
fin.	2	-17.09	13.5927	4.7081	SLV 14	0.35	No
ini.	2	30.8	-16.0371	4.7081	SLV 16	0.29	No
fin.	2	-19.63	14.9118	4.7081	SLV 16	0.32	No



## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	14.6272	-15.91			5.31	2	SLV 2	0.13	No
fin.	2	0	-14.7417	-16.86			5.31	2	SLV 2	0.12	No
ini.	2	0	12.9282	-14.85			5.31	2	SLV 3	0.13	No
fin.	2	0	-13.4227	-16.38			5.31	2	SLV 3	0.12	No
ini.	2	0	12.9282	-14.85			5.31	2	SLV 4	0.13	No
fin.	2	0	-13.4227	-16.38			5.31	2	SLV 4	0.12	No
ini.	2	0	-7.2396	8.64			5.31	2	SLD 16	0.23	No
fin.	2	0	6.4067	6.38			5.31	2	SLD 16	0.31	No
ini.	2	0	14.6272	-15.91			5.31	2	SLV 1	0.13	No
fin.	2	0	-14.7417	-16.86			5.31	2	SLV 1	0.12	No
ini.	2	0	-14.3381	17.43			5.31	2	SLV 14	0.11	No
fin.	2	0	13.5927	15.24			5.31	2	SLV 14	0.13	No
ini.	2	0	-16.0371	18.49			5.31	2	SLV 15	0.11	No
fin.	2	0	14.9118	15.72			5.31	2	SLV 15	0.13	No
ini.	2	0	-14.3381	17.43			5.31	2	SLV 13	0.11	No
fin.	2	0	13.5927	15.24			5.31	2	SLV 13	0.13	No
ini.	2	0	-7.2396	8.64			5.31	2	SLD 15	0.23	No
fin.	2	0	6.4067	6.38			5.31	2	SLD 15	0.31	No
ini.	2	0	-16.0371	18.49			5.31	2	SLV 16	0.11	No
fin.	2	0	14.9118	15.72			5.31	2	SLV 16	0.13	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.294	SLV 15	No
V_SLV	0.108	SLV 15	No
PF_SLU	2.484	SLU 44	Si
V_SLU	0.599	SLU 44	No

## Trave di accoppiamento 44

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.058	1.406	3.21	4.83	1.62	-15.058	2.206	3.21	4.83	1.62	0.8	0.14	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6.21	-1.5809	17.6083	SLU 84	11.14	Si
fin.	3	-6.21	-36.5741	17.6083	SLU 84	0.48	No
ini.	3	-6.18	-1.5594	17.6083	SLU 77	11.29	Si
fin.	3	-6.18	-36.7993	17.6083	SLU 77	0.48	No
ini.	3	-6.16	-1.5594	17.6083	SLU 79	11.29	Si
fin.	3	-6.16	-36.6958	17.6083	SLU 79	0.48	No
ini.	3	-5.74	-1.4627	17.6083	SLU 76	12.04	Si
fin.	3	-5.74	-34.4272	17.6083	SLU 76	0.51	No
ini.	3	-5.83	-1.4721	17.6083	SLU 74	11.96	Si
fin.	3	-5.83	-34.6034	17.6083	SLU 74	0.51	No
ini.	3	-6.14	-1.5538	17.6083	SLU 78	11.33	Si
fin.	3	-6.14	-36.7557	17.6083	SLU 78	0.48	No
ini.	3	-6.25	-1.5865	17.6083	SLU 83	11.1	Si
fin.	3	-6.25	-36.6178	17.6083	SLU 83	0.48	No
ini.	3	-5.9	-1.4991	17.6083	SLU 81	11.75	Si
fin.	3	-5.9	-34.4219	17.6083	SLU 81	0.51	No
ini.	3	-6.11	-1.5538	17.6083	SLU 80	11.33	Si
fin.	3	-6.11	-36.6522	17.6083	SLU 80	0.48	No
ini.	3	-5.79	-1.4665	17.6083	SLU 75	12.01	Si
fin.	3	-5.79	-34.5598	17.6083	SLU 75	0.51	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.4991	-38			8.73	3.29	SLU 81	0.09	No
fin.	3	0	-34.4219	-43.47			8.73	3.29	SLU 81	0.08	No
ini.	3	0	-1.5594	-40.76			8.73	3.29	SLU 79	0.08	No
fin.	3	0	-36.6958	-46.24			8.73	3.29	SLU 79	0.07	No
ini.	3	0	-1.4665	-38.21			8.73	3.29	SLU 75	0.09	No
fin.	3	0	-34.5598	-43.68			8.73	3.29	SLU 75	0.08	No
ini.	3	0	-1.5538	-40.85			8.73	3.29	SLU 78	0.08	No
fin.	3	0	-36.7557	-46.32			8.73	3.29	SLU 78	0.07	No
ini.	3	0	-1.5865	-40.63			8.73	3.29	SLU 83	0.08	No
fin.	3	0	-36.6178	-46.11			8.73	3.29	SLU 83	0.07	No
ini.	3	0	-1.4721	-38.26			8.73	3.29	SLU 74	0.09	No
fin.	3	0	-34.6034	-43.73			8.73	3.29	SLU 74	0.08	No
ini.	3	0	-1.4627	-38.05			8.73	3.29	SLU 76	0.09	No
fin.	3	0	-34.4272	-43.52			8.73	3.29	SLU 76	0.08	No
ini.	3	0	-1.5809	-40.58			8.73	3.29	SLU 84	0.08	No
fin.	3	0	-36.5741	-46.06			8.73	3.29	SLU 84	0.07	No
ini.	3	0	-1.5594	-40.89			8.73	3.29	SLU 77	0.08	No
fin.	3	0	-36.7993	-46.37			8.73	3.29	SLU 77	0.07	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.5538	-40.72			8.73	3.29	SLU 80	0.08	No
fin.	3	0	-36.6522	-46.19			8.73	3.29	SLU 80	0.07	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-48.51	-18.8165	21.1889	SLV 7	1.13	Si
fin.	2	-26	-86.5832	21.1889	SLV 7	0.24	No
ini.	2	-23.07	-8.6879	21.1889	SLD 12	2.44	Si
fin.	2	-13.54	-51.6476	21.1889	SLD 12	0.41	No
ini.	2	43.81	18.0055	21.1889	SLV 6	1.18	Si
fin.	2	20.42	50.1377	21.1889	SLV 6	0.42	No
ini.	2	-50.83	-19.7847	21.1889	SLV 11	1.07	Si
fin.	2	-27.44	-92.9861	21.1889	SLV 11	0.23	No
ini.	2	43.81	18.0055	21.1889	SLV 5	1.18	Si
fin.	2	20.42	50.1377	21.1889	SLV 5	0.42	No
ini.	2	-48.51	-18.8165	21.1889	SLV 8	1.13	Si
fin.	2	-26	-86.5832	21.1889	SLV 8	0.24	No
ini.	2	-23.07	-8.6879	21.1889	SLD 11	2.44	Si
fin.	2	-13.54	-51.6476	21.1889	SLD 11	0.41	No
ini.	2	-21.23	-8.0264	21.1889	SLV 15	2.64	Si
fin.	2	-12.87	-52.6039	21.1889	SLV 15	0.4	No
ini.	2	-50.83	-19.7847	21.1889	SLV 12	1.07	Si
fin.	2	-27.44	-92.9861	21.1889	SLV 12	0.23	No
ini.	2	-21.23	-8.0264	21.1889	SLV 16	2.64	Si
fin.	2	-12.87	-52.6039	21.1889	SLV 16	0.4	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	18.0055	90.9			13.1	4.93	SLV 6	0.05	No
fin.	2	0	50.1377	59.69			13.1	4.93	SLV 6	0.08	No
ini.	2	0	-19.7847	-137.42			13.1	4.93	SLV 12	0.04	No
fin.	2	0	-92.9861	-114.57			13.1	4.93	SLV 12	0.04	No
ini.	2	0	-18.8165	-128.86			13.1	4.93	SLV 8	0.04	No
fin.	2	0	-86.5832	-106.33			13.1	4.93	SLV 8	0.05	No
ini.	2	0	-8.6879	-71.01			13.1	4.93	SLD 11	0.07	No
fin.	2	0	-51.6476	-64.14			13.1	4.93	SLD 11	0.08	No
ini.	2	0	17.0374	82.34			13.1	4.93	SLV 9	0.06	No
fin.	2	0	43.7348	51.46			13.1	4.93	SLV 9	0.1	No
ini.	2	0	-8.6879	-71.01			13.1	4.93	SLD 12	0.07	No
fin.	2	0	-51.6476	-64.14			13.1	4.93	SLD 12	0.08	No
ini.	2	0	-19.7847	-137.42			13.1	4.93	SLV 11	0.04	No
fin.	2	0	-92.9861	-114.57			13.1	4.93	SLV 11	0.04	No
ini.	2	0	17.0374	82.34			13.1	4.93	SLV 10	0.06	No
fin.	2	0	43.7348	51.46			13.1	4.93	SLV 10	0.1	No
ini.	2	0	-18.8165	-128.86			13.1	4.93	SLV 7	0.04	No
fin.	2	0	-86.5832	-106.33			13.1	4.93	SLV 7	0.05	No
ini.	2	0	18.0055	90.9			13.1	4.93	SLV 5	0.05	No
fin.	2	0	50.1377	59.69			13.1	4.93	SLV 5	0.08	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.228	SLV 11	No
V_SLV	0.036	SLV 11	No
PF_SLU	0.478	SLU 77	No
V_SLU	0.071	SLU 77	No

## Trave di accoppiamento 45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-13.753	-0.228	3.21	4.83	1.62	-13.753	0.672	3.21	4.83	1.62	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.04	-15.8212	22.9792	SLU 29	1.45	Si
fin.	3	0.04	4.1049	22.9792	SLU 29	5.6	Si
ini.	3	0.34	-15.0774	22.9792	SLU 77	1.52	Si
fin.	3	0.34	5.1814	22.9792	SLU 77	4.43	Si
ini.	3	0.36	-15.264	22.9792	SLU 79	1.51	Si
fin.	3	0.36	5.1328	22.9792	SLU 79	4.48	Si
ini.	3	0.02	-15.6347	22.9792	SLU 27	1.47	Si
fin.	3	0.02	4.1535	22.9792	SLU 27	5.53	Si
ini.	3	0.3	-16.3146	22.9792	SLU 71	1.41	Si
fin.	3	0.3	4.7774	22.9792	SLU 71	4.81	Si
ini.	3	0.09	-14.7706	22.9792	SLU 37	1.56	Si
fin.	3	0.09	4.4603	22.9792	SLU 37	5.15	Si
ini.	3	0.28	-16.128	22.9792	SLU 69	1.42	Si
fin.	3	0.28	4.826	22.9792	SLU 69	4.76	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.08	-14.584	22.9792	SLU 35	1.58	Si
fin.	3	0.08	4.5088	22.9792	SLU 35	5.1	Si
ini.	3	0.33	-14.6019	22.9792	SLU 70	1.57	Si
fin.	3	0.33	4.7264	22.9792	SLU 70	4.86	Si
ini.	3	0.34	-14.7885	22.9792	SLU 72	1.55	Si
fin.	3	0.34	4.6779	22.9792	SLU 72	4.91	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-13.7378	25.92			17.47	6.57	SLU 80	0.25	No
fin.	3	0	5.0332	16.32			17.47	6.57	SLU 80	0.4	No
ini.	3	0	-13.5512	25.77			17.47	6.57	SLU 78	0.26	No
fin.	3	0	5.0818	16.16			17.47	6.57	SLU 78	0.41	No
ini.	3	0	-15.264	27.73			17.47	6.57	SLU 79	0.24	No
fin.	3	0	5.1328	18.12			17.47	6.57	SLU 79	0.36	No
ini.	3	0	-16.3146	28.5			17.47	6.57	SLU 71	0.23	No
fin.	3	0	4.7774	18.89			17.47	6.57	SLU 71	0.35	No
ini.	3	0	-15.0774	27.58			17.47	6.57	SLU 77	0.24	No
fin.	3	0	5.1814	17.97			17.47	6.57	SLU 77	0.37	No
ini.	3	0	-16.128	28.35			17.47	6.57	SLU 69	0.23	No
fin.	3	0	4.826	18.74			17.47	6.57	SLU 69	0.35	No
ini.	3	0	-15.6347	25.94			17.47	6.57	SLU 27	0.25	No
fin.	3	0	4.1535	18.44			17.47	6.57	SLU 27	0.36	No
ini.	3	0	-14.7885	26.7			17.47	6.57	SLU 72	0.25	No
fin.	3	0	4.6779	17.09			17.47	6.57	SLU 72	0.38	No
ini.	3	0	-14.6019	26.54			17.47	6.57	SLU 70	0.25	No
fin.	3	0	4.7264	16.94			17.47	6.57	SLU 70	0.39	No
ini.	3	0	-15.8212	26.09			17.47	6.57	SLU 29	0.25	No
fin.	3	0	4.1049	18.59			17.47	6.57	SLU 29	0.35	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2.51	-68.9513	24.7694	SLV 14	0.36	No
fin.	2	-3.53	0.9589	24.7694	SLV 14	25.83	Si
ini.	2	-13.16	-101.9186	24.7694	SLV 10	0.24	No
fin.	2	-15.71	11.5295	24.7694	SLV 10	2.15	Si
ini.	2	-13.16	-101.9186	24.7694	SLV 9	0.24	No
fin.	2	-15.71	11.5295	24.7694	SLV 9	2.15	Si
ini.	2	-13.85	-79.5554	24.7694	SLV 5	0.31	No
fin.	2	-16.24	14.6622	24.7694	SLV 5	1.69	Si
ini.	2	14.24	89.1806	24.7694	SLV 7	0.28	No
fin.	2	16.79	-5.097	24.7694	SLV 7	4.86	Si
ini.	2	14.24	89.1806	24.7694	SLV 8	0.28	No
fin.	2	16.79	-5.097	24.7694	SLV 8	4.86	Si
ini.	2	14.94	66.8174	24.7694	SLV 11	0.37	No
fin.	2	17.32	-8.2298	24.7694	SLV 11	3.01	Si
ini.	2	-13.85	-79.5554	24.7694	SLV 6	0.31	No
fin.	2	-16.24	14.6622	24.7694	SLV 6	1.69	Si
ini.	2	-2.51	-68.9513	24.7694	SLV 13	0.36	No
fin.	2	-3.53	0.9589	24.7694	SLV 13	25.83	Si
ini.	2	14.94	66.8174	24.7694	SLV 12	0.37	No
fin.	2	17.32	-8.2298	24.7694	SLV 12	3.01	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-101.9186	122.17			26.2	9.86	SLV 9	0.08	No
fin.	2	0	11.5295	118.1			26.2	9.86	SLV 9	0.08	No
ini.	2	0	66.8174	-92.05			26.2	9.86	SLV 12	0.11	No
fin.	2	0	-8.2298	-86.01			26.2	9.86	SLV 12	0.11	No
ini.	2	0	89.1806	-93.12			26.2	9.86	SLV 8	0.11	No
fin.	2	0	-5.097	-103.73			26.2	9.86	SLV 8	0.1	No
ini.	2	0	-79.5554	121.1			26.2	9.86	SLV 5	0.08	No
fin.	2	0	14.6622	100.38			26.2	9.86	SLV 5	0.1	No
ini.	2	0	-68.9513	48.44			26.2	9.86	SLV 14	0.2	No
fin.	2	0	0.9589	67.33			26.2	9.86	SLV 14	0.15	No
ini.	2	0	-79.5554	121.1			26.2	9.86	SLV 6	0.08	No
fin.	2	0	14.6622	100.38			26.2	9.86	SLV 6	0.1	No
ini.	2	0	89.1806	-93.12			26.2	9.86	SLV 7	0.11	No
fin.	2	0	-5.097	-103.73			26.2	9.86	SLV 7	0.1	No
ini.	2	0	66.8174	-92.05			26.2	9.86	SLV 11	0.11	No
fin.	2	0	-8.2298	-86.01			26.2	9.86	SLV 11	0.11	No
ini.	2	0	-68.9513	48.44			26.2	9.86	SLV 13	0.2	No
fin.	2	0	0.9589	67.33			26.2	9.86	SLV 13	0.15	No
ini.	2	0	-101.9186	122.17			26.2	9.86	SLV 10	0.08	No
fin.	2	0	11.5295	118.1			26.2	9.86	SLV 10	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.243	SLV 9	No
V_SLV	0.081	SLV 9	No
PF_SLU	1.409	SLU 71	Si
V_SLU	0.231	SLU 71	No

## Trave di accoppiamento 46

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-19.868	1.046	3.21	4.83	1.62	-20.668	1.046	3.21	4.83	1.62	0.8	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-15.83	10.409	22.9792	SLU 83	2.21	Si
fin.	3	-15.83	-22.1973	22.9792	SLU 83	1.04	Si
ini.	3	-14.8	10.769	22.9792	SLU 78	2.13	Si
fin.	3	-14.8	-22.1344	22.9792	SLU 78	1.04	Si
ini.	3	-15.61	9.4298	22.9792	SLU 75	2.44	Si
fin.	3	-15.61	-20.6081	22.9792	SLU 75	1.12	Si
ini.	3	-14.39	11.4935	22.9792	SLU 77	2	Si
fin.	3	-14.39	-22.9983	22.9792	SLU 77	1	No
ini.	3	-12.86	10.6222	22.9792	SLU 69	2.16	Si
fin.	3	-12.86	-20.5887	22.9792	SLU 69	1.12	Si
ini.	3	-16.64	9.0698	22.9792	SLU 81	2.53	Si
fin.	3	-16.64	-20.671	22.9792	SLU 81	1.11	Si
ini.	3	-14.36	11.3748	22.9792	SLU 79	2.02	Si
fin.	3	-14.36	-22.6909	22.9792	SLU 79	1.01	Si
ini.	3	-16.23	9.6845	22.9792	SLU 84	2.37	Si
fin.	3	-16.23	-21.3334	22.9792	SLU 84	1.08	Si
ini.	3	-14.76	10.6503	22.9792	SLU 80	2.16	Si
fin.	3	-14.76	-21.827	22.9792	SLU 80	1.05	Si
ini.	3	-15.2	10.1543	22.9792	SLU 74	2.26	Si
fin.	3	-15.2	-21.472	22.9792	SLU 74	1.07	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	9.4298	-27.54			17.47	6.57	SLU 75	0.24	No
fin.	3	0	-20.6081	-48.07			17.47	6.57	SLU 75	0.14	No
ini.	3	0	10.4284	-29.64			17.47	6.57	SLU 35	0.22	No
fin.	3	0	-20.4583	-47.95			17.47	6.57	SLU 35	0.14	No
ini.	3	0	10.6503	-30.59			17.47	6.57	SLU 80	0.21	No
fin.	3	0	-21.827	-51.12			17.47	6.57	SLU 80	0.13	No
ini.	3	0	10.1543	-29.53			17.47	6.57	SLU 74	0.22	No
fin.	3	0	-21.472	-50.06			17.47	6.57	SLU 74	0.13	No
ini.	3	0	11.3748	-32.58			17.47	6.57	SLU 79	0.2	No
fin.	3	0	-22.6909	-53.11			17.47	6.57	SLU 79	0.12	No
ini.	3	0	9.6845	-27.93			17.47	6.57	SLU 84	0.24	No
fin.	3	0	-21.3334	-50.14			17.47	6.57	SLU 84	0.13	No
ini.	3	0	11.4935	-33.11			17.47	6.57	SLU 77	0.2	No
fin.	3	0	-22.9983	-53.64			17.47	6.57	SLU 77	0.12	No
ini.	3	0	10.409	-29.91			17.47	6.57	SLU 83	0.22	No
fin.	3	0	-22.1973	-52.12			17.47	6.57	SLU 83	0.13	No
ini.	3	0	10.769	-31.12			17.47	6.57	SLV 78	0.21	No
fin.	3	0	-22.1344	-51.66			17.47	6.57	SLU 78	0.13	No
ini.	3	0	9.0698	-26.33			17.47	6.57	SLU 81	0.25	No
fin.	3	0	-20.671	-48.54			17.47	6.57	SLU 81	0.14	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3.33	32.3356	24.7694	SLV 6	0.77	No
fin.	2	-10.1	-42.0132	24.7694	SLV 6	0.59	No
ini.	2	-2.45	-41.7046	24.7694	SLV 14	0.59	No
fin.	2	0.49	43.787	24.7694	SLV 14	0.57	No
ini.	2	-14.52	60.2451	24.7694	SLV 2	0.41	No
fin.	2	-20.7	-76.7693	24.7694	SLV 2	0.32	No
ini.	2	-20.49	53.5826	24.7694	SLV 3	0.46	No
fin.	2	-23.43	-70.3933	24.7694	SLV 3	0.35	No
ini.	2	-2.45	-41.7046	24.7694	SLV 13	0.59	No
fin.	2	0.49	43.787	24.7694	SLV 13	0.57	No
ini.	2	-14.52	60.2451	24.7694	SLV 1	0.41	No
fin.	2	-20.7	-76.7693	24.7694	SLV 1	0.32	No
ini.	2	-8.42	-48.367	24.7694	SLV 15	0.51	No
fin.	2	-2.24	50.1629	24.7694	SLV 15	0.49	No
ini.	2	-20.49	53.5826	24.7694	SLV 4	0.46	No
fin.	2	-23.43	-70.3933	24.7694	SLV 4	0.35	No
ini.	2	-3.33	32.3356	24.7694	SLV 5	0.77	No
fin.	2	-10.1	-42.0132	24.7694	SLV 5	0.59	No
ini.	2	-8.42	-48.367	24.7694	SLV 16	0.51	No
fin.	2	-2.24	50.1629	24.7694	SLV 16	0.49	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-41.7046	116.89			26.2	9.86	SLV 14	0.08	No
fin.	2	0	43.787	103.96			26.2	9.86	SLV 14	0.09	No
ini.	2	0	-41.7046	116.89			26.2	9.86	SLV 13	0.08	No
fin.	2	0	43.787	103.96			26.2	9.86	SLV 13	0.09	No
ini.	2	0	32.3356	-86.5			26.2	9.86	SLV 6	0.11	No
fin.	2	0	-42.0132	-98.07			26.2	9.86	SLV 6	0.1	No
ini.	2	0	53.5826	-152.22			26.2	9.86	SLV 3	0.06	No
fin.	2	0	-70.3933	-165.67			26.2	9.86	SLV 3	0.06	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	60.2451	-167.89			26.2	9.86	SLV 2	0.06	No
fin.	2	0	-76.7693	-180.4			26.2	9.86	SLV 2	0.05	No
ini.	2	0	32.3356	-86.5			26.2	9.86	SLV 5	0.11	No
fin.	2	0	-42.0132	-98.07			26.2	9.86	SLV 5	0.1	No
ini.	2	0	60.2451	-167.89			26.2	9.86	SLV 1	0.06	No
fin.	2	0	-76.7693	-180.4			26.2	9.86	SLV 1	0.05	No
ini.	2	0	53.5826	-152.22			26.2	9.86	SLV 4	0.06	No
fin.	2	0	-70.3933	-165.67			26.2	9.86	SLV 4	0.06	No
ini.	2	0	-48.367	132.55			26.2	9.86	SLV 16	0.07	No
fin.	2	0	50.1629	118.7			26.2	9.86	SLV 16	0.08	No
ini.	2	0	-48.367	132.55			26.2	9.86	SLV 15	0.07	No
fin.	2	0	50.1629	118.7			26.2	9.86	SLV 15	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.323	SLV 1	No
V_SLV	0.055	SLV 1	No
PF_SLU	0.999	SLU 77	No
V_SLU	0.123	SLU 77	No

## Trave di accoppiamento 47

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-11.163	1.046	3.61	4.83	1.22	-12.283	1.046	3.61	4.83	1.22	1.12	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-55.6	-6.8587	15.9792	SLU 80	2.33	Si
fin.	3	-55.6	6.725	15.9792	SLU 80	2.38	Si
ini.	3	-55.94	-6.7064	15.9792	SLU 78	2.38	Si
fin.	3	-55.94	6.7475	15.9792	SLU 78	2.37	Si
ini.	3	-54.89	-6.839	15.9792	SLU 77	2.34	Si
fin.	3	-54.89	6.6073	15.9792	SLU 77	2.42	Si
ini.	3	-48.7	-6.693	15.9792	SLU 72	2.39	Si
fin.	3	-48.7	6.7299	15.9792	SLU 72	2.37	Si
ini.	3	-54.55	-6.9912	15.9792	SLU 79	2.29	Si
fin.	3	-54.55	6.5848	15.9792	SLU 79	2.43	Si
ini.	3	-49.04	-6.5407	15.9792	SLU 70	2.44	Si
fin.	3	-49.04	6.7524	15.9792	SLU 70	2.37	Si
ini.	3	-47.64	-6.8255	15.9792	SLU 71	2.34	Si
fin.	3	-47.64	6.5897	15.9792	SLU 71	2.42	Si
ini.	3	-43.3	-5.7245	15.9792	SLU 49	2.79	Si
fin.	3	-43.3	6.5661	15.9792	SLU 49	2.43	Si
ini.	3	-47.98	-6.6732	15.9792	SLU 69	2.39	Si
fin.	3	-47.98	6.6122	15.9792	SLU 69	2.42	Si
ini.	3	-50.2	-5.8902	15.9792	SLU 57	2.71	Si
fin.	3	-50.2	6.5612	15.9792	SLU 57	2.44	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-6.3007	28.35			13.16	4.95	SLU 83	0.17	No
fin.	3	0	6.0313	-5.73			13.16	4.95	SLU 83	0.86	No
ini.	3	0	-6.839	27.59			13.16	4.95	SLU 77	0.18	No
fin.	3	0	6.6073	-3.12			13.16	4.95	SLU 77	1.59	Si
ini.	3	0	-5.9448	26.43			13.16	4.95	SLU 75	0.19	No
fin.	3	0	6.1961	-4.29			13.16	4.95	SLU 75	1.16	Si
ini.	3	0	-6.9912	27.71			13.16	4.95	SLU 79	0.18	No
fin.	3	0	6.5848	-3			13.16	4.95	SLU 79	1.65	Si
ini.	3	0	-5.4065	27.19			13.16	4.95	SLU 82	0.18	No
fin.	3	0	5.62	-6.89			13.16	4.95	SLU 82	0.72	No
ini.	3	0	-6.8587	27.71			13.16	4.95	SLU 80	0.18	No
fin.	3	0	6.725	-3			13.16	4.95	SLU 80	1.65	Si
ini.	3	0	-6.7064	27.6			13.16	4.95	SLU 78	0.18	No
fin.	3	0	6.7475	-3.11			13.16	4.95	SLU 78	1.59	Si
ini.	3	0	-6.1681	28.36			13.16	4.95	SLU 84	0.17	No
fin.	3	0	6.1715	-5.72			13.16	4.95	SLU 84	0.87	No
ini.	3	0	-5.5391	27.18			13.16	4.95	SLU 81	0.18	No
fin.	3	0	5.4799	-6.9			13.16	4.95	SLU 81	0.72	No
ini.	3	0	-6.0088	26.55			13.16	4.95	SLU 76	0.19	No
fin.	3	0	6.267	-4.17			13.16	4.95	SLU 76	1.19	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.68	45.4635	17.7694	SLV 4	0.39	No
fin.	2	-0.03	-59.5256	17.7694	SLV 4	0.3	No
ini.	2	-79.96	-53.3567	17.7694	SLV 14	0.33	No
fin.	2	-74.24	67.8822	17.7694	SLV 14	0.26	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.68	45.4635	17.7694	SLV 3	0.39	No
fin.	2	-0.03	-59.5256	17.7694	SLV 3	0.3	No
ini.	2	-45.62	-33.7631	17.7694	SLV 9	0.53	No
fin.	2	-45.02	33.3893	17.7694	SLV 9	0.53	No
ini.	2	8.56	35.5777	17.7694	SLV 1	0.5	No
fin.	2	2.11	-52.8664	17.7694	SLV 1	0.34	No
ini.	2	-45.62	-33.7631	17.7694	SLV 10	0.53	No
fin.	2	-45.02	33.3893	17.7694	SLV 10	0.53	No
ini.	2	8.56	35.5777	17.7694	SLV 2	0.5	No
fin.	2	2.11	-52.8664	17.7694	SLV 2	0.34	No
ini.	2	-82.83	-43.4709	17.7694	SLV 15	0.41	No
fin.	2	-76.39	61.223	17.7694	SLV 15	0.29	No
ini.	2	-79.96	-53.3567	17.7694	SLV 13	0.33	No
fin.	2	-74.24	67.8822	17.7694	SLV 13	0.26	No
ini.	2	-82.83	-43.4709	17.7694	SLV 16	0.41	No
fin.	2	-76.39	61.223	17.7694	SLV 16	0.29	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-53.3567	120.54			19.73	7.43	SLV 14	0.06	No
fin.	2	0	67.8822	102.69			19.73	7.43	SLV 14	0.07	No
ini.	2	0	45.4635	-87.15			19.73	7.43	SLV 3	0.09	No
fin.	2	0	-59.5256	-106.77			19.73	7.43	SLV 3	0.07	No
ini.	2	0	-33.7631	73.05			19.73	7.43	SLV 9	0.1	No
fin.	2	0	33.3893	53.36			19.73	7.43	SLV 9	0.14	No
ini.	2	0	35.5777	-70.54			19.73	7.43	SLV 2	0.11	No
fin.	2	0	-52.8664	-90.96			19.73	7.43	SLV 2	0.08	No
ini.	2	0	-43.4709	103.92			19.73	7.43	SLV 16	0.07	No
fin.	2	0	61.223	86.89			19.73	7.43	SLV 16	0.09	No
ini.	2	0	45.4635	-87.15			19.73	7.43	SLV 4	0.09	No
fin.	2	0	-59.5256	-106.77			19.73	7.43	SLV 4	0.07	No
ini.	2	0	35.5777	-70.54			19.73	7.43	SLV 1	0.11	No
fin.	2	0	-52.8664	-90.96			19.73	7.43	SLV 1	0.08	No
ini.	2	0	-43.4709	103.92			19.73	7.43	SLV 15	0.07	No
fin.	2	0	61.223	86.89			19.73	7.43	SLV 15	0.09	No
ini.	2	0	-33.7631	73.05			19.73	7.43	SLV 10	0.1	No
fin.	2	0	33.3893	53.36			19.73	7.43	SLV 10	0.14	No
ini.	2	0	-53.3567	120.54			19.73	7.43	SLV 13	0.06	No
fin.	2	0	67.8822	102.69			19.73	7.43	SLV 13	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.262	SLV 13	No
V_SLV	0.062	SLV 13	No
PF_SLU	2.286	SLU 79	Si
V_SLU	0.175	SLU 84	No

## Trave di accoppiamento 48

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-4.168	1.046	3.21	4.83	1.62	-4.968	1.046	3.21	4.83	1.62	0.8	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-26.65	-18.082	22.9792	SLU 83	1.27	Si
fin.	3	-26.65	11.0171	22.9792	SLU 83	2.09	Si
ini.	3	-26.41	-17.1752	22.9792	SLU 81	1.34	Si
fin.	3	-26.41	10.0713	22.9792	SLU 81	2.28	Si
ini.	3	-25.62	-16.7256	22.9792	SLU 75	1.37	Si
fin.	3	-25.62	9.7269	22.9792	SLU 75	2.36	Si
ini.	3	-25.92	-18.0405	22.9792	SLU 79	1.27	Si
fin.	3	-25.92	11.4309	22.9792	SLU 79	2.01	Si
ini.	3	-26.07	-17.2161	22.9792	SLU 80	1.33	Si
fin.	3	-26.07	10.4358	22.9792	SLU 80	2.2	Si
ini.	3	-25.86	-17.6324	22.9792	SLU 78	1.3	Si
fin.	3	-25.86	10.6728	22.9792	SLU 78	2.15	Si
ini.	3	-25.47	-17.55	22.9792	SLU 74	1.31	Si
fin.	3	-25.47	10.722	22.9792	SLU 74	2.14	Si
ini.	3	-26.8	-17.2576	22.9792	SLU 84	1.33	Si
fin.	3	-26.8	10.022	22.9792	SLU 84	2.29	Si
ini.	3	-26.56	-16.3508	22.9792	SLU 82	1.41	Si
fin.	3	-26.56	9.0762	22.9792	SLU 82	2.53	Si
ini.	3	-25.71	-18.4568	22.9792	SLU 77	1.25	Si
fin.	3	-25.71	11.6679	22.9792	SLU 77	1.97	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-18.082	47.8			17.47	6.57	SLU 83	0.14	No
fin.	3	0	11.0171	25.76			17.47	6.57	SLU 83	0.26	No
ini.	3	0	-17.2576	45.53			17.47	6.57	SLU 84	0.14	No
fin.	3	0	10.022	23.48			17.47	6.57	SLU 84	0.28	No
ini.	3	0	-16.7256	43.65			17.47	6.57	SLU 75	0.15	No
fin.	3	0	9.7269	23.29			17.47	6.57	SLU 75	0.28	No
ini.	3	0	-18.0405	47.43			17.47	6.57	SLU 79	0.14	No
fin.	3	0	11.4309	27.06			17.47	6.57	SLU 79	0.24	No
ini.	3	0	-17.55	45.93			17.47	6.57	SLU 74	0.14	No
fin.	3	0	10.722	25.56			17.47	6.57	SLU 74	0.26	No
ini.	3	0	-16.3508	43.21			17.47	6.57	SLU 82	0.15	No
fin.	3	0	9.0762	21.17			17.47	6.57	SLU 82	0.31	No
ini.	3	0	-17.6324	45.97			17.47	6.57	SLU 78	0.14	No
fin.	3	0	10.6728	25.6			17.47	6.57	SLU 78	0.26	No
ini.	3	0	-17.2161	45.15			17.47	6.57	SLU 80	0.15	No
fin.	3	0	10.4358	24.79			17.47	6.57	SLU 80	0.27	No
ini.	3	0	-18.4568	48.24			17.47	6.57	SLU 77	0.14	No
fin.	3	0	11.6679	27.88			17.47	6.57	SLU 77	0.24	No
ini.	3	0	-17.1752	45.48			17.47	6.57	SLU 81	0.14	No
fin.	3	0	10.0713	23.44			17.47	6.57	SLU 81	0.28	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-20.53	44.0618	24.7694	SLV 1	0.56	No
fin.	2	-26.53	-28.0986	24.7694	SLV 1	0.88	No
ini.	2	-17.45	-36.7224	24.7694	SLD 13	0.67	No
fin.	2	-15.53	23.4587	24.7694	SLD 13	1.06	Si
ini.	2	-16.4	-70.2467	24.7694	SLV 14	0.35	No
fin.	2	-12.16	45.6684	24.7694	SLV 14	0.54	No
ini.	2	-15.41	-65.9014	24.7694	SLV 15	0.38	No
fin.	2	-9.4	40.8663	24.7694	SLV 15	0.61	No
ini.	2	-19.53	48.4071	24.7694	SLV 3	0.51	No
fin.	2	-23.77	-32.9007	24.7694	SLV 3	0.75	No
ini.	2	-19.53	48.4071	24.7694	SLV 4	0.51	No
fin.	2	-23.77	-32.9007	24.7694	SLV 4	0.75	No
ini.	2	-17.45	-36.7224	24.7694	SLD 14	0.67	No
fin.	2	-15.53	23.4587	24.7694	SLD 14	1.06	Si
ini.	2	-20.53	44.0618	24.7694	SLV 2	0.56	No
fin.	2	-26.53	-28.0986	24.7694	SLV 2	0.88	No
ini.	2	-15.41	-65.9014	24.7694	SLV 16	0.38	No
fin.	2	-9.4	40.8663	24.7694	SLV 16	0.61	No
ini.	2	-16.4	-70.2467	24.7694	SLV 13	0.35	No
fin.	2	-12.16	45.6684	24.7694	SLV 13	0.54	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-70.2467	156.65			26.2	9.86	SLV 13	0.06	No
fin.	2	0	45.6684	140.74			26.2	9.86	SLV 13	0.07	No
ini.	2	0	-65.9014	146.04			26.2	9.86	SLV 16	0.07	No
fin.	2	0	40.8663	130.63			26.2	9.86	SLV 16	0.08	No
ini.	2	0	-36.7224	84.2			26.2	9.86	SLD 13	0.12	No
fin.	2	0	23.4587	69.96			26.2	9.86	SLD 13	0.14	No
ini.	2	0	-65.9014	146.04			26.2	9.86	SLV 15	0.07	No
fin.	2	0	40.8663	130.63			26.2	9.86	SLV 15	0.08	No
ini.	2	0	44.0618	-89.09			26.2	9.86	SLV 2	0.11	No
fin.	2	0	-28.0986	-99.8			26.2	9.86	SLV 2	0.1	No
ini.	2	0	44.0618	-89.09			26.2	9.86	SLV 1	0.11	No
fin.	2	0	-28.0986	-99.8			26.2	9.86	SLV 1	0.1	No
ini.	2	0	48.4071	-99.7			26.2	9.86	SLV 3	0.1	No
fin.	2	0	-32.9007	-109.91			26.2	9.86	SLV 3	0.09	No
ini.	2	0	-70.2467	156.65			26.2	9.86	SLV 14	0.06	No
fin.	2	0	45.6684	140.74			26.2	9.86	SLV 14	0.07	No
ini.	2	0	-36.7224	84.2			26.2	9.86	SLD 14	0.12	No
fin.	2	0	23.4587	69.96			26.2	9.86	SLD 14	0.14	No
ini.	2	0	48.4071	-99.7			26.2	9.86	SLV 4	0.1	No
fin.	2	0	-32.9007	-109.91			26.2	9.86	SLV 4	0.09	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.353	SLV 13	No
V_SLV	0.063	SLV 13	No
PF_SLU	1.245	SLU 77	Si
V_SLU	0.136	SLU 77	No

#### Trave di accoppiamento 49

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.768	6.661	1.11	2.01	0.9	-16.768	6.661	1.11	2.01	0.9	1	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	31.42	7.841	10.3792	SLU 79	1.32	Si
fin.	3	20.88	4.5892	10.3792	SLU 79	2.26	Si
ini.	3	33.21	7.4403	10.3792	SLU 74	1.4	Si
fin.	3	22.12	4.9922	10.3792	SLU 74	2.08	Si
ini.	3	34.44	7.6171	10.3792	SLU 84	1.36	Si
fin.	3	22.89	5.2152	10.3792	SLU 84	1.99	Si
ini.	3	32.06	7.8366	10.3792	SLU 77	1.32	Si
fin.	3	21.31	4.7222	10.3792	SLU 77	2.2	Si
ini.	3	33.25	7.4215	10.3792	SLU 75	1.4	Si
fin.	3	22.15	5.0054	10.3792	SLU 75	2.07	Si
ini.	3	34.4	7.6359	10.3792	SLU 83	1.36	Si
fin.	3	22.87	5.202	10.3792	SLU 83	2	Si
ini.	3	31.46	7.8223	10.3792	SLU 80	1.33	Si
fin.	3	20.91	4.6024	10.3792	SLU 80	2.26	Si
ini.	3	32.63	7.4134	10.3792	SLU 76	1.4	Si
fin.	3	21.75	4.8813	10.3792	SLU 76	2.13	Si
ini.	3	32.1	7.8179	10.3792	SLU 78	1.33	Si
fin.	3	21.33	4.7354	10.3792	SLU 78	2.19	Si
ini.	3	27.12	7.3949	10.3792	SLU 71	1.4	Si
fin.	3	18.17	3.7895	10.3792	SLU 71	2.74	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	7.2395	-1.46			8.73	3.29	SLU 81	2.25	Si
fin.	3	0	5.472	7.93			8.73	3.29	SLU 81	0.41	No
ini.	3	0	6.0307	-1.25			8.73	3.29	SLU 39	2.62	Si
fin.	3	0	4.7586	7.32			8.73	3.29	SLU 39	0.45	No
ini.	3	0	6.5843	-1.07			8.73	3.29	SLU 61	3.08	Si
fin.	3	0	4.9075	6.73			8.73	3.29	SLU 61	0.49	No
ini.	3	0	6.0119	-1.22			8.73	3.29	SLU 40	2.7	Si
fin.	3	0	4.7718	7.36			8.73	3.29	SLU 40	0.45	No
ini.	3	0	7.4215	-2.24			8.73	3.29	SLU 75	1.47	Si
fin.	3	0	5.0054	6.75			8.73	3.29	SLU 75	0.49	No
ini.	3	0	7.017	-1.46			8.73	3.29	SLU 73	2.25	Si
fin.	3	0	5.1513	7.19			8.73	3.29	SLU 73	0.46	No
ini.	3	0	7.6171	-2.32			8.73	3.29	SLU 84	1.42	Si
fin.	3	0	5.2152	7.24			8.73	3.29	SLU 84	0.45	No
ini.	3	0	7.4403	-2.27			8.73	3.29	SLU 74	1.45	Si
fin.	3	0	4.9922	6.72			8.73	3.29	SLU 74	0.49	No
ini.	3	0	7.6359	-2.36			8.73	3.29	SLU 83	1.39	Si
fin.	3	0	5.202	7.2			8.73	3.29	SLU 83	0.46	No
ini.	3	0	7.2207	-1.42			8.73	3.29	SLU 82	2.31	Si
fin.	3	0	5.4852	7.96			8.73	3.29	SLU 82	0.41	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	41.12	28.288	12.1694	SLV 12	0.43	No
fin.	2	-13.34	-15.8127	12.1694	SLV 12	0.77	No
ini.	2	33.55	-27.4081	12.1694	SLV 1	0.44	No
fin.	2	6.06	33.9668	12.1694	SLV 1	0.36	No
ini.	2	41.12	28.288	12.1694	SLV 11	0.43	No
fin.	2	-13.34	-15.8127	12.1694	SLV 11	0.77	No
ini.	2	-1.25	28.6528	12.1694	SLV 13	0.42	No
fin.	2	45.96	-20.4542	12.1694	SLV 13	0.59	No
ini.	2	12.69	37.5404	12.1694	SLV 16	0.32	No
fin.	2	25.04	-27.103	12.1694	SLV 16	0.45	No
ini.	2	33.55	-27.4081	12.1694	SLV 2	0.44	No
fin.	2	6.06	33.9668	12.1694	SLV 2	0.36	No
ini.	2	-1.25	28.6528	12.1694	SLV 14	0.42	No
fin.	2	45.96	-20.4542	12.1694	SLV 14	0.59	No
ini.	2	12.69	37.5404	12.1694	SLV 15	0.32	No
fin.	2	25.04	-27.103	12.1694	SLV 15	0.45	No
ini.	2	47.48	-18.5205	12.1694	SLV 4	0.66	No
fin.	2	-14.87	27.318	12.1694	SLV 4	0.45	No
ini.	2	47.48	-18.5205	12.1694	SLV 3	0.66	No
fin.	2	-14.87	27.318	12.1694	SLV 3	0.45	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-5.3064	27.18			13.1	4.93	SLD 4	0.18	No
fin.	2	0	13.9314	37.22			13.1	4.93	SLD 4	0.13	No
ini.	2	0	37.5404	-71.41			13.1	4.93	SLV 16	0.07	No
fin.	2	0	-27.103	-67.96			13.1	4.93	SLV 16	0.07	No
ini.	2	0	-27.4081	69.08			13.1	4.93	SLV 2	0.07	No
fin.	2	0	33.9668	76.59			13.1	4.93	SLV 2	0.06	No
ini.	2	0	-18.5205	63.53			13.1	4.93	SLV 4	0.08	No
fin.	2	0	27.318	79.65			13.1	4.93	SLV 4	0.06	No
ini.	2	0	28.6528	-65.86			13.1	4.93	SLV 13	0.07	No
fin.	2	0	-20.4542	-71.01			13.1	4.93	SLV 13	0.07	No
ini.	2	0	37.5404	-71.41			13.1	4.93	SLV 15	0.07	No
fin.	2	0	-27.103	-67.96			13.1	4.93	SLV 15	0.07	No
ini.	2	0	-18.5205	63.53			13.1	4.93	SLV 3	0.08	No
fin.	2	0	27.318	79.65			13.1	4.93	SLV 3	0.06	No
ini.	2	0	-5.3064	27.18			13.1	4.93	SLD 3	0.18	No
fin.	2	0	13.9314	37.22			13.1	4.93	SLD 3	0.13	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-27.4081	69.08			13.1	4.93	SLV 1	0.07	No
fin.	2	0	33.9668	76.59			13.1	4.93	SLV 1	0.06	No
ini.	2	0	28.6528	-65.86			13.1	4.93	SLV 14	0.07	No
fin.	2	0	-20.4542	-71.01			13.1	4.93	SLV 14	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.324	SLV 15	No
V_SLV	0.062	SLV 3	No
PF_SLU	1.324	SLU 79	Si
V_SLU	0.413	SLU 82	No

## Trave di accoppiamento 50

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.768	6.661	3.91	4.83	0.92	-16.768	6.661	3.91	4.83	0.92	1	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-22.96	-3.1944	10.7292	SLU 81	3.36	Si
fin.	3	-25.12	-5.1192	10.7292	SLU 81	2.1	Si
ini.	3	-22.85	-3.0972	10.7292	SLU 84	3.46	Si
fin.	3	-25.38	-5.3168	10.7292	SLU 84	2.02	Si
ini.	3	-21.66	-2.7735	10.7292	SLU 79	3.87	Si
fin.	3	-24.65	-5.3537	10.7292	SLU 79	2	Si
ini.	3	-22.08	-2.9597	10.7292	SLU 74	3.63	Si
fin.	3	-24.55	-5.1546	10.7292	SLU 74	2.08	Si
ini.	3	-21.98	-2.8625	10.7292	SLU 78	3.75	Si
fin.	3	-24.81	-5.3522	10.7292	SLU 78	2	Si
ini.	3	-21.98	-2.8471	10.7292	SLU 77	3.77	Si
fin.	3	-24.87	-5.3692	10.7292	SLU 77	2	Si
ini.	3	-22.85	-3.0818	10.7292	SLU 83	3.48	Si
fin.	3	-25.44	-5.3338	10.7292	SLU 83	2.01	Si
ini.	3	-21.76	-2.9119	10.7292	SLU 76	3.68	Si
fin.	3	-24.23	-5.1107	10.7292	SLU 76	2.1	Si
ini.	3	-22.08	-2.9751	10.7292	SLU 75	3.61	Si
fin.	3	-24.49	-5.1376	10.7292	SLU 75	2.09	Si
ini.	3	-21.66	-2.789	10.7292	SLU 80	3.85	Si
fin.	3	-24.59	-5.3367	10.7292	SLU 80	2.01	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.0818	22.85			9.13	3.43	SLU 83	0.15	No
fin.	3	0	-5.3338	-41.18			9.13	3.43	SLU 83	0.08	No
ini.	3	0	-2.7735	20.82			9.13	3.43	SLU 79	0.16	No
fin.	3	0	-5.3537	-39.48			9.13	3.43	SLU 79	0.09	No
ini.	3	0	-3.1944	23.51			9.13	3.43	SLU 81	0.15	No
fin.	3	0	-5.1192	-40.81			9.13	3.43	SLU 81	0.08	No
ini.	3	0	-2.9597	21.92			9.13	3.43	SLU 74	0.16	No
fin.	3	0	-5.1546	-39.51			9.13	3.43	SLU 74	0.09	No
ini.	3	0	-3.0972	22.9			9.13	3.43	SLU 84	0.15	No
fin.	3	0	-5.3168	-41.12			9.13	3.43	SLU 84	0.08	No
ini.	3	0	-2.9751	21.97			9.13	3.43	SLU 75	0.16	No
fin.	3	0	-5.1376	-39.44			9.13	3.43	SLU 75	0.09	No
ini.	3	0	-2.789	20.87			9.13	3.43	SLU 80	0.16	No
fin.	3	0	-5.3367	-39.42			9.13	3.43	SLU 80	0.09	No
ini.	3	0	-2.8471	21.26			9.13	3.43	SLU 77	0.16	No
fin.	3	0	-5.3692	-39.88			9.13	3.43	SLU 77	0.09	No
ini.	3	0	-2.8625	21.31			9.13	3.43	SLU 78	0.16	No
fin.	3	0	-5.3522	-39.82			9.13	3.43	SLU 78	0.09	No
ini.	3	0	-3.2098	23.56			9.13	3.43	SLU 82	0.15	No
fin.	3	0	-5.1021	-40.75			9.13	3.43	SLU 82	0.08	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2		13.17	20.0664	SLV 15	0.62	No
fin.	2		-51.73	-22.8756	SLV 15	0.55	No
ini.	2		-39.88	-21.5132	SLV 3	0.58	No
fin.	2		16.14	13.4936	SLV 3	0.93	No
ini.	2		-43.34	-24.0815	SLV 2	0.52	No
fin.	2		18.4	15.9691	SLV 2	0.78	No
ini.	2		-1.36	8.5099	SLV 11	1.47	Si
fin.	2		-30.62	-13.0344	SLV 11	0.96	No
ini.	2		-1.36	8.5099	SLV 12	1.47	Si
fin.	2		-30.62	-13.0344	SLV 12	0.96	No
ini.	2		-43.34	-24.0815	SLV 1	0.52	No
fin.	2		18.4	15.9691	SLV 1	0.78	No





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	9.71	17.4982	12.5194	SLV 14	0.72	No
fin.	2	-49.46	-20.4001	12.5194	SLV 14	0.61	No
ini.	2	-39.88	-21.5132	12.5194	SLV 4	0.58	No
fin.	2	16.14	13.4936	12.5194	SLV 4	0.93	No
ini.	2	9.71	17.4982	12.5194	SLV 13	0.72	No
fin.	2	-49.46	-20.4001	12.5194	SLV 13	0.61	No
ini.	2	13.17	20.0664	12.5194	SLV 16	0.62	No
fin.	2	-51.73	-22.8756	12.5194	SLV 16	0.55	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	20.0664	-54.01			13.69	5.15	SLV 16	0.1	No
fin.	2	0	-22.8756	-96.48			13.69	5.15	SLV 16	0.05	No
ini.	2	0	-21.5132	81.19			13.69	5.15	SLV 4	0.06	No
fin.	2	0	13.4936	39.66			13.69	5.15	SLV 4	0.13	No
ini.	2	0	7.6467	-15.25			13.69	5.15	SLD 16	0.34	No
fin.	2	0	-11.9356	-57.09			13.69	5.15	SLD 16	0.09	No
ini.	2	0	17.4982	-51.34			13.69	5.15	SLV 13	0.1	No
fin.	2	0	-20.4001	-92.61			13.69	5.15	SLV 13	0.06	No
ini.	2	0	20.0664	-54.01			13.69	5.15	SLV 15	0.1	No
fin.	2	0	-22.8756	-96.48			13.69	5.15	SLV 15	0.05	No
ini.	2	0	7.6467	-15.25			13.69	5.15	SLD 15	0.34	No
fin.	2	0	-11.9356	-57.09			13.69	5.15	SLD 15	0.09	No
ini.	2	0	-24.0815	83.86			13.69	5.15	SLV 1	0.06	No
fin.	2	0	15.9691	43.54			13.69	5.15	SLV 1	0.12	No
ini.	2	0	-21.5132	81.19			13.69	5.15	SLV 3	0.06	No
fin.	2	0	13.4936	39.66			13.69	5.15	SLV 3	0.13	No
ini.	2	0	17.4982	-51.34			13.69	5.15	SLV 14	0.1	No
fin.	2	0	-20.4001	-92.61			13.69	5.15	SLV 14	0.06	No
ini.	2	0	-24.0815	83.86			13.69	5.15	SLV 2	0.06	No
fin.	2	0	15.9691	43.54			13.69	5.15	SLV 2	0.12	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.52	SLV 1	No
V_SLV	0.053	SLV 15	No
PF_SLU	1.998	SLU 77	Si
V_SLU	0.083	SLU 83	No

## Trave di accoppiamento 51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.888	6.661	1.11	2.01	0.9	-11.888	6.661	1.11	2.01	0.9	1	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	39.32	1.1839	10.3792	SLU 74	8.77	Si
fin.	3	37.65	9.8767	10.3792	SLU 74	1.05	Si
ini.	3	38.82	1.2284	10.3792	SLU 76	8.45	Si
fin.	3	37.23	9.6946	10.3792	SLU 76	1.07	Si
ini.	3	40.94	0.9615	10.3792	SLU 81	10.79	Si
fin.	3	39.01	10.3884	10.3792	SLU 81	1	No
ini.	3	40.98	0.9565	10.3792	SLU 82	10.85	Si
fin.	3	39.05	10.3801	10.3792	SLU 82	1	No
ini.	3	39.36	1.1789	10.3792	SLU 75	8.8	Si
fin.	3	37.69	9.8684	10.3792	SLU 75	1.05	Si
ini.	3	38.88	0.9634	10.3792	SLU 73	10.77	Si
fin.	3	37.08	9.8396	10.3792	SLU 73	1.05	Si
ini.	3	39.3	1.4439	10.3792	SLU 78	7.19	Si
fin.	3	37.84	9.7234	10.3792	SLU 78	1.07	Si
ini.	3	40.88	1.2265	10.3792	SLU 83	8.46	Si
fin.	3	39.16	10.2434	10.3792	SLU 83	1.01	Si
ini.	3	40.92	1.2215	10.3792	SLU 84	8.5	Si
fin.	3	39.2	10.235	10.3792	SLU 84	1.01	Si
ini.	3	39.26	1.4489	10.3792	SLU 77	7.16	Si
fin.	3	37.8	9.7317	10.3792	SLU 77	1.07	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.9565	6.27			8.73	3.29	SLU 82	0.52	No
fin.	3	0	10.3801	15.63			8.73	3.29	SLU 82	0.21	No
ini.	3	0	1.2284	5.5			8.73	3.29	SLU 76	0.6	No
fin.	3	0	9.6946	14.13			8.73	3.29	SLU 76	0.23	No
ini.	3	0	0.9634	6			8.73	3.29	SLU 73	0.55	No
fin.	3	0	9.8396	14.58			8.73	3.29	SLU 73	0.23	No
ini.	3	0	1.4489	5.17			8.73	3.29	SLU 77	0.64	No
fin.	3	0	9.7317	14.07			8.73	3.29	SLU 77	0.23	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.9615	6.28			8.73	3.29	SLU 81	0.52	No
fin.	3	0	10.3884	15.65			8.73	3.29	SLU 81	0.21	No
ini.	3	0	1.1789	5.67			8.73	3.29	SLU 75	0.58	No
fin.	3	0	9.8684	14.5			8.73	3.29	SLU 75	0.23	No
ini.	3	0	1.1839	5.67			8.73	3.29	SLU 74	0.58	No
fin.	3	0	9.8767	14.51			8.73	3.29	SLU 74	0.23	No
ini.	3	0	1.4439	5.16			8.73	3.29	SLU 78	0.64	No
fin.	3	0	9.7234	14.06			8.73	3.29	SLU 78	0.23	No
ini.	3	0	1.2265	5.77			8.73	3.29	SLU 83	0.57	No
fin.	3	0	10.2434	15.2			8.73	3.29	SLU 83	0.22	No
ini.	3	0	1.2215	5.77			8.73	3.29	SLU 84	0.57	No
fin.	3	0	10.235	15.19			8.73	3.29	SLU 84	0.22	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	37.54	-11.5504	12.1694	SLD 3	1.05	Si
fin.	2	18.17	19.6455	12.1694	SLD 3	0.62	No
ini.	2	37.54	-11.5504	12.1694	SLD 4	1.05	Si
fin.	2	18.17	19.6455	12.1694	SLD 4	0.62	No
ini.	2	52.27	-27.3421	12.1694	SLV 3	0.45	No
fin.	2	9.55	36.2452	12.1694	SLV 3	0.34	No
ini.	2	31.31	32.1804	12.1694	SLV 16	0.38	No
fin.	2	70.51	-20.8709	12.1694	SLV 16	0.58	No
ini.	2	21.73	-30.7219	12.1694	SLV 2	0.4	No
fin.	2	-19.9	34.3736	12.1694	SLV 2	0.35	No
ini.	2	52.27	-27.3421	12.1694	SLV 4	0.45	No
fin.	2	9.55	36.2452	12.1694	SLV 4	0.34	No
ini.	2	0.76	28.8006	12.1694	SLV 14	0.42	No
fin.	2	41.06	-22.7425	12.1694	SLV 14	0.54	No
ini.	2	21.73	-30.7219	12.1694	SLV 1	0.4	No
fin.	2	-19.9	34.3736	12.1694	SLV 1	0.35	No
ini.	2	0.76	28.8006	12.1694	SLV 13	0.42	No
fin.	2	41.06	-22.7425	12.1694	SLV 13	0.54	No
ini.	2	31.31	32.1804	12.1694	SLV 15	0.38	No
fin.	2	70.51	-20.8709	12.1694	SLV 15	0.58	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-27.3421	83.2			13.1	4.93	SLV 4	0.06	No
fin.	2	0	36.2452	84.09			13.1	4.93	SLV 4	0.06	No
ini.	2	0	32.1804	-71.41			13.1	4.93	SLV 15	0.07	No
fin.	2	0	-20.8709	-69.29			13.1	4.93	SLV 15	0.07	No
ini.	2	0	32.1804	-71.41			13.1	4.93	SLV 16	0.07	No
fin.	2	0	-20.8709	-69.29			13.1	4.93	SLV 16	0.07	No
ini.	2	0	-12.9793	37.32			13.1	4.93	SLD 1	0.13	No
fin.	2	0	18.8528	44.08			13.1	4.93	SLD 1	0.11	No
ini.	2	0	28.8006	-74.71			13.1	4.93	SLV 13	0.07	No
fin.	2	0	-22.7425	-64.83			13.1	4.93	SLV 13	0.08	No
ini.	2	0	28.8006	-74.71			13.1	4.93	SLV 14	0.07	No
fin.	2	0	-22.7425	-64.83			13.1	4.93	SLV 14	0.08	No
ini.	2	0	-27.3421	83.2			13.1	4.93	SLV 3	0.06	No
fin.	2	0	36.2452	84.09			13.1	4.93	SLV 3	0.06	No
ini.	2	0	-30.7219	79.9			13.1	4.93	SLV 1	0.06	No
fin.	2	0	34.3736	88.55			13.1	4.93	SLV 1	0.06	No
ini.	2	0	-30.7219	79.9			13.1	4.93	SLV 2	0.06	No
fin.	2	0	34.3736	88.55			13.1	4.93	SLV 2	0.06	No
ini.	2	0	-12.9793	37.32			13.1	4.93	SLD 2	0.13	No
fin.	2	0	18.8528	44.08			13.1	4.93	SLD 2	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.336	SLV 3	No
V_SLV	0.056	SLV 1	No
PF_SLU	0.999	SLU 81	No
V_SLU	0.21	SLU 81	No

## Trave di accoppiamento 52

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.888	6.661	3.91	4.83	0.92	-11.888	6.661	3.91	4.83	0.92	1	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-31.97	-6.2161	10.7292	SLU 75	1.73	Si
fin.	3	-14.9	-0.739	10.7292	SLU 75	14.52	Si
ini.	3	-34.15	-6.5641	10.7292	SLU 81	1.63	Si
fin.	3	-15.38	-0.5889	10.7292	SLU 81	18.22	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-34.1	-6.5597	10.7292	SLU 82	1.64	Si
fin.	3	-15.32	-0.5819	10.7292	SLU 82	18.44	Si
ini.	3	-31.21	-6.1176	10.7292	SLU 77	1.75	Si
fin.	3	-15.23	-0.9494	10.7292	SLU 77	11.3	Si
ini.	3	-32.02	-6.2205	10.7292	SLU 74	1.72	Si
fin.	3	-14.96	-0.7459	10.7292	SLU 74	14.38	Si
ini.	3	-32.17	-6.1998	10.7292	SLU 73	1.73	Si
fin.	3	-14.51	-0.5654	10.7292	SLU 73	18.98	Si
ini.	3	-33.29	-6.4568	10.7292	SLU 84	1.66	Si
fin.	3	-15.59	-0.7854	10.7292	SLU 84	13.66	Si
ini.	3	-31.36	-6.0969	10.7292	SLU 76	1.76	Si
fin.	3	-14.78	-0.7689	10.7292	SLU 76	13.95	Si
ini.	3	-31.16	-6.1132	10.7292	SLU 78	1.76	Si
fin.	3	-15.17	-0.9424	10.7292	SLU 78	11.38	Si
ini.	3	-33.33	-6.4612	10.7292	SLU 83	1.66	Si
fin.	3	-15.65	-0.7923	10.7292	SLU 83	13.54	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-6.0969	54.73			9.13	3.43	SLU 76	0.06	No
fin.	3	0	-0.7689	-26.69			9.13	3.43	SLU 76	0.13	No
ini.	3	0	-6.4612	58.19			9.13	3.43	SLU 83	0.06	No
fin.	3	0	-0.7923	-28.36			9.13	3.43	SLU 83	0.12	No
ini.	3	0	-6.4568	58.18			9.13	3.43	SLU 84	0.06	No
fin.	3	0	-0.7854	-28.33			9.13	3.43	SLU 84	0.12	No
ini.	3	0	-6.5641	58.83			9.13	3.43	SLU 81	0.06	No
fin.	3	0	-0.5889	-27.37			9.13	3.43	SLU 81	0.13	No
ini.	3	0	-6.1132	55.05			9.13	3.43	SLU 78	0.06	No
fin.	3	0	-0.9424	-27.86			9.13	3.43	SLU 78	0.12	No
ini.	3	0	-6.1176	55.06			9.13	3.43	SLU 77	0.06	No
fin.	3	0	-0.9494	-27.89			9.13	3.43	SLU 77	0.12	No
ini.	3	0	-6.2161	55.69			9.13	3.43	SLU 75	0.06	No
fin.	3	0	-0.739	-26.87			9.13	3.43	SLU 75	0.13	No
ini.	3	0	-6.1998	55.37			9.13	3.43	SLU 73	0.06	No
fin.	3	0	-0.5654	-25.71			9.13	3.43	SLU 73	0.13	No
ini.	3	0	-6.5597	58.82			9.13	3.43	SLU 82	0.06	No
fin.	3	0	-0.5819	-27.34			9.13	3.43	SLU 82	0.13	No
ini.	3	0	-6.2205	55.7			9.13	3.43	SLU 74	0.06	No
fin.	3	0	-0.7459	-26.9			9.13	3.43	SLU 74	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	23.25	11.3494	12.5194	SLV 15	1.1	Si
fin.	2	-59.37	-16.7619	12.5194	SLV 15	0.75	No
ini.	2	23.25	11.3494	12.5194	SLV 16	1.1	Si
fin.	2	-59.37	-16.7619	12.5194	SLV 16	0.75	No
ini.	2	31.36	11.4778	12.5194	SLV 14	1.09	Si
fin.	2	-50.07	-15.0687	12.5194	SLV 14	0.83	No
ini.	2	-67.05	-19.7941	12.5194	SLV 2	0.63	No
fin.	2	39.44	15.961	12.5194	SLV 2	0.78	No
ini.	2	-67.05	-19.7941	12.5194	SLV 1	0.63	No
fin.	2	39.44	15.961	12.5194	SLV 1	0.78	No
ini.	2	-45.17	-11.0935	12.5194	SLD 4	1.13	Si
fin.	2	7.66	6.0302	12.5194	SLD 4	2.08	Si
ini.	2	-75.16	-19.9225	12.5194	SLV 4	0.63	No
fin.	2	30.14	14.2678	12.5194	SLV 4	0.88	No
ini.	2	31.36	11.4778	12.5194	SLV 13	1.09	Si
fin.	2	-50.07	-15.0687	12.5194	SLV 13	0.83	No
ini.	2	-75.16	-19.9225	12.5194	SLV 3	0.63	No
fin.	2	30.14	14.2678	12.5194	SLV 3	0.88	No
ini.	2	-45.17	-11.0935	12.5194	SLD 3	1.13	Si
fin.	2	7.66	6.0302	12.5194	SLD 3	2.08	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	11.3494	-42.03			13.69	5.15	SLV 15	0.12	No
fin.	2	0	-16.7619	-98.82			13.69	5.15	SLV 15	0.05	No
ini.	2	0	-11.0378	71.93			13.69	5.15	SLD 1	0.07	No
fin.	2	0	6.7517	18.51			13.69	5.15	SLD 1	0.28	No
ini.	2	0	11.4778	-35.79			13.69	5.15	SLV 14	0.14	No
fin.	2	0	-15.0687	-87.86			13.69	5.15	SLV 14	0.06	No
ini.	2	0	11.3494	-42.03			13.69	5.15	SLV 16	0.12	No
fin.	2	0	-16.7619	-98.82			13.69	5.15	SLV 16	0.05	No
ini.	2	0	-19.9225	110.35			13.69	5.15	SLV 3	0.05	No
fin.	2	0	14.2678	53.51			13.69	5.15	SLV 3	0.1	No
ini.	2	0	-19.7941	116.58			13.69	5.15	SLV 1	0.04	No
fin.	2	0	15.961	64.47			13.69	5.15	SLV 1	0.08	No
ini.	2	0	-11.0378	71.93			13.69	5.15	SLD 2	0.07	No
fin.	2	0	6.7517	18.51			13.69	5.15	SLD 2	0.28	No
ini.	2	0	-19.7941	116.58			13.69	5.15	SLV 2	0.04	No
fin.	2	0	15.961	64.47			13.69	5.15	SLV 2	0.08	No
ini.	2	0	-19.9225	110.35			13.69	5.15	SLV 4	0.05	No
fin.	2	0	14.2678	53.51			13.69	5.15	SLV 4	0.1	No
ini.	2	0	11.4778	-35.79			13.69	5.15	SLV 13	0.14	No
fin.	2	0	-15.0687	-87.86			13.69	5.15	SLV 13	0.06	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.628	SLV 3	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.044	SLV 1	No
PF SLU	1.635	SLU 81	Si
V SLU	0.058	SLU 81	No

## Trave di accoppiamento 53

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.008	6.661	1.11	2.01	0.9	-7.008	6.661	1.11	2.01	0.9	1	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	45.02	9.3641	10.3792	SLU 74	1.11	Si
fin.	3	59.05	4.7911	10.3792	SLU 74	2.17	Si
ini.	3	46.78	9.7884	10.3792	SLU 83	1.06	Si
fin.	3	61.43	4.8647	10.3792	SLU 83	2.13	Si
ini.	3	44.72	9.2602	10.3792	SLU 79	1.12	Si
fin.	3	58.68	5.2448	10.3792	SLU 79	1.98	Si
ini.	3	46.47	9.7538	10.3792	SLU 81	1.06	Si
fin.	3	61	4.4519	10.3792	SLU 81	2.33	Si
ini.	3	44.71	9.2779	10.3792	SLU 80	1.12	Si
fin.	3	58.68	5.1938	10.3792	SLU 80	2	Si
ini.	3	45.34	9.3988	10.3792	SLU 77	1.1	Si
fin.	3	59.48	5.2039	10.3792	SLU 77	1.99	Si
ini.	3	46.46	9.7716	10.3792	SLU 82	1.06	Si
fin.	3	61	4.4009	10.3792	SLU 82	2.36	Si
ini.	3	46.77	9.8062	10.3792	SLU 84	1.06	Si
fin.	3	61.43	4.8137	10.3792	SLU 84	2.16	Si
ini.	3	45.02	9.3819	10.3792	SLU 75	1.11	Si
fin.	3	59.05	4.7401	10.3792	SLU 75	2.19	Si
ini.	3	45.33	9.4165	10.3792	SLU 78	1.1	Si
fin.	3	59.49	5.1528	10.3792	SLU 78	2.01	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	9.3641	-16.18			8.73	3.29	SLU 74	0.2	No
fin.	3	0	4.7911	-5.47			8.73	3.29	SLU 74	0.6	No
ini.	3	0	9.4165	-16.01			8.73	3.29	SLU 78	0.21	No
fin.	3	0	5.1528	-5			8.73	3.29	SLU 78	0.66	No
ini.	3	0	9.2205	-16.17			8.73	3.29	SLU 73	0.2	No
fin.	3	0	4.3343	-6			8.73	3.29	SLU 73	0.55	No
ini.	3	0	9.8062	-17.19			8.73	3.29	SLU 84	0.19	No
fin.	3	0	4.8137	-5.84			8.73	3.29	SLU 84	0.56	No
ini.	3	0	9.7884	-17.12			8.73	3.29	SLU 83	0.19	No
fin.	3	0	4.8647	-5.74			8.73	3.29	SLU 83	0.57	No
ini.	3	0	9.3988	-15.94			8.73	3.29	SLU 77	0.21	No
fin.	3	0	5.2039	-4.9			8.73	3.29	SLU 77	0.67	No
ini.	3	0	9.7538	-17.36			8.73	3.29	SLU 81	0.19	No
fin.	3	0	4.4519	-6.31			8.73	3.29	SLU 81	0.52	No
ini.	3	0	9.2552	-15.93			8.73	3.29	SLU 76	0.21	No
fin.	3	0	4.747	-5.44			8.73	3.29	SLU 76	0.6	No
ini.	3	0	9.7716	-17.43			8.73	3.29	SLU 82	0.19	No
fin.	3	0	4.4009	-6.4			8.73	3.29	SLU 82	0.51	No
ini.	3	0	9.3819	-16.25			8.73	3.29	SLU 75	0.2	No
fin.	3	0	4.7401	-5.56			8.73	3.29	SLU 75	0.59	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	7.5	-21.1023	12.1694	SLV 2	0.58	No
fin.	2	-13.09	27.1984	12.1694	SLV 2	0.45	No
ini.	2	39.71	18.0893	12.1694	SLD 16	0.67	No
fin.	2	62.2	-7.1824	12.1694	SLD 16	1.69	Si
ini.	2	52.82	33.4746	12.1694	SLV 16	0.36	No
fin.	2	91.93	-20.6235	12.1694	SLV 16	0.59	No
ini.	2	39.71	18.0893	12.1694	SLD 15	0.67	No
fin.	2	62.2	-7.1824	12.1694	SLD 15	1.69	Si
ini.	2	32.11	-19.2929	12.1694	SLV 3	0.63	No
fin.	2	18.3	31.2229	12.1694	SLV 3	0.39	No
ini.	2	52.82	33.4746	12.1694	SLV 15	0.36	No
fin.	2	91.93	-20.6235	12.1694	SLV 15	0.59	No
ini.	2	28.2	31.6652	12.1694	SLV 13	0.38	No
fin.	2	60.54	-24.648	12.1694	SLV 13	0.49	No
ini.	2	7.5	-21.1023	12.1694	SLV 1	0.58	No
fin.	2	-13.09	27.1984	12.1694	SLV 1	0.45	No
ini.	2	32.11	-19.2929	12.1694	SLV 4	0.63	No
fin.	2	18.3	31.2229	12.1694	SLV 4	0.39	No
ini.	2	28.2	31.6652	12.1694	SLV 14	0.38	No
fin.	2	60.54	-24.648	12.1694	SLV 14	0.49	No



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	31.6652	-83.7			13.1	4.93	SLV 13	0.06	No
fin.	2	0	-24.648	-65.85			13.1	4.93	SLV 13	0.07	No
ini.	2	0	-19.2929	63			13.1	4.93	SLV 3	0.08	No
fin.	2	0	31.2229	58.18			13.1	4.93	SLV 3	0.08	No
ini.	2	0	-19.2929	63			13.1	4.93	SLV 4	0.08	No
fin.	2	0	31.2229	58.18			13.1	4.93	SLV 4	0.08	No
ini.	2	0	17.3443	-42.42			13.1	4.93	SLD 14	0.12	No
fin.	2	0	-8.9098	-31.02			13.1	4.93	SLD 14	0.16	No
ini.	2	0	33.4746	-80.88			13.1	4.93	SLV 16	0.06	No
fin.	2	0	-20.6235	-74.89			13.1	4.93	SLV 16	0.07	No
ini.	2	0	33.4746	-80.88			13.1	4.93	SLV 15	0.06	No
fin.	2	0	-20.6235	-74.89			13.1	4.93	SLV 15	0.07	No
ini.	2	0	-21.1023	60.18			13.1	4.93	SLV 2	0.08	No
fin.	2	0	27.1984	67.22			13.1	4.93	SLV 2	0.07	No
ini.	2	0	17.3443	-42.42			13.1	4.93	SLD 13	0.12	No
fin.	2	0	-8.9098	-31.02			13.1	4.93	SLD 13	0.16	No
ini.	2	0	31.6652	-83.7			13.1	4.93	SLV 14	0.06	No
fin.	2	0	-24.648	-65.85			13.1	4.93	SLV 14	0.07	No
ini.	2	0	-21.1023	60.18			13.1	4.93	SLV 1	0.08	No
fin.	2	0	27.1984	67.22			13.1	4.93	SLV 1	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.364	SLV 15	No
V_SLV	0.059	SLV 13	No
PF_SLU	1.058	SLU 84	Si
V_SLU	0.189	SLU 82	No

#### Trave di accoppiamento 54

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.008	6.661	3.91	4.83	0.92	-7.008	6.661	3.91	4.83	0.92	1	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-21.58	-1.7405	10.7292	SLU 78	6.16	Si
fin.	3	-46.11	-5.4342	10.7292	SLU 78	1.97	Si
ini.	3	-20.98	-1.6137	10.7292	SLU 74	6.65	Si
fin.	3	-45.16	-5.244	10.7292	SLU 74	2.05	Si
ini.	3	-21	-1.4916	10.7292	SLU 81	7.19	Si
fin.	3	-45.97	-5.2577	10.7292	SLU 81	2.04	Si
ini.	3	-21.7	-1.769	10.7292	SLU 77	6.07	Si
fin.	3	-46.14	-5.4375	10.7292	SLU 77	1.97	Si
ini.	3	-21.72	-1.6469	10.7292	SLU 83	6.51	Si
fin.	3	-46.96	-5.4512	10.7292	SLU 83	1.97	Si
ini.	3	-21.61	-1.7896	10.7292	SLU 79	6	Si
fin.	3	-45.66	-5.3904	10.7292	SLU 79	1.99	Si
ini.	3	-21.59	-1.6185	10.7292	SLU 84	6.63	Si
fin.	3	-46.92	-5.4479	10.7292	SLU 84	1.97	Si
ini.	3	-20.87	-1.4631	10.7292	SLU 82	7.33	Si
fin.	3	-45.93	-5.2544	10.7292	SLU 82	2.04	Si
ini.	3	-20.86	-1.5852	10.7292	SLU 75	6.77	Si
fin.	3	-45.12	-5.2407	10.7292	SLU 75	2.05	Si
ini.	3	-21.49	-1.7611	10.7292	SLU 80	6.09	Si
fin.	3	-45.62	-5.3871	10.7292	SLU 80	1.99	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.4916	27.15			9.13	3.43	SLU 81	0.13	No
fin.	3	0	-5.2577	-68.82			9.13	3.43	SLU 81	0.05	No
ini.	3	0	-1.769	26.75			9.13	3.43	SLU 77	0.13	No
fin.	3	0	-5.4375	-67.47			9.13	3.43	SLU 77	0.05	No
ini.	3	0	-1.5852	26.24			9.13	3.43	SLU 75	0.13	No
fin.	3	0	-5.2407	-66.62			9.13	3.43	SLU 75	0.05	No
ini.	3	0	-1.6469	27.55			9.13	3.43	SLU 83	0.12	No
fin.	3	0	-5.4512	-69.68			9.13	3.43	SLU 83	0.05	No
ini.	3	0	-1.4631	27.04			9.13	3.43	SLU 82	0.13	No
fin.	3	0	-5.2544	-68.83			9.13	3.43	SLU 82	0.05	No
ini.	3	0	-1.7405	26.64			9.13	3.43	SLU 78	0.13	No
fin.	3	0	-5.4342	-67.48			9.13	3.43	SLU 78	0.05	No
ini.	3	0	-1.6137	26.35			9.13	3.43	SLU 74	0.13	No
fin.	3	0	-5.244	-66.61			9.13	3.43	SLU 74	0.05	No
ini.	3	0	-1.7611	26.41			9.13	3.43	SLU 80	0.13	No
fin.	3	0	-5.3871	-66.59			9.13	3.43	SLU 80	0.05	No
ini.	3	0	-1.6185	27.44			9.13	3.43	SLU 84	0.13	No
fin.	3	0	-5.4479	-69.69			9.13	3.43	SLU 84	0.05	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.7896	26.51			9.13	3.43	SLU 79	0.13	No
fin.	3	0	-5.3904	-66.59			9.13	3.43	SLU 79	0.05	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	27.53	15.0473	12.5194	SLV 13	0.83	No
fin.	2	-73.68	-13.7553	12.5194	SLV 13	0.91	No
ini.	2	-0.25	5.5221	12.5194	SLD 15	2.27	Si
fin.	2	-51.55	-8.3859	12.5194	SLD 15	1.49	Si
ini.	2	-0.25	5.5221	12.5194	SLD 16	2.27	Si
fin.	2	-51.55	-8.3859	12.5194	SLD 16	1.49	Si
ini.	2	17.37	13.9884	12.5194	SLV 16	0.89	No
fin.	2	-79.44	-14.7714	12.5194	SLV 16	0.85	No
ini.	2	-55.74	-17.2329	12.5194	SLV 4	0.73	No
fin.	2	13.9	6.9017	12.5194	SLV 4	1.81	Si
ini.	2	-55.74	-17.2329	12.5194	SLV 3	0.73	No
fin.	2	13.9	6.9017	12.5194	SLV 3	1.81	Si
ini.	2	-45.58	-16.174	12.5194	SLV 2	0.77	No
fin.	2	19.67	7.9178	12.5194	SLV 2	1.58	Si
ini.	2	17.37	13.9884	12.5194	SLV 15	0.89	No
fin.	2	-79.44	-14.7714	12.5194	SLV 15	0.85	No
ini.	2	-45.58	-16.174	12.5194	SLV 1	0.77	No
fin.	2	19.67	7.9178	12.5194	SLV 1	1.58	Si
ini.	2	27.53	15.0473	12.5194	SLV 14	0.83	No
fin.	2	-73.68	-13.7553	12.5194	SLV 14	0.91	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	13.9884	-42.14			13.69	5.15	SLV 16	0.12	No
fin.	2	0	-14.7714	-119.22			13.69	5.15	SLV 16	0.04	No
ini.	2	0	-16.174	77.06			13.69	5.15	SLV 1	0.07	No
fin.	2	0	7.9178	31.98			13.69	5.15	SLV 1	0.16	No
ini.	2	0	15.0473	-49.01			13.69	5.15	SLV 14	0.11	No
fin.	2	0	-13.7553	-113.47			13.69	5.15	SLV 14	0.05	No
ini.	2	0	5.5221	-8.64			13.69	5.15	SLD 16	0.6	No
fin.	2	0	-8.3859	-76.69			13.69	5.15	SLD 16	0.07	No
ini.	2	0	-16.174	77.06			13.69	5.15	SLV 2	0.07	No
fin.	2	0	7.9178	31.98			13.69	5.15	SLV 2	0.16	No
ini.	2	0	13.9884	-42.14			13.69	5.15	SLV 15	0.12	No
fin.	2	0	-14.7714	-119.22			13.69	5.15	SLV 15	0.04	No
ini.	2	0	-17.2329	83.93			13.69	5.15	SLV 4	0.06	No
fin.	2	0	6.9017	26.23			13.69	5.15	SLV 4	0.2	No
ini.	2	0	5.5221	-8.64			13.69	5.15	SLD 15	0.6	No
fin.	2	0	-8.3859	-76.69			13.69	5.15	SLD 15	0.07	No
ini.	2	0	-17.2329	83.93			13.69	5.15	SLV 3	0.06	No
fin.	2	0	6.9017	26.23			13.69	5.15	SLV 3	0.2	No
ini.	2	0	15.0473	-49.01			13.69	5.15	SLV 13	0.11	No
fin.	2	0	-13.7553	-113.47			13.69	5.15	SLV 13	0.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.726	SLV 3	No
V_SLV	0.043	SLV 15	No
PF_SLU	1.968	SLU 83	Si
V_SLU	0.049	SLU 84	No

## Trave di accoppiamento 55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.678	-4.859	4.37	4.83	0.46	-10.518	-4.859	4.37	4.83	0.46	1.84	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3.22	0.6768	3.2207	SLU 2	4.76	Si
fin.	3	1.7	-0.3662	3.2207	SLU 2	8.79	Si
ini.	3	-4.09	0.6927	3.2207	SLU 43	4.65	Si
fin.	3	1.81	-0.4076	3.2207	SLU 43	7.9	Si
ini.	3	-4.25	0.9073	3.2207	SLU 44	3.55	Si
fin.	3	2.32	-0.5117	3.2207	SLU 44	6.29	Si
ini.	3	-2.11	-0.7379	3.2207	SLU 79	4.36	Si
fin.	3	-1.99	0.5821	3.2207	SLU 79	5.53	Si
ini.	3	-1.2	-0.9023	3.2207	SLU 35	3.57	Si
fin.	3	-2.46	0.686	3.2207	SLU 35	4.7	Si
ini.	3	-1.18	-0.8397	3.2207	SLU 38	3.84	Si
fin.	3	-2.3	0.6651	3.2207	SLU 38	4.84	Si
ini.	3	-1.09	-0.9684	3.2207	SLU 37	3.33	Si
fin.	3	-2.61	0.7275	3.2207	SLU 37	4.43	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1.39	-0.7005	3.2207	SLU 16	4.6	Si
fin.	3	-1.83	0.5326	3.2207	SLU 16	6.05	Si
ini.	3	-1.3	-0.7735	3.2207	SLU 36	4.16	Si
fin.	3	-2.15	0.6235	3.2207	SLU 36	5.17	Si
ini.	3	-1.47	-0.7669	3.2207	SLU 41	4.2	Si
fin.	3	-2.18	0.6089	3.2207	SLU 41	5.29	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.4038	0.99			3.54	1.33	SLU 56	1.35	Si
fin.	3	0	0.3455	10.57			3.54	1.33	SLU 56	0.13	No
ini.	3	0	-0.7379	1.31			3.54	1.33	SLU 79	1.02	Si
fin.	3	0	0.5821	11.49			3.54	1.33	SLU 79	0.12	No
ini.	3	0	-0.1596	0.64			3.54	1.33	SLU 81	2.08	Si
fin.	3	0	0.2161	10.55			3.54	1.33	SLU 81	0.13	No
ini.	3	0	-0.6092	1.17			3.54	1.33	SLU 80	1.14	Si
fin.	3	0	0.5196	11.35			3.54	1.33	SLU 80	0.12	No
ini.	3	0	-0.4077	0.92			3.54	1.33	SLU 84	1.46	Si
fin.	3	0	0.4009	11.15			3.54	1.33	SLU 84	0.12	No
ini.	3	0	-0.543	1.09			3.54	1.33	SLU 78	1.22	Si
fin.	3	0	0.478	11.24			3.54	1.33	SLU 78	0.12	No
ini.	3	0	-0.6718	1.23			3.54	1.33	SLU 77	1.09	Si
fin.	3	0	0.5405	11.38			3.54	1.33	SLU 77	0.12	No
ini.	3	0	-0.5364	1.05			3.54	1.33	SLU 83	1.27	Si
fin.	3	0	0.4634	11.29			3.54	1.33	SLU 83	0.12	No
ini.	3	0	-0.47	1.06			3.54	1.33	SLU 58	1.25	Si
fin.	3	0	0.3871	10.68			3.54	1.33	SLU 58	0.12	No
ini.	3	0	-0.2949	0.81			3.54	1.33	SLU 74	1.64	Si
fin.	3	0	0.2932	10.63			3.54	1.33	SLU 74	0.13	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	14.72	-16.3191	4.7081	SLV 13	0.29	No
fin.	2	-47.42	10.9942	4.7081	SLV 13	0.43	No
ini.	2	-17.6	14.8317	4.7081	SLV 2	0.32	No
fin.	2	43.58	-9.9468	4.7081	SLV 2	0.47	No
ini.	2	11.92	-14.2943	4.7081	SLV 16	0.33	No
fin.	2	-42.31	9.7055	4.7081	SLV 16	0.49	No
ini.	2	14.72	-16.3191	4.7081	SLV 14	0.29	No
fin.	2	-47.42	10.9942	4.7081	SLV 14	0.43	No
ini.	2	-20.39	16.8565	4.7081	SLV 4	0.28	No
fin.	2	48.68	-11.2355	4.7081	SLV 4	0.42	No
ini.	2	-12.34	8.316	4.7081	SLV 7	0.57	No
fin.	2	22.79	-5.4096	4.7081	SLV 7	0.87	No
ini.	2	11.92	-14.2943	4.7081	SLV 15	0.33	No
fin.	2	-42.31	9.7055	4.7081	SLV 15	0.49	No
ini.	2	-12.34	8.316	4.7081	SLV 8	0.57	No
fin.	2	22.79	-5.4096	4.7081	SLV 8	0.87	No
ini.	2	-17.6	14.8317	4.7081	SLV 1	0.32	No
fin.	2	43.58	-9.9468	4.7081	SLV 1	0.47	No
ini.	2	-20.39	16.8565	4.7081	SLV 3	0.28	No
fin.	2	48.68	-11.2355	4.7081	SLV 3	0.42	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-7.7786	6.04			5.31	2	SLV 10	0.33	No
fin.	2	0	5.1683	22.21			5.31	2	SLV 10	0.09	No
ini.	2	0	-16.3191	18.75			5.31	2	SLV 13	0.11	No
fin.	2	0	10.9942	31.24			5.31	2	SLV 13	0.06	No
ini.	2	0	-16.3191	18.75			5.31	2	SLV 14	0.11	No
fin.	2	0	10.9942	31.24			5.31	2	SLV 14	0.06	No
ini.	2	0	14.8317	-18.27			5.31	2	SLV 2	0.11	No
fin.	2	0	-9.9468	-12.17			5.31	2	SLV 2	0.16	No
ini.	2	0	-14.2943	18.53			5.31	2	SLV 16	0.11	No
fin.	2	0	9.7055	25.96			5.31	2	SLV 16	0.08	No
ini.	2	0	-7.7786	6.04			5.31	2	SLV 9	0.33	No
fin.	2	0	5.1683	22.21			5.31	2	SLV 9	0.09	No
ini.	2	0	-14.2943	18.53			5.31	2	SLV 15	0.11	No
fin.	2	0	9.7055	25.96			5.31	2	SLV 15	0.08	No
ini.	2	0	16.8565	-18.48			5.31	2	SLV 3	0.11	No
fin.	2	0	-11.2355	-17.45			5.31	2	SLV 3	0.11	No
ini.	2	0	14.8317	-18.27			5.31	2	SLV 1	0.11	No
fin.	2	0	-9.9468	-12.17			5.31	2	SLV 1	0.16	No
ini.	2	0	16.8565	-18.48			5.31	2	SLV 4	0.11	No
fin.	2	0	-11.2355	-17.45			5.31	2	SLV 4	0.11	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.279	SLV 3	No
V_SLV	0.064	SLV 13	No
PF_SLU	3.326	SLU 37	Si
V_SLU	0.116	SLU 79	No

## Trave di accoppiamento 56

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.548	-3.359	3.21	4.83	1.62	-9.448	-3.359	3.21	4.83	1.62	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-27.78	-22.3986	22.9792	SLU 80	1.03	Si
fin.	3	-27.78	-2.1591	22.9792	SLU 80	10.64	Si
ini.	3	-27.31	-21.7556	22.9792	SLU 77	1.06	Si
fin.	3	-27.31	-0.6851	22.9792	SLU 77	33.54	Si
ini.	3	-27.87	-21.7021	22.9792	SLU 83	1.06	Si
fin.	3	-27.87	-1.31	22.9792	SLU 83	17.54	Si
ini.	3	-27.09	-21.368	22.9792	SLU 75	1.08	Si
fin.	3	-27.09	-3.405	22.9792	SLU 75	6.75	Si
ini.	3	-26.35	-21.0635	22.9792	SLU 59	1.09	Si
fin.	3	-26.35	-1.4042	22.9792	SLU 59	16.36	Si
ini.	3	-28.31	-22.3188	22.9792	SLU 84	1.03	Si
fin.	3	-28.31	-3.1141	22.9792	SLU 84	7.38	Si
ini.	3	-27.76	-22.3724	22.9792	SLU 78	1.03	Si
fin.	3	-27.76	-2.4892	22.9792	SLU 78	9.23	Si
ini.	3	-27.41	-21.8053	22.9792	SLU 76	1.05	Si
fin.	3	-27.41	-4.2777	22.9792	SLU 76	5.37	Si
ini.	3	-27.64	-21.3144	22.9792	SLU 82	1.08	Si
fin.	3	-27.64	-4.0299	22.9792	SLU 82	5.7	Si
ini.	3	-27.34	-21.7819	22.9792	SLU 79	1.05	Si
fin.	3	-27.34	-0.355	22.9792	SLU 79	64.73	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-21.7556	32			17.47	6.57	SLU 77	0.21	No
fin.	3	0	-0.6851	15.49			17.47	6.57	SLU 77	0.42	No
ini.	3	0	-20.4206	30.44			17.47	6.57	SLU 56	0.22	No
fin.	3	0	0.0698	15.8			17.47	6.57	SLU 56	0.42	No
ini.	3	0	-21.7819	32.4			17.47	6.57	SLU 79	0.2	No
fin.	3	0	-0.355	15.89			17.47	6.57	SLU 79	0.41	No
ini.	3	0	-22.3724	30.68			17.47	6.57	SLU 78	0.21	No
fin.	3	0	-2.4892	14.17			17.47	6.57	SLU 78	0.46	No
ini.	3	0	-20.7512	29.87			17.47	6.57	SLU 74	0.22	No
fin.	3	0	-1.6009	13.36			17.47	6.57	SLU 74	0.49	No
ini.	3	0	-21.7021	31.72			17.47	6.57	SLU 83	0.21	No
fin.	3	0	-1.31	14.27			17.47	6.57	SLU 83	0.46	No
ini.	3	0	-20.4468	30.84			17.47	6.57	SLU 58	0.21	No
fin.	3	0	0.3999	16.2			17.47	6.57	SLU 58	0.41	No
ini.	3	0	-22.3986	31.08			17.47	6.57	SLU 80	0.21	No
fin.	3	0	-2.1591	14.57			17.47	6.57	SLU 80	0.45	No
ini.	3	0	-22.3188	30.4			17.47	6.57	SLU 84	0.22	No
fin.	3	0	-3.1141	12.95			17.47	6.57	SLU 84	0.51	No
ini.	3	0	-20.367	30.16			17.47	6.57	SLU 62	0.22	No
fin.	3	0	-0.555	14.57			17.47	6.57	SLU 62	0.45	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-44	-66.928	24.7694	SLV 13	0.37	No
fin.	2	-49.06	48.1276	24.7694	SLV 13	0.51	No
ini.	2	-36.61	-46.3403	24.7694	SLV 16	0.53	No
fin.	2	-23.83	55.5865	24.7694	SLV 16	0.45	No
ini.	2	-36.61	-46.3403	24.7694	SLV 15	0.53	No
fin.	2	-23.83	55.5865	24.7694	SLV 15	0.45	No
ini.	2	7.34	39.181	24.7694	SLV 3	0.63	No
fin.	2	12.39	-51.0714	24.7694	SLV 3	0.48	No
ini.	2	-44	-66.928	24.7694	SLV 14	0.37	No
fin.	2	-49.06	48.1276	24.7694	SLV 14	0.51	No
ini.	2	-37.25	-61.0145	24.7694	SLV 10	0.41	No
fin.	2	-65.81	2.0954	24.7694	SLV 10	11.82	Si
ini.	2	7.34	39.181	24.7694	SLV 4	0.63	No
fin.	2	12.39	-51.0714	24.7694	SLV 4	0.48	No
ini.	2	-0.05	18.5933	24.7694	SLV 1	1.33	Si
fin.	2	-12.84	-58.5302	24.7694	SLV 1	0.42	No
ini.	2	-37.25	-61.0145	24.7694	SLV 9	0.41	No
fin.	2	-65.81	2.0954	24.7694	SLV 9	11.82	Si
ini.	2	-0.05	18.5933	24.7694	SLV 2	1.33	Si
fin.	2	-12.84	-58.5302	24.7694	SLV 2	0.42	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	18.5933	-82.62			26.2	9.86	SLV 2	0.12	No
fin.	2	0	-58.5302	-94.39			26.2	9.86	SLV 2	0.1	No
ini.	2	0	39.181	-91.87			26.2	9.86	SLV 4	0.11	No
fin.	2	0	-51.0714	-106.21			26.2	9.86	SLV 4	0.09	No
ini.	2	0	-36.6339	67.97			26.2	9.86	SLD 13	0.15	No
fin.	2	0	20.1175	58.03			26.2	9.86	SLD 13	0.17	No
ini.	2	0	-66.928	131.17			26.2	9.86	SLV 13	0.08	No
fin.	2	0	48.1276	123.07			26.2	9.86	SLV 13	0.08	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	18.5933	-82.62			26.2	9.86	SLV 1	0.12	No
fin.	2	0	-58.5302	-94.39			26.2	9.86	SLV 1	0.1	No
ini.	2	0	39.181	-91.87			26.2	9.86	SLV 3	0.11	No
fin.	2	0	-51.0714	-106.21			26.2	9.86	SLV 3	0.09	No
ini.	2	0	-46.3403	121.92			26.2	9.86	SLV 16	0.08	No
fin.	2	0	55.5865	111.25			26.2	9.86	SLV 16	0.09	No
ini.	2	0	-66.928	131.17			26.2	9.86	SLV 14	0.08	No
fin.	2	0	48.1276	123.07			26.2	9.86	SLV 14	0.08	No
ini.	2	0	-46.3403	121.92			26.2	9.86	SLV 15	0.08	No
fin.	2	0	55.5865	111.25			26.2	9.86	SLV 15	0.09	No
ini.	2	0	-36.6339	67.97			26.2	9.86	SLD 14	0.15	No
fin.	2	0	20.1175	58.03			26.2	9.86	SLD 14	0.17	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.37	SLV 13	No
V_SLV	0.075	SLV 13	No
PF_SLU	1.026	SLU 80	Si
V_SLU	0.203	SLU 79	No

## Trave di accoppiamento 57

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.723	-4.861	4.37	4.83	0.46	-7.723	-3.771	4.37	4.83	0.46	1.09	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3.49	0.3879	3.2207	SLU 26	8.3	Si
fin.	3	6.08	-1.2186	3.2207	SLU 26	2.64	Si
ini.	3	-3.42	0.3767	3.2207	SLU 2	8.55	Si
fin.	3	6.43	-1.361	3.2207	SLU 2	2.37	Si
ini.	3	-3.25	0.423	3.2207	SLU 39	7.61	Si
fin.	3	-2.4	1.3213	3.2207	SLU 39	2.44	Si
ini.	3	-3.27	0.4218	3.2207	SLU 41	7.63	Si
fin.	3	-2.03	1.2064	3.2207	SLU 41	2.67	Si
ini.	3	-4.14	0.5334	3.2207	SLU 81	6.04	Si
fin.	3	-2.16	1.3842	3.2207	SLU 81	2.33	Si
ini.	3	-4.32	0.487	3.2207	SLU 44	6.61	Si
fin.	3	6.66	-1.298	3.2207	SLU 44	2.48	Si
ini.	3	-4.16	0.5322	3.2207	SLU 83	6.05	Si
fin.	3	-1.79	1.2693	3.2207	SLU 83	2.54	Si
ini.	3	-4.34	0.4858	3.2207	SLU 47	6.63	Si
fin.	3	7.03	-1.413	3.2207	SLU 47	2.28	Si
ini.	3	-3.44	0.3755	3.2207	SLU 5	8.58	Si
fin.	3	6.8	-1.4759	3.2207	SLU 5	2.18	Si
ini.	3	-4.12	0.5249	3.2207	SLU 74	6.14	Si
fin.	3	-1.47	1.163	3.2207	SLU 74	2.77	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.5322	1.26			3.54	1.33	SLU 83	1.06	Si
fin.	3	0	1.2693	13.99			3.54	1.33	SLU 83	0.1	No
ini.	3	0	0.5334	1.37			3.54	1.33	SLU 81	0.98	No
fin.	3	0	1.3842	13.91			3.54	1.33	SLU 81	0.1	No
ini.	3	0	0.5218	0.07			3.54	1.33	SLU 75	20.47	Si
fin.	3	0	0.0442	13.98			3.54	1.33	SLU 75	0.1	No
ini.	3	0	0.5192	-0.09			3.54	1.33	SLU 80	14.75	Si
fin.	3	0	-0.1325	13.91			3.54	1.33	SLU 80	0.1	No
ini.	3	0	0.5238	1.07			3.54	1.33	SLU 77	1.24	Si
fin.	3	0	1.0481	13.45			3.54	1.33	SLU 77	0.1	No
ini.	3	0	0.5195	-0.62			3.54	1.33	SLU 73	2.14	Si
fin.	3	0	-0.6486	14.15			3.54	1.33	SLU 73	0.09	No
ini.	3	0	0.5302	0.26			3.54	1.33	SLU 82	5.19	Si
fin.	3	0	0.2654	14.53			3.54	1.33	SLU 82	0.09	No
ini.	3	0	0.5183	-0.73			3.54	1.33	SLU 76	1.83	Si
fin.	3	0	-0.7635	14.24			3.54	1.33	SLU 76	0.09	No
ini.	3	0	0.5206	-0.04			3.54	1.33	SLU 78	34.29	Si
fin.	3	0	-0.0707	14.07			3.54	1.33	SLU 78	0.09	No
ini.	3	0	0.529	0.15			3.54	1.33	SLU 84	8.72	Si
fin.	3	0	0.1505	14.61			3.54	1.33	SLU 84	0.09	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2.21	1.6534	4.7081	SLV 6	2.85	Si
fin.	2	-70.41	22.7994	4.7081	SLV 6	0.21	No
ini.	2	-0.66	0.7225	4.7081	SLV 2	6.52	Si
fin.	2	-33.48	11.0312	4.7081	SLV 2	0.43	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2.56	-0.9022	4.7081	SLV 8	5.22	Si
fin.	2	61.38	-18.9754	4.7081	SLV 8	0.25	No
ini.	2	-3.64	1.6846	4.7081	SLV 10	2.79	Si
fin.	2	-62.53	20.354	4.7081	SLV 10	0.23	No
ini.	2	-3.99	-0.871	4.7081	SLV 12	5.41	Si
fin.	2	69.26	-21.4208	4.7081	SLV 12	0.22	No
ini.	2	-3.99	-0.871	4.7081	SLV 11	5.41	Si
fin.	2	69.26	-21.4208	4.7081	SLV 11	0.22	No
ini.	2	-0.66	0.7225	4.7081	SLV 1	6.52	Si
fin.	2	-33.48	11.0312	4.7081	SLV 1	0.43	No
ini.	2	-2.21	1.6534	4.7081	SLV 5	2.85	Si
fin.	2	-70.41	22.7994	4.7081	SLV 5	0.21	No
ini.	2	-2.56	-0.9022	4.7081	SLV 7	5.22	Si
fin.	2	61.38	-18.9754	4.7081	SLV 7	0.25	No
ini.	2	-3.64	1.6846	4.7081	SLV 9	2.79	Si
fin.	2	-62.53	20.354	4.7081	SLV 9	0.23	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-0.871	-20.12			5.31	2	SLV 12	0.1	No
fin.	2	0	-21.4208	6.77			5.31	2	SLV 12	0.3	No
ini.	2	0	1.6534	21.6			5.31	2	SLV 5	0.09	No
fin.	2	0	22.7994	11.01			5.31	2	SLV 5	0.18	No
ini.	2	0	-0.871	-20.12			5.31	2	SLV 11	0.1	No
fin.	2	0	-21.4208	6.77			5.31	2	SLV 11	0.3	No
ini.	2	0	0.7225	10.24			5.31	2	SLV 1	0.2	No
fin.	2	0	11.0312	11.59			5.31	2	SLV 1	0.17	No
ini.	2	0	-0.9022	-17.98			5.31	2	SLV 8	0.11	No
fin.	2	0	-18.9754	8.13			5.31	2	SLV 8	0.25	No
ini.	2	0	1.6534	21.6			5.31	2	SLV 6	0.09	No
fin.	2	0	22.7994	11.01			5.31	2	SLV 6	0.18	No
ini.	2	0	1.6846	19.46			5.31	2	SLV 10	0.1	No
fin.	2	0	20.354	9.65			5.31	2	SLV 10	0.21	No
ini.	2	0	1.6846	19.46			5.31	2	SLV 9	0.1	No
fin.	2	0	20.354	9.65			5.31	2	SLV 9	0.21	No
ini.	2	0	-0.9022	-17.98			5.31	2	SLV 7	0.11	No
fin.	2	0	-18.9754	8.13			5.31	2	SLV 7	0.25	No
ini.	2	0	0.7225	10.24			5.31	2	SLV 2	0.2	No
fin.	2	0	11.0312	11.59			5.31	2	SLV 2	0.17	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.207	SLV 5	No
V_SLV	0.093	SLV 5	No
PF_SLU	2.182	SLU 5	Si
V_SLU	0.091	SLU 84	No

## Trave di accoppiamento 58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	1.11	3.11	2	-5.158	6.506	1.11	3.11	2	0.5	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	11.28	-39.6049	29.6292	SLU 81	0.75	No
fin.	3	-6.01	-21.6592	29.6292	SLU 81	1.37	Si
ini.	3	10.51	-37.6107	29.6292	SLU 76	0.79	No
fin.	3	-5.69	-21.3184	29.6292	SLU 76	1.39	Si
ini.	3	10.36	-37.6095	29.6292	SLU 80	0.79	No
fin.	3	-5.65	-22.0385	29.6292	SLU 80	1.34	Si
ini.	3	10.5	-38.2083	29.6292	SLU 78	0.78	No
fin.	3	-5.77	-22.2036	29.6292	SLU 78	1.33	Si
ini.	3	11.15	-39.6389	29.6292	SLU 83	0.75	No
fin.	3	-5.98	-22.3508	29.6292	SLU 83	1.33	Si
ini.	3	10.63	-38.1743	29.6292	SLU 75	0.78	No
fin.	3	-5.8	-21.512	29.6292	SLU 75	1.38	Si
ini.	3	11.17	-39.6919	29.6292	SLU 84	0.75	No
fin.	3	-5.99	-22.308	29.6292	SLU 84	1.33	Si
ini.	3	10.61	-38.1213	29.6292	SLU 74	0.78	No
fin.	3	-5.79	-21.5548	29.6292	SLU 74	1.37	Si
ini.	3	11.3	-39.6578	29.6292	SLU 82	0.75	No
fin.	3	-6.02	-21.6164	29.6292	SLU 82	1.37	Si
ini.	3	10.48	-38.1553	29.6292	SLU 77	0.78	No
fin.	3	-5.76	-22.2464	29.6292	SLU 77	1.33	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-38.1553	-23.99			21.57	8.12	SLU 77	0.34	No
fin.	3	0	-22.2464	226.62			21.57	8.12	SLU 77	0.04	No
ini.	3	0	-37.6095	-24.27			21.57	8.12	SLU 80	0.33	No
fin.	3	0	-22.0385	223.98			21.57	8.12	SLU 80	0.04	No
ini.	3	0	-38.1743	-18.81			21.57	8.12	SLU 75	0.43	No
fin.	3	0	-21.512	222.99			21.57	8.12	SLU 75	0.04	No
ini.	3	0	-37.5565	-24.79			21.57	8.12	SLU 79	0.33	No
fin.	3	0	-22.0813	224.11			21.57	8.12	SLU 79	0.04	No
ini.	3	0	-39.6389	-19.7			21.57	8.12	SLU 83	0.41	No
fin.	3	0	-22.3508	232.07			21.57	8.12	SLU 83	0.03	No
ini.	3	0	-38.1213	-19.32			21.57	8.12	SLU 74	0.42	No
fin.	3	0	-21.5548	223.12			21.57	8.12	SLU 74	0.04	No
ini.	3	0	-38.2083	-23.47			21.57	8.12	SLU 78	0.35	No
fin.	3	0	-22.2036	226.49			21.57	8.12	SLU 78	0.04	No
ini.	3	0	-39.6049	-15.03			21.57	8.12	SLU 81	0.54	No
fin.	3	0	-21.6592	228.58			21.57	8.12	SLU 81	0.04	No
ini.	3	0	-39.6578	-14.52			21.57	8.12	SLU 82	0.56	No
fin.	3	0	-21.6164	228.45			21.57	8.12	SLU 82	0.04	No
ini.	3	0	-39.6919	-19.18			21.57	8.12	SLU 84	0.42	No
fin.	3	0	-22.308	231.94			21.57	8.12	SLU 84	0.03	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	12.55	-46.379	31.4194	SLD 13	0.68	No
fin.	2	-7.6	-17.5614	31.4194	SLD 13	1.79	Si
ini.	2	16.84	-64.3139	31.4194	SLV 15	0.49	No
fin.	2	-14.45	-25.4249	31.4194	SLV 15	1.24	Si
ini.	2	11.4	-42.512	31.4194	SLD 15	0.74	No
fin.	2	-8.49	-19.1646	31.4194	SLD 15	1.64	Si
ini.	2	15.16	-53.4134	31.4194	SLV 10	0.59	No
fin.	2	-3.2	-10.854	31.4194	SLV 10	2.89	Si
ini.	2	19.66	-73.2666	31.4194	SLV 14	0.43	No
fin.	2	-12.32	-21.6823	31.4194	SLV 14	1.45	Si
ini.	2	11.4	-42.512	31.4194	SLD 16	0.74	No
fin.	2	-8.49	-19.1646	31.4194	SLD 16	1.64	Si
ini.	2	15.16	-53.4134	31.4194	SLV 9	0.59	No
fin.	2	-3.2	-10.854	31.4194	SLV 9	2.89	Si
ini.	2	19.66	-73.2666	31.4194	SLV 13	0.43	No
fin.	2	-12.32	-21.6823	31.4194	SLV 13	1.45	Si
ini.	2	16.84	-64.3139	31.4194	SLV 16	0.49	No
fin.	2	-14.45	-25.4249	31.4194	SLV 16	1.24	Si
ini.	2	12.55	-46.379	31.4194	SLD 14	0.68	No
fin.	2	-7.6	-17.5614	31.4194	SLD 14	1.79	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-46.379	37.6			32.35	12.17	SLD 14	0.32	No
fin.	2	0	-17.5614	205.58			32.35	12.17	SLD 14	0.06	No
ini.	2	0	-42.512	29.54			32.35	12.17	SLD 16	0.41	No
fin.	2	0	-19.1646	210.2			32.35	12.17	SLD 16	0.06	No
ini.	2	0	-23.5709	-11.06			32.35	12.17	SLV 12	1.1	Si
fin.	2	0	-23.3294	208.57			32.35	12.17	SLV 12	0.06	No
ini.	2	0	-46.379	37.6			32.35	12.17	SLD 13	0.32	No
fin.	2	0	-17.5614	205.58			32.35	12.17	SLD 13	0.06	No
ini.	2	0	-64.3139	83.33			32.35	12.17	SLV 16	0.15	No
fin.	2	0	-25.4249	289.97			32.35	12.17	SLV 16	0.04	No
ini.	2	0	-64.3139	83.33			32.35	12.17	SLV 15	0.15	No
fin.	2	0	-25.4249	289.97			32.35	12.17	SLV 15	0.04	No
ini.	2	0	-42.512	29.54			32.35	12.17	SLD 15	0.41	No
fin.	2	0	-19.1646	210.2			32.35	12.17	SLD 15	0.06	No
ini.	2	0	-73.2666	101.59			32.35	12.17	SLV 13	0.12	No
fin.	2	0	-21.6823	278.41			32.35	12.17	SLV 13	0.04	No
ini.	2	0	-23.5709	-11.06			32.35	12.17	SLV 11	1.1	Si
fin.	2	0	-23.3294	208.57			32.35	12.17	SLV 11	0.06	No
ini.	2	0	-73.2666	101.59			32.35	12.17	SLV 14	0.12	No
fin.	2	0	-21.6823	278.41			32.35	12.17	SLV 14	0.04	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.429	SLV 13	No
V_SLV	0.042	SLV 15	No
PF_SLU	0.746	SLU 84	No
V_SLU	0.035	SLU 83	No

#### Trave di accoppiamento 59

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	3.91	4.83	0.92	-5.158	6.506	3.91	4.83	0.92	0.5	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-11.35	-7.0725	10.7292	SLU 83	1.52	Si
fin.	3	0.68	3.1268	10.7292	SLU 83	3.43	Si
ini.	3	-11.21	-6.7159	10.7292	SLU 60	1.6	Si
fin.	3	0.14	2.6941	10.7292	SLU 60	3.98	Si
ini.	3	-11.45	-7.1195	10.7292	SLU 84	1.51	Si
fin.	3	0.65	3.1217	10.7292	SLU 84	3.44	Si
ini.	3	-11.7	-7.0715	10.7292	SLU 73	1.52	Si
fin.	3	0.25	2.8818	10.7292	SLU 73	3.72	Si
ini.	3	-11.31	-6.763	10.7292	SLU 61	1.59	Si
fin.	3	0.11	2.6889	10.7292	SLU 61	3.99	Si
ini.	3	-11.17	-6.631	10.7292	SLU 40	1.62	Si
fin.	3	0.01	2.5903	10.7292	SLU 40	4.14	Si
ini.	3	-12.64	-7.5653	10.7292	SLU 82	1.42	Si
fin.	3	0.14	3.0205	10.7292	SLU 82	3.55	Si
ini.	3	-10.94	-6.8272	10.7292	SLU 75	1.57	Si
fin.	3	0.66	3.0072	10.7292	SLU 75	3.57	Si
ini.	3	-12.54	-7.5182	10.7292	SLU 81	1.43	Si
fin.	3	0.16	3.0257	10.7292	SLU 81	3.55	Si
ini.	3	-10.84	-6.7801	10.7292	SLU 74	1.58	Si
fin.	3	0.69	3.0123	10.7292	SLU 74	3.56	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-6.1486	47.08			9.92	3.73	SLU 80	0.08	No
fin.	3	0	3.0876	5.99			9.92	3.73	SLU 80	0.62	No
ini.	3	0	-6.3815	47.78			9.92	3.73	SLU 78	0.08	No
fin.	3	0	3.1083	7.22			9.92	3.73	SLU 78	0.52	No
ini.	3	0	-6.3344	47.73			9.92	3.73	SLU 77	0.08	No
fin.	3	0	3.1135	6.89			9.92	3.73	SLU 77	0.54	No
ini.	3	0	-7.5653	48.77			9.92	3.73	SLU 82	0.08	No
fin.	3	0	3.0205	16.33			9.92	3.73	SLU 82	0.23	No
ini.	3	0	-6.7801	47.33			9.92	3.73	SLU 74	0.08	No
fin.	3	0	3.0123	11.09			9.92	3.73	SLU 74	0.34	No
ini.	3	0	-6.8272	47.38			9.92	3.73	SLU 75	0.08	No
fin.	3	0	3.0072	11.41			9.92	3.73	SLU 75	0.33	No
ini.	3	0	-7.1195	49.17			9.92	3.73	SLU 84	0.08	No
fin.	3	0	3.1217	12.14			9.92	3.73	SLU 84	0.31	No
ini.	3	0	-7.0725	49.12			9.92	3.73	SLU 83	0.08	No
fin.	3	0	3.1268	11.81			9.92	3.73	SLU 83	0.32	No
ini.	3	0	-6.1016	47.03			9.92	3.73	SLU 79	0.08	No
fin.	3	0	3.0927	5.67			9.92	3.73	SLU 79	0.66	No
ini.	3	0	-7.5182	48.72			9.92	3.73	SLU 81	0.08	No
fin.	3	0	3.0257	16.01			9.92	3.73	SLU 81	0.23	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-25.7	-13.119	12.5194	SLV 10	0.95	No
fin.	2	-7.48	2.0623	12.5194	SLV 10	6.07	Si
ini.	2	-25.64	-16.251	12.5194	SLV 16	0.77	No
fin.	2	1.18	3.4916	12.5194	SLV 16	3.59	Si
ini.	2	-25.64	-16.251	12.5194	SLV 15	0.77	No
fin.	2	1.18	3.4916	12.5194	SLV 15	3.59	Si
ini.	2	-18.48	-10.9069	12.5194	SLD 13	1.15	Si
fin.	2	-1.22	2.5637	12.5194	SLD 13	4.88	Si
ini.	2	17.77	9.7916	12.5194	SLV 3	1.28	Si
fin.	2	4	0.7154	12.5194	SLV 3	17.5	Si
ini.	2	-25.7	-13.119	12.5194	SLV 9	0.95	No
fin.	2	-7.48	2.0623	12.5194	SLV 9	6.07	Si
ini.	2	-32.68	-19.0123	12.5194	SLV 14	0.66	No
fin.	2	-3.28	3.2804	12.5194	SLV 14	3.82	Si
ini.	2	17.77	9.7916	12.5194	SLV 4	1.28	Si
fin.	2	4	0.7154	12.5194	SLV 4	17.5	Si
ini.	2	-32.68	-19.0123	12.5194	SLV 13	0.66	No
fin.	2	-3.28	3.2804	12.5194	SLV 13	3.82	Si
ini.	2	-18.48	-10.9069	12.5194	SLD 14	1.15	Si
fin.	2	-1.22	2.5637	12.5194	SLD 14	4.88	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	9.7916	-9.75			14.88	5.6	SLV 4	0.57	No
fin.	2	0	0.7154	-64			14.88	5.6	SLV 4	0.09	No
ini.	2	0	-13.119	43.82			14.88	5.6	SLV 9	0.13	No
fin.	2	0	2.0623	50.02			14.88	5.6	SLV 9	0.11	No
ini.	2	0	-19.0123	72.91			14.88	5.6	SLV 14	0.08	No
fin.	2	0	3.2804	80.58			14.88	5.6	SLV 14	0.07	No
ini.	2	0	-16.251	73.01			14.88	5.6	SLV 15	0.08	No
fin.	2	0	3.4916	67.36			14.88	5.6	SLV 15	0.08	No
ini.	2	0	-19.0123	72.91			14.88	5.6	SLV 13	0.08	No
fin.	2	0	3.2804	80.58			14.88	5.6	SLV 13	0.07	No
ini.	2	0	7.0302	-9.85			14.88	5.6	SLV 1	0.57	No
fin.	2	0	0.5042	-50.79			14.88	5.6	SLV 1	0.11	No
ini.	2	0	-16.251	73.01			14.88	5.6	SLV 16	0.08	No
fin.	2	0	3.4916	67.36			14.88	5.6	SLV 16	0.08	No
ini.	2	0	7.0302	-9.85			14.88	5.6	SLV 2	0.57	No
fin.	2	0	0.5042	-50.79			14.88	5.6	SLV 2	0.11	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-13.119	43.82			14.88	5.6	SLV 10	0.13	No
fin.	2	0	2.0623	50.02			14.88	5.6	SLV 10	0.11	No
ini.	2	0	9.7916	-9.75			14.88	5.6	SLV 3	0.57	No
fin.	2	0	0.7154	-64			14.88	5.6	SLV 3	0.09	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.658	SLV 13	No
V_SLV	0.069	SLV 13	No
PF_SLU	1.418	SLU 82	Si
V_SLU	0.076	SLU 84	No

## Trave di accoppiamento 60

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.463	-3.359	1.11	2.01	0.9	-7.463	-3.359	1.11	2.01	0.9	1	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-53.45	-18.1497	10.3792	SLU 73	0.57	No
fin.	3	-42.35	-7.011	10.3792	SLU 73	1.48	Si
ini.	3	-48.1	-17.0683	10.3792	SLU 75	0.61	No
fin.	3	-40.31	-6.5383	10.3792	SLU 75	1.59	Si
ini.	3	-48.57	-17.2395	10.3792	SLU 82	0.6	No
fin.	3	-40.69	-6.9488	10.3792	SLU 82	1.49	Si
ini.	3	-51.23	-17.2629	10.3792	SLU 55	0.6	No
fin.	3	-40.63	-6.059	10.3792	SLU 55	1.71	Si
ini.	3	-50.78	-17.1006	10.3792	SLU 68	0.61	No
fin.	3	-39.85	-6.1121	10.3792	SLU 68	1.7	Si
ini.	3	-54.24	-18.5826	10.3792	SLU 76	0.56	No
fin.	3	-43.44	-6.7105	10.3792	SLU 76	1.55	Si
ini.	3	-49.37	-17.6724	10.3792	SLU 84	0.59	No
fin.	3	-41.78	-6.6483	10.3792	SLU 84	1.56	Si
ini.	3	-48.68	-17.4702	10.3792	SLU 80	0.59	No
fin.	3	-41.33	-6.0913	10.3792	SLU 80	1.7	Si
ini.	3	-50.43	-16.83	10.3792	SLU 52	0.62	No
fin.	3	-39.54	-6.3596	10.3792	SLU 52	1.63	Si
ini.	3	-48.9	-17.5012	10.3792	SLU 78	0.59	No
fin.	3	-41.4	-6.2377	10.3792	SLU 78	1.66	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-17.4702	-1.3			8.73	3.29	SLU 80	2.53	Si
fin.	3	0	-6.0913	15.27			8.73	3.29	SLU 80	0.22	No
ini.	3	0	-17.0683	-2.25			8.73	3.29	SLU 75	1.46	Si
fin.	3	0	-6.5383	14.13			8.73	3.29	SLU 75	0.23	No
ini.	3	0	-16.1505	-1.1			8.73	3.29	SLU 59	2.99	Si
fin.	3	0	-5.4398	14.08			8.73	3.29	SLU 59	0.23	No
ini.	3	0	-15.1523	-0.29			8.73	3.29	SLU 79	11.22	Si
fin.	3	0	-5.6133	14.97			8.73	3.29	SLU 79	0.22	No
ini.	3	0	-18.5826	-2.66			8.73	3.29	SLU 76	1.23	Si
fin.	3	0	-6.7105	14.45			8.73	3.29	SLU 76	0.23	No
ini.	3	0	-16.1815	-1.36			8.73	3.29	SLU 57	2.42	Si
fin.	3	0	-5.5863	13.96			8.73	3.29	SLU 57	0.24	No
ini.	3	0	-15.1833	-0.55			8.73	3.29	SLU 77	5.95	Si
fin.	3	0	-5.7598	14.85			8.73	3.29	SLU 77	0.22	No
ini.	3	0	-17.5012	-1.56			8.73	3.29	SLU 78	2.1	Si
fin.	3	0	-6.2377	15.15			8.73	3.29	SLU 78	0.22	No
ini.	3	0	-17.6724	-1.97			8.73	3.29	SLU 84	1.67	Si
fin.	3	0	-6.6483	14.96			8.73	3.29	SLU 84	0.22	No
ini.	3	0	-15.3545	-0.96			8.73	3.29	SLU 83	3.42	Si
fin.	3	0	-6.1703	14.66			8.73	3.29	SLU 83	0.22	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-71.57	-31.6757	12.1694	SLV 13	0.38	No
fin.	2	-73.69	14.165	12.1694	SLV 13	0.86	No
ini.	2	-5.05	-26.8137	12.1694	SLV 15	0.45	No
fin.	2	-29.53	27.586	12.1694	SLV 15	0.44	No
ini.	2	-5.05	-26.8137	12.1694	SLV 16	0.45	No
fin.	2	-29.53	27.586	12.1694	SLV 16	0.44	No
ini.	2	-48.05	6.8478	12.1694	SLV 1	1.78	Si
fin.	2	-18.62	-36.2815	12.1694	SLV 1	0.34	No
ini.	2	-48.05	6.8478	12.1694	SLV 2	1.78	Si
fin.	2	-18.62	-36.2815	12.1694	SLV 2	0.34	No
ini.	2	80.81	-7.6583	12.1694	SLV 12	1.59	Si
fin.	2	41.27	25.5876	12.1694	SLV 12	0.48	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	80.81	-7.6583	12.1694	SLV 11	1.59	Si
fin.	2	41.27	25.5876	12.1694	SLV 11	0.48	No
ini.	2	-133.9	-12.3077	12.1694	SLV 6	0.99	No
fin.	2	-89.42	-34.2831	12.1694	SLV 6	0.35	No
ini.	2	-71.57	-31.6757	12.1694	SLV 14	0.38	No
fin.	2	-73.69	14.165	12.1694	SLV 14	0.86	No
ini.	2	-133.9	-12.3077	12.1694	SLV 5	0.99	No
fin.	2	-89.42	-34.2831	12.1694	SLV 5	0.35	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	6.8478	-62.18			13.1	4.93	SLV 2	0.08	No
fin.	2	0	-36.2815	-48.99			13.1	4.93	SLV 2	0.1	No
ini.	2	0	11.7097	-53.84			13.1	4.93	SLV 4	0.09	No
fin.	2	0	-22.8605	-57.45			13.1	4.93	SLV 4	0.09	No
ini.	2	0	-23.8648	1.86			13.1	4.93	SLV 9	2.65	Si
fin.	2	0	-19.1492	41.6			13.1	4.93	SLV 9	0.12	No
ini.	2	0	-23.8648	1.86			13.1	4.93	SLV 10	2.65	Si
fin.	2	0	-19.1492	41.6			13.1	4.93	SLV 10	0.12	No
ini.	2	0	-26.8137	59.66			13.1	4.93	SLV 16	0.08	No
fin.	2	0	27.586	66.73			13.1	4.93	SLV 16	0.07	No
ini.	2	0	6.8478	-62.18			13.1	4.93	SLV 1	0.08	No
fin.	2	0	-36.2815	-48.99			13.1	4.93	SLV 1	0.1	No
ini.	2	0	11.7097	-53.84			13.1	4.93	SLV 3	0.09	No
fin.	2	0	-22.8605	-57.45			13.1	4.93	SLV 3	0.09	No
ini.	2	0	-31.6757	51.32			13.1	4.93	SLV 14	0.1	No
fin.	2	0	14.165	75.19			13.1	4.93	SLV 14	0.07	No
ini.	2	0	-26.8137	59.66			13.1	4.93	SLV 15	0.08	No
fin.	2	0	27.586	66.73			13.1	4.93	SLV 15	0.07	No
ini.	2	0	-31.6757	51.32			13.1	4.93	SLV 13	0.1	No
fin.	2	0	14.165	75.19			13.1	4.93	SLV 13	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.335	SLV 1	No
V_SLV	0.066	SLV 13	No
PF_SLU	0.559	SLU 76	No
V_SLU	0.215	SLU 80	No

## Trave di accoppiamento 61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.463	-3.359	3.91	4.83	0.92	-7.463	-3.359	3.91	4.83	0.92	1	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	3.86	-4.3394	10.7292	SLU 79	2.47	Si
fin.	3	9.57	1.0055	10.7292	SLU 79	10.67	Si
ini.	3	3.65	-3.9241	10.7292	SLU 56	2.73	Si
fin.	3	8.34	0.8037	10.7292	SLU 56	13.35	Si
ini.	3	4.83	-4.2913	10.7292	SLU 83	2.5	Si
fin.	3	9.74	0.9629	10.7292	SLU 83	11.14	Si
ini.	3	5.81	-4.0213	10.7292	SLU 81	2.67	Si
fin.	3	9.53	0.8733	10.7292	SLU 81	12.29	Si
ini.	3	5.27	-4.0369	10.7292	SLU 74	2.66	Si
fin.	3	9.44	0.8952	10.7292	SLU 74	11.99	Si
ini.	3	6.39	-4.177	10.7292	SLU 80	2.57	Si
fin.	3	10.95	1.3376	10.7292	SLU 80	8.02	Si
ini.	3	6.81	-4.1446	10.7292	SLU 78	2.59	Si
fin.	3	11.03	1.317	10.7292	SLU 78	8.15	Si
ini.	3	7.35	-4.1289	10.7292	SLU 84	2.6	Si
fin.	3	11.12	1.2951	10.7292	SLU 84	8.28	Si
ini.	3	3.23	-3.9565	10.7292	SLU 58	2.71	Si
fin.	3	8.26	0.8243	10.7292	SLU 58	13.02	Si
ini.	3	4.28	-4.3069	10.7292	SLU 77	2.49	Si
fin.	3	9.66	0.9849	10.7292	SLU 77	10.89	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4.2913	46.14			9.13	3.43	SLU 83	0.07	No
fin.	3	0	0.9629	-24.36			9.13	3.43	SLU 83	0.14	No
ini.	3	0	-4.0213	44.58			9.13	3.43	SLU 81	0.08	No
fin.	3	0	0.8733	-24.65			9.13	3.43	SLU 81	0.14	No
ini.	3	0	-4.3069	45.43			9.13	3.43	SLU 77	0.08	No
fin.	3	0	0.9849	-23.46			9.13	3.43	SLU 77	0.15	No
ini.	3	0	-3.8589	44.26			9.13	3.43	SLU 82	0.08	No
fin.	3	0	1.2054	-24.96			9.13	3.43	SLU 82	0.14	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4.177	45.1			9.13	3.43	SLU 80	0.08	No
fin.	3	0	1.3376	-23.42			9.13	3.43	SLU 80	0.15	No
ini.	3	0	-4.3394	45.42			9.13	3.43	SLU 79	0.08	No
fin.	3	0	1.0055	-23.12			9.13	3.43	SLU 79	0.15	No
ini.	3	0	-4.0369	43.87			9.13	3.43	SLU 74	0.08	No
fin.	3	0	0.8952	-23.75			9.13	3.43	SLU 74	0.14	No
ini.	3	0	-4.1446	45.11			9.13	3.43	SLU 78	0.08	No
fin.	3	0	1.317	-23.76			9.13	3.43	SLU 78	0.14	No
ini.	3	0	-4.1289	45.82			9.13	3.43	SLU 84	0.07	No
fin.	3	0	1.2951	-24.67			9.13	3.43	SLU 84	0.14	No
ini.	3	0	-3.8746	43.55			9.13	3.43	SLU 75	0.08	No
fin.	3	0	1.2273	-24.05			9.13	3.43	SLU 75	0.14	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-37.27	-8.8498	12.5194	SLV 12	1.41	Si
fin.	2	10.67	15.3971	12.5194	SLV 12	0.81	No
ini.	2	-52.15	-13.8095	12.5194	SLV 15	0.91	No
fin.	2	9.92	9.2918	12.5194	SLV 15	1.35	Si
ini.	2	-35.87	-11.9005	12.5194	SLV 14	1.05	Si
fin.	2	7.76	1.2281	12.5194	SLV 14	10.19	Si
ini.	2	-35.87	-11.9005	12.5194	SLV 13	1.05	Si
fin.	2	7.76	1.2281	12.5194	SLV 13	10.19	Si
ini.	2	46.03	3.6736	12.5194	SLV 5	3.41	Si
fin.	2	1.95	-14.3122	12.5194	SLV 5	0.87	No
ini.	2	-37.27	-8.8498	12.5194	SLV 11	1.41	Si
fin.	2	10.67	15.3971	12.5194	SLV 11	0.81	No
ini.	2	46.03	3.6736	12.5194	SLV 6	3.41	Si
fin.	2	1.95	-14.3122	12.5194	SLV 6	0.87	No
ini.	2	-52.15	-13.8095	12.5194	SLV 16	0.91	No
fin.	2	9.92	9.2918	12.5194	SLV 16	1.35	Si
ini.	2	-8.24	-2.6896	12.5194	SLV 7	4.65	Si
fin.	2	9.15	12.5666	12.5194	SLV 7	1	No
ini.	2	-8.24	-2.6896	12.5194	SLV 8	4.65	Si
fin.	2	9.15	12.5666	12.5194	SLV 8	1	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.6736	5.3			13.69	5.15	SLV 6	0.97	No
fin.	2	0	-14.3122	-57.53			13.69	5.15	SLV 6	0.09	No
ini.	2	0	8.6333	-17.36			13.69	5.15	SLV 1	0.3	No
fin.	2	0	-8.2069	-57.58			13.69	5.15	SLV 1	0.09	No
ini.	2	0	-11.9005	68.88			13.69	5.15	SLV 13	0.07	No
fin.	2	0	1.2281	5.27			13.69	5.15	SLV 13	0.98	No
ini.	2	0	8.6333	-17.36			13.69	5.15	SLV 2	0.3	No
fin.	2	0	-8.2069	-57.58			13.69	5.15	SLV 2	0.09	No
ini.	2	0	3.6736	5.3			13.69	5.15	SLV 5	0.97	No
fin.	2	0	-14.3122	-57.53			13.69	5.15	SLV 5	0.09	No
ini.	2	0	-8.8498	52.67			13.69	5.15	SLV 12	0.1	No
fin.	2	0	15.3971	24.03			13.69	5.15	SLV 12	0.21	No
ini.	2	0	-8.8498	52.67			13.69	5.15	SLV 11	0.1	No
fin.	2	0	15.3971	24.03			13.69	5.15	SLV 11	0.21	No
ini.	2	0	-13.8095	75.33			13.69	5.15	SLV 15	0.07	No
fin.	2	0	9.2918	24.08			13.69	5.15	SLV 15	0.21	No
ini.	2	0	-11.9005	68.88			13.69	5.15	SLV 14	0.07	No
fin.	2	0	1.2281	5.27			13.69	5.15	SLV 14	0.98	No
ini.	2	0	-13.8095	75.33			13.69	5.15	SLV 16	0.07	No
fin.	2	0	9.2918	24.08			13.69	5.15	SLV 16	0.21	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.813	SLV 11	No
V_SLV	0.068	SLV 15	No
PF_SLU	2.473	SLU 79	Si
V_SLU	0.074	SLU 83	No

## Trave di accoppiamento 62

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	1.11	3.11	2	-6.008	-3.359	1.11	3.11	2	0.5	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-11.95	37.5175	29.6292	SLU 83	0.79	No
fin.	3	-27.7	-15.8177	29.6292	SLU 83	1.87	Si
ini.	3	-14.04	35.3252	29.6292	SLU 78	0.84	No
fin.	3	-35.16	-22.9547	29.6292	SLU 78	1.29	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-14	35.0499	29.6292	SLU 80	0.85	No
fin.	3	-35	-22.8526	29.6292	SLU 80	1.3	Si
ini.	3	-12.05	36.2456	29.6292	SLU 79	0.82	No
fin.	3	-27.42	-15.6669	29.6292	SLU 79	1.89	Si
ini.	3	-11.65	36.2276	29.6292	SLU 74	0.82	No
fin.	3	-26.95	-15.4071	29.6292	SLU 74	1.92	Si
ini.	3	-12.09	36.5208	29.6292	SLU 77	0.81	No
fin.	3	-27.58	-15.7691	29.6292	SLU 77	1.88	Si
ini.	3	-13.47	36.0287	29.6292	SLU 82	0.82	No
fin.	3	-34.65	-22.6414	29.6292	SLU 82	1.31	Si
ini.	3	-13.91	36.3218	29.6292	SLU 84	0.82	No
fin.	3	-35.28	-23.0033	29.6292	SLU 84	1.29	Si
ini.	3	-13.61	35.032	29.6292	SLU 75	0.85	No
fin.	3	-34.53	-22.5928	29.6292	SLU 75	1.31	Si
ini.	3	-11.52	37.2243	29.6292	SLU 81	0.8	No
fin.	3	-27.07	-15.4557	29.6292	SLU 81	1.92	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	36.3218	-94.09			21.57	8.12	SLU 84	0.09	No
fin.	3	0	-23.0033	-64.31			21.57	8.12	SLU 84	0.13	No
ini.	3	0	35.0499	-91.42			21.57	8.12	SLU 80	0.09	No
fin.	3	0	-22.8526	-62.61			21.57	8.12	SLU 80	0.13	No
ini.	3	0	33.9596	-91.59			21.57	8.12	SLU 76	0.09	No
fin.	3	0	-27.2811	-62.63			21.57	8.12	SLU 76	0.13	No
ini.	3	0	35.3252	-92.09			21.57	8.12	SLU 78	0.09	No
fin.	3	0	-22.9547	-63.02			21.57	8.12	SLU 78	0.13	No
ini.	3	0	36.5208	-90.14			21.57	8.12	SLU 77	0.09	No
fin.	3	0	-15.7691	-61.79			21.57	8.12	SLU 77	0.13	No
ini.	3	0	36.0287	-92.97			21.57	8.12	SLU 82	0.09	No
fin.	3	0	-22.6414	-63.52			21.57	8.12	SLU 82	0.13	No
ini.	3	0	37.5175	-92.14			21.57	8.12	SLU 83	0.09	No
fin.	3	0	-15.8177	-63.08			21.57	8.12	SLU 83	0.13	No
ini.	3	0	35.032	-90.96			21.57	8.12	SLU 75	0.09	No
fin.	3	0	-22.5928	-62.23			21.57	8.12	SLU 75	0.13	No
ini.	3	0	33.6665	-90.46			21.57	8.12	SLU 73	0.09	No
fin.	3	0	-26.9191	-61.84			21.57	8.12	SLU 73	0.13	No
ini.	3	0	37.2243	-91.02			21.57	8.12	SLU 81	0.09	No
fin.	3	0	-15.4557	-62.29			21.57	8.12	SLU 81	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-56.88	19.5133	31.4194	SLV 5	1.61	Si
fin.	2	-113.42	-70.1915	31.4194	SLV 5	0.45	No
ini.	2	-51.74	-2.3741	31.4194	SLV 9	13.23	Si
fin.	2	-118.48	-70.9363	31.4194	SLV 9	0.44	No
ini.	2	-56.88	19.5133	31.4194	SLV 6	1.61	Si
fin.	2	-113.42	-70.1915	31.4194	SLV 6	0.45	No
ini.	2	35.61	52.2469	31.4194	SLV 8	0.6	No
fin.	2	81.13	49.6421	31.4194	SLV 8	0.63	No
ini.	2	-2.75	66.3255	31.4194	SLV 4	0.47	No
fin.	2	18.93	8.5692	31.4194	SLV 4	3.67	Si
ini.	2	-30.5	56.5054	31.4194	SLV 2	0.56	No
fin.	2	-39.43	-27.3809	31.4194	SLV 2	1.15	Si
ini.	2	-30.5	56.5054	31.4194	SLV 1	0.56	No
fin.	2	-39.43	-27.3809	31.4194	SLV 1	1.15	Si
ini.	2	-2.75	66.3255	31.4194	SLV 3	0.47	No
fin.	2	18.93	8.5692	31.4194	SLV 3	3.67	Si
ini.	2	35.61	52.2469	31.4194	SLV 7	0.6	No
fin.	2	81.13	49.6421	31.4194	SLV 7	0.63	No
ini.	2	-51.74	-2.3741	31.4194	SLV 10	13.23	Si
fin.	2	-118.48	-70.9363	31.4194	SLV 10	0.44	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	66.3255	-164.63			32.35	12.17	SLV 3	0.07	No
fin.	2	0	8.5692	-151.99			32.35	12.17	SLV 3	0.08	No
ini.	2	0	42.8757	-106.55			32.35	12.17	SLD 3	0.11	No
fin.	2	0	-2.9369	-89.91			32.35	12.17	SLD 3	0.14	No
ini.	2	0	19.5133	-118.92			32.35	12.17	SLV 6	0.1	No
fin.	2	0	-70.1915	-73.73			32.35	12.17	SLV 6	0.17	No
ini.	2	0	42.8757	-106.55			32.35	12.17	SLD 4	0.11	No
fin.	2	0	-2.9369	-89.91			32.35	12.17	SLD 4	0.14	No
ini.	2	0	19.5133	-118.92			32.35	12.17	SLV 5	0.1	No
fin.	2	0	-70.1915	-73.73			32.35	12.17	SLV 5	0.17	No
ini.	2	0	56.5054	-179.41			32.35	12.17	SLV 1	0.07	No
fin.	2	0	-27.3809	-151.31			32.35	12.17	SLV 1	0.08	No
ini.	2	0	56.5054	-179.41			32.35	12.17	SLV 2	0.07	No
fin.	2	0	-27.3809	-151.31			32.35	12.17	SLV 2	0.08	No
ini.	2	0	66.3255	-164.63			32.35	12.17	SLV 4	0.07	No
fin.	2	0	8.5692	-151.99			32.35	12.17	SLV 4	0.08	No
ini.	2	0	39.072	-112.42			32.35	12.17	SLD 2	0.11	No
fin.	2	0	-17.149	-89.61			32.35	12.17	SLD 2	0.14	No
ini.	2	0	39.072	-112.42			32.35	12.17	SLD 1	0.11	No
fin.	2	0	-17.149	-89.61			32.35	12.17	SLD 1	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.443	SLV 9	No





Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.068	SLV 1	No
PF SLU	0.79	SLU 83	No
V SLU	0.086	SLU 84	No

## Trave di accoppiamento 63

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	3.91	4.83	0.92	-6.008	-3.359	3.91	4.83	0.92	0.5	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	15.73	6.8261	10.7292	SLU 82	1.57	Si
fin.	3	6.31	-6.6268	10.7292	SLU 82	1.62	Si
ini.	3	17.15	7.121	10.7292	SLU 73	1.51	Si
fin.	3	7.81	-6.4355	10.7292	SLU 73	1.67	Si
ini.	3	14.43	6.6297	10.7292	SLU 78	1.62	Si
fin.	3	4.9	-6.7748	10.7292	SLU 78	1.58	Si
ini.	3	11.8	5.8331	10.7292	SLU 77	1.84	Si
fin.	3	2.79	-6.6031	10.7292	SLU 77	1.62	Si
ini.	3	14	6.5597	10.7292	SLU 80	1.64	Si
fin.	3	4.5	-6.7694	10.7292	SLU 80	1.58	Si
ini.	3	15.04	6.811	10.7292	SLU 84	1.58	Si
fin.	3	5.36	-6.851	10.7292	SLU 84	1.57	Si
ini.	3	12.41	6.0144	10.7292	SLU 83	1.78	Si
fin.	3	3.25	-6.6793	10.7292	SLU 83	1.61	Si
ini.	3	11.37	5.7631	10.7292	SLU 79	1.86	Si
fin.	3	2.38	-6.5977	10.7292	SLU 79	1.63	Si
ini.	3	15.13	6.6448	10.7292	SLU 75	1.61	Si
fin.	3	5.85	-6.5506	10.7292	SLU 75	1.64	Si
ini.	3	16.45	7.1059	10.7292	SLU 76	1.51	Si
fin.	3	6.86	-6.6597	10.7292	SLU 76	1.61	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	6.0295	-19.45			9.92	3.73	SLU 81	0.19	No
fin.	3	0	-6.4551	-62.27			9.92	3.73	SLU 81	0.06	No
ini.	3	0	7.1059	-23.16			9.92	3.73	SLU 76	0.16	No
fin.	3	0	-6.6597	-64.25			9.92	3.73	SLU 76	0.06	No
ini.	3	0	5.8331	-19.57			9.92	3.73	SLU 77	0.19	No
fin.	3	0	-6.6031	-62			9.92	3.73	SLU 77	0.06	No
ini.	3	0	6.0144	-19.91			9.92	3.73	SLU 83	0.19	No
fin.	3	0	-6.6793	-63.35			9.92	3.73	SLU 83	0.06	No
ini.	3	0	6.6448	-21.58			9.92	3.73	SLU 75	0.17	No
fin.	3	0	-6.5506	-63.17			9.92	3.73	SLU 75	0.06	No
ini.	3	0	6.6297	-22.05			9.92	3.73	SLU 78	0.17	No
fin.	3	0	-6.7748	-64.25			9.92	3.73	SLU 78	0.06	No
ini.	3	0	6.8261	-21.93			9.92	3.73	SLU 82	0.17	No
fin.	3	0	-6.6268	-64.52			9.92	3.73	SLU 82	0.06	No
ini.	3	0	6.811	-22.39			9.92	3.73	SLU 84	0.17	No
fin.	3	0	-6.851	-65.6			9.92	3.73	SLU 84	0.06	No
ini.	3	0	6.5597	-21.97			9.92	3.73	SLU 80	0.17	No
fin.	3	0	-6.7694	-63.83			9.92	3.73	SLU 80	0.06	No
ini.	3	0	7.121	-22.7			9.92	3.73	SLU 73	0.16	No
fin.	3	0	-6.4355	-63.17			9.92	3.73	SLU 73	0.06	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	63.31	14.1624	12.5194	SLV 5	0.88	No
fin.	2	48.23	-3.7362	12.5194	SLV 5	3.35	Si
ini.	2	36.63	10.8709	12.5194	SLD 2	1.15	Si
fin.	2	25.24	-3.4682	12.5194	SLD 2	3.61	Si
ini.	2	63.31	14.1624	12.5194	SLV 6	0.88	No
fin.	2	48.23	-3.7362	12.5194	SLV 6	3.35	Si
ini.	2	-54.76	-11.7386	12.5194	SLV 15	1.07	Si
fin.	2	-47.74	-6.0467	12.5194	SLV 15	2.07	Si
ini.	2	50.01	16.3413	12.5194	SLV 4	0.77	No
fin.	2	34.79	-2.439	12.5194	SLV 4	5.13	Si
ini.	2	50.01	16.3413	12.5194	SLV 3	0.77	No
fin.	2	34.79	-2.439	12.5194	SLV 3	5.13	Si
ini.	2	36.63	10.8709	12.5194	SLD 1	1.15	Si
fin.	2	25.24	-3.4682	12.5194	SLD 1	3.61	Si
ini.	2	73.08	19.8717	12.5194	SLV 1	0.63	No
fin.	2	54.32	-2.4549	12.5194	SLV 1	5.1	Si
ini.	2	-54.76	-11.7386	12.5194	SLV 16	1.07	Si
fin.	2	-47.74	-6.0467	12.5194	SLV 16	2.07	Si
ini.	2	73.08	19.8717	12.5194	SLV 2	0.63	No
fin.	2	54.32	-2.4549	12.5194	SLV 2	5.1	Si



## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	14.1624	-14.25			14.88	5.6	SLV 5	0.39	No
fin.	2	0	-3.7362	-67.06			14.88	5.6	SLV 5	0.08	No
ini.	2	0	9.4972	-29			14.88	5.6	SLD 3	0.19	No
fin.	2	0	-3.4882	-52.59			14.88	5.6	SLD 3	0.11	No
ini.	2	0	9.4972	-29			14.88	5.6	SLD 4	0.19	No
fin.	2	0	-3.4882	-52.59			14.88	5.6	SLD 4	0.11	No
ini.	2	0	14.1624	-14.25			14.88	5.6	SLV 6	0.39	No
fin.	2	0	-3.7362	-67.06			14.88	5.6	SLV 6	0.08	No
ini.	2	0	16.3413	-49.79			14.88	5.6	SLV 3	0.11	No
fin.	2	0	-2.439	-66.77			14.88	5.6	SLV 3	0.08	No
ini.	2	0	10.8709	-26.69			14.88	5.6	SLD 2	0.21	No
fin.	2	0	-3.4682	-56.4			14.88	5.6	SLD 2	0.1	No
ini.	2	0	19.8717	-44.45			14.88	5.6	SLV 1	0.13	No
fin.	2	0	-2.4549	-76.78			14.88	5.6	SLV 1	0.07	No
ini.	2	0	16.3413	-49.79			14.88	5.6	SLV 4	0.11	No
fin.	2	0	-2.439	-66.77			14.88	5.6	SLV 4	0.08	No
ini.	2	0	10.8709	-26.69			14.88	5.6	SLD 1	0.21	No
fin.	2	0	-3.4682	-56.4			14.88	5.6	SLD 1	0.1	No
ini.	2	0	19.8717	-44.45			14.88	5.6	SLV 2	0.13	No
fin.	2	0	-2.4549	-76.78			14.88	5.6	SLV 2	0.07	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.63	SLV 1	No
V_SLV	0.073	SLV 1	No
PF_SLU	1.507	SLU 73	Si
V_SLU	0.057	SLU 84	No

## Trave di accoppiamento 64

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.233	-3.359	1.11	2.01	0.9	-3.233	-3.359	1.11	2.01	0.9	1	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	113.99	-1.1458	10.3792	SLU 55	9.06	Si
fin.	3	110.59	10.5182	10.3792	SLU 55	0.99	No
ini.	3	105.84	-1.912	10.3792	SLU 78	5.43	Si
fin.	3	101.42	10.6633	10.3792	SLU 78	0.97	No
ini.	3	120.43	-1.498	10.3792	SLU 73	6.93	Si
fin.	3	116.63	11.2686	10.3792	SLU 73	0.92	No
ini.	3	107.51	-2.0672	10.3792	SLU 84	5.02	Si
fin.	3	103.01	10.8795	10.3792	SLU 84	0.95	No
ini.	3	121.32	-1.4938	10.3792	SLU 76	6.95	Si
fin.	3	117.41	11.3881	10.3792	SLU 76	0.91	No
ini.	3	104.95	-1.9162	10.3792	SLU 75	5.42	Si
fin.	3	100.64	10.5438	10.3792	SLU 75	0.98	No
ini.	3	106.62	-2.0715	10.3792	SLU 82	5.01	Si
fin.	3	102.23	10.76	10.3792	SLU 82	0.96	No
ini.	3	113.85	-1.0694	10.3792	SLU 68	9.71	Si
fin.	3	110.47	10.4313	10.3792	SLU 68	1	No
ini.	3	113.1	-1.15	10.3792	SLU 52	9.03	Si
fin.	3	109.81	10.3987	10.3792	SLU 52	1	No
ini.	3	105.19	-1.8811	10.3792	SLU 80	5.52	Si
fin.	3	100.82	10.5889	10.3792	SLU 80	0.98	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.15	18.38			8.73	3.29	SLU 52	0.18	No
fin.	3	0	10.3987	11.88			8.73	3.29	SLU 52	0.28	No
ini.	3	0	-2.0715	18.27			8.73	3.29	SLU 82	0.18	No
fin.	3	0	10.76	15.87			8.73	3.29	SLU 82	0.21	No
ini.	3	0	-1.4938	19.79			8.73	3.29	SLU 76	0.17	No
fin.	3	0	11.3881	14			8.73	3.29	SLU 76	0.23	No
ini.	3	0	-1.498	19.7			8.73	3.29	SLU 73	0.17	No
fin.	3	0	11.2686	13.77			8.73	3.29	SLU 73	0.24	No
ini.	3	0	-1.0736	18.14			8.73	3.29	SLU 65	0.18	No
fin.	3	0	10.3118	11.7			8.73	3.29	SLU 65	0.28	No
ini.	3	0	-1.912	17.86			8.73	3.29	SLU 78	0.18	No
fin.	3	0	10.6633	15.63			8.73	3.29	SLU 78	0.21	No
ini.	3	0	-2.0672	18.36			8.73	3.29	SLU 84	0.18	No
fin.	3	0	10.8795	16.1			8.73	3.29	SLU 84	0.2	No
ini.	3	0	-1.1458	18.47			8.73	3.29	SLU 55	0.18	No
fin.	3	0	10.5182	12.11			8.73	3.29	SLU 55	0.27	No
ini.	3	0	-1.0694	18.22			8.73	3.29	SLU 68	0.18	No
fin.	3	0	10.4313	11.93			8.73	3.29	SLU 68	0.28	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.6546	15.21			8.73	3.29	SLU 83	0.22	No
fin.	3	0	9.5015	17.92			8.73	3.29	SLU 83	0.18	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	92.91	24.2314	12.1694	SLV 2	0.5	No
fin.	2	133.26	-16.4467	12.1694	SLV 2	0.74	No
ini.	2	92.91	24.2314	12.1694	SLV 1	0.5	No
fin.	2	133.26	-16.4467	12.1694	SLV 1	0.74	No
ini.	2	-17.41	19.5549	12.1694	SLV 3	0.62	No
fin.	2	16.76	-20.4161	12.1694	SLV 3	0.6	No
ini.	2	-17.41	19.5549	12.1694	SLV 4	0.62	No
fin.	2	16.76	-20.4161	12.1694	SLV 4	0.6	No
ini.	2	126.79	-22.8022	12.1694	SLV 14	0.53	No
fin.	2	86.13	32.9114	12.1694	SLV 14	0.37	No
ini.	2	16.47	-27.4787	12.1694	SLV 16	0.44	No
fin.	2	-30.37	28.942	12.1694	SLV 16	0.42	No
ini.	2	243.65	-0.8846	12.1694	SLV 10	13.76	Si
fin.	2	238.54	20.2671	12.1694	SLV 10	0.6	No
ini.	2	243.65	-0.8846	12.1694	SLV 9	13.76	Si
fin.	2	238.54	20.2671	12.1694	SLV 9	0.6	No
ini.	2	126.79	-22.8022	12.1694	SLV 13	0.53	No
fin.	2	86.13	32.9114	12.1694	SLV 13	0.37	No
ini.	2	16.47	-27.4787	12.1694	SLV 15	0.44	No
fin.	2	-30.37	28.942	12.1694	SLV 15	0.42	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	24.2314	-38.55			13.1	4.93	SLV 2	0.13	No
fin.	2	0	-16.4467	-58.34			13.1	4.93	SLV 2	0.08	No
ini.	2	0	19.5549	-59.07			13.1	4.93	SLV 3	0.08	No
fin.	2	0	-20.4161	-51.68			13.1	4.93	SLV 3	0.1	No
ini.	2	0	-22.8022	79.22			13.1	4.93	SLV 14	0.06	No
fin.	2	0	32.9114	74.68			13.1	4.93	SLV 14	0.07	No
ini.	2	0	-22.8022	79.22			13.1	4.93	SLV 13	0.06	No
fin.	2	0	32.9114	74.68			13.1	4.93	SLV 13	0.07	No
ini.	2	0	19.5549	-59.07			13.1	4.93	SLV 4	0.08	No
fin.	2	0	-20.4161	-51.68			13.1	4.93	SLV 4	0.1	No
ini.	2	0	-0.8846	61.94			13.1	4.93	SLV 9	0.08	No
fin.	2	0	20.2671	20.35			13.1	4.93	SLV 9	0.24	No
ini.	2	0	-0.8846	61.94			13.1	4.93	SLV 10	0.08	No
fin.	2	0	20.2671	20.35			13.1	4.93	SLV 10	0.24	No
ini.	2	0	-27.4787	58.7			13.1	4.93	SLV 15	0.08	No
fin.	2	0	28.942	81.35			13.1	4.93	SLV 15	0.06	No
ini.	2	0	-27.4787	58.7			13.1	4.93	SLV 16	0.08	No
fin.	2	0	28.942	81.35			13.1	4.93	SLV 16	0.06	No
ini.	2	0	24.2314	-38.55			13.1	4.93	SLV 1	0.13	No
fin.	2	0	-16.4467	-58.34			13.1	4.93	SLV 1	0.08	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.37	SLV 13	No
V_SLV	0.061	SLV 15	No
PF_SLU	0.911	SLU 76	No
V_SLU	0.166	SLU 76	No

### Trave di accoppiamento 65

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.233	-3.359	3.91	4.83	0.92	-3.233	-3.359	3.91	4.83	0.92	1	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fν0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-24.72	-8.2517	10.7292	SLU 83	1.3	Si
fin.	3	-6.81	2.6447	10.7292	SLU 83	4.06	Si
ini.	3	-24.26	-8.1703	10.7292	SLU 81	1.31	Si
fin.	3	-6.38	2.6689	10.7292	SLU 81	4.02	Si
ini.	3	-26.08	-8.3769	10.7292	SLU 80	1.28	Si
fin.	3	-6.82	3.2417	10.7292	SLU 80	3.31	Si
ini.	3	-26.54	-8.6668	10.7292	SLU 84	1.24	Si
fin.	3	-6.52	3.3915	10.7292	SLU 84	3.16	Si
ini.	3	-26.23	-8.4616	10.7292	SLU 78	1.27	Si
fin.	3	-6.73	3.2802	10.7292	SLU 78	3.27	Si
ini.	3	-24.42	-8.0466	10.7292	SLU 77	1.33	Si
fin.	3	-7.01	2.5334	10.7292	SLU 77	4.24	Si
ini.	3	-26.07	-8.5854	10.7292	SLU 82	1.25	Si
fin.	3	-6.09	3.4156	10.7292	SLU 82	3.14	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-26.82	-8.5722	10.7292	SLU 76	1.25	Si
fin.	3	-6.2	3.7637	10.7292	SLU 76	2.85	Si
ini.	3	-26.36	-8.4908	10.7292	SLU 73	1.26	Si
fin.	3	-5.77	3.7878	10.7292	SLU 73	2.83	Si
ini.	3	-25.77	-8.3802	10.7292	SLU 75	1.28	Si
fin.	3	-6.3	3.3043	10.7292	SLU 75	3.25	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-8.6668	41.08			9.13	3.43	SLU 84	0.08	No
fin.	3	0	3.3915	-1.61			9.13	3.43	SLU 84	2.14	Si
ini.	3	0	-8.3802	39.67			9.13	3.43	SLU 75	0.09	No
fin.	3	0	3.3043	-1.27			9.13	3.43	SLU 75	2.71	Si
ini.	3	0	-8.4908	39.73			9.13	3.43	SLU 73	0.09	No
fin.	3	0	3.7878	1.21			9.13	3.43	SLU 73	2.84	Si
ini.	3	0	-8.5722	40.07			9.13	3.43	SLU 76	0.09	No
fin.	3	0	3.7637	0.97			9.13	3.43	SLU 76	3.54	Si
ini.	3	0	-8.3769	39.64			9.13	3.43	SLU 80	0.09	No
fin.	3	0	3.2417	-1.56			9.13	3.43	SLU 80	2.2	Si
ini.	3	0	-8.2517	39.91			9.13	3.43	SLU 83	0.09	No
fin.	3	0	2.6447	-5.03			9.13	3.43	SLU 83	0.68	No
ini.	3	0	-8.4616	40.01			9.13	3.43	SLU 78	0.09	No
fin.	3	0	3.2802	-1.51			9.13	3.43	SLU 78	2.28	Si
ini.	3	0	-8.0466	38.85			9.13	3.43	SLU 77	0.09	No
fin.	3	0	2.5334	-4.94			9.13	3.43	SLU 77	0.7	No
ini.	3	0	-8.1703	39.57			9.13	3.43	SLU 81	0.09	No
fin.	3	0	2.6689	-4.79			9.13	3.43	SLU 81	0.72	No
ini.	3	0	-8.5854	40.74			9.13	3.43	SLU 82	0.08	No
fin.	3	0	3.4156	-1.36			9.13	3.43	SLU 82	2.52	Si

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	18.6	15.451	12.5194	SLV 4	0.81	No
fin.	2	-21.12	-12.6392	12.5194	SLV 4	0.99	No
ini.	2	-43.91	-22.4025	12.5194	SLV 16	0.56	No
fin.	2	25.4	17.403	12.5194	SLV 16	0.72	No
ini.	2	-38.54	-17.4776	12.5194	SLV 9	0.72	No
fin.	2	-20.24	4.1514	12.5194	SLV 9	3.02	Si
ini.	2	-43.91	-22.4025	12.5194	SLV 15	0.56	No
fin.	2	25.4	17.403	12.5194	SLV 15	0.72	No
ini.	2	-31.68	-14.4475	12.5194	SLD 13	0.87	No
fin.	2	2.72	8.059	12.5194	SLD 13	1.55	Si
ini.	2	-51.53	-26.2443	12.5194	SLV 14	0.48	No
fin.	2	11.85	16.1399	12.5194	SLV 14	0.78	No
ini.	2	-38.54	-17.4776	12.5194	SLV 10	0.72	No
fin.	2	-20.24	4.1514	12.5194	SLV 10	3.02	Si
ini.	2	-51.53	-26.2443	12.5194	SLV 13	0.48	No
fin.	2	11.85	16.1399	12.5194	SLV 13	0.78	No
ini.	2	18.6	15.451	12.5194	SLV 3	0.81	No
fin.	2	-21.12	-12.6392	12.5194	SLV 3	0.99	No
ini.	2	-31.68	-14.4475	12.5194	SLD 14	0.87	No
fin.	2	2.72	8.059	12.5194	SLD 14	1.55	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-22.4025	83.64			13.69	5.15	SLV 15	0.06	No
fin.	2	0	17.403	62.79			13.69	5.15	SLV 15	0.08	No
ini.	2	0	-26.2443	87.7			13.69	5.15	SLV 13	0.06	No
fin.	2	0	16.1399	52.34			13.69	5.15	SLV 13	0.1	No
ini.	2	0	11.6092	-31.28			13.69	5.15	SLV 1	0.16	No
fin.	2	0	-13.9024	-68.85			13.69	5.15	SLV 1	0.07	No
ini.	2	0	-14.4475	53.02			13.69	5.15	SLD 14	0.1	No
fin.	2	0	8.059	21.28			13.69	5.15	SLD 14	0.24	No
ini.	2	0	-22.4025	83.64			13.69	5.15	SLV 16	0.06	No
fin.	2	0	17.403	62.79			13.69	5.15	SLV 16	0.08	No
ini.	2	0	-14.4475	53.02			13.69	5.15	SLD 13	0.1	No
fin.	2	0	8.059	21.28			13.69	5.15	SLD 13	0.24	No
ini.	2	0	11.6092	-31.28			13.69	5.15	SLV 2	0.16	No
fin.	2	0	-13.9024	-68.85			13.69	5.15	SLV 2	0.07	No
ini.	2	0	15.451	-35.35			13.69	5.15	SLV 4	0.15	No
fin.	2	0	-12.6392	-58.41			13.69	5.15	SLV 4	0.09	No
ini.	2	0	15.451	-35.35			13.69	5.15	SLV 3	0.15	No
fin.	2	0	-12.6392	-58.41			13.69	5.15	SLV 3	0.09	No
ini.	2	0	-26.2443	87.7			13.69	5.15	SLV 14	0.06	No
fin.	2	0	16.1399	52.34			13.69	5.15	SLV 14	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.477	SLV 13	No
V_SLV	0.059	SLV 13	No
PF_SLU	1.238	SLU 84	Si
V_SLU	0.084	SLU 84	No

## Trave di accoppiamento 66

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.013	5.951	1.11	2.01	0.9	-3.013	5.951	1.11	2.01	0.9	1	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	66.77	0.2392	10.3792	SLU 74	43.39	Si
fin.	3	64.68	10.3391	10.3792	SLU 74	1	Si
ini.	3	64.64	-0.2016	10.3792	SLU 76	51.48	Si
fin.	3	62.64	10.3633	10.3792	SLU 76	1	Si
ini.	3	66.7	0.0222	10.3792	SLU 82	468.21	Si
fin.	3	64.48	10.3418	10.3792	SLU 82	1	Si
ini.	3	68.05	-0.0993	10.3792	SLU 84	104.54	Si
fin.	3	65.92	10.7686	10.3792	SLU 84	0.96	No
ini.	3	68.12	0.1177	10.3792	SLU 77	88.16	Si
fin.	3	66.12	10.766	10.3792	SLU 77	0.96	No
ini.	3	65.75	-0.0284	10.3792	SLU 75	366.08	Si
fin.	3	63.68	10.396	10.3792	SLU 75	1	No
ini.	3	69.08	0.1683	10.3792	SLU 83	61.69	Si
fin.	3	66.92	10.7118	10.3792	SLU 83	0.97	No
ini.	3	66.67	-0.1447	10.3792	SLU 80	71.73	Si
fin.	3	64.74	10.7523	10.3792	SLU 80	0.97	No
ini.	3	67.69	0.1229	10.3792	SLU 79	84.49	Si
fin.	3	65.75	10.6954	10.3792	SLU 79	0.97	No
ini.	3	67.1	-0.1498	10.3792	SLU 78	69.28	Si
fin.	3	65.11	10.8229	10.3792	SLU 78	0.96	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.0222	11.51			8.73	3.29	SLU 82	0.29	No
fin.	3	0	10.3418	15.32			8.73	3.29	SLU 82	0.21	No
ini.	3	0	0.1177	11.53			8.73	3.29	SLU 77	0.29	No
fin.	3	0	10.766	15.99			8.73	3.29	SLU 77	0.21	No
ini.	3	0	-0.1447	11.9			8.73	3.29	SLU 80	0.28	No
fin.	3	0	10.7523	16.12			8.73	3.29	SLU 80	0.2	No
ini.	3	0	-0.0284	11.5			8.73	3.29	SLU 75	0.29	No
fin.	3	0	10.396	15.48			8.73	3.29	SLU 75	0.21	No
ini.	3	0	0.2392	11.07			8.73	3.29	SLU 74	0.3	No
fin.	3	0	10.3391	15.19			8.73	3.29	SLU 74	0.22	No
ini.	3	0	0.1229	11.47			8.73	3.29	SLU 79	0.29	No
fin.	3	0	10.6954	15.84			8.73	3.29	SLU 79	0.21	No
ini.	3	0	-0.2016	11.73			8.73	3.29	SLU 76	0.28	No
fin.	3	0	10.3633	15.52			8.73	3.29	SLU 76	0.21	No
ini.	3	0	0.1683	11.54			8.73	3.29	SLU 83	0.28	No
fin.	3	0	10.7118	15.83			8.73	3.29	SLU 83	0.21	No
ini.	3	0	-0.0993	11.97			8.73	3.29	SLU 84	0.27	No
fin.	3	0	10.7686	16.12			8.73	3.29	SLU 84	0.2	No
ini.	3	0	-0.1498	11.96			8.73	3.29	SLU 78	0.27	No
fin.	3	0	10.8229	16.28			8.73	3.29	SLU 78	0.2	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	105.49	-19.6811	12.1694	SLV 15	0.62	No
fin.	2	80.57	32.5808	12.1694	SLV 15	0.37	No
ini.	2	-14.5	20.5056	12.1694	SLV 2	0.59	No
fin.	2	7.56	-18.9471	12.1694	SLV 2	0.64	No
ini.	2	245.33	2.9099	12.1694	SLV 12	4.18	Si
fin.	2	246.23	23.4702	12.1694	SLV 12	0.52	No
ini.	2	-14.4	-25.3025	12.1694	SLV 14	0.48	No
fin.	2	-45.51	26.6968	12.1694	SLV 14	0.46	No
ini.	2	-14.5	20.5056	12.1694	SLV 1	0.59	No
fin.	2	7.56	-18.9471	12.1694	SLV 1	0.64	No
ini.	2	-14.4	-25.3025	12.1694	SLV 13	0.48	No
fin.	2	-45.51	26.6968	12.1694	SLV 13	0.46	No
ini.	2	245.33	2.9099	12.1694	SLV 11	4.18	Si
fin.	2	246.23	23.4702	12.1694	SLV 11	0.52	No
ini.	2	105.49	-19.6811	12.1694	SLV 16	0.62	No
fin.	2	80.57	32.5808	12.1694	SLV 16	0.37	No
ini.	2	105.39	26.1269	12.1694	SLV 4	0.47	No
fin.	2	133.64	-13.063	12.1694	SLV 4	0.93	No
ini.	2	105.39	26.1269	12.1694	SLV 3	0.47	No
fin.	2	133.64	-13.063	12.1694	SLV 3	0.93	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-25.3025	62.04			13.1	4.93	SLV 13	0.08	No
fin.	2	0	26.6968	60.53			13.1	4.93	SLV 13	0.08	No
ini.	2	0	20.5056	-54.58			13.1	4.93	SLV 1	0.09	No
fin.	2	0	-18.9471	-59.78			13.1	4.93	SLV 1	0.08	No
ini.	2	0	-19.6811	69.06			13.1	4.93	SLV 16	0.07	No
fin.	2	0	32.5808	78.99			13.1	4.93	SLV 16	0.06	No
ini.	2	0	-25.3025	62.04			13.1	4.93	SLV 14	0.08	No
fin.	2	0	26.6968	60.53			13.1	4.93	SLV 14	0.08	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	20.5056	-54.58			13.1	4.93	SLV 2	0.09	No
fin.	2	0	-18.9471	-59.78			13.1	4.93	SLV 2	0.08	No
ini.	2	0	26.1269	-47.56			13.1	4.93	SLV 4	0.1	No
fin.	2	0	-13.063	-41.33			13.1	4.93	SLV 4	0.12	No
ini.	2	0	2.9099	36.43			13.1	4.93	SLV 12	0.14	No
fin.	2	0	23.4702	58.41			13.1	4.93	SLV 12	0.08	No
ini.	2	0	-19.6811	69.06			13.1	4.93	SLV 15	0.07	No
fin.	2	0	32.5808	78.99			13.1	4.93	SLV 15	0.06	No
ini.	2	0	2.9099	36.43			13.1	4.93	SLV 11	0.14	No
fin.	2	0	23.4702	58.41			13.1	4.93	SLV 11	0.08	No
ini.	2	0	26.1269	-47.56			13.1	4.93	SLV 3	0.1	No
fin.	2	0	-13.063	-41.33			13.1	4.93	SLV 3	0.12	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.374	SLV 15	No
V_SLV	0.062	SLV 15	No
PF_SLU	0.959	SLU 78	No
V_SLU	0.202	SLU 78	No

## Trave di accoppiamento 67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.013	5.951	3.91	4.83	0.92	-3.013	5.951	3.91	4.83	0.92	1	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-28.66	-6.2412	10.7292	SLU 84	1.72	Si
fin.	3	-22.66	-0.2708	10.7292	SLU 84	39.62	Si
ini.	3	-27.82	-6.1343	10.7292	SLU 81	1.75	Si
fin.	3	-21.62	-0.328	10.7292	SLU 81	32.71	Si
ini.	3	-27.79	-6.026	10.7292	SLU 75	1.78	Si
fin.	3	-21.95	-0.3061	10.7292	SLU 75	35.05	Si
ini.	3	-29.08	-6.14	10.7292	SLU 78	1.75	Si
fin.	3	-23.63	-0.3393	10.7292	SLU 78	31.63	Si
ini.	3	-29.53	-6.1472	10.7292	SLU 77	1.75	Si
fin.	3	-24.27	-0.4296	10.7292	SLU 77	24.97	Si
ini.	3	-27.37	-6.1271	10.7292	SLU 82	1.75	Si
fin.	3	-20.98	-0.2377	10.7292	SLU 82	45.15	Si
ini.	3	-28.24	-6.0332	10.7292	SLU 74	1.78	Si
fin.	3	-22.59	-0.3965	10.7292	SLU 74	27.06	Si
ini.	3	-29.42	-6.0766	10.7292	SLU 79	1.77	Si
fin.	3	-24.39	-0.4318	10.7292	SLU 79	24.85	Si
ini.	3	-29.12	-6.2484	10.7292	SLU 83	1.72	Si
fin.	3	-23.3	-0.3612	10.7292	SLU 83	29.7	Si
ini.	3	-28.97	-6.0694	10.7292	SLU 80	1.77	Si
fin.	3	-23.75	-0.3414	10.7292	SLU 80	31.43	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-6.2484	34.44			9.13	3.43	SLU 83	0.1	No
fin.	3	0	-0.3612	-35.46			9.13	3.43	SLU 83	0.1	No
ini.	3	0	-6.1343	33.96			9.13	3.43	SLU 81	0.1	No
fin.	3	0	-0.328	-34.33			9.13	3.43	SLU 81	0.1	No
ini.	3	0	-6.0766	33.24			9.13	3.43	SLU 79	0.1	No
fin.	3	0	-0.4318	-34.92			9.13	3.43	SLU 79	0.1	No
ini.	3	0	-6.1472	33.56			9.13	3.43	SLU 77	0.1	No
fin.	3	0	-0.4296	-35.05			9.13	3.43	SLU 77	0.1	No
ini.	3	0	-6.0694	33.12			9.13	3.43	SLU 80	0.1	No
fin.	3	0	-0.3414	-34.3			9.13	3.43	SLU 80	0.1	No
ini.	3	0	-6.026	32.96			9.13	3.43	SLU 75	0.1	No
fin.	3	0	-0.3061	-33.29			9.13	3.43	SLU 75	0.1	No
ini.	3	0	-6.14	33.44			9.13	3.43	SLU 78	0.1	No
fin.	3	0	-0.3393	-34.42			9.13	3.43	SLU 78	0.1	No
ini.	3	0	-6.1271	33.84			9.13	3.43	SLU 82	0.1	No
fin.	3	0	-0.2377	-33.7			9.13	3.43	SLU 82	0.1	No
ini.	3	0	-6.2412	34.32			9.13	3.43	SLU 84	0.1	No
fin.	3	0	-0.2708	-34.83			9.13	3.43	SLU 84	0.1	No
ini.	3	0	-6.0332	33.08			9.13	3.43	SLU 74	0.1	No
fin.	3	0	-0.3965	-33.91			9.13	3.43	SLU 74	0.1	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-55.25	-20.3182	12.5194	SLV 16	0.62	No
fin.	2	13.36	7.927	12.5194	SLV 16	1.58	Si
ini.	2	17.41	12.2564	12.5194	SLV 2	1.02	Si
fin.	2	-43.43	-8.5943	12.5194	SLV 2	1.46	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-55.25	-20.3182	12.5194	SLV 15	0.62	No
fin.	2	13.36	7.927	12.5194	SLV 15	1.58	Si
ini.	2	17.41	12.2564	12.5194	SLV 1	1.02	Si
fin.	2	-43.43	-8.5943	12.5194	SLV 1	1.46	Si
ini.	2	-60.75	-13.0378	12.5194	SLV 11	0.96	No
fin.	2	-26.89	0.3373	12.5194	SLV 11	37.12	Si
ini.	2	-34.58	-11.1054	12.5194	SLD 16	1.13	Si
fin.	2	-2.55	3.2744	12.5194	SLD 16	3.82	Si
ini.	2	-34.85	-17.6012	12.5194	SLV 14	0.71	No
fin.	2	26.79	9.1186	12.5194	SLV 14	1.37	Si
ini.	2	-34.58	-11.1054	12.5194	SLD 15	1.13	Si
fin.	2	-2.55	3.2744	12.5194	SLD 15	3.82	Si
ini.	2	-60.75	-13.0378	12.5194	SLV 12	0.96	No
fin.	2	-26.89	0.3373	12.5194	SLV 12	37.12	Si
ini.	2	-34.85	-17.6012	12.5194	SLV 13	0.71	No
fin.	2	26.79	9.1186	12.5194	SLV 13	1.37	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-20.3182	82			13.69	5.15	SLV 16	0.06	No
fin.	2	0	7.927	25.14			13.69	5.15	SLV 16	0.2	No
ini.	2	0	-13.0378	60.24			13.69	5.15	SLV 11	0.09	No
fin.	2	0	0.3373	-25.97			13.69	5.15	SLV 11	0.2	No
ini.	2	0	-20.3182	82			13.69	5.15	SLV 15	0.06	No
fin.	2	0	7.927	25.14			13.69	5.15	SLV 15	0.2	No
ini.	2	0	12.2564	-37.76			13.69	5.15	SLV 2	0.14	No
fin.	2	0	-8.5943	-69.88			13.69	5.15	SLV 2	0.07	No
ini.	2	0	-17.6012	68.71			13.69	5.15	SLV 14	0.07	No
fin.	2	0	9.1186	36.92			13.69	5.15	SLV 14	0.14	No
ini.	2	0	-17.6012	68.71			13.69	5.15	SLV 13	0.07	No
fin.	2	0	9.1186	36.92			13.69	5.15	SLV 13	0.14	No
ini.	2	0	-13.0378	60.24			13.69	5.15	SLV 12	0.09	No
fin.	2	0	0.3373	-25.97			13.69	5.15	SLV 12	0.2	No
ini.	2	0	9.5395	-24.47			13.69	5.15	SLV 3	0.21	No
fin.	2	0	-9.7859	-81.65			13.69	5.15	SLV 3	0.06	No
ini.	2	0	9.5395	-24.47			13.69	5.15	SLV 4	0.21	No
fin.	2	0	-9.7859	-81.65			13.69	5.15	SLV 4	0.06	No
ini.	2	0	12.2564	-37.76			13.69	5.15	SLV 1	0.14	No
fin.	2	0	-8.5943	-69.88			13.69	5.15	SLV 1	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.616	SLV 15	No
V_SLV	0.063	SLV 15	No
PF_SLU	1.717	SLU 83	Si
V_SLU	0.097	SLU 83	No

## Trave di accoppiamento 68

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-24.678	1.266	6.93	8.35	1.42	-24.678	2.066	6.93	8.35	1.42	0.8	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-61.38	13.8182	19.4792	SLU 79	1.41	Si
fin.	3	-61.38	-14.8953	19.4792	SLU 79	1.31	Si
ini.	3	-57.55	14.0628	19.4792	SLU 82	1.39	Si
fin.	3	-57.55	-15.8637	19.4792	SLU 82	1.23	Si
ini.	3	-60.91	15.4484	19.4792	SLU 83	1.26	Si
fin.	3	-60.91	-16.8282	19.4792	SLU 83	1.16	Si
ini.	3	-48.16	13.0562	19.4792	SLU 40	1.49	Si
fin.	3	-48.16	-14.4894	19.4792	SLU 40	1.34	Si
ini.	3	-59.32	14.3854	19.4792	SLU 74	1.35	Si
fin.	3	-59.32	-15.7463	19.4792	SLU 74	1.24	Si
ini.	3	-59.94	13.9129	19.4792	SLU 84	1.4	Si
fin.	3	-59.94	-15.4484	19.4792	SLU 84	1.26	Si
ini.	3	-58.52	15.5983	19.4792	SLU 81	1.25	Si
fin.	3	-58.52	-17.2435	19.4792	SLU 81	1.13	Si
ini.	3	-49.13	14.5917	19.4792	SLU 39	1.33	Si
fin.	3	-49.13	-15.8692	19.4792	SLU 39	1.23	Si
ini.	3	-61.71	14.2354	19.4792	SLU 77	1.37	Si
fin.	3	-61.71	-15.3309	19.4792	SLU 77	1.27	Si
ini.	3	-51.53	14.4418	19.4792	SLU 41	1.35	Si
fin.	3	-51.53	-15.4538	19.4792	SLU 41	1.26	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	15.5983	-37.78			15.31	5.76	SLU 81	0.15	No
fin.	3	0	-17.2435	-44.89			15.31	5.76	SLU 81	0.13	No
ini.	3	0	14.0628	-34.14			15.31	5.76	SLU 82	0.17	No
fin.	3	0	-15.8637	-41.24			15.31	5.76	SLU 82	0.14	No
ini.	3	0	12.8499	-30.75			15.31	5.76	SLU 75	0.19	No
fin.	3	0	-14.3665	-37.86			15.31	5.76	SLU 75	0.15	No
ini.	3	0	14.5917	-35.54			15.31	5.76	SLU 39	0.16	No
fin.	3	0	-15.8692	-41.04			15.31	5.76	SLU 39	0.14	No
ini.	3	0	15.4484	-37.07			15.31	5.76	SLU 83	0.16	No
fin.	3	0	-16.8282	-44.18			15.31	5.76	SLU 83	0.13	No
ini.	3	0	14.2354	-33.69			15.31	5.76	SLU 77	0.17	No
fin.	3	0	-15.3309	-40.79			15.31	5.76	SLU 77	0.14	No
ini.	3	0	13.9129	-33.43			15.31	5.76	SLU 84	0.17	No
fin.	3	0	-15.4484	-40.54			15.31	5.76	SLU 84	0.14	No
ini.	3	0	14.3854	-34.39			15.31	5.76	SLU 74	0.17	No
fin.	3	0	-15.7463	-41.5			15.31	5.76	SLU 74	0.14	No
ini.	3	0	14.4418	-34.83			15.31	5.76	SLU 41	0.17	No
fin.	3	0	-15.4538	-40.33			15.31	5.76	SLU 41	0.14	No
ini.	3	0	13.8182	-32.62			15.31	5.76	SLU 79	0.18	No
fin.	3	0	-14.8953	-39.73			15.31	5.76	SLU 79	0.15	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-42.9	20.7917	21.2694	SLD 8	1.02	Si
fin.	2	-43.56	-22.1105	21.2694	SLD 8	0.96	No
ini.	2	-46.56	36.6183	21.2694	SLV 8	0.58	No
fin.	2	-48.06	-38.0608	21.2694	SLV 8	0.56	No
ini.	2	-35.4	27.9313	21.2694	SLV 11	0.76	No
fin.	2	-38.66	-29.6566	21.2694	SLV 11	0.72	No
ini.	2	-59.01	30.1413	21.2694	SLV 4	0.71	No
fin.	2	-56.8	-30.9868	21.2694	SLV 4	0.69	No
ini.	2	-35.4	27.9313	21.2694	SLV 12	0.76	No
fin.	2	-38.66	-29.6566	21.2694	SLV 12	0.72	No
ini.	2	-59.01	30.1413	21.2694	SLV 3	0.71	No
fin.	2	-56.8	-30.9868	21.2694	SLV 3	0.69	No
ini.	2	-46.56	36.6183	21.2694	SLV 7	0.58	No
fin.	2	-48.06	-38.0608	21.2694	SLV 7	0.56	No
ini.	2	-33.79	-19.531	21.2694	SLV 9	1.09	Si
fin.	2	-32.29	18.569	21.2694	SLV 9	1.15	Si
ini.	2	-33.79	-19.531	21.2694	SLV 10	1.09	Si
fin.	2	-32.29	18.569	21.2694	SLV 10	1.15	Si
ini.	2	-42.9	20.7917	21.2694	SLD 7	1.02	Si
fin.	2	-43.56	-22.1105	21.2694	SLD 7	0.96	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	27.9313	-70.05			22.97	8.64	SLV 12	0.12	No
fin.	2	0	-29.6566	-76.29			22.97	8.64	SLV 12	0.11	No
ini.	2	0	-19.531	49.46			22.97	8.64	SLV 9	0.17	No
fin.	2	0	18.569	43.77			22.97	8.64	SLV 9	0.2	No
ini.	2	0	36.6183	-90.17			22.97	8.64	SLV 8	0.1	No
fin.	2	0	-38.0608	-95.39			22.97	8.64	SLV 8	0.09	No
ini.	2	0	36.6183	-90.17			22.97	8.64	SLV 7	0.1	No
fin.	2	0	-38.0608	-95.39			22.97	8.64	SLV 7	0.09	No
ini.	2	0	-19.531	49.46			22.97	8.64	SLV 10	0.17	No
fin.	2	0	18.569	43.77			22.97	8.64	SLV 10	0.2	No
ini.	2	0	20.7917	-50.88			22.97	8.64	SLD 8	0.17	No
fin.	2	0	-22.1105	-56.22			22.97	8.64	SLD 8	0.15	No
ini.	2	0	20.7917	-50.88			22.97	8.64	SLD 7	0.17	No
fin.	2	0	-22.1105	-56.22			22.97	8.64	SLD 7	0.15	No
ini.	2	0	30.1413	-71.82			22.97	8.64	SLV 3	0.12	No
fin.	2	0	-30.9868	-75.65			22.97	8.64	SLV 3	0.11	No
ini.	2	0	30.1413	-71.82			22.97	8.64	SLV 4	0.12	No
fin.	2	0	-30.9868	-75.65			22.97	8.64	SLV 4	0.11	No
ini.	2	0	27.9313	-70.05			22.97	8.64	SLV 11	0.12	No
fin.	2	0	-29.6566	-76.29			22.97	8.64	SLV 11	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.559	SLV 7	No
V_SLV	0.091	SLV 7	No
PF_SLU	1.13	SLU 81	Si
V_SLU	0.128	SLU 81	No

#### Trave di accoppiamento 69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.813	5.951	4.83	5.73	0.9	-22.713	5.951	4.83	5.73	0.9	0.9	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti





fb <sub>u</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-29.16	2.7429	10.3792	SLU 83	3.78	Si
fin.	3	-30.67	4.9088	10.3792	SLU 83	2.11	Si
ini.	3	-30.51	2.7691	10.3792	SLU 80	3.75	Si
fin.	3	-31.79	5.0343	10.3792	SLU 80	2.06	Si
ini.	3	-29.19	2.5245	10.3792	SLU 69	4.11	Si
fin.	3	-30.89	4.9071	10.3792	SLU 69	2.12	Si
ini.	3	-30.3	2.7794	10.3792	SLU 78	3.73	Si
fin.	3	-31.58	5.0085	10.3792	SLU 78	2.07	Si
ini.	3	-30.94	2.7872	10.3792	SLU 79	3.72	Si
fin.	3	-32.41	5.1427	10.3792	SLU 79	2.02	Si
ini.	3	-28.77	2.5064	10.3792	SLU 70	4.14	Si
fin.	3	-30.27	4.7987	10.3792	SLU 70	2.16	Si
ini.	3	-28.73	2.7249	10.3792	SLU 84	3.81	Si
fin.	3	-30.05	4.8004	10.3792	SLU 84	2.16	Si
ini.	3	-29.4	2.5142	10.3792	SLU 71	4.13	Si
fin.	3	-31.1	4.933	10.3792	SLU 71	2.1	Si
ini.	3	-28.97	2.4961	10.3792	SLU 72	4.16	Si
fin.	3	-30.48	4.8246	10.3792	SLU 72	2.15	Si
ini.	3	-30.73	2.7975	10.3792	SLU 77	3.71	Si
fin.	3	-32.2	5.1168	10.3792	SLU 77	2.03	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	2.7872	-4.04			9.7	3.65	SLU 79	0.9	No
fin.	3	0	5.1427	14.57			9.7	3.65	SLU 79	0.25	No
ini.	3	0	2.5245	-3.7			9.7	3.65	SLU 69	0.99	No
fin.	3	0	4.9071	14.43			9.7	3.65	SLU 69	0.25	No
ini.	3	0	2.7794	-4.29			9.7	3.65	SLU 78	0.85	No
fin.	3	0	5.0085	14.32			9.7	3.65	SLU 78	0.26	No
ini.	3	0	2.7975	-4.19			9.7	3.65	SLU 77	0.87	No
fin.	3	0	5.1168	14.67			9.7	3.65	SLU 77	0.25	No
ini.	3	0	2.4707	-3.59			9.7	3.65	SLU 56	1.02	Si
fin.	3	0	4.7573	14.02			9.7	3.65	SLU 56	0.26	No
ini.	3	0	2.7429	-4.06			9.7	3.65	SLU 83	0.9	No
fin.	3	0	4.9088	14.09			9.7	3.65	SLU 83	0.26	No
ini.	3	0	2.6362	-4.01			9.7	3.65	SLU 74	0.91	No
fin.	3	0	4.793	14.1			9.7	3.65	SLU 74	0.26	No
ini.	3	0	2.7691	-4.13			9.7	3.65	SLU 80	0.88	No
fin.	3	0	5.0343	14.21			9.7	3.65	SLU 80	0.26	No
ini.	3	0	2.5064	-3.8			9.7	3.65	SLU 70	0.96	No
fin.	3	0	4.7987	14.08			9.7	3.65	SLU 70	0.26	No
ini.	3	0	2.5142	-3.55			9.7	3.65	SLU 71	1.03	Si
fin.	3	0	4.933	14.32			9.7	3.65	SLU 71	0.26	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-33.64	14.6098	12.1694	SLV 1	0.83	No
fin.	2	6.01	-5.8586	12.1694	SLV 1	2.08	Si
ini.	2	-46.94	15.9313	12.1694	SLV 3	0.76	No
fin.	2	-6.41	-4.7131	12.1694	SLV 3	2.58	Si
ini.	2	-47.36	7.968	12.1694	SLV 7	1.53	Si
fin.	2	-34.94	2.6176	12.1694	SLV 7	4.65	Si
ini.	2	-47.36	7.968	12.1694	SLV 8	1.53	Si
fin.	2	-34.94	2.6176	12.1694	SLV 8	4.65	Si
ini.	2	-46.94	15.9313	12.1694	SLV 4	0.76	No
fin.	2	-6.41	-4.7131	12.1694	SLV 4	2.58	Si
ini.	2	9.5	-12.5472	12.1694	SLV 14	0.97	No
fin.	2	-34.05	11.2679	12.1694	SLV 14	1.08	Si
ini.	2	-33.64	14.6098	12.1694	SLV 2	0.83	No
fin.	2	6.01	-5.8586	12.1694	SLV 2	2.08	Si
ini.	2	-3.8	-11.2257	12.1694	SLV 15	1.08	Si
fin.	2	-46.48	12.4134	12.1694	SLV 15	0.98	No
ini.	2	-3.8	-11.2257	12.1694	SLV 16	1.08	Si
fin.	2	-46.48	12.4134	12.1694	SLV 16	0.98	No
ini.	2	9.5	-12.5472	12.1694	SLV 13	0.97	No
fin.	2	-34.05	11.2679	12.1694	SLV 13	1.08	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-3.9699	17.3			14.56	5.48	SLD 15	0.32	No
fin.	2	0	7.2679	30.38			14.56	5.48	SLD 15	0.18	No
ini.	2	0	14.6098	-47.49			14.56	5.48	SLV 2	0.12	No
fin.	2	0	-5.8586	-36.48			14.56	5.48	SLV 2	0.15	No
ini.	2	0	-12.5472	47			14.56	5.48	SLV 14	0.12	No
fin.	2	0	11.2679	52.58			14.56	5.48	SLV 14	0.1	No
ini.	2	0	15.9313	-51.9			14.56	5.48	SLV 3	0.11	No
fin.	2	0	-4.7131	-32.48			14.56	5.48	SLV 3	0.17	No
ini.	2	0	-11.2257	42.59			14.56	5.48	SLV 15	0.13	No
fin.	2	0	12.4134	56.59			14.56	5.48	SLV 15	0.1	No
ini.	2	0	14.6098	-47.49			14.56	5.48	SLV 1	0.12	No
fin.	2	0	-5.8586	-36.48			14.56	5.48	SLV 1	0.15	No
ini.	2	0	15.9313	-51.9			14.56	5.48	SLV 4	0.11	No
fin.	2	0	-4.7131	-32.48			14.56	5.48	SLV 4	0.17	No
ini.	2	0	-12.5472	47			14.56	5.48	SLV 13	0.12	No
fin.	2	0	11.2679	52.58			14.56	5.48	SLV 13	0.1	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-3.9699	17.3			14.56	5.48	SLD 16	0.32	No
fin.	2	0	7.2679	30.38			14.56	5.48	SLD 16	0.18	No
ini.	2	0	-11.2257	42.59			14.56	5.48	SLV 16	0.13	No
fin.	2	0	12.4134	56.59			14.56	5.48	SLV 16	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.764	SLV 3	No
V_SLV	0.097	SLV 15	No
PF_SLU	2.018	SLU 79	Si
V_SLU	0.249	SLU 77	No

## Trave di accoppiamento 70

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.813	5.951	7.53	8.35	0.82	-22.713	5.951	7.53	8.35	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-12.55	-1.9631	8.9792	SLU 74	4.57	Si
fin.	3	-22.24	-4.0416	8.9792	SLU 74	2.22	Si
ini.	3	-10.86	-1.4705	8.9792	SLU 73	6.11	Si
fin.	3	-21.66	-3.9211	8.9792	SLU 73	2.29	Si
ini.	3	-11.38	-1.4865	8.9792	SLU 82	6.04	Si
fin.	3	-23.03	-4.1448	8.9792	SLU 82	2.17	Si
ini.	3	-13.85	-2.4457	8.9792	SLU 78	3.67	Si
fin.	3	-21.62	-3.9358	8.9792	SLU 78	2.28	Si
ini.	3	-12.29	-1.9248	8.9792	SLU 75	4.67	Si
fin.	3	-21.88	-3.9819	8.9792	SLU 75	2.25	Si
ini.	3	-12.94	-2.0074	8.9792	SLU 84	4.47	Si
fin.	3	-22.76	-4.0987	8.9792	SLU 84	2.19	Si
ini.	3	-14.41	-2.5761	8.9792	SLU 79	3.49	Si
fin.	3	-21.73	-3.9282	8.9792	SLU 79	2.29	Si
ini.	3	-13.19	-2.0457	8.9792	SLU 83	4.39	Si
fin.	3	-23.12	-4.1583	8.9792	SLU 83	2.16	Si
ini.	3	-14.11	-2.4839	8.9792	SLU 77	3.61	Si
fin.	3	-21.98	-3.9954	8.9792	SLU 77	2.25	Si
ini.	3	-11.63	-1.5248	8.9792	SLU 81	5.89	Si
fin.	3	-23.39	-4.2044	8.9792	SLU 81	2.14	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.0074	15.89			8.06	3.03	SLU 84	0.19	No
fin.	3	0	-4.0987	-38.08			8.06	3.03	SLU 84	0.08	No
ini.	3	0	-1.5248	14.78			8.06	3.03	SLU 81	0.21	No
fin.	3	0	-4.2044	-40.04			8.06	3.03	SLU 81	0.08	No
ini.	3	0	-1.9914	15.22			8.06	3.03	SLU 76	0.2	No
fin.	3	0	-3.8749	-35.69			8.06	3.03	SLU 76	0.08	No
ini.	3	0	-1.4705	14.02			8.06	3.03	SLU 73	0.22	No
fin.	3	0	-3.9211	-37.3			8.06	3.03	SLU 73	0.08	No
ini.	3	0	-1.2947	12.96			8.06	3.03	SLU 60	0.23	No
fin.	3	0	-3.8307	-36.27			8.06	3.03	SLU 60	0.08	No
ini.	3	0	-1.4865	14.69			8.06	3.03	SLU 82	0.21	No
fin.	3	0	-4.1448	-39.69			8.06	3.03	SLU 82	0.08	No
ini.	3	0	-1.9631	15.33			8.06	3.03	SLU 74	0.2	No
fin.	3	0	-4.0416	-37.18			8.06	3.03	SLU 74	0.08	No
ini.	3	0	-1.9248	15.24			8.06	3.03	SLU 75	0.2	No
fin.	3	0	-3.9819	-36.83			8.06	3.03	SLU 75	0.08	No
ini.	3	0	-2.0457	15.98			8.06	3.03	SLU 83	0.19	No
fin.	3	0	-4.1583	-38.43			8.06	3.03	SLU 83	0.08	No
ini.	3	0	-1.2564	12.88			8.06	3.03	SLU 61	0.24	No
fin.	3	0	-3.7711	-35.92			8.06	3.03	SLU 61	0.08	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	13.31	6.0202	10.7694	SLV 1	1.79	Si
fin.	2	-35.38	-8.6088	10.7694	SLV 1	1.25	Si
ini.	2	-9	-0.8548	10.7694	SLV 7	12.6	Si
fin.	2	-35.63	-6.8524	10.7694	SLV 7	1.57	Si
ini.	2	13.31	6.0202	10.7694	SLV 2	1.79	Si
fin.	2	-35.38	-8.6088	10.7694	SLV 2	1.25	Si
ini.	2	9.23	4.995	10.7694	SLV 3	2.16	Si
fin.	2	-43.23	-9.8791	10.7694	SLV 3	1.09	Si
ini.	2	-29.29	-8.3012	10.7694	SLV 15	1.3	Si
fin.	2	4.66	3.0029	10.7694	SLV 15	3.59	Si
ini.	2	-25.22	-7.276	10.7694	SLV 13	1.48	Si
fin.	2	12.51	4.2732	10.7694	SLV 13	2.52	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-29.29	-8.3012	10.7694	SLV 16	1.3	Si
fin.	2	4.66	3.0029	10.7694	SLV 16	3.59	Si
ini.	2	9.23	4.995	10.7694	SLV 4	2.16	Si
fin.	2	-43.23	-9.8791	10.7694	SLV 4	1.09	Si
ini.	2	-25.22	-7.276	10.7694	SLV 14	1.48	Si
fin.	2	12.51	4.2732	10.7694	SLV 14	2.52	Si
ini.	2	-9	-0.8548	10.7694	SLV 8	12.6	Si
fin.	2	-35.63	-6.8524	10.7694	SLV 8	1.57	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	6.0202	-22.59			12.08	4.55	SLV 1	0.2	No
fin.	2	0	-8.6088	-60.15			12.08	4.55	SLV 1	0.08	No
ini.	2	0	-7.276	46.34			12.08	4.55	SLV 14	0.1	No
fin.	2	0	4.2732	14.77			12.08	4.55	SLV 14	0.31	No
ini.	2	0	1.5499	-6.08			12.08	4.55	SLD 3	0.75	No
fin.	2	0	-5.8724	-43.51			12.08	4.55	SLD 3	0.1	No
ini.	2	0	-0.8548	-7.41			12.08	4.55	SLV 8	0.61	No
fin.	2	0	-6.8524	-47.69			12.08	4.55	SLV 8	0.1	No
ini.	2	0	1.5499	-6.08			12.08	4.55	SLD 4	0.75	No
fin.	2	0	-5.8724	-43.51			12.08	4.55	SLD 4	0.1	No
ini.	2	0	-7.276	46.34			12.08	4.55	SLV 13	0.1	No
fin.	2	0	4.2732	14.77			12.08	4.55	SLV 13	0.31	No
ini.	2	0	-0.8548	-7.41			12.08	4.55	SLV 7	0.61	No
fin.	2	0	-6.8524	-47.69			12.08	4.55	SLV 7	0.1	No
ini.	2	0	4.995	-26.72			12.08	4.55	SLV 3	0.17	No
fin.	2	0	-9.8791	-66.5			12.08	4.55	SLV 3	0.07	No
ini.	2	0	6.0202	-22.59			12.08	4.55	SLV 2	0.2	No
fin.	2	0	-8.6088	-60.15			12.08	4.55	SLV 2	0.08	No
ini.	2	0	4.995	-26.72			12.08	4.55	SLV 4	0.17	No
fin.	2	0	-9.8791	-66.5			12.08	4.55	SLV 4	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.09	SLV 3	Si
V_SLV	0.068	SLV 3	No
PF_SLU	2.136	SLU 81	Si
V_SLU	0.076	SLU 81	No

## Trave di accoppiamento 71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.593	-3.359	4.83	5.73	0.9	-22.493	-3.359	4.83	5.73	0.9	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-41.69	11.9154	10.3792	SLU 80	0.87	No
fin.	3	-16.67	0.0473	10.3792	SLU 80	219.49	Si
ini.	3	-40.9	11.8459	10.3792	SLU 82	0.88	No
fin.	3	-15.98	-0.0062	10.3792	SLU 82	1664.36	Si
ini.	3	-42.78	12.2242	10.3792	SLU 76	0.85	No
fin.	3	-16.93	-0.1286	10.3792	SLU 76	80.72	Si
ini.	3	-38.72	11.1644	10.3792	SLU 77	0.93	No
fin.	3	-15.6	0.2872	10.3792	SLU 77	36.14	Si
ini.	3	-41.85	12.0138	10.3792	SLU 78	0.86	No
fin.	3	-16.62	0.0266	10.3792	SLU 78	389.98	Si
ini.	3	-40.86	11.7563	10.3792	SLU 75	0.88	No
fin.	3	-16.2	0.0245	10.3792	SLU 75	424.07	Si
ini.	3	-40	11.1845	10.3792	SLU 68	0.93	No
fin.	3	-16.6	-0.0137	10.3792	SLU 68	758.48	Si
ini.	3	-41.89	12.1035	10.3792	SLU 84	0.86	No
fin.	3	-16.39	-0.0041	10.3792	SLU 84	2533.71	Si
ini.	3	-41.79	11.9666	10.3792	SLU 73	0.87	No
fin.	3	-16.52	-0.1307	10.3792	SLU 73	79.39	Si
ini.	3	-38.76	11.2541	10.3792	SLU 83	0.92	No
fin.	3	-15.37	0.2565	10.3792	SLU 83	40.46	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	11.7563	-29.59			9.7	3.65	SLU 75	0.12	No
fin.	3	0	0.0245	-14.96			9.7	3.65	SLU 75	0.24	No
ini.	3	0	12.1035	-30.42			9.7	3.65	SLU 84	0.12	No
fin.	3	0	-0.0041	-15.77			9.7	3.65	SLU 84	0.23	No
ini.	3	0	12.2242	-30.15			9.7	3.65	SLU 76	0.12	No
fin.	3	0	-0.1286	-17.41			9.7	3.65	SLU 76	0.21	No
ini.	3	0	11.8459	-29.65			9.7	3.65	SLU 82	0.12	No
fin.	3	0	-0.0062	-15.59			9.7	3.65	SLU 82	0.23	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	12.0138	-30.36			9.7	3.65	SLU 78	0.12	No
fin.	3	0	0.0266	-15.15			9.7	3.65	SLU 78	0.24	No
ini.	3	0	11.9666	-29.38			9.7	3.65	SLU 73	0.12	No
fin.	3	0	-0.1307	-17.22			9.7	3.65	SLU 73	0.21	No
ini.	3	0	11.1644	-29.01			9.7	3.65	SLU 77	0.13	No
fin.	3	0	0.2872	-11.38			9.7	3.65	SLU 77	0.32	No
ini.	3	0	11.2541	-29.07			9.7	3.65	SLU 83	0.13	No
fin.	3	0	0.2565	-12.01			9.7	3.65	SLU 83	0.3	No
ini.	3	0	11.066	-28.66			9.7	3.65	SLU 79	0.13	No
fin.	3	0	0.3079	-11.32			9.7	3.65	SLU 79	0.32	No
ini.	3	0	11.9154	-30.01			9.7	3.65	SLU 80	0.12	No
fin.	3	0	0.0473	-15.08			9.7	3.65	SLU 80	0.24	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-52.13	21.0299	12.1694	SLV 3	0.58	No
fin.	2	14.72	-8.2152	12.1694	SLV 3	1.48	Si
ini.	2	-41.5	14.7599	12.1694	SLD 2	0.82	No
fin.	2	-4.59	-2.7573	12.1694	SLD 2	4.41	Si
ini.	2	-51.32	17.6977	12.1694	SLV 6	0.69	No
fin.	2	-23.87	0.5509	12.1694	SLV 6	22.09	Si
ini.	2	-51.32	17.6977	12.1694	SLV 5	0.69	No
fin.	2	-23.87	0.5509	12.1694	SLV 5	22.09	Si
ini.	2	-61.7	24.4623	12.1694	SLV 1	0.5	No
fin.	2	3.45	-6.6798	12.1694	SLV 1	1.82	Si
ini.	2	-61.7	24.4623	12.1694	SLV 2	0.5	No
fin.	2	3.45	-6.6798	12.1694	SLV 2	1.82	Si
ini.	2	-41.5	14.7599	12.1694	SLD 1	0.82	No
fin.	2	-4.59	-2.7573	12.1694	SLD 1	4.41	Si
ini.	2	-37.64	13.3767	12.1694	SLD 3	0.91	No
fin.	2	-0.09	-3.3705	12.1694	SLD 3	3.61	Si
ini.	2	-52.13	21.0299	12.1694	SLV 4	0.58	No
fin.	2	14.72	-8.2152	12.1694	SLV 4	1.48	Si
ini.	2	-37.64	13.3767	12.1694	SLD 4	0.91	No
fin.	2	-0.09	-3.3705	12.1694	SLD 4	3.61	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	14.7599	-42.38			14.56	5.48	SLD 2	0.13	No
fin.	2	0	-2.7573	-28.67			14.56	5.48	SLD 2	0.19	No
ini.	2	0	14.7599	-42.38			14.56	5.48	SLD 1	0.13	No
fin.	2	0	-2.7573	-28.67			14.56	5.48	SLD 1	0.19	No
ini.	2	0	21.0299	-71.18			14.56	5.48	SLV 4	0.08	No
fin.	2	0	-8.2152	-52.71			14.56	5.48	SLV 4	0.1	No
ini.	2	0	24.4623	-72.73			14.56	5.48	SLV 2	0.08	No
fin.	2	0	-6.6798	-56.88			14.56	5.48	SLV 2	0.1	No
ini.	2	0	24.4623	-72.73			14.56	5.48	SLV 1	0.08	No
fin.	2	0	-6.6798	-56.88			14.56	5.48	SLV 1	0.1	No
ini.	2	0	13.3767	-41.61			14.56	5.48	SLD 3	0.13	No
fin.	2	0	-3.3705	-26.98			14.56	5.48	SLD 3	0.2	No
ini.	2	0	21.0299	-71.18			14.56	5.48	SLV 3	0.08	No
fin.	2	0	-8.2152	-52.71			14.56	5.48	SLV 3	0.1	No
ini.	2	0	-9.7389	35.02			14.56	5.48	SLV 16	0.16	No
fin.	2	0	7.3263	42.94			14.56	5.48	SLV 16	0.13	No
ini.	2	0	13.3767	-41.61			14.56	5.48	SLD 4	0.13	No
fin.	2	0	-3.3705	-26.98			14.56	5.48	SLD 4	0.2	No
ini.	2	0	-9.7389	35.02			14.56	5.48	SLV 15	0.16	No
fin.	2	0	7.3263	42.94			14.56	5.48	SLV 15	0.13	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.497	SLV 1	No
V_SLV	0.075	SLV 1	No
PF_SLU	0.849	SLU 76	No
V_SLU	0.12	SLU 84	No

## Trave di accoppiamento 72

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.593	-3.359	7.53	8.35	0.82	-22.493	-3.359	7.53	8.35	0.82	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-19.1	6.1386	8.9792	SLU 76	1.46	Si
fin.	3	-52.63	-11.1426	8.9792	SLU 76	0.81	No
ini.	3	-18.71	5.9457	8.9792	SLU 80	1.51	Si
fin.	3	-51.45	-10.9537	8.9792	SLU 80	0.82	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-17.47	5.4592	8.9792	SLU 79	1.64	Si
fin.	3	-48	-10.3264	8.9792	SLU 79	0.87	No
ini.	3	-18.61	6.028	8.9792	SLU 78	1.49	Si
fin.	3	-51.72	-11.0538	8.9792	SLU 78	0.81	No
ini.	3	-17.37	5.5415	8.9792	SLU 77	1.62	Si
fin.	3	-48.26	-10.4265	8.9792	SLU 77	0.86	No
ini.	3	-18.86	6.0643	8.9792	SLU 84	1.48	Si
fin.	3	-52.25	-11.1453	8.9792	SLU 84	0.81	No
ini.	3	-18.43	5.9328	8.9792	SLU 82	1.51	Si
fin.	3	-51.13	-10.9161	8.9792	SLU 82	0.82	No
ini.	3	-17.63	5.5777	8.9792	SLU 83	1.61	Si
fin.	3	-48.8	-10.518	8.9792	SLU 83	0.85	No
ini.	3	-18.18	5.8966	8.9792	SLU 75	1.52	Si
fin.	3	-50.59	-10.8246	8.9792	SLU 75	0.83	No
ini.	3	-18.67	6.0071	8.9792	SLU 73	1.49	Si
fin.	3	-51.51	-10.9134	8.9792	SLU 73	0.82	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	6.1386	-18.19			8.06	3.03	SLU 76	0.17	No
fin.	3	0	-11.1426	-60.76			8.06	3.03	SLU 76	0.05	No
ini.	3	0	5.5777	-14.97			8.06	3.03	SLU 83	0.2	No
fin.	3	0	-10.518	-59.56			8.06	3.03	SLU 83	0.05	No
ini.	3	0	5.9457	-17.09			8.06	3.03	SLU 80	0.18	No
fin.	3	0	-10.9537	-60.47			8.06	3.03	SLU 80	0.05	No
ini.	3	0	6.028	-17.29			8.06	3.03	SLU 78	0.18	No
fin.	3	0	-11.0538	-61.12			8.06	3.03	SLU 78	0.05	No
ini.	3	0	5.4463	-14.52			8.06	3.03	SLU 81	0.21	No
fin.	3	0	-10.2887	-58.33			8.06	3.03	SLU 81	0.05	No
ini.	3	0	5.8966	-16.85			8.06	3.03	SLU 75	0.18	No
fin.	3	0	-10.8246	-59.89			8.06	3.03	SLU 75	0.05	No
ini.	3	0	5.5415	-14.99			8.06	3.03	SLU 77	0.2	No
fin.	3	0	-10.4265	-58.84			8.06	3.03	SLU 77	0.05	No
ini.	3	0	6.0071	-17.75			8.06	3.03	SLU 73	0.17	No
fin.	3	0	-10.9134	-59.53			8.06	3.03	SLU 73	0.05	No
ini.	3	0	5.9328	-16.83			8.06	3.03	SLU 82	0.18	No
fin.	3	0	-10.9161	-60.61			8.06	3.03	SLU 82	0.05	No
ini.	3	0	6.0643	-17.27			8.06	3.03	SLU 84	0.18	No
fin.	3	0	-11.1453	-61.84			8.06	3.03	SLU 84	0.05	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-10	7.489	10.7694	SLD 4	1.44	Si
fin.	2	-43.06	-10.0933	10.7694	SLD 4	1.07	Si
ini.	2	-9.01	14.762	10.7694	SLV 2	0.73	No
fin.	2	-68.11	-16.5186	10.7694	SLV 2	0.65	No
ini.	2	-10.56	8.397	10.7694	SLD 1	1.28	Si
fin.	2	-47.48	-11.0377	10.7694	SLD 1	0.98	No
ini.	2	-10.56	8.397	10.7694	SLD 2	1.28	Si
fin.	2	-47.48	-11.0377	10.7694	SLD 2	0.98	No
ini.	2	-9.01	14.762	10.7694	SLV 1	0.73	No
fin.	2	-68.11	-16.5186	10.7694	SLV 1	0.65	No
ini.	2	-7.43	12.5432	10.7694	SLV 4	0.86	No
fin.	2	-57.05	-14.1942	10.7694	SLV 4	0.76	No
ini.	2	-10	7.489	10.7694	SLD 3	1.44	Si
fin.	2	-43.06	-10.0933	10.7694	SLD 3	1.07	Si
ini.	2	-7.43	12.5432	10.7694	SLV 3	0.86	No
fin.	2	-57.05	-14.1942	10.7694	SLV 3	0.76	No
ini.	2	-13.4	10.284	10.7694	SLV 5	1.05	Si
fin.	2	-59.58	-13.2974	10.7694	SLV 5	0.81	No
ini.	2	-13.4	10.284	10.7694	SLV 6	1.05	Si
fin.	2	-59.58	-13.2974	10.7694	SLV 6	0.81	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	12.5432	-40.06			12.08	4.55	SLV 3	0.11	No
fin.	2	0	-14.1942	-73.26			12.08	4.55	SLV 3	0.06	No
ini.	2	0	14.762	-48.61			12.08	4.55	SLV 1	0.09	No
fin.	2	0	-16.5186	-83.41			12.08	4.55	SLV 1	0.05	No
ini.	2	0	8.397	-26.39			12.08	4.55	SLD 1	0.17	No
fin.	2	0	-11.0377	-57.9			12.08	4.55	SLD 1	0.08	No
ini.	2	0	8.397	-26.39			12.08	4.55	SLD 2	0.17	No
fin.	2	0	-11.0377	-57.9			12.08	4.55	SLD 2	0.08	No
ini.	2	0	7.489	-22.94			12.08	4.55	SLD 3	0.2	No
fin.	2	0	-10.0933	-53.73			12.08	4.55	SLD 3	0.08	No
ini.	2	0	10.284	-34.25			12.08	4.55	SLV 6	0.13	No
fin.	2	0	-13.2974	-67.37			12.08	4.55	SLV 6	0.07	No
ini.	2	0	10.284	-34.25			12.08	4.55	SLV 5	0.13	No
fin.	2	0	-13.2974	-67.37			12.08	4.55	SLV 5	0.07	No
ini.	2	0	7.489	-22.94			12.08	4.55	SLD 4	0.2	No
fin.	2	0	-10.0933	-53.73			12.08	4.55	SLD 4	0.08	No
ini.	2	0	12.5432	-40.06			12.08	4.55	SLV 4	0.11	No
fin.	2	0	-14.1942	-73.26			12.08	4.55	SLV 4	0.06	No
ini.	2	0	14.762	-48.61			12.08	4.55	SLV 2	0.09	No
fin.	2	0	-16.5186	-83.41			12.08	4.55	SLV 2	0.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.652	SLV 1	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.055	SLV 1	No
PF SLU	0.806	SLU 84	No
V SLU	0.049	SLU 84	No

## Trave di accoppiamento 73

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	4.83	6.83	2	-19.368	-3.359	4.83	6.83	2	0.5	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-22.03	0.5158	29.6292	SLU 76	57.44	Si
fin.	3	-26.06	8.8027	29.6292	SLU 76	3.37	Si
ini.	3	-21.73	0.7218	29.6292	SLU 75	41.05	Si
fin.	3	-25.36	8.7315	29.6292	SLU 75	3.39	Si
ini.	3	-22.29	0.4538	29.6292	SLU 82	65.3	Si
fin.	3	-25.96	9.1967	29.6292	SLU 82	3.22	Si
ini.	3	-22.02	0.8892	29.6292	SLU 84	33.32	Si
fin.	3	-25.84	9.153	29.6292	SLU 84	3.24	Si
ini.	3	-21.46	1.1572	29.6292	SLU 78	25.6	Si
fin.	3	-25.24	8.6879	29.6292	SLU 78	3.41	Si
ini.	3	-20.94	1.12	29.6292	SLU 74	26.46	Si
fin.	3	-24.02	8.4961	29.6292	SLU 74	3.49	Si
ini.	3	-22.3	0.0804	29.6292	SLU 73	368.36	Si
fin.	3	-26.19	8.8464	29.6292	SLU 73	3.35	Si
ini.	3	-21.23	1.2167	29.6292	SLU 80	24.35	Si
fin.	3	-25.04	8.6021	29.6292	SLU 80	3.44	Si
ini.	3	-21.23	1.2874	29.6292	SLU 83	23.02	Si
fin.	3	-24.49	8.9176	29.6292	SLU 83	3.32	Si
ini.	3	-21.5	0.852	29.6292	SLU 81	34.78	Si
fin.	3	-24.62	8.9613	29.6292	SLU 81	3.31	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.4538	22.04			21.57	8.12	SLU 82	0.37	No
fin.	3	0	9.1967	38.17			21.57	8.12	SLU 82	0.21	No
ini.	3	0	0.0699	20.86			21.57	8.12	SLU 61	0.39	No
fin.	3	0	8.2776	35.52			21.57	8.12	SLU 61	0.23	No
ini.	3	0	0.7218	20.55			21.57	8.12	SLU 75	0.39	No
fin.	3	0	8.7315	36.45			21.57	8.12	SLU 75	0.22	No
ini.	3	0	1.2167	19.69			21.57	8.12	SLU 80	0.41	No
fin.	3	0	8.6021	35.44			21.57	8.12	SLU 80	0.23	No
ini.	3	0	0.852	19.35			21.57	8.12	SLU 81	0.42	No
fin.	3	0	8.9613	36.59			21.57	8.12	SLU 81	0.22	No
ini.	3	0	0.5158	22.2			21.57	8.12	SLU 76	0.37	No
fin.	3	0	8.8027	37.04			21.57	8.12	SLU 76	0.22	No
ini.	3	0	1.1572	19.83			21.57	8.12	SLU 78	0.41	No
fin.	3	0	8.6879	35.91			21.57	8.12	SLU 78	0.23	No
ini.	3	0	1.2874	18.63			21.57	8.12	SLU 83	0.44	No
fin.	3	0	8.9176	36.05			21.57	8.12	SLU 83	0.23	No
ini.	3	0	0.8892	21.32			21.57	8.12	SLU 84	0.38	No
fin.	3	0	9.153	37.63			21.57	8.12	SLU 84	0.22	No
ini.	3	0	0.0804	22.93			21.57	8.12	SLU 73	0.35	No
fin.	3	0	8.8464	37.58			21.57	8.12	SLU 73	0.22	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-16.22	12.4513	31.4194	SLV 2	2.52	Si
fin.	2	-11.64	-6.9664	31.4194	SLV 2	4.51	Si
ini.	2	-24.07	-15.3877	31.4194	SLV 14	2.04	Si
fin.	2	-30.61	15.2864	31.4194	SLV 14	2.06	Si
ini.	2	-24.07	-15.3877	31.4194	SLV 13	2.04	Si
fin.	2	-30.61	15.2864	31.4194	SLV 13	2.06	Si
ini.	2	-14.47	-11.7186	31.4194	SLV 16	2.68	Si
fin.	2	-23.12	18.4242	31.4194	SLV 16	1.71	Si
ini.	2	-0.51	2.3056	31.4194	SLV 11	13.63	Si
fin.	2	-7.74	14.2965	31.4194	SLV 11	2.2	Si
ini.	2	-16.22	12.4513	31.4194	SLV 1	2.52	Si
fin.	2	-11.64	-6.9664	31.4194	SLV 1	4.51	Si
ini.	2	-6.61	16.1204	31.4194	SLV 3	1.95	Si
fin.	2	-4.15	-3.8286	31.4194	SLV 3	8.21	Si
ini.	2	-0.51	2.3056	31.4194	SLV 12	13.63	Si
fin.	2	-7.74	14.2965	31.4194	SLV 12	2.2	Si
ini.	2	-6.61	16.1204	31.4194	SLV 4	1.95	Si
fin.	2	-4.15	-3.8286	31.4194	SLV 4	8.21	Si
ini.	2	-14.47	-11.7186	31.4194	SLV 15	2.68	Si
fin.	2	-23.12	18.4242	31.4194	SLV 15	1.71	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-6.3859	39.24			32.35	12.17	SLD 14	0.31	No
fin.	2	0	9.9334	50.41			32.35	12.17	SLD 14	0.24	No
ini.	2	0	-4.9321	41.94			32.35	12.17	SLD 15	0.29	No
fin.	2	0	11.2308	50.39			32.35	12.17	SLD 15	0.24	No
ini.	2	0	12.4513	-53.98			32.35	12.17	SLV 2	0.23	No
fin.	2	0	-6.9664	-35.29			32.35	12.17	SLV 2	0.34	No
ini.	2	0	-6.3859	39.24			32.35	12.17	SLD 13	0.31	No
fin.	2	0	9.9334	50.41			32.35	12.17	SLD 13	0.24	No
ini.	2	0	-11.7186	79.77			32.35	12.17	SLV 16	0.15	No
fin.	2	0	18.4242	84.14			32.35	12.17	SLV 16	0.14	No
ini.	2	0	12.4513	-53.98			32.35	12.17	SLV 1	0.23	No
fin.	2	0	-6.9664	-35.29			32.35	12.17	SLV 1	0.34	No
ini.	2	0	-15.3877	73.52			32.35	12.17	SLV 14	0.17	No
fin.	2	0	15.2864	84.47			32.35	12.17	SLV 14	0.14	No
ini.	2	0	-11.7186	79.77			32.35	12.17	SLV 15	0.15	No
fin.	2	0	18.4242	84.14			32.35	12.17	SLV 15	0.14	No
ini.	2	0	-4.9321	41.94			32.35	12.17	SLD 16	0.29	No
fin.	2	0	11.2308	50.39			32.35	12.17	SLD 16	0.24	No
ini.	2	0	-15.3877	73.52			32.35	12.17	SLV 13	0.17	No
fin.	2	0	15.2864	84.47			32.35	12.17	SLV 13	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.705	SLV 15	Si
V_SLV	0.144	SLV 13	No
PF_SLU	3.222	SLU 82	Si
V_SLU	0.213	SLU 82	No

#### Trave di accoppiamento 74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	7.63	8.35	0.72	-19.368	-3.359	7.63	8.35	0.72	0.5	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3.12	-0.667	7.2292	SLU 79	10.84	Si
fin.	3	-3.5	0.0705	7.2292	SLU 79	102.61	Si
ini.	3	-3.13	-0.6421	7.2292	SLU 37	11.26	Si
fin.	3	-3.36	-0.0071	7.2292	SLU 37	1015.24	Si
ini.	3	0.02	0.0476	7.2292	SLU 44	151.79	Si
fin.	3	-0.77	0.6447	7.2292	SLU 44	11.21	Si
ini.	3	-0.4	-0.1074	7.2292	SLU 52	67.28	Si
fin.	3	-1.03	0.7028	7.2292	SLU 52	10.29	Si
ini.	3	-0.4	-0.0826	7.2292	SLU 10	87.56	Si
fin.	3	-0.89	0.6252	7.2292	SLU 10	11.56	Si
ini.	3	-2.73	-0.615	7.2292	SLU 35	11.75	Si
fin.	3	-3	0.0302	7.2292	SLU 35	239.36	Si
ini.	3	-0.74	-0.1837	7.2292	SLU 73	39.36	Si
fin.	3	-1.38	0.707	7.2292	SLU 73	10.23	Si
ini.	3	-0.31	-0.0286	7.2292	SLU 65	252.84	Si
fin.	3	-1.12	0.6489	7.2292	SLU 65	11.14	Si
ini.	3	-0.74	-0.1588	7.2292	SLU 31	45.53	Si
fin.	3	-1.24	0.6294	7.2292	SLU 31	11.49	Si
ini.	3	-2.73	-0.6399	7.2292	SLU 77	11.3	Si
fin.	3	-3.15	0.1078	7.2292	SLU 77	67.07	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.4848	6.48			7.76	2.92	SLU 69	0.45	No
fin.	3	0	0.0497	-12.03			7.76	2.92	SLU 69	0.24	No
ini.	3	0	-0.4927	8.07			7.76	2.92	SLU 81	0.36	No
fin.	3	0	0.4281	-12.96			7.76	2.92	SLU 81	0.23	No
ini.	3	0	-0.667	7.57			7.76	2.92	SLU 79	0.39	No
fin.	3	0	0.0705	-12.83			7.76	2.92	SLU 79	0.23	No
ini.	3	0	-0.6399	7.67			7.76	2.92	SLU 77	0.38	No
fin.	3	0	0.1078	-13.11			7.76	2.92	SLU 77	0.22	No
ini.	3	0	-0.374	7.36			7.76	2.92	SLU 75	0.4	No
fin.	3	0	0.4564	-12.11			7.76	2.92	SLU 75	0.24	No
ini.	3	0	-0.4675	7.77			7.76	2.92	SLU 84	0.38	No
fin.	3	0	0.444	-12.29			7.76	2.92	SLU 84	0.24	No
ini.	3	0	-0.3471	7.77			7.76	2.92	SLU 82	0.38	No
fin.	3	0	0.6104	-12.12			7.76	2.92	SLU 82	0.24	No
ini.	3	0	-0.613	8.08			7.76	2.92	SLU 83	0.36	No
fin.	3	0	0.2617	-13.13			7.76	2.92	SLU 83	0.22	No
ini.	3	0	-0.5195	7.67			7.76	2.92	SLU 74	0.38	No
fin.	3	0	0.2742	-12.95			7.76	2.92	SLU 74	0.23	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.4944	7.36			7.76	2.92	SLU 78	0.4	No
fin.	3	0	0.29	-12.28			7.76	2.92	SLU 78	0.24	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	21.4	-2.1495	9.0194	SLV 15	4.2	Si
fin.	2	25.63	4.8787	9.0194	SLV 15	1.85	Si
ini.	2	-22.58	1.6773	9.0194	SLV 2	5.38	Si
fin.	2	-27.74	-4.3164	9.0194	SLV 2	2.09	Si
ini.	2	-32.22	-0.6345	9.0194	SLV 4	14.22	Si
fin.	2	-36.42	-5.905	9.0194	SLV 4	1.53	Si
ini.	2	23.54	3.3896	9.0194	SLV 10	2.66	Si
fin.	2	22.71	4.5463	9.0194	SLV 10	1.98	Si
ini.	2	23.54	3.3896	9.0194	SLV 9	2.66	Si
fin.	2	22.71	4.5463	9.0194	SLV 9	1.98	Si
ini.	2	-32.22	-0.6345	9.0194	SLV 3	14.22	Si
fin.	2	-36.42	-5.905	9.0194	SLV 3	1.53	Si
ini.	2	31.05	0.1623	9.0194	SLV 14	55.59	Si
fin.	2	34.31	6.4673	9.0194	SLV 14	1.39	Si
ini.	2	21.4	-2.1495	9.0194	SLV 16	4.2	Si
fin.	2	25.63	4.8787	9.0194	SLV 16	1.85	Si
ini.	2	31.05	0.1623	9.0194	SLV 13	55.59	Si
fin.	2	34.31	6.4673	9.0194	SLV 13	1.39	Si
ini.	2	-22.58	1.6773	9.0194	SLV 1	5.38	Si
fin.	2	-27.74	-4.3164	9.0194	SLV 1	2.09	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1.6773	-13.35			11.65	4.38	SLV 2	0.33	No
fin.	2	0	-4.3164	-31.92			11.65	4.38	SLV 2	0.14	No
ini.	2	0	-2.1495	23.53			11.65	4.38	SLV 16	0.19	No
fin.	2	0	4.8787	14.3			11.65	4.38	SLV 16	0.31	No
ini.	2	0	3.8441	-10.36			11.65	4.38	SLV 6	0.42	No
fin.	2	0	1.3112	-26.1			11.65	4.38	SLV 6	0.17	No
ini.	2	0	-4.3163	20.54			11.65	4.38	SLV 11	0.21	No
fin.	2	0	-0.7489	8.48			11.65	4.38	SLV 11	0.52	No
ini.	2	0	1.6773	-13.35			11.65	4.38	SLV 1	0.33	No
fin.	2	0	-4.3164	-31.92			11.65	4.38	SLV 1	0.14	No
ini.	2	0	-0.6345	-6.82			11.65	4.38	SLV 4	0.64	No
fin.	2	0	-5.905	-25.08			11.65	4.38	SLV 4	0.17	No
ini.	2	0	-0.6345	-6.82			11.65	4.38	SLV 3	0.64	No
fin.	2	0	-5.905	-25.08			11.65	4.38	SLV 3	0.17	No
ini.	2	0	3.8441	-10.36			11.65	4.38	SLV 5	0.42	No
fin.	2	0	1.3112	-26.1			11.65	4.38	SLV 5	0.17	No
ini.	2	0	-2.1495	23.53			11.65	4.38	SLV 15	0.19	No
fin.	2	0	4.8787	14.3			11.65	4.38	SLV 15	0.31	No
ini.	2	0	-4.3163	20.54			11.65	4.38	SLV 12	0.21	No
fin.	2	0	-0.7489	8.48			11.65	4.38	SLV 12	0.52	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		1.395	SLV 13
V_SLV		0.137	SLV 1
PF_SLU		10.225	SLU 73
V_SLU		0.223	SLU 83

## Trave di accoppiamento 75

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.363	-3.359	4.83	5.73	0.9	-18.263	-3.359	4.83	5.73	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	4.84	-3.7093	10.3792	SLU 73	2.8	Si
fin.	3	-16.48	6.8986	10.3792	SLU 73	1.5	Si
ini.	3	3.41	-3.0168	10.3792	SLU 55	3.44	Si
fin.	3	-15.18	6.094	10.3792	SLU 55	1.7	Si
ini.	3	4	-3.2428	10.3792	SLU 76	3.2	Si
fin.	3	-15.7	6.5236	10.3792	SLU 76	1.59	Si
ini.	3	4.54	-3.4135	10.3792	SLU 82	3.04	Si
fin.	3	-16.31	6.8113	10.3792	SLU 82	1.52	Si
ini.	3	3.7	-2.947	10.3792	SLU 84	3.52	Si
fin.	3	-15.54	6.4363	10.3792	SLU 84	1.61	Si
ini.	3	4.25	-3.4833	10.3792	SLU 52	2.98	Si
fin.	3	-15.95	6.4689	10.3792	SLU 52	1.6	Si
ini.	3	4.25	-3.5109	10.3792	SLU 65	2.96	Si
fin.	3	-15.7	6.3824	10.3792	SLU 65	1.63	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	3.95	-3.1876	10.3792	SLU 61	3.26	Si
fin.	3	-15.78	6.3816	10.3792	SLU 61	1.63	Si
ini.	3	3.7	-2.8424	10.3792	SLU 81	3.65	Si
fin.	3	-15.56	6.3486	10.3792	SLU 81	1.63	Si
ini.	3	3.77	-3.0203	10.3792	SLU 75	3.44	Si
fin.	3	-15.48	6.3724	10.3792	SLU 75	1.63	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.8424	3.63			9.7	3.65	SLU 81	1.01	Si
fin.	3	0	6.3486	36.38			9.7	3.65	SLU 81	0.1	No
ini.	3	0	-3.0203	4.1			9.7	3.65	SLU 75	0.89	No
fin.	3	0	6.3724	36.19			9.7	3.65	SLU 75	0.1	No
ini.	3	0	-3.4833	6.73			9.7	3.65	SLU 52	0.54	No
fin.	3	0	6.4689	35.77			9.7	3.65	SLU 52	0.1	No
ini.	3	0	-2.947	3.8			9.7	3.65	SLU 84	0.96	No
fin.	3	0	6.4363	36.41			9.7	3.65	SLU 84	0.1	No
ini.	3	0	-3.1876	5.38			9.7	3.65	SLU 61	0.68	No
fin.	3	0	6.3816	35.84			9.7	3.65	SLU 61	0.1	No
ini.	3	0	-2.3759	1.48			9.7	3.65	SLU 83	2.47	Si
fin.	3	0	5.9736	34.92			9.7	3.65	SLU 83	0.1	No
ini.	3	0	-3.5109	6.83			9.7	3.65	SLU 65	0.53	No
fin.	3	0	6.3824	35.32			9.7	3.65	SLU 65	0.1	No
ini.	3	0	-3.7093	7.3			9.7	3.65	SLU 73	0.5	No
fin.	3	0	6.8986	37.8			9.7	3.65	SLU 73	0.1	No
ini.	3	0	-3.2428	5.14			9.7	3.65	SLU 76	0.71	No
fin.	3	0	6.5236	36.34			9.7	3.65	SLU 76	0.1	No
ini.	3	0	-3.4135	5.95			9.7	3.65	SLU 82	0.61	No
fin.	3	0	6.8113	37.87			9.7	3.65	SLU 82	0.1	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-30.05	12.386	12.1694	SLV 3	0.98	No
fin.	2	8.26	-6.8242	12.1694	SLV 3	1.78	Si
ini.	2	34.54	-16.337	12.1694	SLV 14	0.74	No
fin.	2	-30.71	15.563	12.1694	SLV 14	0.78	No
ini.	2	33.41	-11.82	12.1694	SLV 9	1.03	Si
fin.	2	-28.77	14.9828	12.1694	SLV 9	0.81	No
ini.	2	-30.05	12.386	12.1694	SLV 4	0.98	No
fin.	2	8.26	-6.8242	12.1694	SLV 4	1.78	Si
ini.	2	33.41	-11.82	12.1694	SLV 10	1.03	Si
fin.	2	-28.77	14.9828	12.1694	SLV 10	0.81	No
ini.	2	18.28	-4.2981	12.1694	SLV 6	2.83	Si
fin.	2	-19.39	9.7018	12.1694	SLV 6	1.25	Si
ini.	2	34.54	-16.337	12.1694	SLV 13	0.74	No
fin.	2	-30.71	15.563	12.1694	SLV 13	0.78	No
ini.	2	20.38	-12.6869	12.1694	SLV 15	0.96	No
fin.	2	-23	10.7792	12.1694	SLV 15	1.13	Si
ini.	2	20.38	-12.6869	12.1694	SLV 16	0.96	No
fin.	2	-23	10.7792	12.1694	SLV 16	1.13	Si
ini.	2	18.28	-4.2981	12.1694	SLV 5	2.83	Si
fin.	2	-19.39	9.7018	12.1694	SLV 5	1.25	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-16.337	65.46			14.56	5.48	SLV 13	0.08	No
fin.	2	0	15.563	76.86			14.56	5.48	SLV 13	0.07	No
ini.	2	0	-4.2981	20.04			14.56	5.48	SLV 5	0.27	No
fin.	2	0	9.7018	56.13			14.56	5.48	SLV 5	0.1	No
ini.	2	0	-12.6869	45.26			14.56	5.48	SLV 16	0.12	No
fin.	2	0	10.7792	51.53			14.56	5.48	SLV 16	0.11	No
ini.	2	0	12.386	-60.89			14.56	5.48	SLV 4	0.09	No
fin.	2	0	-6.8242	-25.81			14.56	5.48	SLV 4	0.21	No
ini.	2	0	-4.2981	20.04			14.56	5.48	SLV 6	0.27	No
fin.	2	0	9.7018	56.13			14.56	5.48	SLV 6	0.1	No
ini.	2	0	-11.82	51.89			14.56	5.48	SLV 9	0.11	No
fin.	2	0	14.9828	79.34			14.56	5.48	SLV 9	0.07	No
ini.	2	0	-11.82	51.89			14.56	5.48	SLV 10	0.11	No
fin.	2	0	14.9828	79.34			14.56	5.48	SLV 10	0.07	No
ini.	2	0	-16.337	65.46			14.56	5.48	SLV 14	0.08	No
fin.	2	0	15.563	76.86			14.56	5.48	SLV 14	0.07	No
ini.	2	0	-12.6869	45.26			14.56	5.48	SLV 15	0.12	No
fin.	2	0	10.7792	51.53			14.56	5.48	SLV 15	0.11	No
ini.	2	0	12.386	-60.89			14.56	5.48	SLV 3	0.09	No
fin.	2	0	-6.8242	-25.81			14.56	5.48	SLV 3	0.21	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.745	SLV 13	No
V_SLV	0.069	SLV 9	No
PF_SLU	1.505	SLU 73	Si
V_SLU	0.096	SLU 82	No

## Trave di accoppiamento 76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.363	-3.359	7.53	8.35	0.82	-18.263	-3.359	7.53	8.35	0.82	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-10.38	-2.6578	8.9792	SLU 60	3.38	Si
fin.	3	-2.54	0.7424	8.9792	SLU 60	12.1	Si
ini.	3	-10.83	-2.7767	8.9792	SLU 81	3.23	Si
fin.	3	-2.93	0.7011	8.9792	SLU 81	12.81	Si
ini.	3	-10.9	-2.5579	8.9792	SLU 76	3.51	Si
fin.	3	-2.45	1.1261	8.9792	SLU 76	7.97	Si
ini.	3	-11.65	-2.7037	8.9792	SLU 52	3.32	Si
fin.	3	-0.95	1.5851	8.9792	SLU 52	5.66	Si
ini.	3	-10.77	-2.5169	8.9792	SLU 65	3.57	Si
fin.	3	-0.67	1.563	8.9792	SLU 65	5.74	Si
ini.	3	-10.35	-2.5632	8.9792	SLU 75	3.5	Si
fin.	3	-2.6	0.8864	8.9792	SLU 75	10.13	Si
ini.	3	-11.93	-2.8828	8.9792	SLU 82	3.11	Si
fin.	3	-2.15	1.2017	8.9792	SLU 82	7.47	Si
ini.	3	-10.73	-2.6181	8.9792	SLU 84	3.43	Si
fin.	3	-3.26	0.784	8.9792	SLU 84	11.45	Si
ini.	3	-12.1	-2.8226	8.9792	SLU 73	3.18	Si
fin.	3	-1.34	1.5438	8.9792	SLU 73	5.82	Si
ini.	3	-11.49	-2.7639	8.9792	SLU 61	3.25	Si
fin.	3	-1.76	1.243	8.9792	SLU 61	7.22	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.7767	26.38			8.06	3.03	SLU 81	0.11	No
fin.	3	0	0.7011	-11.08			8.06	3.03	SLU 81	0.27	No
ini.	3	0	-2.6578	24.59			8.06	3.03	SLU 60	0.12	No
fin.	3	0	0.7424	-9.45			8.06	3.03	SLU 60	0.32	No
ini.	3	0	-2.7037	24.55			8.06	3.03	SLU 52	0.12	No
fin.	3	0	1.5851	-4.77			8.06	3.03	SLU 52	0.64	No
ini.	3	0	-2.5579	24.79			8.06	3.03	SLU 76	0.12	No
fin.	3	0	1.1261	-8.42			8.06	3.03	SLU 76	0.36	No
ini.	3	0	-2.8828	27.03			8.06	3.03	SLU 82	0.11	No
fin.	3	0	1.2017	-8.66			8.06	3.03	SLU 82	0.35	No
ini.	3	0	-2.5632	25			8.06	3.03	SLU 75	0.12	No
fin.	3	0	0.8864	-9.81			8.06	3.03	SLU 75	0.31	No
ini.	3	0	-2.512	24.83			8.06	3.03	SLU 83	0.12	No
fin.	3	0	0.2834	-13.1			8.06	3.03	SLU 83	0.23	No
ini.	3	0	-2.7639	25.24			8.06	3.03	SLU 61	0.12	No
fin.	3	0	1.243	-7.03			8.06	3.03	SLU 61	0.43	No
ini.	3	0	-2.8226	26.34			8.06	3.03	SLU 73	0.12	No
fin.	3	0	1.5438	-6.4			8.06	3.03	SLU 73	0.47	No
ini.	3	0	-2.6181	25.48			8.06	3.03	SLU 84	0.12	No
fin.	3	0	0.784	-10.68			8.06	3.03	SLU 84	0.28	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.94	-3.9812	10.7694	SLV 15	2.71	Si
fin.	2	22.49	7.6529	10.7694	SLV 15	1.41	Si
ini.	2	-9.27	-9.8007	10.7694	SLV 9	1.1	Si
fin.	2	32.76	9.8528	10.7694	SLV 9	1.09	Si
ini.	2	-9.94	-3.9812	10.7694	SLV 16	2.71	Si
fin.	2	22.49	7.6529	10.7694	SLV 16	1.41	Si
ini.	2	-3.65	4.279	10.7694	SLV 3	2.52	Si
fin.	2	-40.68	-10.4673	10.7694	SLV 3	1.03	Si
ini.	2	-10.65	-8.0015	10.7694	SLV 14	1.35	Si
fin.	2	37.44	11.5953	10.7694	SLV 14	0.93	No
ini.	2	-9.27	-9.8007	10.7694	SLV 10	1.1	Si
fin.	2	32.76	9.8528	10.7694	SLV 10	1.09	Si
ini.	2	-10.65	-8.0015	10.7694	SLV 13	1.35	Si
fin.	2	37.44	11.5953	10.7694	SLV 13	0.93	No
ini.	2	-5.03	6.0783	10.7694	SLV 8	1.77	Si
fin.	2	-36.01	-8.7248	10.7694	SLV 8	1.23	Si
ini.	2	-5.03	6.0783	10.7694	SLV 7	1.77	Si
fin.	2	-36.01	-8.7248	10.7694	SLV 7	1.23	Si
ini.	2	-3.65	4.279	10.7694	SLV 4	2.52	Si
fin.	2	-40.68	-10.4673	10.7694	SLV 4	1.03	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	6.0783	-19.14			12.08	4.55	SLV 7	0.24	No
fin.	2	0	-8.7248	-38.15			12.08	4.55	SLV 7	0.12	No
ini.	2	0	-7.3227	40.13			12.08	4.55	SLV 5	0.11	No
fin.	2	0	4.4167	3.97			12.08	4.55	SLV 5	1.15	Si
ini.	2	0	-9.8007	54.67			12.08	4.55	SLV 10	0.08	No
fin.	2	0	9.8528	24.25			12.08	4.55	SLV 10	0.19	No
ini.	2	0	-7.3227	40.13			12.08	4.55	SLV 6	0.11	No
fin.	2	0	4.4167	3.97			12.08	4.55	SLV 6	1.15	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.279	-15.36			12.08	4.55	SLV 4	0.3	No
fin.	2	0	-10.4673	-47.06			12.08	4.55	SLV 4	0.1	No
ini.	2	0	4.279	-15.36			12.08	4.55	SLV 3	0.3	No
fin.	2	0	-10.4673	-47.06			12.08	4.55	SLV 3	0.1	No
ini.	2	0	6.0783	-19.14			12.08	4.55	SLV 8	0.24	No
fin.	2	0	-8.7248	-38.15			12.08	4.55	SLV 8	0.12	No
ini.	2	0	-9.8007	54.67			12.08	4.55	SLV 9	0.08	No
fin.	2	0	9.8528	24.25			12.08	4.55	SLV 9	0.19	No
ini.	2	0	-8.0015	50.89			12.08	4.55	SLV 14	0.09	No
fin.	2	0	11.5953	33.16			12.08	4.55	SLV 14	0.14	No
ini.	2	0	-8.0015	50.89			12.08	4.55	SLV 13	0.09	No
fin.	2	0	11.5953	33.16			12.08	4.55	SLV 13	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.929	SLV 13	No
V_SLV	0.083	SLV 9	No
PF_SLU	3.115	SLU 82	Si
V_SLU	0.112	SLU 82	No

## Trave di accoppiamento 77

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.053	-4.862	8.09	8.35	0.26	-17.053	-3.772	8.09	8.35	0.26	1.09	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.02	0.1314	1.0289	SLU 41	7.83	Si
fin.	3	0.02	0.429	1.0289	SLU 41	2.4	Si
ini.	3	0.01	0.1241	1.0289	SLU 18	8.29	Si
fin.	3	0.01	0.4591	1.0289	SLU 18	2.24	Si
ini.	3	0.02	0.1632	1.0289	SLU 81	6.3	Si
fin.	3	0.02	0.5734	1.0289	SLU 81	1.79	Si
ini.	3	0.01	0.111	1.0289	SLU 39	9.27	Si
fin.	3	0.01	0.6305	1.0289	SLU 39	1.63	Si
ini.	3	0.03	0.2523	1.0289	SLU 50	4.08	Si
fin.	3	0.03	-0.4547	1.0289	SLU 50	2.26	Si
ini.	3	0.07	0.1651	1.0289	SLU 40	6.23	Si
fin.	3	0.07	0.6036	1.0289	SLU 40	1.7	Si
ini.	3	0.1	0.2117	1.0289	SLU 31	4.86	Si
fin.	3	0.1	0.4495	1.0289	SLU 31	2.29	Si
ini.	3	0.07	0.2173	1.0289	SLU 82	4.73	Si
fin.	3	0.07	0.5465	1.0289	SLU 82	1.88	Si
ini.	3	0.06	0.1782	1.0289	SLU 19	5.78	Si
fin.	3	0.06	0.4322	1.0289	SLU 19	2.38	Si
ini.	3	0.08	0.3063	1.0289	SLU 51	3.36	Si
fin.	3	0.08	-0.4816	1.0289	SLU 51	2.14	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.2862	0.26			2	0.75	SLU 70	2.94	Si
fin.	3	0	-0.2373	-1.22			2	0.75	SLU 70	0.62	No
ini.	3	0	0.2452	0.16			2	0.75	SLU 48	4.68	Si
fin.	3	0	-0.3817	-1.31			2	0.75	SLU 48	0.57	No
ini.	3	0	0.2932	0.18			2	0.75	SLU 72	4.13	Si
fin.	3	0	-0.3102	-1.29			2	0.75	SLU 72	0.58	No
ini.	3	0	0.2789	0.29			2	0.75	SLU 46	2.59	Si
fin.	3	0	-0.2071	-1.18			2	0.75	SLU 46	0.64	No
ini.	3	0	0.2541	-0.06			2	0.75	SLU 9	13.42	Si
fin.	3	0	-0.4245	-1.19			2	0.75	SLU 9	0.63	No
ini.	3	0	0.2392	0.26			2	0.75	SLU 71	2.93	Si
fin.	3	0	-0.2833	-1.22			2	0.75	SLU 71	0.62	No
ini.	3	0	0.3063	0.01			2	0.75	SLU 51	56.14	Si
fin.	3	0	-0.4816	-1.46			2	0.75	SLU 51	0.52	No
ini.	3	0	0.2523	0.09			2	0.75	SLU 50	8.59	Si
fin.	3	0	-0.4547	-1.38			2	0.75	SLU 50	0.54	No
ini.	3	0	0.322	0.17			2	0.75	SLU 47	4.5	Si
fin.	3	0	-0.298	-1.31			2	0.75	SLU 47	0.58	No
ini.	3	0	0.2993	0.09			2	0.75	SLU 49	8.68	Si
fin.	3	0	-0.4086	-1.39			2	0.75	SLU 49	0.54	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1.17	-0.3294	1.5434	SLV 10	4.68	Si
fin.	2	2.74	5.6342	1.5434	SLV 10	0.27	No
ini.	2	0.92	-0.2305	1.5434	SLV 5	6.69	Si
fin.	2	2.43	4.2058	1.5434	SLV 5	0.37	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1.14	0.6263	1.5434	SLV 7	2.46	Si
fin.	2	-2.71	-5.344	1.5434	SLV 7	0.29	No
ini.	2	-0.89	0.5274	1.5434	SLV 12	2.93	Si
fin.	2	-2.41	-3.9155	1.5434	SLV 12	0.39	No
ini.	2	1.17	-0.3294	1.5434	SLV 9	4.68	Si
fin.	2	2.74	5.6342	1.5434	SLV 9	0.27	No
ini.	2	-0.89	0.5274	1.5434	SLV 11	2.93	Si
fin.	2	-2.41	-3.9155	1.5434	SLV 11	0.39	No
ini.	2	0.73	-0.1449	1.5434	SLV 14	10.65	Si
fin.	2	1.29	3.9584	1.5434	SLV 14	0.39	No
ini.	2	0.73	-0.1449	1.5434	SLV 13	10.65	Si
fin.	2	1.29	3.9584	1.5434	SLV 13	0.39	No
ini.	2	-1.14	0.6263	1.5434	SLV 8	2.46	Si
fin.	2	-2.71	-5.344	1.5434	SLV 8	0.29	No
ini.	2	0.92	-0.2305	1.5434	SLV 6	6.69	Si
fin.	2	2.43	4.2058	1.5434	SLV 6	0.37	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	0.5274	-2.72			3	1.13	SLV 11	0.42	No
fin.	2	0	-3.9155	-4.09			3	1.13	SLV 11	0.28	No
ini.	2	0	-0.1449	3.95			3	1.13	SLV 14	0.29	No
fin.	2	0	3.9584	2.29			3	1.13	SLV 14	0.49	No
ini.	2	0	0.6263	-4.04			3	1.13	SLV 8	0.28	No
fin.	2	0	-5.344	-5.08			3	1.13	SLV 8	0.22	No
ini.	2	0	-0.2305	3.85			3	1.13	SLV 5	0.29	No
fin.	2	0	4.2058	2.95			3	1.13	SLV 5	0.38	No
ini.	2	0	-0.2305	3.85			3	1.13	SLV 6	0.29	No
fin.	2	0	4.2058	2.95			3	1.13	SLV 6	0.38	No
ini.	2	0	-0.3294	5.17			3	1.13	SLV 9	0.22	No
fin.	2	0	5.6342	3.95			3	1.13	SLV 9	0.29	No
ini.	2	0	0.6263	-4.04			3	1.13	SLV 7	0.28	No
fin.	2	0	-5.344	-5.08			3	1.13	SLV 7	0.22	No
ini.	2	0	-0.3294	5.17			3	1.13	SLV 10	0.22	No
fin.	2	0	5.6342	3.95			3	1.13	SLV 10	0.29	No
ini.	2	0	-0.1449	3.95			3	1.13	SLV 13	0.29	No
fin.	2	0	3.9584	2.29			3	1.13	SLV 13	0.49	No
ini.	2	0	0.5274	-2.72			3	1.13	SLV 12	0.42	No
fin.	2	0	-3.9155	-4.09			3	1.13	SLV 12	0.28	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.274	SLV 9	No
V_SLV	0.219	SLV 9	No
PF_SLU	1.632	SLU 39	Si
V_SLU	0.516	SLU 51	No

## Trave di accoppiamento 78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.433	-3.359	6.93	8.35	1.42	-16.333	-3.359	6.93	8.35	1.42	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-12.35	-15.1364	19.4792	SLU 65	1.29	Si
fin.	3	-12.35	15.0399	19.4792	SLU 65	1.3	Si
ini.	3	-14.13	-14.7822	19.4792	SLU 81	1.32	Si
fin.	3	-14.13	14.6811	19.4792	SLU 81	1.33	Si
ini.	3	-13.96	-16.3037	19.4792	SLU 73	1.19	Si
fin.	3	-13.96	16.5136	19.4792	SLU 73	1.18	Si
ini.	3	-13.57	-14.7924	19.4792	SLU 52	1.32	Si
fin.	3	-13.57	14.9408	19.4792	SLU 52	1.3	Si
ini.	3	-14.44	-15.9952	19.4792	SLU 82	1.22	Si
fin.	3	-14.44	16.1596	19.4792	SLU 82	1.21	Si
ini.	3	-13.05	-15.1701	19.4792	SLU 76	1.28	Si
fin.	3	-13.05	15.3062	19.4792	SLU 76	1.27	Si
ini.	3	-14.05	-14.484	19.4792	SLU 61	1.34	Si
fin.	3	-14.05	14.5868	19.4792	SLU 61	1.34	Si
ini.	3	-11.42	-14.0246	19.4792	SLU 31	1.39	Si
fin.	3	-11.42	14.3893	19.4792	SLU 31	1.35	Si
ini.	3	-13.53	-14.8617	19.4792	SLU 84	1.31	Si
fin.	3	-13.53	14.9521	19.4792	SLU 84	1.3	Si
ini.	3	-12.88	-14.8803	19.4792	SLU 75	1.31	Si
fin.	3	-12.88	14.7839	19.4792	SLU 75	1.32	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-14.8617	41.11			15.31	5.76	SLU 84	0.14	No
fin.	3	0	14.9521	24.73			15.31	5.76	SLU 84	0.23	No
ini.	3	0	-14.7924	39.61			15.31	5.76	SLU 52	0.15	No
fin.	3	0	14.9408	26.03			15.31	5.76	SLU 52	0.22	No
ini.	3	0	-14.8803	40.47			15.31	5.76	SLU 75	0.14	No
fin.	3	0	14.7839	25.04			15.31	5.76	SLU 75	0.23	No
ini.	3	0	-15.1364	39.93			15.31	5.76	SLU 65	0.14	No
fin.	3	0	15.0399	26.71			15.31	5.76	SLU 65	0.22	No
ini.	3	0	-13.6486	38.12			15.31	5.76	SLU 83	0.15	No
fin.	3	0	13.4737	21.74			15.31	5.76	SLU 83	0.27	No
ini.	3	0	-16.3037	43.97			15.31	5.76	SLU 73	0.13	No
fin.	3	0	16.5136	28.54			15.31	5.76	SLU 73	0.2	No
ini.	3	0	-14.484	39.35			15.31	5.76	SLU 61	0.15	No
fin.	3	0	14.5868	24.82			15.31	5.76	SLU 61	0.23	No
ini.	3	0	-15.1701	41.37			15.31	5.76	SLU 76	0.14	No
fin.	3	0	15.3062	25.94			15.31	5.76	SLU 76	0.22	No
ini.	3	0	-14.7822	40.72			15.31	5.76	SLU 81	0.14	No
fin.	3	0	14.6811	24.34			15.31	5.76	SLU 81	0.24	No
ini.	3	0	-15.9952	43.71			15.31	5.76	SLU 82	0.13	No
fin.	3	0	16.1596	27.33			15.31	5.76	SLU 82	0.21	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-29.99	26.9485	21.2694	SLV 3	0.79	No
fin.	2	-32.61	-17.0079	21.2694	SLV 3	1.25	Si
ini.	2	11.03	-47.1275	21.2694	SLV 14	0.45	No
fin.	2	13.65	36.5061	21.2694	SLV 14	0.58	No
ini.	2	-29.99	26.9485	21.2694	SLV 4	0.79	No
fin.	2	-32.61	-17.0079	21.2694	SLV 4	1.25	Si
ini.	2	1.57	-39.2481	21.2694	SLV 15	0.54	No
fin.	2	4.8	35.3178	21.2694	SLV 15	0.6	No
ini.	2	1.57	-39.2481	21.2694	SLV 16	0.54	No
fin.	2	4.8	35.3178	21.2694	SLV 16	0.6	No
ini.	2	11.03	-47.1275	21.2694	SLV 13	0.45	No
fin.	2	13.65	36.5061	21.2694	SLV 13	0.58	No
ini.	2	11.03	-33.1513	21.2694	SLV 9	0.64	No
fin.	2	10.89	19.5783	21.2694	SLV 9	1.09	Si
ini.	2	-0.72	-25.968	21.2694	SLD 13	0.82	No
fin.	2	0.42	21.244	21.2694	SLD 13	1	Si
ini.	2	11.03	-33.1513	21.2694	SLV 10	0.64	No
fin.	2	10.89	19.5783	21.2694	SLV 10	1.09	Si
ini.	2	-0.72	-25.968	21.2694	SLD 14	0.82	No
fin.	2	0.42	21.244	21.2694	SLD 14	1	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-33.1513	72.98			22.97	8.64	SLV 9	0.12	No
fin.	2	0	19.5783	55.77			22.97	8.64	SLV 9	0.15	No
ini.	2	0	26.9485	-48.13			22.97	8.64	SLV 4	0.18	No
fin.	2	0	-17.0079	-55.54			22.97	8.64	SLV 4	0.16	No
ini.	2	0	-33.1513	72.98			22.97	8.64	SLV 10	0.12	No
fin.	2	0	19.5783	55.77			22.97	8.64	SLV 10	0.15	No
ini.	2	0	-25.968	59.39			22.97	8.64	SLD 14	0.15	No
fin.	2	0	21.244	47.68			22.97	8.64	SLD 14	0.18	No
ini.	2	0	-47.1275	102.29			22.97	8.64	SLV 13	0.08	No
fin.	2	0	36.5061	88.91			22.97	8.64	SLV 13	0.1	No
ini.	2	0	-47.1275	102.29			22.97	8.64	SLV 14	0.08	No
fin.	2	0	36.5061	88.91			22.97	8.64	SLV 14	0.1	No
ini.	2	0	-39.2481	86.9			22.97	8.64	SLV 15	0.1	No
fin.	2	0	35.3178	77.42			22.97	8.64	SLV 15	0.11	No
ini.	2	0	-39.2481	86.9			22.97	8.64	SLV 16	0.1	No
fin.	2	0	35.3178	77.42			22.97	8.64	SLV 16	0.11	No
ini.	2	0	-25.968	59.39			22.97	8.64	SLD 13	0.15	No
fin.	2	0	21.244	47.68			22.97	8.64	SLD 13	0.18	No
ini.	2	0	26.9485	-48.13			22.97	8.64	SLV 3	0.18	No
fin.	2	0	-17.0079	-55.54			22.97	8.64	SLV 3	0.16	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.451	SLV 13	No
V_SLV	0.085	SLV 13	No
PF_SLU	1.18	SLU 73	Si
V_SLU	0.131	SLU 73	No

#### Trave di accoppiamento 79

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-14.438	-4.859	8.09	8.35	0.26	-16.278	-4.859	8.09	8.35	0.26	1.84	0.3	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.04	-0.0318	1.0289	SLU 79	32.31	Si
fin.	3	-0.04	-0.7386	1.0289	SLU 79	1.39	Si
ini.	3	-0.11	-0.0816	1.0289	SLU 78	12.61	Si
fin.	3	-0.11	-0.6914	1.0289	SLU 78	1.49	Si
ini.	3	-0.05	-0.05	1.0289	SLU 77	20.57	Si
fin.	3	-0.05	-0.7208	1.0289	SLU 77	1.43	Si
ini.	3	-0.03	0.151	1.0289	SLU 37	6.81	Si
fin.	3	-0.03	-0.7448	1.0289	SLU 37	1.38	Si
ini.	3	-0.1	0.1013	1.0289	SLU 36	10.16	Si
fin.	3	-0.1	-0.6975	1.0289	SLU 36	1.48	Si
ini.	3	-0.09	0.1195	1.0289	SLU 38	8.61	Si
fin.	3	-0.09	-0.7153	1.0289	SLU 38	1.44	Si
ini.	3	-0.1	-0.0634	1.0289	SLU 80	16.23	Si
fin.	3	-0.1	-0.7091	1.0289	SLU 80	1.45	Si
ini.	3	-0.17	-0.6894	1.0289	SLU 44	1.49	Si
fin.	3	-0.17	-0.0818	1.0289	SLU 44	12.58	Si
ini.	3	-0.08	0.0846	1.0289	SLU 41	12.16	Si
fin.	3	-0.08	-0.6808	1.0289	SLU 41	1.51	Si
ini.	3	-0.03	0.1328	1.0289	SLU 35	7.75	Si
fin.	3	-0.03	-0.727	1.0289	SLU 35	1.42	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-0.0816	0.9			2	0.75	SLU 78	0.84	No
fin.	3	0	-0.6914	-1.56			2	0.75	SLU 78	0.48	No
ini.	3	0	-0.1861	1.02			2	0.75	SLU 56	0.74	No
fin.	3	0	-0.5829	-1.45			2	0.75	SLU 56	0.52	No
ini.	3	0	-0.0634	0.88			2	0.75	SLU 80	0.86	No
fin.	3	0	-0.7091	-1.58			2	0.75	SLU 80	0.48	No
ini.	3	0	-0.0318	0.85			2	0.75	SLU 79	0.89	No
fin.	3	0	-0.7386	-1.62			2	0.75	SLU 79	0.47	No
ini.	3	0	-0.0982	0.92			2	0.75	SLU 83	0.82	No
fin.	3	0	-0.6746	-1.54			2	0.75	SLU 83	0.49	No
ini.	3	0	-0.6368	1.51			2	0.75	SLU 43	0.5	No
fin.	3	0	-0.1309	-0.96			2	0.75	SLU 43	0.79	No
ini.	3	0	-0.6894	1.56			2	0.75	SLU 44	0.48	No
fin.	3	0	-0.0818	-0.9			2	0.75	SLU 44	0.84	No
ini.	3	0	-0.1679	1			2	0.75	SLU 58	0.76	No
fin.	3	0	-0.6007	-1.47			2	0.75	SLU 58	0.51	No
ini.	3	0	-0.05	0.87			2	0.75	SLU 77	0.87	No
fin.	3	0	-0.7208	-1.6			2	0.75	SLU 77	0.47	No
ini.	3	0	-0.1297	0.95			2	0.75	SLU 84	0.79	No
fin.	3	0	-0.6452	-1.51			2	0.75	SLU 84	0.5	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2.36	4.3111	1.5434	SLV 4	0.36	No
fin.	2	1.86	-4.7081	1.5434	SLV 4	0.33	No
ini.	2	2.28	5.2592	1.5434	SLV 1	0.29	No
fin.	2	2.21	-5.6632	1.5434	SLV 1	0.27	No
ini.	2	2.36	4.3111	1.5434	SLV 3	0.36	No
fin.	2	1.86	-4.7081	1.5434	SLV 3	0.33	No
ini.	2	-2.49	-5.0378	1.5434	SLV 14	0.31	No
fin.	2	-1.99	4.2499	1.5434	SLV 14	0.36	No
ini.	2	-2.41	-5.986	1.5434	SLV 15	0.26	No
fin.	2	-2.34	5.205	1.5434	SLV 15	0.3	No
ini.	2	-2.41	-5.986	1.5434	SLV 16	0.26	No
fin.	2	-2.34	5.205	1.5434	SLV 16	0.3	No
ini.	2	2.28	5.2592	1.5434	SLV 2	0.29	No
fin.	2	2.21	-5.6632	1.5434	SLV 2	0.27	No
ini.	2	-2.49	-5.0378	1.5434	SLV 13	0.31	No
fin.	2	-1.99	4.2499	1.5434	SLV 13	0.36	No
ini.	2	-0.64	-3.4882	1.5434	SLV 12	0.44	No
fin.	2	-1.26	2.8496	1.5434	SLV 12	0.54	No
ini.	2	-0.64	-3.4882	1.5434	SLV 11	0.44	No
fin.	2	-1.26	2.8496	1.5434	SLV 11	0.54	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	4.3111	-4.21			3	1.13	SLV 4	0.27	No
fin.	2	0	-4.7081	-6.23			3	1.13	SLV 4	0.18	No
ini.	2	0	4.3111	-4.21			3	1.13	SLV 3	0.27	No
fin.	2	0	-4.7081	-6.23			3	1.13	SLV 3	0.18	No
ini.	2	0	-5.986	7.04			3	1.13	SLV 16	0.16	No
fin.	2	0	5.205	4.79			3	1.13	SLV 16	0.24	No
ini.	2	0	-3.4882	4.02			3	1.13	SLV 12	0.28	No
fin.	2	0	2.8496	1.29			3	1.13	SLV 12	0.88	No
ini.	2	0	-3.4882	4.02			3	1.13	SLV 11	0.28	No
fin.	2	0	2.8496	1.29			3	1.13	SLV 11	0.88	No
ini.	2	0	5.2592	-5			3	1.13	SLV 1	0.23	No
fin.	2	0	-5.6632	-6.54			3	1.13	SLV 1	0.17	No
ini.	2	0	-5.0378	6.25			3	1.13	SLV 14	0.18	No
fin.	2	0	4.2499	4.48			3	1.13	SLV 14	0.25	No
ini.	2	0	-5.986	7.04			3	1.13	SLV 15	0.16	No
fin.	2	0	5.205	4.79			3	1.13	SLV 15	0.24	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5.2592	-5			3	1.13	SLV 2	0.23	No
fin.	2	0	-5.6632	-6.54			3	1.13	SLV 2	0.17	No
ini.	2	0	-5.0378	6.25			3	1.13	SLV 13	0.18	No
fin.	2	0	4.2499	4.48			3	1.13	SLV 13	0.25	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.258	SLV 15	No
V_SLV	0.161	SLV 15	No
PF_SLU	1.382	SLU 37	Si
V_SLU	0.467	SLU 79	No

## Trave di accoppiamento 80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.058	1.406	6.93	8.35	1.42	-15.058	2.206	6.93	8.35	1.42	0.8	0.14	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.2	4.0099	14.1083	SLU 35	3.52	Si
fin.	3	1.2	-19.4395	14.1083	SLU 35	0.73	No
ini.	3	1.26	3.9698	14.1083	SLU 38	3.55	Si
fin.	3	1.26	-19.4298	14.1083	SLU 38	0.73	No
ini.	3	1.23	3.9773	14.1083	SLU 37	3.55	Si
fin.	3	1.23	-19.4458	14.1083	SLU 37	0.73	No
ini.	3	1.55	4.3974	14.1083	SLU 84	3.21	Si
fin.	3	1.55	-20.2896	14.1083	SLU 84	0.7	No
ini.	3	1.5	4.4361	14.1083	SLU 79	3.18	Si
fin.	3	1.5	-20.8801	14.1083	SLU 79	0.68	No
ini.	3	1.53	4.4286	14.1083	SLU 80	3.19	Si
fin.	3	1.53	-20.8641	14.1083	SLU 80	0.68	No
ini.	3	1.24	4.0024	14.1083	SLU 36	3.52	Si
fin.	3	1.24	-19.4235	14.1083	SLU 36	0.73	No
ini.	3	1.51	4.4049	14.1083	SLU 83	3.2	Si
fin.	3	1.51	-20.3055	14.1083	SLU 83	0.69	No
ini.	3	1.51	4.4612	14.1083	SLU 78	3.16	Si
fin.	3	1.51	-20.8578	14.1083	SLU 78	0.68	No
ini.	3	1.47	4.4687	14.1083	SLU 77	3.16	Si
fin.	3	1.47	-20.8738	14.1083	SLU 77	0.68	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	4.4612	-29.37			7.66	2.88	SLU 78	0.1	No
fin.	3	0	-20.8578	-33.84			7.66	2.88	SLU 78	0.09	No
ini.	3	0	3.9773	-27.49			7.66	2.88	SLU 37	0.1	No
fin.	3	0	-19.4458	-31.01			7.66	2.88	SLU 37	0.09	No
ini.	3	0	4.4286	-29.34			7.66	2.88	SLU 80	0.1	No
fin.	3	0	-20.8641	-33.81			7.66	2.88	SLU 80	0.09	No
ini.	3	0	4.4049	-28.61			7.66	2.88	SLU 83	0.1	No
fin.	3	0	-20.3055	-33.08			7.66	2.88	SLU 83	0.09	No
ini.	3	0	4.0099	-27.53			7.66	2.88	SLU 35	0.1	No
fin.	3	0	-19.4395	-31.04			7.66	2.88	SLU 35	0.09	No
ini.	3	0	4.4687	-29.4			7.66	2.88	SLU 77	0.1	No
fin.	3	0	-20.8738	-33.87			7.66	2.88	SLU 77	0.09	No
ini.	3	0	4.4361	-29.37			7.66	2.88	SLU 79	0.1	No
fin.	3	0	-20.8801	-33.84			7.66	2.88	SLU 79	0.09	No
ini.	3	0	4.3974	-28.58			7.66	2.88	SLU 84	0.1	No
fin.	3	0	-20.2896	-33.05			7.66	2.88	SLU 84	0.09	No
ini.	3	0	4.0024	-27.5			7.66	2.88	SLU 36	0.1	No
fin.	3	0	-19.4235	-31.01			7.66	2.88	SLU 36	0.09	No
ini.	3	0	3.9698	-27.46			7.66	2.88	SLU 38	0.1	No
fin.	3	0	-19.4298	-30.98			7.66	2.88	SLU 38	0.09	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16.12	-10.2942	17.6889	SLV 5	1.72	Si
fin.	2	17.93	38.7687	17.6889	SLV 5	0.46	No
ini.	2	-13.46	14.4096	17.6889	SLV 8	1.23	Si
fin.	2	-15.23	-55.4002	17.6889	SLV 8	0.32	No
ini.	2	-4.22	7.8606	17.6889	SLV 15	2.25	Si
fin.	2	-4.82	-31.8757	17.6889	SLV 15	0.55	No
ini.	2	15.6	-9.3262	17.6889	SLV 10	1.9	Si
fin.	2	17.38	34.4143	17.6889	SLV 10	0.51	No
ini.	2	-13.46	14.4096	17.6889	SLV 7	1.23	Si
fin.	2	-15.23	-55.4002	17.6889	SLV 7	0.32	No
ini.	2	-13.97	15.3776	17.6889	SLV 11	1.15	Si
fin.	2	-15.78	-59.7547	17.6889	SLV 11	0.3	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4.22	7.8606	17.6889	SLV 16	2.25	Si
fin.	2	-4.82	-31.8757	17.6889	SLV 16	0.55	No
ini.	2	-13.97	15.3776	17.6889	SLV 12	1.15	Si
fin.	2	-15.78	-59.7547	17.6889	SLV 12	0.3	No
ini.	2	16.12	-10.2942	17.6889	SLV 6	1.72	Si
fin.	2	17.93	38.7687	17.6889	SLV 6	0.46	No
ini.	2	15.6	-9.3262	17.6889	SLV 9	1.9	Si
fin.	2	17.38	34.4143	17.6889	SLV 9	0.51	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	14.4096	-83.17			11.48	4.32	SLV 7	0.05	No
fin.	2	0	-55.4002	-86.8			11.48	4.32	SLV 7	0.05	No
ini.	2	0	-10.2942	60.42			11.48	4.32	SLV 5	0.07	No
fin.	2	0	38.7687	57.61			11.48	4.32	SLV 5	0.08	No
ini.	2	0	-9.3262	54.06			11.48	4.32	SLV 9	0.08	No
fin.	2	0	34.4143	50.88			11.48	4.32	SLV 9	0.08	No
ini.	2	0	7.8606	-46.7			11.48	4.32	SLV 16	0.09	No
fin.	2	0	-31.8757	-50.84			11.48	4.32	SLV 16	0.09	No
ini.	2	0	-9.3262	54.06			11.48	4.32	SLV 10	0.08	No
fin.	2	0	34.4143	50.88			11.48	4.32	SLV 10	0.08	No
ini.	2	0	-10.2942	60.42			11.48	4.32	SLV 6	0.07	No
fin.	2	0	38.7687	57.61			11.48	4.32	SLV 6	0.08	No
ini.	2	0	15.3776	-89.53			11.48	4.32	SLV 11	0.05	No
fin.	2	0	-59.7547	-93.53			11.48	4.32	SLV 11	0.05	No
ini.	2	0	15.3776	-89.53			11.48	4.32	SLV 12	0.05	No
fin.	2	0	-59.7547	-93.53			11.48	4.32	SLV 12	0.05	No
ini.	2	0	14.4096	-83.17			11.48	4.32	SLV 8	0.05	No
fin.	2	0	-55.4002	-86.8			11.48	4.32	SLV 8	0.05	No
ini.	2	0	7.8606	-46.7			11.48	4.32	SLV 15	0.09	No
fin.	2	0	-31.8757	-50.84			11.48	4.32	SLV 15	0.09	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.296	SLV 11	No
V_SLV	0.046	SLV 11	No
PF_SLU	0.676	SLU 79	No
V_SLU	0.085	SLU 77	No

## Trave di accoppiamento 81

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-13.753	-0.228	6.93	8.35	1.42	-13.753	0.672	6.93	8.35	1.42	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1.57	-16.551	19.4792	SLU 71	1.18	Si
fin.	3	-1.57	5.9547	19.4792	SLU 71	3.27	Si
ini.	3	-1.53	-15.2386	19.4792	SLU 77	1.28	Si
fin.	3	-1.53	6.0278	19.4792	SLU 77	3.23	Si
ini.	3	-1.62	-16.843	19.4792	SLU 69	1.16	Si
fin.	3	-1.62	5.9292	19.4792	SLU 69	3.29	Si
ini.	3	-1.48	-14.9466	19.4792	SLU 79	1.3	Si
fin.	3	-1.48	6.0533	19.4792	SLU 79	3.22	Si
ini.	3	-1.59	-15.9431	19.4792	SLU 29	1.22	Si
fin.	3	-1.59	5.6376	19.4792	SLU 29	3.46	Si
ini.	3	-1.53	-15.0752	19.4792	SLU 30	1.29	Si
fin.	3	-1.53	5.3107	19.4792	SLU 30	3.67	Si
ini.	3	-1.56	-15.9752	19.4792	SLU 70	1.22	Si
fin.	3	-1.56	5.6022	19.4792	SLU 70	3.48	Si
ini.	3	-1.52	-15.6832	19.4792	SLU 72	1.24	Si
fin.	3	-1.52	5.6277	19.4792	SLU 72	3.46	Si
ini.	3	-1.57	-15.3672	19.4792	SLU 28	1.27	Si
fin.	3	-1.57	5.2852	19.4792	SLU 28	3.69	Si
ini.	3	-1.63	-16.2351	19.4792	SLU 27	1.2	Si
fin.	3	-1.63	5.6122	19.4792	SLU 27	3.47	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-15.2386	28			15.31	5.76	SLU 77	0.21	No
fin.	3	0	6.0278	19.69			15.31	5.76	SLU 77	0.29	No
ini.	3	0	-16.2351	27.69			15.31	5.76	SLU 27	0.21	No
fin.	3	0	5.6122	21.18			15.31	5.76	SLU 27	0.27	No
ini.	3	0	-16.843	29.68			15.31	5.76	SLU 69	0.19	No
fin.	3	0	5.9292	21.36			15.31	5.76	SLU 69	0.27	No
ini.	3	0	-14.3708	26.67			15.31	5.76	SLU 78	0.22	No
fin.	3	0	5.7008	18.36			15.31	5.76	SLU 78	0.31	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-15.9752	28.35			15.31	5.76	SLU 70	0.2	No
fin.	3	0	5.6022	20.04			15.31	5.76	SLU 70	0.29	No
ini.	3	0	-15.9431	27.4			15.31	5.76	SLU 29	0.21	No
fin.	3	0	5.6376	20.89			15.31	5.76	SLU 29	0.28	No
ini.	3	0	-14.9466	27.71			15.31	5.76	SLU 79	0.21	No
fin.	3	0	6.0533	19.39			15.31	5.76	SLU 79	0.3	No
ini.	3	0	-14.0788	26.38			15.31	5.76	SLU 80	0.22	No
fin.	3	0	5.7263	18.07			15.31	5.76	SLU 80	0.32	No
ini.	3	0	-16.551	29.38			15.31	5.76	SLU 71	0.2	No
fin.	3	0	5.9547	21.07			15.31	5.76	SLU 71	0.27	No
ini.	3	0	-15.6832	28.05			15.31	5.76	SLU 72	0.21	No
fin.	3	0	5.6277	19.74			15.31	5.76	SLU 72	0.29	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.06	-51.6407	21.2694	SLV 6	0.41	No
fin.	2	-15.88	29.3918	21.2694	SLV 6	0.72	No
ini.	2	-28.13	-43.7213	21.2694	SLV 13	0.49	No
fin.	2	-6.5	-0.5688	21.2694	SLV 13	37.4	Si
ini.	2	22.12	50.204	21.2694	SLV 7	0.42	No
fin.	2	15.91	-18.1075	21.2694	SLV 7	1.17	Si
ini.	2	8.28	37.4073	21.2694	SLV 11	0.57	No
fin.	2	15.11	-24.2625	21.2694	SLV 11	0.88	No
ini.	2	-9.06	-51.6407	21.2694	SLV 5	0.41	No
fin.	2	-15.88	29.3918	21.2694	SLV 5	0.72	No
ini.	2	8.28	37.4073	21.2694	SLV 12	0.57	No
fin.	2	15.11	-24.2625	21.2694	SLV 12	0.88	No
ini.	2	-22.9	-64.4374	21.2694	SLV 9	0.33	No
fin.	2	-16.69	23.2368	21.2694	SLV 9	0.92	No
ini.	2	-28.13	-43.7213	21.2694	SLV 14	0.49	No
fin.	2	-6.5	-0.5688	21.2694	SLV 14	37.4	Si
ini.	2	22.12	50.204	21.2694	SLV 8	0.42	No
fin.	2	15.91	-18.1075	21.2694	SLV 8	1.17	Si
ini.	2	-22.9	-64.4374	21.2694	SLV 10	0.33	No
fin.	2	-16.69	23.2368	21.2694	SLV 10	0.92	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-64.4374	98.74			22.97	8.64	SLV 9	0.09	No
fin.	2	0	23.2368	85.01			22.97	8.64	SLV 9	0.1	No
ini.	2	0	-31.5858	50.15			22.97	8.64	SLD 9	0.17	No
fin.	2	0	11.3097	40.61			22.97	8.64	SLD 9	0.21	No
ini.	2	0	-64.4374	98.74			22.97	8.64	SLV 10	0.09	No
fin.	2	0	23.2368	85.01			22.97	8.64	SLV 10	0.1	No
ini.	2	0	37.4073	-63.53			22.97	8.64	SLV 12	0.14	No
fin.	2	0	-24.2625	-77.33			22.97	8.64	SLV 12	0.11	No
ini.	2	0	-51.6407	91.72			22.97	8.64	SLV 6	0.09	No
fin.	2	0	29.3918	92.83			22.97	8.64	SLV 6	0.09	No
ini.	2	0	50.204	-70.55			22.97	8.64	SLV 7	0.12	No
fin.	2	0	-18.1075	-69.5			22.97	8.64	SLV 7	0.12	No
ini.	2	0	-51.6407	91.72			22.97	8.64	SLV 5	0.09	No
fin.	2	0	29.3918	92.83			22.97	8.64	SLV 5	0.09	No
ini.	2	0	50.204	-70.55			22.97	8.64	SLV 8	0.12	No
fin.	2	0	-18.1075	-69.5			22.97	8.64	SLV 8	0.12	No
ini.	2	0	37.4073	-63.53			22.97	8.64	SLV 11	0.14	No
fin.	2	0	-24.2625	-77.33			22.97	8.64	SLV 11	0.11	No
ini.	2	0	-31.5858	50.15			22.97	8.64	SLD 10	0.17	No
fin.	2	0	11.3097	40.61			22.97	8.64	SLD 10	0.21	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.33	SLV 9	No
V_SLV	0.088	SLV 9	No
PF_SLU	1.157	SLU 69	Si
V_SLU	0.194	SLU 69	No

## Trave di accoppiamento 82

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.718	6.661	4.83	5.73	0.9	-16.818	6.661	4.83	5.73	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-15.46	-0.2869	10.3792	SLU 84	36.18	Si
fin.	3	-12.93	2.8675	10.3792	SLU 84	3.62	Si
ini.	3	-16.01	-0.3574	10.3792	SLU 82	29.04	Si
fin.	3	-13.9	3.0429	10.3792	SLU 82	3.41	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-15.09	-0.2384	10.3792	SLU 74	43.54	Si
fin.	3	-12.62	2.7697	10.3792	SLU 74	3.75	Si
ini.	3	-15.05	-0.2573	10.3792	SLU 75	40.34	Si
fin.	3	-12.64	2.7829	10.3792	SLU 75	3.73	Si
ini.	3	-14.71	-0.2861	10.3792	SLU 61	36.28	Si
fin.	3	-12.84	2.7536	10.3792	SLU 61	3.77	Si
ini.	3	-14.75	-0.2671	10.3792	SLU 60	38.86	Si
fin.	3	-12.81	2.7404	10.3792	SLU 60	3.79	Si
ini.	3	-16.04	-0.3385	10.3792	SLU 81	30.67	Si
fin.	3	-13.87	3.0297	10.3792	SLU 81	3.43	Si
ini.	3	-15.5	-0.268	10.3792	SLU 83	38.73	Si
fin.	3	-12.91	2.8543	10.3792	SLU 83	3.64	Si
ini.	3	-15.25	-0.3176	10.3792	SLU 73	32.68	Si
fin.	3	-13.2	2.8736	10.3792	SLU 73	3.61	Si
ini.	3	-14.71	-0.247	10.3792	SLU 76	42.01	Si
fin.	3	-12.24	2.6983	10.3792	SLU 76	3.85	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.2573	-9.93			9.7	3.65	SLU 75	0.37	No
fin.	3	0	2.7829	24.48			9.7	3.65	SLU 75	0.15	No
ini.	3	0	-0.1679	-10.34			9.7	3.65	SLU 77	0.35	No
fin.	3	0	2.5944	23.79			9.7	3.65	SLU 77	0.15	No
ini.	3	0	-0.268	-10.11			9.7	3.65	SLU 83	0.36	No
fin.	3	0	2.8543	24.87			9.7	3.65	SLU 83	0.15	No
ini.	3	0	-0.3176	-9.39			9.7	3.65	SLU 73	0.39	No
fin.	3	0	2.8736	24.46			9.7	3.65	SLU 73	0.15	No
ini.	3	0	-0.3574	-9.7			9.7	3.65	SLU 82	0.38	No
fin.	3	0	3.0429	25.56			9.7	3.65	SLU 82	0.14	No
ini.	3	0	-0.3385	-9.77			9.7	3.65	SLU 81	0.37	No
fin.	3	0	3.0297	25.5			9.7	3.65	SLU 81	0.14	No
ini.	3	0	-0.247	-9.73			9.7	3.65	SLU 76	0.38	No
fin.	3	0	2.6983	23.83			9.7	3.65	SLU 76	0.15	No
ini.	3	0	-0.2384	-10			9.7	3.65	SLU 74	0.37	No
fin.	3	0	2.7697	24.42			9.7	3.65	SLU 74	0.15	No
ini.	3	0	-0.1868	-10.28			9.7	3.65	SLU 78	0.36	No
fin.	3	0	2.6076	23.85			9.7	3.65	SLU 78	0.15	No
ini.	3	0	-0.2869	-10.05			9.7	3.65	SLU 84	0.36	No
fin.	3	0	2.8675	24.92			9.7	3.65	SLU 84	0.15	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2.79	-15.8691	12.1694	SLV 2	0.77	No
fin.	2	-51.19	13.7429	12.1694	SLV 2	0.89	No
ini.	2	2.77	-14.3501	12.1694	SLV 4	0.85	No
fin.	2	-45.31	13.3289	12.1694	SLV 4	0.91	No
ini.	2	2.79	-15.8691	12.1694	SLV 1	0.77	No
fin.	2	-51.19	13.7429	12.1694	SLV 1	0.89	No
ini.	2	-24.11	14.06	12.1694	SLV 14	0.87	No
fin.	2	27.14	-9.4706	12.1694	SLV 14	1.28	Si
ini.	2	-24.12	15.5789	12.1694	SLV 15	0.78	No
fin.	2	33.02	-9.8846	12.1694	SLV 15	1.23	Si
ini.	2	-24.11	14.06	12.1694	SLV 13	0.87	No
fin.	2	27.14	-9.4706	12.1694	SLV 13	1.28	Si
ini.	2	2.77	-14.3501	12.1694	SLV 3	0.85	No
fin.	2	-45.31	13.3289	12.1694	SLV 3	0.91	No
ini.	2	-6.61	-7.166	12.1694	SLV 6	1.7	Si
fin.	2	-30.64	6.1011	12.1694	SLV 6	1.99	Si
ini.	2	-24.12	15.5789	12.1694	SLV 16	0.78	No
fin.	2	33.02	-9.8846	12.1694	SLV 16	1.23	Si
ini.	2	-6.61	-7.166	12.1694	SLV 5	1.7	Si
fin.	2	-30.64	6.1011	12.1694	SLV 5	1.99	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	14.06	-62.38			14.56	5.48	SLV 13	0.09	No
fin.	2	0	-9.4706	-41.92			14.56	5.48	SLV 13	0.13	No
ini.	2	0	-15.8691	50.48			14.56	5.48	SLV 2	0.11	No
fin.	2	0	13.7429	71.19			14.56	5.48	SLV 2	0.08	No
ini.	2	0	-15.8691	50.48			14.56	5.48	SLV 1	0.11	No
fin.	2	0	13.7429	71.19			14.56	5.48	SLV 1	0.08	No
ini.	2	0	15.5789	-64.12			14.56	5.48	SLV 16	0.09	No
fin.	2	0	-9.8846	-37.25			14.56	5.48	SLV 16	0.15	No
ini.	2	0	-14.3501	48.73			14.56	5.48	SLV 4	0.11	No
fin.	2	0	13.3289	75.86			14.56	5.48	SLV 4	0.07	No
ini.	2	0	14.06	-62.38			14.56	5.48	SLV 14	0.09	No
fin.	2	0	-9.4706	-41.92			14.56	5.48	SLV 14	0.13	No
ini.	2	0	-14.3501	48.73			14.56	5.48	SLV 3	0.11	No
fin.	2	0	13.3289	75.86			14.56	5.48	SLV 3	0.07	No
ini.	2	0	15.5789	-64.12			14.56	5.48	SLV 15	0.09	No
fin.	2	0	-9.8846	-37.25			14.56	5.48	SLV 15	0.15	No
ini.	2	0	-6.3855	17.54			14.56	5.48	SLD 4	0.31	No
fin.	2	0	6.93	42.74			14.56	5.48	SLD 4	0.13	No
ini.	2	0	-6.3855	17.54			14.56	5.48	SLD 3	0.31	No
fin.	2	0	6.93	42.74			14.56	5.48	SLD 3	0.13	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.767	SLV 1	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.072	SLV 3	No
PF SLU	3.411	SLU 82	Si
V SLU	0.143	SLU 82	No

## Trave di accoppiamento 83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.718	6.661	7.53	8.35	0.82	-16.818	6.661	7.53	8.35	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2.96	-2.3104	8.9792	SLU 77	3.89	Si
fin.	3	1.58	-1.0929	8.9792	SLU 77	8.22	Si
ini.	3	-3.65	-2.3753	8.9792	SLU 83	3.78	Si
fin.	3	0.26	-1.2497	8.9792	SLU 83	7.18	Si
ini.	3	-3.38	-2.2614	8.9792	SLU 74	3.97	Si
fin.	3	0.29	-1.2261	8.9792	SLU 74	7.32	Si
ini.	3	-3.66	-2.3911	8.9792	SLU 84	3.76	Si
fin.	3	0.31	-1.2356	8.9792	SLU 84	7.27	Si
ini.	3	-4.08	-2.3422	8.9792	SLU 82	3.83	Si
fin.	3	-0.99	-1.3687	8.9792	SLU 82	6.56	Si
ini.	3	-2.82	-2.2755	8.9792	SLU 79	3.95	Si
fin.	3	1.82	-1.038	8.9792	SLU 79	8.65	Si
ini.	3	-2.83	-2.2914	8.9792	SLU 80	3.92	Si
fin.	3	1.87	-1.0238	8.9792	SLU 80	8.77	Si
ini.	3	-2.97	-2.3262	8.9792	SLU 78	3.86	Si
fin.	3	1.63	-1.0788	8.9792	SLU 78	8.32	Si
ini.	3	-4.07	-2.3263	8.9792	SLU 81	3.86	Si
fin.	3	-1.04	-1.3829	8.9792	SLU 81	6.49	Si
ini.	3	-3.39	-2.2773	8.9792	SLU 75	3.94	Si
fin.	3	0.34	-1.2119	8.9792	SLU 75	7.41	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.3263	21.56			8.06	3.03	SLU 81	0.14	No
fin.	3	0	-1.3829	-21.1			8.06	3.03	SLU 81	0.14	No
ini.	3	0	-2.3262	20.68			8.06	3.03	SLU 78	0.15	No
fin.	3	0	-1.0788	-17.88			8.06	3.03	SLU 78	0.17	No
ini.	3	0	-2.3422	21.62			8.06	3.03	SLU 82	0.14	No
fin.	3	0	-1.3687	-21.04			8.06	3.03	SLU 82	0.14	No
ini.	3	0	-2.204	20.42			8.06	3.03	SLU 73	0.15	No
fin.	3	0	-1.2807	-19.73			8.06	3.03	SLU 73	0.15	No
ini.	3	0	-2.3911	21.57			8.06	3.03	SLU 84	0.14	No
fin.	3	0	-1.2356	-19.77			8.06	3.03	SLU 84	0.15	No
ini.	3	0	-2.3753	21.51			8.06	3.03	SLU 83	0.14	No
fin.	3	0	-1.2497	-19.83			8.06	3.03	SLU 83	0.15	No
ini.	3	0	-2.2773	20.73			8.06	3.03	SLU 75	0.15	No
fin.	3	0	-1.2119	-19.14			8.06	3.03	SLU 75	0.16	No
ini.	3	0	-2.3104	20.62			8.06	3.03	SLU 77	0.15	No
fin.	3	0	-1.0929	-17.94			8.06	3.03	SLU 77	0.17	No
ini.	3	0	-2.2614	20.67			8.06	3.03	SLU 74	0.15	No
fin.	3	0	-1.2261	-19.2			8.06	3.03	SLU 74	0.16	No
ini.	3	0	-2.253	20.37			8.06	3.03	SLU 76	0.15	No
fin.	3	0	-1.1475	-18.46			8.06	3.03	SLU 76	0.16	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	11.59	8.5361	10.7694	SLV 14	1.26	Si
fin.	2	-20.76	-8.5761	10.7694	SLV 14	1.26	Si
ini.	2	-10.7	-6.4937	10.7694	SLV 6	1.66	Si
fin.	2	8.47	2.4932	10.7694	SLV 6	4.32	Si
ini.	2	13.97	9.6734	10.7694	SLV 16	1.11	Si
fin.	2	-22.22	-9.1699	10.7694	SLV 16	1.17	Si
ini.	2	13.97	9.6734	10.7694	SLV 15	1.11	Si
fin.	2	-22.22	-9.1699	10.7694	SLV 15	1.17	Si
ini.	2	-18.44	-12.5456	10.7694	SLV 2	0.86	No
fin.	2	21.58	7.388	10.7694	SLV 2	1.46	Si
ini.	2	-18.44	-12.5456	10.7694	SLV 1	0.86	No
fin.	2	21.58	7.388	10.7694	SLV 1	1.46	Si
ini.	2	-10.7	-6.4937	10.7694	SLV 5	1.66	Si
fin.	2	8.47	2.4932	10.7694	SLV 5	4.32	Si
ini.	2	-16.06	-11.4083	10.7694	SLV 4	0.94	No
fin.	2	20.12	6.7943	10.7694	SLV 4	1.59	Si
ini.	2	-16.06	-11.4083	10.7694	SLV 3	0.94	No
fin.	2	20.12	6.7943	10.7694	SLV 3	1.59	Si
ini.	2	11.59	8.5361	10.7694	SLV 13	1.26	Si
fin.	2	-20.76	-8.5761	10.7694	SLV 13	1.26	Si



## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-12.5456	55.1			12.08	4.55	SLV 2	0.08	No
fin.	2	0	7.388	23.21			12.08	4.55	SLV 2	0.2	No
ini.	2	0	-6.4937	34.77			12.08	4.55	SLV 5	0.13	No
fin.	2	0	2.4932	1.44			12.08	4.55	SLV 5	3.15	Si
ini.	2	0	8.5361	-22.01			12.08	4.55	SLV 13	0.21	No
fin.	2	0	-8.5761	-47.42			12.08	4.55	SLV 13	0.1	No
ini.	2	0	9.6734	-27.72			12.08	4.55	SLV 15	0.16	No
fin.	2	0	-9.1699	-49.95			12.08	4.55	SLV 15	0.09	No
ini.	2	0	-11.4083	49.39			12.08	4.55	SLV 4	0.09	No
fin.	2	0	6.7943	20.67			12.08	4.55	SLV 4	0.22	No
ini.	2	0	-12.5456	55.1			12.08	4.55	SLV 1	0.08	No
fin.	2	0	7.388	23.21			12.08	4.55	SLV 1	0.2	No
ini.	2	0	9.6734	-27.72			12.08	4.55	SLV 16	0.16	No
fin.	2	0	-9.1699	-49.95			12.08	4.55	SLV 16	0.09	No
ini.	2	0	-6.4937	34.77			12.08	4.55	SLV 6	0.13	No
fin.	2	0	2.4932	1.44			12.08	4.55	SLV 6	3.15	Si
ini.	2	0	-11.4083	49.39			12.08	4.55	SLV 3	0.09	No
fin.	2	0	6.7943	20.67			12.08	4.55	SLV 3	0.22	No
ini.	2	0	8.5361	-22.01			12.08	4.55	SLV 14	0.21	No
fin.	2	0	-8.5761	-47.42			12.08	4.55	SLV 14	0.1	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.858	SLV 1	No
V_SLV	0.083	SLV 1	No
PF_SLU	3.755	SLU 84	Si
V_SLU	0.14	SLU 82	No

## Trave di accoppiamento 84

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.838	6.661	4.83	5.73	0.9	-11.938	6.661	4.83	5.73	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.96	0.4056	10.3792	SLU 60	25.59	Si
fin.	3	-25.02	4.3231	10.3792	SLU 60	2.4	Si
ini.	3	-8.09	0.4451	10.3792	SLU 73	23.32	Si
fin.	3	-25.75	4.4797	10.3792	SLU 73	2.32	Si
ini.	3	-8.39	0.4543	10.3792	SLU 81	22.85	Si
fin.	3	-27.16	4.7544	10.3792	SLU 81	2.18	Si
ini.	3	-7.91	0.4024	10.3792	SLU 61	25.79	Si
fin.	3	-24.99	4.3223	10.3792	SLU 61	2.4	Si
ini.	3	-8.35	0.4511	10.3792	SLU 82	23.01	Si
fin.	3	-27.13	4.7535	10.3792	SLU 82	2.18	Si
ini.	3	-7.98	0.505	10.3792	SLU 83	20.55	Si
fin.	3	-25.66	4.4953	10.3792	SLU 83	2.31	Si
ini.	3	-7.89	0.4929	10.3792	SLU 75	21.06	Si
fin.	3	-24.96	4.3461	10.3792	SLU 75	2.39	Si
ini.	3	-7.93	0.4961	10.3792	SLU 74	20.92	Si
fin.	3	-25	4.3469	10.3792	SLU 74	2.39	Si
ini.	3	-7.94	0.5018	10.3792	SLU 84	20.68	Si
fin.	3	-25.63	4.4944	10.3792	SLU 84	2.31	Si
ini.	3	-7.68	0.4958	10.3792	SLU 76	20.93	Si
fin.	3	-24.25	4.2205	10.3792	SLU 76	2.46	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	0.4543	-12.49			9.7	3.65	SLU 81	0.29	No
fin.	3	0	4.7544	38.64			9.7	3.65	SLU 81	0.09	No
ini.	3	0	0.4511	-12.46			9.7	3.65	SLU 82	0.29	No
fin.	3	0	4.7535	38.62			9.7	3.65	SLU 82	0.09	No
ini.	3	0	0.4929	-13.5			9.7	3.65	SLU 75	0.27	No
fin.	3	0	4.3461	37.02			9.7	3.65	SLU 75	0.1	No
ini.	3	0	0.4451	-12.25			9.7	3.65	SLU 73	0.3	No
fin.	3	0	4.4797	36.78			9.7	3.65	SLU 73	0.1	No
ini.	3	0	0.5437	-14.55			9.7	3.65	SLU 78	0.25	No
fin.	3	0	4.0869	36.31			9.7	3.65	SLU 78	0.1	No
ini.	3	0	0.4961	-13.52			9.7	3.65	SLU 74	0.27	No
fin.	3	0	4.3469	37.04			9.7	3.65	SLU 74	0.1	No
ini.	3	0	0.5469	-14.58			9.7	3.65	SLU 77	0.25	No
fin.	3	0	4.0878	36.32			9.7	3.65	SLU 77	0.1	No
ini.	3	0	0.5018	-13.51			9.7	3.65	SLU 84	0.27	No
fin.	3	0	4.4944	37.91			9.7	3.65	SLU 84	0.1	No
ini.	3	0	0.505	-13.54			9.7	3.65	SLU 83	0.27	No
fin.	3	0	4.4953	37.93			9.7	3.65	SLU 83	0.1	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.4958	-13.3			9.7	3.65	SLU 76	0.27	No
fin.	3	0	4.2205	36.07			9.7	3.65	SLU 76	0.1	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	37.1	-9.0999	12.1694	SLV 2	1.34	Si
fin.	2	-58.2	13.2382	12.1694	SLV 2	0.92	No
ini.	2	-40.36	8.7852	12.1694	SLV 13	1.39	Si
fin.	2	23.26	-5.1227	12.1694	SLV 13	2.38	Si
ini.	2	37.1	-9.0999	12.1694	SLV 1	1.34	Si
fin.	2	-58.2	13.2382	12.1694	SLV 1	0.92	No
ini.	2	-40.36	8.7852	12.1694	SLV 14	1.39	Si
fin.	2	23.26	-5.1227	12.1694	SLV 14	2.38	Si
ini.	2	-48.93	9.7627	12.1694	SLV 16	1.25	Si
fin.	2	22.5	-7.1505	12.1694	SLV 16	1.7	Si
ini.	2	28.53	-8.1225	12.1694	SLV 4	1.5	Si
fin.	2	-58.96	11.2104	12.1694	SLV 4	1.09	Si
ini.	2	19.99	-3.9805	12.1694	SLV 5	3.06	Si
fin.	2	-28.81	9.1776	12.1694	SLV 5	1.33	Si
ini.	2	19.99	-3.9805	12.1694	SLV 6	3.06	Si
fin.	2	-28.81	9.1776	12.1694	SLV 6	1.33	Si
ini.	2	-48.93	9.7627	12.1694	SLV 15	1.25	Si
fin.	2	22.5	-7.1505	12.1694	SLV 15	1.7	Si
ini.	2	28.53	-8.1225	12.1694	SLV 3	1.5	Si
fin.	2	-58.96	11.2104	12.1694	SLV 3	1.09	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-3.7949	17.5			14.56	5.48	SLD 1	0.31	No
fin.	2	0	7.501	51.04			14.56	5.48	SLD 1	0.11	No
ini.	2	0	9.7627	-69.5			14.56	5.48	SLV 16	0.08	No
fin.	2	0	-7.1505	-32.89			14.56	5.48	SLV 16	0.17	No
ini.	2	0	-8.1225	45.16			14.56	5.48	SLV 4	0.12	No
fin.	2	0	11.2104	81.55			14.56	5.48	SLV 4	0.07	No
ini.	2	0	8.7852	-63.16			14.56	5.48	SLV 14	0.09	No
fin.	2	0	-5.1227	-30.58			14.56	5.48	SLV 14	0.18	No
ini.	2	0	8.7852	-63.16			14.56	5.48	SLV 13	0.09	No
fin.	2	0	-5.1227	-30.58			14.56	5.48	SLV 13	0.18	No
ini.	2	0	9.7627	-69.5			14.56	5.48	SLV 15	0.08	No
fin.	2	0	-7.1505	-32.89			14.56	5.48	SLV 15	0.17	No
ini.	2	0	-3.7949	17.5			14.56	5.48	SLD 2	0.31	No
fin.	2	0	7.501	51.04			14.56	5.48	SLD 2	0.11	No
ini.	2	0	-9.0999	51.5			14.56	5.48	SLV 2	0.11	No
fin.	2	0	13.2382	83.86			14.56	5.48	SLV 2	0.07	No
ini.	2	0	-8.1225	45.16			14.56	5.48	SLV 3	0.12	No
fin.	2	0	11.2104	81.55			14.56	5.48	SLV 3	0.07	No
ini.	2	0	-9.0999	51.5			14.56	5.48	SLV 1	0.11	No
fin.	2	0	13.2382	83.86			14.56	5.48	SLV 1	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 1	No
V_SLV		SLV 1	No
PF_SLU		SLU 81	Si
V_SLU		SLU 81	No

## Trave di accoppiamento 85

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.838	6.661	7.53	8.35	0.82	-11.938	6.661	7.53	8.35	0.82	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-14.89	-3.6078	8.9792	SLU 75	2.49	Si
fin.	3	-4.87	-0.119	8.9792	SLU 75	75.43	Si
ini.	3	-15.49	-3.727	8.9792	SLU 83	2.41	Si
fin.	3	-5.15	-0.1055	8.9792	SLU 83	85.11	Si
ini.	3	-18.1	-3.9603	8.9792	SLU 82	2.27	Si
fin.	3	-6.19	-0.0304	8.9792	SLU 82	295.68	Si
ini.	3	-16.68	-3.5859	8.9792	SLU 60	2.5	Si
fin.	3	-5.7	-0.0268	8.9792	SLU 60	335.13	Si
ini.	3	-15.48	-3.7259	8.9792	SLU 84	2.41	Si
fin.	3	-5.13	-0.1025	8.9792	SLU 84	87.59	Si
ini.	3	-16.77	-3.7196	8.9792	SLU 73	2.41	Si
fin.	3	-5.71	-0.0512	8.9792	SLU 73	175.42	Si
ini.	3	-16.67	-3.5848	8.9792	SLU 61	2.5	Si
fin.	3	-5.68	-0.0238	8.9792	SLU 61	377.11	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-14.9	-3.6089	8.9792	SLU 74	2.49	Si
fin.	3	-4.88	-0.122	8.9792	SLU 74	73.58	Si
ini.	3	-14.15	-3.4852	8.9792	SLU 76	2.58	Si
fin.	3	-4.65	-0.1233	8.9792	SLU 76	72.8	Si
ini.	3	-18.11	-3.9614	8.9792	SLU 81	2.27	Si
fin.	3	-6.21	-0.0333	8.9792	SLU 81	269.24	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.6089	38.46			8.06	3.03	SLU 74	0.08	No
fin.	3	0	-0.122	-26.21			8.06	3.03	SLU 74	0.12	No
ini.	3	0	-3.6078	38.45			8.06	3.03	SLU 75	0.08	No
fin.	3	0	-0.119	-26.19			8.06	3.03	SLU 75	0.12	No
ini.	3	0	-3.9603	40.88			8.06	3.03	SLU 82	0.07	No
fin.	3	0	-0.0304	-26.07			8.06	3.03	SLU 82	0.12	No
ini.	3	0	-3.3745	37.53			8.06	3.03	SLU 77	0.08	No
fin.	3	0	-0.1942	-27.42			8.06	3.03	SLU 77	0.11	No
ini.	3	0	-3.4852	37.48			8.06	3.03	SLU 76	0.08	No
fin.	3	0	-0.1233	-25.85			8.06	3.03	SLU 76	0.12	No
ini.	3	0	-3.7196	38.4			8.06	3.03	SLU 73	0.08	No
fin.	3	0	-0.0512	-24.65			8.06	3.03	SLU 73	0.12	No
ini.	3	0	-3.3734	37.53			8.06	3.03	SLU 78	0.08	No
fin.	3	0	-0.1912	-27.4			8.06	3.03	SLU 78	0.11	No
ini.	3	0	-3.7259	39.96			8.06	3.03	SLU 84	0.08	No
fin.	3	0	-0.1025	-27.28			8.06	3.03	SLU 84	0.11	No
ini.	3	0	-3.9614	40.88			8.06	3.03	SLU 81	0.07	No
fin.	3	0	-0.0333	-26.09			8.06	3.03	SLU 81	0.12	No
ini.	3	0	-3.727	39.96			8.06	3.03	SLU 83	0.08	No
fin.	3	0	-0.1055	-27.3			8.06	3.03	SLU 83	0.11	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16.06	4.9047	10.7694	SLV 13	2.2	Si
fin.	2	-31.17	-6.392	10.7694	SLV 13	1.68	Si
ini.	2	-38.28	-9.9236	10.7694	SLV 3	1.09	Si
fin.	2	23.61	6.2571	10.7694	SLV 3	1.72	Si
ini.	2	-38.28	-9.9236	10.7694	SLV 4	1.09	Si
fin.	2	23.61	6.2571	10.7694	SLV 4	1.72	Si
ini.	2	-25.41	-6.2376	10.7694	SLV 6	1.73	Si
fin.	2	15.13	3.3141	10.7694	SLV 6	3.25	Si
ini.	2	-25.41	-6.2376	10.7694	SLV 5	1.73	Si
fin.	2	15.13	3.3141	10.7694	SLV 5	3.25	Si
ini.	2	19.45	5.7326	10.7694	SLV 16	1.88	Si
fin.	2	-37.06	-7.209	10.7694	SLV 16	1.49	Si
ini.	2	-41.66	-10.7514	10.7694	SLV 1	1	Si
fin.	2	29.5	7.0741	10.7694	SLV 1	1.52	Si
ini.	2	16.06	4.9047	10.7694	SLV 14	2.2	Si
fin.	2	-31.17	-6.392	10.7694	SLV 14	1.68	Si
ini.	2	19.45	5.7326	10.7694	SLV 15	1.88	Si
fin.	2	-37.06	-7.209	10.7694	SLV 15	1.49	Si
ini.	2	-41.66	-10.7514	10.7694	SLV 2	1	Si
fin.	2	29.5	7.0741	10.7694	SLV 2	1.52	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-6.2376	46.68			12.08	4.55	SLV 5	0.1	No
fin.	2	0	3.3141	6.99			12.08	4.55	SLV 5	0.65	No
ini.	2	0	5.7326	-21.17			12.08	4.55	SLV 16	0.21	No
fin.	2	0	-7.209	-65.53			12.08	4.55	SLV 16	0.07	No
ini.	2	0	5.7326	-21.17			12.08	4.55	SLV 15	0.21	No
fin.	2	0	-7.209	-65.53			12.08	4.55	SLV 15	0.07	No
ini.	2	0	4.9047	-16.66			12.08	4.55	SLV 13	0.27	No
fin.	2	0	-6.392	-59.64			12.08	4.55	SLV 13	0.08	No
ini.	2	0	-9.9236	68.16			12.08	4.55	SLV 4	0.07	No
fin.	2	0	6.2571	26.41			12.08	4.55	SLV 4	0.17	No
ini.	2	0	-10.7514	72.67			12.08	4.55	SLV 1	0.06	No
fin.	2	0	7.0741	32.29			12.08	4.55	SLV 1	0.14	No
ini.	2	0	-10.7514	72.67			12.08	4.55	SLV 2	0.06	No
fin.	2	0	7.0741	32.29			12.08	4.55	SLV 2	0.14	No
ini.	2	0	-6.2376	46.68			12.08	4.55	SLV 6	0.1	No
fin.	2	0	3.3141	6.99			12.08	4.55	SLV 6	0.65	No
ini.	2	0	-9.9236	68.16			12.08	4.55	SLV 3	0.07	No
fin.	2	0	6.2571	26.41			12.08	4.55	SLV 3	0.17	No
ini.	2	0	4.9047	-16.66			12.08	4.55	SLV 14	0.27	No
fin.	2	0	-6.392	-59.64			12.08	4.55	SLV 14	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.002	SLV 1	Si
V_SLV	0.063	SLV 1	No
PF_SLU	2.267	SLU 81	Si
V_SLU	0.074	SLU 81	No

## Trave di accoppiamento 86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.958	6.661	4.83	5.73	0.9	-7.058	6.661	4.83	5.73	0.9	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-30.65	6.3423	10.3792	SLU 80	1.64	Si
fin.	3	-15.49	-6.0068	10.3792	SLU 80	1.73	Si
ini.	3	-32.2	6.6887	10.3792	SLU 82	1.55	Si
fin.	3	-16.63	-6.1724	10.3792	SLU 82	1.68	Si
ini.	3	-31.18	6.4587	10.3792	SLU 78	1.61	Si
fin.	3	-15.76	-6.0952	10.3792	SLU 78	1.7	Si
ini.	3	-32.23	6.7047	10.3792	SLU 84	1.55	Si
fin.	3	-16.42	-6.2743	10.3792	SLU 84	1.65	Si
ini.	3	-30.64	6.3364	10.3792	SLU 76	1.64	Si
fin.	3	-15.67	-5.9202	10.3792	SLU 76	1.75	Si
ini.	3	-31.13	6.4277	10.3792	SLU 74	1.61	Si
fin.	3	-16.01	-5.9704	10.3792	SLU 74	1.74	Si
ini.	3	-31.16	6.4427	10.3792	SLU 75	1.61	Si
fin.	3	-15.97	-5.9933	10.3792	SLU 75	1.73	Si
ini.	3	-31.16	6.4436	10.3792	SLU 77	1.61	Si
fin.	3	-15.8	-6.0723	10.3792	SLU 77	1.71	Si
ini.	3	-32.2	6.6896	10.3792	SLU 83	1.55	Si
fin.	3	-16.45	-6.2514	10.3792	SLU 83	1.66	Si
ini.	3	-32.18	6.6737	10.3792	SLU 81	1.56	Si
fin.	3	-16.66	-6.1496	10.3792	SLU 81	1.69	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	6.4436	-46.82			9.7	3.65	SLU 77	0.08	No
fin.	3	0	-6.0723	-10.7			9.7	3.65	SLU 77	0.34	No
ini.	3	0	6.4277	-46.03			9.7	3.65	SLU 74	0.08	No
fin.	3	0	-5.9704	-10.74			9.7	3.65	SLU 74	0.34	No
ini.	3	0	6.6896	-47.48			9.7	3.65	SLU 83	0.08	No
fin.	3	0	-6.2514	-11.41			9.7	3.65	SLU 83	0.32	No
ini.	3	0	6.4427	-46.06			9.7	3.65	SLU 75	0.08	No
fin.	3	0	-5.9933	-10.83			9.7	3.65	SLU 75	0.34	No
ini.	3	0	6.3273	-45.99			9.7	3.65	SLU 79	0.08	No
fin.	3	0	-5.9839	-10.59			9.7	3.65	SLU 79	0.34	No
ini.	3	0	6.7047	-47.51			9.7	3.65	SLU 84	0.08	No
fin.	3	0	-6.2743	-11.5			9.7	3.65	SLU 84	0.32	No
ini.	3	0	6.3423	-46.02			9.7	3.65	SLU 80	0.08	No
fin.	3	0	-6.0068	-10.69			9.7	3.65	SLU 80	0.34	No
ini.	3	0	6.6737	-46.69			9.7	3.65	SLU 81	0.08	No
fin.	3	0	-6.1496	-11.45			9.7	3.65	SLU 81	0.32	No
ini.	3	0	6.4587	-46.86			9.7	3.65	SLU 78	0.08	No
fin.	3	0	-6.0952	-10.79			9.7	3.65	SLU 78	0.34	No
ini.	3	0	6.6887	-46.72			9.7	3.65	SLU 82	0.08	No
fin.	3	0	-6.1724	-11.54			9.7	3.65	SLU 82	0.32	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16.86	-6.1895	12.1694	SLV 3	1.97	Si
fin.	2	-17.24	13.0958	12.1694	SLV 3	0.93	No
ini.	2	-64.35	15.3302	12.1694	SLV 15	0.79	No
fin.	2	-5.93	-18.6404	12.1694	SLV 15	0.65	No
ini.	2	-58.84	14.6911	12.1694	SLV 14	0.83	No
fin.	2	-5.01	-20.8203	12.1694	SLV 14	0.58	No
ini.	2	-37.58	8.8227	12.1694	SLD 14	1.38	Si
fin.	2	-8.46	-11.2791	12.1694	SLD 14	1.08	Si
ini.	2	-37.58	8.8227	12.1694	SLD 13	1.38	Si
fin.	2	-8.46	-11.2791	12.1694	SLD 13	1.08	Si
ini.	2	-58.84	14.6911	12.1694	SLV 13	0.83	No
fin.	2	-5.01	-20.8203	12.1694	SLV 13	0.58	No
ini.	2	-23.99	6.4135	12.1694	SLV 10	1.9	Si
fin.	2	-7.88	-12.2558	12.1694	SLV 10	0.99	No
ini.	2	-23.99	6.4135	12.1694	SLV 9	1.9	Si
fin.	2	-7.88	-12.2558	12.1694	SLV 9	0.99	No
ini.	2	16.86	-6.1895	12.1694	SLV 4	1.97	Si
fin.	2	-17.24	13.0958	12.1694	SLV 4	0.93	No
ini.	2	-64.35	15.3302	12.1694	SLV 16	0.79	No
fin.	2	-5.93	-18.6404	12.1694	SLV 16	0.65	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	8.8227	-54.84			14.56	5.48	SLD 13	0.1	No
fin.	2	0	-11.2791	-31.43			14.56	5.48	SLD 13	0.17	No
ini.	2	0	8.544	-50.16			14.56	5.48	SLV 11	0.11	No
fin.	2	0	-4.9895	-16.51			14.56	5.48	SLV 11	0.33	No
ini.	2	0	14.6911	-86.08			14.56	5.48	SLV 13	0.06	No
fin.	2	0	-20.8203	-62.74			14.56	5.48	SLV 13	0.09	No
ini.	2	0	15.3302	-87.74			14.56	5.48	SLV 16	0.06	No
fin.	2	0	-18.6404	-58.75			14.56	5.48	SLV 16	0.09	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	9.0988	-55.53			14.56	5.48	SLD 16	0.1	No
fin.	2	0	-10.3527	-29.69			14.56	5.48	SLD 16	0.18	No
ini.	2	0	15.3302	-87.74			14.56	5.48	SLV 15	0.06	No
fin.	2	0	-18.6404	-58.75			14.56	5.48	SLV 15	0.09	No
ini.	2	0	8.544	-50.16			14.56	5.48	SLV 12	0.11	No
fin.	2	0	-4.9895	-16.51			14.56	5.48	SLV 12	0.33	No
ini.	2	0	14.6911	-86.08			14.56	5.48	SLV 14	0.06	No
fin.	2	0	-20.8203	-62.74			14.56	5.48	SLV 14	0.09	No
ini.	2	0	9.0988	-55.53			14.56	5.48	SLD 15	0.1	No
fin.	2	0	-10.3527	-29.69			14.56	5.48	SLD 15	0.18	No
ini.	2	0	8.8227	-54.84			14.56	5.48	SLD 14	0.1	No
fin.	2	0	-11.2791	-31.43			14.56	5.48	SLD 14	0.17	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.584	SLV 13	No
V_SLV	0.062	SLV 15	No
PF_SLU	1.548	SLU 84	Si
V_SLU	0.077	SLU 84	No

## Trave di accoppiamento 87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.958	6.661	7.53	8.35	0.82	-7.058	6.661	7.53	8.35	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.13	1.7845	8.9792	SLU 82	5.03	Si
fin.	3	-10.59	-5.9467	8.9792	SLU 82	1.51	Si
ini.	3	4.27	2.0112	8.9792	SLU 77	4.46	Si
fin.	3	-9.52	-6.0072	8.9792	SLU 77	1.49	Si
ini.	3	3.12	1.8343	8.9792	SLU 74	4.9	Si
fin.	3	-9.75	-5.83	8.9792	SLU 74	1.54	Si
ini.	3	4.38	2.0135	8.9792	SLU 79	4.46	Si
fin.	3	-9.32	-5.9229	8.9792	SLU 79	1.52	Si
ini.	3	2.09	1.7653	8.9792	SLU 81	5.09	Si
fin.	3	-10.56	-5.9312	8.9792	SLU 81	1.51	Si
ini.	3	3.17	1.8535	8.9792	SLU 75	4.84	Si
fin.	3	-9.78	-5.8455	8.9792	SLU 75	1.54	Si
ini.	3	3.23	1.9422	8.9792	SLU 83	4.62	Si
fin.	3	-10.33	-6.1084	8.9792	SLU 83	1.47	Si
ini.	3	4.31	2.0304	8.9792	SLU 78	4.42	Si
fin.	3	-9.55	-6.0227	8.9792	SLU 78	1.49	Si
ini.	3	3.27	1.9614	8.9792	SLU 84	4.58	Si
fin.	3	-10.36	-6.1239	8.9792	SLU 84	1.47	Si
ini.	3	4.42	2.0327	8.9792	SLU 80	4.42	Si
fin.	3	-9.35	-5.9384	8.9792	SLU 80	1.51	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	1.7653	9.24			8.06	3.03	SLU 81	0.33	No
fin.	3	0	-5.9312	-36.66			8.06	3.03	SLU 81	0.08	No
ini.	3	0	2.0112	7.43			8.06	3.03	SLU 77	0.41	No
fin.	3	0	-6.0072	-36.65			8.06	3.03	SLU 77	0.08	No
ini.	3	0	1.8535	8.18			8.06	3.03	SLU 75	0.37	No
fin.	3	0	-5.8455	-35.94			8.06	3.03	SLU 75	0.08	No
ini.	3	0	2.0304	7.34			8.06	3.03	SLU 78	0.41	No
fin.	3	0	-6.0227	-36.7			8.06	3.03	SLU 78	0.08	No
ini.	3	0	1.8343	8.26			8.06	3.03	SLU 74	0.37	No
fin.	3	0	-5.83	-35.88			8.06	3.03	SLU 74	0.08	No
ini.	3	0	2.0327	6.99			8.06	3.03	SLU 80	0.43	No
fin.	3	0	-5.9384	-36.15			8.06	3.03	SLU 80	0.08	No
ini.	3	0	1.9614	8.32			8.06	3.03	SLU 84	0.36	No
fin.	3	0	-6.1239	-37.48			8.06	3.03	SLU 84	0.08	No
ini.	3	0	1.9422	8.41			8.06	3.03	SLU 83	0.36	No
fin.	3	0	-6.1084	-37.42			8.06	3.03	SLU 83	0.08	No
ini.	3	0	1.7845	9.15			8.06	3.03	SLU 82	0.33	No
fin.	3	0	-5.9467	-36.72			8.06	3.03	SLU 82	0.08	No
ini.	3	0	2.0135	7.08			8.06	3.03	SLU 79	0.43	No
fin.	3	0	-5.9229	-36.09			8.06	3.03	SLU 79	0.08	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	21.7	10.2944	10.7694	SLV 14	1.05	Si
fin.	2	-24.33	-13.237	10.7694	SLV 14	0.81	No
ini.	2	9.78	4.6603	10.7694	SLD 15	2.31	Si
fin.	2	-12.4	-7.8433	10.7694	SLD 15	1.37	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	20.34	9.21	10.7694	SLV 15	1.17	Si
fin.	2	-20.14	-13.1692	10.7694	SLV 15	0.82	No
ini.	2	10.36	5.1197	10.7694	SLD 13	2.1	Si
fin.	2	-14.2	-7.8818	10.7694	SLD 13	1.37	Si
ini.	2	-18.68	-8.0953	10.7694	SLV 3	1.33	Si
fin.	2	11.63	5.8328	10.7694	SLV 3	1.85	Si
ini.	2	10.36	5.1197	10.7694	SLD 14	2.1	Si
fin.	2	-14.2	-7.8818	10.7694	SLD 14	1.37	Si
ini.	2	9.78	4.6603	10.7694	SLD 16	2.31	Si
fin.	2	-12.4	-7.8433	10.7694	SLD 16	1.37	Si
ini.	2	-18.68	-8.0953	10.7694	SLV 4	1.33	Si
fin.	2	11.63	5.8328	10.7694	SLV 4	1.85	Si
ini.	2	21.7	10.2944	10.7694	SLV 13	1.05	Si
fin.	2	-24.33	-13.237	10.7694	SLV 13	0.81	No
ini.	2	20.34	9.21	10.7694	SLV 16	1.17	Si
fin.	2	-20.14	-13.1692	10.7694	SLV 16	0.82	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-8.0953	44.04			12.08	4.55	SLV 3	0.1	No
fin.	2	0	5.8328	17.11			12.08	4.55	SLV 3	0.27	No
ini.	2	0	-8.0953	44.04			12.08	4.55	SLV 4	0.1	No
fin.	2	0	5.8328	17.11			12.08	4.55	SLV 4	0.27	No
ini.	2	0	5.5027	-12.66			12.08	4.55	SLV 9	0.36	No
fin.	2	0	-6.6654	-44.45			12.08	4.55	SLV 9	0.1	No
ini.	2	0	10.2944	-31.98			12.08	4.55	SLV 13	0.14	No
fin.	2	0	-13.237	-63.6			12.08	4.55	SLV 13	0.07	No
ini.	2	0	9.21	-27.18			12.08	4.55	SLV 16	0.17	No
fin.	2	0	-13.1692	-57.6			12.08	4.55	SLV 16	0.08	No
ini.	2	0	5.5027	-12.66			12.08	4.55	SLV 10	0.36	No
fin.	2	0	-6.6654	-44.45			12.08	4.55	SLV 10	0.1	No
ini.	2	0	10.2944	-31.98			12.08	4.55	SLV 14	0.14	No
fin.	2	0	-13.237	-63.6			12.08	4.55	SLV 14	0.07	No
ini.	2	0	9.21	-27.18			12.08	4.55	SLV 15	0.17	No
fin.	2	0	-13.1692	-57.6			12.08	4.55	SLV 15	0.08	No
ini.	2	0	5.1197	-10.59			12.08	4.55	SLD 13	0.43	No
fin.	2	0	-7.8818	-40.89			12.08	4.55	SLD 13	0.11	No
ini.	2	0	5.1197	-10.59			12.08	4.55	SLD 14	0.43	No
fin.	2	0	-7.8818	-40.89			12.08	4.55	SLD 14	0.11	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.814	SLV 13	No
V_SLV	0.072	SLV 13	No
PF_SLU	1.466	SLU 84	Si
V_SLU	0.081	SLU 84	No

## Trave di accoppiamento 88

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-19.868	1.046	6.93	8.35	1.42	-20.668	1.046	6.93	8.35	1.42	0.8	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	3	9.3819	19.4792	SLU 70	2.08	Si
fin.	3	3	-7.0547	19.4792	SLU 70	2.76	Si
ini.	3	3.75	9.4064	19.4792	SLU 35	2.07	Si
fin.	3	3.75	-6.3963	19.4792	SLU 35	3.05	Si
ini.	3	3.31	9.962	19.4792	SLU 71	1.96	Si
fin.	3	3.31	-7.6213	19.4792	SLU 71	2.56	Si
ini.	3	3.07	9.7047	19.4792	SLU 80	2.01	Si
fin.	3	3.07	-6.6923	19.4792	SLU 80	2.91	Si
ini.	3	2.76	9.3495	19.4792	SLU 72	2.08	Si
fin.	3	2.76	-7.0671	19.4792	SLU 72	2.76	Si
ini.	3	3.31	9.7371	19.4792	SLU 78	2	Si
fin.	3	3.31	-6.6799	19.4792	SLU 78	2.92	Si
ini.	3	3.86	10.3496	19.4792	SLU 77	1.88	Si
fin.	3	3.86	-7.234	19.4792	SLU 77	2.69	Si
ini.	3	3.62	10.3172	19.4792	SLU 79	1.89	Si
fin.	3	3.62	-7.2465	19.4792	SLU 79	2.69	Si
ini.	3	3.51	9.374	19.4792	SLU 37	2.08	Si
fin.	3	3.51	-6.4088	19.4792	SLU 37	3.04	Si
ini.	3	3.55	9.9944	19.4792	SLU 69	1.95	Si
fin.	3	3.55	-7.6088	19.4792	SLU 69	2.56	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	9.7371	-11.01			15.31	5.76	SLU 78	0.52	No
fin.	3	0	-6.6799	-30.5			15.31	5.76	SLU 78	0.19	No
ini.	3	0	9.374	-11.14			15.31	5.76	SLU 37	0.52	No
fin.	3	0	-6.4088	-28.65			15.31	5.76	SLU 37	0.2	No
ini.	3	0	9.962	-14.42			15.31	5.76	SLU 71	0.4	No
fin.	3	0	-7.6213	-30.01			15.31	5.76	SLU 71	0.19	No
ini.	3	0	10.3172	-12.44			15.31	5.76	SLU 79	0.46	No
fin.	3	0	-7.2465	-31.94			15.31	5.76	SLU 79	0.18	No
ini.	3	0	9.4064	-11.17			15.31	5.76	SLU 35	0.52	No
fin.	3	0	-6.3963	-28.68			15.31	5.76	SLU 35	0.2	No
ini.	3	0	9.3819	-12.98			15.31	5.76	SLU 70	0.44	No
fin.	3	0	-7.0547	-28.57			15.31	5.76	SLU 70	0.2	No
ini.	3	0	8.8986	-7.83			15.31	5.76	SLU 83	0.74	No
fin.	3	0	-5.6499	-29.01			15.31	5.76	SLU 83	0.2	No
ini.	3	0	10.3496	-12.46			15.31	5.76	SLU 77	0.46	No
fin.	3	0	-7.234	-31.96			15.31	5.76	SLU 77	0.18	No
ini.	3	0	9.9944	-14.44			15.31	5.76	SLU 69	0.4	No
fin.	3	0	-7.6088	-30.03			15.31	5.76	SLU 69	0.19	No
ini.	3	0	9.7047	-10.98			15.31	5.76	SLU 80	0.52	No
fin.	3	0	-6.6923	-30.48			15.31	5.76	SLU 80	0.19	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3.37	23.1952	21.2694	SLV 5	0.92	No
fin.	2	2.39	-20.6162	21.2694	SLV 5	1.03	Si
ini.	2	3.37	23.1952	21.2694	SLV 6	0.92	No
fin.	2	2.39	-20.6162	21.2694	SLV 6	1.03	Si
ini.	2	-2.93	-34.4102	21.2694	SLV 15	0.62	No
fin.	2	-0.12	34.7751	21.2694	SLV 15	0.61	No
ini.	2	6.07	44.5453	21.2694	SLV 1	0.48	No
fin.	2	3.26	-41.6382	21.2694	SLV 1	0.51	No
ini.	2	-2.63	-30.2667	21.2694	SLV 14	0.7	No
fin.	2	0.08	31.002	21.2694	SLV 14	0.69	No
ini.	2	-2.93	-34.4102	21.2694	SLV 16	0.62	No
fin.	2	-0.12	34.7751	21.2694	SLV 16	0.61	No
ini.	2	6.07	44.5453	21.2694	SLV 2	0.48	No
fin.	2	3.26	-41.6382	21.2694	SLV 2	0.51	No
ini.	2	-2.63	-30.2667	21.2694	SLV 13	0.7	No
fin.	2	0.08	31.002	21.2694	SLV 13	0.69	No
ini.	2	5.77	40.4018	21.2694	SLV 3	0.53	No
fin.	2	3.05	-37.865	21.2694	SLV 3	0.56	No
ini.	2	5.77	40.4018	21.2694	SLV 4	0.53	No
fin.	2	3.05	-37.865	21.2694	SLV 4	0.56	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	23.1952	-50.39			22.97	8.64	SLV 6	0.17	No
fin.	2	0	-20.6162	-61.87			22.97	8.64	SLV 6	0.14	No
ini.	2	0	40.4018	-93.35			22.97	8.64	SLV 4	0.09	No
fin.	2	0	-37.865	-105.15			22.97	8.64	SLV 4	0.08	No
ini.	2	0	-30.2667	84.13			22.97	8.64	SLV 13	0.1	No
fin.	2	0	31.002	71.14			22.97	8.64	SLV 13	0.12	No
ini.	2	0	-34.4102	94.67			22.97	8.64	SLV 15	0.09	No
fin.	2	0	34.7751	81.28			22.97	8.64	SLV 15	0.11	No
ini.	2	0	-30.2667	84.13			22.97	8.64	SLV 14	0.1	No
fin.	2	0	31.002	71.14			22.97	8.64	SLV 14	0.12	No
ini.	2	0	23.1952	-50.39			22.97	8.64	SLV 5	0.17	No
fin.	2	0	-20.6162	-61.87			22.97	8.64	SLV 5	0.14	No
ini.	2	0	44.5453	-103.9			22.97	8.64	SLV 2	0.08	No
fin.	2	0	-41.6382	-115.29			22.97	8.64	SLV 2	0.07	No
ini.	2	0	-34.4102	94.67			22.97	8.64	SLV 16	0.09	No
fin.	2	0	34.7751	81.28			22.97	8.64	SLV 16	0.11	No
ini.	2	0	44.5453	-103.9			22.97	8.64	SLV 1	0.08	No
fin.	2	0	-41.6382	-115.29			22.97	8.64	SLV 1	0.07	No
ini.	2	0	40.4018	-93.35			22.97	8.64	SLV 3	0.09	No
fin.	2	0	-37.865	-105.15			22.97	8.64	SLV 3	0.08	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.477	SLV 1	No
V_SLV	0.075	SLV 1	No
PF_SLU	1.882	SLU 77	Si
V_SLU	0.18	SLU 77	No

#### Trave di accoppiamento 89

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-11.163	1.046	7.33	8.35	1.02	-12.283	1.046	7.33	8.35	1.02	1.12	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-14.95	-7.8169	12.4792	SLU 38	1.6	Si
fin.	3	-14.95	2.8436	12.4792	SLU 38	4.39	Si
ini.	3	-17.98	-7.8171	12.4792	SLU 84	1.6	Si
fin.	3	-17.98	2.7054	12.4792	SLU 84	4.61	Si
ini.	3	-14.18	-7.8452	12.4792	SLU 35	1.59	Si
fin.	3	-14.18	2.7083	12.4792	SLU 35	4.61	Si
ini.	3	-14.31	-7.978	12.4792	SLU 37	1.56	Si
fin.	3	-14.31	2.7369	12.4792	SLU 37	4.56	Si
ini.	3	-13.62	-7.8539	12.4792	SLU 71	1.59	Si
fin.	3	-13.62	3.9477	12.4792	SLU 71	3.16	Si
ini.	3	-16.77	-8.3003	12.4792	SLU 78	1.5	Si
fin.	3	-16.77	3.4967	12.4792	SLU 78	3.57	Si
ini.	3	-16.26	-8.5942	12.4792	SLU 79	1.45	Si
fin.	3	-16.26	3.4187	12.4792	SLU 79	3.65	Si
ini.	3	-16.89	-8.4331	12.4792	SLU 80	1.48	Si
fin.	3	-16.89	3.5253	12.4792	SLU 80	3.54	Si
ini.	3	-17.34	-7.9782	12.4792	SLU 83	1.56	Si
fin.	3	-17.34	2.5988	12.4792	SLU 83	4.8	Si
ini.	3	-16.13	-8.4614	12.4792	SLU 77	1.47	Si
fin.	3	-16.13	3.3901	12.4792	SLU 77	3.68	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-6.8838	23.22			10.02	3.77	SLU 82	0.16	No
fin.	3	0	2.1122	-6.47			10.02	3.77	SLU 82	0.58	No
ini.	3	0	-8.5942	24.35			10.02	3.77	SLU 79	0.15	No
fin.	3	0	3.4187	-2.31			10.02	3.77	SLU 79	1.63	Si
ini.	3	0	-8.4331	24.3			10.02	3.77	SLU 80	0.16	No
fin.	3	0	3.5253	-2.36			10.02	3.77	SLU 80	1.6	Si
ini.	3	0	-7.5281	22.84			10.02	3.77	SLU 74	0.17	No
fin.	3	0	2.7968	-3.82			10.02	3.77	SLU 74	0.99	No
ini.	3	0	-8.3003	24.16			10.02	3.77	SLU 78	0.16	No
fin.	3	0	3.4967	-2.5			10.02	3.77	SLU 78	1.51	Si
ini.	3	0	-7.045	23.27			10.02	3.77	SLU 81	0.16	No
fin.	3	0	2.0056	-6.42			10.02	3.77	SLU 81	0.59	No
ini.	3	0	-7.8171	24.58			10.02	3.77	SLU 84	0.15	No
fin.	3	0	2.7054	-5.1			10.02	3.77	SLU 84	0.74	No
ini.	3	0	-8.4614	24.21			10.02	3.77	SLU 77	0.16	No
fin.	3	0	3.3901	-2.45			10.02	3.77	SLU 77	1.54	Si
ini.	3	0	-7.9782	24.63			10.02	3.77	SLU 83	0.15	No
fin.	3	0	2.5988	-5.05			10.02	3.77	SLU 83	0.75	No
ini.	3	0	-7.3924	22.91			10.02	3.77	SLU 76	0.16	No
fin.	3	0	3.0032	-3.75			10.02	3.77	SLU 76	1	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-0.64	-23.5165	14.2694	SLV 15	0.61	No
fin.	2	3.33	44.5781	14.2694	SLV 15	0.32	No
ini.	2	-22.33	22.7637	14.2694	SLV 3	0.63	No
fin.	2	-25.73	-46.7259	14.2694	SLV 3	0.31	No
ini.	2	1.05	-31.7176	14.2694	SLV 14	0.45	No
fin.	2	4.45	50.7113	14.2694	SLV 14	0.28	No
ini.	2	-4.57	-25.0874	14.2694	SLV 9	0.57	No
fin.	2	-4.4	25.9104	14.2694	SLV 9	0.55	No
ini.	2	-22.33	22.7637	14.2694	SLV 4	0.63	No
fin.	2	-25.73	-46.7259	14.2694	SLV 4	0.31	No
ini.	2	-20.64	14.5626	14.2694	SLV 2	0.98	No
fin.	2	-24.6	-40.5927	14.2694	SLV 2	0.35	No
ini.	2	-20.64	14.5626	14.2694	SLV 1	0.98	No
fin.	2	-24.6	-40.5927	14.2694	SLV 1	0.35	No
ini.	2	-0.64	-23.5165	14.2694	SLV 16	0.61	No
fin.	2	3.33	44.5781	14.2694	SLV 16	0.32	No
ini.	2	-4.57	-25.0874	14.2694	SLV 10	0.57	No
fin.	2	-4.4	25.9104	14.2694	SLV 10	0.55	No
ini.	2	1.05	-31.7176	14.2694	SLV 13	0.45	No
fin.	2	4.45	50.7113	14.2694	SLV 13	0.28	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	22.7637	-52.81			15.03	5.65	SLV 3	0.11	No
fin.	2	0	-46.7259	-72.78			15.03	5.65	SLV 3	0.08	No
ini.	2	0	-23.5165	66.9			15.03	5.65	SLV 16	0.08	No
fin.	2	0	44.5781	55.58			15.03	5.65	SLV 16	0.1	No
ini.	2	0	-31.7176	80.79			15.03	5.65	SLV 14	0.07	No
fin.	2	0	50.7113	68.54			15.03	5.65	SLV 14	0.08	No
ini.	2	0	22.7637	-52.81			15.03	5.65	SLV 4	0.11	No
fin.	2	0	-46.7259	-72.78			15.03	5.65	SLV 4	0.08	No
ini.	2	0	-25.0874	55.1			15.03	5.65	SLV 10	0.1	No
fin.	2	0	25.9104	38.73			15.03	5.65	SLV 10	0.15	No
ini.	2	0	14.5626	-38.92			15.03	5.65	SLV 2	0.15	No
fin.	2	0	-40.5927	-59.82			15.03	5.65	SLV 2	0.09	No
ini.	2	0	14.5626	-38.92			15.03	5.65	SLV 1	0.15	No
fin.	2	0	-40.5927	-59.82			15.03	5.65	SLV 1	0.09	No
ini.	2	0	-23.5165	66.9			15.03	5.65	SLV 15	0.08	No
fin.	2	0	44.5781	55.58			15.03	5.65	SLV 15	0.1	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-31.7176	80.79			15.03	5.65	SLV 13	0.07	No
fin.	2	0	50.7113	68.54			15.03	5.65	SLV 13	0.08	No
ini.	2	0	-25.0874	55.1			15.03	5.65	SLV 9	0.1	No
fin.	2	0	25.9104	38.73			15.03	5.65	SLV 9	0.15	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.281	SLV 13	No
V_SLV	0.07	SLV 13	No
PF_SLU	1.452	SLU 79	Si
V_SLU	0.153	SLU 83	No

## Trave di accoppiamento 90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-9.386	1.046	7.33	8.35	1.02	-10.466	1.046	7.33	8.35	1.02	1.08	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-10.21	-3.6397	12.4792	SLU 10	3.43	Si
fin.	3	-10.21	0.3952	12.4792	SLU 10	31.58	Si
ini.	3	-10.99	-3.6415	12.4792	SLU 54	3.43	Si
fin.	3	-10.99	-0.322	12.4792	SLU 54	38.75	Si
ini.	3	-11.58	-3.7423	12.4792	SLU 55	3.33	Si
fin.	3	-11.58	-0.3117	12.4792	SLU 55	40.04	Si
ini.	3	-11.62	-4.0719	12.4792	SLU 60	3.06	Si
fin.	3	-11.62	0.1298	12.4792	SLU 60	96.12	Si
ini.	3	-8.57	0.7348	12.4792	SLU 29	16.98	Si
fin.	3	-8.57	-3.5871	12.4792	SLU 29	3.48	Si
ini.	3	-12.23	-4.5796	12.4792	SLU 61	2.72	Si
fin.	3	-12.23	0.5036	12.4792	SLU 61	24.78	Si
ini.	3	-12.09	-3.6016	12.4792	SLU 63	3.46	Si
fin.	3	-12.09	-0.5378	12.4792	SLU 63	23.21	Si
ini.	3	-9.58	-4.2587	12.4792	SLU 44	2.93	Si
fin.	3	-9.58	0.6757	12.4792	SLU 44	18.47	Si
ini.	3	-13.5	-3.6093	12.4792	SLU 73	3.46	Si
fin.	3	-13.5	-0.4927	12.4792	SLU 73	25.33	Si
ini.	3	-11.72	-4.7203	12.4792	SLU 52	2.64	Si
fin.	3	-11.72	0.7297	12.4792	SLU 52	17.1	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.0357	11.31			10.39	3.91	SLU 35	0.35	No
fin.	3	0	-3.2941	-17.35			10.39	3.91	SLU 35	0.23	No
ini.	3	0	-2.9609	18.95			10.39	3.91	SLU 81	0.21	No
fin.	3	0	-1.0925	-15.33			10.39	3.91	SLU 81	0.25	No
ini.	3	0	-4.7203	17.57			10.39	3.91	SLU 52	0.22	No
fin.	3	0	0.7297	-7.32			10.39	3.91	SLU 52	0.53	No
ini.	3	0	-4.0719	18.04			10.39	3.91	SLU 60	0.22	No
fin.	3	0	0.1298	-10.1			10.39	3.91	SLU 60	0.39	No
ini.	3	0	0.2733	10.86			10.39	3.91	SLU 37	0.36	No
fin.	3	0	-3.5331	-17.79			10.39	3.91	SLU 37	0.22	No
ini.	3	0	-2.4907	17.9			10.39	3.91	SLU 84	0.22	No
fin.	3	0	-1.7601	-16.38			10.39	3.91	SLU 84	0.24	No
ini.	3	0	-0.8072	13.38			10.39	3.91	SLU 79	0.29	No
fin.	3	0	-3.1985	-17.65			10.39	3.91	SLU 79	0.22	No
ini.	3	0	-4.5796	18.86			10.39	3.91	SLU 61	0.21	No
fin.	3	0	0.5036	-9.29			10.39	3.91	SLU 61	0.42	No
ini.	3	0	-3.6093	18.48			10.39	3.91	SLU 73	0.21	No
fin.	3	0	-0.4927	-12.55			10.39	3.91	SLU 73	0.31	No
ini.	3	0	-3.4686	19.77			10.39	3.91	SLU 82	0.2	No
fin.	3	0	-0.7187	-14.51			10.39	3.91	SLU 82	0.27	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.48	-26.2836	14.2694	SLV 12	0.54	No
fin.	2	-8.44	17.5512	14.2694	SLV 12	0.81	No
ini.	2	-9.74	-39.8499	14.2694	SLV 16	0.36	No
fin.	2	-5.78	11.1164	14.2694	SLV 16	1.28	Si
ini.	2	-6.63	35.557	14.2694	SLV 1	0.4	No
fin.	2	-10.58	-12.3478	14.2694	SLV 1	1.16	Si
ini.	2	-9.19	-31.3932	14.2694	SLV 13	0.45	No
fin.	2	-5.14	1.4588	14.2694	SLV 13	9.78	Si
ini.	2	-9.19	-31.3932	14.2694	SLV 14	0.45	No
fin.	2	-5.14	1.4588	14.2694	SLV 14	9.78	Si
ini.	2	-6.63	35.557	14.2694	SLV 2	0.4	No
fin.	2	-10.58	-12.3478	14.2694	SLV 2	1.16	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.74	-39.8499	14.2694	SLV 15	0.36	No
fin.	2	-5.78	11.1164	14.2694	SLV 15	1.28	Si
ini.	2	-7.17	27.1002	14.2694	SLV 3	0.53	No
fin.	2	-11.23	-2.6902	14.2694	SLV 3	5.3	Si
ini.	2	-9.48	-26.2836	14.2694	SLV 11	0.54	No
fin.	2	-8.44	17.5512	14.2694	SLV 11	0.81	No
ini.	2	-7.17	27.1002	14.2694	SLV 4	0.53	No
fin.	2	-11.23	-2.6902	14.2694	SLV 4	5.3	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-31.3932	43.17			15.58	5.86	SLV 13	0.14	No
fin.	2	0	1.4588	21.18			15.58	5.86	SLV 13	0.28	No
ini.	2	0	-39.8499	60.32			15.58	5.86	SLV 16	0.1	No
fin.	2	0	11.1164	38.81			15.58	5.86	SLV 16	0.15	No
ini.	2	0	21.9906	-29.92			15.58	5.86	SLV 6	0.2	No
fin.	2	0	-18.7826	-48.72			15.58	5.86	SLV 6	0.12	No
ini.	2	0	21.9906	-29.92			15.58	5.86	SLV 5	0.2	No
fin.	2	0	-18.7826	-48.72			15.58	5.86	SLV 5	0.12	No
ini.	2	0	35.557	-38.5			15.58	5.86	SLV 1	0.15	No
fin.	2	0	-12.3478	-54.72			15.58	5.86	SLV 1	0.11	No
ini.	2	0	-26.2836	51.74			15.58	5.86	SLV 12	0.11	No
fin.	2	0	17.5512	32.81			15.58	5.86	SLV 12	0.18	No
ini.	2	0	-39.8499	60.32			15.58	5.86	SLV 15	0.1	No
fin.	2	0	11.1164	38.81			15.58	5.86	SLV 15	0.15	No
ini.	2	0	35.557	-38.5			15.58	5.86	SLV 2	0.15	No
fin.	2	0	-12.3478	-54.72			15.58	5.86	SLV 2	0.11	No
ini.	2	0	-26.2836	51.74			15.58	5.86	SLV 11	0.11	No
fin.	2	0	17.5512	32.81			15.58	5.86	SLV 11	0.18	No
ini.	2	0	-31.3932	43.17			15.58	5.86	SLV 14	0.14	No
fin.	2	0	1.4588	21.18			15.58	5.86	SLV 14	0.28	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.358	SLV 15	No
V_SLV	0.097	SLV 15	No
PF_SLU	2.644	SLU 52	Si
V_SLU	0.198	SLU 82	No

## Trave di accoppiamento 91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.478	1.046	6.93	8.35	1.42	-7.278	1.046	6.93	8.35	1.42	0.8	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-10.76	-11.618	19.4792	SLU 80	1.68	Si
fin.	3	-10.76	13.0236	19.4792	SLU 80	1.5	Si
ini.	3	-10.72	-11.8853	19.4792	SLU 40	1.64	Si
fin.	3	-10.72	13.0343	19.4792	SLU 40	1.49	Si
ini.	3	-11.89	-12.9545	19.4792	SLU 84	1.5	Si
fin.	3	-11.89	14.3192	19.4792	SLU 84	1.36	Si
ini.	3	-11.97	-12.132	19.4792	SLU 83	1.61	Si
fin.	3	-11.97	13.6462	19.4792	SLU 83	1.43	Si
ini.	3	-10.85	-12.1895	19.4792	SLU 75	1.6	Si
fin.	3	-10.85	13.5354	19.4792	SLU 75	1.44	Si
ini.	3	-10.55	-11.9587	19.4792	SLU 78	1.63	Si
fin.	3	-10.55	13.475	19.4792	SLU 78	1.45	Si
ini.	3	-11.01	-12.397	19.4792	SLU 76	1.57	Si
fin.	3	-11.01	13.5327	19.4792	SLU 76	1.44	Si
ini.	3	-12.26	-12.3628	19.4792	SLU 81	1.58	Si
fin.	3	-12.26	13.7067	19.4792	SLU 81	1.42	Si
ini.	3	-11.3	-12.6277	19.4792	SLU 73	1.54	Si
fin.	3	-11.3	13.5931	19.4792	SLU 73	1.43	Si
ini.	3	-12.18	-13.1852	19.4792	SLU 82	1.48	Si
fin.	3	-12.18	14.3796	19.4792	SLU 82	1.35	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-12.397	42.24			15.31	5.76	SLU 76	0.14	No
fin.	3	0	13.5327	21.86			15.31	5.76	SLU 76	0.26	No
ini.	3	0	-12.9545	44.83			15.31	5.76	SLU 84	0.13	No
fin.	3	0	14.3192	22.64			15.31	5.76	SLU 84	0.25	No
ini.	3	0	-12.132	42.96			15.31	5.76	SLU 83	0.13	No
fin.	3	0	13.6462	20.77			15.31	5.76	SLU 83	0.28	No
ini.	3	0	-11.9587	41.62			15.31	5.76	SLU 78	0.14	No
fin.	3	0	13.475	21.24			15.31	5.76	SLU 78	0.27	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-12.1895	41.99			15.31	5.76	SLU 75	0.14	No
fin.	3	0	13.5354	21.6			15.31	5.76	SLU 75	0.27	No
ini.	3	0	-12.6277	42.61			15.31	5.76	SLU 73	0.14	No
fin.	3	0	13.5931	22.22			15.31	5.76	SLU 73	0.26	No
ini.	3	0	-12.3628	43.32			15.31	5.76	SLU 81	0.13	No
fin.	3	0	13.7067	21.13			15.31	5.76	SLU 81	0.27	No
ini.	3	0	-11.618	40.63			15.31	5.76	SLU 80	0.14	No
fin.	3	0	13.0236	20.25			15.31	5.76	SLU 80	0.28	No
ini.	3	0	-11.8853	40.97			15.31	5.76	SLU 40	0.14	No
fin.	3	0	13.0343	20.79			15.31	5.76	SLU 40	0.28	No
ini.	3	0	-13.1852	45.19			15.31	5.76	SLU 82	0.13	No
fin.	3	0	14.3796	23			15.31	5.76	SLU 82	0.25	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-10.57	-30.9005	21.2694	SLV 14	0.69	No
fin.	2	-7.82	42.5524	21.2694	SLV 14	0.5	No
ini.	2	-9.82	-21.8358	21.2694	SLV 12	0.97	No
fin.	2	-8.97	26.0376	21.2694	SLV 12	0.82	No
ini.	2	-10.57	-30.9005	21.2694	SLV 13	0.69	No
fin.	2	-7.82	42.5524	21.2694	SLV 13	0.5	No
ini.	2	-4.5	16.7016	21.2694	SLV 4	1.27	Si
fin.	2	-7.25	-26.9238	21.2694	SLV 4	0.79	No
ini.	2	-9.82	-21.8358	21.2694	SLV 11	0.97	No
fin.	2	-8.97	26.0376	21.2694	SLV 11	0.82	No
ini.	2	-3.75	20.8829	21.2694	SLV 1	1.02	Si
fin.	2	-6.51	-31.2184	21.2694	SLV 1	0.68	No
ini.	2	-11.32	-35.0818	21.2694	SLV 15	0.61	No
fin.	2	-8.56	46.847	21.2694	SLV 15	0.45	No
ini.	2	-4.5	16.7016	21.2694	SLV 3	1.27	Si
fin.	2	-7.25	-26.9238	21.2694	SLV 3	0.79	No
ini.	2	-3.75	20.8829	21.2694	SLV 2	1.02	Si
fin.	2	-6.51	-31.2184	21.2694	SLV 2	0.68	No
ini.	2	-11.32	-35.0818	21.2694	SLV 16	0.61	No
fin.	2	-8.56	46.847	21.2694	SLV 16	0.45	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	16.7016	-50.61			22.97	8.64	SLV 3	0.17	No
fin.	2	0	-26.9238	-62.54			22.97	8.64	SLV 3	0.14	No
ini.	2	0	-30.9005	100.21			22.97	8.64	SLV 14	0.09	No
fin.	2	0	42.5524	86.38			22.97	8.64	SLV 14	0.1	No
ini.	2	0	-30.9005	100.21			22.97	8.64	SLV 13	0.09	No
fin.	2	0	42.5524	86.38			22.97	8.64	SLV 13	0.1	No
ini.	2	0	-21.8358	67.59			22.97	8.64	SLV 11	0.13	No
fin.	2	0	26.0376	54.04			22.97	8.64	SLV 11	0.16	No
ini.	2	0	20.8829	-61.71			22.97	8.64	SLV 1	0.14	No
fin.	2	0	-31.2184	-73.43			22.97	8.64	SLV 1	0.12	No
ini.	2	0	-21.8358	67.59			22.97	8.64	SLV 12	0.13	No
fin.	2	0	26.0376	54.04			22.97	8.64	SLV 12	0.16	No
ini.	2	0	20.8829	-61.71			22.97	8.64	SLV 2	0.14	No
fin.	2	0	-31.2184	-73.43			22.97	8.64	SLV 2	0.12	No
ini.	2	0	-35.0818	111.31			22.97	8.64	SLV 16	0.08	No
fin.	2	0	46.847	97.27			22.97	8.64	SLV 16	0.09	No
ini.	2	0	16.7016	-50.61			22.97	8.64	SLV 4	0.17	No
fin.	2	0	-26.9238	-62.54			22.97	8.64	SLV 4	0.14	No
ini.	2	0	-35.0818	111.31			22.97	8.64	SLV 15	0.08	No
fin.	2	0	46.847	97.27			22.97	8.64	SLV 15	0.09	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.454	SLV 15	No
V_SLV	0.078	SLV 15	No
PF_SLU	1.355	SLU 82	Si
V_SLU	0.128	SLU 82	No

### Trave di accoppiamento 92

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-4.168	1.046	6.93	8.35	1.42	-4.968	1.046	6.93	8.35	1.42	0.8	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-11.2	-11.7523	19.4792	SLU 78	1.66	Si
fin.	3	-11.2	5.9219	19.4792	SLU 78	3.29	Si
ini.	3	-9.52	-10.8736	19.4792	SLU 71	1.79	Si
fin.	3	-9.52	6.3672	19.4792	SLU 71	3.06	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-10.52	-12.2225	19.4792	SLU 77	1.59	Si
fin.	3	-10.52	6.578	19.4792	SLU 77	2.96	Si
ini.	3	-10.9	-11.923	19.4792	SLU 79	1.63	Si
fin.	3	-10.9	6.4667	19.4792	SLU 79	3.01	Si
ini.	3	-11.25	-11.3691	19.4792	SLU 83	1.71	Si
fin.	3	-11.25	5.4375	19.4792	SLU 83	3.58	Si
ini.	3	-11.93	-10.8989	19.4792	SLU 84	1.79	Si
fin.	3	-11.93	4.7814	19.4792	SLU 84	4.07	Si
ini.	3	-9.31	-10.9757	19.4792	SLU 56	1.77	Si
fin.	3	-9.31	5.9501	19.4792	SLU 56	3.27	Si
ini.	3	-10.27	-11.2189	19.4792	SLU 74	1.74	Si
fin.	3	-10.27	5.5061	19.4792	SLU 74	3.54	Si
ini.	3	-9.14	-11.1731	19.4792	SLU 69	1.74	Si
fin.	3	-9.14	6.4785	19.4792	SLU 69	3.01	Si
ini.	3	-11.58	-11.4528	19.4792	SLU 80	1.7	Si
fin.	3	-11.58	5.8106	19.4792	SLU 80	3.35	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-10.8989	30.51			15.31	5.76	SLU 84	0.19	No
fin.	3	0	4.7814	9.4			15.31	5.76	SLU 84	0.61	No
ini.	3	0	-11.2189	30.98			15.31	5.76	SLU 74	0.19	No
fin.	3	0	5.5061	11.54			15.31	5.76	SLU 74	0.5	No
ini.	3	0	-12.2225	33.58			15.31	5.76	SLU 77	0.17	No
fin.	3	0	6.578	14.13			15.31	5.76	SLU 77	0.41	No
ini.	3	0	-11.4528	31.65			15.31	5.76	SLU 80	0.18	No
fin.	3	0	5.8106	12.21			15.31	5.76	SLU 80	0.47	No
ini.	3	0	-10.8736	29.67			15.31	5.76	SLU 71	0.19	No
fin.	3	0	6.3672	14.14			15.31	5.76	SLU 71	0.41	No
ini.	3	0	-11.923	33.06			15.31	5.76	SLU 79	0.17	No
fin.	3	0	6.4667	13.62			15.31	5.76	SLU 79	0.42	No
ini.	3	0	-10.793	29.89			15.31	5.76	SLU 35	0.19	No
fin.	3	0	5.9138	12.42			15.31	5.76	SLU 35	0.46	No
ini.	3	0	-11.7523	32.17			15.31	5.76	SLU 78	0.18	No
fin.	3	0	5.9219	12.73			15.31	5.76	SLU 78	0.45	No
ini.	3	0	-11.1731	30.18			15.31	5.76	SLU 69	0.19	No
fin.	3	0	6.4785	14.65			15.31	5.76	SLU 69	0.39	No
ini.	3	0	-11.3691	31.92			15.31	5.76	SLU 83	0.18	No
fin.	3	0	5.4375	10.8			15.31	5.76	SLU 83	0.53	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-8.31	-23.2626	21.2694	SLD 16	0.91	No
fin.	2	-7.32	15.56	21.2694	SLD 16	1.37	Si
ini.	2	-4.6	31.2781	21.2694	SLV 2	0.68	No
fin.	2	-6.79	-25.7513	21.2694	SLV 2	0.83	No
ini.	2	5.4	31.0005	21.2694	SLV 4	0.69	No
fin.	2	1.43	-25.4373	21.2694	SLV 4	0.84	No
ini.	2	-9.53	-44.9703	21.2694	SLV 15	0.47	No
fin.	2	-7.34	32.0298	21.2694	SLV 15	0.66	No
ini.	2	-9.53	-44.9703	21.2694	SLV 16	0.47	No
fin.	2	-7.34	32.0298	21.2694	SLV 16	0.66	No
ini.	2	5.4	31.0005	21.2694	SLV 3	0.69	No
fin.	2	1.43	-25.4373	21.2694	SLV 3	0.84	No
ini.	2	-8.31	-23.2626	21.2694	SLD 15	0.91	No
fin.	2	-7.32	15.56	21.2694	SLD 15	1.37	Si
ini.	2	-19.52	-44.6927	21.2694	SLV 13	0.48	No
fin.	2	-15.56	31.7158	21.2694	SLV 13	0.67	No
ini.	2	-19.52	-44.6927	21.2694	SLV 14	0.48	No
fin.	2	-15.56	31.7158	21.2694	SLV 14	0.67	No
ini.	2	-4.6	31.2781	21.2694	SLV 1	0.68	No
fin.	2	-6.79	-25.7513	21.2694	SLV 1	0.83	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-23.1469	57			22.97	8.64	SLD 14	0.15	No
fin.	2	0	15.4403	43.07			22.97	8.64	SLD 14	0.2	No
ini.	2	0	-44.9703	104.35			22.97	8.64	SLV 15	0.08	No
fin.	2	0	32.0298	92.73			22.97	8.64	SLV 15	0.09	No
ini.	2	0	-44.6927	107.4			22.97	8.64	SLV 13	0.08	No
fin.	2	0	31.7158	91.35			22.97	8.64	SLV 13	0.09	No
ini.	2	0	31.0005	-69.54			22.97	8.64	SLV 3	0.12	No
fin.	2	0	-25.4373	-78.18			22.97	8.64	SLV 3	0.11	No
ini.	2	0	-44.6927	107.4			22.97	8.64	SLV 14	0.08	No
fin.	2	0	31.7158	91.35			22.97	8.64	SLV 14	0.09	No
ini.	2	0	-23.1469	57			22.97	8.64	SLD 13	0.15	No
fin.	2	0	15.4403	43.07			22.97	8.64	SLD 13	0.2	No
ini.	2	0	31.2781	-66.49			22.97	8.64	SLV 1	0.13	No
fin.	2	0	-25.7513	-79.56			22.97	8.64	SLV 1	0.11	No
ini.	2	0	31.0005	-69.54			22.97	8.64	SLV 4	0.12	No
fin.	2	0	-25.4373	-78.18			22.97	8.64	SLV 4	0.11	No
ini.	2	0	-44.9703	104.35			22.97	8.64	SLV 16	0.08	No
fin.	2	0	32.0298	92.73			22.97	8.64	SLV 16	0.09	No
ini.	2	0	31.2781	-66.49			22.97	8.64	SLV 2	0.13	No
fin.	2	0	-25.7513	-79.56			22.97	8.64	SLV 2	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.473	SLV 15	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.08	SLV 13	No
PF SLU	1.594	SLU 77	Si
V SLU	0.172	SLU 77	No

## Trave di accoppiamento 93

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.678	-4.859	8.09	8.35	0.26	-10.518	-4.859	8.09	8.35	0.26	1.84	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.2	-0.0817	1.0289	SLU 46	12.59	Si
fin.	3	-0.2	-0.6926	1.0289	SLU 46	1.49	Si
ini.	3	-0.27	-0.0764	1.0289	SLU 52	13.47	Si
fin.	3	-0.27	-0.6999	1.0289	SLU 52	1.47	Si
ini.	3	-0.11	-0.0975	1.0289	SLU 64	10.55	Si
fin.	3	-0.11	-0.6739	1.0289	SLU 64	1.53	Si
ini.	3	-0.25	-0.0851	1.0289	SLU 47	12.09	Si
fin.	3	-0.25	-0.6912	1.0289	SLU 47	1.49	Si
ini.	3	-0.18	-0.6449	1.0289	SLU 37	1.6	Si
fin.	3	-0.18	0.0405	1.0289	SLU 37	25.41	Si
ini.	3	-0.24	-0.0158	1.0289	SLU 65	64.99	Si
fin.	3	-0.24	-0.7596	1.0289	SLU 65	1.35	Si
ini.	3	-0.12	-0.1308	1.0289	SLU 45	7.87	Si
fin.	3	-0.12	-0.6411	1.0289	SLU 45	1.6	Si
ini.	3	-0.21	0.0603	1.0289	SLU 2	17.06	Si
fin.	3	-0.21	-0.6565	1.0289	SLU 2	1.57	Si
ini.	3	-0.23	0.0903	1.0289	SLU 44	11.39	Si
fin.	3	-0.23	-0.8633	1.0289	SLU 44	1.19	Si
ini.	3	-0.09	0.0086	1.0289	SLU 43	119.36	Si
fin.	3	-0.09	-0.7776	1.0289	SLU 43	1.32	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.0158	0.83			2	0.75	SLU 65	0.91	No
fin.	3	0	-0.7596	-1.64			2	0.75	SLU 65	0.46	No
ini.	3	0	-0.1805	1.01			2	0.75	SLU 61	0.75	No
fin.	3	0	-0.5955	-1.46			2	0.75	SLU 61	0.52	No
ini.	3	0	-0.0817	0.9			2	0.75	SLU 46	0.84	No
fin.	3	0	-0.6926	-1.56			2	0.75	SLU 46	0.48	No
ini.	3	0	0.0086	0.8			2	0.75	SLU 43	0.94	No
fin.	3	0	-0.7776	-1.66			2	0.75	SLU 43	0.45	No
ini.	3	0	0.0903	0.71			2	0.75	SLU 44	1.06	Si
fin.	3	0	-0.8633	-1.75			2	0.75	SLU 44	0.43	No
ini.	3	0	-0.615	1.47			2	0.75	SLU 79	0.51	No
fin.	3	0	-0.1663	-0.99			2	0.75	SLU 79	0.76	No
ini.	3	0	-0.0764	0.89			2	0.75	SLU 52	0.84	No
fin.	3	0	-0.6999	-1.57			2	0.75	SLU 52	0.48	No
ini.	3	0	-0.1308	0.95			2	0.75	SLU 45	0.79	No
fin.	3	0	-0.6411	-1.51			2	0.75	SLU 45	0.5	No
ini.	3	0	-0.0851	0.9			2	0.75	SLU 47	0.84	No
fin.	3	0	-0.6912	-1.56			2	0.75	SLU 47	0.48	No
ini.	3	0	-0.0975	0.92			2	0.75	SLU 64	0.82	No
fin.	3	0	-0.6739	-1.54			2	0.75	SLU 64	0.49	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2.1	-4.7034	1.5434	SLV 16	0.33	No
fin.	2	2.67	4.1098	1.5434	SLV 16	0.38	No
ini.	2	-2.29	4.5048	1.5434	SLV 1	0.34	No
fin.	2	-2.85	-5.0988	1.5434	SLV 1	0.3	No
ini.	2	2.1	-4.7034	1.5434	SLV 15	0.33	No
fin.	2	2.67	4.1098	1.5434	SLV 15	0.38	No
ini.	2	-2.28	2.834	1.5434	SLV 7	0.54	No
fin.	2	-1.27	-3.4949	1.5434	SLV 7	0.44	No
ini.	2	2.95	-5.5578	1.5434	SLV 13	0.28	No
fin.	2	2.86	5.0011	1.5434	SLV 13	0.31	No
ini.	2	-2.29	4.5048	1.5434	SLV 2	0.34	No
fin.	2	-2.85	-5.0988	1.5434	SLV 2	0.3	No
ini.	2	-2.28	2.834	1.5434	SLV 8	0.54	No
fin.	2	-1.27	-3.4949	1.5434	SLV 8	0.44	No
ini.	2	-3.13	5.3592	1.5434	SLV 3	0.29	No
fin.	2	-3.04	-5.99	1.5434	SLV 3	0.26	No
ini.	2	-3.13	5.3592	1.5434	SLV 4	0.29	No
fin.	2	-3.04	-5.99	1.5434	SLV 4	0.26	No
ini.	2	2.95	-5.5578	1.5434	SLV 14	0.28	No
fin.	2	2.86	5.0011	1.5434	SLV 14	0.31	No





## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.5048	-4.87			3	1.13	SLV 1	0.23	No
fin.	2	0	-5.0988	-6.21			3	1.13	SLV 1	0.18	No
ini.	2	0	-4.7034	6.33			3	1.13	SLV 15	0.18	No
fin.	2	0	4.1098	3.89			3	1.13	SLV 15	0.29	No
ini.	2	0	2.834	-1.05			3	1.13	SLV 8	1.08	Si
fin.	2	0	-3.4949	-4.81			3	1.13	SLV 8	0.23	No
ini.	2	0	5.3592	-4.92			3	1.13	SLV 3	0.23	No
fin.	2	0	-5.99	-7.39			3	1.13	SLV 3	0.15	No
ini.	2	0	-5.5578	6.39			3	1.13	SLV 13	0.18	No
fin.	2	0	5.0011	5.06			3	1.13	SLV 13	0.22	No
ini.	2	0	-4.7034	6.33			3	1.13	SLV 16	0.18	No
fin.	2	0	4.1098	3.89			3	1.13	SLV 16	0.29	No
ini.	2	0	4.5048	-4.87			3	1.13	SLV 2	0.23	No
fin.	2	0	-5.0988	-6.21			3	1.13	SLV 2	0.18	No
ini.	2	0	5.3592	-4.92			3	1.13	SLV 4	0.23	No
fin.	2	0	-5.99	-7.39			3	1.13	SLV 4	0.15	No
ini.	2	0	2.834	-1.05			3	1.13	SLV 7	1.08	Si
fin.	2	0	-3.4949	-4.81			3	1.13	SLV 7	0.23	No
ini.	2	0	-5.5578	6.39			3	1.13	SLV 14	0.18	No
fin.	2	0	5.0011	5.06			3	1.13	SLV 14	0.22	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.258	SLV 3	No
V_SLV	0.153	SLV 3	No
PF_SLU	1.192	SLU 44	Si
V_SLU	0.431	SLU 44	No

## Trave di accoppiamento 94

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.548	-3.359	6.93	8.35	1.42	-9.448	-3.359	6.93	8.35	1.42	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.04	4.7554	19.4792	SLU 52	4.1	Si
fin.	3	-7.04	-8.0045	19.4792	SLU 52	2.43	Si
ini.	3	-7.77	4.2453	19.4792	SLU 81	4.59	Si
fin.	3	-7.77	-8.1919	19.4792	SLU 81	2.38	Si
ini.	3	-6.55	4.3684	19.4792	SLU 75	4.46	Si
fin.	3	-6.55	-8.3114	19.4792	SLU 75	2.34	Si
ini.	3	-6.02	5.0956	19.4792	SLU 65	3.82	Si
fin.	3	-6.02	-8.6405	19.4792	SLU 65	2.25	Si
ini.	3	-7	5.5726	19.4792	SLU 73	3.5	Si
fin.	3	-7	-9.209	19.4792	SLU 73	2.12	Si
ini.	3	-7.09	4.2997	19.4792	SLU 84	4.53	Si
fin.	3	-7.09	-8.111	19.4792	SLU 84	2.4	Si
ini.	3	-6.07	4.7461	19.4792	SLU 40	4.1	Si
fin.	3	-6.07	-7.8409	19.4792	SLU 40	2.48	Si
ini.	3	-7.56	5.1644	19.4792	SLU 82	3.77	Si
fin.	3	-7.56	-8.9483	19.4792	SLU 82	2.18	Si
ini.	3	-5.51	5.1543	19.4792	SLU 31	3.78	Si
fin.	3	-5.51	-8.1016	19.4792	SLU 31	2.4	Si
ini.	3	-6.53	4.708	19.4792	SLU 76	4.14	Si
fin.	3	-6.53	-8.3717	19.4792	SLU 76	2.33	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	5.5726	-8.46			15.31	5.76	SLU 73	0.68	No
fin.	3	0	-9.209	-23.78			15.31	5.76	SLU 73	0.24	No
ini.	3	0	4.708	-6.57			15.31	5.76	SLU 76	0.88	No
fin.	3	0	-8.3717	-21.89			15.31	5.76	SLU 76	0.26	No
ini.	3	0	5.0956	-8.41			15.31	5.76	SLU 65	0.69	No
fin.	3	0	-8.6405	-21.52			15.31	5.76	SLU 65	0.27	No
ini.	3	0	4.7554	-7.13			15.31	5.76	SLU 52	0.81	No
fin.	3	0	-8.0045	-20.6			15.31	5.76	SLU 52	0.28	No
ini.	3	0	4.2453	-5.39			15.31	5.76	SLU 81	1.07	Si
fin.	3	0	-8.1919	-21.65			15.31	5.76	SLU 81	0.27	No
ini.	3	0	4.2997	-5.36			15.31	5.76	SLU 84	1.08	Si
fin.	3	0	-8.111	-21.62			15.31	5.76	SLU 84	0.27	No
ini.	3	0	4.3684	-6.13			15.31	5.76	SLU 75	0.94	No
fin.	3	0	-8.3114	-21.45			15.31	5.76	SLU 75	0.27	No
ini.	3	0	5.1543	-7.9			15.31	5.76	SLU 31	0.73	No
fin.	3	0	-8.1016	-21.11			15.31	5.76	SLU 31	0.27	No
ini.	3	0	4.7461	-6.68			15.31	5.76	SLU 40	0.86	No
fin.	3	0	-7.8409	-20.84			15.31	5.76	SLU 40	0.28	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	5.1644	-7.25			15.31	5.76	SLU 82	0.8	No
fin.	3	0	-8.9483	-23.52			15.31	5.76	SLU 82	0.25	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-22.01	-26.418	21.2694	SLV 16	0.81	No
fin.	2	-17.62	25.6936	21.2694	SLV 16	0.83	No
ini.	2	-22.01	-26.418	21.2694	SLV 15	0.81	No
fin.	2	-17.62	25.6936	21.2694	SLV 15	0.83	No
ini.	2	3.55	33.2029	21.2694	SLV 4	0.64	No
fin.	2	4.05	-42.6599	21.2694	SLV 4	0.5	No
ini.	2	-13.93	-27.8066	21.2694	SLV 13	0.76	No
fin.	2	-14.43	31.5111	21.2694	SLV 13	0.67	No
ini.	2	-14.82	13.9557	21.2694	SLV 8	1.52	Si
fin.	2	-7.26	-25.5233	21.2694	SLV 8	0.83	No
ini.	2	11.63	31.8142	21.2694	SLV 2	0.67	No
fin.	2	7.24	-36.8424	21.2694	SLV 2	0.58	No
ini.	2	-13.93	-27.8066	21.2694	SLV 14	0.76	No
fin.	2	-14.43	31.5111	21.2694	SLV 14	0.67	No
ini.	2	3.55	33.2029	21.2694	SLV 3	0.64	No
fin.	2	4.05	-42.6599	21.2694	SLV 3	0.5	No
ini.	2	11.63	31.8142	21.2694	SLV 1	0.67	No
fin.	2	7.24	-36.8424	21.2694	SLV 1	0.58	No
ini.	2	-14.82	13.9557	21.2694	SLV 7	1.52	Si
fin.	2	-7.26	-25.5233	21.2694	SLV 7	0.83	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	31.8142	-66.47			22.97	8.64	SLV 2	0.13	No
fin.	2	0	-36.8424	-83.2			22.97	8.64	SLV 2	0.1	No
ini.	2	0	33.2029	-86.83			22.97	8.64	SLV 4	0.1	No
fin.	2	0	-42.6599	-88.81			22.97	8.64	SLV 4	0.1	No
ini.	2	0	13.9557	-59.6			22.97	8.64	SLV 8	0.15	No
fin.	2	0	-25.5233	-45.04			22.97	8.64	SLV 8	0.19	No
ini.	2	0	-26.418	58.86			22.97	8.64	SLV 16	0.15	No
fin.	2	0	25.6936	54.98			22.97	8.64	SLV 16	0.16	No
ini.	2	0	-27.8066	79.23			22.97	8.64	SLV 13	0.11	No
fin.	2	0	31.5111	60.59			22.97	8.64	SLV 13	0.14	No
ini.	2	0	13.9557	-59.6			22.97	8.64	SLV 7	0.15	No
fin.	2	0	-25.5233	-45.04			22.97	8.64	SLV 7	0.19	No
ini.	2	0	-27.8066	79.23			22.97	8.64	SLV 14	0.11	No
fin.	2	0	31.5111	60.59			22.97	8.64	SLV 14	0.14	No
ini.	2	0	31.8142	-66.47			22.97	8.64	SLV 1	0.13	No
fin.	2	0	-36.8424	-83.2			22.97	8.64	SLV 1	0.1	No
ini.	2	0	33.2029	-86.83			22.97	8.64	SLV 3	0.1	No
fin.	2	0	-42.6599	-88.81			22.97	8.64	SLV 3	0.1	No
ini.	2	0	-26.418	58.86			22.97	8.64	SLV 15	0.15	No
fin.	2	0	25.6936	54.98			22.97	8.64	SLV 15	0.16	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.499	SLV 3	No
V_SLV	0.097	SLV 3	No
PF_SLU	2.115	SLU 73	Si
V_SLU	0.242	SLU 73	No

## Trave di accoppiamento 95

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.723	-4.861	8.09	8.35	0.26	-7.723	-3.771	8.09	8.35	0.26	1.09	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.03	0.0917	1.0289	SLU 83	11.22	Si
fin.	3	0.03	1.1509	1.0289	SLU 83	0.89	No
ini.	3	0.03	0.0982	1.0289	SLU 74	10.48	Si
fin.	3	0.03	1.0655	1.0289	SLU 74	0.97	No
ini.	3	0.07	0.0861	1.0289	SLU 40	11.95	Si
fin.	3	0.07	1.1738	1.0289	SLU 40	0.88	No
ini.	3	0.07	0.0989	1.0289	SLU 42	10.4	Si
fin.	3	0.07	1.0677	1.0289	SLU 42	0.96	No
ini.	3	0.08	0.1387	1.0289	SLU 84	7.42	Si
fin.	3	0.08	1.132	1.0289	SLU 84	0.91	No
ini.	3	0.02	0.0519	1.0289	SLU 41	19.82	Si
fin.	3	0.02	1.0866	1.0289	SLU 41	0.95	No
ini.	3	0.07	0.1259	1.0289	SLU 82	8.17	Si
fin.	3	0.07	1.238	1.0289	SLU 82	0.83	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.02	0.0789	1.0289	SLU 81	13.04	Si
fin.	3	0.02	1.2569	1.0289	SLU 81	0.82	No
ini.	3	0.11	0.1707	1.0289	SLU 73	6.03	Si
fin.	3	0.11	1.079	1.0289	SLU 73	0.95	No
ini.	3	0.02	0.0391	1.0289	SLU 39	26.31	Si
fin.	3	0.02	1.1927	1.0289	SLU 39	0.86	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.0917	1.71			2	0.75	SLU 83	0.44	No
fin.	3	0	1.1509	0.24			2	0.75	SLU 83	3.2	Si
ini.	3	0	0.0391	1.62			2	0.75	SLU 39	0.46	No
fin.	3	0	1.1927	0.49			2	0.75	SLU 39	1.53	Si
ini.	3	0	0.0982	1.62			2	0.75	SLU 74	0.46	No
fin.	3	0	1.0655	0.15			2	0.75	SLU 74	4.99	Si
ini.	3	0	0.1259	1.76			2	0.75	SLU 82	0.43	No
fin.	3	0	1.238	0.28			2	0.75	SLU 82	2.65	Si
ini.	3	0	0.1387	1.65			2	0.75	SLU 84	0.46	No
fin.	3	0	1.132	0.17			2	0.75	SLU 84	4.31	Si
ini.	3	0	0.1452	1.56			2	0.75	SLU 75	0.48	No
fin.	3	0	1.0467	0.09			2	0.75	SLU 75	8.31	Si
ini.	3	0	0.1016	1.59			2	0.75	SLU 60	0.48	No
fin.	3	0	1.0281	0.11			2	0.75	SLU 60	6.63	Si
ini.	3	0	0.0789	1.82			2	0.75	SLU 81	0.41	No
fin.	3	0	1.2569	0.34			2	0.75	SLU 81	2.19	Si
ini.	3	0	0.1707	1.57			2	0.75	SLU 73	0.48	No
fin.	3	0	1.079	0.1			2	0.75	SLU 73	7.77	Si
ini.	3	0	0.0861	1.56			2	0.75	SLU 40	0.48	No
fin.	3	0	1.1738	0.43			2	0.75	SLU 40	1.75	Si

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1.06	-0.223	1.5434	SLV 5	6.92	Si
fin.	2	2.7	6.7753	1.5434	SLV 5	0.23	No
ini.	2	2.54	0.0946	1.5434	SLV 9	16.31	Si
fin.	2	2.45	5.6784	1.5434	SLV 9	0.27	No
ini.	2	-1.02	0.4055	1.5434	SLV 12	3.81	Si
fin.	2	-2.66	-5.4979	1.5434	SLV 12	0.28	No
ini.	2	-2.5	0.0879	1.5434	SLV 8	17.56	Si
fin.	2	-2.42	-4.401	1.5434	SLV 8	0.35	No
ini.	2	-1.92	-0.4848	1.5434	SLV 1	3.18	Si
fin.	2	1.2	4.1433	1.5434	SLV 1	0.37	No
ini.	2	-1.92	-0.4848	1.5434	SLV 2	3.18	Si
fin.	2	1.2	4.1433	1.5434	SLV 2	0.37	No
ini.	2	1.06	-0.223	1.5434	SLV 6	6.92	Si
fin.	2	2.7	6.7753	1.5434	SLV 6	0.23	No
ini.	2	-1.02	0.4055	1.5434	SLV 11	3.81	Si
fin.	2	-2.66	-5.4979	1.5434	SLV 11	0.28	No
ini.	2	2.54	0.0946	1.5434	SLV 10	16.31	Si
fin.	2	2.45	5.6784	1.5434	SLV 10	0.27	No
ini.	2	-2.5	0.0879	1.5434	SLV 7	17.56	Si
fin.	2	-2.42	-4.401	1.5434	SLV 7	0.35	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-0.4848	4.04			3	1.13	SLV 2	0.28	No
fin.	2	0	4.1433	2.24			3	1.13	SLV 2	0.51	No
ini.	2	0	-0.223	6.26			3	1.13	SLV 5	0.18	No
fin.	2	0	6.7753	4.24			3	1.13	SLV 5	0.27	No
ini.	2	0	0.0879	-3.2			3	1.13	SLV 8	0.35	No
fin.	2	0	-4.401	-3.71			3	1.13	SLV 8	0.3	No
ini.	2	0	0.4055	-4.13			3	1.13	SLV 12	0.27	No
fin.	2	0	-5.4979	-4.37			3	1.13	SLV 12	0.26	No
ini.	2	0	0.4055	-4.13			3	1.13	SLV 11	0.27	No
fin.	2	0	-5.4979	-4.37			3	1.13	SLV 11	0.26	No
ini.	2	0	0.0879	-3.2			3	1.13	SLV 7	0.35	No
fin.	2	0	-4.401	-3.71			3	1.13	SLV 7	0.3	No
ini.	2	0	0.0946	5.33			3	1.13	SLV 10	0.21	No
fin.	2	0	5.6784	3.58			3	1.13	SLV 10	0.32	No
ini.	2	0	-0.4848	4.04			3	1.13	SLV 1	0.28	No
fin.	2	0	4.1433	2.24			3	1.13	SLV 1	0.51	No
ini.	2	0	-0.223	6.26			3	1.13	SLV 6	0.18	No
fin.	2	0	6.7753	4.24			3	1.13	SLV 6	0.27	No
ini.	2	0	0.0946	5.33			3	1.13	SLV 9	0.21	No
fin.	2	0	5.6784	3.58			3	1.13	SLV 9	0.32	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.228	SLV 5	No
V_SLV	0.18	SLV 5	No
PF_SLU	0.819	SLU 81	No
V_SLU	0.415	SLU 81	No

## Trave di accoppiamento 96

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	4.83	6.83	2	-5.158	6.506	4.83	6.83	2	0.5	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	16.89	2.0879	29.6292	SLU 60	14.19	Si
fin.	3	5.54	3.1035	29.6292	SLU 60	9.55	Si
ini.	3	17	2.0957	29.6292	SLU 61	14.14	Si
fin.	3	5.58	3.1345	29.6292	SLU 61	9.45	Si
ini.	3	15.7	1.9343	29.6292	SLU 52	15.32	Si
fin.	3	5.1	2.8511	29.6292	SLU 52	10.39	Si
ini.	3	17.68	2.1752	29.6292	SLU 73	13.62	Si
fin.	3	5.73	3.1733	29.6292	SLU 73	9.34	Si
ini.	3	16.57	2.0386	29.6292	SLU 39	14.53	Si
fin.	3	5.45	3.0283	29.6292	SLU 39	9.78	Si
ini.	3	17.6	2.1227	29.6292	SLU 84	13.96	Si
fin.	3	5.49	2.9211	29.6292	SLU 84	10.14	Si
ini.	3	18.99	2.3366	29.6292	SLU 82	12.68	Si
fin.	3	6.22	3.4567	29.6292	SLU 82	8.57	Si
ini.	3	18.88	2.3288	29.6292	SLU 81	12.72	Si
fin.	3	6.17	3.4257	29.6292	SLU 81	8.65	Si
ini.	3	17.49	2.115	29.6292	SLU 83	14.01	Si
fin.	3	5.45	2.8901	29.6292	SLU 83	10.25	Si
ini.	3	16.68	2.0464	29.6292	SLU 40	14.48	Si
fin.	3	5.49	3.0593	29.6292	SLU 40	9.68	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.3288	17.68			21.57	8.12	SLU 81	0.46	No
fin.	3	0	3.4257	40.49			21.57	8.12	SLU 81	0.2	No
ini.	3	0	2.3366	17.96			21.57	8.12	SLU 82	0.45	No
fin.	3	0	3.4567	40.5			21.57	8.12	SLU 82	0.2	No
ini.	3	0	2.115	13.98			21.57	8.12	SLU 83	0.58	No
fin.	3	0	2.8901	41.39			21.57	8.12	SLU 83	0.2	No
ini.	3	0	1.7423	8.91			21.57	8.12	SLU 80	0.91	No
fin.	3	0	2.0814	40.1			21.57	8.12	SLU 80	0.2	No
ini.	3	0	2.0266	13.69			21.57	8.12	SLU 75	0.59	No
fin.	3	0	2.7868	39.76			21.57	8.12	SLU 75	0.2	No
ini.	3	0	1.8127	9.99			21.57	8.12	SLU 78	0.81	No
fin.	3	0	2.2512	40.66			21.57	8.12	SLU 78	0.2	No
ini.	3	0	2.1227	14.26			21.57	8.12	SLU 84	0.57	No
fin.	3	0	2.9211	41.39			21.57	8.12	SLU 84	0.2	No
ini.	3	0	1.7346	8.63			21.57	8.12	SLU 79	0.94	No
fin.	3	0	2.0504	40.09			21.57	8.12	SLU 79	0.2	No
ini.	3	0	2.0188	13.41			21.57	8.12	SLU 74	0.61	No
fin.	3	0	2.7558	39.75			21.57	8.12	SLU 74	0.2	No
ini.	3	0	1.805	9.71			21.57	8.12	SLU 77	0.84	No
fin.	3	0	2.2202	40.65			21.57	8.12	SLU 77	0.2	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	38.22	-0.6525	31.4194	SLV 15	48.15	Si
fin.	2	11.69	7.2173	31.4194	SLV 15	4.35	Si
ini.	2	25.38	0.0177	31.4194	SLD 14	1777.82	Si
fin.	2	7.61	4.4074	31.4194	SLD 14	7.13	Si
ini.	2	25.38	0.0177	31.4194	SLD 13	1777.82	Si
fin.	2	7.61	4.4074	31.4194	SLD 13	7.13	Si
ini.	2	23.2	0.5298	31.4194	SLD 16	59.31	Si
fin.	2	7.17	4.268	31.4194	SLD 16	7.36	Si
ini.	2	23.2	0.5298	31.4194	SLD 15	59.31	Si
fin.	2	7.17	4.268	31.4194	SLD 15	7.36	Si
ini.	2	38.22	-0.6525	31.4194	SLV 16	48.15	Si
fin.	2	11.69	7.2173	31.4194	SLV 16	4.35	Si
ini.	2	43.41	-1.861	31.4194	SLV 14	16.88	Si
fin.	2	12.7	7.5121	31.4194	SLV 14	4.18	Si
ini.	2	-20.48	4.7058	31.4194	SLV 3	6.68	Si
fin.	2	-5.41	-3.5373	31.4194	SLV 3	8.88	Si
ini.	2	43.41	-1.861	31.4194	SLV 13	16.88	Si
fin.	2	12.7	7.5121	31.4194	SLV 13	4.18	Si
ini.	2	-20.48	4.7058	31.4194	SLV 4	6.68	Si
fin.	2	-5.41	-3.5373	31.4194	SLV 4	8.88	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1.3954	51.1			32.35	12.17	SLV 10	0.24	No
fin.	2	0	4.092	41.27			32.35	12.17	SLV 10	0.3	No
ini.	2	0	4.7058	-58.8			32.35	12.17	SLV 4	0.21	No
fin.	2	0	-3.5373	-9.02			32.35	12.17	SLV 4	1.35	Si
ini.	2	0	-0.6525	65.89			32.35	12.17	SLV 15	0.18	No
fin.	2	0	7.2173	57.7			32.35	12.17	SLV 15	0.21	No
ini.	2	0	-1.861	79.21			32.35	12.17	SLV 14	0.15	No
fin.	2	0	7.5121	60.89			32.35	12.17	SLV 14	0.2	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1.861	79.21			32.35	12.17	SLV 13	0.15	No
fin.	2	0	7.5121	60.89			32.35	12.17	SLV 13	0.2	No
ini.	2	0	3.4974	-45.48			32.35	12.17	SLV 2	0.27	No
fin.	2	0	-3.2425	-5.82			32.35	12.17	SLV 2	2.09	Si
ini.	2	0	4.7058	-58.8			32.35	12.17	SLV 3	0.21	No
fin.	2	0	-3.5373	-9.02			32.35	12.17	SLV 3	1.35	Si
ini.	2	0	-0.6525	65.89			32.35	12.17	SLV 16	0.18	No
fin.	2	0	7.2173	57.7			32.35	12.17	SLV 16	0.21	No
ini.	2	0	3.4974	-45.48			32.35	12.17	SLV 1	0.27	No
fin.	2	0	-3.2425	-5.82			32.35	12.17	SLV 1	2.09	Si
ini.	2	0	-1.3954	51.1			32.35	12.17	SLV 9	0.24	No
fin.	2	0	4.092	41.27			32.35	12.17	SLV 9	0.3	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	4.182	SLV 13	Si
V_SLV	0.154	SLV 13	No
PF_SLU	8.572	SLU 82	Si
V_SLU	0.196	SLU 84	No

## Trave di accoppiamento 97

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	7.63	8.35	0.72	-5.158	6.506	7.63	8.35	0.72	0.5	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2.64	-6.0029	7.2292	SLU 80	1.2	Si
fin.	3	-1.29	0.0748	7.2292	SLU 80	96.6	Si
ini.	3	-1.66	-5.5008	7.2292	SLU 37	1.31	Si
fin.	3	-0.34	-0.0135	7.2292	SLU 37	536.98	Si
ini.	3	-1.77	-5.4892	7.2292	SLU 38	1.32	Si
fin.	3	-0.46	-0.0159	7.2292	SLU 38	455.88	Si
ini.	3	-1.47	-5.5242	7.2292	SLU 69	1.31	Si
fin.	3	-0.1	0.0536	7.2292	SLU 69	134.94	Si
ini.	3	-0.93	-5.611	7.2292	SLU 71	1.29	Si
fin.	3	0.55	0.0144	7.2292	SLU 71	500.35	Si
ini.	3	-1.58	-5.5126	7.2292	SLU 70	1.31	Si
fin.	3	-0.22	0.0512	7.2292	SLU 70	141.25	Si
ini.	3	-3.18	-5.9162	7.2292	SLU 78	1.22	Si
fin.	3	-1.95	0.114	7.2292	SLU 78	63.44	Si
ini.	3	-2.53	-6.0145	7.2292	SLU 79	1.2	Si
fin.	3	-1.17	0.0772	7.2292	SLU 79	93.61	Si
ini.	3	-1.04	-5.5993	7.2292	SLU 72	1.29	Si
fin.	3	0.43	0.0121	7.2292	SLU 72	599.78	Si
ini.	3	-3.07	-5.9278	7.2292	SLU 77	1.22	Si
fin.	3	-1.83	0.1164	7.2292	SLU 77	62.13	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-6.0145	34.51			7.76	2.92	SLU 79	0.08	No
fin.	3	0	0.0772	-3.17			7.76	2.92	SLU 79	0.92	No
ini.	3	0	-5.9278	33.32			7.76	2.92	SLU 77	0.09	No
fin.	3	0	0.1164	-2.51			7.76	2.92	SLU 77	1.16	Si
ini.	3	0	-5.5126	32.86			7.76	2.92	SLU 70	0.09	No
fin.	3	0	0.0512	-3.9			7.76	2.92	SLU 70	0.75	No
ini.	3	0	-5.5242	33.14			7.76	2.92	SLU 69	0.09	No
fin.	3	0	0.0536	-4.07			7.76	2.92	SLU 69	0.72	No
ini.	3	0	-5.0972	31.71			7.76	2.92	SLU 29	0.09	No
fin.	3	0	-0.0762	-4.97			7.76	2.92	SLU 29	0.59	No
ini.	3	0	-5.9162	33.05			7.76	2.92	SLU 78	0.09	No
fin.	3	0	0.114	-2.34			7.76	2.92	SLU 78	1.25	Si
ini.	3	0	-5.5993	34.05			7.76	2.92	SLU 72	0.09	No
fin.	3	0	0.0121	-4.56			7.76	2.92	SLU 72	0.64	No
ini.	3	0	-5.5008	31.89			7.76	2.92	SLU 37	0.09	No
fin.	3	0	-0.0135	-3.4			7.76	2.92	SLU 37	0.86	No
ini.	3	0	-6.0029	34.23			7.76	2.92	SLU 80	0.09	No
fin.	3	0	0.0748	-3			7.76	2.92	SLU 80	0.97	No
ini.	3	0	-5.611	34.32			7.76	2.92	SLU 71	0.09	No
fin.	3	0	0.0144	-4.73			7.76	2.92	SLU 71	0.62	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-7.7	-6.1504	9.0194	SLD 15	1.47	Si
fin.	2	-6.97	0.2266	9.0194	SLD 15	39.8	Si
ini.	2	-10.16	-5.8669	9.0194	SLD 14	1.54	Si
fin.	2	-8.51	0.7022	9.0194	SLD 14	12.85	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2.53	-6.23	9.0194	SLV 11	1.45	Si
fin.	2	-0.07	-1.6108	9.0194	SLV 11	5.6	Si
ini.	2	-10.16	-5.8669	9.0194	SLD 13	1.54	Si
fin.	2	-8.51	0.7022	9.0194	SLD 13	12.85	Si
ini.	2	-18.28	-9.758	9.0194	SLV 13	0.92	No
fin.	2	-14.79	1.2402	9.0194	SLV 13	7.27	Si
ini.	2	2.53	-6.23	9.0194	SLV 12	1.45	Si
fin.	2	-0.07	-1.6108	9.0194	SLV 12	5.6	Si
ini.	2	-12.34	-10.4622	9.0194	SLV 15	0.86	No
fin.	2	-10.97	0.0338	9.0194	SLV 15	266.7	Si
ini.	2	-7.7	-6.1504	9.0194	SLD 16	1.47	Si
fin.	2	-6.97	0.2266	9.0194	SLD 16	39.8	Si
ini.	2	-12.34	-10.4622	9.0194	SLV 16	0.86	No
fin.	2	-10.97	0.0338	9.0194	SLV 16	266.7	Si
ini.	2	-18.28	-9.758	9.0194	SLV 14	0.92	No
fin.	2	-14.79	1.2402	9.0194	SLV 14	7.27	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-6.1504	23.62			11.65	4.38	SLD 15	0.19	No
fin.	2	0	0.2266	6.81			11.65	4.38	SLD 15	0.64	No
ini.	2	0	-10.4622	36.25			11.65	4.38	SLV 16	0.12	No
fin.	2	0	0.0338	14.04			11.65	4.38	SLV 16	0.31	No
ini.	2	0	-6.23	26.88			11.65	4.38	SLV 11	0.16	No
fin.	2	0	-1.6108	-3.22			11.65	4.38	SLV 11	1.36	Si
ini.	2	0	-9.758	32.22			11.65	4.38	SLV 14	0.14	No
fin.	2	0	1.2402	19.43			11.65	4.38	SLV 14	0.23	No
ini.	2	0	-9.758	32.22			11.65	4.38	SLV 13	0.14	No
fin.	2	0	1.2402	19.43			11.65	4.38	SLV 13	0.23	No
ini.	2	0	-5.8669	21.94			11.65	4.38	SLD 13	0.2	No
fin.	2	0	0.7022	9.06			11.65	4.38	SLD 13	0.48	No
ini.	2	0	-6.23	26.88			11.65	4.38	SLV 12	0.16	No
fin.	2	0	-1.6108	-3.22			11.65	4.38	SLV 12	1.36	Si
ini.	2	0	-5.8669	21.94			11.65	4.38	SLD 14	0.2	No
fin.	2	0	0.7022	9.06			11.65	4.38	SLD 14	0.48	No
ini.	2	0	-6.1504	23.62			11.65	4.38	SLD 16	0.19	No
fin.	2	0	0.2266	6.81			11.65	4.38	SLD 16	0.64	No
ini.	2	0	-10.4622	36.25			11.65	4.38	SLV 15	0.12	No
fin.	2	0	0.0338	14.04			11.65	4.38	SLV 15	0.31	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.862	SLV 15	No
V_SLV	0.121	SLV 15	No
PF_SLU	1.202	SLU 79	Si
V_SLU	0.085	SLU 79	No

## Trave di accoppiamento 98

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.513	-3.359	4.83	5.73	0.9	-7.413	-3.359	4.83	5.73	0.9	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.92	2.2925	10.3792	SLU 61	4.53	Si
fin.	3	1.04	0.2936	10.3792	SLU 61	35.35	Si
ini.	3	4.01	2.4247	10.3792	SLU 82	4.28	Si
fin.	3	1.44	0.302	10.3792	SLU 82	34.37	Si
ini.	3	2.39	2.4641	10.3792	SLU 52	4.21	Si
fin.	3	1.68	-0.0542	10.3792	SLU 52	191.58	Si
ini.	3	4.07	2.2491	10.3792	SLU 75	4.61	Si
fin.	3	1.05	0.4827	10.3792	SLU 75	21.5	Si
ini.	3	3.02	2.2718	10.3792	SLU 68	4.57	Si
fin.	3	1.38	0.1647	10.3792	SLU 68	63.02	Si
ini.	3	2.95	2.2671	10.3792	SLU 55	4.58	Si
fin.	3	1.04	0.2779	10.3792	SLU 55	37.35	Si
ini.	3	2.47	2.4687	10.3792	SLU 65	4.2	Si
fin.	3	2.03	-0.1674	10.3792	SLU 65	62.02	Si
ini.	3	1.38	2.3366	10.3792	SLU 44	4.44	Si
fin.	3	1.62	-0.1757	10.3792	SLU 44	59.07	Si
ini.	3	3.48	2.5963	10.3792	SLU 73	4	Si
fin.	3	2.09	-0.0458	10.3792	SLU 73	226.46	Si
ini.	3	4.04	2.3993	10.3792	SLU 76	4.33	Si
fin.	3	1.44	0.2862	10.3792	SLU 76	36.26	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	2.4247	-25.45			9.7	3.65	SLU 82	0.14	No
fin.	3	0	0.302	15.72			9.7	3.65	SLU 82	0.23	No
ini.	3	0	2.4641	-24.65			9.7	3.65	SLU 52	0.15	No
fin.	3	0	-0.0542	12.96			9.7	3.65	SLU 52	0.28	No
ini.	3	0	2.2277	-24.91			9.7	3.65	SLU 84	0.15	No
fin.	3	0	0.634	17.53			9.7	3.65	SLU 84	0.21	No
ini.	3	0	2.0521	-24.44			9.7	3.65	SLU 78	0.15	No
fin.	3	0	0.8147	18.45			9.7	3.65	SLU 78	0.2	No
ini.	3	0	2.3993	-25.39			9.7	3.65	SLU 76	0.14	No
fin.	3	0	0.2862	15.88			9.7	3.65	SLU 76	0.23	No
ini.	3	0	2.2491	-24.98			9.7	3.65	SLU 75	0.15	No
fin.	3	0	0.4827	16.64			9.7	3.65	SLU 75	0.22	No
ini.	3	0	2.4687	-24.73			9.7	3.65	SLU 65	0.15	No
fin.	3	0	-0.1674	12.54			9.7	3.65	SLU 65	0.29	No
ini.	3	0	2.5963	-25.93			9.7	3.65	SLU 73	0.14	No
fin.	3	0	-0.0458	14.07			9.7	3.65	SLU 73	0.26	No
ini.	3	0	2.2925	-24.17			9.7	3.65	SLU 61	0.15	No
fin.	3	0	0.2936	14.61			9.7	3.65	SLU 61	0.25	No
ini.	3	0	2.2718	-24.19			9.7	3.65	SLU 68	0.15	No
fin.	3	0	0.1647	14.35			9.7	3.65	SLU 68	0.25	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	14.54	-5.4512	12.1694	SLV 12	2.23	Si
fin.	2	-22.18	8.648	12.1694	SLV 12	1.41	Si
ini.	2	-17.05	10.8766	12.1694	SLV 1	1.12	Si
fin.	2	31.5	-13.7968	12.1694	SLV 1	0.88	No
ini.	2	16.92	-5.23	12.1694	SLV 14	2.33	Si
fin.	2	-22.53	12.1748	12.1694	SLV 14	1	No
ini.	2	-17.05	10.8766	12.1694	SLV 2	1.12	Si
fin.	2	31.5	-13.7968	12.1694	SLV 2	0.88	No
ini.	2	14.54	-5.4512	12.1694	SLV 11	2.23	Si
fin.	2	-22.18	8.648	12.1694	SLV 11	1.41	Si
ini.	2	16.92	-5.23	12.1694	SLV 13	2.33	Si
fin.	2	-22.53	12.1748	12.1694	SLV 13	1	No
ini.	2	-12.66	8.1727	12.1694	SLV 4	1.49	Si
fin.	2	22.93	-11.2291	12.1694	SLV 4	1.08	Si
ini.	2	21.31	-7.934	12.1694	SLV 16	1.53	Si
fin.	2	-31.1	14.7425	12.1694	SLV 16	0.83	No
ini.	2	-12.66	8.1727	12.1694	SLV 3	1.49	Si
fin.	2	22.93	-11.2291	12.1694	SLV 3	1.08	Si
ini.	2	21.31	-7.934	12.1694	SLV 15	1.53	Si
fin.	2	-31.1	14.7425	12.1694	SLV 15	0.83	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-7.934	31.69			14.56	5.48	SLV 15	0.17	No
fin.	2	0	14.7425	73.36			14.56	5.48	SLV 15	0.07	No
ini.	2	0	8.3939	-60.09			14.56	5.48	SLV 6	0.09	No
fin.	2	0	-7.7023	-28.72			14.56	5.48	SLV 6	0.19	No
ini.	2	0	-5.23	13.06			14.56	5.48	SLV 14	0.42	No
fin.	2	0	12.1748	58.85			14.56	5.48	SLV 14	0.09	No
ini.	2	0	10.8766	-66.04			14.56	5.48	SLV 2	0.08	No
fin.	2	0	-13.7968	-49.82			14.56	5.48	SLV 2	0.11	No
ini.	2	0	-7.934	31.69			14.56	5.48	SLV 16	0.17	No
fin.	2	0	14.7425	73.36			14.56	5.48	SLV 16	0.07	No
ini.	2	0	-5.23	13.06			14.56	5.48	SLV 13	0.42	No
fin.	2	0	12.1748	58.85			14.56	5.48	SLV 13	0.09	No
ini.	2	0	-5.4512	25.75			14.56	5.48	SLV 11	0.21	No
fin.	2	0	8.648	52.26			14.56	5.48	SLV 11	0.1	No
ini.	2	0	10.8766	-66.04			14.56	5.48	SLV 1	0.08	No
fin.	2	0	-13.7968	-49.82			14.56	5.48	SLV 1	0.11	No
ini.	2	0	8.3939	-60.09			14.56	5.48	SLV 5	0.09	No
fin.	2	0	-7.7023	-28.72			14.56	5.48	SLV 5	0.19	No
ini.	2	0	-5.4512	25.75			14.56	5.48	SLV 12	0.21	No
fin.	2	0	8.648	52.26			14.56	5.48	SLV 12	0.1	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.825	SLV 15	No
V_SLV	0.075	SLV 15	No
PF_SLU	3.998	SLU 73	Si
V_SLU	0.141	SLU 73	No

#### Trave di accoppiamento 99

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.513	-3.359	7.53	8.35	0.82	-7.413	-3.359	7.53	8.35	0.82	0.9	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2.5	-2.0548	8.9792	SLU 77	4.37	Si
fin.	3	-0.25	-1.3635	8.9792	SLU 77	6.59	Si
ini.	3	-2.37	-1.943	8.9792	SLU 83	4.62	Si
fin.	3	-1.18	-1.5306	8.9792	SLU 83	5.87	Si
ini.	3	-2.77	-1.8895	8.9792	SLU 37	4.75	Si
fin.	3	0.18	-1.0179	8.9792	SLU 37	8.82	Si
ini.	3	-2.22	-1.8354	8.9792	SLU 71	4.89	Si
fin.	3	0.21	-1.1344	8.9792	SLU 71	7.92	Si
ini.	3	-2.85	-2.0923	8.9792	SLU 79	4.29	Si
fin.	3	-0.22	-1.3111	8.9792	SLU 79	6.85	Si
ini.	3	-2.42	-1.852	8.9792	SLU 35	4.85	Si
fin.	3	0.14	-1.0702	8.9792	SLU 35	8.39	Si
ini.	3	-1.87	-1.7979	8.9792	SLU 69	4.99	Si
fin.	3	0.17	-1.1867	8.9792	SLU 69	7.57	Si
ini.	3	-1.75	-1.7954	8.9792	SLU 74	5	Si
fin.	3	-1.03	-1.5072	8.9792	SLU 74	5.96	Si
ini.	3	-2.32	-1.8506	8.9792	SLU 56	4.85	Si
fin.	3	-0.42	-1.2929	8.9792	SLU 56	6.94	Si
ini.	3	-2.67	-1.8881	8.9792	SLU 58	4.76	Si
fin.	3	-0.39	-1.2406	8.9792	SLU 58	7.24	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-1.581	22.19			8.06	3.03	SLU 84	0.14	No
fin.	3	0	-1.6421	-19.86			8.06	3.03	SLU 84	0.15	No
ini.	3	0	-1.8506	22.1			8.06	3.03	SLU 56	0.14	No
fin.	3	0	-1.2929	-16.74			8.06	3.03	SLU 56	0.18	No
ini.	3	0	-1.8881	22.18			8.06	3.03	SLU 58	0.14	No
fin.	3	0	-1.2406	-16.32			8.06	3.03	SLU 58	0.19	No
ini.	3	0	-1.7954	23			8.06	3.03	SLU 74	0.13	No
fin.	3	0	-1.5072	-18.91			8.06	3.03	SLU 74	0.16	No
ini.	3	0	-2.0548	24.67			8.06	3.03	SLU 77	0.12	No
fin.	3	0	-1.3635	-18.26			8.06	3.03	SLU 77	0.17	No
ini.	3	0	-1.6928	22.61			8.06	3.03	SLU 78	0.13	No
fin.	3	0	-1.4749	-18.82			8.06	3.03	SLU 78	0.16	No
ini.	3	0	-1.7303	22.69			8.06	3.03	SLU 80	0.13	No
fin.	3	0	-1.4226	-18.41			8.06	3.03	SLU 80	0.16	No
ini.	3	0	-2.0923	24.75			8.06	3.03	SLU 79	0.12	No
fin.	3	0	-1.3111	-17.84			8.06	3.03	SLU 79	0.17	No
ini.	3	0	-1.6835	22.58			8.06	3.03	SLU 81	0.13	No
fin.	3	0	-1.6744	-19.94			8.06	3.03	SLU 81	0.15	No
ini.	3	0	-1.943	24.26			8.06	3.03	SLU 83	0.12	No
fin.	3	0	-1.5306	-19.3			8.06	3.03	SLU 83	0.16	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	20.27	4.1209	10.7694	SLV 5	2.61	Si
fin.	2	-5.47	-9.1681	10.7694	SLV 5	1.17	Si
ini.	2	-31.38	-9.4404	10.7694	SLV 15	1.14	Si
fin.	2	7.64	5.7905	10.7694	SLV 15	1.86	Si
ini.	2	29.98	7.3581	10.7694	SLV 2	1.46	Si
fin.	2	-10.04	-8.048	10.7694	SLV 2	1.34	Si
ini.	2	-23.62	-7.6982	10.7694	SLV 14	1.4	Si
fin.	2	6.57	1.8585	10.7694	SLV 14	5.79	Si
ini.	2	20.27	4.1209	10.7694	SLV 6	2.61	Si
fin.	2	-5.47	-9.1681	10.7694	SLV 6	1.17	Si
ini.	2	-21.68	-6.2032	10.7694	SLV 11	1.74	Si
fin.	2	3.08	6.9106	10.7694	SLV 11	1.56	Si
ini.	2	-23.62	-7.6982	10.7694	SLV 13	1.4	Si
fin.	2	6.57	1.8585	10.7694	SLV 13	5.79	Si
ini.	2	29.98	7.3581	10.7694	SLV 1	1.46	Si
fin.	2	-10.04	-8.048	10.7694	SLV 1	1.34	Si
ini.	2	-31.38	-9.4404	10.7694	SLV 16	1.14	Si
fin.	2	7.64	5.7905	10.7694	SLV 16	1.86	Si
ini.	2	-21.68	-6.2032	10.7694	SLV 12	1.74	Si
fin.	2	3.08	6.9106	10.7694	SLV 12	1.56	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	7.3581	-26.32			12.08	4.55	SLV 2	0.17	No
fin.	2	0	-8.048	-46.37			12.08	4.55	SLV 2	0.1	No
ini.	2	0	7.3581	-26.32			12.08	4.55	SLV 1	0.17	No
fin.	2	0	-8.048	-46.37			12.08	4.55	SLV 1	0.1	No
ini.	2	0	-7.6982	43.47			12.08	4.55	SLV 13	0.1	No
fin.	2	0	1.8585	4.2			12.08	4.55	SLV 13	1.08	Si
ini.	2	0	-6.2032	45			12.08	4.55	SLV 11	0.1	No
fin.	2	0	6.9106	19.47			12.08	4.55	SLV 11	0.23	No
ini.	2	0	4.1209	-15.87			12.08	4.55	SLV 5	0.29	No
fin.	2	0	-9.1681	-46.43			12.08	4.55	SLV 5	0.1	No
ini.	2	0	-6.2032	45			12.08	4.55	SLV 12	0.1	No
fin.	2	0	6.9106	19.47			12.08	4.55	SLV 12	0.23	No
ini.	2	0	-9.4404	55.45			12.08	4.55	SLV 15	0.08	No
fin.	2	0	5.7905	19.42			12.08	4.55	SLV 15	0.23	No
ini.	2	0	-7.6982	43.47			12.08	4.55	SLV 14	0.1	No
fin.	2	0	1.8585	4.2			12.08	4.55	SLV 14	1.08	Si





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.1209	-15.87			12.08	4.55	SLV 6	0.29	No
fin.	2	0	-9.1681	-46.43			12.08	4.55	SLV 6	0.1	No
ini.	2	0	-9.4404	55.45			12.08	4.55	SLV 16	0.08	No
fin.	2	0	5.7905	19.42			12.08	4.55	SLV 16	0.23	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.141	SLV 15	Si
V_SLV	0.082	SLV 15	No
PF_SLU	4.291	SLU 79	Si
V_SLU	0.122	SLU 79	No

## Trave di accoppiamento 100

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	4.83	6.83	2	-6.008	-3.359	4.83	6.83	2	0.5	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	τ0	fν0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.91	15.003	29.6292	SLU 80	1.97	Si
fin.	3	0.59	10.373	29.6292	SLU 80	2.86	Si
ini.	3	-8.64	14.6278	29.6292	SLU 81	2.03	Si
fin.	3	0.27	10.0075	29.6292	SLU 81	2.96	Si
ini.	3	-8.58	14.971	29.6292	SLU 83	1.98	Si
fin.	3	0.58	10.4026	29.6292	SLU 83	2.85	Si
ini.	3	-9	15.0607	29.6292	SLU 78	1.97	Si
fin.	3	0.53	10.3933	29.6292	SLU 78	2.85	Si
ini.	3	-8.51	14.6013	29.6292	SLU 77	2.03	Si
fin.	3	0.51	10.3367	29.6292	SLU 77	2.87	Si
ini.	3	-9.05	14.7175	29.6292	SLU 75	2.01	Si
fin.	3	0.22	9.9982	29.6292	SLU 75	2.96	Si
ini.	3	-9.06	15.4303	29.6292	SLU 84	1.92	Si
fin.	3	0.61	10.4593	29.6292	SLU 84	2.83	Si
ini.	3	-9.12	15.0872	29.6292	SLU 82	1.96	Si
fin.	3	0.3	10.0642	29.6292	SLU 82	2.94	Si
ini.	3	-9.29	14.9661	29.6292	SLU 76	1.98	Si
fin.	3	0.3	10.0156	29.6292	SLU 76	2.96	Si
ini.	3	-9.35	14.623	29.6292	SLU 73	2.03	Si
fin.	3	-0.01	9.6205	29.6292	SLU 73	3.08	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	14.6013	-33.08			21.57	8.12	SLU 77	0.25	No
fin.	3	0	10.3367	-5.11			21.57	8.12	SLU 77	1.59	Si
ini.	3	0	15.0872	-35.2			21.57	8.12	SLU 82	0.23	No
fin.	3	0	10.0642	-7.92			21.57	8.12	SLU 82	1.02	Si
ini.	3	0	14.6278	-33.44			21.57	8.12	SLU 81	0.24	No
fin.	3	0	10.0075	-5.94			21.57	8.12	SLU 81	1.37	Si
ini.	3	0	15.003	-34.61			21.57	8.12	SLU 80	0.23	No
fin.	3	0	10.373	-7.21			21.57	8.12	SLU 80	1.13	Si
ini.	3	0	14.623	-34.62			21.57	8.12	SLU 73	0.23	No
fin.	3	0	9.6205	-8.6			21.57	8.12	SLU 73	0.94	No
ini.	3	0	14.7175	-34.26			21.57	8.12	SLU 75	0.24	No
fin.	3	0	9.9982	-7.13			21.57	8.12	SLU 75	1.14	Si
ini.	3	0	14.9661	-35.21			21.57	8.12	SLU 76	0.23	No
fin.	3	0	10.0156	-8.57			21.57	8.12	SLU 76	0.95	No
ini.	3	0	15.0607	-34.84			21.57	8.12	SLU 78	0.23	No
fin.	3	0	10.3933	-7.1			21.57	8.12	SLU 78	1.14	Si
ini.	3	0	14.971	-34.02			21.57	8.12	SLU 83	0.24	No
fin.	3	0	10.4026	-5.9			21.57	8.12	SLU 83	1.37	Si
ini.	3	0	15.4303	-35.78			21.57	8.12	SLU 84	0.23	No
fin.	3	0	10.4593	-7.89			21.57	8.12	SLU 84	1.03	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3.79	19.3868	31.4194	SLV 7	1.62	Si
fin.	2	20.37	7.3129	31.4194	SLV 7	4.3	Si
ini.	2	-10.08	16.4367	31.4194	SLD 4	1.91	Si
fin.	2	0.31	3.2289	31.4194	SLD 4	9.73	Si
ini.	2	-22.9	22.3237	31.4194	SLV 2	1.41	Si
fin.	2	-11.22	-2.8984	31.4194	SLV 2	10.84	Si
ini.	2	9.98	-3.444	31.4194	SLV 16	9.12	Si
fin.	2	10.04	15.9795	31.4194	SLV 16	1.97	Si
ini.	2	3.79	19.3868	31.4194	SLV 8	1.62	Si
fin.	2	20.37	7.3129	31.4194	SLV 8	4.3	Si
ini.	2	9.98	-3.444	31.4194	SLV 15	9.12	Si
fin.	2	10.04	15.9795	31.4194	SLV 15	1.97	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-22.9	22.3237	31.4194	SLV 1	1.41	Si
fin.	2	-11.22	-2.8984	31.4194	SLV 1	10.84	Si
ini.	2	-10.08	16.4367	31.4194	SLD 3	1.91	Si
fin.	2	0.31	3.2289	31.4194	SLD 3	9.73	Si
ini.	2	-14.54	25.6715	31.4194	SLV 3	1.22	Si
fin.	2	2.08	-0.9145	31.4194	SLV 3	34.36	Si
ini.	2	-14.54	25.6715	31.4194	SLV 4	1.22	Si
fin.	2	2.08	-0.9145	31.4194	SLV 4	34.36	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-3.444	37.74			32.35	12.17	SLV 15	0.32	No
fin.	2	0	15.9795	60.06			32.35	12.17	SLV 15	0.2	No
ini.	2	0	16.4367	-48.98			32.35	12.17	SLD 4	0.25	No
fin.	2	0	3.2289	-34.05			32.35	12.17	SLD 4	0.36	No
ini.	2	0	16.4367	-48.98			32.35	12.17	SLD 3	0.25	No
fin.	2	0	3.2289	-34.05			32.35	12.17	SLD 3	0.36	No
ini.	2	0	25.6715	-84.38			32.35	12.17	SLV 3	0.14	No
fin.	2	0	-0.9145	-74.13			32.35	12.17	SLV 3	0.16	No
ini.	2	0	-3.444	37.74			32.35	12.17	SLV 16	0.32	No
fin.	2	0	15.9795	60.06			32.35	12.17	SLV 16	0.2	No
ini.	2	0	-6.7918	41.06			32.35	12.17	SLV 13	0.3	No
fin.	2	0	13.9956	67.92			32.35	12.17	SLV 13	0.18	No
ini.	2	0	22.3237	-81.05			32.35	12.17	SLV 1	0.15	No
fin.	2	0	-2.8984	-66.28			32.35	12.17	SLV 1	0.18	No
ini.	2	0	22.3237	-81.05			32.35	12.17	SLV 2	0.15	No
fin.	2	0	-2.8984	-66.28			32.35	12.17	SLV 2	0.18	No
ini.	2	0	25.6715	-84.38			32.35	12.17	SLV 4	0.14	No
fin.	2	0	-0.9145	-74.13			32.35	12.17	SLV 4	0.16	No
ini.	2	0	-6.7918	41.06			32.35	12.17	SLV 14	0.3	No
fin.	2	0	13.9956	67.92			32.35	12.17	SLV 14	0.18	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.224	SLV 3	Si
V_SLV	0.144	SLV 3	No
PF_SLU	1.92	SLU 84	Si
V_SLU	0.227	SLU 84	No

## Trave di accoppiamento 101

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	7.63	8.35	0.72	-6.008	-3.359	7.63	8.35	0.72	0.5	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.36	1.2496	7.2292	SLU 80	5.79	Si
fin.	3	-0.41	-1.7827	7.2292	SLU 80	4.06	Si
ini.	3	2.4	1.2676	7.2292	SLU 83	5.7	Si
fin.	3	-0.57	-1.9041	7.2292	SLU 83	3.8	Si
ini.	3	2.77	1.2137	7.2292	SLU 74	5.96	Si
fin.	3	0.03	-1.775	7.2292	SLU 74	4.07	Si
ini.	3	1.7	0.9977	7.2292	SLU 58	7.25	Si
fin.	3	-0.88	-1.736	7.2292	SLU 58	4.16	Si
ini.	3	2.73	1.2789	7.2292	SLU 78	5.65	Si
fin.	3	-0.03	-1.7657	7.2292	SLU 78	4.09	Si
ini.	3	2.3	1.1789	7.2292	SLU 77	6.13	Si
fin.	3	-0.63	-1.9287	7.2292	SLU 77	3.75	Si
ini.	3	2.87	1.3025	7.2292	SLU 81	5.55	Si
fin.	3	0.09	-1.7504	7.2292	SLU 81	4.13	Si
ini.	3	1.38	0.9881	7.2292	SLU 37	7.32	Si
fin.	3	-1.27	-1.7317	7.2292	SLU 37	4.17	Si
ini.	3	2.83	1.3676	7.2292	SLU 84	5.29	Si
fin.	3	0.03	-1.7411	7.2292	SLU 84	4.15	Si
ini.	3	1.93	1.1496	7.2292	SLU 79	6.29	Si
fin.	3	-1.01	-1.9457	7.2292	SLU 79	3.72	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	1.2496	0.42			7.76	2.92	SLU 80	7.04	Si
fin.	3	0	-1.7827	-25.53			7.76	2.92	SLU 80	0.11	No
ini.	3	0	1.3137	0.71			7.76	2.92	SLU 75	4.11	Si
fin.	3	0	-1.612	-25.01			7.76	2.92	SLU 75	0.12	No
ini.	3	0	1.1496	0.45			7.76	2.92	SLU 79	6.53	Si
fin.	3	0	-1.9457	-26.43			7.76	2.92	SLU 79	0.11	No
ini.	3	0	1.2789	0.51			7.76	2.92	SLU 78	5.78	Si
fin.	3	0	-1.7657	-25.79			7.76	2.92	SLU 78	0.11	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	1.2137	0.74			7.76	2.92	SLU 74	3.93	Si
fin.	3	0	-1.775	-25.92			7.76	2.92	SLU 74	0.11	No
ini.	3	0	1.3676	0.44			7.76	2.92	SLU 84	6.62	Si
fin.	3	0	-1.7411	-26.17			7.76	2.92	SLU 84	0.11	No
ini.	3	0	1.2676	0.47			7.76	2.92	SLU 83	6.17	Si
fin.	3	0	-1.9041	-27.07			7.76	2.92	SLU 83	0.11	No
ini.	3	0	1.4025	0.65			7.76	2.92	SLU 82	4.52	Si
fin.	3	0	-1.5874	-25.39			7.76	2.92	SLU 82	0.12	No
ini.	3	0	1.1789	0.54			7.76	2.92	SLU 77	5.43	Si
fin.	3	0	-1.9287	-26.7			7.76	2.92	SLU 77	0.11	No
ini.	3	0	1.3025	0.68			7.76	2.92	SLU 81	4.31	Si
fin.	3	0	-1.7504	-26.3			7.76	2.92	SLU 81	0.11	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	32.77	7.9049	9.0194	SLV 2	1.14	Si
fin.	2	25.49	0.2517	9.0194	SLV 2	35.84	Si
ini.	2	22.11	4.4718	9.0194	SLV 5	2.02	Si
fin.	2	16.29	1.3875	9.0194	SLV 5	6.5	Si
ini.	2	32.77	7.9049	9.0194	SLV 1	1.14	Si
fin.	2	25.49	0.2517	9.0194	SLV 1	35.84	Si
ini.	2	25.67	6.8942	9.0194	SLV 4	1.31	Si
fin.	2	20.03	-1.1153	9.0194	SLV 4	8.09	Si
ini.	2	25.67	6.8942	9.0194	SLV 3	1.31	Si
fin.	2	20.03	-1.1153	9.0194	SLV 3	8.09	Si
ini.	2	-21.35	-5.2729	9.0194	SLV 13	1.71	Si
fin.	2	-18.98	-1.06	9.0194	SLV 13	8.51	Si
ini.	2	-28.45	-6.2836	9.0194	SLV 15	1.44	Si
fin.	2	-24.43	-2.427	9.0194	SLV 15	3.72	Si
ini.	2	-28.45	-6.2836	9.0194	SLV 16	1.44	Si
fin.	2	-24.43	-2.427	9.0194	SLV 16	3.72	Si
ini.	2	22.11	4.4718	9.0194	SLV 6	2.02	Si
fin.	2	16.29	1.3875	9.0194	SLV 6	6.5	Si
ini.	2	-21.35	-5.2729	9.0194	SLV 14	1.71	Si
fin.	2	-18.98	-1.06	9.0194	SLV 14	8.51	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.4536	-8.09			11.65	4.38	SLD 3	0.54	No
fin.	2	0	-1.0808	-23.72			11.65	4.38	SLD 3	0.18	No
ini.	2	0	6.8942	-20.04			11.65	4.38	SLV 3	0.22	No
fin.	2	0	-1.1153	-32.97			11.65	4.38	SLV 3	0.13	No
ini.	2	0	1.1029	-18.5			11.65	4.38	SLV 7	0.24	No
fin.	2	0	-3.1693	-32.31			11.65	4.38	SLV 7	0.14	No
ini.	2	0	6.8942	-20.04			11.65	4.38	SLV 4	0.22	No
fin.	2	0	-1.1153	-32.97			11.65	4.38	SLV 4	0.13	No
ini.	2	0	7.9049	-11.4			11.65	4.38	SLV 2	0.38	No
fin.	2	0	0.2517	-26			11.65	4.38	SLV 2	0.17	No
ini.	2	0	-2.8505	-8.52			11.65	4.38	SLV 11	0.51	No
fin.	2	0	-3.5628	-24.77			11.65	4.38	SLV 11	0.18	No
ini.	2	0	3.4536	-8.09			11.65	4.38	SLD 4	0.54	No
fin.	2	0	-1.0808	-23.72			11.65	4.38	SLD 4	0.18	No
ini.	2	0	7.9049	-11.4			11.65	4.38	SLV 1	0.38	No
fin.	2	0	0.2517	-26			11.65	4.38	SLV 1	0.17	No
ini.	2	0	-2.8505	-8.52			11.65	4.38	SLV 12	0.51	No
fin.	2	0	-3.5628	-24.77			11.65	4.38	SLV 12	0.18	No
ini.	2	0	1.1029	-18.5			11.65	4.38	SLV 8	0.24	No
fin.	2	0	-3.1693	-32.31			11.65	4.38	SLV 8	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.141	SLV 1	Si
V_SLV	0.133	SLV 3	No
PF_SLU	3.715	SLU 79	Si
V_SLU	0.108	SLU 83	No

### Trave di accoppiamento 102

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.283	-3.359	4.83	5.73	0.9	-3.183	-3.359	4.83	5.73	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-9.42	-3.8822	10.3792	SLU 80	2.67	Si
fin.	3	-28.67	6.6699	10.3792	SLU 80	1.56	Si
ini.	3	-9.34	-3.9491	10.3792	SLU 78	2.63	Si
fin.	3	-28.84	6.7504	10.3792	SLU 78	1.54	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.05	-3.6022	10.3792	SLU 83	2.88	Si
fin.	3	-25.97	6.3758	10.3792	SLU 83	1.63	Si
ini.	3	-9.68	-3.8023	10.3792	SLU 68	2.73	Si
fin.	3	-28.45	6.3748	10.3792	SLU 68	1.63	Si
ini.	3	-8.71	-4.1385	10.3792	SLU 82	2.51	Si
fin.	3	-28.69	6.8441	10.3792	SLU 82	1.52	Si
ini.	3	-9.73	-3.7787	10.3792	SLU 55	2.75	Si
fin.	3	-28.45	6.3455	10.3792	SLU 55	1.64	Si
ini.	3	-8.98	-3.9812	10.3792	SLU 75	2.61	Si
fin.	3	-28.44	6.7102	10.3792	SLU 75	1.55	Si
ini.	3	-9.08	-4.1064	10.3792	SLU 84	2.53	Si
fin.	3	-29.09	6.8843	10.3792	SLU 84	1.51	Si
ini.	3	-9.74	-4.2505	10.3792	SLU 76	2.44	Si
fin.	3	-30.36	6.9687	10.3792	SLU 76	1.49	Si
ini.	3	-9.37	-4.2826	10.3792	SLU 73	2.42	Si
fin.	3	-29.96	6.9286	10.3792	SLU 73	1.5	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4.2826	17.63			9.7	3.65	SLU 73	0.21	No
fin.	3	0	6.9286	30.88			9.7	3.65	SLU 73	0.12	No
ini.	3	0	-3.4449	12.11			9.7	3.65	SLU 77	0.3	No
fin.	3	0	6.2419	30.62			9.7	3.65	SLU 77	0.12	No
ini.	3	0	-3.6344	13.19			9.7	3.65	SLU 81	0.28	No
fin.	3	0	6.3357	30.55			9.7	3.65	SLU 81	0.12	No
ini.	3	0	-3.6022	12.95			9.7	3.65	SLU 83	0.28	No
fin.	3	0	6.3758	30.89			9.7	3.65	SLU 83	0.12	No
ini.	3	0	-4.2505	17.39			9.7	3.65	SLU 76	0.21	No
fin.	3	0	6.9687	31.22			9.7	3.65	SLU 76	0.12	No
ini.	3	0	-3.9812	15.46			9.7	3.65	SLU 75	0.24	No
fin.	3	0	6.7102	31.13			9.7	3.65	SLU 75	0.12	No
ini.	3	0	-3.8822	15.08			9.7	3.65	SLU 80	0.24	No
fin.	3	0	6.6699	31			9.7	3.65	SLU 80	0.12	No
ini.	3	0	-3.9491	15.23			9.7	3.65	SLU 78	0.24	No
fin.	3	0	6.7504	31.47			9.7	3.65	SLU 78	0.12	No
ini.	3	0	-4.1064	16.07			9.7	3.65	SLU 84	0.23	No
fin.	3	0	6.8843	31.75			9.7	3.65	SLU 84	0.12	No
ini.	3	0	-4.1385	16.31			9.7	3.65	SLU 82	0.22	No
fin.	3	0	6.8441	31.4			9.7	3.65	SLU 82	0.12	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-14.51	9.3304	12.1694	SLV 4	1.3	Si
fin.	2	21.94	-5.925	12.1694	SLV 4	2.05	Si
ini.	2	-14.51	9.3304	12.1694	SLV 3	1.3	Si
fin.	2	21.94	-5.925	12.1694	SLV 3	2.05	Si
ini.	2	2.78	-13.9856	12.1694	SLV 14	0.87	No
fin.	2	-57.33	14.4322	12.1694	SLV 14	0.84	No
ini.	2	-29.01	8.9662	12.1694	SLV 2	1.36	Si
fin.	2	7.91	-3.7966	12.1694	SLV 2	3.21	Si
ini.	2	-25.26	-6.3773	12.1694	SLV 10	1.91	Si
fin.	2	-50.86	10.5352	12.1694	SLV 10	1.16	Si
ini.	2	2.78	-13.9856	12.1694	SLV 13	0.87	No
fin.	2	-57.33	14.4322	12.1694	SLV 13	0.84	No
ini.	2	-25.26	-6.3773	12.1694	SLV 9	1.91	Si
fin.	2	-50.86	10.5352	12.1694	SLV 9	1.16	Si
ini.	2	17.27	-13.6214	12.1694	SLV 15	0.89	No
fin.	2	-43.3	12.3039	12.1694	SLV 15	0.99	No
ini.	2	17.27	-13.6214	12.1694	SLV 16	0.89	No
fin.	2	-43.3	12.3039	12.1694	SLV 16	0.99	No
ini.	2	-29.01	8.9662	12.1694	SLV 1	1.36	Si
fin.	2	7.91	-3.7966	12.1694	SLV 1	3.21	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	8.9662	-41.95			14.56	5.48	SLV 1	0.13	No
fin.	2	0	-3.7966	-23.15			14.56	5.48	SLV 1	0.24	No
ini.	2	0	-6.3773	8.49			14.56	5.48	SLV 10	0.65	No
fin.	2	0	10.5352	45.65			14.56	5.48	SLV 10	0.12	No
ini.	2	0	-13.6214	58.66			14.56	5.48	SLV 16	0.09	No
fin.	2	0	12.3039	64.75			14.56	5.48	SLV 16	0.08	No
ini.	2	0	8.9662	-41.95			14.56	5.48	SLV 2	0.13	No
fin.	2	0	-3.7966	-23.15			14.56	5.48	SLV 2	0.24	No
ini.	2	0	-13.9856	50.42			14.56	5.48	SLV 14	0.11	No
fin.	2	0	14.4322	71.17			14.56	5.48	SLV 14	0.08	No
ini.	2	0	-6.3773	8.49			14.56	5.48	SLV 9	0.65	No
fin.	2	0	10.5352	45.65			14.56	5.48	SLV 9	0.12	No
ini.	2	0	-13.9856	50.42			14.56	5.48	SLV 13	0.11	No
fin.	2	0	14.4322	71.17			14.56	5.48	SLV 13	0.08	No
ini.	2	0	-7.3719	26.81			14.56	5.48	SLD 14	0.2	No
fin.	2	0	8.6406	42.65			14.56	5.48	SLD 14	0.13	No
ini.	2	0	-13.6214	58.66			14.56	5.48	SLV 15	0.09	No
fin.	2	0	12.3039	64.75			14.56	5.48	SLV 15	0.08	No
ini.	2	0	-7.3719	26.81			14.56	5.48	SLD 13	0.2	No
fin.	2	0	8.6406	42.65			14.56	5.48	SLD 13	0.13	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.843	SLV 13	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.077	SLV 13	No
PF SLU	1.489	SLU 76	Si
V SLU	0.115	SLU 84	No

## Trave di accoppiamento 103

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.283	-3.359	7.53	8.35	0.82	-3.183	-3.359	7.53	8.35	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-18.98	-6.1356	8.9792	SLU 78	1.46	Si
fin.	3	-3.62	0.68	8.9792	SLU 78	13.21	Si
ini.	3	-17.59	-5.7761	8.9792	SLU 83	1.55	Si
fin.	3	-3.46	0.4871	8.9792	SLU 83	18.43	Si
ini.	3	-19.99	-6.3436	8.9792	SLU 73	1.42	Si
fin.	3	-3.54	0.9752	8.9792	SLU 73	9.21	Si
ini.	3	-17.49	-5.7558	8.9792	SLU 81	1.56	Si
fin.	3	-3.21	0.5637	8.9792	SLU 81	15.93	Si
ini.	3	-19.46	-6.2677	8.9792	SLU 82	1.43	Si
fin.	3	-3.47	0.8303	8.9792	SLU 82	10.81	Si
ini.	3	-18.88	-6.0429	8.9792	SLU 80	1.49	Si
fin.	3	-3.86	0.6442	8.9792	SLU 80	13.94	Si
ini.	3	-19.56	-6.288	8.9792	SLU 84	1.43	Si
fin.	3	-3.72	0.7537	8.9792	SLU 84	11.91	Si
ini.	3	-18.87	-6.1152	8.9792	SLU 75	1.47	Si
fin.	3	-3.37	0.7566	8.9792	SLU 75	11.87	Si
ini.	3	-20.09	-6.3639	8.9792	SLU 76	1.41	Si
fin.	3	-3.79	0.8986	8.9792	SLU 76	9.99	Si
ini.	3	-18.25	-5.7446	8.9792	SLU 68	1.56	Si
fin.	3	-3.54	0.8218	8.9792	SLU 68	10.93	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-6.3639	32.71			8.06	3.03	SLU 76	0.09	No
fin.	3	0	0.8986	-3.73			8.06	3.03	SLU 76	0.81	No
ini.	3	0	-5.7761	31.55			8.06	3.03	SLU 83	0.1	No
fin.	3	0	0.4871	-7.25			8.06	3.03	SLU 83	0.42	No
ini.	3	0	-5.6236	30.77			8.06	3.03	SLU 77	0.1	No
fin.	3	0	0.4134	-7.35			8.06	3.03	SLU 77	0.41	No
ini.	3	0	-6.1152	32.16			8.06	3.03	SLU 75	0.09	No
fin.	3	0	0.7566	-4.94			8.06	3.03	SLU 75	0.61	No
ini.	3	0	-5.7558	31.36			8.06	3.03	SLU 81	0.1	No
fin.	3	0	0.5637	-6.73			8.06	3.03	SLU 81	0.45	No
ini.	3	0	-6.3436	32.53			8.06	3.03	SLU 73	0.09	No
fin.	3	0	0.9752	-3.21			8.06	3.03	SLU 73	0.94	No
ini.	3	0	-6.2677	32.93			8.06	3.03	SLU 82	0.09	No
fin.	3	0	0.8303	-4.83			8.06	3.03	SLU 82	0.63	No
ini.	3	0	-6.0429	31.85			8.06	3.03	SLU 80	0.1	No
fin.	3	0	0.6442	-5.51			8.06	3.03	SLU 80	0.55	No
ini.	3	0	-6.288	33.12			8.06	3.03	SLU 84	0.09	No
fin.	3	0	0.7537	-5.35			8.06	3.03	SLU 84	0.57	No
ini.	3	0	-6.1356	32.34			8.06	3.03	SLU 78	0.09	No
fin.	3	0	0.68	-5.46			8.06	3.03	SLU 78	0.56	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-20.05	-7.695	10.7694	SLD 13	1.4	Si
fin.	2	3.78	3.1269	10.7694	SLD 13	3.44	Si
ini.	2	-31.43	-12.8896	10.7694	SLV 14	0.84	No
fin.	2	11.68	6.7716	10.7694	SLV 14	1.59	Si
ini.	2	-24.49	-10.5746	10.7694	SLV 16	1.02	Si
fin.	2	11.43	6.7289	10.7694	SLV 16	1.6	Si
ini.	2	-28.05	-10.0234	10.7694	SLV 10	1.07	Si
fin.	2	2.29	2.3369	10.7694	SLV 10	4.61	Si
ini.	2	-31.43	-12.8896	10.7694	SLV 13	0.84	No
fin.	2	11.68	6.7716	10.7694	SLV 13	1.59	Si
ini.	2	-17.27	-6.7413	10.7694	SLD 15	1.6	Si
fin.	2	3.61	3.1106	10.7694	SLD 15	3.46	Si
ini.	2	-24.49	-10.5746	10.7694	SLV 15	1.02	Si
fin.	2	11.43	6.7289	10.7694	SLV 15	1.6	Si
ini.	2	-17.27	-6.7413	10.7694	SLD 16	1.6	Si
fin.	2	3.61	3.1106	10.7694	SLD 16	3.46	Si
ini.	2	-20.05	-7.695	10.7694	SLD 14	1.4	Si
fin.	2	3.78	3.1269	10.7694	SLD 14	3.44	Si
ini.	2	-28.05	-10.0234	10.7694	SLV 9	1.07	Si
fin.	2	2.29	2.3369	10.7694	SLV 9	4.61	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-7.695	35.37			12.08	4.55	SLD 13	0.13	No
fin.	2	0	3.1269	7.67			12.08	4.55	SLD 13	0.59	No
ini.	2	0	3.0163	-6.67			12.08	4.55	SLV 1	0.68	No
fin.	2	0	-6.0414	-37.04			12.08	4.55	SLV 1	0.12	No
ini.	2	0	-10.0234	41.69			12.08	4.55	SLV 10	0.11	No
fin.	2	0	2.3369	-3.44			12.08	4.55	SLV 10	1.32	Si
ini.	2	0	-10.5746	47.86			12.08	4.55	SLV 16	0.1	No
fin.	2	0	6.7289	28.29			12.08	4.55	SLV 16	0.16	No
ini.	2	0	-10.0234	41.69			12.08	4.55	SLV 9	0.11	No
fin.	2	0	2.3369	-3.44			12.08	4.55	SLV 9	1.32	Si
ini.	2	0	-7.695	35.37			12.08	4.55	SLD 14	0.13	No
fin.	2	0	3.1269	7.67			12.08	4.55	SLD 14	0.59	No
ini.	2	0	-12.8896	54.97			12.08	4.55	SLV 13	0.08	No
fin.	2	0	6.7716	23.41			12.08	4.55	SLV 13	0.19	No
ini.	2	0	3.0163	-6.67			12.08	4.55	SLV 2	0.68	No
fin.	2	0	-6.0414	-37.04			12.08	4.55	SLV 2	0.12	No
ini.	2	0	-10.5746	47.86			12.08	4.55	SLV 15	0.1	No
fin.	2	0	6.7289	28.29			12.08	4.55	SLV 15	0.16	No
ini.	2	0	-12.8896	54.97			12.08	4.55	SLV 14	0.08	No
fin.	2	0	6.7716	23.41			12.08	4.55	SLV 14	0.19	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.836	SLV 13	No
V_SLV	0.083	SLV 13	No
PF_SLU	1.411	SLU 76	Si
V_SLU	0.092	SLU 84	No

#### Trave di accoppiamento 104

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.063	5.951	4.83	5.73	0.9	-2.963	5.951	4.83	5.73	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-12.48	0.2442	10.3792	SLU 83	42.5	Si
fin.	3	-18.94	2.1739	10.3792	SLU 83	4.77	Si
ini.	3	-9.94	-0.1782	10.3792	SLU 82	58.24	Si
fin.	3	-16.8	2.1971	10.3792	SLU 82	4.72	Si
ini.	3	-9.7	-0.1308	10.3792	SLU 73	79.36	Si
fin.	3	-16.23	2.0967	10.3792	SLU 73	4.95	Si
ini.	3	-13.83	0.5513	10.3792	SLU 78	18.83	Si
fin.	3	-19.91	2.1073	10.3792	SLU 78	4.93	Si
ini.	3	-11.78	0.2337	10.3792	SLU 76	44.42	Si
fin.	3	-18.04	2.0844	10.3792	SLU 76	4.98	Si
ini.	3	-14.29	0.6093	10.3792	SLU 77	17.04	Si
fin.	3	-20.24	2.0964	10.3792	SLU 77	4.95	Si
ini.	3	-12.02	0.1862	10.3792	SLU 84	55.73	Si
fin.	3	-18.61	2.1848	10.3792	SLU 84	4.75	Si
ini.	3	-11.74	0.1868	10.3792	SLU 75	55.56	Si
fin.	3	-18.09	2.1196	10.3792	SLU 75	4.9	Si
ini.	3	-12.2	0.2448	10.3792	SLU 74	42.4	Si
fin.	3	-18.42	2.1087	10.3792	SLU 74	4.92	Si
ini.	3	-10.4	-0.1202	10.3792	SLU 81	86.34	Si
fin.	3	-17.12	2.1862	10.3792	SLU 81	4.75	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.6948	-7.72			9.7	3.65	SLU 79	0.47	No
fin.	3	0	2.0539	13.15			9.7	3.65	SLU 79	0.28	No
ini.	3	0	0.2442	-6.41			9.7	3.65	SLU 83	0.57	No
fin.	3	0	2.1739	13.87			9.7	3.65	SLU 83	0.26	No
ini.	3	0	0.2448	-6.52			9.7	3.65	SLU 74	0.56	No
fin.	3	0	2.1087	13.61			9.7	3.65	SLU 74	0.27	No
ini.	3	0	0.1862	-5.98			9.7	3.65	SLU 84	0.61	No
fin.	3	0	2.1848	13.8			9.7	3.65	SLU 84	0.26	No
ini.	3	0	0.5513	-7.21			9.7	3.65	SLU 78	0.51	No
fin.	3	0	2.1073	13.43			9.7	3.65	SLU 78	0.27	No
ini.	3	0	-0.1782	-4.86			9.7	3.65	SLU 82	0.75	No
fin.	3	0	2.1971	13.91			9.7	3.65	SLU 82	0.26	No
ini.	3	0	0.1868	-6.09			9.7	3.65	SLU 75	0.6	No
fin.	3	0	2.1196	13.54			9.7	3.65	SLU 75	0.27	No
ini.	3	0	-0.1308	-4.76			9.7	3.65	SLU 73	0.77	No
fin.	3	0	2.0967	13.26			9.7	3.65	SLU 73	0.28	No
ini.	3	0	-0.1202	-5.29			9.7	3.65	SLU 81	0.69	No
fin.	3	0	2.1862	13.98			9.7	3.65	SLU 81	0.26	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.6093	-7.64			9.7	3.65	SLU 77	0.48	No
fin.	3	0	2.0964	13.5			9.7	3.65	SLU 77	0.27	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-25.82	-0.918	12.1694	SLV 12	13.26	Si
fin.	2	-44.16	7.3584	12.1694	SLV 12	1.65	Si
ini.	2	-25.82	-0.918	12.1694	SLV 11	13.26	Si
fin.	2	-44.16	7.3584	12.1694	SLV 11	1.65	Si
ini.	2	-37.19	9.9252	12.1694	SLV 4	1.23	Si
fin.	2	-3.95	-9.1336	12.1694	SLV 4	1.33	Si
ini.	2	21.36	-9.786	12.1694	SLV 14	1.24	Si
fin.	2	-20.32	11.9899	12.1694	SLV 14	1.01	Si
ini.	2	6.67	-8.7021	12.1694	SLV 15	1.4	Si
fin.	2	-36.59	13.5101	12.1694	SLV 15	0.9	No
ini.	2	-22.5	8.8413	12.1694	SLV 1	1.38	Si
fin.	2	12.33	-10.6539	12.1694	SLV 1	1.14	Si
ini.	2	-37.19	9.9252	12.1694	SLV 3	1.23	Si
fin.	2	-3.95	-9.1336	12.1694	SLV 3	1.33	Si
ini.	2	21.36	-9.786	12.1694	SLV 13	1.24	Si
fin.	2	-20.32	11.9899	12.1694	SLV 13	1.01	Si
ini.	2	6.67	-8.7021	12.1694	SLV 16	1.4	Si
fin.	2	-36.59	13.5101	12.1694	SLV 16	0.9	No
ini.	2	-22.5	8.8413	12.1694	SLV 2	1.38	Si
fin.	2	12.33	-10.6539	12.1694	SLV 2	1.14	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-9.786	39.72			14.56	5.48	SLV 14	0.14	No
fin.	2	0	11.9899	47.95			14.56	5.48	SLV 14	0.11	No
ini.	2	0	8.8413	-42.92			14.56	5.48	SLV 2	0.13	No
fin.	2	0	-10.6539	-38.71			14.56	5.48	SLV 2	0.14	No
ini.	2	0	9.9252	-48.44			14.56	5.48	SLV 4	0.11	No
fin.	2	0	-9.1336	-29.31			14.56	5.48	SLV 4	0.19	No
ini.	2	0	-0.918	-1.18			14.56	5.48	SLV 12	4.66	Si
fin.	2	0	7.3584	37.98			14.56	5.48	SLV 12	0.14	No
ini.	2	0	-0.918	-1.18			14.56	5.48	SLV 11	4.66	Si
fin.	2	0	7.3584	37.98			14.56	5.48	SLV 11	0.14	No
ini.	2	0	-9.786	39.72			14.56	5.48	SLV 13	0.14	No
fin.	2	0	11.9899	47.95			14.56	5.48	SLV 13	0.11	No
ini.	2	0	9.9252	-48.44			14.56	5.48	SLV 3	0.11	No
fin.	2	0	-9.1336	-29.31			14.56	5.48	SLV 3	0.19	No
ini.	2	0	8.8413	-42.92			14.56	5.48	SLV 1	0.13	No
fin.	2	0	-10.6539	-38.71			14.56	5.48	SLV 1	0.14	No
ini.	2	0	-8.7021	34.19			14.56	5.48	SLV 15	0.16	No
fin.	2	0	13.5101	57.34			14.56	5.48	SLV 15	0.1	No
ini.	2	0	-8.7021	34.19			14.56	5.48	SLV 16	0.16	No
fin.	2	0	13.5101	57.34			14.56	5.48	SLV 16	0.1	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 15	No
V_SLV		SLV 15	No
PF_SLU		SLU 82	Si
V_SLU		SLU 81	No

### Trave di accoppiamento 105

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.063	5.951	7.53	8.35	0.82	-2.963	5.951	7.53	8.35	0.82	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.4	-2.8078	8.9792	SLU 60	3.2	Si
fin.	3	-2.62	-0.0716	8.9792	SLU 60	125.33	Si
ini.	3	-7.94	-2.8702	8.9792	SLU 84	3.13	Si
fin.	3	-4.54	-0.8063	8.9792	SLU 84	11.14	Si
ini.	3	-7.54	-2.7814	8.9792	SLU 75	3.23	Si
fin.	3	-4.17	-0.7427	8.9792	SLU 75	12.09	Si
ini.	3	-8.28	-3.0963	8.9792	SLU 81	2.9	Si
fin.	3	-3.31	-0.2183	8.9792	SLU 81	41.14	Si
ini.	3	-7.37	-2.8051	8.9792	SLU 61	3.2	Si
fin.	3	-2.47	-0.0146	8.9792	SLU 61	617.03	Si
ini.	3	-7.57	-2.784	8.9792	SLU 74	3.23	Si
fin.	3	-4.32	-0.7998	8.9792	SLU 74	11.23	Si
ini.	3	-7.97	-2.8728	8.9792	SLU 83	3.13	Si
fin.	3	-4.69	-0.8634	8.9792	SLU 83	10.4	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.72	-2.9024	8.9792	SLU 73	3.09	Si
fin.	3	-3.03	-0.2029	8.9792	SLU 73	44.25	Si
ini.	3	-7.41	-2.6789	8.9792	SLU 76	3.35	Si
fin.	3	-4.42	-0.8481	8.9792	SLU 76	10.59	Si
ini.	3	-8.25	-3.0937	8.9792	SLU 82	2.9	Si
fin.	3	-3.16	-0.1612	8.9792	SLU 82	55.71	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.9024	22.88			8.06	3.03	SLU 73	0.13	No
fin.	3	0	-0.2029	-9.3			8.06	3.03	SLU 73	0.33	No
ini.	3	0	-2.8051	22.16			8.06	3.03	SLU 61	0.14	No
fin.	3	0	-0.0146	-8.38			8.06	3.03	SLU 61	0.36	No
ini.	3	0	-2.8702	22.65			8.06	3.03	SLU 84	0.13	No
fin.	3	0	-0.8063	-11.45			8.06	3.03	SLU 84	0.26	No
ini.	3	0	-3.0937	24.41			8.06	3.03	SLU 82	0.12	No
fin.	3	0	-0.1612	-9.7			8.06	3.03	SLU 82	0.31	No
ini.	3	0	-2.8728	22.72			8.06	3.03	SLU 83	0.13	No
fin.	3	0	-0.8634	-11.69			8.06	3.03	SLU 83	0.26	No
ini.	3	0	-2.8078	22.22			8.06	3.03	SLU 60	0.14	No
fin.	3	0	-0.0716	-8.62			8.06	3.03	SLU 60	0.35	No
ini.	3	0	-2.784	21.98			8.06	3.03	SLU 74	0.14	No
fin.	3	0	-0.7998	-11.19			8.06	3.03	SLU 74	0.27	No
ini.	3	0	-2.7814	21.92			8.06	3.03	SLU 75	0.14	No
fin.	3	0	-0.7427	-10.94			8.06	3.03	SLU 75	0.28	No
ini.	3	0	-2.6789	21.12			8.06	3.03	SLU 76	0.14	No
fin.	3	0	-0.8481	-11.04			8.06	3.03	SLU 76	0.27	No
ini.	3	0	-3.0963	24.48			8.06	3.03	SLU 81	0.12	No
fin.	3	0	-0.2183	-9.95			8.06	3.03	SLU 81	0.3	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-15.11	-7.4634	10.7694	SLV 14	1.44	Si
fin.	2	9.77	6.3669	10.7694	SLV 14	1.69	Si
ini.	2	9.6	5.9908	10.7694	SLV 1	1.8	Si
fin.	2	-22.88	-9.8757	10.7694	SLV 1	1.09	Si
ini.	2	9.6	5.9908	10.7694	SLV 2	1.8	Si
fin.	2	-22.88	-9.8757	10.7694	SLV 2	1.09	Si
ini.	2	6.68	4.1343	10.7694	SLV 6	2.6	Si
fin.	2	-21.29	-7.6146	10.7694	SLV 6	1.41	Si
ini.	2	-17.09	-8.0519	10.7694	SLV 12	1.34	Si
fin.	2	16.61	7.0404	10.7694	SLV 12	1.53	Si
ini.	2	6.68	4.1343	10.7694	SLV 5	2.6	Si
fin.	2	-21.29	-7.6146	10.7694	SLV 5	1.41	Si
ini.	2	-15.11	-7.4634	10.7694	SLV 13	1.44	Si
fin.	2	9.77	6.3669	10.7694	SLV 13	1.69	Si
ini.	2	-17.09	-8.0519	10.7694	SLV 11	1.34	Si
fin.	2	16.61	7.0404	10.7694	SLV 11	1.53	Si
ini.	2	-20.01	-9.9084	10.7694	SLV 16	1.09	Si
fin.	2	18.2	9.3015	10.7694	SLV 16	1.16	Si
ini.	2	-20.01	-9.9084	10.7694	SLV 15	1.09	Si
fin.	2	18.2	9.3015	10.7694	SLV 15	1.16	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-9.9084	50.48			12.08	4.55	SLV 15	0.09	No
fin.	2	0	9.3015	20.03			12.08	4.55	SLV 15	0.23	No
ini.	2	0	3.5458	-9.49			12.08	4.55	SLV 4	0.48	No
fin.	2	0	-6.9411	-39.13			12.08	4.55	SLV 4	0.12	No
ini.	2	0	3.5458	-9.49			12.08	4.55	SLV 3	0.48	No
fin.	2	0	-6.9411	-39.13			12.08	4.55	SLV 3	0.12	No
ini.	2	0	-7.4634	40.5			12.08	4.55	SLV 13	0.11	No
fin.	2	0	6.3669	25.31			12.08	4.55	SLV 13	0.18	No
ini.	2	0	5.9908	-19.47			12.08	4.55	SLV 1	0.23	No
fin.	2	0	-9.8757	-33.85			12.08	4.55	SLV 1	0.13	No
ini.	2	0	-8.0519	41.14			12.08	4.55	SLV 11	0.11	No
fin.	2	0	7.0404	-6.85			12.08	4.55	SLV 11	0.66	No
ini.	2	0	-9.9084	50.48			12.08	4.55	SLV 16	0.09	No
fin.	2	0	9.3015	20.03			12.08	4.55	SLV 16	0.23	No
ini.	2	0	-8.0519	41.14			12.08	4.55	SLV 12	0.11	No
fin.	2	0	7.0404	-6.85			12.08	4.55	SLV 12	0.66	No
ini.	2	0	-7.4634	40.5			12.08	4.55	SLV 14	0.11	No
fin.	2	0	6.3669	25.31			12.08	4.55	SLV 14	0.18	No
ini.	2	0	5.9908	-19.47			12.08	4.55	SLV 2	0.23	No
fin.	2	0	-9.8757	-33.85			12.08	4.55	SLV 2	0.13	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.087	SLV 15	Si
V_SLV	0.09	SLV 15	No
PF_SLU	2.9	SLU 81	Si
V_SLU	0.124	SLU 81	No

## Trave di accoppiamento 106

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-24.678	1.266	10.45	11.87	1.42	-24.678	2.066	10.45	11.87	1.42	0.8	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-20.4	10.5499	19.4792	SLU 39	1.85	Si
fin.	3	-20.4	-17.9123	19.4792	SLU 39	1.09	Si
ini.	3	-22.16	9.6137	19.4792	SLU 82	2.03	Si
fin.	3	-22.16	-18.3443	19.4792	SLU 82	1.06	Si
ini.	3	-23.75	8.2697	19.4792	SLU 77	2.36	Si
fin.	3	-23.75	-19.0844	19.4792	SLU 77	1.02	Si
ini.	3	-23.93	10.9375	19.4792	SLU 81	1.78	Si
fin.	3	-23.93	-19.5769	19.4792	SLU 81	1	No
ini.	3	-21.99	6.9459	19.4792	SLU 78	2.8	Si
fin.	3	-21.99	-17.8519	19.4792	SLU 78	1.09	Si
ini.	3	-23.61	9.2633	19.4792	SLU 74	2.1	Si
fin.	3	-23.61	-18.8127	19.4792	SLU 74	1.04	Si
ini.	3	-24.07	9.944	19.4792	SLU 83	1.96	Si
fin.	3	-24.07	-19.8486	19.4792	SLU 83	0.98	No
ini.	3	-20.54	9.5564	19.4792	SLU 41	2.04	Si
fin.	3	-20.54	-18.184	19.4792	SLU 41	1.07	Si
ini.	3	-23.17	7.6318	19.4792	SLU 79	2.55	Si
fin.	3	-23.17	-18.5594	19.4792	SLU 79	1.05	Si
ini.	3	-22.31	8.6202	19.4792	SLU 84	2.26	Si
fin.	3	-22.31	-18.616	19.4792	SLU 84	1.05	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	7.6318	-29.47			15.31	5.76	SLU 79	0.2	No
fin.	3	0	-18.5594	-36.57			15.31	5.76	SLU 79	0.16	No
ini.	3	0	9.944	-33.97			15.31	5.76	SLU 83	0.17	No
fin.	3	0	-19.8486	-41.08			15.31	5.76	SLU 83	0.14	No
ini.	3	0	9.2633	-31.82			15.31	5.76	SLU 74	0.18	No
fin.	3	0	-18.8127	-38.93			15.31	5.76	SLU 74	0.15	No
ini.	3	0	8.2697	-30.92			15.31	5.76	SLU 77	0.19	No
fin.	3	0	-19.0844	-38.03			15.31	5.76	SLU 77	0.15	No
ini.	3	0	10.5499	-33.04			15.31	5.76	SLU 39	0.17	No
fin.	3	0	-17.9123	-38.54			15.31	5.76	SLU 39	0.15	No
ini.	3	0	8.6202	-30.77			15.31	5.76	SLU 84	0.19	No
fin.	3	0	-18.616	-37.88			15.31	5.76	SLU 84	0.15	No
ini.	3	0	9.5564	-32.13			15.31	5.76	SLU 41	0.18	No
fin.	3	0	-18.184	-37.64			15.31	5.76	SLU 41	0.15	No
ini.	3	0	9.6137	-31.67			15.31	5.76	SLU 82	0.18	No
fin.	3	0	-18.3443	-38.78			15.31	5.76	SLU 82	0.15	No
ini.	3	0	7.9394	-28.63			15.31	5.76	SLU 75	0.2	No
fin.	3	0	-17.5802	-35.73			15.31	5.76	SLU 75	0.16	No
ini.	3	0	10.9375	-34.87			15.31	5.76	SLU 81	0.17	No
fin.	3	0	-19.5769	-41.98			15.31	5.76	SLU 81	0.14	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-21.09	18.8015	21.2694	SLV 3	1.13	Si
fin.	2	-23.08	-27.3783	21.2694	SLV 3	0.78	No
ini.	2	-21.09	18.8015	21.2694	SLV 4	1.13	Si
fin.	2	-23.08	-27.3783	21.2694	SLV 4	0.78	No
ini.	2	-16.86	25.362	21.2694	SLV 7	0.84	No
fin.	2	-18.89	-31.872	21.2694	SLV 7	0.67	No
ini.	2	-13.62	20.4803	21.2694	SLV 11	1.04	Si
fin.	2	-14.74	-25.3692	21.2694	SLV 11	0.84	No
ini.	2	-13.62	20.4803	21.2694	SLV 12	1.04	Si
fin.	2	-14.74	-25.3692	21.2694	SLV 12	0.84	No
ini.	2	-18.07	11.1742	21.2694	SLD 3	1.9	Si
fin.	2	-18.9	-18.2528	21.2694	SLD 3	1.17	Si
ini.	2	-16.19	14.0635	21.2694	SLD 7	1.51	Si
fin.	2	-17.09	-20.3009	21.2694	SLD 7	1.05	Si
ini.	2	-18.07	11.1742	21.2694	SLD 4	1.9	Si
fin.	2	-18.9	-18.2528	21.2694	SLD 4	1.17	Si
ini.	2	-16.19	14.0635	21.2694	SLD 8	1.51	Si
fin.	2	-17.09	-20.3009	21.2694	SLD 8	1.05	Si
ini.	2	-16.86	25.362	21.2694	SLV 8	0.84	No
fin.	2	-18.89	-31.872	21.2694	SLV 8	0.67	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	11.9759	-34.52			22.97	8.64	SLD 12	0.25	No
fin.	2	0	-17.5262	-40.2			22.97	8.64	SLD 12	0.21	No
ini.	2	0	14.0635	-40.49			22.97	8.64	SLD 7	0.21	No
fin.	2	0	-20.3009	-46.11			22.97	8.64	SLD 7	0.19	No
ini.	2	0	18.8015	-54.8			22.97	8.64	SLV 3	0.16	No
fin.	2	0	-27.3783	-60.13			22.97	8.64	SLV 3	0.14	No
ini.	2	0	20.4803	-55.14			22.97	8.64	SLV 11	0.16	No
fin.	2	0	-25.3692	-61.13			22.97	8.64	SLV 11	0.14	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	11.9759	-34.52			22.97	8.64	SLD 11	0.25	No
fin.	2	0	-17.5262	-40.2			22.97	8.64	SLD 11	0.21	No
ini.	2	0	25.362	-69.09			22.97	8.64	SLV 8	0.13	No
fin.	2	0	-31.872	-74.92			22.97	8.64	SLV 8	0.12	No
ini.	2	0	25.362	-69.09			22.97	8.64	SLV 7	0.13	No
fin.	2	0	-31.872	-74.92			22.97	8.64	SLV 7	0.12	No
ini.	2	0	20.4803	-55.14			22.97	8.64	SLV 12	0.16	No
fin.	2	0	-25.3692	-61.13			22.97	8.64	SLV 12	0.14	No
ini.	2	0	18.8015	-54.8			22.97	8.64	SLV 4	0.16	No
fin.	2	0	-27.3783	-60.13			22.97	8.64	SLV 4	0.14	No
ini.	2	0	14.0635	-40.49			22.97	8.64	SLD 8	0.21	No
fin.	2	0	-20.3009	-46.11			22.97	8.64	SLD 8	0.19	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.667	SLV 7	No
V_SLV	0.115	SLV 7	No
PF_SLU	0.981	SLU 83	No
V_SLU	0.137	SLU 81	No

## Trave di accoppiamento 107

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.813	5.951	8.35	9.25	0.9	-22.713	5.951	8.35	9.25	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.26	2.0533	10.3792	SLU 39	5.05	Si
fin.	3	2.8	-0.9391	10.3792	SLU 39	11.05	Si
ini.	3	-6.21	2.0271	10.3792	SLU 84	5.12	Si
fin.	3	3.61	-1.2208	10.3792	SLU 84	8.5	Si
ini.	3	-7.83	2.1265	10.3792	SLU 52	4.88	Si
fin.	3	2.14	-0.8717	10.3792	SLU 52	11.91	Si
ini.	3	-8.74	2.4422	10.3792	SLU 81	4.25	Si
fin.	3	3.01	-1.0956	10.3792	SLU 81	9.47	Si
ini.	3	-8.64	2.4169	10.3792	SLU 82	4.29	Si
fin.	3	3.01	-1.0682	10.3792	SLU 82	9.72	Si
ini.	3	-6.32	2.0524	10.3792	SLU 83	5.06	Si
fin.	3	3.61	-1.2483	10.3792	SLU 83	8.31	Si
ini.	3	-7.16	2.028	10.3792	SLU 40	5.12	Si
fin.	3	2.8	-0.9116	10.3792	SLU 40	11.39	Si
ini.	3	-8.62	2.3122	10.3792	SLU 60	4.49	Si
fin.	3	2.32	-0.9471	10.3792	SLU 60	10.96	Si
ini.	3	-7.95	2.2565	10.3792	SLU 73	4.6	Si
fin.	3	2.84	-1.0203	10.3792	SLU 73	10.17	Si
ini.	3	-8.51	2.2868	10.3792	SLU 61	4.54	Si
fin.	3	2.32	-0.9196	10.3792	SLU 61	11.29	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.2868	-18.94			9.7	3.65	SLU 61	0.19	No
fin.	3	0	-0.9196	6.25			9.7	3.65	SLU 61	0.58	No
ini.	3	0	2.3122	-19.21			9.7	3.65	SLU 60	0.19	No
fin.	3	0	-0.9471	6.42			9.7	3.65	SLU 60	0.57	No
ini.	3	0	2.4422	-20.29			9.7	3.65	SLU 81	0.18	No
fin.	3	0	-1.0956	6.41			9.7	3.65	SLU 81	0.57	No
ini.	3	0	2.0271	-18.58			9.7	3.65	SLU 84	0.2	No
fin.	3	0	-1.2208	7.27			9.7	3.65	SLU 84	0.5	No
ini.	3	0	2.0257	-18.91			9.7	3.65	SLU 74	0.19	No
fin.	3	0	-1.2106	7.85			9.7	3.65	SLU 74	0.47	No
ini.	3	0	2.0003	-18.63			9.7	3.65	SLU 75	0.2	No
fin.	3	0	-1.1831	7.68			9.7	3.65	SLU 75	0.48	No
ini.	3	0	2.2565	-19.11			9.7	3.65	SLU 73	0.19	No
fin.	3	0	-1.0203	6.45			9.7	3.65	SLU 73	0.57	No
ini.	3	0	2.0524	-18.85			9.7	3.65	SLU 83	0.19	No
fin.	3	0	-1.2483	7.44			9.7	3.65	SLU 83	0.49	No
ini.	3	0	2.4169	-20.02			9.7	3.65	SLU 82	0.18	No
fin.	3	0	-1.0682	6.25			9.7	3.65	SLU 82	0.58	No
ini.	3	0	2.1265	-18.03			9.7	3.65	SLU 52	0.2	No
fin.	3	0	-0.8717	6.46			9.7	3.65	SLU 52	0.57	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	6.86	-4.3231	12.1694	SLV 14	2.81	Si
fin.	2	-26.27	5.0289	12.1694	SLV 14	2.42	Si
ini.	2	6.86	-4.3231	12.1694	SLV 13	2.81	Si
fin.	2	-26.27	5.0289	12.1694	SLV 13	2.42	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-17.92	7.4789	12.1694	SLV 3	1.63	Si
fin.	2	29.94	-6.5367	12.1694	SLV 3	1.86	Si
ini.	2	-10.93	4.1272	12.1694	SLD 3	2.95	Si
fin.	2	13.95	-3.24	12.1694	SLD 3	3.76	Si
ini.	2	-16.99	6.5157	12.1694	SLV 1	1.87	Si
fin.	2	23.58	-5.3704	12.1694	SLV 1	2.27	Si
ini.	2	-10.66	4.8089	12.1694	SLV 8	2.53	Si
fin.	2	19.91	-4.2577	12.1694	SLV 8	2.86	Si
ini.	2	-17.92	7.4789	12.1694	SLV 4	1.63	Si
fin.	2	29.94	-6.5367	12.1694	SLV 4	1.86	Si
ini.	2	-16.99	6.5157	12.1694	SLV 2	1.87	Si
fin.	2	23.58	-5.3704	12.1694	SLV 2	2.27	Si
ini.	2	-10.66	4.8089	12.1694	SLV 7	2.53	Si
fin.	2	19.91	-4.2577	12.1694	SLV 7	2.86	Si
ini.	2	-10.93	4.1272	12.1694	SLD 4	2.95	Si
fin.	2	13.95	-3.24	12.1694	SLD 4	3.76	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-3.36	13.9			14.56	5.48	SLV 16	0.39	No
fin.	2	0	3.8626	33.77			14.56	5.48	SLV 16	0.16	No
ini.	2	0	6.5157	-41.86			14.56	5.48	SLV 1	0.13	No
fin.	2	0	-5.3704	-22.69			14.56	5.48	SLV 1	0.24	No
ini.	2	0	-3.36	13.9			14.56	5.48	SLV 15	0.39	No
fin.	2	0	3.8626	33.77			14.56	5.48	SLV 15	0.16	No
ini.	2	0	6.5157	-41.86			14.56	5.48	SLV 2	0.13	No
fin.	2	0	-5.3704	-22.69			14.56	5.48	SLV 2	0.24	No
ini.	2	0	-4.3231	20.61			14.56	5.48	SLV 14	0.27	No
fin.	2	0	5.0289	33.74			14.56	5.48	SLV 14	0.16	No
ini.	2	0	7.4789	-48.57			14.56	5.48	SLV 4	0.11	No
fin.	2	0	-6.5367	-22.67			14.56	5.48	SLV 4	0.24	No
ini.	2	0	4.8089	-34.54			14.56	5.48	SLV 7	0.16	No
fin.	2	0	-4.2577	-2.89			14.56	5.48	SLV 7	1.9	Si
ini.	2	0	-4.3231	20.61			14.56	5.48	SLV 13	0.27	No
fin.	2	0	5.0289	33.74			14.56	5.48	SLV 13	0.16	No
ini.	2	0	7.4789	-48.57			14.56	5.48	SLV 3	0.11	No
fin.	2	0	-6.5367	-22.67			14.56	5.48	SLV 3	0.24	No
ini.	2	0	4.8089	-34.54			14.56	5.48	SLV 8	0.16	No
fin.	2	0	-4.2577	-2.89			14.56	5.48	SLV 8	1.9	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.627	SLV 3	Si
V_SLV	0.113	SLV 3	No
PF_SLU	4.25	SLU 81	Si
V_SLU	0.18	SLU 81	No

## Trave di accoppiamento 108

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.813	5.951	11.05	11.87	0.82	-22.713	5.951	11.05	11.87	0.82	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	11.69	1.4911	8.9792	SLU 84	6.02	Si
fin.	3	-2.95	-2.1915	8.9792	SLU 84	4.1	Si
ini.	3	14.55	1.5861	8.9792	SLU 78	5.66	Si
fin.	3	-0.68	-2.0693	8.9792	SLU 78	4.34	Si
ini.	3	8.54	1.2857	8.9792	SLU 73	6.98	Si
fin.	3	-4.26	-2.1136	8.9792	SLU 73	4.25	Si
ini.	3	11.85	1.5126	8.9792	SLU 83	5.94	Si
fin.	3	-2.98	-2.2171	8.9792	SLU 83	4.05	Si
ini.	3	11.46	1.4356	8.9792	SLU 75	6.25	Si
fin.	3	-2.59	-2.129	8.9792	SLU 75	4.22	Si
ini.	3	8.75	1.3621	8.9792	SLU 81	6.59	Si
fin.	3	-4.89	-2.2768	8.9792	SLU 81	3.94	Si
ini.	3	8.59	1.3407	8.9792	SLU 82	6.7	Si
fin.	3	-4.86	-2.2512	8.9792	SLU 82	3.99	Si
ini.	3	14.71	1.6075	8.9792	SLU 77	5.59	Si
fin.	3	-0.71	-2.0949	8.9792	SLU 77	4.29	Si
ini.	3	11.62	1.457	8.9792	SLU 74	6.16	Si
fin.	3	-2.62	-2.1545	8.9792	SLU 74	4.17	Si
ini.	3	11.64	1.4362	8.9792	SLU 76	6.25	Si
fin.	3	-2.35	-2.054	8.9792	SLU 76	4.37	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	1.6075	2.02			8.06	3.03	SLU 77	1.5	Si
fin.	3	0	-2.0949	-22.21			8.06	3.03	SLU 77	0.14	No
ini.	3	0	1.457	4.11			8.06	3.03	SLU 74	0.74	No
fin.	3	0	-2.1545	-22.52			8.06	3.03	SLU 74	0.13	No
ini.	3	0	1.2857	5.65			8.06	3.03	SLU 73	0.54	No
fin.	3	0	-2.1136	-21.97			8.06	3.03	SLU 73	0.14	No
ini.	3	0	1.5126	3.91			8.06	3.03	SLU 83	0.77	No
fin.	3	0	-2.2171	-23.12			8.06	3.03	SLU 83	0.13	No
ini.	3	0	1.4362	3.56			8.06	3.03	SLU 76	0.85	No
fin.	3	0	-2.054	-21.66			8.06	3.03	SLU 76	0.14	No
ini.	3	0	1.4911	4.06			8.06	3.03	SLU 84	0.75	No
fin.	3	0	-2.1915	-22.97			8.06	3.03	SLU 84	0.13	No
ini.	3	0	1.3407	6.16			8.06	3.03	SLU 82	0.49	No
fin.	3	0	-2.2512	-23.28			8.06	3.03	SLU 82	0.13	No
ini.	3	0	1.5861	2.17			8.06	3.03	SLU 78	1.4	Si
fin.	3	0	-2.0693	-22.06			8.06	3.03	SLU 78	0.14	No
ini.	3	0	1.3621	6.01			8.06	3.03	SLU 81	0.5	No
fin.	3	0	-2.2768	-23.43			8.06	3.03	SLU 81	0.13	No
ini.	3	0	1.4356	4.26			8.06	3.03	SLU 75	0.71	No
fin.	3	0	-2.129	-22.37			8.06	3.03	SLU 75	0.14	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-14.7	-3.9988	10.7694	SLV 13	2.69	Si
fin.	2	10.55	3.4624	10.7694	SLV 13	3.11	Si
ini.	2	21.45	4.548	10.7694	SLV 1	2.37	Si
fin.	2	-11.62	-5.1356	10.7694	SLV 1	2.1	Si
ini.	2	-14.7	-3.9988	10.7694	SLV 14	2.69	Si
fin.	2	10.55	3.4624	10.7694	SLV 14	3.11	Si
ini.	2	22.44	4.4101	10.7694	SLV 7	2.44	Si
fin.	2	-12.77	-4.8771	10.7694	SLV 7	2.21	Si
ini.	2	15.57	3.0447	10.7694	SLD 3	3.54	Si
fin.	2	-8.23	-3.5881	10.7694	SLD 3	3	Si
ini.	2	27.74	5.865	10.7694	SLV 3	1.84	Si
fin.	2	-15.73	-6.4052	10.7694	SLV 3	1.68	Si
ini.	2	21.45	4.548	10.7694	SLV 2	2.37	Si
fin.	2	-11.62	-5.1356	10.7694	SLV 2	2.1	Si
ini.	2	15.57	3.0447	10.7694	SLD 4	3.54	Si
fin.	2	-8.23	-3.5881	10.7694	SLD 4	3	Si
ini.	2	22.44	4.4101	10.7694	SLV 8	2.44	Si
fin.	2	-12.77	-4.8771	10.7694	SLV 8	2.21	Si
ini.	2	27.74	5.865	10.7694	SLV 4	1.84	Si
fin.	2	-15.73	-6.4052	10.7694	SLV 4	1.68	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	5.865	-25.33			12.08	4.55	SLV 4	0.18	No
fin.	2	0	-6.4052	-42.42			12.08	4.55	SLV 4	0.11	No
ini.	2	0	-3.9988	32.15			12.08	4.55	SLV 13	0.14	No
fin.	2	0	3.4624	12.05			12.08	4.55	SLV 13	0.38	No
ini.	2	0	-3.9988	32.15			12.08	4.55	SLV 14	0.14	No
fin.	2	0	3.4624	12.05			12.08	4.55	SLV 14	0.38	No
ini.	2	0	4.4101	-16.32			12.08	4.55	SLV 7	0.28	No
fin.	2	0	-4.8771	-35.3			12.08	4.55	SLV 7	0.13	No
ini.	2	0	4.548	-18			12.08	4.55	SLV 2	0.25	No
fin.	2	0	-5.1356	-34.54			12.08	4.55	SLV 2	0.13	No
ini.	2	0	3.0447	-8.91			12.08	4.55	SLD 4	0.51	No
fin.	2	0	-3.5881	-26.84			12.08	4.55	SLD 4	0.17	No
ini.	2	0	5.865	-25.33			12.08	4.55	SLV 3	0.18	No
fin.	2	0	-6.4052	-42.42			12.08	4.55	SLV 3	0.11	No
ini.	2	0	4.548	-18			12.08	4.55	SLV 1	0.25	No
fin.	2	0	-5.1356	-34.54			12.08	4.55	SLV 1	0.13	No
ini.	2	0	3.0447	-8.91			12.08	4.55	SLD 3	0.51	No
fin.	2	0	-3.5881	-26.84			12.08	4.55	SLD 3	0.17	No
ini.	2	0	4.4101	-16.32			12.08	4.55	SLV 8	0.28	No
fin.	2	0	-4.8771	-35.3			12.08	4.55	SLV 8	0.13	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 3	Si
V_SLV	0.107	SLV 3	No
PF_SLU	3.944	SLU 81	Si
V_SLU	0.129	SLU 81	No

#### Trave di accoppiamento 109

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.593	-3.359	8.35	9.25	0.9	-22.493	-3.359	8.35	9.25	0.9	0.9	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-31.55	10.1567	10.3792	SLU 76	1.02	Si
fin.	3	1.98	-4.2663	10.3792	SLU 76	2.43	Si
ini.	3	-28.81	9.4213	10.3792	SLU 77	1.1	Si
fin.	3	2.08	-3.8124	10.3792	SLU 77	2.72	Si
ini.	3	-31.2	10.1193	10.3792	SLU 84	1.03	Si
fin.	3	2.2	-4.2034	10.3792	SLU 84	2.47	Si
ini.	3	-30.22	9.8347	10.3792	SLU 75	1.06	Si
fin.	3	2.2	-4.081	10.3792	SLU 75	2.54	Si
ini.	3	-30.5	9.8861	10.3792	SLU 82	1.05	Si
fin.	3	2.2	-4.1039	10.3792	SLU 82	2.53	Si
ini.	3	-28.74	9.3122	10.3792	SLU 79	1.11	Si
fin.	3	1.79	-3.7524	10.3792	SLU 79	2.77	Si
ini.	3	-30.86	9.9235	10.3792	SLU 73	1.05	Si
fin.	3	1.98	-4.1668	10.3792	SLU 73	2.49	Si
ini.	3	-30.91	10.0679	10.3792	SLU 78	1.03	Si
fin.	3	2.2	-4.1805	10.3792	SLU 78	2.48	Si
ini.	3	-29.09	9.4727	10.3792	SLU 83	1.1	Si
fin.	3	2.08	-3.8354	10.3792	SLU 83	2.71	Si
ini.	3	-30.84	9.9588	10.3792	SLU 80	1.04	Si
fin.	3	1.9	-4.1205	10.3792	SLU 80	2.52	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	9.8347	-38.63			9.7	3.65	SLU 75	0.09	No
fin.	3	0	-4.081	-16.68			9.7	3.65	SLU 75	0.22	No
ini.	3	0	9.8861	-38.52			9.7	3.65	SLU 82	0.09	No
fin.	3	0	-4.1039	-17.47			9.7	3.65	SLU 82	0.21	No
ini.	3	0	10.0679	-39.63			9.7	3.65	SLU 78	0.09	No
fin.	3	0	-4.1805	-16.89			9.7	3.65	SLU 78	0.22	No
ini.	3	0	9.9235	-38.56			9.7	3.65	SLU 73	0.09	No
fin.	3	0	-4.1668	-17.86			9.7	3.65	SLU 73	0.2	No
ini.	3	0	9.3122	-36.9			9.7	3.65	SLU 79	0.1	No
fin.	3	0	-3.7524	-14.59			9.7	3.65	SLU 79	0.25	No
ini.	3	0	9.9588	-39.09			9.7	3.65	SLU 80	0.09	No
fin.	3	0	-4.1205	-16.8			9.7	3.65	SLU 80	0.22	No
ini.	3	0	9.4727	-37.33			9.7	3.65	SLU 83	0.1	No
fin.	3	0	-3.8354	-15.46			9.7	3.65	SLU 83	0.24	No
ini.	3	0	10.1193	-39.51			9.7	3.65	SLU 84	0.09	No
fin.	3	0	-4.2034	-17.67			9.7	3.65	SLU 84	0.21	No
ini.	3	0	10.1567	-39.55			9.7	3.65	SLU 76	0.09	No
fin.	3	0	-4.2663	-18.07			9.7	3.65	SLU 76	0.2	No
ini.	3	0	9.4213	-37.44			9.7	3.65	SLU 77	0.1	No
fin.	3	0	-3.8124	-14.68			9.7	3.65	SLU 77	0.25	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-38.41	15.7265	12.1694	SLV 2	0.77	No
fin.	2	15.93	-7.7949	12.1694	SLV 2	1.56	Si
ini.	2	-33.13	12.8262	12.1694	SLV 3	0.95	No
fin.	2	11.69	-6.0878	12.1694	SLV 3	2	Si
ini.	2	-27.46	10.2394	12.1694	SLD 1	1.19	Si
fin.	2	7.33	-4.7191	12.1694	SLD 1	2.58	Si
ini.	2	-24.85	9.1398	12.1694	SLD 6	1.33	Si
fin.	2	5.48	-4.1656	12.1694	SLD 6	2.92	Si
ini.	2	-33.01	13.4021	12.1694	SLV 6	0.91	No
fin.	2	11.79	-6.6172	12.1694	SLV 6	1.84	Si
ini.	2	-27.46	10.2394	12.1694	SLD 2	1.19	Si
fin.	2	7.33	-4.7191	12.1694	SLD 2	2.58	Si
ini.	2	-38.41	15.7265	12.1694	SLV 1	0.77	No
fin.	2	15.93	-7.7949	12.1694	SLV 1	1.56	Si
ini.	2	-24.85	9.1398	12.1694	SLD 5	1.33	Si
fin.	2	5.48	-4.1656	12.1694	SLD 5	2.92	Si
ini.	2	-33.13	12.8262	12.1694	SLV 4	0.95	No
fin.	2	11.69	-6.0878	12.1694	SLV 4	2	Si
ini.	2	-33.01	13.4021	12.1694	SLV 5	0.91	No
fin.	2	11.79	-6.6172	12.1694	SLV 5	1.84	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	13.4021	-50.45			14.56	5.48	SLV 6	0.11	No
fin.	2	0	-6.6172	-27.25			14.56	5.48	SLV 6	0.2	No
ini.	2	0	12.8262	-50.66			14.56	5.48	SLV 3	0.11	No
fin.	2	0	-6.0878	-31.41			14.56	5.48	SLV 3	0.17	No
ini.	2	0	13.4021	-50.45			14.56	5.48	SLV 5	0.11	No
fin.	2	0	-6.6172	-27.25			14.56	5.48	SLV 5	0.2	No
ini.	2	0	9.0641	-35.86			14.56	5.48	SLD 4	0.15	No
fin.	2	0	-4.02	-18.82			14.56	5.48	SLD 4	0.29	No
ini.	2	0	10.2394	-39.98			14.56	5.48	SLD 2	0.14	No
fin.	2	0	-4.7191	-21.42			14.56	5.48	SLD 2	0.26	No
ini.	2	0	15.7265	-60.68			14.56	5.48	SLV 2	0.09	No
fin.	2	0	-7.7949	-37.72			14.56	5.48	SLV 2	0.15	No
ini.	2	0	12.8262	-50.66			14.56	5.48	SLV 4	0.11	No
fin.	2	0	-6.0878	-31.41			14.56	5.48	SLV 4	0.17	No
ini.	2	0	15.7265	-60.68			14.56	5.48	SLV 1	0.09	No
fin.	2	0	-7.7949	-37.72			14.56	5.48	SLV 1	0.15	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	9.0641	-35.86			14.56	5.48	SLD 3	0.15	No
fin.	2	0	-4.02	-18.82			14.56	5.48	SLD 3	0.29	No
ini.	2	0	10.2394	-39.98			14.56	5.48	SLD 1	0.14	No
fin.	2	0	-4.7191	-21.42			14.56	5.48	SLD 1	0.26	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.774	SLV 1	No
V_SLV	0.09	SLV 1	No
PF_SLU	1.022	SLU 76	Si
V_SLU	0.092	SLU 78	No

## Trave di accoppiamento 110

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.593	-3.359	11.05	11.87	0.82	-22.493	-3.359	11.05	11.87	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.35	5.6128	8.9792	SLU 75	1.6	Si
fin.	3	-23.68	-5.7475	8.9792	SLU 75	1.56	Si
ini.	3	0.3	5.4437	8.9792	SLU 79	1.65	Si
fin.	3	-22.76	-5.5236	8.9792	SLU 79	1.63	Si
ini.	3	0.42	5.8777	8.9792	SLU 80	1.53	Si
fin.	3	-24.22	-5.8526	8.9792	SLU 80	1.53	Si
ini.	3	-0.79	5.3456	8.9792	SLU 83	1.68	Si
fin.	3	-23.39	-5.5925	8.9792	SLU 83	1.61	Si
ini.	3	0.49	5.9303	8.9792	SLU 78	1.51	Si
fin.	3	-24.29	-5.9252	8.9792	SLU 78	1.52	Si
ini.	3	-0.34	5.8496	8.9792	SLU 76	1.53	Si
fin.	3	-24.57	-5.8942	8.9792	SLU 76	1.52	Si
ini.	3	0.37	5.4962	8.9792	SLU 77	1.63	Si
fin.	3	-22.84	-5.5962	8.9792	SLU 77	1.6	Si
ini.	3	-1.51	5.4621	8.9792	SLU 82	1.64	Si
fin.	3	-24.23	-5.7438	8.9792	SLU 82	1.56	Si
ini.	3	-1.18	5.5321	8.9792	SLU 73	1.62	Si
fin.	3	-23.96	-5.7165	8.9792	SLU 73	1.57	Si
ini.	3	-0.67	5.7796	8.9792	SLU 84	1.55	Si
fin.	3	-24.84	-5.9215	8.9792	SLU 84	1.52	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	5.3456	-12.31			8.06	3.03	SLU 83	0.25	No
fin.	3	0	-5.5925	-37.35			8.06	3.03	SLU 83	0.08	No
ini.	3	0	5.8496	-14.56			8.06	3.03	SLU 76	0.21	No
fin.	3	0	-5.8942	-38.07			8.06	3.03	SLU 76	0.08	No
ini.	3	0	5.7796	-13.95			8.06	3.03	SLU 84	0.22	No
fin.	3	0	-5.9215	-38.83			8.06	3.03	SLU 84	0.08	No
ini.	3	0	5.8777	-14.77			8.06	3.03	SLU 80	0.21	No
fin.	3	0	-5.8526	-38.05			8.06	3.03	SLU 80	0.08	No
ini.	3	0	5.6128	-13.39			8.06	3.03	SLU 75	0.23	No
fin.	3	0	-5.7475	-37.78			8.06	3.03	SLU 75	0.08	No
ini.	3	0	5.5321	-13.25			8.06	3.03	SLU 73	0.23	No
fin.	3	0	-5.7165	-37.11			8.06	3.03	SLU 73	0.08	No
ini.	3	0	5.4962	-13.06			8.06	3.03	SLU 77	0.23	No
fin.	3	0	-5.5962	-37.26			8.06	3.03	SLU 77	0.08	No
ini.	3	0	5.9303	-14.7			8.06	3.03	SLU 78	0.21	No
fin.	3	0	-5.9252	-38.73			8.06	3.03	SLU 78	0.08	No
ini.	3	0	5.4621	-12.65			8.06	3.03	SLU 82	0.24	No
fin.	3	0	-5.7438	-37.87			8.06	3.03	SLU 82	0.08	No
ini.	3	0	5.4437	-13.13			8.06	3.03	SLU 79	0.23	No
fin.	3	0	-5.5236	-36.57			8.06	3.03	SLU 79	0.08	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.85	9.5085	10.7694	SLV 1	1.13	Si
fin.	2	-28.33	-8.0501	10.7694	SLV 1	1.34	Si
ini.	2	1.76	6.4858	10.7694	SLV 9	1.66	Si
fin.	2	-24.2	-5.5954	10.7694	SLV 9	1.92	Si
ini.	2	4.98	9.3809	10.7694	SLV 5	1.15	Si
fin.	2	-30.22	-7.7357	10.7694	SLV 5	1.39	Si
ini.	2	3.39	6.7229	10.7694	SLV 3	1.6	Si
fin.	2	-20.69	-6.1793	10.7694	SLV 3	1.74	Si
ini.	2	2.1	5.9401	10.7694	SLD 1	1.81	Si
fin.	2	-20.34	-5.4684	10.7694	SLD 1	1.97	Si
ini.	2	2.1	5.9401	10.7694	SLD 2	1.81	Si
fin.	2	-20.34	-5.4684	10.7694	SLD 2	1.97	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.85	9.5085	10.7694	SLV 2	1.13	Si
fin.	2	-28.33	-8.0501	10.7694	SLV 2	1.34	Si
ini.	2	4.98	9.3809	10.7694	SLV 6	1.15	Si
fin.	2	-30.22	-7.7357	10.7694	SLV 6	1.39	Si
ini.	2	3.39	6.7229	10.7694	SLV 4	1.6	Si
fin.	2	-20.69	-6.1793	10.7694	SLV 4	1.74	Si
ini.	2	1.76	6.4858	10.7694	SLV 10	1.66	Si
fin.	2	-24.2	-5.5954	10.7694	SLV 10	1.92	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	9.5085	-27.81			12.08	4.55	SLV 2	0.16	No
fin.	2	0	-8.0501	-45			12.08	4.55	SLV 2	0.1	No
ini.	2	0	6.4858	-17.82			12.08	4.55	SLV 10	0.26	No
fin.	2	0	-5.5954	-35.16			12.08	4.55	SLV 10	0.13	No
ini.	2	0	6.7229	-18.49			12.08	4.55	SLV 4	0.25	No
fin.	2	0	-6.1793	-35.17			12.08	4.55	SLV 4	0.13	No
ini.	2	0	9.3809	-27.44			12.08	4.55	SLV 5	0.17	No
fin.	2	0	-7.7357	-44.99			12.08	4.55	SLV 5	0.1	No
ini.	2	0	5.9401	-15.93			12.08	4.55	SLD 2	0.29	No
fin.	2	0	-5.4684	-32.78			12.08	4.55	SLD 2	0.14	No
ini.	2	0	5.9401	-15.93			12.08	4.55	SLD 1	0.29	No
fin.	2	0	-5.4684	-32.78			12.08	4.55	SLD 1	0.14	No
ini.	2	0	6.7229	-18.49			12.08	4.55	SLV 3	0.25	No
fin.	2	0	-6.1793	-35.17			12.08	4.55	SLV 3	0.13	No
ini.	2	0	6.4858	-17.82			12.08	4.55	SLV 9	0.26	No
fin.	2	0	-5.5954	-35.16			12.08	4.55	SLV 9	0.13	No
ini.	2	0	9.3809	-27.44			12.08	4.55	SLV 6	0.17	No
fin.	2	0	-7.7357	-44.99			12.08	4.55	SLV 6	0.1	No
ini.	2	0	9.5085	-27.81			12.08	4.55	SLV 1	0.16	No
fin.	2	0	-8.0501	-45			12.08	4.55	SLV 1	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.133	SLV 1	Si
V_SLV	0.101	SLV 1	No
PF_SLU	1.514	SLU 78	Si
V_SLU	0.078	SLU 84	No

## Trave di accoppiamento 111

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	8.35	10.35	2	-19.368	-3.359	8.35	10.35	2	0.5	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-18.03	1.6633	29.6292	SLU 37	17.81	Si
fin.	3	-17.8	-0.0115	29.6292	SLU 37	2574.95	Si
ini.	3	-20.21	-1.6271	29.6292	SLU 2	18.21	Si
fin.	3	-19.56	-0.9968	29.6292	SLU 2	29.72	Si
ini.	3	-24.72	-1.8628	29.6292	SLU 44	15.91	Si
fin.	3	-23.92	-1.0751	29.6292	SLU 44	27.56	Si
ini.	3	-18.56	1.5458	29.6292	SLU 35	19.17	Si
fin.	3	-18.29	0.1143	29.6292	SLU 35	259.16	Si
ini.	3	-16.43	1.6446	29.6292	SLU 27	18.02	Si
fin.	3	-16	-0.2806	29.6292	SLU 27	105.59	Si
ini.	3	-15.9	1.7622	29.6292	SLU 29	16.81	Si
fin.	3	-15.51	-0.4064	29.6292	SLU 29	72.9	Si
ini.	3	-26.84	-1.9616	29.6292	SLU 52	15.1	Si
fin.	3	-26.2	-0.6801	29.6292	SLU 52	43.56	Si
ini.	3	-28.48	-1.6232	29.6292	SLU 73	18.25	Si
fin.	3	-27.84	-0.5381	29.6292	SLU 73	55.06	Si
ini.	3	-20.4	1.5265	29.6292	SLU 71	19.41	Si
fin.	3	-19.87	-0.4847	29.6292	SLU 71	61.13	Si
ini.	3	-22.34	-1.7259	29.6292	SLU 10	17.17	Si
fin.	3	-21.85	-0.6019	29.6292	SLU 10	49.23	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.277	2.16			21.57	8.12	SLU 19	3.76	Si
fin.	3	0	-0.0733	5.2			21.57	8.12	SLU 19	1.56	Si
ini.	3	0	-0.7757	1.73			21.57	8.12	SLU 60	4.68	Si
fin.	3	0	0.3875	6.9			21.57	8.12	SLU 60	1.18	Si
ini.	3	0	-0.4373	1.24			21.57	8.12	SLU 81	6.53	Si
fin.	3	0	0.5295	6.76			21.57	8.12	SLU 81	1.2	Si
ini.	3	0	-0.9385	1.67			21.57	8.12	SLU 40	4.87	Si
fin.	3	0	0.0687	5.05			21.57	8.12	SLU 40	1.61	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.6232	1.66			21.57	8.12	SLU 73	4.9	Si
fin.	3	0	-0.5381	5.11			21.57	8.12	SLU 73	1.59	Si
ini.	3	0	-0.5401	1.6			21.57	8.12	SLU 18	5.07	Si
fin.	3	0	0.4657	5.78			21.57	8.12	SLU 18	1.4	Si
ini.	3	0	-0.2016	1.11			21.57	8.12	SLU 39	7.3	Si
fin.	3	0	0.6077	5.64			21.57	8.12	SLU 39	1.44	Si
ini.	3	0	-1.5127	2.29			21.57	8.12	SLU 61	3.54	Si
fin.	3	0	-0.1515	6.32			21.57	8.12	SLU 61	1.28	Si
ini.	3	0	-1.1742	1.8			21.57	8.12	SLU 82	4.51	Si
fin.	3	0	-0.0095	6.17			21.57	8.12	SLU 82	1.32	Si
ini.	3	0	-1.9616	2.15			21.57	8.12	SLU 52	3.78	Si
fin.	3	0	-0.6801	5.26			21.57	8.12	SLU 52	1.54	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-7.32	8.999	31.4194	SLV 3	3.49	Si
fin.	2	-12.4	-7.9019	31.4194	SLV 3	3.98	Si
ini.	2	-23.27	-12.2853	31.4194	SLV 15	2.56	Si
fin.	2	-24.8	9.73	31.4194	SLV 15	3.23	Si
ini.	2	-11.45	-7.8989	31.4194	SLV 12	3.98	Si
fin.	2	-23.03	5.5634	31.4194	SLV 12	5.65	Si
ini.	2	-11.45	-7.8989	31.4194	SLV 11	3.98	Si
fin.	2	-23.03	5.5634	31.4194	SLV 11	5.65	Si
ini.	2	-28.62	-9.6597	31.4194	SLV 13	3.25	Si
fin.	2	-22.6	8.0118	31.4194	SLV 13	3.92	Si
ini.	2	-28.62	-9.6597	31.4194	SLV 14	3.25	Si
fin.	2	-22.6	8.0118	31.4194	SLV 14	3.92	Si
ini.	2	-12.66	11.6245	31.4194	SLV 2	2.7	Si
fin.	2	-10.2	-9.6201	31.4194	SLV 2	3.27	Si
ini.	2	-23.27	-12.2853	31.4194	SLV 16	2.56	Si
fin.	2	-24.8	9.73	31.4194	SLV 16	3.23	Si
ini.	2	-7.32	8.999	31.4194	SLV 4	3.49	Si
fin.	2	-12.4	-7.9019	31.4194	SLV 4	3.98	Si
ini.	2	-12.66	11.6245	31.4194	SLV 1	2.7	Si
fin.	2	-10.2	-9.6201	31.4194	SLV 1	3.27	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	7.2382	-37.75			32.35	12.17	SLV 5	0.32	No
fin.	2	0	-5.4536	-34.88			32.35	12.17	SLV 5	0.35	No
ini.	2	0	-12.2853	49.97			32.35	12.17	SLV 16	0.24	No
fin.	2	0	9.73	50.04			32.35	12.17	SLV 16	0.24	No
ini.	2	0	-9.6597	34.89			32.35	12.17	SLV 14	0.35	No
fin.	2	0	8.0118	33.54			32.35	12.17	SLV 14	0.36	No
ini.	2	0	-7.8989	37.92			32.35	12.17	SLV 12	0.32	No
fin.	2	0	5.5634	42.81			32.35	12.17	SLV 12	0.28	No
ini.	2	0	11.6245	-49.8			32.35	12.17	SLV 1	0.24	No
fin.	2	0	-9.6201	-42.11			32.35	12.17	SLV 1	0.29	No
ini.	2	0	7.2382	-37.75			32.35	12.17	SLV 6	0.32	No
fin.	2	0	-5.4536	-34.88			32.35	12.17	SLV 6	0.35	No
ini.	2	0	-12.2853	49.97			32.35	12.17	SLV 15	0.24	No
fin.	2	0	9.73	50.04			32.35	12.17	SLV 15	0.24	No
ini.	2	0	11.6245	-49.8			32.35	12.17	SLV 2	0.24	No
fin.	2	0	-9.6201	-42.11			32.35	12.17	SLV 2	0.29	No
ini.	2	0	-7.8989	37.92			32.35	12.17	SLV 11	0.32	No
fin.	2	0	5.5634	42.81			32.35	12.17	SLV 11	0.28	No
ini.	2	0	-9.6597	34.89			32.35	12.17	SLV 13	0.35	No
fin.	2	0	8.0118	33.54			32.35	12.17	SLV 13	0.36	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.557	SLV 15	Si
V_SLV	0.243	SLV 15	No
PF_SLU	15.104	SLU 52	Si
V_SLU	1.176	SLU 60	Si

## Trave di accoppiamento 112

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	11.15	11.87	0.72	-19.368	-3.359	11.15	11.87	0.72	0.5	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.85	-0.0638	7.2292	SLU 77	113.28	Si
fin.	3	-9.76	-1.4699	7.2292	SLU 77	4.92	Si
ini.	3	-7.67	0.202	7.2292	SLU 72	35.79	Si
fin.	3	-8.86	-1.3839	7.2292	SLU 72	5.22	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.7	0.1188	7.2292	SLU 78	60.86	Si
fin.	3	-9.78	-1.4052	7.2292	SLU 78	5.14	Si
ini.	3	-7.7	-0.0358	7.2292	SLU 58	201.67	Si
fin.	3	-8.58	-1.3375	7.2292	SLU 58	5.41	Si
ini.	3	-8.2	-0.1364	7.2292	SLU 37	53.01	Si
fin.	3	-8.9	-1.3582	7.2292	SLU 37	5.32	Si
ini.	3	-8.86	0.1208	7.2292	SLU 80	59.84	Si
fin.	3	-9.96	-1.435	7.2292	SLU 80	5.04	Si
ini.	3	-7.66	0.0174	7.2292	SLU 69	416.21	Si
fin.	3	-8.67	-1.4188	7.2292	SLU 69	5.1	Si
ini.	3	-7.51	0.2	7.2292	SLU 70	36.15	Si
fin.	3	-8.68	-1.3541	7.2292	SLU 70	5.34	Si
ini.	3	-9.01	-0.0618	7.2292	SLU 79	117.02	Si
fin.	3	-9.95	-1.4997	7.2292	SLU 79	4.82	Si
ini.	3	-7.82	0.0194	7.2292	SLU 71	372.52	Si
fin.	3	-8.85	-1.4485	7.2292	SLU 71	4.99	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.2102	0.6			7.76	2.92	SLU 84	4.89	Si
fin.	3	0	-1.2129	-12.3			7.76	2.92	SLU 84	0.24	No
ini.	3	0	0.2429	0.61			7.76	2.92	SLU 75	4.79	Si
fin.	3	0	-1.1612	-12.24			7.76	2.92	SLU 75	0.24	No
ini.	3	0	0.1208	0.2			7.76	2.92	SLU 80	14.97	Si
fin.	3	0	-1.435	-12.15			7.76	2.92	SLU 80	0.24	No
ini.	3	0	0.1188	0.43			7.76	2.92	SLU 78	6.82	Si
fin.	3	0	-1.4052	-12.46			7.76	2.92	SLU 78	0.23	No
ini.	3	0	0.1517	1.32			7.76	2.92	SLU 81	2.21	Si
fin.	3	0	-1.0336	-12.21			7.76	2.92	SLU 81	0.24	No
ini.	3	0	0.0276	1.14			7.76	2.92	SLU 83	2.56	Si
fin.	3	0	-1.2776	-12.43			7.76	2.92	SLU 83	0.24	No
ini.	3	0	0.0603	1.15			7.76	2.92	SLU 74	2.53	Si
fin.	3	0	-1.2259	-12.37			7.76	2.92	SLU 74	0.24	No
ini.	3	0	-0.0638	0.97			7.76	2.92	SLU 77	3.01	Si
fin.	3	0	-1.4699	-12.58			7.76	2.92	SLU 77	0.23	No
ini.	3	0	0.3343	0.78			7.76	2.92	SLU 82	3.75	Si
fin.	3	0	-0.9689	-12.08			7.76	2.92	SLU 82	0.24	No
ini.	3	0	-0.0618	0.74			7.76	2.92	SLU 79	3.96	Si
fin.	3	0	-1.4997	-12.28			7.76	2.92	SLU 79	0.24	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	6.15	3.3576	9.0194	SLV 10	2.69	Si
fin.	2	0.85	-0.3395	9.0194	SLV 10	26.57	Si
ini.	2	-3.25	3.4252	9.0194	SLV 5	2.63	Si
fin.	2	-9.43	-2.3944	9.0194	SLV 5	3.77	Si
ini.	2	-3.25	3.4252	9.0194	SLV 6	2.63	Si
fin.	2	-9.43	-2.3944	9.0194	SLV 6	3.77	Si
ini.	2	6.15	3.3576	9.0194	SLV 9	2.69	Si
fin.	2	0.85	-0.3395	9.0194	SLV 9	26.57	Si
ini.	2	-6.55	-3.0483	9.0194	SLV 12	2.96	Si
fin.	2	-2.09	0.9587	9.0194	SLV 12	9.41	Si
ini.	2	-22.47	-0.6599	9.0194	SLV 4	13.67	Si
fin.	2	-23.34	-3.9481	9.0194	SLV 4	2.28	Si
ini.	2	-6.55	-3.0483	9.0194	SLV 11	2.96	Si
fin.	2	-2.09	0.9587	9.0194	SLV 11	9.41	Si
ini.	2	-18.66	1.2619	9.0194	SLV 1	7.15	Si
fin.	2	-22.46	-4.3375	9.0194	SLV 1	2.08	Si
ini.	2	-22.47	-0.6599	9.0194	SLV 3	13.67	Si
fin.	2	-23.34	-3.9481	9.0194	SLV 3	2.28	Si
ini.	2	-18.66	1.2619	9.0194	SLV 2	7.15	Si
fin.	2	-22.46	-4.3375	9.0194	SLV 2	2.08	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-3.0483	15.4			11.65	4.38	SLV 11	0.28	No
fin.	2	0	0.9587	7.72			11.65	4.38	SLV 11	0.57	No
ini.	2	0	1.2619	-11.23			11.65	4.38	SLV 2	0.39	No
fin.	2	0	-4.3375	-23.33			11.65	4.38	SLV 2	0.19	No
ini.	2	0	3.3576	-9.36			11.65	4.38	SLV 10	0.47	No
fin.	2	0	-0.3395	-17.96			11.65	4.38	SLV 10	0.24	No
ini.	2	0	3.4252	-14.22			11.65	4.38	SLV 5	0.31	No
fin.	2	0	-2.3944	-24.59			11.65	4.38	SLV 5	0.18	No
ini.	2	0	3.4252	-14.22			11.65	4.38	SLV 6	0.31	No
fin.	2	0	-2.3944	-24.59			11.65	4.38	SLV 6	0.18	No
ini.	2	0	-0.6599	-3.81			11.65	4.38	SLV 4	1.15	Si
fin.	2	0	-3.9481	-15.62			11.65	4.38	SLV 4	0.28	No
ini.	2	0	1.2619	-11.23			11.65	4.38	SLV 1	0.39	No
fin.	2	0	-4.3375	-23.33			11.65	4.38	SLV 1	0.19	No
ini.	2	0	3.3576	-9.36			11.65	4.38	SLV 9	0.47	No
fin.	2	0	-0.3395	-17.96			11.65	4.38	SLV 9	0.24	No
ini.	2	0	-3.0483	15.4			11.65	4.38	SLV 12	0.28	No
fin.	2	0	0.9587	7.72			11.65	4.38	SLV 12	0.57	No
ini.	2	0	-0.6599	-3.81			11.65	4.38	SLV 3	1.15	Si
fin.	2	0	-3.9481	-15.62			11.65	4.38	SLV 3	0.28	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.079	SLV 1	Si



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.178	SLV 5	No
PF SLU	4.821	SLU 79	Si
V SLU	0.232	SLU 77	No

## Trave di accoppiamento 113

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.363	-3.359	8.35	9.25	0.9	-18.263	-3.359	8.35	9.25	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-10.33	-1.6138	10.3792	SLU 61	6.43	Si
fin.	3	-20.06	4.4767	10.3792	SLU 61	2.32	Si
ini.	3	-11.52	-1.1702	10.3792	SLU 76	8.87	Si
fin.	3	-19.97	4.1567	10.3792	SLU 76	2.5	Si
ini.	3	-9.36	-1.7467	10.3792	SLU 44	5.94	Si
fin.	3	-19.41	4.3158	10.3792	SLU 44	2.4	Si
ini.	3	-11.25	-1.0049	10.3792	SLU 75	10.33	Si
fin.	3	-18.99	4.0397	10.3792	SLU 75	2.57	Si
ini.	3	-11.19	-1.601	10.3792	SLU 82	6.48	Si
fin.	3	-20.98	4.6428	10.3792	SLU 82	2.24	Si
ini.	3	-11.06	-1.8715	10.3792	SLU 73	5.55	Si
fin.	3	-21.82	4.8174	10.3792	SLU 73	2.15	Si
ini.	3	-10.23	-1.7339	10.3792	SLU 65	5.99	Si
fin.	3	-20.33	4.4819	10.3792	SLU 65	2.32	Si
ini.	3	-10.19	-1.8842	10.3792	SLU 52	5.51	Si
fin.	3	-20.9	4.6513	10.3792	SLU 52	2.23	Si
ini.	3	-9.25	-1.6551	10.3792	SLU 31	6.27	Si
fin.	3	-18.43	4.0489	10.3792	SLU 31	2.56	Si
ini.	3	-10.86	-1.1068	10.3792	SLU 81	9.38	Si
fin.	3	-18.76	4.1653	10.3792	SLU 81	2.49	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.7339	7.59			9.7	3.65	SLU 65	0.48	No
fin.	3	0	4.4819	15.04			9.7	3.65	SLU 65	0.24	No
ini.	3	0	-1.7467	7.44			9.7	3.65	SLU 44	0.49	No
fin.	3	0	4.3158	14.82			9.7	3.65	SLU 44	0.25	No
ini.	3	0	-1.1068	3.93			9.7	3.65	SLU 81	0.93	No
fin.	3	0	4.1653	14.4			9.7	3.65	SLU 81	0.25	No
ini.	3	0	-1.601	6.84			9.7	3.65	SLU 82	0.53	No
fin.	3	0	4.6428	15.53			9.7	3.65	SLU 82	0.24	No
ini.	3	0	-1.1702	5.49			9.7	3.65	SLU 76	0.67	No
fin.	3	0	4.1567	13.45			9.7	3.65	SLU 76	0.27	No
ini.	3	0	-1.8842	8.27			9.7	3.65	SLU 52	0.44	No
fin.	3	0	4.6513	15.69			9.7	3.65	SLU 52	0.23	No
ini.	3	0	-1.6138	6.69			9.7	3.65	SLU 61	0.55	No
fin.	3	0	4.4767	15.31			9.7	3.65	SLU 61	0.24	No
ini.	3	0	-1.1196	3.78			9.7	3.65	SLU 60	0.97	No
fin.	3	0	3.9992	14.18			9.7	3.65	SLU 60	0.26	No
ini.	3	0	-1.8715	8.42			9.7	3.65	SLU 73	0.43	No
fin.	3	0	4.8174	15.91			9.7	3.65	SLU 73	0.23	No
ini.	3	0	-1.0049	4.04			9.7	3.65	SLU 75	0.9	No
fin.	3	0	4.0397	13.59			9.7	3.65	SLU 75	0.27	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.76	-9.9008	12.1694	SLV 16	1.23	Si
fin.	2	-23.15	9.0435	12.1694	SLV 16	1.35	Si
ini.	2	14.92	-7.772	12.1694	SLV 10	1.57	Si
fin.	2	-21.33	9.3819	12.1694	SLV 10	1.3	Si
ini.	2	14.92	-7.772	12.1694	SLV 9	1.57	Si
fin.	2	-21.33	9.3819	12.1694	SLV 9	1.3	Si
ini.	2	-20.74	8.4161	12.1694	SLV 1	1.45	Si
fin.	2	-2.88	-3.254	12.1694	SLV 1	3.74	Si
ini.	2	-30.89	10.7732	12.1694	SLV 4	1.13	Si
fin.	2	0.02	-5.8095	12.1694	SLV 4	2.09	Si
ini.	2	-20.74	8.4161	12.1694	SLV 2	1.45	Si
fin.	2	-2.88	-3.254	12.1694	SLV 2	3.74	Si
ini.	2	-30.89	10.7732	12.1694	SLV 3	1.13	Si
fin.	2	0.02	-5.8095	12.1694	SLV 3	2.09	Si
ini.	2	15.91	-12.2579	12.1694	SLV 14	0.99	No
fin.	2	-26.06	11.599	12.1694	SLV 14	1.05	Si
ini.	2	15.91	-12.2579	12.1694	SLV 13	0.99	No
fin.	2	-26.06	11.599	12.1694	SLV 13	1.05	Si
ini.	2	5.76	-9.9008	12.1694	SLV 15	1.23	Si
fin.	2	-23.15	9.0435	12.1694	SLV 15	1.35	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-7.772	38.86			14.56	5.48	SLV 9	0.14	No
fin.	2	0	9.3819	45.23			14.56	5.48	SLV 9	0.12	No
ini.	2	0	-12.2579	49.86			14.56	5.48	SLV 14	0.11	No
fin.	2	0	11.599	48.39			14.56	5.48	SLV 14	0.11	No
ini.	2	0	-12.2579	49.86			14.56	5.48	SLV 13	0.11	No
fin.	2	0	11.599	48.39			14.56	5.48	SLV 13	0.11	No
ini.	2	0	-9.9008	35.17			14.56	5.48	SLV 16	0.16	No
fin.	2	0	9.0435	32.91			14.56	5.48	SLV 16	0.17	No
ini.	2	0	10.7732	-45.23			14.56	5.48	SLV 4	0.12	No
fin.	2	0	-5.8095	-27.76			14.56	5.48	SLV 4	0.2	No
ini.	2	0	-9.9008	35.17			14.56	5.48	SLV 15	0.16	No
fin.	2	0	9.0435	32.91			14.56	5.48	SLV 15	0.17	No
ini.	2	0	6.2873	-34.23			14.56	5.48	SLV 8	0.16	No
fin.	2	0	-3.5924	-24.59			14.56	5.48	SLV 8	0.22	No
ini.	2	0	10.7732	-45.23			14.56	5.48	SLV 3	0.12	No
fin.	2	0	-5.8095	-27.76			14.56	5.48	SLV 3	0.2	No
ini.	2	0	-7.772	38.86			14.56	5.48	SLV 10	0.14	No
fin.	2	0	9.3819	45.23			14.56	5.48	SLV 10	0.12	No
ini.	2	0	6.2873	-34.23			14.56	5.48	SLV 7	0.16	No
fin.	2	0	-3.5924	-24.59			14.56	5.48	SLV 7	0.22	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.993	SLV 13	No
V_SLV	0.11	SLV 13	No
PF_SLU	2.155	SLU 73	Si
V_SLU	0.23	SLU 73	No

#### Trave di accoppiamento 114

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.363	-3.359	11.05	11.87	0.82	-18.263	-3.359	11.05	11.87	0.82	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3.9	0.2772	8.9792	SLU 56	32.4	Si
fin.	3	-10.21	-1.9845	8.9792	SLU 56	4.52	Si
ini.	3	-2.21	0.6415	8.9792	SLU 37	14	Si
fin.	3	-10.44	-2.2265	8.9792	SLU 37	4.03	Si
ini.	3	-2.19	0.6563	8.9792	SLU 71	13.68	Si
fin.	3	-10.3	-2.2058	8.9792	SLU 71	4.07	Si
ini.	3	-2.78	0.5252	8.9792	SLU 35	17.1	Si
fin.	3	-10.43	-2.1577	8.9792	SLU 35	4.16	Si
ini.	3	-3.32	0.3935	8.9792	SLU 58	22.82	Si
fin.	3	-10.21	-2.0533	8.9792	SLU 58	4.37	Si
ini.	3	-0.51	0.8297	8.9792	SLU 29	10.82	Si
fin.	3	-9.02	-2.1081	8.9792	SLU 29	4.26	Si
ini.	3	-2.76	0.5399	8.9792	SLU 69	16.63	Si
fin.	3	-10.29	-2.137	8.9792	SLU 69	4.2	Si
ini.	3	-4.46	0.3517	8.9792	SLU 77	25.53	Si
fin.	3	-11.71	-2.2554	8.9792	SLU 77	3.98	Si
ini.	3	-3.88	0.4681	8.9792	SLU 79	19.18	Si
fin.	3	-11.72	-2.3242	8.9792	SLU 79	3.86	Si
ini.	3	-1.09	0.7133	8.9792	SLU 27	12.59	Si
fin.	3	-9.01	-2.0393	8.9792	SLU 27	4.4	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.0383	8.64			8.06	3.03	SLU 78	0.35	No
fin.	3	0	-1.896	-17			8.06	3.03	SLU 78	0.18	No
ini.	3	0	0.0781	7.84			8.06	3.03	SLU 80	0.39	No
fin.	3	0	-1.9648	-17.12			8.06	3.03	SLU 80	0.18	No
ini.	3	0	0.3935	6.05			8.06	3.03	SLU 58	0.5	No
fin.	3	0	-2.0533	-17.06			8.06	3.03	SLU 58	0.18	No
ini.	3	0	0.2772	6.85			8.06	3.03	SLU 56	0.44	No
fin.	3	0	-1.9845	-16.94			8.06	3.03	SLU 56	0.18	No
ini.	3	0	0.6563	4.96			8.06	3.03	SLU 71	0.61	No
fin.	3	0	-2.2058	-17.92			8.06	3.03	SLU 71	0.17	No
ini.	3	0	0.5252	5.11			8.06	3.03	SLU 35	0.59	No
fin.	3	0	-2.1577	-17.53			8.06	3.03	SLU 35	0.17	No
ini.	3	0	0.5399	5.75			8.06	3.03	SLU 69	0.53	No
fin.	3	0	-2.137	-17.81			8.06	3.03	SLU 69	0.17	No
ini.	3	0	0.4681	6.55			8.06	3.03	SLU 79	0.46	No
fin.	3	0	-2.3242	-19.22			8.06	3.03	SLU 79	0.16	No
ini.	3	0	0.6415	4.32			8.06	3.03	SLU 37	0.7	No
fin.	3	0	-2.2265	-17.65			8.06	3.03	SLU 37	0.17	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.3517	7.35			8.06	3.03	SLU 77	0.41	No
fin.	3	0	-2.2554	-19.11			8.06	3.03	SLU 77	0.16	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5.5	-3.4179	10.7694	SLV 13	3.15	Si
fin.	2	18.6	6.6174	10.7694	SLV 13	1.63	Si
ini.	2	-8.24	2.3669	10.7694	SLV 3	4.55	Si
fin.	2	-32.23	-8.1101	10.7694	SLV 3	1.33	Si
ini.	2	-5.5	-3.4179	10.7694	SLV 14	3.15	Si
fin.	2	18.6	6.6174	10.7694	SLV 14	1.63	Si
ini.	2	-21.52	-1.0154	10.7694	SLV 7	10.61	Si
fin.	2	-29.74	-5.0194	10.7694	SLV 7	2.15	Si
ini.	2	-14.89	-4.313	10.7694	SLV 16	2.5	Si
fin.	2	8.51	5.2566	10.7694	SLV 16	2.05	Si
ini.	2	-21.52	-1.0154	10.7694	SLV 8	10.61	Si
fin.	2	-29.74	-5.0194	10.7694	SLV 8	2.15	Si
ini.	2	-8.24	2.3669	10.7694	SLV 4	4.55	Si
fin.	2	-32.23	-8.1101	10.7694	SLV 4	1.33	Si
ini.	2	1.14	3.2621	10.7694	SLV 2	3.3	Si
fin.	2	-22.13	-6.7493	10.7694	SLV 2	1.6	Si
ini.	2	-14.89	-4.313	10.7694	SLV 15	2.5	Si
fin.	2	8.51	5.2566	10.7694	SLV 15	2.05	Si
ini.	2	1.14	3.2621	10.7694	SLV 1	3.3	Si
fin.	2	-22.13	-6.7493	10.7694	SLV 1	1.6	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1.0154	-3.79			12.08	4.55	SLV 7	1.2	Si
fin.	2	0	-5.0194	-21.64			12.08	4.55	SLV 7	0.21	No
ini.	2	0	-3.4179	29.49			12.08	4.55	SLV 14	0.15	No
fin.	2	0	6.6174	15.59			12.08	4.55	SLV 14	0.29	No
ini.	2	0	-4.313	25.43			12.08	4.55	SLV 16	0.18	No
fin.	2	0	5.2566	11.87			12.08	4.55	SLV 16	0.38	No
ini.	2	0	-4.313	25.43			12.08	4.55	SLV 15	0.18	No
fin.	2	0	5.2566	11.87			12.08	4.55	SLV 15	0.38	No
ini.	2	0	2.3669	-12.24			12.08	4.55	SLV 3	0.37	No
fin.	2	0	-8.1101	-33			12.08	4.55	SLV 3	0.14	No
ini.	2	0	-1.0154	-3.79			12.08	4.55	SLV 8	1.2	Si
fin.	2	0	-5.0194	-21.64			12.08	4.55	SLV 8	0.21	No
ini.	2	0	3.2621	-8.19			12.08	4.55	SLV 2	0.56	No
fin.	2	0	-6.7493	-29.28			12.08	4.55	SLV 2	0.16	No
ini.	2	0	2.3669	-12.24			12.08	4.55	SLV 4	0.37	No
fin.	2	0	-8.1101	-33			12.08	4.55	SLV 4	0.14	No
ini.	2	0	-3.4179	29.49			12.08	4.55	SLV 13	0.15	No
fin.	2	0	6.6174	15.59			12.08	4.55	SLV 13	0.29	No
ini.	2	0	3.2621	-8.19			12.08	4.55	SLV 1	0.56	No
fin.	2	0	-6.7493	-29.28			12.08	4.55	SLV 1	0.16	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 3	Si
V_SLV	0.138	SLV 3	No
PF_SLU	3.863	SLU 79	Si
V_SLU	0.158	SLU 79	No

### Trave di accoppiamento 115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.053	-4.862	11.61	11.87	0.26	-17.053	-3.772	11.61	11.87	0.26	1.09	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.04	-0.0186	1.0289	SLU 31	55.24	Si
fin.	3	0.04	1.6346	1.0289	SLU 31	0.63	No
ini.	3	0.04	0.0262	1.0289	SLU 52	39.31	Si
fin.	3	0.04	1.4482	1.0289	SLU 52	0.71	No
ini.	3	0.04	0.012	1.0289	SLU 73	85.94	Si
fin.	3	0.04	1.5931	1.0289	SLU 73	0.65	No
ini.	3	0.05	0.0158	1.0289	SLU 13	64.93	Si
fin.	3	0.05	1.3081	1.0289	SLU 13	0.79	No
ini.	3	0.02	-0.0046	1.0289	SLU 40	225.94	Si
fin.	3	0.02	1.2759	1.0289	SLU 40	0.81	No
ini.	3	0.04	0.0079	1.0289	SLU 23	129.76	Si
fin.	3	0.04	1.3614	1.0289	SLU 23	0.76	No
ini.	3	0.05	0.0016	1.0289	SLU 34	626.23	Si
fin.	3	0.05	1.453	1.0289	SLU 34	0.71	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.04	-0.0044	1.0289	SLU 10	232.52	Si
fin.	3	0.04	1.4897	1.0289	SLU 10	0.69	No
ini.	3	0.04	0.0385	1.0289	SLU 65	26.7	Si
fin.	3	0.04	1.3199	1.0289	SLU 65	0.78	No
ini.	3	0.05	0.0322	1.0289	SLU 76	31.91	Si
fin.	3	0.05	1.4115	1.0289	SLU 76	0.73	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.0322	2			2	0.75	SLU 76	0.38	No
fin.	3	0	1.4115	0.53			2	0.75	SLU 76	1.42	Si
ini.	3	0	0.0016	1.9			2	0.75	SLU 34	0.4	No
fin.	3	0	1.453	0.77			2	0.75	SLU 34	0.98	No
ini.	3	0	0.012	2.19			2	0.75	SLU 73	0.34	No
fin.	3	0	1.5931	0.71			2	0.75	SLU 73	1.06	Si
ini.	3	0	0.0079	1.81			2	0.75	SLU 23	0.42	No
fin.	3	0	1.3614	0.68			2	0.75	SLU 23	1.12	Si
ini.	3	0	0.0385	1.91			2	0.75	SLU 65	0.39	No
fin.	3	0	1.3199	0.44			2	0.75	SLU 65	1.72	Si
ini.	3	0	0.026	1.84			2	0.75	SLU 82	0.41	No
fin.	3	0	1.2344	0.37			2	0.75	SLU 82	2.02	Si
ini.	3	0	-0.0044	1.94			2	0.75	SLU 10	0.39	No
fin.	3	0	1.4897	0.8			2	0.75	SLU 10	0.94	No
ini.	3	0	-0.0186	2.08			2	0.75	SLU 31	0.36	No
fin.	3	0	1.6346	0.95			2	0.75	SLU 31	0.79	No
ini.	3	0	0.0464	1.86			2	0.75	SLU 55	0.41	No
fin.	3	0	1.2666	0.38			2	0.75	SLU 55	1.97	Si
ini.	3	0	0.0262	2.04			2	0.75	SLU 52	0.37	No
fin.	3	0	1.4482	0.57			2	0.75	SLU 52	1.33	Si

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-8.7	-1.9512	1.5434	SLV 12	0.79	No
fin.	2	0.68	-7.3346	1.5434	SLV 12	0.21	No
ini.	2	2.24	0.5009	1.5434	SLV 1	3.08	Si
fin.	2	0.25	3.559	1.5434	SLV 1	0.43	No
ini.	2	8.95	2.2186	1.5434	SLV 9	0.7	No
fin.	2	-0.97	6.8579	1.5434	SLV 9	0.23	No
ini.	2	8.95	2.2186	1.5434	SLV 10	0.7	No
fin.	2	-0.97	6.8579	1.5434	SLV 10	0.23	No
ini.	2	8.7	2.0994	1.5434	SLV 5	0.74	No
fin.	2	-0.68	7.6279	1.5434	SLV 5	0.2	No
ini.	2	-8.7	-1.9512	1.5434	SLV 11	0.79	No
fin.	2	0.68	-7.3346	1.5434	SLV 11	0.21	No
ini.	2	8.7	2.0994	1.5434	SLV 6	0.74	No
fin.	2	-0.68	7.6279	1.5434	SLV 6	0.2	No
ini.	2	-8.94	-2.0704	1.5434	SLV 7	0.75	No
fin.	2	0.98	-6.5646	1.5434	SLV 7	0.24	No
ini.	2	2.24	0.5009	1.5434	SLV 2	3.08	Si
fin.	2	0.25	3.559	1.5434	SLV 2	0.43	No
ini.	2	-8.94	-2.0704	1.5434	SLV 8	0.75	No
fin.	2	0.98	-6.5646	1.5434	SLV 8	0.24	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	0.9293	4.6			3	1.13	SLD 9	0.25	No
fin.	2	0	2.7588	-1.59			3	1.13	SLD 9	0.71	No
ini.	2	0	2.0994	10.19			3	1.13	SLV 6	0.11	No
fin.	2	0	7.6279	-3.72			3	1.13	SLV 6	0.3	No
ini.	2	0	2.2186	10.66			3	1.13	SLV 10	0.11	No
fin.	2	0	6.8579	-3.34			3	1.13	SLV 10	0.34	No
ini.	2	0	2.2186	10.66			3	1.13	SLV 9	0.11	No
fin.	2	0	6.8579	-3.34			3	1.13	SLV 9	0.34	No
ini.	2	0	-1.9512	-8.93			3	1.13	SLV 11	0.13	No
fin.	2	0	-7.3346	2.72			3	1.13	SLV 11	0.42	No
ini.	2	0	2.0994	10.19			3	1.13	SLV 5	0.11	No
fin.	2	0	7.6279	-3.72			3	1.13	SLV 5	0.3	No
ini.	2	0	0.9293	4.6			3	1.13	SLD 10	0.25	No
fin.	2	0	2.7588	-1.59			3	1.13	SLD 10	0.71	No
ini.	2	0	-2.0704	-9.39			3	1.13	SLV 8	0.12	No
fin.	2	0	-6.5646	2.34			3	1.13	SLV 8	0.48	No
ini.	2	0	-2.0704	-9.39			3	1.13	SLV 7	0.12	No
fin.	2	0	-6.5646	2.34			3	1.13	SLV 7	0.48	No
ini.	2	0	-1.9512	-8.93			3	1.13	SLV 12	0.13	No
fin.	2	0	-7.3346	2.72			3	1.13	SLV 12	0.42	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.202	SLV 5	No
V_SLV	0.106	SLV 9	No
PF_SLU	0.629	SLU 31	No
V_SLU	0.345	SLU 73	No

## Trave di accoppiamento 116

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.433	-3.359	10.45	11.87	1.42	-16.333	-3.359	10.45	11.87	1.42	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-19.06	-12.3024	19.4792	SLU 61	1.58	Si
fin.	3	-19.06	10.6041	19.4792	SLU 61	1.84	Si
ini.	3	-15.64	-11.7015	19.4792	SLU 74	1.66	Si
fin.	3	-15.64	10.3087	19.4792	SLU 74	1.89	Si
ini.	3	-16	-11.6454	19.4792	SLU 83	1.67	Si
fin.	3	-16	10.4039	19.4792	SLU 83	1.87	Si
ini.	3	-16.9	-11.9488	19.4792	SLU 84	1.63	Si
fin.	3	-16.9	10.8003	19.4792	SLU 84	1.8	Si
ini.	3	-19.89	-13.008	19.4792	SLU 73	1.5	Si
fin.	3	-19.89	11.6597	19.4792	SLU 73	1.67	Si
ini.	3	-19.49	-13.1189	19.4792	SLU 81	1.48	Si
fin.	3	-19.49	11.5278	19.4792	SLU 81	1.69	Si
ini.	3	-20.39	-13.4223	19.4792	SLU 82	1.45	Si
fin.	3	-20.39	11.9242	19.4792	SLU 82	1.63	Si
ini.	3	-18.56	-11.8881	19.4792	SLU 52	1.64	Si
fin.	3	-18.56	10.3395	19.4792	SLU 52	1.88	Si
ini.	3	-18.16	-11.999	19.4792	SLU 60	1.62	Si
fin.	3	-18.16	10.2077	19.4792	SLU 60	1.91	Si
ini.	3	-16.54	-12.0048	19.4792	SLU 75	1.62	Si
fin.	3	-16.54	10.7051	19.4792	SLU 75	1.82	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-11.7015	33.79			15.31	5.76	SLU 74	0.17	No
fin.	3	0	10.3087	15.32			15.31	5.76	SLU 74	0.38	No
ini.	3	0	-13.4223	38.13			15.31	5.76	SLU 82	0.15	No
fin.	3	0	11.9242	18.39			15.31	5.76	SLU 82	0.31	No
ini.	3	0	-11.9488	35.24			15.31	5.76	SLU 84	0.16	No
fin.	3	0	10.8003	15.5			15.31	5.76	SLU 84	0.37	No
ini.	3	0	-12.0048	34.56			15.31	5.76	SLU 75	0.17	No
fin.	3	0	10.7051	16.09			15.31	5.76	SLU 75	0.36	No
ini.	3	0	-13.1189	37.35			15.31	5.76	SLU 81	0.15	No
fin.	3	0	11.5278	17.61			15.31	5.76	SLU 81	0.33	No
ini.	3	0	-11.5345	33.85			15.31	5.76	SLU 76	0.17	No
fin.	3	0	10.5357	15.38			15.31	5.76	SLU 76	0.37	No
ini.	3	0	-11.6454	34.46			15.31	5.76	SLU 83	0.17	No
fin.	3	0	10.4039	14.73			15.31	5.76	SLU 83	0.39	No
ini.	3	0	-13.008	36.74			15.31	5.76	SLU 73	0.16	No
fin.	3	0	11.6597	18.27			15.31	5.76	SLU 73	0.32	No
ini.	3	0	-12.3024	34.2			15.31	5.76	SLU 61	0.17	No
fin.	3	0	10.6041	16.89			15.31	5.76	SLU 61	0.34	No
ini.	3	0	-11.999	33.42			15.31	5.76	SLU 60	0.17	No
fin.	3	0	10.2077	16.11			15.31	5.76	SLU 60	0.36	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	24.94	-1.9626	21.2694	SLV 6	10.84	Si
fin.	2	12.1	20.6567	21.2694	SLV 6	1.03	Si
ini.	2	28.47	-14.8654	21.2694	SLV 10	1.43	Si
fin.	2	17.13	32.0044	21.2694	SLV 10	0.66	No
ini.	2	28.47	-14.8654	21.2694	SLV 9	1.43	Si
fin.	2	17.13	32.0044	21.2694	SLV 9	0.66	No
ini.	2	24.94	-1.9626	21.2694	SLV 5	10.84	Si
fin.	2	12.1	20.6567	21.2694	SLV 5	1.03	Si
ini.	2	-18.54	-30.2586	21.2694	SLV 15	0.7	No
fin.	2	-12.41	20.8599	21.2694	SLV 15	1.02	Si
ini.	2	-18.54	-30.2586	21.2694	SLV 16	0.7	No
fin.	2	-12.41	20.8599	21.2694	SLV 16	1.02	Si
ini.	2	5.05	-30.1017	21.2694	SLV 14	0.71	No
fin.	2	3.93	32.1138	21.2694	SLV 14	0.66	No
ini.	2	-5.26	-17.8097	21.2694	SLD 13	1.19	Si
fin.	2	-5.59	17.9372	21.2694	SLD 13	1.19	Si
ini.	2	5.05	-30.1017	21.2694	SLV 13	0.71	No
fin.	2	3.93	32.1138	21.2694	SLV 13	0.66	No
ini.	2	-5.26	-17.8097	21.2694	SLD 14	1.19	Si
fin.	2	-5.59	17.9372	21.2694	SLD 14	1.19	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-30.1017	75.71			22.97	8.64	SLV 13	0.11	No
fin.	2	0	32.1138	66.24			22.97	8.64	SLV 13	0.13	No
ini.	2	0	12.7506	-27.21			22.97	8.64	SLV 4	0.32	No
fin.	2	0	-16.9657	-42.23			22.97	8.64	SLV 4	0.2	No
ini.	2	0	12.7506	-27.21			22.97	8.64	SLV 3	0.32	No
fin.	2	0	-16.9657	-42.23			22.97	8.64	SLV 3	0.2	No
ini.	2	0	-30.2586	64.05			22.97	8.64	SLV 15	0.13	No
fin.	2	0	20.8599	51.13			22.97	8.64	SLV 15	0.17	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-14.8654	57.39			22.97	8.64	SLV 9	0.15	No
fin.	2	0	32.0044	51.18			22.97	8.64	SLV 9	0.17	No
ini.	2	0	-30.2586	64.05			22.97	8.64	SLV 16	0.13	No
fin.	2	0	20.8599	51.13			22.97	8.64	SLV 16	0.17	No
ini.	2	0	-14.8654	57.39			22.97	8.64	SLV 10	0.15	No
fin.	2	0	32.0044	51.18			22.97	8.64	SLV 10	0.17	No
ini.	2	0	-30.1017	75.71			22.97	8.64	SLV 14	0.11	No
fin.	2	0	32.1138	66.24			22.97	8.64	SLV 14	0.13	No
ini.	2	0	-17.8097	46.2			22.97	8.64	SLV 13	0.19	No
fin.	2	0	17.9372	35.05			22.97	8.64	SLD 13	0.25	No
ini.	2	0	-17.8097	46.2			22.97	8.64	SLD 14	0.19	No
fin.	2	0	17.9372	35.05			22.97	8.64	SLD 14	0.25	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.662	SLV 13	No
V_SLV	0.114	SLV 13	No
PF_SLU	1.451	SLU 82	Si
V_SLU	0.151	SLU 82	No

## Trave di accoppiamento 117

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-14.438	-4.859	11.61	11.87	0.26	-16.278	-4.859	11.61	11.87	0.26	1.84	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.9	0.3818	1.0289	SLU 37	2.69	Si
fin.	3	0.9	-0.9196	1.0289	SLU 37	1.12	Si
ini.	3	0.85	0.3458	1.0289	SLU 35	2.98	Si
fin.	3	0.85	-0.8868	1.0289	SLU 35	1.16	Si
ini.	3	0.6	0.0928	1.0289	SLU 80	11.09	Si
fin.	3	0.6	-0.8227	1.0289	SLU 80	1.25	Si
ini.	3	0.83	0.152	1.0289	SLU 77	6.77	Si
fin.	3	0.83	-0.8702	1.0289	SLU 77	1.18	Si
ini.	3	0.6	0.21	1.0289	SLU 41	4.9	Si
fin.	3	0.6	-0.7644	1.0289	SLU 41	1.35	Si
ini.	3	-0.41	-0.8061	1.0289	SLU 44	1.28	Si
fin.	3	-0.41	0.0206	1.0289	SLU 44	49.85	Si
ini.	3	0.63	0.2866	1.0289	SLU 38	3.59	Si
fin.	3	0.63	-0.8393	1.0289	SLU 38	1.23	Si
ini.	3	0.88	0.188	1.0289	SLU 79	5.47	Si
fin.	3	0.88	-0.903	1.0289	SLU 79	1.14	Si
ini.	3	0.55	0.0568	1.0289	SLU 78	18.13	Si
fin.	3	0.55	-0.7899	1.0289	SLU 78	1.3	Si
ini.	3	0.57	0.2506	1.0289	SLU 36	4.11	Si
fin.	3	0.57	-0.8065	1.0289	SLU 36	1.28	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.014	0.83			2	0.75	SLU 71	0.91	No
fin.	3	0	-0.732	-1.64			2	0.75	SLU 71	0.46	No
ini.	3	0	0.0928	0.73			2	0.75	SLU 80	1.03	Si
fin.	3	0	-0.8227	-1.73			2	0.75	SLU 80	0.44	No
ini.	3	0	0.188	0.64			2	0.75	SLU 79	1.18	Si
fin.	3	0	-0.903	-1.82			2	0.75	SLU 79	0.41	No
ini.	3	0	0.0568	0.77			2	0.75	SLU 78	0.98	No
fin.	3	0	-0.7899	-1.69			2	0.75	SLU 78	0.45	No
ini.	3	0	0.3818	0.24			2	0.75	SLU 37	3.15	Si
fin.	3	0	-0.9196	-1.65			2	0.75	SLU 37	0.46	No
ini.	3	0	0.152	0.68			2	0.75	SLU 77	1.12	Si
fin.	3	0	-0.8702	-1.79			2	0.75	SLU 77	0.42	No
ini.	3	0	0.0195	0.82			2	0.75	SLU 58	0.92	No
fin.	3	0	-0.741	-1.64			2	0.75	SLU 58	0.46	No
ini.	3	0	-0.8061	1.68			2	0.75	SLU 44	0.45	No
fin.	3	0	0.0206	-0.78			2	0.75	SLU 44	0.96	No
ini.	3	0	0.0162	0.82			2	0.75	SLU 83	0.92	No
fin.	3	0	-0.7478	-1.65			2	0.75	SLU 83	0.46	No
ini.	3	0	0.3458	0.28			2	0.75	SLU 35	2.72	Si
fin.	3	0	-0.8868	-1.62			2	0.75	SLU 35	0.47	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16	3.4247	1.5434	SLV 2	0.45	No
fin.	2	6.39	-4.8331	1.5434	SLV 2	0.32	No
ini.	2	-6.8	-4.1061	1.5434	SLV 12	0.38	No
fin.	2	-4.8	3.5946	1.5434	SLV 12	0.43	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	16	3.4247	1.5434	SLV 1	0.45	No
fin.	2	6.39	-4.8331	1.5434	SLV 1	0.32	No
ini.	2	14.58	1.6997	1.5434	SLV 3	0.91	No
fin.	2	4.39	-3.2264	1.5434	SLV 3	0.48	No
ini.	2	-6.8	-4.1061	1.5434	SLV 11	0.38	No
fin.	2	-4.8	3.5946	1.5434	SLV 11	0.43	No
ini.	2	-15.75	-4.1361	1.5434	SLV 16	0.37	No
fin.	2	-6.15	4.3835	1.5434	SLV 16	0.35	No
ini.	2	-15.75	-4.1361	1.5434	SLV 15	0.37	No
fin.	2	-6.15	4.3835	1.5434	SLV 15	0.35	No
ini.	2	14.58	1.6997	1.5434	SLV 4	0.91	No
fin.	2	4.39	-3.2264	1.5434	SLV 4	0.48	No
ini.	2	7.04	3.3947	1.5434	SLV 6	0.45	No
fin.	2	5.04	-4.0443	1.5434	SLV 6	0.38	No
ini.	2	7.04	3.3947	1.5434	SLV 5	0.45	No
fin.	2	5.04	-4.0443	1.5434	SLV 5	0.38	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.1061	3.72			3	1.13	SLV 11	0.3	No
fin.	2	0	3.5946	5.71			3	1.13	SLV 11	0.2	No
ini.	2	0	3.3947	-1.69			3	1.13	SLV 6	0.67	No
fin.	2	0	-4.0443	-7.46			3	1.13	SLV 6	0.15	No
ini.	2	0	-4.1361	5.92			3	1.13	SLV 16	0.19	No
fin.	2	0	4.3835	5.07			3	1.13	SLV 16	0.22	No
ini.	2	0	-4.1361	5.92			3	1.13	SLV 15	0.19	No
fin.	2	0	4.3835	5.07			3	1.13	SLV 15	0.22	No
ini.	2	0	3.4247	-3.88			3	1.13	SLV 1	0.29	No
fin.	2	0	-4.8331	-6.82			3	1.13	SLV 1	0.17	No
ini.	2	0	-2.411	5.11			3	1.13	SLV 14	0.22	No
fin.	2	0	2.7767	1.9			3	1.13	SLV 14	0.59	No
ini.	2	0	-2.411	5.11			3	1.13	SLV 13	0.22	No
fin.	2	0	2.7767	1.9			3	1.13	SLV 13	0.59	No
ini.	2	0	3.3947	-1.69			3	1.13	SLV 5	0.67	No
fin.	2	0	-4.0443	-7.46			3	1.13	SLV 5	0.15	No
ini.	2	0	-4.1061	3.72			3	1.13	SLV 12	0.3	No
fin.	2	0	3.5946	5.71			3	1.13	SLV 12	0.2	No
ini.	2	0	3.4247	-3.88			3	1.13	SLV 2	0.29	No
fin.	2	0	-4.8331	-6.82			3	1.13	SLV 2	0.17	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.319	SLV 1	No
V_SLV	0.151	SLV 5	No
PF_SLU	1.119	SLU 37	Si
V_SLU	0.413	SLU 79	No

## Trave di accoppiamento 118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.058	1.406	10.45	11.87	1.42	-15.058	2.206	10.45	11.87	1.42	0.8	0.14	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.06	3.147	14.1083	SLU 37	4.48	Si
fin.	3	0.06	-19.9799	14.1083	SLU 37	0.71	No
ini.	3	0.06	3.3941	14.1083	SLU 84	4.16	Si
fin.	3	0.06	-20.7663	14.1083	SLU 84	0.68	No
ini.	3	0.12	3.4844	14.1083	SLU 80	4.05	Si
fin.	3	0.12	-21.3472	14.1083	SLU 80	0.66	No
ini.	3	0.01	3.4007	14.1083	SLU 83	4.15	Si
fin.	3	0.01	-20.7647	14.1083	SLU 83	0.68	No
ini.	3	-0.07	3.2232	14.1083	SLU 35	4.38	Si
fin.	3	-0.07	-20.3425	14.1083	SLU 35	0.69	No
ini.	3	-0.01	3.5605	14.1083	SLU 78	3.96	Si
fin.	3	-0.01	-21.7099	14.1083	SLU 78	0.65	No
ini.	3	-0.02	3.2165	14.1083	SLU 36	4.39	Si
fin.	3	-0.02	-20.344	14.1083	SLU 36	0.69	No
ini.	3	-0.05	3.5672	14.1083	SLU 77	3.96	Si
fin.	3	-0.05	-21.7083	14.1083	SLU 77	0.65	No
ini.	3	0.07	3.491	14.1083	SLU 79	4.04	Si
fin.	3	0.07	-21.3457	14.1083	SLU 79	0.66	No
ini.	3	0.11	3.1403	14.1083	SLU 38	4.49	Si
fin.	3	0.11	-19.9814	14.1083	SLU 38	0.71	No





#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	3.2864	-26.51			7.66	2.88	SLU 74	0.11	No
fin.	3	0	-19.5554	-30.52			7.66	2.88	SLU 74	0.09	No
ini.	3	0	3.4844	-29			7.66	2.88	SLU 80	0.1	No
fin.	3	0	-21.3472	-33			7.66	2.88	SLU 80	0.09	No
ini.	3	0	3.4007	-28.17			7.66	2.88	SLU 83	0.1	No
fin.	3	0	-20.7647	-32.17			7.66	2.88	SLU 83	0.09	No
ini.	3	0	3.491	-29			7.66	2.88	SLU 79	0.1	No
fin.	3	0	-21.3457	-33.01			7.66	2.88	SLU 79	0.09	No
ini.	3	0	3.5672	-29.55			7.66	2.88	SLU 77	0.1	No
fin.	3	0	-21.7083	-33.56			7.66	2.88	SLU 77	0.09	No
ini.	3	0	3.2232	-27.83			7.66	2.88	SLU 35	0.1	No
fin.	3	0	-20.3425	-30.99			7.66	2.88	SLU 35	0.09	No
ini.	3	0	3.5605	-29.55			7.66	2.88	SLU 78	0.1	No
fin.	3	0	-21.7099	-33.55			7.66	2.88	SLU 78	0.09	No
ini.	3	0	3.3941	-28.16			7.66	2.88	SLU 84	0.1	No
fin.	3	0	-20.7663	-32.16			7.66	2.88	SLU 84	0.09	No
ini.	3	0	3.2165	-27.82			7.66	2.88	SLU 36	0.1	No
fin.	3	0	-20.344	-30.99			7.66	2.88	SLU 36	0.09	No
ini.	3	0	3.2798	-26.5			7.66	2.88	SLU 75	0.11	No
fin.	3	0	-19.557	-30.51			7.66	2.88	SLU 75	0.09	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.18	7.1518	17.6889	SLV 16	2.47	Si
fin.	2	-8.62	-25.8894	17.6889	SLV 16	0.68	No
ini.	2	-24.75	14.3969	17.6889	SLV 11	1.23	Si
fin.	2	-26.08	-44.6675	17.6889	SLV 11	0.4	No
ini.	2	-10.14	7.0759	17.6889	SLD 11	2.5	Si
fin.	2	-10.66	-24.9458	17.6889	SLD 11	0.71	No
ini.	2	-23.59	13.4229	17.6889	SLV 8	1.32	Si
fin.	2	-25.55	-41.3112	17.6889	SLV 8	0.43	No
ini.	2	-10.14	7.0759	17.6889	SLD 12	2.5	Si
fin.	2	-10.66	-24.9458	17.6889	SLD 12	0.71	No
ini.	2	-24.75	14.3969	17.6889	SLV 12	1.23	Si
fin.	2	-26.08	-44.6675	17.6889	SLV 12	0.4	No
ini.	2	24.77	-10.5237	17.6889	SLV 5	1.68	Si
fin.	2	26.1	23.528	17.6889	SLV 5	0.75	No
ini.	2	24.77	-10.5237	17.6889	SLV 6	1.68	Si
fin.	2	26.1	23.528	17.6889	SLV 6	0.75	No
ini.	2	-23.59	13.4229	17.6889	SLV 7	1.32	Si
fin.	2	-25.55	-41.3112	17.6889	SLV 7	0.43	No
ini.	2	-9.18	7.1518	17.6889	SLV 15	2.47	Si
fin.	2	-8.62	-25.8894	17.6889	SLV 15	0.68	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	14.3969	-71.26			11.48	4.32	SLV 11	0.06	No
fin.	2	0	-44.6675	-72.89			11.48	4.32	SLV 11	0.06	No
ini.	2	0	7.1518	-39.27			11.48	4.32	SLV 15	0.11	No
fin.	2	0	-25.8894	-41.61			11.48	4.32	SLV 15	0.1	No
ini.	2	0	14.3969	-71.26			11.48	4.32	SLV 12	0.06	No
fin.	2	0	-44.6675	-72.89			11.48	4.32	SLV 12	0.06	No
ini.	2	0	7.0759	-38.12			11.48	4.32	SLD 12	0.11	No
fin.	2	0	-24.9458	-40.61			11.48	4.32	SLD 12	0.11	No
ini.	2	0	7.0759	-38.12			11.48	4.32	SLD 11	0.11	No
fin.	2	0	-24.9458	-40.61			11.48	4.32	SLD 11	0.11	No
ini.	2	0	-10.5237	43.09			11.48	4.32	SLV 6	0.1	No
fin.	2	0	23.528	38.63			11.48	4.32	SLV 6	0.11	No
ini.	2	0	13.4229	-65.97			11.48	4.32	SLV 7	0.07	No
fin.	2	0	-41.3112	-67.78			11.48	4.32	SLV 7	0.06	No
ini.	2	0	13.4229	-65.97			11.48	4.32	SLV 8	0.07	No
fin.	2	0	-41.3112	-67.78			11.48	4.32	SLV 8	0.06	No
ini.	2	0	7.1518	-39.27			11.48	4.32	SLV 16	0.11	No
fin.	2	0	-25.8894	-41.61			11.48	4.32	SLV 16	0.1	No
ini.	2	0	-10.5237	43.09			11.48	4.32	SLV 5	0.1	No
fin.	2	0	23.528	38.63			11.48	4.32	SLV 5	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.396	SLV 11	No
V_SLV	0.059	SLV 11	No
PF_SLU	0.65	SLU 78	No
V_SLU	0.086	SLU 77	No

#### Trave di accoppiamento 119

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-13.753	-0.228	10.45	11.87	1.42	-13.753	0.672	10.45	11.87	1.42	0.9	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	5	-7.3628	19.4792	SLU 28	2.65	Si
fin.	3	5	2.1651	19.4792	SLU 28	9	Si
ini.	3	5.13	-6.3249	19.4792	SLU 35	3.08	Si
fin.	3	5.13	2.2319	19.4792	SLU 35	8.73	Si
ini.	3	5.44	-7.5414	19.4792	SLU 69	2.58	Si
fin.	3	5.44	2.6494	19.4792	SLU 69	7.35	Si
ini.	3	5.22	-7.866	19.4792	SLU 27	2.48	Si
fin.	3	5.22	2.2763	19.4792	SLU 27	8.56	Si
ini.	3	5.1	-6.3434	19.4792	SLU 37	3.07	Si
fin.	3	5.1	2.2772	19.4792	SLU 37	8.55	Si
ini.	3	5.18	-7.0567	19.4792	SLU 72	2.76	Si
fin.	3	5.18	2.5835	19.4792	SLU 72	7.54	Si
ini.	3	5.19	-7.8845	19.4792	SLU 29	2.47	Si
fin.	3	5.19	2.3216	19.4792	SLU 29	8.39	Si
ini.	3	5.21	-7.0382	19.4792	SLU 70	2.77	Si
fin.	3	5.21	2.5382	19.4792	SLU 70	7.67	Si
ini.	3	4.97	-7.3813	19.4792	SLU 30	2.64	Si
fin.	3	4.97	2.2104	19.4792	SLU 30	8.81	Si
ini.	3	5.41	-7.5599	19.4792	SLU 71	2.58	Si
fin.	3	5.41	2.6947	19.4792	SLU 71	7.23	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-7.866	14.84			15.31	5.76	SLU 27	0.39	No
fin.	3	0	2.2763	8.13			15.31	5.76	SLU 27	0.71	No
ini.	3	0	-7.0567	15.28			15.31	5.76	SLU 72	0.38	No
fin.	3	0	2.5835	6.71			15.31	5.76	SLU 72	0.86	No
ini.	3	0	-7.5414	15.89			15.31	5.76	SLU 69	0.36	No
fin.	3	0	2.6494	7.32			15.31	5.76	SLU 69	0.79	No
ini.	3	0	-7.5599	15.97			15.31	5.76	SLU 71	0.36	No
fin.	3	0	2.6947	7.39			15.31	5.76	SLU 71	0.78	No
ini.	3	0	-6.0188	14.2			15.31	5.76	SLU 79	0.41	No
fin.	3	0	2.6503	5.63			15.31	5.76	SLU 79	1.02	Si
ini.	3	0	-7.3628	14.15			15.31	5.76	SLU 28	0.41	No
fin.	3	0	2.1651	7.45			15.31	5.76	SLU 28	0.77	No
ini.	3	0	-7.3813	14.22			15.31	5.76	SLU 30	0.41	No
fin.	3	0	2.2104	7.52			15.31	5.76	SLU 30	0.77	No
ini.	3	0	-7.8845	14.91			15.31	5.76	SLU 29	0.39	No
fin.	3	0	2.3216	8.2			15.31	5.76	SLU 29	0.7	No
ini.	3	0	-7.0382	15.21			15.31	5.76	SLU 70	0.38	No
fin.	3	0	2.5382	6.64			15.31	5.76	SLU 70	0.87	No
ini.	3	0	-6.0003	14.13			15.31	5.76	SLU 77	0.41	No
fin.	3	0	2.605	5.56			15.31	5.76	SLU 77	1.04	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.7	-24.0921	21.2694	SLV 2	0.88	No
fin.	2	9.08	7.9273	21.2694	SLV 2	2.68	Si
ini.	2	0.34	-35.0267	21.2694	SLV 10	0.61	No
fin.	2	-3.53	14.7526	21.2694	SLV 10	1.44	Si
ini.	2	5.7	-24.0921	21.2694	SLV 1	0.88	No
fin.	2	9.08	7.9273	21.2694	SLV 1	2.68	Si
ini.	2	2.54	-42.1716	21.2694	SLV 6	0.5	No
fin.	2	1.17	15.9991	21.2694	SLV 6	1.33	Si
ini.	2	0.34	-35.0267	21.2694	SLV 9	0.61	No
fin.	2	-3.53	14.7526	21.2694	SLV 9	1.44	Si
ini.	2	2.54	-42.1716	21.2694	SLV 5	0.5	No
fin.	2	1.17	15.9991	21.2694	SLV 5	1.33	Si
ini.	2	2.01	40.4455	21.2694	SLV 11	0.53	No
fin.	2	3.38	-12.465	21.2694	SLV 11	1.71	Si
ini.	2	4.22	33.3006	21.2694	SLV 7	0.64	No
fin.	2	8.09	-11.2185	21.2694	SLV 7	1.9	Si
ini.	2	2.01	40.4455	21.2694	SLV 12	0.53	No
fin.	2	3.38	-12.465	21.2694	SLV 12	1.71	Si
ini.	2	4.22	33.3006	21.2694	SLV 8	0.64	No
fin.	2	8.09	-11.2185	21.2694	SLV 8	1.9	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-35.0267	54.81			22.97	8.64	SLV 9	0.16	No
fin.	2	0	14.7526	47.51			22.97	8.64	SLV 9	0.18	No
ini.	2	0	40.4455	-48.51			22.97	8.64	SLV 11	0.18	No
fin.	2	0	-12.465	-61.04			22.97	8.64	SLV 11	0.14	No
ini.	2	0	-42.1716	61.34			22.97	8.64	SLV 6	0.14	No
fin.	2	0	15.9991	60.78			22.97	8.64	SLV 6	0.14	No
ini.	2	0	33.3006	-41.98			22.97	8.64	SLV 8	0.21	No
fin.	2	0	-11.2185	-47.77			22.97	8.64	SLV 8	0.18	No
ini.	2	0	22.366	-19.96			22.97	8.64	SLV 16	0.43	No
fin.	2	0	-4.3932	-38.54			22.97	8.64	SLV 16	0.22	No
ini.	2	0	-35.0267	54.81			22.97	8.64	SLV 10	0.16	No
fin.	2	0	14.7526	47.51			22.97	8.64	SLV 10	0.18	No
ini.	2	0	33.3006	-41.98			22.97	8.64	SLV 7	0.21	No
fin.	2	0	-11.2185	-47.77			22.97	8.64	SLV 7	0.18	No
ini.	2	0	22.366	-19.96			22.97	8.64	SLV 15	0.43	No
fin.	2	0	-4.3932	-38.54			22.97	8.64	SLV 15	0.22	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-42.1716	61.34			22.97	8.64	SLV 5	0.14	No
fin.	2	0	15.9991	60.78			22.97	8.64	SLV 5	0.14	No
ini.	2	0	40.4455	-48.51			22.97	8.64	SLV 12	0.18	No
fin.	2	0	-12.465	-61.04			22.97	8.64	SLV 12	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.504	SLV 5	No
V_SLV	0.141	SLV 5	No
PF_SLU	2.471	SLU 29	Si
V_SLU	0.361	SLU 71	No

## Trave di accoppiamento 120

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.718	6.661	8.35	9.25	0.9	-16.818	6.661	8.35	9.25	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	4.64	-1.1738	10.3792	SLU 78	8.84	Si
fin.	3	0.04	1.6909	10.3792	SLU 78	6.14	Si
ini.	3	-0.17	-0.2097	10.3792	SLU 81	49.49	Si
fin.	3	-3.2	1.6679	10.3792	SLU 81	6.22	Si
ini.	3	2.4	-0.7377	10.3792	SLU 83	14.07	Si
fin.	3	-1.51	1.6903	10.3792	SLU 83	6.14	Si
ini.	3	-0.14	-0.2271	10.3792	SLU 82	45.71	Si
fin.	3	-3.23	1.682	10.3792	SLU 82	6.17	Si
ini.	3	2.6	-0.7651	10.3792	SLU 76	13.57	Si
fin.	3	-1.26	1.6363	10.3792	SLU 76	6.34	Si
ini.	3	2.07	-0.6459	10.3792	SLU 75	16.07	Si
fin.	3	-1.66	1.6685	10.3792	SLU 75	6.22	Si
ini.	3	5.15	-1.2814	10.3792	SLU 80	8.1	Si
fin.	3	0.45	1.6492	10.3792	SLU 80	6.29	Si
ini.	3	4.61	-1.1565	10.3792	SLU 77	8.97	Si
fin.	3	0.07	1.6767	10.3792	SLU 77	6.19	Si
ini.	3	2.43	-0.755	10.3792	SLU 84	13.75	Si
fin.	3	-1.54	1.7044	10.3792	SLU 84	6.09	Si
ini.	3	2.04	-0.6285	10.3792	SLU 74	16.51	Si
fin.	3	-1.63	1.6543	10.3792	SLU 74	6.27	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.7651	-0.93			9.7	3.65	SLU 76	3.95	Si
fin.	3	0	1.6363	12.24			9.7	3.65	SLU 76	0.3	No
ini.	3	0	-0.2271	-2.69			9.7	3.65	SLU 82	1.36	Si
fin.	3	0	1.682	12.21			9.7	3.65	SLU 82	0.3	No
ini.	3	0	-0.6285	-1.62			9.7	3.65	SLU 74	2.25	Si
fin.	3	0	1.6543	12.58			9.7	3.65	SLU 74	0.29	No
ini.	3	0	-0.755	-0.99			9.7	3.65	SLU 84	3.68	Si
fin.	3	0	1.7044	12.59			9.7	3.65	SLU 84	0.29	No
ini.	3	0	-0.6459	-1.55			9.7	3.65	SLU 75	2.35	Si
fin.	3	0	1.6685	12.64			9.7	3.65	SLU 75	0.29	No
ini.	3	0	-1.1565	0.08			9.7	3.65	SLU 77	48.51	Si
fin.	3	0	1.6767	12.96			9.7	3.65	SLU 77	0.28	No
ini.	3	0	-1.2641	0.66			9.7	3.65	SLU 79	5.54	Si
fin.	3	0	1.6351	12.51			9.7	3.65	SLU 79	0.29	No
ini.	3	0	-1.1738	0.14			9.7	3.65	SLU 78	25.54	Si
fin.	3	0	1.6909	13.03			9.7	3.65	SLU 78	0.28	No
ini.	3	0	-0.7377	-1.06			9.7	3.65	SLU 83	3.45	Si
fin.	3	0	1.6903	12.53			9.7	3.65	SLU 83	0.29	No
ini.	3	0	-1.2814	0.73			9.7	3.65	SLU 80	5.03	Si
fin.	3	0	1.6492	12.57			9.7	3.65	SLU 80	0.29	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-11.59	7.0511	12.1694	SLV 15	1.73	Si
fin.	2	16.73	-4.9982	12.1694	SLV 15	2.43	Si
ini.	2	-11.47	6.3788	12.1694	SLV 14	1.91	Si
fin.	2	13	-3.6052	12.1694	SLV 14	3.38	Si
ini.	2	3.63	-3.2751	12.1694	SLV 6	3.72	Si
fin.	2	-13.18	5.0376	12.1694	SLV 6	2.42	Si
ini.	2	11.55	-7.2665	12.1694	SLV 1	1.67	Si
fin.	2	-20.6	7.1912	12.1694	SLV 1	1.69	Si
ini.	2	3.63	-3.2751	12.1694	SLV 5	3.72	Si
fin.	2	-13.18	5.0376	12.1694	SLV 5	2.42	Si
ini.	2	-11.59	7.0511	12.1694	SLV 16	1.73	Si
fin.	2	16.73	-4.9982	12.1694	SLV 16	2.43	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	11.43	-6.5942	12.1694	SLV 3	1.85	Si
fin.	2	-16.88	5.7981	12.1694	SLV 3	2.1	Si
ini.	2	11.43	-6.5942	12.1694	SLV 4	1.85	Si
fin.	2	-16.88	5.7981	12.1694	SLV 4	2.1	Si
ini.	2	11.55	-7.2665	12.1694	SLV 2	1.67	Si
fin.	2	-20.6	7.1912	12.1694	SLV 2	1.69	Si
ini.	2	-11.47	6.3788	12.1694	SLV 13	1.91	Si
fin.	2	13	-3.6052	12.1694	SLV 13	3.38	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-7.2665	26.92			14.56	5.48	SLV 1	0.2	No
fin.	2	0	7.1912	40.25			14.56	5.48	SLV 1	0.14	No
ini.	2	0	6.3788	-27.74			14.56	5.48	SLV 13	0.2	No
fin.	2	0	-3.6052	-23.16			14.56	5.48	SLV 13	0.24	No
ini.	2	0	-6.5942	23.32			14.56	5.48	SLV 4	0.23	No
fin.	2	0	5.7981	39.81			14.56	5.48	SLV 4	0.14	No
ini.	2	0	-6.5942	23.32			14.56	5.48	SLV 3	0.23	No
fin.	2	0	5.7981	39.81			14.56	5.48	SLV 3	0.14	No
ini.	2	0	-3.235	10.51			14.56	5.48	SLD 1	0.52	No
fin.	2	0	3.7471	22.27			14.56	5.48	SLD 1	0.25	No
ini.	2	0	7.0511	-31.33			14.56	5.48	SLV 15	0.17	No
fin.	2	0	-4.9982	-23.6			14.56	5.48	SLV 15	0.23	No
ini.	2	0	-7.2665	26.92			14.56	5.48	SLV 2	0.2	No
fin.	2	0	7.1912	40.25			14.56	5.48	SLV 2	0.14	No
ini.	2	0	7.0511	-31.33			14.56	5.48	SLV 16	0.17	No
fin.	2	0	-4.9982	-23.6			14.56	5.48	SLV 16	0.23	No
ini.	2	0	-3.235	10.51			14.56	5.48	SLD 2	0.52	No
fin.	2	0	3.7471	22.27			14.56	5.48	SLD 2	0.25	No
ini.	2	0	6.3788	-27.74			14.56	5.48	SLV 14	0.2	No
fin.	2	0	-3.6052	-23.16			14.56	5.48	SLV 14	0.24	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.675	SLV 1	Si
V_SLV	0.136	SLV 1	No
PF_SLU	6.09	SLU 84	Si
V_SLU	0.28	SLU 78	No

## Trave di accoppiamento 121

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.718	6.661	11.05	11.87	0.82	-16.818	6.661	11.05	11.87	0.82	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	4.93	-1.2969	8.9792	SLU 36	6.92	Si
fin.	3	10.11	0.9134	8.9792	SLU 36	9.83	Si
ini.	3	5	-1.3981	8.9792	SLU 78	6.42	Si
fin.	3	10.06	0.8655	8.9792	SLU 78	10.37	Si
ini.	3	5.36	-1.3767	8.9792	SLU 79	6.52	Si
fin.	3	10.72	0.9608	8.9792	SLU 79	9.35	Si
ini.	3	4.97	-1.2855	8.9792	SLU 35	6.98	Si
fin.	3	10.07	0.9026	8.9792	SLU 35	9.95	Si
ini.	3	5.74	-1.2658	8.9792	SLU 70	7.09	Si
fin.	3	10.97	0.924	8.9792	SLU 70	9.72	Si
ini.	3	5.25	-1.287	8.9792	SLU 38	6.98	Si
fin.	3	10.82	1.0194	8.9792	SLU 38	8.81	Si
ini.	3	5.04	-1.3867	8.9792	SLU 77	6.48	Si
fin.	3	10.01	0.8547	8.9792	SLU 77	10.51	Si
ini.	3	2.56	-1.262	8.9792	SLU 84	7.11	Si
fin.	3	5.82	0.4922	8.9792	SLU 84	18.24	Si
ini.	3	5.32	-1.3881	8.9792	SLU 80	6.47	Si
fin.	3	10.77	0.9715	8.9792	SLU 80	9.24	Si
ini.	3	5.29	-1.2755	8.9792	SLU 37	7.04	Si
fin.	3	10.78	1.0086	8.9792	SLU 37	8.9	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.3881	17.34			8.06	3.03	SLU 80	0.17	No
fin.	3	0	0.9715	-9.63			8.06	3.03	SLU 80	0.31	No
ini.	3	0	-1.2506	17.41			8.06	3.03	SLU 83	0.17	No
fin.	3	0	0.4814	-13.22			8.06	3.03	SLU 83	0.23	No
ini.	3	0	-1.3981	17.76			8.06	3.03	SLU 78	0.17	No
fin.	3	0	0.8655	-10.7			8.06	3.03	SLU 78	0.28	No
ini.	3	0	-1.2039	16.91			8.06	3.03	SLU 74	0.18	No
fin.	3	0	0.4005	-13.24			8.06	3.03	SLU 74	0.23	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.0678	16.61			8.06	3.03	SLU 81	0.18	No
fin.	3	0	0.0272	-15.7			8.06	3.03	SLU 81	0.19	No
ini.	3	0	-1.262	17.47			8.06	3.03	SLU 84	0.17	No
fin.	3	0	0.4922	-13.16			8.06	3.03	SLU 84	0.23	No
ini.	3	0	-1.2153	16.97			8.06	3.03	SLU 75	0.18	No
fin.	3	0	0.4112	-13.18			8.06	3.03	SLU 75	0.23	No
ini.	3	0	-1.3767	17.28			8.06	3.03	SLU 79	0.18	No
fin.	3	0	0.9608	-9.7			8.06	3.03	SLU 79	0.31	No
ini.	3	0	-1.0792	16.68			8.06	3.03	SLU 82	0.18	No
fin.	3	0	0.038	-15.63			8.06	3.03	SLU 82	0.19	No
ini.	3	0	-1.3867	17.7			8.06	3.03	SLU 77	0.17	No
fin.	3	0	0.8547	-10.77			8.06	3.03	SLU 77	0.28	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-7.52	-2.6472	10.7694	SLV 6	4.07	Si
fin.	2	0.92	0.5197	10.7694	SLV 6	20.72	Si
ini.	2	-9.16	-4.4617	10.7694	SLV 2	2.41	Si
fin.	2	14.6	2.9461	10.7694	SLV 2	3.66	Si
ini.	2	-7.52	-2.6472	10.7694	SLV 5	4.07	Si
fin.	2	0.92	0.5197	10.7694	SLV 5	20.72	Si
ini.	2	-5.72	-3.9074	10.7694	SLV 4	2.76	Si
fin.	2	17.52	3.2027	10.7694	SLV 4	3.36	Si
ini.	2	-9.16	-4.4617	10.7694	SLV 1	2.41	Si
fin.	2	14.6	2.9461	10.7694	SLV 1	3.66	Si
ini.	2	10.44	3.1245	10.7694	SLV 16	3.45	Si
fin.	2	-11.82	-2.8743	10.7694	SLV 16	3.75	Si
ini.	2	6.99	2.5702	10.7694	SLV 13	4.19	Si
fin.	2	-14.74	-3.131	10.7694	SLV 13	3.44	Si
ini.	2	6.99	2.5702	10.7694	SLV 14	4.19	Si
fin.	2	-14.74	-3.131	10.7694	SLV 14	3.44	Si
ini.	2	-5.72	-3.9074	10.7694	SLV 3	2.76	Si
fin.	2	17.52	3.2027	10.7694	SLV 3	3.36	Si
ini.	2	10.44	3.1245	10.7694	SLV 15	3.45	Si
fin.	2	-11.82	-2.8743	10.7694	SLV 15	3.75	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.4617	30.76			12.08	4.55	SLV 1	0.15	No
fin.	2	0	2.9461	7.62			12.08	4.55	SLV 1	0.6	No
ini.	2	0	-2.6472	20.92			12.08	4.55	SLV 6	0.22	No
fin.	2	0	0.5197	-9.09			12.08	4.55	SLV 6	0.5	No
ini.	2	0	-3.9074	27.9			12.08	4.55	SLV 4	0.16	No
fin.	2	0	3.2027	10.58			12.08	4.55	SLV 4	0.43	No
ini.	2	0	3.1245	-9.73			12.08	4.55	SLV 16	0.47	No
fin.	2	0	-2.8743	-27.32			12.08	4.55	SLV 16	0.17	No
ini.	2	0	-3.9074	27.9			12.08	4.55	SLV 3	0.16	No
fin.	2	0	3.2027	10.58			12.08	4.55	SLV 3	0.43	No
ini.	2	0	-2.6472	20.92			12.08	4.55	SLV 5	0.22	No
fin.	2	0	0.5197	-9.09			12.08	4.55	SLV 5	0.5	No
ini.	2	0	2.5702	-6.88			12.08	4.55	SLV 13	0.66	No
fin.	2	0	-3.131	-30.28			12.08	4.55	SLV 13	0.15	No
ini.	2	0	3.1245	-9.73			12.08	4.55	SLV 15	0.47	No
fin.	2	0	-2.8743	-27.32			12.08	4.55	SLV 15	0.17	No
ini.	2	0	2.5702	-6.88			12.08	4.55	SLV 14	0.66	No
fin.	2	0	-3.131	-30.28			12.08	4.55	SLV 14	0.15	No
ini.	2	0	-4.4617	30.76			12.08	4.55	SLV 2	0.15	No
fin.	2	0	2.9461	7.62			12.08	4.55	SLV 2	0.6	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.414	SLV 1	Si
V_SLV	0.148	SLV 1	No
PF_SLU	6.422	SLU 78	Si
V_SLU	0.171	SLU 78	No

## Trave di accoppiamento 122

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.838	6.661	8.35	9.25	0.9	-11.938	6.661	8.35	9.25	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.25	0.0163	10.3792	SLU 73	635.74	Si
fin.	3	-11.31	2.094	10.3792	SLU 73	4.96	Si
ini.	3	0.24	-0.0506	10.3792	SLU 40	205.22	Si
fin.	3	-10.04	1.9395	10.3792	SLU 40	5.35	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.97	0.0057	10.3792	SLU 61	1820.56	Si
fin.	3	-11.97	2.1051	10.3792	SLU 61	4.93	Si
ini.	3	-0.23	-0.017	10.3792	SLU 81	611.54	Si
fin.	3	-12.13	2.257	10.3792	SLU 81	4.6	Si
ini.	3	0.23	-0.0503	10.3792	SLU 39	206.24	Si
fin.	3	-10.04	1.9385	10.3792	SLU 39	5.35	Si
ini.	3	1.54	0.032	10.3792	SLU 83	324.4	Si
fin.	3	-8.81	1.8849	10.3792	SLU 83	5.51	Si
ini.	3	-0.98	0.006	10.3792	SLU 60	1744.19	Si
fin.	3	-11.97	2.1041	10.3792	SLU 60	4.93	Si
ini.	3	-1.01	0.0392	10.3792	SLU 52	264.44	Si
fin.	3	-11.14	1.941	10.3792	SLU 52	5.35	Si
ini.	3	-0.22	-0.0172	10.3792	SLU 82	602.67	Si
fin.	3	-12.13	2.258	10.3792	SLU 82	4.6	Si
ini.	3	1.55	0.0317	10.3792	SLU 84	326.96	Si
fin.	3	-8.8	1.8859	10.3792	SLU 84	5.5	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.1051	-9.67			9.7	3.65	SLU 77	0.38	No
fin.	3	0	1.4611	23.92			9.7	3.65	SLU 77	0.15	No
ini.	3	0	0.0561	-8.29			9.7	3.65	SLU 74	0.44	No
fin.	3	0	1.8333	25.02			9.7	3.65	SLU 74	0.15	No
ini.	3	0	0.0559	-8.28			9.7	3.65	SLU 75	0.44	No
fin.	3	0	1.8343	25.01			9.7	3.65	SLU 75	0.15	No
ini.	3	0	0.0163	-6.71			9.7	3.65	SLU 73	0.54	No
fin.	3	0	2.094	24.98			9.7	3.65	SLU 73	0.15	No
ini.	3	0	0.006	-6.08			9.7	3.65	SLU 60	0.6	No
fin.	3	0	2.1041	24.22			9.7	3.65	SLU 60	0.15	No
ini.	3	0	0.0317	-7.82			9.7	3.65	SLU 84	0.47	No
fin.	3	0	1.8859	24.99			9.7	3.65	SLU 84	0.15	No
ini.	3	0	0.0057	-6.07			9.7	3.65	SLU 61	0.6	No
fin.	3	0	2.1051	24.21			9.7	3.65	SLU 61	0.15	No
ini.	3	0	-0.017	-6.45			9.7	3.65	SLU 81	0.57	No
fin.	3	0	2.257	26.1			9.7	3.65	SLU 81	0.14	No
ini.	3	0	-0.0172	-6.44			9.7	3.65	SLU 82	0.57	No
fin.	3	0	2.258	26.09			9.7	3.65	SLU 82	0.14	No
ini.	3	0	0.032	-7.83			9.7	3.65	SLU 83	0.47	No
fin.	3	0	1.8849	25			9.7	3.65	SLU 83	0.15	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	24.29	-5.6357	12.1694	SLV 2	2.16	Si
fin.	2	-35.37	6.2507	12.1694	SLV 2	1.95	Si
ini.	2	21.69	-5.0023	12.1694	SLV 3	2.43	Si
fin.	2	-32.37	5.623	12.1694	SLV 3	2.16	Si
ini.	2	-25.12	5.7476	12.1694	SLV 16	2.12	Si
fin.	2	19.88	-3.4706	12.1694	SLV 16	3.51	Si
ini.	2	21.69	-5.0023	12.1694	SLV 4	2.43	Si
fin.	2	-32.37	5.623	12.1694	SLV 4	2.16	Si
ini.	2	24.29	-5.6357	12.1694	SLV 1	2.16	Si
fin.	2	-35.37	6.2507	12.1694	SLV 1	1.95	Si
ini.	2	10.94	-2.6122	12.1694	SLV 6	4.66	Si
fin.	2	-20.57	3.8002	12.1694	SLV 6	3.2	Si
ini.	2	-22.52	5.1142	12.1694	SLV 13	2.38	Si
fin.	2	16.89	-2.8429	12.1694	SLV 13	4.28	Si
ini.	2	-25.12	5.7476	12.1694	SLV 15	2.12	Si
fin.	2	19.88	-3.4706	12.1694	SLV 15	3.51	Si
ini.	2	10.94	-2.6122	12.1694	SLV 5	4.66	Si
fin.	2	-20.57	3.8002	12.1694	SLV 5	3.2	Si
ini.	2	-22.52	5.1142	12.1694	SLV 14	2.38	Si
fin.	2	16.89	-2.8429	12.1694	SLV 14	4.28	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-5.0023	27.19			14.56	5.48	SLV 4	0.2	No
fin.	2	0	5.623	49.62			14.56	5.48	SLV 4	0.11	No
ini.	2	0	-2.6122	13.71			14.56	5.48	SLV 6	0.4	No
fin.	2	0	3.8002	34.61			14.56	5.48	SLV 6	0.16	No
ini.	2	0	5.1142	-38.02			14.56	5.48	SLV 14	0.14	No
fin.	2	0	-2.8429	-14.46			14.56	5.48	SLV 14	0.38	No
ini.	2	0	5.7476	-43.16			14.56	5.48	SLV 15	0.13	No
fin.	2	0	-3.4706	-18.54			14.56	5.48	SLV 15	0.3	No
ini.	2	0	5.1142	-38.02			14.56	5.48	SLV 13	0.14	No
fin.	2	0	-2.8429	-14.46			14.56	5.48	SLV 13	0.38	No
ini.	2	0	-5.0023	27.19			14.56	5.48	SLV 3	0.2	No
fin.	2	0	5.623	49.62			14.56	5.48	SLV 3	0.11	No
ini.	2	0	-2.6122	13.71			14.56	5.48	SLV 5	0.4	No
fin.	2	0	3.8002	34.61			14.56	5.48	SLV 5	0.16	No
ini.	2	0	5.7476	-43.16			14.56	5.48	SLV 16	0.13	No
fin.	2	0	-3.4706	-18.54			14.56	5.48	SLV 16	0.3	No
ini.	2	0	-5.6357	32.33			14.56	5.48	SLV 1	0.17	No
fin.	2	0	6.2507	53.7			14.56	5.48	SLV 1	0.1	No
ini.	2	0	-5.6357	32.33			14.56	5.48	SLV 2	0.17	No
fin.	2	0	6.2507	53.7			14.56	5.48	SLV 2	0.1	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	1.947	SLV 1	Si



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.102	SLV 1	No
PF SLU	4.597	SLU 82	Si
V SLU	0.14	SLU 81	No

## Trave di accoppiamento 123

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.838	6.661	11.05	11.87	0.82	-11.938	6.661	11.05	11.87	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.03	-1.5586	8.9792	SLU 19	5.76	Si
fin.	3	-1.05	0.4816	8.9792	SLU 19	18.65	Si
ini.	3	-8.3	-1.6836	8.9792	SLU 52	5.33	Si
fin.	3	-0.9	0.4781	8.9792	SLU 52	18.78	Si
ini.	3	-8.44	-1.6774	8.9792	SLU 39	5.35	Si
fin.	3	-1.02	0.5643	8.9792	SLU 39	15.91	Si
ini.	3	-8	-1.5586	8.9792	SLU 18	5.76	Si
fin.	3	-1.02	0.4811	8.9792	SLU 18	18.66	Si
ini.	3	-9.72	-1.9533	8.9792	SLU 82	4.6	Si
fin.	3	-1.12	0.6207	8.9792	SLU 82	14.47	Si
ini.	3	-8.74	-1.8024	8.9792	SLU 73	4.98	Si
fin.	3	-0.9	0.5612	8.9792	SLU 73	16	Si
ini.	3	-9.69	-1.9534	8.9792	SLU 81	4.6	Si
fin.	3	-1.1	0.6203	8.9792	SLU 81	14.48	Si
ini.	3	-9.26	-1.8346	8.9792	SLU 60	4.89	Si
fin.	3	-1.1	0.5372	8.9792	SLU 60	16.72	Si
ini.	3	-8.46	-1.6774	8.9792	SLU 40	5.35	Si
fin.	3	-1.04	0.5647	8.9792	SLU 40	15.9	Si
ini.	3	-9.28	-1.8345	8.9792	SLU 61	4.89	Si
fin.	3	-1.12	0.5376	8.9792	SLU 61	16.7	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.5578	24.77			8.06	3.03	SLU 83	0.12	No
fin.	3	0	0.5895	-17.29			8.06	3.03	SLU 83	0.18	No
ini.	3	0	-1.5577	24.78			8.06	3.03	SLU 84	0.12	No
fin.	3	0	0.59	-17.29			8.06	3.03	SLU 84	0.18	No
ini.	3	0	-1.9533	25.76			8.06	3.03	SLU 82	0.12	No
fin.	3	0	0.6207	-15.28			8.06	3.03	SLU 82	0.2	No
ini.	3	0	-1.8024	24.12			8.06	3.03	SLU 73	0.13	No
fin.	3	0	0.5612	-14.6			8.06	3.03	SLU 73	0.21	No
ini.	3	0	-1.4067	23.13			8.06	3.03	SLU 76	0.13	No
fin.	3	0	0.5304	-16.61			8.06	3.03	SLU 76	0.18	No
ini.	3	0	-1.1499	23.17			8.06	3.03	SLU 78	0.13	No
fin.	3	0	0.508	-18.87			8.06	3.03	SLU 78	0.16	No
ini.	3	0	-1.5456	24.15			8.06	3.03	SLU 74	0.13	No
fin.	3	0	0.5383	-16.85			8.06	3.03	SLU 74	0.18	No
ini.	3	0	-1.15	23.16			8.06	3.03	SLU 77	0.13	No
fin.	3	0	0.5076	-18.86			8.06	3.03	SLU 77	0.16	No
ini.	3	0	-1.5456	24.15			8.06	3.03	SLU 75	0.13	No
fin.	3	0	0.5388	-16.86			8.06	3.03	SLU 75	0.18	No
ini.	3	0	-1.9534	25.75			8.06	3.03	SLU 81	0.12	No
fin.	3	0	0.6203	-15.27			8.06	3.03	SLU 81	0.2	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-18.3	-5.1359	10.7694	SLV 4	2.1	Si
fin.	2	18.31	4.3687	10.7694	SLV 4	2.47	Si
ini.	2	-23.59	-5.7613	10.7694	SLV 2	1.87	Si
fin.	2	14.93	4.0196	10.7694	SLV 2	2.68	Si
ini.	2	7.36	2.7556	10.7694	SLV 13	3.91	Si
fin.	2	-19.11	-3.6779	10.7694	SLV 13	2.93	Si
ini.	2	-18.93	-3.5101	10.7694	SLV 6	3.07	Si
fin.	2	-0.92	0.9181	10.7694	SLV 6	11.73	Si
ini.	2	12.65	3.381	10.7694	SLV 16	3.19	Si
fin.	2	-15.73	-3.3288	10.7694	SLV 16	3.24	Si
ini.	2	-18.3	-5.1359	10.7694	SLV 3	2.1	Si
fin.	2	18.31	4.3687	10.7694	SLV 3	2.47	Si
ini.	2	7.36	2.7556	10.7694	SLV 14	3.91	Si
fin.	2	-19.11	-3.6779	10.7694	SLV 14	2.93	Si
ini.	2	12.65	3.381	10.7694	SLV 15	3.19	Si
fin.	2	-15.73	-3.3288	10.7694	SLV 15	3.24	Si
ini.	2	-23.59	-5.7613	10.7694	SLV 1	1.87	Si
fin.	2	14.93	4.0196	10.7694	SLV 1	2.68	Si
ini.	2	-18.93	-3.5101	10.7694	SLV 5	3.07	Si
fin.	2	-0.92	0.9181	10.7694	SLV 5	11.73	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	2.7556	-6.06			12.08	4.55	SLV 13	0.75	No
fin.	2	0	-3.6779	-36.1			12.08	4.55	SLV 13	0.13	No
ini.	2	0	-5.1359	38.18			12.08	4.55	SLV 3	0.12	No
fin.	2	0	4.3687	16.25			12.08	4.55	SLV 3	0.28	No
ini.	2	0	-3.5101	30.54			12.08	4.55	SLV 5	0.15	No
fin.	2	0	0.9181	-2.25			12.08	4.55	SLV 5	2.02	Si
ini.	2	0	-5.7613	42.5			12.08	4.55	SLV 1	0.11	No
fin.	2	0	4.0196	16.15			12.08	4.55	SLV 1	0.28	No
ini.	2	0	-3.5101	30.54			12.08	4.55	SLV 6	0.15	No
fin.	2	0	0.9181	-2.25			12.08	4.55	SLV 6	2.02	Si
ini.	2	0	2.7556	-6.06			12.08	4.55	SLV 14	0.75	No
fin.	2	0	-3.6779	-36.1			12.08	4.55	SLV 14	0.13	No
ini.	2	0	3.381	-10.38			12.08	4.55	SLV 15	0.44	No
fin.	2	0	-3.3288	-36			12.08	4.55	SLV 15	0.13	No
ini.	2	0	-5.1359	38.18			12.08	4.55	SLV 4	0.12	No
fin.	2	0	4.3687	16.25			12.08	4.55	SLV 4	0.28	No
ini.	2	0	-5.7613	42.5			12.08	4.55	SLV 2	0.11	No
fin.	2	0	4.0196	16.15			12.08	4.55	SLV 2	0.28	No
ini.	2	0	3.381	-10.38			12.08	4.55	SLV 16	0.44	No
fin.	2	0	-3.3288	-36			12.08	4.55	SLV 16	0.13	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.869	SLV 1	Si
V_SLV	0.107	SLV 1	No
PF_SLU	4.597	SLU 81	Si
V_SLU	0.118	SLU 82	No

#### Trave di accoppiamento 124

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.958	6.661	8.35	9.25	0.9	-7.058	6.661	8.35	9.25	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-10.24	4.3233	10.3792	SLU 81	2.4	Si
fin.	3	2.41	-2.2957	10.3792	SLU 81	4.52	Si
ini.	3	-7.85	4.4016	10.3792	SLU 79	2.36	Si
fin.	3	5.85	-3.1369	10.3792	SLU 79	3.31	Si
ini.	3	-9.37	4.4852	10.3792	SLU 83	2.31	Si
fin.	3	4.19	-2.7878	10.3792	SLU 83	3.72	Si
ini.	3	-7.9	4.4209	10.3792	SLU 80	2.35	Si
fin.	3	5.87	-3.1531	10.3792	SLU 80	3.29	Si
ini.	3	-8.26	4.4983	10.3792	SLU 78	2.31	Si
fin.	3	5.6	-3.0983	10.3792	SLU 78	3.35	Si
ini.	3	-9.13	4.3364	10.3792	SLU 75	2.39	Si
fin.	3	3.82	-2.6062	10.3792	SLU 75	3.98	Si
ini.	3	-9.08	4.3171	10.3792	SLU 74	2.4	Si
fin.	3	3.8	-2.59	10.3792	SLU 74	4.01	Si
ini.	3	-10.29	4.3427	10.3792	SLU 82	2.39	Si
fin.	3	2.44	-2.3119	10.3792	SLU 82	4.49	Si
ini.	3	-9.42	4.5046	10.3792	SLU 84	2.3	Si
fin.	3	4.21	-2.804	10.3792	SLU 84	3.7	Si
ini.	3	-8.21	4.479	10.3792	SLU 77	2.32	Si
fin.	3	5.57	-3.0821	10.3792	SLU 77	3.37	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	4.3427	-22.42			9.7	3.65	SLU 82	0.16	No
fin.	3	0	-2.3119	-5.9			9.7	3.65	SLU 82	0.62	No
ini.	3	0	4.3364	-23.01			9.7	3.65	SLU 75	0.16	No
fin.	3	0	-2.6062	-6.2			9.7	3.65	SLU 75	0.59	No
ini.	3	0	4.4852	-23.51			9.7	3.65	SLU 83	0.16	No
fin.	3	0	-2.7878	-7.03			9.7	3.65	SLU 83	0.52	No
ini.	3	0	4.4016	-23.55			9.7	3.65	SLU 79	0.16	No
fin.	3	0	-3.1369	-7.68			9.7	3.65	SLU 79	0.48	No
ini.	3	0	4.3171	-22.94			9.7	3.65	SLU 74	0.16	No
fin.	3	0	-2.59	-6.1			9.7	3.65	SLU 74	0.6	No
ini.	3	0	4.4983	-24.16			9.7	3.65	SLU 78	0.15	No
fin.	3	0	-3.0983	-7.42			9.7	3.65	SLU 78	0.49	No
ini.	3	0	4.4209	-23.61			9.7	3.65	SLU 80	0.15	No
fin.	3	0	-3.1531	-7.78			9.7	3.65	SLU 80	0.47	No
ini.	3	0	4.2719	-22.51			9.7	3.65	SLU 76	0.16	No
fin.	3	0	-2.6719	-6.62			9.7	3.65	SLU 76	0.55	No
ini.	3	0	4.479	-24.1			9.7	3.65	SLU 77	0.15	No
fin.	3	0	-3.0821	-7.33			9.7	3.65	SLU 77	0.5	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	4.5046	-23.57			9.7	3.65	SLU 84	0.15	No
fin.	3	0	-2.804	-7.13			9.7	3.65	SLU 84	0.51	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	10.04	-3.9596	12.1694	SLV 3	3.07	Si
fin.	2	-13.13	5.388	12.1694	SLV 3	2.26	Si
ini.	2	-13.62	5.6645	12.1694	SLD 14	2.15	Si
fin.	2	7.8	-4.3516	12.1694	SLD 14	2.8	Si
ini.	2	-22.94	9.4404	12.1694	SLV 14	1.29	Si
fin.	2	15.96	-8.1709	12.1694	SLV 14	1.49	Si
ini.	2	-13.62	5.6645	12.1694	SLD 13	2.15	Si
fin.	2	7.8	-4.3516	12.1694	SLD 13	2.8	Si
ini.	2	-18.58	8.571	12.1694	SLV 16	1.42	Si
fin.	2	15.08	-7.0686	12.1694	SLV 16	1.72	Si
ini.	2	-18.01	6.0688	12.1694	SLV 9	2.01	Si
fin.	2	7.11	-5.0971	12.1694	SLV 9	2.39	Si
ini.	2	10.04	-3.9596	12.1694	SLV 4	3.07	Si
fin.	2	-13.13	5.388	12.1694	SLV 4	2.26	Si
ini.	2	-22.94	9.4404	12.1694	SLV 13	1.29	Si
fin.	2	15.96	-8.1709	12.1694	SLV 13	1.49	Si
ini.	2	-18.01	6.0688	12.1694	SLV 10	2.01	Si
fin.	2	7.11	-5.0971	12.1694	SLV 10	2.39	Si
ini.	2	-18.58	8.571	12.1694	SLV 15	1.42	Si
fin.	2	15.08	-7.0686	12.1694	SLV 15	1.72	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5.6645	-28.32			14.56	5.48	SLD 13	0.19	No
fin.	2	0	-4.3516	-15.77			14.56	5.48	SLD 13	0.35	No
ini.	2	0	6.0688	-28.21			14.56	5.48	SLV 9	0.19	No
fin.	2	0	-5.0971	-15.73			14.56	5.48	SLV 9	0.35	No
ini.	2	0	8.571	-43.37			14.56	5.48	SLV 15	0.13	No
fin.	2	0	-7.0686	-29.52			14.56	5.48	SLV 15	0.19	No
ini.	2	0	5.2924	-27.12			14.56	5.48	SLD 15	0.2	No
fin.	2	0	-3.881	-14.65			14.56	5.48	SLD 15	0.37	No
ini.	2	0	5.2924	-27.12			14.56	5.48	SLD 16	0.2	No
fin.	2	0	-3.881	-14.65			14.56	5.48	SLD 16	0.37	No
ini.	2	0	9.4404	-46.15			14.56	5.48	SLV 14	0.12	No
fin.	2	0	-8.1709	-32.13			14.56	5.48	SLV 14	0.17	No
ini.	2	0	9.4404	-46.15			14.56	5.48	SLV 13	0.12	No
fin.	2	0	-8.1709	-32.13			14.56	5.48	SLV 13	0.17	No
ini.	2	0	8.571	-43.37			14.56	5.48	SLV 16	0.13	No
fin.	2	0	-7.0686	-29.52			14.56	5.48	SLV 16	0.19	No
ini.	2	0	6.0688	-28.21			14.56	5.48	SLV 10	0.19	No
fin.	2	0	-5.0971	-15.73			14.56	5.48	SLV 10	0.35	No
ini.	2	0	5.6645	-28.32			14.56	5.48	SLD 14	0.19	No
fin.	2	0	-4.3516	-15.77			14.56	5.48	SLD 14	0.35	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.289	SLV 13	Si
V_SLV	0.119	SLV 13	No
PF_SLU	2.304	SLU 84	Si
V_SLU	0.151	SLU 78	No

## Trave di accoppiamento 125

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.958	6.661	11.05	11.87	0.82	-7.058	6.661	11.05	11.87	0.82	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	6.52	1.4902	8.9792	SLU 84	6.03	Si
fin.	3	-5.03	-4.32	8.9792	SLU 84	2.08	Si
ini.	3	9.64	1.7273	8.9792	SLU 38	5.2	Si
fin.	3	-2.27	-4.3156	8.9792	SLU 38	2.08	Si
ini.	3	9.26	1.6674	8.9792	SLU 36	5.39	Si
fin.	3	-2.59	-4.3114	8.9792	SLU 36	2.08	Si
ini.	3	9.9	1.8097	8.9792	SLU 80	4.96	Si
fin.	3	-2.9	-4.6748	8.9792	SLU 80	1.92	Si
ini.	3	6.48	1.472	8.9792	SLU 83	6.1	Si
fin.	3	-4.98	-4.3005	8.9792	SLU 83	2.09	Si
ini.	3	9.6	1.709	8.9792	SLU 37	5.25	Si
fin.	3	-2.23	-4.2961	8.9792	SLU 37	2.09	Si
ini.	3	9.87	1.7915	8.9792	SLU 79	5.01	Si
fin.	3	-2.86	-4.6553	8.9792	SLU 79	1.93	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	9.49	1.7316	8.9792	SLU 77	5.19	Si
fin.	3	-3.17	-4.6511	8.9792	SLU 77	1.93	Si
ini.	3	9.52	1.7498	8.9792	SLU 78	5.13	Si
fin.	3	-3.21	-4.6706	8.9792	SLU 78	1.92	Si
ini.	3	9.23	1.6491	8.9792	SLU 35	5.44	Si
fin.	3	-2.55	-4.2919	8.9792	SLU 35	2.09	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	1.3722	2.22			8.06	3.03	SLU 75	1.36	Si
fin.	3	0	-4.0942	-24.59			8.06	3.03	SLU 75	0.12	No
ini.	3	0	1.8097	-0.58			8.06	3.03	SLU 80	5.22	Si
fin.	3	0	-4.6748	-25.93			8.06	3.03	SLU 80	0.12	No
ini.	3	0	1.4442	1.53			8.06	3.03	SLU 76	1.98	Si
fin.	3	0	-4.1113	-24.26			8.06	3.03	SLU 76	0.12	No
ini.	3	0	1.3539	2.31			8.06	3.03	SLU 74	1.31	Si
fin.	3	0	-4.0747	-24.52			8.06	3.03	SLU 74	0.12	No
ini.	3	0	1.7915	-0.5			8.06	3.03	SLU 79	6.11	Si
fin.	3	0	-4.6553	-25.86			8.06	3.03	SLU 79	0.12	No
ini.	3	0	1.7498	0.06			8.06	3.03	SLU 78	55.07	Si
fin.	3	0	-4.6706	-26.31			8.06	3.03	SLU 78	0.12	No
ini.	3	0	1.472	1.95			8.06	3.03	SLU 83	1.55	Si
fin.	3	0	-4.3005	-25.51			8.06	3.03	SLU 83	0.12	No
ini.	3	0	1.1126	4.04			8.06	3.03	SLU 82	0.75	No
fin.	3	0	-3.7436	-23.86			8.06	3.03	SLU 82	0.13	No
ini.	3	0	1.4902	1.87			8.06	3.03	SLU 84	1.62	Si
fin.	3	0	-4.32	-25.58			8.06	3.03	SLU 84	0.12	No
ini.	3	0	1.7316	0.14			8.06	3.03	SLU 77	21.81	Si
fin.	3	0	-4.6511	-26.24			8.06	3.03	SLU 77	0.12	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	15.64	5.1212	10.7694	SLV 16	2.1	Si
fin.	2	-7.69	-6.7313	10.7694	SLV 16	1.6	Si
ini.	2	13.29	4.6705	10.7694	SLV 13	2.31	Si
fin.	2	-9.83	-7.1182	10.7694	SLV 13	1.51	Si
ini.	2	7.22	2.4225	10.7694	SLD 14	4.45	Si
fin.	2	-6.22	-4.3968	10.7694	SLD 14	2.45	Si
ini.	2	8.22	2.6155	10.7694	SLD 16	4.12	Si
fin.	2	-5.3	-4.2291	10.7694	SLD 16	2.55	Si
ini.	2	7.22	2.4225	10.7694	SLD 13	4.45	Si
fin.	2	-6.22	-4.3968	10.7694	SLD 13	2.45	Si
ini.	2	15.64	5.1212	10.7694	SLV 15	2.1	Si
fin.	2	-7.69	-6.7313	10.7694	SLV 15	1.6	Si
ini.	2	2.15	1.1906	10.7694	SLV 10	9.05	Si
fin.	2	-8.63	-4.3305	10.7694	SLV 10	2.49	Si
ini.	2	2.15	1.1906	10.7694	SLV 9	9.05	Si
fin.	2	-8.63	-4.3305	10.7694	SLV 9	2.49	Si
ini.	2	13.29	4.6705	10.7694	SLV 14	2.31	Si
fin.	2	-9.83	-7.1182	10.7694	SLV 14	1.51	Si
ini.	2	8.22	2.6155	10.7694	SLD 15	4.12	Si
fin.	2	-5.3	-4.2291	10.7694	SLD 15	2.55	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5.1212	-15.65			12.08	4.55	SLV 15	0.29	No
fin.	2	0	-6.7313	-31.89			12.08	4.55	SLV 15	0.14	No
ini.	2	0	2.6155	-5.3			12.08	4.55	SLD 15	0.86	No
fin.	2	0	-4.2291	-22.34			12.08	4.55	SLD 15	0.2	No
ini.	2	0	2.4225	-4.09			12.08	4.55	SLD 14	1.11	Si
fin.	2	0	-4.3968	-23.22			12.08	4.55	SLD 14	0.2	No
ini.	2	0	1.1906	2.32			12.08	4.55	SLV 10	1.96	Si
fin.	2	0	-4.3305	-23.72			12.08	4.55	SLV 10	0.19	No
ini.	2	0	2.6155	-5.3			12.08	4.55	SLD 16	0.86	No
fin.	2	0	-4.2291	-22.34			12.08	4.55	SLD 16	0.2	No
ini.	2	0	1.1906	2.32			12.08	4.55	SLV 9	1.96	Si
fin.	2	0	-4.3305	-23.72			12.08	4.55	SLV 9	0.19	No
ini.	2	0	4.6705	-12.82			12.08	4.55	SLV 13	0.35	No
fin.	2	0	-7.1182	-33.92			12.08	4.55	SLV 13	0.13	No
ini.	2	0	4.6705	-12.82			12.08	4.55	SLV 14	0.35	No
fin.	2	0	-7.1182	-33.92			12.08	4.55	SLV 14	0.13	No
ini.	2	0	2.4225	-4.09			12.08	4.55	SLD 13	1.11	Si
fin.	2	0	-4.3968	-23.22			12.08	4.55	SLD 13	0.2	No
ini.	2	0	5.1212	-15.65			12.08	4.55	SLV 16	0.29	No
fin.	2	0	-6.7313	-31.89			12.08	4.55	SLV 16	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.513	SLV 13	Si
V_SLV	0.134	SLV 13	No
PF_SLU	1.921	SLU 80	Si
V_SLU	0.115	SLU 78	No

## Trave di accoppiamento 126

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-19.868	1.046	10.45	11.87	1.42	-20.668	1.046	10.45	11.87	1.42	0.8	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-16.67	8.2386	19.4792	SLU 72	2.36	Si
fin.	3	-16.67	-3.1986	19.4792	SLU 72	6.09	Si
ini.	3	-21.23	7.9839	19.4792	SLU 35	2.44	Si
fin.	3	-21.23	-1.6376	19.4792	SLU 35	11.9	Si
ini.	3	-21.89	8.9597	19.4792	SLU 79	2.17	Si
fin.	3	-21.89	-2.3935	19.4792	SLU 79	8.14	Si
ini.	3	-20.49	8.0548	19.4792	SLU 37	2.42	Si
fin.	3	-20.49	-2.0081	19.4792	SLU 37	9.7	Si
ini.	3	-22.47	8.5557	19.4792	SLU 78	2.28	Si
fin.	3	-22.47	-1.8652	19.4792	SLU 78	10.44	Si
ini.	3	-17.41	8.1677	19.4792	SLU 70	2.38	Si
fin.	3	-17.41	-2.828	19.4792	SLU 70	6.89	Si
ini.	3	-17.58	8.5007	19.4792	SLU 69	2.29	Si
fin.	3	-17.58	-2.9857	19.4792	SLU 69	6.52	Si
ini.	3	-16.83	8.5716	19.4792	SLU 71	2.27	Si
fin.	3	-16.83	-3.3562	19.4792	SLU 71	5.8	Si
ini.	3	-22.63	8.8887	19.4792	SLU 77	2.19	Si
fin.	3	-22.63	-2.0229	19.4792	SLU 77	9.63	Si
ini.	3	-21.73	8.6266	19.4792	SLU 80	2.26	Si
fin.	3	-21.73	-2.2358	19.4792	SLU 80	8.71	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	8.9597	-4.85			15.31	5.76	SLU 79	1.19	Si
fin.	3	0	-2.3935	-24.15			15.31	5.76	SLU 79	0.24	No
ini.	3	0	8.6266	-4.23			15.31	5.76	SLU 80	1.36	Si
fin.	3	0	-2.2358	-23.54			15.31	5.76	SLU 80	0.24	No
ini.	3	0	8.8887	-4.29			15.31	5.76	SLU 77	1.34	Si
fin.	3	0	-2.0229	-23.6			15.31	5.76	SLU 77	0.24	No
ini.	3	0	7.9349	-0.86			15.31	5.76	SLU 83	6.7	Si
fin.	3	0	-0.8995	-21.84			15.31	5.76	SLU 83	0.26	No
ini.	3	0	8.5557	-3.68			15.31	5.76	SLU 78	1.57	Si
fin.	3	0	-1.8652	-22.99			15.31	5.76	SLU 78	0.25	No
ini.	3	0	8.0548	-4.13			15.31	5.76	SLU 37	1.4	Si
fin.	3	0	-2.0081	-21.5			15.31	5.76	SLU 37	0.27	No
ini.	3	0	8.5716	-7.52			15.31	5.76	SLU 71	0.77	No
fin.	3	0	-3.3562	-22.91			15.31	5.76	SLU 71	0.25	No
ini.	3	0	8.2386	-6.91			15.31	5.76	SLU 72	0.83	No
fin.	3	0	-3.1986	-22.3			15.31	5.76	SLU 72	0.26	No
ini.	3	0	8.1677	-6.35			15.31	5.76	SLU 70	0.91	No
fin.	3	0	-2.828	-21.75			15.31	5.76	SLU 70	0.26	No
ini.	3	0	8.5007	-6.97			15.31	5.76	SLU 69	0.83	No
fin.	3	0	-2.9857	-22.36			15.31	5.76	SLU 69	0.26	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-19.31	17.6196	21.2694	SLV 5	1.21	Si
fin.	2	-20.66	-12.1329	21.2694	SLV 5	1.75	Si
ini.	2	-5.16	-21.6871	21.2694	SLV 15	0.98	No
fin.	2	-2.5	23.5047	21.2694	SLV 15	0.9	No
ini.	2	-5.16	-21.6871	21.2694	SLV 16	0.98	No
fin.	2	-2.5	23.5047	21.2694	SLV 16	0.9	No
ini.	2	-20.55	30.9658	21.2694	SLV 2	0.69	No
fin.	2	-23.21	-24.8884	21.2694	SLV 2	0.85	No
ini.	2	-7.89	-18.3361	21.2694	SLV 14	1.16	Si
fin.	2	-5.59	20.7473	21.2694	SLV 14	1.03	Si
ini.	2	-7.89	-18.3361	21.2694	SLV 13	1.16	Si
fin.	2	-5.59	20.7473	21.2694	SLV 13	1.03	Si
ini.	2	-17.82	27.6149	21.2694	SLV 4	0.77	No
fin.	2	-20.12	-22.1311	21.2694	SLV 4	0.96	No
ini.	2	-17.82	27.6149	21.2694	SLV 3	0.77	No
fin.	2	-20.12	-22.1311	21.2694	SLV 3	0.96	No
ini.	2	-20.55	30.9658	21.2694	SLV 1	0.69	No
fin.	2	-23.21	-24.8884	21.2694	SLV 1	0.85	No
ini.	2	-19.31	17.6196	21.2694	SLV 6	1.21	Si
fin.	2	-20.66	-12.1329	21.2694	SLV 6	1.75	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	17.6196	-31.72			22.97	8.64	SLV 6	0.27	No
fin.	2	0	-12.1329	-42.98			22.97	8.64	SLV 6	0.2	No
ini.	2	0	30.9658	-66.02			22.97	8.64	SLV 2	0.13	No
fin.	2	0	-24.8884	-77.91			22.97	8.64	SLV 2	0.11	No
ini.	2	0	-18.3361	56.96			22.97	8.64	SLV 13	0.15	No
fin.	2	0	20.7473	44.95			22.97	8.64	SLV 13	0.19	No
ini.	2	0	27.6149	-58.52			22.97	8.64	SLV 4	0.15	No
fin.	2	0	-22.1311	-70.99			22.97	8.64	SLV 4	0.12	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	17.6196	-31.72			22.97	8.64	SLV 5	0.27	No
fin.	2	0	-12.1329	-42.98			22.97	8.64	SLV 5	0.2	No
ini.	2	0	27.6149	-58.52			22.97	8.64	SLV 3	0.15	No
fin.	2	0	-22.1311	-70.99			22.97	8.64	SLV 3	0.12	No
ini.	2	0	30.9658	-66.02			22.97	8.64	SLV 1	0.13	No
fin.	2	0	-24.8884	-77.91			22.97	8.64	SLV 1	0.11	No
ini.	2	0	-21.6871	64.46			22.97	8.64	SLV 16	0.13	No
fin.	2	0	23.5047	51.87			22.97	8.64	SLV 16	0.17	No
ini.	2	0	-21.6871	64.46			22.97	8.64	SLV 15	0.13	No
fin.	2	0	23.5047	51.87			22.97	8.64	SLV 15	0.17	No
ini.	2	0	-18.3361	56.96			22.97	8.64	SLV 14	0.15	No
fin.	2	0	20.7473	44.95			22.97	8.64	SLV 14	0.19	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.687	SLV 1	No
V_SLV	0.111	SLV 1	No
PF_SLU	2.174	SLU 79	Si
V_SLU	0.239	SLU 79	No

## Trave di accoppiamento 127

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-11.163	1.046	10.85	11.87	1.02	-12.283	1.046	10.85	11.87	1.02	1.12	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-15.12	-7.9625	12.4792	SLU 69	1.57	Si
fin.	3	-15.12	5.1596	12.4792	SLU 69	2.42	Si
ini.	3	-17.82	-8.0055	12.4792	SLU 37	1.56	Si
fin.	3	-17.82	3.7365	12.4792	SLU 37	3.34	Si
ini.	3	-15.3	-7.9586	12.4792	SLU 72	1.57	Si
fin.	3	-15.3	5.1419	12.4792	SLU 72	2.43	Si
ini.	3	-17.91	-7.9156	12.4792	SLU 35	1.58	Si
fin.	3	-17.91	3.791	12.4792	SLU 35	3.29	Si
ini.	3	-18.76	-8.5922	12.4792	SLU 79	1.45	Si
fin.	3	-18.76	4.5043	12.4792	SLU 79	2.77	Si
ini.	3	-19.03	-8.4983	12.4792	SLU 80	1.47	Si
fin.	3	-19.03	4.5412	12.4792	SLU 80	2.75	Si
ini.	3	-19.12	-8.4084	12.4792	SLU 78	1.48	Si
fin.	3	-19.12	4.5957	12.4792	SLU 78	2.72	Si
ini.	3	-18.85	-8.5022	12.4792	SLU 77	1.47	Si
fin.	3	-18.85	4.5588	12.4792	SLU 77	2.74	Si
ini.	3	-18.09	-7.9117	12.4792	SLU 38	1.58	Si
fin.	3	-18.09	3.7733	12.4792	SLU 38	3.31	Si
ini.	3	-15.03	-8.0524	12.4792	SLU 71	1.55	Si
fin.	3	-15.03	5.1051	12.4792	SLU 71	2.44	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-8.4084	25.24			10.02	3.77	SLU 78	0.15	No
fin.	3	0	4.5957	-1.39			10.02	3.77	SLU 78	2.7	Si
ini.	3	0	-8.5922	25.32			10.02	3.77	SLU 79	0.15	No
fin.	3	0	4.5043	-1.31			10.02	3.77	SLU 79	2.87	Si
ini.	3	0	-7.5874	25.04			10.02	3.77	SLU 84	0.15	No
fin.	3	0	3.4482	-4.62			10.02	3.77	SLU 84	0.82	No
ini.	3	0	-8.5022	25.29			10.02	3.77	SLU 77	0.15	No
fin.	3	0	4.5588	-1.34			10.02	3.77	SLU 77	2.81	Si
ini.	3	0	-7.2661	23.47			10.02	3.77	SLU 75	0.16	No
fin.	3	0	3.7602	-3.16			10.02	3.77	SLU 75	1.19	Si
ini.	3	0	-7.3599	23.52			10.02	3.77	SLU 74	0.16	No
fin.	3	0	3.7233	-3.11			10.02	3.77	SLU 74	1.21	Si
ini.	3	0	-6.5389	23.33			10.02	3.77	SLU 81	0.16	No
fin.	3	0	2.5758	-6.33			10.02	3.77	SLU 81	0.6	No
ini.	3	0	-7.6812	25.09			10.02	3.77	SLU 83	0.15	No
fin.	3	0	3.4113	-4.57			10.02	3.77	SLU 83	0.83	No
ini.	3	0	-7.2935	23.47			10.02	3.77	SLU 76	0.16	No
fin.	3	0	3.7302	-3.16			10.02	3.77	SLU 76	1.19	Si
ini.	3	0	-8.4983	25.27			10.02	3.77	SLU 80	0.15	No
fin.	3	0	4.5412	-1.36			10.02	3.77	SLU 80	2.77	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	14.04	-20.5133	14.2694	SLV 16	0.7	No
fin.	2	17.92	36.4668	14.2694	SLV 16	0.39	No
ini.	2	-32.97	11.9929	14.2694	SLV 2	1.19	Si
fin.	2	-36.85	-31.5488	14.2694	SLV 2	0.45	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-36.6	19.5586	14.2694	SLV 3	0.73	No
fin.	2	-40.84	-36.855	14.2694	SLV 3	0.39	No
ini.	2	4.16	-22.8805	14.2694	SLV 9	0.62	No
fin.	2	5.99	22.3009	14.2694	SLV 9	0.64	No
ini.	2	-36.6	19.5586	14.2694	SLV 4	0.73	No
fin.	2	-40.84	-36.855	14.2694	SLV 4	0.39	No
ini.	2	-32.97	11.9929	14.2694	SLV 1	1.19	Si
fin.	2	-36.85	-31.5488	14.2694	SLV 1	0.45	No
ini.	2	14.04	-20.5133	14.2694	SLV 15	0.7	No
fin.	2	17.92	36.4668	14.2694	SLV 15	0.39	No
ini.	2	4.16	-22.8805	14.2694	SLV 10	0.62	No
fin.	2	5.99	22.3009	14.2694	SLV 10	0.64	No
ini.	2	17.66	-28.079	14.2694	SLV 13	0.51	No
fin.	2	21.9	41.773	14.2694	SLV 13	0.34	No
ini.	2	17.66	-28.079	14.2694	SLV 14	0.51	No
fin.	2	21.9	41.773	14.2694	SLV 14	0.34	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	19.5586	-42.48			15.03	5.65	SLV 3	0.13	No
fin.	2	0	-36.855	-59.49			15.03	5.65	SLV 3	0.1	No
ini.	2	0	-28.079	70.91			15.03	5.65	SLV 13	0.08	No
fin.	2	0	41.773	55.73			15.03	5.65	SLV 13	0.1	No
ini.	2	0	-20.5133	59.08			15.03	5.65	SLV 16	0.1	No
fin.	2	0	36.4668	44.27			15.03	5.65	SLV 16	0.13	No
ini.	2	0	-20.5133	59.08			15.03	5.65	SLV 15	0.1	No
fin.	2	0	36.4668	44.27			15.03	5.65	SLV 15	0.13	No
ini.	2	0	-22.8805	49.17			15.03	5.65	SLV 10	0.11	No
fin.	2	0	22.3009	32.79			15.03	5.65	SLV 10	0.17	No
ini.	2	0	-28.079	70.91			15.03	5.65	SLV 14	0.08	No
fin.	2	0	41.773	55.73			15.03	5.65	SLV 14	0.1	No
ini.	2	0	11.9929	-30.65			15.03	5.65	SLV 2	0.18	No
fin.	2	0	-31.5488	-48.03			15.03	5.65	SLV 2	0.12	No
ini.	2	0	11.9929	-30.65			15.03	5.65	SLV 1	0.18	No
fin.	2	0	-31.5488	-48.03			15.03	5.65	SLV 1	0.12	No
ini.	2	0	19.5586	-42.48			15.03	5.65	SLV 4	0.13	No
fin.	2	0	-36.855	-59.49			15.03	5.65	SLV 4	0.1	No
ini.	2	0	-22.8805	49.17			15.03	5.65	SLV 9	0.11	No
fin.	2	0	22.3009	32.79			15.03	5.65	SLV 9	0.17	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.342	SLV 13	No
V_SLV	0.08	SLV 13	No
PF_SLU	1.452	SLU 79	Si
V_SLU	0.149	SLU 79	No

## Trave di accoppiamento 128

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-9.386	1.046	10.85	11.87	1.02	-10.466	1.046	10.85	11.87	1.02	1.08	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-12.77	4.3126	12.4792	SLU 29	2.89	Si
fin.	3	-12.77	-6.0364	12.4792	SLU 29	2.07	Si
ini.	3	-16.7	3.9874	12.4792	SLU 37	3.13	Si
fin.	3	-16.7	-6.1882	12.4792	SLU 37	2.02	Si
ini.	3	-17.7	2.9449	12.4792	SLU 80	4.24	Si
fin.	3	-17.7	-5.8293	12.4792	SLU 80	2.14	Si
ini.	3	-17.5	3.1297	12.4792	SLU 77	3.99	Si
fin.	3	-17.5	-5.9086	12.4792	SLU 77	2.11	Si
ini.	3	-12.81	4.1188	12.4792	SLU 27	3.03	Si
fin.	3	-12.81	-5.8337	12.4792	SLU 27	2.14	Si
ini.	3	-16.75	3.7936	12.4792	SLU 35	3.29	Si
fin.	3	-16.75	-5.9854	12.4792	SLU 35	2.08	Si
ini.	3	-13.56	3.4549	12.4792	SLU 69	3.61	Si
fin.	3	-13.56	-5.7569	12.4792	SLU 69	2.17	Si
ini.	3	-13.52	3.6487	12.4792	SLU 71	3.42	Si
fin.	3	-13.52	-5.9596	12.4792	SLU 71	2.09	Si
ini.	3	-17.46	3.3235	12.4792	SLU 79	3.75	Si
fin.	3	-17.46	-6.1114	12.4792	SLU 79	2.04	Si
ini.	3	-16.94	3.6088	12.4792	SLU 38	3.46	Si
fin.	3	-16.94	-5.9061	12.4792	SLU 38	2.11	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	3.6088	5.58			10.39	3.91	SLU 38	0.7	No
fin.	3	0	-5.9061	-23.08			10.39	3.91	SLU 38	0.17	No
ini.	3	0	3.415	5.95			10.39	3.91	SLU 36	0.66	No
fin.	3	0	-5.7034	-22.71			10.39	3.91	SLU 36	0.17	No
ini.	3	0	2.2344	9.45			10.39	3.91	SLU 41	0.41	No
fin.	3	0	-4.8572	-22.45			10.39	3.91	SLU 41	0.17	No
ini.	3	0	3.7936	5.33			10.39	3.91	SLU 35	0.73	No
fin.	3	0	-5.9854	-23.32			10.39	3.91	SLU 35	0.17	No
ini.	3	0	1.5705	11.34			10.39	3.91	SLU 83	0.34	No
fin.	3	0	-4.7804	-22.94			10.39	3.91	SLU 83	0.17	No
ini.	3	0	2.7511	7.84			10.39	3.91	SLU 78	0.5	No
fin.	3	0	-5.6266	-23.19			10.39	3.91	SLU 78	0.17	No
ini.	3	0	3.1297	7.23			10.39	3.91	SLU 77	0.54	No
fin.	3	0	-5.9086	-23.81			10.39	3.91	SLU 77	0.16	No
ini.	3	0	3.3235	6.86			10.39	3.91	SLU 79	0.57	No
fin.	3	0	-6.1114	-24.17			10.39	3.91	SLU 79	0.16	No
ini.	3	0	3.9874	4.97			10.39	3.91	SLU 37	0.79	No
fin.	3	0	-6.1882	-23.69			10.39	3.91	SLU 37	0.17	No
ini.	3	0	2.9449	7.47			10.39	3.91	SLU 80	0.52	No
fin.	3	0	-5.8293	-23.56			10.39	3.91	SLU 80	0.17	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-19.34	22.7477	14.2694	SLV 4	0.63	No
fin.	2	-24.08	-5.6398	14.2694	SLV 4	2.53	Si
ini.	2	-19.34	22.7477	14.2694	SLV 3	0.63	No
fin.	2	-24.08	-5.6398	14.2694	SLV 3	2.53	Si
ini.	2	0.02	-30.6844	14.2694	SLV 16	0.47	No
fin.	2	4.14	10.2378	14.2694	SLV 16	1.39	Si
ini.	2	-17.75	30.4704	14.2694	SLV 2	0.47	No
fin.	2	-21.86	-14.4797	14.2694	SLV 2	0.99	No
ini.	2	-8.61	-20.9931	14.2694	SLV 12	0.68	No
fin.	2	-8.32	14.9939	14.2694	SLV 12	0.95	No
ini.	2	1.61	-22.9617	14.2694	SLV 13	0.62	No
fin.	2	6.35	1.3979	14.2694	SLV 13	10.21	Si
ini.	2	-17.75	30.4704	14.2694	SLV 1	0.47	No
fin.	2	-21.86	-14.4797	14.2694	SLV 1	0.99	No
ini.	2	0.02	-30.6844	14.2694	SLV 15	0.47	No
fin.	2	4.14	10.2378	14.2694	SLV 15	1.39	Si
ini.	2	1.61	-22.9617	14.2694	SLV 14	0.62	No
fin.	2	6.35	1.3979	14.2694	SLV 14	10.21	Si
ini.	2	-8.61	-20.9931	14.2694	SLV 11	0.68	No
fin.	2	-8.32	14.9939	14.2694	SLV 11	0.95	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-30.6844	49.21			15.58	5.86	SLV 16	0.12	No
fin.	2	0	10.2378	30.14			15.58	5.86	SLV 16	0.19	No
ini.	2	0	22.7477	-18.4			15.58	5.86	SLV 3	0.32	No
fin.	2	0	-5.6398	-36.75			15.58	5.86	SLV 3	0.16	No
ini.	2	0	20.779	-28.44			15.58	5.86	SLV 5	0.21	No
fin.	2	0	-19.2357	-47.71			15.58	5.86	SLV 5	0.12	No
ini.	2	0	20.779	-28.44			15.58	5.86	SLV 6	0.21	No
fin.	2	0	-19.2357	-47.71			15.58	5.86	SLV 6	0.12	No
ini.	2	0	30.4704	-33.96			15.58	5.86	SLV 2	0.17	No
fin.	2	0	-14.4797	-52.61			15.58	5.86	SLV 2	0.11	No
ini.	2	0	-20.9931	43.69			15.58	5.86	SLV 12	0.13	No
fin.	2	0	14.9939	25.24			15.58	5.86	SLV 12	0.23	No
ini.	2	0	-30.6844	49.21			15.58	5.86	SLV 15	0.12	No
fin.	2	0	10.2378	30.14			15.58	5.86	SLV 15	0.19	No
ini.	2	0	22.7477	-18.4			15.58	5.86	SLV 4	0.32	No
fin.	2	0	-5.6398	-36.75			15.58	5.86	SLV 4	0.16	No
ini.	2	0	30.4704	-33.96			15.58	5.86	SLV 1	0.17	No
fin.	2	0	-14.4797	-52.61			15.58	5.86	SLV 1	0.11	No
ini.	2	0	-20.9931	43.69			15.58	5.86	SLV 11	0.13	No
fin.	2	0	14.9939	25.24			15.58	5.86	SLV 11	0.23	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.465	SLV 15	No
V_SLV	0.111	SLV 1	No
PF_SLU	2.017	SLU 37	Si
V_SLU	0.162	SLU 79	No

#### Trave di accoppiamento 129

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.478	1.046	10.45	11.87	1.42	-7.278	1.046	10.45	11.87	1.42	0.8	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-13.58	-9.1486	19.4792	SLU 83	2.13	Si
fin.	3	-13.58	14.4722	19.4792	SLU 83	1.35	Si
ini.	3	-14.13	-9.8694	19.4792	SLU 81	1.97	Si
fin.	3	-14.13	14.5174	19.4792	SLU 81	1.34	Si
ini.	3	-12.16	-8.9091	19.4792	SLU 75	2.19	Si
fin.	3	-12.16	14.0926	19.4792	SLU 75	1.38	Si
ini.	3	-11.96	-7.9256	19.4792	SLU 77	2.46	Si
fin.	3	-11.96	13.8816	19.4792	SLU 77	1.4	Si
ini.	3	-12.51	-8.6464	19.4792	SLU 74	2.25	Si
fin.	3	-12.51	13.9269	19.4792	SLU 74	1.4	Si
ini.	3	-13.78	-10.1321	19.4792	SLU 82	1.92	Si
fin.	3	-13.78	14.6832	19.4792	SLU 82	1.33	Si
ini.	3	-13.23	-9.4113	19.4792	SLU 84	2.07	Si
fin.	3	-13.23	14.6379	19.4792	SLU 84	1.33	Si
ini.	3	-11.61	-8.1883	19.4792	SLU 78	2.38	Si
fin.	3	-11.61	14.0474	19.4792	SLU 78	1.39	Si
ini.	3	-11.45	-8.6539	19.4792	SLU 76	2.25	Si
fin.	3	-11.45	13.5489	19.4792	SLU 76	1.44	Si
ini.	3	-12	-9.3747	19.4792	SLU 73	2.08	Si
fin.	3	-12	13.5942	19.4792	SLU 73	1.43	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-8.9769	37.41			15.31	5.76	SLU 40	0.15	No
fin.	3	0	13.094	17.23			15.31	5.76	SLU 40	0.33	No
ini.	3	0	-8.9091	38.58			15.31	5.76	SLU 75	0.15	No
fin.	3	0	14.0926	18.2			15.31	5.76	SLU 75	0.32	No
ini.	3	0	-8.1883	37.63			15.31	5.76	SLU 78	0.15	No
fin.	3	0	14.0474	17.24			15.31	5.76	SLU 78	0.33	No
ini.	3	0	-9.8694	41.22			15.31	5.76	SLU 81	0.14	No
fin.	3	0	14.5174	19.03			15.31	5.76	SLU 81	0.3	No
ini.	3	0	-9.1486	40.26			15.31	5.76	SLU 83	0.14	No
fin.	3	0	14.4722	18.07			15.31	5.76	SLU 83	0.32	No
ini.	3	0	-8.6539	37.58			15.31	5.76	SLU 76	0.15	No
fin.	3	0	13.5489	17.2			15.31	5.76	SLU 76	0.34	No
ini.	3	0	-8.6464	38.05			15.31	5.76	SLU 74	0.15	No
fin.	3	0	13.9269	17.66			15.31	5.76	SLU 74	0.33	No
ini.	3	0	-9.4113	40.79			15.31	5.76	SLU 84	0.14	No
fin.	3	0	14.6379	18.61			15.31	5.76	SLU 84	0.31	No
ini.	3	0	-9.3747	38.54			15.31	5.76	SLU 73	0.15	No
fin.	3	0	13.5942	18.16			15.31	5.76	SLU 73	0.32	No
ini.	3	0	-10.1321	41.75			15.31	5.76	SLU 82	0.14	No
fin.	3	0	14.6832	19.56			15.31	5.76	SLU 82	0.29	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-14.4	-18.9728	21.2694	SLV 11	1.12	Si
fin.	2	-13.2	24.3611	21.2694	SLV 11	0.87	No
ini.	2	-12.53	-22.9717	21.2694	SLV 14	0.93	No
fin.	2	-8.93	30.3903	21.2694	SLV 14	0.7	No
ini.	2	-14.4	-18.9728	21.2694	SLV 12	1.12	Si
fin.	2	-13.2	24.3611	21.2694	SLV 12	0.87	No
ini.	2	-15.55	-27.4478	21.2694	SLV 15	0.77	No
fin.	2	-11.89	35.499	21.2694	SLV 15	0.6	No
ini.	2	-12.53	-22.9717	21.2694	SLV 13	0.93	No
fin.	2	-8.93	30.3903	21.2694	SLV 13	0.7	No
ini.	2	0.84	16.1629	21.2694	SLV 2	1.32	Si
fin.	2	-2.82	-18.4615	21.2694	SLV 2	1.15	Si
ini.	2	0.84	16.1629	21.2694	SLV 1	1.32	Si
fin.	2	-2.82	-18.4615	21.2694	SLV 1	1.15	Si
ini.	2	-10.92	-14.9601	21.2694	SLD 15	1.42	Si
fin.	2	-9.34	20.0354	21.2694	SLD 15	1.06	Si
ini.	2	-10.92	-14.9601	21.2694	SLD 16	1.42	Si
fin.	2	-9.34	20.0354	21.2694	SLD 16	1.06	Si
ini.	2	-15.55	-27.4478	21.2694	SLV 16	0.77	No
fin.	2	-11.89	35.499	21.2694	SLV 16	0.6	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-18.9728	61.44			22.97	8.64	SLV 11	0.14	No
fin.	2	0	24.3611	48.12			22.97	8.64	SLV 11	0.18	No
ini.	2	0	-27.4478	87.24			22.97	8.64	SLV 16	0.1	No
fin.	2	0	35.499	73.87			22.97	8.64	SLV 16	0.12	No
ini.	2	0	-18.9728	61.44			22.97	8.64	SLV 12	0.14	No
fin.	2	0	24.3611	48.12			22.97	8.64	SLV 12	0.18	No
ini.	2	0	-22.9717	75			22.97	8.64	SLV 14	0.12	No
fin.	2	0	30.3903	61.82			22.97	8.64	SLV 14	0.14	No
ini.	2	0	-27.4478	87.24			22.97	8.64	SLV 15	0.1	No
fin.	2	0	35.499	73.87			22.97	8.64	SLV 15	0.12	No
ini.	2	0	16.1629	-39.52			22.97	8.64	SLV 1	0.22	No
fin.	2	0	-18.4615	-51.91			22.97	8.64	SLV 1	0.17	No
ini.	2	0	16.1629	-39.52			22.97	8.64	SLV 2	0.22	No
fin.	2	0	-18.4615	-51.91			22.97	8.64	SLV 2	0.17	No
ini.	2	0	-14.9601	50.93			22.97	8.64	SLD 15	0.17	No
fin.	2	0	20.0354	37.85			22.97	8.64	SLD 15	0.23	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-22.9717	75			22.97	8.64	SLV 13	0.12	No
fin.	2	0	30.3903	61.82			22.97	8.64	SLV 13	0.14	No
ini.	2	0	-14.9601	50.93			22.97	8.64	SLD 16	0.17	No
fin.	2	0	20.0354	37.85			22.97	8.64	SLD 16	0.23	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.599	SLV 15	No
V_SLV	0.099	SLV 15	No
PF_SLU	1.327	SLU 82	Si
V_SLU	0.138	SLU 82	No

## Trave di accoppiamento 130

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-4.168	1.046	10.45	11.87	1.42	-4.968	1.046	10.45	11.87	1.42	0.8	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.62	-8.9221	19.4792	SLU 69	2.18	Si
fin.	3	-7.62	6.4404	19.4792	SLU 69	3.02	Si
ini.	3	-7.73	-8.8042	19.4792	SLU 70	2.21	Si
fin.	3	-7.73	6.0855	19.4792	SLU 70	3.2	Si
ini.	3	-7.51	-8.8957	19.4792	SLU 72	2.19	Si
fin.	3	-7.51	5.9842	19.4792	SLU 72	3.26	Si
ini.	3	-10.55	-9.3913	19.4792	SLU 79	2.07	Si
fin.	3	-10.55	6.7064	19.4792	SLU 79	2.9	Si
ini.	3	-10.77	-9.2999	19.4792	SLU 77	2.09	Si
fin.	3	-10.77	6.8078	19.4792	SLU 77	2.86	Si
ini.	3	-10.65	-9.2734	19.4792	SLU 80	2.1	Si
fin.	3	-10.65	6.3516	19.4792	SLU 80	3.07	Si
ini.	3	-8.38	-8.7178	19.4792	SLU 58	2.23	Si
fin.	3	-8.38	6.1044	19.4792	SLU 58	3.19	Si
ini.	3	-10.87	-9.182	19.4792	SLU 78	2.12	Si
fin.	3	-10.87	6.4529	19.4792	SLU 78	3.02	Si
ini.	3	-8.6	-8.6264	19.4792	SLU 56	2.26	Si
fin.	3	-8.6	6.2057	19.4792	SLU 56	3.14	Si
ini.	3	-7.4	-9.0136	19.4792	SLU 71	2.16	Si
fin.	3	-7.4	6.339	19.4792	SLU 71	3.07	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-9.2734	29.56			15.31	5.76	SLU 80	0.19	No
fin.	3	0	6.3516	10.21			15.31	5.76	SLU 80	0.56	No
ini.	3	0	-8.1114	27.58			15.31	5.76	SLU 75	0.21	No
fin.	3	0	5.9289	8.23			15.31	5.76	SLU 75	0.7	No
ini.	3	0	-9.3913	30.15			15.31	5.76	SLU 79	0.19	No
fin.	3	0	6.7064	10.8			15.31	5.76	SLU 79	0.53	No
ini.	3	0	-9.182	29.57			15.31	5.76	SLU 78	0.19	No
fin.	3	0	6.4529	10.22			15.31	5.76	SLU 78	0.56	No
ini.	3	0	-8.4827	29.4			15.31	5.76	SLU 83	0.2	No
fin.	3	0	6.3399	8.37			15.31	5.76	SLU 83	0.69	No
ini.	3	0	-8.9221	27.28			15.31	5.76	SLU 69	0.21	No
fin.	3	0	6.4404	11.84			15.31	5.76	SLU 69	0.49	No
ini.	3	0	-8.3647	28.8			15.31	5.76	SLU 84	0.2	No
fin.	3	0	5.985	7.78			15.31	5.76	SLU 84	0.74	No
ini.	3	0	-7.4121	27.4			15.31	5.76	SLU 81	0.21	No
fin.	3	0	5.816	6.38			15.31	5.76	SLU 81	0.9	No
ini.	3	0	-9.2999	30.16			15.31	5.76	SLU 77	0.19	No
fin.	3	0	6.8078	10.82			15.31	5.76	SLU 77	0.53	No
ini.	3	0	-8.2293	28.17			15.31	5.76	SLU 74	0.2	No
fin.	3	0	6.2838	8.82			15.31	5.76	SLU 74	0.65	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-15.52	-31.7752	21.2694	SLV 16	0.67	No
fin.	2	-11.24	20.8747	21.2694	SLV 16	1.02	Si
ini.	2	1.85	21.2824	21.2694	SLV 1	1	No
fin.	2	-2.43	-12.7893	21.2694	SLV 1	1.66	Si
ini.	2	-19.52	-29.1228	21.2694	SLV 13	0.73	No
fin.	2	-17.48	20.6012	21.2694	SLV 13	1.03	Si
ini.	2	-15.52	-31.7752	21.2694	SLV 15	0.67	No
fin.	2	-11.24	20.8747	21.2694	SLV 15	1.02	Si
ini.	2	-19.52	-29.1228	21.2694	SLV 14	0.73	No
fin.	2	-17.48	20.6012	21.2694	SLV 14	1.03	Si
ini.	2	1.85	21.2824	21.2694	SLV 2	1	No
fin.	2	-2.43	-12.7893	21.2694	SLV 2	1.66	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	5.86	18.63	21.2694	SLV 4	1.14	Si
fin.	2	3.81	-12.5157	21.2694	SLV 4	1.7	Si
ini.	2	-3.36	-17.2278	21.2694	SLV 11	1.23	Si
fin.	2	1.31	9.5073	21.2694	SLV 11	2.24	Si
ini.	2	-3.36	-17.2278	21.2694	SLV 12	1.23	Si
fin.	2	1.31	9.5073	21.2694	SLV 12	2.24	Si
ini.	2	5.86	18.63	21.2694	SLV 3	1.14	Si
fin.	2	3.81	-12.5157	21.2694	SLV 3	1.7	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-29.1228	69.49			22.97	8.64	SLV 14	0.12	No
fin.	2	0	20.6012	57.83			22.97	8.64	SLV 14	0.15	No
ini.	2	0	-31.7752	75.5			22.97	8.64	SLV 15	0.11	No
fin.	2	0	20.8747	62.22			22.97	8.64	SLV 15	0.14	No
ini.	2	0	21.2824	-39.45			22.97	8.64	SLV 2	0.22	No
fin.	2	0	-12.7893	-50.72			22.97	8.64	SLV 2	0.17	No
ini.	2	0	-17.2278	44.39			22.97	8.64	SLV 12	0.19	No
fin.	2	0	9.5073	29.35			22.97	8.64	SLV 12	0.29	No
ini.	2	0	18.63	-33.44			22.97	8.64	SLV 3	0.26	No
fin.	2	0	-12.5157	-46.33			22.97	8.64	SLV 3	0.19	No
ini.	2	0	21.2824	-39.45			22.97	8.64	SLV 1	0.22	No
fin.	2	0	-12.7893	-50.72			22.97	8.64	SLV 1	0.17	No
ini.	2	0	-17.2278	44.39			22.97	8.64	SLV 11	0.19	No
fin.	2	0	9.5073	29.35			22.97	8.64	SLV 11	0.29	No
ini.	2	0	-29.1228	69.49			22.97	8.64	SLV 13	0.12	No
fin.	2	0	20.6012	57.83			22.97	8.64	SLV 13	0.15	No
ini.	2	0	18.63	-33.44			22.97	8.64	SLV 4	0.26	No
fin.	2	0	-12.5157	-46.33			22.97	8.64	SLV 4	0.19	No
ini.	2	0	-31.7752	75.5			22.97	8.64	SLV 16	0.11	No
fin.	2	0	20.8747	62.22			22.97	8.64	SLV 16	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.669	SLV 15	No
V_SLV	0.114	SLV 15	No
PF_SLU	2.074	SLU 79	Si
V_SLU	0.191	SLU 77	No

## Trave di accoppiamento 131

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.678	-4.859	11.61	11.87	0.26	-10.518	-4.859	11.61	11.87	0.26	1.84	0.3	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.18	0.3078	1.0289	SLU 47	3.34	Si
fin.	3	2.79	-0.1908	1.0289	SLU 47	5.39	Si
ini.	3	-0.61	0.3833	1.0289	SLU 65	2.68	Si
fin.	3	2.93	-0.2204	1.0289	SLU 65	4.67	Si
ini.	3	-0.03	0.276	1.0289	SLU 46	3.73	Si
fin.	3	2.92	-0.197	1.0289	SLU 46	5.22	Si
ini.	3	-0.44	0.3449	1.0289	SLU 52	2.98	Si
fin.	3	2.69	-0.1972	1.0289	SLU 52	5.22	Si
ini.	3	0	0.2697	1.0289	SLU 73	3.82	Si
fin.	3	2.32	-0.1429	1.0289	SLU 73	7.2	Si
ini.	3	-0.89	0.3713	1.0289	SLU 2	2.77	Si
fin.	3	2.43	-0.2043	1.0289	SLU 2	5.04	Si
ini.	3	-0.45	0.296	1.0289	SLU 23	3.48	Si
fin.	3	2.06	-0.1499	1.0289	SLU 23	6.86	Si
ini.	3	-1.05	0.4585	1.0289	SLU 44	2.24	Si
fin.	3	3.3	-0.2748	1.0289	SLU 44	3.74	Si
ini.	3	2.76	-0.2857	1.0289	SLU 37	3.6	Si
fin.	3	0.47	0.1269	1.0289	SLU 37	8.11	Si
ini.	3	-0.18	0.292	1.0289	SLU 43	3.52	Si
fin.	3	3.34	-0.2436	1.0289	SLU 43	4.22	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.3449	-2.84			2	0.75	SLU 52	0.27	No
fin.	3	0	-0.1972	0.92			2	0.75	SLU 52	0.82	No
ini.	3	0	0.2697	-2.89			2	0.75	SLU 73	0.26	No
fin.	3	0	-0.1429	1.01			2	0.75	SLU 73	0.75	No
ini.	3	0	0.1543	-2.62			2	0.75	SLU 82	0.29	No
fin.	3	0	-0.0971	0.97			2	0.75	SLU 82	0.78	No
ini.	3	0	0.3833	-2.84			2	0.75	SLU 65	0.27	No
fin.	3	0	-0.2204	0.95			2	0.75	SLU 65	0.79	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.4585	-2.79			2	0.75	SLU 44	0.27	No
fin.	3	0	-0.2748	0.86			2	0.75	SLU 44	0.87	No
ini.	3	0	0.1942	-2.74			2	0.75	SLU 55	0.27	No
fin.	3	0	-0.1132	0.99			2	0.75	SLU 55	0.76	No
ini.	3	0	0.2325	-2.74			2	0.75	SLU 68	0.28	No
fin.	3	0	-0.1364	1.01			2	0.75	SLU 68	0.74	No
ini.	3	0	0.3078	-2.69			2	0.75	SLU 47	0.28	No
fin.	3	0	-0.1908	0.93			2	0.75	SLU 47	0.81	No
ini.	3	0	0.1189	-2.79			2	0.75	SLU 76	0.27	No
fin.	3	0	-0.0589	1.07			2	0.75	SLU 76	0.7	No
ini.	3	0	0.2296	-2.57			2	0.75	SLU 61	0.29	No
fin.	3	0	-0.1515	0.89			2	0.75	SLU 61	0.85	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-21.42	3.3784	1.5434	SLV 3	0.46	No
fin.	2	-7.42	0.4167	1.5434	SLV 3	3.7	Si
ini.	2	16.14	-2.4905	1.5434	SLV 16	0.62	No
fin.	2	12.62	-1.1816	1.5434	SLV 16	1.31	Si
ini.	2	-21.42	3.3784	1.5434	SLV 4	0.46	No
fin.	2	-7.42	0.4167	1.5434	SLV 4	3.7	Si
ini.	2	-15.59	2.792	1.5434	SLV 1	0.55	No
fin.	2	-8.23	0.911	1.5434	SLV 1	1.69	Si
ini.	2	-15.08	2.0083	1.5434	SLV 7	0.77	No
fin.	2	0.55	-0.7194	1.5434	SLV 7	2.15	Si
ini.	2	16.14	-2.4905	1.5434	SLV 15	0.62	No
fin.	2	12.62	-1.1816	1.5434	SLV 15	1.31	Si
ini.	2	-15.08	2.0083	1.5434	SLV 8	0.77	No
fin.	2	0.55	-0.7194	1.5434	SLV 8	2.15	Si
ini.	2	21.98	-3.0769	1.5434	SLV 14	0.5	No
fin.	2	11.8	-0.6873	1.5434	SLV 14	2.25	Si
ini.	2	21.98	-3.0769	1.5434	SLV 13	0.5	No
fin.	2	11.8	-0.6873	1.5434	SLV 13	2.25	Si
ini.	2	-15.59	2.792	1.5434	SLV 2	0.55	No
fin.	2	-8.23	0.911	1.5434	SLV 2	1.69	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.3784	-2.56			3	1.13	SLV 4	0.44	No
fin.	2	0	0.4167	1.62			3	1.13	SLV 4	0.7	No
ini.	2	0	0.0538	-1.13			3	1.13	SLV 5	1	Si
fin.	2	0	0.9283	2.16			3	1.13	SLV 5	0.52	No
ini.	2	0	2.792	-2.14			3	1.13	SLV 2	0.53	No
fin.	2	0	0.911	2.31			3	1.13	SLV 2	0.49	No
ini.	2	0	0.2477	-2.12			3	1.13	SLV 12	0.53	No
fin.	2	0	-1.1989	-0.95			3	1.13	SLV 12	1.19	Si
ini.	2	0	2.792	-2.14			3	1.13	SLV 1	0.53	No
fin.	2	0	0.911	2.31			3	1.13	SLV 1	0.49	No
ini.	2	0	0.2477	-2.12			3	1.13	SLV 11	0.53	No
fin.	2	0	-1.1989	-0.95			3	1.13	SLV 11	1.19	Si
ini.	2	0	0.0538	-1.13			3	1.13	SLV 6	1	Si
fin.	2	0	0.9283	2.16			3	1.13	SLV 6	0.52	No
ini.	2	0	3.3784	-2.56			3	1.13	SLV 3	0.44	No
fin.	2	0	0.4167	1.62			3	1.13	SLV 3	0.7	No
ini.	2	0	2.0083	-2.55			3	1.13	SLV 7	0.44	No
fin.	2	0	-0.7194	-0.13			3	1.13	SLV 7	8.41	Si
ini.	2	0	2.0083	-2.55			3	1.13	SLV 8	0.44	No
fin.	2	0	-0.7194	-0.13			3	1.13	SLV 8	8.41	Si

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.457	SLV 3	No
V_SLV	0.441	SLV 3	No
PF_SLU	2.244	SLU 44	Si
V_SLU	0.261	SLU 73	No

### Trave di accoppiamento 132

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.548	-3.359	10.45	11.87	1.42	-9.448	-3.359	10.45	11.87	1.42	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.27	7.5141	19.4792	SLU 73	2.59	Si
fin.	3	-8.27	-7.8895	19.4792	SLU 73	2.47	Si
ini.	3	-6.15	6.8375	19.4792	SLU 75	2.85	Si
fin.	3	-6.15	-7.6075	19.4792	SLU 75	2.56	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6.59	6.8103	19.4792	SLU 84	2.86	Si
fin.	3	-6.59	-7.4946	19.4792	SLU 84	2.6	Si
ini.	3	-8.01	6.5233	19.4792	SLU 61	2.99	Si
fin.	3	-8.01	-7.3793	19.4792	SLU 61	2.64	Si
ini.	3	-8.18	7.4267	19.4792	SLU 81	2.62	Si
fin.	3	-8.18	-8.2068	19.4792	SLU 81	2.37	Si
ini.	3	-7.69	6.2482	19.4792	SLU 60	3.12	Si
fin.	3	-7.69	-7.3423	19.4792	SLU 60	2.65	Si
ini.	3	-8.5	7.7018	19.4792	SLU 82	2.53	Si
fin.	3	-8.5	-8.2438	19.4792	SLU 82	2.36	Si
ini.	3	-6.36	6.6225	19.4792	SLU 76	2.94	Si
fin.	3	-6.36	-7.1404	19.4792	SLU 76	2.73	Si
ini.	3	-6.27	6.5352	19.4792	SLU 83	2.98	Si
fin.	3	-6.27	-7.4576	19.4792	SLU 83	2.61	Si
ini.	3	-5.84	6.5624	19.4792	SLU 74	2.97	Si
fin.	3	-5.84	-7.5705	19.4792	SLU 74	2.57	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	6.8103	-7.46			15.31	5.76	SLU 84	0.77	No
fin.	3	0	-7.4946	-23.73			15.31	5.76	SLU 84	0.24	No
ini.	3	0	6.8562	-8.17			15.31	5.76	SLU 40	0.71	No
fin.	3	0	-7.0689	-22.33			15.31	5.76	SLU 40	0.26	No
ini.	3	0	6.8375	-8.09			15.31	5.76	SLU 75	0.71	No
fin.	3	0	-7.6075	-23.41			15.31	5.76	SLU 75	0.25	No
ini.	3	0	7.7018	-9.28			15.31	5.76	SLU 82	0.62	No
fin.	3	0	-8.2438	-25.55			15.31	5.76	SLU 82	0.23	No
ini.	3	0	6.6225	-7.33			15.31	5.76	SLU 76	0.79	No
fin.	3	0	-7.1404	-22.65			15.31	5.76	SLU 76	0.25	No
ini.	3	0	6.5233	-7.92			15.31	5.76	SLU 61	0.73	No
fin.	3	0	-7.3793	-22.34			15.31	5.76	SLU 61	0.26	No
ini.	3	0	7.5141	-9.16			15.31	5.76	SLU 73	0.63	No
fin.	3	0	-7.8895	-24.48			15.31	5.76	SLU 73	0.24	No
ini.	3	0	6.5352	-7.11			15.31	5.76	SLU 83	0.81	No
fin.	3	0	-7.4576	-23.38			15.31	5.76	SLU 83	0.25	No
ini.	3	0	7.4267	-8.94			15.31	5.76	SLU 81	0.64	No
fin.	3	0	-8.2068	-25.21			15.31	5.76	SLU 81	0.23	No
ini.	3	0	6.5624	-7.74			15.31	5.76	SLU 74	0.74	No
fin.	3	0	-7.5705	-23.06			15.31	5.76	SLU 74	0.25	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-26.24	13.3289	21.2694	SLV 8	1.6	Si
fin.	2	-14.31	-21.0624	21.2694	SLV 8	1.01	Si
ini.	2	-5.97	26.9295	21.2694	SLV 4	0.79	No
fin.	2	-4.72	-30.3446	21.2694	SLV 4	0.7	No
ini.	2	-26.24	13.3289	21.2694	SLV 7	1.6	Si
fin.	2	-14.31	-21.0624	21.2694	SLV 7	1.01	Si
ini.	2	7.68	25.66	21.2694	SLV 1	0.83	No
fin.	2	1.3	-24.9537	21.2694	SLV 1	0.85	No
ini.	2	-4.75	-17.4302	21.2694	SLV 13	1.22	Si
fin.	2	-5.99	19.5367	21.2694	SLV 13	1.09	Si
ini.	2	-4.75	-17.4302	21.2694	SLV 14	1.22	Si
fin.	2	-5.99	19.5367	21.2694	SLV 14	1.09	Si
ini.	2	-5.97	26.9295	21.2694	SLV 3	0.79	No
fin.	2	-4.72	-30.3446	21.2694	SLV 3	0.7	No
ini.	2	-18.4	-16.1608	21.2694	SLV 15	1.32	Si
fin.	2	-12.02	14.1458	21.2694	SLV 15	1.5	Si
ini.	2	7.68	25.66	21.2694	SLV 2	0.83	No
fin.	2	1.3	-24.9537	21.2694	SLV 2	0.85	No
ini.	2	-18.4	-16.1608	21.2694	SLV 16	1.32	Si
fin.	2	-12.02	14.1458	21.2694	SLV 16	1.5	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	25.66	-58.78			22.97	8.64	SLV 2	0.15	No
fin.	2	0	-24.9537	-67.4			22.97	8.64	SLV 2	0.13	No
ini.	2	0	25.66	-58.78			22.97	8.64	SLV 1	0.15	No
fin.	2	0	-24.9537	-67.4			22.97	8.64	SLV 1	0.13	No
ini.	2	0	-17.4302	41.87			22.97	8.64	SLV 14	0.21	No
fin.	2	0	19.5367	32.77			22.97	8.64	SLV 14	0.26	No
ini.	2	0	13.7151	-28.35			22.97	8.64	SLD 2	0.3	No
fin.	2	0	-13.8133	-38.04			22.97	8.64	SLD 2	0.23	No
ini.	2	0	26.9295	-53.66			22.97	8.64	SLV 3	0.16	No
fin.	2	0	-30.3446	-65.17			22.97	8.64	SLV 3	0.13	No
ini.	2	0	-16.1608	47			22.97	8.64	SLV 16	0.18	No
fin.	2	0	14.1458	34.99			22.97	8.64	SLV 16	0.25	No
ini.	2	0	13.7151	-28.35			22.97	8.64	SLD 1	0.3	No
fin.	2	0	-13.8133	-38.04			22.97	8.64	SLD 1	0.23	No
ini.	2	0	-17.4302	41.87			22.97	8.64	SLV 13	0.21	No
fin.	2	0	19.5367	32.77			22.97	8.64	SLV 13	0.26	No
ini.	2	0	26.9295	-53.66			22.97	8.64	SLV 4	0.16	No
fin.	2	0	-30.3446	-65.17			22.97	8.64	SLV 4	0.13	No
ini.	2	0	-16.1608	47			22.97	8.64	SLV 15	0.18	No
fin.	2	0	14.1458	34.99			22.97	8.64	SLV 15	0.25	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.701	SLV 3	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.128	SLV 1	No
PF SLU	2.363	SLU 82	Si
V SLU	0.226	SLU 82	No

## Trave di accoppiamento 133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.723	-4.861	11.61	11.87	0.26	-7.723	-3.771	11.61	11.87	0.26	1.09	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.03	-0.0775	1.0289	SLU 31	13.28	Si
fin.	3	0.03	1.9784	1.0289	SLU 31	0.52	No
ini.	3	0.02	-0.0456	1.0289	SLU 82	22.59	Si
fin.	3	0.02	1.7049	1.0289	SLU 82	0.6	No
ini.	3	0.04	-0.0275	1.0289	SLU 55	37.48	Si
fin.	3	0.04	1.745	1.0289	SLU 55	0.59	No
ini.	3	0.04	-0.0371	1.0289	SLU 52	27.76	Si
fin.	3	0.04	1.8456	1.0289	SLU 52	0.56	No
ini.	3	0.04	-0.056	1.0289	SLU 10	18.38	Si
fin.	3	0.04	1.7925	1.0289	SLU 10	0.57	No
ini.	3	0.04	-0.0475	1.0289	SLU 23	21.64	Si
fin.	3	0.04	1.6952	1.0289	SLU 23	0.61	No
ini.	3	0.04	-0.0585	1.0289	SLU 73	17.57	Si
fin.	3	0.04	2.0315	1.0289	SLU 73	0.51	No
ini.	3	0.04	-0.0286	1.0289	SLU 65	35.93	Si
fin.	3	0.04	1.7483	1.0289	SLU 65	0.59	No
ini.	3	0.03	-0.0678	1.0289	SLU 34	15.17	Si
fin.	3	0.03	1.8778	1.0289	SLU 34	0.55	No
ini.	3	0.04	-0.0489	1.0289	SLU 76	21.03	Si
fin.	3	0.04	1.9309	1.0289	SLU 76	0.53	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.0286	2.37			2	0.75	SLU 65	0.32	No
fin.	3	0	1.7483	0.89			2	0.75	SLU 65	0.84	No
ini.	3	0	-0.0456	2.34			2	0.75	SLU 82	0.32	No
fin.	3	0	1.7049	0.87			2	0.75	SLU 82	0.87	No
ini.	3	0	-0.0275	2.36			2	0.75	SLU 55	0.32	No
fin.	3	0	1.745	0.89			2	0.75	SLU 55	0.85	No
ini.	3	0	-0.019	2.27			2	0.75	SLU 68	0.33	No
fin.	3	0	1.6477	0.79			2	0.75	SLU 68	0.95	No
ini.	3	0	-0.0678	2.35			2	0.75	SLU 34	0.32	No
fin.	3	0	1.8778	1.22			2	0.75	SLU 34	0.62	No
ini.	3	0	-0.0775	2.45			2	0.75	SLU 31	0.31	No
fin.	3	0	1.9784	1.32			2	0.75	SLU 31	0.57	No
ini.	3	0	-0.0371	2.46			2	0.75	SLU 52	0.31	No
fin.	3	0	1.8456	0.99			2	0.75	SLU 52	0.76	No
ini.	3	0	-0.0585	2.65			2	0.75	SLU 73	0.28	No
fin.	3	0	2.0315	1.18			2	0.75	SLU 73	0.64	No
ini.	3	0	-0.0489	2.55			2	0.75	SLU 76	0.3	No
fin.	3	0	1.9309	1.08			2	0.75	SLU 76	0.7	No
ini.	3	0	-0.056	2.26			2	0.75	SLU 10	0.33	No
fin.	3	0	1.7925	1.13			2	0.75	SLU 10	0.67	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2.57	0.3059	1.5434	SLV 13	5.04	Si
fin.	2	-0.61	4.2642	1.5434	SLV 13	0.36	No
ini.	2	2.57	0.3059	1.5434	SLV 14	5.04	Si
fin.	2	-0.61	4.2642	1.5434	SLV 14	0.36	No
ini.	2	10.92	2.5325	1.5434	SLV 5	0.61	No
fin.	2	-1.63	7.2152	1.5434	SLV 5	0.21	No
ini.	2	10.92	2.5325	1.5434	SLV 6	0.61	No
fin.	2	-1.63	7.2152	1.5434	SLV 6	0.21	No
ini.	2	-10.92	-2.485	1.5434	SLV 12	0.62	No
fin.	2	1.64	-6.1684	1.5434	SLV 12	0.25	No
ini.	2	-10.92	-2.485	1.5434	SLV 11	0.62	No
fin.	2	1.64	-6.1684	1.5434	SLV 11	0.25	No
ini.	2	-10.53	-2.226	1.5434	SLV 7	0.69	No
fin.	2	1.7	-7.1225	1.5434	SLV 7	0.22	No
ini.	2	-10.53	-2.226	1.5434	SLV 8	0.69	No
fin.	2	1.7	-7.1225	1.5434	SLV 8	0.22	No
ini.	2	10.53	2.2736	1.5434	SLV 9	0.68	No
fin.	2	-1.7	8.1693	1.5434	SLV 9	0.19	No
ini.	2	10.53	2.2736	1.5434	SLV 10	0.68	No
fin.	2	-1.7	8.1693	1.5434	SLV 10	0.19	No



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-2.226	-10.89			3	1.13	SLV 8	0.1	No
fin.	2	0	-7.1225	2.15			3	1.13	SLV 8	0.53	No
ini.	2	0	-2.485	-10.01			3	1.13	SLV 12	0.11	No
fin.	2	0	-6.1684	2.12			3	1.13	SLV 12	0.53	No
ini.	2	0	0.3059	5.94			3	1.13	SLV 14	0.19	No
fin.	2	0	4.2642	-0.84			3	1.13	SLV 14	1.34	Si
ini.	2	0	2.5325	12.06			3	1.13	SLV 5	0.09	No
fin.	2	0	7.2152	-2.33			3	1.13	SLV 5	0.48	No
ini.	2	0	2.5325	12.06			3	1.13	SLV 6	0.09	No
fin.	2	0	7.2152	-2.33			3	1.13	SLV 6	0.48	No
ini.	2	0	-2.226	-10.89			3	1.13	SLV 7	0.1	No
fin.	2	0	-7.1225	2.15			3	1.13	SLV 7	0.53	No
ini.	2	0	2.2736	12.94			3	1.13	SLV 9	0.09	No
fin.	2	0	8.1693	-2.37			3	1.13	SLV 9	0.48	No
ini.	2	0	0.3059	5.94			3	1.13	SLV 13	0.19	No
fin.	2	0	4.2642	-0.84			3	1.13	SLV 13	1.34	Si
ini.	2	0	-2.485	-10.01			3	1.13	SLV 11	0.11	No
fin.	2	0	-6.1684	2.12			3	1.13	SLV 11	0.53	No
ini.	2	0	2.2736	12.94			3	1.13	SLV 10	0.09	No
fin.	2	0	8.1693	-2.37			3	1.13	SLV 10	0.48	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.189	SLV 9	No
V_SLV	0.087	SLV 9	No
PF_SLU	0.506	SLU 73	No
V_SLU	0.284	SLU 73	No

#### Trave di accoppiamento 134

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	8.35	10.35	2	-5.158	6.506	8.35	10.35	2	0.5	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.59	11.7674	29.6292	SLU 71	2.52	Si
fin.	3	1.1	1.3632	29.6292	SLU 71	21.73	Si
ini.	3	4.36	11.9451	29.6292	SLU 80	2.48	Si
fin.	3	3.02	3.1974	29.6292	SLU 80	9.27	Si
ini.	3	4.84	11.5482	29.6292	SLU 78	2.57	Si
fin.	3	3.61	3.7513	29.6292	SLU 78	7.9	Si
ini.	3	3.18	11.2708	29.6292	SLU 70	2.63	Si
fin.	3	1.82	2.0344	29.6292	SLU 70	14.56	Si
ini.	3	3.43	11.2057	29.6292	SLU 38	2.64	Si
fin.	3	2.12	2.3236	29.6292	SLU 38	12.75	Si
ini.	3	4.73	11.648	29.6292	SLU 77	2.54	Si
fin.	3	3.49	3.6339	29.6292	SLU 77	8.15	Si
ini.	3	3.32	11.3055	29.6292	SLU 37	2.62	Si
fin.	3	1.99	2.2063	29.6292	SLU 37	13.43	Si
ini.	3	4.25	12.0448	29.6292	SLU 79	2.46	Si
fin.	3	2.89	3.0801	29.6292	SLU 79	9.62	Si
ini.	3	3.07	11.3705	29.6292	SLU 69	2.61	Si
fin.	3	1.7	1.9171	29.6292	SLU 69	15.46	Si
ini.	3	2.7	11.6676	29.6292	SLU 72	2.54	Si
fin.	3	1.23	1.4806	29.6292	SLU 72	20.01	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	10.6312	-31.92			21.57	8.12	SLU 27	0.25	No
fin.	3	0	1.0433	-4.77			21.57	8.12	SLU 27	1.7	Si
ini.	3	0	11.6676	-33.78			21.57	8.12	SLU 72	0.24	No
fin.	3	0	1.4806	-5.04			21.57	8.12	SLU 72	1.61	Si
ini.	3	0	11.0281	-34.59			21.57	8.12	SLU 29	0.23	No
fin.	3	0	0.4894	-5.6			21.57	8.12	SLU 29	1.45	Si
ini.	3	0	11.2708	-31.11			21.57	8.12	SLU 70	0.26	No
fin.	3	0	2.0344	-4.21			21.57	8.12	SLU 70	1.93	Si
ini.	3	0	11.3055	-31.31			21.57	8.12	SLU 37	0.26	No
fin.	3	0	2.2063	-3.69			21.57	8.12	SLU 37	2.2	Si
ini.	3	0	11.3705	-31.76			21.57	8.12	SLU 69	0.26	No
fin.	3	0	1.9171	-4.42			21.57	8.12	SLU 69	1.84	Si
ini.	3	0	11.7674	-34.43			21.57	8.12	SLU 71	0.24	No
fin.	3	0	1.3632	-5.24			21.57	8.12	SLU 71	1.55	Si
ini.	3	0	10.5314	-31.27			21.57	8.12	SLU 28	0.26	No
fin.	3	0	1.1606	-4.57			21.57	8.12	SLU 28	1.78	Si
ini.	3	0	10.9283	-33.94			21.57	8.12	SLU 30	0.24	No
fin.	3	0	0.6068	-5.39			21.57	8.12	SLU 30	1.5	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	12.0448	-31.15			21.57	8.12	SLU 79	0.26	No
fin.	3	0	3.0801	-3.34			21.57	8.12	SLU 79	2.43	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	18.43	10.3746	31.4194	SLV 13	3.03	Si
fin.	2	12.79	12.1433	31.4194	SLV 13	2.59	Si
ini.	2	18.43	10.3746	31.4194	SLV 14	3.03	Si
fin.	2	12.79	12.1433	31.4194	SLV 14	2.59	Si
ini.	2	17.09	12.9411	31.4194	SLV 15	2.43	Si
fin.	2	16.13	15.7466	31.4194	SLV 15	2	Si
ini.	2	6.28	11.0395	31.4194	SLV 12	2.85	Si
fin.	2	12.89	13.1138	31.4194	SLV 12	2.4	Si
ini.	2	10.01	8.2323	31.4194	SLD 15	3.82	Si
fin.	2	9.39	9.1733	31.4194	SLD 15	3.43	Si
ini.	2	5.38	7.4089	31.4194	SLD 12	4.24	Si
fin.	2	7.87	7.8994	31.4194	SLD 12	3.98	Si
ini.	2	17.09	12.9411	31.4194	SLV 16	2.43	Si
fin.	2	16.13	15.7466	31.4194	SLV 16	2	Si
ini.	2	5.38	7.4089	31.4194	SLD 11	4.24	Si
fin.	2	7.87	7.8994	31.4194	SLD 11	3.98	Si
ini.	2	10.01	8.2323	31.4194	SLD 16	3.82	Si
fin.	2	9.39	9.1733	31.4194	SLD 16	3.43	Si
ini.	2	6.28	11.0395	31.4194	SLV 11	2.85	Si
fin.	2	12.89	13.1138	31.4194	SLV 11	2.4	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1.0468	-15.72			32.35	12.17	SLV 4	0.77	No
fin.	2	0	-3.7867	-11.69			32.35	12.17	SLV 4	1.04	Si
ini.	2	0	6.8432	-29.73			32.35	12.17	SLV 7	0.41	No
fin.	2	0	7.2538	-8.75			32.35	12.17	SLV 7	1.39	Si
ini.	2	0	6.8432	-29.73			32.35	12.17	SLV 8	0.41	No
fin.	2	0	7.2538	-8.75			32.35	12.17	SLV 8	1.39	Si
ini.	2	0	2.4846	22.02			32.35	12.17	SLV 9	0.55	No
fin.	2	0	1.1028	12.06			32.35	12.17	SLV 9	1.01	Si
ini.	2	0	-1.7117	19.32			32.35	12.17	SLV 5	0.63	No
fin.	2	0	-4.7572	5.32			32.35	12.17	SLV 5	2.29	Si
ini.	2	0	11.0395	-27.02			32.35	12.17	SLV 11	0.45	No
fin.	2	0	13.1138	-2.01			32.35	12.17	SLV 11	6.05	Si
ini.	2	0	-1.0468	-15.72			32.35	12.17	SLV 3	0.77	No
fin.	2	0	-3.7867	-11.69			32.35	12.17	SLV 3	1.04	Si
ini.	2	0	2.4846	22.02			32.35	12.17	SLV 10	0.55	No
fin.	2	0	1.1028	12.06			32.35	12.17	SLV 10	1.01	Si
ini.	2	0	11.0395	-27.02			32.35	12.17	SLV 12	0.45	No
fin.	2	0	13.1138	-2.01			32.35	12.17	SLV 12	6.05	Si
ini.	2	0	-1.7117	19.32			32.35	12.17	SLV 6	0.63	No
fin.	2	0	-4.7572	5.32			32.35	12.17	SLV 6	2.29	Si

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.995	SLV 15	Si
V_SLV	0.409	SLV 7	No
PF_SLU	2.46	SLU 79	Si
V_SLU	0.235	SLU 29	No

### Trave di accoppiamento 135

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	11.15	11.87	0.72	-5.158	6.506	11.15	11.87	0.72	0.5	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.78	-3.3646	7.2292	SLU 72	2.15	Si
fin.	3	-1.85	0.7474	7.2292	SLU 72	9.67	Si
ini.	3	-8.38	-3.2452	7.2292	SLU 29	2.23	Si
fin.	3	-1.79	0.7231	7.2292	SLU 29	10	Si
ini.	3	-8.97	-3.3957	7.2292	SLU 80	2.13	Si
fin.	3	-1.86	0.7476	7.2292	SLU 80	9.67	Si
ini.	3	-8.68	-3.2722	7.2292	SLU 77	2.21	Si
fin.	3	-1.79	0.7141	7.2292	SLU 77	10.12	Si
ini.	3	-9.01	-3.4203	7.2292	SLU 79	2.11	Si
fin.	3	-1.87	0.7498	7.2292	SLU 79	9.64	Si
ini.	3	-8.65	-3.2476	7.2292	SLU 78	2.23	Si
fin.	3	-1.78	0.7118	7.2292	SLU 78	10.16	Si
ini.	3	-8.57	-3.2763	7.2292	SLU 37	2.21	Si
fin.	3	-1.8	0.7232	7.2292	SLU 37	10	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.81	-3.3892	7.2292	SLU 71	2.13	Si
fin.	3	-1.86	0.7497	7.2292	SLU 71	9.64	Si
ini.	3	-8.54	-3.2516	7.2292	SLU 38	2.22	Si
fin.	3	-1.79	0.721	7.2292	SLU 38	10.03	Si
ini.	3	-8.49	-3.2411	7.2292	SLU 69	2.23	Si
fin.	3	-1.78	0.7139	7.2292	SLU 69	10.13	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.2763	43.53			7.76	2.92	SLU 37	0.07	No
fin.	3	0	0.7232	-0.52			7.76	2.92	SLU 37	5.62	Si
ini.	3	0	-3.3646	44.87			7.76	2.92	SLU 72	0.07	No
fin.	3	0	0.7474	-0.75			7.76	2.92	SLU 72	3.89	Si
ini.	3	0	-3.2476	43.27			7.76	2.92	SLU 78	0.07	No
fin.	3	0	0.7118	-0.56			7.76	2.92	SLU 78	5.21	Si
ini.	3	0	-3.4203	45.49			7.76	2.92	SLU 79	0.06	No
fin.	3	0	0.7498	-0.64			7.76	2.92	SLU 79	4.59	Si
ini.	3	0	-3.3892	45.16			7.76	2.92	SLU 71	0.06	No
fin.	3	0	0.7497	-0.78			7.76	2.92	SLU 71	3.77	Si
ini.	3	0	-3.2452	43.2			7.76	2.92	SLU 29	0.07	No
fin.	3	0	0.7231	-0.66			7.76	2.92	SLU 29	4.43	Si
ini.	3	0	-3.3957	45.2			7.76	2.92	SLU 80	0.06	No
fin.	3	0	0.7476	-0.61			7.76	2.92	SLU 80	4.77	Si
ini.	3	0	-3.2411	43.23			7.76	2.92	SLU 69	0.07	No
fin.	3	0	0.7139	-0.72			7.76	2.92	SLU 69	4.03	Si
ini.	3	0	-3.2722	43.56			7.76	2.92	SLU 77	0.07	No
fin.	3	0	0.7141	-0.59			7.76	2.92	SLU 77	4.99	Si
ini.	3	0	-3.2516	43.24			7.76	2.92	SLU 38	0.07	No
fin.	3	0	0.721	-0.5			7.76	2.92	SLU 38	5.89	Si

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3.31	-1.2785	9.0194	SLD 8	7.05	Si
fin.	2	-0.67	0.2434	9.0194	SLD 8	37.06	Si
ini.	2	-3.31	-1.2785	9.0194	SLD 7	7.05	Si
fin.	2	-0.67	0.2434	9.0194	SLD 7	37.06	Si
ini.	2	-3.59	-1.5203	9.0194	SLV 7	5.93	Si
fin.	2	-0.79	0.2771	9.0194	SLV 7	32.55	Si
ini.	2	-3.59	-1.5203	9.0194	SLV 8	5.93	Si
fin.	2	-0.79	0.2771	9.0194	SLV 8	32.55	Si
ini.	2	-3.65	-1.468	9.0194	SLV 16	6.14	Si
fin.	2	-0.69	0.2526	9.0194	SLV 16	35.71	Si
ini.	2	-3.4	-1.3325	9.0194	SLD 12	6.77	Si
fin.	2	-0.68	0.2466	9.0194	SLD 12	36.58	Si
ini.	2	-3.65	-1.468	9.0194	SLV 15	6.14	Si
fin.	2	-0.69	0.2526	9.0194	SLV 15	35.71	Si
ini.	2	-3.4	-1.3325	9.0194	SLD 11	6.77	Si
fin.	2	-0.68	0.2466	9.0194	SLD 11	36.58	Si
ini.	2	-3.8	-1.6505	9.0194	SLV 11	5.46	Si
fin.	2	-0.82	0.284	9.0194	SLV 11	31.76	Si
ini.	2	-3.8	-1.6505	9.0194	SLV 12	5.46	Si
fin.	2	-0.82	0.284	9.0194	SLV 12	31.76	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1.3325	17.06			11.65	4.38	SLD 11	0.26	No
fin.	2	0	0.2466	-0.76			11.65	4.38	SLD 11	5.75	Si
ini.	2	0	-1.468	18.11			11.65	4.38	SLV 16	0.24	No
fin.	2	0	0.2526	-0.73			11.65	4.38	SLV 16	6.01	Si
ini.	2	0	-1.5203	19.28			11.65	4.38	SLV 8	0.23	No
fin.	2	0	0.2771	-1.31			11.65	4.38	SLV 8	3.34	Si
ini.	2	0	-1.6505	20.37			11.65	4.38	SLV 12	0.22	No
fin.	2	0	0.284	-1.37			11.65	4.38	SLV 12	3.19	Si
ini.	2	0	-1.468	18.11			11.65	4.38	SLV 15	0.24	No
fin.	2	0	0.2526	-0.73			11.65	4.38	SLV 15	6.01	Si
ini.	2	0	-1.5203	19.28			11.65	4.38	SLV 7	0.23	No
fin.	2	0	0.2771	-1.31			11.65	4.38	SLV 7	3.34	Si
ini.	2	0	-1.6505	20.37			11.65	4.38	SLV 11	0.22	No
fin.	2	0	0.284	-1.37			11.65	4.38	SLV 11	3.19	Si
ini.	2	0	-1.3325	17.06			11.65	4.38	SLD 12	0.26	No
fin.	2	0	0.2466	-0.76			11.65	4.38	SLD 12	5.75	Si
ini.	2	0	-1.2785	16.62			11.65	4.38	SLD 7	0.26	No
fin.	2	0	0.2434	-0.74			11.65	4.38	SLD 7	5.94	Si
ini.	2	0	-1.2785	16.62			11.65	4.38	SLD 8	0.26	No
fin.	2	0	0.2434	-0.74			11.65	4.38	SLD 8	5.94	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	5.465	SLV 11	Si
V_SLV	0.215	SLV 11	No
PF_SLU	2.114	SLU 79	Si
V_SLU	0.064	SLU 79	No

## Trave di accoppiamento 136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.513	-3.359	8.35	9.25	0.9	-7.413	-3.359	8.35	9.25	0.9	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.26	2.8102	10.3792	SLU 52	3.69	Si
fin.	3	-3.78	-0.5653	10.3792	SLU 52	18.36	Si
ini.	3	-6	2.7383	10.3792	SLU 82	3.79	Si
fin.	3	-4.04	-0.246	10.3792	SLU 82	42.18	Si
ini.	3	-7.1	2.7871	10.3792	SLU 65	3.72	Si
fin.	3	-3.78	-0.5368	10.3792	SLU 65	19.34	Si
ini.	3	-5.06	2.4659	10.3792	SLU 75	4.21	Si
fin.	3	-4.16	0.0997	10.3792	SLU 75	104.11	Si
ini.	3	-6.15	2.4847	10.3792	SLU 55	4.18	Si
fin.	3	-4.21	-0.0916	10.3792	SLU 55	113.33	Si
ini.	3	-5.95	2.4776	10.3792	SLU 31	4.19	Si
fin.	3	-3.14	-0.5721	10.3792	SLU 31	18.14	Si
ini.	3	-7.07	2.9238	10.3792	SLU 73	3.55	Si
fin.	3	-3.95	-0.5392	10.3792	SLU 73	19.25	Si
ini.	3	-5.97	2.5983	10.3792	SLU 76	3.99	Si
fin.	3	-4.37	-0.0654	10.3792	SLU 76	158.61	Si
ini.	3	-6.18	2.6247	10.3792	SLU 61	3.95	Si
fin.	3	-3.88	-0.2722	10.3792	SLU 61	38.13	Si
ini.	3	-7.29	2.6735	10.3792	SLU 44	3.88	Si
fin.	3	-3.62	-0.563	10.3792	SLU 44	18.44	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.8102	-13.71			9.7	3.65	SLU 52	0.27	No
fin.	3	0	-0.5653	0			9.7	3.65	SLU 52	1065.65	Si
ini.	3	0	2.6247	-13.23			9.7	3.65	SLU 61	0.28	No
fin.	3	0	-0.2722	1.64			9.7	3.65	SLU 61	2.23	Si
ini.	3	0	2.7383	-13.5			9.7	3.65	SLU 82	0.27	No
fin.	3	0	-0.246	1.95			9.7	3.65	SLU 82	1.87	Si
ini.	3	0	2.9238	-13.99			9.7	3.65	SLU 73	0.26	No
fin.	3	0	-0.5392	0.32			9.7	3.65	SLU 73	11.59	Si
ini.	3	0	2.3292	-12.62			9.7	3.65	SLU 67	0.29	No
fin.	3	0	0.1021	3.69			9.7	3.65	SLU 67	0.99	No
ini.	3	0	2.7871	-13.7			9.7	3.65	SLU 65	0.27	No
fin.	3	0	-0.5368	0.25			9.7	3.65	SLU 65	14.83	Si
ini.	3	0	2.4659	-12.91			9.7	3.65	SLU 75	0.28	No
fin.	3	0	0.0997	3.75			9.7	3.65	SLU 75	0.97	No
ini.	3	0	2.3523	-12.64			9.7	3.65	SLU 54	0.29	No
fin.	3	0	0.0735	3.44			9.7	3.65	SLU 54	1.06	Si
ini.	3	0	2.5983	-12.87			9.7	3.65	SLU 76	0.28	No
fin.	3	0	-0.0654	2.46			9.7	3.65	SLU 76	1.48	Si
ini.	3	0	2.6735	-13.42			9.7	3.65	SLU 44	0.27	No
fin.	3	0	-0.563	-0.07			9.7	3.65	SLU 44	55.82	Si

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-19.14	9.5576	12.1694	SLV 1	1.27	Si
fin.	2	17.66	-10.9171	12.1694	SLV 1	1.11	Si
ini.	2	-19.14	9.5576	12.1694	SLV 2	1.27	Si
fin.	2	17.66	-10.9171	12.1694	SLV 2	1.11	Si
ini.	2	-12.37	6.9636	12.1694	SLV 5	1.75	Si
fin.	2	11.9	-4.6148	12.1694	SLV 5	2.64	Si
ini.	2	9.46	-4.2589	12.1694	SLV 14	2.86	Si
fin.	2	-17.86	10.259	12.1694	SLV 14	1.19	Si
ini.	2	-16.37	7.6361	12.1694	SLV 4	1.59	Si
fin.	2	11.94	-9.9663	12.1694	SLV 4	1.22	Si
ini.	2	12.23	-6.1804	12.1694	SLV 16	1.97	Si
fin.	2	-23.57	11.2098	12.1694	SLV 16	1.09	Si
ini.	2	-12.37	6.9636	12.1694	SLV 6	1.75	Si
fin.	2	11.9	-4.6148	12.1694	SLV 6	2.64	Si
ini.	2	-16.37	7.6361	12.1694	SLV 3	1.59	Si
fin.	2	11.94	-9.9663	12.1694	SLV 3	1.22	Si
ini.	2	12.23	-6.1804	12.1694	SLV 15	1.97	Si
fin.	2	-23.57	11.2098	12.1694	SLV 15	1.09	Si
ini.	2	9.46	-4.2589	12.1694	SLV 13	2.86	Si
fin.	2	-17.86	10.259	12.1694	SLV 13	1.19	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	9.5576	-46.28			14.56	5.48	SLV 2	0.12	No
fin.	2	0	-10.9171	-45.26			14.56	5.48	SLV 2	0.12	No
ini.	2	0	-4.2589	15.6			14.56	5.48	SLV 14	0.35	No
fin.	2	0	10.259	37.57			14.56	5.48	SLV 14	0.15	No
ini.	2	0	-6.1804	27.5			14.56	5.48	SLV 15	0.2	No
fin.	2	0	11.2098	51.73			14.56	5.48	SLV 15	0.11	No
ini.	2	0	-6.1804	27.5			14.56	5.48	SLV 16	0.2	No
fin.	2	0	11.2098	51.73			14.56	5.48	SLV 16	0.11	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-3.5863	19.73			14.56	5.48	SLV 12	0.28	No
fin.	2	0	4.9074	39.26			14.56	5.48	SLV 12	0.14	No
ini.	2	0	-4.2589	15.6			14.56	5.48	SLV 13	0.35	No
fin.	2	0	10.259	37.57			14.56	5.48	SLV 13	0.15	No
ini.	2	0	6.9636	-38.51			14.56	5.48	SLV 5	0.14	No
fin.	2	0	-4.6148	-32.8			14.56	5.48	SLV 5	0.17	No
ini.	2	0	9.5576	-46.28			14.56	5.48	SLV 1	0.12	No
fin.	2	0	-10.9171	-45.26			14.56	5.48	SLV 1	0.12	No
ini.	2	0	6.9636	-38.51			14.56	5.48	SLV 6	0.14	No
fin.	2	0	-4.6148	-32.8			14.56	5.48	SLV 6	0.17	No
ini.	2	0	-3.5863	19.73			14.56	5.48	SLV 11	0.28	No
fin.	2	0	4.9074	39.26			14.56	5.48	SLV 11	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.086	SLV 15	Si
V_SLV	0.106	SLV 15	No
PF_SLU	3.55	SLU 73	Si
V_SLU	0.261	SLU 73	No

## Trave di accoppiamento 137

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.513	-3.359	11.05	11.87	0.82	-7.413	-3.359	11.05	11.87	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-5.15	-1.4413	8.9792	SLU 29	6.23	Si
fin.	3	1.9	0.3367	8.9792	SLU 29	26.66	Si
ini.	3	-5.72	-1.5557	8.9792	SLU 71	5.77	Si
fin.	3	1.45	0.2211	8.9792	SLU 71	40.61	Si
ini.	3	-6.01	-1.5805	8.9792	SLU 37	5.68	Si
fin.	3	1.3	0.2399	8.9792	SLU 37	37.43	Si
ini.	3	-6.58	-1.6948	8.9792	SLU 79	5.3	Si
fin.	3	0.85	0.1242	8.9792	SLU 79	72.29	Si
ini.	3	-5.51	-1.4823	8.9792	SLU 56	6.06	Si
fin.	3	0.87	0.0505	8.9792	SLU 56	177.81	Si
ini.	3	-6.43	-1.6649	8.9792	SLU 77	5.39	Si
fin.	3	0.77	0.0805	8.9792	SLU 77	111.54	Si
ini.	3	-5.66	-1.5123	8.9792	SLU 58	5.94	Si
fin.	3	0.95	0.0942	8.9792	SLU 58	95.31	Si
ini.	3	-5.86	-1.5505	8.9792	SLU 35	5.79	Si
fin.	3	1.22	0.1962	8.9792	SLU 35	45.77	Si
ini.	3	-5.57	-1.5257	8.9792	SLU 69	5.89	Si
fin.	3	1.37	0.1774	8.9792	SLU 69	50.62	Si
ini.	3	-6.29	-1.42	8.9792	SLU 83	6.32	Si
fin.	3	-1.2	-0.2463	8.9792	SLU 83	36.46	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.6649	20.09			8.06	3.03	SLU 77	0.15	No
fin.	3	0	0.0805	-8.72			8.06	3.03	SLU 77	0.35	No
ini.	3	0	-1.5257	18.22			8.06	3.03	SLU 69	0.17	No
fin.	3	0	0.1774	-7.52			8.06	3.03	SLU 69	0.4	No
ini.	3	0	-1.4093	18.08			8.06	3.03	SLU 80	0.17	No
fin.	3	0	-0.2171	-9.34			8.06	3.03	SLU 80	0.32	No
ini.	3	0	-1.5557	18.07			8.06	3.03	SLU 71	0.17	No
fin.	3	0	0.2211	-7.05			8.06	3.03	SLU 71	0.43	No
ini.	3	0	-1.6948	19.94			8.06	3.03	SLU 79	0.15	No
fin.	3	0	0.1242	-8.26			8.06	3.03	SLU 79	0.37	No
ini.	3	0	-1.3793	18.23			8.06	3.03	SLU 78	0.17	No
fin.	3	0	-0.2608	-9.8			8.06	3.03	SLU 78	0.31	No
ini.	3	0	-1.3304	17.89			8.06	3.03	SLU 74	0.17	No
fin.	3	0	-0.2485	-10.15			8.06	3.03	SLU 74	0.3	No
ini.	3	0	-1.5805	17.9			8.06	3.03	SLU 37	0.17	No
fin.	3	0	0.2399	-6.35			8.06	3.03	SLU 37	0.48	No
ini.	3	0	-1.42	18.54			8.06	3.03	SLU 83	0.16	No
fin.	3	0	-0.2463	-10.2			8.06	3.03	SLU 83	0.3	No
ini.	3	0	-1.5505	18.05			8.06	3.03	SLU 35	0.17	No
fin.	3	0	0.1962	-6.81			8.06	3.03	SLU 35	0.45	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-16.13	-3.2672	10.7694	SLV 12	3.3	Si
fin.	2	6.14	7.0759	10.7694	SLV 12	1.52	Si
ini.	2	17.39	4.7332	10.7694	SLV 1	2.28	Si
fin.	2	-9.33	-5.8406	10.7694	SLV 1	1.84	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1.95	-1.1552	10.7694	SLV 10	9.32	Si
fin.	2	-6.33	-5.6827	10.7694	SLV 10	1.9	Si
ini.	2	-24.25	-6.0967	10.7694	SLV 16	1.77	Si
fin.	2	5.74	5.0999	10.7694	SLV 16	2.11	Si
ini.	2	9.27	1.9037	10.7694	SLV 6	5.66	Si
fin.	2	-9.73	-7.8166	10.7694	SLV 6	1.38	Si
ini.	2	17.39	4.7332	10.7694	SLV 2	2.28	Si
fin.	2	-9.33	-5.8406	10.7694	SLV 2	1.84	Si
ini.	2	-24.25	-6.0967	10.7694	SLV 15	1.77	Si
fin.	2	5.74	5.0999	10.7694	SLV 15	2.11	Si
ini.	2	-1.95	-1.1552	10.7694	SLV 9	9.32	Si
fin.	2	-6.33	-5.6827	10.7694	SLV 9	1.9	Si
ini.	2	-16.13	-3.2672	10.7694	SLV 11	3.3	Si
fin.	2	6.14	7.0759	10.7694	SLV 11	1.52	Si
ini.	2	9.27	1.9037	10.7694	SLV 5	5.66	Si
fin.	2	-9.73	-7.8166	10.7694	SLV 5	1.38	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-5.4631	28.01			12.08	4.55	SLV 13	0.16	No
fin.	2	0	1.2723	9.01			12.08	4.55	SLV 13	0.5	No
ini.	2	0	-5.4631	28.01			12.08	4.55	SLV 14	0.16	No
fin.	2	0	1.2723	9.01			12.08	4.55	SLV 14	0.5	No
ini.	2	0	-3.2672	28.97			12.08	4.55	SLV 12	0.16	No
fin.	2	0	7.0759	4.16			12.08	4.55	SLV 12	1.09	Si
ini.	2	0	4.0996	-6.92			12.08	4.55	SLV 4	0.66	No
fin.	2	0	-2.0131	-24.62			12.08	4.55	SLV 4	0.18	No
ini.	2	0	4.7332	-14.18			12.08	4.55	SLV 1	0.32	No
fin.	2	0	-5.8406	-28.42			12.08	4.55	SLV 1	0.16	No
ini.	2	0	4.7332	-14.18			12.08	4.55	SLV 2	0.32	No
fin.	2	0	-5.8406	-28.42			12.08	4.55	SLV 2	0.16	No
ini.	2	0	-3.2672	28.97			12.08	4.55	SLV 11	0.16	No
fin.	2	0	7.0759	4.16			12.08	4.55	SLV 11	1.09	Si
ini.	2	0	-6.0967	35.27			12.08	4.55	SLV 15	0.13	No
fin.	2	0	5.0999	12.82			12.08	4.55	SLV 15	0.35	No
ini.	2	0	-6.0967	35.27			12.08	4.55	SLV 16	0.13	No
fin.	2	0	5.0999	12.82			12.08	4.55	SLV 16	0.35	No
ini.	2	0	4.0996	-6.92			12.08	4.55	SLV 3	0.66	No
fin.	2	0	-2.0131	-24.62			12.08	4.55	SLV 3	0.18	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.378	SLV 5	Si
V_SLV	0.129	SLV 15	No
PF_SLU	5.298	SLU 79	Si
V_SLU	0.151	SLU 77	No

## Trave di accoppiamento 138

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	8.35	10.35	2	-6.008	-3.359	8.35	10.35	2	0.5	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fν0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.49	6.2272	29.6292	SLU 79	4.76	Si
fin.	3	-5.55	5.2232	29.6292	SLU 79	5.67	Si
ini.	3	-9.39	6.0333	29.6292	SLU 74	4.91	Si
fin.	3	-6.65	4.65	29.6292	SLU 74	6.37	Si
ini.	3	-9.46	6.3764	29.6292	SLU 83	4.65	Si
fin.	3	-6.49	4.8496	29.6292	SLU 83	6.11	Si
ini.	3	-10.73	5.9209	29.6292	SLU 84	5	Si
fin.	3	-7.93	4.1292	29.6292	SLU 84	7.18	Si
ini.	3	-8.69	6.3196	29.6292	SLU 77	4.69	Si
fin.	3	-5.76	5.2413	29.6292	SLU 77	5.65	Si
ini.	3	-6.76	5.6649	29.6292	SLU 35	5.23	Si
fin.	3	-4.12	4.7451	29.6292	SLU 35	6.24	Si
ini.	3	-9.96	5.864	29.6292	SLU 78	5.05	Si
fin.	3	-7.19	4.5209	29.6292	SLU 78	6.55	Si
ini.	3	-7.53	5.7217	29.6292	SLU 41	5.18	Si
fin.	3	-4.85	4.3534	29.6292	SLU 41	6.81	Si
ini.	3	-10.17	6.0902	29.6292	SLU 81	4.87	Si
fin.	3	-7.39	4.2583	29.6292	SLU 81	6.96	Si
ini.	3	-9.76	5.7717	29.6292	SLU 80	5.13	Si
fin.	3	-6.99	4.5029	29.6292	SLU 80	6.58	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	6.3764	-11			21.57	8.12	SLU 83	0.74	No
fin.	3	0	4.8496	1.76			21.57	8.12	SLU 83	4.61	Si
ini.	3	0	6.3196	-10.19			21.57	8.12	SLU 77	0.8	No
fin.	3	0	5.2413	3.12			21.57	8.12	SLU 77	2.6	Si
ini.	3	0	5.6347	-10.97			21.57	8.12	SLU 82	0.74	No
fin.	3	0	3.5379	0.29			21.57	8.12	SLU 82	28.3	Si
ini.	3	0	5.5778	-10.16			21.57	8.12	SLU 75	0.8	No
fin.	3	0	3.9296	1.65			21.57	8.12	SLU 75	4.91	Si
ini.	3	0	5.4355	-9.97			21.57	8.12	SLU 39	0.81	No
fin.	3	0	3.7621	0.18			21.57	8.12	SLU 39	46.08	Si
ini.	3	0	5.864	-10.1			21.57	8.12	SLU 78	0.8	No
fin.	3	0	4.5209	2.27			21.57	8.12	SLU 78	3.57	Si
ini.	3	0	6.2272	-9.96			21.57	8.12	SLU 79	0.82	No
fin.	3	0	5.2232	3			21.57	8.12	SLU 79	2.7	Si
ini.	3	0	6.0902	-11.06			21.57	8.12	SLU 81	0.73	No
fin.	3	0	4.2583	1.14			21.57	8.12	SLU 81	7.13	Si
ini.	3	0	6.0333	-10.24			21.57	8.12	SLU 74	0.79	No
fin.	3	0	4.65	2.5			21.57	8.12	SLU 74	3.24	Si
ini.	3	0	5.9209	-10.92			21.57	8.12	SLU 84	0.74	No
fin.	3	0	4.1292	0.91			21.57	8.12	SLU 84	8.93	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-19.31	15.1811	31.4194	SLV 3	2.07	Si
fin.	2	-9.56	-2.2364	31.4194	SLV 3	14.05	Si
ini.	2	-12.43	8.5865	31.4194	SLD 3	3.66	Si
fin.	2	-7.39	0.5846	31.4194	SLD 3	53.74	Si
ini.	2	-19.31	15.1811	31.4194	SLV 4	2.07	Si
fin.	2	-9.56	-2.2364	31.4194	SLV 4	14.05	Si
ini.	2	-12.6	13.4076	31.4194	SLV 8	2.34	Si
fin.	2	2.63	4.4744	31.4194	SLV 8	7.02	Si
ini.	2	-18.15	11.0393	31.4194	SLV 1	2.85	Si
fin.	2	-15.76	-4.3731	31.4194	SLV 1	7.18	Si
ini.	2	-18.15	11.0393	31.4194	SLV 2	2.85	Si
fin.	2	-15.76	-4.3731	31.4194	SLV 2	7.18	Si
ini.	2	-12.6	13.4076	31.4194	SLV 7	2.34	Si
fin.	2	2.63	4.4744	31.4194	SLV 7	7.02	Si
ini.	2	3.72	-3.6919	31.4194	SLV 16	8.51	Si
fin.	2	4.6	9.8148	31.4194	SLV 16	3.2	Si
ini.	2	3.72	-3.6919	31.4194	SLV 15	8.51	Si
fin.	2	4.6	9.8148	31.4194	SLV 15	3.2	Si
ini.	2	-12.43	8.5865	31.4194	SLD 4	3.66	Si
fin.	2	-7.39	0.5846	31.4194	SLD 4	53.74	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	13.4076	-48.79			32.35	12.17	SLV 8	0.25	No
fin.	2	0	4.4744	-37.96			32.35	12.17	SLV 8	0.32	No
ini.	2	0	-7.8337	42.16			32.35	12.17	SLV 13	0.29	No
fin.	2	0	7.6781	54.79			32.35	12.17	SLV 13	0.22	No
ini.	2	0	-3.6919	23.74			32.35	12.17	SLV 16	0.51	No
fin.	2	0	9.8148	38.76			32.35	12.17	SLV 16	0.31	No
ini.	2	0	-6.0602	36.17			32.35	12.17	SLV 10	0.34	No
fin.	2	0	0.9673	42.27			32.35	12.17	SLV 10	0.29	No
ini.	2	0	15.1811	-54.78			32.35	12.17	SLV 3	0.22	No
fin.	2	0	-2.2364	-50.48			32.35	12.17	SLV 3	0.24	No
ini.	2	0	13.4076	-48.79			32.35	12.17	SLV 7	0.25	No
fin.	2	0	4.4744	-37.96			32.35	12.17	SLV 7	0.32	No
ini.	2	0	-3.6919	23.74			32.35	12.17	SLV 15	0.51	No
fin.	2	0	9.8148	38.76			32.35	12.17	SLV 15	0.31	No
ini.	2	0	-6.0602	36.17			32.35	12.17	SLV 9	0.34	No
fin.	2	0	0.9673	42.27			32.35	12.17	SLV 9	0.29	No
ini.	2	0	15.1811	-54.78			32.35	12.17	SLV 4	0.22	No
fin.	2	0	-2.2364	-50.48			32.35	12.17	SLV 4	0.24	No
ini.	2	0	-7.8337	42.16			32.35	12.17	SLV 14	0.29	No
fin.	2	0	7.6781	54.79			32.35	12.17	SLV 14	0.22	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.07	SLV 3	Si
V_SLV	0.222	SLV 13	No
PF_SLU	4.647	SLU 83	Si
V_SLU	0.734	SLU 81	No

#### Trave di accoppiamento 139

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	11.15	11.87	0.72	-6.008	-3.359	11.15	11.87	0.72	0.5	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3.27	0.0404	7.2292	SLU 71	178.9	Si
fin.	3	-4.69	-1.0234	7.2292	SLU 71	7.06	Si
ini.	3	-3.64	0.1766	7.2292	SLU 80	40.94	Si
fin.	3	-5.26	-1.0153	7.2292	SLU 80	7.12	Si
ini.	3	-2.98	0.1425	7.2292	SLU 56	50.73	Si
fin.	3	-4.51	-1.0324	7.2292	SLU 56	7	Si
ini.	3	-3.68	0.1749	7.2292	SLU 77	41.34	Si
fin.	3	-5.44	-1.1779	7.2292	SLU 77	6.14	Si
ini.	3	-3.63	0.1243	7.2292	SLU 37	58.16	Si
fin.	3	-5.27	-1.1035	7.2292	SLU 37	6.55	Si
ini.	3	-3.81	0.2362	7.2292	SLU 83	30.61	Si
fin.	3	-5.4	-1.0705	7.2292	SLU 83	6.75	Si
ini.	3	-3.89	0.1414	7.2292	SLU 79	51.13	Si
fin.	3	-5.62	-1.1837	7.2292	SLU 79	6.11	Si
ini.	3	-3.06	0.0739	7.2292	SLU 69	97.84	Si
fin.	3	-4.51	-1.0175	7.2292	SLU 69	7.1	Si
ini.	3	-3.42	0.1578	7.2292	SLU 35	45.82	Si
fin.	3	-5.1	-1.0976	7.2292	SLU 35	6.59	Si
ini.	3	-3.19	0.109	7.2292	SLU 58	66.31	Si
fin.	3	-4.69	-1.0382	7.2292	SLU 58	6.96	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	0.2714	1.68			7.76	2.92	SLU 84	1.74	Si
fin.	3	0	-0.9022	-13.13			7.76	2.92	SLU 84	0.22	No
ini.	3	0	0.2877	1.88			7.76	2.92	SLU 81	1.55	Si
fin.	3	0	-0.8886	-13.25			7.76	2.92	SLU 81	0.22	No
ini.	3	0	0.2616	1.86			7.76	2.92	SLU 75	1.57	Si
fin.	3	0	-0.8276	-12.73			7.76	2.92	SLU 75	0.23	No
ini.	3	0	0.2264	1.72			7.76	2.92	SLU 74	1.7	Si
fin.	3	0	-0.996	-13.57			7.76	2.92	SLU 74	0.22	No
ini.	3	0	0.1425	1.42			7.76	2.92	SLU 56	2.05	Si
fin.	3	0	-1.0324	-12.66			7.76	2.92	SLU 56	0.23	No
ini.	3	0	0.21	1.51			7.76	2.92	SLU 78	1.93	Si
fin.	3	0	-1.0095	-13.45			7.76	2.92	SLU 78	0.22	No
ini.	3	0	0.1414	1.31			7.76	2.92	SLU 79	2.23	Si
fin.	3	0	-1.1837	-13.89			7.76	2.92	SLU 79	0.21	No
ini.	3	0	0.2362	1.54			7.76	2.92	SLU 83	1.9	Si
fin.	3	0	-1.0705	-13.96			7.76	2.92	SLU 83	0.21	No
ini.	3	0	0.1749	1.37			7.76	2.92	SLU 77	2.13	Si
fin.	3	0	-1.1779	-14.29			7.76	2.92	SLU 77	0.2	No
ini.	3	0	0.1766	1.45			7.76	2.92	SLU 80	2.02	Si
fin.	3	0	-1.0153	-13.05			7.76	2.92	SLU 80	0.22	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2.87	3.4131	9.0194	SLV 7	2.64	Si
fin.	2	-4.63	-1.7517	9.0194	SLV 7	5.15	Si
ini.	2	-19.25	-4.3121	9.0194	SLV 13	2.09	Si
fin.	2	-15.55	-0.9144	9.0194	SLV 13	9.86	Si
ini.	2	15.23	4.5763	9.0194	SLV 4	1.97	Si
fin.	2	10.11	-0.128	9.0194	SLV 4	70.46	Si
ini.	2	-19.25	-4.3121	9.0194	SLV 14	2.09	Si
fin.	2	-15.55	-0.9144	9.0194	SLV 14	9.86	Si
ini.	2	15.42	3.2921	9.0194	SLV 1	2.74	Si
fin.	2	13.91	0.7611	9.0194	SLV 1	11.85	Si
ini.	2	15.23	4.5763	9.0194	SLV 3	1.97	Si
fin.	2	10.11	-0.128	9.0194	SLV 3	70.46	Si
ini.	2	-6.89	-3.1489	9.0194	SLV 10	2.86	Si
fin.	2	-0.81	0.7094	9.0194	SLV 10	12.71	Si
ini.	2	15.42	3.2921	9.0194	SLV 2	2.74	Si
fin.	2	13.91	0.7611	9.0194	SLV 2	11.85	Si
ini.	2	-6.89	-3.1489	9.0194	SLV 9	2.86	Si
fin.	2	-0.81	0.7094	9.0194	SLV 9	12.71	Si
ini.	2	2.87	3.4131	9.0194	SLV 8	2.64	Si
fin.	2	-4.63	-1.7517	9.0194	SLV 8	5.15	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	1.1318	-8.16			11.65	4.38	SLV 12	0.54	No
fin.	2	0	-2.2544	-16.96			11.65	4.38	SLV 12	0.26	No
ini.	2	0	1.1318	-8.16			11.65	4.38	SLV 11	0.54	No
fin.	2	0	-2.2544	-16.96			11.65	4.38	SLV 11	0.26	No
ini.	2	0	4.5763	-9.94			11.65	4.38	SLV 3	0.44	No
fin.	2	0	-0.128	-16.7			11.65	4.38	SLV 3	0.26	No
ini.	2	0	-3.1489	16.29			11.65	4.38	SLV 9	0.27	No
fin.	2	0	0.7094	3.49			11.65	4.38	SLV 9	1.25	Si
ini.	2	0	-4.3121	13.3			11.65	4.38	SLV 14	0.33	No
fin.	2	0	-0.9144	0.05			11.65	4.38	SLV 14	85.72	Si
ini.	2	0	-4.3121	13.3			11.65	4.38	SLV 13	0.33	No
fin.	2	0	-0.9144	0.05			11.65	4.38	SLV 13	85.72	Si
ini.	2	0	3.4131	-12.93			11.65	4.38	SLV 8	0.34	No
fin.	2	0	-1.7517	-20.14			11.65	4.38	SLV 8	0.22	No
ini.	2	0	-3.1489	16.29			11.65	4.38	SLV 10	0.27	No
fin.	2	0	0.7094	3.49			11.65	4.38	SLV 10	1.25	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.5763	-9.94			11.65	4.38	SLV 4	0.44	No
fin.	2	0	-0.128	-16.7			11.65	4.38	SLV 4	0.26	No
ini.	2	0	3.4131	-12.93			11.65	4.38	SLV 7	0.34	No
fin.	2	0	-1.7517	-20.14			11.65	4.38	SLV 7	0.22	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.971	SLV 3	Si
V_SLV	0.218	SLV 7	No
PF_SLU	6.107	SLU 79	Si
V_SLU	0.205	SLU 77	No

## Trave di accoppiamento 140

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.283	-3.359	8.35	9.25	0.9	-3.183	-3.359	8.35	9.25	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.08	-3.4701	10.3792	SLU 84	2.99	Si
fin.	3	-15.92	4.6993	10.3792	SLU 84	2.21	Si
ini.	3	-0.15	-3.6204	10.3792	SLU 73	2.87	Si
fin.	3	-16.59	4.7284	10.3792	SLU 73	2.2	Si
ini.	3	0.02	-2.9743	10.3792	SLU 74	3.49	Si
fin.	3	-13.78	4.296	10.3792	SLU 74	2.42	Si
ini.	3	-0.1	-3.048	10.3792	SLU 83	3.41	Si
fin.	3	-14.23	4.3891	10.3792	SLU 83	2.36	Si
ini.	3	-0.01	-3.5128	10.3792	SLU 82	2.95	Si
fin.	3	-15.99	4.7093	10.3792	SLU 82	2.2	Si
ini.	3	-0.31	-3.2536	10.3792	SLU 80	3.19	Si
fin.	3	-15.32	4.5015	10.3792	SLU 80	2.31	Si
ini.	3	-0.22	-3.5777	10.3792	SLU 76	2.9	Si
fin.	3	-16.52	4.7184	10.3792	SLU 76	2.2	Si
ini.	3	-0.03	-3.3535	10.3792	SLU 78	3.09	Si
fin.	3	-15.39	4.5962	10.3792	SLU 78	2.26	Si
ini.	3	0.04	-3.3963	10.3792	SLU 75	3.06	Si
fin.	3	-15.46	4.6062	10.3792	SLU 75	2.25	Si
ini.	3	-0.03	-3.0908	10.3792	SLU 81	3.36	Si
fin.	3	-14.31	4.3991	10.3792	SLU 81	2.36	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.3535	10.02			9.7	3.65	SLU 78	0.36	No
fin.	3	0	4.5962	25.57			9.7	3.65	SLU 78	0.14	No
ini.	3	0	-3.3963	10.47			9.7	3.65	SLU 75	0.35	No
fin.	3	0	4.6062	25.31			9.7	3.65	SLU 75	0.14	No
ini.	3	0	-2.9743	8.73			9.7	3.65	SLU 74	0.42	No
fin.	3	0	4.296	23.9			9.7	3.65	SLU 74	0.15	No
ini.	3	0	-3.4701	10.96			9.7	3.65	SLU 84	0.33	No
fin.	3	0	4.6993	25.46			9.7	3.65	SLU 84	0.14	No
ini.	3	0	-2.9315	8.28			9.7	3.65	SLU 77	0.44	No
fin.	3	0	4.286	24.16			9.7	3.65	SLU 77	0.15	No
ini.	3	0	-3.048	9.22			9.7	3.65	SLU 83	0.4	No
fin.	3	0	4.3891	24.05			9.7	3.65	SLU 83	0.15	No
ini.	3	0	-3.2536	9.82			9.7	3.65	SLU 80	0.37	No
fin.	3	0	4.5015	24.94			9.7	3.65	SLU 80	0.15	No
ini.	3	0	-3.5128	11.41			9.7	3.65	SLU 82	0.32	No
fin.	3	0	4.7093	25.2			9.7	3.65	SLU 82	0.14	No
ini.	3	0	-3.6204	11.87			9.7	3.65	SLU 73	0.31	No
fin.	3	0	4.7284	25.36			9.7	3.65	SLU 73	0.14	No
ini.	3	0	-3.5777	11.43			9.7	3.65	SLU 76	0.32	No
fin.	3	0	4.7184	25.62			9.7	3.65	SLU 76	0.14	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-11.66	5.4306	12.1694	SLV 4	2.24	Si
fin.	2	10.47	-2.5145	12.1694	SLV 4	4.84	Si
ini.	2	10.78	-9.3178	12.1694	SLV 13	1.31	Si
fin.	2	-29.92	8.3463	12.1694	SLV 13	1.46	Si
ini.	2	4.38	-5.0904	12.1694	SLD 14	2.39	Si
fin.	2	-18.34	5.2312	12.1694	SLD 14	2.33	Si
ini.	2	10.78	-9.3178	12.1694	SLV 14	1.31	Si
fin.	2	-29.92	8.3463	12.1694	SLV 14	1.46	Si
ini.	2	8.01	-7.2695	12.1694	SLV 16	1.67	Si
fin.	2	-22.82	6.7719	12.1694	SLV 16	1.8	Si
ini.	2	7.14	-7.2624	12.1694	SLV 10	1.68	Si
fin.	2	-26.56	6.9329	12.1694	SLV 10	1.76	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	8.01	-7.2695	12.1694	SLV 15	1.67	Si
fin.	2	-22.82	6.7719	12.1694	SLV 15	1.8	Si
ini.	2	4.38	-5.0904	12.1694	SLD 13	2.39	Si
fin.	2	-18.34	5.2312	12.1694	SLD 13	2.33	Si
ini.	2	-11.66	5.4306	12.1694	SLV 3	2.24	Si
fin.	2	10.47	-2.5145	12.1694	SLV 3	4.84	Si
ini.	2	7.14	-7.2624	12.1694	SLV 9	1.68	Si
fin.	2	-26.56	6.9329	12.1694	SLV 9	1.76	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-9.3178	29.37			14.56	5.48	SLV 14	0.19	No
fin.	2	0	8.3463	45.62			14.56	5.48	SLV 14	0.12	No
ini.	2	0	-4.2425	16.53			14.56	5.48	SLD 15	0.33	No
fin.	2	0	4.5806	25.81			14.56	5.48	SLD 15	0.21	No
ini.	2	0	-7.2695	30.8			14.56	5.48	SLV 16	0.18	No
fin.	2	0	6.7719	38.33			14.56	5.48	SLV 16	0.14	No
ini.	2	0	-7.2695	30.8			14.56	5.48	SLV 15	0.18	No
fin.	2	0	6.7719	38.33			14.56	5.48	SLV 15	0.14	No
ini.	2	0	-9.3178	29.37			14.56	5.48	SLV 13	0.19	No
fin.	2	0	8.3463	45.62			14.56	5.48	SLV 13	0.12	No
ini.	2	0	-5.0904	15.91			14.56	5.48	SLD 13	0.34	No
fin.	2	0	5.2312	28.81			14.56	5.48	SLD 13	0.19	No
ini.	2	0	-5.0904	15.91			14.56	5.48	SLD 14	0.34	No
fin.	2	0	5.2312	28.81			14.56	5.48	SLD 14	0.19	No
ini.	2	0	-7.2624	10.68			14.56	5.48	SLV 9	0.51	No
fin.	2	0	6.9329	36.13			14.56	5.48	SLV 9	0.15	No
ini.	2	0	-4.2425	16.53			14.56	5.48	SLD 16	0.33	No
fin.	2	0	4.5806	25.81			14.56	5.48	SLD 16	0.21	No
ini.	2	0	-7.2624	10.68			14.56	5.48	SLV 10	0.51	No
fin.	2	0	6.9329	36.13			14.56	5.48	SLV 10	0.15	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.306	SLV 13	Si
V_SLV	0.12	SLV 13	No
PF_SLU	2.195	SLU 73	Si
V_SLU	0.143	SLU 76	No

## Trave di accoppiamento 141

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.283	-3.359	11.05	11.87	0.82	-3.183	-3.359	11.05	11.87	0.82	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-11.67	-3.8058	8.9792	SLU 81	2.36	Si
fin.	3	-0.59	1.0061	8.9792	SLU 81	8.92	Si
ini.	3	-12.11	-4.1144	8.9792	SLU 84	2.18	Si
fin.	3	0.47	1.1993	8.9792	SLU 84	7.49	Si
ini.	3	-10.98	-3.9209	8.9792	SLU 80	2.29	Si
fin.	3	1.26	1.0896	8.9792	SLU 80	8.24	Si
ini.	3	-11.95	-4.1213	8.9792	SLU 76	2.18	Si
fin.	3	0.94	1.31	8.9792	SLU 76	6.85	Si
ini.	3	-12.51	-4.1112	8.9792	SLU 82	2.18	Si
fin.	3	-0.14	1.2543	8.9792	SLU 82	7.16	Si
ini.	3	-11.07	-4.017	8.9792	SLU 78	2.24	Si
fin.	3	1.47	1.1353	8.9792	SLU 78	7.91	Si
ini.	3	-11.47	-4.0138	8.9792	SLU 75	2.24	Si
fin.	3	0.86	1.1903	8.9792	SLU 75	7.54	Si
ini.	3	-11.26	-3.809	8.9792	SLU 83	2.36	Si
fin.	3	0.02	0.9511	8.9792	SLU 83	9.44	Si
ini.	3	-10.22	-3.7116	8.9792	SLU 77	2.42	Si
fin.	3	1.02	0.8871	8.9792	SLU 77	10.12	Si
ini.	3	-12.35	-4.1181	8.9792	SLU 73	2.18	Si
fin.	3	0.32	1.365	8.9792	SLU 73	6.58	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4.017	23.57			8.06	3.03	SLU 78	0.13	No
fin.	3	0	1.1353	-2.21			8.06	3.03	SLU 78	1.37	Si
ini.	3	0	-4.1144	23.88			8.06	3.03	SLU 84	0.13	No
fin.	3	0	1.1993	-2.07			8.06	3.03	SLU 84	1.46	Si
ini.	3	0	-4.1213	23.53			8.06	3.03	SLU 76	0.13	No
fin.	3	0	1.31	-1			8.06	3.03	SLU 76	3.02	Si
ini.	3	0	-3.7116	22.43			8.06	3.03	SLU 77	0.14	No
fin.	3	0	0.8871	-3.56			8.06	3.03	SLU 77	0.85	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.809	22.74			8.06	3.03	SLU 83	0.13	No
fin.	3	0	0.9511	-3.42			8.06	3.03	SLU 83	0.89	No
ini.	3	0	-4.0138	23.36			8.06	3.03	SLU 75	0.13	No
fin.	3	0	1.1903	-1.97			8.06	3.03	SLU 75	1.54	Si
ini.	3	0	-3.9209	22.99			8.06	3.03	SLU 80	0.13	No
fin.	3	0	1.0896	-2.13			8.06	3.03	SLU 80	1.42	Si
ini.	3	0	-4.1112	23.67			8.06	3.03	SLU 82	0.13	No
fin.	3	0	1.2543	-1.84			8.06	3.03	SLU 82	1.65	Si
ini.	3	0	-3.8058	22.53			8.06	3.03	SLU 81	0.13	No
fin.	3	0	1.0061	-3.19			8.06	3.03	SLU 81	0.95	No
ini.	3	0	-4.1181	23.32			8.06	3.03	SLU 73	0.13	No
fin.	3	0	1.365	-0.77			8.06	3.03	SLU 73	3.94	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-15.41	-6.238	10.7694	SLV 9	1.73	Si
fin.	2	7.97	4.0736	10.7694	SLV 9	2.64	Si
ini.	2	-10.62	-4.0268	10.7694	SLD 9	2.67	Si
fin.	2	3.28	2.0775	10.7694	SLD 9	5.18	Si
ini.	2	-11.36	-5.382	10.7694	SLV 16	2	Si
fin.	2	7.25	3.2816	10.7694	SLV 16	3.28	Si
ini.	2	-11.36	-5.382	10.7694	SLV 15	2	Si
fin.	2	7.25	3.2816	10.7694	SLV 15	3.28	Si
ini.	2	-10.62	-4.0268	10.7694	SLD 10	2.67	Si
fin.	2	3.28	2.0775	10.7694	SLD 10	5.18	Si
ini.	2	-15.18	-6.9871	10.7694	SLV 14	1.54	Si
fin.	2	10.5	4.7394	10.7694	SLV 14	2.27	Si
ini.	2	-15.18	-6.9871	10.7694	SLV 13	1.54	Si
fin.	2	10.5	4.7394	10.7694	SLV 13	2.27	Si
ini.	2	-15.41	-6.238	10.7694	SLV 10	1.73	Si
fin.	2	7.97	4.0736	10.7694	SLV 10	2.64	Si
ini.	2	-10.59	-4.3692	10.7694	SLD 14	2.46	Si
fin.	2	4.37	2.3756	10.7694	SLD 14	4.53	Si
ini.	2	-10.59	-4.3692	10.7694	SLD 13	2.46	Si
fin.	2	4.37	2.3756	10.7694	SLD 13	4.53	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-6.238	28.65			12.08	4.55	SLV 10	0.16	No
fin.	2	0	4.0736	16.78			12.08	4.55	SLV 10	0.27	No
ini.	2	0	-6.9871	31.73			12.08	4.55	SLV 13	0.14	No
fin.	2	0	4.7394	16.81			12.08	4.55	SLV 13	0.27	No
ini.	2	0	-4.3692	21.88			12.08	4.55	SLD 14	0.21	No
fin.	2	0	2.3756	5.94			12.08	4.55	SLD 14	0.77	No
ini.	2	0	-5.382	25.87			12.08	4.55	SLV 16	0.18	No
fin.	2	0	3.2816	8.1			12.08	4.55	SLV 16	0.56	No
ini.	2	0	2.1089	-2.5			12.08	4.55	SLV 3	1.82	Si
fin.	2	0	-3.4801	-21.04			12.08	4.55	SLV 3	0.22	No
ini.	2	0	-4.3692	21.88			12.08	4.55	SLD 13	0.21	No
fin.	2	0	2.3756	5.94			12.08	4.55	SLD 13	0.77	No
ini.	2	0	2.1089	-2.5			12.08	4.55	SLV 4	1.82	Si
fin.	2	0	-3.4801	-21.04			12.08	4.55	SLV 4	0.22	No
ini.	2	0	-5.382	25.87			12.08	4.55	SLV 15	0.18	No
fin.	2	0	3.2816	8.1			12.08	4.55	SLV 15	0.56	No
ini.	2	0	-6.238	28.65			12.08	4.55	SLV 9	0.16	No
fin.	2	0	4.0736	16.78			12.08	4.55	SLV 9	0.27	No
ini.	2	0	-6.9871	31.73			12.08	4.55	SLV 14	0.14	No
fin.	2	0	4.7394	16.81			12.08	4.55	SLV 14	0.27	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.541	SLV 13	Si
V_SLV	0.143	SLV 13	No
PF_SLU	2.179	SLU 76	Si
V_SLU	0.127	SLU 84	No

### Trave di accoppiamento 142

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.063	5.951	8.35	9.25	0.9	-2.963	5.951	8.35	9.25	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.15	-0.5422	10.3792	SLU 61	19.14	Si
fin.	3	-3.75	1.6069	10.3792	SLU 61	6.46	Si
ini.	3	1.11	-0.5092	10.3792	SLU 60	20.38	Si
fin.	3	-3.67	1.5735	10.3792	SLU 60	6.6	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.08	-0.4968	10.3792	SLU 52	20.89	Si
fin.	3	-3.42	1.481	10.3792	SLU 52	7.01	Si
ini.	3	1.06	-0.4651	10.3792	SLU 18	22.31	Si
fin.	3	-3.04	1.335	10.3792	SLU 18	7.77	Si
ini.	3	1.1	-0.4981	10.3792	SLU 19	20.84	Si
fin.	3	-3.12	1.3684	10.3792	SLU 19	7.59	Si
ini.	3	1.53	-0.5475	10.3792	SLU 39	18.96	Si
fin.	3	-2.76	1.3758	10.3792	SLU 39	7.54	Si
ini.	3	1.55	-0.5792	10.3792	SLU 73	17.92	Si
fin.	3	-3.14	1.5218	10.3792	SLU 73	6.82	Si
ini.	3	1.58	-0.5915	10.3792	SLU 81	17.55	Si
fin.	3	-3.39	1.6143	10.3792	SLU 81	6.43	Si
ini.	3	1.58	-0.5805	10.3792	SLU 40	17.88	Si
fin.	3	-2.84	1.4091	10.3792	SLU 40	7.37	Si
ini.	3	1.62	-0.6245	10.3792	SLU 82	16.62	Si
fin.	3	-3.47	1.6476	10.3792	SLU 82	6.3	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.6245	-1			9.7	3.65	SLU 82	3.64	Si
fin.	3	0	1.6476	9.09			9.7	3.65	SLU 82	0.4	No
ini.	3	0	-0.5915	-1.32			9.7	3.65	SLU 81	2.77	Si
fin.	3	0	1.6143	9.09			9.7	3.65	SLU 81	0.4	No
ini.	3	0	-0.5092	-1.34			9.7	3.65	SLU 60	2.73	Si
fin.	3	0	1.5735	8.7			9.7	3.65	SLU 60	0.42	No
ini.	3	0	-0.4968	-1.26			9.7	3.65	SLU 52	2.89	Si
fin.	3	0	1.481	8.2			9.7	3.65	SLU 52	0.45	No
ini.	3	0	-0.5792	-1.24			9.7	3.65	SLU 73	2.94	Si
fin.	3	0	1.5218	8.6			9.7	3.65	SLU 73	0.42	No
ini.	3	0	-0.5805	-0.35			9.7	3.65	SLU 40	10.57	Si
fin.	3	0	1.4091	7.57			9.7	3.65	SLU 40	0.48	No
ini.	3	0	-0.5475	-0.66			9.7	3.65	SLU 39	5.54	Si
fin.	3	0	1.3758	7.57			9.7	3.65	SLU 39	0.48	No
ini.	3	0	-0.4856	-2.87			9.7	3.65	SLU 75	1.27	Si
fin.	3	0	1.0799	7.65			9.7	3.65	SLU 75	0.48	No
ini.	3	0	-0.4526	-3.18			9.7	3.65	SLU 74	1.15	Si
fin.	3	0	1.0465	7.65			9.7	3.65	SLU 74	0.48	No
ini.	3	0	-0.5422	-1.03			9.7	3.65	SLU 61	3.56	Si
fin.	3	0	1.6069	8.7			9.7	3.65	SLU 61	0.42	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-20.47	5.6247	12.1694	SLV 5	2.16	Si
fin.	2	1.37	-6.1879	12.1694	SLV 5	1.97	Si
ini.	2	25.57	-8.3111	12.1694	SLV 16	1.46	Si
fin.	2	-7.94	10.0636	12.1694	SLV 16	1.21	Si
ini.	2	-23.75	7.6928	12.1694	SLV 1	1.58	Si
fin.	2	4.03	-8.1599	12.1694	SLV 1	1.49	Si
ini.	2	16.35	-5.9815	12.1694	SLV 14	2.03	Si
fin.	2	-6.94	7.1584	12.1694	SLV 14	1.7	Si
ini.	2	-20.47	5.6247	12.1694	SLV 6	2.16	Si
fin.	2	1.37	-6.1879	12.1694	SLV 6	1.97	Si
ini.	2	22.29	-6.243	12.1694	SLV 11	1.95	Si
fin.	2	-5.28	8.0916	12.1694	SLV 11	1.5	Si
ini.	2	25.57	-8.3111	12.1694	SLV 15	1.46	Si
fin.	2	-7.94	10.0636	12.1694	SLV 15	1.21	Si
ini.	2	16.35	-5.9815	12.1694	SLV 13	2.03	Si
fin.	2	-6.94	7.1584	12.1694	SLV 13	1.7	Si
ini.	2	22.29	-6.243	12.1694	SLV 12	1.95	Si
fin.	2	-5.28	8.0916	12.1694	SLV 12	1.5	Si
ini.	2	-23.75	7.6928	12.1694	SLV 2	1.58	Si
fin.	2	4.03	-8.1599	12.1694	SLV 2	1.49	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-6.243	7.08			14.56	5.48	SLV 12	0.77	No
fin.	2	0	8.0916	26.13			14.56	5.48	SLV 12	0.21	No
ini.	2	0	5.3632	-30.48			14.56	5.48	SLV 3	0.18	No
fin.	2	0	-5.2547	-19.3			14.56	5.48	SLV 3	0.28	No
ini.	2	0	7.6928	-30.68			14.56	5.48	SLV 1	0.18	No
fin.	2	0	-8.1599	-26.23			14.56	5.48	SLV 1	0.21	No
ini.	2	0	-5.9815	26.75			14.56	5.48	SLV 13	0.2	No
fin.	2	0	7.1584	31.23			14.56	5.48	SLV 13	0.18	No
ini.	2	0	-6.243	7.08			14.56	5.48	SLV 11	0.77	No
fin.	2	0	8.0916	26.13			14.56	5.48	SLV 11	0.21	No
ini.	2	0	-8.3111	26.95			14.56	5.48	SLV 15	0.2	No
fin.	2	0	10.0636	38.16			14.56	5.48	SLV 15	0.14	No
ini.	2	0	7.6928	-30.68			14.56	5.48	SLV 2	0.18	No
fin.	2	0	-8.1599	-26.23			14.56	5.48	SLV 2	0.21	No
ini.	2	0	5.3632	-30.48			14.56	5.48	SLV 4	0.18	No
fin.	2	0	-5.2547	-19.3			14.56	5.48	SLV 4	0.28	No
ini.	2	0	-5.9815	26.75			14.56	5.48	SLV 14	0.2	No
fin.	2	0	7.1584	31.23			14.56	5.48	SLV 14	0.18	No
ini.	2	0	-8.3111	26.95			14.56	5.48	SLV 16	0.2	No
fin.	2	0	10.0636	38.16			14.56	5.48	SLV 16	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.209	SLV 15	Si





Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.144	SLV 15	No
PF SLU	6.3	SLU 82	Si
V SLU	0.402	SLU 82	No

## Trave di accoppiamento 143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.063	5.951	11.05	11.87	0.82	-2.963	5.951	11.05	11.87	0.82	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2.04	-2.0691	8.9792	SLU 83	4.34	Si
fin.	3	5.45	1.1743	8.9792	SLU 83	7.65	Si
ini.	3	-3.95	-2.1314	8.9792	SLU 73	4.21	Si
fin.	3	3.55	1.1746	8.9792	SLU 73	7.64	Si
ini.	3	-2.17	-2.094	8.9792	SLU 84	4.29	Si
fin.	3	5.45	1.2009	8.9792	SLU 84	7.48	Si
ini.	3	-4.21	-2.0086	8.9792	SLU 60	4.47	Si
fin.	3	2.69	1.0651	8.9792	SLU 60	8.43	Si
ini.	3	-1.74	-2.0121	8.9792	SLU 74	4.46	Si
fin.	3	5.48	1.1503	8.9792	SLU 74	7.81	Si
ini.	3	-4.34	-2.0335	8.9792	SLU 61	4.42	Si
fin.	3	2.69	1.0917	8.9792	SLU 61	8.22	Si
ini.	3	-1.67	-1.9684	8.9792	SLU 76	4.56	Si
fin.	3	5.62	1.17	8.9792	SLU 76	7.67	Si
ini.	3	-4.45	-2.257	8.9792	SLU 82	3.98	Si
fin.	3	3.39	1.2055	8.9792	SLU 82	7.45	Si
ini.	3	-1.87	-2.0371	8.9792	SLU 75	4.41	Si
fin.	3	5.49	1.177	8.9792	SLU 75	7.63	Si
ini.	3	-4.32	-2.2321	8.9792	SLU 81	4.02	Si
fin.	3	3.38	1.1789	8.9792	SLU 81	7.62	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.1314	18.01			8.06	3.03	SLU 73	0.17	No
fin.	3	0	1.1746	-2.03			8.06	3.03	SLU 73	1.5	Si
ini.	3	0	-2.0335	17.13			8.06	3.03	SLU 61	0.18	No
fin.	3	0	1.0917	-2.08			8.06	3.03	SLU 61	1.46	Si
ini.	3	0	-2.257	19			8.06	3.03	SLU 82	0.16	No
fin.	3	0	1.2055	-2.24			8.06	3.03	SLU 82	1.36	Si
ini.	3	0	-2.094	18.18			8.06	3.03	SLU 84	0.17	No
fin.	3	0	1.2009	-2.06			8.06	3.03	SLU 84	1.47	Si
ini.	3	0	-2.0371	17.75			8.06	3.03	SLU 75	0.17	No
fin.	3	0	1.177	-2.09			8.06	3.03	SLU 75	1.45	Si
ini.	3	0	-2.0691	18.09			8.06	3.03	SLU 83	0.17	No
fin.	3	0	1.1743	-2.19			8.06	3.03	SLU 83	1.38	Si
ini.	3	0	-2.0121	17.66			8.06	3.03	SLU 74	0.17	No
fin.	3	0	1.1503	-2.22			8.06	3.03	SLU 74	1.36	Si
ini.	3	0	-2.0086	17.04			8.06	3.03	SLU 60	0.18	No
fin.	3	0	1.0651	-2.22			8.06	3.03	SLU 60	1.37	Si
ini.	3	0	-2.2321	18.91			8.06	3.03	SLU 81	0.16	No
fin.	3	0	1.1789	-2.37			8.06	3.03	SLU 81	1.28	Si
ini.	3	0	-1.9684	17.18			8.06	3.03	SLU 76	0.18	No
fin.	3	0	1.17	-1.85			8.06	3.03	SLU 76	1.63	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.67	-5.2617	10.7694	SLV 13	2.05	Si
fin.	2	10.59	5.492	10.7694	SLV 13	1.96	Si
ini.	2	-13.79	-7.31	10.7694	SLV 16	1.47	Si
fin.	2	16.26	8.4217	10.7694	SLV 16	1.28	Si
ini.	2	-11.92	-6.278	10.7694	SLV 12	1.72	Si
fin.	2	15.41	7.5225	10.7694	SLV 12	1.43	Si
ini.	2	-9.67	-5.2617	10.7694	SLV 14	2.05	Si
fin.	2	10.59	5.492	10.7694	SLV 14	1.96	Si
ini.	2	7.54	3.4821	10.7694	SLV 6	3.09	Si
fin.	2	-9.91	-5.9437	10.7694	SLV 6	1.81	Si
ini.	2	-13.79	-7.31	10.7694	SLV 15	1.47	Si
fin.	2	16.26	8.4217	10.7694	SLV 15	1.28	Si
ini.	2	-11.92	-6.278	10.7694	SLV 11	1.72	Si
fin.	2	15.41	7.5225	10.7694	SLV 11	1.43	Si
ini.	2	9.41	4.514	10.7694	SLV 2	2.39	Si
fin.	2	-10.76	-6.8429	10.7694	SLV 2	1.57	Si
ini.	2	9.41	4.514	10.7694	SLV 1	2.39	Si
fin.	2	-10.76	-6.8429	10.7694	SLV 1	1.57	Si
ini.	2	7.54	3.4821	10.7694	SLV 5	3.09	Si
fin.	2	-9.91	-5.9437	10.7694	SLV 5	1.81	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.4821	-10.9			12.08	4.55	SLV 6	0.42	No
fin.	2	0	-5.9437	-24.01			12.08	4.55	SLV 6	0.19	No
ini.	2	0	4.514	-14.62			12.08	4.55	SLV 1	0.31	No
fin.	2	0	-6.8429	-28.53			12.08	4.55	SLV 1	0.16	No
ini.	2	0	-7.31	38.87			12.08	4.55	SLV 16	0.12	No
fin.	2	0	8.4217	25.41			12.08	4.55	SLV 16	0.18	No
ini.	2	0	4.514	-14.62			12.08	4.55	SLV 2	0.31	No
fin.	2	0	-6.8429	-28.53			12.08	4.55	SLV 2	0.16	No
ini.	2	0	3.4821	-10.9			12.08	4.55	SLV 5	0.42	No
fin.	2	0	-5.9437	-24.01			12.08	4.55	SLV 5	0.19	No
ini.	2	0	-7.31	38.87			12.08	4.55	SLV 15	0.12	No
fin.	2	0	8.4217	25.41			12.08	4.55	SLV 15	0.18	No
ini.	2	0	-5.2617	28.97			12.08	4.55	SLV 13	0.16	No
fin.	2	0	5.492	15.95			12.08	4.55	SLV 13	0.29	No
ini.	2	0	-6.278	35.15			12.08	4.55	SLV 12	0.13	No
fin.	2	0	7.5225	20.89			12.08	4.55	SLV 12	0.22	No
ini.	2	0	-5.2617	28.97			12.08	4.55	SLV 14	0.16	No
fin.	2	0	5.492	15.95			12.08	4.55	SLV 14	0.29	No
ini.	2	0	-6.278	35.15			12.08	4.55	SLV 11	0.13	No
fin.	2	0	7.5225	20.89			12.08	4.55	SLV 11	0.22	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.279	SLV 15	Si
V_SLV	0.117	SLV 15	No
PF_SLU	3.978	SLU 82	Si
V_SLU	0.16	SLU 82	No

#### Trave di accoppiamento 144

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-24.678	1.266	13.97	15.03	1.06	-24.678	2.066	13.97	15.03	1.06	0.8	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	26.13	3.4247	13.1792	SLU 41	3.85	Si
fin.	3	26.22	-2.3475	13.1792	SLU 41	5.61	Si
ini.	3	36.32	3.3264	13.1792	SLU 78	3.96	Si
fin.	3	36.44	-1.5205	13.1792	SLU 78	8.67	Si
ini.	3	18.47	3.3751	13.1792	SLU 39	3.9	Si
fin.	3	18.51	-2.7775	13.1792	SLU 39	4.74	Si
ini.	3	34.76	3.5975	13.1792	SLU 77	3.66	Si
fin.	3	34.89	-2.0194	13.1792	SLU 77	6.53	Si
ini.	3	29.97	3.4784	13.1792	SLU 84	3.79	Si
fin.	3	30.06	-2.0659	13.1792	SLU 84	6.38	Si
ini.	3	20.75	3.6998	13.1792	SLU 81	3.56	Si
fin.	3	20.79	-2.9948	13.1792	SLU 81	4.4	Si
ini.	3	27.1	3.5479	13.1792	SLU 74	3.71	Si
fin.	3	27.18	-2.4494	13.1792	SLU 74	5.38	Si
ini.	3	35.58	3.5093	13.1792	SLU 79	3.76	Si
fin.	3	35.71	-1.8213	13.1792	SLU 79	7.24	Si
ini.	3	28.41	3.7494	13.1792	SLU 83	3.52	Si
fin.	3	28.5	-2.5648	13.1792	SLU 83	5.14	Si
ini.	3	22.31	3.4288	13.1792	SLU 82	3.84	Si
fin.	3	22.35	-2.496	13.1792	SLU 82	5.28	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	3.4288	-5.27			11.43	4.3	SLU 82	0.82	No
fin.	3	0	-2.496	-10.07			11.43	4.3	SLU 82	0.43	No
ini.	3	0	3.5975	-4.85			11.43	4.3	SLU 77	0.89	No
fin.	3	0	-2.0194	-9.5			11.43	4.3	SLU 77	0.45	No
ini.	3	0	3.4247	-5.53			11.43	4.3	SLU 41	0.78	No
fin.	3	0	-2.3475	-9.16			11.43	4.3	SLU 41	0.47	No
ini.	3	0	3.0804	-4.9			11.43	4.3	SLU 60	0.88	No
fin.	3	0	-2.524	-9.68			11.43	4.3	SLU 60	0.44	No
ini.	3	0	3.7494	-5.73			11.43	4.3	SLU 83	0.75	No
fin.	3	0	-2.5648	-10.45			11.43	4.3	SLU 83	0.41	No
ini.	3	0	3.4784	-4.78			11.43	4.3	SLU 84	0.9	No
fin.	3	0	-2.0659	-9.49			11.43	4.3	SLU 84	0.45	No
ini.	3	0	3.5093	-4.49			11.43	4.3	SLU 79	0.96	No
fin.	3	0	-1.8213	-9.12			11.43	4.3	SLU 79	0.47	No
ini.	3	0	3.5479	-5.34			11.43	4.3	SLU 74	0.81	No
fin.	3	0	-2.4494	-10.07			11.43	4.3	SLU 74	0.43	No
ini.	3	0	3.3751	-6.02			11.43	4.3	SLU 39	0.71	No
fin.	3	0	-2.7775	-9.73			11.43	4.3	SLU 39	0.44	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	3.6998	-6.22			11.43	4.3	SLU 81	0.69	No
fin.	3	0	-2.9948	-11.03			11.43	4.3	SLU 81	0.39	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	19.09	8.0916	14.9694	SLV 8	1.85	Si
fin.	2	19.04	-7.6852	14.9694	SLV 8	1.95	Si
ini.	2	16.31	4.7269	14.9694	SLD 8	3.17	Si
fin.	2	16.24	-4.2251	14.9694	SLD 8	3.54	Si
ini.	2	19.09	8.0916	14.9694	SLV 7	1.85	Si
fin.	2	19.04	-7.6852	14.9694	SLV 7	1.95	Si
ini.	2	9.08	-3.771	14.9694	SLV 10	3.97	Si
fin.	2	9.18	4.4741	14.9694	SLV 10	3.35	Si
ini.	2	15.52	6.8666	14.9694	SLV 11	2.18	Si
fin.	2	14.77	-6.4049	14.9694	SLV 11	2.34	Si
ini.	2	20.99	5.7976	14.9694	SLV 4	2.58	Si
fin.	2	22.07	-5.3713	14.9694	SLV 4	2.79	Si
ini.	2	20.99	5.7976	14.9694	SLV 3	2.58	Si
fin.	2	22.07	-5.3713	14.9694	SLV 3	2.79	Si
ini.	2	15.52	6.8666	14.9694	SLV 12	2.18	Si
fin.	2	14.77	-6.4049	14.9694	SLV 12	2.34	Si
ini.	2	16.31	4.7269	14.9694	SLD 7	3.17	Si
fin.	2	16.24	-4.2251	14.9694	SLD 7	3.54	Si
ini.	2	9.08	-3.771	14.9694	SLV 9	3.97	Si
fin.	2	9.18	4.4741	14.9694	SLV 9	3.35	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5.7976	-12.19			17.15	6.45	SLV 3	0.53	No
fin.	2	0	-5.3713	-16.06			17.15	6.45	SLV 3	0.4	No
ini.	2	0	6.8666	-15.18			17.15	6.45	SLV 12	0.42	No
fin.	2	0	-6.4049	-18.62			17.15	6.45	SLV 12	0.35	No
ini.	2	0	6.8666	-15.18			17.15	6.45	SLV 11	0.42	No
fin.	2	0	-6.4049	-18.62			17.15	6.45	SLV 11	0.35	No
ini.	2	0	8.0916	-18.21			17.15	6.45	SLV 8	0.35	No
fin.	2	0	-7.6852	-21.78			17.15	6.45	SLV 8	0.3	No
ini.	2	0	-3.771	12.08			17.15	6.45	SLV 10	0.53	No
fin.	2	0	4.4741	8.26			17.15	6.45	SLV 10	0.78	No
ini.	2	0	8.0916	-18.21			17.15	6.45	SLV 7	0.35	No
fin.	2	0	-7.6852	-21.78			17.15	6.45	SLV 7	0.3	No
ini.	2	0	5.7976	-12.19			17.15	6.45	SLV 4	0.53	No
fin.	2	0	-5.3713	-16.06			17.15	6.45	SLV 4	0.4	No
ini.	2	0	4.7269	-9.61			17.15	6.45	SLD 7	0.67	No
fin.	2	0	-4.2251	-13.25			17.15	6.45	SLD 7	0.49	No
ini.	2	0	-3.771	12.08			17.15	6.45	SLV 9	0.53	No
fin.	2	0	4.4741	8.26			17.15	6.45	SLV 9	0.78	No
ini.	2	0	4.7269	-9.61			17.15	6.45	SLD 8	0.67	No
fin.	2	0	-4.2251	-13.25			17.15	6.45	SLD 8	0.49	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 7	Si
V_SLV	0.296	SLV 7	No
PF_SLU	3.515	SLU 83	Si
V_SLU	0.39	SLU 81	No

### Trave di accoppiamento 145

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.813	5.951	11.87	12.77	0.9	-22.713	5.951	11.87	12.77	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	4.93	2.0707	10.3792	SLU 71	5.01	Si
fin.	3	19.19	-4.4126	10.3792	SLU 71	2.35	Si
ini.	3	4.79	2.0341	10.3792	SLU 38	5.1	Si
fin.	3	18.21	-4.2704	10.3792	SLU 38	2.43	Si
ini.	3	3.7	2.406	10.3792	SLU 77	4.31	Si
fin.	3	19.12	-4.4842	10.3792	SLU 77	2.31	Si
ini.	3	4.54	2.0911	10.3792	SLU 69	4.96	Si
fin.	3	18.73	-4.2683	10.3792	SLU 69	2.43	Si
ini.	3	4.83	2.0349	10.3792	SLU 37	5.1	Si
fin.	3	18.43	-4.3234	10.3792	SLU 37	2.4	Si
ini.	3	4.09	2.3855	10.3792	SLU 79	4.35	Si
fin.	3	19.58	-4.6285	10.3792	SLU 79	2.24	Si
ini.	3	4.89	2.0699	10.3792	SLU 72	5.01	Si
fin.	3	18.96	-4.3596	10.3792	SLU 72	2.38	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	4.05	2.3847	10.3792	SLU 80	4.35	Si
fin.	3	19.35	-4.5755	10.3792	SLU 80	2.27	Si
ini.	3	3.66	2.4052	10.3792	SLU 78	4.32	Si
fin.	3	18.89	-4.4312	10.3792	SLU 78	2.34	Si
ini.	3	4.5	2.0904	10.3792	SLU 70	4.97	Si
fin.	3	18.5	-4.2152	10.3792	SLU 70	2.46	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.5449	-13.28			9.7	3.65	SLU 84	0.28	No
fin.	3	0	-3.7588	-15.51			9.7	3.65	SLU 84	0.24	No
ini.	3	0	2.3847	-13.21			9.7	3.65	SLU 80	0.28	No
fin.	3	0	-4.5755	-17.2			9.7	3.65	SLU 80	0.21	No
ini.	3	0	2.0553	-11.45			9.7	3.65	SLU 35	0.32	No
fin.	3	0	-4.1791	-15.54			9.7	3.65	SLU 35	0.24	No
ini.	3	0	2.5456	-13.42			9.7	3.65	SLU 83	0.27	No
fin.	3	0	-3.8118	-15.65			9.7	3.65	SLU 83	0.23	No
ini.	3	0	2.0341	-10.66			9.7	3.65	SLU 38	0.34	No
fin.	3	0	-4.2704	-16.16			9.7	3.65	SLU 38	0.23	No
ini.	3	0	2.4052	-13.86			9.7	3.65	SLU 78	0.26	No
fin.	3	0	-4.4312	-16.44			9.7	3.65	SLU 78	0.22	No
ini.	3	0	2.406	-14			9.7	3.65	SLU 77	0.26	No
fin.	3	0	-4.4842	-16.58			9.7	3.65	SLU 77	0.22	No
ini.	3	0	2.0349	-10.8			9.7	3.65	SLU 37	0.34	No
fin.	3	0	-4.3234	-16.3			9.7	3.65	SLU 37	0.22	No
ini.	3	0	2.0707	-12.91			9.7	3.65	SLU 71	0.28	No
fin.	3	0	-4.4126	-15.41			9.7	3.65	SLU 71	0.24	No
ini.	3	0	2.3855	-13.35			9.7	3.65	SLU 79	0.27	No
fin.	3	0	-4.6285	-17.35			9.7	3.65	SLU 79	0.21	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-11.62	3.8738	12.1694	SLV 1	3.14	Si
fin.	2	16.77	-4.264	12.1694	SLV 1	2.85	Si
ini.	2	-15.88	5.2759	12.1694	SLV 7	2.31	Si
fin.	2	17.33	-5.528	12.1694	SLV 7	2.2	Si
ini.	2	-8.59	3.2822	12.1694	SLD 4	3.71	Si
fin.	2	13.03	-3.6002	12.1694	SLD 4	3.38	Si
ini.	2	-8.13	3.46	12.1694	SLV 12	3.52	Si
fin.	2	10.49	-3.6467	12.1694	SLV 12	3.34	Si
ini.	2	-17.77	5.4987	12.1694	SLV 3	2.21	Si
fin.	2	20.71	-5.8603	12.1694	SLV 3	2.08	Si
ini.	2	-8.59	3.2822	12.1694	SLD 3	3.71	Si
fin.	2	13.03	-3.6002	12.1694	SLD 3	3.38	Si
ini.	2	-15.88	5.2759	12.1694	SLV 8	2.31	Si
fin.	2	17.33	-5.528	12.1694	SLV 8	2.2	Si
ini.	2	-17.77	5.4987	12.1694	SLV 4	2.21	Si
fin.	2	20.71	-5.8603	12.1694	SLV 4	2.08	Si
ini.	2	-11.62	3.8738	12.1694	SLV 2	3.14	Si
fin.	2	16.77	-4.264	12.1694	SLV 2	2.85	Si
ini.	2	-8.13	3.46	12.1694	SLV 11	3.52	Si
fin.	2	10.49	-3.6467	12.1694	SLV 11	3.34	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5.2759	-31.43			14.56	5.48	SLV 8	0.17	No
fin.	2	0	-5.528	-27.23			14.56	5.48	SLV 8	0.2	No
ini.	2	0	3.46	-20.17			14.56	5.48	SLV 12	0.27	No
fin.	2	0	-3.6467	-15.95			14.56	5.48	SLV 12	0.34	No
ini.	2	0	3.8738	-23.65			14.56	5.48	SLV 1	0.23	No
fin.	2	0	-4.264	-22.61			14.56	5.48	SLV 1	0.24	No
ini.	2	0	5.2759	-31.43			14.56	5.48	SLV 7	0.17	No
fin.	2	0	-5.528	-27.23			14.56	5.48	SLV 7	0.2	No
ini.	2	0	5.4987	-33.3			14.56	5.48	SLV 4	0.16	No
fin.	2	0	-5.8603	-30.81			14.56	5.48	SLV 4	0.18	No
ini.	2	0	5.4987	-33.3			14.56	5.48	SLV 3	0.16	No
fin.	2	0	-5.8603	-30.81			14.56	5.48	SLV 3	0.18	No
ini.	2	0	3.46	-20.17			14.56	5.48	SLV 11	0.27	No
fin.	2	0	-3.6467	-15.95			14.56	5.48	SLV 11	0.34	No
ini.	2	0	3.2822	-19.72			14.56	5.48	SLD 4	0.28	No
fin.	2	0	-3.6002	-17.65			14.56	5.48	SLD 4	0.31	No
ini.	2	0	3.8738	-23.65			14.56	5.48	SLV 2	0.23	No
fin.	2	0	-4.264	-22.61			14.56	5.48	SLV 2	0.24	No
ini.	2	0	3.2822	-19.72			14.56	5.48	SLD 3	0.28	No
fin.	2	0	-3.6002	-17.65			14.56	5.48	SLD 3	0.31	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.077	SLV 3	Si
V_SLV	0.164	SLV 3	No
PF_SLU	2.242	SLU 79	Si
V_SLU	0.211	SLU 79	No

## Trave di accoppiamento 146

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.813	5.951	14.57	15.03	0.46	-22.713	5.951	14.57	15.03	0.46	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.88	3.3578	3.006	SLU 70	0.9	No
fin.	3	2.75	-3.4046	3.006	SLU 70	0.88	No
ini.	3	3.34	3.7021	3.006	SLU 80	0.81	No
fin.	3	3.2	-3.6553	3.006	SLU 80	0.82	No
ini.	3	3.58	3.5166	3.006	SLU 72	0.85	No
fin.	3	3.44	-3.4476	3.006	SLU 72	0.87	No
ini.	3	3.33	3.5758	3.006	SLU 77	0.84	No
fin.	3	3.2	-3.6191	3.006	SLU 77	0.83	No
ini.	3	4.04	3.7346	3.006	SLU 79	0.8	No
fin.	3	3.9	-3.6621	3.006	SLU 79	0.82	No
ini.	3	3.57	3.3904	3.006	SLU 69	0.89	No
fin.	3	3.44	-3.4114	3.006	SLU 69	0.88	No
ini.	3	4.28	3.5492	3.006	SLU 71	0.85	No
fin.	3	4.13	-3.4544	3.006	SLU 71	0.87	No
ini.	3	2.63	3.5433	3.006	SLU 78	0.85	No
fin.	3	2.51	-3.6123	3.006	SLU 78	0.83	No
ini.	3	2.82	3.454	3.006	SLU 38	0.87	No
fin.	3	2.7	-3.3773	3.006	SLU 38	0.89	No
ini.	3	3.52	3.4866	3.006	SLU 37	0.86	No
fin.	3	3.39	-3.3842	3.006	SLU 37	0.89	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	3.5166	-3.06			3.31	1.24	SLU 72	0.41	No
fin.	3	0	-3.4476	-10.98			3.31	1.24	SLU 72	0.11	No
ini.	3	0	3.7346	-3.55			3.31	1.24	SLU 79	0.35	No
fin.	3	0	-3.6621	-11.46			3.31	1.24	SLU 79	0.11	No
ini.	3	0	3.5492	-3.11			3.31	1.24	SLU 71	0.4	No
fin.	3	0	-3.4544	-11.02			3.31	1.24	SLU 71	0.11	No
ini.	3	0	3.3278	-2.29			3.31	1.24	SLU 35	0.54	No
fin.	3	0	-3.3412	-10.77			3.31	1.24	SLU 35	0.12	No
ini.	3	0	3.5758	-2.23			3.31	1.24	SLU 77	0.56	No
fin.	3	0	-3.6191	-11.87			3.31	1.24	SLU 77	0.1	No
ini.	3	0	3.7021	-3.49			3.31	1.24	SLU 80	0.36	No
fin.	3	0	-3.6553	-11.41			3.31	1.24	SLU 80	0.11	No
ini.	3	0	3.3578	-1.74			3.31	1.24	SLU 70	0.71	No
fin.	3	0	-3.4046	-11.39			3.31	1.24	SLU 70	0.11	No
ini.	3	0	3.5433	-2.18			3.31	1.24	SLU 78	0.57	No
fin.	3	0	-3.6123	-11.82			3.31	1.24	SLU 78	0.11	No
ini.	3	0	3.3904	-1.8			3.31	1.24	SLU 69	0.69	No
fin.	3	0	-3.4114	-11.43			3.31	1.24	SLU 69	0.11	No
ini.	3	0	3.2952	-2.24			3.31	1.24	SLU 36	0.56	No
fin.	3	0	-3.3343	-10.72			3.31	1.24	SLU 36	0.12	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1.34	2.203	4.4694	SLD 1	2.03	Si
fin.	2	0.71	-2.3853	4.4694	SLD 1	1.87	Si
ini.	2	0.46	3.1217	4.4694	SLV 1	1.43	Si
fin.	2	-0.95	-3.4254	4.4694	SLV 1	1.3	Si
ini.	2	4.12	2.4996	4.4694	SLD 3	1.79	Si
fin.	2	3.51	-2.5837	4.4694	SLD 3	1.73	Si
ini.	2	0.46	3.1217	4.4694	SLV 2	1.43	Si
fin.	2	-0.95	-3.4254	4.4694	SLV 2	1.3	Si
ini.	2	4.12	2.4996	4.4694	SLD 4	1.79	Si
fin.	2	3.51	-2.5837	4.4694	SLD 4	1.73	Si
ini.	2	7.16	3.8047	4.4694	SLV 4	1.17	Si
fin.	2	5.8	-3.8653	4.4694	SLV 4	1.16	Si
ini.	2	1.34	2.203	4.4694	SLD 2	2.03	Si
fin.	2	0.71	-2.3853	4.4694	SLD 2	1.87	Si
ini.	2	7.16	3.8047	4.4694	SLV 3	1.17	Si
fin.	2	5.8	-3.8653	4.4694	SLV 3	1.16	Si
ini.	2	13.62	3.2684	4.4694	SLV 7	1.37	Si
fin.	2	13.26	-2.9833	4.4694	SLV 7	1.5	Si
ini.	2	13.62	3.2684	4.4694	SLV 8	1.37	Si
fin.	2	13.26	-2.9833	4.4694	SLV 8	1.5	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	2.203	-2.22			4.96	1.87	SLD 2	0.84	No
fin.	2	0	-2.3853	-7.25			4.96	1.87	SLD 2	0.26	No
ini.	2	0	2.203	-2.22			4.96	1.87	SLD 1	0.84	No
fin.	2	0	-2.3853	-7.25			4.96	1.87	SLD 1	0.26	No
ini.	2	0	3.8047	-6.62			4.96	1.87	SLV 3	0.28	No
fin.	2	0	-3.8653	-10.78			4.96	1.87	SLV 3	0.17	No
ini.	2	0	3.2684	-6.34			4.96	1.87	SLV 7	0.29	No
fin.	2	0	-2.9833	-9.14			4.96	1.87	SLV 7	0.2	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.8047	-6.62			4.96	1.87	SLV 4	0.28	No
fin.	2	0	-3.8653	-10.78			4.96	1.87	SLV 4	0.17	No
ini.	2	0	3.1217	-4.12			4.96	1.87	SLV 2	0.45	No
fin.	2	0	-3.4254	-9.48			4.96	1.87	SLV 2	0.2	No
ini.	2	0	2.4996	-3.27			4.96	1.87	SLD 4	0.57	No
fin.	2	0	-2.5837	-7.79			4.96	1.87	SLD 4	0.24	No
ini.	2	0	3.1217	-4.12			4.96	1.87	SLV 1	0.45	No
fin.	2	0	-3.4254	-9.48			4.96	1.87	SLV 1	0.2	No
ini.	2	0	3.2684	-6.34			4.96	1.87	SLV 8	0.29	No
fin.	2	0	-2.9833	-9.14			4.96	1.87	SLV 8	0.2	No
ini.	2	0	2.4996	-3.27			4.96	1.87	SLD 3	0.57	No
fin.	2	0	-2.5837	-7.79			4.96	1.87	SLD 3	0.24	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.156	SLV 3	Si
V_SLV	0.173	SLV 3	No
PF_SLU	0.805	SLU 79	No
V_SLU	0.105	SLU 77	No

## Trave di accoppiamento 147

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.593	-3.359	11.87	12.77	0.9	-22.493	-3.359	11.87	12.77	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>vd</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-14.79	7.0205	10.3792	SLU 84	1.48	Si
fin.	3	9.38	-4.1017	10.3792	SLU 84	2.53	Si
ini.	3	-11.72	6.5772	10.3792	SLU 77	1.58	Si
fin.	3	11.49	-4.3105	10.3792	SLU 77	2.41	Si
ini.	3	-14.33	6.8058	10.3792	SLU 75	1.53	Si
fin.	3	8.99	-3.8661	10.3792	SLU 75	2.68	Si
ini.	3	-16.17	6.7864	10.3792	SLU 73	1.53	Si
fin.	3	6.62	-3.4307	10.3792	SLU 73	3.03	Si
ini.	3	-11.28	6.4883	10.3792	SLU 79	1.6	Si
fin.	3	11.79	-4.4179	10.3792	SLU 79	2.35	Si
ini.	3	-12.27	6.966	10.3792	SLU 80	1.49	Si
fin.	3	12.36	-4.7133	10.3792	SLU 80	2.2	Si
ini.	3	-14.55	7.0354	10.3792	SLU 76	1.48	Si
fin.	3	9.68	-4.1705	10.3792	SLU 76	2.49	Si
ini.	3	-16.4	6.7715	10.3792	SLU 82	1.53	Si
fin.	3	6.31	-3.3619	10.3792	SLU 82	3.09	Si
ini.	3	-12.72	7.0548	10.3792	SLU 78	1.47	Si
fin.	3	12.06	-4.6059	10.3792	SLU 78	2.25	Si
ini.	3	-13.79	6.5428	10.3792	SLU 83	1.59	Si
fin.	3	8.81	-3.8063	10.3792	SLU 83	2.73	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	7.0548	-25.56			9.7	3.65	SLU 78	0.14	No
fin.	3	0	-4.6059	-22.79			9.7	3.65	SLU 78	0.16	No
ini.	3	0	7.0354	-24.55			9.7	3.65	SLU 76	0.15	No
fin.	3	0	-4.1705	-22.31			9.7	3.65	SLU 76	0.16	No
ini.	3	0	6.8058	-23.83			9.7	3.65	SLU 75	0.15	No
fin.	3	0	-3.8661	-20.71			9.7	3.65	SLU 75	0.18	No
ini.	3	0	6.4883	-23.67			9.7	3.65	SLU 79	0.15	No
fin.	3	0	-4.4179	-21.49			9.7	3.65	SLU 79	0.17	No
ini.	3	0	6.7864	-22.82			9.7	3.65	SLU 73	0.16	No
fin.	3	0	-3.4307	-20.23			9.7	3.65	SLU 73	0.18	No
ini.	3	0	7.0205	-24.32			9.7	3.65	SLU 84	0.15	No
fin.	3	0	-4.1017	-22.35			9.7	3.65	SLU 84	0.16	No
ini.	3	0	6.3467	-23.67			9.7	3.65	SLU 70	0.15	No
fin.	3	0	-4.3069	-19.98			9.7	3.65	SLU 70	0.18	No
ini.	3	0	6.966	-25.23			9.7	3.65	SLU 80	0.14	No
fin.	3	0	-4.7133	-23.23			9.7	3.65	SLU 80	0.16	No
ini.	3	0	6.2578	-23.34			9.7	3.65	SLU 72	0.16	No
fin.	3	0	-4.4142	-20.42			9.7	3.65	SLU 72	0.18	No
ini.	3	0	6.5772	-23.99			9.7	3.65	SLU 77	0.15	No
fin.	3	0	-4.3105	-21.05			9.7	3.65	SLU 77	0.17	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-11.81	8.0274	12.1694	SLV 2	1.52	Si
fin.	2	18.68	-5.7954	12.1694	SLV 2	2.1	Si
ini.	2	-12.59	5.9444	12.1694	SLD 9	2.05	Si
fin.	2	7.05	-3.351	12.1694	SLD 9	3.63	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-16.83	8.6079	12.1694	SLV 9	1.41	Si
fin.	2	11.26	-5.2597	12.1694	SLV 9	2.31	Si
ini.	2	-12.57	6.5523	12.1694	SLD 5	1.86	Si
fin.	2	9.98	-4.0126	12.1694	SLD 5	3.03	Si
ini.	2	-16.78	10.0367	12.1694	SLV 5	1.21	Si
fin.	2	18.16	-6.8178	12.1694	SLV 5	1.78	Si
ini.	2	-11.81	8.0274	12.1694	SLV 1	1.52	Si
fin.	2	18.68	-5.7954	12.1694	SLV 1	2.1	Si
ini.	2	-16.78	10.0367	12.1694	SLV 6	1.21	Si
fin.	2	18.16	-6.8178	12.1694	SLV 6	1.78	Si
ini.	2	-16.83	8.6079	12.1694	SLV 10	1.41	Si
fin.	2	11.26	-5.2597	12.1694	SLV 10	2.31	Si
ini.	2	-12.57	6.5523	12.1694	SLD 6	1.86	Si
fin.	2	9.98	-4.0126	12.1694	SLD 6	3.03	Si
ini.	2	-12.59	5.9444	12.1694	SLD 10	2.05	Si
fin.	2	7.05	-3.351	12.1694	SLD 10	3.63	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	8.6079	-29.11			14.56	5.48	SLV 9	0.19	No
fin.	2	0	-5.2597	-24.46			14.56	5.48	SLV 9	0.22	No
ini.	2	0	8.0274	-30.67			14.56	5.48	SLV 1	0.18	No
fin.	2	0	-5.7954	-27.89			14.56	5.48	SLV 1	0.2	No
ini.	2	0	10.0367	-35.8			14.56	5.48	SLV 6	0.15	No
fin.	2	0	-6.8178	-31.45			14.56	5.48	SLV 6	0.17	No
ini.	2	0	5.737	-21.06			14.56	5.48	SLD 1	0.26	No
fin.	2	0	-3.5941	-18.28			14.56	5.48	SLD 1	0.3	No
ini.	2	0	8.6079	-29.11			14.56	5.48	SLV 10	0.19	No
fin.	2	0	-5.2597	-24.46			14.56	5.48	SLV 10	0.22	No
ini.	2	0	5.737	-21.06			14.56	5.48	SLD 2	0.26	No
fin.	2	0	-3.5941	-18.28			14.56	5.48	SLD 2	0.3	No
ini.	2	0	6.5523	-23.08			14.56	5.48	SLD 6	0.24	No
fin.	2	0	-4.0126	-19.7			14.56	5.48	SLD 6	0.28	No
ini.	2	0	10.0367	-35.8			14.56	5.48	SLV 5	0.15	No
fin.	2	0	-6.8178	-31.45			14.56	5.48	SLV 5	0.17	No
ini.	2	0	8.0274	-30.67			14.56	5.48	SLV 2	0.18	No
fin.	2	0	-5.7954	-27.89			14.56	5.48	SLV 2	0.2	No
ini.	2	0	6.5523	-23.08			14.56	5.48	SLD 5	0.24	No
fin.	2	0	-4.0126	-19.7			14.56	5.48	SLD 5	0.28	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.212	SLV 5	Si
V_SLV	0.153	SLV 5	No
PF_SLU	1.471	SLU 78	Si
V_SLU	0.143	SLU 78	No

## Trave di accoppiamento 148

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-21.593	-3.359	14.57	15.03	0.46	-22.493	-3.359	14.57	15.03	0.46	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	11.73	3.0709	3.006	SLU 80	0.98	No
fin.	3	11.78	-2.8825	3.006	SLU 80	1.04	Si
ini.	3	11.88	2.8481	3.006	SLU 38	1.06	Si
fin.	3	11.94	-2.6002	3.006	SLU 38	1.16	Si
ini.	3	6.15	2.718	3.006	SLU 84	1.11	Si
fin.	3	6.18	-2.7809	3.006	SLU 84	1.08	Si
ini.	3	11.16	2.8695	3.006	SLU 79	1.05	Si
fin.	3	11.21	-2.7124	3.006	SLU 79	1.11	Si
ini.	3	11.05	2.7482	3.006	SLU 70	1.09	Si
fin.	3	11.11	-2.6542	3.006	SLU 70	1.13	Si
ini.	3	10.34	2.7323	3.006	SLU 36	1.1	Si
fin.	3	10.4	-2.6364	3.006	SLU 36	1.14	Si
ini.	3	6.9	2.7636	3.006	SLU 76	1.09	Si
fin.	3	6.94	-2.781	3.006	SLU 76	1.08	Si
ini.	3	10.19	2.9552	3.006	SLU 78	1.02	Si
fin.	3	10.24	-2.9187	3.006	SLU 78	1.03	Si
ini.	3	9.62	2.7538	3.006	SLU 77	1.09	Si
fin.	3	9.67	-2.7486	3.006	SLU 77	1.09	Si
ini.	3	12.59	2.8639	3.006	SLU 72	1.05	Si
fin.	3	12.65	-2.6181	3.006	SLU 72	1.15	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	2.7482	-1.89			3.31	1.24	SLU 70	0.66	No
fin.	3	0	-2.6542	-8.73			3.31	1.24	SLU 70	0.14	No
ini.	3	0	2.8639	-2.59			3.31	1.24	SLU 72	0.48	No
fin.	3	0	-2.6181	-8.29			3.31	1.24	SLU 72	0.15	No
ini.	3	0	2.718	-2.86			3.31	1.24	SLU 84	0.43	No
fin.	3	0	-2.7809	-8.26			3.31	1.24	SLU 84	0.15	No
ini.	3	0	2.9552	-2.41			3.31	1.24	SLU 78	0.52	No
fin.	3	0	-2.9187	-9.25			3.31	1.24	SLU 78	0.13	No
ini.	3	0	2.7538	-1.72			3.31	1.24	SLU 77	0.72	No
fin.	3	0	-2.7486	-8.94			3.31	1.24	SLU 77	0.14	No
ini.	3	0	2.5135	-1.94			3.31	1.24	SLU 75	0.64	No
fin.	3	0	-2.7037	-8.47			3.31	1.24	SLU 75	0.15	No
ini.	3	0	3.0709	-3.12			3.31	1.24	SLU 80	0.4	No
fin.	3	0	-2.8825	-8.82			3.31	1.24	SLU 80	0.14	No
ini.	3	0	2.8695	-2.42			3.31	1.24	SLU 79	0.51	No
fin.	3	0	-2.7124	-8.51			3.31	1.24	SLU 79	0.15	No
ini.	3	0	2.5468	-1.2			3.31	1.24	SLU 69	1.04	Si
fin.	3	0	-2.4841	-8.41			3.31	1.24	SLU 69	0.15	No
ini.	3	0	2.5756	-1.81			3.31	1.24	SLU 57	0.69	No
fin.	3	0	-2.5479	-8.29			3.31	1.24	SLU 57	0.15	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	18.24	3.028	4.4694	SLV 2	1.48	Si
fin.	2	14.26	-3.1436	4.4694	SLV 2	1.42	Si
ini.	2	18.24	3.028	4.4694	SLV 1	1.48	Si
fin.	2	14.26	-3.1436	4.4694	SLV 1	1.42	Si
ini.	2	9.22	2.2662	4.4694	SLV 3	1.97	Si
fin.	2	4.86	-2.816	4.4694	SLV 3	1.59	Si
ini.	2	11.91	2.2233	4.4694	SLV 10	2.01	Si
fin.	2	13.8	-1.6622	4.4694	SLV 10	2.69	Si
ini.	2	11.91	2.2233	4.4694	SLV 9	2.01	Si
fin.	2	13.8	-1.6622	4.4694	SLV 9	2.69	Si
ini.	2	9.22	2.2662	4.4694	SLV 4	1.97	Si
fin.	2	4.86	-2.816	4.4694	SLV 4	1.59	Si
ini.	2	19.69	3.005	4.4694	SLV 6	1.49	Si
fin.	2	19.08	-2.5223	4.4694	SLV 6	1.77	Si
ini.	2	19.69	3.005	4.4694	SLV 5	1.49	Si
fin.	2	19.08	-2.5223	4.4694	SLV 5	1.77	Si
ini.	2	8.15	2.0642	4.4694	SLD 2	2.17	Si
fin.	2	6.49	-2.2237	4.4694	SLD 2	2.01	Si
ini.	2	8.15	2.0642	4.4694	SLD 1	2.17	Si
fin.	2	6.49	-2.2237	4.4694	SLD 1	2.01	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	3.005	-7.04			4.96	1.87	SLV 6	0.27	No
fin.	2	0	-2.5223	-10.52			4.96	1.87	SLV 6	0.18	No
ini.	2	0	3.028	-5.16			4.96	1.87	SLV 2	0.36	No
fin.	2	0	-3.1436	-9.08			4.96	1.87	SLV 2	0.21	No
ini.	2	0	2.2233	-5.37			4.96	1.87	SLV 10	0.35	No
fin.	2	0	-1.6622	-8.86			4.96	1.87	SLV 10	0.21	No
ini.	2	0	2.2233	-5.37			4.96	1.87	SLV 9	0.35	No
fin.	2	0	-1.6622	-8.86			4.96	1.87	SLV 9	0.21	No
ini.	2	0	2.0642	-2.62			4.96	1.87	SLD 2	0.71	No
fin.	2	0	-2.2237	-6.66			4.96	1.87	SLD 2	0.28	No
ini.	2	0	2.0642	-2.62			4.96	1.87	SLD 1	0.71	No
fin.	2	0	-2.2237	-6.66			4.96	1.87	SLD 1	0.28	No
ini.	2	0	3.005	-7.04			4.96	1.87	SLV 5	0.27	No
fin.	2	0	-2.5223	-10.52			4.96	1.87	SLV 5	0.18	No
ini.	2	0	2.06	-3.39			4.96	1.87	SLD 6	0.55	No
fin.	2	0	-1.9713	-7.25			4.96	1.87	SLD 6	0.26	No
ini.	2	0	2.06	-3.39			4.96	1.87	SLD 5	0.55	No
fin.	2	0	-1.9713	-7.25			4.96	1.87	SLD 5	0.26	No
ini.	2	0	3.028	-5.16			4.96	1.87	SLV 1	0.36	No
fin.	2	0	-3.1436	-9.08			4.96	1.87	SLV 1	0.21	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.422	SLV 1	Si
V_SLV	0.177	SLV 5	No
PF_SLU	0.979	SLU 80	No
V_SLU	0.135	SLU 78	No

#### Trave di accoppiamento 149

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	11.87	13.87	2	-19.368	-3.359	11.87	13.87	2	0.5	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti





fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-9.36	1.4882	29.6292	SLU 77	19.91	Si
fin.	3	-8.45	-0.3054	29.6292	SLU 77	97	Si
ini.	3	-8.01	1.4177	29.6292	SLU 79	20.9	Si
fin.	3	-7.07	-0.6585	29.6292	SLU 79	44.99	Si
ini.	3	-3.16	1.378	29.6292	SLU 29	21.5	Si
fin.	3	-2.37	-0.985	29.6292	SLU 29	30.08	Si
ini.	3	-8.44	1.216	29.6292	SLU 56	24.37	Si
fin.	3	-7.59	-0.3051	29.6292	SLU 56	97.11	Si
ini.	3	-6.41	1.5221	29.6292	SLU 35	19.47	Si
fin.	3	-5.74	-0.3483	29.6292	SLU 35	85.06	Si
ini.	3	-5.5	1.25	29.6292	SLU 14	23.7	Si
fin.	3	-4.88	-0.348	29.6292	SLU 14	85.14	Si
ini.	3	-5.06	1.4516	29.6292	SLU 37	20.41	Si
fin.	3	-4.36	-0.7014	29.6292	SLU 37	42.24	Si
ini.	3	-7.46	1.4145	29.6292	SLU 69	20.95	Si
fin.	3	-6.46	-0.589	29.6292	SLU 69	50.3	Si
ini.	3	-4.51	1.4484	29.6292	SLU 27	20.46	Si
fin.	3	-3.75	-0.6319	29.6292	SLU 27	46.89	Si
ini.	3	-6.1	1.344	29.6292	SLU 71	22.05	Si
fin.	3	-5.08	-0.9421	29.6292	SLU 71	31.45	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	0.9918	-4.12			21.57	8.12	SLU 72	1.97	Si
fin.	3	0	-1.009	-5.87			21.57	8.12	SLU 72	1.38	Si
ini.	3	0	1.0258	-4.22			21.57	8.12	SLU 30	1.92	Si
fin.	3	0	-1.0519	-5.88			21.57	8.12	SLU 30	1.38	Si
ini.	3	0	0.7197	-3.59			21.57	8.12	SLU 51	2.26	Si
fin.	3	0	-1.0087	-4.98			21.57	8.12	SLU 51	1.63	Si
ini.	3	0	0.7536	-3.68			21.57	8.12	SLU 9	2.21	Si
fin.	3	0	-1.0516	-4.98			21.57	8.12	SLU 9	1.63	Si
ini.	3	0	1.378	-4.65			21.57	8.12	SLU 29	1.75	Si
fin.	3	0	-0.985	-5.64			21.57	8.12	SLU 29	1.44	Si
ini.	3	0	1.4516	-3.91			21.57	8.12	SLU 37	2.08	Si
fin.	3	0	-0.7014	-5.44			21.57	8.12	SLU 37	1.49	Si
ini.	3	0	1.344	-4.56			21.57	8.12	SLU 71	1.78	Si
fin.	3	0	-0.9421	-5.64			21.57	8.12	SLU 71	1.44	Si
ini.	3	0	1.4177	-3.82			21.57	8.12	SLU 79	2.13	Si
fin.	3	0	-0.6585	-5.44			21.57	8.12	SLU 79	1.49	Si
ini.	3	0	1.0655	-3.38			21.57	8.12	SLU 80	2.4	Si
fin.	3	0	-0.7255	-5.67			21.57	8.12	SLU 80	1.43	Si
ini.	3	0	1.0995	-3.47			21.57	8.12	SLU 38	2.34	Si
fin.	3	0	-0.7684	-5.68			21.57	8.12	SLU 38	1.43	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-6.28	-11.1035	31.4194	SLV 12	2.83	Si
fin.	2	-10.53	2.1515	31.4194	SLV 12	14.6	Si
ini.	2	0.06	-9.8892	31.4194	SLV 8	3.18	Si
fin.	2	-5.29	-0.7418	31.4194	SLV 8	42.36	Si
ini.	2	-23.42	10.4824	31.4194	SLV 10	3	Si
fin.	2	-16.35	1.1889	31.4194	SLV 10	26.43	Si
ini.	2	-23.42	10.4824	31.4194	SLV 9	3	Si
fin.	2	-16.35	1.1889	31.4194	SLV 9	26.43	Si
ini.	2	-6.28	-11.1035	31.4194	SLV 11	2.83	Si
fin.	2	-10.53	2.1515	31.4194	SLV 11	14.6	Si
ini.	2	-3.69	5.5584	31.4194	SLV 2	5.65	Si
fin.	2	-2.96	-4.7431	31.4194	SLV 2	6.62	Si
ini.	2	-17.08	11.6968	31.4194	SLV 5	2.69	Si
fin.	2	-11.11	-1.7044	31.4194	SLV 5	18.43	Si
ini.	2	-17.08	11.6968	31.4194	SLV 6	2.69	Si
fin.	2	-11.11	-1.7044	31.4194	SLV 6	18.43	Si
ini.	2	0.06	-9.8892	31.4194	SLV 7	3.18	Si
fin.	2	-5.29	-0.7418	31.4194	SLV 7	42.36	Si
ini.	2	-3.69	5.5584	31.4194	SLV 1	5.65	Si
fin.	2	-2.96	-4.7431	31.4194	SLV 1	6.62	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	10.4824	-29.85			32.35	12.17	SLV 10	0.41	No
fin.	2	0	1.1889	-31.61			32.35	12.17	SLV 10	0.39	No
ini.	2	0	-9.8892	29.35			32.35	12.17	SLV 7	0.41	No
fin.	2	0	-0.7418	29.2			32.35	12.17	SLV 7	0.42	No
ini.	2	0	5.5584	-28.48			32.35	12.17	SLV 2	0.43	No
fin.	2	0	-4.7431	-24.88			32.35	12.17	SLV 2	0.49	No
ini.	2	0	-9.8892	29.35			32.35	12.17	SLV 8	0.41	No
fin.	2	0	-0.7418	29.2			32.35	12.17	SLV 8	0.42	No
ini.	2	0	-11.1035	40.01			32.35	12.17	SLV 11	0.3	No
fin.	2	0	2.1515	37.21			32.35	12.17	SLV 11	0.33	No
ini.	2	0	10.4824	-29.85			32.35	12.17	SLV 9	0.41	No
fin.	2	0	1.1889	-31.61			32.35	12.17	SLV 9	0.39	No
ini.	2	0	11.6968	-40.5			32.35	12.17	SLV 5	0.3	No
fin.	2	0	-1.7044	-39.62			32.35	12.17	SLV 5	0.31	No
ini.	2	0	11.6968	-40.5			32.35	12.17	SLV 6	0.3	No
fin.	2	0	-1.7044	-39.62			32.35	12.17	SLV 6	0.31	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-11.1035	40.01			32.35	12.17	SLV 12	0.3	No
fin.	2	0	2.1515	37.21			32.35	12.17	SLV 12	0.33	No
ini.	2	0	5.5584	-28.48			32.35	12.17	SLV 1	0.43	No
fin.	2	0	-4.7431	-24.88			32.35	12.17	SLV 1	0.49	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.686	SLV 5	Si
V_SLV	0.301	SLV 5	No
PF_SLU	19.466	SLU 35	Si
V_SLU	1.381	SLU 30	Si

## Trave di accoppiamento 150

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-18.868	-3.359	14.67	15.03	0.36	-19.368	-3.359	14.67	15.03	0.36	0.5	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	τ0	fν0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-9	0.0861	1.8411	SLU 40	21.38	Si
fin.	3	-9	-0.3357	1.8411	SLU 40	5.48	Si
ini.	3	-9.83	0.1157	1.8411	SLU 73	15.91	Si
fin.	3	-9.84	-0.362	1.8411	SLU 73	5.09	Si
ini.	3	-8.67	0.0719	1.8411	SLU 39	25.6	Si
fin.	3	-8.67	-0.3563	1.8411	SLU 39	5.17	Si
ini.	3	-8.71	0.1068	1.8411	SLU 52	17.24	Si
fin.	3	-8.71	-0.3245	1.8411	SLU 52	5.67	Si
ini.	3	-9.12	0.0951	1.8411	SLU 61	19.35	Si
fin.	3	-9.12	-0.3596	1.8411	SLU 61	5.12	Si
ini.	3	-8.79	0.081	1.8411	SLU 60	22.74	Si
fin.	3	-8.79	-0.3801	1.8411	SLU 60	4.84	Si
ini.	3	-8.11	0.0441	1.8411	SLU 74	41.77	Si
fin.	3	-8.11	-0.3193	1.8411	SLU 74	5.77	Si
ini.	3	-10.24	0.1041	1.8411	SLU 82	17.69	Si
fin.	3	-10.25	-0.3971	1.8411	SLU 82	4.64	Si
ini.	3	-9.91	0.0899	1.8411	SLU 81	20.47	Si
fin.	3	-9.91	-0.4177	1.8411	SLU 81	4.41	Si
ini.	3	-7.8	0.0972	1.8411	SLU 64	18.94	Si
fin.	3	-7.8	-0.3464	1.8411	SLU 64	5.31	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.0568	2.02			2.8	1.05	SLU 71	0.52	No
fin.	3	0	-0.1477	-2.91			2.8	1.05	SLU 71	0.36	No
ini.	3	0	0.0583	1.31			2.8	1.05	SLU 75	0.8	No
fin.	3	0	-0.2988	-2.82			2.8	1.05	SLU 75	0.37	No
ini.	3	0	0.0517	1.94			2.8	1.05	SLU 79	0.54	No
fin.	3	0	-0.1975	-3			2.8	1.05	SLU 79	0.35	No
ini.	3	0	0.0441	1.35			2.8	1.05	SLU 74	0.78	No
fin.	3	0	-0.3193	-2.87			2.8	1.05	SLU 74	0.37	No
ini.	3	0	0.0239	2.09			2.8	1.05	SLU 77	0.5	No
fin.	3	0	-0.22	-3.13			2.8	1.05	SLU 77	0.34	No
ini.	3	0	0.0431	2.13			2.8	1.05	SLU 70	0.49	No
fin.	3	0	-0.1495	-2.99			2.8	1.05	SLU 70	0.35	No
ini.	3	0	0.0659	1.9			2.8	1.05	SLU 80	0.55	No
fin.	3	0	-0.177	-2.95			2.8	1.05	SLU 80	0.36	No
ini.	3	0	0.071	1.99			2.8	1.05	SLU 72	0.53	No
fin.	3	0	-0.1271	-2.86			2.8	1.05	SLU 72	0.37	No
ini.	3	0	0.038	2.05			2.8	1.05	SLU 78	0.51	No
fin.	3	0	-0.1994	-3.08			2.8	1.05	SLU 78	0.34	No
ini.	3	0	0.029	2.17			2.8	1.05	SLU 69	0.49	No
fin.	3	0	-0.1701	-3.04			2.8	1.05	SLU 69	0.35	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-24.8	1.7025	2.7616	SLV 9	1.62	Si
fin.	2	-24.62	-2.5782	2.7616	SLV 9	1.07	Si
ini.	2	-22.6	1.7357	2.7616	SLV 5	1.59	Si
fin.	2	-22.63	-2.9716	2.7616	SLV 5	0.93	No
ini.	2	12.46	-1.5598	2.7616	SLV 8	1.77	Si
fin.	2	12.27	2.0332	2.7616	SLV 8	1.36	Si
ini.	2	10.26	-1.593	2.7616	SLV 11	1.73	Si
fin.	2	10.27	2.4267	2.7616	SLV 11	1.14	Si
ini.	2	12.46	-1.5598	2.7616	SLV 7	1.77	Si
fin.	2	12.27	2.0332	2.7616	SLV 7	1.36	Si
ini.	2	-22.6	1.7357	2.7616	SLV 6	1.59	Si
fin.	2	-22.63	-2.9716	2.7616	SLV 6	0.93	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	10.26	-1.593	2.7616	SLV 12	1.73	Si
fin.	2	10.27	2.4267	2.7616	SLV 12	1.14	Si
ini.	2	-7.77	0.6209	2.7616	SLV 1	4.45	Si
fin.	2	-8.09	-1.6789	2.7616	SLV 1	1.64	Si
ini.	2	-7.77	0.6209	2.7616	SLV 2	4.45	Si
fin.	2	-8.09	-1.6789	2.7616	SLV 2	1.64	Si
ini.	2	-24.8	1.7025	2.7616	SLV 10	1.62	Si
fin.	2	-24.62	-2.5782	2.7616	SLV 10	1.07	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1.7025	-5.61			4.19	1.58	SLV 10	0.28	No
fin.	2	0	-2.5782	-7.39			4.19	1.58	SLV 10	0.21	No
ini.	2	0	0.6209	-2.16			4.19	1.58	SLV 1	0.73	No
fin.	2	0	-1.6789	-4.5			4.19	1.58	SLV 1	0.35	No
ini.	2	0	-1.5598	6.35			4.19	1.58	SLV 7	0.25	No
fin.	2	0	2.0332	3.81			4.19	1.58	SLV 7	0.41	No
ini.	2	0	1.7357	-6.02			4.19	1.58	SLV 5	0.26	No
fin.	2	0	-2.9716	-7.96			4.19	1.58	SLV 5	0.2	No
ini.	2	0	1.7025	-5.61			4.19	1.58	SLV 9	0.28	No
fin.	2	0	-2.5782	-7.39			4.19	1.58	SLV 9	0.21	No
ini.	2	0	0.6209	-2.16			4.19	1.58	SLV 2	0.73	No
fin.	2	0	-1.6789	-4.5			4.19	1.58	SLV 2	0.35	No
ini.	2	0	-1.5598	6.35			4.19	1.58	SLV 8	0.25	No
fin.	2	0	2.0332	3.81			4.19	1.58	SLV 8	0.41	No
ini.	2	0	1.7357	-6.02			4.19	1.58	SLV 6	0.26	No
fin.	2	0	-2.9716	-7.96			4.19	1.58	SLV 6	0.2	No
ini.	2	0	-1.593	6.75			4.19	1.58	SLV 11	0.23	No
fin.	2	0	2.4267	4.38			4.19	1.58	SLV 11	0.36	No
ini.	2	0	-1.593	6.75			4.19	1.58	SLV 12	0.23	No
fin.	2	0	2.4267	4.38			4.19	1.58	SLV 12	0.36	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.929	SLV 5	No
V_SLV	0.198	SLV 5	No
PF_SLU	4.408	SLU 81	Si
V_SLU	0.336	SLU 77	No

## Trave di accoppiamento 151

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.363	-3.359	11.87	12.77	0.9	-18.263	-3.359	11.87	12.77	0.9	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-12.57	2.7339	10.3792	SLU 35	3.8	Si
fin.	3	-4.92	-0.8416	10.3792	SLU 35	12.33	Si
ini.	3	-10.8	2.5851	10.3792	SLU 30	4.02	Si
fin.	3	-4.16	-0.9076	10.3792	SLU 30	11.44	Si
ini.	3	-11.44	2.7647	10.3792	SLU 27	3.75	Si
fin.	3	-3.52	-0.9868	10.3792	SLU 27	10.52	Si
ini.	3	-12.92	2.6106	10.3792	SLU 72	3.98	Si
fin.	3	-6.67	-0.5348	10.3792	SLU 72	19.41	Si
ini.	3	-13.21	2.9026	10.3792	SLU 71	3.58	Si
fin.	3	-5.09	-0.8574	10.3792	SLU 71	12.11	Si
ini.	3	-13.56	2.7902	10.3792	SLU 69	3.72	Si
fin.	3	-6.03	-0.614	10.3792	SLU 69	16.9	Si
ini.	3	-12.22	2.8463	10.3792	SLU 37	3.65	Si
fin.	3	-3.98	-1.085	10.3792	SLU 37	9.57	Si
ini.	3	-14.68	2.7593	10.3792	SLU 77	3.76	Si
fin.	3	-7.43	-0.4688	10.3792	SLU 77	22.14	Si
ini.	3	-14.33	2.8717	10.3792	SLU 79	3.61	Si
fin.	3	-6.49	-0.7122	10.3792	SLU 79	14.57	Si
ini.	3	-11.09	2.8771	10.3792	SLU 29	3.61	Si
fin.	3	-2.59	-1.2302	10.3792	SLU 29	8.44	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.9026	-9.85			9.7	3.65	SLU 71	0.37	No
fin.	3	0	-0.8574	-8.14			9.7	3.65	SLU 71	0.45	No
ini.	3	0	2.8717	-8.93			9.7	3.65	SLU 79	0.41	No
fin.	3	0	-0.7122	-8.4			9.7	3.65	SLU 79	0.43	No
ini.	3	0	2.4651	-8.83			9.7	3.65	SLU 48	0.41	No
fin.	3	0	-0.4764	-5.75			9.7	3.65	SLU 48	0.64	No
ini.	3	0	2.8771	-10.02			9.7	3.65	SLU 29	0.36	No
fin.	3	0	-1.2302	-8.89			9.7	3.65	SLU 29	0.41	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.7647	-9.66			9.7	3.65	SLU 27	0.38	No
fin.	3	0	-0.9868	-7.85			9.7	3.65	SLU 27	0.47	No
ini.	3	0	2.5775	-9.19			9.7	3.65	SLU 50	0.4	No
fin.	3	0	-0.7197	-6.79			9.7	3.65	SLU 50	0.54	No
ini.	3	0	2.7902	-9.49			9.7	3.65	SLU 69	0.38	No
fin.	3	0	-0.614	-7.1			9.7	3.65	SLU 69	0.51	No
ini.	3	0	2.552	-9.35			9.7	3.65	SLU 8	0.39	No
fin.	3	0	-1.0925	-7.53			9.7	3.65	SLU 8	0.48	No
ini.	3	0	2.8463	-9.09			9.7	3.65	SLU 37	0.4	No
fin.	3	0	-1.085	-9.15			9.7	3.65	SLU 37	0.4	No
ini.	3	0	2.4396	-8.99			9.7	3.65	SLU 6	0.41	No
fin.	3	0	-0.8492	-6.49			9.7	3.65	SLU 6	0.56	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-13.91	5.8219	12.1694	SLV 1	2.09	Si
fin.	2	1.25	-2.9962	12.1694	SLV 1	4.06	Si
ini.	2	-1.62	-3.4321	12.1694	SLV 13	3.55	Si
fin.	2	-25.56	7.0189	12.1694	SLV 13	1.73	Si
ini.	2	-17.68	4.5132	12.1694	SLV 4	2.7	Si
fin.	2	6.13	-4.8438	12.1694	SLV 4	2.51	Si
ini.	2	-1.52	1.3336	12.1694	SLV 10	9.13	Si
fin.	2	-21.86	5.6693	12.1694	SLV 10	2.15	Si
ini.	2	-5.4	-4.7408	12.1694	SLV 15	2.57	Si
fin.	2	-20.68	5.1712	12.1694	SLV 15	2.35	Si
ini.	2	-1.52	1.3336	12.1694	SLV 9	9.13	Si
fin.	2	-21.86	5.6693	12.1694	SLV 9	2.15	Si
ini.	2	-1.62	-3.4321	12.1694	SLV 14	3.55	Si
fin.	2	-25.56	7.0189	12.1694	SLV 14	1.73	Si
ini.	2	-5.4	-4.7408	12.1694	SLV 16	2.57	Si
fin.	2	-20.68	5.1712	12.1694	SLV 16	2.35	Si
ini.	2	-17.68	4.5132	12.1694	SLV 3	2.7	Si
fin.	2	6.13	-4.8438	12.1694	SLV 3	2.51	Si
ini.	2	-13.91	5.8219	12.1694	SLV 2	2.09	Si
fin.	2	1.25	-2.9962	12.1694	SLV 2	4.06	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.1098	-14.43			14.56	5.48	SLV 6	0.38	No
fin.	2	0	2.6647	2.65			14.56	5.48	SLV 6	2.07	Si
ini.	2	0	5.8219	-24.44			14.56	5.48	SLV 2	0.22	No
fin.	2	0	-2.9962	-15.41			14.56	5.48	SLV 2	0.36	No
ini.	2	0	4.1098	-14.43			14.56	5.48	SLV 5	0.38	No
fin.	2	0	2.6647	2.65			14.56	5.48	SLV 5	2.07	Si
ini.	2	0	4.5132	-19.83			14.56	5.48	SLV 3	0.28	No
fin.	2	0	-4.8438	-19.99			14.56	5.48	SLV 3	0.27	No
ini.	2	0	-3.4321	19.55			14.56	5.48	SLV 13	0.28	No
fin.	2	0	7.0189	20.94			14.56	5.48	SLV 13	0.26	No
ini.	2	0	-4.7408	24.17			14.56	5.48	SLV 16	0.23	No
fin.	2	0	5.1712	16.37			14.56	5.48	SLV 16	0.33	No
ini.	2	0	-4.7408	24.17			14.56	5.48	SLV 15	0.23	No
fin.	2	0	5.1712	16.37			14.56	5.48	SLV 15	0.33	No
ini.	2	0	-3.4321	19.55			14.56	5.48	SLV 14	0.28	No
fin.	2	0	7.0189	20.94			14.56	5.48	SLV 14	0.26	No
ini.	2	0	4.5132	-19.83			14.56	5.48	SLV 4	0.28	No
fin.	2	0	-4.8438	-19.99			14.56	5.48	SLV 4	0.27	No
ini.	2	0	5.8219	-24.44			14.56	5.48	SLV 1	0.22	No
fin.	2	0	-2.9962	-15.41			14.56	5.48	SLV 1	0.36	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.734	SLV 13	Si
V_SLV	0.224	SLV 1	No
PF_SLU	3.576	SLU 71	Si
V_SLU	0.365	SLU 29	No

### Trave di accoppiamento 152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.363	-3.359	14.57	15.03	0.46	-18.263	-3.359	14.57	15.03	0.46	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-10.74	1.2303	3.006	SLU 80	2.44	Si
fin.	3	-10.72	-2.8411	3.006	SLU 80	1.06	Si
ini.	3	-9.68	1.0744	3.006	SLU 70	2.8	Si
fin.	3	-9.66	-2.7596	3.006	SLU 70	1.09	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-11.48	1.1148	3.006	SLU 78	2.7	Si
fin.	3	-11.46	-2.8316	3.006	SLU 78	1.06	Si
ini.	3	-10.46	1.2027	3.006	SLU 79	2.5	Si
fin.	3	-10.45	-2.8051	3.006	SLU 79	1.07	Si
ini.	3	-8.66	1.1623	3.006	SLU 71	2.59	Si
fin.	3	-8.65	-2.7331	3.006	SLU 71	1.1	Si
ini.	3	-8.94	1.1899	3.006	SLU 72	2.53	Si
fin.	3	-8.92	-2.7691	3.006	SLU 72	1.09	Si
ini.	3	-9.4	1.0467	3.006	SLU 69	2.87	Si
fin.	3	-9.39	-2.7236	3.006	SLU 69	1.1	Si
ini.	3	-9.69	1.1211	3.006	SLU 36	2.68	Si
fin.	3	-9.67	-2.7103	3.006	SLU 36	1.11	Si
ini.	3	-8.95	1.2366	3.006	SLU 38	2.43	Si
fin.	3	-8.93	-2.7198	3.006	SLU 38	1.11	Si
ini.	3	-11.2	1.0872	3.006	SLU 77	2.76	Si
fin.	3	-11.19	-2.7956	3.006	SLU 77	1.08	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	1.0807	1.31			3.31	1.24	SLU 28	0.95	No
fin.	3	0	-2.6383	-8.9			3.31	1.24	SLU 28	0.14	No
ini.	3	0	1.0872	1.6			3.31	1.24	SLU 77	0.78	No
fin.	3	0	-2.7956	-9.55			3.31	1.24	SLU 77	0.13	No
ini.	3	0	1.2303	0.72			3.31	1.24	SLU 80	1.73	Si
fin.	3	0	-2.8411	-9.09			3.31	1.24	SLU 80	0.14	No
ini.	3	0	1.1211	1.19			3.31	1.24	SLU 36	1.04	Si
fin.	3	0	-2.7103	-9.04			3.31	1.24	SLU 36	0.14	No
ini.	3	0	1.1899	0.83			3.31	1.24	SLU 72	1.49	Si
fin.	3	0	-2.7691	-8.96			3.31	1.24	SLU 72	0.14	No
ini.	3	0	1.0467	1.71			3.31	1.24	SLU 69	0.73	No
fin.	3	0	-2.7236	-9.41			3.31	1.24	SLU 69	0.13	No
ini.	3	0	1.0744	1.71			3.31	1.24	SLU 70	0.73	No
fin.	3	0	-2.7596	-9.52			3.31	1.24	SLU 70	0.13	No
ini.	3	0	1.0935	1.19			3.31	1.24	SLU 35	1.04	Si
fin.	3	0	-2.6743	-8.93			3.31	1.24	SLU 35	0.14	No
ini.	3	0	1.2027	0.72			3.31	1.24	SLU 79	1.72	Si
fin.	3	0	-2.8051	-8.98			3.31	1.24	SLU 79	0.14	No
ini.	3	0	1.1148	1.6			3.31	1.24	SLU 78	0.78	No
fin.	3	0	-2.8316	-9.65			3.31	1.24	SLU 78	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-18.11	1.3839	4.4694	SLV 1	3.23	Si
fin.	2	-13.5	-2.3229	4.4694	SLV 1	1.92	Si
ini.	2	-4.97	0.8939	4.4694	SLD 4	5	Si
fin.	2	-2.82	-1.5313	4.4694	SLD 4	2.92	Si
ini.	2	0.62	1.823	4.4694	SLV 4	2.45	Si
fin.	2	5.76	-2.3432	4.4694	SLV 4	1.91	Si
ini.	2	-18.11	1.3839	4.4694	SLV 2	3.23	Si
fin.	2	-13.5	-2.3229	4.4694	SLV 2	1.92	Si
ini.	2	22.3	1.366	4.4694	SLV 8	3.27	Si
fin.	2	24.65	-1.391	4.4694	SLV 8	3.21	Si
ini.	2	-4.97	0.8939	4.4694	SLD 3	5	Si
fin.	2	-2.82	-1.5313	4.4694	SLD 3	2.92	Si
ini.	2	-12.73	0.7162	4.4694	SLD 1	6.24	Si
fin.	2	-10.79	-1.5316	4.4694	SLD 1	2.92	Si
ini.	2	0.62	1.823	4.4694	SLV 3	2.45	Si
fin.	2	5.76	-2.3432	4.4694	SLV 3	1.91	Si
ini.	2	-12.73	0.7162	4.4694	SLD 2	6.24	Si
fin.	2	-10.79	-1.5316	4.4694	SLD 2	2.92	Si
ini.	2	22.3	1.366	4.4694	SLV 7	3.27	Si
fin.	2	24.65	-1.391	4.4694	SLV 7	3.21	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1.366	0.56			4.96	1.87	SLV 7	3.32	Si
fin.	2	0	-1.391	-5.25			4.96	1.87	SLV 7	0.36	No
ini.	2	0	1.366	0.56			4.96	1.87	SLV 8	3.32	Si
fin.	2	0	-1.391	-5.25			4.96	1.87	SLV 8	0.36	No
ini.	2	0	1.3839	-2.13			4.96	1.87	SLV 1	0.88	No
fin.	2	0	-2.3229	-6.22			4.96	1.87	SLV 1	0.3	No
ini.	2	0	1.823	-1.96			4.96	1.87	SLV 4	0.95	No
fin.	2	0	-2.3432	-6.7			4.96	1.87	SLV 4	0.28	No
ini.	2	0	0.7162	-0.18			4.96	1.87	SLD 1	10.46	Si
fin.	2	0	-1.5316	-4.72			4.96	1.87	SLD 1	0.4	No
ini.	2	0	0.7162	-0.18			4.96	1.87	SLD 2	10.46	Si
fin.	2	0	-1.5316	-4.72			4.96	1.87	SLD 2	0.4	No
ini.	2	0	0.8939	-0.12			4.96	1.87	SLD 3	16.02	Si
fin.	2	0	-1.5313	-4.9			4.96	1.87	SLD 3	0.38	No
ini.	2	0	0.8939	-0.12			4.96	1.87	SLD 4	16.02	Si
fin.	2	0	-1.5313	-4.9			4.96	1.87	SLD 4	0.38	No
ini.	2	0	1.3839	-2.13			4.96	1.87	SLV 2	0.88	No
fin.	2	0	-2.3229	-6.22			4.96	1.87	SLV 2	0.3	No
ini.	2	0	1.823	-1.96			4.96	1.87	SLV 3	0.95	No
fin.	2	0	-2.3432	-6.7			4.96	1.87	SLV 3	0.28	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.907	SLV 3	Si



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.279	SLV 3	No
PF SLU	1.058	SLU 80	Si
V SLU	0.129	SLU 78	No

## Trave di accoppiamento 153

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.058	1.406	13.97	15.03	1.06	-15.058	2.206	13.97	15.03	1.06	0.8	0.14	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.1	2.4757	7.9809	SLU 35	3.22	Si
fin.	3	2.1	-9.4815	7.9809	SLU 35	0.84	No
ini.	3	2.49	2.58	7.9809	SLU 78	3.09	Si
fin.	3	2.49	-10.289	7.9809	SLU 78	0.78	No
ini.	3	2.54	2.532	7.9809	SLU 77	3.15	Si
fin.	3	2.54	-10.3054	7.9809	SLU 77	0.77	No
ini.	3	2.05	2.5237	7.9809	SLU 36	3.16	Si
fin.	3	2.05	-9.4651	7.9809	SLU 36	0.84	No
ini.	3	2.25	2.6907	7.9809	SLU 80	2.97	Si
fin.	3	2.25	-9.8651	7.9809	SLU 80	0.81	No
ini.	3	2.3	2.6427	7.9809	SLU 79	3.02	Si
fin.	3	2.3	-9.8815	7.9809	SLU 79	0.81	No
ini.	3	2.99	2.3039	7.9809	SLU 83	3.46	Si
fin.	3	2.99	-9.5652	7.9809	SLU 83	0.83	No
ini.	3	2.94	2.0346	7.9809	SLU 74	3.92	Si
fin.	3	2.94	-9.3822	7.9809	SLU 74	0.85	No
ini.	3	2.89	2.0827	7.9809	SLU 75	3.83	Si
fin.	3	2.89	-9.3658	7.9809	SLU 75	0.85	No
ini.	3	2.94	2.3519	7.9809	SLU 84	3.39	Si
fin.	3	2.94	-9.5488	7.9809	SLU 84	0.84	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.6343	-13.36			5.72	2.15	SLU 38	0.16	No
fin.	3	0	-9.0412	-15.8			5.72	2.15	SLU 38	0.14	No
ini.	3	0	2.5237	-13.75			5.72	2.15	SLU 36	0.16	No
fin.	3	0	-9.4651	-16.19			5.72	2.15	SLU 36	0.13	No
ini.	3	0	2.0827	-12.77			5.72	2.15	SLU 75	0.17	No
fin.	3	0	-9.3658	-15.82			5.72	2.15	SLU 75	0.14	No
ini.	3	0	2.6907	-14.15			5.72	2.15	SLU 80	0.15	No
fin.	3	0	-9.8651	-17.2			5.72	2.15	SLU 80	0.13	No
ini.	3	0	2.4757	-13.71			5.72	2.15	SLU 35	0.16	No
fin.	3	0	-9.4815	-16.15			5.72	2.15	SLU 35	0.13	No
ini.	3	0	2.3039	-13.29			5.72	2.15	SLU 83	0.16	No
fin.	3	0	-9.5652	-16.34			5.72	2.15	SLU 83	0.13	No
ini.	3	0	2.6427	-14.11			5.72	2.15	SLU 79	0.15	No
fin.	3	0	-9.8815	-17.16			5.72	2.15	SLU 79	0.13	No
ini.	3	0	2.3519	-13.33			5.72	2.15	SLU 84	0.16	No
fin.	3	0	-9.5488	-16.38			5.72	2.15	SLU 84	0.13	No
ini.	3	0	2.58	-14.54			5.72	2.15	SLU 78	0.15	No
fin.	3	0	-10.289	-17.59			5.72	2.15	SLU 78	0.12	No
ini.	3	0	2.532	-14.5			5.72	2.15	SLU 77	0.15	No
fin.	3	0	-10.3054	-17.55			5.72	2.15	SLU 77	0.12	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-16.26	1.7105	11.3889	SLV 8	6.66	Si
fin.	2	-10.55	-15.3291	11.3889	SLV 8	0.74	No
ini.	2	-2.76	1.3866	11.3889	SLV 16	8.21	Si
fin.	2	-1.47	-9.8406	11.3889	SLV 16	1.16	Si
ini.	2	-5.49	1.3221	11.3889	SLD 8	8.61	Si
fin.	2	-3.13	-9.4381	11.3889	SLD 8	1.21	Si
ini.	2	-5.33	1.3648	11.3889	SLD 11	8.34	Si
fin.	2	-3.07	-9.8163	11.3889	SLD 11	1.16	Si
ini.	2	-15.87	1.8127	11.3889	SLV 11	6.28	Si
fin.	2	-10.4	-16.2172	11.3889	SLV 11	0.7	No
ini.	2	-15.87	1.8127	11.3889	SLV 12	6.28	Si
fin.	2	-10.4	-16.2172	11.3889	SLV 12	0.7	No
ini.	2	-2.76	1.3866	11.3889	SLV 15	8.21	Si
fin.	2	-1.47	-9.8406	11.3889	SLV 15	1.16	Si
ini.	2	-16.26	1.7105	11.3889	SLV 7	6.66	Si
fin.	2	-10.55	-15.3291	11.3889	SLV 7	0.74	No
ini.	2	-5.49	1.3221	11.3889	SLD 7	8.61	Si
fin.	2	-3.13	-9.4381	11.3889	SLD 7	1.21	Si
ini.	2	-5.33	1.3648	11.3889	SLD 12	8.34	Si
fin.	2	-3.07	-9.8163	11.3889	SLD 12	1.16	Si



## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1.8127	-24.25			8.57	3.23	SLV 11	0.13	No
fin.	2	0	-16.2172	-23.96			8.57	3.23	SLV 11	0.13	No
ini.	2	0	1.3648	-14.03			8.57	3.23	SLD 11	0.23	No
fin.	2	0	-9.8163	-15.24			8.57	3.23	SLD 11	0.21	No
ini.	2	0	1.3221	-13.3			8.57	3.23	SLD 8	0.24	No
fin.	2	0	-9.4381	-14.62			8.57	3.23	SLD 8	0.22	No
ini.	2	0	1.7105	-22.53			8.57	3.23	SLV 7	0.14	No
fin.	2	0	-15.3291	-22.5			8.57	3.23	SLV 7	0.14	No
ini.	2	0	1.3648	-14.03			8.57	3.23	SLD 12	0.23	No
fin.	2	0	-9.8163	-15.24			8.57	3.23	SLD 12	0.21	No
ini.	2	0	1.3221	-13.3			8.57	3.23	SLD 7	0.24	No
fin.	2	0	-9.4381	-14.62			8.57	3.23	SLD 7	0.22	No
ini.	2	0	1.3866	-14.45			8.57	3.23	SLV 16	0.22	No
fin.	2	0	-9.8406	-15.59			8.57	3.23	SLV 16	0.21	No
ini.	2	0	1.8127	-24.25			8.57	3.23	SLV 12	0.13	No
fin.	2	0	-16.2172	-23.96			8.57	3.23	SLV 12	0.13	No
ini.	2	0	1.7105	-22.53			8.57	3.23	SLV 8	0.14	No
fin.	2	0	-15.3291	-22.5			8.57	3.23	SLV 8	0.14	No
ini.	2	0	1.3866	-14.45			8.57	3.23	SLV 15	0.22	No
fin.	2	0	-9.8406	-15.59			8.57	3.23	SLV 15	0.21	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.702	SLV 11	No
V_SLV	0.133	SLV 11	No
PF_SLU	0.774	SLU 77	No
V_SLU	0.122	SLU 78	No

## Trave di accoppiamento 154

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-13.753	-0.228	13.97	15.03	1.06	-13.753	0.672	13.97	15.03	1.06	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.04	-1.3242	13.1792	SLU 72	9.95	Si
fin.	3	1.04	-1.0595	13.1792	SLU 72	12.44	Si
ini.	3	0.96	-1.4816	13.1792	SLU 30	8.9	Si
fin.	3	0.96	-1.0375	13.1792	SLU 30	12.7	Si
ini.	3	0.92	-1.4356	13.1792	SLU 27	9.18	Si
fin.	3	0.92	-0.9973	13.1792	SLU 27	13.21	Si
ini.	3	0.91	-1.3598	13.1792	SLU 28	9.69	Si
fin.	3	0.91	-1.0027	13.1792	SLU 28	13.14	Si
ini.	3	0.99	-1.2024	13.1792	SLU 70	10.96	Si
fin.	3	0.99	-1.0248	13.1792	SLU 70	12.86	Si
ini.	3	0.87	-1.2107	13.1792	SLU 8	10.89	Si
fin.	3	0.87	-0.8761	13.1792	SLU 8	15.04	Si
ini.	3	1	-1.2782	13.1792	SLU 69	10.31	Si
fin.	3	1	-1.0194	13.1792	SLU 69	12.93	Si
ini.	3	0.97	-1.5574	13.1792	SLU 29	8.46	Si
fin.	3	0.97	-1.032	13.1792	SLU 29	12.77	Si
ini.	3	1.05	-1.4	13.1792	SLU 71	9.41	Si
fin.	3	1.05	-1.0541	13.1792	SLU 71	12.5	Si
ini.	3	0.98	-1.1489	13.1792	SLU 37	11.47	Si
fin.	3	0.98	-1.0614	13.1792	SLU 37	12.42	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.5986	1.99			11.43	4.3	SLU 82	2.16	Si
fin.	3	0	-0.477	-4.35			11.43	4.3	SLU 82	0.99	No
ini.	3	0	0.2224	2.22			11.43	4.3	SLU 54	1.94	Si
fin.	3	0	-0.586	-3.96			11.43	4.3	SLU 54	1.09	Si
ini.	3	0	0.9453	1.71			11.43	4.3	SLU 61	2.52	Si
fin.	3	0	-0.3211	-4.47			11.43	4.3	SLU 61	0.96	No
ini.	3	0	0.8695	1.8			11.43	4.3	SLU 60	2.39	Si
fin.	3	0	-0.3157	-4.38			11.43	4.3	SLU 60	0.98	No
ini.	3	0	0.4741	2.14			11.43	4.3	SLU 73	2.01	Si
fin.	3	0	-0.4681	-4.2			11.43	4.3	SLU 73	1.02	Si
ini.	3	0	-0.071	2.39			11.43	4.3	SLU 84	1.8	Si
fin.	3	0	-0.7892	-3.96			11.43	4.3	SLU 84	1.09	Si
ini.	3	0	0.2757	2.11			11.43	4.3	SLU 63	2.04	Si
fin.	3	0	-0.6333	-4.07			11.43	4.3	SLU 63	1.06	Si
ini.	3	0	0.5228	2.08			11.43	4.3	SLU 81	2.06	Si
fin.	3	0	-0.4716	-4.26			11.43	4.3	SLU 81	1.01	Si
ini.	3	0	0.1999	2.2			11.43	4.3	SLU 62	1.96	Si
fin.	3	0	-0.6279	-3.98			11.43	4.3	SLU 62	1.08	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.8207	1.86			11.43	4.3	SLU 52	2.32	Si
fin.	3	0	-0.3121	-4.32			11.43	4.3	SLU 52	1	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-18.08	-6.6495	14.9694	SLV 9	2.25	Si
fin.	2	-20.25	2.4712	14.9694	SLV 9	6.06	Si
ini.	2	8.31	3.0158	14.9694	SLD 7	4.96	Si
fin.	2	9.09	-1.5115	14.9694	SLD 7	9.9	Si
ini.	2	-14.96	-6.3191	14.9694	SLV 5	2.37	Si
fin.	2	-16.61	2.3459	14.9694	SLV 5	6.38	Si
ini.	2	-18.08	-6.6495	14.9694	SLV 10	2.25	Si
fin.	2	-20.25	2.4712	14.9694	SLV 10	6.06	Si
ini.	2	15.79	6.6114	14.9694	SLV 11	2.26	Si
fin.	2	17.44	-2.9552	14.9694	SLV 11	5.07	Si
ini.	2	-14.96	-6.3191	14.9694	SLV 6	2.37	Si
fin.	2	-16.61	2.3459	14.9694	SLV 6	6.38	Si
ini.	2	18.91	6.9417	14.9694	SLV 7	2.16	Si
fin.	2	21.08	-3.0805	14.9694	SLV 7	4.86	Si
ini.	2	15.79	6.6114	14.9694	SLV 12	2.26	Si
fin.	2	17.44	-2.9552	14.9694	SLV 12	5.07	Si
ini.	2	18.91	6.9417	14.9694	SLV 8	2.16	Si
fin.	2	21.08	-3.0805	14.9694	SLV 8	4.86	Si
ini.	2	8.31	3.0158	14.9694	SLD 8	4.96	Si
fin.	2	9.09	-1.5115	14.9694	SLD 8	9.9	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-6.6495	11.41			17.15	6.45	SLV 9	0.57	No
fin.	2	0	2.4712	7.73			17.15	6.45	SLV 9	0.83	No
ini.	2	0	-6.3191	12.66			17.15	6.45	SLV 5	0.51	No
fin.	2	0	2.3459	8.38			17.15	6.45	SLV 5	0.77	No
ini.	2	0	6.6114	-8.79			17.15	6.45	SLV 12	0.73	No
fin.	2	0	-2.9552	-14.2			17.15	6.45	SLV 12	0.45	No
ini.	2	0	2.8726	-2.65			17.15	6.45	SLD 11	2.43	Si
fin.	2	0	-1.4572	-7.72			17.15	6.45	SLD 11	0.84	No
ini.	2	0	6.6114	-8.79			17.15	6.45	SLV 11	0.73	No
fin.	2	0	-2.9552	-14.2			17.15	6.45	SLV 11	0.45	No
ini.	2	0	6.9417	-7.54			17.15	6.45	SLV 8	0.86	No
fin.	2	0	-3.0805	-13.55			17.15	6.45	SLV 8	0.48	No
ini.	2	0	-6.3191	12.66			17.15	6.45	SLV 6	0.51	No
fin.	2	0	2.3459	8.38			17.15	6.45	SLV 6	0.77	No
ini.	2	0	-6.6495	11.41			17.15	6.45	SLV 10	0.57	No
fin.	2	0	2.4712	7.73			17.15	6.45	SLV 10	0.83	No
ini.	2	0	6.9417	-7.54			17.15	6.45	SLV 7	0.86	No
fin.	2	0	-3.0805	-13.55			17.15	6.45	SLV 7	0.48	No
ini.	2	0	2.8726	-2.65			17.15	6.45	SLD 12	2.43	Si
fin.	2	0	-1.4572	-7.72			17.15	6.45	SLD 12	0.84	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.156	SLV 7	Si
V_SLV	0.454	SLV 11	No
PF_SLU	8.462	SLU 29	Si
V_SLU	0.963	SLU 61	No

## Trave di accoppiamento 155

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.718	6.661	11.87	12.77	0.9	-16.818	6.661	11.87	12.77	0.9	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	14.44	-1.0572	10.3792	SLU 27	9.82	Si
fin.	3	9.02	-0.4211	10.3792	SLU 27	24.65	Si
ini.	3	15.07	-1.0536	10.3792	SLU 71	9.85	Si
fin.	3	9.39	-0.4078	10.3792	SLU 71	25.45	Si
ini.	3	15.11	-1.0634	10.3792	SLU 72	9.76	Si
fin.	3	9.34	-0.3968	10.3792	SLU 72	26.15	Si
ini.	3	15.34	-1.0482	10.3792	SLU 80	9.9	Si
fin.	3	9.76	-0.3824	10.3792	SLU 80	27.14	Si
ini.	3	15.02	-1.1668	10.3792	SLU 30	8.9	Si
fin.	3	9.12	-0.4199	10.3792	SLU 30	24.72	Si
ini.	3	14.47	-1.0669	10.3792	SLU 28	9.73	Si
fin.	3	8.98	-0.4101	10.3792	SLU 28	25.31	Si
ini.	3	14.99	-1.1571	10.3792	SLU 29	8.97	Si
fin.	3	9.17	-0.4309	10.3792	SLU 29	24.09	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	15.25	-1.1516	10.3792	SLU 38	9.01	Si
fin.	3	9.54	-0.4055	10.3792	SLU 38	25.6	Si
ini.	3	15.22	-1.1418	10.3792	SLU 37	9.09	Si
fin.	3	9.59	-0.4165	10.3792	SLU 37	24.92	Si
ini.	3	14.7	-1.0517	10.3792	SLU 36	9.87	Si
fin.	3	9.39	-0.3957	10.3792	SLU 36	26.23	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.1418	5.97			9.7	3.65	SLU 37	0.61	No
fin.	3	0	-0.4165	1.67			9.7	3.65	SLU 37	2.19	Si
ini.	3	0	-1.0482	5.16			9.7	3.65	SLU 80	0.71	No
fin.	3	0	-0.3824	2.51			9.7	3.65	SLU 80	1.46	Si
ini.	3	0	-0.7446	1.79			9.7	3.65	SLU 49	2.05	Si
fin.	3	0	-0.3299	4.71			9.7	3.65	SLU 49	0.78	No
ini.	3	0	-1.1571	5.17			9.7	3.65	SLU 29	0.71	No
fin.	3	0	-0.4309	2.91			9.7	3.65	SLU 29	1.25	Si
ini.	3	0	-0.7348	1.72			9.7	3.65	SLU 48	2.13	Si
fin.	3	0	-0.3409	4.64			9.7	3.65	SLU 48	0.79	No
ini.	3	0	-1.0384	5.09			9.7	3.65	SLU 79	0.72	No
fin.	3	0	-0.3934	2.44			9.7	3.65	SLU 79	1.49	Si
ini.	3	0	-1.1516	6.03			9.7	3.65	SLU 38	0.61	No
fin.	3	0	-0.4055	1.73			9.7	3.65	SLU 38	2.11	Si
ini.	3	0	-1.0419	4.95			9.7	3.65	SLU 35	0.74	No
fin.	3	0	-0.4067	2.17			9.7	3.65	SLU 35	1.68	Si
ini.	3	0	-1.1668	5.24			9.7	3.65	SLU 30	0.7	No
fin.	3	0	-0.4199	2.98			9.7	3.65	SLU 30	1.23	Si
ini.	3	0	-1.0517	5.02			9.7	3.65	SLU 36	0.73	No
fin.	3	0	-0.3957	2.24			9.7	3.65	SLU 36	1.63	Si

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	18.62	-2.9461	12.1694	SLV 4	4.13	Si
fin.	2	1.2	0.9198	12.1694	SLV 4	13.23	Si
ini.	2	15.71	-2.7003	12.1694	SLV 8	4.51	Si
fin.	2	9.06	0.047	12.1694	SLV 8	258.94	Si
ini.	2	-6.29	1.8043	12.1694	SLV 16	6.74	Si
fin.	2	9.04	-1.0716	12.1694	SLV 16	11.36	Si
ini.	2	-11.27	3.0187	12.1694	SLV 13	4.03	Si
fin.	2	4.66	-0.9208	12.1694	SLV 13	13.22	Si
ini.	2	-8.36	2.7729	12.1694	SLV 10	4.39	Si
fin.	2	-3.2	-0.0481	12.1694	SLV 10	253.18	Si
ini.	2	-6.29	1.8043	12.1694	SLV 15	6.74	Si
fin.	2	9.04	-1.0716	12.1694	SLV 15	11.36	Si
ini.	2	15.71	-2.7003	12.1694	SLV 7	4.51	Si
fin.	2	9.06	0.047	12.1694	SLV 7	258.94	Si
ini.	2	18.62	-2.9461	12.1694	SLV 3	4.13	Si
fin.	2	1.2	0.9198	12.1694	SLV 3	13.23	Si
ini.	2	-8.36	2.7729	12.1694	SLV 9	4.39	Si
fin.	2	-3.2	-0.0481	12.1694	SLV 9	253.18	Si
ini.	2	-11.27	3.0187	12.1694	SLV 14	4.03	Si
fin.	2	4.66	-0.9208	12.1694	SLV 14	13.22	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-2.9461	12.27			14.56	5.48	SLV 3	0.45	No
fin.	2	0	0.9198	15.85			14.56	5.48	SLV 3	0.35	No
ini.	2	0	3.0187	-13.21			14.56	5.48	SLV 14	0.41	No
fin.	2	0	-0.9208	-12.65			14.56	5.48	SLV 14	0.43	No
ini.	2	0	3.0187	-13.21			14.56	5.48	SLV 13	0.41	No
fin.	2	0	-0.9208	-12.65			14.56	5.48	SLV 13	0.43	No
ini.	2	0	-2.9461	12.27			14.56	5.48	SLV 4	0.45	No
fin.	2	0	0.9198	15.85			14.56	5.48	SLV 4	0.35	No
ini.	2	0	2.7729	-9.83			14.56	5.48	SLV 9	0.56	No
fin.	2	0	-0.0481	-9.96			14.56	5.48	SLV 9	0.55	No
ini.	2	0	-2.7003	8.89			14.56	5.48	SLV 8	0.62	No
fin.	2	0	0.047	13.15			14.56	5.48	SLV 8	0.42	No
ini.	2	0	-1.7316	8.62			14.56	5.48	SLV 2	0.64	No
fin.	2	0	1.0705	11.05			14.56	5.48	SLV 2	0.5	No
ini.	2	0	-2.7003	8.89			14.56	5.48	SLV 7	0.62	No
fin.	2	0	0.047	13.15			14.56	5.48	SLV 7	0.42	No
ini.	2	0	2.7729	-9.83			14.56	5.48	SLV 10	0.56	No
fin.	2	0	-0.0481	-9.96			14.56	5.48	SLV 10	0.55	No
ini.	2	0	-1.7316	8.62			14.56	5.48	SLV 1	0.64	No
fin.	2	0	1.0705	11.05			14.56	5.48	SLV 1	0.5	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	4.031	SLV 13	Si
V_SLV	0.346	SLV 3	No
PF_SLU	8.895	SLU 30	Si
V_SLU	0.605	SLU 38	No

## Trave di accoppiamento 156

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.718	6.661	14.57	15.03	0.46	-16.818	6.661	14.57	15.03	0.46	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-16.47	0.7666	3.006	SLU 71	3.92	Si
fin.	3	-16.36	-1.0289	3.006	SLU 71	2.92	Si
ini.	3	-16.61	0.7787	3.006	SLU 80	3.86	Si
fin.	3	-16.5	-1.0367	3.006	SLU 80	2.9	Si
ini.	3	-15.51	0.6814	3.006	SLU 35	4.41	Si
fin.	3	-15.41	-0.9896	3.006	SLU 35	3.04	Si
ini.	3	-16.57	0.7831	3.006	SLU 79	3.84	Si
fin.	3	-16.47	-1.04	3.006	SLU 79	2.89	Si
ini.	3	-15.98	0.6747	3.006	SLU 70	4.46	Si
fin.	3	-15.88	-1.052	3.006	SLU 70	2.86	Si
ini.	3	-16.5	0.7623	3.006	SLU 72	3.94	Si
fin.	3	-16.4	-1.0256	3.006	SLU 72	2.93	Si
ini.	3	-16.05	0.6955	3.006	SLU 77	4.32	Si
fin.	3	-15.95	-1.0664	3.006	SLU 77	2.82	Si
ini.	3	-15.95	0.679	3.006	SLU 69	4.43	Si
fin.	3	-15.84	-1.0553	3.006	SLU 69	2.85	Si
ini.	3	-15.54	0.6771	3.006	SLU 36	4.44	Si
fin.	3	-15.44	-0.9863	3.006	SLU 36	3.05	Si
ini.	3	-16.08	0.6911	3.006	SLU 78	4.35	Si
fin.	3	-15.98	-1.0631	3.006	SLU 78	2.83	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.5811	2.02			3.31	1.24	SLU 48	0.62	No
fin.	3	0	-0.9487	-5.8			3.31	1.24	SLU 48	0.21	No
ini.	3	0	0.5931	1.99			3.31	1.24	SLU 57	0.62	No
fin.	3	0	-0.9565	-5.82			3.31	1.24	SLU 57	0.21	No
ini.	3	0	0.6911	1.99			3.31	1.24	SLU 78	0.62	No
fin.	3	0	-1.0631	-6.35			3.31	1.24	SLU 78	0.2	No
ini.	3	0	0.679	2.02			3.31	1.24	SLU 69	0.62	No
fin.	3	0	-1.0553	-6.33			3.31	1.24	SLU 69	0.2	No
ini.	3	0	0.7831	1.23			3.31	1.24	SLU 79	1.01	Si
fin.	3	0	-1.04	-5.8			3.31	1.24	SLU 79	0.21	No
ini.	3	0	0.6747	2.02			3.31	1.24	SLU 70	0.61	No
fin.	3	0	-1.052	-6.33			3.31	1.24	SLU 70	0.2	No
ini.	3	0	0.7787	1.24			3.31	1.24	SLU 80	1.01	Si
fin.	3	0	-1.0367	-5.79			3.31	1.24	SLU 80	0.21	No
ini.	3	0	0.6955	1.98			3.31	1.24	SLU 77	0.63	No
fin.	3	0	-1.0664	-6.36			3.31	1.24	SLU 77	0.2	No
ini.	3	0	0.5767	2.02			3.31	1.24	SLU 49	0.61	No
fin.	3	0	-0.9454	-5.79			3.31	1.24	SLU 49	0.22	No
ini.	3	0	0.5975	1.98			3.31	1.24	SLU 56	0.63	No
fin.	3	0	-0.9598	-5.83			3.31	1.24	SLU 56	0.21	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-22.34	0.9694	4.4694	SLV 6	4.61	Si
fin.	2	-22.08	-1.9692	4.4694	SLV 6	2.27	Si
ini.	2	17.73	-0.9716	4.4694	SLV 7	4.6	Si
fin.	2	17.94	1.8048	4.4694	SLV 7	2.48	Si
ini.	2	-22.34	0.9694	4.4694	SLV 5	4.61	Si
fin.	2	-22.08	-1.9692	4.4694	SLV 5	2.27	Si
ini.	2	17.73	-0.9716	4.4694	SLV 8	4.6	Si
fin.	2	17.94	1.8048	4.4694	SLV 8	2.48	Si
ini.	2	-14.37	0.6804	4.4694	SLD 10	6.57	Si
fin.	2	-14.42	-1.3471	4.4694	SLD 10	3.32	Si
ini.	2	-27.42	1.3546	4.4694	SLV 10	3.3	Si
fin.	2	-27.58	-2.6275	4.4694	SLV 10	1.7	Si
ini.	2	-19.34	1.1248	4.4694	SLV 14	3.97	Si
fin.	2	-19.99	-2.0746	4.4694	SLV 14	2.15	Si
ini.	2	-14.37	0.6804	4.4694	SLD 9	6.57	Si
fin.	2	-14.42	-1.3471	4.4694	SLD 9	3.32	Si
ini.	2	-27.42	1.3546	4.4694	SLV 9	3.3	Si
fin.	2	-27.58	-2.6275	4.4694	SLV 9	1.7	Si
ini.	2	-19.34	1.1248	4.4694	SLV 13	3.97	Si
fin.	2	-19.99	-2.0746	4.4694	SLV 13	2.15	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1.1248	-1.87			4.96	1.87	SLV 14	1	Si
fin.	2	0	-2.0746	-6.91			4.96	1.87	SLV 14	0.27	No
ini.	2	0	-0.9716	5.09			4.96	1.87	SLV 7	0.37	No
fin.	2	0	1.8048	2.14			4.96	1.87	SLV 7	0.87	No
ini.	2	0	0.9694	-0.73			4.96	1.87	SLV 5	2.54	Si
fin.	2	0	-1.9692	-6.16			4.96	1.87	SLV 5	0.3	No
ini.	2	0	-0.9716	5.09			4.96	1.87	SLV 8	0.37	No
fin.	2	0	1.8048	2.14			4.96	1.87	SLV 8	0.87	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	0.6804	-0.08			4.96	1.87	SLD 10	23.39	Si
fin.	2	0	-1.3471	-4.96			4.96	1.87	SLD 10	0.38	No
ini.	2	0	1.3546	-2.2			4.96	1.87	SLV 10	0.85	No
fin.	2	0	-2.6275	-7.85			4.96	1.87	SLV 10	0.24	No
ini.	2	0	0.9694	-0.73			4.96	1.87	SLV 6	2.54	Si
fin.	2	0	-1.9692	-6.16			4.96	1.87	SLV 6	0.3	No
ini.	2	0	1.1248	-1.87			4.96	1.87	SLV 13	1	Si
fin.	2	0	-2.0746	-6.91			4.96	1.87	SLV 13	0.27	No
ini.	2	0	1.3546	-2.2			4.96	1.87	SLV 9	0.85	No
fin.	2	0	-2.6275	-7.85			4.96	1.87	SLV 9	0.24	No
ini.	2	0	0.6804	-0.08			4.96	1.87	SLD 9	23.39	Si
fin.	2	0	-1.3471	-4.96			4.96	1.87	SLD 9	0.38	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.701	SLV 9	Si
V_SLV	0.238	SLV 9	No
PF_SLU	2.819	SLU 77	Si
V_SLU	0.196	SLU 77	No

## Trave di accoppiamento 157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.838	6.661	11.87	12.77	0.9	-11.938	6.661	11.87	12.77	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.68	0.1376	10.3792	SLU 81	75.44	Si
fin.	3	-7.92	1.8938	10.3792	SLU 81	5.48	Si
ini.	3	0.27	0.0611	10.3792	SLU 61	169.92	Si
fin.	3	-7.9	1.7268	10.3792	SLU 61	6.01	Si
ini.	3	0.79	0.4985	10.3792	SLU 84	20.82	Si
fin.	3	-5.64	1.7204	10.3792	SLU 84	6.03	Si
ini.	3	0.84	0.4916	10.3792	SLU 83	21.11	Si
fin.	3	-5.59	1.7135	10.3792	SLU 83	6.06	Si
ini.	3	0.44	0.1904	10.3792	SLU 73	54.5	Si
fin.	3	-7.39	1.7659	10.3792	SLU 73	5.88	Si
ini.	3	0.8	0.1151	10.3792	SLU 39	90.15	Si
fin.	3	-6.61	1.6498	10.3792	SLU 39	6.29	Si
ini.	3	0.75	0.122	10.3792	SLU 40	85.11	Si
fin.	3	-6.67	1.6567	10.3792	SLU 40	6.27	Si
ini.	3	0.32	0.0543	10.3792	SLU 60	191.3	Si
fin.	3	-7.84	1.72	10.3792	SLU 60	6.03	Si
ini.	3	0.83	0.4734	10.3792	SLU 75	21.92	Si
fin.	3	-5.5	1.6505	10.3792	SLU 75	6.29	Si
ini.	3	0.62	0.1444	10.3792	SLU 82	71.88	Si
fin.	3	-7.98	1.9006	10.3792	SLU 82	5.46	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.1444	3.59			9.7	3.65	SLU 82	1.02	Si
fin.	3	0	1.9006	10.02			9.7	3.65	SLU 82	0.36	No
ini.	3	0	0.3901	-0.19			9.7	3.65	SLU 54	19.35	Si
fin.	3	0	1.4766	9.85			9.7	3.65	SLU 54	0.37	No
ini.	3	0	0.1071	2.04			9.7	3.65	SLU 52	1.79	Si
fin.	3	0	1.5921	9.79			9.7	3.65	SLU 52	0.37	No
ini.	3	0	0.4734	0.41			9.7	3.65	SLU 75	8.81	Si
fin.	3	0	1.6505	9.89			9.7	3.65	SLU 75	0.37	No
ini.	3	0	0.1376	3.6			9.7	3.65	SLU 81	1.02	Si
fin.	3	0	1.8938	10.02			9.7	3.65	SLU 81	0.36	No
ini.	3	0	0.0543	2.99			9.7	3.65	SLU 60	1.22	Si
fin.	3	0	1.72	9.98			9.7	3.65	SLU 60	0.37	No
ini.	3	0	0.3833	-0.18			9.7	3.65	SLU 53	20.1	Si
fin.	3	0	1.4698	9.85			9.7	3.65	SLU 53	0.37	No
ini.	3	0	0.4666	0.42			9.7	3.65	SLU 74	8.66	Si
fin.	3	0	1.6436	9.89			9.7	3.65	SLU 74	0.37	No
ini.	3	0	0.0611	2.99			9.7	3.65	SLU 61	1.22	Si
fin.	3	0	1.7268	9.98			9.7	3.65	SLU 61	0.37	No
ini.	3	0	0.1904	2.65			9.7	3.65	SLU 73	1.38	Si
fin.	3	0	1.7659	9.83			9.7	3.65	SLU 73	0.37	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-15.1	2.8714	12.1694	SLV 14	4.24	Si
fin.	2	3.67	-0.4202	12.1694	SLV 14	28.96	Si
ini.	2	-6.33	-0.0571	12.1694	SLV 5	213.28	Si
fin.	2	-23.37	3.7029	12.1694	SLV 5	3.29	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-6.33	-0.0571	12.1694	SLV 6	213.28	Si
fin.	2	-23.37	3.7029	12.1694	SLV 6	3.29	Si
ini.	2	9.35	-2.2151	12.1694	SLV 1	5.49	Si
fin.	2	-22.22	3.8716	12.1694	SLV 1	3.14	Si
ini.	2	-15.1	2.8714	12.1694	SLV 13	4.24	Si
fin.	2	3.67	-0.4202	12.1694	SLV 13	28.96	Si
ini.	2	-9	2.5476	12.1694	SLV 15	4.78	Si
fin.	2	12.43	-1.5631	12.1694	SLV 15	7.79	Si
ini.	2	9.35	-2.2151	12.1694	SLV 2	5.49	Si
fin.	2	-22.22	3.8716	12.1694	SLV 2	3.14	Si
ini.	2	15.46	-2.539	12.1694	SLV 3	4.79	Si
fin.	2	-13.46	2.7286	12.1694	SLV 3	4.46	Si
ini.	2	-9	2.5476	12.1694	SLV 16	4.78	Si
fin.	2	12.43	-1.5631	12.1694	SLV 16	7.79	Si
ini.	2	15.46	-2.539	12.1694	SLV 4	4.79	Si
fin.	2	-13.46	2.7286	12.1694	SLV 4	4.46	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-2.2151	17.93			14.56	5.48	SLV 2	0.31	No
fin.	2	0	3.8716	26.02			14.56	5.48	SLV 2	0.21	No
ini.	2	0	-2.539	19.32			14.56	5.48	SLV 4	0.28	No
fin.	2	0	2.7286	22.19			14.56	5.48	SLV 4	0.25	No
ini.	2	0	2.8714	-17.61			14.56	5.48	SLV 14	0.31	No
fin.	2	0	-0.4202	-7.53			14.56	5.48	SLV 14	0.73	No
ini.	2	0	2.5476	-16.22			14.56	5.48	SLV 15	0.34	No
fin.	2	0	-1.5631	-11.36			14.56	5.48	SLV 15	0.48	No
ini.	2	0	-0.0571	3.87			14.56	5.48	SLV 6	1.42	Si
fin.	2	0	3.7029	18.76			14.56	5.48	SLV 6	0.29	No
ini.	2	0	-2.2151	17.93			14.56	5.48	SLV 1	0.31	No
fin.	2	0	3.8716	26.02			14.56	5.48	SLV 1	0.21	No
ini.	2	0	2.5476	-16.22			14.56	5.48	SLV 16	0.34	No
fin.	2	0	-1.5631	-11.36			14.56	5.48	SLV 16	0.48	No
ini.	2	0	-2.539	19.32			14.56	5.48	SLV 3	0.28	No
fin.	2	0	2.7286	22.19			14.56	5.48	SLV 3	0.25	No
ini.	2	0	2.8714	-17.61			14.56	5.48	SLV 13	0.31	No
fin.	2	0	-0.4202	-7.53			14.56	5.48	SLV 13	0.73	No
ini.	2	0	-0.0571	3.87			14.56	5.48	SLV 5	1.42	Si
fin.	2	0	3.7029	18.76			14.56	5.48	SLV 5	0.29	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	3.143	SLV 1	Si
V_SLV	0.211	SLV 1	No
PF_SLU	5.461	SLU 82	Si
V_SLU	0.364	SLU 82	No

## Trave di accoppiamento 158

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.838	6.661	14.57	15.03	0.46	-11.938	6.661	14.57	15.03	0.46	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.05	-0.8234	3.006	SLU 60	3.65	Si
fin.	3	-8.04	0.1682	3.006	SLU 60	17.87	Si
ini.	3	-9.76	-0.9055	3.006	SLU 82	3.32	Si
fin.	3	-9.75	0.1125	3.006	SLU 82	26.72	Si
ini.	3	-8.79	-0.7861	3.006	SLU 40	3.82	Si
fin.	3	-8.78	0.0871	3.006	SLU 40	34.52	Si
ini.	3	-9.7	-0.9031	3.006	SLU 81	3.33	Si
fin.	3	-9.68	0.1147	3.006	SLU 81	26.21	Si
ini.	3	-10.62	-0.8195	3.006	SLU 74	3.67	Si
fin.	3	-10.58	-0.1607	3.006	SLU 74	18.7	Si
ini.	3	-10.69	-0.8219	3.006	SLU 75	3.66	Si
fin.	3	-10.65	-0.1629	3.006	SLU 75	18.45	Si
ini.	3	-11.01	-0.8052	3.006	SLU 83	3.73	Si
fin.	3	-10.97	-0.1424	3.006	SLU 83	21.11	Si
ini.	3	-8.12	-0.8258	3.006	SLU 61	3.64	Si
fin.	3	-8.11	0.166	3.006	SLU 61	18.11	Si
ini.	3	-11.08	-0.8076	3.006	SLU 84	3.72	Si
fin.	3	-11.04	-0.1446	3.006	SLU 84	20.79	Si
ini.	3	-9.22	-0.8428	3.006	SLU 73	3.57	Si
fin.	3	-9.2	0.0753	3.006	SLU 73	39.91	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-0.724	4.39			3.31	1.24	SLU 78	0.28	No
fin.	3	0	-0.42	-3.85			3.31	1.24	SLU 78	0.32	No
ini.	3	0	-0.6443	4.05			3.31	1.24	SLU 57	0.31	No
fin.	3	0	-0.3665	-3.56			3.31	1.24	SLU 57	0.35	No
ini.	3	0	-0.7216	4.39			3.31	1.24	SLU 77	0.28	No
fin.	3	0	-0.4178	-3.85			3.31	1.24	SLU 77	0.32	No
ini.	3	0	-0.5738	4.13			3.31	1.24	SLU 70	0.3	No
fin.	3	0	-0.5034	-4.11			3.31	1.24	SLU 70	0.3	No
ini.	3	0	-0.8195	4.28			3.31	1.24	SLU 74	0.29	No
fin.	3	0	-0.1607	-2.94			3.31	1.24	SLU 74	0.42	No
ini.	3	0	-0.6717	4.02			3.31	1.24	SLU 67	0.31	No
fin.	3	0	-0.2463	-3.2			3.31	1.24	SLU 67	0.39	No
ini.	3	0	-0.6419	4.05			3.31	1.24	SLU 56	0.31	No
fin.	3	0	-0.3643	-3.56			3.31	1.24	SLU 56	0.35	No
ini.	3	0	-0.5714	4.13			3.31	1.24	SLU 69	0.3	No
fin.	3	0	-0.5012	-4.11			3.31	1.24	SLU 69	0.3	No
ini.	3	0	-0.6693	4.02			3.31	1.24	SLU 66	0.31	No
fin.	3	0	-0.2441	-3.2			3.31	1.24	SLU 66	0.39	No
ini.	3	0	-0.8219	4.28			3.31	1.24	SLU 75	0.29	No
fin.	3	0	-0.1629	-2.94			3.31	1.24	SLU 75	0.42	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.88	0.7948	4.4694	SLV 14	5.62	Si
fin.	2	-10.86	-1.6268	4.4694	SLV 14	2.75	Si
ini.	2	-10.77	-2.4493	4.4694	SLV 1	1.82	Si
fin.	2	-9.77	1.6274	4.4694	SLV 1	2.75	Si
ini.	2	-10.77	-2.4493	4.4694	SLV 2	1.82	Si
fin.	2	-9.77	1.6274	4.4694	SLV 2	2.75	Si
ini.	2	-1.18	1.3392	4.4694	SLV 15	3.34	Si
fin.	2	-2.16	-1.563	4.4694	SLV 15	2.86	Si
ini.	2	-2.07	-1.9049	4.4694	SLV 3	2.35	Si
fin.	2	-1.07	1.6911	4.4694	SLV 3	2.64	Si
ini.	2	-20.6	-1.9489	4.4694	SLV 6	2.29	Si
fin.	2	-20.29	0.4141	4.4694	SLV 6	10.79	Si
ini.	2	-2.07	-1.9049	4.4694	SLV 4	2.35	Si
fin.	2	-1.07	1.6911	4.4694	SLV 4	2.64	Si
ini.	2	-20.6	-1.9489	4.4694	SLV 5	2.29	Si
fin.	2	-20.29	0.4141	4.4694	SLV 5	10.79	Si
ini.	2	-9.88	0.7948	4.4694	SLV 13	5.62	Si
fin.	2	-10.86	-1.6268	4.4694	SLV 13	2.75	Si
ini.	2	-1.18	1.3392	4.4694	SLV 16	3.34	Si
fin.	2	-2.16	-1.563	4.4694	SLV 16	2.86	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	0.7948	-0.37			4.96	1.87	SLV 13	5.07	Si
fin.	2	0	-1.6268	-5.16			4.96	1.87	SLV 13	0.36	No
ini.	2	0	1.3392	-1.27			4.96	1.87	SLV 15	1.47	Si
fin.	2	0	-1.563	-4.55			4.96	1.87	SLV 15	0.41	No
ini.	2	0	-1.9489	5.16			4.96	1.87	SLV 6	0.36	No
fin.	2	0	0.4141	-1.35			4.96	1.87	SLV 6	1.39	Si
ini.	2	0	-2.4493	6.51			4.96	1.87	SLV 2	0.29	No
fin.	2	0	1.6274	1.8			4.96	1.87	SLV 2	1.04	Si
ini.	2	0	-2.4493	6.51			4.96	1.87	SLV 1	0.29	No
fin.	2	0	1.6274	1.8			4.96	1.87	SLV 1	1.04	Si
ini.	2	0	1.3392	-1.27			4.96	1.87	SLV 16	1.47	Si
fin.	2	0	-1.563	-4.55			4.96	1.87	SLV 16	0.41	No
ini.	2	0	-1.9489	5.16			4.96	1.87	SLV 5	0.36	No
fin.	2	0	0.4141	-1.35			4.96	1.87	SLV 5	1.39	Si
ini.	2	0	-1.9049	5.61			4.96	1.87	SLV 3	0.33	No
fin.	2	0	1.6911	2.4			4.96	1.87	SLV 3	0.78	No
ini.	2	0	-1.9049	5.61			4.96	1.87	SLV 4	0.33	No
fin.	2	0	1.6911	2.4			4.96	1.87	SLV 4	0.78	No
ini.	2	0	0.7948	-0.37			4.96	1.87	SLV 14	5.07	Si
fin.	2	0	-1.6268	-5.16			4.96	1.87	SLV 14	0.36	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.825	SLV 1	Si
V_SLV	0.287	SLV 1	No
PF_SLU	3.32	SLU 82	Si
V_SLU	0.283	SLU 78	No

#### Trave di accoppiamento 159

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.958	6.661	11.87	12.77	0.9	-7.058	6.661	11.87	12.77	0.9	0.9	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.93	2.2595	10.3792	SLU 35	4.59	Si
fin.	3	12.7	-3.4818	10.3792	SLU 35	2.98	Si
ini.	3	1.35	2.2455	10.3792	SLU 38	4.62	Si
fin.	3	13.26	-3.6368	10.3792	SLU 38	2.85	Si
ini.	3	1.7	2.1836	10.3792	SLU 72	4.75	Si
fin.	3	13.18	-3.4458	10.3792	SLU 72	3.01	Si
ini.	3	1.73	2.1693	10.3792	SLU 71	4.78	Si
fin.	3	13.13	-3.4259	10.3792	SLU 71	3.03	Si
ini.	3	0.89	2.2738	10.3792	SLU 36	4.56	Si
fin.	3	12.74	-3.5017	10.3792	SLU 36	2.96	Si
ini.	3	0.42	2.4996	10.3792	SLU 80	4.15	Si
fin.	3	13.22	-3.6909	10.3792	SLU 80	2.81	Si
ini.	3	-0.03	2.5279	10.3792	SLU 78	4.11	Si
fin.	3	12.7	-3.5558	10.3792	SLU 78	2.92	Si
ini.	3	0	2.5136	10.3792	SLU 77	4.13	Si
fin.	3	12.66	-3.5359	10.3792	SLU 77	2.94	Si
ini.	3	0.45	2.4852	10.3792	SLU 79	4.18	Si
fin.	3	13.17	-3.671	10.3792	SLU 79	2.83	Si
ini.	3	1.38	2.2311	10.3792	SLU 37	4.65	Si
fin.	3	13.21	-3.6169	10.3792	SLU 37	2.87	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	2.2311	-11.65			9.7	3.65	SLU 37	0.31	No
fin.	3	0	-3.6169	-12.58			9.7	3.65	SLU 37	0.29	No
ini.	3	0	2.2738	-12.11			9.7	3.65	SLU 36	0.3	No
fin.	3	0	-3.5017	-12.04			9.7	3.65	SLU 36	0.3	No
ini.	3	0	2.1836	-12.11			9.7	3.65	SLU 72	0.3	No
fin.	3	0	-3.4458	-11.38			9.7	3.65	SLU 72	0.32	No
ini.	3	0	2.5136	-13.19			9.7	3.65	SLU 77	0.28	No
fin.	3	0	-3.5359	-12.36			9.7	3.65	SLU 77	0.3	No
ini.	3	0	2.2455	-11.72			9.7	3.65	SLU 38	0.31	No
fin.	3	0	-3.6368	-12.67			9.7	3.65	SLU 38	0.29	No
ini.	3	0	2.1976	-12.43			9.7	3.65	SLU 69	0.29	No
fin.	3	0	-3.2908	-10.66			9.7	3.65	SLU 69	0.34	No
ini.	3	0	2.4852	-12.8			9.7	3.65	SLU 79	0.29	No
fin.	3	0	-3.671	-12.99			9.7	3.65	SLU 79	0.28	No
ini.	3	0	2.2119	-12.5			9.7	3.65	SLU 70	0.29	No
fin.	3	0	-3.3107	-10.75			9.7	3.65	SLU 70	0.34	No
ini.	3	0	2.5279	-13.26			9.7	3.65	SLU 78	0.28	No
fin.	3	0	-3.5558	-12.45			9.7	3.65	SLU 78	0.29	No
ini.	3	0	2.4996	-12.88			9.7	3.65	SLU 80	0.28	No
fin.	3	0	-3.6909	-13.08			9.7	3.65	SLU 80	0.28	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	4.45	1.2737	12.1694	SLV 12	9.55	Si
fin.	2	12.25	-2.9111	12.1694	SLV 12	4.18	Si
ini.	2	4.45	1.2737	12.1694	SLV 11	9.55	Si
fin.	2	12.25	-2.9111	12.1694	SLV 11	4.18	Si
ini.	2	-3.01	2.1602	12.1694	SLD 16	5.63	Si
fin.	2	7.93	-2.5344	12.1694	SLD 16	4.8	Si
ini.	2	-12.07	2.7129	12.1694	SLV 10	4.49	Si
fin.	2	-0.76	-1.1291	12.1694	SLV 10	10.78	Si
ini.	2	-2.73	3.1448	12.1694	SLV 15	3.87	Si
fin.	2	14.7	-4.4153	12.1694	SLV 15	2.76	Si
ini.	2	-3.01	2.1602	12.1694	SLD 15	5.63	Si
fin.	2	7.93	-2.5344	12.1694	SLD 15	4.8	Si
ini.	2	-2.73	3.1448	12.1694	SLV 16	3.87	Si
fin.	2	14.7	-4.4153	12.1694	SLV 16	2.76	Si
ini.	2	-7.69	3.5765	12.1694	SLV 13	3.4	Si
fin.	2	10.79	-3.8807	12.1694	SLV 13	3.14	Si
ini.	2	-7.69	3.5765	12.1694	SLV 14	3.4	Si
fin.	2	10.79	-3.8807	12.1694	SLV 14	3.14	Si
ini.	2	-12.07	2.7129	12.1694	SLV 9	4.49	Si
fin.	2	-0.76	-1.1291	12.1694	SLV 9	10.78	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	3.5765	-19.42			14.56	5.48	SLV 14	0.28	No
fin.	2	0	-3.8807	-16.13			14.56	5.48	SLV 14	0.34	No
ini.	2	0	3.5765	-19.42			14.56	5.48	SLV 13	0.28	No
fin.	2	0	-3.8807	-16.13			14.56	5.48	SLV 13	0.34	No
ini.	2	0	3.1448	-18.53			14.56	5.48	SLV 15	0.3	No
fin.	2	0	-4.4153	-17.37			14.56	5.48	SLV 15	0.32	No
ini.	2	0	2.7129	-11.54			14.56	5.48	SLV 10	0.47	No
fin.	2	0	-1.1291	-6.51			14.56	5.48	SLV 10	0.84	No
ini.	2	0	3.1448	-18.53			14.56	5.48	SLV 16	0.3	No
fin.	2	0	-4.4153	-17.37			14.56	5.48	SLV 16	0.32	No
ini.	2	0	2.7129	-11.54			14.56	5.48	SLV 9	0.47	No
fin.	2	0	-1.1291	-6.51			14.56	5.48	SLV 9	0.84	No
ini.	2	0	2.1602	-11.56			14.56	5.48	SLD 15	0.47	No
fin.	2	0	-2.5344	-10.4			14.56	5.48	SLD 15	0.53	No
ini.	2	0	2.3463	-11.95			14.56	5.48	SLD 13	0.46	No
fin.	2	0	-2.3122	-9.88			14.56	5.48	SLD 13	0.55	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	2.3463	-11.95			14.56	5.48	SLD 14	0.46	No
fin.	2	0	-2.3122	-9.88			14.56	5.48	SLD 14	0.55	No
ini.	2	0	2.1602	-11.56			14.56	5.48	SLD 16	0.47	No
fin.	2	0	-2.5344	-10.4			14.56	5.48	SLD 16	0.53	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.756	SLV 15	Si
V_SLV	0.282	SLV 13	No
PF_SLU	2.812	SLU 80	Si
V_SLU	0.275	SLU 78	No

## Trave di accoppiamento 160

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.958	6.661	14.57	15.03	0.46	-7.058	6.661	14.57	15.03	0.46	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-5.43	0.9443	3.006	SLU 79	3.18	Si
fin.	3	-5.43	0.2806	3.006	SLU 79	10.71	Si
ini.	3	-4.07	0.8838	3.006	SLU 71	3.4	Si
fin.	3	-4.06	0.4211	3.006	SLU 71	7.14	Si
ini.	3	-4.78	0.8886	3.006	SLU 35	3.38	Si
fin.	3	-4.78	0.2226	3.006	SLU 35	13.51	Si
ini.	3	-2.78	0.9024	3.006	SLU 29	3.33	Si
fin.	3	-2.78	0.4894	3.006	SLU 29	6.14	Si
ini.	3	-2.82	0.9052	3.006	SLU 30	3.32	Si
fin.	3	-2.82	0.4834	3.006	SLU 30	6.22	Si
ini.	3	-4.19	0.9656	3.006	SLU 38	3.11	Si
fin.	3	-4.18	0.3429	3.006	SLU 38	8.77	Si
ini.	3	-5.47	0.947	3.006	SLU 80	3.17	Si
fin.	3	-5.47	0.2746	3.006	SLU 80	10.95	Si
ini.	3	-4.15	0.9629	3.006	SLU 37	3.12	Si
fin.	3	-4.15	0.349	3.006	SLU 37	8.61	Si
ini.	3	-4.1	0.8866	3.006	SLU 72	3.39	Si
fin.	3	-4.1	0.4151	3.006	SLU 72	7.24	Si
ini.	3	-4.82	0.8913	3.006	SLU 36	3.37	Si
fin.	3	-4.81	0.2165	3.006	SLU 36	13.88	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.8123	3.48			3.31	1.24	SLU 70	0.36	No
fin.	3	0	0.2887	-4.63			3.31	1.24	SLU 70	0.27	No
ini.	3	0	0.6966	3.16			3.31	1.24	SLU 56	0.39	No
fin.	3	0	0.1326	-4.46			3.31	1.24	SLU 56	0.28	No
ini.	3	0	0.6994	3.15			3.31	1.24	SLU 57	0.39	No
fin.	3	0	0.1266	-4.47			3.31	1.24	SLU 57	0.28	No
ini.	3	0	0.8095	3.49			3.31	1.24	SLU 69	0.36	No
fin.	3	0	0.2947	-4.62			3.31	1.24	SLU 69	0.27	No
ini.	3	0	0.5762	2.87			3.31	1.24	SLU 75	0.43	No
fin.	3	0	-0.1873	-4.73			3.31	1.24	SLU 75	0.26	No
ini.	3	0	0.8727	3.25			3.31	1.24	SLU 78	0.38	No
fin.	3	0	0.1482	-4.85			3.31	1.24	SLU 78	0.26	No
ini.	3	0	0.87	3.26			3.31	1.24	SLU 77	0.38	No
fin.	3	0	0.1542	-4.84			3.31	1.24	SLU 77	0.26	No
ini.	3	0	0.5158	3.09			3.31	1.24	SLU 67	0.4	No
fin.	3	0	-0.0468	-4.51			3.31	1.24	SLU 67	0.28	No
ini.	3	0	0.5735	2.88			3.31	1.24	SLU 74	0.43	No
fin.	3	0	-0.1813	-4.72			3.31	1.24	SLU 74	0.26	No
ini.	3	0	0.513	3.1			3.31	1.24	SLU 66	0.4	No
fin.	3	0	-0.0408	-4.5			3.31	1.24	SLU 66	0.28	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-7.99	1.8874	4.4694	SLV 13	2.37	Si
fin.	2	-6.16	-0.958	4.4694	SLV 13	4.67	Si
ini.	2	-7.99	1.8874	4.4694	SLV 14	2.37	Si
fin.	2	-6.16	-0.958	4.4694	SLV 14	4.67	Si
ini.	2	-30.86	-2.1213	4.4694	SLV 6	2.11	Si
fin.	2	-31.43	0.352	4.4694	SLV 6	12.7	Si
ini.	2	20.09	2.5271	4.4694	SLV 12	1.77	Si
fin.	2	20.66	-0.8262	4.4694	SLV 12	5.41	Si
ini.	2	20.09	2.5271	4.4694	SLV 11	1.77	Si
fin.	2	20.66	-0.8262	4.4694	SLV 11	5.41	Si
ini.	2	-17.23	-2.4828	4.4694	SLV 1	1.8	Si
fin.	2	-19.08	0.689	4.4694	SLV 1	6.49	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-17.23	-2.4828	4.4694	SLV 2	1.8	Si
fin.	2	-19.08	0.689	4.4694	SLV 2	6.49	Si
ini.	2	6.46	2.8886	4.4694	SLV 16	1.55	Si
fin.	2	8.31	-1.1633	4.4694	SLV 16	3.84	Si
ini.	2	-30.86	-2.1213	4.4694	SLV 5	2.11	Si
fin.	2	-31.43	0.352	4.4694	SLV 5	12.7	Si
ini.	2	6.46	2.8886	4.4694	SLV 15	1.55	Si
fin.	2	8.31	-1.1633	4.4694	SLV 15	3.84	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	2.5271	-1.52			4.96	1.87	SLV 12	1.23	Si
fin.	2	0	-0.8262	-4.18			4.96	1.87	SLV 12	0.45	No
ini.	2	0	-2.4828	5.04			4.96	1.87	SLV 1	0.37	No
fin.	2	0	0.689	0.57			4.96	1.87	SLV 1	3.29	Si
ini.	2	0	1.8874	-0.52			4.96	1.87	SLV 13	3.58	Si
fin.	2	0	-0.958	-5.67			4.96	1.87	SLV 13	0.33	No
ini.	2	0	2.8886	-1.88			4.96	1.87	SLV 16	0.99	No
fin.	2	0	-1.1633	-5.99			4.96	1.87	SLV 16	0.31	No
ini.	2	0	2.8886	-1.88			4.96	1.87	SLV 15	0.99	No
fin.	2	0	-1.1633	-5.99			4.96	1.87	SLV 15	0.31	No
ini.	2	0	1.8874	-0.52			4.96	1.87	SLV 14	3.58	Si
fin.	2	0	-0.958	-5.67			4.96	1.87	SLV 14	0.33	No
ini.	2	0	-2.4828	5.04			4.96	1.87	SLV 2	0.37	No
fin.	2	0	0.689	0.57			4.96	1.87	SLV 2	3.29	Si
ini.	2	0	2.5271	-1.52			4.96	1.87	SLV 11	1.23	Si
fin.	2	0	-0.8262	-4.18			4.96	1.87	SLV 11	0.45	No
ini.	2	0	-2.1213	4.68			4.96	1.87	SLV 5	0.4	No
fin.	2	0	0.352	-1.25			4.96	1.87	SLV 5	1.5	Si
ini.	2	0	-2.1213	4.68			4.96	1.87	SLV 6	0.4	No
fin.	2	0	0.352	-1.25			4.96	1.87	SLV 6	1.5	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.547	SLV 15	Si
V_SLV	0.312	SLV 15	No
PF_SLU	3.113	SLU 38	Si
V_SLU	0.257	SLU 78	No

## Trave di accoppiamento 161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-19.868	1.046	13.97	15.03	1.06	-20.668	1.046	13.97	15.03	1.06	0.8	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-31.8	3.4204	13.1792	SLU 80	3.85	Si
fin.	3	-48.51	-4.987	13.1792	SLU 80	2.64	Si
ini.	3	-29.62	3.1871	13.1792	SLU 38	4.14	Si
fin.	3	-45.19	-4.6116	13.1792	SLU 38	2.86	Si
ini.	3	-32.28	3.3187	13.1792	SLU 79	3.97	Si
fin.	3	-49.04	-5.0233	13.1792	SLU 79	2.62	Si
ini.	3	-30.1	3.0853	13.1792	SLU 37	4.27	Si
fin.	3	-45.72	-4.6479	13.1792	SLU 37	2.84	Si
ini.	3	-27.26	3.3418	13.1792	SLU 69	3.94	Si
fin.	3	-41.45	-4.5942	13.1792	SLU 69	2.87	Si
ini.	3	-25.52	3.8554	13.1792	SLU 72	3.42	Si
fin.	3	-40.17	-4.7279	13.1792	SLU 72	2.79	Si
ini.	3	-33.54	2.9069	13.1792	SLU 77	4.53	Si
fin.	3	-49.79	-4.8534	13.1792	SLU 77	2.72	Si
ini.	3	-33.06	3.0086	13.1792	SLU 78	4.38	Si
fin.	3	-49.26	-4.8171	13.1792	SLU 78	2.74	Si
ini.	3	-26.78	3.4435	13.1792	SLU 70	3.83	Si
fin.	3	-40.92	-4.5579	13.1792	SLU 70	2.89	Si
ini.	3	-26.01	3.7536	13.1792	SLU 71	3.51	Si
fin.	3	-40.7	-4.7642	13.1792	SLU 71	2.77	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	3.4435	17.48			11.43	4.3	SLU 70	0.25	No
fin.	3	0	-4.5579	-33.55			11.43	4.3	SLU 70	0.13	No
ini.	3	0	2.9069	16.3			11.43	4.3	SLU 77	0.26	No
fin.	3	0	-4.8534	-34.86			11.43	4.3	SLU 77	0.12	No
ini.	3	0	3.8554	16.3			11.43	4.3	SLU 72	0.26	No
fin.	3	0	-4.7279	-33.41			11.43	4.3	SLU 72	0.13	No
ini.	3	0	3.3418	16.93			11.43	4.3	SLU 69	0.25	No
fin.	3	0	-4.5942	-33.39			11.43	4.3	SLU 69	0.13	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	3.4204	15.67			11.43	4.3	SLU 80	0.27	No
fin.	3	0	-4.987	-34.88			11.43	4.3	SLU 80	0.12	No
ini.	3	0	2.7753	16.02			11.43	4.3	SLU 36	0.27	No
fin.	3	0	-4.4416	-32.04			11.43	4.3	SLU 36	0.13	No
ini.	3	0	3.1871	14.84			11.43	4.3	SLU 38	0.29	No
fin.	3	0	-4.6116	-31.9			11.43	4.3	SLU 38	0.13	No
ini.	3	0	3.0086	16.85			11.43	4.3	SLU 78	0.26	No
fin.	3	0	-4.8171	-35.02			11.43	4.3	SLU 78	0.12	No
ini.	3	0	3.3187	15.11			11.43	4.3	SLU 79	0.28	No
fin.	3	0	-5.0233	-34.72			11.43	4.3	SLU 79	0.12	No
ini.	3	0	3.7536	15.75			11.43	4.3	SLU 71	0.27	No
fin.	3	0	-4.7642	-33.25			11.43	4.3	SLU 71	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-11.6	-4.7005	14.9694	SLV 15	3.18	Si
fin.	2	-5.14	4.1126	14.9694	SLV 15	3.64	Si
ini.	2	-20.92	3.2341	14.9694	SLD 2	4.63	Si
fin.	2	-35.4	-4.9446	14.9694	SLD 2	3.03	Si
ini.	2	-27.25	3.2324	14.9694	SLV 5	4.63	Si
fin.	2	-43.06	-5.4517	14.9694	SLV 5	2.75	Si
ini.	2	-27.25	3.2324	14.9694	SLV 6	4.63	Si
fin.	2	-43.06	-5.4517	14.9694	SLV 6	2.75	Si
ini.	2	-24.77	6.4388	14.9694	SLV 2	2.32	Si
fin.	2	-47.67	-8.6173	14.9694	SLV 2	1.74	Si
ini.	2	-20.1	5.9823	14.9694	SLV 3	2.5	Si
fin.	2	-40.89	-7.7668	14.9694	SLV 3	1.93	Si
ini.	2	-20.92	3.2341	14.9694	SLD 1	4.63	Si
fin.	2	-35.4	-4.9446	14.9694	SLD 1	3.03	Si
ini.	2	-11.6	-4.7005	14.9694	SLV 16	3.18	Si
fin.	2	-5.14	4.1126	14.9694	SLV 16	3.64	Si
ini.	2	-20.1	5.9823	14.9694	SLV 4	2.5	Si
fin.	2	-40.89	-7.7668	14.9694	SLV 4	1.93	Si
ini.	2	-24.77	6.4388	14.9694	SLV 1	2.32	Si
fin.	2	-47.67	-8.6173	14.9694	SLV 1	1.74	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	3.0595	-1.12			17.15	6.45	SLD 3	5.77	Si
fin.	2	0	-4.5996	-25.71			17.15	6.45	SLD 3	0.25	No
ini.	2	0	5.9823	-9.2			17.15	6.45	SLV 4	0.7	No
fin.	2	0	-7.7668	-38.32			17.15	6.45	SLV 4	0.17	No
ini.	2	0	3.2324	-3.21			17.15	6.45	SLV 6	2.01	Si
fin.	2	0	-5.4517	-30.97			17.15	6.45	SLV 6	0.21	No
ini.	2	0	3.2341	-2.01			17.15	6.45	SLD 2	3.22	Si
fin.	2	0	-4.9446	-27.53			17.15	6.45	SLD 2	0.23	No
ini.	2	0	3.2324	-3.21			17.15	6.45	SLV 5	2.01	Si
fin.	2	0	-5.4517	-30.97			17.15	6.45	SLV 5	0.21	No
ini.	2	0	3.2341	-2.01			17.15	6.45	SLD 1	3.22	Si
fin.	2	0	-4.9446	-27.53			17.15	6.45	SLD 1	0.23	No
ini.	2	0	3.0595	-1.12			17.15	6.45	SLD 4	5.77	Si
fin.	2	0	-4.5996	-25.71			17.15	6.45	SLD 4	0.25	No
ini.	2	0	6.4388	-11.35			17.15	6.45	SLV 1	0.57	No
fin.	2	0	-8.6173	-42.76			17.15	6.45	SLV 1	0.15	No
ini.	2	0	6.4388	-11.35			17.15	6.45	SLV 2	0.57	No
fin.	2	0	-8.6173	-42.76			17.15	6.45	SLV 2	0.15	No
ini.	2	0	5.9823	-9.2			17.15	6.45	SLV 3	0.7	No
fin.	2	0	-7.7668	-38.32			17.15	6.45	SLV 3	0.17	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.737	SLV 1	Si
V_SLV	0.151	SLV 1	No
PF_SLU	2.624	SLU 79	Si
V_SLU	0.123	SLU 78	No

### Trave di accoppiamento 162

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-11.163	1.046	14.37	15.03	0.66	-12.283	1.046	14.37	15.03	0.66	1.12	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-21.24	-5.0158	6.1792	SLU 70	1.23	Si
fin.	3	-15.02	-1.0933	6.1792	SLU 70	5.65	Si
ini.	3	-20.69	-4.7568	6.1792	SLU 72	1.3	Si
fin.	3	-14.76	-1.0251	6.1792	SLU 72	6.03	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-23.31	-4.536	6.1792	SLU 79	1.36	Si
fin.	3	-18.31	-1.3901	6.1792	SLU 79	4.45	Si
ini.	3	-23.86	-4.7949	6.1792	SLU 77	1.29	Si
fin.	3	-18.58	-1.4583	6.1792	SLU 77	4.24	Si
ini.	3	-21.47	-5.0334	6.1792	SLU 69	1.23	Si
fin.	3	-15.27	-1.1207	6.1792	SLU 69	5.51	Si
ini.	3	-17.57	-4.6516	6.1792	SLU 49	1.33	Si
fin.	3	-11.47	-0.7535	6.1792	SLU 49	8.2	Si
ini.	3	-17.8	-4.6692	6.1792	SLU 48	1.32	Si
fin.	3	-11.71	-0.781	6.1792	SLU 48	7.91	Si
ini.	3	-23.08	-4.5184	6.1792	SLU 80	1.37	Si
fin.	3	-18.07	-1.3626	6.1792	SLU 80	4.53	Si
ini.	3	-20.92	-4.7744	6.1792	SLU 71	1.29	Si
fin.	3	-15	-1.0525	6.1792	SLU 71	5.87	Si
ini.	3	-23.63	-4.7773	6.1792	SLU 78	1.29	Si
fin.	3	-18.33	-1.4308	6.1792	SLU 78	4.32	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-5.0334	27.22			4.74	1.79	SLU 69	0.07	No
fin.	3	0	-1.1207	-9.37			4.74	1.79	SLU 69	0.19	No
ini.	3	0	-4.6692	25.4			4.74	1.79	SLU 48	0.07	No
fin.	3	0	-0.781	-8.24			4.74	1.79	SLU 48	0.22	No
ini.	3	0	-4.7568	25.37			4.74	1.79	SLU 72	0.07	No
fin.	3	0	-1.0251	-8.54			4.74	1.79	SLU 72	0.21	No
ini.	3	0	-4.7744	25.46			4.74	1.79	SLU 71	0.07	No
fin.	3	0	-1.0525	-8.62			4.74	1.79	SLU 71	0.21	No
ini.	3	0	-4.4307	24.38			4.74	1.79	SLU 56	0.07	No
fin.	3	0	-1.1185	-8.98			4.74	1.79	SLU 56	0.2	No
ini.	3	0	-4.7773	26.11			4.74	1.79	SLU 78	0.07	No
fin.	3	0	-1.4308	-10.04			4.74	1.79	SLU 78	0.18	No
ini.	3	0	-4.6516	25.31			4.74	1.79	SLU 49	0.07	No
fin.	3	0	-0.7535	-8.16			4.74	1.79	SLU 49	0.22	No
ini.	3	0	-4.7949	26.2			4.74	1.79	SLU 77	0.07	No
fin.	3	0	-1.4583	-10.12			4.74	1.79	SLU 77	0.18	No
ini.	3	0	-5.0158	27.13			4.74	1.79	SLU 70	0.07	No
fin.	3	0	-1.0933	-9.29			4.74	1.79	SLU 70	0.19	No
ini.	3	0	-4.536	24.44			4.74	1.79	SLU 79	0.07	No
fin.	3	0	-1.3901	-9.36			4.74	1.79	SLU 79	0.19	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-17.63	4.6555	7.9694	SLV 4	1.71	Si
fin.	2	-47.16	-13.1094	7.9694	SLV 4	0.61	No
ini.	2	-11.87	-7.8251	7.9694	SLV 10	1.02	Si
fin.	2	9.82	5.8703	7.9694	SLV 10	1.36	Si
ini.	2	-19.27	2.5045	7.9694	SLV 1	3.18	Si
fin.	2	-42.87	-11.3609	7.9694	SLV 1	0.7	No
ini.	2	-4.94	-9.5263	7.9694	SLV 14	0.84	No
fin.	2	30.5	12.0103	7.9694	SLV 14	0.66	No
ini.	2	-11.87	-7.8251	7.9694	SLV 9	1.02	Si
fin.	2	9.82	5.8703	7.9694	SLV 9	1.36	Si
ini.	2	-3.3	-7.3753	7.9694	SLV 15	1.08	Si
fin.	2	26.22	10.2618	7.9694	SLV 15	0.78	No
ini.	2	-4.94	-9.5263	7.9694	SLV 13	0.84	No
fin.	2	30.5	12.0103	7.9694	SLV 13	0.66	No
ini.	2	-17.63	4.6555	7.9694	SLV 3	1.71	Si
fin.	2	-47.16	-13.1094	7.9694	SLV 3	0.61	No
ini.	2	-19.27	2.5045	7.9694	SLV 2	3.18	Si
fin.	2	-42.87	-11.3609	7.9694	SLV 2	0.7	No
ini.	2	-3.3	-7.3753	7.9694	SLV 16	1.08	Si
fin.	2	26.22	10.2618	7.9694	SLV 16	0.78	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.6555	-14.26			7.12	2.68	SLV 3	0.19	No
fin.	2	0	-13.1094	-34.72			7.12	2.68	SLV 3	0.08	No
ini.	2	0	2.5045	-7.08			7.12	2.68	SLV 2	0.38	No
fin.	2	0	-11.3609	-30.67			7.12	2.68	SLV 2	0.09	No
ini.	2	0	-7.3753	34.75			7.12	2.68	SLV 16	0.08	No
fin.	2	0	10.2618	20.39			7.12	2.68	SLV 16	0.13	No
ini.	2	0	-9.5263	41.93			7.12	2.68	SLV 13	0.06	No
fin.	2	0	12.0103	24.44			7.12	2.68	SLV 13	0.11	No
ini.	2	0	4.6555	-14.26			7.12	2.68	SLV 4	0.19	No
fin.	2	0	-13.1094	-34.72			7.12	2.68	SLV 4	0.08	No
ini.	2	0	-7.3753	34.75			7.12	2.68	SLV 15	0.08	No
fin.	2	0	10.2618	20.39			7.12	2.68	SLV 15	0.13	No
ini.	2	0	-9.5263	41.93			7.12	2.68	SLV 14	0.06	No
fin.	2	0	12.0103	24.44			7.12	2.68	SLV 14	0.11	No
ini.	2	0	-7.8251	33.16			7.12	2.68	SLV 9	0.08	No
fin.	2	0	5.8703	9.88			7.12	2.68	SLV 9	0.27	No
ini.	2	0	2.5045	-7.08			7.12	2.68	SLV 1	0.38	No
fin.	2	0	-11.3609	-30.67			7.12	2.68	SLV 1	0.09	No
ini.	2	0	-7.8251	33.16			7.12	2.68	SLV 10	0.08	No
fin.	2	0	5.8703	9.88			7.12	2.68	SLV 10	0.27	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.608	SLV 3	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.064	SLV 13	No
PF SLU	1.228	SLU 69	Si
V SLU	0.066	SLU 69	No

## Trave di accoppiamento 163

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-9.386	1.046	14.37	15.03	0.66	-10.466	1.046	14.37	15.03	0.66	1.08	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fmed	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-19.42	-1.3999	6.1792	SLU 35	4.41	Si
fin.	3	-22.26	-3.6032	6.1792	SLU 35	1.71	Si
ini.	3	-21.1	-1.9116	6.1792	SLU 78	3.23	Si
fin.	3	-23.33	-3.7131	6.1792	SLU 78	1.66	Si
ini.	3	-16.33	-1.2353	6.1792	SLU 27	5	Si
fin.	3	-19.47	-3.6425	6.1792	SLU 27	1.7	Si
ini.	3	-17.92	-1.6511	6.1792	SLU 69	3.74	Si
fin.	3	-20.73	-3.8359	6.1792	SLU 69	1.61	Si
ini.	3	-21.01	-1.8157	6.1792	SLU 77	3.4	Si
fin.	3	-23.53	-3.7966	6.1792	SLU 77	1.63	Si
ini.	3	-20.32	-1.6115	6.1792	SLU 79	3.83	Si
fin.	3	-23.02	-3.7078	6.1792	SLU 79	1.67	Si
ini.	3	-17.23	-1.4469	6.1792	SLU 71	4.27	Si
fin.	3	-20.23	-3.7471	6.1792	SLU 71	1.65	Si
ini.	3	-18.01	-1.747	6.1792	SLU 70	3.54	Si
fin.	3	-20.54	-3.7524	6.1792	SLU 70	1.65	Si
ini.	3	-20.41	-1.7075	6.1792	SLU 80	3.62	Si
fin.	3	-22.83	-3.6244	6.1792	SLU 80	1.7	Si
ini.	3	-17.32	-1.5429	6.1792	SLU 72	4	Si
fin.	3	-20.03	-3.6637	6.1792	SLU 72	1.69	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.747	9.67			4.74	1.79	SLU 70	0.18	No
fin.	3	0	-3.7524	-15.49			4.74	1.79	SLU 70	0.12	No
ini.	3	0	-1.6511	9.42			4.74	1.79	SLU 69	0.19	No
fin.	3	0	-3.8359	-15.78			4.74	1.79	SLU 69	0.11	No
ini.	3	0	-1.9116	9.86			4.74	1.79	SLU 78	0.18	No
fin.	3	0	-3.7131	-15.11			4.74	1.79	SLU 78	0.12	No
ini.	3	0	-1.3312	7.6			4.74	1.79	SLU 28	0.24	No
fin.	3	0	-3.559	-14.06			4.74	1.79	SLU 28	0.13	No
ini.	3	0	-1.7075	8.92			4.74	1.79	SLU 80	0.2	No
fin.	3	0	-3.6244	-14.52			4.74	1.79	SLU 80	0.12	No
ini.	3	0	-1.2353	7.35			4.74	1.79	SLU 27	0.24	No
fin.	3	0	-3.6425	-14.35			4.74	1.79	SLU 27	0.12	No
ini.	3	0	-1.6115	8.67			4.74	1.79	SLU 79	0.21	No
fin.	3	0	-3.7078	-14.81			4.74	1.79	SLU 79	0.12	No
ini.	3	0	-1.5429	8.73			4.74	1.79	SLU 72	0.2	No
fin.	3	0	-3.6637	-14.9			4.74	1.79	SLU 72	0.12	No
ini.	3	0	-1.4469	8.48			4.74	1.79	SLU 71	0.21	No
fin.	3	0	-3.7471	-15.19			4.74	1.79	SLU 71	0.12	No
ini.	3	0	-1.8157	9.61			4.74	1.79	SLU 77	0.19	No
fin.	3	0	-3.7966	-15.4			4.74	1.79	SLU 77	0.12	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	8.01	3.8337	7.9694	SLV 6	2.08	Si
fin.	2	-13.19	-7.3591	7.9694	SLV 6	1.08	Si
ini.	2	-28.79	-9.4468	7.9694	SLV 15	0.84	No
fin.	2	-7.07	3.7007	7.9694	SLV 15	2.15	Si
ini.	2	8.04	6.9415	7.9694	SLV 2	1.15	Si
fin.	2	-14.59	-6.9189	7.9694	SLV 2	1.15	Si
ini.	2	-28.76	-6.3389	7.9694	SLV 12	1.26	Si
fin.	2	-8.47	4.1408	7.9694	SLV 12	1.92	Si
ini.	2	8.01	3.8337	7.9694	SLV 5	2.08	Si
fin.	2	-13.19	-7.3591	7.9694	SLV 5	1.08	Si
ini.	2	-28.76	-6.3389	7.9694	SLV 11	1.26	Si
fin.	2	-8.47	4.1408	7.9694	SLV 11	1.92	Si
ini.	2	8.04	6.9415	7.9694	SLV 1	1.15	Si
fin.	2	-14.59	-6.9189	7.9694	SLV 1	1.15	Si
ini.	2	-28.79	-9.4468	7.9694	SLV 16	0.84	No
fin.	2	-7.07	3.7007	7.9694	SLV 16	2.15	Si
ini.	2	-20.31	-7.714	7.9694	SLV 14	1.03	Si
fin.	2	-7.88	0.9597	7.9694	SLV 14	8.3	Si
ini.	2	-20.31	-7.714	7.9694	SLV 13	1.03	Si
fin.	2	-7.88	0.9597	7.9694	SLV 13	8.3	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	6.9415	-17.02			7.12	2.68	SLV 1	0.16	No
fin.	2	0	-6.9189	-24.02			7.12	2.68	SLV 1	0.11	No
ini.	2	0	-9.4468	29.85			7.12	2.68	SLV 15	0.09	No
fin.	2	0	3.7007	8.99			7.12	2.68	SLV 15	0.3	No
ini.	2	0	-9.4468	29.85			7.12	2.68	SLV 16	0.09	No
fin.	2	0	3.7007	8.99			7.12	2.68	SLV 16	0.3	No
ini.	2	0	-6.3389	24.34			7.12	2.68	SLV 11	0.11	No
fin.	2	0	4.1408	9.19			7.12	2.68	SLV 11	0.29	No
ini.	2	0	-7.714	22.66			7.12	2.68	SLV 13	0.12	No
fin.	2	0	0.9597	1.24			7.12	2.68	SLV 13	2.16	Si
ini.	2	0	-7.714	22.66			7.12	2.68	SLV 14	0.12	No
fin.	2	0	0.9597	1.24			7.12	2.68	SLV 14	2.16	Si
ini.	2	0	-6.3389	24.34			7.12	2.68	SLV 12	0.11	No
fin.	2	0	4.1408	9.19			7.12	2.68	SLV 12	0.29	No
ini.	2	0	6.9415	-17.02			7.12	2.68	SLV 2	0.16	No
fin.	2	0	-6.9189	-24.02			7.12	2.68	SLV 2	0.11	No
ini.	2	0	3.8337	-11.51			7.12	2.68	SLV 5	0.23	No
fin.	2	0	-7.3591	-24.22			7.12	2.68	SLV 5	0.11	No
ini.	2	0	3.8337	-11.51			7.12	2.68	SLV 6	0.23	No
fin.	2	0	-7.3591	-24.22			7.12	2.68	SLV 6	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.844	SLV 15	No
V_SLV	0.09	SLV 15	No
PF_SLU	1.611	SLU 69	Si
V_SLU	0.113	SLU 69	No

#### Trave di accoppiamento 164

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.478	1.046	13.97	15.03	1.06	-7.278	1.046	13.97	15.03	1.06	0.8	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-22.82	-4.0408	13.1792	SLU 73	3.26	Si
fin.	3	-14.56	2.9322	13.1792	SLU 73	4.49	Si
ini.	3	-20.57	-4.0956	13.1792	SLU 61	3.22	Si
fin.	3	-11.87	3.0853	13.1792	SLU 61	4.27	Si
ini.	3	-21.09	-4.1591	13.1792	SLU 60	3.17	Si
fin.	3	-12.08	3.0952	13.1792	SLU 60	4.26	Si
ini.	3	-24.32	-3.9763	13.1792	SLU 39	3.31	Si
fin.	3	-15.48	2.8496	13.1792	SLU 39	4.62	Si
ini.	3	-25.53	-4.4731	13.1792	SLU 82	2.95	Si
fin.	3	-15.99	3.2604	13.1792	SLU 82	4.04	Si
ini.	3	-26.51	-4.135	13.1792	SLU 75	3.19	Si
fin.	3	-18.98	2.6384	13.1792	SLU 75	5	Si
ini.	3	-27.35	-4.0726	13.1792	SLU 84	3.24	Si
fin.	3	-19.61	2.8333	13.1792	SLU 84	4.65	Si
ini.	3	-26.06	-4.5365	13.1792	SLU 81	2.91	Si
fin.	3	-16.2	3.2703	13.1792	SLU 81	4.03	Si
ini.	3	-27.87	-4.136	13.1792	SLU 83	3.19	Si
fin.	3	-19.83	2.8432	13.1792	SLU 83	4.64	Si
ini.	3	-27.04	-4.1984	13.1792	SLU 74	3.14	Si
fin.	3	-19.2	2.6483	13.1792	SLU 74	4.98	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3.798	30.26			11.43	4.3	SLU 77	0.14	No
fin.	3	0	2.2212	-4.2			11.43	4.3	SLU 77	1.02	Si
ini.	3	0	-4.5365	29.47			11.43	4.3	SLU 81	0.15	No
fin.	3	0	3.2703	5.19			11.43	4.3	SLU 81	0.83	No
ini.	3	0	-3.3456	27.85			11.43	4.3	SLU 79	0.15	No
fin.	3	0	2.0945	-4.56			11.43	4.3	SLU 79	0.94	No
ini.	3	0	-4.135	30.05			11.43	4.3	SLU 75	0.14	No
fin.	3	0	2.6384	-0.52			11.43	4.3	SLU 75	8.19	Si
ini.	3	0	-4.0726	29.25			11.43	4.3	SLU 84	0.15	No
fin.	3	0	2.8333	0.81			11.43	4.3	SLU 84	5.31	Si
ini.	3	0	-4.1984	30.26			11.43	4.3	SLU 74	0.14	No
fin.	3	0	2.6483	-0.17			11.43	4.3	SLU 74	25.46	Si
ini.	3	0	-4.136	29.47			11.43	4.3	SLU 83	0.15	No
fin.	3	0	2.8432	1.17			11.43	4.3	SLU 83	3.69	Si
ini.	3	0	-3.7345	30.05			11.43	4.3	SLU 78	0.14	No
fin.	3	0	2.2113	-4.55			11.43	4.3	SLU 78	0.94	No
ini.	3	0	-3.821	27.7			11.43	4.3	SLU 53	0.16	No
fin.	3	0	2.4732	-0.48			11.43	4.3	SLU 53	8.92	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4.4731	29.26			11.43	4.3	SLU 82	0.15	No
fin.	3	0	3.2604	4.84			11.43	4.3	SLU 82	0.89	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-23.86	-8.6973	14.9694	SLV 15	1.72	Si
fin.	2	-10.2	7.2876	14.9694	SLV 15	2.05	Si
ini.	2	-30.41	-7.6657	14.9694	SLV 11	1.95	Si
fin.	2	-15.8	6.8107	14.9694	SLV 11	2.2	Si
ini.	2	-23.86	-8.6973	14.9694	SLV 16	1.72	Si
fin.	2	-10.2	7.2876	14.9694	SLV 16	2.05	Si
ini.	2	-15.2	-6.5942	14.9694	SLV 14	2.27	Si
fin.	2	-6.01	5.1002	14.9694	SLV 14	2.94	Si
ini.	2	-30.41	-7.6657	14.9694	SLV 12	1.95	Si
fin.	2	-15.8	6.8107	14.9694	SLV 12	2.2	Si
ini.	2	-15.2	-6.5942	14.9694	SLV 13	2.27	Si
fin.	2	-6.01	5.1002	14.9694	SLV 13	2.94	Si
ini.	2	-21.25	-4.8064	14.9694	SLD 11	3.11	Si
fin.	2	-11.94	3.9529	14.9694	SLD 11	3.79	Si
ini.	2	-21.25	-4.8064	14.9694	SLD 12	3.11	Si
fin.	2	-11.94	3.9529	14.9694	SLD 12	3.79	Si
ini.	2	-18.44	-5.2425	14.9694	SLD 16	2.86	Si
fin.	2	-9.56	4.1688	14.9694	SLD 16	3.59	Si
ini.	2	-18.44	-5.2425	14.9694	SLD 15	2.86	Si
fin.	2	-9.56	4.1688	14.9694	SLD 15	3.59	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.6782	30			17.15	6.45	SLV 7	0.22	No
fin.	2	0	4.2146	10.17			17.15	6.45	SLV 7	0.63	No
ini.	2	0	-7.6657	39.48			17.15	6.45	SLV 11	0.16	No
fin.	2	0	6.8107	19.54			17.15	6.45	SLV 11	0.33	No
ini.	2	0	-6.5942	30.13			17.15	6.45	SLV 13	0.21	No
fin.	2	0	5.1002	12.07			17.15	6.45	SLV 13	0.53	No
ini.	2	0	-6.5942	30.13			17.15	6.45	SLV 14	0.21	No
fin.	2	0	5.1002	12.07			17.15	6.45	SLV 14	0.53	No
ini.	2	0	-8.6973	39.55			17.15	6.45	SLV 16	0.16	No
fin.	2	0	7.2876	20.56			17.15	6.45	SLV 16	0.31	No
ini.	2	0	-5.2425	27.78			17.15	6.45	SLD 16	0.23	No
fin.	2	0	4.1688	9.15			17.15	6.45	SLD 16	0.71	No
ini.	2	0	-4.6782	30			17.15	6.45	SLV 8	0.22	No
fin.	2	0	4.2146	10.17			17.15	6.45	SLV 8	0.63	No
ini.	2	0	-8.6973	39.55			17.15	6.45	SLV 15	0.16	No
fin.	2	0	7.2876	20.56			17.15	6.45	SLV 15	0.31	No
ini.	2	0	-7.6657	39.48			17.15	6.45	SLV 12	0.16	No
fin.	2	0	6.8107	19.54			17.15	6.45	SLV 12	0.33	No
ini.	2	0	-5.2425	27.78			17.15	6.45	SLD 15	0.23	No
fin.	2	0	4.1688	9.15			17.15	6.45	SLD 15	0.71	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 15	Si
V_SLV	0.163	SLV 15	No
PF_SLU	2.905	SLU 81	Si
V_SLU	0.142	SLU 74	No

### Trave di accoppiamento 165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-4.168	1.046	13.97	15.03	1.06	-4.968	1.046	13.97	15.03	1.06	0.8	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-23.75	-5.3197	13.1792	SLU 71	2.48	Si
fin.	3	-12.87	6.0702	13.1792	SLU 71	2.17	Si
ini.	3	-36.36	-5.485	13.1792	SLU 77	2.4	Si
fin.	3	-23.2	6.0695	13.1792	SLU 77	2.17	Si
ini.	3	-26.13	-5.1847	13.1792	SLU 69	2.54	Si
fin.	3	-15.32	5.6881	13.1792	SLU 69	2.32	Si
ini.	3	-33.98	-5.62	13.1792	SLU 79	2.35	Si
fin.	3	-20.75	6.4516	13.1792	SLU 79	2.04	Si
ini.	3	-32.74	-5.6322	13.1792	SLU 80	2.34	Si
fin.	3	-19.71	6.4608	13.1792	SLU 80	2.04	Si
ini.	3	-31.84	-4.93	13.1792	SLU 37	2.67	Si
fin.	3	-19.38	5.9704	13.1792	SLU 37	2.21	Si
ini.	3	-30.59	-4.9422	13.1792	SLU 38	2.67	Si
fin.	3	-18.34	5.9796	13.1792	SLU 38	2.2	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-22.5	-5.3319	13.1792	SLU 72	2.47	Si
fin.	3	-11.83	6.0794	13.1792	SLU 72	2.17	Si
ini.	3	-24.88	-5.1969	13.1792	SLU 70	2.54	Si
fin.	3	-14.28	5.6973	13.1792	SLU 70	2.31	Si
ini.	3	-35.12	-5.4972	13.1792	SLU 78	2.4	Si
fin.	3	-22.16	6.0787	13.1792	SLU 78	2.17	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-5.3197	33.94			11.43	4.3	SLU 71	0.13	No
fin.	3	0	6.0702	-4.3			11.43	4.3	SLU 71	1	Si
ini.	3	0	-4.8072	33.92			11.43	4.3	SLU 36	0.13	No
fin.	3	0	5.5975	-4.31			11.43	4.3	SLU 36	1	No
ini.	3	0	-5.3319	33.9			11.43	4.3	SLU 72	0.13	No
fin.	3	0	6.0794	-4.58			11.43	4.3	SLU 72	0.94	No
ini.	3	0	-4.795	33.97			11.43	4.3	SLU 35	0.13	No
fin.	3	0	5.5883	-4.03			11.43	4.3	SLU 35	1.07	Si
ini.	3	0	-5.1969	34.32			11.43	4.3	SLU 70	0.13	No
fin.	3	0	5.6973	-5.85			11.43	4.3	SLU 70	0.74	No
ini.	3	0	-5.62	36.88			11.43	4.3	SLU 79	0.12	No
fin.	3	0	6.4516	-3.12			11.43	4.3	SLU 79	1.38	Si
ini.	3	0	-5.485	37.3			11.43	4.3	SLU 77	0.12	No
fin.	3	0	6.0695	-4.39			11.43	4.3	SLU 77	0.98	No
ini.	3	0	-5.4972	37.25			11.43	4.3	SLU 78	0.12	No
fin.	3	0	6.0787	-4.67			11.43	4.3	SLU 78	0.92	No
ini.	3	0	-5.6322	36.83			11.43	4.3	SLU 80	0.12	No
fin.	3	0	6.4608	-3.4			11.43	4.3	SLU 80	1.26	Si
ini.	3	0	-5.1847	34.36			11.43	4.3	SLU 69	0.13	No
fin.	3	0	5.6881	-5.57			11.43	4.3	SLU 69	0.77	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-17.47	-6.5516	14.9694	SLD 16	2.28	Si
fin.	2	-10.6	3.8763	14.9694	SLD 16	3.86	Si
ini.	2	-6.41	-10.0885	14.9694	SLV 13	1.48	Si
fin.	2	-1.25	3.6182	14.9694	SLV 13	4.14	Si
ini.	2	-28.07	-7.2981	14.9694	SLV 11	2.05	Si
fin.	2	-17.97	6.0976	14.9694	SLV 11	2.45	Si
ini.	2	-12.57	-11.2722	14.9694	SLV 16	1.33	Si
fin.	2	-5.31	5.2636	14.9694	SLV 16	2.84	Si
ini.	2	-6.41	-10.0885	14.9694	SLV 14	1.48	Si
fin.	2	-1.25	3.6182	14.9694	SLV 14	4.14	Si
ini.	2	-14.9	-6.037	14.9694	SLD 13	2.48	Si
fin.	2	-8.9	3.1934	14.9694	SLD 13	4.69	Si
ini.	2	-14.9	-6.037	14.9694	SLD 14	2.48	Si
fin.	2	-8.9	3.1934	14.9694	SLD 14	4.69	Si
ini.	2	-12.57	-11.2722	14.9694	SLV 15	1.33	Si
fin.	2	-5.31	5.2636	14.9694	SLV 15	2.84	Si
ini.	2	-17.47	-6.5516	14.9694	SLD 15	2.28	Si
fin.	2	-10.6	3.8763	14.9694	SLD 15	3.86	Si
ini.	2	-28.07	-7.2981	14.9694	SLV 12	2.05	Si
fin.	2	-17.97	6.0976	14.9694	SLV 12	2.45	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-6.5516	25.49			17.15	6.45	SLD 15	0.25	No
fin.	2	0	3.8763	5.16			17.15	6.45	SLD 15	1.25	Si
ini.	2	0	-7.2981	33.59			17.15	6.45	SLV 11	0.19	No
fin.	2	0	6.0976	4.83			17.15	6.45	SLV 11	1.34	Si
ini.	2	0	-6.5516	25.49			17.15	6.45	SLD 16	0.25	No
fin.	2	0	3.8763	5.16			17.15	6.45	SLD 16	1.25	Si
ini.	2	0	-10.0885	28.16			17.15	6.45	SLV 13	0.23	No
fin.	2	0	3.6182	12.38			17.15	6.45	SLV 13	0.52	No
ini.	2	0	-11.2722	34.78			17.15	6.45	SLV 15	0.19	No
fin.	2	0	5.2636	13.35			17.15	6.45	SLV 15	0.48	No
ini.	2	0	-11.2722	34.78			17.15	6.45	SLV 16	0.19	No
fin.	2	0	5.2636	13.35			17.15	6.45	SLV 16	0.48	No
ini.	2	0	-10.0885	28.16			17.15	6.45	SLV 14	0.23	No
fin.	2	0	3.6182	12.38			17.15	6.45	SLV 14	0.52	No
ini.	2	0	-2.7082	25.94			17.15	6.45	SLV 7	0.25	No
fin.	2	0	5.1672	-3.45			17.15	6.45	SLV 7	1.87	Si
ini.	2	0	-2.7082	25.94			17.15	6.45	SLV 8	0.25	No
fin.	2	0	5.1672	-3.45			17.15	6.45	SLV 8	1.87	Si
ini.	2	0	-7.2981	33.59			17.15	6.45	SLV 12	0.19	No
fin.	2	0	6.0976	4.83			17.15	6.45	SLV 12	1.34	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.328	SLV 15	Si
V_SLV	0.186	SLV 15	No
PF_SLU	2.04	SLU 80	Si
V_SLU	0.115	SLU 77	No

## Trave di accoppiamento 166

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	11.87	13.87	2	-5.158	6.506	11.87	13.87	2	0.5	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	8.52	7.503	29.6292	SLU 38	3.95	Si
fin.	3	1.77	1.6598	29.6292	SLU 38	17.85	Si
ini.	3	8.95	7.599	29.6292	SLU 80	3.9	Si
fin.	3	1.85	1.7326	29.6292	SLU 80	17.1	Si
ini.	3	8.79	7.876	29.6292	SLU 71	3.76	Si
fin.	3	1.84	1.7348	29.6292	SLU 71	17.08	Si
ini.	3	8.33	7.6651	29.6292	SLU 30	3.87	Si
fin.	3	1.76	1.6522	29.6292	SLU 30	17.93	Si
ini.	3	8.56	7.6178	29.6292	SLU 37	3.89	Si
fin.	3	1.78	1.6696	29.6292	SLU 37	17.75	Si
ini.	3	8.04	7.2933	29.6292	SLU 27	4.06	Si
fin.	3	1.69	1.5846	29.6292	SLU 27	18.7	Si
ini.	3	8.99	7.7138	29.6292	SLU 79	3.84	Si
fin.	3	1.85	1.7424	29.6292	SLU 79	17.01	Si
ini.	3	8.76	7.7612	29.6292	SLU 72	3.82	Si
fin.	3	1.84	1.725	29.6292	SLU 72	17.18	Si
ini.	3	8.36	7.78	29.6292	SLU 29	3.81	Si
fin.	3	1.77	1.662	29.6292	SLU 29	17.83	Si
ini.	3	8.47	7.3893	29.6292	SLU 69	4.01	Si
fin.	3	1.76	1.6574	29.6292	SLU 69	17.88	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	7.2933	-24.66			21.57	8.12	SLU 27	0.33	No
fin.	3	0	1.5846	10.29			21.57	8.12	SLU 27	0.79	No
ini.	3	0	7.6651	-26.01			21.57	8.12	SLU 30	0.31	No
fin.	3	0	1.6522	10.6			21.57	8.12	SLU 30	0.77	No
ini.	3	0	7.503	-25.44			21.57	8.12	SLU 38	0.32	No
fin.	3	0	1.6598	11.36			21.57	8.12	SLU 38	0.71	No
ini.	3	0	7.78	-26.39			21.57	8.12	SLU 29	0.31	No
fin.	3	0	1.662	10.54			21.57	8.12	SLU 29	0.77	No
ini.	3	0	7.3893	-24.48			21.57	8.12	SLU 69	0.33	No
fin.	3	0	1.6574	10.59			21.57	8.12	SLU 69	0.77	No
ini.	3	0	7.7612	-25.84			21.57	8.12	SLU 72	0.31	No
fin.	3	0	1.725	10.9			21.57	8.12	SLU 72	0.74	No
ini.	3	0	7.599	-25.26			21.57	8.12	SLU 80	0.32	No
fin.	3	0	1.7326	11.66			21.57	8.12	SLU 80	0.7	No
ini.	3	0	7.7138	-25.64			21.57	8.12	SLU 79	0.32	No
fin.	3	0	1.7424	11.6			21.57	8.12	SLU 79	0.7	No
ini.	3	0	7.6178	-25.82			21.57	8.12	SLU 37	0.31	No
fin.	3	0	1.6696	11.3			21.57	8.12	SLU 37	0.72	No
ini.	3	0	7.876	-26.22			21.57	8.12	SLU 71	0.31	No
fin.	3	0	1.7348	10.83			21.57	8.12	SLU 71	0.75	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	0.83	2.5032	31.4194	SLV 5	12.55	Si
fin.	2	0.4	0.379	31.4194	SLV 5	82.91	Si
ini.	2	1.06	2.1165	31.4194	SLV 10	14.85	Si
fin.	2	0.42	0.4196	31.4194	SLV 10	74.88	Si
ini.	2	2.08	2.5492	31.4194	SLV 1	12.33	Si
fin.	2	0.49	0.4407	31.4194	SLV 1	71.3	Si
ini.	2	3.38	2.2019	31.4194	SLV 3	14.27	Si
fin.	2	0.6	0.5342	31.4194	SLV 3	58.82	Si
ini.	2	2.7	2.0815	31.4194	SLD 1	15.09	Si
fin.	2	0.55	0.5084	31.4194	SLD 1	61.8	Si
ini.	2	2.7	2.0815	31.4194	SLD 2	15.09	Si
fin.	2	0.55	0.5084	31.4194	SLD 2	61.8	Si
ini.	2	2.08	2.5492	31.4194	SLV 2	12.33	Si
fin.	2	0.49	0.4407	31.4194	SLV 2	71.3	Si
ini.	2	0.83	2.5032	31.4194	SLV 6	12.55	Si
fin.	2	0.4	0.379	31.4194	SLV 6	82.91	Si
ini.	2	1.06	2.1165	31.4194	SLV 9	14.85	Si
fin.	2	0.42	0.4196	31.4194	SLV 9	74.88	Si
ini.	2	3.38	2.2019	31.4194	SLV 4	14.27	Si
fin.	2	0.6	0.5342	31.4194	SLV 4	58.82	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	0.9128	-6.16			32.35	12.17	SLV 16	1.97	Si
fin.	2	0	0.6695	7.07			32.35	12.17	SLV 16	1.72	Si
ini.	2	0	0.9128	-6.16			32.35	12.17	SLV 15	1.97	Si
fin.	2	0	0.6695	7.07			32.35	12.17	SLV 15	1.72	Si
ini.	2	0	0.9588	-8.84			32.35	12.17	SLV 11	1.38	Si
fin.	2	0	0.7312	6			32.35	12.17	SLV 11	2.03	Si
ini.	2	0	1.4356	-6.2			32.35	12.17	SLD 12	1.96	Si
fin.	2	0	0.6242	4.75			32.35	12.17	SLD 12	2.56	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1.2601	-3.63			32.35	12.17	SLV 13	3.35	Si
fin.	2	0	0.576	6.28			32.35	12.17	SLV 13	1.94	Si
ini.	2	0	1.2601	-3.63			32.35	12.17	SLV 14	3.35	Si
fin.	2	0	0.576	6.28			32.35	12.17	SLV 14	1.94	Si
ini.	2	0	1.3456	-8.6			32.35	12.17	SLV 7	1.42	Si
fin.	2	0	0.6906	4.28			32.35	12.17	SLV 7	2.84	Si
ini.	2	0	1.4356	-6.2			32.35	12.17	SLD 11	1.96	Si
fin.	2	0	0.6242	4.75			32.35	12.17	SLD 11	2.56	Si
ini.	2	0	0.9588	-8.84			32.35	12.17	SLV 12	1.38	Si
fin.	2	0	0.7312	6			32.35	12.17	SLV 12	2.03	Si
ini.	2	0	1.3456	-8.6			32.35	12.17	SLV 8	1.42	Si
fin.	2	0	0.6906	4.28			32.35	12.17	SLV 8	2.84	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	12.325	SLV 1	Si
V_SLV	1.377	SLV 11	Si
PF_SLU	3.762	SLU 71	Si
V_SLU	0.308	SLU 29	No

## Trave di accoppiamento 167

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.158	6.006	14.67	15.03	0.36	-5.158	6.506	14.67	15.03	0.36	0.5	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	25.38	-18.5838	1.8411	SLU 80	0.1	No
fin.	3	25.38	10.6224	1.8411	SLU 80	0.17	No
ini.	3	23.9	-17.7059	1.8411	SLU 77	0.1	No
fin.	3	23.9	10.0068	1.8411	SLU 77	0.18	No
ini.	3	23.98	-17.9113	1.8411	SLU 78	0.1	No
fin.	3	23.98	9.9505	1.8411	SLU 78	0.19	No
ini.	3	25.3	-18.3785	1.8411	SLU 79	0.1	No
fin.	3	25.3	10.6787	1.8411	SLU 79	0.17	No
ini.	3	25.62	-17.9067	1.8411	SLU 38	0.1	No
fin.	3	25.62	10.5338	1.8411	SLU 38	0.17	No
ini.	3	23.89	-17.3702	1.8411	SLU 70	0.11	No
fin.	3	23.89	10.1263	1.8411	SLU 70	0.18	No
ini.	3	25.3	-18.0427	1.8411	SLU 72	0.1	No
fin.	3	25.3	10.7982	1.8411	SLU 72	0.17	No
ini.	3	25.53	-17.3656	1.8411	SLU 30	0.11	No
fin.	3	25.53	10.7096	1.8411	SLU 30	0.17	No
ini.	3	25.21	-17.8374	1.8411	SLU 71	0.1	No
fin.	3	25.21	10.8545	1.8411	SLU 71	0.17	No
ini.	3	25.54	-17.7014	1.8411	SLU 37	0.1	No
fin.	3	25.54	10.59	1.8411	SLU 37	0.17	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-18.5838	58.98			2.8	1.05	SLU 80	0.02	No
fin.	3	0	10.6224	57.78			2.8	1.05	SLU 80	0.02	No
ini.	3	0	-17.8374	57.95			2.8	1.05	SLU 71	0.02	No
fin.	3	0	10.8545	56.75			2.8	1.05	SLU 71	0.02	No
ini.	3	0	-18.3785	58.68			2.8	1.05	SLU 79	0.02	No
fin.	3	0	10.6787	57.48			2.8	1.05	SLU 79	0.02	No
ini.	3	0	-17.7059	55.99			2.8	1.05	SLU 77	0.02	No
fin.	3	0	10.0068	54.79			2.8	1.05	SLU 77	0.02	No
ini.	3	0	-17.1603	56.29			2.8	1.05	SLU 29	0.02	No
fin.	3	0	10.7659	55.36			2.8	1.05	SLU 29	0.02	No
ini.	3	0	-18.0427	58.25			2.8	1.05	SLU 72	0.02	No
fin.	3	0	10.7982	57.05			2.8	1.05	SLU 72	0.02	No
ini.	3	0	-17.9113	56.29			2.8	1.05	SLU 78	0.02	No
fin.	3	0	9.9505	55.09			2.8	1.05	SLU 78	0.02	No
ini.	3	0	-17.7014	57.02			2.8	1.05	SLU 37	0.02	No
fin.	3	0	10.59	56.09			2.8	1.05	SLU 37	0.02	No
ini.	3	0	-17.3656	56.59			2.8	1.05	SLU 30	0.02	No
fin.	3	0	10.7096	55.66			2.8	1.05	SLU 30	0.02	No
ini.	3	0	-17.9067	57.32			2.8	1.05	SLU 38	0.02	No
fin.	3	0	10.5338	56.39			2.8	1.05	SLU 38	0.02	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	4.44	-8.4827	2.7616	SLD 11	0.33	No
fin.	2	18.01	0.6779	2.7616	SLD 11	4.07	Si
ini.	2	3.9	-11.9127	2.7616	SLV 12	0.23	No
fin.	2	36.08	-1.412	2.7616	SLV 12	1.96	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	4.44	-8.4827	2.7616	SLD 12	0.33	No
fin.	2	18.01	0.6779	2.7616	SLD 12	4.07	Si
ini.	2	9.34	-8.2892	2.7616	SLV 14	0.33	No
fin.	2	12.17	2.0235	2.7616	SLV 14	1.36	Si
ini.	2	8.06	-11.1745	2.7616	SLV 16	0.25	No
fin.	2	28.14	0.0323	2.7616	SLV 16	85.41	Si
ini.	2	9.34	-8.2892	2.7616	SLV 13	0.33	No
fin.	2	12.17	2.0235	2.7616	SLV 13	1.36	Si
ini.	2	1.61	-9.6602	2.7616	SLV 8	0.29	No
fin.	2	26.92	-0.6589	2.7616	SLV 8	4.19	Si
ini.	2	3.9	-11.9127	2.7616	SLV 11	0.23	No
fin.	2	36.08	-1.412	2.7616	SLV 11	1.96	Si
ini.	2	8.06	-11.1745	2.7616	SLV 15	0.25	No
fin.	2	28.14	0.0323	2.7616	SLV 15	85.41	Si
ini.	2	1.61	-9.6602	2.7616	SLV 7	0.29	No
fin.	2	26.92	-0.6589	2.7616	SLV 7	4.19	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-11.1745	20.47			4.19	1.58	SLV 15	0.08	No
fin.	2	0	0.0323	22.22			4.19	1.58	SLV 15	0.07	No
ini.	2	0	-8.4827	22.36			4.19	1.58	SLD 12	0.07	No
fin.	2	0	0.6779	20.15			4.19	1.58	SLD 12	0.08	No
ini.	2	0	-7.5192	22.45			4.19	1.58	SLD 8	0.07	No
fin.	2	0	1.0168	19.22			4.19	1.58	SLD 8	0.08	No
ini.	2	0	-11.9127	29.93			4.19	1.58	SLV 11	0.05	No
fin.	2	0	-1.412	25.85			4.19	1.58	SLV 11	0.06	No
ini.	2	0	-9.6602	30.17			4.19	1.58	SLV 8	0.05	No
fin.	2	0	-0.6589	23.72			4.19	1.58	SLV 8	0.07	No
ini.	2	0	-7.5192	22.45			4.19	1.58	SLD 7	0.07	No
fin.	2	0	1.0168	19.22			4.19	1.58	SLD 7	0.08	No
ini.	2	0	-8.4827	22.36			4.19	1.58	SLD 11	0.07	No
fin.	2	0	0.6779	20.15			4.19	1.58	SLD 11	0.08	No
ini.	2	0	-11.9127	29.93			4.19	1.58	SLV 12	0.05	No
fin.	2	0	-1.412	25.85			4.19	1.58	SLV 12	0.06	No
ini.	2	0	-9.6602	30.17			4.19	1.58	SLV 7	0.05	No
fin.	2	0	-0.6589	23.72			4.19	1.58	SLV 7	0.07	No
ini.	2	0	-11.1745	20.47			4.19	1.58	SLV 16	0.08	No
fin.	2	0	0.0323	22.22			4.19	1.58	SLV 16	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.232	SLV 11	No
V_SLV	0.052	SLV 7	No
PF_SLU	0.099	SLU 80	No
V_SLU	0.018	SLU 80	No

## Trave di accoppiamento 168

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.063	5.951	11.87	12.77	0.9	-2.963	5.951	11.87	12.77	0.9	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	8.71	-2.9875	10.3792	SLU 84	3.47	Si
fin.	3	1.09	2.7577	10.3792	SLU 84	3.76	Si
ini.	3	11.72	-3.2829	10.3792	SLU 79	3.16	Si
fin.	3	4.87	2.4538	10.3792	SLU 79	4.23	Si
ini.	3	11.68	-3.3164	10.3792	SLU 80	3.13	Si
fin.	3	4.69	2.5221	10.3792	SLU 80	4.12	Si
ini.	3	11.5	-3.2624	10.3792	SLU 78	3.18	Si
fin.	3	4.35	2.5625	10.3792	SLU 78	4.05	Si
ini.	3	11.54	-3.2289	10.3792	SLU 77	3.21	Si
fin.	3	4.53	2.4942	10.3792	SLU 77	4.16	Si
ini.	3	11.14	-3.0471	10.3792	SLU 38	3.41	Si
fin.	3	5.21	2.1458	10.3792	SLU 38	4.84	Si
ini.	3	11.18	-3.0136	10.3792	SLU 37	3.44	Si
fin.	3	5.39	2.0776	10.3792	SLU 37	5	Si
ini.	3	10.96	-2.993	10.3792	SLU 36	3.47	Si
fin.	3	4.87	2.1862	10.3792	SLU 36	4.75	Si
ini.	3	11.57	-3.0016	10.3792	SLU 71	3.46	Si
fin.	3	5.71	2.0935	10.3792	SLU 71	4.96	Si
ini.	3	11.52	-3.0351	10.3792	SLU 72	3.42	Si
fin.	3	5.53	2.1617	10.3792	SLU 72	4.8	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.5381	11.27			9.7	3.65	SLU 82	0.32	No
fin.	3	0	2.839	8.29			9.7	3.65	SLU 82	0.44	No
ini.	3	0	-2.8893	11.45			9.7	3.65	SLU 76	0.32	No
fin.	3	0	2.6488	7.95			9.7	3.65	SLU 76	0.46	No
ini.	3	0	-3.2829	11.95			9.7	3.65	SLU 79	0.31	No
fin.	3	0	2.4538	7.52			9.7	3.65	SLU 79	0.49	No
ini.	3	0	-3.0471	11.14			9.7	3.65	SLU 38	0.33	No
fin.	3	0	2.1458	6.38			9.7	3.65	SLU 38	0.57	No
ini.	3	0	-3.2624	11.79			9.7	3.65	SLU 78	0.31	No
fin.	3	0	2.5625	8.1			9.7	3.65	SLU 78	0.45	No
ini.	3	0	-2.9875	12.11			9.7	3.65	SLU 84	0.3	No
fin.	3	0	2.7577	8.14			9.7	3.65	SLU 84	0.45	No
ini.	3	0	-2.954	11.9			9.7	3.65	SLU 83	0.31	No
fin.	3	0	2.6895	7.97			9.7	3.65	SLU 83	0.46	No
ini.	3	0	-3.3164	12.15			9.7	3.65	SLU 80	0.3	No
fin.	3	0	2.5221	7.69			9.7	3.65	SLU 80	0.48	No
ini.	3	0	-2.7182	11.1			9.7	3.65	SLU 42	0.33	No
fin.	3	0	2.3815	6.84			9.7	3.65	SLU 42	0.53	No
ini.	3	0	-3.2289	11.58			9.7	3.65	SLU 77	0.32	No
fin.	3	0	2.4942	7.93			9.7	3.65	SLU 77	0.46	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	13.71	-5.9095	12.1694	SLV 16	2.06	Si
fin.	2	-11.68	8.1238	12.1694	SLV 16	1.5	Si
ini.	2	7.4	-3.3677	12.1694	SLV 8	3.61	Si
fin.	2	-5.77	4.508	12.1694	SLV 8	2.7	Si
ini.	2	12.21	-5.4473	12.1694	SLV 12	2.23	Si
fin.	2	-10.86	7.5518	12.1694	SLV 12	1.61	Si
ini.	2	12.21	-5.4473	12.1694	SLV 11	2.23	Si
fin.	2	-10.86	7.5518	12.1694	SLV 11	1.61	Si
ini.	2	-5.81	2.7058	12.1694	SLV 1	4.5	Si
fin.	2	9.69	-4.5755	12.1694	SLV 1	2.66	Si
ini.	2	10.2	-4.2261	12.1694	SLV 14	2.88	Si
fin.	2	-7.28	5.5703	12.1694	SLV 14	2.18	Si
ini.	2	13.71	-5.9095	12.1694	SLV 15	2.06	Si
fin.	2	-11.68	8.1238	12.1694	SLV 15	1.5	Si
ini.	2	-5.81	2.7058	12.1694	SLV 2	4.5	Si
fin.	2	9.69	-4.5755	12.1694	SLV 2	2.66	Si
ini.	2	7.4	-3.3677	12.1694	SLV 7	3.61	Si
fin.	2	-5.77	4.508	12.1694	SLV 7	2.7	Si
ini.	2	10.2	-4.2261	12.1694	SLV 13	2.88	Si
fin.	2	-7.28	5.5703	12.1694	SLV 13	2.18	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.2261	20.86			14.56	5.48	SLV 13	0.26	No
fin.	2	0	5.5703	18.86			14.56	5.48	SLV 13	0.29	No
ini.	2	0	-3.4281	16.1			14.56	5.48	SLD 15	0.34	No
fin.	2	0	4.4633	14.99			14.56	5.48	SLD 15	0.37	No
ini.	2	0	-4.2261	20.86			14.56	5.48	SLV 14	0.26	No
fin.	2	0	5.5703	18.86			14.56	5.48	SLV 14	0.29	No
ini.	2	0	2.7058	-15.85			14.56	5.48	SLV 2	0.35	No
fin.	2	0	-4.5755	-16.8			14.56	5.48	SLV 2	0.33	No
ini.	2	0	-5.9095	29.01			14.56	5.48	SLV 16	0.19	No
fin.	2	0	8.1238	27.85			14.56	5.48	SLV 16	0.2	No
ini.	2	0	2.7058	-15.85			14.56	5.48	SLV 1	0.35	No
fin.	2	0	-4.5755	-16.8			14.56	5.48	SLV 1	0.33	No
ini.	2	0	-5.9095	29.01			14.56	5.48	SLV 15	0.19	No
fin.	2	0	8.1238	27.85			14.56	5.48	SLV 15	0.2	No
ini.	2	0	-5.4473	25.66			14.56	5.48	SLV 12	0.21	No
fin.	2	0	7.5518	25.86			14.56	5.48	SLD 12	0.34	No
ini.	2	0	-3.4281	16.1			14.56	5.48	SLD 16	0.21	No
fin.	2	0	4.4633	14.99			14.56	5.48	SLD 16	0.37	No
ini.	2	0	-5.4473	25.66			14.56	5.48	SLV 11	0.21	No
fin.	2	0	7.5518	25.86			14.56	5.48	SLV 11	0.21	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.498	SLV 15	Si
V_SLV	0.189	SLV 15	No
PF_SLU	3.13	SLU 80	Si
V_SLU	0.301	SLU 80	No

#### Trave di accoppiamento 169

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.063	5.951	14.57	15.03	0.46	-2.963	5.951	14.57	15.03	0.46	0.9	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.08	-3.1638	3.006	SLU 71	0.95	No
fin.	3	0.22	2.5539	3.006	SLU 71	1.18	Si
ini.	3	-1.08	-3.4426	3.006	SLU 80	0.87	No
fin.	3	-0.78	2.7646	3.006	SLU 80	1.09	Si
ini.	3	-0.52	-3.3939	3.006	SLU 79	0.89	No
fin.	3	-0.22	2.7439	3.006	SLU 79	1.1	Si
ini.	3	-1.16	-3.2	3.006	SLU 38	0.94	No
fin.	3	-0.88	2.5625	3.006	SLU 38	1.17	Si
ini.	3	-1.7	-3.4321	3.006	SLU 78	0.88	No
fin.	3	-1.43	2.647	3.006	SLU 78	1.14	Si
ini.	3	-0.71	-3.1534	3.006	SLU 69	0.95	No
fin.	3	-0.42	2.4363	3.006	SLU 69	1.23	Si
ini.	3	-1.15	-3.3834	3.006	SLU 77	0.89	No
fin.	3	-0.86	2.6263	3.006	SLU 77	1.14	Si
ini.	3	-1.79	-3.1895	3.006	SLU 36	0.94	No
fin.	3	-1.52	2.4449	3.006	SLU 36	1.23	Si
ini.	3	-0.64	-3.2125	3.006	SLU 72	0.94	No
fin.	3	-0.34	2.5746	3.006	SLU 72	1.17	Si
ini.	3	-1.26	-3.2021	3.006	SLU 70	0.94	No
fin.	3	-0.98	2.457	3.006	SLU 70	1.22	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-3.3939	11.29			3.31	1.24	SLU 79	0.11	No
fin.	3	0	2.7439	2.52			3.31	1.24	SLU 79	0.49	No
ini.	3	0	-2.9772	10.83			3.31	1.24	SLU 57	0.11	No
fin.	3	0	2.2942	0.89			3.31	1.24	SLU 57	1.4	Si
ini.	3	0	-3.1638	10.81			3.31	1.24	SLU 71	0.12	No
fin.	3	0	2.5539	2.05			3.31	1.24	SLU 71	0.61	No
ini.	3	0	-3.4426	11.36			3.31	1.24	SLU 80	0.11	No
fin.	3	0	2.7646	2.58			3.31	1.24	SLU 80	0.48	No
ini.	3	0	-3.2021	11.55			3.31	1.24	SLU 70	0.11	No
fin.	3	0	2.457	0.93			3.31	1.24	SLU 70	1.34	Si
ini.	3	0	-3.3834	11.94			3.31	1.24	SLU 77	0.1	No
fin.	3	0	2.6263	1.33			3.31	1.24	SLU 77	0.94	No
ini.	3	0	-3.1534	11.47			3.31	1.24	SLU 69	0.11	No
fin.	3	0	2.4363	0.87			3.31	1.24	SLU 69	1.43	Si
ini.	3	0	-3.4321	12.02			3.31	1.24	SLU 78	0.1	No
fin.	3	0	2.647	1.39			3.31	1.24	SLU 78	0.89	No
ini.	3	0	-3.1895	10.8			3.31	1.24	SLU 36	0.12	No
fin.	3	0	2.4449	1.5			3.31	1.24	SLU 36	0.83	No
ini.	3	0	-3.2125	10.89			3.31	1.24	SLU 72	0.11	No
fin.	3	0	2.5746	2.12			3.31	1.24	SLU 72	0.59	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5.31	-2.3615	4.4694	SLV 15	1.89	Si
fin.	2	-3.39	2.0731	4.4694	SLV 15	2.16	Si
ini.	2	2.46	-1.9228	4.4694	SLD 12	2.32	Si
fin.	2	2.85	1.692	4.4694	SLD 12	2.64	Si
ini.	2	-10.81	-1.9324	4.4694	SLV 13	2.31	Si
fin.	2	-8.97	1.5409	4.4694	SLV 13	2.9	Si
ini.	2	6.49	-2.4263	4.4694	SLV 12	1.84	Si
fin.	2	7.24	2.2914	4.4694	SLV 12	1.95	Si
ini.	2	-10.81	-1.9324	4.4694	SLV 14	2.31	Si
fin.	2	-8.97	1.5409	4.4694	SLV 14	2.9	Si
ini.	2	6.49	-2.4263	4.4694	SLV 11	1.84	Si
fin.	2	7.24	2.2914	4.4694	SLV 11	1.95	Si
ini.	2	2.46	-1.9228	4.4694	SLD 11	2.32	Si
fin.	2	2.85	1.692	4.4694	SLD 11	2.64	Si
ini.	2	11.11	-2.0526	4.4694	SLV 8	2.18	Si
fin.	2	10.79	1.9462	4.4694	SLV 8	2.3	Si
ini.	2	11.11	-2.0526	4.4694	SLV 7	2.18	Si
fin.	2	10.79	1.9462	4.4694	SLV 7	2.3	Si
ini.	2	-5.31	-2.3615	4.4694	SLV 16	1.89	Si
fin.	2	-3.39	2.0731	4.4694	SLV 16	2.16	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-1.9324	9.08			4.96	1.87	SLV 13	0.21	No
fin.	2	0	1.5409	3.34			4.96	1.87	SLV 13	0.56	No
ini.	2	0	-1.9324	9.08			4.96	1.87	SLV 14	0.21	No
fin.	2	0	1.5409	3.34			4.96	1.87	SLV 14	0.56	No
ini.	2	0	-2.3615	10.12			4.96	1.87	SLV 16	0.18	No
fin.	2	0	2.0731	5.48			4.96	1.87	SLV 16	0.34	No
ini.	2	0	-1.8854	7.7			4.96	1.87	SLD 16	0.24	No
fin.	2	0	1.5938	2.61			4.96	1.87	SLD 16	0.71	No
ini.	2	0	-2.3615	10.12			4.96	1.87	SLV 15	0.18	No
fin.	2	0	2.0731	5.48			4.96	1.87	SLV 15	0.34	No
ini.	2	0	-1.6941	7.26			4.96	1.87	SLD 14	0.26	No
fin.	2	0	1.3619	1.71			4.96	1.87	SLD 14	1.09	Si
ini.	2	0	-1.8854	7.7			4.96	1.87	SLD 15	0.24	No
fin.	2	0	1.5938	2.61			4.96	1.87	SLD 15	0.71	No
ini.	2	0	-1.6941	7.26			4.96	1.87	SLD 13	0.26	No
fin.	2	0	1.3619	1.71			4.96	1.87	SLD 13	1.09	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-2.4263	8.76			4.96	1.87	SLV 12	0.21	No
fin.	2	0	2.2914	5.24			4.96	1.87	SLV 12	0.36	No
ini.	2	0	-2.4263	8.76			4.96	1.87	SLV 11	0.21	No
fin.	2	0	2.2914	5.24			4.96	1.87	SLV 11	0.36	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.842	SLV 11	Si
V_SLV	0.184	SLV 15	No
PF_SLU	0.873	SLU 80	No
V_SLU	0.104	SLU 78	No

## Trave di accoppiamento 170

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-17.053	-4.862	13.99	14.366	0.376	-17.053	-3.772	13.99	14.872	0.882	1.09	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	0.83	0.1414	2.1472	SLU 10	15.19	Si
fin.	3	-1.24	2.4958	10.4181	SLU 10	4.17	Si
ini.	3	-1.66	0.0832	2.1472	SLU 69	25.81	Si
fin.	3	-0.68	-2.5787	10.4181	SLU 69	4.04	Si
ini.	3	-1.77	0.0792	2.1472	SLU 71	27.1	Si
fin.	3	-0.7	-2.7693	10.4181	SLU 71	3.76	Si
ini.	3	-1.6	0.0544	2.1472	SLU 8	39.5	Si
fin.	3	-0.5	-2.5761	10.4181	SLU 8	4.04	Si
ini.	3	-1.61	0.0945	2.1472	SLU 48	22.72	Si
fin.	3	-0.47	-2.446	10.4181	SLU 48	4.26	Si
ini.	3	-1.53	0.047	2.1472	SLU 27	45.69	Si
fin.	3	-0.7	-2.5183	10.4181	SLU 27	4.14	Si
ini.	3	-1.48	0.0583	2.1472	SLU 6	36.83	Si
fin.	3	-0.49	-2.3856	10.4181	SLU 6	4.37	Si
ini.	3	-1.72	0.0906	2.1472	SLU 50	23.71	Si
fin.	3	-0.48	-2.6365	10.4181	SLU 50	3.95	Si
ini.	3	-1.64	0.043	2.1472	SLU 29	49.88	Si
fin.	3	-0.72	-2.7089	10.4181	SLU 29	3.85	Si
ini.	3	0.7	0.1776	2.1472	SLU 52	12.09	Si
fin.	3	-1.22	2.4354	10.4181	SLU 52	4.28	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.1414	4.75			2.89	1.09	SLU 10	0.23	No
fin.	3	0	2.4958	0.54			8.24	3.1	SLU 10	5.74	Si
ini.	3	0	0.1738	4.6			2.89	1.09	SLU 44	0.24	No
fin.	3	0	2.0214	-0.36			8.24	3.1	SLU 44	8.64	Si
ini.	3	0	0.1663	5.21			2.89	1.09	SLU 73	0.21	No
fin.	3	0	2.3026	0.07			8.24	3.1	SLU 73	42.95	Si
ini.	3	0	0.1396	4.46			2.89	1.09	SLU 76	0.24	No
fin.	3	0	1.1911	-0.37			8.24	3.1	SLU 76	8.45	Si
ini.	3	0	0.1625	4.68			2.89	1.09	SLU 65	0.23	No
fin.	3	0	1.8887	-0.27			8.24	3.1	SLU 65	11.42	Si
ini.	3	0	0.1263	4.31			2.89	1.09	SLU 23	0.25	No
fin.	3	0	1.9491	0.28			8.24	3.1	SLU 23	10.9	Si
ini.	3	0	0.1509	4.38			2.89	1.09	SLU 55	0.25	No
fin.	3	0	1.3238	-0.45			8.24	3.1	SLU 55	6.82	Si
ini.	3	0	0.1301	4.83			2.89	1.09	SLU 31	0.23	No
fin.	3	0	2.363	0.63			8.24	3.1	SLU 31	4.94	Si
ini.	3	0	0.1559	4.27			2.89	1.09	SLU 82	0.25	No
fin.	3	0	1.5061	-0.56			8.24	3.1	SLU 82	5.53	Si
ini.	3	0	0.1776	5.12			2.89	1.09	SLU 52	0.21	No
fin.	3	0	2.4354	-0.02			8.24	3.1	SLU 52	202.08	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-0.61	-0.0452	3.2208	SLV 13	71.22	Si
fin.	2	-13.07	-5.2868	12.089	SLV 13	2.29	Si
ini.	2	9.98	-0.4845	3.2208	SLV 5	6.65	Si
fin.	2	-52.09	-6.6368	12.089	SLV 5	1.82	Si
ini.	2	-9.05	0.6812	3.2208	SLV 7	4.73	Si
fin.	2	49.99	7.8005	12.089	SLV 7	1.55	Si
ini.	2	9.98	-0.4845	3.2208	SLV 6	6.65	Si
fin.	2	-52.09	-6.6368	12.089	SLV 6	1.82	Si
ini.	2	8.16	-0.47	3.2208	SLV 9	6.85	Si
fin.	2	-50.57	-8.346	12.089	SLV 9	1.45	Si
ini.	2	-0.61	-0.0452	3.2208	SLV 14	71.22	Si
fin.	2	-13.07	-5.2868	12.089	SLV 14	2.29	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-10.86	0.6956	3.2208	SLV 12	4.63	Si
fin.	2	51.51	6.0914	12.089	SLV 12	1.98	Si
ini.	2	8.16	-0.47	3.2208	SLV 10	6.85	Si
fin.	2	-50.57	-8.346	12.089	SLV 10	1.45	Si
ini.	2	-9.05	0.6812	3.2208	SLV 8	4.73	Si
fin.	2	49.99	7.8005	12.089	SLV 8	1.55	Si
ini.	2	-10.86	0.6956	3.2208	SLV 11	4.63	Si
fin.	2	51.51	6.0914	12.089	SLV 11	1.98	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-0.4845	-17.96			4.34	1.63	SLV 6	0.09	No
fin.	2	0	-6.6368	11.03			12.36	4.65	SLV 6	0.42	No
ini.	2	0	0.6812	23.42			4.34	1.63	SLV 7	0.07	No
fin.	2	0	7.8005	-12.89			12.36	4.65	SLV 7	0.36	No
ini.	2	0	-0.47	-20.4			4.34	1.63	SLV 10	0.08	No
fin.	2	0	-8.346	9.63			12.36	4.65	SLV 10	0.48	No
ini.	2	0	0.6812	23.42			4.34	1.63	SLV 8	0.07	No
fin.	2	0	7.8005	-12.89			12.36	4.65	SLV 8	0.36	No
ini.	2	0	0.2564	11.79			4.34	1.63	SLV 4	0.14	No
fin.	2	0	4.7414	-2.9			12.36	4.65	SLV 4	1.6	Si
ini.	2	0	0.2564	11.79			4.34	1.63	SLV 3	0.14	No
fin.	2	0	4.7414	-2.9			12.36	4.65	SLV 3	1.6	Si
ini.	2	0	0.6956	20.98			4.34	1.63	SLV 11	0.08	No
fin.	2	0	6.0914	-14.29			12.36	4.65	SLV 11	0.33	No
ini.	2	0	-0.47	-20.4			4.34	1.63	SLV 9	0.08	No
fin.	2	0	-8.346	9.63			12.36	4.65	SLV 9	0.48	No
ini.	2	0	-0.4845	-17.96			4.34	1.63	SLV 5	0.09	No
fin.	2	0	-6.6368	11.03			12.36	4.65	SLV 5	0.42	No
ini.	2	0	0.6956	20.98			4.34	1.63	SLV 12	0.08	No
fin.	2	0	6.0914	-14.29			12.36	4.65	SLV 12	0.33	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.448	SLV 9	Si
V_SLV	0.07	SLV 7	No
PF_SLU	3.762	SLU 71	Si
V_SLU	0.209	SLU 73	No

## Trave di accoppiamento 171

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-15.433	-3.359	13.97	15.062	1.092	-16.333	-3.359	13.97	15.063	1.093	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-11.84	-3.2338	13.741	SLU 61	4.25	Si
fin.	3	-11.9	3.0403	13.7528	SLU 61	4.52	Si
ini.	3	-15.02	-2.7282	13.741	SLU 83	5.04	Si
fin.	3	-15.06	2.9941	13.7528	SLU 83	4.59	Si
ini.	3	-14.12	-3.4196	13.741	SLU 81	4.02	Si
fin.	3	-14.17	3.4346	13.7528	SLU 81	4	Si
ini.	3	-12.61	-3.0669	13.741	SLU 40	4.48	Si
fin.	3	-12.65	2.8739	13.7528	SLU 40	4.79	Si
ini.	3	-11.93	-3.0552	13.741	SLU 65	4.5	Si
fin.	3	-11.97	2.8348	13.7528	SLU 65	4.85	Si
ini.	3	-11.19	-3.1476	13.741	SLU 52	4.37	Si
fin.	3	-11.24	2.8513	13.7528	SLU 52	4.82	Si
ini.	3	-11.78	-3.0952	13.741	SLU 60	4.44	Si
fin.	3	-11.84	3.0943	13.7528	SLU 60	4.44	Si
ini.	3	-14.79	-2.6676	13.741	SLU 74	5.15	Si
fin.	3	-14.83	3.0055	13.7528	SLU 74	4.58	Si
ini.	3	-14.18	-3.5582	13.741	SLU 82	3.86	Si
fin.	3	-14.23	3.3806	13.7528	SLU 82	4.07	Si
ini.	3	-13.53	-3.472	13.741	SLU 73	3.96	Si
fin.	3	-13.58	3.1916	13.7528	SLU 73	4.31	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.8668	13.97			11.78	4.43	SLU 84	0.32	No
fin.	3	0	2.9401	-0.73			11.78	4.43	SLU 84	6.11	Si
ini.	3	0	-3.4196	13.7			11.78	4.43	SLU 81	0.32	No
fin.	3	0	3.4346	1.6			11.78	4.43	SLU 81	2.77	Si
ini.	3	0	-2.8062	14.23			11.78	4.43	SLU 75	0.31	No
fin.	3	0	2.9514	-1.22			11.78	4.43	SLU 75	3.63	Si
ini.	3	0	-2.1148	14.41			11.78	4.43	SLU 78	0.31	No
fin.	3	0	2.511	-3.64			11.78	4.43	SLU 78	1.22	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.9968	13.79			11.78	4.43	SLU 80	0.32	No
fin.	3	0	2.3467	-3.51			11.78	4.43	SLU 80	1.26	Si
ini.	3	0	-2.7282	13.88			11.78	4.43	SLU 83	0.32	No
fin.	3	0	2.9941	-0.82			11.78	4.43	SLU 83	5.43	Si
ini.	3	0	-3.5582	13.79			11.78	4.43	SLU 82	0.32	No
fin.	3	0	3.3806	1.69			11.78	4.43	SLU 82	2.62	Si
ini.	3	0	-1.8582	13.69			11.78	4.43	SLU 79	0.32	No
fin.	3	0	2.4007	-3.6			11.78	4.43	SLU 79	1.23	Si
ini.	3	0	-1.9762	14.32			11.78	4.43	SLU 77	0.31	No
fin.	3	0	2.565	-3.73			11.78	4.43	SLU 77	1.19	Si
ini.	3	0	-2.6676	14.13			11.78	4.43	SLU 74	0.31	No
fin.	3	0	3.0055	-1.31			11.78	4.43	SLU 74	3.38	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3.02	-5.9397	15.5313	SLV 15	2.61	Si
fin.	2	1.79	7.5631	15.5431	SLV 15	2.06	Si
ini.	2	-17.33	-7.3102	15.5313	SLV 14	2.12	Si
fin.	2	-16.58	11.5922	15.5431	SLV 14	1.34	Si
ini.	2	3.02	-5.9397	15.5313	SLV 16	2.61	Si
fin.	2	1.79	7.5631	15.5431	SLV 16	2.06	Si
ini.	2	-42.39	-5.8259	15.5313	SLV 9	2.67	Si
fin.	2	-39.19	11.1823	15.5431	SLV 9	1.39	Si
ini.	2	-17.33	-7.3102	15.5313	SLV 13	2.12	Si
fin.	2	-16.58	11.5922	15.5431	SLV 13	1.34	Si
ini.	2	-43.52	-3.1831	15.5313	SLV 5	4.88	Si
fin.	2	-40.2	6.802	15.5431	SLV 5	2.29	Si
ini.	2	-43.52	-3.1831	15.5313	SLV 6	4.88	Si
fin.	2	-40.2	6.802	15.5431	SLV 6	2.29	Si
ini.	2	-42.39	-5.8259	15.5313	SLV 10	2.67	Si
fin.	2	-39.19	11.1823	15.5431	SLV 10	1.39	Si
ini.	2	-0.75	2.8698	15.5313	SLV 3	5.41	Si
fin.	2	-1.58	-7.0381	15.5431	SLV 3	2.21	Si
ini.	2	-0.75	2.8698	15.5313	SLV 4	5.41	Si
fin.	2	-1.58	-7.0381	15.5431	SLV 4	2.21	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-5.9397	19.05			17.66	6.65	SLV 16	0.35	No
fin.	2	0	7.5631	9.51			17.68	6.65	SLV 16	0.7	No
ini.	2	0	-7.3102	26.66			17.66	6.65	SLV 14	0.25	No
fin.	2	0	11.5922	18.25			17.68	6.65	SLV 14	0.36	No
ini.	2	0	-3.1831	18.2			17.66	6.65	SLV 5	0.37	No
fin.	2	0	6.802	11.08			17.68	6.65	SLV 5	0.6	No
ini.	2	0	1.3855	-7.19			17.66	6.65	SLV 7	0.92	No
fin.	2	0	-6.6282	-18.07			17.68	6.65	SLV 7	0.37	No
ini.	2	0	-5.8259	26.2			17.66	6.65	SLV 9	0.25	No
fin.	2	0	11.1823	19.1			17.68	6.65	SLV 9	0.35	No
ini.	2	0	1.3855	-7.19			17.66	6.65	SLV 8	0.92	No
fin.	2	0	-6.6282	-18.07			17.68	6.65	SLV 8	0.37	No
ini.	2	0	-5.9397	19.05			17.66	6.65	SLV 15	0.35	No
fin.	2	0	7.5631	9.51			17.68	6.65	SLV 15	0.7	No
ini.	2	0	-3.1831	18.2			17.66	6.65	SLV 6	0.37	No
fin.	2	0	6.802	11.08			17.68	6.65	SLV 6	0.6	No
ini.	2	0	-5.8259	26.2			17.66	6.65	SLV 10	0.25	No
fin.	2	0	11.1823	19.1			17.68	6.65	SLV 10	0.35	No
ini.	2	0	-7.3102	26.66			17.66	6.65	SLV 13	0.25	No
fin.	2	0	11.5922	18.25			17.68	6.65	SLV 13	0.36	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.341	SLV 13	Si
V_SLV	0.249	SLV 13	No
PF_SLU	3.862	SLU 82	Si
V_SLU	0.308	SLU 78	No

## Trave di accoppiamento 172

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-14.438	-4.859	13.99	14.365	0.375	-16.278	-4.859	13.99	14.366	0.376	1.84	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.85	0.2199	2.1417	SLU 36	9.74	Si
fin.	3	-0.92	-1.3082	2.1575	SLU 36	1.65	Si
ini.	3	-1.32	0.3013	2.1417	SLU 35	7.11	Si
fin.	3	-1.38	-1.365	2.1575	SLU 35	1.58	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.92	0.2582	2.1417	SLU 38	8.3	Si
fin.	3	-1	-1.3598	2.1575	SLU 38	1.59	Si
ini.	3	-1.39	0.3395	2.1417	SLU 37	6.31	Si
fin.	3	-1.46	-1.4166	2.1575	SLU 37	1.52	Si
ini.	3	-1.38	0.043	2.1417	SLU 79	49.86	Si
fin.	3	-1.44	-1.3599	2.1575	SLU 79	1.59	Si
ini.	3	0.61	-1.1616	2.1417	SLU 44	1.84	Si
fin.	3	0.65	0.0297	2.1575	SLU 44	72.54	Si
ini.	3	-1.31	0.0047	2.1417	SLU 77	455.24	Si
fin.	3	-1.36	-1.3083	2.1575	SLU 77	1.65	Si
ini.	3	-0.91	-0.0384	2.1417	SLU 80	55.79	Si
fin.	3	-0.98	-1.3031	2.1575	SLU 80	1.66	Si
ini.	3	-0.84	-0.0766	2.1417	SLU 78	27.95	Si
fin.	3	-0.89	-1.2515	2.1575	SLU 78	1.72	Si
ini.	3	-1	0.1748	2.1417	SLU 41	12.25	Si
fin.	3	-1.02	-1.1698	2.1575	SLU 41	1.84	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.0766	1.85			2.89	1.09	SLU 78	0.59	No
fin.	3	0	-1.2515	-3.36			2.9	1.09	SLU 78	0.32	No
ini.	3	0	0.0047	1.78			2.89	1.09	SLU 77	0.61	No
fin.	3	0	-1.3083	-3.44			2.9	1.09	SLU 77	0.32	No
ini.	3	0	-0.3145	2.13			2.89	1.09	SLU 72	0.51	No
fin.	3	0	-1.0178	-3.15			2.9	1.09	SLU 72	0.35	No
ini.	3	0	0.2582	1.18			2.89	1.09	SLU 38	0.92	No
fin.	3	0	-1.3598	-3.17			2.9	1.09	SLU 38	0.34	No
ini.	3	0	0.3013	1.14			2.89	1.09	SLU 35	0.96	No
fin.	3	0	-1.365	-3.16			2.9	1.09	SLU 35	0.35	No
ini.	3	0	0.043	1.76			2.89	1.09	SLU 79	0.62	No
fin.	3	0	-1.3599	-3.53			2.9	1.09	SLU 79	0.31	No
ini.	3	0	-0.1837	1.95			2.89	1.09	SLU 58	0.56	No
fin.	3	0	-1.0882	-3.16			2.9	1.09	SLU 58	0.35	No
ini.	3	0	-0.2332	2.06			2.89	1.09	SLU 71	0.53	No
fin.	3	0	-1.0746	-3.23			2.9	1.09	SLU 71	0.34	No
ini.	3	0	0.3395	1.12			2.89	1.09	SLU 37	0.97	No
fin.	3	0	-1.4166	-3.25			2.9	1.09	SLU 37	0.34	No
ini.	3	0	-0.0384	1.83			2.89	1.09	SLU 80	0.59	No
fin.	3	0	-1.3031	-3.45			2.9	1.09	SLU 80	0.32	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	9.34	-4.8784	3.2126	SLV 7	0.66	No
fin.	2	1.71	2.7804	3.2363	SLV 7	1.16	Si
ini.	2	1.3	4.7058	3.2126	SLV 5	0.68	No
fin.	2	-3.31	-6.404	3.2363	SLV 5	0.51	No
ini.	2	-1.85	-5.8774	3.2126	SLV 12	0.55	No
fin.	2	2.83	5.8425	3.2363	SLV 12	0.55	No
ini.	2	-1.85	-5.8774	3.2126	SLV 11	0.55	No
fin.	2	2.83	5.8425	3.2363	SLV 11	0.55	No
ini.	2	9.34	-4.8784	3.2126	SLV 8	0.66	No
fin.	2	1.71	2.7804	3.2363	SLV 8	1.16	Si
ini.	2	17.17	2.5169	3.2126	SLV 1	1.28	Si
fin.	2	-2.86	-6.7619	3.2363	SLV 1	0.48	No
ini.	2	-17.72	-3.6885	3.2126	SLV 15	0.87	No
fin.	2	2.38	6.2004	3.2363	SLV 15	0.52	No
ini.	2	-17.72	-3.6885	3.2126	SLV 16	0.87	No
fin.	2	2.38	6.2004	3.2363	SLV 16	0.52	No
ini.	2	17.17	2.5169	3.2126	SLV 2	1.28	Si
fin.	2	-2.86	-6.7619	3.2363	SLV 2	0.48	No
ini.	2	1.3	4.7058	3.2126	SLV 6	0.68	No
fin.	2	-3.31	-6.404	3.2363	SLV 6	0.51	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-5.8774	8.83			4.33	1.63	SLV 12	0.18	No
fin.	2	0	5.8425	4.67			4.35	1.64	SLV 12	0.35	No
ini.	2	0	-0.8132	5.8			4.33	1.63	SLV 14	0.28	No
fin.	2	0	3.4451	2.64			4.35	1.64	SLV 14	0.62	No
ini.	2	0	-3.6885	9.01			4.33	1.63	SLV 15	0.18	No
fin.	2	0	6.2004	5.39			4.35	1.64	SLV 15	0.3	No
ini.	2	0	4.7058	-5.22			4.33	1.63	SLV 6	0.31	No
fin.	2	0	-6.404	-7.82			4.35	1.64	SLV 6	0.21	No
ini.	2	0	2.5169	-5.4			4.33	1.63	SLV 1	0.3	No
fin.	2	0	-6.7619	-8.54			4.35	1.64	SLV 1	0.19	No
ini.	2	0	4.7058	-5.22			4.33	1.63	SLV 5	0.31	No
fin.	2	0	-6.404	-7.82			4.35	1.64	SLV 5	0.21	No
ini.	2	0	-3.6885	9.01			4.33	1.63	SLV 16	0.18	No
fin.	2	0	6.2004	5.39			4.35	1.64	SLV 16	0.3	No
ini.	2	0	-0.8132	5.8			4.33	1.63	SLV 13	0.28	No
fin.	2	0	3.4451	2.64			4.35	1.64	SLV 13	0.62	No
ini.	2	0	-5.8774	8.83			4.33	1.63	SLV 11	0.18	No
fin.	2	0	5.8425	4.67			4.35	1.64	SLV 11	0.35	No
ini.	2	0	2.5169	-5.4			4.33	1.63	SLV 2	0.3	No
fin.	2	0	-6.7619	-8.54			4.35	1.64	SLV 2	0.19	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.479	SLV 1	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.181	SLV 15	No
PF SLU	1.523	SLU 37	Si
V SLU	0.309	SLU 79	No

## Trave di accoppiamento 173

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.678	-4.859	13.99	14.361	0.371	-10.518	-4.859	13.99	14.362	0.372	1.84	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.43	0.0312	2.0926	SLU 47	67.06	Si
fin.	3	5.43	-0.5169	2.1082	SLU 47	4.08	Si
ini.	3	1.6	-0.5181	2.0926	SLU 79	4.04	Si
fin.	3	1.74	-0.1928	2.1082	SLU 79	10.93	Si
ini.	3	0.33	0.1813	2.0926	SLU 43	11.54	Si
fin.	3	5.05	-0.5152	2.1082	SLU 43	4.09	Si
ini.	3	2.14	-0.5723	2.0926	SLU 38	3.66	Si
fin.	3	1.23	-0.1088	2.1082	SLU 38	19.38	Si
ini.	3	1.04	0.0595	2.0926	SLU 46	35.2	Si
fin.	3	5.15	-0.5063	2.1082	SLU 46	4.16	Si
ini.	3	1.57	-0.5511	2.0926	SLU 35	3.8	Si
fin.	3	0.69	-0.082	2.1082	SLU 35	25.7	Si
ini.	3	2.11	-0.53	2.0926	SLU 36	3.95	Si
fin.	3	1.48	-0.1306	2.1082	SLU 36	16.15	Si
ini.	3	1.22	0.2164	2.0926	SLU 44	9.67	Si
fin.	3	6.36	-0.596	2.1082	SLU 44	3.54	Si
ini.	3	1.55	0.0898	2.0926	SLU 65	23.31	Si
fin.	3	5.88	-0.5444	2.1082	SLU 65	3.87	Si
ini.	3	1.61	-0.5934	2.0926	SLU 37	3.53	Si
fin.	3	0.44	-0.0603	2.1082	SLU 37	34.97	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.3705	1.43			2.86	1.07	SLU 59	0.75	No
fin.	3	0	-0.293	-0.27			2.87	1.08	SLU 59	3.94	Si
ini.	3	0	-0.4758	1.44			2.86	1.07	SLU 77	0.75	No
fin.	3	0	-0.2145	-0.44			2.87	1.08	SLU 77	2.48	Si
ini.	3	0	-0.4197	1.42			2.86	1.07	SLU 83	0.76	No
fin.	3	0	-0.2236	-0.35			2.87	1.08	SLU 83	3.11	Si
ini.	3	0	-0.3282	1.42			2.86	1.07	SLU 57	0.76	No
fin.	3	0	-0.3147	-0.24			2.87	1.08	SLU 57	4.52	Si
ini.	3	0	-0.5181	1.45			2.86	1.07	SLU 79	0.74	No
fin.	3	0	-0.1928	-0.47			2.87	1.08	SLU 79	2.29	Si
ini.	3	0	-0.3986	1.46			2.86	1.07	SLU 84	0.74	No
fin.	3	0	-0.2722	-0.26			2.87	1.08	SLU 84	4.19	Si
ini.	3	0	-0.4548	1.48			2.86	1.07	SLU 78	0.73	No
fin.	3	0	-0.2631	-0.35			2.87	1.08	SLU 78	3.12	Si
ini.	3	0	-0.2978	1.45			2.86	1.07	SLU 76	0.74	No
fin.	3	0	-0.3527	-0.14			2.87	1.08	SLU 76	7.78	Si
ini.	3	0	-0.2946	1.42			2.86	1.07	SLU 72	0.76	No
fin.	3	0	-0.3538	-0.24			2.87	1.08	SLU 72	4.44	Si
ini.	3	0	-0.4971	1.49			2.86	1.07	SLU 80	0.72	No
fin.	3	0	-0.2413	-0.38			2.87	1.08	SLU 80	2.84	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	14.67	-2.0989	3.1389	SLV 16	1.5	Si
fin.	2	25.74	-2.336	3.1624	SLV 16	1.35	Si
ini.	2	-13.5	2.123	3.1389	SLV 1	1.48	Si
fin.	2	-19.05	1.6645	3.1624	SLV 1	1.9	Si
ini.	2	14.67	-2.0989	3.1389	SLV 15	1.5	Si
fin.	2	25.74	-2.336	3.1624	SLV 15	1.35	Si
ini.	2	-8.52	1.683	3.1389	SLV 8	1.87	Si
fin.	2	7.86	-0.5943	3.1624	SLV 8	5.32	Si
ini.	2	-8.52	1.683	3.1389	SLV 7	1.87	Si
fin.	2	7.86	-0.5943	3.1624	SLV 7	5.32	Si
ini.	2	-16.19	2.6942	3.1389	SLV 4	1.17	Si
fin.	2	-12.86	1.1919	3.1624	SLV 4	2.65	Si
ini.	2	-16.19	2.6942	3.1389	SLV 3	1.17	Si
fin.	2	-12.86	1.1919	3.1624	SLV 3	2.65	Si
ini.	2	-13.5	2.123	3.1389	SLV 2	1.48	Si
fin.	2	-19.05	1.6645	3.1624	SLV 2	1.9	Si
ini.	2	17.36	-2.6701	3.1389	SLV 14	1.18	Si
fin.	2	19.55	-1.8633	3.1624	SLV 14	1.7	Si
ini.	2	17.36	-2.6701	3.1389	SLV 13	1.18	Si
fin.	2	19.55	-1.8633	3.1624	SLV 13	1.7	Si





#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-2.6701	1.34			4.28	1.61	SLV 13	1.2	Si
fin.	2	0	-1.8633	-3.41			4.3	1.62	SLV 13	0.47	No
ini.	2	0	1.683	1.67			4.28	1.61	SLV 7	0.97	No
fin.	2	0	-0.5943	2.55			4.3	1.62	SLV 7	0.63	No
ini.	2	0	2.123	0.07			4.28	1.61	SLV 1	24.05	Si
fin.	2	0	1.6645	2.43			4.3	1.62	SLV 1	0.67	No
ini.	2	0	-1.6589	0.27			4.28	1.61	SLV 9	5.87	Si
fin.	2	0	-0.0772	-2.53			4.3	1.62	SLV 9	0.64	No
ini.	2	0	-1.6589	0.27			4.28	1.61	SLV 10	5.87	Si
fin.	2	0	-0.0772	-2.53			4.3	1.62	SLV 10	0.64	No
ini.	2	0	-2.6701	1.34			4.28	1.61	SLV 14	1.2	Si
fin.	2	0	-1.8633	-3.41			4.3	1.62	SLV 14	0.47	No
ini.	2	0	1.683	1.67			4.28	1.61	SLV 8	0.97	No
fin.	2	0	-0.5943	2.55			4.3	1.62	SLV 8	0.63	No
ini.	2	0	2.6942	0.6			4.28	1.61	SLV 3	2.69	Si
fin.	2	0	1.1919	3.43			4.3	1.62	SLV 3	0.47	No
ini.	2	0	2.6942	0.6			4.28	1.61	SLV 4	2.69	Si
fin.	2	0	1.1919	3.43			4.3	1.62	SLV 4	0.47	No
ini.	2	0	2.123	0.07			4.28	1.61	SLV 2	24.05	Si
fin.	2	0	1.6645	2.43			4.3	1.62	SLV 2	0.67	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.165	SLV 3	Si
V_SLV	0.472	SLV 3	No
PF_SLU	3.527	SLU 37	Si
V_SLU	0.722	SLU 80	No

#### Trave di accoppiamento 174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-8.548	-3.359	13.97	15.057	1.087	-9.448	-3.359	13.97	15.058	1.088	0.9	0.28	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-12.18	2.4381	13.6561	SLU 73	5.6	Si
fin.	3	-12.24	-2.1575	13.668	SLU 73	6.34	Si
ini.	3	-10.49	2.3813	13.6561	SLU 60	5.73	Si
fin.	3	-10.52	-1.8264	13.668	SLU 60	7.48	Si
ini.	3	-12.85	2.4281	13.6561	SLU 74	5.62	Si
fin.	3	-12.91	-1.5774	13.668	SLU 74	8.67	Si
ini.	3	-12.97	2.331	13.6561	SLU 75	5.86	Si
fin.	3	-13.04	-1.6665	13.668	SLU 75	8.2	Si
ini.	3	-12.78	2.6239	13.6561	SLU 82	5.2	Si
fin.	3	-12.84	-2.2303	13.668	SLU 82	6.13	Si
ini.	3	-10.61	2.2842	13.6561	SLU 61	5.98	Si
fin.	3	-10.65	-1.9155	13.668	SLU 61	7.14	Si
ini.	3	-11.34	2.3543	13.6561	SLU 39	5.8	Si
fin.	3	-11.38	-1.9044	13.668	SLU 39	7.18	Si
ini.	3	-12.66	2.7211	13.6561	SLU 81	5.02	Si
fin.	3	-12.71	-2.1412	13.668	SLU 81	6.38	Si
ini.	3	-10.39	2.3172	13.6561	SLU 64	5.89	Si
fin.	3	-10.43	-1.7006	13.668	SLU 64	8.04	Si
ini.	3	-12.74	2.3644	13.6561	SLU 83	5.78	Si
fin.	3	-12.8	-1.6781	13.668	SLU 83	8.15	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.2673	2.82			11.72	4.41	SLU 84	1.56	Si
fin.	3	0	-1.7672	-11.49			11.73	4.41	SLU 84	0.38	No
ini.	3	0	2.4281	3.5			11.72	4.41	SLU 74	1.26	Si
fin.	3	0	-1.5774	-12.09			11.73	4.41	SLU 74	0.37	No
ini.	3	0	1.7888	6.62			11.72	4.41	SLU 69	0.67	No
fin.	3	0	-0.8058	-12.02			11.73	4.41	SLU 69	0.37	No
ini.	3	0	1.9744	5.98			11.72	4.41	SLU 78	0.74	No
fin.	3	0	-1.2033	-12.67			11.73	4.41	SLU 78	0.35	No
ini.	3	0	2.331	3.51			11.72	4.41	SLU 75	1.26	Si
fin.	3	0	-1.6665	-12.08			11.73	4.41	SLU 75	0.37	No
ini.	3	0	1.8867	5.56			11.72	4.41	SLU 79	0.79	No
fin.	3	0	-1.0828	-11.81			11.73	4.41	SLU 79	0.37	No
ini.	3	0	2.0715	5.97			11.72	4.41	SLU 77	0.74	No
fin.	3	0	-1.1142	-12.68			11.73	4.41	SLU 77	0.35	No
ini.	3	0	1.6917	6.63			11.72	4.41	SLU 70	0.67	No
fin.	3	0	-0.8949	-12.01			11.73	4.41	SLU 70	0.37	No
ini.	3	0	1.7895	5.57			11.72	4.41	SLU 80	0.79	No
fin.	3	0	-1.1719	-11.81			11.73	4.41	SLU 80	0.37	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2.3644	2.81			11.72	4.41	SLU 83	1.57	Si
fin.	3	0	-1.6781	-11.5			11.73	4.41	SLU 83	0.38	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-22.85	5.2394	15.4464	SLV 8	2.95	Si
fin.	2	-23.86	-4.3393	15.4582	SLV 8	3.56	Si
ini.	2	-14.44	-5.069	15.4464	SLV 16	3.05	Si
fin.	2	-9.79	3.2908	15.4582	SLV 16	4.7	Si
ini.	2	-1.49	8.6462	15.4464	SLV 1	1.79	Si
fin.	2	-6.2	-5.9449	15.4582	SLV 1	2.6	Si
ini.	2	-5.18	-5.8361	15.4464	SLV 13	2.65	Si
fin.	2	-0.77	4.1863	15.4582	SLV 13	3.69	Si
ini.	2	-22.85	5.2394	15.4464	SLV 7	2.95	Si
fin.	2	-23.86	-4.3393	15.4582	SLV 7	3.56	Si
ini.	2	-5.18	-5.8361	15.4464	SLV 14	2.65	Si
fin.	2	-0.77	4.1863	15.4582	SLV 14	3.69	Si
ini.	2	-10.76	9.4132	15.4464	SLV 4	1.64	Si
fin.	2	-15.23	-6.8404	15.4582	SLV 4	2.26	Si
ini.	2	-10.76	9.4132	15.4464	SLV 3	1.64	Si
fin.	2	-15.23	-6.8404	15.4582	SLV 3	2.26	Si
ini.	2	-14.44	-5.069	15.4464	SLV 15	3.05	Si
fin.	2	-9.79	3.2908	15.4582	SLV 15	4.7	Si
ini.	2	-1.49	8.6462	15.4464	SLV 2	1.79	Si
fin.	2	-6.2	-5.9449	15.4582	SLV 2	2.6	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	8.6462	-16.67			17.59	6.62	SLV 1	0.4	No
fin.	2	0	-5.9449	-22.28			17.6	6.62	SLV 1	0.3	No
ini.	2	0	4.7187	-6.59			17.59	6.62	SLD 1	1	Si
fin.	2	0	-3.3173	-13.82			17.6	6.62	SLD 1	0.48	No
ini.	2	0	-5.069	18.2			17.59	6.62	SLV 15	0.36	No
fin.	2	0	3.2908	7.26			17.6	6.62	SLV 15	0.91	No
ini.	2	0	4.7187	-6.59			17.59	6.62	SLD 2	1	Si
fin.	2	0	-3.3173	-13.82			17.6	6.62	SLD 2	0.48	No
ini.	2	0	9.4132	-10.84			17.59	6.62	SLV 3	0.61	No
fin.	2	0	-6.8404	-21.67			17.6	6.62	SLV 3	0.31	No
ini.	2	0	0.8947	14.84			17.59	6.62	SLV 11	0.45	No
fin.	2	0	-1.3	-2.14			17.6	6.62	SLV 11	3.09	Si
ini.	2	0	8.6462	-16.67			17.59	6.62	SLV 2	0.4	No
fin.	2	0	-5.9449	-22.28			17.6	6.62	SLV 2	0.3	No
ini.	2	0	0.8947	14.84			17.59	6.62	SLV 12	0.45	No
fin.	2	0	-1.3	-2.14			17.6	6.62	SLV 12	3.09	Si
ini.	2	0	9.4132	-10.84			17.59	6.62	SLV 4	0.61	No
fin.	2	0	-6.8404	-21.67			17.6	6.62	SLV 4	0.31	No
ini.	2	0	-5.069	18.2			17.59	6.62	SLV 16	0.36	No
fin.	2	0	3.2908	7.26			17.6	6.62	SLV 16	0.91	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 3	Si
V_SLV	0.297	SLV 1	No
PF_SLU	0.019	SLU 81	Si
V_SLU	0.348	SLU 77	No

## Trave di accoppiamento 175

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-7.723	-4.861	13.99	14.359	0.369	-7.723	-3.771	13.99	14.865	0.875	1.09	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.12	0.121	2.0715	SLU 82	17.12	Si
fin.	3	-2.88	2.7812	10.3011	SLU 82	3.7	Si
ini.	3	2.53	0.1452	2.0715	SLU 73	14.27	Si
fin.	3	-3.29	3.5328	10.3011	SLU 73	2.92	Si
ini.	3	2.05	0.1226	2.0715	SLU 23	16.89	Si
fin.	3	-2.75	2.9473	10.3011	SLU 23	3.5	Si
ini.	3	2.06	0.143	2.0715	SLU 76	14.48	Si
fin.	3	-3.26	2.809	10.3011	SLU 76	3.67	Si
ini.	3	2.42	0.1475	2.0715	SLU 52	14.05	Si
fin.	3	-3.01	3.4646	10.3011	SLU 52	2.97	Si
ini.	3	2.2	0.1416	2.0715	SLU 65	14.63	Si
fin.	3	-2.98	3.0778	10.3011	SLU 65	3.35	Si
ini.	3	2.09	0.1439	2.0715	SLU 44	14.4	Si
fin.	3	-2.71	3.0096	10.3011	SLU 44	3.42	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.28	0.1285	2.0715	SLU 10	16.12	Si
fin.	3	-2.78	3.3342	10.3011	SLU 10	3.09	Si
ini.	3	2.38	0.1262	2.0715	SLU 31	16.41	Si
fin.	3	-3.05	3.4024	10.3011	SLU 31	3.03	Si
ini.	3	1.95	0.1249	2.0715	SLU 2	16.58	Si
fin.	3	-2.47	2.8792	10.3011	SLU 2	3.58	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.121	4.52			2.84	1.07	SLU 82	0.24	No
fin.	3	0	2.7812	-0.12			8.12	3.05	SLU 82	25.28	Si
ini.	3	0	0.1453	4.73			2.84	1.07	SLU 55	0.23	No
fin.	3	0	2.7408	-0.12			8.12	3.05	SLU 55	25.92	Si
ini.	3	0	0.1475	5.29			2.84	1.07	SLU 52	0.2	No
fin.	3	0	3.4646	0.36			8.12	3.05	SLU 52	8.53	Si
ini.	3	0	0.1439	4.78			2.84	1.07	SLU 44	0.22	No
fin.	3	0	3.0096	0.01			8.12	3.05	SLU 44	272.33	Si
ini.	3	0	0.1285	4.88			2.84	1.07	SLU 10	0.22	No
fin.	3	0	3.3342	0.79			8.12	3.05	SLU 10	3.89	Si
ini.	3	0	0.1416	4.92			2.84	1.07	SLU 65	0.22	No
fin.	3	0	3.0778	0.09			8.12	3.05	SLU 65	33.1	Si
ini.	3	0	0.143	4.87			2.84	1.07	SLU 76	0.22	No
fin.	3	0	2.809	-0.04			8.12	3.05	SLU 76	83.02	Si
ini.	3	0	0.1452	5.43			2.84	1.07	SLU 73	0.2	No
fin.	3	0	3.5328	0.44			8.12	3.05	SLU 73	6.95	Si
ini.	3	0	0.1226	4.5			2.84	1.07	SLU 23	0.24	No
fin.	3	0	2.9473	0.52			8.12	3.05	SLU 23	5.87	Si
ini.	3	0	0.1262	5.02			2.84	1.07	SLU 31	0.21	No
fin.	3	0	3.4024	0.87			8.12	3.05	SLU 31	3.52	Si

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-10.47	-0.1779	3.1072	SLV 12	17.47	Si
fin.	2	12.75	-12.3395	11.9721	SLV 12	0.97	No
ini.	2	4.84	0.6656	3.1072	SLV 14	4.67	Si
fin.	2	-7.87	8.6487	11.9721	SLV 14	1.38	Si
ini.	2	-10.9	-0.4713	3.1072	SLV 7	6.59	Si
fin.	2	14.07	-14.5887	11.9721	SLV 7	0.82	No
ini.	2	11.9	0.2999	3.1072	SLV 5	10.36	Si
fin.	2	-15.3	13.6638	11.9721	SLV 5	0.88	No
ini.	2	-10.9	-0.4713	3.1072	SLV 8	6.59	Si
fin.	2	14.07	-14.5887	11.9721	SLV 8	0.82	No
ini.	2	12.33	0.5932	3.1072	SLV 10	5.24	Si
fin.	2	-16.62	15.913	11.9721	SLV 10	0.75	No
ini.	2	-10.47	-0.1779	3.1072	SLV 11	17.47	Si
fin.	2	12.75	-12.3395	11.9721	SLV 11	0.97	No
ini.	2	11.9	0.2999	3.1072	SLV 6	10.36	Si
fin.	2	-15.3	13.6638	11.9721	SLV 6	0.88	No
ini.	2	4.84	0.6656	3.1072	SLV 13	4.67	Si
fin.	2	-7.87	8.6487	11.9721	SLV 13	1.38	Si
ini.	2	12.33	0.5932	3.1072	SLV 9	5.24	Si
fin.	2	-16.62	15.913	11.9721	SLV 9	0.75	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-0.4713	20.91			4.26	1.6	SLV 7	0.08	No
fin.	2	0	-14.5887	-15.16			12.18	4.58	SLV 7	0.3	No
ini.	2	0	0.4343	15			4.26	1.6	SLV 15	0.11	No
fin.	2	0	0.1729	-0.76			12.18	4.58	SLV 15	6.05	Si
ini.	2	0	-0.1779	25.05			4.26	1.6	SLV 11	0.06	No
fin.	2	0	-12.3395	-12.6			12.18	4.58	SLV 11	0.36	No
ini.	2	0	0.2999	-21.59			4.26	1.6	SLV 6	0.07	No
fin.	2	0	13.6638	10.18			12.18	4.58	SLV 6	0.45	No
ini.	2	0	0.5932	-17.45			4.26	1.6	SLV 9	0.09	No
fin.	2	0	15.913	12.74			12.18	4.58	SLV 9	0.36	No
ini.	2	0	-0.1779	25.05			4.26	1.6	SLV 12	0.06	No
fin.	2	0	-12.3395	-12.6			12.18	4.58	SLV 12	0.36	No
ini.	2	0	-0.4713	20.91			4.26	1.6	SLV 8	0.08	No
fin.	2	0	-14.5887	-15.16			12.18	4.58	SLV 8	0.3	No
ini.	2	0	0.5932	-17.45			4.26	1.6	SLV 10	0.09	No
fin.	2	0	15.913	12.74			12.18	4.58	SLV 10	0.36	No
ini.	2	0	0.2999	-21.59			4.26	1.6	SLV 5	0.07	No
fin.	2	0	13.6638	10.18			12.18	4.58	SLV 5	0.45	No
ini.	2	0	0.4343	15			4.26	1.6	SLV 16	0.11	No
fin.	2	0	0.1729	-0.76			12.18	4.58	SLV 16	6.05	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.752	SLV 9	No
V_SLV	0.064	SLV 11	No
PF_SLU	2.916	SLU 73	Si
V_SLU	0.197	SLU 73	No

## Trave di accoppiamento 176

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.513	-3.359	11.87	12.77	0.9	-7.413	-3.359	11.87	12.77	0.9	0.9	0.28	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.04	-0.586	10.3792	SLU 29	17.71	Si
fin.	3	-7.09	2.4485	10.3792	SLU 29	4.24	Si
ini.	3	-1.24	-0.3679	10.3792	SLU 71	28.21	Si
fin.	3	-8.41	2.6221	10.3792	SLU 71	3.96	Si
ini.	3	-2.13	-0.1801	10.3792	SLU 77	57.64	Si
fin.	3	-9.33	2.7152	10.3792	SLU 77	3.82	Si
ini.	3	-2.73	-0.0973	10.3792	SLU 80	106.62	Si
fin.	3	-8.55	2.4485	10.3792	SLU 80	4.24	Si
ini.	3	-3.28	0.0472	10.3792	SLU 78	219.71	Si
fin.	3	-8.87	2.454	10.3792	SLU 78	4.23	Si
ini.	3	-1.79	-0.2234	10.3792	SLU 69	46.47	Si
fin.	3	-8.73	2.6276	10.3792	SLU 69	3.95	Si
ini.	3	-0.58	-0.4414	10.3792	SLU 27	23.51	Si
fin.	3	-7.41	2.454	10.3792	SLU 27	4.23	Si
ini.	3	-0.92	-0.3981	10.3792	SLU 35	26.07	Si
fin.	3	-8.01	2.5416	10.3792	SLU 35	4.08	Si
ini.	3	-1.58	-0.3247	10.3792	SLU 79	31.97	Si
fin.	3	-9.02	2.7097	10.3792	SLU 79	3.83	Si
ini.	3	-0.38	-0.5427	10.3792	SLU 37	19.12	Si
fin.	3	-7.69	2.5361	10.3792	SLU 37	4.09	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.5427	5.03			9.7	3.65	SLU 37	0.73	No
fin.	3	0	2.5361	8.3			9.7	3.65	SLU 37	0.44	No
ini.	3	0	-0.2234	2.84			9.7	3.65	SLU 69	1.29	Si
fin.	3	0	2.6276	9.13			9.7	3.65	SLU 69	0.4	No
ini.	3	0	-0.3679	3.45			9.7	3.65	SLU 71	1.06	Si
fin.	3	0	2.6221	9.12			9.7	3.65	SLU 71	0.4	No
ini.	3	0	-0.3277	2.41			9.7	3.65	SLU 50	1.52	Si
fin.	3	0	2.3433	8.58			9.7	3.65	SLU 50	0.43	No
ini.	3	0	-0.3981	4.42			9.7	3.65	SLU 35	0.83	No
fin.	3	0	2.5416	8.3			9.7	3.65	SLU 35	0.44	No
ini.	3	0	-0.4414	3.6			9.7	3.65	SLU 27	1.01	Si
fin.	3	0	2.454	8.69			9.7	3.65	SLU 27	0.42	No
ini.	3	0	-0.1801	3.66			9.7	3.65	SLU 77	1	No
fin.	3	0	2.7152	8.74			9.7	3.65	SLU 77	0.42	No
ini.	3	0	-0.586	4.21			9.7	3.65	SLU 29	0.87	No
fin.	3	0	2.4485	8.69			9.7	3.65	SLU 29	0.42	No
ini.	3	0	-0.1831	1.8			9.7	3.65	SLU 48	2.03	Si
fin.	3	0	2.3488	8.58			9.7	3.65	SLU 48	0.43	No
ini.	3	0	-0.3247	4.27			9.7	3.65	SLU 79	0.86	No
fin.	3	0	2.7097	8.73			9.7	3.65	SLU 79	0.42	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2.79	-2.2764	12.1694	SLV 11	5.35	Si
fin.	2	-26.47	5.288	12.1694	SLV 11	2.3	Si
ini.	2	7.91	-3.5713	12.1694	SLV 14	3.41	Si
fin.	2	-6.7	4.8885	12.1694	SLV 14	2.49	Si
ini.	2	9.89	-4.4973	12.1694	SLV 16	2.71	Si
fin.	2	-17.78	6.6059	12.1694	SLV 16	1.84	Si
ini.	2	7.91	-3.5713	12.1694	SLV 13	3.41	Si
fin.	2	-6.7	4.8885	12.1694	SLV 13	2.49	Si
ini.	2	2.79	-2.2764	12.1694	SLV 12	5.35	Si
fin.	2	-26.47	5.288	12.1694	SLV 12	2.3	Si
ini.	2	9.89	-4.4973	12.1694	SLV 15	2.71	Si
fin.	2	-17.78	6.6059	12.1694	SLV 15	1.84	Si
ini.	2	-18.95	5.8608	12.1694	SLV 2	2.08	Si
fin.	2	5.44	-4.6018	12.1694	SLV 2	2.64	Si
ini.	2	-18.95	5.8608	12.1694	SLV 1	2.08	Si
fin.	2	5.44	-4.6018	12.1694	SLV 1	2.64	Si
ini.	2	-16.98	4.9348	12.1694	SLV 4	2.47	Si
fin.	2	-5.65	-2.8844	12.1694	SLV 4	4.22	Si
ini.	2	-16.98	4.9348	12.1694	SLV 3	2.47	Si
fin.	2	-5.65	-2.8844	12.1694	SLV 3	4.22	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.4973	20.6			14.56	5.48	SLV 16	0.27	No
fin.	2	0	6.6059	27.78			14.56	5.48	SLV 16	0.2	No
ini.	2	0	-2.2764	14.04			14.56	5.48	SLV 11	0.39	No
fin.	2	0	5.288	20.69			14.56	5.48	SLV 11	0.26	No
ini.	2	0	5.8608	-22.24			14.56	5.48	SLV 1	0.25	No
fin.	2	0	-4.6018	-23.56			14.56	5.48	SLV 1	0.23	No
ini.	2	0	-4.4973	20.6			14.56	5.48	SLV 15	0.27	No
fin.	2	0	6.6059	27.78			14.56	5.48	SLV 15	0.2	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-3.5713	15.04			14.56	5.48	SLV 13	0.36	No
fin.	2	0	4.8885	20.61			14.56	5.48	SLV 13	0.27	No
ini.	2	0	5.8608	-22.24			14.56	5.48	SLV 2	0.25	No
fin.	2	0	-4.6018	-23.56			14.56	5.48	SLV 2	0.23	No
ini.	2	0	4.9348	-16.68			14.56	5.48	SLV 4	0.33	No
fin.	2	0	-2.8844	-16.39			14.56	5.48	SLV 4	0.33	No
ini.	2	0	4.9348	-16.68			14.56	5.48	SLV 3	0.33	No
fin.	2	0	-2.8844	-16.39			14.56	5.48	SLV 3	0.33	No
ini.	2	0	-2.2764	14.04			14.56	5.48	SLV 12	0.39	No
fin.	2	0	5.288	20.69			14.56	5.48	SLV 12	0.26	No
ini.	2	0	-3.5713	15.04			14.56	5.48	SLV 14	0.36	No
fin.	2	0	4.8885	20.61			14.56	5.48	SLV 14	0.27	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.842	SLV 15	Si
V_SLV	0.197	SLV 15	No
PF_SLU	3.823	SLU 77	Si
V_SLU	0.4	SLU 69	No

## Trave di accoppiamento 177

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-6.513	-3.359	14.57	15.056	0.486	-7.413	-3.359	14.57	15.056	0.486	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.09	-2.4088	3.3516	SLU 80	1.39	Si
fin.	3	-8.14	1.074	3.361	SLU 80	3.13	Si
ini.	3	-7.69	-2.2936	3.3516	SLU 36	1.46	Si
fin.	3	-7.74	0.9541	3.361	SLU 36	3.52	Si
ini.	3	-8.96	-2.4249	3.3516	SLU 78	1.38	Si
fin.	3	-9.01	0.9912	3.361	SLU 78	3.39	Si
ini.	3	-7.85	-2.38	3.3516	SLU 79	1.41	Si
fin.	3	-7.89	1.0374	3.361	SLU 79	3.24	Si
ini.	3	-6.5	-2.3167	3.3516	SLU 72	1.45	Si
fin.	3	-6.55	1.0028	3.361	SLU 72	3.35	Si
ini.	3	-8.72	-2.3961	3.3516	SLU 77	1.4	Si
fin.	3	-8.76	0.9546	3.361	SLU 77	3.52	Si
ini.	3	-6.26	-2.2879	3.3516	SLU 71	1.46	Si
fin.	3	-6.3	0.9662	3.361	SLU 71	3.48	Si
ini.	3	-7.13	-2.3041	3.3516	SLU 69	1.45	Si
fin.	3	-7.17	0.8834	3.361	SLU 69	3.8	Si
ini.	3	-6.82	-2.2774	3.3516	SLU 38	1.47	Si
fin.	3	-6.87	1.0369	3.361	SLU 38	3.24	Si
ini.	3	-7.37	-2.3328	3.3516	SLU 70	1.44	Si
fin.	3	-7.42	0.92	3.361	SLU 70	3.65	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.2648	9.95			3.49	1.31	SLU 35	0.13	No
fin.	3	0	0.9175	-2.9			3.5	1.32	SLU 35	0.45	No
ini.	3	0	-2.38	10.04			3.49	1.31	SLU 79	0.13	No
fin.	3	0	1.0374	-2.58			3.5	1.32	SLU 79	0.51	No
ini.	3	0	-2.3041	10.5			3.49	1.31	SLU 69	0.13	No
fin.	3	0	0.8834	-3.49			3.5	1.32	SLU 69	0.38	No
ini.	3	0	-2.2015	9.88			3.49	1.31	SLU 28	0.13	No
fin.	3	0	0.8829	-3.07			3.5	1.32	SLU 28	0.43	No
ini.	3	0	-2.4249	10.8			3.49	1.31	SLU 78	0.12	No
fin.	3	0	0.9912	-3.31			3.5	1.32	SLU 78	0.4	No
ini.	3	0	-2.2936	10.07			3.49	1.31	SLU 36	0.13	No
fin.	3	0	0.9541	-2.89			3.5	1.32	SLU 36	0.45	No
ini.	3	0	-2.3328	10.61			3.49	1.31	SLU 70	0.12	No
fin.	3	0	0.92	-3.48			3.5	1.32	SLU 70	0.38	No
ini.	3	0	-2.3961	10.69			3.49	1.31	SLU 77	0.12	No
fin.	3	0	0.9546	-3.31			3.5	1.32	SLU 77	0.4	No
ini.	3	0	-2.3167	9.96			3.49	1.31	SLU 72	0.13	No
fin.	3	0	1.0028	-2.75			3.5	1.32	SLU 72	0.48	No
ini.	3	0	-2.4088	10.15			3.49	1.31	SLU 80	0.13	No
fin.	3	0	1.074	-2.57			3.5	1.32	SLU 80	0.51	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-16.99	1.3358	4.9197	SLV 6	3.68	Si
fin.	2	-12.26	-3.5618	4.9315	SLV 6	1.38	Si
ini.	2	2.66	-3.112	4.9197	SLV 12	1.58	Si
fin.	2	-2.08	4.186	4.9315	SLV 12	1.18	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-15.97	1.2296	4.9197	SLV 2	4	Si
fin.	2	-13.54	-2.5668	4.9315	SLV 2	1.92	Si
ini.	2	-16.99	1.3358	4.9197	SLV 5	3.68	Si
fin.	2	-12.26	-3.5618	4.9315	SLV 5	1.38	Si
ini.	2	1.65	-3.0058	4.9197	SLV 15	1.64	Si
fin.	2	-0.8	3.191	4.9315	SLV 15	1.55	Si
ini.	2	-15.97	1.2296	4.9197	SLV 1	4	Si
fin.	2	-13.54	-2.5668	4.9315	SLV 1	1.92	Si
ini.	2	2.66	-3.112	4.9197	SLV 11	1.58	Si
fin.	2	-2.08	4.186	4.9315	SLV 11	1.18	Si
ini.	2	1.65	-3.0058	4.9197	SLV 16	1.64	Si
fin.	2	-0.8	3.191	4.9315	SLV 16	1.55	Si
ini.	2	-1.2	-2.1556	4.9197	SLV 7	2.28	Si
fin.	2	-5.27	3.0541	4.9315	SLV 7	1.61	Si
ini.	2	-1.2	-2.1556	4.9197	SLV 8	2.28	Si
fin.	2	-5.27	3.0541	4.9315	SLV 8	1.61	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1.9584	6.24			5.24	1.97	SLV 14	0.32	No
fin.	2	0	1.2062	1.25			5.25	1.97	SLV 14	1.58	Si
ini.	2	0	-3.0058	7.57			5.24	1.97	SLV 16	0.26	No
fin.	2	0	3.191	2.06			5.25	1.97	SLV 16	0.96	No
ini.	2	0	-1.9584	6.24			5.24	1.97	SLV 13	0.32	No
fin.	2	0	1.2062	1.25			5.25	1.97	SLV 13	1.58	Si
ini.	2	0	-2.1556	5.53			5.24	1.97	SLV 8	0.36	No
fin.	2	0	3.0541	-1.25			5.25	1.97	SLV 8	1.57	Si
ini.	2	0	-2.1556	5.53			5.24	1.97	SLV 7	0.36	No
fin.	2	0	3.0541	-1.25			5.25	1.97	SLV 7	1.57	Si
ini.	2	0	-3.112	7.19			5.24	1.97	SLV 11	0.27	No
fin.	2	0	4.186	0.71			5.25	1.97	SLV 11	2.77	Si
ini.	2	0	-1.7773	5.6			5.24	1.97	SLD 15	0.35	No
fin.	2	0	1.4996	-0.04			5.25	1.97	SLD 15	47.99	Si
ini.	2	0	-1.7773	5.6			5.24	1.97	SLD 16	0.35	No
fin.	2	0	1.4996	-0.04			5.25	1.97	SLD 16	47.99	Si
ini.	2	0	-3.0058	7.57			5.24	1.97	SLV 15	0.26	No
fin.	2	0	3.191	2.06			5.25	1.97	SLV 15	0.96	No
ini.	2	0	-3.112	7.19			5.24	1.97	SLV 12	0.27	No
fin.	2	0	4.186	0.71			5.25	1.97	SLV 12	2.77	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.178	SLV 11	Si
V_SLV	0.26	SLV 15	No
PF_SLU	1.382	SLU 78	Si
V_SLU	0.122	SLU 78	No

## Trave di accoppiamento 178

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	11.87	13.87	2	-6.008	-3.359	11.87	13.87	2	0.5	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-9.14	4.3649	29.6292	SLU 75	6.79	Si
fin.	3	-7.77	2.8763	29.6292	SLU 75	10.3	Si
ini.	3	-6.02	4.5053	29.6292	SLU 80	6.58	Si
fin.	3	-4.4	3.2446	29.6292	SLU 80	9.13	Si
ini.	3	-6.88	4.772	29.6292	SLU 78	6.21	Si
fin.	3	-5.23	3.4328	29.6292	SLU 78	8.63	Si
ini.	3	-5.62	4.8155	29.6292	SLU 77	6.15	Si
fin.	3	-3.86	3.7492	29.6292	SLU 77	7.9	Si
ini.	3	-8.62	4.3651	29.6292	SLU 84	6.79	Si
fin.	3	-7.14	2.8445	29.6292	SLU 84	10.42	Si
ini.	3	-5.29	4.3623	29.6292	SLU 36	6.79	Si
fin.	3	-3.73	3.1892	29.6292	SLU 36	9.29	Si
ini.	3	-7.89	4.4084	29.6292	SLU 74	6.72	Si
fin.	3	-6.4	3.1928	29.6292	SLU 74	9.28	Si
ini.	3	-7.37	4.4086	29.6292	SLU 83	6.72	Si
fin.	3	-5.78	3.1609	29.6292	SLU 83	9.37	Si
ini.	3	-4.03	4.4058	29.6292	SLU 35	6.73	Si
fin.	3	-2.36	3.5056	29.6292	SLU 35	8.45	Si
ini.	3	-4.76	4.5487	29.6292	SLU 79	6.51	Si
fin.	3	-3.03	3.561	29.6292	SLU 79	8.32	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	4.5487	-4.47			21.57	8.12	SLU 79	1.82	Si
fin.	3	0	3.561	-2.77			21.57	8.12	SLU 79	2.93	Si
ini.	3	0	4.3649	-4.58			21.57	8.12	SLU 75	1.77	Si
fin.	3	0	2.8763	-3.48			21.57	8.12	SLU 75	2.33	Si
ini.	3	0	4.3651	-4.66			21.57	8.12	SLU 84	1.74	Si
fin.	3	0	2.8445	-4.21			21.57	8.12	SLU 84	1.93	Si
ini.	3	0	4.4084	-4.47			21.57	8.12	SLU 74	1.82	Si
fin.	3	0	3.1928	-2.67			21.57	8.12	SLU 74	3.04	Si
ini.	3	0	4.4086	-4.54			21.57	8.12	SLU 83	1.79	Si
fin.	3	0	3.1609	-3.4			21.57	8.12	SLU 83	2.39	Si
ini.	3	0	4.772	-4.94			21.57	8.12	SLU 78	1.64	Si
fin.	3	0	3.4328	-3.47			21.57	8.12	SLU 78	2.34	Si
ini.	3	0	4.3623	-4.65			21.57	8.12	SLU 36	1.75	Si
fin.	3	0	3.1892	-3.56			21.57	8.12	SLU 36	2.28	Si
ini.	3	0	4.8155	-4.82			21.57	8.12	SLU 77	1.68	Si
fin.	3	0	3.7492	-2.66			21.57	8.12	SLU 77	3.05	Si
ini.	3	0	4.4058	-4.53			21.57	8.12	SLU 35	1.79	Si
fin.	3	0	3.5056	-2.76			21.57	8.12	SLU 35	2.95	Si
ini.	3	0	4.5053	-4.58			21.57	8.12	SLU 80	1.77	Si
fin.	3	0	3.2446	-3.58			21.57	8.12	SLU 80	2.27	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9.87	5.4964	31.4194	SLD 8	5.72	Si
fin.	2	-7.32	0.4256	31.4194	SLD 8	73.82	Si
ini.	2	-10.86	4.8934	31.4194	SLD 4	6.42	Si
fin.	2	-10.86	0.4213	31.4194	SLD 4	74.58	Si
ini.	2	-16.59	8.263	31.4194	SLV 4	3.8	Si
fin.	2	-17.42	-1.2115	31.4194	SLV 4	25.93	Si
ini.	2	-14.23	9.733	31.4194	SLV 7	3.23	Si
fin.	2	-9.03	-1.2822	31.4194	SLV 7	24.5	Si
ini.	2	-9.15	7.3338	31.4194	SLV 11	4.28	Si
fin.	2	-2.05	0.0021	31.4194	SLV 11	15026.65	Si
ini.	2	-10.86	4.8934	31.4194	SLD 3	6.42	Si
fin.	2	-10.86	0.4213	31.4194	SLD 3	74.58	Si
ini.	2	-16.59	8.263	31.4194	SLV 3	3.8	Si
fin.	2	-17.42	-1.2115	31.4194	SLV 3	25.93	Si
ini.	2	-9.87	5.4964	31.4194	SLD 7	5.72	Si
fin.	2	-7.32	0.4256	31.4194	SLD 7	73.82	Si
ini.	2	-14.23	9.733	31.4194	SLV 8	3.23	Si
fin.	2	-9.03	-1.2822	31.4194	SLV 8	24.5	Si
ini.	2	-9.15	7.3338	31.4194	SLV 12	4.28	Si
fin.	2	-2.05	0.0021	31.4194	SLV 12	15026.65	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	9.733	-32.2			32.35	12.17	SLV 8	0.38	No
fin.	2	0	-1.2822	-32.45			32.35	12.17	SLV 8	0.38	No
ini.	2	0	7.3338	-24.45			32.35	12.17	SLV 12	0.5	No
fin.	2	0	0.0021	-22.18			32.35	12.17	SLV 12	0.55	No
ini.	2	0	-4.8641	27.71			32.35	12.17	SLV 10	0.44	No
fin.	2	0	4.4848	29.9			32.35	12.17	SLV 10	0.41	No
ini.	2	0	-3.394	18.49			32.35	12.17	SLV 13	0.66	No
fin.	2	0	4.4142	23.65			32.35	12.17	SLV 13	0.51	No
ini.	2	0	8.263	-22.98			32.35	12.17	SLV 4	0.53	No
fin.	2	0	-1.2115	-26.2			32.35	12.17	SLV 4	0.46	No
ini.	2	0	8.263	-22.98			32.35	12.17	SLV 3	0.53	No
fin.	2	0	-1.2115	-26.2			32.35	12.17	SLV 3	0.46	No
ini.	2	0	9.733	-32.2			32.35	12.17	SLV 7	0.38	No
fin.	2	0	-1.2822	-32.45			32.35	12.17	SLV 7	0.38	No
ini.	2	0	7.3338	-24.45			32.35	12.17	SLV 11	0.5	No
fin.	2	0	0.0021	-22.18			32.35	12.17	SLV 11	0.55	No
ini.	2	0	-3.394	18.49			32.35	12.17	SLV 14	0.66	No
fin.	2	0	4.4142	23.65			32.35	12.17	SLV 14	0.51	No
ini.	2	0	-4.8641	27.71			32.35	12.17	SLV 9	0.44	No
fin.	2	0	4.4848	29.9			32.35	12.17	SLV 9	0.41	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	3.228	SLV 7	Si
V_SLV	0.375	SLV 7	No
PF_SLU	6.153	SLU 77	Si
V_SLU	1.644	SLU 78	Si

#### Trave di accoppiamento 179

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-5.508	-3.359	14.67	15.055	0.385	-6.008	-3.359	14.67	15.055	0.385	0.5	0.28	35

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb <sub>u</sub>	fhk	fvk0	fhmedio	τ0	fv0	μ	φ	fvk <sub>lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-4.83	0.3262	2.1054	SLU 79	6.46	Si
fin.	3	-4.86	-1.0878	2.1095	SLU 79	1.94	Si
ini.	3	-5.75	0.3042	2.1054	SLU 78	6.92	Si
fin.	3	-5.78	-1.1029	2.1095	SLU 78	1.91	Si
ini.	3	-3.89	0.3425	2.1054	SLU 37	6.15	Si
fin.	3	-3.92	-1.0421	2.1095	SLU 37	2.02	Si
ini.	3	-4.81	0.3205	2.1054	SLU 36	6.57	Si
fin.	3	-4.84	-1.0571	2.1095	SLU 36	2	Si
ini.	3	-5.08	0.3612	2.1054	SLU 80	5.83	Si
fin.	3	-5.11	-1.1191	2.1095	SLU 80	1.88	Si
ini.	3	-3.72	0.4005	2.1054	SLU 72	5.26	Si
fin.	3	-3.75	-1.0785	2.1095	SLU 72	1.96	Si
ini.	3	-4.39	0.3435	2.1054	SLU 70	6.13	Si
fin.	3	-4.41	-1.0622	2.1095	SLU 70	1.99	Si
ini.	3	-4.14	0.3775	2.1054	SLU 38	5.58	Si
fin.	3	-4.17	-1.0734	2.1095	SLU 38	1.97	Si
ini.	3	-5.5	0.2692	2.1054	SLU 77	7.82	Si
fin.	3	-5.53	-1.0715	2.1095	SLU 77	1.97	Si
ini.	3	-3.47	0.3655	2.1054	SLU 71	5.76	Si
fin.	3	-3.5	-1.0472	2.1095	SLU 71	2.01	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	0.3655	1.08			3.2	1.2	SLU 71	1.11	Si
fin.	3	0	-1.0472	-4.42			3.2	1.21	SLU 71	0.27	No
ini.	3	0	0.2692	1.59			3.2	1.2	SLU 77	0.76	No
fin.	3	0	-1.0715	-4.38			3.2	1.21	SLU 77	0.27	No
ini.	3	0	0.3612	0.89			3.2	1.2	SLU 80	1.35	Si
fin.	3	0	-1.1191	-4.55			3.2	1.21	SLU 80	0.26	No
ini.	3	0	0.3042	1.4			3.2	1.2	SLU 78	0.86	No
fin.	3	0	-1.1029	-4.5			3.2	1.21	SLU 78	0.27	No
ini.	3	0	0.4005	0.89			3.2	1.2	SLU 72	1.35	Si
fin.	3	0	-1.0785	-4.54			3.2	1.21	SLU 72	0.27	No
ini.	3	0	0.3085	1.59			3.2	1.2	SLU 69	0.76	No
fin.	3	0	-1.0309	-4.37			3.2	1.21	SLU 69	0.28	No
ini.	3	0	0.4168	0.68			3.2	1.2	SLU 30	1.78	Si
fin.	3	0	-1.0328	-4.3			3.2	1.21	SLU 30	0.28	No
ini.	3	0	0.3775	0.68			3.2	1.2	SLU 38	1.78	Si
fin.	3	0	-1.0734	-4.31			3.2	1.21	SLU 38	0.28	No
ini.	3	0	0.3435	1.4			3.2	1.2	SLU 70	0.86	No
fin.	3	0	-1.0622	-4.49			3.2	1.21	SLU 70	0.27	No
ini.	3	0	0.3262	1.08			3.2	1.2	SLU 79	1.11	Si
fin.	3	0	-1.0878	-4.44			3.2	1.21	SLU 79	0.27	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-8.86	-3.4536	3.1581	SLV 9	0.91	No
fin.	2	-5.07	2.2212	3.1642	SLV 9	1.42	Si
ini.	2	-8.31	-2.5173	3.1581	SLV 6	1.25	Si
fin.	2	-9.69	2.3784	3.1642	SLV 6	1.33	Si
ini.	2	-8.31	-2.5173	3.1581	SLV 5	1.25	Si
fin.	2	-9.69	2.3784	3.1642	SLV 5	1.33	Si
ini.	2	-8.86	-3.4536	3.1581	SLV 10	0.91	No
fin.	2	-5.07	2.2212	3.1642	SLV 10	1.42	Si
ini.	2	-2.38	2.3892	3.1581	SLV 11	1.32	Si
fin.	2	-1.01	-3.0716	3.1642	SLV 11	1.03	Si
ini.	2	-1.82	3.3255	3.1581	SLV 8	0.95	No
fin.	2	-5.63	-2.9144	3.1642	SLV 8	1.09	Si
ini.	2	-7.24	-2.5008	3.1581	SLV 13	1.26	Si
fin.	2	1.74	0.1855	3.1642	SLV 13	17.06	Si
ini.	2	-2.38	2.3892	3.1581	SLV 12	1.32	Si
fin.	2	-1.01	-3.0716	3.1642	SLV 12	1.03	Si
ini.	2	-7.24	-2.5008	3.1581	SLV 14	1.26	Si
fin.	2	1.74	0.1855	3.1642	SLV 14	17.06	Si
ini.	2	-1.82	3.3255	3.1581	SLV 7	0.95	No
fin.	2	-5.63	-2.9144	3.1642	SLV 7	1.09	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-2.5008	4.44			4.79	1.8	SLV 14	0.41	No
fin.	2	0	0.1855	0.94			4.8	1.81	SLV 14	1.92	Si
ini.	2	0	-2.5173	6.52			4.79	1.8	SLV 6	0.28	No
fin.	2	0	2.3784	4.41			4.8	1.81	SLV 6	0.41	No
ini.	2	0	2.3892	-4.51			4.79	1.8	SLV 12	0.4	No
fin.	2	0	-3.0716	-7.16			4.8	1.81	SLV 12	0.25	No
ini.	2	0	-2.5008	4.44			4.79	1.8	SLV 13	0.41	No
fin.	2	0	0.1855	0.94			4.8	1.81	SLV 13	1.92	Si
ini.	2	0	3.3255	-5.49			4.79	1.8	SLV 7	0.33	No
fin.	2	0	-2.9144	-7.48			4.8	1.81	SLV 7	0.24	No
ini.	2	0	3.3255	-5.49			4.79	1.8	SLV 8	0.33	No
fin.	2	0	-2.9144	-7.48			4.8	1.81	SLV 8	0.24	No
ini.	2	0	2.3892	-4.51			4.79	1.8	SLV 11	0.4	No
fin.	2	0	-3.0716	-7.16			4.8	1.81	SLV 11	0.25	No
ini.	2	0	-3.4536	7.5			4.79	1.8	SLV 10	0.24	No
fin.	2	0	2.2212	4.73			4.8	1.81	SLV 10	0.38	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-2.5173	6.52			4.79	1.8	SLV 5	0.28	No
fin.	2	0	2.3784	4.41			4.8	1.81	SLV 5	0.41	No
ini.	2	0	-3.4536	7.5			4.79	1.8	SLV 9	0.24	No
fin.	2	0	2.2212	4.73			4.8	1.81	SLV 9	0.38	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.914	SLV 9	No
V_SLV	0.241	SLV 9	No
PF_SLU	1.885	SLU 80	Si
V_SLU	0.265	SLU 80	No

## Trave di accoppiamento 180

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.283	-3.359	11.87	12.77	0.9	-3.183	-3.359	11.87	12.77	0.9	0.9	0.28	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1.33	-2.3683	10.3792	SLU 82	4.38	Si
fin.	3	-13.7	3.5555	10.3792	SLU 82	2.92	Si
ini.	3	-0.96	-2.465	10.3792	SLU 73	4.21	Si
fin.	3	-13.64	3.5632	10.3792	SLU 73	2.91	Si
ini.	3	-1.65	-2.0406	10.3792	SLU 81	5.09	Si
fin.	3	-12.72	3.2946	10.3792	SLU 81	3.15	Si
ini.	3	-0.61	-2.1809	10.3792	SLU 65	4.76	Si
fin.	3	-11.97	3.1752	10.3792	SLU 65	3.27	Si
ini.	3	-0.11	-2.2722	10.3792	SLU 83	4.57	Si
fin.	3	-11.4	3.2071	10.3792	SLU 83	3.24	Si
ini.	3	0.57	-2.6965	10.3792	SLU 76	3.85	Si
fin.	3	-12.32	3.4757	10.3792	SLU 76	2.99	Si
ini.	3	0.29	-2.4781	10.3792	SLU 75	4.19	Si
fin.	3	-12.04	3.4242	10.3792	SLU 75	3.03	Si
ini.	3	0.2	-2.5998	10.3792	SLU 84	3.99	Si
fin.	3	-12.38	3.4681	10.3792	SLU 84	2.99	Si
ini.	3	1.82	-2.7097	10.3792	SLU 78	3.83	Si
fin.	3	-10.72	3.3367	10.3792	SLU 78	3.11	Si
ini.	3	1.89	-2.7097	10.3792	SLU 80	3.83	Si
fin.	3	-10.35	3.2143	10.3792	SLU 80	3.23	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.4125	11.59			9.7	3.65	SLU 68	0.32	No
fin.	3	0	3.0877	13.38			9.7	3.65	SLU 68	0.27	No
ini.	3	0	-2.465	13.36			9.7	3.65	SLU 73	0.27	No
fin.	3	0	3.5632	13.64			9.7	3.65	SLU 73	0.27	No
ini.	3	0	-2.194	10.67			9.7	3.65	SLU 67	0.34	No
fin.	3	0	3.0362	13.26			9.7	3.65	SLU 67	0.28	No
ini.	3	0	-2.5998	13.34			9.7	3.65	SLU 84	0.27	No
fin.	3	0	3.4681	13.75			9.7	3.65	SLU 84	0.27	No
ini.	3	0	-2.382	11.26			9.7	3.65	SLU 77	0.32	No
fin.	3	0	3.0758	13.44			9.7	3.65	SLU 77	0.27	No
ini.	3	0	-2.7097	12.64			9.7	3.65	SLU 80	0.29	No
fin.	3	0	3.2143	13.95			9.7	3.65	SLU 80	0.26	No
ini.	3	0	-2.4256	10.77			9.7	3.65	SLU 70	0.34	No
fin.	3	0	2.9487	13.8			9.7	3.65	SLU 70	0.26	No
ini.	3	0	-2.6965	13.46			9.7	3.65	SLU 76	0.27	No
fin.	3	0	3.4757	14.18			9.7	3.65	SLU 76	0.26	No
ini.	3	0	-2.7097	12.64			9.7	3.65	SLU 78	0.29	No
fin.	3	0	3.3367	14.6			9.7	3.65	SLU 78	0.25	No
ini.	3	0	-2.4781	12.54			9.7	3.65	SLU 75	0.29	No
fin.	3	0	3.4242	14.06			9.7	3.65	SLU 75	0.26	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3.88	-3.111	12.1694	SLD 10	3.91	Si
fin.	2	-8.46	2.8926	12.1694	SLD 10	4.21	Si
ini.	2	10.56	-5.6815	12.1694	SLV 9	2.14	Si
fin.	2	-9.09	3.9821	12.1694	SLV 9	3.06	Si
ini.	2	6.04	-4.0393	12.1694	SLV 6	3.01	Si
fin.	2	-7.18	3.2636	12.1694	SLV 6	3.73	Si
ini.	2	9.31	-5.0705	12.1694	SLV 13	2.4	Si
fin.	2	-11.29	3.7713	12.1694	SLV 13	3.23	Si
ini.	2	-12.62	3.1803	12.1694	SLV 8	3.83	Si
fin.	2	-7.12	0.2667	12.1694	SLV 8	45.62	Si
ini.	2	-12.62	3.1803	12.1694	SLV 7	3.83	Si
fin.	2	-7.12	0.2667	12.1694	SLV 7	45.62	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	10.56	-5.6815	12.1694	SLV 10	2.14	Si
fin.	2	-9.09	3.9821	12.1694	SLV 10	3.06	Si
ini.	2	9.31	-5.0705	12.1694	SLV 14	2.4	Si
fin.	2	-11.29	3.7713	12.1694	SLV 14	3.23	Si
ini.	2	3.88	-3.111	12.1694	SLD 9	3.91	Si
fin.	2	-8.46	2.8926	12.1694	SLD 9	4.21	Si
ini.	2	6.04	-4.0393	12.1694	SLV 5	3.01	Si
fin.	2	-7.18	3.2636	12.1694	SLV 5	3.73	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-4.0393	13.04			14.56	5.48	SLV 5	0.42	No
fin.	2	0	3.2636	15.57			14.56	5.48	SLV 5	0.35	No
ini.	2	0	-5.0705	21.16			14.56	5.48	SLV 13	0.26	No
fin.	2	0	3.7713	20.8			14.56	5.48	SLV 13	0.26	No
ini.	2	0	-5.6815	19.76			14.56	5.48	SLV 10	0.28	No
fin.	2	0	3.9821	21.26			14.56	5.48	SLV 10	0.26	No
ini.	2	0	-5.0705	21.16			14.56	5.48	SLV 14	0.26	No
fin.	2	0	3.7713	20.8			14.56	5.48	SLV 14	0.26	No
ini.	2	0	-4.0393	13.04			14.56	5.48	SLV 6	0.42	No
fin.	2	0	3.2636	15.57			14.56	5.48	SLV 6	0.35	No
ini.	2	0	-2.9046	15.63			14.56	5.48	SLV 15	0.35	No
fin.	2	0	2.8723	14.72			14.56	5.48	SLV 15	0.37	No
ini.	2	0	-5.6815	19.76			14.56	5.48	SLV 9	0.28	No
fin.	2	0	3.9821	21.26			14.56	5.48	SLV 9	0.26	No
ini.	2	0	-3.111	12.47			14.56	5.48	SLD 9	0.44	No
fin.	2	0	2.8926	13.67			14.56	5.48	SLD 9	0.4	No
ini.	2	0	-3.111	12.47			14.56	5.48	SLD 10	0.44	No
fin.	2	0	2.8926	13.67			14.56	5.48	SLD 10	0.4	No
ini.	2	0	-2.9046	15.63			14.56	5.48	SLV 16	0.35	No
fin.	2	0	2.8723	14.72			14.56	5.48	SLV 16	0.37	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.142	SLV 9	Si
V_SLV	0.258	SLV 9	No
PF_SLU	2.913	SLU 73	Si
V_SLU	0.25	SLU 78	No

## Trave di accoppiamento 181

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2.283	-3.359	14.57	15.053	0.483	-3.183	-3.359	14.57	15.053	0.483	0.9	0.28	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-7.7	-1.8064	3.3079	SLU 82	1.83	Si
fin.	3	-7.71	0.9862	3.3172	SLU 82	3.36	Si
ini.	3	-6.49	-1.7701	3.3079	SLU 75	1.87	Si
fin.	3	-6.51	0.9226	3.3172	SLU 75	3.6	Si
ini.	3	-6.81	-1.8138	3.3079	SLU 73	1.82	Si
fin.	3	-6.82	1.0484	3.3172	SLU 73	3.16	Si
ini.	3	-8.21	-1.6533	3.3079	SLU 81	2	Si
fin.	3	-8.22	0.8101	3.3172	SLU 81	4.09	Si
ini.	3	-6	-1.7833	3.3079	SLU 84	1.85	Si
fin.	3	-6.03	1.019	3.3172	SLU 84	3.26	Si
ini.	3	-5.82	-1.6213	3.3079	SLU 31	2.04	Si
fin.	3	-5.83	0.9682	3.3172	SLU 31	3.43	Si
ini.	3	-5.1	-1.7907	3.3079	SLU 76	1.85	Si
fin.	3	-5.13	1.0812	3.3172	SLU 76	3.07	Si
ini.	3	-3.73	-1.6656	3.3079	SLU 80	1.99	Si
fin.	3	-3.79	0.9967	3.3172	SLU 80	3.33	Si
ini.	3	-4.78	-1.747	3.3079	SLU 78	1.89	Si
fin.	3	-4.83	0.9554	3.3172	SLU 78	3.47	Si
ini.	3	-6.51	-1.6302	3.3079	SLU 83	2.03	Si
fin.	3	-6.53	0.843	3.3172	SLU 83	3.94	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.6171	6.62			3.47	1.31	SLU 74	0.2	No
fin.	3	0	0.7465	-1.67			3.47	1.31	SLU 74	0.78	No
ini.	3	0	-1.747	7.43			3.47	1.31	SLU 78	0.18	No
fin.	3	0	0.9554	-1.68			3.47	1.31	SLU 78	0.78	No
ini.	3	0	-1.5125	6.65			3.47	1.31	SLU 79	0.2	No
fin.	3	0	0.8206	-1.87			3.47	1.31	SLU 79	0.7	No
ini.	3	0	-1.7701	6.87			3.47	1.31	SLU 75	0.19	No
fin.	3	0	0.9226	-1.03			3.47	1.31	SLU 75	1.27	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.5263	7.04			3.47	1.31	SLU 70	0.19	No
fin.	3	0	0.8267	-2.07			3.47	1.31	SLU 70	0.63	No
ini.	3	0	-1.3733	6.79			3.47	1.31	SLU 69	0.19	No
fin.	3	0	0.6507	-2.71			3.47	1.31	SLU 69	0.48	No
ini.	3	0	-1.594	7.18			3.47	1.31	SLU 77	0.18	No
fin.	3	0	0.7794	-2.32			3.47	1.31	SLU 77	0.56	No
ini.	3	0	-1.512	6.67			3.47	1.31	SLU 57	0.2	No
fin.	3	0	0.8252	-1.69			3.47	1.31	SLU 57	0.77	No
ini.	3	0	-1.6656	6.89			3.47	1.31	SLU 80	0.19	No
fin.	3	0	0.9967	-1.23			3.47	1.31	SLU 80	1.07	Si
ini.	3	0	-1.5545	6.61			3.47	1.31	SLU 36	0.2	No
fin.	3	0	0.8753	-1.45			3.47	1.31	SLU 36	0.9	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-8.36	-2.8977	4.8641	SLV 15	1.68	Si
fin.	2	-3.45	1.553	4.8759	SLV 15	3.14	Si
ini.	2	-8.36	-2.8977	4.8641	SLV 16	1.68	Si
fin.	2	-3.45	1.553	4.8759	SLV 16	3.14	Si
ini.	2	3.47	-3.4092	4.8641	SLV 13	1.43	Si
fin.	2	8.62	2.5402	4.8759	SLV 13	1.92	Si
ini.	2	15.44	-2.5269	4.8641	SLV 10	1.92	Si
fin.	2	17.35	2.6022	4.8759	SLV 10	1.87	Si
ini.	2	15.44	-2.5269	4.8641	SLV 9	1.92	Si
fin.	2	17.35	2.6022	4.8759	SLV 9	1.87	Si
ini.	2	3.47	-3.4092	4.8641	SLV 14	1.43	Si
fin.	2	8.62	2.5402	4.8759	SLV 14	1.92	Si
ini.	2	-6.43	-1.8261	4.8641	SLD 16	2.66	Si
fin.	2	-4.35	0.9398	4.8759	SLD 16	5.19	Si
ini.	2	-6.43	-1.8261	4.8641	SLD 15	2.66	Si
fin.	2	-4.35	0.9398	4.8759	SLD 15	5.19	Si
ini.	2	-1.41	-2.041	4.8641	SLD 13	2.38	Si
fin.	2	0.77	1.357	4.8759	SLD 13	3.59	Si
ini.	2	-1.41	-2.041	4.8641	SLD 14	2.38	Si
fin.	2	0.77	1.357	4.8759	SLD 14	3.59	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-2.5269	7.8			5.2	1.96	SLV 9	0.25	No
fin.	2	0	2.6022	4.15			5.21	1.96	SLV 9	0.47	No
ini.	2	0	-1.6667	5.53			5.2	1.96	SLD 10	0.35	No
fin.	2	0	1.3829	1.37			5.21	1.96	SLD 10	1.43	Si
ini.	2	0	0.4456	0			5.2	1.96	SLV 8	996.21	Si
fin.	2	0	-1.6223	-5.41			5.21	1.96	SLV 8	0.36	No
ini.	2	0	0.4456	0			5.2	1.96	SLV 7	996.21	Si
fin.	2	0	-1.6223	-5.41			5.21	1.96	SLV 7	0.36	No
ini.	2	0	-1.2593	6.33			5.2	1.96	SLV 5	0.31	No
fin.	2	0	1.6682	2.09			5.21	1.96	SLV 5	0.94	No
ini.	2	0	-3.4092	7.29			5.2	1.96	SLV 13	0.27	No
fin.	2	0	2.5402	3.93			5.21	1.96	SLV 13	0.5	No
ini.	2	0	-3.4092	7.29			5.2	1.96	SLV 14	0.27	No
fin.	2	0	2.5402	3.93			5.21	1.96	SLV 14	0.5	No
ini.	2	0	-1.6667	5.53			5.2	1.96	SLD 9	0.35	No
fin.	2	0	1.3829	1.37			5.21	1.96	SLD 9	1.43	Si
ini.	2	0	-2.5269	7.8			5.2	1.96	SLV 10	0.25	No
fin.	2	0	2.6022	4.15			5.21	1.96	SLV 10	0.47	No
ini.	2	0	-1.2593	6.33			5.2	1.96	SLV 6	0.31	No
fin.	2	0	1.6682	2.09			5.21	1.96	SLV 6	0.94	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.427	SLV 13	Si
V_SLV	0.251	SLV 9	No
PF_SLU	1.824	SLU 73	Si
V_SLU	0.176	SLU 78	No

## Trave di accoppiamento 182

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-13.143	-4.859	2.89	3.13	0.24	-11.743	-4.859	2.89	3.13	0.24	1.4	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-5.27	-2.1366	0.8767	SLU 79	0.41	No
fin.	3	-2.41	-1.5667	0.8767	SLU 79	0.56	No
ini.	3	-5.26	-2.0654	0.8767	SLU 63	0.42	No
fin.	3	-2.68	-1.5346	0.8767	SLU 63	0.57	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-5.43	-2.0925	0.8767	SLU 76	0.42	No
fin.	3	-2.88	-1.5611	0.8767	SLU 76	0.56	No
ini.	3	-5.15	-2.1381	0.8767	SLU 83	0.41	No
fin.	3	-2.6	-1.603	0.8767	SLU 83	0.55	No
ini.	3	-5.23	-2.1262	0.8767	SLU 77	0.41	No
fin.	3	-2.46	-1.5672	0.8767	SLU 77	0.56	No
ini.	3	-5.23	-2.069	0.8767	SLU 75	0.42	No
fin.	3	-2.78	-1.5514	0.8767	SLU 75	0.57	No
ini.	3	-5.39	-2.1577	0.8767	SLU 84	0.41	No
fin.	3	-2.82	-1.6182	0.8767	SLU 84	0.54	No
ini.	3	-5.47	-2.1458	0.8767	SLU 78	0.41	No
fin.	3	-2.68	-1.5824	0.8767	SLU 78	0.55	No
ini.	3	-5.16	-2.081	0.8767	SLU 82	0.42	No
fin.	3	-2.92	-1.5873	0.8767	SLU 82	0.55	No
ini.	3	-5.51	-2.1562	0.8767	SLU 80	0.41	No
fin.	3	-2.63	-1.5819	0.8767	SLU 80	0.55	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2.1562	8.95			1.85	0.7	SLU 80	0.08	No
fin.	3	0	-1.5819	-6.81			1.85	0.7	SLU 80	0.1	No
ini.	3	0	-2.1262	8.85			1.85	0.7	SLU 77	0.08	No
fin.	3	0	-1.5672	-6.76			1.85	0.7	SLU 77	0.1	No
ini.	3	0	-2.1366	8.89			1.85	0.7	SLU 79	0.08	No
fin.	3	0	-1.5667	-6.76			1.85	0.7	SLU 79	0.1	No
ini.	3	0	-2.081	8.68			1.85	0.7	SLU 82	0.08	No
fin.	3	0	-1.5873	-6.81			1.85	0.7	SLU 82	0.1	No
ini.	3	0	-2.1381	8.91			1.85	0.7	SLU 83	0.08	No
fin.	3	0	-1.603	-6.9			1.85	0.7	SLU 83	0.1	No
ini.	3	0	-2.1458	8.91			1.85	0.7	SLU 78	0.08	No
fin.	3	0	-1.5824	-6.81			1.85	0.7	SLU 78	0.1	No
ini.	3	0	-2.069	8.62			1.85	0.7	SLU 75	0.08	No
fin.	3	0	-1.5514	-6.67			1.85	0.7	SLU 75	0.1	No
ini.	3	0	-2.0614	8.61			1.85	0.7	SLU 81	0.08	No
fin.	3	0	-1.5721	-6.77			1.85	0.7	SLU 81	0.1	No
ini.	3	0	-2.0925	8.7			1.85	0.7	SLU 76	0.08	No
fin.	3	0	-1.5611	-6.71			1.85	0.7	SLU 76	0.1	No
ini.	3	0	-2.1577	8.97			1.85	0.7	SLU 84	0.08	No
fin.	3	0	-1.6182	-6.95			1.85	0.7	SLU 84	0.1	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-22.14	-4.6972	1.3151	SLV 5	0.28	No
fin.	2	3.86	-0.6413	1.3151	SLV 5	2.05	Si
ini.	2	-49.83	-8.334	1.3151	SLV 1	0.16	No
fin.	2	37.92	4.9339	1.3151	SLV 1	0.27	No
ini.	2	39.64	4.7056	1.3151	SLV 14	0.28	No
fin.	2	-45.79	-7.9687	1.3151	SLV 14	0.17	No
ini.	2	42.74	5.5002	1.3151	SLV 15	0.24	No
fin.	2	-41.71	-7.0607	1.3151	SLV 15	0.19	No
ini.	2	39.64	4.7056	1.3151	SLV 13	0.28	No
fin.	2	-45.79	-7.9687	1.3151	SLV 13	0.17	No
ini.	2	42.74	5.5002	1.3151	SLV 16	0.24	No
fin.	2	-41.71	-7.0607	1.3151	SLV 16	0.19	No
ini.	2	-49.83	-8.334	1.3151	SLV 2	0.16	No
fin.	2	37.92	4.9339	1.3151	SLV 2	0.27	No
ini.	2	-46.73	-7.5393	1.3151	SLV 4	0.17	No
fin.	2	42	5.8419	1.3151	SLV 4	0.23	No
ini.	2	-46.73	-7.5393	1.3151	SLV 3	0.17	No
fin.	2	42	5.8419	1.3151	SLV 3	0.23	No
ini.	2	-22.14	-4.6972	1.3151	SLV 6	0.28	No
fin.	2	3.86	-0.6413	1.3151	SLV 6	2.05	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	4.7056	-16.18			2.77	1.04	SLV 13	0.06	No
fin.	2	0	-7.9687	-29.46			2.77	1.04	SLV 13	0.04	No
ini.	2	0	5.5002	-18.68			2.77	1.04	SLV 15	0.06	No
fin.	2	0	-7.0607	-26.25			2.77	1.04	SLV 15	0.04	No
ini.	2	0	4.7056	-16.18			2.77	1.04	SLV 14	0.06	No
fin.	2	0	-7.9687	-29.46			2.77	1.04	SLV 14	0.04	No
ini.	2	0	-8.334	30.56			2.77	1.04	SLV 1	0.03	No
fin.	2	0	4.9339	17.03			2.77	1.04	SLV 1	0.06	No
ini.	2	0	-7.5393	28.07			2.77	1.04	SLV 4	0.04	No
fin.	2	0	5.8419	20.24			2.77	1.04	SLV 4	0.05	No
ini.	2	0	-4.6972	17.11			2.77	1.04	SLV 5	0.06	No
fin.	2	0	-0.6413	-2.98			2.77	1.04	SLV 5	0.35	No
ini.	2	0	-8.334	30.56			2.77	1.04	SLV 2	0.03	No
fin.	2	0	4.9339	17.03			2.77	1.04	SLV 2	0.06	No
ini.	2	0	-7.5393	28.07			2.77	1.04	SLV 3	0.04	No
fin.	2	0	5.8419	20.24			2.77	1.04	SLV 3	0.05	No
ini.	2	0	5.5002	-18.68			2.77	1.04	SLV 16	0.06	No
fin.	2	0	-7.0607	-26.25			2.77	1.04	SLV 16	0.04	No
ini.	2	0	-4.6972	17.11			2.77	1.04	SLV 6	0.06	No
fin.	2	0	-0.6413	-2.98			2.77	1.04	SLV 6	0.35	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLV	0.158	SLV 1	No



Stato limite	Coeff.s.	Comb.	Verifica
V SLV	0.034	SLV 1	No
PF SLU	0.406	SLU 84	No
V SLU	0.078	SLU 84	No

## Trave di accoppiamento 183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.933	-4.859	3.13	4.08	0.95	-11.933	-4.859	3.13	4.08	0.95	1	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-8.74	1.4921	11.6122	SLU 79	7.78	Si
fin.	3	-11.6	2.4957	11.6122	SLU 79	4.65	Si
ini.	3	-8.82	1.5161	11.6122	SLU 77	7.66	Si
fin.	3	-11.58	2.4593	11.6122	SLU 77	4.72	Si
ini.	3	-8.39	1.3604	11.6122	SLU 58	8.54	Si
fin.	3	-11.25	2.4077	11.6122	SLU 58	4.82	Si
ini.	3	-8.47	1.3845	11.6122	SLU 56	8.39	Si
fin.	3	-11.24	2.3713	11.6122	SLU 56	4.9	Si
ini.	3	-8.17	1.2983	11.6122	SLU 71	8.94	Si
fin.	3	-10.96	2.3471	11.6122	SLU 71	4.95	Si
ini.	3	-8.97	1.4713	11.6122	SLU 78	7.89	Si
fin.	3	-11.76	2.4202	11.6122	SLU 78	4.8	Si
ini.	3	-8.9	1.4472	11.6122	SLU 80	8.02	Si
fin.	3	-11.78	2.4566	11.6122	SLU 80	4.73	Si
ini.	3	-8.55	1.3156	11.6122	SLU 59	8.83	Si
fin.	3	-11.43	2.3686	11.6122	SLU 59	4.9	Si
ini.	3	-9.11	1.6149	11.6122	SLU 83	7.19	Si
fin.	3	-11.66	2.3853	11.6122	SLU 83	4.87	Si
ini.	3	-9.27	1.57	11.6122	SLU 84	7.4	Si
fin.	3	-11.84	2.3463	11.6122	SLU 84	4.95	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	1.2775	0.39			10.43	3.92	SLU 70	9.98	Si
fin.	3	0	2.2716	2.76			10.43	3.92	SLU 70	1.42	Si
ini.	3	0	1.3223	0.44			10.43	3.92	SLU 69	8.9	Si
fin.	3	0	2.3107	2.69			10.43	3.92	SLU 69	1.46	Si
ini.	3	0	1.1666	0.73			10.43	3.92	SLU 50	5.34	Si
fin.	3	0	2.2591	2.73			10.43	3.92	SLU 50	1.44	Si
ini.	3	0	1.1458	0.61			10.43	3.92	SLU 49	6.45	Si
fin.	3	0	2.1837	2.68			10.43	3.92	SLU 49	1.47	Si
ini.	3	0	1.0006	0.3			10.43	3.92	SLU 30	12.95	Si
fin.	3	0	1.8902	2.53			10.43	3.92	SLU 30	1.55	Si
ini.	3	0	1.0454	0.35			10.43	3.92	SLU 29	11.18	Si
fin.	3	0	1.9293	2.46			10.43	3.92	SLU 29	1.59	Si
ini.	3	0	1.2983	0.52			10.43	3.92	SLU 71	7.57	Si
fin.	3	0	2.3471	2.81			10.43	3.92	SLU 71	1.4	Si
ini.	3	0	1.1907	0.66			10.43	3.92	SLU 48	5.98	Si
fin.	3	0	2.2227	2.61			10.43	3.92	SLU 48	1.5	Si
ini.	3	0	1.1218	0.69			10.43	3.92	SLU 51	5.72	Si
fin.	3	0	2.2201	2.79			10.43	3.92	SLU 51	1.4	Si
ini.	3	0	1.2534	0.47			10.43	3.92	SLU 72	8.34	Si
fin.	3	0	2.308	2.88			10.43	3.92	SLU 72	1.36	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	40.69	-27.0545	13.2831	SLV 4	0.49	No
fin.	2	-46.82	28.1702	13.2831	SLV 4	0.47	No
ini.	2	-46.76	27.871	13.2831	SLV 15	0.48	No
fin.	2	36.88	-25.8889	13.2831	SLV 15	0.51	No
ini.	2	40.69	-27.0545	13.2831	SLV 3	0.49	No
fin.	2	-46.82	28.1702	13.2831	SLV 3	0.47	No
ini.	2	-53.83	29.227	13.2831	SLV 14	0.45	No
fin.	2	30.39	-25.0486	13.2831	SLV 14	0.53	No
ini.	2	-53.83	29.227	13.2831	SLV 13	0.45	No
fin.	2	30.39	-25.0486	13.2831	SLV 13	0.53	No
ini.	2	-46.76	27.871	13.2831	SLV 16	0.48	No
fin.	2	36.88	-25.8889	13.2831	SLV 16	0.51	No
ini.	2	10.74	-10.4373	13.2831	SLD 1	1.27	Si
fin.	2	-27.58	13.3546	13.2831	SLD 1	0.99	No
ini.	2	33.63	-25.6984	13.2831	SLV 2	0.52	No
fin.	2	-53.31	29.0104	13.2831	SLV 2	0.46	No
ini.	2	10.74	-10.4373	13.2831	SLD 2	1.27	Si
fin.	2	-27.58	13.3546	13.2831	SLD 2	0.99	No
ini.	2	33.63	-25.6984	13.2831	SLV 1	0.52	No
fin.	2	-53.31	29.0104	13.2831	SLV 1	0.46	No



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	27.871	-83.38			15.64	5.89	SLV 16	0.07	No
fin.	2	0	-25.8889	-85.72			15.64	5.89	SLV 16	0.07	No
ini.	2	0	29.227	-88.16			15.64	5.89	SLV 13	0.07	No
fin.	2	0	-25.0486	-85.25			15.64	5.89	SLV 13	0.07	No
ini.	2	0	-27.0545	88.95			15.64	5.89	SLV 3	0.07	No
fin.	2	0	28.1702	87.5			15.64	5.89	SLV 3	0.07	No
ini.	2	0	29.227	-88.16			15.64	5.89	SLV 14	0.07	No
fin.	2	0	-25.0486	-85.25			15.64	5.89	SLV 14	0.07	No
ini.	2	0	-25.6984	84.16			15.64	5.89	SLV 2	0.07	No
fin.	2	0	29.0104	87.96			15.64	5.89	SLV 2	0.07	No
ini.	2	0	-10.4373	36.43			15.64	5.89	SLD 2	0.16	No
fin.	2	0	13.3546	38.47			15.64	5.89	SLD 2	0.15	No
ini.	2	0	-25.6984	84.16			15.64	5.89	SLV 1	0.07	No
fin.	2	0	29.0104	87.96			15.64	5.89	SLV 1	0.07	No
ini.	2	0	-10.4373	36.43			15.64	5.89	SLD 1	0.16	No
fin.	2	0	13.3546	38.47			15.64	5.89	SLD 1	0.15	No
ini.	2	0	-27.0545	88.95			15.64	5.89	SLV 4	0.07	No
fin.	2	0	28.1702	87.5			15.64	5.89	SLV 4	0.07	No
ini.	2	0	27.871	-83.38			15.64	5.89	SLV 15	0.07	No
fin.	2	0	-25.8889	-85.72			15.64	5.89	SLV 15	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.454	SLV 13	No
V_SLV	0.066	SLV 3	No
PF_SLU	4.653	SLU 79	Si
V_SLU	1.364	SLU 72	Si

#### Trave di accoppiamento 184

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.933	-4.859	6.08	6.56	0.48	-11.933	-4.859	6.08	6.56	0.48	1	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1.44	-1.1195	3.5068	SLU 81	3.13	Si
fin.	3	-0.34	-1.5892	3.5068	SLU 81	2.21	Si
ini.	3	1.35	-1.1488	3.5068	SLU 74	3.05	Si
fin.	3	-0.21	-1.5512	3.5068	SLU 74	2.26	Si
ini.	3	1.09	-1.2688	3.5068	SLU 79	2.76	Si
fin.	3	-0.2	-1.5861	3.5068	SLU 79	2.21	Si
ini.	3	1.35	-1.1478	3.5068	SLU 75	3.06	Si
fin.	3	-0.19	-1.5443	3.5068	SLU 75	2.27	Si
ini.	3	1.09	-1.2678	3.5068	SLU 80	2.77	Si
fin.	3	-0.18	-1.5792	3.5068	SLU 80	2.22	Si
ini.	3	1.23	-1.2184	3.5068	SLU 83	2.88	Si
fin.	3	-0.35	-1.6264	3.5068	SLU 83	2.16	Si
ini.	3	1.24	-1.2174	3.5068	SLU 84	2.88	Si
fin.	3	-0.33	-1.6196	3.5068	SLU 84	2.17	Si
ini.	3	1.14	-1.2477	3.5068	SLU 77	2.81	Si
fin.	3	-0.22	-1.5884	3.5068	SLU 77	2.21	Si
ini.	3	1.45	-1.1185	3.5068	SLU 82	3.14	Si
fin.	3	-0.32	-1.5823	3.5068	SLU 82	2.22	Si
ini.	3	1.14	-1.2467	3.5068	SLU 78	2.81	Si
fin.	3	-0.2	-1.5816	3.5068	SLU 78	2.22	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.2174	9.65			3.7	1.39	SLU 84	0.14	No
fin.	3	0	-1.6196	-11.11			3.7	1.39	SLU 84	0.13	No
ini.	3	0	-1.2678	9.85			3.7	1.39	SLU 80	0.14	No
fin.	3	0	-1.5792	-10.95			3.7	1.39	SLU 80	0.13	No
ini.	3	0	-1.2467	9.75			3.7	1.39	SLU 78	0.14	No
fin.	3	0	-1.5816	-10.94			3.7	1.39	SLU 78	0.13	No
ini.	3	0	-1.1195	9.1			3.7	1.39	SLU 81	0.15	No
fin.	3	0	-1.5892	-10.84			3.7	1.39	SLU 81	0.13	No
ini.	3	0	-1.2477	9.73			3.7	1.39	SLU 77	0.14	No
fin.	3	0	-1.5884	-10.95			3.7	1.39	SLU 77	0.13	No
ini.	3	0	-1.1488	9.2			3.7	1.39	SLU 74	0.15	No
fin.	3	0	-1.5512	-10.66			3.7	1.39	SLU 74	0.13	No
ini.	3	0	-1.2184	9.64			3.7	1.39	SLU 83	0.14	No
fin.	3	0	-1.6264	-11.12			3.7	1.39	SLU 83	0.13	No
ini.	3	0	-1.1682	9.32			3.7	1.39	SLU 76	0.15	No
fin.	3	0	-1.5374	-10.66			3.7	1.39	SLU 76	0.13	No
ini.	3	0	-1.2688	9.84			3.7	1.39	SLU 79	0.14	No
fin.	3	0	-1.5861	-10.96			3.7	1.39	SLU 79	0.13	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-1.1185	9.12			3.7	1.39	SLU 82	0.15	No
fin.	3	0	-1.5823	-10.83			3.7	1.39	SLU 82	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	35.61	9.3463	5.0581	SLV 14	0.54	No
fin.	2	-38.72	-12.4341	5.0581	SLV 14	0.41	No
ini.	2	35.61	9.3463	5.0581	SLV 13	0.54	No
fin.	2	-38.72	-12.4341	5.0581	SLV 13	0.41	No
ini.	2	-34.51	-11.7781	5.0581	SLV 2	0.43	No
fin.	2	36.28	9.036	5.0581	SLV 2	0.56	No
ini.	2	9.44	0.8804	5.0581	SLV 10	5.75	Si
fin.	2	-15.58	-6.4295	5.0581	SLV 10	0.79	No
ini.	2	-33.12	-10.859	5.0581	SLV 3	0.47	No
fin.	2	38.94	10.3302	5.0581	SLV 3	0.49	No
ini.	2	37	10.2655	5.0581	SLV 16	0.49	No
fin.	2	-36.06	-11.1398	5.0581	SLV 16	0.45	No
ini.	2	37	10.2655	5.0581	SLV 15	0.49	No
fin.	2	-36.06	-11.1398	5.0581	SLV 15	0.45	No
ini.	2	-34.51	-11.7781	5.0581	SLV 1	0.43	No
fin.	2	36.28	9.036	5.0581	SLV 1	0.56	No
ini.	2	-33.12	-10.859	5.0581	SLV 4	0.47	No
fin.	2	38.94	10.3302	5.0581	SLV 4	0.49	No
ini.	2	9.44	0.8804	5.0581	SLV 9	5.75	Si
fin.	2	-15.58	-6.4295	5.0581	SLV 9	0.79	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	9.3463	-35.15			5.55	2.09	SLV 14	0.06	No
fin.	2	0	-12.4341	-52.54			5.55	2.09	SLV 14	0.04	No
ini.	2	0	-10.859	47.69			5.55	2.09	SLV 4	0.04	No
fin.	2	0	10.3302	37.82			5.55	2.09	SLV 4	0.06	No
ini.	2	0	0.8804	-3.02			5.55	2.09	SLV 10	0.69	No
fin.	2	0	-6.4295	-29.02			5.55	2.09	SLV 10	0.07	No
ini.	2	0	-10.859	47.69			5.55	2.09	SLV 3	0.04	No
fin.	2	0	10.3302	37.82			5.55	2.09	SLV 3	0.06	No
ini.	2	0	10.2655	-37.22			5.55	2.09	SLV 16	0.06	No
fin.	2	0	-11.1398	-47.19			5.55	2.09	SLV 16	0.04	No
ini.	2	0	10.2655	-37.22			5.55	2.09	SLV 15	0.06	No
fin.	2	0	-11.1398	-47.19			5.55	2.09	SLV 15	0.04	No
ini.	2	0	9.3463	-35.15			5.55	2.09	SLV 13	0.06	No
fin.	2	0	-12.4341	-52.54			5.55	2.09	SLV 13	0.04	No
ini.	2	0	-11.7781	49.76			5.55	2.09	SLV 1	0.04	No
fin.	2	0	9.036	32.47			5.55	2.09	SLV 1	0.06	No
ini.	2	0	0.8804	-3.02			5.55	2.09	SLV 9	0.69	No
fin.	2	0	-6.4295	-29.02			5.55	2.09	SLV 9	0.07	No
ini.	2	0	-11.7781	49.76			5.55	2.09	SLV 2	0.04	No
fin.	2	0	9.036	32.47			5.55	2.09	SLV 2	0.06	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.407	SLV 13	No
V_SLV	0.04	SLV 13	No
PF_SLU	2.156	SLU 83	Si
V_SLU	0.125	SLU 83	No

### Trave di accoppiamento 185

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.933	-4.859	6.56	7.51	0.95	-11.933	-4.859	6.56	7.51	0.95	1	0.3	35

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3.84	0.4122	11.6122	SLU 60	28.17	Si
fin.	3	-2.24	-0.81	11.6122	SLU 60	14.34	Si
ini.	3	-4.32	0.4834	11.6122	SLU 82	24.02	Si
fin.	3	-2.55	-0.8482	11.6122	SLU 82	13.69	Si
ini.	3	-4.27	0.4117	11.6122	SLU 84	28.21	Si
fin.	3	-2.7	-0.8038	11.6122	SLU 84	14.45	Si
ini.	3	-4.07	0.4396	11.6122	SLU 61	26.42	Si
fin.	3	-2.49	-0.7782	11.6122	SLU 61	14.92	Si
ini.	3	-3.9	0.3893	11.6122	SLU 74	29.82	Si
fin.	3	-2.33	-0.8069	11.6122	SLU 74	14.39	Si
ini.	3	-3.8	0.3405	11.6122	SLU 62	34.1	Si
fin.	3	-2.39	-0.7657	11.6122	SLU 62	15.17	Si
ini.	3	-4.12	0.4167	11.6122	SLU 75	27.87	Si
fin.	3	-2.58	-0.775	11.6122	SLU 75	14.98	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-4.04	0.3844	11.6122	SLU 83	30.21	Si
fin.	3	-2.46	-0.8357	11.6122	SLU 83	13.9	Si
ini.	3	-4.09	0.4561	11.6122	SLU 81	25.46	Si
fin.	3	-2.31	-0.8801	11.6122	SLU 81	13.19	Si
ini.	3	-4.28	0.4795	11.6122	SLU 73	24.22	Si
fin.	3	-2.63	-0.7783	11.6122	SLU 73	14.92	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.3893	-5.24			10.43	3.92	SLU 74	0.75	No
fin.	3	0	-0.8069	1.29			10.43	3.92	SLU 74	3.03	Si
ini.	3	0	0.4078	-5.2			10.43	3.92	SLU 76	0.76	No
fin.	3	0	-0.7339	1.46			10.43	3.92	SLU 76	2.69	Si
ini.	3	0	0.2905	-5.43			10.43	3.92	SLU 79	0.72	No
fin.	3	0	-0.7427	2.03			10.43	3.92	SLU 79	1.93	Si
ini.	3	0	0.4167	-5.23			10.43	3.92	SLU 75	0.75	No
fin.	3	0	-0.775	1.31			10.43	3.92	SLU 75	3	Si
ini.	3	0	0.3844	-5.35			10.43	3.92	SLU 83	0.73	No
fin.	3	0	-0.8357	1.33			10.43	3.92	SLU 83	2.95	Si
ini.	3	0	0.3449	-5.44			10.43	3.92	SLU 78	0.72	No
fin.	3	0	-0.7307	1.91			10.43	3.92	SLU 78	2.05	Si
ini.	3	0	0.2659	-5.13			10.43	3.92	SLU 69	0.76	No
fin.	3	0	-0.649	2.13			10.43	3.92	SLU 69	1.84	Si
ini.	3	0	0.4117	-5.34			10.43	3.92	SLU 84	0.73	No
fin.	3	0	-0.8038	1.35			10.43	3.92	SLU 84	2.91	Si
ini.	3	0	0.3176	-5.45			10.43	3.92	SLU 77	0.72	No
fin.	3	0	-0.7625	1.89			10.43	3.92	SLU 77	2.07	Si
ini.	3	0	0.3178	-5.42			10.43	3.92	SLU 80	0.72	No
fin.	3	0	-0.7108	2.05			10.43	3.92	SLU 80	1.92	Si

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-19.27	9.9642	13.2831	SLD 14	1.33	Si
fin.	2	12.57	-9.9459	13.2831	SLD 14	1.34	Si
ini.	2	-41.48	22.9309	13.2831	SLV 13	0.58	No
fin.	2	31.52	-22.5118	13.2831	SLV 13	0.59	No
ini.	2	36.02	-22.3326	13.2831	SLV 4	0.59	No
fin.	2	-34.71	21.3732	13.2831	SLV 4	0.62	No
ini.	2	36.02	-22.3326	13.2831	SLV 3	0.59	No
fin.	2	-34.71	21.3732	13.2831	SLV 3	0.62	No
ini.	2	-37.49	21.8711	13.2831	SLV 15	0.61	No
fin.	2	33.94	-22.3593	13.2831	SLV 15	0.59	No
ini.	2	-41.48	22.9309	13.2831	SLV 14	0.58	No
fin.	2	31.52	-22.5118	13.2831	SLV 14	0.59	No
ini.	2	32.03	-21.2728	13.2831	SLV 2	0.62	No
fin.	2	-37.13	21.2207	13.2831	SLV 2	0.63	No
ini.	2	-37.49	21.8711	13.2831	SLV 16	0.61	No
fin.	2	33.94	-22.3593	13.2831	SLV 16	0.59	No
ini.	2	32.03	-21.2728	13.2831	SLV 1	0.62	No
fin.	2	-37.13	21.2207	13.2831	SLV 1	0.63	No
ini.	2	-19.27	9.9642	13.2831	SLD 13	1.33	Si
fin.	2	12.57	-9.9459	13.2831	SLD 13	1.34	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	8.6961	-37.61			15.64	5.89	SLV 10	0.16	No
fin.	2	0	-7.3833	-21.42			15.64	5.89	SLV 10	0.27	No
ini.	2	0	21.8711	-73.56			15.64	5.89	SLV 15	0.08	No
fin.	2	0	-22.3593	-73.56			15.64	5.89	SLV 15	0.08	No
ini.	2	0	22.9309	-80.74			15.64	5.89	SLV 14	0.07	No
fin.	2	0	-22.5118	-73.48			15.64	5.89	SLV 14	0.08	No
ini.	2	0	-22.3326	73.61			15.64	5.89	SLV 3	0.08	No
fin.	2	0	21.3732	74.92			15.64	5.89	SLV 3	0.08	No
ini.	2	0	-22.3326	73.61			15.64	5.89	SLV 4	0.08	No
fin.	2	0	21.3732	74.92			15.64	5.89	SLV 4	0.08	No
ini.	2	0	-21.2728	66.42			15.64	5.89	SLV 2	0.09	No
fin.	2	0	21.2207	75			15.64	5.89	SLV 2	0.08	No
ini.	2	0	8.6961	-37.61			15.64	5.89	SLV 9	0.16	No
fin.	2	0	-7.3833	-21.42			15.64	5.89	SLV 9	0.27	No
ini.	2	0	21.8711	-73.56			15.64	5.89	SLV 16	0.08	No
fin.	2	0	-22.3593	-73.56			15.64	5.89	SLV 16	0.08	No
ini.	2	0	22.9309	-80.74			15.64	5.89	SLV 13	0.07	No
fin.	2	0	-22.5118	-73.48			15.64	5.89	SLV 13	0.08	No
ini.	2	0	-21.2728	66.42			15.64	5.89	SLV 1	0.09	No
fin.	2	0	21.2207	75			15.64	5.89	SLV 1	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.579	SLV 13	No
V_SLV	0.073	SLV 13	No
PF_SLU	13.194	SLU 81	Si
V_SLU	0.719	SLU 77	No

## Trave di accoppiamento 186

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.933	-4.859	9.51	10.09	0.58	-11.933	-4.859	9.51	10.09	0.58	1	0.3	35

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2.97	-0.4927	5.1202	SLU 76	10.39	Si
fin.	3	1.4	-1.0368	5.1202	SLU 76	4.94	Si
ini.	3	3.16	-0.5477	5.1202	SLU 78	9.35	Si
fin.	3	1.54	-1.0963	5.1202	SLU 78	4.67	Si
ini.	3	3.33	-0.5654	5.1202	SLU 79	9.06	Si
fin.	3	1.74	-1.0966	5.1202	SLU 79	4.67	Si
ini.	3	3.37	-0.4958	5.1202	SLU 83	10.33	Si
fin.	3	1.72	-1.0693	5.1202	SLU 83	4.79	Si
ini.	3	3.12	-0.4647	5.1202	SLU 75	11.02	Si
fin.	3	1.52	-1.0248	5.1202	SLU 75	5	Si
ini.	3	3.31	-0.4586	5.1202	SLU 74	11.16	Si
fin.	3	1.71	-1.0177	5.1202	SLU 74	5.03	Si
ini.	3	3.35	-0.5416	5.1202	SLU 77	9.45	Si
fin.	3	1.73	-1.0892	5.1202	SLU 77	4.7	Si
ini.	3	3.13	-0.5716	5.1202	SLU 80	8.96	Si
fin.	3	1.55	-1.1036	5.1202	SLU 80	4.64	Si
ini.	3	3.18	-0.5019	5.1202	SLU 84	10.2	Si
fin.	3	1.53	-1.0764	5.1202	SLU 84	4.76	Si
ini.	3	2.94	-0.5554	5.1202	SLU 59	9.22	Si
fin.	3	1.55	-1.023	5.1202	SLU 59	5.01	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-0.5554	6.84			4.47	1.68	SLU 59	0.25	No
fin.	3	0	-1.023	-8.62			4.47	1.68	SLU 59	0.19	No
ini.	3	0	-0.5019	6.73			4.47	1.68	SLU 84	0.25	No
fin.	3	0	-1.0764	-8.96			4.47	1.68	SLU 84	0.19	No
ini.	3	0	-0.4927	6.57			4.47	1.68	SLU 76	0.26	No
fin.	3	0	-1.0368	-8.68			4.47	1.68	SLU 76	0.19	No
ini.	3	0	-0.5477	6.95			4.47	1.68	SLU 78	0.24	No
fin.	3	0	-1.0963	-9.04			4.47	1.68	SLU 78	0.19	No
ini.	3	0	-0.5416	6.92			4.47	1.68	SLU 77	0.24	No
fin.	3	0	-1.0892	-9.01			4.47	1.68	SLU 77	0.19	No
ini.	3	0	-0.4647	6.41			4.47	1.68	SLU 75	0.26	No
fin.	3	0	-1.0248	-8.59			4.47	1.68	SLU 75	0.2	No
ini.	3	0	-0.5716	7.08			4.47	1.68	SLU 80	0.24	No
fin.	3	0	-1.1036	-9.11			4.47	1.68	SLU 80	0.18	No
ini.	3	0	-0.4958	6.71			4.47	1.68	SLU 83	0.25	No
fin.	3	0	-1.0693	-8.92			4.47	1.68	SLU 83	0.19	No
ini.	3	0	-0.5492	6.81			4.47	1.68	SLU 58	0.25	No
fin.	3	0	-1.0159	-8.59			4.47	1.68	SLU 58	0.2	No
ini.	3	0	-0.5654	7.05			4.47	1.68	SLU 79	0.24	No
fin.	3	0	-1.0966	-9.07			4.47	1.68	SLU 79	0.19	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	28.08	9.0579	6.8081	SLV 13	0.75	No
fin.	2	-21.34	-10.2121	6.8081	SLV 13	0.67	No
ini.	2	14.83	3.0186	6.8081	SLV 10	2.26	Si
fin.	2	-9.06	-5.6841	6.8081	SLV 10	1.2	Si
ini.	2	-20.24	-9.3035	6.8081	SLV 1	0.73	No
fin.	2	21.58	7.4599	6.8081	SLV 1	0.91	No
ini.	2	14.83	3.0186	6.8081	SLV 9	2.26	Si
fin.	2	-9.06	-5.6841	6.8081	SLV 9	1.2	Si
ini.	2	28.08	9.0579	6.8081	SLV 14	0.75	No
fin.	2	-21.34	-10.2121	6.8081	SLV 14	0.67	No
ini.	2	24.95	8.726	6.8081	SLV 16	0.78	No
fin.	2	-18.99	-8.7916	6.8081	SLV 16	0.77	No
ini.	2	-20.24	-9.3035	6.8081	SLV 2	0.73	No
fin.	2	21.58	7.4599	6.8081	SLV 2	0.91	No
ini.	2	-23.37	-9.6354	6.8081	SLV 3	0.71	No
fin.	2	23.93	8.8804	6.8081	SLV 3	0.77	No
ini.	2	-23.37	-9.6354	6.8081	SLV 4	0.71	No
fin.	2	23.93	8.8804	6.8081	SLV 4	0.77	No
ini.	2	24.95	8.726	6.8081	SLV 15	0.78	No
fin.	2	-18.99	-8.7916	6.8081	SLV 15	0.77	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	9.0579	-29.84			6.7	2.52	SLV 13	0.08	No
fin.	2	0	-10.2121	-42.34			6.7	2.52	SLV 13	0.06	No
ini.	2	0	3.0186	-3.64			6.7	2.52	SLV 9	0.69	No
fin.	2	0	-5.6841	-26.87			6.7	2.52	SLV 9	0.09	No
ini.	2	0	-9.6354	38.53			6.7	2.52	SLV 4	0.07	No
fin.	2	0	8.8804	30.69			6.7	2.52	SLV 4	0.08	No
ini.	2	0	-9.3035	40.03			6.7	2.52	SLV 2	0.06	No
fin.	2	0	7.4599	24.04			6.7	2.52	SLV 2	0.1	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	8.726	-31.34			6.7	2.52	SLV 15	0.08	No
fin.	2	0	-8.7916	-35.69			6.7	2.52	SLV 15	0.07	No
ini.	2	0	8.726	-31.34			6.7	2.52	SLV 16	0.08	No
fin.	2	0	-8.7916	-35.69			6.7	2.52	SLV 16	0.07	No
ini.	2	0	-9.3035	40.03			6.7	2.52	SLV 1	0.06	No
fin.	2	0	7.4599	24.04			6.7	2.52	SLV 1	0.1	No
ini.	2	0	3.0186	-3.64			6.7	2.52	SLV 10	0.69	No
fin.	2	0	-5.6841	-26.87			6.7	2.52	SLV 10	0.09	No
ini.	2	0	9.0579	-29.84			6.7	2.52	SLV 14	0.08	No
fin.	2	0	-10.2121	-42.34			6.7	2.52	SLV 14	0.06	No
ini.	2	0	-9.6354	38.53			6.7	2.52	SLV 3	0.07	No
fin.	2	0	8.8804	30.69			6.7	2.52	SLV 3	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.667	SLV 13	No
V_SLV	0.06	SLV 13	No
PF_SLU	4.639	SLU 80	Si
V_SLU	0.185	SLU 80	No

## Trave di accoppiamento 187

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.933	-4.859	10.09	11.04	0.95	-11.933	-4.859	10.09	11.04	0.95	1	0.3	35

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-0.73	0.1648	11.6122	SLU 27	70.48	Si
fin.	3	0.48	-0.8607	11.6122	SLU 27	13.49	Si
ini.	3	-0.92	0.2373	11.6122	SLU 35	48.94	Si
fin.	3	0.48	-0.9213	11.6122	SLU 35	12.6	Si
ini.	3	-2.21	0.3851	11.6122	SLU 80	30.15	Si
fin.	3	-0.63	-0.9171	11.6122	SLU 80	12.66	Si
ini.	3	-1.39	0.2347	11.6122	SLU 71	49.48	Si
fin.	3	0	-0.9401	11.6122	SLU 71	12.35	Si
ini.	3	-2.37	0.426	11.6122	SLU 78	27.26	Si
fin.	3	-0.75	-0.8959	11.6122	SLU 78	12.96	Si
ini.	3	-0.77	0.1965	11.6122	SLU 37	59.1	Si
fin.	3	0.6	-0.9425	11.6122	SLU 37	12.32	Si
ini.	3	-1.58	0.3072	11.6122	SLU 79	37.8	Si
fin.	3	0	-1.0007	11.6122	SLU 79	11.6	Si
ini.	3	-1.55	0.2755	11.6122	SLU 69	42.15	Si
fin.	3	-0.12	-0.9189	11.6122	SLU 69	12.64	Si
ini.	3	-0.58	0.124	11.6122	SLU 29	93.68	Si
fin.	3	0.6	-0.8819	11.6122	SLU 29	13.17	Si
ini.	3	-1.74	0.348	11.6122	SLU 77	33.37	Si
fin.	3	-0.12	-0.9795	11.6122	SLU 77	11.85	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	0.3126	-3.44			10.43	3.92	SLU 72	1.14	Si
fin.	3	0	-0.8565	-0.18			10.43	3.92	SLU 72	21.27	Si
ini.	3	0	0.124	-3.12			10.43	3.92	SLU 29	1.26	Si
fin.	3	0	-0.8819	-0.02			10.43	3.92	SLU 29	190.52	Si
ini.	3	0	0.2347	-3.42			10.43	3.92	SLU 71	1.15	Si
fin.	3	0	-0.9401	-0.23			10.43	3.92	SLU 71	16.97	Si
ini.	3	0	0.426	-3.28			10.43	3.92	SLU 78	1.19	Si
fin.	3	0	-0.8959	-0.82			10.43	3.92	SLU 78	4.8	Si
ini.	3	0	0.2019	-3.13			10.43	3.92	SLU 30	1.25	Si
fin.	3	0	-0.7983	0.03			10.43	3.92	SLU 30	150.05	Si
ini.	3	0	0.348	-3.27			10.43	3.92	SLU 77	1.2	Si
fin.	3	0	-0.9795	-0.86			10.43	3.92	SLU 77	4.54	Si
ini.	3	0	0.2755	-3.35			10.43	3.92	SLU 69	1.17	Si
fin.	3	0	-0.9189	-0.36			10.43	3.92	SLU 69	10.94	Si
ini.	3	0	0.3072	-3.33			10.43	3.92	SLU 79	1.18	Si
fin.	3	0	-1.0007	-0.74			10.43	3.92	SLU 79	5.33	Si
ini.	3	0	0.3851	-3.35			10.43	3.92	SLU 80	1.17	Si
fin.	3	0	-0.9171	-0.69			10.43	3.92	SLU 80	5.69	Si
ini.	3	0	0.3534	-3.37			10.43	3.92	SLU 70	1.16	Si
fin.	3	0	-0.8353	-0.31			10.43	3.92	SLU 70	12.58	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-14.06	6.1899	13.2831	SLV 10	2.15	Si
fin.	2	10.81	-7.1554	13.2831	SLV 10	1.86	Si
ini.	2	-14.06	6.1899	13.2831	SLV 9	2.15	Si
fin.	2	10.81	-7.1554	13.2831	SLV 9	1.86	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-22.82	11.6871	13.2831	SLV 15	1.14	Si
fin.	2	17.25	-10.8046	13.2831	SLV 15	1.23	Si
ini.	2	-25.85	13.0057	13.2831	SLV 14	1.02	Si
fin.	2	20.88	-12.7994	13.2831	SLV 14	1.04	Si
ini.	2	20.96	-12.1821	13.2831	SLV 3	1.09	Si
fin.	2	-23.65	11.9704	13.2831	SLV 3	1.11	Si
ini.	2	17.93	-10.8634	13.2831	SLV 1	1.22	Si
fin.	2	-20.02	9.9756	13.2831	SLV 1	1.33	Si
ini.	2	20.96	-12.1821	13.2831	SLV 4	1.09	Si
fin.	2	-23.65	11.9704	13.2831	SLV 4	1.11	Si
ini.	2	-22.82	11.6871	13.2831	SLV 16	1.14	Si
fin.	2	17.25	-10.8046	13.2831	SLV 16	1.23	Si
ini.	2	-25.85	13.0057	13.2831	SLV 13	1.02	Si
fin.	2	20.88	-12.7994	13.2831	SLV 13	1.04	Si
ini.	2	17.93	-10.8634	13.2831	SLV 2	1.22	Si
fin.	2	-20.02	9.9756	13.2831	SLV 2	1.33	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	11.6871	-38.32			15.64	5.89	SLV 16	0.15	No
fin.	2	0	-10.8046	-42.52			15.64	5.89	SLV 16	0.14	No
ini.	2	0	6.1899	-28.31			15.64	5.89	SLV 9	0.21	No
fin.	2	0	-7.1554	-15.48			15.64	5.89	SLV 9	0.38	No
ini.	2	0	6.1899	-28.31			15.64	5.89	SLV 10	0.21	No
fin.	2	0	-7.1554	-15.48			15.64	5.89	SLV 10	0.38	No
ini.	2	0	13.0057	-46.95			15.64	5.89	SLV 14	0.13	No
fin.	2	0	-12.7994	-43.66			15.64	5.89	SLV 14	0.13	No
ini.	2	0	-10.8634	35.1			15.64	5.89	SLV 2	0.17	No
fin.	2	0	9.9756	40.66			15.64	5.89	SLV 2	0.14	No
ini.	2	0	13.0057	-46.95			15.64	5.89	SLV 13	0.13	No
fin.	2	0	-12.7994	-43.66			15.64	5.89	SLV 13	0.13	No
ini.	2	0	-10.8634	35.1			15.64	5.89	SLV 1	0.17	No
fin.	2	0	9.9756	40.66			15.64	5.89	SLV 1	0.14	No
ini.	2	0	11.6871	-38.32			15.64	5.89	SLV 15	0.15	No
fin.	2	0	-10.8046	-42.52			15.64	5.89	SLV 15	0.14	No
ini.	2	0	-12.1821	43.73			15.64	5.89	SLV 3	0.13	No
fin.	2	0	11.9704	41.8			15.64	5.89	SLV 3	0.14	No
ini.	2	0	-12.1821	43.73			15.64	5.89	SLV 4	0.13	No
fin.	2	0	11.9704	41.8			15.64	5.89	SLV 4	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.021	SLV 13	Si
V_SLV	0.125	SLV 13	No
PF_SLU	11.604	SLU 79	Si
V_SLU	1.142	SLU 72	Si

## Trave di accoppiamento 188

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-12.933	-4.859	13.04	14.364	1.324	-11.933	-4.859	13.04	14.363	1.323	1	0.3	35

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
1200			1725	90	200	0.577	0.767	65	3200000	1280000	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2.24	2.9841	18.157	SLU 35	6.08	Si
fin.	3	-2.24	0.6279	18.1438	SLU 35	28.9	Si
ini.	3	-1.92	2.9221	18.157	SLU 77	6.21	Si
fin.	3	-1.92	0.3437	18.1438	SLU 77	52.8	Si
ini.	3	-1.45	2.7658	18.157	SLU 80	6.56	Si
fin.	3	-1.46	0.1882	18.1438	SLU 80	96.43	Si
ini.	3	-2.07	3.0656	18.157	SLU 79	5.92	Si
fin.	3	-2.07	0.4908	18.1438	SLU 79	36.97	Si
ini.	3	-1.48	2.8385	18.157	SLU 71	6.4	Si
fin.	3	-1.48	0.4347	18.1438	SLU 71	41.74	Si
ini.	3	-1.65	2.757	18.157	SLU 27	6.59	Si
fin.	3	-1.65	0.5718	18.1438	SLU 27	31.73	Si
ini.	3	-1.78	2.8278	18.157	SLU 38	6.42	Si
fin.	3	-1.78	0.4724	18.1438	SLU 38	38.41	Si
ini.	3	-1.32	2.695	18.157	SLU 69	6.74	Si
fin.	3	-1.33	0.2875	18.1438	SLU 69	63.11	Si
ini.	3	-2.4	3.1277	18.157	SLU 37	5.81	Si
fin.	3	-2.4	0.7751	18.1438	SLU 37	23.41	Si
ini.	3	-1.8	2.9006	18.157	SLU 29	6.26	Si
fin.	3	-1.8	0.7189	18.1438	SLU 29	25.24	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt_lim	Comb.	c.s.	Verifica
ini.	3	0	2.223	5.42			15.3	5.76	SLU 59	1.06	Si
fin.	3	0	0.002	-10.51			15.29	5.75	SLU 59	0.55	No
ini.	3	0	2.5387	5.74			15.3	5.76	SLU 72	1	Si
fin.	3	0	0.132	-11.33			15.29	5.75	SLU 72	0.51	No
ini.	3	0	2.695	5.52			15.3	5.76	SLU 69	1.04	Si
fin.	3	0	0.2875	-11.05			15.29	5.75	SLU 69	0.52	No
ini.	3	0	2.5229	5.38			15.3	5.76	SLU 58	1.07	Si
fin.	3	0	0.3046	-10.46			15.29	5.75	SLU 58	0.55	No
ini.	3	0	2.8385	5.71			15.3	5.76	SLU 71	1.01	Si
fin.	3	0	0.4347	-11.28			15.29	5.75	SLU 71	0.51	No
ini.	3	0	2.7658	5.57			15.3	5.76	SLU 80	1.03	Si
fin.	3	0	0.1882	-11.5			15.29	5.75	SLU 80	0.5	No
ini.	3	0	2.3951	5.56			15.3	5.76	SLU 70	1.03	Si
fin.	3	0	-0.0151	-11.1			15.29	5.75	SLU 70	0.52	No
ini.	3	0	3.0656	5.53			15.3	5.76	SLU 79	1.04	Si
fin.	3	0	0.4908	-11.45			15.29	5.75	SLU 79	0.5	No
ini.	3	0	2.6223	5.39			15.3	5.76	SLU 78	1.07	Si
fin.	3	0	0.041	-11.28			15.29	5.75	SLU 78	0.51	No
ini.	3	0	2.9221	5.35			15.3	5.76	SLU 77	1.08	Si
fin.	3	0	0.3437	-11.22			15.29	5.75	SLU 77	0.51	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3.78	11.5803	19.8279	SLV 9	1.71	Si
fin.	2	-13.35	-2.1138	19.8147	SLV 9	9.37	Si
ini.	2	-3.78	11.5803	19.8279	SLV 10	1.71	Si
fin.	2	-13.35	-2.1138	19.8147	SLV 10	9.37	Si
ini.	2	1.36	-7.8169	19.8279	SLV 4	2.54	Si
fin.	2	5.99	5.1325	19.8147	SLV 4	3.86	Si
ini.	2	4.19	-10.3133	19.8279	SLV 8	1.92	Si
fin.	2	13.76	0.7828	19.8147	SLV 8	25.31	Si
ini.	2	-0.95	9.0839	19.8279	SLV 13	2.18	Si
fin.	2	-5.58	-6.4635	19.8147	SLV 13	3.07	Si
ini.	2	4.19	-10.3133	19.8279	SLV 7	1.92	Si
fin.	2	13.76	0.7828	19.8147	SLV 7	25.31	Si
ini.	2	-0.95	9.0839	19.8279	SLV 14	2.18	Si
fin.	2	-5.58	-6.4635	19.8147	SLV 14	3.07	Si
ini.	2	-3.8	8.1739	19.8279	SLV 5	2.43	Si
fin.	2	-12.22	1.4226	19.8147	SLV 5	13.93	Si
ini.	2	1.36	-7.8169	19.8279	SLV 3	2.54	Si
fin.	2	5.99	5.1325	19.8147	SLV 3	3.86	Si
ini.	2	-3.8	8.1739	19.8279	SLV 6	2.43	Si
fin.	2	-12.22	1.4226	19.8147	SLV 6	13.93	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt_lim	Comb.	c.s.	Verifica
ini.	2	0	11.5803	-12.69			22.95	8.63	SLV 9	0.68	No
fin.	2	0	-2.1138	-21.62			22.93	8.63	SLV 9	0.4	No
ini.	2	0	-7.8169	18.98			22.95	8.63	SLV 3	0.45	No
fin.	2	0	5.1325	9.34			22.93	8.63	SLV 3	0.92	No
ini.	2	0	9.0839	-12.61			22.95	8.63	SLV 13	0.68	No
fin.	2	0	-6.4635	-21.06			22.93	8.63	SLV 13	0.41	No
ini.	2	0	9.0839	-12.61			22.95	8.63	SLV 14	0.68	No
fin.	2	0	-6.4635	-21.06			22.93	8.63	SLV 14	0.41	No
ini.	2	0	8.1739	-5.42			22.95	8.63	SLV 5	1.59	Si
fin.	2	0	1.4226	-14.71			22.93	8.63	SLV 5	0.59	No
ini.	2	0	-7.8169	18.98			22.95	8.63	SLV 4	0.45	No
fin.	2	0	5.1325	9.34			22.93	8.63	SLV 4	0.92	No
ini.	2	0	-10.3133	19.06			22.95	8.63	SLV 8	0.45	No
fin.	2	0	0.7828	9.9			22.93	8.63	SLV 8	0.87	No
ini.	2	0	-10.3133	19.06			22.95	8.63	SLV 7	0.45	No
fin.	2	0	0.7828	9.9			22.93	8.63	SLV 7	0.87	No
ini.	2	0	8.1739	-5.42			22.95	8.63	SLV 6	1.59	Si
fin.	2	0	1.4226	-14.71			22.93	8.63	SLV 6	0.59	No
ini.	2	0	11.5803	-12.69			22.95	8.63	SLV 10	0.68	No
fin.	2	0	-2.1138	-21.62			22.93	8.63	SLV 10	0.4	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.712	SLV 9	Si
V_SLV	0.399	SLV 9	No
PF_SLU	5.805	SLU 37	Si
V_SLU	0.5	SLU 80	No

TABULATI DI CALCOLO – VERIFICHE  
CIVICO 39  
STATO DI FATTO



## Sommario

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# 1 Verifiche

## 1.1 Verifica regolarità strutturale

Le unità di misura elencate nel capitolo sono in [cm, daN] ove non espressamente specificato.

### **Livello:**

**Descr:** descrizione livello.

**Quota:** quota livello. [cm]

**Q:** quota livello. [cm]

**Qinf:** quota livello precedente. [cm]

**Comb:** combinazione.

**A1:** a1 (Distribuzione masse).

**A1n:** a1 numeratore (distanza tra centro massa vs. centro rigidezza [se presente] o centro dell'ingombro del piano). [cm]

**A1d:** a1 denominatore (ingombro del piano nella medesima direzione [x o y globale]). [cm]

**A1r:** a1 rapporto (distanza centro massa/rigidezza su ingombro del piano).

**A2:** a2 (Distribuzione rigidezze).

**A2n:** a2 numeratore (rigidezza max [x o y globale]).

**A2d:** a2 denominatore (rigidezza min [x o y globale]).

**A2r:** a2 rapporto (rigidezza max/min).

**A3:** a3 (Forma compatta).

**A3n:** a3 numeratore (area convessa). [cm<sup>2</sup>]

**A3d:** a3 denominatore (area piano). [cm<sup>2</sup>]

**A3r:** a3 rapporto (area convessa/area piano).

**B:** b (Rapporto lati).

**Bn:** b numeratore (lato max [x o y globale]). [cm]

**Bd:** b denominatore (lato min [x o y globale]). [cm]

**Br:** b rapporto (lato max/min).

**C:** c (Rapporto rigidezze piano).

**Cn:** c numeratore (rigidezza elementi verticali).

**Cd:** c denominatore (rigidezza piano).

**Cr:** c rapporto (rigidezza elementi verticali/rigidezza piano).

**E1:** e1 (Variazione masse).

**E1n:** e1 numeratore (massa max). [daN]

**E1d:** e1 denominatore (massa min). [daN]

**E1r:** e1 rapporto (massa max/min).

**E2:** e2 (Riduzione rigidezze).

**E2n:** e2 numeratore (rigidezza relativa alla traslazione KUmax). [daN/cm]

**E2d:** e2 denominatore (rigidezza relativa alla traslazione KUmin). [daN/cm]

**E2r:** e2 rapporto (variazione massima in decremento Kmax/Kmin).

**E3:** e3 (Incremento rigidezze).

**E3n:** e3 numeratore (rigidezza relativa alla traslazione KUmax). [daN/cm]

**E3d:** e3 denominatore (rigidezza relativa alla traslazione KUmin). [daN/cm]

**E3r:** e3 rapporto (variazione massima in incremento Kmax/Kmin).

**F:** f (Rapporto Capacità/Domanda).

**Fn:** f numeratore (rapporto capacità/domanda massimo [c/d max]). [daN]

**Fd:** f denominatore (rapporto capacità/domanda minimo [c/d min]). [daN]

**Fr:** f rapporto (variazione massima [rapporto (c/d max)/(c/d min)]).

**G1:** g1 (Rastremazione di piano).

**G1n:** g1 numeratore (L1). [cm]

**G1d:** g1 denominatore (L2). [cm]

**G1r:** g1 rapporto (L1/L2).

**G2:** g2 (Rastremazione totale).

**G2n:** g2 numeratore (L0). [cm]

**G2d:** g2 denominatore (Li). [cm]

**G2r:** g2 rapporto (L0/Li).

**Capacità/Domanda in X:**

**VrdX:** taglio resistente complessivo in direzione X. [daN]

**VedX:** taglio agente complessivo in direzione X. [daN]

**|Rd/Ed|:** |Rd/Ed| (rapporto capacità/domanda in termini di resistenza a taglio).

**Capacità/Domanda in Y:**

**VrdY:** taglio resistente complessivo in direzione Y. [daN]

**VedY:** taglio agente complessivo in direzione Y. [daN]

### **Verifica regolarità strutturale**

Controllo regolarità edificio secondo D.M. 17-01-18 (N.T.C.) §7.2.1 - §C7.2.1

### **Avvertenze**



La seguente procedura valuta la regolarità della costruzione secondo quanto indicato nelle NTC 2018 §7.2.1.

Tali valutazioni sono a carattere puramente informativo e vengono condotte sulla base del modello e delle verifiche presenti alla sua generazione, con le limitazioni indicate nella manualistica.

In ogni caso l'impostazione di regolarità della costruzione, in pianta ed elevazione, va indicata nelle preferenze di analisi dall'utente utilizzatore del software.

#### Sintesi dei risultati

Orizzontamenti considerati nella valutazione

Nessun livello di fondazione trovato

Livelli di elevazione considerati: Rialzato(L3), Primo(L4), Secondo(L5), Terzo(L6), Sottotetto(L7),

#### Regolarità in pianta - NO

L'edificio risulta NON regolare in pianta, in base alle condizioni indicate in NTC 2018 §7.2.1

N.V. - Criterio A1 (Distribuzione masse) non valutabile al livello Rialzato

N.V. - Criterio A2 (Distribuzione rigidezze) non valutabile al livello Rialzato

No - Criterio A3 (Forma compatta) NON rispettato, con rapporto massimo 2820475.3/2639353.5=1.1 (limite=1,05) al livello Sottotetto

Ok - Criterio B (Rapporto lati) rispettato, con rapporto massimo 2,42 (limite=4) al livello Rialzato

No - Criterio C (Rapporto rigidezze piano) NON rispettato, con rapporto massimo > 999 (limite=0) al livello Rialzato

#### Regolarità in altezza - NO

L'edificio risulta NON regolare in altezza, in base alle condizioni indicate in NTC 2018 §7.2.1

Ok - Criterio D (Altezza elementi sismoresistenti) rispettato, con rapporto massimo 1 (limite=1,01)

No - Criterio E1 (Variazione masse) NON rispettato, con rapporto massimo 136222.1/99544.4=1.4 (limite=1,25) tra il livello Sottotetto ed il precedente

N.V. - Criterio E2 (Riduzione rigidezze) non valutabile tra il livello Primo ed il precedente

N.V. - Criterio E3 (Incremento rigidezze) non valutabile tra il livello Primo ed il precedente

No - Criterio F (Rapporto Capacità/Domanda) NON rispettato, con rapporto massimo 31.8/9.6=3.3 (limite=1,3) tra il livello Sottotetto ed il precedente

No - Criterio G1 (Rastremazione di piano) NON rispettato, con rapporto massimo 151.1/1030.1=0.1 (limite=0,1) tra il livello Sottotetto ed il precedente

Ok - Criterio G2 (Rastremazione totale) rispettato, con rapporto massimo 0 (limite=0,3) tra il livello Primo ed il precedente

#### Valori per piano

##### Verifiche di regolarità in pianta

Livello		A1			A2			A3			B			C		
Descr	Quota	A1n	A1d	A1r	A2n	A2d	A2r	A3n	A3d	A3r	Bn	Bd	Br	Cn	Cd	Cr
Rialzato	111							2540259	2521595	1.01	2498	1031	2.42	9999	1	9999
Primo	483							2523182	2494940	1.01	2484	1031	2.41	9999	1	9999
Secondo	835							2522292	2497684	1.01	2484	1030	2.41	9999	1	9999
Terzo	1187							2522292	2497671	1.01	2484	1030	2.41	9999	1	9999
Sottotetto	1503							2820475	2639353	1.07	2504	1187	2.11	9999	1	9999

##### Verifiche di regolarità in elevazione

Rapporto di regolarità per la condizione D (Altezza elementi sismoresistenti): 1392/1392=1.

Livello			E1			E2			E3			F			G1			G2		
Descr	Q	Qinf	E1n	E1d	E1r	E2n	E2d	E2r	E3n	E3d	E3r	Fn	Fd	Fr	G1n	G1d	G1r	G2n	G2d	G2r
Primo	483	111	178330	137466	1.3							2.9	1.9	1.55	9	2498	0	9	2498	0
Secondo	835	483	137466	136222	1.01							1.2	0.7	1.62	0	2484	0	8	2498	0
Terzo	1187	835	136222	136222	1							14.1	8.9	1.59	0	2484	0	8	2498	0
Sottotetto	1503	1187	136222	99544	1.37							31.8	9.6	3.31	151	1030	0.15	0	1	0

##### Dettaglio delle resistenze di piano a taglio (per valutazione punto F)

Livello		Capacità/Domanda in X				Capacità/Domanda in Y			
Descr	Q	Comb	VrdX	VedX	Rd/Ed	VrdY	VedY	Rd/Ed	
Rialzato	111	SLD 1	308371	-184338	1.7	267824	-37778	7.1	
Rialzato	111	SLD 2	308371	-184338	1.7	267824	-37778	7.1	
Rialzato	111	SLD 3	311537	-191280	1.6	265881	30027	8.9	
Rialzato	111	SLD 4	311537	-191280	1.6	265881	30027	8.9	
Rialzato	111	SLD 5	313593	-44740	7	270797	-114173	2.4	
Rialzato	111	SLD 6	313593	-44740	7	270797	-114173	2.4	
Rialzato	111	SLD 7	319635	-67879	4.7	262741	111843	2.3	
Rialzato	111	SLD 8	319635	-67879	4.7	262741	111843	2.3	
Rialzato	111	SLD 9	316159	67975	4.7	272540	-111850	2.4	
Rialzato	111	SLD 10	316159	67975	4.7	272540	-111850	2.4	
Rialzato	111	SLD 11	322192	44836	7.2	264752	114166	2.3	
Rialzato	111	SLD 12	322192	44836	7.2	264752	114166	2.3	
Rialzato	111	SLD 13	325594	191376	1.7	273520	-30034	9.1	
Rialzato	111	SLD 14	325594	191376	1.7	273520	-30034	9.1	
Rialzato	111	SLD 15	327807	184434	1.8	271675	37771	7.2	
Rialzato	111	SLD 16	327807	184434	1.8	271675	37771	7.2	
Rialzato	111	SLV 1	303109	-424399	0.7	264702	-88598	3	
Rialzato	111	SLV 2	303109	-424399	0.7	264702	-88598	3	
Rialzato	111	SLV 3	293643	-441667	0.7	251155	69883	3.6	
Rialzato	111	SLV 4	293643	-441667	0.7	251155	69883	3.6	
Rialzato	111	SLV 5	291488	-101096	2.9	269456	-266944	1	
Rialzato	111	SLV 6	291488	-101096	2.9	269456	-266944	1	
Rialzato	111	SLV 7	308579	-158656	1.9	248927	261324	1	
Rialzato	111	SLV 8	308579	-158656	1.9	248927	261324	1	
Rialzato	111	SLV 9	301025	158752	1.9	276647	-261332	1.1	
Rialzato	111	SLV 10	301025	158752	1.9	276647	-261332	1.1	
Rialzato	111	SLV 11	310414	101192	3.1	252463	266937	0.9	
Rialzato	111	SLV 12	310414	101192	3.1	252463	266937	0.9	
Rialzato	111	SLV 13	323876	441763	0.7	273710	-69890	3.9	
Rialzato	111	SLV 14	323876	441763	0.7	273710	-69890	3.9	
Rialzato	111	SLV 15	315963	424495	0.7	267540	88590	3	





Livello			Capacità/Domanda in X			Capacità/Domanda in Y		
Descr	Q	Comb	VrdX	VedX	Rd/Ed	VrdY	VedY	Rd/Ed
Rialzato	111	SLV 16	315963	424495	0.7	267540	88590	3
Primo	483	SLD 1	213413	-111100	1.9	131279	-20451	6.4
Primo	483	SLD 2	213413	-111100	1.9	131279	-20451	6.4
Primo	483	SLD 3	213184	-110079	1.9	131437	20632	6.4
Primo	483	SLD 4	213184	-110079	1.9	131437	20632	6.4
Primo	483	SLD 5	218233	-34877	6.3	130573	-68447	1.9
Primo	483	SLD 6	218233	-34877	6.3	130573	-68447	1.9
Primo	483	SLD 7	219607	-31476	7	132551	68496	1.9
Primo	483	SLD 8	219607	-31476	7	132551	68496	1.9
Primo	483	SLD 9	221698	31476	7	131178	-68503	1.9
Primo	483	SLD 10	221698	31476	7	131178	-68503	1.9
Primo	483	SLD 11	220400	34877	6.3	132818	68440	1.9
Primo	483	SLD 12	220400	34877	6.3	132818	68440	1.9
Primo	483	SLD 13	224157	110079	2	132784	-20639	6.4
Primo	483	SLD 14	224157	110079	2	132784	-20639	6.4
Primo	483	SLD 15	221839	111099	2	132489	20444	6.5
Primo	483	SLD 16	221839	111099	2	132489	20444	6.5
Primo	483	SLV 1	187743	-255033	0.7	126251	-47963	2.6
Primo	483	SLV 2	187743	-255033	0.7	126251	-47963	2.6
Primo	483	SLV 3	186524	-252645	0.7	130254	48182	2.7
Primo	483	SLV 4	186524	-252645	0.7	130254	48182	2.7
Primo	483	SLV 5	206066	-80132	2.6	126427	-160212	0.8
Primo	483	SLV 6	206066	-80132	2.6	126427	-160212	0.8
Primo	483	SLV 7	202016	-72172	2.8	132181	160273	0.8
Primo	483	SLV 8	202016	-72172	2.8	132181	160273	0.8
Primo	483	SLV 9	211584	72172	2.9	128772	-160280	0.8
Primo	483	SLV 10	211584	72172	2.9	128772	-160280	0.8
Primo	483	SLV 11	205033	80132	2.6	133344	160205	0.8
Primo	483	SLV 12	205033	80132	2.6	133344	160205	0.8
Primo	483	SLV 13	204316	252645	0.8	132692	-48190	2.8
Primo	483	SLV 14	204316	252645	0.8	132692	-48190	2.8
Primo	483	SLV 15	201297	255033	0.8	132065	47956	2.8
Primo	483	SLV 16	201297	255033	0.8	132065	47956	2.8
Secondo	835	SLD 1	206249	-73069	2.8	115765	-15190	7.6
Secondo	835	SLD 2	206249	-73069	2.8	115765	-15190	7.6
Secondo	835	SLD 3	206072	-72228	2.9	116668	13095	8.9
Secondo	835	SLD 4	206072	-72228	2.9	116668	13095	8.9
Secondo	835	SLD 5	206480	-23196	8.9	113007	-47458	2.4
Secondo	835	SLD 6	206480	-23196	8.9	113007	-47458	2.4
Secondo	835	SLD 7	206042	-20393	10.1	116911	46824	2.5
Secondo	835	SLD 8	206042	-20393	10.1	116911	46824	2.5
Secondo	835	SLD 9	205841	20393	10.1	113266	-46831	2.4
Secondo	835	SLD 10	205841	20393	10.1	113266	-46831	2.4
Secondo	835	SLD 11	205872	23196	8.9	116216	47450	2.4
Secondo	835	SLD 12	205872	23196	8.9	116216	47450	2.4
Secondo	835	SLD 13	204847	72228	2.8	114196	-13102	8.7
Secondo	835	SLD 14	204847	72228	2.8	114196	-13102	8.7
Secondo	835	SLD 15	204897	73069	2.8	114542	15182	7.5
Secondo	835	SLD 16	204897	73069	2.8	114542	15182	7.5
Secondo	835	SLV 1	201282	-169127	1.2	114429	-35636	3.2
Secondo	835	SLV 2	201282	-169127	1.2	114429	-35636	3.2
Secondo	835	SLV 3	198470	-167237	1.2	117462	30929	3.8
Secondo	835	SLV 4	198470	-167237	1.2	117462	30929	3.8
Secondo	835	SLV 5	205124	-53603	3.8	110917	-111650	1
Secondo	835	SLV 6	205124	-53603	3.8	110917	-111650	1
Secondo	835	SLV 7	200469	-47306	4.2	118463	110233	1.1
Secondo	835	SLV 8	200469	-47306	4.2	118463	110233	1.1
Secondo	835	SLV 9	202881	47306	4.3	110039	-110240	1
Secondo	835	SLV 10	202881	47306	4.3	110039	-110240	1
Secondo	835	SLV 11	199752	53603	3.7	116949	111643	1
Secondo	835	SLV 12	199752	53603	3.7	116949	111643	1
Secondo	835	SLV 13	197361	167237	1.2	110598	-30936	3.6
Secondo	835	SLV 14	197361	167237	1.2	110598	-30936	3.6
Secondo	835	SLV 15	194059	169127	1.1	111748	35629	3.1
Secondo	835	SLV 16	194059	169127	1.1	111748	35629	3.1
Terzo	1187	SLD 1	174320	-40307	4.3	95021	-9989	9.5
Terzo	1187	SLD 2	174320	-40307	4.3	95021	-9989	9.5
Terzo	1187	SLD 3	174117	-40110	4.3	96052	9298	10.3
Terzo	1187	SLD 4	174117	-40110	4.3	96052	9298	10.3
Terzo	1187	SLD 5	173177	-12392	14	94712	-32251	2.9
Terzo	1187	SLD 6	173177	-12392	14	94712	-32251	2.9
Terzo	1187	SLD 7	174630	-11733	14.9	96646	32039	3
Terzo	1187	SLD 8	174630	-11733	14.9	96646	32039	3
Terzo	1187	SLD 9	172781	11733	14.7	94529	-32046	2.9
Terzo	1187	SLD 10	172781	11733	14.7	94529	-32046	2.9
Terzo	1187	SLD 11	174507	12392	14.1	96524	32244	3
Terzo	1187	SLD 12	174507	12392	14.1	96524	32244	3
Terzo	1187	SLD 13	173855	40110	4.3	95519	-9305	10.3
Terzo	1187	SLD 14	173855	40110	4.3	95519	-9305	10.3
Terzo	1187	SLD 15	173649	40307	4.3	95757	9982	9.6
Terzo	1187	SLD 16	173649	40307	4.3	95757	9982	9.6
Terzo	1187	SLV 1	163256	-94264	1.7	95321	-23686	4
Terzo	1187	SLV 2	163256	-94264	1.7	95321	-23686	4
Terzo	1187	SLV 3	160701	-93833	1.7	96458	22128	4.4
Terzo	1187	SLV 4	160701	-93833	1.7	96458	22128	4.4
Terzo	1187	SLV 5	170430	-28934	5.9	92286	-76593	1.2
Terzo	1187	SLV 6	170430	-28934	5.9	92286	-76593	1.2
Terzo	1187	SLV 7	170626	-27495	6.2	96981	76120	1.3



Livello			Capacità/Domanda in X			Capacità/Domanda in Y		
Descr	Q	Comb	VrdX	VedX	Rd/Ed	VrdY	VedY	Rd/Ed
Terzo	1187	SLV 8	170626	-27495	6.2	96981	76120	1.3
Terzo	1187	SLV 9	170347	27495	6.2	92563	-76128	1.2
Terzo	1187	SLV 10	170347	27495	6.2	92563	-76128	1.2
Terzo	1187	SLV 11	170005	28934	5.9	96053	76586	1.3
Terzo	1187	SLV 12	170005	28934	5.9	96053	76586	1.3
Terzo	1187	SLV 13	166333	93833	1.8	95053	-22135	4.3
Terzo	1187	SLV 14	166333	93833	1.8	95053	-22135	4.3
Terzo	1187	SLV 15	156364	94264	1.7	95302	23679	4
Terzo	1187	SLV 16	156364	94264	1.7	95302	23679	4
Sottotetto	1503	SLD 1	94543	-10120	9.3	61225	-2505	24.4
Sottotetto	1503	SLD 2	94543	-10120	9.3	61225	-2505	24.4
Sottotetto	1503	SLD 3	94464	-9886	9.6	60465	3146	19.2
Sottotetto	1503	SLD 4	94464	-9886	9.6	60465	3146	19.2
Sottotetto	1503	SLD 5	94334	-3390	27.8	52355	-9442	5.5
Sottotetto	1503	SLD 6	94334	-3390	27.8	52355	-9442	5.5
Sottotetto	1503	SLD 7	95504	-2608	36.6	66805	9395	7.1
Sottotetto	1503	SLD 8	95504	-2608	36.6	66805	9395	7.1
Sottotetto	1503	SLD 9	94412	2614	36.1	54606	-9737	5.6
Sottotetto	1503	SLD 10	94412	2614	36.1	54606	-9737	5.6
Sottotetto	1503	SLD 11	99089	3396	29.2	64451	9101	7.1
Sottotetto	1503	SLD 12	99089	3396	29.2	64451	9101	7.1
Sottotetto	1503	SLD 13	94207	9892	9.5	65388	-3488	18.7
Sottotetto	1503	SLD 14	94207	9892	9.5	65388	-3488	18.7
Sottotetto	1503	SLD 15	93143	10126	9.2	68785	2164	31.8
Sottotetto	1503	SLD 16	93143	10126	9.2	68785	2164	31.8
Sottotetto	1503	SLV 1	86938	-23685	3.7	51399	-5557	9.2
Sottotetto	1503	SLV 2	86938	-23685	3.7	51399	-5557	9.2
Sottotetto	1503	SLV 3	81477	-23137	3.5	50574	7576	6.7
Sottotetto	1503	SLV 4	81477	-23137	3.5	50574	7576	6.7
Sottotetto	1503	SLV 5	89302	-7935	11.3	46667	-21706	2.1
Sottotetto	1503	SLV 6	89302	-7935	11.3	46667	-21706	2.1
Sottotetto	1503	SLV 7	82566	-6107	13.5	24733	22072	1.1
Sottotetto	1503	SLV 8	82566	-6107	13.5	24733	22072	1.1
Sottotetto	1503	SLV 9	90207	6113	14.8	44899	-22414	2
Sottotetto	1503	SLV 10	90207	6113	14.8	44899	-22414	2
Sottotetto	1503	SLV 11	88983	7941	11.2	29243	21364	1.4
Sottotetto	1503	SLV 12	88983	7941	11.2	29243	21364	1.4
Sottotetto	1503	SLV 13	84520	23143	3.7	58970	-7918	7.4
Sottotetto	1503	SLV 14	84520	23143	3.7	58970	-7918	7.4
Sottotetto	1503	SLV 15	84887	23692	3.6	68394	5216	13.1
Sottotetto	1503	SLV 16	84887	23692	3.6	68394	5216	13.1

## 1.2 Verifiche aste in legno

Le unità di misura elencate nel capitolo sono in [cm] ove non espressamente specificato.

**Descrizione:** descrizione della sezione.

**Tipo:** tipo di sezione.

**Base:** base della sezione. [cm]

**Altezza:** altezza della sezione. [cm]

**Area:** area inerziale nel sistema geometrico centrato nel baricentro. [cm<sup>2</sup>]

**Jx:** momento d'inerzia attorno all'asse orizzontale baricentrico di definizione della sezione. [cm<sup>4</sup>]

**Jy:** momento d'inerzia attorno all'asse verticale baricentrico di definizione della sezione. [cm<sup>4</sup>]

**Wx:** modulo di resistenza elastico minimo relativo all'asse x. [cm<sup>3</sup>]

**Wy:** modulo di resistenza elastico minimo relativo all'asse y. [cm<sup>3</sup>]

### Asta 11: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 34.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8



$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(8/85.3)^2 + 0.7*0.5/74.7 + 33.2/74.7 = 0.46 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
Mx = 689.6; My = -44248.5; N = -3185

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{3.47^2 + 0.02^2} = 3.47 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
Tx = -617.3; Ty = 2.9

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.58 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
Tx = 55.3; Ty = 15; Mt = 17764.3

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 34.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $10.67 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
Mt = 17764.3

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 17.4  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
 $34.8/0 = 7510 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 17.4  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
 $34.8/0 = 10552.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 17.4  
Kdef = 0.6  
Ufin in x = -0.01  
Ufin in y = 0  
Ufin = 0.01  
Luce/Ufin > limite  
 $34.8/0.01 = 6402.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 12: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$(5/85.3)^2 + 0.7 \cdot 14/74.7 + 30.1/74.7 = 0.54 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = 18601.3$ ;  $M_y = -40125.6$ ;  $N = -2013.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{2.43^2 + 0.98^2} = 2.62 \leq 16$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = 431.5$ ;  $T_y = 173.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0.02 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 427.8$ ;  $T_y = 172.9$ ;  $M_t = -2643.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.33 \leq 25.3$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -3879.5$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$33.8/0 = 9934.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 15.8

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$33.8/0 = 15206.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$33.8/0 = 8223.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

---

### Asta 13: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.8/85.3)^2 + 0.7 \cdot 0.8/74.7 + 18.4/74.7 = 0.25 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -1059.5$ ;  $M_y = -24540.4$ ;  $N = -723.5$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{(3.67^2 + 0.13^2)} = 3.68 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 653$ ;  $T_y = 22.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.36 + 0.05 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 653$ ;  $T_y = 22.5$ ;  $M_t = 11089.6$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$6.68 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 11127.1$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} >$  limite

$33.8/0 = 23084.7 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} >$  limite

$33.8/0 = 39334.4 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 14.6

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin} >$  limite

$33.8/0 = 18499.3 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$



Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Asta 14: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.2/117.3)^2 + 0.7 \cdot 0.3/102.7 + 23.9/102.7 = 0.24 \leq 1$  [4.4.7b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = 362.6$ ;  $M_y = -31913.5$ ;  $N = -464.9$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{1.08^2 + 0.07^2} = 1.08 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 191.7$ ;  $T_y = -12.7$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.19 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 84.9$ ;  $T_y = 15.5$ ;  $M_t = -5774.7$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.47 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -5774.7$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$33.8/0 = 192195.7 > 300$  Comb: SLE rara, 18

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$33.8/0 = 115202.2 > 300$  Comb: SLE rara, 5

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.8



Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=124309 > 200  
Condizione base per ricombinare la freccia: Variabile A  
Comb: SLE quasi permanente, 2 + incrementi viscosi  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 1,000 + 0,180 = 1,180

## Asta 15: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.7/117.3)^2 + 0.7 \cdot 0.1/102.7 + 28.5/102.7 = 0.28 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = 180.3; My = 38007.7; N = -668.9

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{v,d} \leq f_{v,d}$   
 $\sqrt{(2.16^2 + 0.15^2)} = 2.16 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 383.2; Ty = 26.1

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.32 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 376; Ty = 25.1; Mt = 9827.4

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $5.9 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 9827.4

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 19.1  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
33.8/0=35391.9 > 300 Comb: SLE rara, 9



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

33.8/0=43377.2 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 19.1

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

33.8/0=31849.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 16: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(1.7/117.3)^2 + 0.7*1/102.7 + 29.4/102.7 = 0.29 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Mx = -1274.9; My = 39163.6; N = -672.5

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau,d \leq fv,d$

$\sqrt{4.71^2 + 0.14^2} = 4.71 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Tx = -836.9; Ty = -24.4

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(ksh*fv,d) + (\tau,y,d/fv,d)^2 + (\tau,z,d/fv,d)^2 \leq 1$

$0.22 + 0.02 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = -433.3; Ty = -10.7; Mt = -6794.3

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * fv,d$

$4.15 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = -6909.8





#### Verifica della freccia istantanea totale D.M. 17-01-18 §4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0$

$U_{inst\ tot\ in\ y} = 0$

$U_{inst\ tot} = 0$

$Luce/U_{inst,tot} > \limite$

$33.8/0=37477.9 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0$

$U_{inst\ var\ in\ y} = 0$

$U_{inst\ var} = 0$

$Luce/U_{inst,var} > \limite$

$33.8/0=47961.6 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 14.6

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0$

$U_{fin\ in\ y} = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \limite$

$33.8/0=33132.5 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 17: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.6/117.3)^2 + 0.7 \cdot 0.5/102.7 + 15.1/102.7 = 0.15 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = 702.6$ ;  $M_y = -20180.4$ ;  $N = -659.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$

$\sqrt{3} \cdot (3.93^2 + 0.05^2) = 3.93 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = -697.9$ ;  $T_y = -8.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.31 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -114$ ;  $T_y = 13.8$ ;  $M_t = 9389.1$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$5.64 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 9389.1$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$33.8/0 = 171920.1 > 300$  Comb: SLE rara, 14

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 19.1

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$33.8/0 = 315401.2 > 300$  Comb: SLE rara, 14

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$33.8/0 = 127335.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,000 = 0,500$

Variabile H =  $0,000 + 1,000 = 1,000$

### Asta 18: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.6/117.3)^2 + 0.7 \cdot 0.4/102.7 + 31.1/102.7 = 0.31 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = -519$ ;  $M_y = -41402.5$ ;  $N = -655.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{4.11^2 + 0.08^2} = 4.11 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo



$T_x = -730.5$ ;  $T_y = -14.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -187.7$ ;  $T_y = -7.5$ ;  $M_t = -6322.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.8 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -6322.5$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$33.8/0 = 45376.2 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$33.8/0 = 64470.7 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$33.8/0 = 37845.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 19: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(1.6/117.3)^2 + 0.7 \cdot 0.6/102.7 + 47.4/102.7 = 0.47 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 751.2$ ;  $M_y = -63152.4$ ;  $N = -651.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3.84^2 + 0.11^2} = 3.84 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 682.4$ ;  $T_y = 19.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.31 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 83.5$ ;  $T_y = 12.3$ ;  $M_t = 9394.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $5.64 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 9394.3$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9  
 $K_{def} = 0$   
 $U_{inst,tot}$  in  $x = 0$   
 $U_{inst,tot}$  in  $y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 34191.3 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9  
 $K_{def} = 0$   
 $U_{inst,var}$  in  $x = 0$   
 $U_{inst,var}$  in  $y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $33.8/0 = 44491.5 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9  
 $K_{def} = 0.6$   
 $U_{fin}$  in  $x = 0$   
 $U_{fin}$  in  $y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $33.8/0 = 29582.9 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 20: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.6/117.3)^2 + 0.7 \cdot 0.3/102.7 + 47.4/102.7 = 0.46 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = -398.3$ ;  $M_y = -63227.9$ ;  $N = -650.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{1.7^2 + 0.07^2} = 1.7 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -301.9$ ;  $T_y = -12.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.22 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -169.9$ ;  $T_y = -9.3$ ;  $M_t = -6739.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.05 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -6739.6$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$33.8/0 = 31776.5 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$33.8/0 = 39531.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$33.8/0 = 28127 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$



## Asta 21: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.7/117.3)^2 + 0.7 \cdot 0.1/102.7 + 43.3/102.7 = 0.42 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = 111.4$ ;  $M_y = -57776.7$ ;  $N = -675.2$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(1.59^2 + 0.03^2)} = 1.59 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 282.6$ ;  $T_y = -6.2$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.26 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 137.4$ ;  $T_y = 10.9$ ;  $M_t = 7991.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.8 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 7991.9$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$33.8/0 = 31695.4 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$33.8/0 = 38186.3 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.8

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$



33.8/0=28669.1 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Asta 22: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.7/117.3)^2 + 0.7 \cdot 0.2/102.7 + 37.8/102.7 = 0.37 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_x = -242.9$ ;  $M_y = -50438.3$ ;  $N = -685$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{2.74^2 + 0.02^2} = 2.74 \leq 22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -487.9$ ;  $T_y = 4.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.27 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -115.1$ ;  $T_y = -5.9$ ;  $M_t = -8418.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$5.06 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -8418.3$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$33.8/0 = 34153.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$



Luce/Uinst,var > limite

$33.8/0=38775.2 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

$33.8/0=31874.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 23: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(1.8/117.3)^2 + 0.7*0.2/102.7 + 26.4/102.7 = 0.26 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Mx = 248.6; My = -35153.6; N = -709.4

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau,d \leq f_{v,d}$

$\sqrt{(3.08^2 + 0.05^2)} = 3.08 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Tx = 548; Ty = -8.1

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.2 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 190.5; Ty = 11.1; Mt = 6061.7

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq k_{sh} * f_{v,d}$

$3.64 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = 6061.7

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0





Luce/Uinst,tot > limite  
33.8/0=40805 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 15.8  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=42276.2 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.8  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=39970.5 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 24: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(0.5/117.3)^2 + 0.7*0.1/102.7 + 16.3/102.7 = 0.16 \leq 1$  [4.4.7b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mx = 110.8; My = 21717.4; N = -211.3

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{3.16^2 + 0.03^2} = 3.16 \leq 22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Tx = -561.3; Ty = -4.8

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.33 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = -107.5; Ty = 11.8; Mt = -10186.3

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq k_{sh} * f_{v,d}$



6.12 <= 18.4 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = -10186.3

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
33.8/0=47992.9 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=43640.4 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=51010.8 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 25: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(1.8/117.3)^2 + 0.7 \cdot 3.9/102.7 + 14.9/102.7 = 0.17 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = 5202.1; My = 19810.7; N = -733

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; kcr = 0.67  
 $\tau_d \leq f_{v,d}$   
 $\sqrt{(2.9^2 + 0.34^2)} = 2.92 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Tx = 515.6; Ty = -60.6

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.17+0.01+0 ≤ 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 201.7; Ty = -23.5; Mt = 5353.4

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
3.21 ≤ 18.4 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 5353.4

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
33.8/0=61199.7 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 15.8  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=47623.8 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=62866.6 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,480 = 1,180  
Vento = 0,600 + 0,000 = 0,600

### Asta 26: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + \sigma_{\text{m,y,d}} / f_{\text{m,y,d}} + K_{\text{m}} (\sigma_{\text{m,z,d}} / f_{\text{m,z,d}}) \leq 1$   
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + K_{\text{m}} (\sigma_{\text{m,y,d}} / f_{\text{m,y,d}}) + \sigma_{\text{m,z,d}} / f_{\text{m,z,d}} \leq 1$   
 $(2.4/117.3)^2 + 0.7 \cdot 2.3/102.7 + 14.2/102.7 = 0.15 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = -3115.4; My = 18908.4; N = -943.4

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.38^2 + 0.18^2} = 1.4 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -246$ ;  $T_y = 31.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.29 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 129.5$ ;  $T_y = -11.2$ ;  $M_t = -8771.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $5.27 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -8771.1$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 73454 > 300$  Comb: SLE rara, 10

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $33.8/0 = 155420.5 > 300$  Comb: SLE rara, 10

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $33.8/0 = 53434.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Vento =  $0,600 + 0,400 = 1,000$

### Asta 27: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(0.7/85.3)^2 + 0.7 \cdot 7.9/74.7 + 19.8/74.7 = 0.34 \leq 1$  [4.4.7b] Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_x = 10555.8$ ;  $M_y = 26463.1$ ;  $N = -282.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3.37^2 + 0.7^2} = 3.44 \leq 16$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = 599.3$ ;  $T_y = -123.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.33 + 0.04 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = 599.3$ ;  $T_y = -123.8$ ;  $M_t = 10161.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $6.1 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = 10161.9$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 19995.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 19.1  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $33.8/0 = 28398.6 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $33.8/0 = 16888.8 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 28: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.2/85.3)^2 + 0.7 \cdot 8.7/74.7 + 22.2/74.7 = 0.38 \leq 1$  [4.4.7b] Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_x = -11628.8$ ;  $M_y = 29594.5$ ;  $N = -898.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(2.46^2 + 0.6^2)} = 2.53 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -437$ ;  $T_y = -107.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.59 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -437$ ;  $T_y = -107.4$ ;  $M_t = -18079.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $10.86 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -18079.9$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 15249.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 15.8  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $33.8/0 = 19881.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.8  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $33.8/0 = 13379.2 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$



## Asta 29: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.1/85.3)^2 + 0.7 \cdot 2.3/74.7 + 11.5/74.7 = 0.18 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_x = 3122$ ;  $M_y = 15388.4$ ;  $N = -840.9$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.4^2 + 0.03^2} = 1.4 \leq 22$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = -248.9$ ;  $T_y = 5.8$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.14 + 0 + 0 \leq 1$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -186.6$ ;  $T_y = 16.2$ ;  $M_t = 6078.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.65 \leq 25.3$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 6078.9$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$33.8/0 = 26661.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$33.8/0 = 31099.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.8

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$



$33.8/0=24557.6 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Asta 30: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.7 \cdot 0.6 / 102.7 + 18.4 / 102.7 = 0.18 \leq 1$  (formula 4.4.5b) Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = -749.8$ ;  $M_y = -24586$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{3.06^2 + 0.1^2} = 3.06 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -543.3$ ;  $T_y = -17.2$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.53 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -369.6$ ;  $T_y = -7.4$ ;  $M_t = -16148$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$9.7 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -16148$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 11.3

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$33.8/0=117856.8 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 13.5

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$





33.8/0=84092.2 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 19.1

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

33.8/0=92776.2 > 200

Condizione base per ricombinare la freccia: Variabile A

Comb: SLE quasi permanente, 2 + incrementi viscosi

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 1,000 + 0,180 = 1,180

### Asta 31: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.8/52.8 + 0.7 \cdot 0.3/102.7 + 20.1/102.7 = 0.21 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

Mx = 365.2; My = 26827.7; N = 309.1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{,d} \leq f_{v,d}$

$\sqrt{(1.69^2 + 0.03^2)} = 1.69 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

Tx = 299.7; Ty = 5.8

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{,tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{,y,d}/f_{v,d})^2 + (\tau_{,z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0.01 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 297.8; Ty = 5.9; Mt = 6349.9

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{,tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.81 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = 6349.9

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 14.6

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0



Luce/Uinst,tot > limite  
33.8/0=132314.8 > 300 Comb: SLE rara, 19

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 20.3  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=128146.2 > 300 Comb: SLE rara, 8

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 14.6  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=92887.7 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,480 = 1,180  
Vento = 0,600 + 0,000 = 0,600

**Asta 32: Trave in legno a falda Falda 1 fili 55-241**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 33.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(4/117.3)^2 + 0.7*0/102.7 + 24/102.7 = 0.24 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = 2.7; My = -32038.4; N = -1603.5

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{1.99^2 + 0.03^2} = 1.99 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -353.2; Ty = -5.9

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.45 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -349.5; Ty = -5.8; Mt = -13823.9

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq k_{sh} * f_{v,d}$



8.3 <= 18.4 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = -13823.9

#### Verifica della freccia istantanea totale D.M. 17-01-18 §4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 19.1  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
33.8/0=130646.1 > 300 Comb: SLE rara, 19

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 11.3  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=187288.7 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 19.1  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=92600.5 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,480 = 1,180  
Vento = 0,600 + 0,000 = 0,600

### Asta 33: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(4.1/117.3)^2 + 0.7 \cdot 0.3/102.7 + 24/102.7 = 0.24 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = -344.2; My = -32056.6; N = -1648.4

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_d \leq f_{v,d}$   
 $\sqrt{1.85^2 + 0.05^2} = 1.85 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 328.4; Ty = 8.6

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67



$\tau_{tor,d}/(ksh \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.29+0.01+0 ≤ 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 327; Ty = 8.5; Mt = 8735.5

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh \cdot f_{v,d}$   
5.25 ≤ 18.4 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = 8735.5

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 14.6  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
33.8/0=132163.3 > 300 Comb: SLE rara, 10

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 22.5  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=249411.4 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 14.6  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=94191.9 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Vento = 0,600 + 0,400 = 1,000

### Asta 34: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
1/52.8+0.7\*0.1/102.7+21.9/102.7=0.23 ≤ 1 [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mx = -186.7; My = 29218.2; N = 406.7

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2.57^2 + 0.04^2} = 2.57 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -456.2$ ;  $T_y = -6.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.37 + 0.03 + 0 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -456.2$ ;  $T_y = -6.8$ ;  $M_t = -11476.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$6.89 \leq 18.4$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -11476.9$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 21.4

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$33.8/0 = 91009.1 > 300$  Comb: SLE rara, 15

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 23.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$33.8/0 = 220411.9 > 300$  Comb: SLE rara, 15

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 21.4

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$33.8/0 = 65484.7 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,000 = 0,500$

Variabile H =  $0,000 + 1,000 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 35: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.7/52.8 + 0.7 \cdot 0.1/102.7 + 18/102.7 = 0.19 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = 188.8$ ;  $M_y = -23943.6$ ;  $N = 260.3$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{3.3^2 + 0.07^2} = 3.3 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 586.8$ ;  $T_y = 12.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.37 + 0.01 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 237.3$ ;  $T_y = 5.1$ ;  $M_t = 11316.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$6.8 \leq 18.4$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 11316.1$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$33.8/0 = 46808.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$33.8/0 = 92244.7 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.8

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$33.8/0 = 35549.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 36: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1.1/52.8 + 0.7 \cdot 0.2/102.7 + 22/102.7 = 0.24 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = -226$ ;  $M_y = -29315.1$ ;  $N = 436$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{2.85^2 + 0.02^2} = 2.85 \leq 22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -506.6$ ;  $T_y = 3.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.28 + 0.01 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -302.2$ ;  $T_y = 14.4$ ;  $M_t = -8626.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$5.18 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -8626.3$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 19.1

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$33.8/0 = 41977.8 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 19.1

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$33.8/0 = 83352 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$33.8/0 = 31826.9 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$



Neve = 0,500 + 0,500 = 1,000

## Asta 37: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.8/52.8 + 0.7 \cdot 0.1/102.7 + 35.5/102.7 = 0.36 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = 190.5$ ;  $M_y = -47346.2$ ;  $N = 337.9$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{4.3^2 + 0.03^2} = 4.3 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 764$ ;  $T_y = 5.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.51 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 384.4$ ;  $T_y = -67.3$ ;  $M_t = 15741.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$9.45 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 15741.2$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$33.8/0 = 50683.7 > 300$  Comb: SLE rara, 14

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$33.8/0 = 97549.3 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 14.6

$K_{def} = 0.6$





Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $33.8/0=37511.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,000 = 0,500$   
Variabile H =  $0,000 + 1,000 = 1,000$

## Asta 38: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 49.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 49.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.8/85.3)^2 + 0.7 \cdot 9.6/74.7 + 31.2/74.7 = 0.51 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_x = -12765.7$ ;  $M_y = 41605.5$ ;  $N = -1123$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{4.57^2 + 0.82^2} = 4.64 \leq 16$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $T_x = 812.2$ ;  $T_y = 146.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0.08 + 0 \leq 1$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $T_x = 812.2$ ;  $T_y = 146.5$ ;  $M_t = 4831.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 49.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.9 \leq 18.4$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = 4831.3$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 28.1  
 $K_{def} = 0$   
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
 $49.6/0=10300.3 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 28.1



Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
49.6/0=13583.2 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 28.1  
Kdef = 0.6  
Ufin in x = 0.01  
Ufin in y = 0  
Ufin = 0.01  
Luce/Ufin > limite  
49.6/0.01=8995.8 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 39: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 18

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $0.7*13.2/74.7+30.1/74.7=0.53 \leq 1$  (formula 4.4.5b) Comb: SLU, 30; Durata minima del carico nella combinazione: media  
Mx = 17617.6; My = 40169.8

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{3.68^2+1.1^2} = 3.84 \leq 16$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
Tx = -654.1; Ty = 195

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.26+0.05+0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -642; Ty = 197.7; Mt = 7951.2

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 18  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh * f_{v,d}$   
 $4.77 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 7951.2

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 9



Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
18/0=18317.7 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 9  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
18/0=25772.4 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 9  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
18/0=15605.2 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 40: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(1.1/85.3)^2 + 0.7 \cdot 1.6/74.7 + 21.1/74.7 = 0.3 \leq 1$  [4.4.7b] Comb: SLU, 38; Durata minima del carico nella combinazione: media  
Mx = 2093.7; My = 28156.1; N = -443.9

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3.76^2 + 0.07^2} = 3.76 \leq 16$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
Tx = -668.5; Ty = 13.2

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.35 + 0.06 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
Tx = -668.5; Ty = 13.2; Mt = -10819.1



**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $6.5 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = -10819.1$

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 14.6  
 $K_{def} = 0$   
 $U_{inst,tot\ in\ x} = 0$   
 $U_{inst,tot\ in\ y} = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > limite$   
 $33.8/0 = 19055.9 > 300$  Comb: SLE rara, 17

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 14.6  
 $K_{def} = 0$   
 $U_{inst,var\ in\ x} = 0$   
 $U_{inst,var\ in\ y} = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > limite$   
 $33.8/0 = 28177.4 > 300$  Comb: SLE rara, 17

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 15.8  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = 0$   
 $U_{fin\ in\ y} = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > limite$   
 $33.8/0 = 15850.9 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

**Asta 41: Trave in legno a falda Falda 1 fili 55-241**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 33.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(3.5/117.3)^2 + 0.7 \cdot 1.6/102.7 + 15.9/102.7 = 0.17 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -2168.6$ ;  $M_y = 21166.5$ ;  $N = -1396.9$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{,d} \leq f_{v,d}$   
 $\sqrt{(2.57^2 + 0.16^2)} = 2.57 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo



$T_x = -456.5$ ;  $T_y = 29.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.32 + 0.01 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -204.8$ ;  $T_y = 33.2$ ;  $M_t = 9816.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$5.9 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 9816.9$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$33.8/0 = 68261.2 > 300$  Comb: SLE rara, 10

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$33.8/0 = 140513.6 > 300$  Comb: SLE rara, 10

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$33.8/0 = 50096 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Vento =  $0,600 + 0,400 = 1,000$

### Asta 42: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(2/117.3)^2 + 0.7 \cdot 1.2/102.7 + 10.3/102.7 = 0.11 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mx = 1648.6; My = -13767.3; N = -796.7

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{3.14^2 + 0.25^2} = 3.15 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Tx = -558.8; Ty = 43.9

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.15 + 0.01 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -273.2; Ty = 33.1; Mt = -4633.7

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

$2.78 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = -4633.7

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

$33.8/0 = 101319.5 > 300$  Comb: SLE rara, 19

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 19.1

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

$33.8/0 = 84715.1 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 14.6

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

$33.8/0 = 75775.3 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,480 = 1,180

Vento = 0,600 + 0,000 = 0,600

### Asta 43: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.8/117.3)^2 + 0.7 \cdot 0.2/102.7 + 22.1/102.7 = 0.22 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -319.1$ ;  $M_y = -29482.2$ ;  $N = -1137.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2.73^2 + 0.03^2} = 2.73 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 485.6$ ;  $T_y = 5.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.28 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 64.8$ ;  $T_y = -4.3$ ;  $M_t = 8714.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$5.23 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 8714.4$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$33.8/0 = 56652.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$33.8/0 = 58689.7 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$33.8/0 = 55496.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 44: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.7/117.3)^2 + 0.7 \cdot 0.2/102.7 + 31.8/102.7 = 0.31 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -259.2$ ;  $M_y = -42401.7$ ;  $N = -1091.8$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{(2.67^2 + 0.03^2)} = 2.67 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -475.5$ ;  $T_y = -5.6$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0.01 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -209.6$ ;  $T_y = -10.9$ ;  $M_t = -6420.8$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.86 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -6420.8$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$33.8/0 = 42274.4 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$33.8/0 = 50883.1 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin} > \text{limite}$

$33.8/0 = 38378.5 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$





Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

Asta 45: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 33.8

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.6/117.3)^2 + 0.7 \cdot 0.2/102.7 + 41.3/102.7 = 0.4 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -244.2$ ;  $M_y = -55131.5$ ;  $N = -1038$

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(2.19^2 + 0.04^2)} = 2.19 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 389.9$ ;  $T_y = 7$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.19 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 75.7$ ;  $T_y = 5$ ;  $M_t = 5911.1$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.55 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 5911.1$

Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 31523.1 > 300$  Comb: SLE rara, 9

Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $33.8/0 = 41590 > 300$  Comb: SLE rara, 9



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

33.8/0=27525.5 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 46: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(2.5/117.3)^2 + 0.7*0.1/102.7 + 44.8/102.7 = 0.44 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Mx = 85.4; My = -59798.6; N = -980.6

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau,d \leq f_{v,d}$

$\sqrt{0.83^2 + 0.07^2} = 0.83 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -147.4; Ty = -12.2

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.27 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -147.4; Ty = -12.2; Mt = -8276.6

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * f_{v,d}$

$4.97 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = -8276.6

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

33.8/0=27471 > 300 Comb: SLE rara, 17



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

33.8/0=37806.6 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

33.8/0=23472.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 47: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(2.3/117.3)^2 + 0.7*0.3/102.7 + 47.3/102.7 = 0.46 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Mx = -397; My = -63085.6; N = -919.1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau,d \leq f_{v,d}$

$\sqrt{1.26^2 + 0.05^2} = 1.26 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Tx = 223.8; Ty = 9.7

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

Tx = 134.5; Ty = 5.3; Mt = 4073.4

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * f_{v,d}$

$2.45 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

Mt = 4073.4



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

33.8/0=26016.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

33.8/0=36326.6 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

33.8/0=22008.3 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 48: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$

$(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

$(2.1/117.3)^2 + 0.7 \cdot 0.6/102.7 + 47.5/102.7 = 0.47 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Mx = 740; My = -63338.7; N = -847.9

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{4.09^2 + 0.12^2} = 4.1 \leq 22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

Tx = -727.9; Ty = -21.7

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.29 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



Tx = -51.9; Ty = -14.3; Mt = -9005.2

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

5.41  $\leq$  18.4 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = -9005.2

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

33.8/0=28368.1 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 16.9

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

33.8/0=40554.5 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

33.8/0=23725.6 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 49: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2/117.3)^2 + 0.7 \cdot 0.5/102.7 + 29.4/102.7 = 0.29 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

Mx = -652.9; My = -39218; N = -783.9

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67



$\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(4.34^2 + 0.06^2) = 4.34 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 772$ ;  $T_y = 10.9$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.14 + 0.02 + 0 \leq 1$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -608.8$ ;  $T_y = -9.9$ ;  $M_t = 6057.4$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.64 \leq 25.3$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 6057.4$

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 15.8  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 39064.7 > 300$  Comb: SLE rara, 17

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 15.8  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $33.8/0 = 57663.6 > 300$  Comb: SLE rara, 17

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 15.8  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $33.8/0 = 32202 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

**Asta 50: Trave in legno a falda Falda 1 fili 55-241**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 33.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.8/117.3)^2 + 0.7 \cdot 0.5/102.7 + 12.2/102.7 = 0.12 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 727.1$ ;  $M_y = -16281.1$ ;  $N = -713.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{4.16^2 + 0.05^2} = 4.16 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 739.2$ ;  $T_y = 8.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.27 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 96.2$ ;  $T_y = -17.7$ ;  $M_t = -8329$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$5 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -8329$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.8

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$33.8/0 = 114588.3 > 300$  Comb: SLE rara, 15

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$33.8/0 = 198237.5 > 300$  Comb: SLE rara, 15

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.8

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$33.8/0 = 87446.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,000 = 0,500$

Variabile H =  $0,000 + 1,000 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

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### Asta 51: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(0.7/117.3)^2 + 0.7 \cdot 0.7/102.7 + 32.9/102.7 = 0.33 \leq 1$  [4.4.7b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -971.9$ ;  $M_y = 43825.3$ ;  $N = -295.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{v,d} \leq f_{v,d}$   
 $\sqrt{4.89^2 + 0.12^2} = 4.89 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 868.7$ ;  $T_y = 20.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0.02 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 352.4$ ;  $T_y = -4.9$ ;  $M_t = 4751.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.85 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 4751.2$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 19.1  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 48950.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 19.1  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $33.8/0 = 63149.7 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 19.1  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $33.8/0 = 43131.6 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$





Vento = 0,600 + 0,000 = 0,600

## Asta 52: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.6/117.3)^2 + 0.7 \cdot 0.1/102.7 + 31.8/102.7 = 0.31 \leq 1$  [4.4.7b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 176.3$ ;  $M_y = 42344.9$ ;  $N = -649.6$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{2.2^2 + 0.18^2} = 2.21 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -390.8$ ;  $T_y = -32$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.27 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -383.8$ ;  $T_y = -31.2$ ;  $M_t = -8156.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.9 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -8156.2$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$33.8/0 = 50004.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 14.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$33.8/0 = 59191.2 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 13.5

$K_{def} = 0.6$



Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $33.8/0=45657.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Asta 53: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 33.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1/117.3)^2 + 0.7 \cdot 0.8/102.7 + 26.8/102.7 = 0.27 \leq 1$  [4.4.7b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 1020.5$ ;  $M_y = -35744.7$ ;  $N = -409$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(1.08^2 + 0.05^2)} = 1.08 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -191.8$ ;  $T_y = 9.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.14 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -110.3$ ;  $T_y = -36.3$ ;  $M_t = 4320.6$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.59 \leq 18.4$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 4320.6$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 76320.1 > 300$  Comb: SLE rara, 16

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18  
 $K_{def} = 0$



Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=149095.8 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=55800 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000

### Asta 54: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(2.3/85.3)^2 + 0.7*0.4/74.7 + 22.4/74.7 = 0.3 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mx = -561.3; My = -29823.9; N = -912.3

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau,d \leq f_{v,d}$   
 $\sqrt{3.95^2 + 0.2^2} = 3.96 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -702.9; Ty = -34.7

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.26 + 0.06 + 0 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
Tx = -693.7; Ty = -35.7; Mt = -8115.6

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh * f_{v,d}$   
 $4.87 \leq 18.4$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
Mt = -8115.6

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 19.1  
Kdef = 0



Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
33.8/0=17682.2 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 19.1  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
33.8/0=29412.3 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
33.8/0=14264 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

### Asta 55: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 33.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(7.8/85.3)^2 + 0.7*10.4/74.7 + 33/74.7 = 0.55 \leq 1$  [4.4.7b] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mx = 13910.7; My = -43985.7; N = -3117.2

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau,d \leq f_v,d$   
 $\sqrt{2.15^2 + 0.25^2} = 2.17 \leq 16$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
Tx = -383.1; Ty = -44.7

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_v,d) + (\tau_{y,d}/f_v,d)^2 + (\tau_{z,d}/f_v,d)^2 \leq 1$   
 $0.1 + 0.02 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -355.8; Ty = -40.3; Mt = 3111.5

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 33.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.87 \leq 18.4$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 3111.5$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 16.9  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $33.8/0 = 8722.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $33.8/0 = 13079.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 16.9  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $33.8/0 = 7268.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Asta 56: Trave in legno a falda Falda 1 fili 55-241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 18.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 20x20	Rettangolare	20	20	400	13333.33	13333.33	1333.33	1333.33

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 18.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(8.8/85.3)^2 + 0.7 \cdot 2.5/74.7 + 42.7/74.7 = 0.6 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = 3272$ ;  $M_y = -56870.6$ ;  $N = -3502.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3.76^2 + 0.31^2} = 3.77 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -668.5$ ;  $T_y = 55.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.54 + 0.05 + 0 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $T_x = -655.7$ ;  $T_y = 51.2$ ;  $M_t = -16603.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 18.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $10.03 \leq 18.4$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = -16708.2$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 9.5  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $Luce/U_{inst,tot} > \text{limite}$   
 $18.9/0 = 11662.2 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 9.5  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $Luce/U_{inst,var} > \text{limite}$   
 $18.9/0 = 16688.9 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 9.5  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $Luce/U_{fin} > \text{limite}$   
 $18.9/0 = 9877.2 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 57: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 13.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 13.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $M_{m,y,d}/f_{m,y,d} + K_m \cdot (M_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (M_{m,y,d}/f_{m,y,d}) + M_{m,z,d}/f_{m,z,d} \leq 1$   
 $98.6/74.7 + 0.7 \cdot 84.9/74.7 = 2.12 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 156516.5$ ;  $M_y = 105494.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 13.8



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{6.37^2 + 9.16^2} = 11.16 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1172.6$ ;  $T_y = -1685.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 13.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d} / (k_{sh} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 > 1$

$3.96 + 0.17 + 0.31 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -1207.2$ ;  $T_y = -1628.8$ ;  $M_t = 125041.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 13.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > K_{sh} \cdot f_{v,d}$

$75.47 > 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = 125041.6$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 6.9

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce} / U_{inst,tot} > \text{limite}$

$13.8 / 0 = 5967.1 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 6.9

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce} / U_{inst,var} > \text{limite}$

$13.8 / 0 = 8866 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 6.9

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce} / U_{fin} > \text{limite}$

$13.8 / 0 = 4988.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

### Asta 58: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 57.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.29^2 + 15.24^2} = 15.29 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 237.6$ ;  $T_y = 2804.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.3/85.3)^2 + 155.2/74.7 + 0.7 \cdot 21.1/74.67 = 2.28 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 246309.9$ ;  $M_y = 26186.5$ ;  $N = -552.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.29 + 0.01 + 0.91 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 237.6$ ;  $T_y = 2804.1$ ;  $M_t = 9028.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 57.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $5.48 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 9079.8$

### Asta 59: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 12.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.9^2 + 12.78^2} = 12.81 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 166.4$ ;  $T_y = 2351.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.6/85.3)^2 + 62.8/74.7 + 0.7 \cdot 33/74.67 = 1.15 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 99732$ ;  $M_y = 41010.9$ ;  $N = -654.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.27 + 0 + 0.64 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 166.4$ ;  $T_y = 2351.1$ ;  $M_t = 8459.2$





#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 12.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

5.16  $\leq$  19.07 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 8550.1$

#### Asta 60: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 87

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(1.06^2 + 10.48^2)} = 10.53 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -195.8$ ;  $T_y = 1927.8$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(3/85.3)^2 + 48.5/74.7 + 0.7 \cdot 28.1/74.67 = 0.91 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = 77028.9$ ;  $M_y = 34924.3$ ;  $N = -1228.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.23 + 0 + 0.43 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -195.8$ ;  $T_y = 1927.8$ ;  $M_t = 7154$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 87

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

4.32  $\leq$  19.07 Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 7154$

#### Asta 61: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 99.2

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.91^2 + 5.36^2} = 5.69 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -352.2$ ;  $T_y = 985.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 99.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(5.4/85.3)^2 + 79.2/74.7 + 0.7 \cdot 17/74.67 = 1.22 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -125761.9$ ;  $M_y = -21114.5$ ;  $N = -2252.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0.01 + 0.11 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -352.2$ ;  $T_y = 985.9$ ;  $M_t = 1790.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 99.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.58 \leq 26.22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 2610.7$

### Asta 62: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 59

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 59

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2.34^2 + 1.17^2} = 2.61 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -430$ ;  $T_y = -215.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 59

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(6.9/85.3)^2 + 68.1/74.7 + 0.7 \cdot 37.2/74.67 = 1.27 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -108006.4$ ;  $M_y = -46165.6$ ;  $N = -2864.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.05+0+0 ≤ 1 Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
Tx = -212; Ty = 49.5; Mt = 2050.5

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 59  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
1.27 ≤ 26.22 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
Mt = -2101

### Asta 63: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 42

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 42  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\sqrt{0.39^2 + 2.36^2} = 2.4 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 71.7; Ty = -434.8

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + \sigma_{\text{m,y,d}} / f_{\text{m,y,d}} + K_{\text{m}} (\sigma_{\text{m,z,d}} / f_{\text{m,z,d}}) \leq 1$   
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + K_{\text{m}} (\sigma_{\text{m,y,d}} / f_{\text{m,y,d}}) + \sigma_{\text{m,z,d}} / f_{\text{m,z,d}} \leq 1$   
 $(6.3/85.3)^2 + 74.3/74.7 + 0.7 \cdot 18.4/74.67 = 1.17 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -117950.1; My = -22860; N = -2593.2

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 42  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.39+0+0.02 ≤ 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 141.6; Ty = -408.6; Mt = -12227.6

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 42  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
7.38 ≤ 19.07 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = -12227.6

### Asta 64: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 98.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 98.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.08^2 + 3.6^2} = 3.6 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 13.8$ ;  $T_y = -661.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(6.2/85.3)^2 + 59/74.7 + 0.7 \cdot 10.8/74.67 = 0.9 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = -93607.8$ ;  $M_y = -13392.6$ ;  $N = -2572.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 98.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 39.5$ ;  $T_y = -655.2$ ;  $M_t = -6579.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 98.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.97 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -6579.2$

### Asta 65: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 99.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 99.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.04^2 + 3.88^2} = 3.88 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 8.2$ ;  $T_y = -713.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(5.7/85.3)^2 + 21.7/74.7 + 0.7 \cdot 7.2/74.67 = 0.36 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -34449.7$ ;  $M_y = -8957.3$ ;  $N = -2359.3$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 99.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.1+0+0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 9.7$ ;  $T_y = -712.7$ ;  $M_t = -3283.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 99.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.98 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -3283.2$

### Asta 66: Trave in legno a falda Falda 5 fili 241-277

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 110.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 110.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.23^2 + 2.15^2} = 2.16 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -42.2$ ;  $T_y = -395.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 110.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(5.5/85.3)^2 + 46.7/74.7 + 0.7 \cdot 7.8/74.67 = 0.7 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 74057.9$ ;  $M_y = -9738.7$ ;  $N = -2261.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 110.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05+0+0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -38.8$ ;  $T_y = -395.3$ ;  $M_t = -1679.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 110.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.01 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -1679.6$

### Asta 67: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 74.3



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{0.49^2 + 16.03^2} = 16.04 > 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 90.1$ ;  $T_y = 2949.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(5.1/85.3)^2 + 164/74.7 + 0.7 \cdot 49.8/74.67 = 2.67 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 260287.2$ ;  $M_y = -61908.9$ ;  $N = -2098.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.54 + 0 + 1 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 90.1$ ;  $T_y = 2949.5$ ;  $M_t = -17135.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 74.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$10.35 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -17147.9$

### Asta 68: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 103.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2.88^2 + 11.2^2} = 11.56 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 529.7$ ;  $T_y = 2060.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 103.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(7.3/85.3)^2 + 68.2/74.7 + 0.7*4.5/74.67 = 0.96 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $Mx = -108196.8$ ;  $My = 5610.6$ ;  $N = -3012.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.2 + 0.03 + 0.49 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 529.7$ ;  $T_y = 2060.5$ ;  $M_t = -6165$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 103.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $3.72 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -6165$

### Asta 69: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 104.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(1.38^2 + 6.75^2) = 6.89 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 254.8$ ;  $T_y = 1241.2$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 104.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(7.8/85.3)^2 + 123.4/74.7 + 0.7*23.8/74.67 = 1.88 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -195860.4$ ;  $My = 29571.7$ ;  $N = -3213.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0.01 + 0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 254.2$ ;  $T_y = 1240.6$ ;  $M_t = 430.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 104.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.52 \leq 26.22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 865.1$



## Asta 70: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 116.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.61^2 + 2.76^2} = 2.83 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 111.7$ ;  $T_y = 508$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 116.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(6.8/85.3)^2 + 130.9/74.7 + 0.7 \cdot 30.9/74.67 = 2.05 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -207778.3$ ;  $M_y = 38342.3$ ;  $N = -2829.3$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.19 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 108$ ;  $T_y = 508$ ;  $M_t = 5875.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 116.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.55 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 5877.5$

## Asta 71: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 90.9

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 90.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.82^2 + 7.21^2} = 7.25 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -150.2$ ;  $T_y = -1325.7$





**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(8.9/85.3)^2 + 119.3/74.7 + 0.7 \cdot 35.6/74.67 = 1.94 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -189284.3$ ;  $M_y = 44231.9$ ;  $N = -3701.6$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 90.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0.2 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -150.2$ ;  $T_y = -1325.7$ ;  $M_t = 2622.3$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 90.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.61 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = 2664.3$

**Asta 72: Trave in legno a falda Falda 5 fili 241-279**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 102.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 102.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.35^2 + 6.74^2} = 6.75 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -64.6$ ;  $T_y = -1239.5$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(9.3/85.3)^2 + 39.8/74.7 + 0.7 \cdot 20.3/74.67 = 0.74 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -63151.3$ ;  $M_y = 25246.5$ ;  $N = -3848$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 102.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.18 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -71.3$ ;  $T_y = -1237.2$ ;  $M_t = 1714.8$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 102.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.05 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media



Mt = 1747.2

## Asta 73: Trave in legno a falda Falda 5 fili 241-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 118.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 118.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.08^2 + 3.35^2} = 3.35 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 14.7$ ;  $T_y = -615.5$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 118.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(7.9/85.3)^2 + 88.6/74.7 + 0.7 \cdot 13.9/74.67 = 1.33 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 140589.8$ ;  $M_y = 17274.2$ ;  $N = -3258.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 118.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 4.9$ ;  $T_y = -612.3$ ;  $M_t = 1653.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 118.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = 1664.3$

## Asta 74: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 127.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 127.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$



$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $3.1/52.8 + 0.7*10.8/102.7 + 20.6/102.7 = 0.33 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $Mx = -17098.6$ ;  $My = 25547.3$ ;  $N = 1287.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.39^2 + 1.44^2} = 1.5 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 71.3$ ;  $T_y = 265.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 71.3$ ;  $T_y = 265.8$ ;  $M_t = 586.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 127.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.52 \leq 26.22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 857.2$

### Asta 75: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 104.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 104.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $1.5/38.4 + 36.4/74.7 + 0.7*15.4/74.7 = 0.67 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = -57794.8$ ;  $M_y = 19181.6$ ;  $N = 625.1$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.02^2 + 2.38^2} = 2.38 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 3.4$ ;  $T_y = 438.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 3.5$ ;  $T_y = 437$ ;  $M_t = 5644.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 104.2



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.41 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 5644.6$

## Asta 76: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 104.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 104.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $1.7/38.4 + 64.9/74.7 + 0.7 \cdot 12.8/74.7 = 1.03 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -103006.8$ ;  $M_y = 15860.2$ ;  $N = 711$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.36^2 + 2.48^2} = 2.5 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -65.4$ ;  $T_y = 455.9$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.41 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -62.6$ ;  $T_y = 455.4$ ;  $M_t = 12876$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 104.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $7.77 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 12876$

## Asta 77: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 63.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 63.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{mod}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{mod}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.2/38.4 + 84.8/74.7 + 0.7 \cdot 3.9/74.7 = 1.23 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -134567$ ;  $M_y = 4784$ ;  $N = 910$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{1.31^2 + 2.22^2} = 2.57 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -240.2$ ;  $T_y = 407.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.72 + 0.01 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -224.8$ ;  $T_y = 405.4$ ;  $M_t = 22649.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 63.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$13.67 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 22649.4$

### Asta 78: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 40.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{mod}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{mod}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$3.3/38.4 + 101.4/74.7 + 0.7 \cdot 14.3/74.7 = 1.58 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -160972.2$ ;  $M_y = 17700.2$ ;  $N = 1370.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 40.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.61^2 + 4.44^2} = 4.49 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 112.8$ ;  $T_y = -817.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 40.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.27 + 0 + 0.08 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media



$T_x = 112.8$ ;  $T_y = -817.7$ ;  $M_t = -8568$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 40.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$5.18 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -8583.3$

### Asta 79: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 104.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$4/38.4 + 87.8/74.7 + 0.7 \cdot 20.9/74.7 = 1.48 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -139353.2$ ;  $M_y = 25928.4$ ;  $N = 1673.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 104.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.63^2 + 4.09^2} = 4.14 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -116.4$ ;  $T_y = -752.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 104.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.07 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -117.3$ ;  $T_y = -751.9$ ;  $M_t = 1885.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 104.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.14 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 1885.1$

### Asta 80: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 104.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 104.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$   
 $3.7/38.4 + 38.9/74.7 + 0.7 \cdot 5.3/74.7 = 0.67 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 61712.7$ ;  $M_y = -6643$ ;  $N = 1537.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 104.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{0.91^2 + 6.59^2} = 6.65 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -168.1$ ;  $T_y = -1212.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 104.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.17 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -168.1$ ;  $T_y = -1211.3$ ;  $M_t = -6658.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 104.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $4.02 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -6658.6$

### Asta 81: Trave in legno a falda Falda 6 fili 177-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 71.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 71.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} > 1$   
 $3.5/38.4 + 112.2/74.7 + 0.7 \cdot 30/74.7 = 1.87 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 178035$ ;  $M_y = -37284.4$ ;  $N = 1431.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 71.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{1.71^2 + 8.32^2} = 8.49 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -314.4$ ;  $T_y = -1530.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 71.2



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.6 + 0.01 + 0.27 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -314.4$ ;  $T_y = -1530.4$ ;  $M_t = -18806.9$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 71.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $11.37 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -18834.6$

**Asta 82: Trave in legno a falda Falda 4 fili 169-233**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)  
**Dati generali**

Lunghezza = 129.7  
**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**  
Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.34^2 + 12.47^2} = 12.54 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 247.3$ ;  $T_y = 2294.9$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**  
Sezione ad ascissa 129.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(8.6/85.3)^2 + 108.1/74.7 + 0.7 \cdot 22.9/74.67 = 1.67 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -171491.3$ ;  $M_y = 28448$ ;  $N = -3546.6$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**  
Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.19 + 0.01 + 0.61 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 248.4$ ;  $T_y = 2293.8$ ;  $M_t = -6133.1$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**  
Sezione ad ascissa 129.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.73 \leq 19.07$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = -6175.4$

**Asta 83: Trave in legno a falda Falda 4 fili 169-233**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)  
**Dati generali**

Lunghezza = 102.5





#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.19^2 + 8.86^2} = 8.94 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 218.5$ ;  $T_y = 1630.7$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(9/85.3)^2 + 210.1/74.7 + 0.7 \cdot 43.6/74.67 = 3.23 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -333466.1$ ;  $M_y = 54106$ ;  $N = -3712$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0.01 + 0.31 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 218.7$ ;  $T_y = 1630.6$ ;  $M_t = 4148.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.5 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 4148.9$

### Asta 84: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 102.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.63^2 + 4.91^2} = 4.95 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 116$ ;  $T_y = 903.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(9.2/85.3)^2 + 264.2/74.7 + 0.7*54.8/74.67 = 4.06 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -419262.3$ ;  $My = 68033.8$ ;  $N = -3820.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.32 + 0 + 0.09 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 116.4$ ;  $T_y = 903.3$ ;  $M_t = 10016.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $6.05 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 10016.9$

### Asta 85: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 59.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 59.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(0.28^2 + 0.87^2)} = 0.91 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -51.3$ ;  $T_y = -159.7$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(9.4/85.3)^2 + 262.4/74.7 + 0.7*54.3/74.67 = 4.04 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -416404.6$ ;  $My = 67453.6$ ;  $N = -3880.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 59.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.27 + 0 + 0 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -51.3$ ;  $T_y = -159.7$ ;  $M_t = 8631.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 59.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $5.21 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 8631.3$



## Asta 86: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 42.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 42.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.78^2 + 6.24^2} = 6.29 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -142.8$ ;  $T_y = -1147.8$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(9.9/85.3)^2 + 237.9/74.7 + 0.7 \cdot 44.3/74.67 = 3.62 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -377613$ ;  $M_y = 54971.2$ ;  $N = -4093.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 42.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$1.37 + 0 + 0.15 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -140.4$ ;  $T_y = -1147.5$ ;  $M_t = 43298.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 42.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > k_{sh} \cdot f_{v,d}$

$26.13 > 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = 43298.3$

## Asta 87: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 102.5

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.82^2 + 8.73^2} = 8.77 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -150.3$ ;  $T_y = -1607.1$



**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(10/85.3)^2 + 197.1/74.7 + 0.7 \cdot 34.5/74.67 = 2.98 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -312796.5$ ;  $M_y = 42805$ ;  $N = -4133.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.72 + 0 + 0.3 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -148.2$ ;  $T_y = -1606.4$ ;  $M_t = 22730.5$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $13.72 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 22730.5$

**Asta 88: Trave in legno a falda Falda 4 fili 169-233**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 102.5

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.8^2 + 10.47^2} = 10.5 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -147.3$ ;  $T_y = -1925.7$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(10.3/85.3)^2 + 101.8/74.7 + 0.7 \cdot 17.9/74.67 = 1.55 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -161538.6$ ;  $M_y = 22173.8$ ;  $N = -4264.8$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.23 + 0 + 0.43 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -145.5$ ;  $T_y = -1924.6$ ;  $M_t = 7334.6$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $4.43 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



Mt = 7334.6

Asta 89: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 102.5

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.8^2 + 11.09^2} = 11.12 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -148$ ;  $T_y = -2040$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(10.7/85.3)^2 + 138.9/74.7 + 0.7 \cdot 11.2/74.67 = 1.98 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 220491$ ;  $M_y = -13878.7$ ;  $N = -4428.8$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.48 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -147.8$ ;  $T_y = -2039.9$ ;  $M_t = -6484.8$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.92 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -6488.3$

Asta 90: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 60.5

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 60.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\sqrt{0.67^2 + 6.98^2} = 7.02 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -122.6$ ;  $T_y = -1285.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 60.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(9.8/85.3)^2 + 202.4/74.7 + 0.7 \cdot 25.4/74.67 = 2.96 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 321247$ ;  $M_y = -31544$ ;  $N = -4059.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 60.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$1.07 + 0 + 0.19 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -121.5$ ;  $T_y = -1276.2$ ;  $M_t = -33863.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 60.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > k_{sh} \cdot f_{v,d}$

$20.44 > 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = -33863.6$

### Asta 91: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 18.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} > 1$

$0.6/38.4 + 112.4/74.7 + 0.7 \cdot 43.6/74.7 = 1.93 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 178316.2$ ;  $M_y = 54184.9$ ;  $N = 230.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{8.81^2 + 29.42^2} = 30.71 > 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -1620.9$ ;  $T_y = 5412.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$4.23 + 0.3 + 3.38 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -1620.9$ ;  $T_y = 5412.7$ ;  $M_t = 133543.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 18.9



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > K_{sh} \cdot f_{v,d}$

$80.6 > 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = 133543.7$

## Asta 92: Trave in legno a falda Falda 4 fili 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 10.9

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 52.8$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 1.3$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.1/74.7 + 0.7 \cdot 0/74.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_x = 88.7$ ;  $M_y = 0$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0^2 + 0.09^2} = 0.09 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 0$ ;  $T_y = 16.6$

## Asta 93: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 123.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.19^2 + 12.25^2} = 12.31 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -219.2$ ;  $T_y = 2253.6$



**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 123.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(4.9/85.3)^2 + 118.7/74.7 + 0.7 \cdot 20.1/74.67 = 1.78 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -188393.8$ ;  $M_y = -25024.6$ ;  $N = -2047.4$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.12 + 0.01 + 0.59 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -219.8$ ;  $T_y = 2253.6$ ;  $M_t = 3739.5$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 123.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.3 \leq 19.07$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = 3812.7$

**Asta 94: Trave in legno a falda Falda 4 fili 126-61**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 102.5

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.82^2 + 8.34^2} = 8.54 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -334.6$ ;  $T_y = 1535.4$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(5.8/85.3)^2 + 215/74.7 + 0.7 \cdot 50.3/74.67 = 3.35 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -341131.6$ ;  $M_y = -62471.8$ ;  $N = -2391.4$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0.01 + 0.27 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -334.8$ ;  $T_y = 1535.1$ ;  $M_t = -6747.4$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 102.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $4.07 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media





Mt = -6747.4

## Asta 95: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 102.5

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$

$\sqrt{0.66^2 + 4.38^2} = 4.43 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -121.1$ ;  $T_y = 806.5$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(5.7/85.3)^2 + 261.7/74.7 + 0.7 \cdot 61.2/74.67 = 4.08 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -415260.1$ ;  $M_y = -75998.3$ ;  $N = -2363.1$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.39 + 0 + 0.07 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -121.5$ ;  $T_y = 806.2$ ;  $M_t = -12277.1$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$7.41 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -12277.1$

## Asta 96: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 65.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 65.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d,d} \leq f_{v,d}$   
 $\text{Sqrt}(0.47^2 + 1.63^2) = 1.7 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 86.8$ ;  $T_y = -300.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(5.7/85.3)^2 + 259.8/74.7 + 0.7 \cdot 60.2/74.67 = 4.05 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -412246.1$ ;  $M_y = -74807.3$ ;  $N = -2343.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 65.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.33 + 0 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 86.8$ ;  $T_y = -300.6$ ;  $M_t = -10511.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 65.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $6.34 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -10511.5$

### Asta 97: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 36.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 36.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d,d} \leq f_{v,d}$   
 $\text{Sqrt}(0.64^2 + 5.71^2) = 5.75 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 117.4$ ;  $T_y = -1051.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(6/85.3)^2 + 225.5/74.7 + 0.7 \cdot 54.8/74.67 = 3.54 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -357935.3$ ;  $M_y = -68012.3$ ;  $N = -2492.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 36.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $1.39 + 0 + 0.13 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 117.1$ ;  $T_y = -1050.5$ ;  $M_t = -43924.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 36.7



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} > K_{sh} * f_{v,d}$

26.51 > 19.07 Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_t = -43924.6$

## Asta 98: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 102.5

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.75^2 + 8.16^2} = 8.2 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 138.6$ ;  $T_y = -1501.9$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(6/85.3)^2 + 189.9/74.7 + 0.7 * 44.8/74.67 = 2.97 ! > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -301339.4$ ;  $M_y = -55643.9$ ;  $N = -2480.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$

$0.71 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 138.3$ ;  $T_y = -1500.9$ ;  $M_t = -22369.6$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} * f_{v,d}$

13.5 <= 19.07 Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -22369.6$

## Asta 99: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 102.5

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.87^2 + 9.83^2} = 9.87 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 159.2$ ;  $T_y = -1808.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(6.2/85.3)^2 + 102.2/74.7 + 0.7 \cdot 28.1/74.67 = 1.64 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -162163.5$ ;  $M_y = -34917.1$ ;  $N = -2570.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.22 + 0 + 0.38 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 159$ ;  $T_y = -1807.1$ ;  $M_t = -6842.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.13 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -6842.3$

### Asta 100: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 102.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.95^2 + 10.4^2} = 10.44 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 175.2$ ;  $T_y = -1913$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(6.8/85.3)^2 + 121.1/74.7 + 0.7 \cdot 4.6/74.67 = 1.67 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 192122.1$ ;  $M_y = 5716.6$ ;  $N = -2800.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.19 + 0 + 0.42 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



Tx = 175.2; Ty = -1913; Mt = 6099.3

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

3.68 ≤ 19.07 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = 6099.3

### Asta 101: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 66.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 66.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.79^2 + 7.41^2} = 7.45 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 145.8; Ty = -1362.8

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 66.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(6.1/85.3)^2 + 187.7/74.7 + 0.7 \cdot 19.2/74.67 = 2.7 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = 297842.6; My = 23798; N = -2518.6

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 66.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

0.85+0+0.21 > 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Tx = 146.9; Ty = -1356.6; Mt = 26846.3

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 66.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

16.2 ≤ 19.07 Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = 26846.3

### Asta 102: Trave in legno a falda Falda 4 fili 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 18.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $3.9/38.4 + 121.9/74.7 + 0.7 \cdot 37.2/74.7 = 2.08 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 193467.9$ ;  $M_y = -46207.4$ ;  $N = 1603.6$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} > f_{v,d}$   
 $\sqrt{5.17^2 + 41.34^2} = 41.66 > 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 951.9$ ;  $T_y = 7606.1$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{t,d}/f_{v,d})^2 > 1$   
 $3.92 + 0.1 + 6.68 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 951.9$ ;  $T_y = 7606.1$ ;  $M_t = -123907.6$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 18.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} > K_{sh} \cdot f_{v,d}$   
 $74.79 > 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_t = -123907.6$

**Asta 103: Trave in legno a falda Falda 4 fili 126-61**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 10.9

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1**

Sezione ad ascissa 8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0.01 \leq 52.8$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $N = 3.4$

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.1/74.7 + 0.7 \cdot 0/74.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 88.6$ ;  $M_y = 0$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0^2 + 0.09^2} = 0.09 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 0$ ;  $T_y = 16.6$

## Asta 104: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 25.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 25.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.48^2 + 4.45^2} = 4.47 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 89.1$ ;  $T_y = -818.5$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 25.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(8.8/85.3)^2 + 90.2/74.7 + 0.7 \cdot 9.9/74.67 = 1.31 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 143071.2$ ;  $M_y = 12356$ ;  $N = -3640.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 25.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.2 + 0 + 0.08 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 89.1$ ;  $T_y = -818.5$ ;  $M_t = 6199.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 25.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.74 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 6199.9$

## Asta 105: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 105.9

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.08^2 + 4.7^2} = 4.7 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 14$ ;  $T_y = 865.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(11.7/85.3)^2 + 84.5/74.7 + 0.7 \cdot 8.5/74.67 = 1.23 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 134123.5$ ;  $M_y = 10525$ ;  $N = -4829.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.09 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 14$ ;  $T_y = 865.3$ ;  $M_t = -2427.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 105.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.47 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -2428.2$

### Asta 106: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 105.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.63^2 + 7.71^2} = 7.74 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 115.2$ ;  $T_y = 1419$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 105.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(11.9/85.3)^2 + 59.9/74.7 + 0.7 \cdot 20.3/74.67 = 1.01 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -95124.9$ ;  $M_y = 25223.9$ ;  $N = -4944.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.23 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media





Tx = 116; Ty = 1417; Mt = -899.9

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 105.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

1.24  $\leq$  26.22 Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

Mt = -2053

### Asta 107: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 80

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.12^2 + 6.93^2} = 7.02 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 206.9; Ty = 1274.2

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 80

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(12/85.3)^2 + 125/74.7 + 0.7 \cdot 36.4/74.67 = 2.04 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -198425.2; My = 45257.9; N = -4951.8

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor,d}}/(k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0+0.01+0.19  $\leq$  1 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Tx = 209; Ty = 1271.5; Mt = -35.2

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 80

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

0.86  $\leq$  26.22 Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo

Mt = -1428

### Asta 108: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 25.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 25.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{1.93^2 + 1.89^2} = 2.7 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -355.3$ ;  $T_y = -347.7$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(9.8/85.3)^2 + 123.2/74.7 + 0.7 \cdot 34.7/74.67 = 1.99 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -19555.7$ ;  $M_y = 43083.1$ ;  $N = -4044$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 25.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0.01 + 0.01 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $T_x = -350.7$ ;  $T_y = -347.8$ ;  $M_t = -5705.7$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 25.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.45 \leq 19.07$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = -5708.5$

**Asta 109: Trave in legno a falda Falda 3 fili 16-55**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 106.1

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 106.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.99^2 + 3.87^2} = 3.99 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -181.6$ ;  $T_y = -711.3$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(10.1/85.3)^2 + 133.7/74.7 + 0.7 \cdot 32.6/74.67 = 2.11 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -212176.7$ ;  $M_y = 40539.5$ ;  $N = -4185.7$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 106.1



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.17 + 0 + 0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -182.6$ ;  $T_y = -709.6$ ;  $M_t = -5469.7$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 106.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.3 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -5469.7$

**Asta 110: Trave in legno a falda Falda 3 fili 16-55**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 105.7

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 105.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.48^2 + 8.53^2} = 8.66 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -271.7$ ;  $T_y = -1570.4$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(10.7/85.3)^2 + 114.4/74.7 + 0.7 \cdot 20.1/74.67 = 1.74 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -181630.4$ ;  $M_y = 25003.4$ ;  $N = -4449.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 105.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0.28 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -271.7$ ;  $T_y = -1570.4$ ;  $M_t = 751.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 105.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.74 \leq 26.22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 1227.4$

**Asta 111: Trave in legno a falda Falda 3 fili 16-55**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 105.7



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 105.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2.74^2 + 14.31^2} = 14.57 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -503.8$ ;  $T_y = -2633.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 105.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(9.8/85.3)^2 + 100.6/74.7 + 0.7 \cdot 44.3/74.67 = 1.78 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 159581.6$ ;  $M_y = -55067.1$ ;  $N = -4076.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 105.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.24 + 0.03 + 0.8 > 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -503.8$ ;  $T_y = -2633.9$ ;  $M_t = 7730.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 105.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $4.67 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 7730.1$

### Asta 112: Trave in legno a falda Falda 3 fili 16-55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 51.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 51.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} > f_{v,d}$   
 $\sqrt{0.54^2 + 19.06^2} = 19.07 > 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -99.7$ ;  $T_y = -3507.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 51.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(7/85.3)^2 + 208.1/74.7 + 0.7*52.4/74.67 = 3.28 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = 330241$ ;  $My = -65074.5$ ;  $N = -2916$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 51.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.58 + 0 + 1.42 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -99.7$ ;  $T_y = -3507.3$ ;  $M_t = 18175.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 51.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $11.01 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 18234.1$

### Asta 113: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 13.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(2.96^2 + 1.98^2)} = 3.56 \leq 22$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 543.9$ ;  $T_y = 364.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(8.5/85.3)^2 + 145/74.7 + 0.7*85.6/74.67 = 2.75 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = 230166.7$ ;  $My = -106266.8$ ;  $N = -3509.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $3.36 + 0 + 0.01 > 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -41$ ;  $T_y = 283.1$ ;  $M_t = -106246.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 13.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} > K_{sh} * f_{v,d}$   
 $64.13 > 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_t = -106246.6$



## Asta 114: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 35

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{1.42^2 + 18.45^2} = 18.5 > 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -261$ ;  $T_y = 3394.7$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(7.5/85.3)^2 + 184.7/74.7 + 0.7 \cdot 20.5/74.67 = 2.67 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 293179.3$ ;  $M_y = -25405.3$ ;  $N = -3091.3$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.49 + 0.01 + 1.33 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -261$ ;  $T_y = 3394.7$ ;  $M_t = -15410.6$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 35

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$9.4 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = -15567.3$

## Asta 115: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 13

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{1.66^2 + 16.75^2} = 16.83 > 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -305.8$ ;  $T_y = 3081.2$



**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(7.9/85.3)^2 + 113/74.7 + 0.7 \cdot 29/74.67 = 1.79 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 179304.5$ ;  $M_y = -36027.2$ ;  $N = -3273.4$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.52 + 0.01 + 1.1 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -305.8$ ;  $T_y = 3081.2$ ;  $M_t = -16472.8$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 13  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $10.06 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -16672.3$

**Asta 116: Trave in legno a falda Falda 2 fili 55-1**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 87.9

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.32^2 + 13.98^2} = 13.99 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 59.5$ ;  $T_y = 2573$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(9.4/85.3)^2 + 89/74.7 + 0.7 \cdot 24.1/74.67 = 1.43 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 141275$ ;  $M_y = -29892.9$ ;  $N = -3886.4$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.32 + 0 + 0.76 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 59.5$ ;  $T_y = 2573$ ;  $M_t = -10217.4$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 87.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $6.17 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media



Mt = -10217.4

## Asta 117: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 100.9

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{2.05^2 + 7.72^2} = 7.98 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 377.1$ ;  $T_y = 1419.6$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 100.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(12.9/85.3)^2 + 102.1/74.7 + 0.7 \cdot 14.7/74.67 = 1.53 \ngtr 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -162023$ ;  $M_y = 18281.9$ ;  $N = -5328.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0.02 + 0.23 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 377.1$ ;  $T_y = 1419.6$ ;  $M_t = -4979.7$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 100.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.01 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -4979.7$

## Asta 118: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 73.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$





$\tau_{d} \leq f_{v,d}$

$\sqrt{2.76^2 + 1.56^2} = 3.17 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 507.8$ ;  $T_y = 287.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 73.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(14.9/85.3)^2 + 96.3/74.7 + 0.7 \cdot 46.1/74.67 = 1.75 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -152900.8$ ;  $M_y = 57251.7$ ;  $N = -6188$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0.03 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 507.8$ ;  $T_y = 287.6$ ;  $M_t = -2393.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 73.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.44 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -2393.2$

### Asta 119: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 29.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 29.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.65^2 + 3.74^2} = 3.79 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -119.4$ ;  $T_y = -688$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(13.8/85.3)^2 + 101.2/74.7 + 0.7 \cdot 21.4/74.67 = 1.58 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -160652.7$ ;  $M_y = 26574.2$ ;  $N = -5724.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 29.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.69 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -199.7$ ;  $T_y = -658.6$ ;  $M_t = 21714.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 29.1



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $13.11 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 21714.7$

## Asta 120: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 100.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 100.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.16^2 + 4.93^2} = 4.94 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -28.8$ ;  $T_y = -907.8$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(13.7/85.3)^2 + 81.7/74.7 + 0.7 \cdot 12.7/74.67 = 1.24 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -129724.6$ ;  $M_y = 15729.5$ ;  $N = -5679.3$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 100.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.37 + 0 + 0.09 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -60.8$ ;  $T_y = -899.6$ ;  $M_t = 11583.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 100.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $6.99 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 11583.2$

## Asta 121: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 100.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 100.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(0.24^2 + 5.01^2)} = 5.02 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -43.3$ ;  $T_y = -922.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(12.4/85.3)^2 + 28.5/74.7 + 0.7 \cdot 7.1/74.67 = 0.47 \leq 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -45217.7$ ;  $M_y = 8857.6$ ;  $N = -5140$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 100.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.2 + 0 + 0.1 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -43.3$ ;  $T_y = -922.4$ ;  $M_t = 6172.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 100.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.73 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 6172.5$

### Asta 122: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 101.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 101.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(0.09^2 + 3.09^2)} = 3.09 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 16.6$ ;  $T_y = -569.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 101.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(12.8/85.3)^2 + 62.6/74.7 + 0.7 \cdot 2.7/74.67 = 0.89 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 99398.2$ ;  $M_y = 3330.2$ ;  $N = -5279.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 101.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.04 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



$T_x = 16.6$ ;  $T_y = -569.1$ ;  $M_t = 2996.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 101.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.81 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 2996.4$

### Asta 123: Trave in legno a falda Falda 2 fili 55-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 20.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.07^2 + 3.45^2} = 3.45 \leq 16$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = 13.7$ ;  $T_y = 635.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(9.8/85.3)^2 + 63.1/74.7 + 0.7 \cdot 4.5/74.67 = 0.9 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 100210.5$ ;  $M_y = 5633$ ;  $N = -4049$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.1 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 25.3$ ;  $T_y = 634.3$ ;  $M_t = -3257.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 20.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.97 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -3257.7$

### Asta 124: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 37.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $7.2/57.3 + 0.7 \cdot 0.7/111.3 + 32.6/111.3 = 0.42 \leq 1$  [4.4.6b] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 93.2$ ;  $M_y = -3479.4$ ;  $N = 578.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 37.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{v,d} \leq f_{v,d}$   
 $\sqrt{1.65^2 + 0.34^2} = 1.68 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -58.6$ ;  $T_y = -12$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 37.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0.01 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -58.6$ ;  $T_y = -12$ ;  $M_t = 173.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 37.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.23 \leq 26.13$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 173.9$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 19.8  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
Luce/ $U_{inst,tot} > \text{limite}$   
 $37.2/0 = 23224.1 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 21.1  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
Luce/ $U_{inst,var} > \text{limite}$   
 $37.2/0 = 44869.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 19.8  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
Luce/ $U_{fin} > \text{limite}$   
 $37.2/0 = 18001.8 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 125: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 37.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 7.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$4.9/57.3 + 0.7 \cdot 0.6/111.3 + 21.8/111.3 = 0.28 \leq 1$  [4.4.6b] Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$M_x = 81.4$ ;  $M_y = -2324.1$ ;  $N = 390$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 37.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{(1.61^2 + 0.16^2)} = 1.62 \leq 22$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$T_x = 57.2$ ;  $T_y = -5.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$T_x = -55.9$ ;  $T_y = 6.7$ ;  $M_t = -76.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 37.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.54 \leq 26.13$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$M_t = -76.3$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

Luce/ $U_{inst,tot} > \text{limite}$

$37.2/0 = 14049 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

Luce/ $U_{inst,var} > \text{limite}$

$37.2/0 = 22619.6 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18.6

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

Luce/ $U_{fin} > \text{limite}$

$37.2/0 = 11446.7 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$



Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Asta 126: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 37.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 37.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$5.3/57.3 + 0.7 \cdot 2/111.3 + 24.4/111.3 = 0.33 \leq 1$  [4.4.6b] Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$M_x = -265$ ;  $M_y = -2605.3$ ;  $N = 427.7$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 37.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{1.82^2 + 0.05^2} = 1.82 \leq 22$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = 64.7$ ;  $T_y = -1.7$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0 \leq 1$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$T_x = -44.2$ ;  $T_y = 9.7$ ;  $M_t = -99.8$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 37.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.7 \leq 26.13$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$M_t = -99.8$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 18.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$37.2/0 = 14889.8 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 18.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$37.2/0 = 21909.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 17.4



Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $37.2/0 = 12484.6 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

## Asta 127: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 38.9

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 38.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $7.4/57.3 + 0.7 \cdot 1/111.3 + 24.7/111.3 = 0.36 \leq 1$  [4.4.6b] Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 131.3$ ;  $M_y = -2636$ ;  $N = 592.9$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{1.8^2 + 0.52^2} = 1.87 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 64$ ;  $T_y = 18.6$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{t,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0.01 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 64$ ;  $T_y = 18.6$ ;  $M_t = -254.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 38.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{t,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.8 \leq 26.13$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -254.9$

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 20.8  
Kdef = 0  
Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
 $38.9/0 = 23599 > 300$  Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 20.8  
Kdef = 0





Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
38.9/0=35924.9 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 20.8  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
38.9/0=19570.2 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Asta 128: Trave in legno a falda Falda 1 fili 158-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 277.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 277.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(26.8/85.3)^2 + 306.6/81 + 0.7*4.4/80.97 = 3.92 ! > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -40874.5; My = -472.6; N = -2145.5

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.12^2 + 7.96^2} = 7.96 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -4.2; Ty = 283.1

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.25 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = -3.9; Ty = 283.1; Mt = -50

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 277.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh * f_{v,d}$   
 $0.35 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -50

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 213  
Kdef = 0



Uinst tot in x = 0.03  
Uinst tot in y = -0.93  
Uinst tot = 0.93  
Luce/Uinst,tot < limite  
 $277.9/0.93=299.6 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 213  
Kdef = 0  
Uinst var in x = 0.02  
Uinst var in y = -0.6  
Uinst var = 0.6  
Luce/Uinst,var > limite  
 $277.9/0.6=465.4 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 213  
Kdef = 0.6  
Ufin in x = 0.04  
Ufin in y = -1.13  
Ufin = 1.13  
Luce/Ufin > limite  
 $277.9/1.13=246.8 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

### Asta 129: Trave in legno a falda Falda 1 fili 170-171

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 165.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.14^2 + 2.9^2} = 2.91 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -5.1; Ty = -103.2

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.2/85.3)^2 + 114.2/81 + 0.7 \cdot 4.8/80.97 = 1.45 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = 15231.1; My = -510; N = -92.4

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -5.7; Ty = -102.9; Mt = 2.8

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 165.4



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.23 \leq 26.13$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 32.2$

### Asta 130: Trave in legno a falda Falda 1 fili 170-171

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.08^2 + 6.72^2} = 6.73 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -3$ ;  $T_y = 239.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(6.5/85.3)^2 + 267.3/81 + 0.7 * 2.6/80.97 = 3.33 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -35644.8$ ;  $M_y = -274.5$ ;  $N = -523.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} * f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.18 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -2.9$ ;  $T_y = 238.9$ ;  $M_t = -64.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.45 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -64.1$

### Asta 131: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 94.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.78^2 + 4.6^2} = 4.94 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 327.6$ ;  $T_y = 847$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.8/85.3)^2 + 23/74.7 + 0.7 \cdot 18.1/74.67 = 0.48 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 36489.2$ ;  $M_y = -22471.1$ ;  $N = -757.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0.01 + 0.08 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 327.6$ ;  $T_y = 843.8$ ;  $M_t = -1993.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 94.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.23 \leq 19.07$  Comb: SLU, 37; Durata minima del carico nella combinazione: media

$M_t = -2030.6$

### Asta 132: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.96^2 + 5.01^2} = 5.1 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 177.2$ ;  $T_y = 921.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.9/85.3)^2 + 44.3/74.7 + 0.7 \cdot 16.4/74.67 = 0.75 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -70351.1$ ;  $M_y = 20374.7$ ;  $N = -784.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.1 + 0 + 0.1 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



Tx = 177.2; Ty = 921.3; Mt = -3239.6

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

1.97 ≤ 19.07 Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = -3257.8

### Asta 133: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{(2.07^2 + 4.15^2)} = 4.64 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 380.1; Ty = 763.9

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.8/85.3)^2 + 66.4/74.7 + 0.7 \cdot 36.2/74.67 = 1.23 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -105372.9; My = 44966.8; N = -763.1

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{\text{tor,d}}/(k_{\text{sh}} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.12 + 0.02 + 0.07 ≤ 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = 380.1; Ty = 763.9; Mt = -3745.6

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{v,d}$

2.26 ≤ 19.07 Comb: SLU, 80; Durata minima del carico nella combinazione: media

Mt = -3745.6

### Asta 134: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.23^2 + 4.23^2} = 4.24 \leq 16$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = -42.8$ ;  $T_y = 779$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 58.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.9/85.3)^2 + 80.3/74.7 + 0.7 \cdot 36.9/74.67 = 1.42 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -127417.8$ ;  $M_y = 45869.1$ ;  $N = -786.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.07 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -5$ ;  $T_y = 761.7$ ;  $M_t = -6480.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.94 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -6521.8$

### Asta 135: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{3.07^2 + 2.34^2} = 3.86 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -564.7$ ;  $T_y = 430.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.9/85.3)^2 + 79.2/74.7 + 0.7 \cdot 38.6/74.67 = 1.42 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -125682.6$ ;  $M_y = 47987.2$ ;  $N = -774$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0.04 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -564.7$ ;  $T_y = 430.6$ ;  $M_t = -3575$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.17 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -3587.3$

### Asta 136: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.84^2 + 5.49^2} = 5.55 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -154$ ;  $T_y = -1009.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.8/85.3)^2 + 78.9/74.7 + 0.7 \cdot 8.9/74.67 = 1.14 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -125243.4$ ;  $M_y = 11003.3$ ;  $N = -753.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0.12 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -154$ ;  $T_y = -1009.4$ ;  $M_t = -2507.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.51 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -2507.4$

### Asta 137: Trave in legno a falda Falda 6 fili 209-265

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 75.8



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 75.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.83^2 + 7.73^2} = 7.77 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 152.9$ ;  $T_y = -1422.2$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.8/85.3)^2 + 51.2/74.7 + 0.7 \cdot 1.5/74.67 = 0.7 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -81322.5$ ;  $M_y = -1891.6$ ;  $N = -747.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 75.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.23 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 152.9$ ;  $T_y = -1422.2$ ;  $M_t = -1462.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 75.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.89 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = -1469.9$

### Asta 138: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 49.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.7 \cdot 1/74.7 + 32.3/74.7 = 0.44 \leq 1$  (formula 4.4.5b) Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 1636$ ;  $M_y = 40121.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 49.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$





$\tau_{d} \leq f_{v,d}$

$\sqrt{5.22^2 + 1.09^2} = 5.34 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -961.4$ ;  $T_y = -200.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 49.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.11 + 0 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -958.6$ ;  $T_y = -200.6$ ;  $M_t = -568.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 49.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.02 \leq 26.22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -1686.4$

### Asta 139: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{3.24^2 + 3.76^2} = 4.96 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -595.4$ ;  $T_y = 691.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1/85.3)^2 + 0.7 \cdot 19.4/74.7 + 30.9/74.7 = 0.6 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -30719.1$ ;  $M_y = -38368.9$ ;  $N = -430.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0.04 + 0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -595.4$ ;  $T_y = 691.9$ ;  $M_t = 386.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.56 \leq 26.22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 929$



## Asta 140: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.47^2 + 4.67^2} = 4.69 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -87.1$ ;  $T_y = 859.4$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.3/85.3)^2 + 40.9/74.7 + 0.7 \cdot 31.2/74.67 = 0.84 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -64851.6$ ;  $M_y = -38785.6$ ;  $N = -544.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.08 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -92$ ;  $T_y = 855.2$ ;  $M_t = -2869.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.73 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -2869.2$

## Asta 141: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2.29^2 + 4.34^2} = 4.91 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 421.5$ ;  $T_y = 798.3$



#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 31.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.4/85.3)^2 + 52.3/74.7 + 0.7 \cdot 20/74.67 = 0.89 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -83006.5$ ;  $M_y = -24829$ ;  $N = -577.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0.02 + 0.07 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 412.5$ ;  $T_y = 782.2$ ;  $M_t = -3818.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.3 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -3818.2$

### Asta 142: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.08^2 + 2.88^2} = 3.08 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -198.9$ ;  $T_y = -529.8$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 33.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.4/85.3)^2 + 56.1/74.7 + 0.7 \cdot 13.7/74.67 = 0.88 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -89048.8$ ;  $M_y = -17017.5$ ;  $N = -587.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -198.9$ ;  $T_y = -529.8$ ;  $M_t = -2994$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.81 \leq 19.07$  Comb: SLU, 38; Durata minima del carico nella combinazione: media



Mt = -2996.7

Asta 143: Trave in legno a falda Falda 1 fili 36-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 67.6

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{1.99^2 + 2.5^2} = 3.19 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 365.7$ ;  $T_y = -460.1$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.4/85.3)^2 + 48.4/74.7 + 0.7 \cdot 19.1/74.67 = 0.83 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -76849.9$ ;  $M_y = -23719.6$ ;  $N = -587.8$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.13 + 0.01 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 356.7$ ;  $T_y = -464$ ;  $M_t = -4168.4$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.52 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -4168.4$

Asta 144: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 84

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(0.11^2 + 6.34^2) = 6.34 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -20.4$ ;  $T_y = 1166$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 84

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.8/85.3)^2 + 48.5/74.7 + 0.7 \cdot 2.2/74.67 = 0.67 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = -77033.2$ ;  $M_y = 2741.9$ ;  $N = -765.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.16 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -20.4$ ;  $T_y = 1166$ ;  $M_t = 1021.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 84

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.16 \leq 26.22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = 1918$

### Asta 145: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(0.97^2 + 3.97^2) = 4.09 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 178.9$ ;  $T_y = 730.7$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d}/f_{m,y,d} + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.9/85.3)^2 + 66.8/74.7 + 0.7 \cdot 12.3/74.67 = 1.01 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -106030.2$ ;  $M_y = 15331.4$ ;  $N = -792.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.06 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 178.9$ ;  $T_y = 730.7$ ;  $M_t = 1502.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.91 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 1502.6$

Asta 146: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 67.6

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{2.66^2 + 2.28^2} = 3.5 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 488.7$ ;  $T_y = -419$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.9/85.3)^2 + 63.9/74.7 + 0.7 \cdot 37.5/74.67 = 1.21 ! > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -101436.8$ ;  $M_y = 46620.9$ ;  $N = -807.1$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0.03 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 488.7$ ;  $T_y = -419$ ;  $M_t = 2186.6$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.32 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 2192.8$

Asta 147: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 67.6

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.91^2 + 3.03^2} = 3.17 \leq 16$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = -166.8$ ;  $T_y = -558.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2/85.3)^2 + 64.4/74.7 + 0.7 \cdot 36.3/74.67 = 1.2 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -102169$ ;  $M_y = 45118.4$ ;  $N = -813$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.15 + 0.01 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -259.7$ ;  $T_y = -513.2$ ;  $M_t = 4843.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.92 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 4843.8$

### Asta 148: Trave in legno a falda Falda 3 fili 31-87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.41^2 + 4.42^2} = 4.44 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -74.8$ ;  $T_y = -814$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.9/85.3)^2 + 58.4/74.7 + 0.7 \cdot 22.3/74.67 = 0.99 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = -92759.7$ ;  $M_y = 27642.2$ ;  $N = -804.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0 + 0.08 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media



Tx = -74.8; Ty = -814; Mt = 3832.1

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.31 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = 3832.1

**Asta 149: Trave in legno a falda Falda 3 fili 31-87**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(1.15^2 + 4.49^2)} = 4.63 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -212.3; Ty = -825.5

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.9/85.3)^2 + 34.5/74.7 + 0.7 \cdot 17.8/74.67 = 0.63 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mx = -54678.3; My = 22105.3; N = -800.5

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0.01 + 0.08 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -212.3; Ty = -825.5; Mt = 3490.7

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.12 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = 3517.3

**Asta 150: Trave in legno a falda Falda 3 fili 31-87**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 81.9

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300





Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 81.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{1.88^2 + 3.94^2} = 4.36 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -345.1$ ;  $T_y = -724.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 81.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2/85.3)^2 + 19.6/74.7 + 0.7 \cdot 16.4/74.67 = 0.42 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = 31026.2$ ;  $M_y = -20409.4$ ;  $N = -809.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 81.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0.01 + 0.06 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -342$ ;  $T_y = -723.3$ ;  $M_t = 2544.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 81.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.56 \leq 19.07$  Comb: SLU, 37; Durata minima del carico nella combinazione: media  
 $M_t = 2583.5$

### Asta 151: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 43.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $31.2/74.7 + 0.7 \cdot 8.9/74.7 = 0.5 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 49446.4$ ;  $M_y = -11086.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.27^2 + 2.76^2} = 2.78 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 50$ ;  $T_y = 508.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.19 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 50$ ;  $T_y = 508.3$ ;  $M_t = 6067.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 43.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.67 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = 6072.2$

### Asta 152: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $23.8/74.7 + 0.7 \cdot 6.3/74.7 = 0.38 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = 37835.2$ ;  $M_y = -7824.3$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.32^2 + 5.75^2} = 5.89 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 242.1$ ;  $T_y = 1057.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.17 + 0.01 + 0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 242.1$ ;  $T_y = 1057.1$ ;  $M_t = 5240.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.16 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 5241.4$

### Asta 153: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$44.8/74.7 + 0.7 \cdot 4.9/74.7 = 0.65 \leq 1$  (formula 4.4.5a) Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = -71094.7$ ;  $M_y = 6131.1$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.28^2 + 6.97^2} = 6.97 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -52.2$ ;  $T_y = 1281.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.26 + 0 + 0.19 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -51.4$ ;  $T_y = 1281.3$ ;  $M_t = 8199.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.95 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 8199.6$

### Asta 154: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) > 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$69.6/74.7 + 0.7 \cdot 44.2/74.7 = 1.35 > 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -110530.6$ ;  $M_y = 54858.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(3.9^2 + 5.44^2) = 6.69 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 718$ ;  $T_y = 1000.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0.06 + 0.12 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 718$ ;  $T_y = 1000.1$ ;  $M_t = -1926.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.16 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -1929.3$

### Asta 155: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$98.3/74.7 + 0.7 \cdot 37.2/74.7 = 1.67 \leq 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -156001.9$ ;  $M_y = 46197.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(0.84^2 + 6.13^2) = 6.18 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -155.2$ ;  $T_y = 1127.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.23 + 0 + 0.15 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -155.2$ ;  $T_y = 1127.2$ ;  $M_t = -7350.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.44 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -7350.2$



## Asta 156: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 60.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$118.3/74.7 + 0.7 \cdot 29.5/74.7 = 1.86 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -187685.4$ ;  $M_y = 36641.1$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{1.12^2 + 5.12^2} = 5.24 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -206.7$ ;  $T_y = 942.3$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{t,d}/f_{v,d})^2 \leq 1$

$0.18 + 0 + 0.1 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -206.7$ ;  $T_y = 942.3$ ;  $M_t = -5727.4$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.46 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -5727.4$

## Asta 157: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 49.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$127.6/74.7 + 0.7 \cdot 30/74.7 = 1.99 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -202470.9$ ;  $M_y = 37263.5$



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.01^2 + 3.39^2} = 3.39 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.6$ ;  $T_y = 623.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.1 + 0 + 0.04 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.6$ ;  $T_y = 623.3$ ;  $M_t = -3067.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.85 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -3071.4$

### Asta 158: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 31.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$129.3/74.7 + 0.7 \cdot 31.6/74.7 = 2.03 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -205211.8$ ;  $M_y = 39291.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.2^2 + 2.66^2} = 2.67 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 37.6$ ;  $T_y = -490.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.03 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 37.5$ ;  $T_y = -490.2$ ;  $M_t = -2038.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.23 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -2038.4$



## Asta 159: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 13.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$123.7/74.7 + 0.7 \cdot 33.6/74.7 = 1.97 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -196288.7$ ;  $M_y = 41770.5$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.55^2 + 4.19^2} = 4.23 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 101.9$ ;  $T_y = -771.1$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.07 \leq 1$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$T_x = 104.5$ ;  $T_y = -769.8$ ;  $M_t = -1431.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.86 \leq 19.07$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = -1431.2$

## Asta 160: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \geq 1$   
 $109.6/74.7 + 0.7 \cdot 37.8/74.7 = 1.82 \geq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -173950.8$ ;  $M_y = 46892.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.06^2 + 5.53^2} = 5.64 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 195.7$ ;  $T_y = -1018.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.12 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 195.7$ ;  $T_y = -1018.2$ ;  $M_t = 1523.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.92 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 1523.9$

### Asta 161: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \geq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \geq 1$   
 $85.3/74.7 + 0.7 \cdot 47.7/74.7 = 1.59 \geq 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -135429.2$ ;  $M_y = 59206.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2.31^2 + 5.53^2} = 5.99 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -424.9$ ;  $T_y = -1016.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0.02 + 0.12 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -424.9$ ;  $T_y = -1016.7$ ;  $M_t = -1173$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$





$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.71 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -1173$

## Asta 162: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \cdot I > 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $59.5/74.7 + 0.7 \cdot 25.5/74.7 = 1.04 \cdot I > 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -94378.9$ ;  $M_y = 31712.6$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2.29^2 + 6.55^2} = 6.93 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -420.9$ ;  $T_y = -1204.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0.02 + 0.17 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -420.9$ ;  $T_y = -1204.5$ ;  $M_t = -2334.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.41 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -2334.9$

## Asta 163: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$24.1/74.7 + 0.7 \cdot 4/74.7 = 0.36 \leq 1$  (formula 4.4.5a) Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = -38304.5$ ;  $M_y = 4945.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.74^2 + 6.77^2} = 6.99 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -319.8$ ;  $T_y = -1245.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.01 + 0.18 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -320.8$ ;  $T_y = -1245.1$ ;  $M_t = -490.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.87 \leq 26.22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = -1449.2$

### Asta 164: Trave in legno a falda Falda 4 fili 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 39.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 39.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$27.8/74.7 + 0.7 \cdot 15.6/74.7 = 0.52 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = 44060.6$ ;  $M_y = -19403.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 39.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.48^2 + 3.95^2} = 3.98 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -88.7$ ;  $T_y = -726.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 39.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.06 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media



Tx = -90.1; Ty = -718.8; Mt = -2383.2

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 39.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.44 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
Mt = -2383.2

**Asta 165: Trave in legno a falda Falda 1 fili 178-179**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 165.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $0.7/41.6 + 119.5/81 + 0.7 \cdot 7.7/81 = 1.56 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = 15937.6; My = 826.4; N = 54.5

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.3^2 + 3.02^2} = 3.04 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 10.5; Ty = -107.4

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.04 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 10.5; Ty = -107.4; Mt = -2.1

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.16 \leq 26.13$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
Mt = 22

**Asta 166: Trave in legno a falda Falda 1 fili 178-179**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 263

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.07^2 + 6.17^2} = 6.17 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.6$ ;  $T_y = 219.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.7/85.3)^2 + 246.9/81 + 0.7 \cdot 4.3/80.97 = 3.09 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -32925.4$ ;  $M_y = 458.4$ ;  $N = -132.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.15 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 2.6$ ;  $T_y = 219.1$ ;  $M_t = -67.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.47 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -67.1$

### Asta 167: Trave in legno a falda Falda 1 fili 184-185

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 165.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
 $0.6/41.6 + 116.8/81 + 0.7 \cdot 8/81 = 1.53 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 15574$ ;  $M_y = 855$ ;  $N = 49.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.3^2 + 3.03^2} = 3.04 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 10.8$ ;  $T_y = -107.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 165.4



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0+0+0.04 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 10.8$ ;  $T_y = -107.6$ ;  $M_t = -3.9$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 165.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.15 \leq 26.13$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 20.8$

**Asta 168: Trave in legno a falda Falda 1 fili 184-185**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 263

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.08^2 + 5.83^2} = 5.83 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.8$ ;  $T_y = 207.4$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.3/85.3)^2 + 232.9/81 + 0.7 \cdot 4.7/80.97 = 2.92 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -31058.6$ ;  $M_y = 498.3$ ;  $N = -100.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02+0+0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 2.7$ ;  $T_y = 207$ ;  $M_t = -61.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.43 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -61.2$

**Asta 169: Trave in legno a falda Falda 1 fili 191-192**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 165.4



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 165.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1.3/41.6 + 104.7/81 + 0.7 \cdot 8.4/81 = 1.4 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 13960.3$ ;  $M_y = 891.6$ ;  $N = 103.1$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 165.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.25^2 + 2.9^2} = 2.91 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 9.1$ ;  $T_y = -103$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 165.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.03 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 7.7$ ;  $T_y = -103$ ;  $M_t = 1.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 165.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.15 \leq 26.13$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$M_t = 21.7$

### Asta 170: Trave in legno a falda Falda 1 fili 191-192

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.06^2 + 5.75^2} = 5.75 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 2.1$ ;  $T_y = 204.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(2.5/85.3)^2 + 226.1/81 + 0.7*2.8/80.97 = 2.82 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -30144.9$ ;  $My = 302.8$ ;  $N = -196.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.1$ ;  $T_y = 204.5$ ;  $M_t = -56.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.42 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -58.8$

### Asta 171: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 41.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $4.7/57.3 + 0.7*11.8/111.3 + 28/111.3 = 0.41 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 1568$ ;  $M_y = 2990.3$ ;  $N = 375.3$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 41.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{4.01^2 + 1.4^2} = 4.25 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 142.6$ ;  $T_y = -49.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 41.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.03 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 142.6$ ;  $T_y = -49.9$ ;  $M_t = -77.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 41.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.55 \leq 26.13$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -77.4$



## Asta 172: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 41.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$16.3/57.3 + 0.7 \cdot 5.1/111.3 + 28.4/111.3 = 0.57 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = 674.1$ ;  $M_y = 3027.1$ ;  $N = 1301.8$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{4.07^2 + 0.23^2} = 4.08 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 144.8$ ;  $T_y = -8.2$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0.03 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 144.8$ ;  $T_y = -8.2$ ;  $M_t = -23$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.21 \leq 26.13$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = 29.8$

## Asta 173: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 41.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$20.8/57.3 + 0.7 \cdot 2.7/111.3 + 30.3/111.3 = 0.65 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = -358$ ;  $M_y = 3228.3$ ;  $N = 1663$





#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{3.51^2 + 0.69^2} = 3.57 \leq 22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = 124.7$ ;  $T_y = 24.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0.03 + 0 \leq 1$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = 124.7$ ;  $T_y = 24.6$ ;  $M_t = 77.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.7 \leq 26.13$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = 99.2$

### Asta 174: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 41.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$30.5/57.3 + 0.7 \cdot 2.7/111.3 + 17.2/111.3 = 0.7 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_x = -364$ ;  $M_y = 1830.5$ ;  $N = 2440.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2^2 + 1.37^2} = 2.42 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = -71.1$ ;  $T_y = -48.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.04 + 0 + 0.01 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -35.4$ ;  $T_y = -58.3$ ;  $M_t = -150$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.06 \leq 26.13$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = -150$



## Asta 175: Trave in legno a falda Falda 1 fili 201-202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 278.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 278.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.3/41.6 + 226.3/81 + 0.7 \cdot 1.5/81 = 2.86 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -30171.1$ ;  $M_y = -158.9$ ;  $N = 186$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(0.07^2 + 6.03^2)} = 6.03 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.3$ ;  $T_y = 214.3$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.14 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.3$ ;  $T_y = 214.3$ ;  $M_t = -40.6$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 278.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.31 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -43.4$

## Asta 176: Trave in legno a falda Falda 1 fili 210-211

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 263

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$



$\sqrt{0.14^2 + 4.59^2} = 4.59 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -5; Ty = 163.2

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(5.4/85.3)^2 + 194.6/81 + 0.7*6.5/80.97 = 2.46 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -25952.5; My = -695.2; N = -428.6

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.08 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -5; Ty = 163.2; Mt = -58.9

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * f_{v,d}$

$0.44 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

Mt = -61.7

### Asta 177: Trave in legno a falda Falda 1 fili 216-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) > 1$

$St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d > 1$

$18.4/41.6 + 230.6/81 + 0.7*8.9/81 = 3.37 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -30742.1; My = -952.7; N = 1471.6

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.25^2 + 6.34^2} = 6.34 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -8.9; Ty = 225.3

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.16 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

Tx = -8.9; Ty = 225.3; Mt = -64.1

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.48 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -68.4$

## Asta 178: Trave in legno a falda Falda 1 fili 225-226

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 263

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.08^2 + 3.76^2} = 3.76 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -2.9$ ;  $T_y = 133.6$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2/85.3)^2 + 171.1/81 + 0.7 \cdot 3.3/80.97 = 2.14 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -22807$ ;  $M_y = -351.4$ ;  $N = -162.1$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0.06 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -2.9$ ;  $T_y = 133.6$ ;  $M_t = -97.5$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.69 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -98$

## Asta 179: Trave in legno a falda Falda 1 fili 236-237

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 263

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.04^2 + 3.29^2} = 3.29 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 1.6$ ;  $T_y = 116.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.7/85.3)^2 + 156.7/81 + 0.7 \cdot 1.6/80.97 = 1.95 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20899.2$ ;  $M_y = 172.5$ ;  $N = -137$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 1.6$ ;  $T_y = 116.9$ ;  $M_t = -132.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.94 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -132.9$

### Asta 180: Trave in legno a falda Falda 1 fili 242-243

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.03^2 + 2.9^2} = 2.9 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 1.2$ ;  $T_y = 103.2$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(0.7/85.3)^2 + 144.4/81 + 0.7 \cdot 1.4/80.97 = 1.8 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -19258.6$ ;  $M_y = 150.3$ ;  $N = -55.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



$T_x = 1.2$ ;  $T_y = 103.2$ ;  $M_t = -159.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.15 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -162.2$

### Asta 181: Trave in legno a falda Falda 1 fili 248-249

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$127.6/81 + 0.7 \cdot 3.5/81 = 1.61 \leq 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -17012.8$ ;  $M_y = -376.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.07^2 + 2.47^2} = 2.47 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -2.4$ ;  $T_y = 87.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -2.4$ ;  $T_y = 87.7$ ;  $M_t = -177.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.29 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -182.7$

### Asta 182: Trave in legno a falda Falda 1 fili 254-255

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$   
 $K_{m,z,d}/f_{m,z,d} + S_{m,y,d}/f_{m,y,d} \leq 1$   
 $106.2/81 + 0.7 \cdot 6.3/81 = 1.37 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -14158.5$ ;  $M_y = -666.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.14^2 + 1.98^2} = 1.99 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -5$ ;  $T_y = 70.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -5$ ;  $T_y = 70.5$ ;  $M_t = -175.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.29 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -183$

### Asta 183: Trave in legno a falda Falda 1 fili 261-262

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 231

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.08^2 + 2.02^2} = 2.02 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -2.8$ ;  $T_y = 71.7$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 231  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_{m,z,d}/f_{m,z,d} + S_{m,y,d}/f_{m,y,d} \leq 1$   
 $(0.7/85.3)^2 + 91.6/81 + 0.7 \cdot 1.7/80.97 = 1.15 \leq 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -12215.9$ ;  $M_y = -183.1$ ;  $N = -57.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -2.8$ ;  $T_y = 71.7$ ;  $M_t = -173.5$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 231  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.29 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -182.3$

**Asta 184: Trave in legno a falda Falda 1 fili 266-267**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 159

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.24^2 + 2.9^2} = 2.91 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 8.5$ ;  $T_y = 103.2$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 159  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.5/85.3)^2 + 83.7/81 + 0.7 \cdot 7.9/80.97 = 1.1 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -11164.5$ ;  $M_y = 846.6$ ;  $N = -118.5$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 8.5$ ;  $T_y = 103.2$ ;  $M_t = -240.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 159  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.77 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -251$

**Asta 185: Trave in legno a falda Falda 1 fili 270-271**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 87





#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{1.06^2 + 5.66^2} = 5.76 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 37.6$ ;  $T_y = 201.2$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 87

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.9/85.3)^2 + 86.1/81 + 0.7 \cdot 15.9/80.97 = 1.2 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -11482.6$ ;  $M_y = 1700.2$ ;  $N = -229.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0 + 0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 37.6$ ;  $T_y = 201.2$ ;  $M_t = -329.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 87

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.42 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -342.1$

### Asta 186: Trave in legno a falda Falda 1 fili 277-275

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 30

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 11

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 57.26$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 30

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 14.9$ ;  $M_y = 0$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 9  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $30/0 = 10707794 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 26  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $30/0 = 9522028350.3 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 9  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $30/0 = 6692496.3 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 187: Trave in legno a falda Falda 5 fili 275-280

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 24.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 12.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0 \leq 57.26$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 9.5$ ;  $M_y = 0$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.4  
 $K_{def} = 0$



Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
24.2/0=7827030.9 > 300 Comb: SLE rara, 3

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 14.5  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
24.2/0=10297745502.9 > 300 Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.4  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
24.2/0=4891894.3 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile H = 0,000 + 1,000 = 1,000

### Asta 188: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 50

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
4.2/57.3+0.7\*1.9/111.3+23/111.3=0.29 <= 1 [4.4.6b] Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -255.8$ ;  $M_y = -2448.6$ ;  $N = 332.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 50  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{,d} \leq f_{v,d}$   
 $\sqrt{(1.76^2 + 0.31^2)} = 1.79 \leq 22$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 62.5$ ;  $T_y = -10.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 50  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{,tor,d}/(k_{sh}*f_{v,d}) + (\tau_{,y,d}/f_{v,d})^2 + (\tau_{,z,d}/f_{v,d})^2 \leq 1$   
0.03+0+0 <= 1 Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 53$ ;  $T_y = -14.4$ ;  $M_t = -128.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 50  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.91 \leq 26.13$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -128.4$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 31.6  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $50/0 = 35524 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 25  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $50/0 = 25872.7 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 18.3  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $50/0 = 30839.2 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,480 = 1,180$   
Vento =  $0,600 + 0,000 = 0,600$

### Asta 189: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 50

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 50  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $7.8/57.3 + 0.7 \cdot 2.3/111.3 + 24.1/111.3 = 0.37 \leq 1$  [4.4.6b] Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -311.5$ ;  $M_y = 2569.8$ ;  $N = 621.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(2.14^2 + 0.27^2)} = 2.16 \leq 22$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 76.1$ ;  $T_y = 9.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 76.1$ ;  $T_y = 9.6$ ;  $M_t = 58.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 50  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.41 \leq 26.13$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 58.4$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 25  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
 $L_{uce}/U_{inst,tot} > \text{limite}$   
 $50/0 = 17207.7 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 23.3  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = 0$   
 $U_{inst,var} \text{ in } y = 0$   
 $U_{inst,var} = 0$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $50/0 = 28185.6 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 26.6  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0$   
 $U_{fin} \text{ in } y = 0$   
 $U_{fin} = 0$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $50/0 = 13892.6 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Asta 190: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 50

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 50  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $12.9/57.3 + 0.7 \cdot 0.4/111.3 + 25.8/111.3 = 0.46 \leq 1$  [4.4.6b] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -49.2$ ;  $M_y = 2755$ ;  $N = 1035.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2.06^2 + 0.49^2} = 2.12 \leq 22$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = -73.3$ ;  $T_y = 17.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d} / (k_{sh} \cdot f_{v,d}) + (\tau_{y,d} / f_{v,d})^2 + (\tau_{z,d} / f_{v,d})^2 \leq 1$

$0.05 + 0.01 + 0 \leq 1$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

$T_x = -73.3$ ;  $T_y = 17.4$ ;  $M_t = 193.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 50

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.42 \leq 26.13$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 200.6$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 26.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce} / U_{inst,tot} > \text{limite}$

$50/0 = 17759.1 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 26.6

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce} / U_{inst,var} > \text{limite}$

$50/0 = 26371.6 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 26.6

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce} / U_{fin} > \text{limite}$

$50/0 = 14849.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 191: Trave in legno a falda Falda 1 fili 132-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 278.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 278.5



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(17.1/85.3)^2 + 316.3/81 + 0.7 \cdot 2.4/80.97 = 3.97 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -42177.8$ ;  $M_y = -257.6$ ;  $N = -1365.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.05^2 + 8.2^2} = 8.21 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -1.8$ ;  $T_y = 291.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.26 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -1.8$ ;  $T_y = 291.7$ ;  $M_t = 7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 278.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.22 \leq 26.13$  Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 31.3$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 213.5  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = -0.01$   
 $U_{inst,tot} \text{ in } y = -0.95$   
 $U_{inst,tot} = 0.95$   
 $L_{uce}/U_{inst,tot} < \text{limite}$   
 $278.5/0.95 = 291.6 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 213.5  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = -0.01$   
 $U_{inst,var} \text{ in } y = -0.62$   
 $U_{inst,var} = 0.62$   
 $L_{uce}/U_{inst,var} > \text{limite}$   
 $278.5/0.62 = 452.1 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 213.5  
 $K_{def} = 0.6$   
 $U_{fin} \text{ in } x = 0.01$   
 $U_{fin} \text{ in } y = -1.16$   
 $U_{fin} = 1.16$   
 $L_{uce}/U_{fin} > \text{limite}$   
 $278.5/1.16 = 240.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

## Asta 192: Trave in legno a falda Falda 1 fili 121-122

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 165.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 165.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $124.6/81 + 0.7 \cdot 6.3/81 = 1.59 \leq 1$  (formula 4.4.5a) Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 16616.7$ ;  $M_y = 669.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 165.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.14^2 + 3.26^2} = 3.26 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 4.9$ ;  $T_y = -115.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 165.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.04 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 4.9$ ;  $T_y = -115.8$ ;  $M_t = 7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 165.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.18 \leq 26.13$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 25.6$

### Asta 193: Trave in legno a falda Falda 1 fili 121-122

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.07^2 + 7.16^2} = 7.16 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -2.4$ ;  $T_y = 254.7$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(5.9/85.3)^2 + 284.4/81 + 0.7 \cdot 4/80.97 = 3.55 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -37922.9$ ;  $M_y = -422$ ;  $N = -474.7$





#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0+0+0.2 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -2.3$ ;  $T_y = 254.5$ ;  $M_t = 3.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.11 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = 16$

### Asta 194: Trave in legno a falda Falda 1 fili 113-114

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 165.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.8/41.6+135.1/81+0.7 \cdot 4.2/81=1.72 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 18013$ ;  $M_y = -446.3$ ;  $N = 60.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.18^2+3.44^2} = 3.44 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -6.2$ ;  $T_y = -122.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0+0+0.05 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -6.2$ ;  $T_y = -122.2$ ;  $M_t = 4.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.2 \leq 26.13$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = 27.7$

### Asta 195: Trave in legno a falda Falda 1 fili 113-114

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.19^2 + 6.81^2} = 6.81 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -6.8$ ;  $T_y = 242.2$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.7/85.3)^2 + 273/81 + 0.7 \cdot 9.1/80.97 = 3.45 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -36393.4$ ;  $M_y = -974.9$ ;  $N = -136.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -6.8$ ;  $T_y = 242.2$ ;  $M_t = -6.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.14 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 19.2$

### Asta 196: Trave in legno a falda Falda 1 fili 104-105

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 165.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 165.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
 $0.7/41.6 + 136.8/81 + 0.7 \cdot 2.1/81 = 1.72 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 18237.2$ ;  $M_y = -221.7$ ;  $N = 59$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 165.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\sqrt{0.12^2 + 3.52^2} = 3.52 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -4.2$ ;  $T_y = -125.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0+0+0.05 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -4.2$ ;  $T_y = -125.1$ ;  $M_t = 8.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.21 \leq 26.13$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = 30.1$

### Asta 197: Trave in legno a falda Falda 1 fili 104-105

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.17^2 + 6.75^2} = 6.75 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -5.9$ ;  $T_y = 240$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.5/85.3)^2 + 270.1/81 + 0.7 \cdot 8.3/80.97 = 3.41 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -36016.9$ ;  $M_y = -883.9$ ;  $N = -118.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01+0+0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -5.9$ ;  $T_y = 240$ ;  $M_t = -23.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.18 \leq 19$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_t = -25$



## Asta 198: Trave in legno a falda Falda 1 fili 97-98

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 165.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1.7/41.6 + 129/81 + 0.7 \cdot 2/81 = 1.65 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 17194.9$ ;  $M_y = -209$ ;  $N = 138.9$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.03^2 + 3.51^2} = 3.51 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1.1$ ;  $T_y = -124.7$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.05 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -1.1$ ;  $T_y = -124.7$ ;  $M_t = 1.1$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 165.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.16 \leq 26.13$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = -22.7$

## Asta 199: Trave in legno a falda Falda 1 fili 97-98

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 263

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.16^2 + 6.98^2} = 6.98 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -5.6$ ;  $T_y = 248.3$



**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.7/85.3)^2 + 275.4/81 + 0.7 \cdot 6.8/80.97 = 3.46 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -36726.4$ ;  $M_y = -720.5$ ;  $N = -216.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.19 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -5.6$ ;  $T_y = 248.3$ ;  $M_t = -29.9$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.22 \leq 19$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_t = -31.7$

**Asta 200: Trave in legno a falda Falda 1 fili 89-90**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 41.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $St_{0,d}/f_{t,0,d} + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $10.3/57.3 + 0.7 \cdot 11.2/111.3 + 18.7/111.3 = 0.42 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 1489.5$ ;  $M_y = -1991.6$ ;  $N = 824.9$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(2.45^2 + 1.18^2)} = 2.72 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 87.1$ ;  $T_y = 42.1$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 87.1$ ;  $T_y = 42.1$ ;  $M_t = -72.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 41.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.56 \leq 26.13$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo



Mt = 79.9

## Asta 201: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 41.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

$18.2/57.3 + 0.7 \cdot 5.3/111.3 + 15.4/111.3 = 0.49 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = 707.4$ ;  $M_y = -1643.8$ ;  $N = 1454.5$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{(2.33^2 + 0.15^2)} = 2.33 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 82.7$ ;  $T_y = 5.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0.01 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 82.7$ ;  $T_y = 5.4$ ;  $M_t = -30.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.3 \leq 26.13$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = -42.5$

## Asta 202: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 41.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 41.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)



$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $22.6/57.3 + 0.7 \cdot 4.8/111.3 + 18.5/111.3 = 0.59 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -634.6$ ;  $M_y = -1976.8$ ;  $N = 1806.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2.02^2 + 0.14^2} = 2.02 \leq 22$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 71.7$ ;  $T_y = 5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 41.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 35.7$ ;  $T_y = -18.5$ ;  $M_t = 144.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 41.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.02 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 144.1$

### Asta 203: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 41.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 41.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $25.2/57.3 + 0.7 \cdot 2.6/111.3 + 23.3/111.3 = 0.67 \leq 1$  [4.4.6b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 346$ ;  $M_y = -2483.2$ ;  $N = 2019.3$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 41.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.39^2 + 1.43^2} = 1.48 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -13.8$ ;  $T_y = -50.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 41.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -34.1$ ;  $T_y = -36.1$ ;  $M_t = 145.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 41.6



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.03 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 145.2$

## Asta 204: Trave in legno a falda Falda 1 fili 89-90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 278.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 278.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $4.4/41.6 + 290.9/81 + 0.7 \cdot 2.2/81 = 3.72 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -38790.3$ ;  $M_y = -233.5$ ;  $N = 349.1$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.02 \cdot 2 + 7.73 \cdot 2} = 7.73 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.8$ ;  $T_y = 275$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.23 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -0.8$ ;  $T_y = 275$ ;  $M_t = -35.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 278.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.26 \leq 19$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_t = -37.1$

## Asta 205: Trave in legno a falda Falda 1 fili 81-82

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 263

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1





**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.07^2 + 6.37^2} = 6.37 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.4$ ;  $T_y = 226.4$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(8.5/85.3)^2 + 266.2/81 + 0.7 \cdot 2.8/80.97 = 3.32 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -35497.1$ ;  $M_y = 293.8$ ;  $N = -683.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.16 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 2.4$ ;  $T_y = 226.4$ ;  $M_t = -7.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.24 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 33.6$

**Asta 206: Trave in legno a falda Falda 1 fili 72-74**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 263

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
 $19.3/41.6 + 309.7/81 + 0.7 \cdot 0.3/81 = 4.29 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -41295.2$ ;  $M_y = 35$ ;  $N = 1546.4$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.01^2 + 8.28^2} = 8.28 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.5$ ;  $T_y = 294.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.27 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



$T_x = 0.5$ ;  $T_y = 294.2$ ;  $M_t = 45.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.35 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 49$

### Asta 207: Trave in legno a falda Falda 1 fili 65-66

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.01^2 + 5.26^2} = 5.26 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.4$ ;  $T_y = 187$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(3.7/85.3)^2 + 242.2/81 + 0.7 \cdot 2.3/80.97 = 3.01 \ngtr 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -32298.3$ ;  $M_y = -248.6$ ;  $N = -297.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.04 + 0 + 0.11 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -0.4$ ;  $T_y = 187$ ;  $M_t = 103.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.73 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 103.1$

### Asta 208: Trave in legno a falda Falda 1 fili 56-57

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.17^2 + 4.81^2} = 4.82 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -6.1$ ;  $T_y = 171.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.5/85.3)^2 + 228.6/81 + 0.7 \cdot 8.1/80.97 = 2.89 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -30474.3$ ;  $M_y = -863.8$ ;  $N = -201.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.09 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -6.1$ ;  $T_y = 171.1$ ;  $M_t = 180.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.28 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 180.8$

### Asta 209: Trave in legno a falda Falda 1 fili 49-50

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 263

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.2^2 + 4.14^2} = 4.14 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -7.2$ ;  $T_y = 147.2$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1/85.3)^2 + 208.7/81 + 0.7 \cdot 8.9/80.97 = 2.65 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -27830$ ;  $M_y = -950.4$ ;  $N = -76.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0 + 0.07 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -7.2$ ;  $T_y = 147.2$ ;  $M_t = 249.7$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.78 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 252.2$

**Asta 210: Trave in legno a falda Falda 1 fili 43-44**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 263

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.01^2 + 3.54^2} = 3.54 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.3$ ;  $T_y = 126$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(0.6/85.3)^2 + 186.7/81 + 0.7 \cdot 0.5/80.97 = 2.31 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -24891.3$ ;  $M_y = 49.1$ ;  $N = -50.9$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.3$ ;  $T_y = 126$ ;  $M_t = 295$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 263  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.12 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 300.3$

**Asta 211: Trave in legno a falda Falda 1 fili 37-38**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 263



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$154.9/81 + 0.7 \cdot 7/81 = 1.97 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20648.6$ ;  $M_y = 751.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.15^2 + 2.8^2} = 2.81 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 5.5$ ;  $T_y = 99.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.11 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 5.2$ ;  $T_y = 99.6$ ;  $M_t = 307.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 263

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.22 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 315$

### Asta 212: Trave in legno a falda Falda 1 fili 32-33

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 240.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.16^2 + 2.59^2} = 2.6 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 5.6$ ;  $T_y = 92.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 240.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(0.5/85.3)^2 + 127.7/81 + 0.7*4/80.97 = 1.61 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -17022.1$ ;  $My = 421.8$ ;  $N = -42.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 5.4$ ;  $T_y = 92.1$ ;  $M_t = 292.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 240.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $2.14 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 302.6$

### Asta 213: Trave in legno a falda Falda 1 fili 27-28

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 165.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(0.12^2 + 3.71^2)} = 3.72 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -4.1$ ;  $T_y = 132$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 165.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(2.2/85.3)^2 + 111.8/81 + 0.7*6.6/80.97 = 1.44 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -14906.3$ ;  $My = -700.7$ ;  $N = -173.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.14 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -4.1$ ;  $T_y = 132$ ;  $M_t = 372.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 165.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $2.71 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 384.1$



Asta 214: Trave in legno a falda Falda 1 fili 23-24

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 91.4

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.96^2 + 6.71^2} = 6.78 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -34.3$ ;  $T_y = 238.5$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 91.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(3.1/85.3)^2 + 106.3/81 + 0.7 \cdot 17.8/80.97 = 1.47 \ngtr 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -14172.2$ ;  $M_y = -1896.3$ ;  $N = -244.7$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0 + 0.18 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -34.3$ ;  $T_y = 238.5$ ;  $M_t = 553.3$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 91.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $4 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 566.4$

Asta 215: Trave in legno a falda Falda 1 fili 18-19

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 17.1

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 17.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(10.2/85.3)^2 + 68.5/81 + 0.7 \cdot 28.4/80.97 = 1.11 \ngtr 1$  [4.4.7a] Comb: SLU, 30; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -9138.9$ ;  $M_y = 3031.4$ ;  $N = -818$



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} > f_{v,d}$

$\sqrt{6.11^2 + 23.6^2} = 24.38 > 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 217.4$ ;  $T_y = 839.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.78 + 0.15 + 2.18 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 217.4$ ;  $T_y = 839.2$ ;  $M_t = 2090.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 17.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$14.76 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 2090.2$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 11.4

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$L_{uce}/U_{inst,tot} > \text{limite}$

$17.1/0 = 13158.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 11.4

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$L_{uce}/U_{inst,var} > \text{limite}$

$17.1/0 = 18002.7 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 11.9

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$L_{uce}/U_{fin} > \text{limite}$

$17.1/0 = 11326 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 216: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 79.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1





#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$4.2/38.4 + 96.7/74.7 + 0.7 \cdot 12/74.7 = 1.52 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 153507.4$ ;  $M_y = -14941.4$ ;  $N = 1757.1$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.58^2 + 7.77^2} = 7.79 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 105.8$ ;  $T_y = 1429.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.42 + 0 + 0.24 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 107.4$ ;  $T_y = 1427.7$ ;  $M_t = 13391.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 79.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$8.09 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 13395.9$

### Asta 217: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 106.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 106.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$4.9/38.4 + 44.1/74.7 + 0.7 \cdot 11.7/74.7 = 0.83 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -69999.8$ ;  $M_y = 14480$ ;  $N = 2041.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.84^2 + 5.78^2} = 5.84 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 154$ ;  $T_y = 1063.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media



$T_x = 155$ ;  $T_y = 1060.8$ ;  $M_t = 4112.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 106.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.48 \leq 19.07$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = 4117.1$

### Asta 218: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 106.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 106.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$5/38.4 + 89.1/74.7 + 0.7 \cdot 19/74.7 = 1.5 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -141325.8$ ;  $M_y = 23585.7$ ;  $N = 2062.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{,d} \leq f_{v,d}$

$\sqrt{0.36^2 + 3.51^2} = 3.53 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 66.1$ ;  $T_y = 646.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 67.6$ ;  $T_y = 646.2$ ;  $M_t = -1999.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 106.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.21 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -1999.4$

### Asta 219: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 22.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 22.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $4.1/38.4 + 92.1/74.7 + 0.7*12.8/74.7 = 1.46 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -146128.8$ ;  $M_y = 15879.7$ ;  $N = 1717$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1^2 + 3.99^2} = 4.11 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -183.8$ ;  $T_y = 734.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.26 + 0 + 0.06 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -183.8$ ;  $T_y = 734.4$ ;  $M_t = 8228.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 22.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $4.98 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 8243.6$

### Asta 220: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 84

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $2.9/38.4 + 77.7/74.7 + 0.7*3.3/74.7 = 1.15 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -123271.8$ ;  $M_y = 4117.4$ ;  $N = 1204.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 84  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.06^2 + 2.29^2} = 2.52 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 194.3$ ;  $T_y = -421.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 84



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.59 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 180.4$ ;  $T_y = -419.9$ ;  $M_t = -18774.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 84  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $11.33 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -18774.9$

### Asta 221: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 106.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $2.4/38.4 + 54.3/74.7 + 0.7 \cdot 13.5/74.7 = 0.92 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_x = -86097.2$ ;  $M_y = 16751$ ;  $N = 1007.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 106.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.07^2 + 2.45^2} = 2.45 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 13.4$ ;  $T_y = -451$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 106.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.32 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 14.8$ ;  $T_y = -449.6$ ;  $M_t = -10194$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 106.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $6.15 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -10194$

### Asta 222: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 106.6



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.2/38.4 + 25.5/74.7 + 0.7 \cdot 12.6/74.7 = 0.52 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -40447.8$ ;  $M_y = 15697.2$ ;  $N = 909.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 106.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.28^2 + 2.17^2} = 2.18 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -51.3$ ;  $T_y = -398.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 106.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.12 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -52.7$ ;  $T_y = -396.9$ ;  $M_t = -3872$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 106.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.34 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -3872$

### Asta 223: Trave in legno a falda Falda 3 fili 60-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 95.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$4.7/52.8 + 0.7 \cdot 14.6/102.7 + 19.1/102.7 = 0.37 \leq 1$  [4.4.6b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_x = -23170.9$ ;  $M_y = 23702.1$ ;  $N = 1957.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 95.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(1.6^2 + 0.14^2) = 1.61 \leq 22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$T_x = -294.6$ ;  $T_y = -25.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 95.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = 235.3$ ;  $T_y = -76.4$ ;  $M_t = 1261.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 95.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.76 \leq 26.22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = 1261.1$

### Asta 224: Trave in legno a falda Falda 5 fili 271-281

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 85.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 85.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(0.63^2 + 5.8^2) = 5.84 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -22.5$ ;  $T_y = -206.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 85.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(3.9/85.3)^2 + 66.1/81 + 0.7 \cdot 11.5/80.97 = 0.92 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 8808.3$ ;  $M_y = -1228.2$ ;  $N = -312.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 85.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -22.5$ ;  $T_y = -206.4$ ;  $M_t = 214.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 85.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.58 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 224.3$



## Asta 225: Trave in legno a falda Falda 5 fili 271-281

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 23.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 12.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 57.26$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$N = 0.3$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.1/60.7 + 0.7*0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 8.6$ ;  $M_y = 0$

## Asta 226: Trave in legno a falda Falda 5 fili 267-282

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 163.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 163.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.14^2 + 2.32^2} = 2.32 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 5.1$ ;  $T_y = -82.4$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 163.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.6/85.3)^2 + 54.9/81 + 0.7*2.7/80.97 = 0.7 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 7326.5$ ;  $M_y = 285.1$ ;  $N = -124.7$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 163.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 6.8$ ;  $T_y = -77.9$ ;  $M_t = 68.3$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 163.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.48 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 68.3$

#### Asta 227: Trave in legno a falda Falda 5 fili 267-282

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 23.2

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 13.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0.01 \leq 57.26$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$N = 0.8$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 8.6$ ;  $M_y = 0$

#### Asta 228: Trave in legno a falda Falda 5 fili 262-283

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 239.6

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 239.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(0.44^2 + 1.3^2)} = 1.37 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 15.7$ ;  $T_y = -46.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 239.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$





$(1.8/85.3)^2 + 48.5/81 + 0.7 \cdot 16.1/80.97 = 0.74 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mx = 6466.7; My = 1716.4; N = -145.7

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 239.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.04 + 0 + 0.01  $\leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 15.5; Ty = -46.3; Mt = -101.2

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 239.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh \cdot f_{v,d}$

0.71  $\leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Mt = -101.2

### Asta 229: Trave in legno a falda Falda 5 fili 262-283

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 23.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 13.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; Kh = 1.084 (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

0.01  $\leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

N = 1.1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.6; Kh = 1.084 (formula 11.7.1)

$Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$

$Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

0.1/60.7 + 0.7\*0/60.7 = 0  $\leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

Mx = 8.7; My = 0

### Asta 230: Trave in legno a falda Falda 5 fili 256-284

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 316

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.62^2 + 0.79^2} = 1 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 22.2$ ;  $T_y = -27.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 316  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.7/85.3)^2 + 36.8/81 + 0.7 \cdot 30/80.97 = 0.71 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = 4901.6$ ;  $M_y = 3204.7$ ;  $N = -138.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 22.2$ ;  $T_y = -27.9$ ;  $M_t = -200.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.42 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -200.6$

### Asta 231: Trave in legno a falda Falda 5 fili 256-284

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 23.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 13.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0.01 \leq 57.26$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.4$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 8.7$ ;  $M_y = 0$

### Asta 232: Trave in legno a falda Falda 5 fili 250-285

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 392.3



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 392.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m,y,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.7 \cdot 21.8/81 + 28.8/81 = 0.54 \leq 1$  (formula 4.4.5b) Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = 2900.7$ ;  $M_y = 3074.1$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 392.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{v,d} \leq f_{v,d}$   
 $\sqrt{0.47^2 + 0.52^2} = 0.7 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 16.8$ ;  $T_y = -18.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 392.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 16.8$ ;  $T_y = -18.4$ ;  $M_t = -205.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 392.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.45 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -205.2$

### Asta 233: Trave in legno a falda Falda 5 fili 250-285

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 23.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 13.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0 \leq 57.26$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$



$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 8.7$ ;  $M_y = 0$

## Asta 234: Trave in legno a falda Falda 5 fili 244-286

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 468.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 468.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.18^2 + 0.37^2} = 0.41 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 6.5$ ;  $T_y = -13.2$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 468.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.5/85.3)^2 + 0.7 \cdot 11.6/81 + 15.3/81 = 0.29 \leq 1$  [4.4.7b] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = 1545.3$ ;  $M_y = 1628.3$ ;  $N = -121.9$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 468.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 6.8$ ;  $T_y = -12.9$ ;  $M_t = -126.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 468.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.9 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -126.9$

## Asta 235: Trave in legno a falda Falda 5 fili 244-286

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 23.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 12.4



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0 \leq 57.26$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $Sm_{y,d}/f_{m,y,d} + Km*(Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $Km*(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $0.1/60.7 + 0.7*0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 8.7$ ;  $M_y = 0$

### Asta 236: Trave in legno a falda Falda 2 fili 19-1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 15.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km*(Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km*(Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(10.9/85.3)^2 + 13.9/81 + 0.7*11.7/80.97 = 0.29 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_x = 1853.5$ ;  $M_y = -1249.8$ ;  $N = -875.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 15.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2.17^2 + 1.17^2} = 2.47 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 77.3$ ;  $T_y = -41.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 15.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.13 + 0.02 + 0.01 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 77.3$ ;  $T_y = -41.7$ ;  $M_t = -352.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 15.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $2.5 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -354.2$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 7.6  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = 0$   
 $U_{inst,tot} \text{ in } y = 0$   
 $U_{inst,tot} = 0$   
Luce/ $U_{inst,tot} > \text{limite}$   
 $15.1/0 = 16778.2 > 300$  Comb: SLE rara, 17



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 7.6

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

15.1/0=28698.9 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 7.6

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

15.1/0=13366 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 237: Trave in legno a falda Falda 2 fili 24-2

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 92.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 92.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{(1.13^2 + 5.69^2)} = 5.8 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 40.4; Ty = -202.4

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 92.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(4.2/85.3)^2 + 78.1/81 + 0.7 \cdot 18.8/80.9 = 1.13 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = 10408.3; My = 2008.8; N = -336.9

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 92.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

0.09+0.01+0.13 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 40.4; Ty = -202.4; Mt = -245.4

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 92.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq k_{sh} \cdot f_{v,d}$

1.8 <= 19 Comb: SLU, 71; Durata minima del carico nella combinazione: media

Mt = -254.7



## Asta 238: Trave in legno a falda Falda 2 fili 28-3

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 169.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 169.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$

$\sqrt{0.02^2 + 2.35^2} = 2.35 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -0.7$ ;  $T_y = -83.7$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 169.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.9/85.3)^2 + 65.4/81 + 0.7 \cdot 0.3/80.97 = 0.81 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_x = 8714.4$ ;  $M_y = 26.7$ ;  $N = -152.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 169.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -2.7$ ;  $T_y = -78.9$ ;  $M_t = -41.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 169.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.51 \leq 26.13$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$M_t = -72.1$

## Asta 239: Trave in legno a falda Falda 2 fili 33-4

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 246.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 246.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$



$\sqrt{0.49^2 + 1.18^2} = 1.28 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -17.3$ ;  $T_y = -42$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 246.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.2/85.3)^2 + 55/81 + 0.7 \cdot 18.5/80.97 = 0.84 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = 7337.9$ ;  $M_y = -1977.7$ ;  $N = -172.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 246.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -17.3$ ;  $T_y = -42$ ;  $M_t = 198.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 246.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.4 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 198.1$

### Asta 240: Trave in legno a falda Falda 2 fili 39-5

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 322.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 322.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.74^2 + 0.68^2} = 1.01 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -26.3$ ;  $T_y = -24.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 322.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.7/85.3)^2 + 36.8/81 + 0.7 \cdot 36.1/80.97 = 0.77 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_x = 4909.7$ ;  $M_y = -3850.2$ ;  $N = -136.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 322.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.11 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -26.3$ ;  $T_y = -24.3$ ;  $M_t = 296.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 322.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$





$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.09 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 296.3$

## Asta 241: Trave in legno a falda Falda 2 fili 45-6

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 399.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.7 \cdot 7.5/81 + 37.6/81 = 0.53 \leq 1$  (formula 4.4.5b) Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_x = -999.7$ ;  $M_y = 4011.4$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 399.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.53^2 + 0.35^2} = 0.64 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -18.9$ ;  $T_y = -12.6$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 399.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -18.9$ ;  $T_y = -12.5$ ;  $M_t = 270.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 399.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.91 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 270.3$

## Asta 242: Trave in legno a falda Falda 2 fili 51-7

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 475.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 475.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1.6/57.3 + 29.7/111.3 + 0.7 \cdot 15.7/111.3 = 0.39 \leq 1$  [4.4.6a] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$M_x = -3955.4$ ;  $M_y = -1674.9$ ;  $N = 129.3$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.21^2 + 0.55^2} = 0.59 \leq 22$  Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

$T_x = -7.4$ ;  $T_y = 19.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -5.6$ ;  $T_y = 12.4$ ;  $M_t = 135.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 475.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.96 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 135.9$

### Asta 243: Trave in legno a falda Falda 6 fili 238-239

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 303.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 303.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$21.2/41.6 + 170.6/81 + 0.7 \cdot 21.8/81 = 2.8 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -22748.9$ ;  $M_y = -2322$ ;  $N = 1692.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.55^2 + 3.55^2} = 3.59 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -19.6$ ;  $T_y = 126.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



$T_x = -19.6$ ;  $T_y = 126.2$ ;  $M_t = 72.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 303.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.54 \leq 19$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$M_t = 75.9$

### Asta 244: Trave in legno a falda Falda 6 fili 276-279

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 17.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 57.26$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$N = 0.1$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 17.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 5$ ;  $M_y = 0$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 7.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0$

$U_{inst,tot} \text{ in } y = 0$

$U_{inst,tot} = 0$

$Luce/U_{inst,tot} > \text{limite}$

$17.5/0 = 7355026.5 > 300$  Comb: SLE rara, 6

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 1.8

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0$

$U_{inst,var} = 0$

$Luce/U_{inst,var} > \text{limite}$

$17.5/0 = 3173617451.7 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 7.6

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0$

$U_{fin} \text{ in } y = 0$

$U_{fin} = 0$

$Luce/U_{fin} > \text{limite}$

$17.5/0 = 4597924.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$



Neve = 0,500 + 0,000 = 0,500  
Variabile H = 0,000 + 1,000 = 1,000

Asta 245: Trave in legno a falda Falda 6 fili 272-273

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 96.4

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 96.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2.2^2 + 7.97^2} = 8.27 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -78.2$ ;  $T_y = -283.4$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(4.7/85.3)^2 + 126.7/81 + 0.7 \cdot 35.1/80.97 = 1.87 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -16892.6$ ;  $M_y = 3749.1$ ;  $N = -375.5$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 96.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.21 + 0.02 + 0.25 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -78.2$ ;  $T_y = -283.4$ ;  $M_t = 558.9$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 96.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.95 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 559.3$

Asta 246: Trave in legno a falda Falda 6 fili 268-269

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 175.2

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 175.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.88^2 + 3.88^2} = 3.97 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -31.3$ ;  $T_y = -137.8$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.7/85.3)^2 + 117.8/81 + 0.7 \cdot 26.5/80.97 = 1.69 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -15711$ ;  $M_y = 2831.7$ ;  $N = -135.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 175.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.14 + 0 + 0.06 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -31.3$ ;  $T_y = -137.8$ ;  $M_t = 368.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 175.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.6 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 368.4$

### Asta 247: Trave in legno a falda Falda 6 fili 263-264

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 254

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$115.4/81 + 0.7 \cdot 18.2/81 = 1.58 > 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -15387.6$ ;  $M_y = 1936.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 254

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.4^2 + 2.41^2} = 2.45 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -14.3$ ;  $T_y = -85.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 254

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -14.6$ ;  $T_y = -85.4$ ;  $M_t = 194.8$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 254

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.38 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 194.8$

#### Asta 248: Trave in legno a falda Falda 6 fili 257-258

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 88.8

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.26^2 + 6.26^2} = 6.26 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 9.4$ ;  $T_y = 222.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 88.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(3.6/85.3)^2 + 152.4/81 + 0.7 \cdot 2.5/80.97 = 1.91 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20322.1$ ;  $M_y = 264.8$ ;  $N = -288.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.07 + 0 + 0.15 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 9.4$ ;  $T_y = 222.5$ ;  $M_t = -198.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 88.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.41 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -199.1$

#### Asta 249: Trave in legno a falda Falda 6 fili 251-252

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 167.6

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.51^2 + 4.53^2} = 4.56 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 18.2$ ;  $T_y = 161.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 167.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(5.5/85.3)^2 + 165/81 + 0.7 \cdot 14/80.97 = 2.16 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -22003.2$ ;  $M_y = 1498$ ;  $N = -439.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.08 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 18.2$ ;  $T_y = 161.1$ ;  $M_t = -165.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 167.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.17 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -165.6$

### Asta 250: Trave in legno a falda Falda 6 fili 245-246

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 246.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 246.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$8.4/41.6 + 175/81 + 0.7 \cdot 13.9/81 = 2.48 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -23339.1$ ;  $M_y = 1486.6$ ;  $N = 669.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.44^2 + 4.15^2} = 4.17 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 15.5$ ;  $T_y = 147.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.03+0+0.07 <= 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 15.5; Ty = 147.5; Mt = -90.2

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 246.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
0.64 <= 19 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = -90.2

**Asta 251: Trave in legno a falda Falda 5 fili 241-287**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 523.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 523.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\text{Sqrt}(0.12^2 + 0.56^2) = 0.57 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -4.3; Ty = -19.8

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + \sigma_{\text{m,y,d}} / f_{\text{m,y,d}} + K_{\text{m}} (\sigma_{\text{m,z,d}} / f_{\text{m,z,d}}) \leq 1$   
 $(\sigma_{\text{c,0,d}} / f_{\text{c,0,d}})^2 + K_{\text{m}} (\sigma_{\text{m,y,d}} / f_{\text{m,y,d}}) + \sigma_{\text{m,z,d}} / f_{\text{m,z,d}} \leq 1$   
 $(8.2/85.3)^2 + 25.2/81 + 0.7 \cdot 10.8/80.97 = 0.41 \leq 1$  [4.4.7a] Comb: SLU, 38; Durata minima del carico nella combinazione: media  
Mx = -3356.8; My = 1155.5; N = -654.1

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 523.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.03+0+0 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -4.4; Ty = -19.8; Mt = 73.5

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 523.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
0.52 <= 19 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = 73.5

**Asta 252: Trave in legno a falda Falda 5 fili 241-287**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 23.2

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67





Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 11.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0 \leq 57.26$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 8.7$ ;  $M_y = 0$

### Asta 253: Trave in legno a falda Falda 5 fili 245-288

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 469

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 469  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{,d} \leq f_{v,d}$   
 $\sqrt{0.54^2 + 0.62^2} = 0.82 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -19.2$ ;  $T_y = -22$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.4/85.3)^2 + 0.7 \cdot 30/81 + 43.1/81 = 0.79 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_x = -4001.3$ ;  $M_y = 4592.3$ ;  $N = -112.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 469  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{,tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{,y,d}/f_{v,d})^2 + (\tau_{,z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -19.3$ ;  $T_y = -21.8$ ;  $M_t = 226$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 469  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{,tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.6 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 226$



## Asta 254: Trave in legno a falda Falda 5 fili 245-288

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 23.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 11.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 57.26$  Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo

$N = 0.3$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.1/60.7 + 0.7*0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 8.7$ ;  $M_y = 0$

## Asta 255: Trave in legno a falda Falda 5 fili 251-289

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 392.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 392.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{,d} \leq f_{v,d}$

$\sqrt{0.97^2 + 1.04^2} = 1.42 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -34.5$ ;  $T_y = -37$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(0.9/85.3)^2 + 0.7*48.5/81 + 67.2/81 = 1.25 > 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -6468.2$ ;  $M_y = 7168.5$ ;  $N = -70.8$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 392.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.11 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -34.5$ ;  $T_y = -36.9$ ;  $M_t = 286.7$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 392.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

2.02  $\leq$  19 Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 286.7$

#### Asta 256: Trave in legno a falda Falda 5 fili 251-289

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 23.2

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 10.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

0  $\leq$  57.26 Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo

$N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

0.1/60.7+0.7\*0/60.7=0  $\leq$  1 (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 8.7$ ;  $M_y = 0$

#### Asta 257: Trave in legno a falda Falda 5 fili 257-290

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 317.1

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 317.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(1.22^2 + 1.8^2)} = 2.18 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -43.4$ ;  $T_y = -64.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(1.9/85.3)^2 + 71.9/81 + 0.7 \cdot 69.1/80.97 = 1.49 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -9588.7; My = 7370.4; N = -153.4

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 317.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.08+0.01+0.01 ≤ 1 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = -43.4; Ty = -64.1; Mt = 226.4

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 317.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
1.6 ≤ 19 Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = 226.4

### Asta 258: Trave in legno a falda Falda 5 fili 257-290

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 23.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 10.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
0 ≤ 57.26 Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo  
N = 0.3

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.6; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
0.1/60.7+0.7\*0/60.7=0 ≤ 1 (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
Mx = 8.7; My = 0

### Asta 259: Trave in legno a falda Falda 5 fili 263-291

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 240.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 240.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{(1.06^2 + 3.08^2)} = 3.26 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -37.7$ ;  $T_y = -109.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(3.3/85.3)^2 + 96.7/81 + 0.7 \cdot 45.9/80.97 = 1.59 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -12887.6$ ;  $M_y = 4898$ ;  $N = -260.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 240.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.04 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -37.5$ ;  $T_y = -109.5$ ;  $M_t = -9.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 240.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.34 \leq 26.13$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = -47.9$

### Asta 260: Trave in legno a falda Falda 5 fili 263-291

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 23.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 14

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 8.7$ ;  $M_y = 0$

### Asta 261: Trave in legno a falda Falda 5 fili 268-292

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 164.8



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 164.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.51^2 + 4.86^2} = 4.89 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -18.1$ ;  $T_y = -172.8$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.9/85.3)^2 + 108/81 + 0.7 \cdot 16.9/80.97 = 1.48 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -14401.5$ ;  $M_y = 1802.9$ ;  $N = -235.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 164.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.09 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -17.9$ ;  $T_y = -172.7$ ;  $M_t = -230.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 164.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.63 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -230.7$

### Asta 262: Trave in legno a falda Falda 5 fili 268-292

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 23.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 12.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0 \leq 57.26$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0.1/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 8.8$ ;  $M_y = 0$

## Asta 263: Trave in legno a falda Falda 5 fili 272-293

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 88.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 88.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.01^2 + 10.58^2} = 10.63 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 35.8$ ;  $T_y = -376.3$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(6.2/85.3)^2 + 133.7/81 + 0.7 \cdot 10.4/80.97 = 1.75 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -17830.3$ ;  $M_y = -1113.4$ ;  $N = -497.9$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 88.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.17 + 0 + 0.44 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 35.8$ ;  $T_y = -376.3$ ;  $M_t = -469.9$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 88.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.32 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -470.2$

## Asta 264: Trave in legno a falda Falda 5 fili 272-293

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 23.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 11.7



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq ft_{0,d}$

$0 \leq 57.26$  Comb: SLV, 14; Durata minima del carico nella combinazione: istantaneo

$N = 0.4$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \leq 1$

$Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$0.1/60.7 + 0.7*0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 8.8$ ;  $M_y = 0$

### Asta 265: Trave in legno a falda Falda 5 fili 276-294

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 24.2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 12.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq ft_{0,d}$

$0 \leq 57.26$  Comb: SLV, 16; Durata minima del carico nella combinazione: istantaneo

$N = 0.3$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \leq 1$

$Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$0.1/60.7 + 0.7*0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 9.5$ ;  $M_y = 0$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 15.4

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0$

$U_{inst\ tot\ in\ y} = 0$

$U_{inst\ tot} = 0$

Luce/ $U_{inst,tot}$  > limite

$24.2/0 = 7832703.8 > 300$  Comb: SLE rara, 6

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 23.4

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0$

$U_{inst\ var\ in\ y} = 0$

$U_{inst\ var} = 0$

Luce/ $U_{inst,var}$  > limite

$24.2/0 = 5179827209.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 15.4

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0$

$U_{fin\ in\ y} = 0$

$U_{fin} = 0$





Luce/Ufin > limite  
 $24.2/0=4896360.8 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,000 = 0,500$   
Variabile H =  $0,000 + 1,000 = 1,000$

Asta 266: Trave in legno a falda Falda 6 fili 227-228

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 303.9

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $1.9/41.6+165.5/81+0.7*2.7/81=2.11 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -22067.9$ ;  $M_y = -285.3$ ;  $N = 149.3$

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $Sqrt(0.01^2+3.36^2) = 3.36 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.5$ ;  $T_y = 119.4$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07+0+0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.9$ ;  $T_y = 119.1$ ;  $M_t = 176.1$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $1.25 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 177.2$

Asta 267: Trave in legno a falda Falda 6 fili 218-219

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 303.9

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 303.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$3.8/41.6 + 155.8/81 + 0.7 \cdot 3.4/81 = 2.04 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20769.9$ ;  $M_y = -363.1$ ;  $N = 305.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.05^2 + 3.09^2} = 3.09 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -1.6$ ;  $T_y = 109.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = -1.9$ ;  $T_y = 109.9$ ;  $M_t = 203$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 303.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.44 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 204$

### Asta 268: Trave in legno a falda Falda 6 fili 212-213

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 335

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 334.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$5/41.6 + 119.9/81 + 0.7 \cdot 1.4/81 = 1.61 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -15983.8$ ;  $M_y = -149.8$ ;  $N = 403$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.03^2 + 2.15^2} = 2.15 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1$ ;  $T_y = 76.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.04+0+0.02 <= 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = -1; Ty = 76.5; Mt = 115.4

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 334.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
0.81 <= 19 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 115.4

**Asta 269: Trave in legno a falda Falda 6 fili 203-204**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 255.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 255.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \cdot I > 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \cdot I > 1$   
4.1/41.6+111.4/81+0.7\*6.7/81=1.53 > 1 [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -14858.1; My = 716; N = 329.6

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\text{Sqrt}(0.11^2 + 2.82^2) = 2.82 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 4; Ty = 100.2

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.05+0+0.03 <= 1 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 4; Ty = 100.2; Mt = 137.7

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 255.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
0.97 <= 19 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 137.7

**Asta 270: Trave in legno a falda Falda 6 fili 193-194**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 176.3

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 176.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $2.4/41.6 + 82.6/81 + 0.7 \cdot 12.2/81 = 1.18 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -11014.2$ ;  $M_y = 1305.3$ ;  $N = 195.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.34^2 + 3.64^2} = 3.65 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 12.3$ ;  $T_y = 129.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 12.3$ ;  $T_y = 129.3$ ;  $M_t = 82.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 176.2  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.58 \leq 19$  Comb: SLU, 38; Durata minima del carico nella combinazione: media  
 $M_t = 82.3$

### Asta 271: Trave in legno a falda Falda 6 fili 186-187

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 96.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $2.8/41.6 + 97.5/81 + 0.7 \cdot 9.6/81 = 1.35 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 12993.3$ ;  $M_y = -1025.3$ ;  $N = 224$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.66^2 + 6.08^2} = 6.12 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 23.6$ ;  $T_y = 216.2$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.14 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 23.6$ ;  $T_y = 216.2$ ;  $M_t = 47.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 96.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.34 \leq 19$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = 48$

### Asta 272: Trave in legno a falda Falda 4 fili 172-173

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 296.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 296.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$9.9/41.6 + 376.7/81 + 0.7 \cdot 13/81 = 5 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -50220.4$ ;  $M_y = -1383.5$ ;  $N = 791.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.34^2 + 8.15^2} = 8.16 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -12$ ;  $T_y = 289.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.15 + 0 + 0.26 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -12$ ;  $T_y = 289.9$ ;  $M_t = -396.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 296.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.8 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -396.4$

### Asta 273: Trave in legno a falda Falda 4 fili 163-164

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 296.8



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0^2 + 10.48^2} = 10.48 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.1$ ;  $T_y = 372.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 296.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(0.6/85.3)^2 + 449.3/81 + 0.7 \cdot 3.4/80.97 = 5.58 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -59903.4$ ;  $M_y = -367.7$ ;  $N = -50.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0 + 0.43 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 0.1$ ;  $T_y = 372.6$ ;  $M_t = -236.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 296.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.67 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -236.8$

### Asta 274: Trave in legno a falda Falda 4 fili 155-156

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 296.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 296.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$   
 $0.7/41.6 + 433.9/81 + 0.7 \cdot 6.6/81 = 5.43 > 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -57847.3$ ;  $M_y = -707.4$ ;  $N = 59.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(0.13^2 + 9.47^2) = 9.47 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -4.4$ ;  $T_y = 336.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.35 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -4.4$ ;  $T_y = 336.6$ ;  $M_t = -125.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 296.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.89 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -125.7$

### Asta 275: Trave in legno a falda Falda 4 fili 150-151

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 296.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 296.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$444.7/81 + 0.7 \cdot 0.7/81 = 5.5 \leq 1$  (formula 4.4.5a) Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -59293.5$ ;  $M_y = -70.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\text{Sqrt}(0.01^2 + 9.67^2) = 9.67 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.2$ ;  $T_y = 343.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.36 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.2$ ;  $T_y = 343.6$ ;  $M_t = 18.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 296.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.25 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = 35.7$



## Asta 276: Trave in legno a falda Falda 4 fili 141-142

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 296.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.11^2 + 9.77^2} = 9.77 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 3.8$ ;  $T_y = 347.2$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 296.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(0.8/85.3)^2 + 448.2/81 + 0.7 \cdot 5.9/80.97 = 5.59 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -59765.2$ ;  $M_y = 626.5$ ;  $N = -61.2$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.37 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 3.8$ ;  $T_y = 347.2$ ;  $M_t = 159.1$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 296.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.12 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 159.2$

## Asta 277: Trave in legno a falda Falda 4 fili 134-135

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 296.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.24^2 + 9.59^2} = 9.6 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 8.6$ ;  $T_y = 341.1$





**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 296.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(0.7/85.3)^2 + 442.9/81 + 0.7 \cdot 11.1/80.97 = 5.57 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -59055.5$ ;  $M_y = 1183.8$ ;  $N = -56.6$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0.36 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 8.6$ ;  $T_y = 341.1$ ;  $M_t = 296.9$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 296.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.1 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 296.9$

**Asta 278: Trave in legno a falda Falda 4 fili 123-124**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 296.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 296.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) > 1$   
 $St_{0,d}/f_{t,0,d} + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} > 1$   
 $5.6/41.6 + 371.5/81 + 0.7 \cdot 2/81 = 4.74 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -49534.6$ ;  $M_y = 213.1$ ;  $N = 444.3$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.03^2 + 6.99^2} = 6.99 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.2$ ;  $T_y = 248.6$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.15 + 0 + 0.19 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.2$ ;  $T_y = 248.6$ ;  $M_t = 401.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 296.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.83 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



Mt = 401.2

## Asta 279: Trave in legno a falda Falda 4 fili 230-231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 53.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 53.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{2.97^2 + 24.44^2} = 24.62 > 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -105.6$ ;  $T_y = -869.1$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(5.8/85.3)^2 + 297.6/81 + 0.7 \cdot 22.9/80.97 = 3.88 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -39684.4$ ;  $M_y = 2442.6$ ;  $N = -460.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 53.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.6 + 0.03 + 2.33 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = -105.6$ ;  $T_y = -869.1$ ;  $M_t = 1617.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 53.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$11.46 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 1623.2$

## Asta 280: Trave in legno a falda Falda 4 fili 230-231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 14.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)



St,0,d <= ft,0,d  
0 <= 57.26 Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
N = 0.2

Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.6; Kh = 1.084 (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
Mx = 3.5; My = 0

Asta 281: Trave in legno a falda Falda 4 fili 221-222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 130.5

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 130.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{v,d} \leq f_{v,d}$   
 $\sqrt{0.82^2 + 5.98^2} = 6.04 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = -29.3; Ty = -212.6

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.6/85.3)^2 + 150.6/81 + 0.7 \cdot 17.7/80.97 = 2.01 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -20081.2; My = 1885.4; N = -124.7

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 130.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.29 + 0 + 0.14 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = -29.1; Ty = -211.9; Mt = 781.7

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 130.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $5.52 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 782

Asta 282: Trave in legno a falda Falda 4 fili 221-222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 14.4

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 3.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0.01 \leq 57.26$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.6$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7+0.7 \cdot 0/60.7=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

### Asta 283: Trave in legno a falda Falda 4 fili 214-215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 207.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 207.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.24^2+4.09^2} = 4.1 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -8.6$ ;  $T_y = -145.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(0.8/85.3)^2+170.6/81+0.7 \cdot 7.9/80.97=2.17 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -22744.3$ ;  $M_y = 840$ ;  $N = -65.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 207.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.2+0+0.07 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -8.6$ ;  $T_y = -145.1$ ;  $M_t = 537.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 207.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.8 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 537.9$



## Asta 284: Trave in legno a falda Falda 4 fili 214-215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 14.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 3.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$0.03 \leq 57.26 \text{ Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo}$

$N = 2.5$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$Sm_{y,d}/f_{m,y,d} + K_m \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

$0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 3.5$ ;  $M_y = 0$

## Asta 285: Trave in legno a falda Falda 4 fili 205-206

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 284.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 284.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.01^2 + 3.82^2} = 3.82 \leq 16 \text{ Comb: SLU, 71; Durata minima del carico nella combinazione: media}$

$T_x = 0.5$ ;  $T_y = -135.7$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + K_m \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$

$(Sc_{0,d}/f_{c,0,d})^2 + K_m \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$

$(0.8/85.3)^2 + 230.2/81 + 0.7 \cdot 1.1/80.97 = 2.85 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -30691.6$ ;  $M_y = -117$ ;  $N = -66.9$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 284.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$



$\tau_{\text{tor,d}} / (k_{\text{sh}} \cdot f_{\text{v,d}}) + (\tau_{\text{y,d}} / f_{\text{v,d}})^2 + (\tau_{\text{z,d}} / f_{\text{v,d}})^2 \leq 1$   
0.17+0+0.06 <= 1 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 0.4; Ty = -135.5; Mt = 448.2

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 284.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
3.17 <= 19 Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 448.3

**Asta 286: Trave in legno a falda Falda 4 fili 205-206**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 14.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1**

Sezione ad ascissa 4.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; Kh = 1.084 (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
0 <= 57.26 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
N = 0.4

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.6; Kh = 1.084 (formula 11.7.1)  
 $Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
0/60.7+0.7\*0/60.7=0 <= 1 (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
Mx = 3.5; My = 0

**Asta 287: Trave in legno a falda Falda 4 fili 195-196**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 45

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 45  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $St_{0,d}/f_{t,0,d} + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $St_{0,d}/f_{t,0,d} + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
0.9/41.6+278.2/81+0.7\*1/81=3.47 > 1 [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -37093.2; My = 109.8; N = 73.1



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{0.21^2 + 21.25^2} = 21.25 > 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 7.6$ ;  $T_y = 755.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.32 + 0 + 1.76 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 7.6$ ;  $T_y = 755.5$ ;  $M_t = -874.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 45

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$6.17 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -874.1$

### Asta 288: Trave in legno a falda Falda 4 fili 188-189

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 122.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 122.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$0.5/41.6 + 348.4/81 + 0.7 \cdot 4.4/81 = 4.35 > 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -46447.2$ ;  $M_y = 467.5$ ;  $N = 41.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.22^2 + 12.62^2} = 12.62 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 7.7$ ;  $T_y = 448.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.26 + 0 + 0.62 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 7.7$ ;  $T_y = 448.7$ ;  $M_t = -712$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 122.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$5.03 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -712$



## Asta 289: Trave in legno a falda Falda 4 fili 181-182

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 199.2

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 199.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1.2/41.6 + 358.9/81 + 0.7 \cdot 1.9/81 = 4.48 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -47849.3$ ;  $M_y = 203.5$ ;  $N = 93.4$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.07^2 + 8.94^2} = 8.94 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.4$ ;  $T_y = 318$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$

$0.21 + 0 + 0.31 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.4$ ;  $T_y = 318$ ;  $M_t = -568.1$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 199.2

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.01 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -568.2$

## Asta 290: Trave in legno a falda Falda 4 fili 116-117

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 203.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 203.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$





$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} > 1$   
 $4.2/41.6 + 410/81 + 0.7 \cdot 1.1/81 = 5.17 > 1$  [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -54666.7$ ;  $M_y = -117.8$ ;  $N = 336.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.02^2 + 9.75^2} = 9.75 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.7$ ;  $T_y = 346.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.2 + 0 + 0.37 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.7$ ;  $T_y = 346.8$ ;  $M_t = 548.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 203.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.88 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 548.9$

### Asta 291: Trave in legno a falda Falda 4 fili 108-109

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 126.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.18^2 + 13.19^2} = 13.19 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 6.2$ ;  $T_y = 468.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 126.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/fc_{0,d})^2 + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $(Sc_{0,d}/fc_{0,d})^2 + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $(1.8/85.3)^2 + 385.7/81 + 0.7 \cdot 3.6/80.97 = 4.8 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -51431.7$ ;  $M_y = 385.1$ ;  $N = -141.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.25 + 0 + 0.68 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 6.2$ ;  $T_y = 468.9$ ;  $M_t = 668.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 126.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $4.72 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 668.2$

**Asta 292: Trave in legno a falda Falda 4 fili 101-102**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 49.5

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 49.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $306.1/81 + 0.7 \cdot 3/81 = 3.81 \leq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -40811.2$ ;  $M_y = 323.3$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} > f_{v,d}$   
 $\sqrt{0.36^2 + 21.19^2} = 21.19 > 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 12.8$ ;  $T_y = 753.5$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.3 + 0 + 1.75 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 12.8$ ;  $T_y = 753.5$ ;  $M_t = 798.7$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 49.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $5.64 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 798.7$

**Asta 293: Trave in legno a falda Falda 4 fili 93-94**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 289

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 289  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.3^2 + 4.62^2} = 4.63 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 10.7$ ;  $T_y = -164.4$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.4/85.3)^2 + 241.8/81 + 0.7 \cdot 14/80.97 = 3.11 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -32246.1$ ;  $M_y = -1494.5$ ;  $N = -113.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 289  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.15 + 0 + 0.08 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 10.6$ ;  $T_y = -164.3$ ;  $M_t = -398.5$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 289  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.81 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -398.5$

**Asta 294: Trave in legno a falda Falda 4 fili 93-94**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 14.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1**

Sezione ad ascissa 4.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0.02 \leq 57.26$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $N = 1.5$

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

**Asta 295: Trave in legno a falda Falda 4 fili 85-86**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 212

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 212

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.5^2 + 4.77^2} = 4.8 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 17.7$ ;  $T_y = -169.7$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.5/85.3)^2 + 172.8/81 + 0.7 \cdot 18/80.97 = 2.29 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -23040$ ;  $M_y = -1916.2$ ;  $N = -123.8$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 212

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.17 + 0 + 0.09 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$T_x = 17.7$ ;  $T_y = -169.5$ ;  $M_t = -453.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 212

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.2 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -453.4$

## Asta 296: Trave in legno a falda Falda 4 fili 85-86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 14.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0.01 \leq 57.26$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$N = 0.4$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m,z,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

Asta 297: Trave in legno a falda Falda 4 fili 79-80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 134.9

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 134.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.03^2 + 6.52^2} = 6.6 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 36.6$ ;  $T_y = -231.8$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_{m,y,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.1/85.3)^2 + 141.5/81 + 0.7 \cdot 23.6/80.97 = 1.95 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -18867.8$ ;  $M_y = -2512.4$ ;  $N = -165.8$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 134.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.25 + 0 + 0.17 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 36.7$ ;  $T_y = -231.3$ ;  $M_t = -666.3$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 134.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $4.71 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -666.4$

Asta 298: Trave in legno a falda Falda 4 fili 79-80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 14.4

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



**Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1**

Sezione ad ascissa 3.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0.01 \leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $N = 1.2$

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

**Asta 299: Trave in legno a falda Falda 4 fili 70-71**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 57.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 57.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{v,d} > f_{v,d}$   
 $\sqrt{2.6^2 + 19.35^2} = 19.52 > 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 92.3$ ;  $T_y = -687.8$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(4.5/85.3)^2 + 224.4/81 + 0.7 \cdot 23.8/80.97 = 2.98 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -29913.6$ ;  $M_y = -2534.9$ ;  $N = -360.7$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 57.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $0.51 + 0.03 + 1.46 > 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = 92.3$ ;  $T_y = -687.8$ ;  $M_t = -1374.3$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 57.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $9.74 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -1378.5$

**Asta 300: Trave in legno a falda Falda 4 fili 70-71**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati generali

Lunghezza = 14.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 6.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d} \leq f_{t,0,d}$

$0 \leq 31.23$  Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$N = 0.1$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_{m^*}(S_{m,z,d}/f_{m,z,d}) \leq 1$

$K_{m^*}(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$0/60.7+0.7*0/60.7=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 3.5$ ;  $M_y = 0$

## Asta 301: Trave in legno a falda Falda 3 fili 106-107

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati generali

Lunghezza = 74.1

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_{m^*}(S_{m,z,d}/f_{m,z,d}) > 1$

$St_{0,d}/f_{t,0,d} + K_{m^*}(S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$

$2.9/41.6+97.1/81+0.7*5.3/81=1.32 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 12948$ ;  $M_y = 568.7$ ;  $N = 234.8$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$

$\sqrt{0.46^2+7.21^2} = 7.23 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -16.3$ ;  $T_y = 256.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02+0+0.2 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -16.3$ ;  $T_y = 256.5$ ;  $M_t = -44$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 74



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.44 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -61.9$

Asta 302: Trave in legno a falda Falda 3 fili 58-59

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 303.8

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $3.2/41.6 + 160.7/81 + 0.7 \cdot 3.8/81 = 2.09 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -21427.7$ ;  $M_y = 402.8$ ;  $N = 257.2$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.07^2 + 3.6^2} = 3.6 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 2.4$ ;  $T_y = 128$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 2.9$ ;  $T_y = 127.7$ ;  $M_t = -117.3$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.84 \leq 19$  Comb: SLU, 37; Durata minima del carico nella combinazione: media  
 $M_t = -118.4$

Asta 303: Trave in legno a falda Falda 3 fili 67-68

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 303.9

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1





**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $2.1/41.6 + 151.5/81 + 0.7*0.6/81 = 1.93 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -20203.4$ ;  $M_y = 62.4$ ;  $N = 165.2$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.02^2 + 3.26^2} = 3.26 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.6$ ;  $T_y = 115.8$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.04 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -0.2$ ;  $T_y = 115.7$ ;  $M_t = -169.9$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $1.21 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -170.9$

**Asta 304: Trave in legno a falda Falda 3 fili 76-77**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 303.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $4.3/41.6 + 141.8/81 + 0.7*3/81 = 1.88 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -18907.6$ ;  $M_y = 315$ ;  $N = 346.8$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.05^2 + 2.97^2} = 2.97 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 1.6$ ;  $T_y = 105.6$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.03 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



$T_x = 1.6$ ;  $T_y = 105.6$ ;  $M_t = -191.7$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 303.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.36 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -192.6$

**Asta 305: Trave in legno a falda Falda 3 fili 83-84**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 321.3

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 321.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $5.6/41.6 + 119.6/81 + 0.7 \cdot 1.6/81 = 1.63 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -15945.6$ ;  $M_y = 171.8$ ;  $N = 448.5$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.03^2 + 2.35^2} = 2.35 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.2$ ;  $T_y = 83.5$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.2$ ;  $T_y = 83.5$ ;  $M_t = -139.8$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 321.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.99 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -139.8$

**Asta 306: Trave in legno a falda Falda 3 fili 91-92**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 238.9

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 238.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $4.3/41.6 + 100.1/81 + 0.7 \cdot 5.9/81 = 1.39 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -13340.3$ ;  $M_y = -632.2$ ;  $N = 342.6$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.1^2 + 2.94^2} = 2.94 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -3.5$ ;  $T_y = 104.6$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04 + 0 + 0.03 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -3.5$ ;  $T_y = 104.6$ ;  $M_t = -120.1$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 238.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.85 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -120.1$

**Asta 307: Trave in legno a falda Falda 3 fili 99-100**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 156.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $2.4/41.6 + 92.9/81 + 0.7 \cdot 5.9/81 = 1.26 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 12389.1$ ;  $M_y = 626.2$ ;  $N = 190.2$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.25^2 + 4.08^2} = 4.08 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -9$ ;  $T_y = 144.9$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.06 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -9$ ;  $T_y = 144.9$ ;  $M_t = -71.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 156.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.51 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -71.6$

### Asta 308: Trave in legno a falda Falda 3 fili 46-47

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 183.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.49^2 + 3.97^2} = 4 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -17.3$ ;  $T_y = 141.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 183.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(4.1/85.3)^2 + 152.1/81 + 0.7 \cdot 14.6/80.97 = 2.01 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -20275$ ;  $M_y = -1554.8$ ;  $N = -329.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.06 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -17.3$ ;  $T_y = 141.3$ ;  $M_t = 150.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 183.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.07 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 150.9$

### Asta 309: Trave in legno a falda Falda 3 fili 52-53

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 264.4



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 264.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$10.3/41.6 + 162.2/81 + 0.7 \cdot 10.3/81 = 2.34 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -21627$ ;  $M_y = -1099.9$ ;  $N = 827.3$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.31^2 + 3.9^2} = 3.91 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -11.2$ ;  $T_y = 138.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.06 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -11.2$ ;  $T_y = 138.5$ ;  $M_t = 67.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 264.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.48 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 67.7$

### Asta 310: Trave in legno a falda Falda 3 fili 40-41

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 101.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.6^2 + 5^2} = 5.04 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -21.4$ ;  $T_y = 177.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 101.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(2.3/85.3)^2 + 141.5/81 + 0.7*10.4/80.97 = 1.84 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -18867.4$ ;  $My = -1110.1$ ;  $N = -183.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.1 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -21.4$ ;  $T_y = 177.9$ ;  $M_t = 178.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 101.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $1.26 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 178.4$

### Asta 311: Trave in legno a falda Falda 3 fili 34-35

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 264

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) > 1$   
 $Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d > 1$   
 $121.7/81 + 0.7*10.4/81 = 1.59 > 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -16227.8$ ;  $My = -1108.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 264  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.2^2 + 2.4^2} = 2.41 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 7.3$ ;  $T_y = -85.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 264  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 7.5$ ;  $T_y = -85.3$ ;  $M_t = -152.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 264  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $1.08 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -152.8$



Asta 312: Trave in legno a falda Falda 3 fili 29-30

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 182.5

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 182.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.46^2 + 4.08^2} = 4.11 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 16.5$ ;  $T_y = -145.1$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.9/85.3)^2 + 127.7/81 + 0.7 \cdot 15.8/80.97 = 1.71 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -17023.6$ ;  $M_y = -1680.8$ ;  $N = -151.3$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 182.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.15 + 0 + 0.07 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 16.5$ ;  $T_y = -145.1$ ;  $M_t = -404.1$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 182.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.85 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -404.1$

Asta 313: Trave in legno a falda Falda 3 fili 25-26

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 101

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 101  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.15^2 + 8.49^2} = 8.56 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 40.7$ ;  $T_y = -301.8$



**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(4.3/85.3)^2 + 144/81 + 0.7 \cdot 22.3/80.97 = 1.97 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -19196.6$ ;  $M_y = -2380.8$ ;  $N = -341.8$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 101  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.3 + 0.01 + 0.28 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 40.7$ ;  $T_y = -301.8$ ;  $M_t = -801.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 101  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $5.66 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -801.2$

**Asta 314: Trave in legno a falda Falda 3 fili 21-22**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 20.5

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(13.6/85.3)^2 + 102.9/81 + 0.7 \cdot 38.5/80.97 = 1.63 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -13720.3$ ;  $M_y = 4111.7$ ;  $N = -1085.6$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 20.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} > f_{v,d}$   
 $\sqrt{9.22^2 + 29.24^2} = 30.66 > 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -327.7$ ;  $T_y = -1039.7$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 20.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$   
 $1.15 + 0.33 + 3.34 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $T_x = -327.7$ ;  $T_y = -1039.7$ ;  $M_t = -3105.6$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 20.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} > K_{sh} \cdot f_{v,d}$   
 $21.93 > 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA





Mt = -3105.6

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 6.8

Kdef = 0

Uinst tot in x = 0

Uinst tot in y = 0

Uinst tot = 0

Luce/Uinst,tot > limite

20.5/0=7212.5 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 6.8

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0

Uinst var = 0

Luce/Uinst,var > limite

20.5/0=10505.5 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 6.8

Kdef = 0.6

Ufin in x = 0

Ufin in y = 0

Ufin = 0

Luce/Ufin > limite

20.5/0=6070.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Asta 315: Trave in legno a falda Falda 2 fili 55-8

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 512.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 512.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; Kh = 1.084 (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$

$2.1/57.3 + 28.2/111.3 + 0.7 \cdot 6.3/111.3 = 0.33 \leq 1$  [4.4.6a] Comb: SLV, 4; Durata minima del carico nella combinazione: istantaneo

Mx = -3759.9; My = -674.1; N = 167.6

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 1.1; kcr = 0.67

$\tau_{d} \leq f_{v,d}$

$\sqrt{0^2 + 0.52^2} = 0.52 \leq 22$  Comb: SLV, 2; Durata minima del carico nella combinazione: istantaneo

Tx = -0.1; Ty = 18.5

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$



0.01+0+0 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 2.9; Ty = 8.8; Mt = -39.2

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 512.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh \cdot f_{v,d}$   
0.28 <= 19 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -39.2

**Asta 316: Trave in legno a falda Falda 2 fili 52-9**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 475.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $1/41.6 + 0.7 \cdot 15.5/81 + 31.2/81 = 0.54 \leq 1$  [4.4.6b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
Mx = -2071.5; My = -3331.7; N = 77.1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 475.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(0.38^2 + 0.3^2)} = 0.48 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 13.4; Ty = -10.8

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 475.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(ksh \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.06+0+0 <= 1 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = 13.4; Ty = -10.8; Mt = -161.2

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 475.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh \cdot f_{v,d}$   
1.14 <= 19 Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mt = -161.2

**Asta 317: Trave in legno a falda Falda 2 fili 46-10**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 399

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \geq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \geq 1$   
 $0.7 \cdot 41.4/81 + 63/81 = 1.14 \geq 1$  (formula 4.4.5b) Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -5522.3$ ;  $M_y = -6716.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 399  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.88^2 + 0.8^2} = 1.19 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 31.3$ ;  $T_y = -28.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 399  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 31.4$ ;  $T_y = -28.4$ ;  $M_t = -267.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 399  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.89 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -267.1$

### Asta 318: Trave in legno a falda Falda 2 fili 40-11

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 322.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 322.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.22^2 + 1.68^2} = 2.08 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 43.5$ ;  $T_y = -59.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.5/85.3)^2 + 72.8/81 + 0.7 \cdot 71.2/80.97 = 1.51 \geq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -9707.5$ ;  $M_y = -7594.5$ ;  $N = -118.6$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 322.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0.01 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 43.5$ ;  $T_y = -59.9$ ;  $M_t = -234.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 322.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.65 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -234.3$

### Asta 319: Trave in legno a falda Falda 2 fili 34-12

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 245.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 245.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.24^2 + 3.32^2} = 3.54 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 43.9$ ;  $T_y = -117.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(3.2/85.3)^2 + 113/81 + 0.7 \cdot 56.3/80.97 = 1.88 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -15065.6$ ;  $M_y = -6007.1$ ;  $N = -257.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 245.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0.01 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 43.9$ ;  $T_y = -117.9$ ;  $M_t = -35.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 245.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.4 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -56.9$

### Asta 320: Trave in legno a falda Falda 2 fili 29-13

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 168.9



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 168.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.63^2 + 5.33^2} = 5.37 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 22.5$ ;  $T_y = -189.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(3.4/85.3)^2 + 125/81 + 0.7 \cdot 21.2/80.97 = 1.73 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -16668.9$ ;  $M_y = -2257.2$ ;  $N = -275.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 168.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0 + 0.11 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 22.5$ ;  $T_y = -189.6$ ;  $M_t = 211.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 168.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.49 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 211.4$

### Asta 321: Trave in legno a falda Falda 2 fili 25-14

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 92.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 92.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.96^2 + 11.15^2} = 11.2 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -34.2$ ;  $T_y = -396.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(6.7/85.3)^2 + 144.2/81 + 0.7*9.9/80.97 = 1.87 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $Mx = -19230.6$ ;  $My = 1052.1$ ;  $N = -536.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 92.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0 + 0.49 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -34.2$ ;  $T_y = -396.6$ ;  $M_t = 492.6$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 92.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $3.48 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 492.6$

### Asta 322: Trave in legno a falda Falda 2 fili 21-15

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 15.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 15.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(10.4/85.3)^2 + 30.2/81 + 0.7*15.2/80.97 = 0.52 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = 4030.6$ ;  $M_y = 1623.5$ ;  $N = -831.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 15.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(2.07^2 + 5.83^2)} = 6.19 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 73.8$ ;  $T_y = -207.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 15.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.26 + 0.02 + 0.13 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 73.8$ ;  $T_y = -207.5$ ;  $M_t = 697.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 15.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $4.93 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 697.8$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 8.8  
 $K_{def} = 0$



Uinst tot in x = 0  
Uinst tot in y = 0  
Uinst tot = 0  
Luce/Uinst,tot > limite  
 $15.6/0=14435.8 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 8.8  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0  
Uinst var = 0  
Luce/Uinst,var > limite  
 $15.6/0=25948.6 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 8.8  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0  
Ufin = 0  
Luce/Ufin > limite  
 $15.6/0=11355 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

### Asta 323: Trave in legno a falda Falda 1 fili 148-149

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 428.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.01^2 + 2.37^2} = 2.37 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 0.2; Ty = 84.3

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 428.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.3/85.3)^2 + 155.4/81 + 0.7 \cdot 0.4/80.97 = 1.92 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -20725.5; My = 44.9; N = -101.4

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 0.2; Ty = 84.3; Mt = -12.5

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 428.3



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.09 \leq 19$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $M_t = -12.6$

## Asta 324: Trave in legno a falda Falda 1 fili 153-154

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 428.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.05^2 + 2.35^2} = 2.36 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.7$ ;  $T_y = 83.7$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 428.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(4.2/85.3)^2 + 150.2/81 + 0.7 \cdot 2.5/80.97 = 1.88 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -20031$ ;  $M_y = 268.3$ ;  $N = -334.7$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 1.7$ ;  $T_y = 83.7$ ;  $M_t = -33.8$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 428.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.24 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -34.2$

## Asta 325: Trave in legno a falda Falda 1 fili 139-140

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 428.3

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1





#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.03^2 + 2.38^2} = 2.38 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.1$ ;  $T_y = 84.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 428.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(3.4/85.3)^2 + 151.8/81 + 0.7 \cdot 1.6/80.97 = 1.89 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20236$ ;  $M_y = -167.3$ ;  $N = -270.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -1.1$ ;  $T_y = 84.5$ ;  $M_t = 5.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 428.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.11 \leq 26.13$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$M_t = 15.4$

### Asta 326: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.7/52.8 + 0.7 \cdot 17.6/102.7 + 38.2/102.7 = 0.54 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = -27986.7$ ;  $M_y = 47400.9$ ;  $N = 1107$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{3^2 + 1.42^2} = 3.32 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = -552.5$ ;  $T_y = -261.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0.01 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media



Tx = -322.6; Ty = 257.3; Mt = 2983.5

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.81 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mt = 2996

**Asta 327: Trave in legno a falda Falda 1 fili 217-260**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(1.17^2 + 2.33^2) = 2.61 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 215.4; Ty = 429.6

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.6/85.3)^2 + 26.4/74.7 + 0.7 \cdot 1.6/74.67 = 0.37 \leq 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Mx = -41956.2; My = 2041.1; N = -660.7

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0.01 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
Tx = 215.4; Ty = 429.6; Mt = 2083.8

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.26 \leq 19.07$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
Mt = 2095.1

**Asta 328: Trave in legno a falda Falda 1 fili 217-260**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{1.9^2 + 2.84^2} = 3.42 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -350.1$ ;  $T_y = -523.2$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 42.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.6/85.3)^2 + 23.4/74.7 + 0.7 \cdot 10.7/74.67 = 0.41 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -37134.4$ ;  $M_y = -13245.3$ ;  $N = -647.4$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.08 + 0.01 + 0.03 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -336.9$ ;  $T_y = -506.4$ ;  $M_t = 2378.6$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.44 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 2378.6$

**Asta 329: Trave in legno a falda Falda 1 fili 217-260**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{0.84^2 + 2.33^2} = 2.48 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 155.1$ ;  $T_y = -428.3$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.5/85.3)^2 + 0.7 \cdot 16.8/74.7 + 19/74.7 = 0.41 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -26699.9$ ;  $M_y = -23589.5$ ;  $N = -614.3$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 67.6



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.02 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 154.4$ ;  $T_y = -427.1$ ;  $M_t = 908.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.55 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 908.7$

### Asta 330: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{2.22^2 + 1.47^2} = 2.67 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 409.3$ ;  $T_y = -270.4$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.2/85.3)^2 + 0.7 \cdot 7.5/74.7 + 14.7/74.7 = 0.27 \leq 1$  [4.4.7b] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_x = -11888.4$ ;  $M_y = -18242.9$ ;  $N = -513.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0.02 + 0.01 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 393.8$ ;  $T_y = -288.6$ ;  $M_t = -1064.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.64 \leq 19.07$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -1064.9$

### Asta 331: Trave in legno a falda Falda 1 fili 217-260

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 40.1



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 40.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0.7 \cdot 4.8/74.7 + 22.3/74.7 = 0.34 \leq 1$  (formula 4.4.5b) Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_x = -7686.6$ ;  $M_y = 27687.8$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{3.48^2 + 1.65^2} = 3.85 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 639.6$ ;  $T_y = 303.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0.05 + 0.01 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media

$T_x = 635.5$ ;  $T_y = 302.1$ ;  $M_t = 846.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 40.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.09 \leq 26.22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_t = 1809.4$

### Asta 332: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{3.78^2 + 1.86^2} = 4.21 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = 694.6$ ;  $T_y = 342.3$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(3.1/117.3)^2 + 0.7*13.8/102.7 + 45.3/102.7 = 0.54 \leq 1$  [4.4.7b] Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $Mx = 21896.4$ ;  $My = -56268.4$ ;  $N = -1290.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0.03 + 0.01 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 474.5$ ;  $T_y = 237.1$ ;  $M_t = -5121.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $3.1 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -5128.5$

### Asta 333: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $2.2/52.8 + 0.7*7.9/102.7 + 19.5/102.7 = 0.28 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -12501.2$ ;  $M_y = 24157.3$ ;  $N = 912.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{1.07^2 + 2.21^2} = 2.45 \leq 16$  Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $T_x = -197.6$ ;  $T_y = -406.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.02 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -194$ ;  $T_y = -406.3$ ;  $M_t = -2267.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $1.38 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -2292.3$



## Asta 334: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.6/52.8 + 0.7 \cdot 7/102.7 + 18.9/102.7 = 0.28 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 11131.1$ ;  $M_y = -23535.3$ ;  $N = 1061.6$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.95^2 + 1.66^2} = 1.92 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -175.2$ ;  $T_y = -306.1$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -160.9$ ;  $T_y = -299.9$ ;  $M_t = -1553.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.94 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -1553.3$

## Asta 335: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.6/52.8 + 0.7 \cdot 9.9/102.7 + 32.1/102.7 = 0.43 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 15671.4$ ;  $M_y = -39894.1$ ;  $N = 1069.8$



**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{(1.81^2 + 1.02^2)} = 2.08 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -333.6$ ;  $T_y = -188$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.01 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = -90.5$ ;  $T_y = 231.6$ ;  $M_t = -1069.2$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.65 \leq 19.07$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $M_t = -1069.2$

**Asta 336: Trave in legno a falda Falda 1 fili 161-217**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.6

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $2.6/52.8 + 0.7 \cdot 15/102.7 + 49.9/102.7 = 0.64 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 23822.6$ ;  $M_y = -61995$ ;  $N = 1080.7$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_d \leq f_{v,d}$   
 $\sqrt{(2.13^2 + 1.38^2)} = 2.54 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 391.8$ ;  $T_y = 254.7$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.01 + 0 \leq 1$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 391.8$ ;  $T_y = 254.7$ ;  $M_t = -863.4$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.52 \leq 26.22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -863.4$





## Asta 337: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.6/52.8 + 0.7 \cdot 16/102.7 + 52.7/102.7 = 0.67 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$M_x = 25368.1$ ;  $M_y = -65426.8$ ;  $N = 1090.9$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{4.59^2 + 2.08^2} = 5.04 \leq 22$  Comb: SLV, 10; Durata minima del carico nella combinazione: istantaneo

$T_x = -844$ ;  $T_y = -382.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,y,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0.04 + 0.01 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$T_x = 809.8$ ;  $T_y = 427.8$ ;  $M_t = 1244.4$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.6 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 991.5$

## Asta 338: Trave in legno a falda Falda 1 fili 161-217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$



$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $2.7/52.8 + 0.7 \cdot 19.2/102.7 + 42.9/102.7 = 0.6 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -30529$ ;  $M_y = 53241.4$ ;  $N = 1102.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{5.69^2 + 2.93^2} = 6.4 \leq 22$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 1046.1$ ;  $T_y = 539.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0.07 + 0.02 \leq 1$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $T_x = 1046.1$ ;  $T_y = 539.5$ ;  $M_t = 710.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.87 \leq 26.22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -1442.5$

### Asta 339: Trave in legno a falda Falda 1 fili 133-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $2.2/52.8 + 0.7 \cdot 2.4/102.7 + 21.6/102.7 = 0.27 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 3880$ ;  $M_y = -26839$ ;  $N = 908.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.08^2 + 3.51^2} = 3.51 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -14.5$ ;  $T_y = 645.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.4 + 0 + 0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -14.5$ ;  $T_y = 645.4$ ;  $M_t = 12665.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $7.64 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 12665.4$

## Asta 340: Trave in legno a falda Falda 1 fili 133-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.26^2 + 2.33^2} = 2.34 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -48.5$ ;  $T_y = 428.7$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 54  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1/85.3)^2 + 19.7/74.7 + 0.7 \cdot 4.9/74.67 = 0.31 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -31293.7$ ;  $M_y = -6130.3$ ;  $N = -416.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -48.5$ ;  $T_y = 428.7$ ;  $M_t = 3597.4$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.17 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 3597.4$

## Asta 341: Trave in legno a falda Falda 1 fili 133-161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 67.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.21^2 + 1.97^2} = 1.98 \leq 16$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -37.8$ ;  $T_y = -362.7$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 29.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1/85.3)^2 + 20.8/74.7 + 0.7 \cdot 6.1/74.67 = 0.34 \leq 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_x = -33009.1$ ;  $M_y = -7587.3$ ;  $N = -418.9$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.11 + 0 + 0.02 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -37.8$ ;  $T_y = -362.7$ ;  $M_t = -3599.3$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.17 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -3599.3$

**Asta 342: Trave in legno a falda Falda 1 fili 133-161**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.5

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{4.63^2 + 2.7^2} = 5.36 \leq 22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $T_x = -852.5$ ;  $T_y = -496.3$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.8/117.3)^2 + 0.7 \cdot 11.9/102.7 + 45.3/102.7 = 0.52 \leq 1$  [4.4.7b] Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 18936.6$ ;  $M_y = -56318.1$ ;  $N = -1156.3$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.4 + 0 + 0.05 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media



Tx = -65.5; Ty = -651.1; Mt = -12594.7

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $7.6 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -12594.7

**Asta 343: Trave in legno a falda Falda 1 fili 74-133**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.5

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\text{Sqrt}(2.1^2 + 4.65^2) = 5.1 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Tx = -386.8; Ty = -854.9

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.4/85.3)^2 + 43.9/74.7 + 0.7 \cdot 1.2/74.67 = 0.6 \leq 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media  
Mx = -69651.8; My = 1453.3; N = -591.5

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0.06 + 0.02 \leq 1$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Tx = -982.7; Ty = -564.5; Mt = 1258.3

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.76 \leq 26.22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
Mt = 1258.3

**Asta 344: Trave in legno a falda Falda 1 fili 74-133**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 67.5

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$   
 $2.2/52.8 + 0.7 \cdot 12.6/102.7 + 53.3/102.7 = 0.65 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 20061.4$ ;  $M_y = -66171.3$ ;  $N = 910.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{(1.03^2 + 3.62^2)} = 3.77 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 189.7$ ;  $T_y = -666.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{t,d}/f_{v,d})^2 + (\tau_{t,z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.05 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 189.7$ ;  $T_y = -666.8$ ;  $M_t = -1688.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.5  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.02 \leq 19.07$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = -1688.8$

### Asta 345: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$   
 $2.2/52.8 + 0.7 \cdot 11.8/102.7 + 51/102.7 = 0.62 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 18664.3$ ;  $M_y = -63388.1$ ;  $N = 914.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{(0.05^2 + 3.05^2)} = 3.05 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 8.6$ ;  $T_y = -561.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.04 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = 8.5$ ;  $T_y = -559.9$ ;  $M_t = 185$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.58 \leq 26.22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_t = -968.3$

### Asta 346: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $2.2/52.8 + 0.7 \cdot 6.5/102.7 + 29.7/102.7 = 0.38 \leq 1$  [4.4.6b] Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $M_x = 10241$ ;  $M_y = -36874.4$ ;  $N = 918.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.59^2 + 2^2} = 2.09 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 109$ ;  $T_y = -368.2$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.02 \leq 1$  Comb: SLU, 29; Durata minima del carico nella combinazione: media  
 $T_x = 108.2$ ;  $T_y = -367.3$ ;  $M_t = 658.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.62 \leq 26.22$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo  
 $M_t = 1031.9$

### Asta 347: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{2.09^2 + 1.08^2} = 2.35 \leq 22$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$T_x = 384$ ;  $T_y = 199.1$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.4/85.3)^2 + 11.9/74.7 + 0.7 \cdot 7.6/74.67 = 0.23 \leq 1$  [4.4.7a] Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_x = 18957.6$ ;  $M_y = 9391.3$ ;  $N = -595.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.01 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 146.8$ ;  $T_y = 228.2$ ;  $M_t = 1004.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.61 \leq 19.07$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 1004.2$

### Asta 348: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.93^2 + 2.07^2} = 2.27 \leq 16$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = 171.8$ ;  $T_y = 380.9$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 67.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$





$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $(1.4/85.3)^2 + 0.7*6/74.7 + 14.7/74.7 = 0.25 \leq 1$  [4.4.7b] Comb: SLU, 30; Durata minima del carico nella combinazione: media  
 $Mx = 9540.1$ ;  $My = 18281.5$ ;  $N = -584.6$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.02 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 163.2$ ;  $T_y = 379.3$ ;  $M_t = 1733.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $1.05 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 1746.2$

### Asta 349: Trave in legno a falda Falda 1 fili 74-133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 67.6

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$   
 $St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$   
 $St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$   
 $2.4/52.8 + 0.7*7.2/102.7 + 16.2/102.7 = 0.25 \leq 1$  [4.4.6b] Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $M_x = -11463.4$ ;  $M_y = 20123.5$ ;  $N = 973.4$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(1.56^2 + 1.74^2)} = 2.33 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -286.1$ ;  $T_y = 319.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0.01 + 0.01 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = -283.8$ ;  $T_y = 321.1$ ;  $M_t = 4953.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 67.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $2.99 \leq 19.07$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 4953.1$



## Asta 350: Trave in legno a falda Falda 4 fili 173-174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 316.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.07^2 + 6.41^2} = 6.41 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.6$ ;  $T_y = -227.9$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.3/85.3)^2 + 397/81 + 0.7 \cdot 4.6/80.97 = 4.94 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -52927.5$ ;  $M_y = -488.9$ ;  $N = -107$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0 + 0.16 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.6$ ;  $T_y = -227.9$ ;  $M_t = 359.2$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.54 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = 359.4$

## Asta 351: Trave in legno a falda Falda 4 fili 173-174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 14.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0.01 \leq 57.26$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$N = 0.5$



Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

Asta 352: Trave in legno a falda Falda 4 fili 164-165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 316.7

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.04^2 + 6.97^2} = 6.97 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.5$ ;  $T_y = -247.8$

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.6/85.3)^2 + 427.3/81 + 0.7 \cdot 2/80.97 = 5.3 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -56973$ ;  $M_y = -215.5$ ;  $N = -209.8$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.09 + 0 + 0.19 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 1.5$ ;  $T_y = -247.8$ ;  $M_t = 246.9$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.75 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 247.1$

Asta 353: Trave in legno a falda Falda 4 fili 164-165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 14.4

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 2.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,d} \leq f_{t,d}$   
 $0.01 \leq 57.26 \text{ Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo}$   
 $N = 0.5$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7+0.7*0/60.7=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

### Asta 354: Trave in legno a falda Falda 4 fili 156-157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 316.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.09^2+6.84^2} = 6.84 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 3.4$ ;  $T_y = -243.2$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.5/85.3)^2+429.3/81+0.7*4.9/80.97=5.34 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -57233.6$ ;  $M_y = -521.4$ ;  $N = -119.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.04+0+0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = 3.1$ ;  $T_y = -243.2$ ;  $M_t = 118.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.84 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $M_t = 118.7$



## Asta 355: Trave in legno a falda Falda 4 fili 156-157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 14.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 3.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0.01 \leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.9$

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0/60.7+0.7*0/60.7=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 3.5$ ;  $M_y = 0$

## Asta 356: Trave in legno a falda Falda 4 fili 151-152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 316.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_d \leq f_{v,d}$

$\sqrt{0.17^2+7.15^2} = 7.15 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 6$ ;  $T_y = -254.3$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.4/85.3)^2+437/81+0.7*9.6/80.97=5.48 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -58263.1$ ;  $M_y = -1021.9$ ;  $N = -194.9$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01+0+0.2 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 6$ ;  $T_y = -254.3$ ;  $M_t = -13.9$



#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.21 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -30.4$

#### Asta 357: Trave in legno a falda Falda 4 fili 151-152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 14.4

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 3.4

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0.01 \leq 57.26$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo

$N = 0.8$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente

$M_x = 3.5$ ;  $M_y = 0$

#### Asta 358: Trave in legno a falda Falda 4 fili 142-143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati generali

Lunghezza = 316.7

##### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.24^2 + 7.13^2} = 7.13 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 8.6$ ;  $T_y = -253.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$



$(1.2/85.3)^2 + 428.3/81 + 0.7 \cdot 14.5/80.97 = 5.41 > 1$  [4.4.7a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -57105; My = -1546; N = -93.6

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(ksh \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
0.05 + 0 + 0.2 ≤ 1 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Tx = 8.7; Ty = -253.5; Mt = -142.8

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq Ksh \cdot f_{v,d}$   
1.01 ≤ 19 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = -142.8

### Asta 359: Trave in legno a falda Falda 4 fili 142-143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 14.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 3.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; Kh = 1.084 (formula 11.7.1)  
 $St_{0,d} \leq ft_{0,d}$   
0 ≤ 57.26 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
N = 0.3

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.6; Kh = 1.084 (formula 11.7.1)  
 $Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
0/60.7 + 0.7\*0/60.7 = 0 ≤ 1 (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
Mx = 3.5; My = 0

### Asta 360: Trave in legno a falda Falda 4 fili 135-136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 316.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.3^2 + 7.85^2} = 7.85 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 10.8$ ;  $T_y = -279.1$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(4.7/85.3)^2 + 430.9/81 + 0.7 \cdot 17.3/80.97 = 5.47 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -57453.6$ ;  $M_y = -1845.1$ ;  $N = -374.8$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0.24 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 10.8$ ;  $T_y = -279.1$ ;  $M_t = -264.3$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.87 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -264.5$

**Asta 361: Trave in legno a falda Falda 4 fili 135-136**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 14.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1**

Sezione ad ascissa 3.9  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0 \leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.2$

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

**Asta 362: Trave in legno a falda Falda 4 fili 124-125**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 316.7





#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.41^2 + 8.06^2} = 8.07 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 14.4$ ;  $T_y = -286.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(9.2/85.3)^2 + 412.6/81 + 0.7 \cdot 18.9/80.97 = 5.27 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -55008.7$ ;  $M_y = -2014.3$ ;  $N = -737.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.14 + 0 + 0.25 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 14.4$ ;  $T_y = -286.5$ ;  $M_t = -379.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.68 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -379.3$

### Asta 363: Trave in legno a falda Falda 4 fili 124-125

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 14.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0.01 \leq 57.26$  Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.9$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$



$K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7+0.7 \cdot 0/60.7=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

## Asta 364: Trave in legno a falda Falda 4 fili 196-197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 316.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.08^2 + 4.42^2} = 4.42 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 2.8$ ;  $T_y = -157.1$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(0.8/85.3)^2 + 292/81 + 0.7 \cdot 5/80.97 = 3.65 ! > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -38933.7$ ;  $M_y = -534.7$ ;  $N = -67.7$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0 + 0.08 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 2.8$ ;  $T_y = -157.1$ ;  $M_t = 491.4$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.47 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 491.9$

## Asta 365: Trave in legno a falda Falda 4 fili 196-197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 14.4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.3



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0.01 \leq 57.26 \text{ Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo}$   
 $N = 1.2$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

### Asta 366: Trave in legno a falda Falda 4 fili 189-190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 316.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.13^2 + 5.25^2} = 5.25 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 4.6$ ;  $T_y = -186.6$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.5/85.3)^2 + 334.5/81 + 0.7 \cdot 8.1/80.97 = 4.2 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -44602.4$ ;  $M_y = -862$ ;  $N = -120.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.18 + 0 + 0.11 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 4.6$ ;  $T_y = -186.6$ ;  $M_t = 488.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.45 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 488.7$

### Asta 367: Trave in legno a falda Falda 4 fili 189-190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 14.4



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0.01 \leq 57.26 \text{ Comb: SLU, 12; Durata minima del carico nella combinazione: istantaneo}$   
 $N = 0.4$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7+0.7*0/60.7=0 \leq 1$  (formula 4.4.5a) Comb: SLU, 64; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

### Asta 368: Trave in legno a falda Falda 4 fili 182-183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 316.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.15^2+5.88^2} = 5.88 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 5.3$ ;  $T_y = -209$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.6/85.3)^2+367.6/81+0.7*8.9/80.97=4.62 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -49011.3$ ;  $M_y = -954.1$ ;  $N = -124.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16+0+0.13 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 5.3$ ;  $T_y = -209$ ;  $M_t = 441.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$



$\tau_{\text{tor,d}} \leq K_{\text{sh}} \cdot f_{\text{v,d}}$   
3.12  $\leq$  19 Comb: SLU, 79; Durata minima del carico nella combinazione: media  
Mt = 441.5

**Asta 369: Trave in legno a falda Falda 4 fili 182-183**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 14.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1**

Sezione ad ascissa 3.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 1.1; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
0.02  $\leq$  57.26 Comb: SLV, 8; Durata minima del carico nella combinazione: istantaneo  
N = 1.2

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.6; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
0/60.7+0.7\*0/60.7=0  $\leq$  1 (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
Mx = 3.5; My = 0

**Asta 370: Trave in legno a falda Falda 4 fili 117-118**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 316.7

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) !> 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} !> 1$   
10.7/41.6+485.9/81+0.7\*12.8/81=6.37 !> 1 [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -64785.8; My = -1367.9; N = 856.6

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{\text{d}} \leq f_{\text{v,d}}$   
 $\sqrt{0.26^2 + 11.38^2} = 11.38 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 9.2; Ty = -404.7



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.16 + 0 + 0.51 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 9.2$ ;  $T_y = -404.7$ ;  $M_t = -431.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$3.05 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -432.1$

### Asta 371: Trave in legno a falda Falda 4 fili 117-118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 14.4

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d} \leq f_{t,0,d}$

$0.01 \leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$N = 0.4$

#### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente

$M_x = 3.5$ ;  $M_y = 0$

### Asta 372: Trave in legno a falda Falda 4 fili 109-110

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 316.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 316.7

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.1^2 + 7.2^2} = 7.2 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media



Tx = 3.6; Ty = -256

Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(9.7/85.3)^2 + 363.6/81 + 0.7 \cdot 8.2/80.97 = 4.57 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -48473.5$ ;  $M_y = -874.9$ ;  $N = -774.7$

Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.16 + 0 + 0.2 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 3.6$ ;  $T_y = -256$ ;  $M_t = -440.8$

Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.12 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -441.3$

Asta 373: Trave in legno a falda Falda 4 fili 109-110

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 14.4

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1

Sezione ad ascissa 4.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d} \leq f_{t,0,d}$   
 $0.01 \leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.6$

Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$

Asta 374: Trave in legno a falda Falda 4 fili 102-103

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Lunghezza = 316.7

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.21^2 + 5.74^2} = 5.75 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 7.4$ ;  $T_y = -204.2$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.7/85.3)^2 + 312.3/81 + 0.7 \cdot 11.5/80.97 = 3.96 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -41639$ ;  $M_y = -1231.9$ ;  $N = -219$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.17 + 0 + 0.13 \leq 1$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $T_x = 7.4$ ;  $T_y = -204$ ;  $M_t = -447.1$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 316.7  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.16 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = -447.1$

**Asta 375: Trave in legno a falda Falda 4 fili 102-103**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 14.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica trazione parallela alla fibratura D.M. 17-01-18 §4.4.8.1.1**

Sezione ad ascissa 4.3  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 1.1$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d} \leq f_{t,0,d}$   
 $0 \leq 57.26$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo  
 $N = 0.3$

**Verifica flessione D.M. 17-01-18 §4.4.8.1.6**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.6$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $0/60.7 + 0.7 \cdot 0/60.7 = 0 \leq 1$  (formula 4.4.5a) Comb: SLU, 43; Durata minima del carico nella combinazione: permanente  
 $M_x = 3.5$ ;  $M_y = 0$





## Asta 376: Trave in legno a falda Falda 3 fili 77-78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 99.9

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica flessione D.M. 17-01-18 §4.4.8.1.6

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \geq 1$

$K_{m,z,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \geq 1$

$149.7/81 + 0.7 \cdot 1.9/81 = 1.86 \geq 1$  (formula 4.4.5a) Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -19955.2$ ;  $M_y = 197.4$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 99.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.11^2 + 8.26^2} = 8.26 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4$ ;  $T_y = -293.6$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 99.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.11 + 0.27 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4$ ;  $T_y = -293.6$ ;  $M_t = 301$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 99.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.13 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 301.3$

## Asta 377: Trave in legno a falda Falda 3 fili 59-60

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 244.1

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_{m,y,d} \cdot (S_{m,z,d}/f_{m,z,d}) \geq 1$

$St_{0,d}/f_{t,0,d} + K_{m,z,d} \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \geq 1$

$3.9/41.6 + 168.3/81 + 0.7 \cdot 4.3/81 = 2.21 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -22442.8$ ;  $M_y = 461.2$ ;  $N = 311.9$



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.15^2 + 5.18^2} = 5.18 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -5.2$ ;  $T_y = -184.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.06 + 0 + 0.1 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -5.2$ ;  $T_y = -184.1$ ;  $M_t = 153.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.09 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 153.7$

### Asta 378: Trave in legno a falda Falda 3 fili 68-69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 182.3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 182.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.13^2 + 5.48^2} = 5.48 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.5$ ;  $T_y = -195$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2.1/85.3)^2 + 154.6/81 + 0.7 \cdot 3.8/80.97 = 1.94 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20613.9$ ;  $M_y = 402.2$ ;  $N = -168.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 182.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.12 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.5$ ;  $T_y = -195$ ;  $M_t = 210.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 182.3

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.48 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 210.2$



## Asta 379: Trave in legno a falda Falda 3 fili 47-48

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 244.1

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.06^2 + 3.33^2} = 3.33 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -2$ ;  $T_y = -118.3$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.6/85.3)^2 + 146.9/81 + 0.7 \cdot 2.7/80.97 = 1.84 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -19582.5$ ;  $M_y = 283.8$ ;  $N = -125.4$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -1.8$ ;  $T_y = -118.3$ ;  $M_t = -50.5$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.36 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -50.5$

## Asta 380: Trave in legno a falda Falda 3 fili 53-54

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 244.1

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$



$\text{Sqrt}(0.14^2 + 3.33^2) = 3.33 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = -5.1; Ty = -118.2

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(1.7/85.3)^2 + 142.8/81 + 0.7*5.8/80.97 = 1.81 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -19044.8; My = 614.5; N = -134.7

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*fv,d) + (\tau_{y,d}/fv,d)^2 + (\tau_{z,d}/fv,d)^2 \leq 1$

$0.02 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = -5.1; Ty = -118.2; Mt = 54.9

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8

$\tau_{tor,d} \leq Ksh * fv,d$

$0.4 \leq 19$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

Mt = 56.4

### Asta 381: Trave in legno a falda Falda 3 fili 41-42

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 244.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; kcr = 0.67

$\tau_{d} \leq fv,d$

$\text{Sqrt}(0.19^2 + 3.02^2) = 3.03 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

Tx = 6.7; Ty = -107.4

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1)

$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$

$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$

$(1.2/85.3)^2 + 137.8/81 + 0.7*7.9/80.97 = 1.77 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

Mx = -18376.7; My = -841.6; N = -94.2

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67

$\tau_{tor,d}/(ksh*fv,d) + (\tau_{y,d}/fv,d)^2 + (\tau_{z,d}/fv,d)^2 \leq 1$

$0.05 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

Tx = 7; Ty = -107.2; Mt = -137.7

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.97 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -137.7$

**Asta 382: Trave in legno a falda Falda 1 fili 161-163**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 222.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(15.8/85.3)^2 + 262.4/81 + 0.7 \cdot 1.5/80.97 = 3.29 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 34986.5$ ;  $M_y = -164$ ;  $N = -1264.5$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.02^2 + 8.73^2} = 8.73 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.9$ ;  $T_y = -310.5$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.3 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -0.9$ ;  $T_y = -310.5$ ;  $M_t = 73$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.52 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 73$

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 170.8  
 $K_{def} = 0$   
 $U_{inst,tot} \text{ in } x = -0.01$   
 $U_{inst,tot} \text{ in } y = 0.43$   
 $U_{inst,tot} = 0.43$   
Luce/ $U_{inst,tot}$  > limite  
 $222.8/0.43 = 517.5 > 300$  Comb: SLE rara, 8

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 170.8  
 $K_{def} = 0$   
 $U_{inst,var} \text{ in } x = -0.01$   
 $U_{inst,var} \text{ in } y = 0.28$   
 $U_{inst,var} = 0.28$   
Luce/ $U_{inst,var}$  > limite  
 $222.8/0.28 = 791.2 > 300$  Comb: SLE rara, 8



**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 170.8  
Kdef = 0.6  
Ufin in x = -0.01  
Ufin in y = 0.52  
Ufin = 0.52  
Luce/Ufin > limite  
222.8/0.52=428.6 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

**Asta 383: Trave in legno a falda Falda 1 fili 171-172**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 222.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; kcr = 0.67  
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.18^2 + 8.17^2} = 8.17 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 6.4; Ty = -290.5

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1)  
 $(Sc_{0,d}/f_{c,0,d})^2 + Sm_{y,d}/f_{m,y,d} + Km \cdot (Sm_{z,d}/f_{m,z,d}) \leq 1$   
 $(Sc_{0,d}/f_{c,0,d})^2 + Km \cdot (Sm_{y,d}/f_{m,y,d}) + Sm_{z,d}/f_{m,z,d} \leq 1$   
 $(12.4/85.3)^2 + 245.7/81 + 0.7 \cdot 6.1/80.97 = 3.11 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
Mx = -32760.3; My = -653.1; N = -995.1

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8; Kh = 1.084 (formula 11.7.1); kcr = 0.67  
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Tx = 6.4; Ty = -290.5; Mt = 87.9

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
Kmod = 0.8  
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.62 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
Mt = 87.9

**Asta 384: Trave in legno a falda Falda 1 fili 179-180**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 222.8

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67



Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $1.5/41.6 + 241.1/81 + 0.7*12.8/81 = 3.12 \geq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -32140.5$ ;  $M_y = -1370.2$ ;  $N = 120.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.34^2 + 7.96^2} = 7.96 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 11.9$ ;  $T_y = -282.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.25 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 11.9$ ;  $T_y = -282.9$ ;  $M_t = 86.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} * f_{v,d}$   
 $0.61 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 86.9$

### Asta 385: Trave in legno a falda Falda 1 fili 185-186

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km*(Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km*(Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $2.2/41.6 + 229.2/81 + 0.7*12.3/81 = 2.99 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -30555$ ;  $M_y = -1314.6$ ;  $N = 174.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.31^2 + 7.4^2} = 7.4 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 10.9$ ;  $T_y = -263.1$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.21 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 10.9$ ;  $T_y = -263.1$ ;  $M_t = 80.3$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.57 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 80.9$

### Asta 386: Trave in legno a falda Falda 1 fili 192-193

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1.4/41.6 + 221.7/81 + 0.7 \cdot 7.9/81 = 2.84 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -29556.1$ ;  $M_y = -843.7$ ;  $N = 110.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.21^2 + 7.11^2} = 7.12 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 7.4$ ;  $T_y = -252.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.2 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 7$ ;  $T_y = -252.7$ ;  $M_t = 74.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.53 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 74.8$

### Asta 387: Trave in legno a falda Falda 1 fili 202-203

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8





#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$3.4/41.6 + 215.9/81 + 0.7 \cdot 2.8/81 = 2.77 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -28786.1$ ;  $M_y = -300$ ;  $N = 273.1$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.05^2 + 7.03^2} = 7.03 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 1.9$ ;  $T_y = -250$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.19 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 1.9$ ;  $T_y = -250$ ;  $M_t = 68.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.51 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 72.3$

### Asta 388: Trave in legno a falda Falda 1 fili 211-212

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$2.7/41.6 + 207.9/81 + 0.7 \cdot 4/81 = 2.67 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -27721.2$ ;  $M_y = 423.7$ ;  $N = 212.7$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.09^2 + 6.87^2} = 6.87 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.1$ ;  $T_y = -244.1$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.18 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.1$ ;  $T_y = -244.1$ ;  $M_t = 73.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.55 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 77.8$

### Asta 389: Trave in legno a falda Falda 1 fili 217-218

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$11.3/41.6 + 202.6/81 + 0.7 \cdot 2.6/81 = 2.8 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -27008.3$ ;  $M_y = 282.6$ ;  $N = 906.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.07^2 + 6.73^2} = 6.73 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.4$ ;  $T_y = -239.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.03 + 0 + 0.18 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -2.4$ ;  $T_y = -239.4$ ;  $M_t = 90.4$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.66 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 94$



## Asta 390: Trave in legno a falda Falda 1 fili 226-227

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 222.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$7.2/41.6 + 177.7/81 + 0.7 \cdot 0.9/81 = 2.38 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 23686.8$ ;  $M_y = -97.5$ ;  $N = 577.7$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.01^2 + 6.09^2} = 6.09 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.4$ ;  $T_y = -216.5$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.04 + 0 + 0.14 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -0.4$ ;  $T_y = -216.5$ ;  $M_t = 117$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.84 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = 119.1$

## Asta 391: Trave in legno a falda Falda 1 fili 237-238

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 222.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{0.17^2 + 5.44^2} = 5.45 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = -5.9$ ;  $T_y = -193.5$



**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(S_{c,0,d}/f_{c,0,d})^2 + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(S_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} \leq 1$   
 $(7.2/85.3)^2 + 163.7/81 + 0.7 \cdot 9.7/80.97 = 2.11 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 21827.8$ ;  $M_y = -1032.6$ ;  $N = -578.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.05 + 0 + 0.12 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media  
 $T_x = -5.9$ ;  $T_y = -193.5$ ;  $M_t = 143$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.01 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = 143.2$

**Asta 392: Trave in legno a falda Falda 1 fili 243-244**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 172.4

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/f_{t,0,d} + S_{m,y,d}/f_{m,y,d} + K_m \cdot (S_{m,z,d}/f_{m,z,d}) > 1$   
 $St_{0,d}/f_{t,0,d} + K_m \cdot (S_{m,y,d}/f_{m,y,d}) + S_{m,z,d}/f_{m,z,d} > 1$   
 $8.5/41.6 + 152.4/81 + 0.7 \cdot 20.1/81 = 2.26 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -20318.8$ ;  $M_y = 2144.2$ ;  $N = 680$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 172.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.9^2 + 6.47^2} = 6.53 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -32$ ;  $T_y = -230$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 172.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.1 + 0 + 0.16 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -32$ ;  $T_y = -230$ ;  $M_t = 258.4$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 172.4  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.82 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media



Mt = 258.4

## Asta 393: Trave in legno a falda Falda 1 fili 249-250

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 102.5

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m,z,d}/f_{m,z,d} \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m,z,d}/f_{m,z,d} + \sigma_{m,y,d}/f_{m,y,d} \leq 1$

$5.2/41.6 + 140/81 + 0.7 \cdot 47.2/81 = 2.26 \leq 1$  [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -18667.5$ ;  $M_y = 5029.4$ ;  $N = 413.8$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{v,d} \leq f_{v,d}$

$\sqrt{(2.91^2 + 8.26^2)} = 8.75 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -103.4$ ;  $T_y = -293.6$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{v,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0.03 + 0.27 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -103.4$ ;  $T_y = -293.6$ ;  $M_t = 355.7$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 102.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.51 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = 355.7$

## Asta 394: Trave in legno a falda Falda 1 fili 255-256

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 40.1

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)



$$St,0,d/ft,0,d + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \geq 1$$

$$St,0,d/ft,0,d + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \geq 1$$

$$5.6/41.6+94.1/81+0.7*68.9/81=1.89 \geq 1 \text{ [4.4.6a] Comb: SLU, 79; Durata minima del carico nella combinazione: media - NON SODDISFATTA}$$

$$Mx = -12545.2; My = 7354; N = 447.6$$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 40.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$$K_{mod} = 0.8; k_{cr} = 0.67$$

$$\tau_{d} \leq f_{v,d}$$

$$\sqrt{8.99^2+10.16^2} = 13.56 \leq 16 \text{ Comb: SLU, 72; Durata minima del carico nella combinazione: media}$$

$$T_x = -319.6; T_y = -361.2$$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 40.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$$K_{mod} = 0.8; K_h = 1.084 \text{ (formula 11.7.1); } k_{cr} = 0.67$$

$$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$$

$$0.14+0.32+0.4 \leq 1 \text{ Comb: SLU, 72; Durata minima del carico nella combinazione: media}$$

$$T_x = -319.6; T_y = -361.2; M_t = 379$$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 40.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$$K_{mod} = 0.8$$

$$\tau_{tor,d} \leq K_{sh} * f_{v,d}$$

$$2.68 \leq 19 \text{ Comb: SLU, 72; Durata minima del carico nella combinazione: media}$$

$$M_t = 379$$

### Asta 395: Trave in legno a falda Falda 1 fili 133-134

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$$K_{mod} = 0.8; K_h = 1.084 \text{ (formula 11.7.1)}$$

$$(Sc,0,d/fc,0,d)^2 + Sm,y,d/fm,y,d + Km*(Sm,z,d/fm,z,d) \leq 1$$

$$(Sc,0,d/fc,0,d)^2 + Km*(Sm,y,d/fm,y,d) + Sm,z,d/fm,z,d \leq 1$$

$$(9.5/85.3)^2+260.5/81+0.7*1.4/80.97=3.24 \geq 1 \text{ [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA}$$

$$M_x = 34735.2; M_y = 152.6; N = -757.6$$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$$K_{mod} = 0.8; k_{cr} = 0.67$$

$$\tau_{d} \leq f_{v,d}$$

$$\sqrt{0.03^2+8.83^2} = 8.83 \leq 16 \text{ Comb: SLU, 71; Durata minima del carico nella combinazione: media}$$

$$T_x = 1.1; T_y = -314.1$$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$$K_{mod} = 0.8; K_h = 1.084 \text{ (formula 11.7.1); } k_{cr} = 0.67$$

$$\tau_{tor,d}/(k_{sh}*f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$$

$$0+0+0.3 \leq 1 \text{ Comb: SLU, 71; Durata minima del carico nella combinazione: media}$$

$$T_x = 1.1; T_y = -314.1; M_t = -13.2$$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.13 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -18.7$

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 44.6

$K_{def} = 0$

$U_{inst,tot} \text{ in } x = 0.01$

$U_{inst,tot} \text{ in } y = -0.4$

$U_{inst,tot} = 0.4$

$L_{uce}/U_{inst,tot} > \text{limite}$

$222.8/0.4=556.7 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 178.2

$K_{def} = 0$

$U_{inst,var} \text{ in } x = 0$

$U_{inst,var} \text{ in } y = 0.26$

$U_{inst,var} = 0.26$

$L_{uce}/U_{inst,var} > \text{limite}$

$222.8/0.26=854.5 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 44.6

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0.01$

$U_{fin} \text{ in } y = -0.48$

$U_{fin} = 0.48$

$L_{uce}/U_{fin} > \text{limite}$

$222.8/0.48=459.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Asta 396: Trave in legno a falda Falda 1 fili 122-123

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.14^2 + 8.43^2} = 8.43 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.9$ ;  $T_y = -299.8$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(8.6/85.3)^2 + 260.1/81 + 0.7 \cdot 4.8/80.97 = 3.26 > 1$  [4.4.7a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -34676$ ;  $M_y = 508.4$ ;  $N = -688.3$



#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0+0+0.28 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -4.9$ ;  $T_y = -299.8$ ;  $M_t = -10.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.15 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -21$

### Asta 397: Trave in legno a falda Falda 1 fili 114-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$1.6/41.6+267/81+0.7 \cdot 9.4/81=3.42 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -35601.2$ ;  $M_y = 1006$ ;  $N = 124.1$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.25^2+8.63^2} = 8.64 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = -8.8$ ;  $T_y = -307$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0+0+0.28 \leq 1$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$T_x = -9.8$ ;  $T_y = -303.4$ ;  $M_t = 1.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.2 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -28.6$

### Asta 398: Trave in legno a falda Falda 1 fili 105-106

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8





#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$1.9/41.6 + 267.4/81 + 0.7 \cdot 7.8/81 = 3.42 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -35651.6$ ;  $M_y = 833.8$ ;  $N = 152.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.21^2 + 8.49^2} = 8.49 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -7.5$ ;  $T_y = -301.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.28 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -7.5$ ;  $T_y = -301.9$ ;  $M_t = 19.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.27 \leq 26.13$  Comb: SLV, 6; Durata minima del carico nella combinazione: istantaneo

$M_t = 37.7$

### Asta 399: Trave in legno a falda Falda 1 fili 98-99

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$

$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$

$1.5/41.6 + 271.7/81 + 0.7 \cdot 3.5/81 = 3.42 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -36228.5$ ;  $M_y = 372.9$ ;  $N = 122.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\sqrt{0.09^2 + 8.56^2} = 8.56 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.1$ ;  $T_y = -304.5$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.29 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = -3.1$ ;  $T_y = -304.5$ ;  $M_t = 30.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.22 \leq 19$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_t = 31.4$

### Asta 400: Trave in legno a falda Falda 1 fili 90-91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.8

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$4.5/41.6 + 277.8/81 + 0.7 \cdot 0.6/81 = 3.54 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -37036.8$ ;  $M_y = -61.6$ ;  $N = 360.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.04^2 + 8.84^2} = 8.84 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 1.5$ ;  $T_y = -314.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.01 + 0 + 0.31 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 1.5$ ;  $T_y = -314.3$ ;  $M_t = 27.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.2 \leq 19$  Comb: SLU, 30; Durata minima del carico nella combinazione: media

$M_t = 28$



## Asta 401: Trave in legno a falda Falda 1 fili 82-83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 222.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$2.5/41.6 + 279.1/81 + 0.7 \cdot 6.6/81 = 3.56 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -37213.3$ ;  $M_y = -704$ ;  $N = 197$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{t,d} \leq f_{v,d}$

$\sqrt{0.16^2 + 8.96^2} = 8.97 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 5.9$ ;  $T_y = -318.7$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.31 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 5.9$ ;  $T_y = -318.7$ ;  $M_t = -1.8$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.25 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -35.9$

## Asta 402: Trave in legno a falda Falda 1 fili 74-76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 222.8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m^*}(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m^*}(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$12.3/41.6 + 278.5/81 + 0.7 \cdot 4.5/81 = 3.77 \leq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -37128.5$ ;  $M_y = -483.7$ ;  $N = 981.8$



#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.11^2 + 8.99^2} = 8.99 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 3.8$ ;  $T_y = -319.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.32 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 3.8$ ;  $T_y = -319.8$ ;  $M_t = -56.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.43 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -60.8$

### Asta 403: Trave in legno a falda Falda 1 fili 66-67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$6.7/41.6 + 251/81 + 0.7 \cdot 0.8/81 = 3.27 \leq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -33467.8$ ;  $M_y = 86.7$ ;  $N = 533.5$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.01^2 + 8.31^2} = 8.31 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.4$ ;  $T_y = -295.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.05 + 0 + 0.27 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 0.4$ ;  $T_y = -295.4$ ;  $M_t = -128.7$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.92 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media

$M_t = -131$



## Asta 404: Trave in legno a falda Falda 1 fili 57-58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 222.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.12^2 + 7.58^2} = 7.58 \leq 16$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 4.2$ ;  $T_y = -269.5$

### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(8.1/85.3)^2 + 222.8/81 + 0.7 \cdot 7.8/80.97 = 2.83 > 1$  [4.4.7a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 29712.4$ ;  $M_y = 833.9$ ;  $N = -648.1$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.08 + 0 + 0.22 \leq 1$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$T_x = 4.2$ ;  $T_y = -269.5$ ;  $M_t = -205.1$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.45 \leq 19$  Comb: SLU, 80; Durata minima del carico nella combinazione: media

$M_t = -205.1$

## Asta 405: Trave in legno a falda Falda 1 fili 50-51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 187.6

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 187.6

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$



$St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $9.1/41.6 + 208.3/81 + 0.7 \cdot 30.9/81 = 3.06 \geq 1$  [4.4.6a] Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 27767.5$ ;  $M_y = 3301$ ;  $N = 730.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 187.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.75^2 + 8.51^2} = 8.54 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 26.6$ ;  $T_y = -302.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 187.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.12 + 0 + 0.28 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 26.6$ ;  $T_y = -302.4$ ;  $M_t = -323.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 187.6  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $2.29 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -323.9$

### Asta 406: Trave in legno a falda Falda 1 fili 44-45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 115.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $9.6/41.6 + 208.5/81 + 0.7 \cdot 56.2/81 = 3.29 \geq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -27797.1$ ;  $M_y = -5996.9$ ;  $N = 769.6$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 115.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{3.22^2 + 11.86^2} = 12.29 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 114.5$ ;  $T_y = -421.8$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 115.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.19 + 0.04 + 0.55 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 114.5$ ;  $T_y = -421.8$ ;  $M_t = -508.1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 115.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$



$K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $3.59 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $M_t = -508.1$

## Asta 407: Trave in legno a falda Falda 1 fili 38-39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 51.5

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_{m} \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_{m} \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$8.6/41.6 + 149.8/81 + 0.7 \cdot 97.2/81 = 2.9 \leq 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -19975$ ;  $M_y = -10365$ ;  $N = 684.3$

### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 51.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} > f_{v,d}$

$\sqrt{(10.4^2 + 15.58^2)} = 18.74 > 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 369.9$ ;  $T_y = -554.1$

### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 51.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 > 1$

$0.21 + 0.42 + 0.95 > 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$T_x = 369.9$ ;  $T_y = -554.1$ ;  $M_t = -574.3$

### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 51.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$4.06 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -574.3$

## Asta 408: Trave in legno a falda Falda 1 fili 149-150

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Lunghezza = 222.7

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1



**Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $1.2/41.6 + 263.4/81 + 0.7 \cdot 2.8/81 = 3.31 > 1$  [4.4.6a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 35126.1$ ;  $M_y = 301.9$ ;  $N = 98.2$

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{0.07^2 + 8.05^2} = 8.05 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 2.6$ ;  $T_y = -286.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.01 + 0 + 0.25 \leq 1$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 2.6$ ;  $T_y = -286.2$ ;  $M_t = 24.9$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.18 \leq 19$  Comb: SLU, 79; Durata minima del carico nella combinazione: media  
 $M_t = 25$

**Asta 409: Trave in legno a falda Falda 1 fili 154-155**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 222.7

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{t,d} \leq f_{v,d}$   
 $\sqrt{0.05^2 + 8.21^2} = 8.21 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = 1.9$ ;  $T_y = -291.8$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(2.2/85.3)^2 + 264.5/81 + 0.7 \cdot 1.7/80.97 = 3.28 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 35265.5$ ;  $M_y = 179.6$ ;  $N = -176.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 222.8  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.02 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media





$T_x = 2.1$ ;  $T_y = -291.8$ ;  $M_t = 52.2$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.37 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = 52.2$

### Asta 410: Trave in legno a falda Falda 1 fili 140-141

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 222.7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.05^2 + 8.17^2} = 8.17 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$T_x = 1.9$ ;  $T_y = -290.5$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(1.5/85.3)^2 + 260.2/81 + 0.7 \cdot 2.2/80.97 = 3.23 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = 34695.1$ ;  $M_y = 237.4$ ;  $N = -116.9$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0 + 0 + 0.26 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.8$ ;  $T_y = -290.5$ ;  $M_t = -1$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 222.8

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 1.1$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.11 \leq 26.13$  Comb: SLV, 12; Durata minima del carico nella combinazione: istantaneo

$M_t = -16$

### Asta 411: Trave in legno a falda Falda 6 fili 239-240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 244.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300



Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $St_{0,d}/ft_{0,d} + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \geq 1$   
 $St_{0,d}/ft_{0,d} + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \geq 1$   
 $14.5/41.6 + 202.6/81 + 0.7 \cdot 2.87 \geq 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = 27008.1$ ;  $M_y = 209.8$ ;  $N = 1158.2$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(0.07^2 + 6.17^2)} = 6.17 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 2.6$ ;  $T_y = -219.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.07 + 0 + 0.15 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = 2.6$ ;  $T_y = -219.4$ ;  $M_t = -197.5$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.39 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = -197.5$

### Asta 412: Trave in legno a falda Falda 6 fili 258-259

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 244.1

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{(0.43^2 + 3.17^2)} = 3.2 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -15.4$ ;  $T_y = -112.8$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(Sc_{0,d}/fc_{0,d})^2 + Sm_{y,d}/fm_{y,d} + Km \cdot (Sm_{z,d}/fm_{z,d}) \leq 1$   
 $(Sc_{0,d}/fc_{0,d})^2 + Km \cdot (Sm_{y,d}/fm_{y,d}) + Sm_{z,d}/fm_{z,d} \leq 1$   
 $(1.3/85.3)^2 + 144.5/81 + 0.7 \cdot 17.3/80.97 = 1.93 \geq 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -19268.7$ ;  $M_y = 1850$ ;  $N = -103.3$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 244.1



Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.06 + 0 + 0.04 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -15.8$ ;  $T_y = -112.6$ ;  $M_t = 174.3$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $1.23 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 174.3$

**Asta 413: Trave in legno a falda Falda 6 fili 252-253**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 244.1

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica taglio D.M. 17-01-18 §4.4.8.1.9**

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $k_{cr} = 0.67$   
 $\tau_{d} \leq f_{v,d}$   
 $\sqrt{0.09^2 + 3.59^2} = 3.59 \leq 16$  Comb: SLU, 72; Durata minima del carico nella combinazione: media  
 $T_x = -3.1$ ;  $T_y = -127.5$

**Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8**

Sezione ad ascissa 0  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)  
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$   
 $(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$   
 $(1.9/85.3)^2 + 156.9/81 + 0.7 \cdot 3/80.97 = 1.96 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA  
 $M_x = -20923.3$ ;  $M_y = 324.2$ ;  $N = -149.2$

**Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11**

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$   
 $\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$   
 $0.03 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $T_x = -3.4$ ;  $T_y = -127.5$ ;  $M_t = 77.3$

**Verifica torsione D.M. 17-01-18 §4.4.8.1.10**

Sezione ad ascissa 244.1  
Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$   
 $K_{mod} = 0.8$   
 $\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$   
 $0.55 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media  
 $M_t = 77.3$

**Asta 414: Trave in legno a falda Falda 6 fili 246-247**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Lunghezza = 244.1



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.08^2 + 3.65^2} = 3.65 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.8$ ;  $T_y = -129.7$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(2/85.3)^2 + 153.6/81 + 0.7 \cdot 3.9/80.97 = 1.93 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -20473.7$ ;  $M_y = -416.3$ ;  $N = -156.4$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.02 + 0 + 0.05 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 2.8$ ;  $T_y = -129.7$ ;  $M_t = -51.9$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 244.1

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$0.38 \leq 19$  Comb: SLU, 38; Durata minima del carico nella combinazione: media

$M_t = -53.1$

### Asta 415: Trave in legno a falda Falda 6 fili 228-229

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 189.9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica tensoflessione D.M. 17-01-18 §4.4.8.1.7

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$\sigma_{t,0,d}/f_{t,0,d} + \sigma_{m,y,d}/f_{m,y,d} + K_m(\sigma_{m,z,d}/f_{m,z,d}) > 1$

$\sigma_{t,0,d}/f_{t,0,d} + K_m(\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} > 1$

$2.7/41.6 + 169.3/81 + 0.7 \cdot 0.1/81 = 2.16 > 1$  [4.4.6a] Comb: SLU, 80; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -22573.9$ ;  $M_y = -15.8$ ;  $N = 215.9$

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 189.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$



$\tau_{d} \leq f_{v,d}$

$\sqrt{0.05^2 + 6.18^2} = 6.18 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.7$ ;  $T_y = -219.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 189.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.09 + 0 + 0.15 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 1.7$ ;  $T_y = -219.7$ ;  $M_t = -254.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 189.9

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$1.8 \leq 19$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$M_t = -254.8$

### Asta 416: Trave in legno a falda Falda 6 fili 219-220

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Lunghezza = 110.5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica taglio D.M. 17-01-18 §4.4.8.1.9

Sezione ad ascissa 110.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $k_{cr} = 0.67$

$\tau_{d} \leq f_{v,d}$

$\sqrt{0.02^2 + 8.92^2} = 8.92 \leq 16$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.8$ ;  $T_y = -317$

#### Verifica pressoflessione D.M. 17-01-18 §4.4.8.1.8

Sezione ad ascissa 0

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1)

$(\sigma_{c,0,d}/f_{c,0,d})^2 + \sigma_{m,y,d}/f_{m,y,d} + K_m \cdot (\sigma_{m,z,d}/f_{m,z,d}) \leq 1$

$(\sigma_{c,0,d}/f_{c,0,d})^2 + K_m \cdot (\sigma_{m,y,d}/f_{m,y,d}) + \sigma_{m,z,d}/f_{m,z,d} \leq 1$

$(0.9/85.3)^2 + 165.8/81 + 0.7 \cdot 0/80.97 = 2.05 > 1$  [4.4.7a] Comb: SLU, 71; Durata minima del carico nella combinazione: media - NON SODDISFATTA

$M_x = -22107.3$ ;  $M_y = -3.4$ ;  $N = -72.7$

#### Verifica taglio+torsione D.M. 17-01-18 §4.4.8.1.11

Sezione ad ascissa 110.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$ ;  $K_h = 1.084$  (formula 11.7.1);  $k_{cr} = 0.67$

$\tau_{tor,d}/(k_{sh} \cdot f_{v,d}) + (\tau_{y,d}/f_{v,d})^2 + (\tau_{z,d}/f_{v,d})^2 \leq 1$

$0.13 + 0 + 0.31 \leq 1$  Comb: SLU, 71; Durata minima del carico nella combinazione: media

$T_x = 0.8$ ;  $T_y = -317$ ;  $M_t = -355.8$

#### Verifica torsione D.M. 17-01-18 §4.4.8.1.10

Sezione ad ascissa 110.5

Coefficiente parziale di sicurezza del materiale  $\gamma = 1.5$

$K_{mod} = 0.8$

$\tau_{tor,d} \leq K_{sh} \cdot f_{v,d}$

$2.51 \leq 19$  Comb: SLU, 72; Durata minima del carico nella combinazione: media

$M_t = -355.8$



## 1.3 Verifiche superelementi in legno

Le unità di misura elencate nel capitolo sono in [cm] ove non espressamente specificato.

**Descrizione:** descrizione della sezione.

**Tipo:** tipo di sezione.

**Base:** base della sezione. [cm]

**Altezza:** altezza della sezione. [cm]

**Area:** area inerziale nel sistema geometrico centrato nel baricentro. [cm<sup>2</sup>]

**Jx:** momento d'inerzia attorno all'asse orizzontale baricentrico di definizione della sezione. [cm<sup>4</sup>]

**Jy:** momento d'inerzia attorno all'asse verticale baricentrico di definizione della sezione. [cm<sup>4</sup>]

**Wx:** modulo di resistenza elastico minimo relativo all'asse x. [cm<sup>3</sup>]

**Wy:** modulo di resistenza elastico minimo relativo all'asse y. [cm<sup>3</sup>]

### Superelemento in legno a "Falda 1" 73-76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 485.8 composto da:

asta 206: Trave in legno a falda Falda 1 fili 72-74 (L = 263)

asta 402: Trave in legno a falda Falda 1 fili 74-76 (L = 222.8)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 254.3

Kdef = 0

Uinst tot in x = -0.05

Uinst tot in y = -6.52

Uinst tot = 6.52

Luce/Uinst,tot < limite

485.8/6.52=74.5 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 254.3

Kdef = 0

Uinst var in x = -0.03

Uinst var in y = -4.32

Uinst var = 4.32

Luce/Uinst,var < limite

485.8/4.32=112.5 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 254.3

Kdef = 0.6

Ufin in x = -0.07

Ufin in y = -7.85

Ufin = 7.85

Luce/Ufin < limite

485.8/7.85=61.9 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" 74-(-967; -97)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



### Dati generali

Superelemento di lunghezza complessiva L= 472.8 composto da:

asta 343: Trave in legno a falda Falda 1 fili 74-133 (L = 67.5)  
asta 344: Trave in legno a falda Falda 1 fili 74-133 (L = 67.5)  
asta 345: Trave in legno a falda Falda 1 fili 74-133 (L = 67.6)  
asta 346: Trave in legno a falda Falda 1 fili 74-133 (L = 67.6)  
asta 347: Trave in legno a falda Falda 1 fili 74-133 (L = 67.6)  
asta 348: Trave in legno a falda Falda 1 fili 74-133 (L = 67.6)  
asta 349: Trave in legno a falda Falda 1 fili 74-133 (L = 67.6)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 119.3

Kdef = 0

Uinst tot in x = -0.13

Uinst tot in y = 0.08

Uinst tot = 0.13

Luce/Uinst,tot > limite

472.8/0.13=3717.4 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 146.3

Kdef = 0

Uinst var in x = -0.1

Uinst var in y = 0.07

Uinst var = 0.1

Luce/Uinst,var > limite

472.8/0.1=4579.4 > 300 Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 117.1

Kdef = 0.6

Ufin in x = -0.14

Ufin in y = 0.09

Ufin = 0.14

Luce/Ufin > limite

472.8/0.14=3288.5 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" 89-91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 667.6 composto da:

asta 200: Trave in legno a falda Falda 1 fili 89-90 (L = 41.6)  
asta 201: Trave in legno a falda Falda 1 fili 89-90 (L = 41.6)  
asta 202: Trave in legno a falda Falda 1 fili 89-90 (L = 41.6)  
asta 203: Trave in legno a falda Falda 1 fili 89-90 (L = 41.6)  
asta 204: Trave in legno a falda Falda 1 fili 89-90 (L = 278.4)  
asta 400: Trave in legno a falda Falda 1 fili 90-91 (L = 222.8)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 435.6  
Kdef = 0  
Uinst tot in x = 0.06  
Uinst tot in y = -6.52  
Uinst tot = 6.52  
Luce/Uinst,tot < limite  
 $667.6/6.52=102.4 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 435.6  
Kdef = 0  
Uinst var in x = -0.03  
Uinst var in y = -4.29  
Uinst var = 4.29  
Luce/Uinst,var < limite  
 $667.6/4.29=155.8 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 441.2  
Kdef = 0.6  
Ufin in x = 0.1  
Ufin in y = -7.86  
Ufin = 7.86  
Luce/Ufin < limite  
 $667.6/7.86=84.9 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" 133-(-896; -97)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 270.2 composto da:  
asta 339: Trave in legno a falda Falda 1 fili 133-161 (L = 67.6)  
asta 340: Trave in legno a falda Falda 1 fili 133-161 (L = 67.6)  
asta 341: Trave in legno a falda Falda 1 fili 133-161 (L = 67.6)  
asta 342: Trave in legno a falda Falda 1 fili 133-161 (L = 67.5)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 141.9  
Kdef = 0  
Uinst tot in x = -0.05  
Uinst tot in y = -0.15  
Uinst tot = 0.15  
Luce/Uinst,tot > limite  
 $270.2/0.15=1857.3 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 141.9  
Kdef = 0  
Uinst var in x = -0.02





Uinst var in y = -0.09  
Uinst var = 0.09  
Luce/Uinst,var > limite  
270.2/0.09=2852 > 300 Comb: SLE rara, 8  
**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 146.4  
Kdef = 0.6  
Ufin in x = -0.07  
Ufin in y = -0.18  
Ufin = 0.18  
Luce/Ufin > limite  
270.2/0.18=1492.8 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

**Superelemento in legno a "Falda 1" 161-(-225; -97)**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Superelemento di lunghezza complessiva L= 472.9 composto da:  
asta 332: Trave in legno a falda Falda 1 fili 161-217 (L = 67.6)  
asta 333: Trave in legno a falda Falda 1 fili 161-217 (L = 67.6)  
asta 334: Trave in legno a falda Falda 1 fili 161-217 (L = 67.6)  
asta 335: Trave in legno a falda Falda 1 fili 161-217 (L = 67.6)  
asta 336: Trave in legno a falda Falda 1 fili 161-217 (L = 67.6)  
asta 337: Trave in legno a falda Falda 1 fili 161-217 (L = 67.6)  
asta 338: Trave in legno a falda Falda 1 fili 161-217 (L = 67.6)

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 328.8  
Kdef = 0  
Uinst tot in x = -0.1  
Uinst tot in y = 0.04  
Uinst tot = 0.1  
Luce/Uinst,tot > limite  
472.9/0.1=4544.9 > 300 Comb: SLE rara, 17

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 319.8  
Kdef = 0  
Uinst var in x = -0.08  
Uinst var in y = 0.03  
Uinst var = 0.08  
Luce/Uinst,var > limite  
472.9/0.08=5976.6 > 300 Comb: SLE rara, 17

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 349  
Kdef = 0.6  
Ufin in x = -0.13  
Ufin in y = -0.05  
Ufin = 0.13  
Luce/Ufin > limite  
472.9/0.13=3505.5 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880



Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" 201-203

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 667.5$  composto da:

asta 171: Trave in legno a falda Falda 1 fili 201-202 ( $L = 41.5$ )  
asta 172: Trave in legno a falda Falda 1 fili 201-202 ( $L = 41.6$ )  
asta 173: Trave in legno a falda Falda 1 fili 201-202 ( $L = 41.6$ )  
asta 174: Trave in legno a falda Falda 1 fili 201-202 ( $L = 41.6$ )  
asta 175: Trave in legno a falda Falda 1 fili 201-202 ( $L = 278.4$ )  
asta 387: Trave in legno a falda Falda 1 fili 202-203 ( $L = 222.8$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 435.4

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.04$

$U_{inst\ tot\ in\ y} = -5.05$

$U_{inst\ tot} = 5.05$

$Luce/U_{inst,tot} < \text{limite}$

$667.5/5.05 = 132.2 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 435.4

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.03$

$U_{inst\ var\ in\ y} = -3.28$

$U_{inst\ var} = 3.28$

$Luce/U_{inst,var} < \text{limite}$

$667.5/3.28 = 203.2 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 441.1

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.07$

$U_{fin\ in\ y} = -6.11$

$U_{fin} = 6.11$

$Luce/U_{fin} < \text{limite}$

$667.5/6.11 = 109.2 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" 217-(85; -97)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 377.9$  composto da:

asta 326: Trave in legno a falda Falda 1 fili 217-260 ( $L = 67.6$ )  
asta 327: Trave in legno a falda Falda 1 fili 217-260 ( $L = 67.6$ )  
asta 328: Trave in legno a falda Falda 1 fili 217-260 ( $L = 67.6$ )  
asta 329: Trave in legno a falda Falda 1 fili 217-260 ( $L = 67.6$ )  
asta 330: Trave in legno a falda Falda 1 fili 217-260 ( $L = 67.6$ )  
asta 331: Trave in legno a falda Falda 1 fili 217-260 ( $L = 40.1$ )



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 164.4  
Kdef = 0  
Uinst tot in x = -0.18  
Uinst tot in y = -0.29  
Uinst tot = 0.29  
Luce/Uinst,tot > limite  
 $377.9/0.29=1323.2 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 164.4  
Kdef = 0  
Uinst var in x = -0.13  
Uinst var in y = -0.19  
Uinst var = 0.19  
Luce/Uinst,var > limite  
 $377.9/0.19=1948.9 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 168.9  
Kdef = 0.6  
Ufin in x = -0.23  
Ufin in y = -0.38  
Ufin = 0.38  
Luce/Ufin > limite  
 $377.9/0.38=1006.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 1" 223-218

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 485.7 composto da:  
asta 177: Trave in legno a falda Falda 1 fili 216-217 (L = 263)  
asta 389: Trave in legno a falda Falda 1 fili 217-218 (L = 222.8)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 254.2  
Kdef = 0  
Uinst tot in x = -0.05  
Uinst tot in y = -4.66  
Uinst tot = 4.66  
Luce/Uinst,tot < limite  
 $485.7/4.66=104.3 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 254.2

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -3.04

Uinst var = 3.04

Luce/Uinst,var < limite

485.7/3.04=159.8 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 254.2

Kdef = 0.6

Ufin in x = 0.06

Ufin in y = -5.63

Ufin = 5.63

Luce/Ufin < limite

485.7/5.63=86.3 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-88; -322)-(-88; -243)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 87 composto da:

Asta 185: Trave in legno a falda Falda 1 fili 270-271

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 55.1

Kdef = 0

Uinst tot in x = 0.01

Uinst tot in y = -0.05

Uinst tot = 0.05

Luce/Uinst,tot > limite

87/0.05=1673.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 55.1

Kdef = 0

Uinst var in x = 0

Uinst var in y = -0.04

Uinst var = 0.04

Luce/Uinst,var > limite

87/0.04=2466.8 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 58

Kdef = 0.6

Ufin in x = 0.01

Ufin in y = -0.06

Ufin = 0.06

Luce/Ufin > limite

87/0.06=1401.9 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600



Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-156; -322)-(-156; -178)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 159 composto da:  
Asta 184: Trave in legno a falda Falda 1 fili 266-267

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 100.7

Kdef = 0

Uinst tot in x = 0.01

Uinst tot in y = -0.19

Uinst tot = 0.19

Luce/Uinst,tot > limite

$159/0.19=820 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 95.4

Kdef = 0

Uinst var in x = 0.01

Uinst var in y = -0.13

Uinst var = 0.13

Luce/Uinst,var > limite

$159/0.13=1194.3 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 100.7

Kdef = 0.6

Ufin in x = 0.02

Ufin in y = -0.23

Ufin = 0.23

Luce/Ufin > limite

$159/0.23=689 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-223; -322)-(-223; -112)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 231 composto da:  
Asta 183: Trave in legno a falda Falda 1 fili 261-262

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 138.6

Kdef = 0

Uinst tot in x = 0.03

Uinst tot in y = -0.53

Uinst tot = 0.53

Luce/Uinst,tot > limite

231/0.53=432.2 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 130.9

Kdef = 0

Uinst var in x = 0.02

Uinst var in y = -0.36

Uinst var = 0.36

Luce/Uinst,var > limite

231/0.36=634.2 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 138.6

Kdef = 0.6

Ufin in x = 0.03

Ufin in y = -0.64

Ufin = 0.64

Luce/Ufin > limite

231/0.64=362.4 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-291; -322)-256

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 303 composto da:

asta 182: Trave in legno a falda Falda 1 fili 254-255 (L = 263)

asta 394: Trave in legno a falda Falda 1 fili 255-256 (L = 40.1)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 175.3

Kdef = 0

Uinst tot in x = 0.06

Uinst tot in y = -1.28

Uinst tot = 1.28

Luce/Uinst,tot < limite

303/1.28=236.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 175.3

Kdef = 0

Uinst var in x = 0.03

Uinst var in y = -0.86

Uinst var = 0.86

Luce/Uinst,var > limite

303/0.86=353.9 > 300 Comb: SLE rara, 17



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 175.3

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.07$

$U_{fin\ in\ y} = -1.54$

$U_{fin} = 1.54$

$Luce/U_{fin} < \text{limite}$

$303/1.54=196.7 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 1" (-359; -322)-250

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva  $L = 365.4$  composto da:

asta 181: Trave in legno a falda Falda 1 fili 248-249 ( $L = 263$ )

asta 393: Trave in legno a falda Falda 1 fili 249-250 ( $L = 102.5$ )

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 201.6

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.12$

$U_{inst\ tot\ in\ y} = -2.3$

$U_{inst\ tot} = 2.3$

$Luce/U_{inst,tot} < \text{limite}$

$365.4/2.3=158.7 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 201.6

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.07$

$U_{inst\ var\ in\ y} = -1.52$

$U_{inst\ var} = 1.52$

$Luce/U_{inst,var} < \text{limite}$

$365.4/1.52=240.7 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 201.6

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.16$

$U_{fin\ in\ y} = -2.77$

$U_{fin} = 2.77$

$Luce/U_{fin} < \text{limite}$

$365.4/2.77=131.8 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 1" (-426; -322)-244

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



### Dati generali

Superelemento di lunghezza complessiva L= 435.4 composto da:  
asta 180: Trave in legno a falda Falda 1 fili 242-243 (L = 263)  
asta 392: Trave in legno a falda Falda 1 fili 243-244 (L = 172.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 227.9

Kdef = 0

Uinst tot in x = 0.07

Uinst tot in y = -3.4

Uinst tot = 3.4

Luce/Uinst,tot < limite

435.4/3.4=128.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 227.9

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -2.23

Uinst var = 2.23

Luce/Uinst,var < limite

435.4/2.23=195.5 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 227.9

Kdef = 0.6

Ufin in x = 0.1

Ufin in y = -4.1

Ufin = 4.1

Luce/Ufin < limite

435.4/4.1=106.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-494; -322)-238

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 485.7 composto da:  
asta 179: Trave in legno a falda Falda 1 fili 236-237 (L = 263)  
asta 391: Trave in legno a falda Falda 1 fili 237-238 (L = 222.7)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 236.7

Kdef = 0

Uinst tot in x = -0.07

Uinst tot in y = -4.07





Uinst tot = 4.07  
Luce/Uinst,tot < limite  
485.7/4.07=119.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 236.7  
Kdef = 0  
Uinst var in x = -0.05  
Uinst var in y = -2.66  
Uinst var = 2.66  
Luce/Uinst,var < limite  
485.7/2.66=182.6 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 236.7  
Kdef = 0.6  
Ufin in x = -0.09  
Ufin in y = -4.92  
Ufin = 4.92  
Luce/Ufin < limite  
485.7/4.92=98.8 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-561; -322)-227

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 485.7 composto da:  
asta 178: Trave in legno a falda Falda 1 fili 225-226 (L = 263)  
asta 390: Trave in legno a falda Falda 1 fili 226-227 (L = 222.7)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 245.4  
Kdef = 0  
Uinst tot in x = -0.04  
Uinst tot in y = -4.4  
Uinst tot = 4.4  
Luce/Uinst,tot < limite  
485.7/4.4=110.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 245.4  
Kdef = 0  
Uinst var in x = -0.04  
Uinst var in y = -2.87  
Uinst var = 2.87  
Luce/Uinst,var < limite  
485.7/2.87=169 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 245.4  
Kdef = 0.6  
Ufin in x = -0.05  
Ufin in y = -5.32  
Ufin = 5.32  
Luce/Ufin < limite



$485.7/5.32=91.4 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-696; -322)-212

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 485.8$  composto da:  
asta 176: Trave in legno a falda Falda 1 fili 210-211 ( $L = 263$ )  
asta 388: Trave in legno a falda Falda 1 fili 211-212 ( $L = 222.8$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 245.4  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = -0.06$   
 $U_{inst\ tot\ in\ y} = -4.86$   
 $U_{inst\ tot} = 4.86$   
 $Luce/U_{inst,tot} < \text{limite}$   
 $485.8/4.86=100 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 254.2  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.05$   
 $U_{inst\ var\ in\ y} = -3.17$   
 $U_{inst\ var} = 3.17$   
 $Luce/U_{inst,var} < \text{limite}$   
 $485.8/3.17=153.4 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 245.4  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = -0.06$   
 $U_{fin\ in\ y} = -5.88$   
 $U_{fin} = 5.88$   
 $Luce/U_{fin} < \text{limite}$   
 $485.8/5.88=82.7 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-832; -471)-193

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 651.1$  composto da:  
asta 169: Trave in legno a falda Falda 1 fili 191-192 ( $L = 165.4$ )  
asta 170: Trave in legno a falda Falda 1 fili 191-192 ( $L = 263$ )  
asta 386: Trave in legno a falda Falda 1 fili 192-193 ( $L = 222.8$ )



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 419.6

Kdef = 0

Uinst tot in x = 0.05

Uinst tot in y = -5.24

Uinst tot = 5.24

Luce/Uinst,tot < limite

651.1/5.24=124.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -3.4

Uinst var = 3.4

Luce/Uinst,var < limite

651.1/3.4=191.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 425.1

Kdef = 0.6

Ufin in x = 0.07

Ufin in y = -6.34

Ufin = 6.34

Luce/Ufin < limite

651.1/6.34=102.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-899; -471)-186

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 651.1 composto da:

asta 167: Trave in legno a falda Falda 1 fili 184-185 (L = 165.4)

asta 168: Trave in legno a falda Falda 1 fili 184-185 (L = 263)

asta 385: Trave in legno a falda Falda 1 fili 185-186 (L = 222.8)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 419.6

Kdef = 0

Uinst tot in x = 0.04

Uinst tot in y = -5.45

Uinst tot = 5.45

Luce/Uinst,tot < limite

651.1/5.45=119.6 < 300 Comb: SLE rara, 17 - NON SODDISFATTA



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -3.54

Uinst var = 3.54

Luce/Uinst,var < limite

651.1/3.54=184.2 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 425.1

Kdef = 0.6

Ufin in x = 0.06

Ufin in y = -6.59

Ufin = 6.59

Luce/Ufin < limite

651.1/6.59=98.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-967; -471)-180

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 651.1 composto da:

asta 165: Trave in legno a falda Falda 1 fili 178-179 (L = 165.4)

asta 166: Trave in legno a falda Falda 1 fili 178-179 (L = 263)

asta 384: Trave in legno a falda Falda 1 fili 179-180 (L = 222.8)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 419.6

Kdef = 0

Uinst tot in x = 0.04

Uinst tot in y = -5.67

Uinst tot = 5.67

Luce/Uinst,tot < limite

651.1/5.67=114.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -3.68

Uinst var = 3.68

Luce/Uinst,var < limite

651.1/3.68=176.8 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 425.1

Kdef = 0.6

Ufin in x = 0.06

Ufin in y = -6.87

Ufin = 6.87

Luce/Ufin < limite

651.1/6.87=94.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:



Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-1034; -471)-172

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 651.2$  composto da:  
asta 129: Trave in legno a falda Falda 1 fili 170-171 ( $L = 165.4$ )  
asta 130: Trave in legno a falda Falda 1 fili 170-171 ( $L = 263$ )  
asta 383: Trave in legno a falda Falda 1 fili 171-172 ( $L = 222.8$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 410.8  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = 0.05$   
 $U_{inst\ tot\ in\ y} = -5.92$   
 $U_{inst\ tot} = 5.92$   
Luce/ $U_{inst,tot} < \text{limite}$   
 $651.2/5.92 = 110 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.03$   
 $U_{inst\ var\ in\ y} = -3.84$   
 $U_{inst\ var} = 3.84$   
Luce/ $U_{inst,var} < \text{limite}$   
 $651.2/3.84 = 169.4 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 416.3  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = 0.08$   
 $U_{fin\ in\ y} = -7.17$   
 $U_{fin} = 7.17$   
Luce/ $U_{fin} < \text{limite}$   
 $651.2/7.17 = 90.8 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-1169; -471)-155

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 651.1$  composto da:  
asta 324: Trave in legno a falda Falda 1 fili 153-154 ( $L = 428.3$ )  
asta 409: Trave in legno a falda Falda 1 fili 154-155 ( $L = 222.7$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67



Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 371.2  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = -0.07$   
 $U_{inst\ tot\ in\ y} = -6.69$   
 $U_{inst\ tot} = 6.69$   
Luce/ $U_{inst,tot} < \text{limite}$   
 $651.1/6.69=97.3 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 371.2  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.05$   
 $U_{inst\ var\ in\ y} = -4.33$   
 $U_{inst\ var} = 4.33$   
Luce/ $U_{inst,var} < \text{limite}$   
 $651.1/4.33=150.3 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 371.2  
 $K_{def} = 0.6$   
 $U_{fin\ in\ x} = -0.09$   
 $U_{fin\ in\ y} = -8.11$   
 $U_{fin} = 8.11$   
Luce/ $U_{fin} < \text{limite}$   
 $651.1/8.11=80.3 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 1" (-1237; -471)-150

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva  $L = 651.1$  composto da:  
asta 323: Trave in legno a falda Falda 1 fili 148-149 ( $L = 428.3$ )  
asta 408: Trave in legno a falda Falda 1 fili 149-150 ( $L = 222.7$ )

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 371.2  
 $K_{def} = 0$   
 $U_{inst\ tot\ in\ x} = -0.03$   
 $U_{inst\ tot\ in\ y} = -6.88$   
 $U_{inst\ tot} = 6.88$   
Luce/ $U_{inst,tot} < \text{limite}$   
 $651.1/6.88=94.7 < 300$  Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 371.2  
 $K_{def} = 0$   
 $U_{inst\ var\ in\ x} = -0.03$   
 $U_{inst\ var\ in\ y} = -4.45$



Uinst var = 4.45  
Luce/Uinst,var < limite  
651.1/4.45=146.2 < 300 Comb: SLE rara, 16 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 371.2  
Kdef = 0.6  
Ufin in x = -0.03  
Ufin in y = -8.34  
Ufin = 8.34  
Luce/Ufin < limite  
651.1/8.34=78.1 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 1" (-1304; -471)-141

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 651.1 composto da:  
asta 325: Trave in legno a falda Falda 1 fili 139-140 (L = 428.3)  
asta 410: Trave in legno a falda Falda 1 fili 140-141 (L = 222.7)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 371.2  
Kdef = 0  
Uinst tot in x = 0.03  
Uinst tot in y = -6.82  
Uinst tot = 6.82  
Luce/Uinst,tot < limite  
651.1/6.82=95.5 < 300 Comb: SLE rara, 16 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 371.2  
Kdef = 0  
Uinst var in x = -0.03  
Uinst var in y = -4.42  
Uinst var = 4.42  
Luce/Uinst,var < limite  
651.1/4.42=147.4 < 300 Comb: SLE rara, 16 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 371.2  
Kdef = 0.6  
Ufin in x = 0.04  
Ufin in y = -8.26  
Ufin = 8.26  
Luce/Ufin < limite  
651.1/8.26=78.8 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000



## Superelemento in legno a "Falda 1" (-1440; -471)-123

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 651.1$  composto da:

asta 192: Trave in legno a falda Falda 1 fili 121-122 ( $L = 165.3$ )

asta 193: Trave in legno a falda Falda 1 fili 121-122 ( $L = 263$ )

asta 396: Trave in legno a falda Falda 1 fili 122-123 ( $L = 222.8$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 419.6

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.05$

$U_{inst\ tot\ in\ y} = -6.37$

$U_{inst\ tot} = 6.37$

Luce/ $U_{inst\ tot}$  < limite

$651.1/6.37 = 102.2 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.05$

$U_{inst\ var\ in\ y} = -4.14$

$U_{inst\ var} = 4.14$

Luce/ $U_{inst\ var}$  < limite

$651.1/4.14 = 157.1 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 425.1

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.09$

$U_{fin\ in\ y} = -7.71$

$U_{fin} = 7.71$

Luce/ $U_{fin}$  < limite

$651.1/7.71 = 84.5 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-1507; -471)-115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 651.1$  composto da:

asta 194: Trave in legno a falda Falda 1 fili 113-114 ( $L = 165.3$ )

asta 195: Trave in legno a falda Falda 1 fili 113-114 ( $L = 263$ )

asta 397: Trave in legno a falda Falda 1 fili 114-115 ( $L = 222.8$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1





#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 419.6

Kdef = 0

Uinst tot in x = 0.05

Uinst tot in y = -6.34

Uinst tot = 6.34

Luce/Uinst,tot < limite

651.1/6.34=102.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6

Kdef = 0

Uinst var in x = -0.05

Uinst var in y = -4.13

Uinst var = 4.13

Luce/Uinst,var < limite

651.1/4.13=157.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 425.1

Kdef = 0.6

Ufin in x = 0.09

Ufin in y = -7.67

Ufin = 7.67

Luce/Ufin < limite

651.1/7.67=84.9 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-1575; -471)-106

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 651.1 composto da:

asta 196: Trave in legno a falda Falda 1 fili 104-105 (L = 165.3)

asta 197: Trave in legno a falda Falda 1 fili 104-105 (L = 263)

asta 398: Trave in legno a falda Falda 1 fili 105-106 (L = 222.8)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 419.6

Kdef = 0

Uinst tot in x = 0.05

Uinst tot in y = -6.36

Uinst tot = 6.36

Luce/Uinst,tot < limite

651.1/6.36=102.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6

Kdef = 0

Uinst var in x = -0.05

Uinst var in y = -4.15

Uinst var = 4.15

Luce/Uinst,var < limite

651.1/4.15=156.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 425.1

Kdef = 0.6

Ufin in x = 0.08

Ufin in y = -7.69

Ufin = 7.69

Luce/Ufin < limite

651.1/7.69=84.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-1642; -471)-99

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 651.1 composto da:

asta 198: Trave in legno a falda Falda 1 fili 97-98 (L = 165.3)

asta 199: Trave in legno a falda Falda 1 fili 97-98 (L = 263)

asta 399: Trave in legno a falda Falda 1 fili 98-99 (L = 222.8)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 419.6

Kdef = 0

Uinst tot in x = 0.06

Uinst tot in y = -6.43

Uinst tot = 6.43

Luce/Uinst,tot < limite

651.1/6.43=101.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 419.6

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -4.21

Uinst var = 4.21

Luce/Uinst,var < limite

651.1/4.21=154.6 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 425.1

Kdef = 0.6

Ufin in x = 0.09

Ufin in y = -7.76

Ufin = 7.76

Luce/Ufin < limite

651.1/7.76=83.9 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600



## Superelemento in legno a "Falda 1" (-1777; -322)-83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 485.8$  composto da:

asta 205: Trave in legno a falda Falda 1 fili 81-82 ( $L = 263$ )

asta 401: Trave in legno a falda Falda 1 fili 82-83 ( $L = 222.7$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 254.3

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.06$

$U_{inst\ tot\ in\ y} = -6.57$

$U_{inst\ tot} = 6.57$

Luce/ $U_{inst,tot} < \text{limite}$

$485.8/6.57=74 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 254.3

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.03$

$U_{inst\ var\ in\ y} = -4.33$

$U_{inst\ var} = 4.33$

Luce/ $U_{inst,var} < \text{limite}$

$485.8/4.33=112.1 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 254.3

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.07$

$U_{fin\ in\ y} = -7.91$

$U_{fin} = 7.91$

Luce/ $U_{fin} < \text{limite}$

$485.8/7.91=61.4 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-1912; -322)-67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 485.8$  composto da:

asta 207: Trave in legno a falda Falda 1 fili 65-66 ( $L = 263$ )

asta 403: Trave in legno a falda Falda 1 fili 66-67 ( $L = 222.7$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 245.5

Kdef = 0

Uinst tot in x = -0.06

Uinst tot in y = -6.3

Uinst tot = 6.3

Luce/Uinst,tot < limite

485.8/6.3=77.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 245.5

Kdef = 0

Uinst var in x = -0.03

Uinst var in y = -4.18

Uinst var = 4.18

Luce/Uinst,var < limite

485.8/4.18=116.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 245.5

Kdef = 0.6

Ufin in x = -0.08

Ufin in y = -7.58

Ufin = 7.58

Luce/Ufin < limite

485.8/7.58=64.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-1980; -322)-58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 485.8 composto da:

asta 208: Trave in legno a falda Falda 1 fili 56-57 (L = 263)

asta 404: Trave in legno a falda Falda 1 fili 57-58 (L = 222.7)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 236.7

Kdef = 0

Uinst tot in x = -0.07

Uinst tot in y = -5.88

Uinst tot = 5.88

Luce/Uinst,tot < limite

485.8/5.88=82.7 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 236.7

Kdef = 0

Uinst var in x = -0.03

Uinst var in y = -3.91

Uinst var = 3.91

Luce/Uinst,var < limite

485.8/3.91=124.3 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 236.7



Kdef = 0.6  
Ufin in x = -0.09  
Ufin in y = -7.06  
Ufin = 7.06  
Luce/Ufin < limite  
485.8/7.06=68.8 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-2048; -322)-51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 450.6 composto da:  
asta 209: Trave in legno a falda Falda 1 fili 49-50 (L = 263)  
asta 405: Trave in legno a falda Falda 1 fili 50-51 (L = 187.6)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 228  
Kdef = 0  
Uinst tot in x = -0.12  
Uinst tot in y = -5.04  
Uinst tot = 5.04  
Luce/Uinst,tot < limite  
450.6/5.04=89.4 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 228  
Kdef = 0  
Uinst var in x = -0.07  
Uinst var in y = -3.36  
Uinst var = 3.36  
Luce/Uinst,var < limite  
450.6/3.36=134.1 < 300 Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 228  
Kdef = 0.6  
Ufin in x = -0.15  
Ufin in y = -6.05  
Ufin = 6.05  
Luce/Ufin < limite  
450.6/6.05=74.4 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 1" (-2115; -322)-45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 378.1 composto da:



asta 210: Trave in legno a falda Falda 1 fili 43-44 (L = 263)  
asta 406: Trave in legno a falda Falda 1 fili 44-45 (L = 115.1)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 210.4

Kdef = 0

Uinst tot in x = -0.19

Uinst tot in y = -3.53

Uinst tot = 3.53

Luce/Uinst,tot < limite

$378.1/3.53=107.3 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 210.4

Kdef = 0

Uinst var in x = -0.12

Uinst var in y = -2.36

Uinst var = 2.36

Luce/Uinst,var < limite

$378.1/2.36=160.3 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 210.4

Kdef = 0.6

Ufin in x = -0.24

Ufin in y = -4.22

Ufin = 4.22

Luce/Ufin < limite

$378.1/4.22=89.5 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-2183; -322)-39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 314.5 composto da:

asta 211: Trave in legno a falda Falda 1 fili 37-38 (L = 263)

asta 407: Trave in legno a falda Falda 1 fili 38-39 (L = 51.5)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 184.1

Kdef = 0

Uinst tot in x = -0.11

Uinst tot in y = -2.02

Uinst tot = 2.02

Luce/Uinst,tot < limite



$314.5/2.02=156.1 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 175.4

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.07$

$U_{inst\ var\ in\ y} = -1.36$

$U_{inst\ var} = 1.36$

$Luce/U_{inst, var} < \text{limite}$

$314.5/1.36=231.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 184.1

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.13$

$U_{fin\ in\ y} = -2.41$

$U_{fin} = 2.41$

$Luce/U_{fin} < \text{limite}$

$314.5/2.41=130.6 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 1" (-2242; -97)-74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva  $L = 387.1$  composto da:

asta 138: Trave in legno a falda Falda 1 fili 36-74 ( $L = 49.4$ )

asta 139: Trave in legno a falda Falda 1 fili 36-74 ( $L = 67.6$ )

asta 140: Trave in legno a falda Falda 1 fili 36-74 ( $L = 67.6$ )

asta 141: Trave in legno a falda Falda 1 fili 36-74 ( $L = 67.6$ )

asta 142: Trave in legno a falda Falda 1 fili 36-74 ( $L = 67.6$ )

asta 143: Trave in legno a falda Falda 1 fili 36-74 ( $L = 67.6$ )

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 220.5

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.41$

$U_{inst\ tot\ in\ y} = -0.66$

$U_{inst\ tot} = 0.66$

$Luce/U_{inst, tot} > \text{limite}$

$387.1/0.66=589.1 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 220.5

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.28$

$U_{inst\ var\ in\ y} = -0.45$

$U_{inst\ var} = 0.45$

$Luce/U_{inst, var} > \text{limite}$

$387.1/0.45=861.9 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 226.6

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.47$

$U_{fin\ in\ y} = -0.71$

$U_{fin} = 0.71$



Luce/Ufin > limite

$387.1/0.71=543.7 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-2250; -322)-(-2250; -104)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 240.2 composto da:

Asta 212: Trave in legno a falda Falda 1 fili 32-33

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 144.1

Kdef = 0

Uinst tot in x = -0.05

Uinst tot in y = -0.81

Uinst tot = 0.81

Luce/Uinst,tot < limite

$240.2/0.81=298.2 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 136.1

Kdef = 0

Uinst var in x = -0.03

Uinst var in y = -0.56

Uinst var = 0.56

Luce/Uinst,var > limite

$240.2/0.56=432.6 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 144.1

Kdef = 0.6

Ufin in x = -0.06

Ufin in y = -0.96

Ufin = 0.96

Luce/Ufin > limite

$240.2/0.96=251.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 1" (-2318; -322)-(-2318; -172)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 165.8 composto da:

Asta 213: Trave in legno a falda Falda 1 fili 27-28

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016





$\beta, x = 0; \beta, y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 105

Kdef = 0

Uinst tot in x = -0.03

Uinst tot in y = -0.27

Uinst tot = 0.27

Luce/Uinst,tot > limite

165.8/0.27=614.4 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 99.5

Kdef = 0

Uinst var in x = -0.02

Uinst var in y = -0.19

Uinst var = 0.19

Luce/Uinst,var > limite

165.8/0.19=877 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 105

Kdef = 0.6

Ufin in x = -0.03

Ufin in y = -0.32

Ufin = 0.32

Luce/Ufin > limite

165.8/0.32=520.5 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 1" (-2385; -322)-(-2385; -239)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 91.4 composto da:

Asta 214: Trave in legno a falda Falda 1 fili 23-24

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta, x = 0; \beta, y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 60.9

Kdef = 0

Uinst tot in x = -0.01

Uinst tot in y = -0.07

Uinst tot = 0.07

Luce/Uinst,tot > limite

91.4/0.07=1352.8 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 57.9

Kdef = 0

Uinst var in x = -0.01

Uinst var in y = -0.05

Uinst var = 0.05

Luce/Uinst,var > limite



91.4/0.05=1903.5 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 60.9

Kdef = 0.6

Ufin in x = -0.01

Ufin in y = -0.08

Ufin = 0.08

Luce/Ufin > limite

91.4/0.08=1151.5 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 2" 24-(-2468; -256)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 92.6 composto da:

Asta 237: Trave in legno a falda Falda 2 fili 24-2

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 67.9

Kdef = 0

Uinst tot in x = 0.01

Uinst tot in y = 0.03

Uinst tot = 0.03

Luce/Uinst,tot > limite

92.6/0.03=3038.7 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 67.9

Kdef = 0

Uinst var in x = 0.01

Uinst var in y = 0.02

Uinst var = 0.02

Luce/Uinst,var > limite

92.6/0.02=4270 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 67.9

Kdef = 0.6

Ufin in x = 0.01

Ufin in y = 0.04

Ufin = 0.04

Luce/Ufin > limite

92.6/0.04=2589.3 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 2" 25-(-2469; 505)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



### Dati generali

Superelemento di lunghezza complessiva L= 92.3 composto da:

Asta 321: Trave in legno a falda Falda 2 fili 25-14

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 21.5

Kdef = 0

Uinst tot in x = -0.01

Uinst tot in y = -0.05

Uinst tot = 0.05

Luce/Uinst,tot > limite

$92.3/0.05=1980.1 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 21.5

Kdef = 0

Uinst var in x = -0.01

Uinst var in y = -0.03

Uinst var = 0.03

Luce/Uinst,var > limite

$92.3/0.03=2907.1 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 21.5

Kdef = 0.6

Ufin in x = -0.02

Ufin in y = -0.06

Ufin = 0.06

Luce/Ufin > limite

$92.3/0.06=1662.1 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 2" 28-(-2468; -190)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 169.8 composto da:

Asta 238: Trave in legno a falda Falda 2 fili 28-3

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 118.9

Kdef = 0

Uinst tot in x = 0.01

Uinst tot in y = 0.12

Uinst tot = 0.12

Luce/Uinst,tot > limite

$169.8/0.12=1461.8 > 300$  Comb: SLE rara, 17



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 113.2

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0.08

Uinst var = 0.08

Luce/Uinst,var > limite

169.8/0.08=2049.5 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 118.9

Kdef = 0.6

Ufin in x = 0.01

Ufin in y = 0.14

Ufin = 0.14

Luce/Ufin > limite

169.8/0.14=1245.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 2" 29-(-2469; 432)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 168.9 composto da:

Asta 320: Trave in legno a falda Falda 2 fili 29-13

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 39.4

Kdef = 0

Uinst tot in x = -0.04

Uinst tot in y = -0.14

Uinst tot = 0.14

Luce/Uinst,tot > limite

168.9/0.14=1219.9 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 39.4

Kdef = 0

Uinst var in x = -0.03

Uinst var in y = -0.09

Uinst var = 0.09

Luce/Uinst,var > limite

168.9/0.09=1810.8 > 300 Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 39.4

Kdef = 0.6

Ufin in x = -0.05

Ufin in y = -0.17

Ufin = 0.17

Luce/Ufin > limite

168.9/0.17=1020.2 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600



Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 2" 33-(-2468; -125)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 246.3$  composto da:

Asta 239: Trave in legno a falda Falda 2 fili 33-4

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 156

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.06$

$U_{inst\ tot\ in\ y} = 0.29$

$U_{inst\ tot} = 0.29$

Luce/ $U_{inst,tot} >$  limite

$246.3/0.29 = 850.1 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 156

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.04$

$U_{inst\ var\ in\ y} = 0.21$

$U_{inst\ var} = 0.21$

Luce/ $U_{inst,var} >$  limite

$246.3/0.21 = 1186.1 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 156

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.08$

$U_{fin\ in\ y} = 0.34$

$U_{fin} = 0.34$

Luce/ $U_{fin} >$  limite

$246.3/0.34 = 725.9 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 2" 34-(-2468; 359)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 245.6$  composto da:

Asta 319: Trave in legno a falda Falda 2 fili 34-12

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1



#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 65.5

Kdef = 0

Uinst tot in x = -0.19

Uinst tot in y = -0.29

Uinst tot = 0.29

Luce/Uinst,tot > limite

245.6/0.29=838.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 65.5

Kdef = 0

Uinst var in x = -0.13

Uinst var in y = -0.19

Uinst var = 0.19

Luce/Uinst,var > limite

245.6/0.19=1265.9 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 65.5

Kdef = 0.6

Ufin in x = -0.23

Ufin in y = -0.35

Ufin = 0.35

Luce/Ufin > limite

245.6/0.35=696.7 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 2" 39-(-2468; -59)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 322.8 composto da:

Asta 240: Trave in legno a falda Falda 2 fili 39-5

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 204.5

Kdef = 0

Uinst tot in x = 0.24

Uinst tot in y = 0.3

Uinst tot = 0.3

Luce/Uinst,tot > limite

322.8/0.3=1065.4 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 204.5

Kdef = 0

Uinst var in x = 0.16

Uinst var in y = 0.23

Uinst var = 0.23

Luce/Uinst,var > limite

322.8/0.23=1408.3 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 204.5

Kdef = 0.6



U<sub>fin</sub> in x = 0.29  
U<sub>fin</sub> in y = 0.35  
U<sub>fin</sub> = 0.35  
Luce/U<sub>fin</sub> > limite  
322.8/0.35=928.2 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 2" 40-(-2468; 286)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 322.3 composto da:  
Asta 318: Trave in legno a falda Falda 2 fili 40-11

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	J <sub>x</sub>	J <sub>y</sub>	W <sub>x</sub>	W <sub>y</sub>
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
β<sub>x</sub> = 0; β<sub>y</sub> = 0  
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 85.9  
K<sub>def</sub> = 0  
U<sub>inst</sub> tot in x = -0.38  
U<sub>inst</sub> tot in y = -0.38  
U<sub>inst</sub> tot = 0.38  
Luce/U<sub>inst,tot</sub> > limite  
322.3/0.38=838.5 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 75.2  
K<sub>def</sub> = 0  
U<sub>inst</sub> var in x = -0.25  
U<sub>inst</sub> var in y = -0.24  
U<sub>inst</sub> var = 0.25  
Luce/U<sub>inst,var</sub> > limite  
322.3/0.25=1274 > 300 Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 85.9  
K<sub>def</sub> = 0.6  
U<sub>fin</sub> in x = -0.45  
U<sub>fin</sub> in y = -0.47  
U<sub>fin</sub> = 0.47  
Luce/U<sub>fin</sub> > limite  
322.3/0.47=688.8 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 2" 45-(-2468; 7)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 399.3 composto da:  
Asta 241: Trave in legno a falda Falda 2 fili 45-6



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 93.2  
Kdef = 0  
Uinst tot in x = 0.31  
Uinst tot in y = -0.1  
Uinst tot = 0.31  
Luce/Uinst,tot > limite  
 $399.3/0.31=1306.3 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 93.2  
Kdef = 0  
Uinst var in x = 0.2  
Uinst var in y = -0.04  
Uinst var = 0.2  
Luce/Uinst,var > limite  
 $399.3/0.2=2005.1 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 93.2  
Kdef = 0.6  
Ufin in x = 0.37  
Ufin in y = -0.14  
Ufin = 0.37  
Luce/Ufin > limite  
 $399.3/0.37=1080.3 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 2" 51-(-2468; 73)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 475.8 composto da:  
Asta 242: Trave in legno a falda Falda 2 fili 51-7

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 269.6  
Kdef = 0  
Uinst tot in x = 0.14  
Uinst tot in y = -0.44  
Uinst tot = 0.44  
Luce/Uinst,tot > limite  
 $475.8/0.44=1088 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 269.6





Kdef = 0  
Uinst var in x = 0.09  
Uinst var in y = -0.22  
Uinst var = 0.22  
Luce/Uinst,var > limite  
 $475.8/0.22=2166.6 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 269.6  
Kdef = 0.6  
Ufin in x = 0.17  
Ufin in y = -0.57  
Ufin = 0.57  
Luce/Ufin > limite  
 $475.8/0.57=837.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 2" 52-(-2468; 140)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 475.6 composto da:  
Asta 316: Trave in legno a falda Falda 2 fili 52-9

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 222  
Kdef = 0  
Uinst tot in x = -0.33  
Uinst tot in y = -0.8  
Uinst tot = 0.8  
Luce/Uinst,tot > limite  
 $475.6/0.8=593.7 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 222  
Kdef = 0  
Uinst var in x = -0.22  
Uinst var in y = -0.45  
Uinst var = 0.45  
Luce/Uinst,var > limite  
 $475.6/0.45=1050.9 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 222  
Kdef = 0.6  
Ufin in x = -0.39  
Ufin in y = -1.01  
Ufin = 1.01  
Luce/Ufin > limite  
 $475.6/1.01=470.9 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$



## Superelemento in legno a "Falda 2" 55-(-2906; -763)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 675.7$  composto da:

asta 113: Trave in legno a falda Falda 2 fili 55-1 ( $L = 13.8$ )  
asta 114: Trave in legno a falda Falda 2 fili 55-1 ( $L = 35$ )  
asta 115: Trave in legno a falda Falda 2 fili 55-1 ( $L = 13$ )  
asta 116: Trave in legno a falda Falda 2 fili 55-1 ( $L = 87.9$ )  
asta 117: Trave in legno a falda Falda 2 fili 55-1 ( $L = 100.9$ )  
asta 118: Trave in legno a falda Falda 2 fili 55-1 ( $L = 73.8$ )  
asta 119: Trave in legno a falda Falda 2 fili 55-1 ( $L = 29.1$ )  
asta 120: Trave in legno a falda Falda 2 fili 55-1 ( $L = 100.3$ )  
asta 121: Trave in legno a falda Falda 2 fili 55-1 ( $L = 100.4$ )  
asta 122: Trave in legno a falda Falda 2 fili 55-1 ( $L = 101.2$ )  
asta 123: Trave in legno a falda Falda 2 fili 55-1 ( $L = 20.4$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 312

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.54$

$U_{inst\ tot\ in\ y} = -2.5$

$U_{inst\ tot} = 2.5$

$Luce/U_{inst,tot} < \text{limite}$

$675.7/2.5 = 270.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 312

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.33$

$U_{inst\ var\ in\ y} = -1.65$

$U_{inst\ var} = 1.65$

$Luce/U_{inst,var} > \text{limite}$

$675.7/1.65 = 408.9 > 300$  Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 320.4

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.66$

$U_{fin\ in\ y} = -3.01$

$U_{fin} = 3.01$

$Luce/U_{fin} > \text{limite}$

$675.7/3.01 = 224.5 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 3" 21-(-1581; -365)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 711.6$  composto da:

asta 104: Trave in legno a falda Falda 3 fili 16-55 ( $L = 25.3$ )  
asta 105: Trave in legno a falda Falda 3 fili 16-55 ( $L = 105.9$ )  
asta 106: Trave in legno a falda Falda 3 fili 16-55 ( $L = 105.9$ )  
asta 107: Trave in legno a falda Falda 3 fili 16-55 ( $L = 80$ )  
asta 108: Trave in legno a falda Falda 3 fili 16-55 ( $L = 25.9$ )  
asta 109: Trave in legno a falda Falda 3 fili 16-55 ( $L = 106.1$ )



asta 110: Trave in legno a falda Falda 3 fili 16-55 (L = 105.7)  
asta 111: Trave in legno a falda Falda 3 fili 16-55 (L = 105.7)  
asta 112: Trave in legno a falda Falda 3 fili 16-55 (L = 51.2)

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 367.6  
Kdef = 0  
Uinst tot in x = 1.17  
Uinst tot in y = -3.99  
Uinst tot = 3.99  
Luce/Uinst,tot < limite  
711.6/3.99=178.5 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 367.6  
Kdef = 0  
Uinst var in x = 0.77  
Uinst var in y = -2.64  
Uinst var = 2.64  
Luce/Uinst,var < limite  
711.6/2.64=269.4 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 379  
Kdef = 0.6  
Ufin in x = 1.4  
Ufin in y = -4.79  
Ufin = 4.79  
Luce/Ufin < limite  
711.6/4.79=148.5 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

**Superelemento in legno a "Falda 3" 25-(-2385; 595)**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Superelemento di lunghezza complessiva L= 101 composto da:  
Asta 313: Trave in legno a falda Falda 3 fili 25-26

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 30.3  
Kdef = 0  
Uinst tot in x = -0.01  
Uinst tot in y = -0.09  
Uinst tot = 0.09  
Luce/Uinst,tot > limite  
101/0.09=1077.3 > 300 Comb: SLE rara, 9



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 30.3  
Kdef = 0  
Uinst var in x = -0.01  
Uinst var in y = -0.06  
Uinst var = 0.06  
Luce/Uinst,var > limite  
 $101/0.06=1611.4 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 30.3  
Kdef = 0.6  
Ufin in x = -0.02  
Ufin in y = -0.11  
Ufin = 0.11  
Luce/Ufin > limite  
 $101/0.11=898.6 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 3" 29-(-2318; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 182.5 composto da:  
Asta 312: Trave in legno a falda Falda 3 fili 29-30

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 60.8  
Kdef = 0  
Uinst tot in x = -0.03  
Uinst tot in y = -0.3  
Uinst tot = 0.3  
Luce/Uinst,tot > limite  
 $182.5/0.3=610.8 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 60.8  
Kdef = 0  
Uinst var in x = -0.02  
Uinst var in y = -0.2  
Uinst var = 0.2  
Luce/Uinst,var > limite  
 $182.5/0.2=928.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 60.8  
Kdef = 0.6  
Ufin in x = -0.04  
Ufin in y = -0.36  
Ufin = 0.36  
Luce/Ufin > limite  
 $182.5/0.36=506.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$



## Superelemento in legno a "Falda 3" 31-(-1341; 377)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 503.6 composto da:

asta 144: Trave in legno a falda Falda 3 fili 31-87 (L = 84)  
asta 145: Trave in legno a falda Falda 3 fili 31-87 (L = 67.6)  
asta 146: Trave in legno a falda Falda 3 fili 31-87 (L = 67.6)  
asta 147: Trave in legno a falda Falda 3 fili 31-87 (L = 67.6)  
asta 148: Trave in legno a falda Falda 3 fili 31-87 (L = 67.6)  
asta 149: Trave in legno a falda Falda 3 fili 31-87 (L = 67.6)  
asta 150: Trave in legno a falda Falda 3 fili 31-87 (L = 81.9)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 232.6

Kdef = 0

Uinst tot in x = 0.65

Uinst tot in y = -1.42

Uinst tot = 1.42

Luce/Uinst,tot > limite

503.6/1.42=354.1 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 230.4

Kdef = 0

Uinst var in x = 0.44

Uinst var in y = -0.94

Uinst var = 0.94

Luce/Uinst,var > limite

503.6/0.94=536.9 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 242.2

Kdef = 0.6

Ufin in x = 0.8

Ufin in y = -1.73

Ufin = 1.73

Luce/Ufin > limite

503.6/1.73=290.4 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 3" 34-(-2250; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 264 composto da:

Asta 311: Trave in legno a falda Falda 3 fili 34-35

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 96.8  
Kdef = 0  
Uinst tot in x = -0.04  
Uinst tot in y = -0.78  
Uinst tot = 0.78  
Luce/Uinst,tot > limite  
 $264/0.78=337 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 96.8  
Kdef = 0  
Uinst var in x = -0.03  
Uinst var in y = -0.51  
Uinst var = 0.51  
Luce/Uinst,var > limite  
 $264/0.51=517.4 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 96.8  
Kdef = 0.6  
Ufin in x = -0.05  
Ufin in y = -0.95  
Ufin = 0.95  
Luce/Ufin > limite  
 $264/0.95=278.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 3" 40-(-2183; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 345.7 composto da:  
asta 310: Trave in legno a falda Falda 3 fili 40-41 (L = 101.6)  
asta 381: Trave in legno a falda Falda 3 fili 41-42 (L = 244.1)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 142.3  
Kdef = 0  
Uinst tot in x = -0.09  
Uinst tot in y = -2.19  
Uinst tot = 2.19  
Luce/Uinst,tot < limite  
 $345.7/2.19=158.1 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 142.3  
Kdef = 0  
Uinst var in x = -0.06  
Uinst var in y = -1.43  
Uinst var = 1.43  
Luce/Uinst,var < limite  
 $345.7/1.43=241.2 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 145.7

Kdef = 0.6

Ufin in x = -0.11

Ufin in y = -2.68

Ufin = 2.68

Luce/Ufin < limite

$345.7/2.68=128.8 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 46-(-2115; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 427.1 composto da:

asta 308: Trave in legno a falda Falda 3 fili 46-47 (L = 183.1)

asta 379: Trave in legno a falda Falda 3 fili 47-48 (L = 244.1)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 199.3

Kdef = 0

Uinst tot in x = -0.08

Uinst tot in y = -3.64

Uinst tot = 3.64

Luce/Uinst,tot < limite

$427.1/3.64=117.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 199.3

Kdef = 0

Uinst var in x = -0.05

Uinst var in y = -2.39

Uinst var = 2.39

Luce/Uinst,var < limite

$427.1/2.39=178.8 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 205.4

Kdef = 0.6

Ufin in x = -0.1

Ufin in y = -4.44

Ufin = 4.44

Luce/Ufin < limite

$427.1/4.44=96.3 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 52-(-2048; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



### Dati generali

Superelemento di lunghezza complessiva L= 508.5 composto da:

asta 309: Trave in legno a falda Falda 3 fili 52-53 (L = 264.4)

asta 380: Trave in legno a falda Falda 3 fili 53-54 (L = 244.1)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 264.5

Kdef = 0

Uinst tot in x = 0.08

Uinst tot in y = -4.7

Uinst tot = 4.7

Luce/Uinst,tot < limite

508.5/4.7=108.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 264.5

Kdef = 0

Uinst var in x = 0.05

Uinst var in y = -3.08

Uinst var = 3.08

Luce/Uinst,var < limite

508.5/3.08=165.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 273.3

Kdef = 0.6

Ufin in x = 0.1

Ufin in y = -5.69

Ufin = 5.69

Luce/Ufin < limite

508.5/5.69=89.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 3" 58-(-1980; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 547.9 composto da:

asta 302: Trave in legno a falda Falda 3 fili 58-59 (L = 303.8)

asta 377: Trave in legno a falda Falda 3 fili 59-60 (L = 244.1)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 283.5

Kdef = 0

Uinst tot in x = 0.04

Uinst tot in y = -4.8

Uinst tot = 4.8





Luce/Uinst,tot < limite

547.9/4.8=114.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 283.5

Kdef = 0

Uinst var in x = 0.04

Uinst var in y = -3.12

Uinst var = 3.12

Luce/Uinst,var < limite

547.9/3.12=175.7 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 283.5

Kdef = 0.6

Ufin in x = -0.06

Ufin in y = -5.8

Ufin = 5.8

Luce/Ufin < limite

547.9/5.8=94.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 63-(-1113; -333)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 708.4 composto da:

asta 216: Trave in legno a falda Falda 3 fili 60-115 (L = 79.9)

asta 217: Trave in legno a falda Falda 3 fili 60-115 (L = 106.6)

asta 218: Trave in legno a falda Falda 3 fili 60-115 (L = 106.6)

asta 219: Trave in legno a falda Falda 3 fili 60-115 (L = 22.6)

asta 220: Trave in legno a falda Falda 3 fili 60-115 (L = 84)

asta 221: Trave in legno a falda Falda 3 fili 60-115 (L = 106.6)

asta 222: Trave in legno a falda Falda 3 fili 60-115 (L = 106.6)

asta 223: Trave in legno a falda Falda 3 fili 60-115 (L = 95.7)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 332.4

Kdef = 0

Uinst tot in x = 0.78

Uinst tot in y = -2.56

Uinst tot = 2.56

Luce/Uinst,tot < limite

708.4/2.56=276.9 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 329.6

Kdef = 0

Uinst var in x = 0.49

Uinst var in y = -1.62

Uinst var = 1.62

Luce/Uinst,var > limite

708.4/1.62=437.9 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 342.9

Kdef = 0.6



Ufin in x = 0.94  
Ufin in y = -3.12  
Ufin = 3.12  
Luce/Ufin > limite  
 $708.4/3.12=227 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 3" 67-69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 486.2 composto da:  
asta 303: Trave in legno a falda Falda 3 fili 67-68 (L = 303.9)  
asta 378: Trave in legno a falda Falda 3 fili 68-69 (L = 182.3)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 273.4  
Kdef = 0  
Uinst tot in x = 0.04  
Uinst tot in y = -3.88  
Uinst tot = 3.88  
Luce/Uinst,tot < limite  
 $486.2/3.88=125.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 273.4  
Kdef = 0  
Uinst var in x = 0.04  
Uinst var in y = -2.51  
Uinst var = 2.51  
Luce/Uinst,var < limite  
 $486.2/2.51=193.9 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 273.4  
Kdef = 0.6  
Ufin in x = 0.05  
Ufin in y = -4.7  
Ufin = 4.7  
Luce/Ufin < limite  
 $486.2/4.7=103.4 < 200$  - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 3" 76-78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 403.7 composto da:  
asta 304: Trave in legno a falda Falda 3 fili 76-77 (L = 303.8)  
asta 376: Trave in legno a falda Falda 3 fili 77-78 (L = 99.9)



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 253.2

Kdef = 0

Uinst tot in x = 0.04

Uinst tot in y = -2.44

Uinst tot = 2.44

Luce/Uinst,tot < limite

403.7/2.44=165.1 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 253.2

Kdef = 0

Uinst var in x = 0.03

Uinst var in y = -1.57

Uinst var = 1.57

Luce/Uinst,var < limite

403.7/1.57=257 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 253.2

Kdef = 0.6

Ufin in x = 0.04

Ufin in y = -2.97

Ufin = 2.97

Luce/Ufin < limite

403.7/2.97=136 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3" 83-84

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 321.3 composto da:

Asta 305: Trave in legno a falda Falda 3 fili 83-84

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 214.2

Kdef = 0

Uinst tot in x = 0.01

Uinst tot in y = -0.85

Uinst tot = 0.85

Luce/Uinst,tot > limite

321.3/0.85=376.1 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 214.2



Kdef = 0  
Uinst var in x = 0.01  
Uinst var in y = -0.54  
Uinst var = 0.54  
Luce/Uinst,var > limite  
 $321.3/0.54=600.3 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 214.2  
Kdef = 0.6  
Ufin in x = 0.01  
Ufin in y = -1.05  
Ufin = 1.05  
Luce/Ufin > limite  
 $321.3/1.05=307.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 3" 91-92

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 238.9 composto da:  
Asta 306: Trave in legno a falda Falda 3 fili 91-92

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 175.2  
Kdef = 0  
Uinst tot in x = -0.02  
Uinst tot in y = -0.28  
Uinst tot = 0.28  
Luce/Uinst,tot > limite  
 $238.9/0.28=850.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 175.2  
Kdef = 0  
Uinst var in x = -0.01  
Uinst var in y = -0.18  
Uinst var = 0.18  
Luce/Uinst,var > limite  
 $238.9/0.18=1340.7 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 175.2  
Kdef = 0.6  
Ufin in x = -0.03  
Ufin in y = -0.34  
Ufin = 0.34  
Luce/Ufin > limite  
 $238.9/0.34=697.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$



## Superelemento in legno a "Falda 3" 99-100

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 156.4 composto da:

Asta 307: Trave in legno a falda Falda 3 fili 99-100

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 41.7

Kdef = 0

Uinst tot in x = -0.01

Uinst tot in y = 0.1

Uinst tot = 0.1

Luce/Uinst,tot > limite

156.4/0.1=1567.4 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 41.7

Kdef = 0

Uinst var in x = -0.01

Uinst var in y = 0.06

Uinst var = 0.06

Luce/Uinst,var > limite

156.4/0.06=2437.2 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 41.7

Kdef = 0.6

Ufin in x = -0.01

Ufin in y = 0.12

Ufin = 0.12

Luce/Ufin > limite

156.4/0.12=1286.6 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 3" 106-107

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 74.1 composto da:

Asta 301: Trave in legno a falda Falda 3 fili 106-107

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 24.7

Kdef = 0



Uinst tot in x = 0  
Uinst tot in y = 0.04  
Uinst tot = 0.04  
Luce/Uinst,tot > limite  
74.1/0.04=1859 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 24.7  
Kdef = 0  
Uinst var in x = 0  
Uinst var in y = 0.02  
Uinst var = 0.02  
Luce/Uinst,var > limite  
74.1/0.02=3064.1 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 24.7  
Kdef = 0.6  
Ufin in x = 0  
Ufin in y = 0.05  
Ufin = 0.05  
Luce/Ufin > limite  
74.1/0.05=1511.9 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 3"- "Falda 2" 46-(-2468; 213)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 399 composto da:  
Asta 317: Trave in legno a falda Falda 2 fili 46-10

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 146.3  
Kdef = 0  
Uinst tot in x = -0.5  
Uinst tot in y = -0.56  
Uinst tot = 0.56  
Luce/Uinst,tot > limite  
399/0.56=719 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 133  
Kdef = 0  
Uinst var in x = -0.33  
Uinst var in y = -0.34  
Uinst var = 0.34  
Luce/Uinst,var > limite  
399/0.34=1186.2 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 146.3  
Kdef = 0.6  
Ufin in x = -0.6  
Ufin in y = -0.69  
Ufin = 0.69



Luce/Ufin > limite  
 $399/0.69=580 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 3"- "Falda 2" 55-(-2468; 105)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 512.8 composto da:

Asta 315: Trave in legno a falda Falda 2 fili 55-8

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 256.4

Kdef = 0

Uinst tot in x = 0.07

Uinst tot in y = -0.91

Uinst tot = 0.91

Luce/Uinst,tot > limite

$512.8/0.91=565.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 256.4

Kdef = 0

Uinst var in x = 0.05

Uinst var in y = -0.51

Uinst var = 0.51

Luce/Uinst,var > limite

$512.8/0.51=1003.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 256.4

Kdef = 0.6

Ufin in x = 0.08

Ufin in y = -1.14

Ufin = 1.14

Luce/Ufin > limite

$512.8/1.14=447.9 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 70-71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 72.3 composto da:

asta 299: Trave in legno a falda Falda 4 fili 70-71 (L = 57.8)

asta 300: Trave in legno a falda Falda 4 fili 70-71 (L = 14.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016



$\beta, x = 0; \beta, y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 21.2

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.01$

$U_{inst\ tot\ in\ y} = -0.07$

$U_{inst\ tot} = 0.07$

Luce/ $U_{inst, tot} > \text{limite}$

$72.3/0.07=1107 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 21.2

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.01$

$U_{inst\ var\ in\ y} = -0.04$

$U_{inst\ var} = 0.04$

Luce/ $U_{inst, var} > \text{limite}$

$72.3/0.04=1665.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 21.2

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.01$

$U_{fin\ in\ y} = -0.08$

$U_{fin} = 0.08$

Luce/ $U_{fin} > \text{limite}$

$72.3/0.08=920.9 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 79-80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 149.3$  composto da:

asta 297: Trave in legno a falda Falda 4 fili 79-80 ( $L = 134.9$ )

asta 298: Trave in legno a falda Falda 4 fili 79-80 ( $L = 14.4$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta, x = 0; \beta, y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 40.5

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.03$

$U_{inst\ tot\ in\ y} = -0.14$

$U_{inst\ tot} = 0.14$

Luce/ $U_{inst, tot} > \text{limite}$

$149.3/0.14=1045.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 40.5

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.02$

$U_{inst\ var\ in\ y} = -0.09$

$U_{inst\ var} = 0.09$

Luce/ $U_{inst, var} > \text{limite}$





$149.3/0.09=1586.5 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 153.8

$K_{def} = 0.6$

$U_{fin}$  in  $x = 0.03$

$U_{fin}$  in  $y = -0.21$

$U_{fin} = 0.21$

$L_{uce}/U_{fin} > \text{limite}$

$149.3/0.21=727.6 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 85-86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 226.4$  composto da:

asta 295: Trave in legno a falda Falda 4 fili 85-86 ( $L = 212$ )

asta 296: Trave in legno a falda Falda 4 fili 85-86 ( $L = 14.4$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 70.7

$K_{def} = 0$

$U_{inst}$  tot in  $x = 0.04$

$U_{inst}$  tot in  $y = -0.54$

$U_{inst}$  tot = 0.54

$L_{uce}/U_{inst,tot} > \text{limite}$

$226.4/0.54=421.5 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 70.7

$K_{def} = 0$

$U_{inst}$  var in  $x = 0.03$

$U_{inst}$  var in  $y = -0.35$

$U_{inst}$  var = 0.35

$L_{uce}/U_{inst,var} > \text{limite}$

$226.4/0.35=643.2 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 70.7

$K_{def} = 0.6$

$U_{fin}$  in  $x = 0.05$

$U_{fin}$  in  $y = -0.65$

$U_{fin} = 0.65$

$L_{uce}/U_{fin} > \text{limite}$

$226.4/0.65=349.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 93-94

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 303.5$  composto da:



asta 293: Trave in legno a falda Falda 4 fili 93-94 (L = 289)  
asta 294: Trave in legno a falda Falda 4 fili 93-94 (L = 14.4)

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 106  
Kdef = 0  
Uinst tot in x = 0.07  
Uinst tot in y = -1.62  
Uinst tot = 1.62  
Luce/Uinst,tot < limite  
303.5/1.62=187 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 106  
Kdef = 0  
Uinst var in x = 0.05  
Uinst var in y = -1.06  
Uinst var = 1.06  
Luce/Uinst,var < limite  
303.5/1.06=285.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 106  
Kdef = 0.6  
Ufin in x = 0.09  
Ufin in y = -1.96  
Ufin = 1.96  
Luce/Ufin < limite  
303.5/1.96=154.9 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

Superelemento in legno a "Falda 4" 95-198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati generali

Superelemento di lunghezza complessiva L= 893.5 composto da:  
asta 151: Trave in legno a falda Falda 4 fili 95-198 (L = 43.4)  
asta 152: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 153: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 154: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 155: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 156: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 157: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 158: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 159: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 160: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 161: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 162: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 163: Trave in legno a falda Falda 4 fili 95-198 (L = 67.6)  
asta 164: Trave in legno a falda Falda 4 fili 95-198 (L = 39.5)

Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 457.7  
Kdef = 0  
Uinst tot in x = 3.17  
Uinst tot in y = -7.87  
Uinst tot = 7.87  
Luce/Uinst,tot < limite  
893.5/7.87=113.5 < 300 Comb: SLE rara, 16 - NON SODDISFATTA

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 457.7  
Kdef = 0  
Uinst var in x = 2.1  
Uinst var in y = -5.23  
Uinst var = 5.23  
Luce/Uinst,var < limite  
893.5/5.23=171 < 300 Comb: SLE rara, 16 - NON SODDISFATTA

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 472.7  
Kdef = 0.6  
Ufin in x = 3.81  
Ufin in y = -9.46  
Ufin = 9.46  
Luce/Ufin < limite  
893.5/9.46=94.5 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000

**Superelemento in legno a "Falda 4" 101-103**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Superelemento di lunghezza complessiva L= 380.6 composto da:  
asta 292: Trave in legno a falda Falda 4 fili 101-102 (L = 49.5)  
asta 374: Trave in legno a falda Falda 4 fili 102-103 (L = 316.7)  
asta 375: Trave in legno a falda Falda 4 fili 102-103 (L = 14.4)

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 133.9  
Kdef = 0  
Uinst tot in x = -0.1  
Uinst tot in y = -4.08  
Uinst tot = 4.08  
Luce/Uinst,tot < limite  
380.6/4.08=93.2 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 133.9  
Kdef = 0  
Uinst var in x = -0.07  
Uinst var in y = -2.69  
Uinst var = 2.69  
Luce/Uinst,var < limite  
380.6/2.69=141.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 135.5

Kdef = 0.6

Ufin in x = -0.12

Ufin in y = -4.98

Ufin = 4.98

Luce/Ufin < limite

380.6/4.98=76.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 108-110

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 457.6 composto da:

asta 291: Trave in legno a falda Falda 4 fili 108-109 (L = 126.5)

asta 372: Trave in legno a falda Falda 4 fili 109-110 (L = 316.7)

asta 373: Trave in legno a falda Falda 4 fili 109-110 (L = 14.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 168.7

Kdef = 0

Uinst tot in x = -0.2

Uinst tot in y = -8

Uinst tot = 8

Luce/Uinst,tot < limite

457.6/8=57.2 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 168.7

Kdef = 0

Uinst var in x = -0.14

Uinst var in y = -5.28

Uinst var = 5.28

Luce/Uinst,var < limite

457.6/5.28=86.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 173

Kdef = 0.6

Ufin in x = -0.23

Ufin in y = -9.74

Ufin = 9.74

Luce/Ufin < limite

457.6/9.74=47 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 116-118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 534.7 composto da:



asta 290: Trave in legno a falda Falda 4 fili 116-117 (L = 203.6)  
asta 370: Trave in legno a falda Falda 4 fili 117-118 (L = 316.7)  
asta 371: Trave in legno a falda Falda 4 fili 117-118 (L = 14.4)

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 214.1  
Kdef = 0  
Uinst tot in x = -0.2  
Uinst tot in y = -12.44  
Uinst tot = 12.44  
Luce/Uinst,tot < limite  
534.7/12.44=43 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 214.1  
Kdef = 0  
Uinst var in x = -0.15  
Uinst var in y = -8.21  
Uinst var = 8.21  
Luce/Uinst,var < limite  
534.7/8.21=65.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 220.9  
Kdef = 0.6  
Ufin in x = -0.23  
Ufin in y = -15.07  
Ufin = 15.07  
Luce/Ufin < limite  
534.7/15.07=35.5 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

**Superelemento in legno a "Falda 4" 123-125**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Superelemento di lunghezza complessiva L= 627.9 composto da:  
asta 278: Trave in legno a falda Falda 4 fili 123-124 (L = 296.8)  
asta 362: Trave in legno a falda Falda 4 fili 124-125 (L = 316.7)  
asta 363: Trave in legno a falda Falda 4 fili 124-125 (L = 14.4)

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 296.8  
Kdef = 0  
Uinst tot in x = -0.21  
Uinst tot in y = -17.81  
Uinst tot = 17.81  
Luce/Uinst,tot < limite



627.9/17.81=35.2 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 296.8

Kdef = 0

Uinst var in x = -0.17

Uinst var in y = -11.75

Uinst var = 11.75

Luce/Uinst,var < limite

627.9/11.75=53.4 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 306.6

Kdef = 0.6

Ufin in x = -0.24

Ufin in y = -21.47

Ufin = 21.47

Luce/Ufin < limite

627.9/21.47=29.3 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 126-61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 835 composto da:

asta 93: Trave in legno a falda Falda 4 fili 126-61 (L = 123.8)

asta 94: Trave in legno a falda Falda 4 fili 126-61 (L = 102.5)

asta 95: Trave in legno a falda Falda 4 fili 126-61 (L = 102.5)

asta 96: Trave in legno a falda Falda 4 fili 126-61 (L = 65.8)

asta 97: Trave in legno a falda Falda 4 fili 126-61 (L = 36.7)

asta 98: Trave in legno a falda Falda 4 fili 126-61 (L = 102.5)

asta 99: Trave in legno a falda Falda 4 fili 126-61 (L = 102.5)

asta 100: Trave in legno a falda Falda 4 fili 126-61 (L = 102.5)

asta 101: Trave in legno a falda Falda 4 fili 126-61 (L = 66.4)

asta 102: Trave in legno a falda Falda 4 fili 126-61 (L = 18.9)

asta 103: Trave in legno a falda Falda 4 fili 126-61 (L = 10.9)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 357.3

Kdef = 0

Uinst tot in x = -3.57

Uinst tot in y = -11.17

Uinst tot = 11.17

Luce/Uinst,tot < limite

835/11.17=74.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 357.3

Kdef = 0

Uinst var in x = -2.39

Uinst var in y = -7.34

Uinst var = 7.34

Luce/Uinst,var < limite

835/7.34=113.8 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 368.3



Kdef = 0.6  
Ufin in x = -4.27  
Ufin in y = -13.48  
Ufin = 13.48  
Luce/Ufin < limite  
835/13.48=62 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 134-136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 627.9 composto da:  
asta 277: Trave in legno a falda Falda 4 fili 134-135 (L = 296.8)  
asta 360: Trave in legno a falda Falda 4 fili 135-136 (L = 316.7)  
asta 361: Trave in legno a falda Falda 4 fili 135-136 (L = 14.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 307.3  
Kdef = 0  
Uinst tot in x = -0.26  
Uinst tot in y = -19.21  
Uinst tot = 19.21  
Luce/Uinst,tot < limite  
627.9/19.21=32.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 307.3  
Kdef = 0  
Uinst var in x = -0.2  
Uinst var in y = -12.68  
Uinst var = 12.68  
Luce/Uinst,var < limite  
627.9/12.68=49.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 317.2  
Kdef = 0.6  
Ufin in x = -0.29  
Ufin in y = -23.15  
Ufin = 23.15  
Luce/Ufin < limite  
627.9/23.15=27.1 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 141-143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 627.9 composto da:  
asta 276: Trave in legno a falda Falda 4 fili 141-142 (L = 296.8)  
asta 358: Trave in legno a falda Falda 4 fili 142-143 (L = 316.7)  
asta 359: Trave in legno a falda Falda 4 fili 142-143 (L = 14.4)



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 307.3

Kdef = 0

Uinst tot in x = -0.25

Uinst tot in y = -20.18

Uinst tot = 20.18

Luce/Uinst,tot < limite

627.9/20.18=31.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 307.3

Kdef = 0

Uinst var in x = -0.2

Uinst var in y = -13.32

Uinst var = 13.32

Luce/Uinst,var < limite

627.9/13.32=47.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 317.2

Kdef = 0.6

Ufin in x = -0.29

Ufin in y = -24.32

Ufin = 24.32

Luce/Ufin < limite

627.9/24.32=25.8 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 150-152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 627.9 composto da:

asta 275: Trave in legno a falda Falda 4 fili 150-151 (L = 296.8)

asta 356: Trave in legno a falda Falda 4 fili 151-152 (L = 316.7)

asta 357: Trave in legno a falda Falda 4 fili 151-152 (L = 14.4)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 307.3

Kdef = 0

Uinst tot in x = -0.23

Uinst tot in y = -20.55

Uinst tot = 20.55

Luce/Uinst,tot < limite

627.9/20.55=30.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA





#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 307.3

Kdef = 0

Uinst var in x = -0.18

Uinst var in y = -13.57

Uinst var = 13.57

Luce/Uinst,var < limite

627.9/13.57=46.3 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 317.2

Kdef = 0.6

Ufin in x = -0.26

Ufin in y = -24.76

Ufin = 24.76

Luce/Ufin < limite

627.9/24.76=25.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 155-157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 627.9 composto da:

asta 274: Trave in legno a falda Falda 4 fili 155-156 (L = 296.8)

asta 354: Trave in legno a falda Falda 4 fili 156-157 (L = 316.7)

asta 355: Trave in legno a falda Falda 4 fili 156-157 (L = 14.4)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 317.9

Kdef = 0

Uinst tot in x = -0.22

Uinst tot in y = -20.38

Uinst tot = 20.38

Luce/Uinst,tot < limite

627.9/20.38=30.8 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 317.9

Kdef = 0

Uinst var in x = -0.18

Uinst var in y = -13.45

Uinst var = 13.45

Luce/Uinst,var < limite

627.9/13.45=46.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 327.7

Kdef = 0.6

Ufin in x = -0.24

Ufin in y = -24.56

Ufin = 24.56

Luce/Ufin < limite

627.9/24.56=25.6 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600



Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 163-165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 627.9 composto da:

asta 273: Trave in legno a falda Falda 4 fili 163-164 (L = 296.8)

asta 352: Trave in legno a falda Falda 4 fili 164-165 (L = 316.7)

asta 353: Trave in legno a falda Falda 4 fili 164-165 (L = 14.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 317.9

Kdef = 0

Uinst tot in x = -0.23

Uinst tot in y = -19.63

Uinst tot = 19.63

Luce/Uinst,tot < limite

627.9/19.63=32 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 317.9

Kdef = 0

Uinst var in x = -0.18

Uinst var in y = -12.95

Uinst var = 12.95

Luce/Uinst,var < limite

627.9/12.95=48.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 327.7

Kdef = 0.6

Ufin in x = -0.27

Ufin in y = -23.66

Ufin = 23.66

Luce/Ufin < limite

627.9/23.66=26.5 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 169-233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 835 composto da:

asta 82: Trave in legno a falda Falda 4 fili 169-233 (L = 129.7)

asta 83: Trave in legno a falda Falda 4 fili 169-233 (L = 102.5)

asta 84: Trave in legno a falda Falda 4 fili 169-233 (L = 102.5)

asta 85: Trave in legno a falda Falda 4 fili 169-233 (L = 59.9)

asta 86: Trave in legno a falda Falda 4 fili 169-233 (L = 42.6)

asta 87: Trave in legno a falda Falda 4 fili 169-233 (L = 102.5)

asta 88: Trave in legno a falda Falda 4 fili 169-233 (L = 102.5)

asta 89: Trave in legno a falda Falda 4 fili 169-233 (L = 102.5)

asta 90: Trave in legno a falda Falda 4 fili 169-233 (L = 60.5)

asta 91: Trave in legno a falda Falda 4 fili 169-233 (L = 18.9)

asta 92: Trave in legno a falda Falda 4 fili 169-233 (L = 10.9)



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 362.6

Kdef = 0

Uinst tot in x = 2.96

Uinst tot in y = -11.17

Uinst tot = 11.17

Luce/Uinst,tot < limite

835/11.17=74.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 362.6

Kdef = 0

Uinst var in x = 1.89

Uinst var in y = -7.34

Uinst var = 7.34

Luce/Uinst,var < limite

835/7.34=113.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 373.8

Kdef = 0.6

Ufin in x = 3.59

Ufin in y = -13.47

Ufin = 13.47

Luce/Ufin < limite

835/13.47=62 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 172-174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 627.9 composto da:

asta 272: Trave in legno a falda Falda 4 fili 172-173 (L = 296.8)

asta 350: Trave in legno a falda Falda 4 fili 173-174 (L = 316.7)

asta 351: Trave in legno a falda Falda 4 fili 173-174 (L = 14.4)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 317.9

Kdef = 0

Uinst tot in x = -0.22

Uinst tot in y = -18.4

Uinst tot = 18.4

Luce/Uinst,tot < limite

627.9/18.4=34.1 < 300 Comb: SLE rara, 8 - NON SODDISFATTA



#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 317.9

Kdef = 0

Uinst var in x = -0.18

Uinst var in y = -12.13

Uinst var = 12.13

Luce/Uinst,var < limite

627.9/12.13=51.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 327.7

Kdef = 0.6

Ufin in x = -0.24

Ufin in y = -22.18

Ufin = 22.18

Luce/Ufin < limite

627.9/22.18=28.3 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 181-183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 530.3 composto da:

asta 289: Trave in legno a falda Falda 4 fili 181-182 (L = 199.2)

asta 368: Trave in legno a falda Falda 4 fili 182-183 (L = 316.7)

asta 369: Trave in legno a falda Falda 4 fili 182-183 (L = 14.4)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 241.4

Kdef = 0

Uinst tot in x = -0.18

Uinst tot in y = -13.35

Uinst tot = 13.35

Luce/Uinst,tot < limite

530.3/13.35=39.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 241.4

Kdef = 0

Uinst var in x = -0.14

Uinst var in y = -8.81

Uinst var = 8.81

Luce/Uinst,var < limite

530.3/8.81=60.2 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 248

Kdef = 0.6

Ufin in x = -0.2

Ufin in y = -16.19

Ufin = 16.19

Luce/Ufin < limite

530.3/16.19=32.8 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600



Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 188-190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 453.2 composto da:

asta 288: Trave in legno a falda Falda 4 fili 188-189 (L = 122.1)

asta 366: Trave in legno a falda Falda 4 fili 189-190 (L = 316.7)

asta 367: Trave in legno a falda Falda 4 fili 189-190 (L = 14.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 185.4

Kdef = 0

Uinst tot in x = -0.13

Uinst tot in y = -8.74

Uinst tot = 8.74

Luce/Uinst,tot < limite

453.2/8.74=51.9 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 185.4

Kdef = 0

Uinst var in x = -0.1

Uinst var in y = -5.76

Uinst var = 5.76

Luce/Uinst,var < limite

453.2/5.76=78.7 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 189.5

Kdef = 0.6

Ufin in x = -0.14

Ufin in y = -10.64

Ufin = 10.64

Luce/Ufin < limite

453.2/10.64=42.6 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 195-197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 376.1 composto da:

asta 287: Trave in legno a falda Falda 4 fili 195-196 (L = 45)

asta 364: Trave in legno a falda Falda 4 fili 196-197 (L = 316.7)

asta 365: Trave in legno a falda Falda 4 fili 196-197 (L = 14.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 150.6

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.06$

$U_{inst\ tot\ in\ y} = -4.67$

$U_{inst\ tot} = 4.67$

$Luce/U_{inst,tot} < \text{limite}$

$376.1/4.67=80.6 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 150.6

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.05$

$U_{inst\ var\ in\ y} = -3.07$

$U_{inst\ var} = 3.07$

$Luce/U_{inst,var} < \text{limite}$

$376.1/3.07=122.6 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 152.1

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.07$

$U_{fin\ in\ y} = -5.68$

$U_{fin} = 5.68$

$Luce/U_{fin} < \text{limite}$

$376.1/5.68=66.2 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 4" 205-206

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 299.1$  composto da:

asta 285: Trave in legno a falda Falda 4 fili 205-206 ( $L = 284.6$ )

asta 286: Trave in legno a falda Falda 4 fili 205-206 ( $L = 14.4$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 113.8

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.01$

$U_{inst\ tot\ in\ y} = -1.96$

$U_{inst\ tot} = 1.96$

$Luce/U_{inst,tot} < \text{limite}$

$299.1/1.96=152.3 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 113.8

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.01$

$U_{inst\ var\ in\ y} = -1.29$

$U_{inst\ var} = 1.29$

$Luce/U_{inst,var} < \text{limite}$

$299.1/1.29=232.6 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 113.8



Kdef = 0.6  
Ufin in x = -0.01  
Ufin in y = -2.37  
Ufin = 2.37  
Luce/Ufin < limite  
299.1/2.37=126.1 < 200 - NON SODDISFATTA  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 214-215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 222 composto da:  
asta 283: Trave in legno a falda Falda 4 fili 214-215 (L = 207.6)  
asta 284: Trave in legno a falda Falda 4 fili 214-215 (L = 14.4)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 83  
Kdef = 0  
Uinst tot in x = -0.03  
Uinst tot in y = -0.7  
Uinst tot = 0.7  
Luce/Uinst,tot > limite  
222/0.7=315.3 > 300 Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 83  
Kdef = 0  
Uinst var in x = -0.02  
Uinst var in y = -0.46  
Uinst var = 0.46  
Luce/Uinst,var > limite  
222/0.46=481.8 > 300 Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 83  
Kdef = 0.6  
Ufin in x = -0.03  
Ufin in y = -0.85  
Ufin = 0.85  
Luce/Ufin > limite  
222/0.85=261.1 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 4" 221-222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 144.9 composto da:  
asta 281: Trave in legno a falda Falda 4 fili 221-222 (L = 130.5)  
asta 282: Trave in legno a falda Falda 4 fili 221-222 (L = 14.4)



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 47.8  
Kdef = 0  
Uinst tot in x = -0.02  
Uinst tot in y = -0.22  
Uinst tot = 0.22  
Luce/Uinst,tot > limite  
144.9/0.22=650.7 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 47.8  
Kdef = 0  
Uinst var in x = -0.02  
Uinst var in y = -0.15  
Uinst var = 0.15  
Luce/Uinst,var > limite  
144.9/0.15=988.6 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 47.8  
Kdef = 0.6  
Ufin in x = -0.03  
Ufin in y = -0.27  
Ufin = 0.27  
Luce/Ufin > limite  
144.9/0.27=539.8 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 4" 230-231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 67.9 composto da:  
asta 279: Trave in legno a falda Falda 4 fili 230-231 (L = 53.4)  
asta 280: Trave in legno a falda Falda 4 fili 230-231 (L = 14.4)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 21.4  
Kdef = 0  
Uinst tot in x = -0.01  
Uinst tot in y = -0.09  
Uinst tot = 0.09  
Luce/Uinst,tot > limite  
67.9/0.09=714.7 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 21.4





Kdef = 0  
Uinst var in x = -0.01  
Uinst var in y = -0.06  
Uinst var = 0.06  
Luce/Uinst,var > limite  
 $67.9/0.06=1074.6 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 23.1  
Kdef = 0.6  
Ufin in x = -0.02  
Ufin in y = -0.11  
Ufin = 0.11  
Luce/Ufin > limite  
 $67.9/0.11=594.7 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 5" 241-287

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 546.8 composto da:  
asta 251: Trave in legno a falda Falda 5 fili 241-287 (L = 523.6)  
asta 252: Trave in legno a falda Falda 5 fili 241-287 (L = 23.2)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 192  
Kdef = 0  
Uinst tot in x = -0.13  
Uinst tot in y = -0.66  
Uinst tot = 0.66  
Luce/Uinst,tot > limite  
 $546.8/0.66=824.4 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 174.5  
Kdef = 0  
Uinst var in x = -0.1  
Uinst var in y = -0.37  
Uinst var = 0.37  
Luce/Uinst,var > limite  
 $546.8/0.37=1469.5 > 300$  Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 192  
Kdef = 0.6  
Ufin in x = -0.16  
Ufin in y = -0.84  
Ufin = 0.84  
Luce/Ufin > limite  
 $546.8/0.84=650.8 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$



## Superelemento in legno a "Falda 5" 241-(373; 989)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 711$  composto da:

asta 67: Trave in legno a falda Falda 5 fili 241-279 ( $L = 74.3$ )  
asta 68: Trave in legno a falda Falda 5 fili 241-279 ( $L = 103.7$ )  
asta 69: Trave in legno a falda Falda 5 fili 241-279 ( $L = 104.3$ )  
asta 70: Trave in legno a falda Falda 5 fili 241-279 ( $L = 116.7$ )  
asta 71: Trave in legno a falda Falda 5 fili 241-279 ( $L = 90.9$ )  
asta 72: Trave in legno a falda Falda 5 fili 241-279 ( $L = 102.8$ )  
asta 73: Trave in legno a falda Falda 5 fili 241-279 ( $L = 118.3$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 336.8

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 1.19$

$U_{inst\ tot\ in\ y} = -4.05$

$U_{inst\ tot} = 4.05$

$Luce/U_{inst,tot} < \text{limite}$

$711/4.05 = 175.5 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 336.8

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.77$

$U_{inst\ var\ in\ y} = -2.65$

$U_{inst\ var} = 2.65$

$Luce/U_{inst,var} < \text{limite}$

$711/2.65 = 267.8 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 346.2

$K_{def} = 0.6$

$U_{fin\ in\ x} = 1.45$

$U_{fin\ in\ y} = -4.89$

$U_{fin} = 4.89$

$Luce/U_{fin} < \text{limite}$

$711/4.89 = 145.4 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 5" 244-286

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 491.9$  composto da:

asta 234: Trave in legno a falda Falda 5 fili 244-286 ( $L = 468.7$ )  
asta 235: Trave in legno a falda Falda 5 fili 244-286 ( $L = 23.2$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200



Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 171.8  
Kdef = 0  
Uinst tot in x = 0.19  
Uinst tot in y = -0.22  
Uinst tot = 0.22  
Luce/Uinst,tot > limite  
491.9/0.22=2264.8 > 300 Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 374.9  
Kdef = 0  
Uinst var in x = 0.12  
Uinst var in y = -0.09  
Uinst var = 0.12  
Luce/Uinst,var > limite  
491.9/0.12=4003 > 300 Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 187.5  
Kdef = 0.6  
Ufin in x = 0.23  
Ufin in y = -0.29  
Ufin = 0.29  
Luce/Ufin > limite  
491.9/0.29=1686.7 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 5" 245-288

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 492.2 composto da:  
asta 253: Trave in legno a falda Falda 5 fili 245-288 (L = 469)  
asta 254: Trave in legno a falda Falda 5 fili 245-288 (L = 23.2)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 172  
Kdef = 0  
Uinst tot in x = -0.45  
Uinst tot in y = -0.59  
Uinst tot = 0.59  
Luce/Uinst,tot > limite  
492.2/0.59=837.6 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 156.3  
Kdef = 0  
Uinst var in x = -0.3  
Uinst var in y = -0.32  
Uinst var = 0.32  
Luce/Uinst,var > limite  
492.2/0.32=1516.3 > 300 Comb: SLE rara, 17



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 172

Kdef = 0.6

Ufin in x = -0.54

Ufin in y = -0.75

Ufin = 0.75

Luce/Ufin > limite

$492.2/0.75=657.7 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

### Superelemento in legno a "Falda 5" 250-285

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 415.6 composto da:

asta 232: Trave in legno a falda Falda 5 fili 250-285 (L = 392.3)

asta 233: Trave in legno a falda Falda 5 fili 250-285 (L = 23.2)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 91.5

Kdef = 0

Uinst tot in x = -0.23

Uinst tot in y = 0.12

Uinst tot = 0.23

Luce/Uinst,tot > limite

$415.6/0.23=1786.9 > 300$  Comb: SLE rara, 16

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 91.5

Kdef = 0

Uinst var in x = -0.15

Uinst var in y = 0.1

Uinst var = 0.15

Luce/Uinst,var > limite

$415.6/0.15=2833.2 > 300$  Comb: SLE rara, 16

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 91.5

Kdef = 0.6

Ufin in x = -0.28

Ufin in y = 0.13

Ufin = 0.28

Luce/Ufin > limite

$415.6/0.28=1461.4 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 5" 251-289

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



### Dati generali

Superelemento di lunghezza complessiva L= 416 composto da:  
asta 255: Trave in legno a falda Falda 5 fili 251-289 (L = 392.8)  
asta 256: Trave in legno a falda Falda 5 fili 251-289 (L = 23.2)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 91.6

Kdef = 0

Uinst tot in x = 0.45

Uinst tot in y = -0.4

Uinst tot = 0.45

Luce/Uinst,tot > limite

416/0.45=916.9 > 300 Comb: SLE rara, 9

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 91.6

Kdef = 0

Uinst var in x = 0.3

Uinst var in y = -0.23

Uinst var = 0.3

Luce/Uinst,var > limite

416/0.3=1405.6 > 300 Comb: SLE rara, 9

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 91.6

Kdef = 0.6

Ufin in x = 0.55

Ufin in y = -0.5

Ufin = 0.55

Luce/Ufin > limite

416/0.55=758.6 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 5" 256-284

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 339.2 composto da:  
asta 230: Trave in legno a falda Falda 5 fili 256-284 (L = 316)  
asta 231: Trave in legno a falda Falda 5 fili 256-284 (L = 23.2)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 231.8

Kdef = 0

Uinst tot in x = -0.17

Uinst tot in y = 0.29

Uinst tot = 0.29



Luce/Uinst,tot > limite  
339.2/0.29=1158 > 300 Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 221.2  
Kdef = 0  
Uinst var in x = -0.11  
Uinst var in y = 0.22  
Uinst var = 0.22  
Luce/Uinst,var > limite  
339.2/0.22=1563.7 > 300 Comb: SLE rara, 17

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 231.8  
Kdef = 0.6  
Ufin in x = -0.21  
Ufin in y = 0.34  
Ufin = 0.34  
Luce/Ufin > limite  
339.2/0.34=999.1 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 5" 257-290

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 340.4 composto da:  
asta 257: Trave in legno a falda Falda 5 fili 257-290 (L = 317.1)  
asta 258: Trave in legno a falda Falda 5 fili 257-290 (L = 23.3)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 74  
Kdef = 0  
Uinst tot in x = 0.32  
Uinst tot in y = 0.26  
Uinst tot = 0.32  
Luce/Uinst,tot > limite  
340.4/0.32=1079.5 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 74  
Kdef = 0  
Uinst var in x = 0.21  
Uinst var in y = 0.19  
Uinst var = 0.21  
Luce/Uinst,var > limite  
340.4/0.21=1657.5 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 74  
Kdef = 0.6  
Ufin in x = 0.38  
Ufin in y = -0.32  
Ufin = 0.38  
Luce/Ufin > limite  
340.4/0.38=892.7 > 200



Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 5" 262-283

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 262.9$  composto da:

asta 228: Trave in legno a falda Falda 5 fili 262-283 ( $L = 239.6$ )

asta 229: Trave in legno a falda Falda 5 fili 262-283 ( $L = 23.2$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 175.8

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = -0.05$

$U_{inst\ tot\ in\ y} = 0.24$

$U_{inst\ tot} = 0.24$

$Luce/U_{inst,tot} > \text{limite}$

$262.9/0.24 = 1104.3 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 175.8

$K_{def} = 0$

$U_{inst\ var\ in\ x} = -0.03$

$U_{inst\ var\ in\ y} = 0.17$

$U_{inst\ var} = 0.17$

$Luce/U_{inst,var} > \text{limite}$

$262.9/0.17 = 1541.3 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 175.8

$K_{def} = 0.6$

$U_{fin\ in\ x} = -0.06$

$U_{fin\ in\ y} = 0.28$

$U_{fin} = 0.28$

$Luce/U_{fin} > \text{limite}$

$262.9/0.28 = 941.7 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 5" 263-291

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 264.2$  composto da:

asta 259: Trave in legno a falda Falda 5 fili 263-291 ( $L = 240.9$ )

asta 260: Trave in legno a falda Falda 5 fili 263-291 ( $L = 23.3$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$



Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 200.8  
Kdef = 0  
Uinst tot in x = 0.12  
Uinst tot in y = 0.27  
Uinst tot = 0.27  
Luce/Uinst,tot > limite  
 $264.2/0.27=971.5 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 200.8  
Kdef = 0  
Uinst var in x = 0.08  
Uinst var in y = 0.18  
Uinst var = 0.18  
Luce/Uinst,var > limite  
 $264.2/0.18=1432.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 200.8  
Kdef = 0.6  
Ufin in x = 0.15  
Ufin in y = 0.32  
Ufin = 0.32  
Luce/Ufin > limite  
 $264.2/0.32=814.2 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 5" 267-282

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 186.6 composto da:  
asta 226: Trave in legno a falda Falda 5 fili 267-282 (L = 163.4)  
asta 227: Trave in legno a falda Falda 5 fili 267-282 (L = 23.2)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 130.7  
Kdef = 0  
Uinst tot in x = -0.01  
Uinst tot in y = 0.12  
Uinst tot = 0.12  
Luce/Uinst,tot > limite  
 $186.6/0.12=1550 > 300$  Comb: SLE rara, 17

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 125.3  
Kdef = 0  
Uinst var in x = -0.01  
Uinst var in y = 0.09  
Uinst var = 0.09  
Luce/Uinst,var > limite  
 $186.6/0.09=2184.5 > 300$  Comb: SLE rara, 17





### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 130.7

$K_{def} = 0.6$

$U_{fin} \text{ in } x = -0.03$

$U_{fin} \text{ in } y = 0.14$

$U_{fin} = 0.14$

$Luce/U_{fin} > \text{limite}$

$186.6/0.14=1316.8 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 5" 268-292

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 188.1$  composto da:

asta 261: Trave in legno a falda Falda 5 fili 268-292 ( $L = 164.8$ )

asta 262: Trave in legno a falda Falda 5 fili 268-292 ( $L = 23.3$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 137.3

$K_{def} = 0$

$U_{inst} \text{ tot in } x = 0.03$

$U_{inst} \text{ tot in } y = 0.17$

$U_{inst} \text{ tot} = 0.17$

$Luce/U_{inst,tot} > \text{limite}$

$188.1/0.17=1138.2 > 300$  Comb: SLE rara, 8

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 137.3

$K_{def} = 0$

$U_{inst} \text{ var in } x = 0.02$

$U_{inst} \text{ var in } y = 0.11$

$U_{inst} \text{ var} = 0.11$

$Luce/U_{inst,var} > \text{limite}$

$188.1/0.11=1736.6 > 300$  Comb: SLE rara, 8

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 137.3

$K_{def} = 0.6$

$U_{fin} \text{ in } x = 0.06$

$U_{fin} \text{ in } y = 0.2$

$U_{fin} = 0.2$

$Luce/U_{fin} > \text{limite}$

$188.1/0.2=943.2 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 5" 271-281

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



### Dati generali

Superelemento di lunghezza complessiva L= 108.6 composto da:  
asta 224: Trave in legno a falda Falda 5 fili 271-281 (L = 85.4)  
asta 225: Trave in legno a falda Falda 5 fili 271-281 (L = 23.2)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 74  
Kdef = 0  
Uinst tot in x = -0.02  
Uinst tot in y = 0.05  
Uinst tot = 0.05  
Luce/Uinst,tot > limite  
 $108.6/0.05=2204.1 > 300$  Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 71.2  
Kdef = 0  
Uinst var in x = -0.01  
Uinst var in y = 0.03  
Uinst var = 0.03  
Luce/Uinst,var > limite  
 $108.6/0.03=3194.7 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 74  
Kdef = 0.6  
Ufin in x = -0.03  
Ufin in y = 0.06  
Ufin = 0.06  
Luce/Ufin > limite  
 $108.6/0.06=1856 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 5" 272-293

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 112 composto da:  
asta 263: Trave in legno a falda Falda 5 fili 272-293 (L = 88.6)  
asta 264: Trave in legno a falda Falda 5 fili 272-293 (L = 23.3)

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 76.8  
Kdef = 0  
Uinst tot in x = 0.03  
Uinst tot in y = 0.08



Uinst tot = 0.08  
Luce/Uinst,tot > limite  
112/0.08=1461.1 > 300 Comb: SLE rara, 16  
**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 79.8  
Kdef = 0  
Uinst var in x = 0.02  
Uinst var in y = 0.05  
Uinst var = 0.05  
Luce/Uinst,var > limite  
112/0.05=2318.1 > 300 Comb: SLE rara, 16

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 76.8  
Kdef = 0.6  
Ufin in x = 0.06  
Ufin in y = 0.09  
Ufin = 0.09  
Luce/Ufin > limite  
112/0.09=1194.1 > 200  
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000

**Superelemento in legno a "Falda 5" (-456; 87)-(375; -693)**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Superelemento di lunghezza complessiva L= 665.7 composto da:  
asta 58: Trave in legno a falda Falda 5 fili 241-277 (L = 57.7)  
asta 59: Trave in legno a falda Falda 5 fili 241-277 (L = 12.2)  
asta 60: Trave in legno a falda Falda 5 fili 241-277 (L = 87)  
asta 61: Trave in legno a falda Falda 5 fili 241-277 (L = 99.2)  
asta 62: Trave in legno a falda Falda 5 fili 241-277 (L = 59)  
asta 63: Trave in legno a falda Falda 5 fili 241-277 (L = 42)  
asta 64: Trave in legno a falda Falda 5 fili 241-277 (L = 98.6)  
asta 65: Trave in legno a falda Falda 5 fili 241-277 (L = 99.4)  
asta 66: Trave in legno a falda Falda 5 fili 241-277 (L = 110.5)

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 307.3  
Kdef = 0  
Uinst tot in x = -0.47  
Uinst tot in y = -1.98  
Uinst tot = 1.98  
Luce/Uinst,tot > limite  
665.7/1.98=337 > 300 Comb: SLE rara, 17

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 307.3  
Kdef = 0  
Uinst var in x = -0.27  
Uinst var in y = -1.27  
Uinst var = 1.27  
Luce/Uinst,var > limite  
665.7/1.27=523.1 > 300 Comb: SLE rara, 17



**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 313.9  
Kdef = 0.6  
Ufin in x = -0.58  
Ufin in y = -2.4  
Ufin = 2.4  
Luce/Ufin > limite  
 $665.7/2.4=277.6 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Variabile A = 0,700 + 0,180 = 0,880  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

**Superelemento in legno a "Falda 6" 177-(-95; 1037)**

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

**Dati generali**

Superelemento di lunghezza complessiva L= 719.6 composto da:  
asta 74: Trave in legno a falda Falda 6 fili 177-240 (L = 127.2)  
asta 75: Trave in legno a falda Falda 6 fili 177-240 (L = 104.2)  
asta 76: Trave in legno a falda Falda 6 fili 177-240 (L = 104.2)  
asta 77: Trave in legno a falda Falda 6 fili 177-240 (L = 63.3)  
asta 78: Trave in legno a falda Falda 6 fili 177-240 (L = 40.9)  
asta 79: Trave in legno a falda Falda 6 fili 177-240 (L = 104.2)  
asta 80: Trave in legno a falda Falda 6 fili 177-240 (L = 104.2)  
asta 81: Trave in legno a falda Falda 6 fili 177-240 (L = 71.2)

**Caratteristiche della sezione**

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

**Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19**

Sezione ad ascissa 380  
Kdef = 0  
Uinst tot in x = 0.89  
Uinst tot in y = -2.8  
Uinst tot = 2.8  
Luce/Uinst,tot < limite  
 $719.6/2.8=257.1 < 300$  Comb: SLE rara, 8 - NON SODDISFATTA

**Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7**

Sezione ad ascissa 380  
Kdef = 0  
Uinst var in x = 0.56  
Uinst var in y = -1.79  
Uinst var = 1.79  
Luce/Uinst,var > limite  
 $719.6/1.79=403.1 > 300$  Comb: SLE rara, 8

**Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)**

Sezione ad ascissa 391.2  
Kdef = 0.6  
Ufin in x = 1.09  
Ufin in y = -3.41  
Ufin = 3.41  
Luce/Ufin > limite  
 $719.6/3.41=211.3 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000



## Superelemento in legno a "Falda 6" 186-187

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 96.9 composto da:

Asta 271: Trave in legno a falda Falda 6 fili 186-187

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 29.1

Kdef = 0

Uinst tot in x = 0.01

Uinst tot in y = 0.06

Uinst tot = 0.06

Luce/Uinst,tot > limite

96.9/0.06=1725.9 > 300 Comb: SLE rara, 17

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 29.1

Kdef = 0

Uinst var in x = 0

Uinst var in y = 0.03

Uinst var = 0.03

Luce/Uinst,var > limite

96.9/0.03=2802.8 > 300 Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 29.1

Kdef = 0.6

Ufin in x = 0.01

Ufin in y = 0.07

Ufin = 0.07

Luce/Ufin > limite

96.9/0.07=1403 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Variabile A = 0,700 + 0,180 = 0,880

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

## Superelemento in legno a "Falda 6" 193-194

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 176.3 composto da:

Asta 270: Trave in legno a falda Falda 6 fili 193-194

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 135.1

Kdef = 0



Uinst tot in x = 0.02  
Uinst tot in y = -0.08  
Uinst tot = 0.08  
Luce/Uinst,tot > limite  
 $176.3/0.08=2119.8 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 135.1  
Kdef = 0  
Uinst var in x = 0.01  
Uinst var in y = -0.05  
Uinst var = 0.05  
Luce/Uinst,var > limite  
 $176.3/0.05=3288.4 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 135.1  
Kdef = 0.6  
Ufin in x = 0.02  
Ufin in y = -0.1  
Ufin = 0.1  
Luce/Ufin > limite  
 $176.3/0.1=1738.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000

## Superelemento in legno a "Falda 6" 203-204

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva L= 255.6 composto da:  
Asta 269: Trave in legno a falda Falda 6 fili 203-204

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 178.9  
Kdef = 0  
Uinst tot in x = 0.03  
Uinst tot in y = -0.45  
Uinst tot = 0.45  
Luce/Uinst,tot > limite  
 $255.6/0.45=564.9 > 300$  Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 178.9  
Kdef = 0  
Uinst var in x = 0.02  
Uinst var in y = -0.29  
Uinst var = 0.29  
Luce/Uinst,var > limite  
 $255.6/0.29=890.3 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 178.9  
Kdef = 0.6  
Ufin in x = 0.03  
Ufin in y = -0.55  
Ufin = 0.55  
Luce/Ufin > limite  
 $255.6/0.55=463 > 200$



Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

## Superelemento in legno a "Falda 6" 209-(217; 377)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 507.7$  composto da:

asta 131: Trave in legno a falda Falda 6 fili 209-265 ( $L = 94.1$ )

asta 132: Trave in legno a falda Falda 6 fili 209-265 ( $L = 67.6$ )

asta 133: Trave in legno a falda Falda 6 fili 209-265 ( $L = 67.6$ )

asta 134: Trave in legno a falda Falda 6 fili 209-265 ( $L = 67.6$ )

asta 135: Trave in legno a falda Falda 6 fili 209-265 ( $L = 67.6$ )

asta 136: Trave in legno a falda Falda 6 fili 209-265 ( $L = 67.6$ )

asta 137: Trave in legno a falda Falda 6 fili 209-265 ( $L = 75.8$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 18x23	Rettangolare	18	23	414	18250.5	11178	1587	1242

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 276.5

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.73$

$U_{inst\ tot\ in\ y} = -1.69$

$U_{inst\ tot} = 1.69$

$Luce/U_{inst,tot} < \text{limite}$

$507.7/1.69 = 299.9 < 300$  Comb: SLE rara, 17 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 278.7

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.5$

$U_{inst\ var\ in\ y} = -1.12$

$U_{inst\ var} = 1.12$

$Luce/U_{inst,var} > \text{limite}$

$507.7/1.12 = 452.3 > 300$  Comb: SLE rara, 17

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 284.1

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.86$

$U_{fin\ in\ y} = -2.02$

$U_{fin} = 2.02$

$Luce/U_{fin} > \text{limite}$

$507.7/2.02 = 251.6 > 200$

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Variabile A =  $0,700 + 0,180 = 0,880$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 6" 212-213

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 335$  composto da:

Asta 268: Trave in legno a falda Falda 6 fili 212-213



#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 223.3  
Kdef = 0  
Uinst tot in x = -0.01  
Uinst tot in y = -1.05  
Uinst tot = 1.05  
Luce/Uinst,tot > limite  
 $335/1.05=319 > 300$  Comb: SLE rara, 9

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 223.3  
Kdef = 0  
Uinst var in x = -0.01  
Uinst var in y = -0.66  
Uinst var = 0.66  
Luce/Uinst,var > limite  
 $335/0.66=510.5 > 300$  Comb: SLE rara, 9

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 223.3  
Kdef = 0.6  
Ufin in x = -0.01  
Ufin in y = -1.29  
Ufin = 1.29  
Luce/Ufin > limite  
 $335/1.29=260.4 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali = 1,000 + 0,600 = 1,600  
Permanenti portati = 1,000 + 0,600 = 1,600  
Neve = 0,500 + 0,500 = 1,000  
Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 6" 218-220

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 414.4 composto da:  
asta 267: Trave in legno a falda Falda 6 fili 218-219 (L = 303.9)  
asta 416: Trave in legno a falda Falda 6 fili 219-220 (L = 110.5)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 253.2  
Kdef = 0  
Uinst tot in x = -0.04  
Uinst tot in y = -2.99  
Uinst tot = 2.99  
Luce/Uinst,tot < limite  
 $414.4/2.99=138.7 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA





#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 253.2

Kdef = 0

Uinst var in x = -0.03

Uinst var in y = -1.92

Uinst var = 1.92

Luce/Uinst,var < limite

414.4/1.92=215.7 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 243

Kdef = 0.6

Ufin in x = -0.04

Ufin in y = -3.63

Ufin = 3.63

Luce/Ufin < limite

414.4/3.63=114.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 6" 227-229

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 493.7 composto da:

asta 266: Trave in legno a falda Falda 6 fili 227-228 (L = 303.9)

asta 415: Trave in legno a falda Falda 6 fili 228-229 (L = 189.9)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 273.4

Kdef = 0

Uinst tot in x = -0.05

Uinst tot in y = -4.46

Uinst tot = 4.46

Luce/Uinst,tot < limite

493.7/4.46=110.7 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 273.4

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -2.88

Uinst var = 2.88

Luce/Uinst,var < limite

493.7/2.88=171.2 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 273.4

Kdef = 0.6

Ufin in x = -0.06

Ufin in y = -5.41

Ufin = 5.41

Luce/Ufin < limite

493.7/5.41=91.3 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600



Neve =  $0,500 + 0,500 = 1,000$   
Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 6" 238-235

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 547.9$  composto da:

asta 243: Trave in legno a falda Falda 6 fili 238-239 ( $L = 303.9$ )

asta 411: Trave in legno a falda Falda 6 fili 239-240 ( $L = 244.1$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 283.5

$K_{def} = 0$

$U_{inst\ tot\ in\ x} = 0.31$

$U_{inst\ tot\ in\ y} = -5.32$

$U_{inst\ tot} = 5.32$

$Luce/U_{inst,tot} < \text{limite}$

$547.9/5.32 = 103 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 283.5

$K_{def} = 0$

$U_{inst\ var\ in\ x} = 0.13$

$U_{inst\ var\ in\ y} = -3.46$

$U_{inst\ var} = 3.46$

$Luce/U_{inst,var} < \text{limite}$

$547.9/3.46 = 158.3 < 300$  Comb: SLE rara, 9 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 283.5

$K_{def} = 0.6$

$U_{fin\ in\ x} = 0.41$

$U_{fin\ in\ y} = -6.43$

$U_{fin} = 6.43$

$Luce/U_{fin} < \text{limite}$

$547.9/6.43 = 85.2 < 200$  - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali =  $1,000 + 0,600 = 1,600$

Permanenti portati =  $1,000 + 0,600 = 1,600$

Neve =  $0,500 + 0,500 = 1,000$

Vento =  $0,600 + 0,000 = 0,600$

## Superelemento in legno a "Falda 6" 245-(-426; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati generali

Superelemento di lunghezza complessiva  $L = 490.5$  composto da:

asta 250: Trave in legno a falda Falda 6 fili 245-246 ( $L = 246.4$ )

asta 414: Trave in legno a falda Falda 6 fili 246-247 ( $L = 244.1$ )

### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno



Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 246.4

Kdef = 0

Uinst tot in x = -0.07

Uinst tot in y = -4.87

Uinst tot = 4.87

Luce/Uinst,tot < limite

490.5/4.87=100.7 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 246.4

Kdef = 0

Uinst var in x = -0.04

Uinst var in y = -3.19

Uinst var = 3.19

Luce/Uinst,var < limite

490.5/3.19=153.8 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 254.7

Kdef = 0.6

Ufin in x = -0.09

Ufin in y = -5.9

Ufin = 5.9

Luce/Ufin < limite

490.5/5.9=83.1 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 6" 251-(-359; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 411.7 composto da:

asta 249: Trave in legno a falda Falda 6 fili 251-252 (L = 167.6)

asta 413: Trave in legno a falda Falda 6 fili 252-253 (L = 244.1)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 183.9

Kdef = 0

Uinst tot in x = 0.11

Uinst tot in y = -3.61

Uinst tot = 3.61

Luce/Uinst,tot < limite

411.7/3.61=114 < 300 Comb: SLE rara, 9 - NON SODDISFATTA

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 183.9

Kdef = 0

Uinst var in x = 0.06

Uinst var in y = -2.37

Uinst var = 2.37

Luce/Uinst,var < limite

411.7/2.37=174 < 300 Comb: SLE rara, 9 - NON SODDISFATTA



### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 189.5

Kdef = 0.6

Ufin in x = 0.14

Ufin in y = -4.41

Ufin = 4.41

Luce/Ufin < limite

411.7/4.41=93.4 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

Vento = 0,600 + 0,000 = 0,600

### Superelemento in legno a "Falda 6" 257-(-291; 595)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 332.9 composto da:

asta 248: Trave in legno a falda Falda 6 fili 257-258 (L = 88.8)

asta 412: Trave in legno a falda Falda 6 fili 258-259 (L = 244.1)

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 137.6

Kdef = 0

Uinst tot in x = 0.12

Uinst tot in y = -2.07

Uinst tot = 2.07

Luce/Uinst,tot < limite

332.9/2.07=160.6 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 137.6

Kdef = 0

Uinst var in x = 0.07

Uinst var in y = -1.36

Uinst var = 1.36

Luce/Uinst,var < limite

332.9/1.36=245.5 < 300 Comb: SLE rara, 8 - NON SODDISFATTA

### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 140.5

Kdef = 0.6

Ufin in x = 0.15

Ufin in y = -2.55

Ufin = 2.55

Luce/Ufin < limite

332.9/2.55=130.7 < 200 - NON SODDISFATTA

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 6" 263-(-223; 596)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 254 composto da:



Asta 247: Trave in legno a falda Falda 6 fili 263-264

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 93.1

Kdef = 0

Uinst tot in x = 0.05

Uinst tot in y = -0.67

Uinst tot = 0.67

Luce/Uinst,tot > limite

254/0.67=379.5 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 93.1

Kdef = 0

Uinst var in x = 0.03

Uinst var in y = -0.43

Uinst var = 0.43

Luce/Uinst,var > limite

254/0.43=586.3 > 300 Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 93.1

Kdef = 0.6

Ufin in x = 0.07

Ufin in y = -0.81

Ufin = 0.81

Luce/Ufin > limite

254/0.81=313.2 > 200

Coefficienti combinatori impiegati:

Pesi strutturali = 1,000 + 0,600 = 1,600

Permanenti portati = 1,000 + 0,600 = 1,600

Neve = 0,500 + 0,500 = 1,000

### Superelemento in legno a "Falda 6" 268-(-156; 596)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 175.2 composto da:

Asta 246: Trave in legno a falda Falda 6 fili 268-269

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016

$\beta_x = 0$ ;  $\beta_y = 0$

Rapporto luce/freccia elastica limite = 300

Rapporto luce/freccia elastica differita = 200

Mensola Y: Nessuno; Mensola X: Nessuno

Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 58.4

Kdef = 0

Uinst tot in x = 0.04

Uinst tot in y = -0.26

Uinst tot = 0.26

Luce/Uinst,tot > limite

175.2/0.26=669.8 > 300 Comb: SLE rara, 8

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 58.4



Kdef = 0  
Uinst var in x = 0.02  
Uinst var in y = -0.17  
Uinst var = 0.17  
Luce/Uinst,var > limite  
 $175.2/0.17=1039.3 > 300$  Comb: SLE rara, 8

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 58.4  
Kdef = 0.6  
Ufin in x = 0.05  
Ufin in y = -0.32  
Ufin = 0.32  
Luce/Ufin > limite  
 $175.2/0.32=552.1 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Neve =  $0,500 + 0,500 = 1,000$

### Superelemento in legno a "Falda 6" 272-(-88; 597)

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati generali

Superelemento di lunghezza complessiva L= 96.4 composto da:  
Asta 245: Trave in legno a falda Falda 6 fili 272-273

#### Caratteristiche della sezione

Descrizione	Tipo	Base	Altezza	Area	Jx	Jy	Wx	Wy
R 8x10	Rettangolare	8	10	80	666.67	426.67	133.33	106.67

Materiale: C14 EN 338:2016  
 $\beta_x = 0$ ;  $\beta_y = 0$   
Rapporto luce/freccia elastica limite = 300  
Rapporto luce/freccia elastica differita = 200  
Mensola Y: Nessuno; Mensola X: Nessuno  
Classe di servizio 1

#### Verifica della freccia istantanea totale D.M. 17-01-18 §C4.4.7 Circolare 7 21-01-19

Sezione ad ascissa 28.9  
Kdef = 0  
Uinst tot in x = -0.01  
Uinst tot in y = -0.07  
Uinst tot = 0.07  
Luce/Uinst,tot > limite  
 $96.4/0.07=1326.3 > 300$  Comb: SLE rara, 16

#### Verifica della freccia istantanea variabile D.M. 17-01-18 §4.4.7

Sezione ad ascissa 28.9  
Kdef = 0  
Uinst var in x = -0.01  
Uinst var in y = -0.05  
Uinst var = 0.05  
Luce/Uinst,var > limite  
 $96.4/0.05=2080.8 > 300$  Comb: SLE rara, 16

#### Verifica della freccia finale EC5 §4.4.7 - EC5 2.2.3 (3)

Sezione ad ascissa 28.9  
Kdef = 0.6  
Ufin in x = 0.02  
Ufin in y = -0.09  
Ufin = 0.09  
Luce/Ufin > limite  
 $96.4/0.09=1088.9 > 200$   
Coefficienti combinatori impiegati:  
Pesi strutturali =  $1,000 + 0,600 = 1,600$   
Permanenti portati =  $1,000 + 0,600 = 1,600$   
Variabile A =  $0,700 + 0,180 = 0,880$   
Neve =  $0,500 + 0,500 = 1,000$



## 1.4 Verifica sismica globale

**Desc.:** descrizione.

**Stato limite:** (muratura) V=Taglio; PF=Pressoflessione; PFFP=Pressoflessione fuori piano; R=Ribaltamento.

**Molt.:** moltiplicatore minimo della azione sismica che produce lo stato limite.

**Comb.:** combinazione.

**PGA:** accelerazione al suolo.

**iPGA (ZE):** indicatore di rischio sismico in termini di PGA ovvero rapporto tra l'azione sismica massima sopportabile dall'elemento e l'azione sismica massima che si utilizzerebbe nel progetto nuovo (§C8.3).

**TR:** tempo di ritorno.

**(TR/TRrif)^.41:** indicatore di rischio sismico in termini di periodo di ritorno.

**fa:** fattore di accelerazione.

**Stato limite:** (muratura) V=Taglio; PF=Presso flessione; PFFP=Pressoflessione fuori piano; R=Ribaltamento.

**Coeff.s.:** coefficiente minimo prodotto dallo stato limite.

**Verifica:** stato di verifica.

**Maschio:** maschio.

**Stato limite:** (maschio muratura) V=Taglio; PF=Presso flessione; PFFP=Presso flessione fuori piano; R=Ribaltamento.

**Trave:** trave di collegamento in muratura.

**Stato limite:** (trave muratura) V=Taglio; F=Flessione.

**S. L.:** stato limite di riferimento.

**TR,C:** periodo di ritorno di capacità.

**PGA,C:** accelerazione di aggancio di capacità.

**TR,Rif:** periodo di ritorno di riferimento.

**PGA,Rif:** accelerazione di aggancio di riferimento.

**Tipo rottura:** tipo di rottura che fornisce il valore minimo degli elementi considerati.

**PAM:** perdita media annua attesa.

**Classe PAM:** classe di rischio PAM.

**IS-V:** indice di sicurezza.

**Classe IS-V:** classe di rischio IS-V.

### Verifica di elementi dotati di indicatori di rischio sismico mediante analisi con fattore q

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.) § C8.7.1

#### Accelerazioni e tempi di ritorno

Accelerazione di aggancio SLO (ag/g\_SLO\*S\*ST) PGA,SLOrif = 0.081

Accelerazione di aggancio SLD (ag/g\_SLD\*S\*ST) PGA,SLDrif = 0.101

Accelerazione di aggancio SLV (ag/g\_SLV\*S\*ST) PGA,SLVrif = 0.244

Tr,SLOrif = 30 anni

Tr,SLDrif = 50 anni

Tr,SLVrif = 475 anni

#### Moltiplicatori minimi delle condizioni sismiche

(Il valore di ZE corrisponde al valore di I.R. PGA secondo quanto riportato nella Circolare 7 21-01-19 §C8.3)

##### Rottura a taglio

Moltiplicatore: 0

Maschio 19

Lunghezza: 30.4; altezza: 270; spessore: 30; sezione a quota: 111

Combinazione SLV 1 N= 23 V par.= 23 l'= 0 fvd= 0.83 Vt scorrimento= 0 Vt fess. diag.= 0

Tempo di ritorno 0 anni

Indicatore iTr=(Tr/Tr,SLVrif)^.41 = 0

PGA 0

Indicatore iPGA=PGA/PGA,SLVrif = 0

Fattore di accelerazione fa = 0

##### Rottura a flessione

Moltiplicatore: 0

Maschio 19

Lunghezza: 30.4; altezza: 270; spessore: 30 sezione a quota 111

Combinazione SLV 1 N = 23 M = -616 σ0 = 0 fd = 14.38 Mu = 0

Tempo di ritorno 0 anni

Indicatore iTr=(Tr/Tr,SLVrif)^.41 = 0

PGA 0

Indicatore iPGA=PGA/PGA,SLVrif = 0

Fattore di accelerazione fa = 0

##### Rottura a pressoflessione nel piano ortogonale

Moltiplicatore: 0.065

Maschio 189

Lunghezza: 36; altezza: 316; spessore: 14; sezione a quota: 1345

Combinazione SLV 11 fd= 14.38 Ta= 0.12 Wa= 0.03 N= -21 M= 142 Mc= 147



Tempo di ritorno 0 anni

Indicatore  $iTr=(Tr/Tr,SLVrif)^{.41}=0$

PGA 0

Indicatore  $iPGA=PGA/PGA,SLVrif=0$

Fattore di accelerazione  $fa=0$

#### Rottura per meccanismi locali di collasso

Moltiplicatore: 0

Maschio 19

Lunghezza: 30.4; altezza: 270; spessore: 30 f.agg.= 0 a.lim.= 0

Combinazione SLV 1 N top= 23 N base= -205 T orto= -2  $\alpha_0=0$  M\*= 0 e\*= 0 a0\*= 0

Tempo di ritorno 0 anni

Indicatore  $iTr=(Tr/Tr,SLVrif)^{.41}=0$

PGA 0

Indicatore  $iPGA=PGA/PGA,SLVrif=0$

Fattore di accelerazione  $fa=0$

#### Indicatori minimi riferiti al solo materiale muratura

Desc.	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	$(Tr/TRrif)^{.41}$	fa
Maschio 19	PF	0	SLV 1	0	0	0	0	0
Maschio 19	V	0	SLV 1	0	0	0	0	0
Maschio 189	PFFP	0.065	SLV 11	0	0	0	0	0
Maschio 19	R	0	SLV 1	0	0	0	0	0
Trave di accoppiamento 10	PF	0	SLV 1	0	0	0	0	0
Trave di accoppiamento 1	V	0	SLV 1	0	0	0	0	0

#### Coefficienti di sicurezza riferiti al solo materiale muratura

Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 1	PF SLU	3.412	SLU 83	Si
Maschio 1	V SLU	1.546	SLU 76	Si
Maschio 1	PF	1.44	SLV 11	Si
Maschio 1	V	0.625	SLV 9	No
Maschio 1	PFFP	6.92	SLV 15	Si
Maschio 1	R	0.322	SLV 5	No
Maschio 2	PF SLU	2.961	SLU 83	Si
Maschio 2	V SLU	1.398	SLU 83	Si
Maschio 2	PF	0	SLV 13	No
Maschio 2	V	0	SLV 13	No
Maschio 2	PFFP	7.32	SLV 13	Si
Maschio 2	R	0.215	SLV 11	No
Maschio 3	PF SLU	1.165	SLU 48	Si
Maschio 3	V SLU	6.412	SLU 38	Si
Maschio 3	PF	0	SLD 1	No
Maschio 3	V	0	SLD 1	No
Maschio 3	PFFP	4.276	SLV 5	Si
Maschio 3	R	0	SLV 12	No
Maschio 4	PF SLU	4.054	SLU 77	Si
Maschio 4	V SLU	3.886	SLU 77	Si
Maschio 4	PF	1.66	SLV 13	Si
Maschio 4	V	0.38	SLV 13	No
Maschio 4	PFFP	20.461	SLV 9	Si
Maschio 4	R	0.183	SLV 9	No
Maschio 5	PF SLU	13.513	SLU 83	Si
Maschio 5	V SLU	2.942	SLU 77	Si
Maschio 5	PF	1.101	SLV 5	Si
Maschio 5	V	0.425	SLV 5	No
Maschio 5	PFFP	31.798	SLV 9	Si
Maschio 5	R	0	SLV 5	No
Maschio 6	PF SLU	16.877	SLU 44	Si
Maschio 6	V SLU	10.848	SLU 51	Si
Maschio 6	PF	1.085	SLV 9	Si
Maschio 6	V	0.402	SLV 9	No
Maschio 6	PFFP	29.883	SLV 9	Si
Maschio 6	R	0.192	SLV 7	No
Maschio 7	PF SLU	0	SLU 81	No
Maschio 7	V SLU	1.245	SLU 83	Si
Maschio 7	PF	0.671	SLV 11	No
Maschio 7	V	0.795	SLV 7	No
Maschio 7	PFFP	24.599	SLV 5	Si
Maschio 7	R	0.163	SLV 3	No
Maschio 8	PF SLU	0	SLU 2	No
Maschio 8	V SLU	0	SLU 2	No
Maschio 8	PF	0	SLV 10	No
Maschio 8	V	0	SLD 1	No
Maschio 8	PFFP	6.637	SLV 7	Si
Maschio 8	R	0	SLV 12	No
Maschio 9	PF SLU	2.056	SLU 44	Si
Maschio 9	V SLU	1.723	SLU 47	Si
Maschio 9	PF	1.529	SLV 13	Si
Maschio 9	V	0.433	SLV 15	No
Maschio 9	PFFP	14.956	SLV 11	Si
Maschio 9	R	0.193	SLV 11	No
Maschio 10	PF SLU	0.76	SLU 84	No
Maschio 10	V SLU	1.55	SLU 73	Si
Maschio 10	PF	1.252	SLV 13	Si
Maschio 10	V	0.39	SLV 13	No





Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 10	PFFP	33.439	SLV 3	Si
Maschio 10	R	0	SLV 4	No
Maschio 11	PF SLU	1.136	SLU 84	Si
Maschio 11	V SLU	1.243	SLU 82	Si
Maschio 11	PF	0	SLV 13	No
Maschio 11	V	0	SLV 13	No
Maschio 11	PFFP	34.937	SLV 3	Si
Maschio 11	R	0.185	SLV 11	No
Maschio 12	PF SLU	4.362	SLU 77	Si
Maschio 12	V SLU	2.382	SLU 52	Si
Maschio 12	PF	1.897	SLV 7	Si
Maschio 12	V	0.586	SLV 11	No
Maschio 12	PFFP	15.31	SLV 7	Si
Maschio 12	R	0.1	SLV 9	No
Maschio 13	PF SLU	0.95	SLU 84	No
Maschio 13	V SLU	1.653	SLU 81	Si
Maschio 13	PF	0	SLV 12	No
Maschio 13	V	0	SLD 7	No
Maschio 13	PFFP	1.495	SLV 11	Si
Maschio 13	R	0	SLV 12	No
Maschio 14	PF SLU	4.153	SLU 84	Si
Maschio 14	V SLU	2.199	SLU 84	Si
Maschio 14	PF	0	SLV 11	No
Maschio 14	V	0	SLV 11	No
Maschio 14	PFFP	3.824	SLV 11	Si
Maschio 14	R	0.195	SLV 1	No
Maschio 15	PF SLU	1.6	SLU 83	Si
Maschio 15	V SLU	2.995	SLU 79	Si
Maschio 15	PF	1.517	SLV 11	Si
Maschio 15	V	0.705	SLV 11	No
Maschio 15	PFFP	28.449	SLV 11	Si
Maschio 15	R	0.169	SLV 1	No
Maschio 16	PF SLU	8.248	SLU 82	Si
Maschio 16	V SLU	0.761	SLU 83	No
Maschio 16	PF	1.564	SLV 7	Si
Maschio 16	V	0.581	SLV 9	No
Maschio 16	PFFP	10.456	SLV 7	Si
Maschio 16	R	0.182	SLV 5	No
Maschio 18	PF SLU	2.405	SLU 84	Si
Maschio 18	V SLU	5.417	SLU 52	Si
Maschio 18	PF	2.538	SLV 5	Si
Maschio 18	V	1.027	SLV 7	Si
Maschio 18	PFFP	47.315	SLV 1	Si
Maschio 18	R	0.397	SLV 5	No
Maschio 19	PF SLU	0	SLU 84	No
Maschio 19	V SLU	0	SLU 1	No
Maschio 19	PF	0	SLV 16	No
Maschio 19	V	0	SLD 1	No
Maschio 19	PFFP	0	SLV 12	No
Maschio 19	R	0	SLV 16	No
Maschio 21	PF SLU	0	SLU 80	No
Maschio 21	V SLU	0	SLU 1	No
Maschio 21	PF	0	SLV 16	No
Maschio 21	V	0	SLD 1	No
Maschio 21	PFFP	0	SLV 12	No
Maschio 21	R	0	SLV 16	No
Maschio 23	PF SLU	1.705	SLU 28	Si
Maschio 23	V SLU	1.532	SLU 70	Si
Maschio 23	PF	1.403	SLV 11	Si
Maschio 23	V	0.764	SLV 11	No
Maschio 23	PFFP	14.219	SLV 1	Si
Maschio 23	R	0.547	SLV 3	No
Maschio 25	PF SLU	1.455	SLU 49	Si
Maschio 25	V SLU	2.109	SLU 70	Si
Maschio 25	PF	1.494	SLV 13	Si
Maschio 25	V	2.037	SLV 11	Si
Maschio 25	PFFP	12.379	SLV 1	Si
Maschio 25	R	0.017	SLV 1	No
Maschio 26	PF SLU	7.02	SLU 83	Si
Maschio 26	V SLU	1.443	SLU 83	Si
Maschio 26	PF	1.613	SLV 13	Si
Maschio 26	V	0.56	SLV 3	No
Maschio 26	PFFP	32.635	SLV 15	Si
Maschio 26	R	0.364	SLV 5	No
Maschio 27	PF SLU	6.45	SLU 84	Si
Maschio 27	V SLU	4.381	SLU 82	Si
Maschio 27	PF	1.343	SLV 13	Si
Maschio 27	V	0.495	SLV 3	No
Maschio 27	PFFP	40.81	SLV 5	Si
Maschio 27	R	0.172	SLV 5	No
Maschio 28	PF SLU	0	SLU 81	No
Maschio 28	V SLU	5.303	SLU 83	Si
Maschio 28	PF	1.026	SLV 15	Si
Maschio 28	V	1.558	SLV 1	Si
Maschio 28	PFFP	33.023	SLV 1	Si
Maschio 28	R	0.353	SLV 9	No
Maschio 29	PF SLU	2.847	SLU 84	Si
Maschio 29	V SLU	3.206	SLU 84	Si
Maschio 29	PF	0	SLV 1	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 29	V	0	SLV 1	No
Maschio 29	PFFP	30.848	SLV 1	Si
Maschio 29	R	0.309	SLV 3	No
Maschio 30	PF SLU	0.16	SLU 82	No
Maschio 30	V SLU	3.524	SLU 84	Si
Maschio 30	PF	0.797	SLV 13	No
Maschio 30	V	0.152	SLV 13	No
Maschio 30	PFFP	27.625	SLV 9	Si
Maschio 30	R	0.335	SLV 9	No
Maschio 31	PF SLU	2.983	SLU 83	Si
Maschio 31	V SLU	3.261	SLU 82	Si
Maschio 31	PF	0.864	SLV 13	No
Maschio 31	V	0.2	SLV 13	No
Maschio 31	PFFP	38.854	SLV 9	Si
Maschio 31	R	0.364	SLV 7	No
Maschio 32	PF SLU	0.685	SLU 83	No
Maschio 32	V SLU	12.029	SLU 84	Si
Maschio 32	PF	1.077	SLV 13	Si
Maschio 32	V	1.569	SLV 13	Si
Maschio 32	PFFP	43.566	SLV 5	Si
Maschio 32	R	0.375	SLV 7	No
Maschio 33	PF SLU	9.967	SLU 83	Si
Maschio 33	V SLU	1.306	SLU 83	Si
Maschio 33	PF	1.618	SLV 15	Si
Maschio 33	V	0.461	SLV 15	No
Maschio 33	PFFP	37.74	SLV 3	Si
Maschio 33	R	0.344	SLV 5	No
Maschio 34	PF SLU	2.934	SLU 84	Si
Maschio 34	V SLU	10.464	SLU 50	Si
Maschio 34	PF	1.718	SLV 1	Si
Maschio 34	V	0.567	SLV 1	No
Maschio 34	PFFP	16.304	SLV 9	Si
Maschio 34	R	0.158	SLV 3	No
Maschio 35	PF SLU	9.478	SLU 82	Si
Maschio 35	V SLU	4.144	SLU 82	Si
Maschio 35	PF	3.127	SLV 1	Si
Maschio 35	V	0.66	SLV 1	No
Maschio 35	PFFP	20.885	SLV 9	Si
Maschio 35	R	0.129	SLV 5	No
Maschio 36	PF SLU	9.562	SLU 83	Si
Maschio 36	V SLU	7.653	SLU 78	Si
Maschio 36	PF	3.168	SLV 15	Si
Maschio 36	V	0.741	SLV 3	No
Maschio 36	PFFP	27.019	SLV 1	Si
Maschio 36	R	0.108	SLV 11	No
Maschio 37	PF SLU	5.386	SLU 82	Si
Maschio 37	V SLU	2.85	SLU 82	Si
Maschio 37	PF	1.216	SLV 1	Si
Maschio 37	V	0.444	SLV 1	No
Maschio 37	PFFP	4.732	SLV 1	Si
Maschio 37	R	0	SLV 4	No
Maschio 38	PF SLU	5.376	SLU 82	Si
Maschio 38	V SLU	1.32	SLU 79	Si
Maschio 38	PF	2.01	SLV 11	Si
Maschio 38	V	0.701	SLV 5	No
Maschio 38	PFFP	27.275	SLV 11	Si
Maschio 38	R	0.352	SLV 1	No
Maschio 39	PF SLU	3.793	SLU 79	Si
Maschio 39	V SLU	3.323	SLU 79	Si
Maschio 39	PF	2.397	SLV 11	Si
Maschio 39	V	0.792	SLV 11	No
Maschio 39	PFFP	231.325	SLV 11	Si
Maschio 39	R	1.109	SLV 5	Si
Maschio 40	PF SLU	15.606	SLU 82	Si
Maschio 40	V SLU	3.186	SLU 52	Si
Maschio 40	PF	3.982	SLV 11	Si
Maschio 40	V	0.849	SLV 7	No
Maschio 40	PFFP	35.253	SLV 13	Si
Maschio 40	R	0.256	SLV 1	No
Maschio 42	PF SLU	2.036	SLU 82	Si
Maschio 42	V SLU	1.149	SLU 82	Si
Maschio 42	PF	2.751	SLV 7	Si
Maschio 42	V	0.748	SLV 7	No
Maschio 42	PFFP	19.661	SLV 9	Si
Maschio 42	R	0.158	SLV 3	No
Maschio 43	PF SLU	8.111	SLU 40	Si
Maschio 43	V SLU	12.284	SLU 77	Si
Maschio 43	PF	0	SLV 11	No
Maschio 43	V	0	SLV 11	No
Maschio 43	PFFP	10.739	SLV 7	Si
Maschio 43	R	0.155	SLV 3	No
Maschio 44	PF SLU	5.302	SLU 38	Si
Maschio 44	V SLU	2.38	SLU 84	Si
Maschio 44	PF	0	SLV 3	No
Maschio 44	V	0	SLV 3	No
Maschio 44	PFFP	2.267	SLV 7	Si
Maschio 44	R	0.164	SLV 9	No
Maschio 45	PF SLU	3.115	SLU 41	Si
Maschio 45	V SLU	3.798	SLU 83	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 45	PF	0	SLV 12	No
Maschio 45	V	0	SLV 3	No
Maschio 45	PFFP	10.53	SLV 7	Si
Maschio 45	R	0	SLV 12	No
Maschio 46	PF SLU	3.569	SLU 83	Si
Maschio 46	V SLU	3.452	SLU 2	Si
Maschio 46	PF	2.051	SLV 11	Si
Maschio 46	V	0.91	SLV 11	No
Maschio 46	PFFP	22.278	SLV 11	Si
Maschio 46	R	0.2	SLV 5	No
Maschio 47	PF SLU	1.324	SLU 84	Si
Maschio 47	V SLU	1.432	SLU 84	Si
Maschio 47	PF	0	SLV 1	No
Maschio 47	V	0	SLV 1	No
Maschio 47	PFFP	32.377	SLV 15	Si
Maschio 47	R	0.18	SLV 7	No
Maschio 48	PF SLU	1.025	SLU 84	Si
Maschio 48	V SLU	1.82	SLU 73	Si
Maschio 48	PF	1.263	SLV 1	Si
Maschio 48	V	0.72	SLV 1	No
Maschio 48	PFFP	27.066	SLV 11	Si
Maschio 48	R	0	SLV 16	No
Maschio 49	PF SLU	2.476	SLU 47	Si
Maschio 49	V SLU	1.462	SLU 76	Si
Maschio 49	PF	1.524	SLV 3	Si
Maschio 49	V	0.404	SLV 3	No
Maschio 49	PFFP	11.592	SLV 7	Si
Maschio 49	R	0.157	SLV 7	No
Maschio 50	PF SLU	3.905	SLU 5	Si
Maschio 50	V SLU	2.482	SLU 2	Si
Maschio 50	PF	0	SLV 7	No
Maschio 50	V	0	SLV 7	No
Maschio 50	PFFP	4.688	SLV 7	Si
Maschio 50	R	0.216	SLV 11	No
Maschio 51	PF SLU	0	SLU 77	No
Maschio 51	V SLU	17.739	SLU 37	Si
Maschio 51	PF	1.308	SLV 7	Si
Maschio 51	V	0.909	SLV 11	No
Maschio 51	PFFP	28.654	SLV 9	Si
Maschio 51	R	0.19	SLV 1	No
Maschio 52	PF SLU	4.502	SLU 81	Si
Maschio 52	V SLU	3.282	SLU 81	Si
Maschio 52	PF	0	SLV 10	No
Maschio 52	V	0	SLV 5	No
Maschio 52	PFFP	10.179	SLV 9	Si
Maschio 52	R	0	SLV 14	No
Maschio 53	PF SLU	12.044	SLU 43	Si
Maschio 53	V SLU	7.836	SLU 50	Si
Maschio 53	PF	0	SLV 6	No
Maschio 53	V	0	SLV 1	No
Maschio 53	PFFP	2.683	SLV 5	Si
Maschio 53	R	0.23	SLV 9	No
Maschio 54	PF SLU	7.151	SLU 76	Si
Maschio 54	V SLU	31.604	SLU 5	Si
Maschio 54	PF	1.996	SLV 5	Si
Maschio 54	V	1.174	SLV 5	Si
Maschio 54	PFFP	18.265	SLV 1	Si
Maschio 54	R	0.364	SLV 13	No
Maschio 55	PF SLU	7.464	SLU 76	Si
Maschio 55	V SLU	13.046	SLU 5	Si
Maschio 55	PF	2.072	SLV 9	Si
Maschio 55	V	0.631	SLV 9	No
Maschio 55	PFFP	3.192	SLV 15	Si
Maschio 55	R	0.035	SLV 15	No
Maschio 56	PF SLU	0.976	SLU 50	No
Maschio 56	V SLU	0.222	SLU 50	No
Maschio 56	PF	0	SLD 3	No
Maschio 56	V	0	SLD 3	No
Maschio 56	PFFP	2.658	SLV 15	Si
Maschio 56	R	0.043	SLV 9	No
Maschio 57	PF SLU	1.912	SLU 83	Si
Maschio 57	V SLU	1.537	SLU 83	Si
Maschio 57	PF	0	SLV 9	No
Maschio 57	V	0	SLV 9	No
Maschio 57	PFFP	4.008	SLV 5	Si
Maschio 57	R	0.047	SLV 9	No
Maschio 58	PF SLU	0	SLU 2	No
Maschio 58	V SLU	0	SLU 2	No
Maschio 58	PF	0	SLD 1	No
Maschio 58	V	0	SLD 1	No
Maschio 58	PFFP	2.617	SLV 13	Si
Maschio 58	R	0.055	SLV 9	No
Maschio 59	PF SLU	1.624	SLU 2	Si
Maschio 59	V SLU	1.728	SLU 44	Si
Maschio 59	PF	0	SLV 1	No
Maschio 59	V	0	SLV 1	No
Maschio 59	PFFP	2.158	SLV 5	Si
Maschio 59	R	0.048	SLV 7	No
Maschio 60	PF SLU	1.193	SLU 82	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 60	V SLU	1.819	SLU 73	Si
Maschio 60	PF	0	SLV 13	No
Maschio 60	V	0	SLV 13	No
Maschio 60	PFFP	6.611	SLV 11	Si
Maschio 60	R	0.058	SLV 5	No
Maschio 61	PF SLU	0.269	SLU 83	No
Maschio 61	V SLU	2.124	SLU 81	Si
Maschio 61	PF	1.983	SLV 13	Si
Maschio 61	V	0.528	SLV 7	No
Maschio 61	PFFP	4.964	SLV 9	Si
Maschio 61	R	0.021	SLV 3	No
Maschio 62	PF SLU	0	SLU 73	No
Maschio 62	V SLU	0.786	SLU 81	No
Maschio 62	PF	0	SLV 1	No
Maschio 62	V	0	SLV 1	No
Maschio 62	PFFP	7.102	SLV 9	Si
Maschio 62	R	0.032	SLV 5	No
Maschio 63	PF SLU	0.872	SLU 84	No
Maschio 63	V SLU	1.724	SLU 79	Si
Maschio 63	PF	0	SLV 12	No
Maschio 63	V	0	SLV 7	No
Maschio 63	PFFP	5.515	SLV 11	Si
Maschio 63	R	0.046	SLV 7	No
Maschio 64	PF SLU	4.365	SLU 44	Si
Maschio 64	V SLU	2.464	SLU 2	Si
Maschio 64	PF	2.099	SLV 9	Si
Maschio 64	V	0.326	SLV 11	No
Maschio 64	PFFP	2.597	SLV 15	Si
Maschio 64	R	0.021	SLV 1	No
Maschio 65	PF SLU	1.184	SLU 82	Si
Maschio 65	V SLU	0.557	SLU 82	No
Maschio 65	PF	0	SLV 3	No
Maschio 65	V	0	SLV 3	No
Maschio 65	PFFP	2.508	SLV 3	Si
Maschio 65	R	0.036	SLV 11	No
Maschio 66	PF SLU	0.877	SLU 83	No
Maschio 66	V SLU	0.521	SLU 83	No
Maschio 66	PF	0	SLV 16	No
Maschio 66	V	0	SLD 3	No
Maschio 66	PFFP	0	SLV 16	No
Maschio 66	R	0	SLV 6	No
Maschio 67	PF SLU	0	SLU 31	No
Maschio 67	V SLU	2.825	SLU 79	Si
Maschio 67	PF	0.924	SLV 7	No
Maschio 67	V	0.562	SLV 11	No
Maschio 67	PFFP	5.082	SLV 5	Si
Maschio 67	R	0.02	SLV 11	No
Maschio 68	PF SLU	2.324	SLU 83	Si
Maschio 68	V SLU	2.153	SLU 83	Si
Maschio 68	PF	1.644	SLV 11	Si
Maschio 68	V	0.905	SLV 9	No
Maschio 68	PFFP	17.093	SLV 11	Si
Maschio 68	R	0.234	SLV 11	No
Maschio 69	PF SLU	0.509	SLU 83	No
Maschio 69	V SLU	0.153	SLU 50	No
Maschio 69	PF	0	SLD 5	No
Maschio 69	V	0	SLD 5	No
Maschio 69	PFFP	34.491	SLV 7	Si
Maschio 69	R	0.291	SLV 11	No
Maschio 71	PF SLU	3.845	SLU 83	Si
Maschio 71	V SLU	5.809	SLU 52	Si
Maschio 71	PF	4.87	SLV 15	Si
Maschio 71	V	0.874	SLV 7	No
Maschio 71	PFFP	15.478	SLV 1	Si
Maschio 71	R	0.137	SLV 5	No
Maschio 72	PF SLU	0	SLU 1	No
Maschio 72	V SLU	0	SLU 1	No
Maschio 72	PF	0	SLV 10	No
Maschio 72	V	0	SLD 1	No
Maschio 72	PFFP	7.704	SLV 7	Si
Maschio 72	R	0	SLV 10	No
Maschio 73	PF SLU	0	SLU 74	No
Maschio 73	V SLU	3.015	SLU 79	Si
Maschio 73	PF	0	SLV 6	No
Maschio 73	V	0	SLV 1	No
Maschio 73	PFFP	0	SLV 6	No
Maschio 73	R	0.056	SLV 9	No
Maschio 74	PF SLU	2.582	SLU 83	Si
Maschio 74	V SLU	1.392	SLU 83	Si
Maschio 74	PF	1.56	SLV 15	Si
Maschio 74	V	0.684	SLV 1	No
Maschio 74	PFFP	8.592	SLV 15	Si
Maschio 74	R	0.052	SLV 5	No
Maschio 75	PF SLU	2.264	SLU 83	Si
Maschio 75	V SLU	3.557	SLU 82	Si
Maschio 75	PF	2.728	SLV 1	Si
Maschio 75	V	0.698	SLV 3	No
Maschio 75	PFFP	11.086	SLV 5	Si
Maschio 75	R	0.04	SLV 5	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 76	PF SLU	8.561	SLU 82	Si
Maschio 76	V SLU	2.697	SLU 82	Si
Maschio 76	PF	4.28	SLV 13	Si
Maschio 76	V	0.739	SLV 15	No
Maschio 76	PFFP	9.376	SLV 9	Si
Maschio 76	R	0.049	SLV 9	No
Maschio 77	PF SLU	3.039	SLU 83	Si
Maschio 77	V SLU	1.248	SLU 83	Si
Maschio 77	PF	2.434	SLV 3	Si
Maschio 77	V	0.677	SLV 15	No
Maschio 77	PFFP	9.479	SLV 3	Si
Maschio 77	R	0.048	SLV 7	No
Maschio 78	PF SLU	2.78	SLU 82	Si
Maschio 78	V SLU	1.167	SLU 82	Si
Maschio 78	PF	0	SLV 13	No
Maschio 78	V	0	SLV 13	No
Maschio 78	PFFP	6.266	SLV 13	Si
Maschio 78	R	0.054	SLV 7	No
Maschio 79	PF SLU	6.327	SLU 82	Si
Maschio 79	V SLU	3.319	SLU 82	Si
Maschio 79	PF	2.076	SLV 3	Si
Maschio 79	V	0.624	SLV 1	No
Maschio 79	PFFP	9.278	SLV 9	Si
Maschio 79	R	0.031	SLV 9	No
Maschio 80	PF SLU	6.613	SLU 83	Si
Maschio 80	V SLU	14.11	SLU 80	Si
Maschio 80	PF	1.804	SLV 3	Si
Maschio 80	V	0.709	SLV 1	No
Maschio 80	PFFP	9.281	SLV 1	Si
Maschio 80	R	0.051	SLV 9	No
Maschio 81	PF SLU	1.865	SLU 83	Si
Maschio 81	V SLU	0.704	SLU 84	No
Maschio 81	PF	1.196	SLV 15	Si
Maschio 81	V	0.288	SLV 15	No
Maschio 81	PFFP	8.418	SLV 1	Si
Maschio 81	R	0.056	SLV 9	No
Maschio 82	PF SLU	1.357	SLU 83	Si
Maschio 82	V SLU	1.994	SLU 79	Si
Maschio 82	PF	1.679	SLV 9	Si
Maschio 82	V	0.967	SLV 5	No
Maschio 82	PFFP	15.98	SLV 7	Si
Maschio 82	R	0.038	SLV 11	No
Maschio 83	PF SLU	4.727	SLU 84	Si
Maschio 83	V SLU	9.994	SLU 52	Si
Maschio 83	PF	3.656	SLV 11	Si
Maschio 83	V	0.928	SLV 11	No
Maschio 83	PFFP	17.132	SLV 15	Si
Maschio 83	R	0.125	SLV 3	No
Maschio 84	PF SLU	1.244	SLU 82	Si
Maschio 84	V SLU	0.857	SLU 82	No
Maschio 84	PF	0	SLV 3	No
Maschio 84	V	0	SLV 3	No
Maschio 84	PFFP	0	SLV 11	No
Maschio 84	R	0.034	SLV 7	No
Maschio 85	PF SLU	0	SLU 63	No
Maschio 85	V SLU	2.894	SLU 52	Si
Maschio 85	PF	1.773	SLV 5	Si
Maschio 85	V	0.7	SLV 11	No
Maschio 85	PFFP	4.87	SLV 11	Si
Maschio 85	R	0.021	SLV 3	No
Maschio 86	PF SLU	0.62	SLU 84	No
Maschio 86	V SLU	0.842	SLU 84	No
Maschio 86	PF	0	SLV 12	No
Maschio 86	V	0	SLV 7	No
Maschio 86	PFFP	3.534	SLV 7	Si
Maschio 86	R	0.049	SLV 7	No
Maschio 87	PF SLU	0	SLU 56	No
Maschio 87	V SLU	2.077	SLU 77	Si
Maschio 87	PF	1.745	SLV 7	Si
Maschio 87	V	0.624	SLV 11	No
Maschio 87	PFFP	4.936	SLV 9	Si
Maschio 87	R	0.02	SLV 7	No
Maschio 88	PF SLU	0	SLU 1	No
Maschio 88	V SLU	0	SLU 1	No
Maschio 88	PF	0	SLD 1	No
Maschio 88	V	0	SLD 1	No
Maschio 88	PFFP	1.185	SLV 13	Si
Maschio 88	R	0.054	SLV 7	No
Maschio 89	PF SLU	0	SLU 10	No
Maschio 89	V SLU	0.375	SLU 82	No
Maschio 89	PF	0	SLD 9	No
Maschio 89	V	0	SLD 9	No
Maschio 89	PFFP	8.536	SLV 1	Si
Maschio 89	R	0	SLV 16	No
Maschio 90	PF SLU	0	SLU 57	No
Maschio 90	V SLU	2.158	SLU 73	Si
Maschio 90	PF	0	SLV 3	No
Maschio 90	V	0	SLV 3	No
Maschio 90	PFFP	5.943	SLV 7	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 90	R	0.057	SLV 9	No
Maschio 91	PF SLU	1.544	SLU 2	Si
Maschio 91	V SLU	1.02	SLU 44	Si
Maschio 91	PF	0	SLV 11	No
Maschio 91	V	0	SLV 11	No
Maschio 91	PFFP	5.488	SLV 11	Si
Maschio 91	R	0	SLV 8	No
Maschio 92	PF SLU	1.277	SLU 2	Si
Maschio 92	V SLU	0.489	SLU 73	No
Maschio 92	PF	0	SLV 3	No
Maschio 92	V	0	SLV 3	No
Maschio 92	PFFP	0	SLV 8	No
Maschio 92	R	0	SLV 8	No
Maschio 93	PF SLU	2.079	SLU 77	Si
Maschio 93	V SLU	1.423	SLU 83	Si
Maschio 93	PF	0	SLV 1	No
Maschio 93	V	0	SLV 1	No
Maschio 93	PFFP	3.481	SLV 9	Si
Maschio 93	R	0	SLV 10	No
Maschio 94	PF SLU	2.152	SLU 81	Si
Maschio 94	V SLU	0.783	SLU 84	No
Maschio 94	PF	0	SLV 6	No
Maschio 94	V	0	SLV 1	No
Maschio 94	PFFP	0	SLV 6	No
Maschio 94	R	0	SLV 10	No
Maschio 95	PF SLU	2.784	SLU 76	Si
Maschio 95	V SLU	25.806	SLU 5	Si
Maschio 95	PF	1.689	SLV 5	Si
Maschio 95	V	1.027	SLV 5	Si
Maschio 95	PFFP	7.494	SLV 1	Si
Maschio 95	R	0.057	SLV 11	No
Maschio 96	PF SLU	1.991	SLU 76	Si
Maschio 96	V SLU	1.587	SLU 84	Si
Maschio 96	PF	1.727	SLV 9	Si
Maschio 96	V	0.937	SLV 9	No
Maschio 96	PFFP	4.992	SLV 11	Si
Maschio 96	R	0.061	SLV 5	No
Maschio 97	PF SLU	1.882	SLU 81	Si
Maschio 97	V SLU	1.297	SLU 81	Si
Maschio 97	PF	1.519	SLV 7	Si
Maschio 97	V	0.767	SLV 7	No
Maschio 97	PFFP	3.868	SLV 13	Si
Maschio 97	R	0.06	SLV 7	No
Maschio 98	PF SLU	2.014	SLU 83	Si
Maschio 98	V SLU	1.693	SLU 82	Si
Maschio 98	PF	1.626	SLV 1	Si
Maschio 98	V	0.985	SLV 1	No
Maschio 98	PFFP	4.571	SLV 9	Si
Maschio 98	R	0.058	SLV 11	No
Maschio 99	PF SLU	10.823	SLU 30	Si
Maschio 99	V SLU	4.45	SLU 61	Si
Maschio 99	PF	2.734	SLV 1	Si
Maschio 99	V	0.91	SLV 13	No
Maschio 99	PFFP	4.342	SLV 5	Si
Maschio 99	R	0	SLV 7	No
Maschio 100	PF SLU	1.152	SLU 76	Si
Maschio 100	V SLU	0.649	SLU 76	No
Maschio 100	PF	1.318	SLV 1	Si
Maschio 100	V	0.576	SLV 1	No
Maschio 100	PFFP	4.476	SLV 11	Si
Maschio 100	R	0.056	SLV 9	No
Maschio 101	PF SLU	5.693	SLU 73	Si
Maschio 101	V SLU	16.167	SLU 28	Si
Maschio 101	PF	2.048	SLV 3	Si
Maschio 101	V	0.922	SLV 1	No
Maschio 101	PFFP	3.06	SLV 7	Si
Maschio 101	R	0.056	SLV 5	No
Maschio 102	PF SLU	2.513	SLU 73	Si
Maschio 102	V SLU	5.25	SLU 52	Si
Maschio 102	PF	0	SLV 9	No
Maschio 102	V	0	SLV 9	No
Maschio 102	PFFP	3.571	SLV 11	Si
Maschio 102	R	0.064	SLV 7	No
Maschio 103	PF SLU	4.769	SLU 29	Si
Maschio 103	V SLU	9.464	SLU 81	Si
Maschio 103	PF	7.812	SLV 5	Si
Maschio 103	V	0.768	SLV 9	No
Maschio 103	PFFP	3.154	SLV 5	Si
Maschio 103	R	0.017	SLV 1	No
Maschio 104	PF SLU	3.245	SLU 82	Si
Maschio 104	V SLU	2.305	SLU 82	Si
Maschio 104	PF	0	SLV 6	No
Maschio 104	V	0	SLD 1	No
Maschio 104	PFFP	3.586	SLV 5	Si
Maschio 104	R	0	SLV 6	No
Maschio 105	PF SLU	2.266	SLU 73	Si
Maschio 105	V SLU	1.846	SLU 73	Si
Maschio 105	PF	0	SLV 8	No
Maschio 105	V	0	SLV 3	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 105	PFFP	4.597	SLV 15	Si
Maschio 105	R	0	SLV 12	No
Maschio 106	PF SLU	4.598	SLU 76	Si
Maschio 106	V SLU	3.99	SLU 2	Si
Maschio 106	PF	3.746	SLV 13	Si
Maschio 106	V	0.568	SLV 11	No
Maschio 106	PFFP	2.538	SLV 15	Si
Maschio 106	R	0.021	SLV 1	No
Maschio 107	PF SLU	2.748	SLU 82	Si
Maschio 107	V SLU	1.172	SLU 82	Si
Maschio 107	PF	1.09	SLV 15	Si
Maschio 107	V	0.297	SLV 15	No
Maschio 107	PFFP	5.641	SLV 3	Si
Maschio 107	R	0	SLV 5	No
Maschio 108	PF SLU	0	SLU 35	No
Maschio 108	V SLU	0	SLU 37	No
Maschio 108	PF	0	SLV 16	No
Maschio 108	V	0	SLD 7	No
Maschio 108	PFFP	0	SLV 12	No
Maschio 108	R	0	SLV 10	No
Maschio 109	PF SLU	3.2	SLU 81	Si
Maschio 109	V SLU	8.841	SLU 30	Si
Maschio 109	PF	1.186	SLV 5	Si
Maschio 109	V	0.439	SLV 5	No
Maschio 109	PFFP	2.844	SLV 5	Si
Maschio 109	R	0.012	SLV 9	No
Maschio 111	PF SLU	0	SLU 1	No
Maschio 111	V SLU	0	SLU 1	No
Maschio 111	PF	0	SLV 12	No
Maschio 111	V	0	SLD 1	No
Maschio 111	PFFP	0	SLV 12	No
Maschio 111	R	0	SLV 12	No
Maschio 112	PF SLU	0.843	SLU 77	No
Maschio 112	V SLU	3.249	SLU 29	Si
Maschio 112	PF	0	SLV 10	No
Maschio 112	V	0	SLD 5	No
Maschio 112	PFFP	0	SLV 5	No
Maschio 112	R	0	SLV 12	No
Maschio 113	PF SLU	5.208	SLU 82	Si
Maschio 113	V SLU	5.071	SLU 82	Si
Maschio 113	PF	1.466	SLV 13	Si
Maschio 113	V	0.913	SLV 13	No
Maschio 113	PFFP	3.806	SLV 13	Si
Maschio 113	R	0.013	SLV 9	No
Maschio 114	PF SLU	10.955	SLU 82	Si
Maschio 114	V SLU	3.646	SLU 82	Si
Maschio 114	PF	3.057	SLV 1	Si
Maschio 114	V	0.914	SLV 1	No
Maschio 114	PFFP	7.071	SLV 9	Si
Maschio 114	R	0.032	SLV 9	No
Maschio 115	PF SLU	11.373	SLU 77	Si
Maschio 115	V SLU	4.919	SLU 80	Si
Maschio 115	PF	2.867	SLV 3	Si
Maschio 115	V	0.938	SLV 15	No
Maschio 115	PFFP	6.623	SLV 1	Si
Maschio 115	R	0.061	SLV 9	No
Maschio 116	PF SLU	3.304	SLU 82	Si
Maschio 116	V SLU	2.401	SLU 82	Si
Maschio 116	PF	2.196	SLV 1	Si
Maschio 116	V	1.217	SLV 13	Si
Maschio 116	PFFP	5.168	SLV 1	Si
Maschio 116	R	0.026	SLV 5	No
Maschio 117	PF SLU	3.597	SLU 83	Si
Maschio 117	V SLU	1.677	SLU 83	Si
Maschio 117	PF	2.812	SLV 1	Si
Maschio 117	V	0.821	SLV 1	No
Maschio 117	PFFP	5.855	SLV 15	Si
Maschio 117	R	0.034	SLV 11	No
Maschio 118	PF SLU	8.951	SLU 83	Si
Maschio 118	V SLU	9.516	SLU 82	Si
Maschio 118	PF	4.178	SLV 15	Si
Maschio 118	V	0.861	SLV 3	No
Maschio 118	PFFP	8.164	SLV 5	Si
Maschio 118	R	0.034	SLV 9	No
Maschio 119	PF SLU	2.421	SLU 84	Si
Maschio 119	V SLU	7.401	SLU 52	Si
Maschio 119	PF	0.788	SLV 15	No
Maschio 119	V	0.166	SLV 1	No
Maschio 119	PFFP	9.285	SLV 5	Si
Maschio 119	R	0	SLV 5	No
Maschio 120	PF SLU	2.691	SLU 84	Si
Maschio 120	V SLU	3.726	SLU 82	Si
Maschio 120	PF	1.553	SLV 15	Si
Maschio 120	V	0.917	SLV 15	No
Maschio 120	PFFP	8.938	SLV 9	Si
Maschio 120	R	0.033	SLV 9	No
Maschio 121	PF SLU	2.846	SLU 84	Si
Maschio 121	V SLU	2.511	SLU 77	Si
Maschio 121	PF	1.235	SLV 15	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 121	V	0.517	SLV 15	No
Maschio 121	PFFP	9.032	SLV 9	Si
Maschio 121	R	0.051	SLV 5	No
Maschio 122	PF SLU	4.988	SLU 83	Si
Maschio 122	V SLU	1.705	SLU 83	Si
Maschio 122	PF	3.31	SLV 3	Si
Maschio 122	V	0.963	SLV 13	No
Maschio 122	PFFP	6.831	SLV 3	Si
Maschio 122	R	0.039	SLV 7	No
Maschio 124	PF SLU	5.199	SLU 82	Si
Maschio 124	V SLU	2.049	SLU 82	Si
Maschio 124	PF	1.036	SLV 3	Si
Maschio 124	V	0.215	SLV 3	No
Maschio 124	PFFP	4.133	SLV 11	Si
Maschio 124	R	0	SLV 7	No
Maschio 125	PF SLU	6.016	SLU 76	Si
Maschio 125	V SLU	4.545	SLU 2	Si
Maschio 125	PF	4.603	SLV 1	Si
Maschio 125	V	0.817	SLV 7	No
Maschio 125	PFFP	3.611	SLV 7	Si
Maschio 125	R	0.019	SLV 9	No
Maschio 126	PF SLU	3.199	SLU 73	Si
Maschio 126	V SLU	7.061	SLU 23	Si
Maschio 126	PF	0	SLV 12	No
Maschio 126	V	0	SLV 7	No
Maschio 126	PFFP	0	SLV 7	No
Maschio 126	R	0	SLV 12	No
Maschio 127	PF SLU	8.03	SLU 29	Si
Maschio 127	V SLU	4.182	SLU 77	Si
Maschio 127	PF	5.944	SLV 9	Si
Maschio 127	V	0.762	SLV 5	No
Maschio 127	PFFP	3.232	SLV 9	Si
Maschio 127	R	0.018	SLV 13	No
Maschio 128	PF SLU	0	SLU 10	No
Maschio 128	V SLU	0	SLU 10	No
Maschio 128	PF	0	SLD 5	No
Maschio 128	V	0	SLD 5	No
Maschio 128	PFFP	0	SLV 13	No
Maschio 128	R	0	SLV 1	No
Maschio 129	PF SLU	0.806	SLU 79	No
Maschio 129	V SLU	10.775	SLU 84	Si
Maschio 129	PF	1.481	SLV 13	Si
Maschio 129	V	5.095	SLV 15	Si
Maschio 129	PFFP	4.611	SLV 9	Si
Maschio 129	R	0	SLV 16	No
Maschio 130	PF SLU	2.232	SLU 82	Si
Maschio 130	V SLU	6.155	SLU 79	Si
Maschio 130	PF	0	SLV 3	No
Maschio 130	V	0	SLV 3	No
Maschio 130	PFFP	3.209	SLV 7	Si
Maschio 130	R	0.06	SLV 11	No
Maschio 131	PF SLU	5.449	SLU 84	Si
Maschio 131	V SLU	5.811	SLU 84	Si
Maschio 131	PF	2.279	SLV 15	Si
Maschio 131	V	0.899	SLV 3	No
Maschio 131	PFFP	3.451	SLV 7	Si
Maschio 131	R	0.058	SLV 9	No
Maschio 132	PF SLU	5.24	SLU 31	Si
Maschio 132	V SLU	1.008	SLU 73	Si
Maschio 132	PF	2.076	SLV 11	Si
Maschio 132	V	0.89	SLV 13	No
Maschio 132	PFFP	2.873	SLV 7	Si
Maschio 132	R	0.054	SLV 11	No
Maschio 133	PF SLU	9.404	SLU 30	Si
Maschio 133	V SLU	10.617	SLU 61	Si
Maschio 133	PF	2.294	SLV 13	Si
Maschio 133	V	0.959	SLV 1	No
Maschio 133	PFFP	3.87	SLV 9	Si
Maschio 133	R	0.014	SLV 9	No
Maschio 134	PF SLU	7.84	SLU 82	Si
Maschio 134	V SLU	1.993	SLU 82	Si
Maschio 134	PF	2.32	SLV 1	Si
Maschio 134	V	0.958	SLV 13	No
Maschio 134	PFFP	2.516	SLV 5	Si
Maschio 134	R	0.061	SLV 7	No
Maschio 135	PF SLU	12.262	SLU 76	Si
Maschio 135	V SLU	23.568	SLU 81	Si
Maschio 135	PF	2.819	SLV 5	Si
Maschio 135	V	1.563	SLV 7	Si
Maschio 135	PFFP	5.346	SLV 1	Si
Maschio 135	R	0.063	SLV 11	No
Maschio 136	PF SLU	5.887	SLU 37	Si
Maschio 136	V SLU	4.46	SLU 82	Si
Maschio 136	PF	4.014	SLV 9	Si
Maschio 136	V	1.638	SLV 9	Si
Maschio 136	PFFP	2.465	SLV 11	Si
Maschio 136	R	0.058	SLV 5	No
Maschio 137	PF SLU	5.568	SLU 83	Si
Maschio 137	V SLU	3.412	SLU 81	Si





Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 137	PF	3.316	SLV 7	Si
Maschio 137	V	1.655	SLV 7	Si
Maschio 137	PFFP	2.283	SLV 9	Si
Maschio 137	R	0.058	SLV 3	No
Maschio 138	PF SLU	8.317	SLU 61	Si
Maschio 138	V SLU	3.109	SLU 82	Si
Maschio 138	PF	2.781	SLV 13	Si
Maschio 138	V	1.601	SLV 1	Si
Maschio 138	PFFP	2.661	SLV 9	Si
Maschio 138	R	0.033	SLV 9	No
Maschio 139	PF SLU	0	SLU 8	No
Maschio 139	V SLU	0	SLU 6	No
Maschio 139	PF	0	SLV 1	No
Maschio 139	V	0	SLV 1	No
Maschio 139	PFFP	0	SLV 3	No
Maschio 139	R	0	SLV 4	No
Maschio 140	PF SLU	4.378	SLU 82	Si
Maschio 140	V SLU	1.355	SLU 82	Si
Maschio 140	PF	3.234	SLV 3	Si
Maschio 140	V	1.465	SLV 1	Si
Maschio 140	PFFP	2.539	SLV 11	Si
Maschio 140	R	0.053	SLV 5	No
Maschio 141	PF SLU	5.278	SLU 68	Si
Maschio 141	V SLU	1.917	SLU 80	Si
Maschio 141	PF	2.149	SLV 1	Si
Maschio 141	V	1.015	SLV 1	Si
Maschio 141	PFFP	2.667	SLV 11	Si
Maschio 141	R	0.049	SLV 3	No
Maschio 142	PF SLU	3.176	SLU 30	Si
Maschio 142	V SLU	2.315	SLU 71	Si
Maschio 142	PF	0	SLV 13	No
Maschio 142	V	0	SLV 13	No
Maschio 142	PFFP	1.727	SLV 15	Si
Maschio 142	R	0	SLV 13	No
Maschio 143	PF SLU	3.37	SLU 29	Si
Maschio 143	V SLU	6.68	SLU 51	Si
Maschio 143	PF	3.589	SLV 9	Si
Maschio 143	V	0.884	SLV 9	No
Maschio 143	PFFP	1.722	SLV 9	Si
Maschio 143	R	0.019	SLV 7	No
Maschio 144	PF SLU	3.016	SLU 71	Si
Maschio 144	V SLU	4.805	SLU 29	Si
Maschio 144	PF	0	SLV 10	No
Maschio 144	V	0	SLV 9	No
Maschio 144	PFFP	1.743	SLV 9	Si
Maschio 144	R	0	SLV 10	No
Maschio 145	PF SLU	3.009	SLU 44	Si
Maschio 145	V SLU	3.636	SLU 73	Si
Maschio 145	PF	0	SLV 8	No
Maschio 145	V	0	SLV 3	No
Maschio 145	PFFP	0	SLV 11	No
Maschio 145	R	0	SLV 12	No
Maschio 146	PF SLU	4.38	SLU 26	Si
Maschio 146	V SLU	4.011	SLU 71	Si
Maschio 146	PF	2.897	SLV 9	Si
Maschio 146	V	0.683	SLV 11	No
Maschio 146	PFFP	1.611	SLV 15	Si
Maschio 146	R	0.02	SLV 7	No
Maschio 147	PF SLU	4.485	SLU 82	Si
Maschio 147	V SLU	1.179	SLU 82	Si
Maschio 147	PF	0	SLV 10	No
Maschio 147	V	0	SLV 5	No
Maschio 147	PFFP	0	SLV 10	No
Maschio 147	R	0	SLV 10	No
Maschio 148	PF SLU	0	SLU 6	No
Maschio 148	V SLU	0	SLU 6	No
Maschio 148	PF	0	SLV 16	No
Maschio 148	V	0	SLD 3	No
Maschio 148	PFFP	0	SLV 16	No
Maschio 148	R	0	SLV 10	No
Maschio 149	PF SLU	7.892	SLU 29	Si
Maschio 149	V SLU	6.602	SLU 30	Si
Maschio 149	PF	1.63	SLV 5	Si
Maschio 149	V	0.629	SLV 5	No
Maschio 149	PFFP	1.94	SLV 9	Si
Maschio 149	R	0.012	SLV 13	No
Maschio 150	PF SLU	0	SLU 1	No
Maschio 150	V SLU	0	SLU 1	No
Maschio 150	PF	0	SLV 16	No
Maschio 150	V	0	SLD 1	No
Maschio 150	PFFP	0	SLV 16	No
Maschio 150	R	0	SLV 12	No
Maschio 151	PF SLU	1.129	SLU 77	Si
Maschio 151	V SLU	1.022	SLU 29	Si
Maschio 151	PF	0	SLV 12	No
Maschio 151	V	0	SLD 1	No
Maschio 151	PFFP	0	SLV 10	No
Maschio 151	R	0	SLV 12	No
Maschio 152	PF SLU	1.671	SLU 9	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 152	V SLU	3.307	SLU 30	Si
Maschio 152	PF	2.132	SLV 9	Si
Maschio 152	V	2.177	SLV 1	Si
Maschio 152	PFFP	2.034	SLV 13	Si
Maschio 152	R	0	SLV 5	No
Maschio 153	PF SLU	8.009	SLU 30	Si
Maschio 153	V SLU	4.892	SLU 84	Si
Maschio 153	PF	2.992	SLV 1	Si
Maschio 153	V	1.335	SLV 1	Si
Maschio 153	PFFP	3.797	SLV 15	Si
Maschio 153	R	0.002	SLV 11	No
Maschio 154	PF SLU	12.375	SLU 30	Si
Maschio 154	V SLU	4.923	SLU 30	Si
Maschio 154	PF	3.424	SLV 15	Si
Maschio 154	V	1.486	SLV 15	Si
Maschio 154	PFFP	3.497	SLV 7	Si
Maschio 154	R	0.054	SLV 5	No
Maschio 155	PF SLU	3.561	SLU 30	Si
Maschio 155	V SLU	2.53	SLU 80	Si
Maschio 155	PF	2.486	SLV 9	Si
Maschio 155	V	1.925	SLV 13	Si
Maschio 155	PFFP	3.09	SLV 1	Si
Maschio 155	R	0.058	SLV 9	No
Maschio 156	PF SLU	4.445	SLU 77	Si
Maschio 156	V SLU	1.316	SLU 83	Si
Maschio 156	PF	2.786	SLV 3	Si
Maschio 156	V	0.933	SLV 1	No
Maschio 156	PFFP	3.068	SLV 15	Si
Maschio 156	R	0.018	SLV 7	No
Maschio 157	PF SLU	9.272	SLU 77	Si
Maschio 157	V SLU	17.197	SLU 29	Si
Maschio 157	PF	4.148	SLV 1	Si
Maschio 157	V	1.023	SLV 13	Si
Maschio 157	PFFP	5.164	SLV 13	Si
Maschio 157	R	0.019	SLV 9	No
Maschio 158	PF SLU	6.991	SLU 41	Si
Maschio 158	V SLU	6.337	SLU 37	Si
Maschio 158	PF	0	SLV 1	No
Maschio 158	V	0	SLV 1	No
Maschio 158	PFFP	4.679	SLV 7	Si
Maschio 158	R	0	SLV 3	No
Maschio 159	PF SLU	4.795	SLU 82	Si
Maschio 159	V SLU	4.17	SLU 82	Si
Maschio 159	PF	2.057	SLV 15	Si
Maschio 159	V	1.266	SLV 15	Si
Maschio 159	PFFP	5.743	SLV 1	Si
Maschio 159	R	0.01	SLV 5	No
Maschio 160	PF SLU	3.643	SLU 78	Si
Maschio 160	V SLU	2.478	SLU 77	Si
Maschio 160	PF	1.225	SLV 15	Si
Maschio 160	V	0.552	SLV 15	No
Maschio 160	PFFP	5.862	SLV 5	Si
Maschio 160	R	0.038	SLV 5	No
Maschio 161	PF SLU	4.627	SLU 77	Si
Maschio 161	V SLU	1.661	SLU 41	Si
Maschio 161	PF	3.226	SLV 15	Si
Maschio 161	V	1.144	SLV 15	Si
Maschio 161	PFFP	3.657	SLV 1	Si
Maschio 161	R	0.023	SLV 9	No
Maschio 162	PF SLU	0	SLU 1	No
Maschio 162	V SLU	0	SLU 1	No
Maschio 162	PF	0	SLD 1	No
Maschio 162	V	0	SLD 1	No
Maschio 162	PFFP	1.002	SLV 7	Si
Maschio 162	R	0	SLV 1	No
Maschio 163	PF SLU	24.48	SLU 21	Si
Maschio 163	V SLU	7.569	SLU 82	Si
Maschio 163	PF	7.268	SLV 5	Si
Maschio 163	V	1.122	SLV 7	Si
Maschio 163	PFFP	7.35	SLV 7	Si
Maschio 163	R	0.086	SLV 3	No
Maschio 165	PF SLU	5.201	SLU 27	Si
Maschio 165	V SLU	1.724	SLU 71	Si
Maschio 165	PF	3.451	SLV 13	Si
Maschio 165	V	1.152	SLV 9	Si
Maschio 165	PFFP	3.698	SLV 3	Si
Maschio 165	R	0	SLV 7	No
Maschio 166	PF SLU	3.256	SLU 40	Si
Maschio 166	V SLU	1.404	SLU 82	Si
Maschio 166	PF	0	SLV 3	No
Maschio 166	V	0	SLV 3	No
Maschio 166	PFFP	2.018	SLV 11	Si
Maschio 166	R	0	SLV 7	No
Maschio 167	PF SLU	5.338	SLU 26	Si
Maschio 167	V SLU	3.987	SLU 71	Si
Maschio 167	PF	3.859	SLV 7	Si
Maschio 167	V	0.869	SLV 7	No
Maschio 167	PFFP	1.791	SLV 3	Si
Maschio 167	R	0.015	SLV 7	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 168	PF SLU	3.415	SLU 44	Si
Maschio 168	V SLU	6.924	SLU 73	Si
Maschio 168	PF	0	SLV 12	No
Maschio 168	V	0	SLV 3	No
Maschio 168	PFFP	0	SLV 8	No
Maschio 168	R	0	SLV 12	No
Maschio 169	PF SLU	3.883	SLU 29	Si
Maschio 169	V SLU	4.728	SLU 37	Si
Maschio 169	PF	2.964	SLV 5	Si
Maschio 169	V	0.871	SLV 5	No
Maschio 169	PFFP	1.771	SLV 9	Si
Maschio 169	R	0.018	SLV 11	No
Maschio 170	PF SLU	0	SLU 27	No
Maschio 170	V SLU	0.967	SLU 79	No
Maschio 170	PF	0	SLV 5	No
Maschio 170	V	0	SLV 5	No
Maschio 170	PFFP	0	SLV 6	No
Maschio 170	R	0	SLV 10	No
Maschio 171	PF SLU	0	SLU 3	No
Maschio 171	V SLU	583.983	SLU 80	Si
Maschio 171	PF	1.641	SLV 5	Si
Maschio 171	V	107.743	SLV 5	Si
Maschio 171	PFFP	0	SLV 1	No
Maschio 171	R	0	SLV 14	No
Maschio 172	PF SLU	3.66	SLU 82	Si
Maschio 172	V SLU	5.064	SLU 71	Si
Maschio 172	PF	0	SLV 1	No
Maschio 172	V	0	SLV 1	No
Maschio 172	PFFP	0	SLV 7	No
Maschio 172	R	0.053	SLV 11	No
Maschio 173	PF SLU	10.36	SLU 65	Si
Maschio 173	V SLU	15.066	SLU 23	Si
Maschio 173	PF	2.426	SLV 13	Si
Maschio 173	V	1.432	SLV 13	Si
Maschio 173	PFFP	2.479	SLV 7	Si
Maschio 173	R	0.039	SLV 15	No
Maschio 174	PF SLU	5.229	SLU 82	Si
Maschio 174	V SLU	1.477	SLU 82	Si
Maschio 174	PF	3.157	SLV 15	Si
Maschio 174	V	1.364	SLV 15	Si
Maschio 174	PFFP	2.159	SLV 7	Si
Maschio 174	R	0.055	SLV 5	No
Maschio 175	PF SLU	2.027	SLU 9	Si
Maschio 175	V SLU	5.902	SLU 8	Si
Maschio 175	PF	0	SLV 11	No
Maschio 175	V	0	SLV 11	No
Maschio 175	PFFP	1.207	SLV 15	Si
Maschio 175	R	0.049	SLV 11	No
Maschio 176	PF SLU	8.705	SLU 61	Si
Maschio 176	V SLU	2.356	SLU 82	Si
Maschio 176	PF	2.208	SLV 1	Si
Maschio 176	V	1.229	SLV 15	Si
Maschio 176	PFFP	1.894	SLV 5	Si
Maschio 176	R	0.031	SLV 5	No
Maschio 177	PF SLU	22.891	SLU 29	Si
Maschio 177	V SLU	18.575	SLU 81	Si
Maschio 177	PF	4.047	SLV 5	Si
Maschio 177	V	2.094	SLV 7	Si
Maschio 177	PFFP	3.152	SLV 1	Si
Maschio 177	R	0.059	SLV 15	No
Maschio 178	PF SLU	1.476	SLU 41	Si
Maschio 178	V SLU	18.407	SLU 69	Si
Maschio 178	PF	0	SLV 3	No
Maschio 178	V	0	SLV 3	No
Maschio 178	PFFP	0	SLV 3	No
Maschio 178	R	0	SLV 12	No
Maschio 179	PF SLU	3.578	SLU 35	Si
Maschio 179	V SLU	9.09	SLU 30	Si
Maschio 179	PF	2.819	SLV 7	Si
Maschio 179	V	3.574	SLV 9	Si
Maschio 179	PFFP	0	SLV 9	No
Maschio 179	R	0	SLV 10	No
Maschio 180	PF SLU	1.143	SLU 38	Si
Maschio 180	V SLU	0.492	SLU 38	No
Maschio 180	PF	0	SLV 3	No
Maschio 180	V	0	SLV 3	No
Maschio 180	PFFP	1.386	SLV 9	Si
Maschio 180	R	0.023	SLV 5	No
Maschio 181	PF SLU	0	SLU 84	No
Maschio 181	V SLU	0	SLU 1	No
Maschio 181	PF	0	SLV 16	No
Maschio 181	V	0	SLD 1	No
Maschio 181	PFFP	0	SLV 10	No
Maschio 181	R	0	SLV 16	No
Maschio 182	PF SLU	1.301	SLU 38	Si
Maschio 182	V SLU	0.873	SLU 38	No
Maschio 182	PF	0.994	SLV 5	No
Maschio 182	V	0.279	SLV 5	No
Maschio 182	PFFP	1.339	SLV 11	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 182	R	0	SLV 1	No
Maschio 183	PF SLU	2.866	SLU 10	Si
Maschio 183	V SLU	2.136	SLU 80	Si
Maschio 183	PF	1.237	SLV 5	Si
Maschio 183	V	0.612	SLV 5	No
Maschio 183	PFFP	1.036	SLV 11	Si
Maschio 183	R	0	SLV 5	No
Maschio 184	PF SLU	0	SLU 84	No
Maschio 184	V SLU	0	SLU 1	No
Maschio 184	PF	0	SLV 16	No
Maschio 184	V	0	SLD 1	No
Maschio 184	PFFP	0	SLV 12	No
Maschio 184	R	0	SLV 16	No
Maschio 185	PF SLU	1.211	SLU 29	Si
Maschio 185	V SLU	1.182	SLU 29	Si
Maschio 185	PF	0	SLV 16	No
Maschio 185	V	0	SLD 1	No
Maschio 185	PFFP	0	SLV 16	No
Maschio 185	R	0	SLV 16	No
Maschio 186	PF SLU	1.195	SLU 37	Si
Maschio 186	V SLU	9.655	SLU 47	Si
Maschio 186	PF	0	SLD 5	No
Maschio 186	V	0	SLD 5	No
Maschio 186	PFFP	0	SLV 1	No
Maschio 186	R	0.021	SLV 11	No
Maschio 187	PF SLU	0.795	SLU 80	No
Maschio 187	V SLU	4.268	SLU 80	Si
Maschio 187	PF	1.198	SLV 11	Si
Maschio 187	V	0.898	SLV 11	No
Maschio 187	PFFP	2.814	SLV 9	Si
Maschio 187	R	0	SLV 13	No
Maschio 188	PF SLU	1.01	SLU 38	Si
Maschio 188	V SLU	0.221	SLU 38	No
Maschio 188	PF	0	SLV 6	No
Maschio 188	V	0	SLD 3	No
Maschio 188	PFFP	0	SLV 1	No
Maschio 188	R	0	SLV 6	No
Maschio 189	PF SLU	0	SLU 84	No
Maschio 189	V SLU	0	SLU 1	No
Maschio 189	PF	0	SLV 16	No
Maschio 189	V	0	SLD 1	No
Maschio 189	PFFP	0	SLV 16	No
Maschio 189	R	0	SLV 10	No
Maschio 190	PF SLU	3.833	SLU 40	Si
Maschio 190	V SLU	7.018	SLU 30	Si
Maschio 190	PF	0	SLV 5	No
Maschio 190	V	0	SLV 5	No
Maschio 190	PFFP	0	SLV 1	No
Maschio 190	R	0.02	SLV 7	No
Maschio 191	PF SLU	0	SLU 1	No
Maschio 191	V SLU	0	SLU 1	No
Maschio 191	PFFP	0	SLV 16	No
Maschio 191	R	0	SLV 14	No
Maschio 192	PF SLU	4.813	SLU 27	Si
Maschio 192	V SLU	120.696	SLU 27	Si
Maschio 192	PFFP	0	SLV 10	No
Maschio 192	R	0	SLV 10	No
Maschio 193	PF SLU	0	SLU 84	No
Maschio 193	V SLU	0	SLU 1	No
Maschio 193	PF	0	SLV 14	No
Maschio 193	V	0	SLD 1	No
Maschio 193	PFFP	0	SLV 10	No
Maschio 193	R	0	SLV 16	No
Maschio 194	PF SLU	8.716	SLU 37	Si
Maschio 194	V SLU	11.202	SLU 29	Si
Maschio 194	PF	0	SLV 7	No
Maschio 194	V	0	SLV 7	No
Maschio 194	PFFP	1.09	SLV 7	Si
Maschio 194	R	0	SLV 8	No
Maschio 195	PF SLU	14.287	SLU 30	Si
Maschio 195	V SLU	10.565	SLU 38	Si
Maschio 195	PF	3.486	SLV 15	Si
Maschio 195	V	3.344	SLV 15	Si
Maschio 195	PFFP	1.118	SLV 11	Si
Maschio 195	R	0	SLV 5	No
Maschio 196	PF SLU	0	SLU 84	No
Maschio 196	V SLU	0	SLU 1	No
Maschio 196	PF	0	SLV 16	No
Maschio 196	V	0	SLD 1	No
Maschio 196	PFFP	0	SLV 1	No
Maschio 196	R	0	SLV 16	No
Maschio 197	PF SLU	2.547	SLU 39	Si
Maschio 197	V SLU	1.435	SLU 83	Si
Maschio 197	PF	2.546	SLV 1	Si
Maschio 197	V	1.707	SLV 1	Si
Maschio 197	PFFP	1.12	SLV 15	Si
Maschio 197	R	0.008	SLV 9	No
Maschio 198	PF SLU	9.387	SLU 60	Si
Maschio 198	V SLU	7.616	SLU 81	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 198	PF	1.99	SLV 13	Si
Maschio 198	V	1.532	SLV 13	Si
Maschio 198	PFFP	2.469	SLV 13	Si
Maschio 198	R	0.02	SLV 11	No
Maschio 199	PF SLU	3.095	SLU 41	Si
Maschio 199	V SLU	3.639	SLU 37	Si
Maschio 199	PF	0	SLD 1	No
Maschio 199	V	0	SLD 1	No
Maschio 199	PFFP	1.284	SLV 7	Si
Maschio 199	R	0	SLV 3	No
Maschio 200	PF SLU	4.177	SLU 19	Si
Maschio 200	V SLU	2.7	SLU 82	Si
Maschio 200	PF	0	SLV 1	No
Maschio 200	V	0	SLV 1	No
Maschio 200	PFFP	1.848	SLV 1	Si
Maschio 200	R	0.061	SLV 11	No
Maschio 201	PF SLU	3.169	SLU 39	Si
Maschio 201	V SLU	2.086	SLU 83	Si
Maschio 201	PF	1.187	SLV 15	Si
Maschio 201	V	0.579	SLV 15	No
Maschio 201	PFFP	3.046	SLV 5	Si
Maschio 201	R	0.067	SLV 11	No
Maschio 202	PF SLU	2.069	SLU 37	Si
Maschio 202	V SLU	1.401	SLU 41	Si
Maschio 202	PF	1.914	SLV 15	Si
Maschio 202	V	1.98	SLV 15	Si
Maschio 202	PFFP	1.413	SLV 1	Si
Maschio 202	R	0.101	SLV 11	No
Maschio 203	PF SLU	0	SLU 5	No
Maschio 203	V SLU	0	SLU 5	No
Maschio 203	PF	0	SLV 12	No
Maschio 203	V	0	SLV 1	No
Maschio 203	PFFP	0.976	SLV 7	No
Maschio 203	R	0	SLV 12	No
Maschio 204	PF SLU	1.714	SLU 30	Si
Maschio 204	V SLU	1.313	SLU 30	Si
Maschio 204	PF	0	SLD 5	No
Maschio 204	V	0	SLD 5	No
Maschio 204	PFFP	0	SLV 1	No
Maschio 204	R	0.028	SLV 11	No
Maschio 205	PF SLU	1.209	SLU 30	Si
Maschio 205	V SLU	1.154	SLU 37	Si
Maschio 205	PF	0	SLD 5	No
Maschio 205	V	0	SLD 5	No
Maschio 205	PFFP	0.987	SLV 13	No
Maschio 205	R	0.022	SLV 5	No
Maschio 206	PF SLU	0	SLU 6	No
Maschio 206	V SLU	0.354	SLU 80	No
Maschio 206	PF	0.629	SLV 15	No
Maschio 206	V	0.213	SLV 15	No
Maschio 206	PFFP	2.726	SLV 5	Si
Maschio 206	R	0	SLV 1	No
Maschio 207	PF SLU	0	SLU 1	No
Maschio 207	V SLU	23.293	SLU 80	Si
Maschio 207	PF	0	SLD 7	No
Maschio 207	V	73.041	SLV 11	Si
Maschio 207	PFFP	0	SLV 1	No
Maschio 207	R	0	SLV 4	No
Maschio 208	PF SLU	0	SLU 84	No
Maschio 208	V SLU	0	SLU 1	No
Maschio 208	PF	0	SLV 14	No
Maschio 208	V	0	SLD 1	No
Maschio 208	PFFP	0	SLV 10	No
Maschio 208	R	0	SLV 14	No
Maschio 209	PF SLU	1.469	SLU 42	Si
Maschio 209	V SLU	0.96	SLU 38	No
Maschio 209	PF	0	SLV 15	No
Maschio 209	V	0	SLV 15	No
Maschio 209	PFFP	1.387	SLV 9	Si
Maschio 209	R	0.018	SLV 9	No
Maschio 210	PF SLU	5.393	SLU 43	Si
Maschio 210	V SLU	15.344	SLU 81	Si
Maschio 210	PF	1.135	SLV 11	Si
Maschio 210	V	1.005	SLV 11	Si
Maschio 210	PFFP	1.267	SLV 15	Si
Maschio 210	R	0	SLV 1	No
Maschio 211	PF SLU	1.995	SLU 31	Si
Maschio 211	V SLU	1.508	SLU 82	Si
Maschio 211	PF	0	SLV 12	No
Maschio 211	V	0	SLD 13	No
Maschio 211	PFFP	0	SLV 14	No
Maschio 211	R	0	SLV 12	No
Maschio 212	PF SLU	2.262	SLU 19	Si
Maschio 212	V SLU	2.046	SLU 82	Si
Maschio 212	PF	0	SLV 10	No
Maschio 212	V	0	SLD 5	No
Maschio 212	PFFP	0	SLV 5	No
Maschio 212	R	0	SLV 10	No
Maschio 213	PF SLU	3.078	SLU 19	Si



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 213	V SLU	2.179	SLU 82	Si
Maschio 213	PF	0	SLV 3	No
Maschio 213	V	0	SLV 3	No
Maschio 213	PFFP	0	SLV 11	No
Maschio 213	R	0	SLV 3	No
Maschio 214	PF SLU	4.663	SLU 52	Si
Maschio 214	V SLU	5.747	SLU 37	Si
Maschio 214	PF	0	SLV 12	No
Maschio 214	V	0	SLD 11	No
Maschio 214	PFFP	0	SLV 12	No
Maschio 214	R	0	SLV 16	No
Maschio 215	PF SLU	1.68	SLU 31	Si
Maschio 215	V SLU	2.175	SLU 80	Si
Maschio 215	PF	0	SLV 12	No
Maschio 215	V	0	SLD 7	No
Maschio 215	PFFP	0	SLV 16	No
Maschio 215	R	0	SLV 16	No
Maschio 216	PF SLU	8.25	SLU 10	Si
Maschio 216	V SLU	21.922	SLU 31	Si
Maschio 216	PF	1.883	SLV 9	Si
Maschio 216	V	2.378	SLV 9	Si
Maschio 216	PFFP	1.09	SLV 7	Si
Maschio 216	R	0	SLV 3	No
Maschio 217	PF SLU	2.231	SLU 31	Si
Maschio 217	V SLU	1.86	SLU 78	Si
Maschio 217	PF	1.078	SLV 11	Si
Maschio 217	V	0.66	SLV 11	No
Maschio 217	PFFP	1.182	SLV 11	Si
Maschio 217	R	0	SLV 5	No
Maschio 220	PF SLU	1.144	SLU 84	Si
Maschio 220	V SLU	1.171	SLU 84	Si
Maschio 220	PF	0	SLV 16	No
Maschio 220	V	0	SLV 3	No
Maschio 220	PFFP	2.629	SLV 11	Si
Maschio 220	R	0	SLV 16	No
Maschio 221	PF SLU	2.732	SLU 84	Si
Maschio 221	V SLU	1.705	SLU 84	Si
Maschio 221	PF	0	SLV 12	No
Maschio 221	V	0	SLV 1	No
Maschio 221	PFFP	1.489	SLV 7	Si
Maschio 221	R	0	SLV 12	No
Maschio 222	PF SLU	6.324	SLU 80	Si
Maschio 222	V SLU	7.561	SLU 79	Si
Maschio 222	PF	0	SLV 16	No
Maschio 222	V	0	SLV 3	No
Maschio 222	PFFP	0	SLV 11	No
Maschio 222	R	0	SLV 16	No
Maschio 223	PF SLU	5.079	SLU 83	Si
Maschio 223	V SLU	6.126	SLU 83	Si
Maschio 223	PF	0	SLV 8	No
Maschio 223	V	0	SLV 1	No
Maschio 223	PFFP	1.765	SLV 7	Si
Maschio 223	R	0	SLV 8	No
Maschio 224	PF SLU	7.699	SLU 80	Si
Maschio 224	V SLU	6.73	SLU 73	Si
Maschio 224	PF	0	SLV 16	No
Maschio 224	V	0	SLD 7	No
Maschio 224	PFFP	0	SLV 12	No
Maschio 224	R	0	SLV 16	No
Maschio 225	PF SLU	5.802	SLU 84	Si
Maschio 225	V SLU	8.269	SLU 84	Si
Maschio 225	PF	0	SLV 16	No
Maschio 225	V	0	SLV 1	No
Maschio 225	PFFP	0	SLV 12	No
Maschio 225	R	0	SLV 8	No
Maschio 226	PF SLU	55.906	SLU 52	Si
Maschio 226	V SLU	13.148	SLU 81	Si
Maschio 226	PF	0	SLV 7	No
Maschio 226	V	0	SLV 7	No
Maschio 226	PFFP	4.862	SLV 7	Si
Maschio 226	R	0.43	SLV 5	No
Maschio 227	PF SLU	9.312	SLU 70	Si
Maschio 227	V SLU	9.909	SLU 44	Si
Maschio 227	PF	0	SLV 16	No
Maschio 227	V	0	SLD 7	No
Maschio 227	PFFP	0	SLV 12	No
Maschio 227	R	0	SLV 16	No
Maschio 228	PF SLU	4.381	SLU 36	Si
Maschio 228	V SLU	7.174	SLU 78	Si
Maschio 228	PF	0	SLV 16	No
Maschio 228	V	0	SLV 1	No
Maschio 228	PFFP	0	SLV 12	No
Maschio 228	R	0	SLV 12	No
Maschio 229	PF SLU	0	SLU 79	No
Maschio 229	V SLU	0	SLU 3	No
Maschio 229	PF	0	SLV 14	No
Maschio 229	V	0	SLD 1	No
Maschio 229	PFFP	0	SLV 1	No
Maschio 229	R	0	SLV 16	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 230	PF SLU	0	SLU 84	No
Maschio 230	V SLU	0	SLU 2	No
Maschio 230	PF	0	SLV 14	No
Maschio 230	V	0	SLD 1	No
Maschio 230	PFFP	0	SLV 1	No
Maschio 230	R	0	SLV 16	No
Maschio 231	PF SLU	0	SLU 1	No
Maschio 231	V SLU	0	SLU 1	No
Maschio 231	PF	0	SLV 10	No
Maschio 231	V	0	SLD 1	No
Maschio 231	PFFP	0	SLV 10	No
Maschio 231	R	0	SLV 10	No
Maschio 232	PF SLU	3.103	SLU 37	Si
Maschio 232	V SLU	4.836	SLU 38	Si
Maschio 232	PF	0	SLV 14	No
Maschio 232	V	0	SLD 1	No
Maschio 232	PFFP	0	SLV 12	No
Maschio 232	R	0	SLV 14	No
Maschio 233	PF SLU	1.85	SLU 44	Si
Maschio 233	V SLU	6.495	SLU 44	Si
Maschio 233	PF	0	SLV 12	No
Maschio 233	V	0	SLD 1	No
Maschio 233	PFFP	0	SLV 16	No
Maschio 233	R	0	SLV 16	No
Maschio 234	PF SLU	3.07	SLU 43	Si
Maschio 234	V SLU	2.091	SLU 80	Si
Maschio 234	PF	0	SLV 16	No
Maschio 234	V	0	SLD 11	No
Maschio 234	PFFP	0	SLV 1	No
Maschio 234	R	0	SLV 16	No
Maschio 235	PF SLU	0	SLU 1	No
Maschio 235	V SLU	0	SLU 1	No
Maschio 235	PFFP	0	SLV 10	No
Maschio 235	R	0.166	SLV 1	No
Maschio 236	PF SLU	5.009	SLU 41	Si
Maschio 236	V SLU	5.686	SLU 52	Si
Maschio 236	PF	0.984	SLV 5	No
Maschio 236	V	0.067	SLV 5	No
Maschio 236	PFFP	4.209	SLV 5	Si
Maschio 236	R	0.046	SLV 9	No
Maschio 237	PF SLU	0	SLU 84	No
Maschio 237	V SLU	0	SLU 1	No
Maschio 237	PFFP	0	SLV 1	No
Maschio 237	R	0	SLV 14	No
Maschio 238	PF SLU	0	SLU 1	No
Maschio 238	V SLU	0	SLU 1	No
Maschio 238	PF	0	SLV 8	No
Maschio 238	V	0	SLD 1	No
Maschio 238	PFFP	0	SLV 1	No
Maschio 238	R	0	SLV 8	No
Maschio 239	PF SLU	2.209	SLU 43	Si
Maschio 239	V SLU	2.705	SLU 38	Si
Maschio 239	PF	0	SLV 16	No
Maschio 239	V	0	SLD 7	No
Maschio 239	PFFP	0	SLV 1	No
Maschio 239	R	0	SLV 16	No
Maschio 240	PF SLU	2.856	SLU 41	Si
Maschio 240	V SLU	3.357	SLU 79	Si
Maschio 240	PF	0	SLV 7	No
Maschio 240	V	0	SLV 7	No
Maschio 240	PFFP	2.475	SLV 7	Si
Maschio 240	R	0.007	SLV 7	No
Maschio 241	PF SLU	17.581	SLU 69	Si
Maschio 241	V SLU	8.876	SLU 29	Si
Maschio 241	PF	4.452	SLV 11	Si
Maschio 241	V	1.012	SLV 7	Si
Maschio 241	PFFP	7.832	SLV 7	Si
Maschio 241	R	0.048	SLV 7	No
Maschio 242	PF SLU	2.879	SLU 82	Si
Maschio 242	V SLU	3.445	SLU 29	Si
Maschio 242	PF	2.831	SLV 7	Si
Maschio 242	V	1.152	SLV 9	Si
Maschio 242	PFFP	2.186	SLV 5	Si
Maschio 242	R	0.011	SLV 3	No
Maschio 243	PF SLU	1.473	SLU 44	Si
Maschio 243	V SLU	2.432	SLU 44	Si
Maschio 243	PF	0	SLV 16	No
Maschio 243	V	0	SLD 1	No
Maschio 243	PFFP	0	SLV 1	No
Maschio 243	R	0	SLV 8	No
Maschio 244	PF SLU	2.228	SLU 2	Si
Maschio 244	V SLU	9.198	SLU 34	Si
Maschio 244	PF	0	SLV 12	No
Maschio 244	V	0	SLD 1	No
Maschio 244	PFFP	0	SLV 1	No
Maschio 244	R	0	SLV 10	No
Maschio 245	PF SLU	0	SLU 71	No
Maschio 245	V SLU	0	SLU 6	No
Maschio 245	PF	0	SLV 14	No



Desc.	Stato limite	Coeff.s.	Comb.	Verifica
Maschio 245	V	0	SLD 1	No
Maschio 245	PFFP	0	SLV 1	No
Maschio 245	R	0	SLV 14	No
Maschio 246	PF SLU	0	SLU 84	No
Maschio 246	V SLU	0	SLU 2	No
Maschio 246	PF	0	SLV 14	No
Maschio 246	V	0	SLD 1	No
Maschio 246	PFFP	0	SLV 6	No
Maschio 246	R	0	SLV 16	No

#### Verifica maschi in muratura

Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
1	PF	1.075	SLV 15	0.262	1.071	583	1.088	Si
	V	0.582	SLV 5	0.135	0.553	108	0.545	No
	PFFP	1.29	SLV 15	0.312	1.276	985	1.349	Si
2	R	0.344	SLV 5	0.078	0.318	28	0.313	No
	PF	0.938	SLV 13	0.227	0.931	393	0.925	No
	V	0.508	SLV 7	0.116	0.477	75	0.469	No
	PFFP	1.405	SLV 13	0.339	1.387	1297	1.51	Si
3	R	0.329	SLV 11	0.074	0.303	25	0.299	No
	PF	0.177	SLV 3	0.038	0.157	5	0.155	No
	V	0.13	SLV 3	0.026	0.107	2	0.106	No
	PFFP	1.332	SLV 5	0.322	1.317	1093	1.407	Si
4	R	0.327	SLV 5	0.074	0.303	25	0.299	No
	PF	1.409	SLV 13	0.34	1.391	1309	1.515	Si
	V	0.49	SLV 3	0.112	0.46	69	0.453	No
	PFFP	2.582	SLV 9	0.362	1.483	1618	1.653	Si
5	R	0.229	SLV 5	0.051	0.21	10	0.205	No
	PF	1.076	SLV 5	0.262	1.073	585	1.089	Si
	V	0.429	SLV 11	0.098	0.399	49	0.394	No
	PFFP	2.48	SLV 9	0.362	1.483	1618	1.653	Si
6	R	0.098	SLV 11	0.02	0.08	1	0.08	No
	PF	1.082	SLV 9	0.263	1.078	594	1.096	Si
	V	0.626	SLV 9	0.146	0.598	129	0.586	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
7	R	0.201	SLV 7	0.044	0.181	7	0.177	No
	PF	0.671	SLV 11	0.157	0.644	154	0.63	No
	V	0.75	SLV 7	0.178	0.73	206	0.71	No
	PFFP	2.256	SLV 5	0.362	1.483	1618	1.653	Si
8	R	0.172	SLV 7	0.038	0.157	5	0.155	No
	PF	0.12	SLV 5	0.026	0.107	2	0.106	No
	V	0.063	SLV 1	0	0	0	0	No
	PFFP	1.788	SLV 7	0.362	1.483	1618	1.653	Si
9	R	0.341	SLV 11	0.077	0.313	27	0.309	No
	PF	1.974	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.405	SLV 1	0.093	0.38	43	0.373	No
	PFFP	2.221	SLV 11	0.362	1.483	1618	1.653	Si
10	R	0.226	SLV 11	0.051	0.21	10	0.205	No
	PF	2.004	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.328	SLV 13	0.075	0.308	26	0.304	No
	PFFP	3.039	SLV 3	0.362	1.483	1618	1.653	Si
11	R	0.215	SLV 7	0.049	0.201	9	0.197	No
	PF	0.434	SLV 15	0.099	0.407	51	0.401	No
	V	0.328	SLV 15	0.075	0.308	26	0.304	No
	PFFP	2.058	SLV 3	0.362	1.483	1618	1.653	Si
12	R	0.256	SLV 11	0.057	0.234	13	0.229	No
	PF	2.348	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.556	SLV 5	0.128	0.525	96	0.519	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
13	R	0.112	SLV 5	0.02	0.08	1	0.08	No
	PF	0.295	SLV 7	0.067	0.275	20	0.273	No
	V	0.331	SLV 7	0.075	0.308	26	0.304	No
	PFFP	1.018	SLV 11	0.248	1.017	499	1.02	Si
14	R	0.334	SLV 13	0.077	0.313	27	0.309	No
	PF	0.81	SLV 15	0.194	0.793	257	0.777	No
	V	0.779	SLV 15	0.186	0.759	229	0.741	No
	PFFP	1.133	SLV 11	0.275	1.126	678	1.157	Si
15	R	0.248	SLV 1	0.057	0.234	13	0.229	No
	PF	1.401	SLV 11	0.338	1.383	1286	1.504	Si
	V	0.805	SLV 11	0.193	0.788	252	0.771	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
16	R	0.196	SLV 15	0.044	0.181	7	0.177	No
	PF	1.12	SLV 7	0.272	1.114	656	1.142	Si
	V	0.376	SLV 9	0.086	0.351	36	0.347	No
	PFFP	1.283	SLV 7	0.31	1.269	969	1.34	Si
18	R	0.191	SLV 5	0.041	0.169	6	0.167	No
	PF	2.382	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.029	SLV 7	0.251	1.028	515	1.034	Si
	PFFP	2.854	SLV 1	0.362	1.483	1618	1.653	Si
19	R	0.405	SLV 5	0.092	0.376	42	0.37	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.587	SLV 11	0.136	0.558	110	0.549	No
21	R	0	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.722	SLV 11	0.171	0.699	186	0.681	No
23	R	0	SLV 1	0	0	0	0	No
	PF	2.667	SLV 11	0.362	1.483	1618	1.653	Si





Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
25	V	0.777	SLV 11	0.185	0.758	228	0.74	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.638	SLV 3	0.149	0.61	136	0.599	No
	PF	1.38	SLV 1	0.333	1.363	1224	1.474	Si
	V	1.381	SLV 1	0.333	1.364	1227	1.476	Si
26	PFFP	1.813	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.261	SLV 13	0.059	0.242	14	0.236	No
	PF	1.522	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.506	SLV 3	0.116	0.477	75	0.469	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
27	R	0.375	SLV 5	0.085	0.346	35	0.343	No
	PF	1.359	SLV 1	0.328	1.343	1165	1.445	Si
	V	0.616	SLV 3	0.143	0.587	124	0.577	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.314	SLV 11	0.071	0.292	23	0.289	No
28	PF	1.025	SLV 15	0.25	1.024	510	1.03	Si
	V	1.079	SLV 1	0.263	1.075	589	1.092	Si
	PFFP	1.798	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.368	SLV 9	0.083	0.342	34	0.339	No
	PF	0.944	SLV 1	0.229	0.937	400	0.932	No
29	V	0.955	SLV 1	0.232	0.95	415	0.946	No
	PFFP	1.954	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.356	SLV 7	0.081	0.332	31	0.327	No
	PF	0.865	SLV 13	0.208	0.852	310	0.839	No
	V	0.886	SLV 13	0.214	0.875	333	0.864	No
30	PFFP	1.695	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.367	SLV 7	0.083	0.342	34	0.339	No
	PF	0.869	SLV 13	0.209	0.855	314	0.844	No
	V	0.548	SLV 13	0.127	0.518	93	0.512	No
	PFFP	3.279	SLV 9	0.362	1.483	1618	1.653	Si
31	R	0.374	SLV 5	0.085	0.346	35	0.343	No
	PF	1.077	SLV 13	0.262	1.073	586	1.09	Si
	V	1.161	SLV 13	0.282	1.153	726	1.19	Si
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.378	SLV 7	0.086	0.351	36	0.347	No
32	PF	1.621	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.422	SLV 15	0.097	0.395	47	0.387	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.368	SLV 5	0.083	0.342	34	0.339	No
	PF	1.645	SLV 5	0.362	1.483	1618	1.653	Si
33	V	0.668	SLV 1	0.156	0.64	152	0.627	No
	PFFP	1.859	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.192	SLV 7	0.041	0.169	6	0.167	No
	PF	2.174	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.635	SLV 1	0.148	0.606	134	0.595	No
34	PFFP	2.313	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.163	SLV 5	0.035	0.143	4	0.141	No
	PF	3.048	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.719	SLV 13	0.17	0.696	184	0.678	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
35	R	0.133	SLV 7	0.026	0.107	2	0.106	No
	PF	1.149	SLV 1	0.279	1.141	704	1.175	Si
	V	0.633	SLV 13	0.148	0.604	133	0.593	No
	PFFP	1.183	SLV 1	0.287	1.173	765	1.216	Si
	R	0.349	SLV 11	0.079	0.323	30	0.322	No
36	PF	1.282	SLV 11	0.31	1.268	966	1.338	Si
	V	0.62	SLV 5	0.144	0.591	126	0.58	No
	PFFP	1.58	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.359	SLV 5	0.081	0.332	31	0.327	No
	PF	1.317	SLV 11	0.318	1.302	1054	1.387	Si
37	V	0.869	SLV 11	0.209	0.855	314	0.844	No
	PFFP	1.746	SLV 11	0.362	1.483	1618	1.653	Si
	R	1.106	SLV 5	0.269	1.101	632	1.124	Si
	PF	3.05	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.838	SLV 7	0.201	0.822	282	0.808	No
38	PFFP	3.845	SLV 13	0.362	1.483	1618	1.653	Si
	R	0.268	SLV 1	0.061	0.249	16	0.249	No
	PF	1.379	SLV 9	0.333	1.362	1222	1.473	Si
	V	0.65	SLV 7	0.152	0.623	142	0.61	No
	PFFP	1.885	SLV 9	0.362	1.483	1618	1.653	Si
39	R	0.175	SLV 7	0.038	0.157	5	0.155	No
	PF	0.904	SLV 11	0.218	0.894	352	0.884	No
	V	0.759	SLV 11	0.18	0.738	212	0.718	No
	PFFP	3.173	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.231	SLV 3	0.051	0.21	10	0.205	No
40	PF	0.842	SLV 7	0.202	0.828	288	0.815	No
	V	0.814	SLV 3	0.195	0.797	260	0.781	No
	PFFP	1.057	SLV 7	0.258	1.054	556	1.067	Si
	R	0.21	SLV 9	0.047	0.191	8	0.187	No
	PF	0.539	SLV 7	0.124	0.508	88	0.501	No
41	V	0.538	SLV 7	0.124	0.508	88	0.501	No
	PFFP	1.418	SLV 7	0.342	1.4	1337	1.529	Si
	R	0.361	SLV 9	0.082	0.337	33	0.335	No
	PF	2.059	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.932	SLV 11	0.226	0.925	386	0.918	No
42	PFFP	3.973	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.202	SLV 5	0.044	0.181	7	0.177	No
	PF	0.548	SLV 3	0.127	0.518	93	0.512	No
	V	0.438	SLV 3	0.1	0.41	52	0.404	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
48	PFFP	2.022	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.258	SLV 7	0.057	0.234	13	0.229	No
	PF	1.822	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.652	SLV 1	0.153	0.625	143	0.611	No
49	PFFP	2.579	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.23	SLV 11	0.051	0.21	10	0.205	No
	PF	1.289	SLV 7	0.312	1.275	983	1.347	Si
	V	0.388	SLV 13	0.089	0.364	39	0.359	No
50	PFFP	1.639	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.223	SLV 7	0.049	0.201	9	0.197	No
	PF	0.976	SLV 7	0.238	0.973	441	0.97	No
	V	0.538	SLV 1	0.124	0.508	88	0.501	No
51	PFFP	1.127	SLV 7	0.274	1.121	668	1.15	Si
	R	0.269	SLV 11	0.061	0.249	16	0.249	No
	PF	1.389	SLV 7	0.335	1.372	1251	1.487	Si
	V	0.928	SLV 11	0.225	0.921	381	0.914	No
52	PFFP	3.198	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.195	SLV 11	0.044	0.181	7	0.177	No
	PF	0.715	SLV 5	0.169	0.692	182	0.675	No
	V	0.386	SLV 11	0.088	0.359	38	0.355	No
53	PFFP	1.62	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.334	SLV 15	0.077	0.313	27	0.309	No
	PF	0.83	SLV 5	0.199	0.814	275	0.799	No
	V	0.586	SLV 3	0.136	0.555	109	0.547	No
54	PFFP	1.056	SLV 5	0.257	1.053	554	1.065	Si
	R	0.29	SLV 9	0.066	0.269	19	0.267	No
	PF	1.37	SLV 3	0.331	1.353	1196	1.46	Si
	V	1.099	SLV 5	0.267	1.094	621	1.116	Si
55	PFFP	1.6	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.375	SLV 9	0.085	0.346	35	0.343	No
	PF	1.399	SLV 15	0.337	1.381	1279	1.501	Si
	V	0.684	SLV 11	0.161	0.658	161	0.642	No
56	PFFP	1.449	SLV 15	0.349	1.429	1433	1.573	Si
	R	0.064	SLV 5	0	0	0	0	No
	PF	0.119	SLV 3	0.026	0.107	2	0.106	No
	V	0	SLV 1	0	0	0	0	No
57	PFFP	1.526	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.076	SLV 7	0	0	0	0	No
	PF	0.677	SLV 9	0.159	0.652	158	0.637	No
	V	0.312	SLV 13	0.071	0.292	23	0.289	No
58	PFFP	1.395	SLV 5	0.337	1.378	1269	1.496	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	0.024	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
59	PFFP	1.483	SLV 13	0.357	1.462	1544	1.621	Si
	R	0.077	SLV 5	0	0	0	0	No
	PF	0.629	SLV 1	0.147	0.602	132	0.592	No
	V	0.449	SLV 13	0.103	0.42	55	0.413	No
60	PFFP	1.212	SLV 5	0.293	1.201	820	1.251	Si
	R	0.063	SLV 5	0	0	0	0	No
	PF	0.539	SLV 13	0.124	0.508	88	0.501	No
	V	0.388	SLV 13	0.089	0.364	39	0.359	No
61	PFFP	1.712	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 5	0	0	0	0	No
	PF	2.474	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.474	SLV 7	0.108	0.442	63	0.437	No
62	PFFP	2.958	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.022	SLV 1	0	0	0	0	No
	PF	0.883	SLV 1	0.213	0.871	329	0.86	No
	V	0.304	SLV 3	0.07	0.286	22	0.284	No
63	PFFP	1.77	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 5	0	0	0	0	No
	PF	0.658	SLV 7	0.154	0.631	147	0.618	No
	V	0.6	SLV 3	0.14	0.571	117	0.563	No
64	PFFP	1.383	SLV 11	0.334	1.366	1234	1.479	Si
	R	0.059	SLV 7	0	0	0	0	No
	PF	1.776	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.353	SLV 11	0.08	0.328	31	0.327	No
65	PFFP	1.557	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.023	SLV 1	0	0	0	0	No
	PF	0.521	SLV 13	0.12	0.49	81	0.484	No
	V	0.033	SLV 13	0	0	0	0	No
66	PFFP	1.204	SLV 3	0.292	1.193	805	1.241	Si
	R	0.06	SLV 5	0	0	0	0	No
	PF	0.072	SLV 11	0	0	0	0	No
	V	0.069	SLV 11	0	0	0	0	No
67	PFFP	0.147	SLV 11	0.031	0.127	3	0.125	No
	R	0.021	SLV 3	0	0	0	0	No
	PF	0.871	SLV 7	0.21	0.858	316	0.846	No
	V	0.583	SLV 11	0.135	0.553	108	0.545	No
68	PFFP	2.449	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.022	SLV 1	0	0	0	0	No
	PF	1.126	SLV 11	0.274	1.12	665	1.148	Si
	V	0.886	SLV 9	0.214	0.875	333	0.864	No
69	PFFP	1.408	SLV 11	0.34	1.39	1307	1.514	Si
	R	0.261	SLV 11	0.059	0.242	14	0.236	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	3.326	SLV 7	0.362	1.483	1618	1.653	Si



Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
71	R	0.322	SLV 5	0.073	0.298	24	0.294	No
	PF	3.747	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.875	SLV 11	0.211	0.862	320	0.85	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
72	R	0.14	SLV 5	0.031	0.127	3	0.125	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	1.61	SLV 7	0.362	1.483	1618	1.653	Si
73	R	0.029	SLV 1	0	0	0	0	No
	PF	0.526	SLV 5	0.121	0.495	83	0.489	No
	V	0.502	SLV 5	0.115	0.471	73	0.464	No
	PFFP	0.866	SLV 5	0.208	0.853	311	0.841	No
74	R	0.058	SLV 5	0	0	0	0	No
	PF	1.374	SLV 15	0.332	1.357	1207	1.466	Si
	V	0.611	SLV 1	0.142	0.583	122	0.573	No
	PFFP	2.723	SLV 15	0.362	1.483	1618	1.653	Si
75	R	0.059	SLV 5	0	0	0	0	No
	PF	2.73	SLV 1	0.362	1.483	1618	1.653	Si
	V	0.673	SLV 3	0.158	0.646	155	0.632	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
76	R	0.057	SLV 5	0	0	0	0	No
	PF	2.67	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.706	SLV 15	0.167	0.682	175	0.664	No
	PFFP	3.621	SLV 9	0.362	1.483	1618	1.653	Si
77	R	0.058	SLV 5	0	0	0	0	No
	PF	2.21	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.593	SLV 15	0.138	0.565	113	0.555	No
	PFFP	2.997	SLV 3	0.362	1.483	1618	1.653	Si
78	R	0.058	SLV 5	0	0	0	0	No
	PF	0.917	SLV 13	0.222	0.909	369	0.902	No
	V	0.342	SLV 1	0.078	0.318	28	0.313	No
	PFFP	1.887	SLV 13	0.362	1.483	1618	1.653	Si
79	R	0.059	SLV 7	0	0	0	0	No
	PF	1.994	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.592	SLV 1	0.137	0.562	112	0.553	No
	PFFP	3.655	SLV 9	0.362	1.483	1618	1.653	Si
80	R	0.058	SLV 5	0	0	0	0	No
	PF	1.772	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.725	SLV 1	0.171	0.701	187	0.682	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
81	R	0.059	SLV 5	0	0	0	0	No
	PF	1.171	SLV 1	0.284	1.162	744	1.202	Si
	V	0.202	SLV 15	0.044	0.181	7	0.177	No
	PFFP	2.605	SLV 1	0.362	1.483	1618	1.653	Si
82	R	0.058	SLV 5	0	0	0	0	No
	PF	1.126	SLV 7	0.274	1.12	665	1.148	Si
	V	0.959	SLV 5	0.233	0.955	420	0.951	No
	PFFP	1.382	SLV 7	0.334	1.365	1231	1.478	Si
83	R	0.241	SLV 7	0.053	0.218	11	0.214	No
	PF	2.087	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.932	SLV 11	0.226	0.925	386	0.918	No
	PFFP	3.974	SLV 15	0.362	1.483	1618	1.653	Si
84	R	0.133	SLV 5	0.026	0.107	2	0.106	No
	PF	0.426	SLV 3	0.098	0.399	49	0.394	No
	V	0.127	SLV 3	0.026	0.107	2	0.106	No
	PFFP	0.964	SLV 11	0.235	0.96	426	0.956	No
85	R	0.06	SLV 5	0	0	0	0	No
	PF	1.714	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.699	SLV 11	0.165	0.674	171	0.658	No
	PFFP	2.551	SLV 11	0.362	1.483	1618	1.653	Si
86	R	0.022	SLV 1	0	0	0	0	No
	PF	0.592	SLV 11	0.138	0.565	113	0.555	No
	V	0.332	SLV 13	0.077	0.313	27	0.309	No
	PFFP	1.192	SLV 7	0.289	1.182	783	1.227	Si
87	R	0.061	SLV 5	0	0	0	0	No
	PF	1.874	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.58	SLV 11	0.135	0.551	107	0.543	No
	PFFP	2.403	SLV 9	0.362	1.483	1618	1.653	Si
88	R	0.022	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	1.016	SLV 13	0.248	1.015	497	1.019	Si
89	R	0.061	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0.004	SLV 13	0	0	0	0	No
	PFFP	1.692	SLV 1	0.362	1.483	1618	1.653	Si
90	R	0.054	SLV 7	0	0	0	0	No
	PF	0.675	SLV 1	0.158	0.648	156	0.633	No
	V	0.557	SLV 3	0.129	0.528	97	0.521	No
	PFFP	1.472	SLV 7	0.355	1.452	1508	1.606	Si
91	R	0.061	SLV 5	0	0	0	0	No
	PF	0.701	SLV 11	0.165	0.676	172	0.659	No
	V	0.371	SLV 1	0.085	0.346	35	0.343	No
	PFFP	3.094	SLV 11	0.362	1.483	1618	1.653	Si
92	R	0.062	SLV 5	0	0	0	0	No
	PF	0.926	SLV 3	0.224	0.918	378	0.911	No
	V	0.129	SLV 13	0.026	0.107	2	0.106	No
	PFFP	0.905	SLV 7	0.219	0.896	354	0.886	No
	R	0.061	SLV 5	0	0	0	0	No



Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
93	PF	0.646	SLV 5	0.151	0.619	140	0.606	No
	V	0.412	SLV 1	0.095	0.388	45	0.381	No
	PFFP	1.288	SLV 9	0.311	1.274	981	1.346	Si
94	R	0.06	SLV 5	0	0	0	0	No
	PF	0.866	SLV 5	0.208	0.853	311	0.841	No
	V	0.222	SLV 15	0.051	0.21	10	0.205	No
95	PFFP	0.791	SLV 5	0.189	0.773	239	0.755	No
	R	0.061	SLV 5	0	0	0	0	No
	PF	1.603	SLV 5	0.362	1.483	1618	1.653	Si
96	V	1.014	SLV 5	0.248	1.014	494	1.016	Si
	PFFP	2.005	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 7	0	0	0	0	No
97	PF	1.688	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.924	SLV 9	0.224	0.917	377	0.91	No
	PFFP	1.946	SLV 11	0.362	1.483	1618	1.653	Si
98	R	0.063	SLV 5	0	0	0	0	No
	PF	1.556	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.739	SLV 7	0.175	0.718	198	0.699	No
99	PFFP	1.538	SLV 13	0.362	1.483	1618	1.653	Si
	R	0.064	SLV 5	0	0	0	0	No
	PF	1.392	SLV 13	0.336	1.374	1259	1.491	Si
100	V	0.984	SLV 1	0.24	0.982	453	0.981	No
	PFFP	1.596	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 5	0	0	0	0	No
101	PF	1.329	SLV 1	0.321	1.314	1084	1.403	Si
	V	0.902	SLV 13	0.218	0.892	351	0.883	No
	PFFP	2.036	SLV 5	0.362	1.483	1618	1.653	Si
102	R	0.063	SLV 5	0	0	0	0	No
	PF	1.529	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.412	SLV 1	0.095	0.388	45	0.381	No
103	PFFP	1.528	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 5	0	0	0	0	No
	PF	1.846	SLV 7	0.362	1.483	1618	1.653	Si
104	V	0.922	SLV 1	0.223	0.914	374	0.907	No
	PFFP	1.603	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.067	SLV 5	0	0	0	0	No
105	PF	0.663	SLV 13	0.155	0.635	149	0.622	No
	V	0.603	SLV 13	0.14	0.574	118	0.565	No
	PFFP	1.692	SLV 11	0.362	1.483	1618	1.653	Si
106	R	0.071	SLV 7	0	0	0	0	No
	PF	2.673	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.787	SLV 9	0.188	0.769	236	0.751	No
107	PFFP	2.21	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.02	SLV 1	0	0	0	0	No
	PF	0.407	SLV 1	0.094	0.384	44	0.377	No
108	V	0.326	SLV 1	0.074	0.303	25	0.299	No
	PFFP	1.584	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.057	SLV 11	0	0	0	0	No
109	PF	0.612	SLV 7	0.143	0.585	123	0.575	No
	V	0.419	SLV 13	0.097	0.395	47	0.387	No
	PFFP	1.856	SLV 15	0.362	1.483	1618	1.653	Si
110	R	0.063	SLV 5	0	0	0	0	No
	PF	3.335	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.572	SLV 11	0.133	0.544	104	0.536	No
111	PFFP	1.833	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.021	SLV 1	0	0	0	0	No
	PF	1.067	SLV 15	0.26	1.064	571	1.078	Si
112	V	0.572	SLV 15	0.132	0.542	103	0.534	No
	PFFP	2.465	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 5	0	0	0	0	No
113	PF	0.055	SLV 11	0	0	0	0	No
	V	0.032	SLV 11	0	0	0	0	No
	PFFP	0.538	SLV 11	0.124	0.508	88	0.501	No
114	R	0.02	SLV 1	0	0	0	0	No
	PF	1.14	SLV 5	0.277	1.133	689	1.165	Si
	V	0.69	SLV 5	0.163	0.665	166	0.65	No
115	PFFP	1.692	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.02	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
116	V	0	SLV 1	0	0	0	0	No
	PFFP	0.695	SLV 7	0.163	0.669	168	0.653	No
	R	0.029	SLV 1	0	0	0	0	No
117	PF	0.388	SLV 5	0.088	0.359	38	0.355	No
	V	0.359	SLV 5	0.081	0.332	31	0.327	No
	PFFP	0.976	SLV 5	0.238	0.973	441	0.97	No
118	R	0.061	SLV 9	0	0	0	0	No
	PF	1.223	SLV 13	0.296	1.211	842	1.265	Si
	V	0.971	SLV 13	0.236	0.967	435	0.965	No
119	PFFP	1.533	SLV 13	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 5	0	0	0	0	No
	PF	2.827	SLV 13	0.362	1.483	1618	1.653	Si
120	V	0.901	SLV 1	0.218	0.89	349	0.881	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 7	0	0	0	0	No
121	PF	2.42	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.931	SLV 15	0.226	0.924	385	0.917	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
122	R	0.063	SLV 7	0	0	0	0	No
	PF	1.474	SLV 1	0.355	1.454	1514	1.608	Si



Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
	V	1.22	SLV 1	0.295	1.208	836	1.261	Si
	PFFP	1.882	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 7	0	0	0	0	No
117	PF	2.443	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.773	SLV 1	0.184	0.754	224	0.735	No
	PFFP	2.73	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
118	PF	3.785	SLV 1	0.362	1.483	1618	1.653	Si
	V	0.856	SLV 3	0.206	0.842	301	0.829	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 5	0	0	0	0	No
119	PF	0.766	SLV 15	0.182	0.746	218	0.727	No
	V	0.78	SLV 15	0.186	0.761	230	0.743	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 5	0	0	0	0	No
120	PF	1.568	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.947	SLV 15	0.23	0.942	405	0.937	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 5	0	0	0	0	No
121	PF	1.255	SLV 15	0.303	1.242	907	1.304	Si
	V	0.679	SLV 15	0.159	0.652	158	0.637	No
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
122	PF	2.761	SLV 1	0.362	1.483	1618	1.653	Si
	V	0.949	SLV 13	0.231	0.944	408	0.94	No
	PFFP	2.998	SLV 3	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
124	PF	1.019	SLV 3	0.249	1.018	501	1.022	Si
	V	0.648	SLV 3	0.152	0.621	141	0.608	No
	PFFP	1.69	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 9	0	0	0	0	No
125	PF	3.954	SLV 11	0.362	1.483	1618	1.653	Si
	V	0.816	SLV 7	0.195	0.799	262	0.784	No
	PFFP	2.77	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.021	SLV 1	0	0	0	0	No
126	PF	0.612	SLV 11	0.143	0.585	123	0.575	No
	V	0.612	SLV 11	0.143	0.585	123	0.575	No
	PFFP	0.98	SLV 7	0.239	0.977	447	0.975	No
	R	0.064	SLV 5	0	0	0	0	No
127	PF	2.381	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.788	SLV 5	0.188	0.77	237	0.752	No
	PFFP	2.094	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.02	SLV 1	0	0	0	0	No
128	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.921	SLV 13	0.223	0.913	373	0.906	No
	R	0.061	SLV 13	0	0	0	0	No
129	PF	1.472	SLV 1	0.355	1.452	1507	1.605	Si
	V	1.58	SLV 1	0.362	1.483	1618	1.653	Si
	PFFP	1.876	SLV 9	0.362	1.483	1618	1.653	Si
	R	0	SLV 1	0	0	0	0	No
130	PF	0.856	SLV 3	0.206	0.842	301	0.829	No
	V	0.674	SLV 3	0.158	0.648	156	0.633	No
	PFFP	1.41	SLV 7	0.34	1.392	1313	1.517	Si
	R	0.067	SLV 7	0	0	0	0	No
131	PF	1.933	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.893	SLV 3	0.216	0.882	340	0.872	No
	PFFP	1.632	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.066	SLV 5	0	0	0	0	No
132	PF	1.283	SLV 11	0.31	1.269	969	1.34	Si
	V	0.807	SLV 13	0.193	0.791	254	0.774	No
	PFFP	1.366	SLV 7	0.33	1.35	1186	1.455	Si
	R	0.064	SLV 5	0	0	0	0	No
133	PF	1.439	SLV 13	0.347	1.42	1401	1.558	Si
	V	0.958	SLV 1	0.233	0.953	418	0.949	No
	PFFP	1.639	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.062	SLV 7	0	0	0	0	No
134	PF	1.245	SLV 5	0.301	1.233	887	1.292	Si
	V	0.947	SLV 13	0.23	0.942	405	0.937	No
	PFFP	1.258	SLV 5	0.304	1.245	914	1.308	Si
	R	0.065	SLV 5	0	0	0	0	No
135	PF	2.186	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.442	SLV 5	0.348	1.423	1412	1.563	Si
	PFFP	2.248	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.064	SLV 5	0	0	0	0	No
136	PF	2.114	SLV 11	0.362	1.483	1618	1.653	Si
	V	1.522	SLV 11	0.362	1.483	1618	1.653	Si
	PFFP	1.608	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.065	SLV 5	0	0	0	0	No
137	PF	1.776	SLV 9	0.362	1.483	1618	1.653	Si
	V	1.52	SLV 9	0.362	1.483	1618	1.653	Si
	PFFP	1.426	SLV 9	0.344	1.408	1361	1.54	Si
	R	0.063	SLV 5	0	0	0	0	No
138	PF	1.45	SLV 13	0.349	1.43	1435	1.573	Si
	V	1.291	SLV 13	0.312	1.277	987	1.35	Si
	PFFP	1.541	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 7	0	0	0	0	No
139	PF	0.561	SLV 3	0.13	0.532	99	0.526	No
	V	0.474	SLV 3	0.109	0.445	64	0.44	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
140	PFFP	0.941	SLV 3	0.228	0.934	396	0.928	No
	R	0.068	SLV 7	0	0	0	0	No
	PF	1.823	SLV 11	0.362	1.483	1618	1.653	Si
	V	1.824	SLV 11	0.362	1.483	1618	1.653	Si
141	PFFP	1.458	SLV 11	0.351	1.439	1463	1.586	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	2.408	SLV 11	0.362	1.483	1618	1.653	Si
	V	1.018	SLV 1	0.248	1.017	499	1.02	Si
142	PFFP	2.066	SLV 11	0.362	1.483	1618	1.653	Si
	R	0.064	SLV 7	0	0	0	0	No
	PF	0.734	SLV 13	0.174	0.711	193	0.691	No
	V	0.721	SLV 15	0.17	0.698	185	0.679	No
143	PFFP	1.31	SLV 15	0.316	1.295	1035	1.376	Si
	R	0.066	SLV 11	0	0	0	0	No
	PF	2.112	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.892	SLV 9	0.215	0.881	340	0.872	No
144	PFFP	1.481	SLV 9	0.357	1.461	1538	1.619	Si
	R	0.02	SLV 1	0	0	0	0	No
	PF	0.86	SLV 9	0.207	0.846	305	0.834	No
	V	0.857	SLV 9	0.206	0.843	302	0.831	No
145	PFFP	1.163	SLV 9	0.282	1.155	730	1.193	Si
	R	0.057	SLV 5	0	0	0	0	No
	PF	0.635	SLV 13	0.148	0.606	134	0.595	No
	V	0.464	SLV 13	0.107	0.436	61	0.431	No
146	PFFP	0.956	SLV 11	0.233	0.952	416	0.947	No
	R	0.061	SLV 5	0	0	0	0	No
	PF	3.244	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.68	SLV 11	0.16	0.654	159	0.638	No
147	PFFP	1.506	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.021	SLV 1	0	0	0	0	No
	PF	0.483	SLV 9	0.11	0.451	66	0.445	No
	V	0.435	SLV 9	0.099	0.407	51	0.401	No
148	PFFP	0.641	SLV 5	0.15	0.614	138	0.602	No
	R	0.06	SLV 7	0	0	0	0	No
	PF	0.015	SLV 11	0	0	0	0	No
	V	0	SLV 7	0	0	0	0	No
149	PFFP	0.226	SLV 11	0.051	0.21	10	0.205	No
	R	0.018	SLV 1	0	0	0	0	No
	PF	1.398	SLV 5	0.337	1.381	1277	1.5	Si
	V	0.784	SLV 5	0.187	0.766	234	0.748	No
150	PFFP	1.595	SLV 9	0.362	1.483	1618	1.653	Si
	R	0.019	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
151	PFFP	0.367	SLV 11	0.083	0.342	34	0.339	No
	R	0.031	SLV 5	0	0	0	0	No
	PF	0.16	SLV 5	0.035	0.143	4	0.141	No
	V	0.147	SLV 5	0.031	0.127	3	0.125	No
152	PFFP	0.421	SLV 9	0.096	0.392	46	0.384	No
	R	0.058	SLV 11	0	0	0	0	No
	PF	1.534	SLV 13	0.362	1.483	1618	1.653	Si
	V	1.42	SLV 13	0.342	1.401	1342	1.531	Si
153	PFFP	1.389	SLV 13	0.335	1.372	1250	1.487	Si
	R	0.059	SLV 7	0	0	0	0	No
	PF	2.75	SLV 15	0.362	1.483	1618	1.653	Si
	V	1.385	SLV 1	0.334	1.368	1238	1.481	Si
154	PFFP	3.251	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 7	0	0	0	0	No
	PF	2.626	SLV 3	0.362	1.483	1618	1.653	Si
	V	1.523	SLV 15	0.362	1.483	1618	1.653	Si
155	PFFP	2.563	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.06	SLV 5	0	0	0	0	No
	PF	1.894	SLV 3	0.362	1.483	1618	1.653	Si
	V	1.691	SLV 3	0.362	1.483	1618	1.653	Si
156	PFFP	1.883	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
	PF	1.986	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.904	SLV 1	0.218	0.894	352	0.884	No
157	PFFP	1.898	SLV 15	0.362	1.483	1618	1.653	Si
	R	0.057	SLV 5	0	0	0	0	No
	PF	3.379	SLV 13	0.362	1.483	1618	1.653	Si
	V	1.022	SLV 13	0.249	1.021	505	1.025	Si
158	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.055	SLV 5	0	0	0	0	No
	PF	0.579	SLV 1	0.135	0.551	107	0.543	No
	V	0.544	SLV 1	0.125	0.513	90	0.506	No
159	PFFP	2.165	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.051	SLV 7	0	0	0	0	No
	PF	1.687	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.225	SLV 15	0.296	1.213	845	1.266	Si
160	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.054	SLV 5	0	0	0	0	No
	PF	1.267	SLV 15	0.306	1.253	933	1.319	Si
	V	0.696	SLV 15	0.164	0.671	169	0.655	No
161	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.056	SLV 5	0	0	0	0	No
	PF	2.388	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.202	SLV 15	0.291	1.191	801	1.239	Si
	PFFP	2.217	SLV 1	0.362	1.483	1618	1.653	Si



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
162	R	0.058	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	1	SLV 7	0.244	1	475	1	Si
163	R	0.068	SLV 1	0	0	0	0	No
	PF	3.454	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.121	SLV 7	0.272	1.115	657	1.142	Si
	PFFP	3.345	SLV 7	0.362	1.483	1618	1.653	Si
165	R	0.107	SLV 7	0.02	0.08	1	0.08	No
	PF	1.986	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.171	SLV 9	0.284	1.162	744	1.202	Si
	PFFP	1.868	SLV 3	0.362	1.483	1618	1.653	Si
166	R	0.056	SLV 7	0	0	0	0	No
	PF	0.893	SLV 3	0.216	0.882	340	0.872	No
	V	0.636	SLV 3	0.149	0.608	135	0.597	No
	PFFP	1.312	SLV 11	0.317	1.297	1040	1.379	Si
167	R	0.061	SLV 5	0	0	0	0	No
	PF	3.808	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.868	SLV 7	0.209	0.855	313	0.843	No
	PFFP	1.542	SLV 3	0.362	1.483	1618	1.653	Si
168	R	0.02	SLV 1	0	0	0	0	No
	PF	0.523	SLV 7	0.12	0.493	82	0.487	No
	V	0.518	SLV 7	0.119	0.487	80	0.482	No
	PFFP	0.734	SLV 7	0.174	0.711	193	0.691	No
169	R	0.061	SLV 5	0	0	0	0	No
	PF	1.939	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.883	SLV 5	0.213	0.871	329	0.86	No
	PFFP	1.467	SLV 9	0.354	1.447	1492	1.599	Si
170	R	0.019	SLV 1	0	0	0	0	No
	PF	0.789	SLV 5	0.188	0.771	238	0.753	No
	V	0.781	SLV 5	0.186	0.762	231	0.744	No
	PFFP	0.785	SLV 5	0.187	0.766	234	0.748	No
171	R	0.059	SLV 7	0	0	0	0	No
	PF	1.037	SLV 5	0.253	1.035	526	1.043	Si
	V	1.03	SLV 5	0.251	1.028	516	1.035	Si
	PFFP	0.456	SLV 5	0.104	0.427	57	0.419	No
172	R	0.067	SLV 13	0	0	0	0	No
	PF	0.755	SLV 1	0.179	0.733	208	0.713	No
	V	0.706	SLV 3	0.167	0.682	175	0.664	No
	PFFP	0.959	SLV 7	0.233	0.955	420	0.951	No
173	R	0.065	SLV 7	0	0	0	0	No
	PF	1.822	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.389	SLV 13	0.335	1.372	1250	1.487	Si
	PFFP	1.711	SLV 7	0.362	1.483	1618	1.653	Si
174	R	0.063	SLV 5	0	0	0	0	No
	PF	1.887	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.575	SLV 15	0.362	1.483	1618	1.653	Si
	PFFP	1.422	SLV 7	0.343	1.404	1350	1.535	Si
175	R	0.062	SLV 5	0	0	0	0	No
	PF	0.761	SLV 15	0.181	0.74	213	0.72	No
	V	0.646	SLV 15	0.151	0.619	140	0.606	No
	PFFP	1.07	SLV 15	0.261	1.066	575	1.081	Si
176	R	0.066	SLV 7	0	0	0	0	No
	PF	1.293	SLV 5	0.312	1.279	993	1.353	Si
	V	1.176	SLV 13	0.285	1.167	753	1.208	Si
	PFFP	1.276	SLV 5	0.308	1.263	954	1.331	Si
177	R	0.061	SLV 11	0	0	0	0	No
	PF	2.865	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.871	SLV 5	0.362	1.483	1618	1.653	Si
	PFFP	2.306	SLV 1	0.362	1.483	1618	1.653	Si
178	R	0.064	SLV 5	0	0	0	0	No
	PF	0.788	SLV 3	0.188	0.769	236	0.751	No
	V	0.752	SLV 7	0.179	0.731	207	0.711	No
	PFFP	0.734	SLV 7	0.174	0.711	193	0.691	No
179	R	0.073	SLV 13	0	0	0	0	No
	PF	1.726	SLV 9	0.362	1.483	1618	1.653	Si
	V	1.644	SLV 9	0.362	1.483	1618	1.653	Si
	PFFP	0.98	SLV 9	0.239	0.977	447	0.975	No
180	R	0.055	SLV 11	0	0	0	0	No
	PF	0.654	SLV 3	0.153	0.627	144	0.613	No
	V	0.416	SLV 3	0.096	0.392	46	0.384	No
	PFFP	1.291	SLV 9	0.312	1.277	988	1.35	Si
181	R	0.051	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.287	SLV 5	0.064	0.262	18	0.261	No
182	R	0	SLV 1	0	0	0	0	No
	PF	0.988	SLV 5	0.241	0.987	458	0.985	No
	V	0.732	SLV 5	0.173	0.71	192	0.69	No
	PFFP	1.264	SLV 11	0.306	1.251	927	1.315	Si
183	R	0.062	SLV 3	0	0	0	0	No
	PF	1.288	SLV 5	0.311	1.274	981	1.346	Si
	V	0.836	SLV 5	0.2	0.82	280	0.805	No
	PFFP	1.026	SLV 11	0.25	1.025	510	1.03	Si
184	R	0.081	SLV 7	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.223	SLV 7	0.049	0.201	9	0.197	No
	R	0	SLV 1	0	0	0	0	No



Maschio	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
185	PF	0.198	SLV 5	0.044	0.181	7	0.177	No
	V	0.193	SLV 5	0.041	0.169	6	0.167	No
	PFFP	0.339	SLV 11	0.077	0.313	27	0.309	No
186	R	0	SLV 1	0	0	0	0	No
	PF	0.257	SLV 9	0.057	0.234	13	0.229	No
	V	0.218	SLV 9	0.049	0.201	9	0.197	No
187	PFFP	0.783	SLV 3	0.186	0.763	232	0.745	No
	R	0.025	SLV 1	0	0	0	0	No
	PF	1.458	SLV 11	0.351	1.439	1463	1.586	Si
188	V	0.938	SLV 11	0.227	0.931	393	0.925	No
	PFFP	1.499	SLV 9	0.361	1.478	1599	1.645	Si
	R	0.068	SLV 1	0	0	0	0	No
189	PF	0.193	SLV 7	0.041	0.169	6	0.167	No
	V	0.131	SLV 7	0.026	0.107	2	0.106	No
	PFFP	0.605	SLV 5	0.141	0.576	119	0.567	No
190	R	0.028	SLV 1	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	PFFP	0.065	SLV 11	0	0	0	0	No
191	R	0.022	SLV 1	0	0	0	0	No
	PF	0.957	SLV 5	0.233	0.953	417	0.948	No
	V	0.913	SLV 5	0.221	0.905	364	0.897	No
192	PFFP	0.607	SLV 9	0.141	0.578	120	0.569	No
	R	0.028	SLV 1	0	0	0	0	No
	PFFP	0.344	SLV 11	0.078	0.318	28	0.313	No
193	R	0	SLV 1	0	0	0	0	No
	PFFP	0.504	SLV 5	0.116	0.474	74	0.467	No
	R	0.095	SLV 7	0.02	0.08	1	0.08	No
194	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.227	SLV 9	0.051	0.21	10	0.205	No
195	R	0	SLV 1	0	0	0	0	No
	PF	0.949	SLV 7	0.231	0.944	408	0.94	No
	V	0.936	SLV 7	0.227	0.929	391	0.923	No
196	PFFP	1.068	SLV 7	0.26	1.065	573	1.08	Si
	R	0	SLV 1	0	0	0	0	No
	PF	1.87	SLV 11	0.362	1.483	1618	1.653	Si
197	V	1.74	SLV 11	0.362	1.483	1618	1.653	Si
	PFFP	1.085	SLV 11	0.264	1.081	599	1.1	Si
198	R	0.079	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
199	PFFP	0.395	SLV 5	0.09	0.368	40	0.363	No
	R	0	SLV 1	0	0	0	0	No
	PF	1.365	SLV 15	0.329	1.348	1182	1.453	Si
200	V	1.329	SLV 15	0.321	1.314	1084	1.403	Si
	PFFP	1.065	SLV 15	0.259	1.062	568	1.076	Si
201	R	0.098	SLV 7	0.02	0.08	1	0.08	No
	PF	1.459	SLV 13	0.352	1.439	1465	1.587	Si
	V	1.187	SLV 13	0.288	1.177	773	1.221	Si
202	PFFP	1.85	SLV 13	0.362	1.483	1618	1.653	Si
	R	0.071	SLV 7	0	0	0	0	No
	PF	0.334	SLV 1	0.077	0.313	27	0.309	No
203	V	0.311	SLV 1	0.071	0.292	23	0.289	No
	PFFP	1.064	SLV 7	0.259	1.061	567	1.075	Si
	R	0.063	SLV 7	0	0	0	0	No
204	PF	0.665	SLV 1	0.156	0.639	151	0.625	No
	V	0.649	SLV 1	0.152	0.621	141	0.608	No
	PFFP	1.325	SLV 1	0.32	1.31	1073	1.397	Si
205	R	0.081	SLV 7	0	0	0	0	No
	PF	1.26	SLV 15	0.305	1.247	918	1.31	Si
	V	0.709	SLV 15	0.167	0.685	177	0.667	No
206	PFFP	2.115	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.076	SLV 11	0	0	0	0	No
	PF	2.327	SLV 1	0.362	1.483	1618	1.653	Si
207	V	2.318	SLV 1	0.362	1.483	1618	1.653	Si
	PFFP	1.285	SLV 1	0.311	1.271	972	1.341	Si
	R	0.106	SLV 5	0.02	0.08	1	0.08	No
208	PF	0.443	SLV 5	0.101	0.414	53	0.407	No
	V	0.201	SLV 5	0.044	0.181	7	0.177	No
	PFFP	0.986	SLV 7	0.24	0.984	455	0.983	No
209	R	0.114	SLV 7	0.026	0.107	2	0.106	No
	PF	0.353	SLV 9	0.08	0.328	31	0.327	No
	V	0.322	SLV 7	0.073	0.298	24	0.294	No
210	PFFP	0.841	SLV 5	0.202	0.827	287	0.813	No
	R	0.029	SLV 1	0	0	0	0	No
	PF	0.327	SLV 5	0.074	0.303	25	0.299	No
211	V	0.291	SLV 5	0.066	0.269	19	0.267	No
	PFFP	0.987	SLV 13	0.241	0.986	457	0.984	No
212	R	0.026	SLV 1	0	0	0	0	No
	PF	0.073	SLV 15	0	0	0	0	No
	V	0.032	SLV 15	0	0	0	0	No
213	PFFP	1.816	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.008	SLV 9	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
214	V	1.429	SLV 1	0.345	1.41	1370	1.544	Si
	PFFP	0.799	SLV 5	0.191	0.78	246	0.764	No
	R	0.064	SLV 1	0	0	0	0	No
215	PF	0	SLV 1	0	0	0	0	No





Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.28	SLV 5	0.062	0.256	17	0.255	No
	R	0	SLV 1	0	0	0	0	No
209	PF	0.794	SLV 15	0.189	0.775	242	0.758	No
	V	0.512	SLV 15	0.118	0.482	78	0.477	No
	PFFP	1.317	SLV 9	0.318	1.302	1054	1.387	Si
	R	0.065	SLV 5	0	0	0	0	No
210	PF	1.128	SLV 11	0.274	1.122	669	1.151	Si
	V	1	SLV 11	0.244	1	475	1	Si
	PFFP	1.259	SLV 15	0.304	1.246	916	1.309	Si
	R	0.065	SLV 1	0	0	0	0	No
211	PF	0.359	SLV 13	0.082	0.337	33	0.335	No
	V	0.335	SLV 13	0.077	0.313	27	0.309	No
	PFFP	0.325	SLV 9	0.074	0.303	25	0.299	No
	R	0.061	SLV 11	0	0	0	0	No
212	PF	0.362	SLV 9	0.082	0.337	33	0.335	No
	V	0.328	SLV 9	0.074	0.303	25	0.299	No
	PFFP	0.744	SLV 5	0.177	0.723	201	0.703	No
	R	0.054	SLV 11	0	0	0	0	No
213	PF	0.807	SLV 3	0.193	0.791	254	0.774	No
	V	0.574	SLV 3	0.133	0.544	104	0.536	No
	PFFP	0.896	SLV 15	0.216	0.885	343	0.875	No
	R	0.061	SLV 7	0	0	0	0	No
214	PF	0.372	SLV 11	0.085	0.346	35	0.343	No
	V	0.361	SLV 11	0.082	0.337	33	0.335	No
	PFFP	0.324	SLV 7	0.073	0.298	24	0.294	No
	R	0.083	SLV 5	0	0	0	0	No
215	PF	0.26	SLV 7	0.059	0.242	14	0.236	No
	V	0.26	SLV 7	0.059	0.242	14	0.236	No
	PFFP	0.206	SLV 11	0.047	0.191	8	0.187	No
	R	0	SLV 1	0	0	0	0	No
216	PF	1.826	SLV 7	0.362	1.483	1618	1.653	Si
	V	1.479	SLV 7	0.356	1.459	1532	1.616	Si
	PFFP	1.069	SLV 7	0.26	1.066	574	1.081	Si
	R	0.071	SLV 7	0	0	0	0	No
217	PF	1.071	SLV 11	0.261	1.068	577	1.083	Si
	V	0.935	SLV 11	0.227	0.928	389	0.921	No
	PFFP	1.154	SLV 11	0.28	1.146	714	1.182	Si
	R	0.078	SLV 11	0	0	0	0	No
220	PF	0.505	SLV 15	0.116	0.474	74	0.467	No
	V	0.32	SLV 1	0.073	0.298	24	0.294	No
	PFFP	1.054	SLV 11	0.257	1.052	552	1.064	Si
	R	0.17	SLV 5	0.038	0.157	5	0.155	No
221	PF	0.461	SLV 3	0.106	0.433	59	0.425	No
	V	0.417	SLV 3	0.096	0.392	46	0.384	No
	PFFP	1.016	SLV 7	0.248	1.015	497	1.019	Si
	R	0.172	SLV 9	0.038	0.157	5	0.155	No
222	PF	0.47	SLV 15	0.108	0.442	63	0.437	No
	V	0.393	SLV 15	0.09	0.368	40	0.363	No
	PFFP	0.972	SLV 11	0.237	0.969	436	0.965	No
	R	0.086	SLV 5	0.02	0.08	1	0.08	No
223	PF	0.507	SLV 3	0.116	0.477	75	0.469	No
	V	0.422	SLV 3	0.097	0.395	47	0.387	No
	PFFP	1.071	SLV 7	0.261	1.068	577	1.083	Si
	R	0.087	SLV 9	0.02	0.08	1	0.08	No
224	PF	0.31	SLV 15	0.071	0.292	23	0.289	No
	V	0.289	SLV 15	0.066	0.269	19	0.267	No
	PFFP	0.504	SLV 7	0.116	0.474	74	0.467	No
	R	0.074	SLV 5	0	0	0	0	No
225	PF	0.427	SLV 3	0.098	0.403	50	0.397	No
	V	0.379	SLV 3	0.087	0.355	37	0.351	No
	PFFP	0.796	SLV 11	0.19	0.778	244	0.761	No
	R	0.074	SLV 9	0	0	0	0	No
226	PF	0.905	SLV 11	0.219	0.896	354	0.886	No
	V	0.898	SLV 11	0.217	0.888	346	0.878	No
	PFFP	1.082	SLV 7	0.263	1.078	594	1.096	Si
	R	0.456	SLV 5	0.104	0.427	57	0.419	No
227	PF	0.275	SLV 7	0.062	0.256	17	0.255	No
	V	0.273	SLV 7	0.062	0.256	17	0.255	No
	PFFP	0.307	SLV 11	0.069	0.281	21	0.278	No
	R	0.04	SLV 11	0	0	0	0	No
228	PF	0.433	SLV 7	0.098	0.403	50	0.397	No
	V	0.387	SLV 15	0.089	0.364	39	0.359	No
	PFFP	0.488	SLV 11	0.112	0.457	68	0.451	No
	R	0.005	SLV 1	0	0	0	0	No
229	PF	0.049	SLV 9	0	0	0	0	No
	V	0.048	SLV 9	0	0	0	0	No
	PFFP	0.171	SLV 9	0.038	0.157	5	0.155	No
	R	0	SLV 1	0	0	0	0	No
230	PF	0.015	SLV 5	0	0	0	0	No
	V	0.014	SLV 5	0	0	0	0	No
	PFFP	0.262	SLV 9	0.059	0.242	14	0.236	No
	R	0	SLV 1	0	0	0	0	No
231	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.578	SLV 5	0.134	0.548	106	0.541	No
	R	0.039	SLV 13	0	0	0	0	No
232	PF	0.142	SLV 5	0.031	0.127	3	0.125	No
	V	0.138	SLV 5	0.031	0.127	3	0.125	No



Maschio	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
233	PFFP	0.278	SLV 11	0.062	0.256	17	0.255	No
	R	0.101	SLV 9	0.02	0.08	1	0.08	No
	PF	0.173	SLV 11	0.038	0.157	5	0.155	No
	V	0.173	SLV 11	0.038	0.157	5	0.155	No
	PFFP	0.249	SLV 11	0.055	0.226	12	0.221	No
234	R	0.118	SLV 5	0.026	0.107	2	0.106	No
	PF	0.353	SLV 11	0.08	0.328	31	0.327	No
	V	0.346	SLV 11	0.079	0.323	30	0.322	No
	PFFP	0.399	SLV 11	0.091	0.372	41	0.366	No
	R	0.119	SLV 5	0.026	0.107	2	0.106	No
235	PFFP	0.262	SLV 5	0.059	0.242	14	0.236	No
	R	0.166	SLV 1	0.038	0.157	5	0.155	No
	PF	0.992	SLV 5	0.242	0.991	464	0.99	No
236	V	0.638	SLV 5	0.149	0.61	136	0.599	No
	PFFP	2.078	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.061	SLV 5	0	0	0	0	No
	PFFP	0.475	SLV 11	0.109	0.445	64	0.44	No
	R	0	SLV 1	0	0	0	0	No
238	PF	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
	PFFP	0.286	SLV 7	0.064	0.262	18	0.261	No
239	R	0.09	SLV 7	0.02	0.08	1	0.08	No
	PF	0.162	SLV 11	0.035	0.143	4	0.141	No
	V	0.161	SLV 11	0.035	0.143	4	0.141	No
	PFFP	0.344	SLV 11	0.078	0.318	28	0.313	No
	R	0.131	SLV 5	0.026	0.107	2	0.106	No
240	PF	0.772	SLV 11	0.184	0.753	223	0.733	No
	V	0.678	SLV 7	0.159	0.652	158	0.637	No
	PFFP	1.745	SLV 7	0.362	1.483	1618	1.653	Si
	R	0.03	SLV 3	0	0	0	0	No
	PF	3.342	SLV 7	0.362	1.483	1618	1.653	Si
241	V	1.011	SLV 7	0.247	1.01	489	1.012	Si
	PFFP	1000	SLV 1	0.362	1.483	1618	1.653	Si
	R	0.059	SLV 7	0	0	0	0	No
	PF	1.699	SLV 9	0.362	1.483	1618	1.653	Si
	V	1.119	SLV 9	0.272	1.113	654	1.14	Si
242	PFFP	1.861	SLV 5	0.362	1.483	1618	1.653	Si
	R	0.044	SLV 13	0	0	0	0	No
	PF	0.139	SLV 3	0.031	0.127	3	0.125	No
	V	0.142	SLV 3	0.031	0.127	3	0.125	No
	PFFP	0.331	SLV 7	0.075	0.308	26	0.304	No
244	R	0.122	SLV 5	0.026	0.107	2	0.106	No
	PF	0.119	SLV 5	0.026	0.107	2	0.106	No
	V	0.119	SLV 5	0.026	0.107	2	0.106	No
	PFFP	0.291	SLV 7	0.066	0.269	19	0.267	No
	R	0.114	SLV 1	0.026	0.107	2	0.106	No
245	PF	0.019	SLV 11	0	0	0	0	No
	V	0.018	SLV 11	0	0	0	0	No
	PFFP	0.178	SLV 5	0.038	0.157	5	0.155	No
	R	0.02	SLV 5	0	0	0	0	No
	PF	0	SLV 1	0	0	0	0	No
246	V	0	SLV 1	0	0	0	0	No
	PFFP	0.262	SLV 5	0.059	0.242	14	0.236	No
	R	0	SLV 1	0	0	0	0	No

#### Verifica travi di collegamento in muratura

Trave	Stato limite	Molt.	Comb.	PGA	iPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
1	F	0.683	SLV 7	0.161	0.658	161	0.642	No
	V	0	SLV 1	0	0	0	0	No
2	F	0.338	SLV 13	0.078	0.318	28	0.313	No
	V	0	SLV 1	0	0	0	0	No
3	F	0.102	SLV 9	0.02	0.08	1	0.08	No
	V	0	SLV 1	0	0	0	0	No
4	F	0.261	SLV 7	0.059	0.242	14	0.236	No
	V	0	SLV 1	0	0	0	0	No
5	F	0.598	SLV 9	0.139	0.569	116	0.561	No
	V	0	SLV 1	0	0	0	0	No
6	F	0.39	SLV 3	0.09	0.368	40	0.363	No
	V	0	SLV 1	0	0	0	0	No
7	F	0.221	SLV 3	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
8	F	0.024	SLV 13	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
9	F	0.175	SLV 9	0.038	0.157	5	0.155	No
	V	0	SLV 1	0	0	0	0	No
10	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
11	F	0.341	SLV 13	0.078	0.318	28	0.313	No
	V	0	SLV 1	0	0	0	0	No
12	F	0.21	SLV 3	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
13	F	0.841	SLV 7	0.202	0.827	287	0.813	No
	V	0	SLV 1	0	0	0	0	No
14	F	0.319	SLV 3	0.073	0.298	24	0.294	No
	V	0	SLV 1	0	0	0	0	No
15	F	0.427	SLV 15	0.098	0.403	50	0.397	No
	V	0	SLV 1	0	0	0	0	No
16	F	0.308	SLV 1	0.07	0.286	22	0.284	No
	V	0	SLV 1	0	0	0	0	No



Trave	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
17	F	0.364	SLV 15	0.083	0.342	34	0.339	No
	V	0	SLV 1	0	0	0	0	No
18	F	0.173	SLV 3	0.038	0.157	5	0.155	No
	V	0	SLV 1	0	0	0	0	No
19	F	0.163	SLV 3	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
20	F	0.844	SLV 1	0.203	0.829	289	0.816	No
	V	0	SLV 1	0	0	0	0	No
21	F	0.301	SLV 1	0.069	0.281	21	0.278	No
	V	0	SLV 1	0	0	0	0	No
22	F	0.285	SLV 13	0.066	0.269	19	0.267	No
	V	0	SLV 1	0	0	0	0	No
23	F	0.151	SLV 13	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
24	F	0.143	SLV 7	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
25	F	0.136	SLV 13	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
26	F	0.075	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
27	F	0.147	SLV 5	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
28	F	0.283	SLV 13	0.064	0.262	18	0.261	No
	V	0	SLV 1	0	0	0	0	No
29	F	0.154	SLV 11	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
30	F	0.217	SLV 11	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
31	F	0.288	SLV 15	0.066	0.269	19	0.267	No
	V	0	SLV 1	0	0	0	0	No
32	F	0.172	SLV 13	0.038	0.157	5	0.155	No
	V	0	SLV 1	0	0	0	0	No
33	F	0.107	SLV 7	0.02	0.08	1	0.08	No
	V	0	SLV 1	0	0	0	0	No
34	F	0.704	SLV 3	0.166	0.68	174	0.662	No
	V	0	SLV 1	0	0	0	0	No
35	F	0.082	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
36	F	0.499	SLV 1	0.114	0.468	72	0.461	No
	V	0	SLV 1	0	0	0	0	No
37	F	0.13	SLV 13	0.026	0.107	2	0.106	No
	V	0	SLV 1	0	0	0	0	No
38	F	0.674	SLV 13	0.158	0.648	156	0.633	No
	V	0	SLV 1	0	0	0	0	No
39	F	0.049	SLV 13	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
40	F	0.712	SLV 13	0.168	0.687	178	0.669	No
	V	0	SLV 1	0	0	0	0	No
41	F	0.22	SLV 9	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
42	F	0.294	SLV 13	0.067	0.275	20	0.273	No
	V	0	SLV 1	0	0	0	0	No
43	F	0.261	SLV 15	0.059	0.242	14	0.236	No
	V	0.041	SLV 15	0	0	0	0	No
44	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
45	F	0.192	SLV 9	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
46	F	0.18	SLV 1	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
47	F	0.213	SLV 13	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
48	F	0.233	SLV 13	0.053	0.218	11	0.214	No
	V	0	SLV 1	0	0	0	0	No
49	F	0.218	SLV 15	0.049	0.201	9	0.197	No
	V	0.008	SLV 1	0	0	0	0	No
50	F	0.466	SLV 15	0.107	0.439	62	0.434	No
	V	0	SLV 1	0	0	0	0	No
51	F	0.183	SLV 3	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
52	F	0.528	SLV 3	0.122	0.498	84	0.491	No
	V	0	SLV 1	0	0	0	0	No
53	F	0.219	SLV 15	0.049	0.201	9	0.197	No
	V	0	SLV 1	0	0	0	0	No
54	F	0.707	SLV 3	0.167	0.683	176	0.666	No
	V	0	SLV 1	0	0	0	0	No
55	F	0.267	SLV 3	0.061	0.249	16	0.249	No
	V	0	SLV 1	0	0	0	0	No
56	F	0.204	SLV 13	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
57	F	0.181	SLV 5	0.041	0.169	6	0.167	No
	V	0	SLV 1	0	0	0	0	No
58	F	0.124	SLV 13	0.026	0.107	2	0.106	No
	V	0	SLV 1	0	0	0	0	No
59	F	0.549	SLV 13	0.127	0.518	93	0.512	No
	V	0	SLV 1	0	0	0	0	No
60	F	0.1	SLV 13	0.02	0.08	1	0.08	No
	V	0	SLV 1	0	0	0	0	No
61	F	0.805	SLV 11	0.193	0.788	252	0.771	No



Trave	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
	V	0	SLV 1	0	0	0	0	No
62	F	0.156	SLV 3	0.035	0.143	4	0.141	No
	V	0	SLV 1	0	0	0	0	No
63	F	0.534	SLV 1	0.123	0.503	86	0.496	No
	V	0	SLV 1	0	0	0	0	No
64	F	0.222	SLV 13	0.051	0.21	10	0.205	No
	V	0	SLV 1	0	0	0	0	No
65	F	0.342	SLV 13	0.078	0.318	28	0.313	No
	V	0	SLV 1	0	0	0	0	No
66	F	0.207	SLV 15	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
67	F	0.521	SLV 15	0.12	0.49	81	0.484	No
	V	0	SLV 1	0	0	0	0	No
68	F	0.407	SLV 7	0.092	0.376	42	0.37	No
	V	0	SLV 1	0	0	0	0	No
69	F	0.735	SLV 3	0.174	0.713	194	0.693	No
	V	0	SLV 1	0	0	0	0	No
70	F	1.125	SLV 3	0.273	1.119	664	1.147	Si
	V	0	SLV 1	0	0	0	0	No
71	F	0.28	SLV 1	0.064	0.262	18	0.261	No
	V	0	SLV 1	0	0	0	0	No
72	F	0.403	SLV 1	0.093	0.38	43	0.373	No
	V	0	SLV 1	0	0	0	0	No
73	F	1.971	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
74	F	1.412	SLV 13	0.341	1.394	1318	1.52	Si
	V	0	SLV 1	0	0	0	0	No
75	F	0.697	SLV 13	0.164	0.671	169	0.655	No
	V	0	SLV 1	0	0	0	0	No
76	F	0.925	SLV 13	0.224	0.917	378	0.911	No
	V	0	SLV 1	0	0	0	0	No
77	F	0.254	SLV 9	0.057	0.234	13	0.229	No
	V	0.123	SLV 9	0.026	0.107	2	0.106	No
78	F	0.302	SLV 13	0.069	0.281	21	0.278	No
	V	0	SLV 1	0	0	0	0	No
79	F	0.209	SLV 15	0.047	0.191	8	0.187	No
	V	0.018	SLV 15	0	0	0	0	No
80	F	0.145	SLV 11	0.031	0.127	3	0.125	No
	V	0	SLV 1	0	0	0	0	No
81	F	0.246	SLV 9	0.055	0.226	12	0.221	No
	V	0	SLV 1	0	0	0	0	No
82	F	0.765	SLV 1	0.182	0.744	217	0.725	No
	V	0	SLV 1	0	0	0	0	No
83	F	0.84	SLV 1	0.201	0.825	285	0.811	No
	V	0	SLV 1	0	0	0	0	No
84	F	0.895	SLV 1	0.216	0.884	342	0.874	No
	V	0	SLV 1	0	0	0	0	No
85	F	1.001	SLV 1	0.245	1.001	476	1.001	Si
	V	0	SLV 1	0	0	0	0	No
86	F	0.489	SLV 13	0.112	0.46	69	0.453	No
	V	0	SLV 1	0	0	0	0	No
87	F	0.74	SLV 13	0.175	0.718	198	0.699	No
	V	0	SLV 1	0	0	0	0	No
88	F	0.41	SLV 1	0.094	0.384	44	0.377	No
	V	0	SLV 1	0	0	0	0	No
89	F	0.251	SLV 13	0.057	0.234	13	0.229	No
	V	0	SLV 1	0	0	0	0	No
90	F	0.321	SLV 15	0.074	0.303	25	0.299	No
	V	0	SLV 1	0	0	0	0	No
91	F	0.344	SLV 15	0.079	0.323	30	0.322	No
	V	0	SLV 1	0	0	0	0	No
92	F	0.378	SLV 15	0.087	0.355	37	0.351	No
	V	0	SLV 1	0	0	0	0	No
93	F	0.191	SLV 3	0.044	0.181	7	0.177	No
	V	0	SLV 1	0	0	0	0	No
94	F	0.422	SLV 3	0.097	0.395	47	0.387	No
	V	0	SLV 1	0	0	0	0	No
95	F	0.147	SLV 5	0.031	0.127	3	0.125	No
	V	0.012	SLV 5	0	0	0	0	No
96	F	1000	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
97	F	0.809	SLV 15	0.193	0.792	255	0.775	No
	V	0	SLV 1	0	0	0	0	No
98	F	0.819	SLV 15	0.196	0.803	265	0.787	No
	V	0	SLV 1	0	0	0	0	No
99	F	1.158	SLV 15	0.281	1.15	721	1.187	Si
	V	0	SLV 1	0	0	0	0	No
100	F	1.354	SLV 3	0.327	1.338	1151	1.437	Si
	V	0	SLV 1	0	0	0	0	No
101	F	1.156	SLV 1	0.28	1.148	717	1.184	Si
	V	0	SLV 1	0	0	0	0	No
102	F	0.777	SLV 13	0.185	0.758	228	0.74	No
	V	0	SLV 1	0	0	0	0	No
103	F	0.767	SLV 13	0.183	0.747	219	0.728	No
	V	0	SLV 1	0	0	0	0	No
104	F	0.888	SLV 15	0.214	0.877	335	0.867	No
	V	0	SLV 1	0	0	0	0	No
105	F	1.092	SLV 1	0.266	1.087	610	1.108	Si
	V	0	SLV 1	0	0	0	0	No



Trave	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
106	F	0.483	SLV 7	0.11	0.451	66	0.445	No
	V	0	SLV 1	0	0	0	0	No
107	F	1.794	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
108	F	1.884	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
109	F	0.629	SLV 1	0.147	0.602	132	0.592	No
	V	0	SLV 1	0	0	0	0	No
110	F	1.202	SLV 1	0.291	1.191	801	1.239	Si
	V	0	SLV 1	0	0	0	0	No
111	F	2.6	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.177	SLV 15	0.038	0.157	5	0.155	No
112	F	2.293	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
113	F	0.992	SLV 13	0.242	0.991	464	0.99	No
	V	0	SLV 1	0	0	0	0	No
114	F	1.361	SLV 3	0.328	1.344	1170	1.447	Si
	V	0	SLV 1	0	0	0	0	No
115	F	0.186	SLV 5	0.041	0.169	6	0.167	No
	V	0.049	SLV 9	0	0	0	0	No
116	F	0.557	SLV 13	0.129	0.528	97	0.521	No
	V	0	SLV 1	0	0	0	0	No
117	F	0.285	SLV 1	0.066	0.269	19	0.267	No
	V	0.023	SLV 15	0	0	0	0	No
118	F	0.208	SLV 11	0.047	0.191	8	0.187	No
	V	0	SLV 1	0	0	0	0	No
119	F	0.493	SLV 5	0.113	0.463	70	0.456	No
	V	0.04	SLV 5	0	0	0	0	No
120	F	1.684	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
121	F	2.663	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
122	F	2.127	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
123	F	2.095	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
124	F	1.407	SLV 13	0.339	1.389	1303	1.512	Si
	V	0	SLV 1	0	0	0	0	No
125	F	1.757	SLV 13	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
126	F	0.631	SLV 1	0.148	0.604	133	0.593	No
	V	0	SLV 1	0	0	0	0	No
127	F	0.3	SLV 13	0.069	0.281	21	0.278	No
	V	0	SLV 1	0	0	0	0	No
128	F	0.463	SLV 15	0.107	0.436	61	0.431	No
	V	0	SLV 1	0	0	0	0	No
129	F	0.472	SLV 15	0.108	0.442	63	0.437	No
	V	0	SLV 1	0	0	0	0	No
130	F	0.603	SLV 15	0.14	0.574	118	0.565	No
	V	0	SLV 1	0	0	0	0	No
131	F	0.431	SLV 3	0.099	0.407	51	0.401	No
	V	0	SLV 1	0	0	0	0	No
132	F	0.635	SLV 3	0.148	0.606	134	0.595	No
	V	0	SLV 1	0	0	0	0	No
133	F	0.132	SLV 9	0.026	0.107	2	0.106	No
	V	0.008	SLV 9	0	0	0	0	No
134	F	2.354	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.321	SLV 7	0.073	0.298	24	0.294	No
135	F	1000	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
136	F	1.086	SLV 15	0.264	1.082	600	1.101	Si
	V	0	SLV 1	0	0	0	0	No
137	F	1.396	SLV 5	0.337	1.379	1272	1.498	Si
	V	0	SLV 1	0	0	0	0	No
138	F	2.411	SLV 3	0.362	1.483	1618	1.653	Si
	V	0.121	SLV 3	0.026	0.107	2	0.106	No
139	F	2	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
140	F	1.386	SLV 13	0.334	1.369	1241	1.483	Si
	V	0	SLV 1	0	0	0	0	No
141	F	1.831	SLV 13	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
142	F	1.231	SLV 15	0.298	1.219	858	1.274	Si
	V	0	SLV 1	0	0	0	0	No
143	F	1.307	SLV 15	0.316	1.292	1027	1.372	Si
	V	0	SLV 1	0	0	0	0	No
144	F	2.159	SLV 7	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
145	F	2.604	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
146	F	1.273	SLV 3	0.308	1.259	946	1.326	Si
	V	0	SLV 1	0	0	0	0	No
147	F	1.357	SLV 5	0.328	1.341	1161	1.443	Si
	V	0	SLV 1	0	0	0	0	No
148	F	1.83	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
149	F	2.729	SLV 5	0.362	1.483	1618	1.653	Si
	V	0.285	SLV 5	0.064	0.262	18	0.261	No
150	F	0.921	SLV 5	0.223	0.913	373	0.906	No



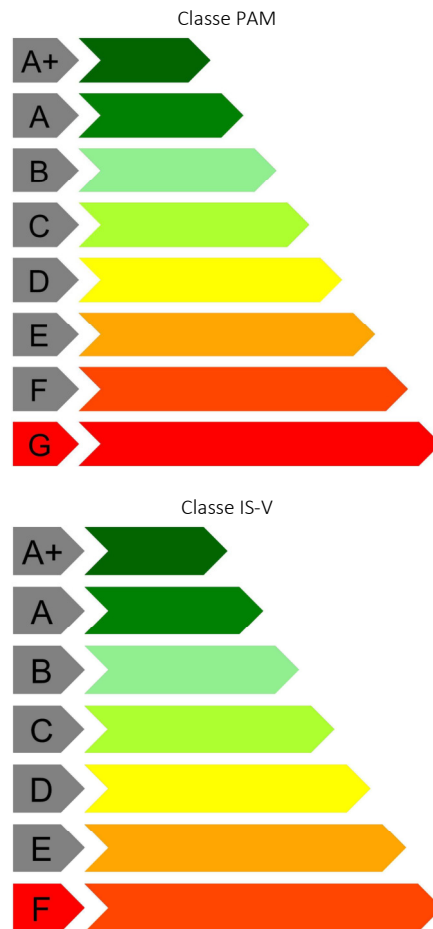
Trave	Stato limite	Molt.	Comb.	PGA	IPGA (ZE)	TR	(TR/TRrif)^.41	Verifica
	V	0	SLV 1	0	0	0	0	No
151	F	1.868	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.219	SLV 1	0.049	0.201	9	0.197	No
152	F	2.514	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
153	F	0.562	SLV 11	0.13	0.532	99	0.526	No
	V	0	SLV 1	0	0	0	0	No
154	F	2.18	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.313	SLV 11	0.071	0.292	23	0.289	No
155	F	4.068	SLV 13	0.362	1.483	1618	1.653	Si
	V	0.272	SLV 3	0.062	0.256	17	0.255	No
156	F	1.831	SLV 9	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
157	F	4.053	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
158	F	2.066	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
159	F	3.344	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
160	F	1.588	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
161	F	1.998	SLV 1	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
162	F	0.591	SLV 3	0.137	0.562	112	0.553	No
	V	0	SLV 1	0	0	0	0	No
163	F	0.819	SLV 15	0.196	0.803	265	0.787	No
	V	0	SLV 1	0	0	0	0	No
164	F	2.04	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
165	F	1.448	SLV 15	0.349	1.428	1429	1.571	Si
	V	0	SLV 1	0	0	0	0	No
166	F	1000	SLV 1	0.362	1.483	1618	1.653	Si
	V	1.767	SLV 11	0.362	1.483	1618	1.653	Si
167	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
168	F	1.636	SLV 15	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
169	F	3.055	SLV 11	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
170	F	1.464	SLV 9	0.353	1.444	1482	1.594	Si
	V	0.005	SLV 7	0	0	0	0	No
171	F	1.424	SLV 13	0.343	1.405	1354	1.536	Si
	V	0	SLV 1	0	0	0	0	No
172	F	0.455	SLV 1	0.104	0.427	57	0.419	No
	V	0	SLV 1	0	0	0	0	No
173	F	1.165	SLV 3	0.282	1.156	733	1.195	Si
	V	0.47	SLV 3	0.108	0.442	63	0.437	No
174	F	1.791	SLV 3	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
175	F	0.741	SLV 9	0.176	0.72	199	0.7	No
	V	0	SLV 1	0	0	0	0	No
176	F	1.993	SLV 15	0.362	1.483	1618	1.653	Si
	V	0.131	SLV 15	0.026	0.107	2	0.106	No
177	F	1.192	SLV 11	0.289	1.182	783	1.227	Si
	V	0	SLV 1	0	0	0	0	No
178	F	3.971	SLV 7	0.362	1.483	1618	1.653	Si
	V	0.331	SLV 7	0.075	0.308	26	0.304	No
179	F	0.912	SLV 9	0.221	0.903	362	0.895	No
	V	0.07	SLV 7	0	0	0	0	No
180	F	2.464	SLV 9	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
181	F	1.613	SLV 13	0.362	1.483	1618	1.653	Si
	V	0	SLV 1	0	0	0	0	No
182	F	0	SLV 1	0	0	0	0	No
	V	0	SLV 1	0	0	0	0	No
183	F	0.426	SLV 1	0.098	0.399	49	0.394	No
	V	0.055	SLV 1	0	0	0	0	No
184	F	0.351	SLV 13	0.08	0.328	31	0.327	No
	V	0	SLV 1	0	0	0	0	No
185	F	0.573	SLV 13	0.133	0.544	104	0.536	No
	V	0.029	SLV 13	0	0	0	0	No
186	F	0.643	SLV 13	0.15	0.614	138	0.602	No
	V	0	SLV 1	0	0	0	0	No
187	F	1.021	SLV 13	0.249	1.02	504	1.025	Si
	V	0.094	SLV 13	0.02	0.08	1	0.08	No
188	F	1.753	SLV 9	0.362	1.483	1618	1.653	Si
	V	0.175	SLV 9	0.038	0.157	5	0.155	No

#### Periodi di ritorno e accelerazioni di aggancio per gli Stati Limite

S. L.	TR,C	PGA,C	TR,Rif	PGA,Rif	Tipo rottura
Stato limite di salvaguardia della vita	0	0	475	0.244	taglio maschio muratura

#### Coefficienti relativi alle Linee guida per la classificazione del rischio sismico delle costruzioni secondo il D.M. 24 09/01/2020

TR,C	TR,Rif	PAM	Classe PAM	IS-V	Classe IS-V	Tipo rottura
0	475	8.22	G	0	F	taglio maschio muratura



## 1.5 Verifiche maschi in muratura

Le unità di misura elencate nel capitolo sono in [cm, daN, s] ove non espressamente specificato.

*X<sub>ini.</sub>*: coordinate del punto iniziale del maschio. [cm]

*Y<sub>ini.</sub>*: coordinate del punto iniziale del maschio. [cm]

*X<sub>fin.</sub>*: coordinate del punto finale del maschio. [cm]

*Y<sub>fin.</sub>*: coordinate del punto finale del maschio. [cm]

*Quota i.*: livello o falda inferiore.

*Quota s.*: livello o falda superiore.

*l*: lunghezza del maschio. [cm]

*Sp.*: spessore. [cm]

*h<sub>netta</sub>*: altezza netta (a filo solai). [cm]

*h<sub>ini.</sub>*: altezza nel modello al punto iniziale. [cm]

*h<sub>fin.</sub>*: altezza nel modello al punto finale. [cm]

*a*: distanza tra irrigidimenti laterali. [cm]

*a.s.,sx*: lunghezza di appoggio del solaio di sinistra. [cm]

*a.s.,dx*: lunghezza di appoggio del solaio di destra. [cm]

*f<sub>b</sub>*: resistenza normalizzata a compressione verticale dei blocchi. [daN/cm<sup>2</sup>]

*f<sub>k</sub>*: resistenza caratteristica a compressione della muratura utilizzata. [daN/cm<sup>2</sup>]

*f<sub>vk0</sub>*: resistenza caratteristica a taglio in assenza di carichi verticali. [daN/cm<sup>2</sup>]

*f<sub>medio</sub>*: resistenza media a compressione della muratura utilizzata. [daN/cm<sup>2</sup>]

*τ<sub>0</sub>*: resistenza media a taglio in assenza di azioni normali [C8.7.1.16]. [daN/cm<sup>2</sup>]

*f<sub>v0</sub>*: resistenza media a taglio in assenza di azioni normali [C8.7.1.17]. [daN/cm<sup>2</sup>]

*μ*: coefficiente di attrito [C8.7.1.17].

*φ*: coefficiente di ammassamento o ingranamento secondo Circolare 7 21-01-19 §C8.7.1.3.1.1.

*f<sub>v,lim</sub>*: valore massimo della resistenza a taglio che può essere impiegata nel calcolo. [daN/cm<sup>2</sup>]

*E*: modulo di elasticità longitudinale della muratura utilizzato. [daN/cm<sup>2</sup>]

*G*: modulo di elasticità tangenziale della muratura utilizzato. [daN/cm<sup>2</sup>]

*FC*: fattore di confidenza della muratura.



**Comb.:** combinazione.

**Quota:** quota della sezione di verifica. [cm]

**N:** sforzo normale. [daN]

**M:** momento flettente nel piano. [daN\*cm]

**$\sigma_0$ :** tensione media di compressione. [daN/cm<sup>2</sup>]

**Mu:** momento flettente ultimo. [daN\*cm]

**c.s.:** coefficiente di sicurezza.

**Verifica:** stato di verifica.

**V par:** taglio nel piano. [daN]

**$\sigma_N$ :** tensione media di compressione sulla parte reagente. [daN/cm<sup>2</sup>]

**l':** lunghezza della parte compressa della parete. [cm]

**fvd:** resistenza a taglio di calcolo. [daN/cm<sup>2</sup>]

**Vt scorr.:** taglio ultimo per verifica a scorrimento. [daN]

**Vt fess.diag.:** taglio ultimo per verifica a fessurazione diagonale regolare [C8.7.1.17]. [daN]

**Vt,lim:** taglio limite [C8.7.1.18]. [daN]

**c.s.:** coefficiente di sicurezza a taglio.

**fd:** resistenza a compressione di calcolo. [daN/cm<sup>2</sup>]

**Sa:** accelerazione massima, adimensionalizzata rispetto a g, che l'elemento strutturale subisce durante il sisma.

**M:** momento flettente fuori piano. [daN\*cm]

**Mc:** momento di collasso per azioni perpendicolari al piano. [daN\*cm]

**Coeff.s.:** coefficiente di sicurezza.

**N top:** sforzo normale in sommità. [daN]

**N base:** sforzo normale al piede. [daN]

**V orto:** taglio fuori piano. [daN]

**$\alpha_0$ :** moltiplicatore secondo [C8.7.1.1].

**M\*:** massa partecipante al cinematisimo. [daN/(cm/s<sup>2</sup>)]

**e\*:** frazione di massa partecipante della muratura [C8.7.1.5].

**$\alpha_0^*$ :** accelerazione spettrale di attivazione del meccanismo [C8.7.1.8]. [cm/s<sup>2</sup>]

**$\alpha_{lim}$ :** accelerazione limite [C7.2.11]. [cm/s<sup>2</sup>]

**Stato limite:** pF\_SLU=Presso flessione per azioni non sismiche; V\_SLU=Taglio per azioni non sismiche; PF\_SLV=Presso flessione per azioni sismiche; V\_SLV=Taglio per azioni sismiche; PFFP\_SLV=Presso flessione fuori piano per azioni sismiche; R\_SLV=Ribaltamento per azioni sismiche.

## Maschio 1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2465.3	127.1	-2465.3	-328.4	L1	L3	455.5	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 62	-159	-53446	-1495422	2.61	8275996	5.534	Si
SLU 62	61	-37349	-1877669	1.82	6603547	3.517	Si
SLU 81	-159	-57045	-1675452	2.78	8553255	5.105	Si
SLU 81	61	-40186	-2029646	1.96	6949596	3.424	Si
SLU 56	-159	-52691	-1430299	2.57	8213383	5.742	Si
SLU 56	61	-36865	-1841796	1.8	6542226	3.552	Si
SLU 77	-159	-57091	-1614810	2.79	8556626	5.299	Si
SLU 77	61	-40379	-2024220	1.97	6972307	3.444	Si
SLU 60	-159	-52644	-1490942	2.57	8209451	5.506	Si
SLU 60	61	-36672	-1847223	1.79	6517669	3.528	Si
SLU 82	-159	-57321	-1669916	2.8	8573086	5.134	Si
SLU 82	61	-41253	-2002674	2.01	7074108	3.532	Si
SLU 74	-159	-56290	-1610329	2.75	8498051	5.277	Si
SLU 74	61	-39701	-1993773	1.94	6892026	3.457	Si
SLU 83	-159	-57846	-1679933	2.82	8610180	5.125	Si
SLU 83	61	-40864	-2060093	1.99	7028981	3.412	Si
SLU 84	-159	-58122	-1674397	2.84	8629407	5.154	Si
SLU 84	61	-41931	-2033121	2.05	7151520	3.518	Si
SLU 79	-159	-56740	-1595030	2.77	8531178	5.349	Si
SLU 79	61	-40075	-2009619	1.96	6936457	3.452	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	-159	-7614	896742	0.37	1681433	1.875	Si
SLV 14	61	-10648	-563877	0.52	2322046	4.118	Si
SLV 8	-159	-48246	-4663236	2.35	8871361	1.902	Si
SLV 8	61	-29655	-920606	1.45	5954143	6.468	Si
SLV 15	-159	-7250	-1075976	0.35	1603310	1.49	Si
SLV 15	61	-8857	-110151	0.43	1945767	17.665	Si
SLV 7	-159	-48246	-4663236	2.35	8871361	1.902	Si
SLV 7	61	-29655	-920606	1.45	5954143	6.468	Si
SLV 16	-159	-7250	-1075976	0.35	1603310	1.49	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	61	-8857	-110151	0.43	1945767	17.665	Si
SLV 12	-159	-29128	-4069811	1.42	5862419	1.44	Si
SLV 12	61	-19091	-302236	0.93	4016496	13.289	Si
SLV 9	-159	-30344	2505917	1.48	6073521	2.424	Si
SLV 9	61	-25063	-1814655	1.22	5136894	2.831	Si
SLV 11	-159	-29128	-4069811	1.42	5862419	1.44	Si
SLV 11	61	-19091	-302236	0.93	4016496	13.289	Si
SLV 13	-159	-7614	896742	0.37	1681433	1.875	Si
SLV 13	61	-10648	-563877	0.52	2322046	4.118	Si
SLV 10	-159	-30344	2505917	1.48	6073521	2.424	Si
SLV 10	61	-25063	-1814655	1.22	5136894	2.831	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 68	-159	-51950	9564	-1372764		2.53	455.5	0.89	18314			1.91	Si
SLU 68	61	-37756	9993	-1745402		1.84	455.5	0.8	16422			1.64	Si
SLU 80	-159	-57017	10172	-1589494		2.78	455.5	0.93	18990			1.87	Si
SLU 80	61	-41142	10772	-1982646		2.01	455.5	0.82	16873			1.57	Si
SLU 83	-159	-57846	9598	-1679933		2.82	455.5	0.93	19100			1.99	Si
SLU 83	61	-40864	10304	-2060093		1.99	455.5	0.82	16836			1.63	Si
SLU 78	-159	-57368	10230	-1609274		2.8	455.5	0.93	19037			1.86	Si
SLU 78	61	-41446	10843	-1997248		2.02	455.5	0.83	16914			1.56	Si
SLU 75	-159	-56566	9975	-1604793		2.76	455.5	0.92	18930			1.9	Si
SLU 75	61	-40769	10583	-1966801		1.99	455.5	0.82	16823			1.59	Si
SLU 73	-159	-55598	10097	-1576843		2.71	455.5	0.92	18801			1.86	Si
SLU 73	61	-40499	10656	-1903771		1.98	455.5	0.82	16787			1.58	Si
SLU 82	-159	-57321	9998	-1669916		2.8	455.5	0.93	19030			1.9	Si
SLU 82	61	-41253	10649	-2002674		2.01	455.5	0.82	16888			1.59	Si
SLU 84	-159	-58122	10254	-1674397		2.84	455.5	0.93	19137			1.87	Si
SLU 84	61	-41931	10908	-2033121		2.05	455.5	0.83	16978			1.56	Si
SLU 76	-159	-56400	10353	-1581323		2.75	455.5	0.92	18907			1.83	Si
SLU 76	61	-41176	10916	-1934218		2.01	455.5	0.82	16878			1.55	Si
SLU 77	-159	-57091	9575	-1614810		2.79	455.5	0.93	19000			1.98	Si
SLU 77	61	-40379	10238	-2024220		1.97	455.5	0.82	16771			1.64	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-159	-29128	-23564	-4069811		2.45	264.09	1.32	15729			0.67	No, Vu<V
SLV 12	61	-19091	-21984	-302236		0.93	455.5	1.02	20899			0.95	No, Vu<V
SLV 7	-159	-48246	-23131	-4663236		2.73	393.28	1.38	24397			1.05	Si
SLV 7	61	-29655	-17908	-920606		1.45	455.5	1.12	23012			1.29	Si
SLV 10	-159	-30344	35853	2505917		1.55	435.5	1.14	22400			0.62	No, Vu<V
SLV 10	61	-25063	31443	-1814655		1.22	455.5	1.08	22094			0.7	No, Vu<V
SLV 6	-159	-49462	36286	1912491		2.41	455.5	1.32	26974			0.74	No, Vu<V
SLV 6	61	-35627	35519	-2433025		1.74	455.5	1.18	24207			0.68	No, Vu<V
SLV 5	-159	-49462	36286	1912491		2.41	455.5	1.32	26974			0.74	No, Vu<V
SLV 5	61	-35627	35519	-2433025		1.74	455.5	1.18	24207			0.68	No, Vu<V
SLV 11	-159	-29128	-23564	-4069811		2.45	264.09	1.32	15729			0.67	No, Vu<V
SLV 11	61	-19091	-21984	-302236		0.93	455.5	1.02	20899			0.95	No, Vu<V
SLV 13	-159	-7614	14552	896742		0.51	329.94	0.94	13896			0.95	No, Vu<V
SLV 13	61	-10648	7987	-563877		0.52	455.5	0.94	19211			2.41	Si
SLV 14	-159	-7614	14552	896742		0.51	329.94	0.94	13896			0.95	No, Vu<V
SLV 14	61	-10648	7987	-563877		0.52	455.5	0.94	19211			2.41	Si
SLV 9	-159	-30344	35853	2505917		1.55	435.5	1.14	22400			0.62	No, Vu<V
SLV 9	61	-25063	31443	-1814655		1.22	455.5	1.08	22094			0.7	No, Vu<V
SLV 8	-159	-48246	-23131	-4663236		2.73	393.28	1.38	24397			1.05	Si
SLV 8	61	-29655	-17908	-920606		1.45	455.5	1.12	23012			1.29	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.24	0.43	-8725	27380	189465	6.92	Si
SLV 16	14	0.24	0.43	-8725	27380	189465	6.92	Si
SLV 13	14	0.24	0.49	-10036	27380	216759	7.92	Si
SLV 14	14	0.24	0.49	-10036	27380	216759	7.92	Si
SLV 12	14	0.24	1.17	-23959	27380	487516	17.81	Si
SLV 11	14	0.24	1.17	-23959	27380	487516	17.81	Si
SLV 10	14	0.24	1.38	-28330	27380	565330	20.65	Si
SLV 9	14	0.24	1.38	-28330	27380	565330	20.65	Si
SLV 7	14	0.24	1.87	-38329	27380	730424	26.68	Si
SLV 8	14	0.24	1.87	-38329	27380	730424	26.68	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 6	-32994	-49462	774	0.074	41.427	0.946	113.496	352.938	No
SLV 5	-32994	-49462	774	0.074	41.427	0.946	113.496	352.938	No
SLV 2	-41638	-71340	809	0.075	50.204	0.954	114.023	348.092	No
SLV 1	-41638	-71340	809	0.075	50.204	0.954	114.023	348.092	No
SLV 10	-23587	-30344	603	0.077	31.902	0.933	119.562	352.938	No
SLV 9	-23587	-30344	603	0.077	31.902	0.933	119.562	352.938	No
SLV 3	-39641	-70976	668	0.078	48.174	0.953	118.454	348.092	No
SLV 4	-39641	-70976	668	0.078	48.174	0.953	118.454	348.092	No
SLV 8	-26335	-48246	305	0.087	34.681	0.937	134.636	352.938	No
SLV 7	-26335	-48246	305	0.087	34.681	0.937	134.636	352.938	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.412	SLU 83	Si
V_SLU	1.546	SLU 76	Si
PF_SLV	1.44	SLV 11	Si
V_SLV	0.625	SLV 9	No
PFFP_SLV	6.92	SLV 15	Si
R_SLV	0.322	SLV 5	No

## Maschio 2

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2465.3	587.6	-2465.3	227.1	L1	L3	360.5	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 78	-159	-34325	147359	2.12	4579962	31.08	Si
SLU 78	61	-26046	1262034	1.61	3769457	2.987	Si
SLU 83	-159	-34732	77956	2.14	4614984	59.2	Si
SLU 83	61	-26566	1292141	1.64	3825884	2.961	Si
SLU 75	-159	-33911	138090	2.09	4543915	32.906	Si
SLU 75	61	-25668	1244751	1.58	3728012	2.995	Si
SLU 82	-159	-34218	123453	2.11	4570697	37.024	Si
SLU 82	61	-25951	1262302	1.6	3759036	2.978	Si
SLU 84	-159	-34632	132722	2.13	4606399	34.707	Si
SLU 84	61	-26329	1279585	1.62	3800190	2.97	Si
SLU 81	-159	-34318	68687	2.12	4579395	66.67	Si
SLU 81	61	-26188	1274858	1.61	3784976	2.969	Si
SLU 77	-159	-34425	92593	2.12	4588631	49.557	Si
SLU 77	61	-26284	1274590	1.62	3795335	2.978	Si
SLU 80	-159	-34154	148758	2.11	4565113	30.688	Si
SLU 80	61	-25855	1252916	1.59	3748563	2.992	Si
SLU 79	-159	-34254	93992	2.11	4573829	48.662	Si
SLU 79	61	-26093	1265472	1.61	3774564	2.983	Si
SLU 74	-159	-34012	83324	2.1	4552697	54.639	Si
SLU 74	61	-25906	1257307	1.6	3754135	2.986	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 14	-159	-6935	1469219	0	0	0	No, e>/2
SLV 14	61	-7149	-178160	0.44	1242170	6.972	Si
SLV 8	-159	-27717	-2787169	1.71	4297454	1.542	Si
SLV 8	61	-23215	1832641	1.43	3694368	2.016	Si
SLV 6	-159	-31479	2563118	1.94	4772952	1.862	Si
SLV 6	61	-19128	421067	1.18	3115122	7.398	Si
SLV 7	-159	-27717	-2787169	1.71	4297454	1.542	Si
SLV 7	61	-23215	1832641	1.43	3694368	2.016	Si
SLV 5	-159	-31479	2563118	1.94	4772952	1.862	Si
SLV 5	61	-19128	421067	1.18	3115122	7.398	Si
SLV 11	-159	-16997	-2427768	1.05	2801051	1.154	Si
SLV 11	61	-17026	1328051	1.05	2805295	2.112	Si
SLV 13	-159	-6935	1469219	0	0	0	No, e>/2
SLV 13	61	-7149	-178160	0.44	1242170	6.972	Si
SLV 12	-159	-16997	-2427768	1.05	2801051	1.154	Si
SLV 12	61	-17026	1328051	1.05	2805295	2.112	Si
SLV 10	-159	-20759	2922519	1.28	3349880	1.146	Si
SLV 10	61	-12939	-83523	0.8	2180054	26.101	Si
SLV 9	-159	-20759	2922519	1.28	3349880	1.146	Si
SLV 9	61	-12939	-83523	0.8	2180054	26.101	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	-159	-34218	-9237	123453	2.11	360.5	0.84	13575				1.47	Si
SLU 82	61	-25951	-8253	1262302	1.6	360.5	0.77	12473				1.51	Si
SLU 60	-159	-32181	-8900	77783	1.98	360.5	0.82	13303				1.49	Si
SLU 60	61	-24127	-8027	1171546	1.49	360.5	0.75	12229				1.52	Si
SLU 84	-159	-34632	-9290	132722	2.13	360.5	0.84	13630				1.47	Si
SLU 84	61	-26329	-8300	1279585	1.62	360.5	0.77	12523				1.51	Si
SLU 77	-159	-34425	-9556	92593	2.12	360.5	0.84	13603				1.42	Si
SLU 77	61	-26284	-8601	1274590	1.62	360.5	0.77	12517				1.46	Si
SLU 74	-159	-34012	-9503	83324	2.1	360.5	0.84	13547				1.43	Si
SLU 74	61	-25906	-8554	1257307	1.6	360.5	0.77	12467				1.46	Si
SLU 62	-159	-32595	-8953	87052	2.01	360.5	0.82	13358				1.49	Si
SLU 62	61	-24504	-8075	1188829	1.51	360.5	0.76	12280				1.52	Si
SLU 78	-159	-34325	-9086	147359	2.12	360.5	0.84	13589				1.5	Si
SLU 78	61	-26046	-8135	1262034	1.61	360.5	0.77	12485				1.53	Si
SLU 83	-159	-34732	-9760	77956	2.14	360.5	0.84	13643				1.4	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	61	-26566	-8766	1292141		1.64	360.5	0.77	12555			1.43	Si
SLU 81	-159	-34318	-9707	68687		2.12	360.5	0.84	13588			1.4	Si
SLU 81	61	-26188	-8719	1274858		1.61	360.5	0.77	12504			1.43	Si
SLU 79	-159	-34254	-9458	93992		2.11	360.5	0.84	13580			1.44	Si
SLU 79	61	-26093	-8514	1265472		1.61	360.5	0.77	12492			1.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	-159	-6935	4149	1469219		0	0	0.83	0			0	No, Vu<V
SLV 13	61	-7149	1242	-178160		0.44	360.5	0.92	14949			12.03	Si
SLV 12	-159	-16997	-28037	-2427768		3.36	112.25	1.51	7609			0.27	No, Vu<V
SLV 12	61	-17026	-25981	1328051		1.23	306.74	1.08	14908			0.57	No, Vu<V
SLV 10	-159	-20759	17194	2922519		3.9	118.39	1.61	8591			0.5	No, Vu<V
SLV 10	61	-12939	14685	-83523		0.8	360.5	0.99	16107			1.1	Si
SLV 9	-159	-20759	17194	2922519		3.9	118.39	1.61	8591			0.5	No, Vu<V
SLV 9	61	-12939	14685	-83523		0.8	360.5	0.99	16107			1.1	Si
SLV 14	-159	-6935	4149	1469219		0	0	0.83	0			0	No, Vu<V
SLV 14	61	-7149	1242	-178160		0.44	360.5	0.92	14949			12.03	Si
SLV 7	-159	-27717	-30425	-2787169		2.58	239.08	1.35	14509			0.48	No, Vu<V
SLV 7	61	-23215	-26659	1832641		1.7	303.92	1.17	16040			0.6	No, Vu<V
SLD 7	-159	-25786	-16935	-1174841		1.59	360.5	1.15	18676			1.1	Si
SLD 7	61	-20325	-14882	1286398		1.29	350.87	1.09	17223			1.16	Si
SLV 11	-159	-16997	-28037	-2427768		3.36	112.25	1.51	7609			0.27	No, Vu<V
SLV 11	61	-17026	-25981	1328051		1.23	306.74	1.08	14908			0.57	No, Vu<V
SLD 8	-159	-25786	-16935	-1174841		1.59	360.5	1.15	18676			1.1	Si
SLD 8	61	-20325	-14882	1286398		1.29	350.87	1.09	17223			1.16	Si
SLV 8	-159	-27717	-30425	-2787169		2.58	239.08	1.35	14509			0.48	No, Vu<V
SLV 8	61	-23215	-26659	1832641		1.7	303.92	1.17	16040			0.6	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	14	0.24	0.45	-7320	21670	158628	7.32	Si
SLV 14	14	0.24	0.45	-7320	21670	158628	7.32	Si
SLV 16	14	0.24	0.47	-7569	21670	163800	7.56	Si
SLV 15	14	0.24	0.47	-7569	21670	163800	7.56	Si
SLV 10	14	0.24	1.06	-17229	21670	353963	16.33	Si
SLV 9	14	0.24	1.06	-17229	21670	353963	16.33	Si
SLV 12	14	0.24	1.11	-18058	21670	369286	17.04	Si
SLV 11	14	0.24	1.11	-18058	21670	369286	17.04	Si
SLV 6	14	0.24	1.6	-25971	21670	507786	23.43	Si
SLV 5	14	0.24	1.6	-25971	21670	507786	23.43	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-16438	-16997	1040	0.048	22.999	0.928	75.862	352.938	No
SLV 12	-16438	-16997	1040	0.048	22.999	0.928	75.862	352.938	No
SLV 8	-22944	-27717	1064	0.056	29.575	0.941	86.466	352.938	No
SLV 7	-22944	-27717	1064	0.056	29.575	0.941	86.466	352.938	No
SLV 9	-9590	-20759	-555	0.067	16.145	0.906	106.813	352.938	No
SLV 10	-9590	-20759	-555	0.067	16.145	0.906	106.813	352.938	No
SLV 6	-16096	-31479	-531	0.073	22.654	0.927	114.826	352.938	No
SLV 5	-16096	-31479	-531	0.073	22.654	0.927	114.826	352.938	No
SLV 15	-6451	-5807	454	0.071	13.073	0.895	115.699	348.092	No
SLV 16	-6451	-5807	454	0.071	13.073	0.895	115.699	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.961	SLU 83	Si
V_SLU	1.398	SLU 83	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	7.32	SLV 13	Si
R_SLV	0.215	SLV 11	No

## Maschio 3

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2276.3	587.6	-2465.3	587.6	L1	L3	189	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 8	41	-5967	-275480	0.7	515294	1.871	Si
SLU 8	81	-4719	-344473	0.55	415605	1.206	Si
SLU 50	41	-7332	-341158	0.86	619577	1.816	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 50	81	-5732	-425886	0.67	496832	1.167	Si
SLU 46	41	-7311	-338615	0.86	617983	1.825	Si
SLU 46	81	-5745	-417262	0.68	497860	1.193	Si
SLU 45	41	-7331	-342305	0.86	619468	1.81	Si
SLU 45	81	-5721	-424132	0.67	496012	1.169	Si
SLU 49	41	-7354	-339799	0.86	621186	1.828	Si
SLU 49	81	-5786	-421699	0.68	501106	1.188	Si
SLU 69	41	-8536	-390901	1	707288	1.809	Si
SLU 69	81	-6867	-484764	0.81	584647	1.206	Si
SLU 6	41	-6008	-277811	0.71	518540	1.867	Si
SLU 6	81	-4750	-347157	0.56	418119	1.204	Si
SLU 48	41	-7374	-343489	0.87	622669	1.813	Si
SLU 48	81	-5762	-428569	0.68	499261	1.165	Si
SLU 51	41	-7312	-337467	0.86	618092	1.832	Si
SLU 51	81	-5755	-419016	0.68	498679	1.19	Si
SLU 43	41	-7246	-338790	0.85	613161	1.81	Si
SLU 43	81	-5649	-417011	0.66	490323	1.176	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	41	-6789	-433283	0.8	599681	1.384	Si
SLV 12	81	-4257	-528861	0	0	0	No, $e \geq l/2$
SLD 4	41	-5146	-203827	0.61	462236	2.268	Si
SLD 4	81	-4160	-535547	0	0	0	No, $e \geq l/2$
SLV 8	41	-4896	-286122	0.58	440855	1.541	Si
SLV 8	81	-2931	-714023	0	0	0	No, $e \geq l/2$
SLD 7	41	-5885	-296467	0.69	524636	1.77	Si
SLD 7	81	-4288	-518146	0	0	0	No, $e \geq l/2$
SLD 8	41	-5885	-296467	0.69	524636	1.77	Si
SLD 8	81	-4288	-518146	0	0	0	No, $e \geq l/2$
SLD 3	41	-5146	-203827	0.61	462236	2.268	Si
SLD 3	81	-4160	-535547	0	0	0	No, $e \geq l/2$
SLV 7	41	-4896	-286122	0.58	440855	1.541	Si
SLV 7	81	-2931	-714023	0	0	0	No, $e \geq l/2$
SLD 2	41	-5339	-188465	0.63	478638	2.54	Si
SLD 2	81	-4624	-470654	0	0	0	No, $e \geq l/2$
SLD 1	41	-5339	-188465	0.63	478638	2.54	Si
SLD 1	81	-4624	-470654	0	0	0	No, $e \geq l/2$
SLV 11	41	-6789	-433283	0.8	599681	1.384	Si
SLV 11	81	-4257	-528861	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	41	-9919	355	-445374		1.48	148.8	0.75	5043			14.19	Si
SLU 79	81	-8225	483	-546595		2.17	84.13	0.85	3200			6.62	Si
SLU 80	41	-9899	379	-441684		1.47	149.65	0.75	5061			13.37	Si
SLU 80	81	-8248	505	-539725		2.1	87.19	0.84	3280			6.49	Si
SLU 37	41	-8554	386	-379696		1.26	150.33	0.72	4899			12.69	Si
SLU 37	81	-7212	493	-465183		1.78	90.01	0.79	3212			6.51	Si
SLU 29	41	-7129	283	-322892		1.07	147.62	0.7	4641			16.4	Si
SLU 29	81	-5824	380	-400668		1.68	77.13	0.78	2705			7.13	Si
SLU 30	41	-7109	306	-319201		1.06	148.8	0.7	4668			15.23	Si
SLU 30	81	-5848	401	-393798		1.59	81.48	0.77	2817			7.02	Si
SLU 36	41	-8575	393	-378337		1.26	151.14	0.72	4922			12.54	Si
SLU 36	81	-7267	499	-460996		1.73	93.18	0.79	3298			6.61	Si
SLU 35	41	-8595	369	-382028		1.27	150.16	0.73	4900			13.27	Si
SLU 35	81	-7243	477	-467866		1.79	89.72	0.79	3209			6.72	Si
SLU 38	41	-8534	409	-376006		1.25	151.32	0.72	4921			12.02	Si
SLU 38	81	-7236	515	-458313		1.72	93.48	0.78	3302			6.41	Si
SLU 77	41	-9961	339	-447706		1.49	148.66	0.75	5045			14.9	Si
SLU 77	81	-8255	467	-549279		2.19	83.89	0.85	3198			6.84	Si
SLU 78	41	-9941	362	-444015		1.48	149.5	0.75	5063			13.99	Si
SLU 78	81	-8279	489	-542409		2.12	86.95	0.84	3278			6.7	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	41	-3231	18554	-74665		0.38	189	0.91	7734			0.42	No, $V_u < V$
SLV 3	81	-2613	15595	-754097		0	0	0.83	0			0	No, $V_u < V$
SLV 8	41	-4896	13377	-286122		1.01	108.17	1.03	5036			0.38	No, $V_u < V$
SLV 8	81	-2931	1951	-714023		0	0	0.83	0			0	No, $V_u < V$
SLV 4	41	-3231	18554	-74665		0.38	189	0.91	7734			0.42	No, $V_u < V$
SLV 4	81	-2613	15595	-754097		0	0	0.83	0			0	No, $V_u < V$
SLV 7	41	-4896	13377	-286122		1.01	108.17	1.03	5036			0.38	No, $V_u < V$
SLV 7	81	-2931	1951	-714023		0	0	0.83	0			0	No, $V_u < V$
SLV 1	41	-3697	13442	-40576		0.43	189	0.92	7827			0.58	No, $V_u < V$
SLV 1	81	-3666	17472	-603284		0	0	0.83	0			0	No, $V_u < V$
SLD 4	41	-5146	8054	-203827		0.69	164.68	0.97	7205			0.89	No, $V_u < V$
SLD 4	81	-4160	6857	-535547		0	0	0.83	0			0	No, $V_u < V$
SLD 7	41	-5885	5646	-296467		0.99	132.37	1.03	6141			1.09	Si
SLD 7	81	-4288	1011	-518146		0	0	0.83	0			0	No, $V_u < V$
SLV 11	41	-6789	3828	-433283		1.64	92.05	1.16	4810			1.26	Si
SLV 11	81	-4257	-7867	-528861		0	0	0.83	0			0	No, $V_u < V$
SLD 1	41	-5339	5962	-188465		0.67	177.61	0.97	7728			1.3	Si
SLD 1	81	-4624	7624	-470654		0	0	0.83	0			0	No, $V_u < V$
SLV 12	41	-6789	3828	-433283		1.64	92.05	1.16	4810			1.26	Si
SLV 12	81	-4257	-7867	-528861		0	0	0.83	0			0	No, $V_u < V$



#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.24	0.27	-2290	11782	50382	4.28	Si
SLV 6	14	0.24	0.27	-2290	11782	50382	4.28	Si
SLV 9	14	0.24	0.28	-2399	11782	52738	4.48	Si
SLV 10	14	0.24	0.28	-2399	11782	52738	4.48	Si
SLV 2	14	0.24	0.64	-5464	11782	116469	9.89	Si
SLV 1	14	0.24	0.64	-5464	11782	116469	9.89	Si
SLV 14	14	0.24	0.69	-5829	11782	123801	10.51	Si
SLV 13	14	0.24	0.69	-5829	11782	123801	10.51	Si
SLV 3	14	0.24	0.98	-8294	11782	171719	14.58	Si
SLV 4	14	0.24	0.98	-8294	11782	171719	14.58	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-12244	1029	480	0	0	0	0	352.938	No, Trazione
SLV 12	2299	-16832	-162	0	0	0	0	352.938	No, Trazione
SLV 3	1949	-18617	41	0	0	0	0	348.092	No, Trazione
SLV 8	4487	-20541	-172	0	0	0	0	352.938	No, Trazione
SLV 7	4487	-20541	-172	0	0	0	0	352.938	No, Trazione
SLV 11	2299	-16832	-162	0	0	0	0	352.938	No, Trazione
SLV 10	-12244	1029	480	0	0	0	0	352.938	No, Trazione
SLV 4	1949	-18617	41	0	0	0	0	348.092	No, Trazione
SLV 6	-10056	-2680	470	0.059	13.509	0.934	91.401	352.938	No
SLV 5	-10056	-2680	470	0.059	13.509	0.934	91.401	352.938	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.165	SLU 48	Si
V_SLU	6.412	SLU 38	Si
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	4.276	SLV 5	Si
R_SLV	0	SLV 12	No

## Maschio 4

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	587.6	-2176.3	587.6	L1	L3	214.5	45	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	41	-28267	-313589	2.93	1941737	6.192	Si
SLU 77	81	-28213	-478608	2.92	1940112	4.054	Si
SLU 80	41	-28045	-308709	2.91	1934999	6.268	Si
SLU 80	81	-27985	-471388	2.9	1933137	4.101	Si
SLU 74	41	-27991	-312095	2.9	1933335	6.195	Si
SLU 74	81	-27928	-472925	2.89	1931388	4.084	Si
SLU 69	41	-24926	-296963	2.58	1825820	6.148	Si
SLU 69	81	-24796	-448318	2.57	1820703	4.061	Si
SLU 75	41	-27969	-312582	2.9	1932658	6.183	Si
SLU 75	81	-27907	-472668	2.89	1930729	4.085	Si
SLU 78	41	-28245	-314077	2.93	1941076	6.18	Si
SLU 78	81	-28192	-478352	2.92	1939469	4.054	Si
SLU 67	41	-24628	-295956	2.55	1814032	6.129	Si
SLU 67	81	-24490	-442378	2.54	1808471	4.088	Si
SLU 70	41	-24904	-297451	2.58	1824959	6.135	Si
SLU 70	81	-24775	-448061	2.57	1819863	4.062	Si
SLU 66	41	-24650	-295469	2.55	1814909	6.142	Si
SLU 66	81	-24511	-442634	2.54	1809328	4.088	Si
SLU 79	41	-28067	-308222	2.91	1935672	6.28	Si
SLU 79	81	-28006	-471645	2.9	1933792	4.1	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	41	-17006	-841502	1.76	1560932	1.855	Si
SLV 15	81	-17723	-424316	1.84	1615187	3.807	Si
SLD 14	41	-15787	-423022	1.64	1466529	3.467	Si
SLD 14	81	-17226	-307098	1.78	1577651	5.137	Si
SLD 15	41	-18014	-490685	1.87	1636908	3.336	Si
SLD 15	81	-18286	-371448	1.89	1657118	4.461	Si
SLD 16	41	-18014	-490685	1.87	1636908	3.336	Si
SLD 16	81	-18286	-371448	1.89	1657118	4.461	Si
SLV 13	41	-11682	-680175	1.21	1128756	1.66	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	81	-15225	-274754	1.58	1422095	5.176	Si
SLV 12	41	-26400	-652495	2.74	2197625	3.368	Si
SLV 12	81	-22250	-585937	2.31	1936137	3.304	Si
SLV 16	41	-17006	-841502	1.76	1560932	1.855	Si
SLV 16	81	-17723	-424316	1.84	1615187	3.807	Si
SLV 11	41	-26400	-652495	2.74	2197625	3.368	Si
SLV 11	81	-22250	-585937	2.31	1936137	3.304	Si
SLV 14	41	-11682	-680175	1.21	1128756	1.66	Si
SLV 14	81	-15225	-274754	1.58	1422095	5.176	Si
SLD 13	41	-15787	-423022	1.64	1466529	3.467	Si
SLD 13	81	-17226	-307098	1.78	1577651	5.137	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 71	41	-24726	2143	-291596		2.56	214.5	0.9	8659			4.04	Si
SLU 71	81	-24589	1775	-441354		2.55	214.5	0.9	8641			4.87	Si
SLU 84	41	-29202	2296	-314340		3.03	214.5	0.96	9256			4.03	Si
SLU 84	81	-29165	1875	-478686		3.02	214.5	0.96	9251			4.94	Si
SLU 69	41	-24926	2167	-296963		2.58	214.5	0.9	8686			4.01	Si
SLU 69	81	-24796	1795	-448318		2.57	214.5	0.9	8669			4.83	Si
SLU 74	41	-27991	2263	-312095		2.9	214.5	0.94	9095			4.02	Si
SLU 74	81	-27928	1855	-472925		2.89	214.5	0.94	9086			4.9	Si
SLU 80	41	-28045	2305	-308709		2.91	214.5	0.94	9102			3.95	Si
SLU 80	81	-27985	1896	-471388		2.9	214.5	0.94	9094			4.8	Si
SLU 79	41	-28067	2325	-308222		2.91	214.5	0.94	9105			3.92	Si
SLU 79	81	-28006	1917	-471645		2.9	214.5	0.94	9097			4.75	Si
SLU 70	41	-24904	2146	-297451		2.58	214.5	0.9	8683			4.05	Si
SLU 70	81	-24775	1774	-448061		2.57	214.5	0.9	8666			4.88	Si
SLU 78	41	-28245	2329	-314077		2.93	214.5	0.95	9128			3.92	Si
SLU 78	81	-28192	1916	-478352		2.92	214.5	0.94	9121			4.76	Si
SLU 83	41	-29224	2317	-313853		3.03	214.5	0.96	9259			4	Si
SLU 83	81	-29186	1895	-478943		3.02	214.5	0.96	9254			4.88	Si
SLU 77	41	-28267	2350	-313589		2.93	214.5	0.95	9131			3.89	Si
SLU 77	81	-28213	1937	-478608		2.92	214.5	0.95	9124			4.71	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	41	-11682	-20662	-680175		1.77	147.07	1.19	7851			0.38	No, Vu<V
SLV 14	81	-15225	-21000	-274754		1.58	214.5	1.15	11089			0.53	No, Vu<V
SLV 4	41	-26096	23694	236274		2.7	214.5	1.37	13263			0.56	No, Vu<V
SLV 4	81	-22329	23474	-387550		2.31	214.5	1.3	12510			0.53	No, Vu<V
SLV 10	41	-8651	-16777	-114739		0.9	214.5	1.01	9774			0.58	No, Vu<V
SLV 10	81	-13922	-18365	-87397		1.44	214.5	1.12	10828			0.59	No, Vu<V
SLV 3	41	-26096	23694	236274		2.7	214.5	1.37	13263			0.56	No, Vu<V
SLV 3	81	-22329	23474	-387550		2.31	214.5	1.3	12510			0.53	No, Vu<V
SLV 13	41	-11682	-20662	-680175		1.77	147.07	1.19	7851			0.38	No, Vu<V
SLV 13	81	-15225	-21000	-274754		1.58	214.5	1.15	11089			0.53	No, Vu<V
SLV 1	41	-20771	16020	397601		2.15	214.5	1.26	12198			0.76	No, Vu<V
SLV 1	81	-19831	14949	-237988		2.05	214.5	1.24	12010			0.8	No, Vu<V
SLV 9	41	-8651	-16777	-114739		0.9	214.5	1.01	9774			0.58	No, Vu<V
SLV 9	81	-13922	-18365	-87397		1.44	214.5	1.12	10828			0.59	No, Vu<V
SLV 7	41	-29127	19809	-329162		3.02	214.5	1.44	13869			0.7	No, Vu<V
SLV 7	81	-23632	20840	-574907		2.45	214.5	1.32	12770			0.61	No, Vu<V
SLV 2	41	-20771	16020	397601		2.15	214.5	1.26	12198			0.76	No, Vu<V
SLV 2	81	-19831	14949	-237988		2.05	214.5	1.24	12010			0.8	No, Vu<V
SLV 8	41	-29127	19809	-329162		3.02	214.5	1.44	13869			0.7	No, Vu<V
SLV 8	81	-23632	20840	-574907		2.45	214.5	1.32	12770			0.61	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.24	1.43	-13766	13371	273586	20.46	Si
SLV 10	14	0.24	1.43	-13766	13371	273586	20.46	Si
SLV 5	14	0.24	1.62	-15607	13371	304692	22.79	Si
SLV 6	14	0.24	1.62	-15607	13371	304692	22.79	Si
SLV 14	14	0.24	1.7	-16377	13371	317320	23.73	Si
SLV 13	14	0.24	1.7	-16377	13371	317320	23.73	Si
SLV 16	14	0.24	2.12	-20456	13371	380435	28.45	Si
SLV 15	14	0.24	2.12	-20456	13371	380435	28.45	Si
SLV 2	14	0.24	2.33	-22514	13371	409864	30.65	Si
SLV 1	14	0.24	2.33	-22514	13371	409864	30.65	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-15244	-25109	924	0.042	19.211	0.945	64.472	352.938	No
SLV 9	-15244	-25109	924	0.042	19.211	0.945	64.472	352.938	No
SLV 6	-17535	-24389	1010	0.042	21.537	0.951	64.79	352.938	No
SLV 5	-17535	-24389	1010	0.042	21.537	0.951	64.79	352.938	No
SLV 1	-20660	-23335	939	0.051	24.711	0.956	77.522	348.092	No
SLV 2	-20660	-23335	939	0.051	24.711	0.956	77.522	348.092	No
SLV 14	-13022	-25735	652	0.054	16.959	0.939	82.976	348.092	No
SLV 13	-13022	-25735	652	0.054	16.959	0.939	82.976	348.092	No
SLV 4	-21046	-23151	793	0.058	25.103	0.957	87.806	348.092	No
SLV 3	-21046	-23151	793	0.058	25.103	0.957	87.806	348.092	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.054	SLU 77	Si
V_SLU	3.886	SLU 77	Si
PF_SLV	1.66	SLV 13	Si
V_SLV	0.38	SLV 13	No
PPFP_SLV	20.461	SLV 9	Si
R_SLV	0.183	SLV 9	No

## Maschio 5

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1969.3	587.6	-1969.3	657.6	L1	L3	70	45	270	270	270			

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 77	-159	-17847	13340	5.67	190185	14.257	Si
SLU 77	111	-15174	-4982	4.82	217025	43.563	Si
SLU 78	-159	-17847	13283	5.67	190188	14.318	Si
SLU 78	111	-15167	-4788	4.81	217067	45.338	Si
SLU 79	-159	-17678	13062	5.61	192455	14.733	Si
SLU 79	111	-15024	-5315	4.77	217954	41.007	Si
SLU 80	-159	-17678	13006	5.61	192458	14.798	Si
SLU 80	111	-15017	-5121	4.77	217993	42.569	Si
SLU 84	-159	-18364	13467	5.83	182745	13.57	Si
SLU 84	111	-15622	-3284	4.96	213883	65.119	Si
SLU 82	-159	-18289	13290	5.81	183865	13.835	Si
SLU 82	111	-15506	-1716	4.92	214750	125.128	Si
SLU 81	-159	-18289	13346	5.81	183863	13.777	Si
SLU 81	111	-15513	-1910	4.92	214702	112.388	Si
SLU 83	-159	-18364	13524	5.83	182743	13.513	Si
SLU 83	111	-15629	-3479	4.96	213833	61.471	Si
SLU 74	-159	-17772	13162	5.64	191200	14.526	Si
SLU 74	111	-15058	-3414	4.78	217750	63.789	Si
SLU 75	-159	-17772	13106	5.64	191202	14.589	Si
SLU 75	111	-15051	-3219	4.78	217790	67.647	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLV 9	-159	-9171	-216258	2.91	244503	1.131	Si
SLV 9	111	-5426	-14967	1.72	163135	10.9	Si
SLV 5	-159	-9017	-219480	2.86	241663	1.101	Si
SLV 5	111	-6341	25947	2.01	185368	7.144	Si
SLV 8	-159	-15357	233654	4.88	323036	1.383	Si
SLV 8	111	-15011	11152	4.77	320483	28.738	Si
SLD 11	-159	-13697	106807	4.35	308795	2.891	Si
SLD 11	111	-11860	-14374	3.76	287186	19.98	Si
SLV 10	-159	-9171	-216258	2.91	244503	1.131	Si
SLV 10	111	-5426	-14967	1.72	163135	10.9	Si
SLV 11	-159	-15511	236877	4.92	324102	1.368	Si
SLV 11	111	-14096	-29763	4.48	312678	10.506	Si
SLV 7	-159	-15357	233654	4.88	323036	1.383	Si
SLV 7	111	-15011	11152	4.77	320483	28.738	Si
SLD 12	-159	-13697	106807	4.35	308795	2.891	Si
SLD 12	111	-11860	-14374	3.76	287186	19.98	Si
SLV 12	-159	-15511	236877	4.92	324102	1.368	Si
SLV 12	111	-14096	-29763	4.48	312678	10.506	Si
SLV 6	-159	-9017	-219480	2.86	241663	1.101	Si
SLV 6	111	-6341	25947	2.01	185368	7.144	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	l'	f <sub>vd</sub>	V <sub>t</sub> scorr.	V <sub>t</sub> fess.diag.	V <sub>t</sub> ,lim	c.s.	Verifica
SLU 80	-159	-17678	469	13006		5.61	70	1.08	3413			7.27	Si
SLU 80	111	-15017	1157	-5121		4.77	70	1.08	3413			2.95	Si
SLU 78	-159	-17847	471	13283		5.67	70	1.08	3413			7.25	Si
SLU 78	111	-15167	1158	-4788		4.81	70	1.08	3413			2.95	Si
SLU 77	-159	-17847	473	13340		5.67	70	1.08	3413			7.22	Si
SLU 77	111	-15174	1160	-4982		4.82	70	1.08	3413			2.94	Si
SLU 74	-159	-17772	452	13162		5.64	70	1.08	3413			7.55	Si
SLU 74	111	-15058	1111	-3414		4.78	70	1.08	3413			3.07	Si
SLU 76	-159	-17603	448	12791		5.59	70	1.08	3413			7.62	Si
SLU 76	111	-14897	1107	-3423		4.73	70	1.08	3413			3.08	Si
SLU 84	-159	-18364	473	13467		5.83	70	1.08	3413			7.21	Si
SLU 84	111	-15622	1144	-3284		4.96	70	1.08	3413			2.98	Si
SLU 75	-159	-17772	451	13106		5.64	70	1.08	3413			7.57	Si
SLU 75	111	-15051	1109	-3219		4.78	70	1.08	3413			3.08	Si
SLU 79	-159	-17678	471	13062		5.61	70	1.08	3413			7.24	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	111	-15024	1159	-5315		4.77	70	1.08	3413			2.95	Si
SLU 83	-159	-18364	475	13524		5.83	70	1.08	3413			7.18	Si
SLU 83	111	-15629	1146	-3479		4.96	70	1.08	3413			2.98	Si
SLU 81	-159	-18289	455	13346		5.81	70	1.08	3413			7.51	Si
SLU 81	111	-15513	1097	-1910		4.92	70	1.08	3413			3.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	-159	-15511	5979	236877		5.82	59.18	1.63	4328			0.72	No, Vu<V
SLV 11	111	-14096	10652	-29763		4.48	70	1.63	5119			0.48	No, Vu<V
SLV 1	-159	-11057	-4132	-64643		3.51	70	1.54	4836			1.17	Si
SLV 1	111	-10443	-7810	68503		3.32	70	1.5	4714			0.6	No, Vu<V
SLV 9	-159	-9171	-3610	-216258		5.95	34.26	1.63	2505			0.69	No, Vu<V
SLV 9	111	-5426	-5466	-14967		1.72	70	1.18	3710			0.68	No, Vu<V
SLV 15	-159	-13471	4711	82040		4.28	70	1.63	5119			1.09	Si
SLV 15	111	-9994	9311	-72318		3.17	70	1.47	4624			0.5	No, Vu<V
SLV 6	-159	-9017	-5400	-219480		6.27	31.98	1.63	2338			0.43	No, Vu<V
SLV 6	111	-6341	-9151	25947		2.01	70	1.24	3893			0.43	No, Vu<V
SLV 2	-159	-11057	-4132	-64643		3.51	70	1.54	4836			1.17	Si
SLV 2	111	-10443	-7810	68503		3.32	70	1.5	4714			0.6	No, Vu<V
SLV 12	-159	-15511	5979	236877		5.82	59.18	1.63	4328			0.72	No, Vu<V
SLV 12	111	-14096	10652	-29763		4.48	70	1.63	5119			0.48	No, Vu<V
SLV 16	-159	-13471	4711	82040		4.28	70	1.63	5119			1.09	Si
SLV 16	111	-9994	9311	-72318		3.17	70	1.47	4624			0.5	No, Vu<V
SLV 5	-159	-9017	-5400	-219480		6.27	31.98	1.63	2338			0.43	No, Vu<V
SLV 5	111	-6341	-9151	25947		2.01	70	1.24	3893			0.43	No, Vu<V
SLV 10	-159	-9171	-3610	-216258		5.95	34.26	1.63	2505			0.69	No, Vu<V
SLV 10	111	-5426	-5466	-14967		1.72	70	1.18	3710			0.68	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.24	2.33	-7350	4208	133799	31.8	Si
SLV 10	14	0.24	2.33	-7350	4208	133799	31.8	Si
SLV 6	14	0.24	2.62	-8239	4208	145689	34.62	Si
SLV 5	14	0.24	2.62	-8239	4208	145689	34.62	Si
SLV 14	14	0.24	2.94	-9258	4208	158199	37.6	Si
SLV 13	14	0.24	2.94	-9258	4208	158199	37.6	Si
SLV 15	14	0.24	3.74	-11781	4208	183938	43.71	Si
SLV 16	14	0.24	3.74	-11781	4208	183938	43.71	Si
SLV 1	14	0.24	3.88	-12218	4208	187643	44.59	Si
SLV 2	14	0.24	3.88	-12218	4208	187643	44.59	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-6341	-9017	-791	0	7.656	0.954	0	352.938	No
SLV 10	-5426	-9171	-646	0	6.727	0.949	0	352.938	No
SLV 7	-15011	-15357	1863	0	16.482	0.977	0	352.938	No
SLV 5	-6341	-9017	-791	0	7.656	0.954	0	352.938	No
SLV 15	-9994	-13471	1247	0	11.373	0.968	0	348.092	No
SLV 9	-5426	-9171	-646	0	6.727	0.949	0	352.938	No
SLV 12	-14096	-15511	2007	0	15.55	0.976	0	352.938	No
SLV 11	-14096	-15511	2007	0	15.55	0.976	0	352.938	No
SLV 8	-15011	-15357	1863	0	16.482	0.977	0	352.938	No
SLV 16	-9994	-13471	1247	0	11.373	0.968	0	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	13.513	SLU 83	Si
V_SLU	2.942	SLU 77	Si
PF_SLV	1.101	SLV 5	Si
V_SLV	0.425	SLV 5	No
PFFP_SLV	31.798	SLV 9	Si
R_SLV	0	SLV 5	No

## Maschio 6

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	207.1	-1961.8	485.1	L1	L3	278	30	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 68	-159	-48302	-23042	5.79	1940378	84.21	Si
SLU 68	41	-44469	120469	5.33	2135178	17.724	Si
SLU 44	-159	-41672	11043	5	2239366	202.793	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 44	41	-37838	138065	4.54	2330144	16.877	Si
SLU 47	-159	-42577	-13635	5.11	2209153	162.016	Si
SLU 47	41	-38743	134566	4.65	2314133	17.197	Si
SLU 65	-159	-47397	1636	5.68	1991800	1000	Si
SLU 65	41	-43564	123968	5.22	2172400	17.524	Si
SLU 46	-159	-43057	-6754	5.16	2191783	324.5	Si
SLU 46	41	-39223	129803	4.7	2304288	17.752	Si
SLU 51	-159	-43590	-40364	5.23	2171345	53.794	Si
SLU 51	41	-39757	126246	4.77	2292225	18.157	Si
SLU 73	-159	-53448	-2598	6.41	1584424	609.933	Si
SLU 73	41	-49614	101387	5.95	1859938	18.345	Si
SLU 67	-159	-48782	-16161	5.85	1911767	118.295	Si
SLU 67	41	-44949	115706	5.39	2114094	18.271	Si
SLU 49	-159	-43962	-31432	5.27	2156440	68.606	Si
SLU 49	41	-40128	126305	4.81	2283146	18.077	Si
SLU 76	-159	-54353	-27276	6.52	1510590	55.382	Si
SLU 76	41	-50519	97888	6.06	1800305	18.391	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	-159	-35733	-1426758	4.28	3225251	2.261	Si
SLV 13	41	-32729	756636	3.92	3088219	4.082	Si
SLV 9	-159	-35591	-2968138	4.27	3219315	1.085	Si
SLV 9	41	-32817	1141840	3.93	3092569	2.708	Si
SLV 10	-159	-35591	-2968138	4.27	3219315	1.085	Si
SLV 10	41	-32817	1141840	3.93	3092569	2.708	Si
SLV 12	-159	-38065	2611711	4.56	3314638	1.269	Si
SLV 12	41	-34870	-741536	4.18	3188395	4.3	Si
SLV 7	-159	-38685	2964482	4.64	3335918	1.125	Si
SLV 7	41	-35561	-976374	4.26	3218065	3.296	Si
SLV 5	-159	-36211	-2615366	4.34	3244780	1.241	Si
SLV 5	41	-33508	907002	4.02	3126111	3.447	Si
SLV 8	-159	-38685	2964482	4.64	3335918	1.125	Si
SLV 8	41	-35561	-976374	4.26	3218065	3.296	Si
SLV 6	-159	-36211	-2615366	4.34	3244780	1.241	Si
SLV 6	41	-33508	907002	4.02	3126111	3.447	Si
SLV 11	-159	-38065	2611711	4.56	3314638	1.269	Si
SLV 11	41	-34870	-741536	4.18	3188395	4.3	Si
SLV 14	-159	-35733	-1426758	4.28	3225251	2.261	Si
SLV 14	41	-32729	756636	3.92	3088219	4.082	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 47	-159	-42577	-741	-13635		5.11	278	1.08	9035			12.2	Si
SLU 47	41	-38743	-741	134566		4.65	278	1.08	9035			12.2	Si
SLU 71	-159	-49479	-789	-52847		5.93	278	1.08	9035			11.46	Si
SLU 71	41	-45645	-789	104916		5.47	278	1.08	9035			11.46	Si
SLU 50	-159	-43753	-812	-43440		5.25	278	1.08	9035			11.13	Si
SLU 50	41	-39919	-812	119013		4.79	278	1.08	9035			11.13	Si
SLU 59	-159	-49641	-741	-44598		5.95	278	1.08	9035			12.19	Si
SLU 59	41	-45807	-741	103665		5.49	278	1.08	9035			12.19	Si
SLU 69	-159	-49850	-744	-43915		5.98	278	1.08	9035			12.14	Si
SLU 69	41	-46016	-744	104974		5.52	278	1.08	9035			12.14	Si
SLU 49	-159	-43962	-789	-31432		5.27	278	1.08	9035			11.46	Si
SLU 49	41	-40128	-789	126305		4.81	278	1.08	9035			11.46	Si
SLU 48	-159	-44124	-768	-34509		5.29	278	1.08	9035			11.77	Si
SLU 48	41	-40291	-768	119072		4.83	278	1.08	9035			11.77	Si
SLU 72	-159	-49316	-809	-49771		5.91	278	1.08	9035			11.16	Si
SLU 72	41	-45482	-809	112149		5.45	278	1.08	9035			11.16	Si
SLU 51	-159	-43590	-833	-40364		5.23	278	1.08	9035			10.85	Si
SLU 51	41	-39757	-833	126246		4.77	278	1.08	9035			10.85	Si
SLU 70	-159	-49687	-765	-40839		5.96	278	1.08	9035			11.81	Si
SLU 70	41	-45854	-765	112207		5.5	278	1.08	9035			11.81	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	-159	-36211	-17499	-2615366		6.03	200.32	1.63	9766			0.56	No, Vu<V
SLV 6	41	-33508	-17467	907002		4.02	278	1.63	13552			0.78	No, Vu<V
SLV 13	-159	-35733	-10486	-1426758		4.28	278	1.63	13552			1.29	Si
SLV 13	41	-32729	-10540	756636		3.92	278	1.62	13496			1.28	Si
SLV 5	-159	-36211	-17499	-2615366		6.03	200.32	1.63	9766			0.56	No, Vu<V
SLV 5	41	-33508	-17467	907002		4.02	278	1.63	13552			0.78	No, Vu<V
SLV 10	-159	-35591	-20218	-2968138		7.11	166.81	1.63	8132			0.4	No, Vu<V
SLV 10	41	-32817	-20221	1141840		3.93	278	1.62	13513			0.67	No, Vu<V
SLV 14	-159	-35733	-10486	-1426758		4.28	278	1.63	13552			1.29	Si
SLV 14	41	-32729	-10540	756636		3.92	278	1.62	13496			1.28	Si
SLV 8	-159	-38685	19373	2964482		6.89	187.11	1.63	9121			0.47	No, Vu<V
SLV 8	41	-35561	19376	-976374		4.26	278	1.63	13552			0.7	No, Vu<V
SLV 7	-159	-38685	19373	2964482		6.89	187.11	1.63	9121			0.47	No, Vu<V
SLV 7	41	-35561	19376	-976374		4.26	278	1.63	13552			0.7	No, Vu<V
SLV 9	-159	-35591	-20218	-2968138		7.11	166.81	1.63	8132			0.4	No, Vu<V
SLV 9	41	-32817	-20221	1141840		3.93	278	1.62	13513			0.67	No, Vu<V
SLV 12	-159	-38065	16653	2611711		6.01	211.16	1.63	10294			0.62	No, Vu<V
SLV 12	41	-34870	16621	-741536		4.18	278	1.63	13552			0.82	No, Vu<V
SLV 11	-159	-38065	16653	2611711		6.01	211.16	1.63	10294			0.62	No, Vu<V
SLV 11	41	-34870	16621	-741536		4.18	278	1.63	13552			0.82	No, Vu<V



## Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.24	3.92	-32664	11141	332909	29.88	Si
SLV 9	14	0.24	3.92	-32664	11141	332909	29.88	Si
SLV 6	14	0.24	3.99	-33315	11141	336354	30.19	Si
SLV 5	14	0.24	3.99	-33315	11141	336354	30.19	Si
SLV 13	14	0.24	4.02	-33560	11141	337615	30.31	Si
SLV 14	14	0.24	4.02	-33560	11141	337615	30.31	Si
SLV 16	14	0.24	4.19	-34979	11141	344587	30.93	Si
SLV 15	14	0.24	4.19	-34979	11141	344587	30.93	Si
SLV 1	14	0.24	4.28	-35731	11141	348040	31.24	Si
SLV 2	14	0.24	4.28	-35731	11141	348040	31.24	Si

## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-28439	-38685	93	0.056	32.125	0.97	84.232	439.851	No
SLV 8	-28439	-38685	93	0.056	32.125	0.97	84.232	439.851	No
SLV 9	-24197	-35591	-90	0.056	27.806	0.966	84.927	439.851	No
SLV 10	-24197	-35591	-90	0.056	27.806	0.966	84.927	439.851	No
SLV 4	-27668	-38543	96	0.056	31.339	0.969	84.156	430.325	No
SLV 3	-27668	-38543	96	0.056	31.339	0.969	84.156	430.325	No
SLV 11	-27969	-38065	48	0.058	31.646	0.969	86.493	439.851	No
SLV 12	-27969	-38065	48	0.058	31.646	0.969	86.493	439.851	No
SLV 14	-24968	-35733	-93	0.056	28.591	0.966	84.634	430.325	No
SLV 13	-24968	-35733	-93	0.056	28.591	0.966	84.634	430.325	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	16.877	SLU 44	Si
V_SLU	10.848	SLU 51	Si
PF_SLV	1.085	SLV 9	Si
V_SLV	0.402	SLV 9	No
PFFP_SLV	29.883	SLV 9	Si
R_SLV	0.192	SLV 7	No

## Maschio 7

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	565.1	-1961.8	610.1	L1	L3	45	30	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	-159	-8292	8724	6.14	45884	5.26	Si
SLU 78	41	-10839	-61080	8.03	3498	0.057	No, M>Mu
SLU 77	-159	-8294	8738	6.14	45872	5.25	Si
SLU 77	41	-10847	-61141	8.03	3325	0.054	No, M>Mu
SLU 83	-159	-8524	8906	6.31	43131	4.843	Si
SLU 83	41	-11135	-62910	8.25	0	0	No, Rottura per schiacciamento
SLU 80	-159	-8222	8598	6.09	46677	5.429	Si
SLU 80	41	-10737	-60417	7.95	5708	0.094	No, M>Mu
SLU 84	-159	-8523	8892	6.31	43144	4.852	Si
SLU 84	41	-11127	-62849	8.24	0	0	No, Rottura per schiacciamento
SLU 79	-159	-8223	8612	6.09	46665	5.418	Si
SLU 79	41	-10745	-60479	7.96	5538	0.092	No, M>Mu
SLU 81	-159	-8469	8772	6.27	43799	4.993	Si
SLU 81	41	-11029	-62345	8.17	0	0	No, Rottura per schiacciamento
SLU 74	-159	-8239	8604	6.1	46489	5.403	Si
SLU 74	41	-10741	-60576	7.96	5622	0.093	No, M>Mu
SLU 82	-159	-8468	8757	6.27	43812	5.003	Si
SLU 82	41	-11021	-62284	8.16	0	0	No, Rottura per schiacciamento
SLU 75	-159	-8238	8589	6.1	46501	5.414	Si
SLU 75	41	-10733	-60515	7.95	5791	0.096	No, M>Mu

## Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	-159	-5274	75371	3.91	80723	1.071	Si
SLV 11	41	-12139	-107416	8.99	72127	0.671	No, M>Mu
SLD 11	-159	-5503	35455	4.08	82510	2.327	Si
SLD 11	41	-9379	-69822	6.95	91042	1.304	Si
SLV 15	-159	-6798	31847	5.04	89920	2.824	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	41	-9863	-76315	7.31	89226	1.169	Si
SLV 16	-159	-6798	31847	5.04	89920	2.824	Si
SLV 16	41	-9863	-76315	7.31	89226	1.169	Si
SLV 8	-159	-4453	71917	3.3	73140	1.017	Si
SLV 8	41	-11407	-97186	8.45	79172	0.815	No, M>Mu
SLV 12	-159	-5274	75371	3.91	80723	1.071	Si
SLV 12	41	-12139	-107416	8.99	72127	0.671	No, M>Mu
SLV 7	-159	-4453	71917	3.3	73140	1.017	Si
SLV 7	41	-11407	-97186	8.45	79172	0.815	No, M>Mu
SLD 12	-159	-5503	35455	4.08	82510	2.327	Si
SLD 12	41	-9379	-69822	6.95	91042	1.304	Si
SLV 6	-159	-6070	-63953	4.5	86316	1.35	Si
SLV 6	41	-2462	25773	1.82	47134	1.829	Si
SLV 5	-159	-6070	-63953	4.5	86316	1.35	Si
SLV 5	41	-2462	25773	1.82	47134	1.829	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	-159	-8468	104	8757		6.27	45	1.08	1462			14.01	Si
SLU 82	41	-11021	1167	-62284		8.16	45	1.08	1462			1.25	Si
SLU 81	-159	-8469	105	8772		6.27	45	1.08	1462			13.95	Si
SLU 81	41	-11029	1168	-62345		8.17	45	1.08	1462			1.25	Si
SLU 83	-159	-8524	109	8906		6.31	45	1.08	1462			13.42	Si
SLU 83	41	-11135	1175	-62910		8.25	45	1.08	1462			1.24	Si
SLU 80	-159	-8222	107	8598		6.09	45	1.08	1462			13.64	Si
SLU 80	41	-10737	1124	-60417		7.95	45	1.08	1462			1.3	Si
SLU 75	-159	-8238	104	8589		6.1	45	1.08	1462			14.03	Si
SLU 75	41	-10733	1131	-60515		7.95	45	1.08	1462			1.29	Si
SLU 79	-159	-8223	108	8612		6.09	45	1.08	1462			13.58	Si
SLU 79	41	-10745	1124	-60479		7.96	45	1.08	1462			1.3	Si
SLU 84	-159	-8523	109	8892		6.31	45	1.08	1462			13.48	Si
SLU 84	41	-11127	1174	-62849		8.24	45	1.08	1462			1.25	Si
SLU 77	-159	-8294	109	8738		6.14	45	1.08	1462			13.44	Si
SLU 77	41	-10847	1138	-61141		8.03	45	1.08	1462			1.28	Si
SLU 78	-159	-8292	108	8724		6.14	45	1.08	1462			13.5	Si
SLU 78	41	-10839	1137	-61080		8.03	45	1.08	1462			1.29	Si
SLU 74	-159	-8239	105	8604		6.1	45	1.08	1462			13.97	Si
SLU 74	41	-10741	1131	-60576		7.96	45	1.08	1462			1.29	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 12	-159	-5503	421	35455		4.08	45	1.63	2194			5.22	Si
SLD 12	41	-9379	1410	-69822		6.95	45	1.63	2194			1.56	Si
SLV 12	-159	-5274	884	75371		7.14	24.63	1.63	1200			1.36	Si
SLV 12	41	-12139	2258	-107416		9.88	40.95	1.63	1997			0.88	No, Vu<V
SLD 7	-159	-5151	388	33923		3.82	45	1.6	2155			5.56	Si
SLD 7	41	-9066	1548	-65393		6.72	45	1.63	2194			1.42	Si
SLV 11	-159	-5274	884	75371		7.14	24.63	1.63	1200			1.36	Si
SLV 11	41	-12139	2258	-107416		9.88	40.95	1.63	1997			0.88	No, Vu<V
SLV 4	-159	-4060	176	20332		3.01	45	1.43	1937			11	Si
SLV 4	41	-7422	1780	-42216		5.5	45	1.63	2194			1.23	Si
SLD 8	-159	-5151	388	33923		3.82	45	1.6	2155			5.56	Si
SLD 8	41	-9066	1548	-65393		6.72	45	1.63	2194			1.42	Si
SLD 11	-159	-5503	421	35455		4.08	45	1.63	2194			5.22	Si
SLD 11	41	-9379	1410	-69822		6.95	45	1.63	2194			1.56	Si
SLV 3	-159	-4060	176	20332		3.01	45	1.43	1937			11	Si
SLV 3	41	-7422	1780	-42216		5.5	45	1.63	2194			1.23	Si
SLV 7	-159	-4453	809	71917		7.79	19.04	1.63	928			1.15	Si
SLV 7	41	-11407	2571	-97186		9.07	41.94	1.63	2045			0.8	No, Vu<V
SLV 8	-159	-4453	809	71917		7.79	19.04	1.63	928			1.15	Si
SLV 8	41	-11407	2571	-97186		9.07	41.94	1.63	2045			0.8	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.24	2.86	-3861	1803	44360	24.6	Si
SLV 6	14	0.24	2.86	-3861	1803	44360	24.6	Si
SLV 10	14	0.24	3.22	-4347	1803	48021	26.63	Si
SLV 9	14	0.24	3.22	-4347	1803	48021	26.63	Si
SLV 1	14	0.24	3.79	-5122	1803	52972	29.37	Si
SLV 2	14	0.24	3.79	-5122	1803	52972	29.37	Si
SLV 3	14	0.24	4.95	-6688	1803	59646	33.08	Si
SLV 4	14	0.24	4.95	-6688	1803	59646	33.08	Si
SLV 14	14	0.24	4.99	-6741	1803	59793	33.16	Si
SLV 13	14	0.24	4.99	-6741	1803	59793	33.16	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-6714	-4060	-76	0.047	7.35	0.978	70.271	430.325	No
SLV 3	-6714	-4060	-76	0.047	7.35	0.978	70.271	430.325	No
SLV 8	-9250	-4453	-80	0.049	9.933	0.984	72.555	439.851	No
SLV 7	-9250	-4453	-80	0.049	9.933	0.984	72.555	439.851	No
SLV 2	-4899	-4545	-59	0.048	5.501	0.971	71.578	430.325	No
SLV 1	-4899	-4545	-59	0.048	5.501	0.971	71.578	430.325	No
SLV 11	-9608	-5274	-65	0.051	10.298	0.984	75.047	439.851	No
SLV 12	-9608	-5274	-65	0.051	10.298	0.984	75.047	439.851	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 16	-7908	-6798	-27	0.054	8.566	0.981	80.666	430.325	No
SLV 15	-7908	-6798	-27	0.054	8.566	0.981	80.666	430.325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 81	No
V_SLU	1.245	SLU 83	Si
PF_SLV	0.671	SLV 11	No
V_SLV	0.795	SLV 7	No
PFFP_SLV	24.599	SLV 5	Si
R_SLV	0.163	SLV 3	No

## Maschio 8

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2254.3	-328.4	-2465.3	-328.4	L1	L3	211	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 5	41	-4084	-177015	0.43	408141	2.306	Si
SLU 5	81	-2515	-278963	0	0	0	No, e>/2
SLU 26	41	-5145	-214945	0.54	506715	2.357	Si
SLU 26	81	-3556	-336457	0.37	357903	1.064	Si
SLU 51	41	-6064	-255299	0.64	589555	2.309	Si
SLU 51	81	-4376	-409733	0.46	435511	1.063	Si
SLU 47	41	-5419	-234079	0.57	531628	2.271	Si
SLU 47	81	-3538	-367598	0.37	356172	0.969	No, M>Mu
SLU 7	41	-4765	-199789	0.5	471780	2.361	Si
SLU 7	81	-3383	-323517	0.36	341290	1.055	Si
SLU 2	41	-4074	-178014	0.43	407181	2.287	Si
SLU 2	81	-2512	-272351	0	0	0	No, e>/2
SLU 49	41	-6100	-256852	0.64	592787	2.308	Si
SLU 49	81	-4405	-412152	0.46	438298	1.063	Si
SLU 68	41	-6480	-272009	0.68	626340	2.303	Si
SLU 68	81	-4578	-425092	0.48	454429	1.069	Si
SLU 44	41	-5409	-235078	0.57	530704	2.258	Si
SLU 44	81	-3534	-360986	0.37	355834	0.986	No, M>Mu
SLU 9	41	-4729	-198235	0.5	468416	2.363	Si
SLU 9	81	-3353	-321098	0.35	338420	1.054	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 5	41	-1821	-151788	0.19	189082	1.246	Si
SLV 5	81	3204	-700629	0	0	0	No, Trazione
SLV 6	41	-1821	-151788	0.19	189082	1.246	Si
SLV 6	81	3204	-700629	0	0	0	No, Trazione
SLD 6	41	-4461	-214757	0.47	452520	2.107	Si
SLD 6	81	-1803	-528034	0	0	0	No, e>/2
SLV 10	41	-4285	-361261	0.45	435365	1.205	Si
SLV 10	81	1475	-560491	0	0	0	No, Trazione
SLV 9	41	-4285	-361261	0.45	435365	1.205	Si
SLV 9	81	1475	-560491	0	0	0	No, Trazione
SLD 10	41	-5539	-306226	0.58	556435	1.817	Si
SLD 10	81	-2556	-467752	0	0	0	No, e>/2
SLV 3	41	-3236	89847	0.34	331829	3.693	Si
SLV 3	81	-4686	-560140	0	0	0	No, e>/2
SLD 1	41	-4150	-106747	0.44	422185	3.955	Si
SLD 1	81	-3094	-527547	0	0	0	No, e>/2
SLV 1	41	-1256	91116	0.13	131048	1.438	Si
SLV 1	81	-113	-700440	0	0	0	No, e>/2
SLV 2	41	-1256	91116	0.13	131048	1.438	Si
SLV 2	81	-113	-700440	0	0	0	No, e>/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	41	-6100	1634	-256852		0.71	190.18	0.65	5568			3.41	Si
SLU 49	81	-4405	1753	-412152		2.73	35.83	0.92	1483			0.85	No, Vu<V
SLU 2	41	-4074	-51	-178014		0.49	185.42	0.62	5179			101.95	Si
SLU 2	81	-2512	30	-272351		0	0	0.56	0			0	No, Vu<V
SLU 69	41	-8113	3351	-328111		0.92	195.17	0.68	5961			1.78	Si
SLU 69	81	-6697	3492	-522929		1.81	82.26	0.8	2949			0.84	No, Vu<V
SLU 50	41	-7015	2916	-288628		0.81	193.08	0.66	5762			1.98	Si
SLU 50	81	-5627	3043	-463016		1.8	69.64	0.79	2491			0.82	No, Vu<V
SLU 77	41	-9473	3756	-377957		1.07	196.81	0.7	6183			1.65	Si
SLU 77	81	-8050	3910	-589928		1.85	96.66	0.8	3490			0.89	No, Vu<V
SLU 47	41	-5419	601	-234079		0.64	186.91	0.64	5395			8.98	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 47	81	-3538	709	-367598		16.42	4.79	1.08	233			0.33	No, Vu<V
SLU 51	41	-6064	1630	-255299		0.71	190.19	0.65	5563			3.41	Si
SLU 51	81	-4376	1748	-409733		2.73	35.58	0.92	1473			0.84	No, Vu<V
SLU 48	41	-7052	2920	-290181		0.81	193.05	0.66	5767			1.97	Si
SLU 48	81	-5657	3048	-465435		1.8	69.66	0.8	2496			0.82	No, Vu<V
SLU 71	41	-8076	3347	-326558		0.92	195.2	0.68	5957			1.78	Si
SLU 71	81	-6667	3487	-520509		1.8	82.3	0.8	2946			0.84	No, Vu<V
SLU 5	41	-4084	121	-177015		0.49	186.48	0.62	5207			43.04	Si
SLU 5	81	-2515	205	-278963		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	41	-4285	-12098	-361261		1.5	63.57	1.13	3241			0.27	No, Vu<V
SLV 10	81	1475	-12756	-560491		0	0	0.83	0			0	No, Vu<V
SLV 6	41	-1821	-1536	-151788		0.61	66.41	0.96	2855			1.86	Si
SLV 6	81	3204	-1964	-700629		0	0	0.83	0			0	No, Vu<V
SLV 1	41	-1256	17189	91116		0.28	98.82	0.89	3957			0.23	No, Vu<V
SLV 1	81	-113	17484	-700440		0	0	0.83	0			0	No, Vu<V
SLD 10	41	-5539	-3648	-306226		0.82	150.63	1	6757			1.85	Si
SLD 10	81	-2556	-3849	-467752		0	0	0.83	0			0	No, Vu<V
SLV 9	41	-4285	-12098	-361261		1.5	63.57	1.13	3241			0.27	No, Vu<V
SLV 9	81	1475	-12756	-560491		0	0	0.83	0			0	No, Vu<V
SLV 5	41	-1821	-1536	-151788		0.61	66.41	0.96	2855			1.86	Si
SLV 5	81	3204	-1964	-700629		0	0	0.83	0			0	No, Vu<V
SLD 1	41	-4150	8906	-106747		0.44	211	0.92	8743			0.98	No, Vu<V
SLD 1	81	-3094	9050	-527547		0	0	0.83	0			0	No, Vu<V
SLD 6	41	-4461	958	-214757		0.58	172.07	0.95	7345			7.67	Si
SLD 6	81	-1803	830	-528034		0	0	0.83	0			0	No, Vu<V
SLV 2	41	-1256	17189	91116		0.28	98.82	0.89	3957			0.23	No, Vu<V
SLV 2	81	-113	17484	-700440		0	0	0.83	0			0	No, Vu<V
SLV 3	41	-3236	22678	89847		0.34	211	0.9	8560			0.38	No, Vu<V
SLV 3	81	-4686	23360	-560140		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.24	0.41	-3870	12683	84178	6.64	Si
SLV 8	14	0.24	0.41	-3870	12683	84178	6.64	Si
SLV 12	14	0.24	0.48	-4535	12683	98056	7.73	Si
SLV 11	14	0.24	0.48	-4535	12683	98056	7.73	Si
SLV 4	14	0.24	0.57	-5396	12683	115762	9.13	Si
SLV 3	14	0.24	0.57	-5396	12683	115762	9.13	Si
SLV 1	14	0.24	0.78	-7369	12683	155265	12.24	Si
SLV 2	14	0.24	0.78	-7369	12683	155265	12.24	Si
SLV 16	14	0.24	0.8	-7613	12683	160046	12.62	Si
SLV 15	14	0.24	0.8	-7613	12683	160046	12.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	2540	-18463	-23	0	0	0	0	348.092	No, Trazione
SLV 12	-12201	4	-479	0	0	0	0	352.938	No, Trazione
SLV 5	4873	-21648	183	0	0	0	0	352.938	No, Trazione
SLV 6	4873	-21648	183	0	0	0	0	352.938	No, Trazione
SLV 10	2471	-18752	167	0	0	0	0	352.938	No, Trazione
SLV 9	2471	-18752	167	0	0	0	0	352.938	No, Trazione
SLV 11	-12201	4	-479	0	0	0	0	352.938	No, Trazione
SLV 2	2540	-18463	-23	0	0	0	0	348.092	No, Trazione
SLV 8	-9799	-2892	-462	0.061	13.64	0.928	95.544	352.938	No
SLV 7	-9799	-2892	-462	0.061	13.64	0.928	95.544	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 2	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 1	No
PFFP_SLV	6.637	SLV 7	Si
R_SLV	0	SLV 12	No

## Maschio 9

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1831.3	-328.4	-2154.3	-328.4	L1	L3	323	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	41	-39469	-1705537	2.72	4249380	2.492	Si
SLU 76	81	-38180	-2000639	2.63	4177729	2.088	Si
SLU 52	41	-35518	-1614387	2.44	4015378	2.487	Si
SLU 52	81	-34229	-1883341	2.35	3929831	2.087	Si
SLU 44	41	-30719	-1478934	2.11	3673975	2.484	Si
SLU 44	81	-29430	-1736938	2.02	3571554	2.056	Si
SLU 47	41	-30787	-1464099	2.12	3679211	2.513	Si
SLU 47	81	-29498	-1733811	2.03	3577027	2.063	Si
SLU 55	41	-35585	-1599552	2.45	4019731	2.513	Si
SLU 55	81	-34296	-1880214	2.36	3934421	2.093	Si
SLU 5	41	-24356	-1204964	1.68	3124303	2.593	Si
SLU 5	81	-23364	-1449147	1.61	3028705	2.09	Si
SLU 65	41	-34604	-1584919	2.38	3955183	2.496	Si
SLU 65	81	-33314	-1857363	2.29	3866421	2.082	Si
SLU 2	41	-24288	-1219799	1.67	3117883	2.556	Si
SLU 2	81	-23297	-1452273	1.6	3022103	2.081	Si
SLU 68	41	-34671	-1570084	2.39	3959704	2.522	Si
SLU 68	81	-33382	-1854236	2.3	3871179	2.088	Si
SLU 73	41	-39402	-1720373	2.71	4245742	2.468	Si
SLU 73	81	-38113	-2003766	2.62	4173854	2.083	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	41	-34884	-2127299	2.4	4527195	2.128	Si
SLV 9	81	-28642	-2204352	1.97	3879703	1.76	Si
SLV 6	41	-34689	-1270260	2.39	4508042	3.549	Si
SLV 6	81	-28552	-2096350	1.96	3869783	1.846	Si
SLV 13	41	-30611	-2675755	2.11	4091570	1.529	Si
SLV 13	81	-27886	-1639032	1.92	3796436	2.316	Si
SLV 14	41	-30611	-2675755	2.11	4091570	1.529	Si
SLV 14	81	-27886	-1639032	1.92	3796436	2.316	Si
SLV 5	41	-34689	-1270260	2.39	4508042	3.549	Si
SLV 5	81	-28552	-2096350	1.96	3869783	1.846	Si
SLV 16	41	-26753	-2288822	1.84	3669776	1.603	Si
SLV 16	81	-27147	-1046470	1.87	3714086	3.549	Si
SLV 10	41	-34884	-2127299	2.4	4527195	2.128	Si
SLV 10	81	-28642	-2204352	1.97	3879703	1.76	Si
SLV 15	41	-26753	-2288822	1.84	3669776	1.603	Si
SLV 15	81	-27147	-1046470	1.87	3714086	3.549	Si
SLD 14	41	-29338	-1760518	2.02	3955421	2.247	Si
SLD 14	81	-27642	-1367861	1.9	3769344	2.756	Si
SLD 13	41	-29338	-1760518	2.02	3955421	2.247	Si
SLD 13	81	-27642	-1367861	1.9	3769344	2.756	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	41	-39469	7388	-1705537	2.72	323	0.92	13338				1.81	Si
SLU 76	81	-38180	7388	-2000639	2.63	323	0.91	13166				1.78	Si
SLU 55	41	-35585	7027	-1599552	2.45	323	0.88	12820				1.82	Si
SLU 55	81	-34296	7027	-1880214	2.38	320.03	0.87	12574				1.79	Si
SLU 65	41	-34604	6822	-1584919	2.38	323	0.87	12689				1.86	Si
SLU 65	81	-33314	6822	-1857363	2.33	317.24	0.87	12373				1.81	Si
SLU 68	41	-34671	7114	-1570084	2.39	323	0.87	12698				1.78	Si
SLU 68	81	-33382	7114	-1854236	2.33	317.86	0.87	12397				1.74	Si
SLU 2	41	-24288	5820	-1219799	1.67	323	0.78	11313				1.94	Si
SLU 2	81	-23297	5820	-1452273	1.74	297.48	0.79	10543				1.81	Si
SLU 44	41	-30719	6461	-1478934	2.11	323	0.84	12171				1.88	Si
SLU 44	81	-29430	6461	-1736938	2.13	307.44	0.84	11610				1.8	Si
SLU 47	41	-30787	6753	-1464099	2.12	323	0.84	12180				1.8	Si
SLU 47	81	-29498	6753	-1733811	2.13	308.17	0.84	11637				1.72	Si
SLU 5	41	-24356	6113	-1204964	1.68	323	0.78	11322				1.85	Si
SLU 5	81	-23364	6113	-1449147	1.74	298.43	0.79	10576				1.73	Si
SLU 26	41	-28240	6474	-1310949	1.94	323	0.81	11840				1.83	Si
SLU 26	81	-27248	6474	-1569571	1.94	311.69	0.81	11425				1.76	Si
SLU 13	41	-29154	6386	-1340417	2.01	323	0.82	11962				1.87	Si
SLU 13	81	-28162	6386	-1595550	1.99	314.53	0.82	11618				1.82	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	41	-22025	-21202	-837522	1.52	323	1.14	16517				0.78	No, Vu<V
SLV 12	81	-26179	-28956	-229145	1.8	323	1.19	17348				0.6	No, Vu<V
SLV 15	41	-26753	-32118	-2288822	2.61	227.84	1.36	13895				0.43	No, Vu<V
SLV 15	81	-27147	-33996	-1046470	1.87	323	1.21	17542				0.52	No, Vu<V
SLV 11	41	-22025	-21202	-837522	1.52	323	1.14	16517				0.78	No, Vu<V
SLV 11	81	-26179	-28956	-229145	1.8	323	1.19	17348				0.6	No, Vu<V
SLV 1	41	-29961	37577	181040	2.06	323	1.25	18105				0.48	No, Vu<V
SLV 1	81	-27584	39455	-1279024	1.9	323	1.21	17629				0.45	No, Vu<V
SLV 16	41	-26753	-32118	-2288822	2.61	227.84	1.36	13895				0.43	No, Vu<V
SLV 16	81	-27147	-33996	-1046470	1.87	323	1.21	17542				0.52	No, Vu<V
SLV 2	41	-29961	37577	181040	2.06	323	1.25	18105				0.48	No, Vu<V
SLV 2	81	-27584	39455	-1279024	1.9	323	1.21	17629				0.45	No, Vu<V
SLV 3	41	-26103	28691	567973	1.8	323	1.19	17333				0.6	No, Vu<V
SLV 3	81	-26845	25828	-686462	1.85	323	1.2	17481				0.68	No, Vu<V
SLV 5	41	-34689	26661	-1270260	2.39	323	1.31	19050				0.71	No, Vu<V
SLV 5	81	-28552	34415	-2096350	2.4	264.23	1.31	15619				0.45	No, Vu<V
SLV 4	41	-26103	28691	567973	1.8	323	1.19	17333				0.6	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	81	-26845	25828	-686462		1.85	323	1.2	17481			0.68	No, Vu<V
SLV 6	41	-34689	26661	-1270260		2.39	323	1.31	19050			0.71	No, Vu<V
SLV 6	81	-28552	34415	-2096350		2.4	264.23	1.31	15619			0.45	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.24	0.96	-14011	19416	290379	14.96	Si
SLV 11	14	0.24	0.96	-14011	19416	290379	14.96	Si
SLV 7	14	0.24	0.99	-14354	19416	296869	15.29	Si
SLV 8	14	0.24	0.99	-14354	19416	296869	15.29	Si
SLV 15	14	0.24	1.4	-20409	19416	406434	20.93	Si
SLV 16	14	0.24	1.4	-20409	19416	406434	20.93	Si
SLV 4	14	0.24	1.48	-21553	19416	426096	21.95	Si
SLV 3	14	0.24	1.48	-21553	19416	426096	21.95	Si
SLV 14	14	0.24	1.81	-26236	19416	503111	25.91	Si
SLV 13	14	0.24	1.81	-26236	19416	503111	25.91	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-23746	-11768	-1358	0.044	29.731	0.947	68.065	352.938	No
SLV 12	-23746	-11768	-1358	0.044	29.731	0.947	68.065	352.938	No
SLV 8	-22835	-12677	-1312	0.045	28.807	0.945	68.763	352.938	No
SLV 7	-22835	-12677	-1312	0.045	28.807	0.945	68.763	352.938	No
SLV 16	-24525	-19019	-1218	0.05	30.521	0.948	77.274	348.092	No
SLV 15	-24525	-19019	-1218	0.05	30.521	0.948	77.274	348.092	No
SLV 3	-21487	-22049	-1066	0.052	27.441	0.943	80.903	348.092	No
SLV 4	-21487	-22049	-1066	0.052	27.441	0.943	80.903	348.092	No
SLV 14	-24281	-26143	-1053	0.056	30.274	0.947	85.985	348.092	No
SLV 13	-24281	-26143	-1053	0.056	30.274	0.947	85.985	348.092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.056	SLU 44	Si
V_SLU	1.723	SLU 47	Si
PF_SLV	1.529	SLV 13	Si
V_SLV	0.433	SLV 15	No
PFFP_SLV	14.956	SLV 11	Si
R_SLV	0.193	SLV 11	No

## Maschio 10

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1652.3	-328.4	-1731.3	-328.4	L1	L3	79	45	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	41	-22425	53538	6.31	199841	3.733	Si
SLU 77	81	-17884	308791	5.03	270154	0.875	No, M>Mu
SLU 75	41	-23097	60121	6.5	184675	3.072	Si
SLU 75	81	-18617	321635	5.24	262613	0.816	No, M>Mu
SLU 84	41	-24100	58587	6.78	159699	2.726	Si
SLU 84	81	-19353	333761	5.44	253564	0.76	No, M>Mu
SLU 81	41	-23113	53562	6.5	184284	3.441	Si
SLU 81	81	-18443	318783	5.19	264529	0.83	No, M>Mu
SLU 82	41	-23942	59366	6.73	163813	2.759	Si
SLU 82	81	-19265	332694	5.42	254727	0.766	No, M>Mu
SLU 83	41	-23271	52783	6.55	180528	3.42	Si
SLU 83	81	-18532	319850	5.21	263565	0.824	No, M>Mu
SLU 80	41	-23151	57990	6.51	183392	3.163	Si
SLU 80	81	-18596	320640	5.23	262842	0.82	No, M>Mu
SLU 76	41	-23546	62639	6.62	173839	2.775	Si
SLU 76	81	-19056	328848	5.36	257395	0.783	No, M>Mu
SLU 78	41	-23255	59342	6.54	180926	3.049	Si
SLU 78	81	-18705	322702	5.26	261606	0.811	No, M>Mu
SLU 73	41	-23388	63419	6.58	177713	2.802	Si
SLU 73	81	-18968	327781	5.34	258486	0.789	No, M>Mu

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	41	-14966	144375	4.21	387475	2.684	Si
SLV 13	81	-16005	318832	4.5	399256	1.252	Si
SLV 9	41	-19582	117867	5.51	424795	3.604	Si
SLV 9	81	-16770	299774	4.72	406676	1.357	Si
SLV 16	41	-12051	114194	3.39	343945	3.012	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	81	-13766	282345	3.87	371426	1.316	Si
SLD 15	41	-13908	74384	3.91	373464	5.021	Si
SLD 15	81	-12928	243572	3.64	358669	1.473	Si
SLV 14	41	-14966	144375	4.21	387475	2.684	Si
SLV 14	81	-16005	318832	4.5	399256	1.252	Si
SLV 10	41	-19582	117867	5.51	424795	3.604	Si
SLV 10	81	-16770	299774	4.72	406676	1.357	Si
SLV 15	41	-12051	114194	3.39	343945	3.012	Si
SLV 15	81	-13766	282345	3.87	371426	1.316	Si
SLD 14	41	-15089	86003	4.24	388980	4.523	Si
SLD 14	81	-13848	258772	3.9	372613	1.44	Si
SLD 13	41	-15089	86003	4.24	388980	4.523	Si
SLD 13	81	-13848	258772	3.9	372613	1.44	Si
SLD 16	41	-13908	74384	3.91	373464	5.021	Si
SLD 16	81	-12928	243572	3.64	358669	1.473	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	41	-23546	-2338	62639		6.62	79	1.08	3851			1.65	Si
SLU 76	81	-19056	-839	328848		6.35	66.73	1.08	3253			3.88	Si
SLU 68	41	-20961	-2279	63065		5.9	79	1.08	3851			1.69	Si
SLU 68	81	-17085	-809	295744		5.7	66.57	1.08	3245			4.01	Si
SLU 65	41	-20803	-2425	63845		5.85	79	1.08	3851			1.59	Si
SLU 65	81	-16997	-822	294677		5.68	66.49	1.08	3241			3.94	Si
SLU 44	41	-18832	-2314	61859		5.3	79	1.08	3851			1.66	Si
SLU 44	81	-15458	-805	268522		5.17	66.39	1.08	3236			4.02	Si
SLU 75	41	-23097	-2141	60121		6.5	79	1.08	3851			1.8	Si
SLU 75	81	-18617	-717	321635		6.21	66.67	1.08	3250			4.54	Si
SLU 52	41	-21416	-2373	61433		6.02	79	1.08	3851			1.62	Si
SLU 52	81	-17429	-834	301625		5.82	66.58	1.08	3246			3.89	Si
SLU 82	41	-23942	-2249	59366		6.73	79	1.08	3851			1.71	Si
SLU 82	81	-19265	-732	332694		6.42	66.69	1.08	3251			4.44	Si
SLU 55	41	-21574	-2226	60653		6.07	79	1.08	3851			1.73	Si
SLU 55	81	-17518	-821	302692		5.84	66.66	1.08	3250			3.96	Si
SLU 73	41	-23388	-2485	63419		6.58	79	1.08	3851			1.55	Si
SLU 73	81	-18968	-851	327781		6.32	66.66	1.08	3250			3.82	Si
SLU 47	41	-18990	-2167	61079		5.34	79	1.08	3851			1.78	Si
SLU 47	81	-15547	-792	269588		5.2	66.48	1.08	3241			4.09	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	41	-18438	9366	-31969		5.19	79	1.63	5777			0.62	No, Vu<V
SLV 1	81	-10727	850	142755		3.03	78.58	1.44	5092			5.99	Si
SLV 15	41	-12051	-12080	114194		3.39	79	1.51	5373			0.44	No, Vu<V
SLV 15	81	-13766	-1614	282345		5.37	56.97	1.63	4166			2.58	Si
SLV 16	41	-12051	-12080	114194		3.39	79	1.51	5373			0.44	No, Vu<V
SLV 16	81	-13766	-1614	282345		5.37	56.97	1.63	4166			2.58	Si
SLV 10	41	-19582	-9517	117867		5.51	79	1.63	5777			0.61	No, Vu<V
SLV 10	81	-16770	-3003	299774		5.74	64.87	1.63	4744			1.58	Si
SLV 13	41	-14966	-14801	144375		4.21	79	1.63	5777			0.39	No, Vu<V
SLV 13	81	-16005	-2853	318832		6.06	58.74	1.63	4295			1.51	Si
SLV 4	41	-15523	12087	-62151		4.37	79	1.63	5777			0.48	No, Vu<V
SLV 4	81	-8488	2089	106268		2.39	79	1.31	4660			2.23	Si
SLV 2	41	-18438	9366	-31969		5.19	79	1.63	5777			0.62	No, Vu<V
SLV 2	81	-10727	850	142755		3.03	78.58	1.44	5092			5.99	Si
SLV 9	41	-19582	-9517	117867		5.51	79	1.63	5777			0.61	No, Vu<V
SLV 9	81	-16770	-3003	299774		5.74	64.87	1.63	4744			1.58	Si
SLV 14	41	-14966	-14801	144375		4.21	79	1.63	5777			0.39	No, Vu<V
SLV 14	81	-16005	-2853	318832		6.06	58.74	1.63	4295			1.51	Si
SLV 3	41	-15523	12087	-62151		4.37	79	1.63	5777			0.48	No, Vu<V
SLV 3	81	-8488	2089	106268		2.39	79	1.31	4660			2.23	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.24	2.49	-8868	4749	158792	33.44	Si
SLV 3	14	0.24	2.49	-8868	4749	158792	33.44	Si
SLV 7	14	0.24	2.55	-9074	4749	161521	34.01	Si
SLV 8	14	0.24	2.55	-9074	4749	161521	34.01	Si
SLV 1	14	0.24	2.98	-10591	4749	180195	37.95	Si
SLV 2	14	0.24	2.98	-10591	4749	180195	37.95	Si
SLV 11	14	0.24	3.09	-10975	4749	184543	38.86	Si
SLV 12	14	0.24	3.09	-10975	4749	184543	38.86	Si
SLV 5	14	0.24	4.17	-14818	4749	219672	46.26	Si
SLV 6	14	0.24	4.17	-14818	4749	219672	46.26	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-6049	30	-386	0	0	0	0	348.092	No, Trazione
SLV 3	-6049	30	-386	0	0	0	0	348.092	No, Trazione
SLV 8	-5735	-6428	-387	0.036	7.198	0.946	54.746	352.938	No
SLV 7	-5735	-6428	-387	0.036	7.198	0.946	54.746	352.938	No
SLV 11	-6382	-13752	-359	0.044	7.855	0.95	66.797	352.938	No
SLV 12	-6382	-13752	-359	0.044	7.855	0.95	66.797	352.938	No
SLV 1	-6965	-1758	-359	0.047	8.446	0.953	71.187	348.092	No
SLV 2	-6965	-1758	-359	0.047	8.446	0.953	71.187	348.092	No





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	-8205	-24381	-295	0.059	9.707	0.959	88.989	348.092	No
SLV 16	-8205	-24381	-295	0.059	9.707	0.959	88.989	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.76	SLU 84	No
V_SLU	1.55	SLU 73	Si
PF_SLV	1.252	SLV 13	Si
V_SLV	0.39	SLV 13	No
PFFP_SLV	33.439	SLV 3	Si
R_SLV	0	SLV 4	No

## Maschio 11

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1376.3	-328.4	-1422.3	-328.4	L1	L3	46	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 73	-159	-9729	-79152	4.7	94657	1.196	Si
SLU 73	51	-10449	-4841	5.05	91400	18.882	Si
SLU 76	-159	-9903	-78559	4.78	93999	1.197	Si
SLU 76	51	-10542	-5230	5.09	90878	17.377	Si
SLU 81	-159	-10295	-78884	4.97	92219	1.169	Si
SLU 81	51	-10802	-5268	5.22	89285	16.947	Si
SLU 83	-159	-10469	-78290	5.06	91292	1.166	Si
SLU 83	51	-10895	-5658	5.26	88674	15.674	Si
SLU 75	-159	-9953	-77527	4.81	93794	1.21	Si
SLU 75	51	-10531	-5636	5.09	90942	16.135	Si
SLU 82	-159	-10245	-81212	4.95	92469	1.139	Si
SLU 82	51	-10880	-4707	5.26	88774	18.862	Si
SLU 80	-159	-10111	-76414	4.88	93108	1.218	Si
SLU 80	51	-10583	-5993	5.11	90640	15.124	Si
SLU 77	-159	-10177	-74605	4.92	92796	1.244	Si
SLU 77	51	-10546	-6587	5.09	90856	13.793	Si
SLU 84	-159	-10419	-80618	5.03	91566	1.136	Si
SLU 84	51	-10973	-5096	5.3	88143	17.297	Si
SLU 78	-159	-10127	-76933	4.89	93030	1.209	Si
SLU 78	51	-10623	-6026	5.13	90399	15.003	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 14	-159	-5214	-168755	0	0	0	No, e>1/2
SLV 14	51	-10779	33173	5.21	142263	4.288	Si
SLD 13	-159	-6143	-102837	2.97	106971	1.04	Si
SLD 13	51	-8760	11683	4.23	131700	11.273	Si
SLV 11	-159	-4113	-77214	1.99	79210	1.026	Si
SLV 11	51	-6624	10242	3.2	112449	10.98	Si
SLD 16	-159	-5608	-100574	2.71	100383	0.998	No, M>Mu
SLD 16	51	-8368	12632	4.04	128792	10.196	Si
SLD 14	-159	-6143	-102837	2.97	106971	1.04	Si
SLD 14	51	-8760	11683	4.23	131700	11.273	Si
SLV 13	-159	-5214	-168755	0	0	0	No, e>1/2
SLV 13	51	-10779	33173	5.21	142263	4.288	Si
SLV 15	-159	-3963	-163288	0	0	0	No, e>1/2
SLV 15	51	-9863	35320	4.76	138386	3.918	Si
SLV 16	-159	-3963	-163288	0	0	0	No, e>1/2
SLV 16	51	-9863	35320	4.76	138386	3.918	Si
SLV 12	-159	-4113	-77214	1.99	79210	1.026	Si
SLV 12	51	-6624	10242	3.2	112449	10.98	Si
SLD 15	-159	-5608	-100574	2.71	100383	0.998	No, M>Mu
SLD 15	51	-8368	12632	4.04	128792	10.196	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	-159	-10003	-1643	-75199		4.83	46	1.08	2242			1.36	Si
SLU 74	51	-10453	481	-6198		5.05	46	1.08	2242			4.66	Si
SLU 75	-159	-9953	-1691	-77527		4.85	45.63	1.08	2225			1.32	Si
SLU 75	51	-10531	493	-5636		5.09	46	1.08	2242			4.55	Si
SLU 76	-159	-9903	-1713	-78559		4.87	45.2	1.08	2204			1.29	Si
SLU 76	51	-10542	499	-5230		5.09	46	1.08	2242			4.5	Si
SLU 80	-159	-10111	-1670	-76414		4.88	46	1.08	2242			1.34	Si
SLU 80	51	-10583	498	-5993		5.11	46	1.08	2242			4.5	Si
SLU 81	-159	-10295	-1725	-78884		4.97	46	1.08	2242			1.3	Si
SLU 81	51	-10802	492	-5268		5.22	46	1.08	2242			4.56	Si
SLU 73	-159	-9729	-1723	-79152		4.85	44.59	1.08	2174			1.26	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	51	-10449	492	-4841		5.05	46	1.08	2242			4.56	Si
SLU 78	-159	-10127	-1680	-76933		4.89	46	1.08	2242			1.33	Si
SLU 78	51	-10623	500	-6026		5.13	46	1.08	2242			4.48	Si
SLU 82	-159	-10245	-1773	-81212		5.03	45.22	1.08	2204			1.24	Si
SLU 82	51	-10880	504	-4707		5.26	46	1.08	2242			4.45	Si
SLU 83	-159	-10469	-1715	-78290		5.06	46	1.08	2242			1.31	Si
SLU 83	51	-10895	499	-5658		5.26	46	1.08	2242			4.49	Si
SLU 84	-159	-10419	-1763	-80618		5.06	45.79	1.08	2232			1.27	Si
SLU 84	51	-10973	512	-5096		5.3	46	1.08	2242			4.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	-159	-6143	-1995	-102837		7.27	18.78	1.63	1373			0.69	No, Vu<V
SLD 13	51	-8760	32	11683		4.23	46	1.63	3364			105.14	Si
SLD 15	-159	-5608	-1973	-100574		8.2	15.2	1.63	1111			0.56	No, Vu<V
SLD 15	51	-8368	-127	12632		4.04	46	1.63	3364			26.51	Si
SLV 12	-159	-4113	-1631	-77214		7.21	12.68	1.63	927			0.57	No, Vu<V
SLV 12	51	-6624	-552	10242		3.2	46	1.47	3050			5.52	Si
SLV 11	-159	-4113	-1631	-77214		7.21	12.68	1.63	927			0.57	No, Vu<V
SLV 11	51	-6624	-552	10242		3.2	46	1.47	3050			5.52	Si
SLV 16	-159	-3963	-3056	-163288		0	0	0.83	0			0	No, Vu<V
SLV 16	51	-9863	-731	35320		4.76	46	1.63	3364			4.6	Si
SLD 16	-159	-5608	-1973	-100574		8.2	15.2	1.63	1111			0.56	No, Vu<V
SLD 16	51	-8368	-127	12632		4.04	46	1.63	3364			26.51	Si
SLV 13	-159	-5214	-3108	-168755		0	0	0.83	0			0	No, Vu<V
SLV 13	51	-10779	-357	33173		5.21	46	1.63	3364			9.42	Si
SLV 14	-159	-5214	-3108	-168755		0	0	0.83	0			0	No, Vu<V
SLV 14	51	-10779	-357	33173		5.21	46	1.63	3364			9.42	Si
SLV 15	-159	-3963	-3056	-163288		0	0	0.83	0			0	No, Vu<V
SLV 15	51	-9863	-731	35320		4.76	46	1.63	3364			4.6	Si
SLD 14	-159	-6143	-1995	-102837		7.27	18.78	1.63	1373			0.69	No, Vu<V
SLD 14	51	-8760	32	11683		4.23	46	1.63	3364			105.14	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.24	2.65	-5481	2765	96604	34.94	Si
SLV 4	14	0.24	2.65	-5481	2765	96604	34.94	Si
SLV 7	14	0.24	3.15	-6515	2765	108833	39.36	Si
SLV 8	14	0.24	3.15	-6515	2765	108833	39.36	Si
SLV 2	14	0.24	3.42	-7080	2765	114713	41.49	Si
SLV 1	14	0.24	3.42	-7080	2765	114713	41.49	Si
SLV 11	14	0.24	4.35	-9001	2765	130448	47.18	Si
SLV 12	14	0.24	4.35	-9001	2765	130448	47.18	Si
SLV 13	14	0.24	7.42	-15364	2765	135700	49.08	Si
SLV 14	14	0.24	7.42	-15364	2765	135700	49.08	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-3836	-4113	-218	0.043	4.696	0.951	65.273	352.938	No
SLV 12	-3836	-4113	-218	0.043	4.696	0.951	65.273	352.938	No
SLV 7	-2467	-5491	-151	0.047	3.308	0.934	72.479	352.938	No
SLV 8	-2467	-5491	-151	0.047	3.308	0.934	72.479	352.938	No
SLV 15	-6742	-3963	-271	0.052	7.651	0.969	77.637	348.092	No
SLV 16	-6742	-3963	-271	0.052	7.651	0.969	77.637	348.092	No
SLV 14	-7864	-5214	-249	0.059	8.793	0.973	87.588	348.092	No
SLV 13	-7864	-5214	-249	0.059	8.793	0.973	87.588	348.092	No
SLV 9	-7575	-8281	-145	0.071	8.499	0.972	105.591	352.938	No
SLV 10	-7575	-8281	-145	0.071	8.499	0.972	105.591	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.136	SLU 84	Si
V_SLU	1.243	SLU 82	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	34.937	SLV 3	Si
R_SLV	0.185	SLV 11	No

## Maschio 12

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1849.8	104.6	-1849.8	-328.4	L1	L3	433	30	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	-159	-40107	-1219935	3.09	5391975	4.42	Si
SLU 83	111	-20610	90354	1.59	3592964	39.765	Si
SLU 77	-159	-39169	-1224368	3.02	5341046	4.362	Si
SLU 77	111	-20048	77375	1.54	3518107	45.468	Si
SLU 32	-159	-32476	-1031468	2.5	4873161	4.724	Si
SLU 32	111	-16848	55320	1.3	3066773	55.437	Si
SLU 74	-159	-38781	-1158027	2.99	5318936	4.593	Si
SLU 74	111	-19845	95285	1.53	3490691	36.634	Si
SLU 35	-159	-32864	-1097809	2.53	4905278	4.468	Si
SLU 35	111	-17051	37410	1.31	3096682	82.776	Si
SLU 78	-159	-39051	-1111805	3.01	5334357	4.798	Si
SLU 78	111	-20363	95236	1.57	3560144	37.382	Si
SLU 79	-159	-38897	-1216329	2.99	5325595	4.378	Si
SLU 79	111	-19868	77304	1.53	3493806	45.196	Si
SLU 41	-159	-33802	-1093376	2.6	4980405	4.555	Si
SLU 41	111	-17613	50389	1.36	3178427	63.077	Si
SLU 81	-159	-39719	-1153594	3.06	5371353	4.656	Si
SLU 81	111	-20407	108264	1.57	3566015	32.938	Si
SLU 37	-159	-32592	-1089770	2.51	4882805	4.481	Si
SLU 37	111	-16871	37339	1.3	3070171	82.224	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	-159	-30060	-2454698	2.31	5275439	2.149	Si
SLV 4	111	-15265	-238985	1.18	2987003	12.499	Si
SLV 12	-159	-26059	-1862284	2.01	4715564	2.532	Si
SLV 12	111	-10009	242507	0.77	2030315	8.372	Si
SLV 1	-159	-29926	-1536952	2.3	5257452	3.421	Si
SLV 1	111	-16871	-263240	1.3	3264356	12.401	Si
SLV 3	-159	-30060	-2454698	2.31	5275439	2.149	Si
SLV 3	111	-15265	-238985	1.18	2987003	12.499	Si
SLV 7	-159	-27978	-2629877	2.15	4989481	1.897	Si
SLV 7	111	-11570	33341	0.89	2322290	69.653	Si
SLD 8	-159	-27225	-1536632	2.1	4883191	3.178	Si
SLD 8	111	-12661	73400	0.97	2522440	34.366	Si
SLV 8	-159	-27978	-2629877	2.15	4989481	1.897	Si
SLV 8	111	-11570	33341	0.89	2322290	69.653	Si
SLV 11	-159	-26059	-1862284	2.01	4715564	2.532	Si
SLV 11	111	-10009	242507	0.77	2030315	8.372	Si
SLD 7	-159	-27225	-1536632	2.1	4883191	3.178	Si
SLD 7	111	-12661	73400	0.97	2522440	34.366	Si
SLV 2	-159	-29926	-1536952	2.3	5257452	3.421	Si
SLV 2	111	-16871	-263240	1.3	3264356	12.401	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-159	-37924	2307	-896042		2.92	433	0.94	12273			5.32	Si
SLU 73	111	-19985	4096	142892		1.54	433	0.76	9881			2.41	Si
SLU 65	-159	-34195	2259	-732832		2.63	433	0.91	11776			5.21	Si
SLU 65	111	-17780	3880	154232		1.37	433	0.74	9587			2.47	Si
SLU 55	-159	-35011	2062	-788776		2.7	433	0.91	11885			5.76	Si
SLU 55	111	-18197	3713	147716		1.4	433	0.74	9643			2.6	Si
SLU 10	-159	-28319	2411	-595876		2.18	433	0.85	10993			4.56	Si
SLU 10	111	-14996	3749	125662		1.15	433	0.71	9216			2.46	Si
SLU 2	-159	-24590	2363	-432666		1.89	433	0.81	10495			4.44	Si
SLU 2	111	-12791	3532	137002		0.98	433	0.69	8922			2.53	Si
SLU 52	-159	-34624	2395	-722435		2.67	433	0.91	11833			4.94	Si
SLU 52	111	-17994	4037	165627		1.39	433	0.74	9616			2.38	Si
SLU 44	-159	-30895	2347	-559225		2.38	433	0.87	11336			4.83	Si
SLU 44	111	-15789	3821	176966		1.22	433	0.72	9322			2.44	Si
SLU 31	-159	-31619	2323	-769483		2.43	433	0.88	11433			4.92	Si
SLU 31	111	-16988	3808	102927		1.31	433	0.73	9482			2.49	Si
SLU 76	-159	-38312	1974	-962383		2.95	433	0.95	12325			6.24	Si
SLU 76	111	-20189	3772	124982		1.55	433	0.76	9908			2.63	Si
SLU 23	-159	-27891	2275	-606273		2.15	433	0.84	10935			4.81	Si
SLU 23	111	-14783	3591	114267		1.14	433	0.71	9188			2.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-159	-26059	-20568	-1862284		2.01	433	1.23	16037			0.78	No, Vu<V
SLV 12	111	-10009	-21889	242507		0.77	433	0.99	12827			0.59	No, Vu<V
SLV 11	-159	-26059	-20568	-1862284		2.01	433	1.23	16037			0.78	No, Vu<V
SLV 11	111	-10009	-21889	242507		0.77	433	0.99	12827			0.59	No, Vu<V
SLD 6	-159	-27201	8568	-227550		2.09	433	1.25	16265			1.9	Si
SLD 6	111	-14931	10749	32150		1.15	433	1.06	13811			1.28	Si
SLV 9	-159	-25614	20245	1196867		1.97	433	1.23	15948			0.79	No, Vu<V
SLV 9	111	-15363	22292	161655		1.18	433	1.07	13898			0.62	No, Vu<V
SLV 8	-159	-27978	-20578	-2629877		2.54	367.5	1.34	14783			0.72	No, Vu<V
SLV 8	111	-11570	-20077	33341		0.89	433	1.01	13139			0.65	No, Vu<V
SLV 10	-159	-25614	20245	1196867		1.97	433	1.23	15948			0.79	No, Vu<V
SLV 10	111	-15363	22292	161655		1.18	433	1.07	13898			0.62	No, Vu<V
SLV 6	-159	-27533	20235	429275		2.12	433	1.26	16332			0.81	No, Vu<V
SLV 6	111	-16924	24105	-47511		1.3	433	1.09	14210			0.59	No, Vu<V
SLV 5	-159	-27533	20235	429275		2.12	433	1.26	16332			0.81	No, Vu<V
SLV 5	111	-16924	24105	-47511		1.3	433	1.09	14210			0.59	No, Vu<V
SLV 7	-159	-27978	-20578	-2629877		2.54	367.5	1.34	14783			0.72	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	111	-11570	-20077	33341		0.89	433	1.01	13139			0.65	No, Vu<V
SLD 5	-159	-27201	8568	-227550		2.09	433	1.25	16265			1.9	Si
SLD 5	111	-14931	10749	32150		1.15	433	1.06	13811			1.28	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.24	1.56	-20310	17352	265668	15.31	Si
SLV 8	14	0.24	1.56	-20310	17352	265668	15.31	Si
SLV 12	14	0.24	1.58	-20516	17352	267960	15.44	Si
SLV 11	14	0.24	1.58	-20516	17352	267960	15.44	Si
SLV 4	14	0.24	1.63	-21195	17352	275471	15.88	Si
SLV 3	14	0.24	1.63	-21195	17352	275471	15.88	Si
SLV 16	14	0.24	1.68	-21881	17352	282966	16.31	Si
SLV 15	14	0.24	1.68	-21881	17352	282966	16.31	Si
SLV 1	14	0.24	1.71	-22159	17352	285985	16.48	Si
SLV 2	14	0.24	1.71	-22159	17352	285985	16.48	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-15363	-25614	-679	0.028	20.637	0.934	44.155	439.851	No
SLV 10	-15363	-25614	-679	0.028	20.637	0.934	44.155	439.851	No
SLV 5	-16924	-27533	-716	0.029	22.216	0.938	44.355	439.851	No
SLV 6	-16924	-27533	-716	0.029	22.216	0.938	44.355	439.851	No
SLV 2	-16871	-29926	-666	0.031	22.162	0.938	48.171	430.325	No
SLV 1	-16871	-29926	-666	0.031	22.162	0.938	48.171	430.325	No
SLV 14	-11668	-23532	-541	0.031	16.913	0.923	48.694	430.325	No
SLV 13	-11668	-23532	-541	0.031	16.913	0.923	48.694	430.325	No
SLV 4	-15265	-30060	-585	0.033	20.538	0.934	51.891	430.325	No
SLV 3	-15265	-30060	-585	0.033	20.538	0.934	51.891	430.325	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.362	SLU 77	Si
V_SLU	2.382	SLU 52	Si
PF_SLV	1.897	SLV 7	Si
V_SLV	0.586	SLV 11	No
PFFP_SLV	15.31	SLV 7	Si
R_SLV	0.1	SLV 9	No

## Maschio 13

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1705.3	-500.9	-1705.3	-350.9	L1	L3	150	45	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	-159	-16982	340688	2.52	880268	2.584	Si
SLU 76	111	-10303	655844	1.53	627928	0.957	No, M>Mu
SLU 77	-159	-17297	289497	2.56	889172	3.071	Si
SLU 77	111	-11254	699807	1.67	671296	0.959	No, M>Mu
SLU 84	-159	-17618	334551	2.61	897954	2.684	Si
SLU 84	111	-11162	702537	1.65	667207	0.95	No, M>Mu
SLU 81	-159	-17854	298547	2.65	904258	3.029	Si
SLU 81	111	-11762	728852	1.74	693432	0.951	No, M>Mu
SLU 82	-159	-17683	331902	2.62	899711	2.711	Si
SLU 82	111	-11220	704844	1.66	669779	0.95	No, M>Mu
SLU 73	-159	-17047	338039	2.53	882139	2.61	Si
SLU 73	111	-10361	658151	1.53	630636	0.958	No, M>Mu
SLU 80	-159	-17030	321101	2.52	881666	2.746	Si
SLU 80	111	-10606	669543	1.57	642029	0.959	No, M>Mu
SLU 75	-159	-17191	320203	2.55	886209	2.768	Si
SLU 75	111	-10770	678105	1.6	649537	0.958	No, M>Mu
SLU 83	-159	-17789	301196	2.64	902532	2.996	Si
SLU 83	111	-11704	726545	1.73	690945	0.951	No, M>Mu
SLU 78	-159	-17125	322852	2.54	884365	2.739	Si
SLU 78	111	-10712	675798	1.59	646893	0.957	No, M>Mu

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	-159	-9599	8546	1.42	636164	74.436	Si
SLV 4	111	-2052	164993	0	0	0	No, e>l/2
SLD 11	-159	-8041	312694	1.19	544254	1.741	Si
SLD 11	111	-2495	200198	0	0	0	No, e>l/2
SLV 12	-159	-1675	476594	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	111	5747	-239678	0	0	0	No, Trazione
SLD 8	-159	-8114	247986	1.2	548675	2.213	Si
SLD 8	111	-2101	176209	0	0	0	No, e>l/2
SLD 12	-159	-8041	312694	1.19	544254	1.741	Si
SLD 12	111	-2495	200198	0	0	0	No, e>l/2
SLV 7	-159	-1848	328415	0	0	0	No, e>l/2
SLV 7	111	6718	-298348	0	0	0	No, Trazione
SLD 7	-159	-8114	247986	1.2	548675	2.213	Si
SLD 7	111	-2101	176209	0	0	0	No, e>l/2
SLV 8	-159	-1848	328415	0	0	0	No, e>l/2
SLV 8	111	6718	-298348	0	0	0	No, Trazione
SLV 11	-159	-1675	476594	0	0	0	No, e>l/2
SLV 11	111	5747	-239678	0	0	0	No, Trazione
SLV 3	-159	-9599	8546	1.42	636164	74.436	Si
SLV 3	111	-2052	164993	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	-159	-17297	-104	289497		2.56	150	0.9	6056			57.98	Si
SLU 77	111	-11254	-1092	699807		6.5	38.45	1.08	1875			1.72	Si
SLU 83	-159	-17789	-139	301196		2.64	150	0.91	6122			44.07	Si
SLU 83	111	-11704	-1143	726545		6.71	38.77	1.08	1890			1.65	Si
SLU 79	-159	-17202	-98	287746		2.55	150	0.9	6044			61.54	Si
SLU 79	111	-11148	-1079	693551		6.46	38.36	1.08	1870			1.73	Si
SLU 60	-159	-16963	-124	268566		2.51	150	0.89	6012			48.59	Si
SLU 60	111	-10903	-1066	675421		6.19	39.16	1.08	1909			1.79	Si
SLU 62	-159	-16897	-106	271216		2.5	150	0.89	6003			56.89	Si
SLU 62	111	-10845	-1056	673114		6.21	38.81	1.08	1892			1.79	Si
SLU 56	-159	-16405	-71	259516		2.43	150	0.88	5937			83.56	Si
SLU 56	111	-10396	-1005	646376		6.01	38.47	1.08	1875			1.87	Si
SLU 74	-159	-17362	-123	286848		2.57	150	0.9	6065			49.45	Si
SLU 74	111	-11312	-1102	702113		6.48	38.79	1.08	1891			1.72	Si
SLU 82	-159	-17683	98	331902		2.62	150	0.9	6108			62.27	Si
SLU 82	111	-11220	-946	704844		6.82	36.54	1.08	1781			1.88	Si
SLU 81	-159	-17854	-157	298547		2.65	150	0.91	6131			39.02	Si
SLU 81	111	-11762	-1153	728852		6.69	39.1	1.08	1906			1.65	Si
SLU 53	-159	-16470	-89	256867		2.44	150	0.88	5946			66.62	Si
SLU 53	111	-10453	-1015	648683		5.98	38.84	1.08	1893			1.87	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	-159	-1848	2044	328415		0	0	0.83	0			0	No, Vu<V
SLV 8	111	6718	1387	-298348		0	0	0.83	0			0	No, Vu<V
SLV 3	-159	-9599	616	8546		1.42	150	1.12	7545			12.26	Si
SLV 3	111	-2052	-673	164993		0	0	0.83	0			0	No, Vu<V
SLD 12	-159	-8041	800	312694		1.65	108.33	1.16	5671			7.09	Si
SLD 12	111	-2495	233	200198		0	0	0.83	0			0	No, Vu<V
SLV 11	-159	-1675	2010	476594		0	0	0.83	0			0	No, Vu<V
SLV 11	111	5747	1751	-239678		0	0	0.83	0			0	No, Vu<V
SLD 11	-159	-8041	800	312694		1.65	108.33	1.16	5671			7.09	Si
SLD 11	111	-2495	233	200198		0	0	0.83	0			0	No, Vu<V
SLV 4	-159	-9599	616	8546		1.42	150	1.12	7545			12.26	Si
SLV 4	111	-2052	-673	164993		0	0	0.83	0			0	No, Vu<V
SLD 8	-159	-8114	813	247986		1.35	133.31	1.1	6622			8.15	Si
SLD 8	111	-2101	86	176209		0	0	0.83	0			0	No, Vu<V
SLD 7	-159	-8114	813	247986		1.35	133.31	1.1	6622			8.15	Si
SLD 7	111	-2101	86	176209		0	0	0.83	0			0	No, Vu<V
SLV 12	-159	-1675	2010	476594		0	0	0.83	0			0	No, Vu<V
SLV 12	111	5747	1751	-239678		0	0	0.83	0			0	No, Vu<V
SLV 7	-159	-1848	2044	328415		0	0	0.83	0			0	No, Vu<V
SLV 7	111	6718	1387	-298348		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.24	0.09	-604	9017	13481	1.5	Si
SLV 11	14	0.24	0.09	-604	9017	13481	1.5	Si
SLV 7	14	0.24	0.12	-800	9017	17820	1.98	Si
SLV 8	14	0.24	0.12	-800	9017	17820	1.98	Si
SLV 16	14	0.24	1.12	-7548	9017	154287	17.11	Si
SLV 15	14	0.24	1.12	-7548	9017	154287	17.11	Si
SLV 3	14	0.24	1.22	-8202	9017	166192	18.43	Si
SLV 4	14	0.24	1.22	-8202	9017	166192	18.43	Si
SLV 13	14	0.24	2.03	-13697	9017	256995	28.5	Si
SLV 14	14	0.24	2.03	-13697	9017	256995	28.5	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	6718	-1848	90	0	0	0	0	352.938	No, Trazione
SLV 12	5747	-1675	-108	0	0	0	0	352.938	No, Trazione
SLV 11	5747	-1675	-108	0	0	0	0	352.938	No, Trazione
SLV 8	6718	-1848	90	0	0	0	0	352.938	No, Trazione
SLV 15	-5288	-9025	-409	0.044	8.011	0.917	69.853	348.092	No
SLV 16	-5288	-9025	-409	0.044	8.011	0.917	69.853	348.092	No
SLV 3	-2052	-9599	252	0.052	4.839	0.89	85.22	348.092	No
SLV 4	-2052	-9599	252	0.052	4.839	0.89	85.22	348.092	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-13776	-15497	-469	0.062	16.598	0.955	94.097	348.092	No
SLV 13	-13776	-15497	-469	0.062	16.598	0.955	94.097	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.95	SLU 84	No
V_SLU	1.653	SLU 81	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 7	No
PFFP_SLV	1.495	SLV 11	Si
R_SLV	0	SLV 12	No

## Maschio 14

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1376.3	-478.4	-1705.3	-478.4	L1	L3	329	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 38	-159	-28750	-849918	1.94	3601896	4.238	Si
SLU 38	111	-17073	-167165	1.15	2410970	14.423	Si
SLU 36	-159	-28769	-847311	1.94	3603596	4.253	Si
SLU 36	111	-17103	-160901	1.16	2414503	15.006	Si
SLU 83	-159	-36581	-991673	2.47	4192248	4.227	Si
SLU 83	111	-21460	-154761	1.45	2902033	18.752	Si
SLU 42	-159	-29261	-865362	1.98	3645539	4.213	Si
SLU 42	111	-17461	-156175	1.18	2456481	15.729	Si
SLU 80	-159	-35789	-989653	2.42	4140178	4.183	Si
SLU 80	111	-21140	-148559	1.43	2867956	19.305	Si
SLU 79	-159	-36069	-976230	2.44	4158812	4.26	Si
SLU 79	111	-21073	-165751	1.42	2860752	17.259	Si
SLU 76	-159	-35188	-958741	2.38	4099518	4.276	Si
SLU 76	111	-20988	-95393	1.42	2851716	29.894	Si
SLU 84	-159	-36300	-1005097	2.45	4174004	4.153	Si
SLU 84	111	-21528	-137569	1.45	2909166	21.147	Si
SLU 78	-159	-35809	-987046	2.42	4141499	4.196	Si
SLU 78	111	-21170	-142295	1.43	2871157	20.178	Si
SLU 77	-159	-36089	-973623	2.44	4160118	4.273	Si
SLU 77	111	-21103	-159487	1.43	2863958	17.957	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLD 16	-159	-19632	-856237	1.33	2878946	3.362	Si
SLD 16	111	-8807	260124	0.59	1378286	5.299	Si
SLV 16	-159	-11373	-1176158	0.77	1753263	1.491	Si
SLV 16	111	-344	627806	0	0	0	No, e>1/2
SLV 13	-159	-22645	-1555242	1.53	3258753	2.095	Si
SLV 13	111	-6784	308506	0.46	1074101	3.482	Si
SLV 12	-159	-4377	-205334	0.3	702642	3.422	Si
SLV 12	111	-888	659087	0	0	0	No, e>1/2
SLD 15	-159	-19632	-856237	1.33	2878946	3.362	Si
SLD 15	111	-8807	260124	0.59	1378286	5.299	Si
SLV 14	-159	-22645	-1555242	1.53	3258753	2.095	Si
SLV 14	111	-6784	308506	0.46	1074101	3.482	Si
SLV 8	-159	-9652	247716	0.65	1503090	6.068	Si
SLV 8	111	-7794	366598	0.53	1226914	3.347	Si
SLV 7	-159	-9652	247716	0.65	1503090	6.068	Si
SLV 7	111	-7794	366598	0.53	1226914	3.347	Si
SLV 11	-159	-4377	-205334	0.3	702642	3.422	Si
SLV 11	111	-888	659087	0	0	0	No, e>1/2
SLV 15	-159	-11373	-1176158	0.77	1753263	1.491	Si
SLV 15	111	-344	627806	0	0	0	No, e>1/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	-159	-35809	5847	-987046		2.42	329	0.88	13000			2.22	Si
SLU 78	111	-21170	2274	-142295		1.43	329	0.75	11048			4.86	Si
SLU 82	-159	-35886	5779	-965236		2.42	329	0.88	13010			2.25	Si
SLU 82	111	-21331	2232	-95865		1.44	329	0.75	11069			4.96	Si
SLU 81	-159	-36167	5731	-951812		2.44	329	0.88	13047			2.28	Si
SLU 81	111	-21264	2183	-113057		1.44	329	0.75	11060			5.07	Si
SLU 76	-159	-35188	5725	-958741		2.38	329	0.87	12917			2.26	Si
SLU 76	111	-20988	2244	-95393		1.42	329	0.74	11023			4.91	Si
SLU 80	-159	-35789	5858	-989653		2.42	329	0.88	12997			2.22	Si
SLU 80	111	-21140	2280	-148559		1.43	329	0.75	11044			4.84	Si
SLU 77	-159	-36089	5800	-973623		2.44	329	0.88	13037			2.25	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	111	-21103	2225	-159487		1.43	329	0.75	11039			4.96	Si
SLU 83	-159	-36581	5895	-991673		2.47	329	0.88	13102			2.22	Si
SLU 83	111	-21460	2252	-154761		1.45	329	0.75	11086			4.92	Si
SLU 84	-159	-36300	5942	-1005097		2.45	329	0.88	13065			2.2	Si
SLU 84	111	-21528	2301	-137569		1.45	329	0.75	11095			4.82	Si
SLU 75	-159	-35395	5683	-947185		2.39	329	0.87	12944			2.28	Si
SLU 75	111	-20973	2205	-100591		1.42	329	0.74	11021			5	Si
SLU 79	-159	-36069	5810	-976230		2.44	329	0.88	13034			2.24	Si
SLU 79	111	-21073	2231	-165751		1.42	329	0.75	11035			4.95	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	-159	-28957	9721	334009		1.96	329	1.22	18129			1.86	Si
SLV 4	111	-23365	7408	-347155		1.58	329	1.15	17010			2.3	Si
SLV 6	-159	-47224	9327	-1015898		3.19	329	1.47	21782			2.34	Si
SLV 6	111	-29260	5297	-697735		1.98	329	1.23	18190			3.43	Si
SLV 11	-159	-4377	-1594	-205334		0.3	329	0.89	13213			8.29	Si
SLV 11	111	-888	-2331	659087		0	0	0.83	0			0	No, Vu<V
SLV 3	-159	-28957	9721	334009		1.96	329	1.22	18129			1.86	Si
SLV 3	111	-23365	7408	-347155		1.58	329	1.15	17010			2.3	Si
SLV 1	-159	-40228	11760	-45075		2.72	329	1.38	20383			1.73	Si
SLV 1	111	-29804	8529	-666455		2.01	329	1.24	18298			2.15	Si
SLV 2	-159	-40228	11760	-45075		2.72	329	1.38	20383			1.73	Si
SLV 2	111	-29804	8529	-666455		2.01	329	1.24	18298			2.15	Si
SLV 15	-159	-11373	-4027	-1176158		1.38	183.25	1.11	9147			2.27	Si
SLV 15	111	-344	-5563	627806		0	0	0.83	0			0	No, Vu<V
SLV 12	-159	-4377	-1594	-205334		0.3	329	0.89	13213			8.29	Si
SLV 12	111	-888	-2331	659087		0	0	0.83	0			0	No, Vu<V
SLV 5	-159	-47224	9327	-1015898		3.19	329	1.47	21782			2.34	Si
SLV 5	111	-29260	5297	-697735		1.98	329	1.23	18190			3.43	Si
SLV 16	-159	-11373	-4027	-1176158		1.38	183.25	1.11	9147			2.27	Si
SLV 16	111	-344	-5563	627806		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.24	0.23	-3426	19776	75623	3.82	Si
SLV 11	14	0.24	0.23	-3426	19776	75623	3.82	Si
SLV 16	14	0.24	0.48	-7139	19776	154291	7.8	Si
SLV 15	14	0.24	0.48	-7139	19776	154291	7.8	Si
SLV 7	14	0.24	0.63	-9318	19776	198861	10.06	Si
SLV 8	14	0.24	0.63	-9318	19776	198861	10.06	Si
SLV 14	14	0.24	1.1	-16214	19776	332120	16.79	Si
SLV 13	14	0.24	1.1	-16214	19776	332120	16.79	Si
SLV 3	14	0.24	1.81	-26780	19776	513354	25.96	Si
SLV 4	14	0.24	1.81	-26780	19776	513354	25.96	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-29804	-40228	-1591	0.045	35.987	0.954	68.051	348.092	No
SLV 2	-29804	-40228	-1591	0.045	35.987	0.954	68.051	348.092	No
SLV 4	-23365	-28957	-1340	0.045	29.449	0.945	68.787	348.092	No
SLV 3	-23365	-28957	-1340	0.045	29.449	0.945	68.787	348.092	No
SLV 5	-29260	-47224	-1341	0.052	35.434	0.954	78.722	352.938	No
SLV 6	-29260	-47224	-1341	0.052	35.434	0.954	78.722	352.938	No
SLV 10	-22354	-41949	-876	0.061	28.425	0.944	94.161	352.938	No
SLV 9	-22354	-41949	-876	0.061	28.425	0.944	94.161	352.938	No
SLV 8	-7794	-9652	-505	0.065	13.79	0.902	105.172	352.938	No
SLV 7	-7794	-9652	-505	0.065	13.79	0.902	105.172	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.153	SLU 84	Si
V_SLU	2.199	SLU 84	Si
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	3.824	SLV 11	Si
R_SLV	0.195	SLV 1	No

## Maschio 15

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	227.1	-1505.8	657.6	L1	L3	430.5	30	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	-159	-72422	177126	5.61	4857455	27.424	Si
SLU 79	111	-77447	2397845	6	4398289	1.834	Si
SLU 83	-159	-76111	65774	5.89	4530449	68.879	Si
SLU 83	111	-81483	2471210	6.31	3954584	1.6	Si
SLU 75	-159	-73066	82133	5.66	4804409	58.496	Si
SLU 75	111	-77830	2388490	6.03	4358990	1.825	Si
SLU 82	-159	-76062	-19499	5.89	4535192	232.586	Si
SLU 82	111	-81093	2437916	6.28	4000348	1.641	Si
SLU 84	-159	-76087	65971	5.89	4532764	68.708	Si
SLU 84	111	-81455	2471483	6.31	3957910	1.601	Si
SLU 78	-159	-73091	167603	5.66	4802290	28.653	Si
SLU 78	111	-78192	2422057	6.05	4321381	1.784	Si
SLU 77	-159	-73115	167406	5.66	4800270	28.674	Si
SLU 77	111	-78220	2421784	6.06	4318431	1.783	Si
SLU 74	-159	-73090	81936	5.66	4802391	58.612	Si
SLU 74	111	-77859	2388217	6.03	4356082	1.824	Si
SLU 80	-159	-72398	177323	5.61	4859407	27.404	Si
SLU 80	111	-77419	2398117	5.99	4401149	1.835	Si
SLU 81	-159	-76086	-19696	5.89	4532879	230.143	Si
SLU 81	111	-81121	2437644	6.28	3997065	1.64	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	-159	-39939	3857996	3.09	6421044	1.664	Si
SLV 7	111	-55129	3473756	4.27	7720947	2.223	Si
SLD 7	-159	-45578	1679382	3.53	6977067	4.155	Si
SLD 7	111	-53391	2400771	4.13	7604135	3.167	Si
SLV 12	-159	-39002	4165500	3.02	6320334	1.517	Si
SLV 12	111	-56147	3379962	4.35	7785600	2.303	Si
SLV 5	-159	-60677	-4097003	4.7	8038793	1.962	Si
SLV 5	111	-48009	-143918	3.72	7190065	49.959	Si
SLV 8	-159	-39939	3857996	3.09	6421044	1.664	Si
SLV 8	111	-55129	3473756	4.27	7720947	2.223	Si
SLD 8	-159	-45578	1679382	3.53	6977067	4.155	Si
SLD 8	111	-53391	2400771	4.13	7604135	3.167	Si
SLV 9	-159	-59741	-3789499	4.63	7991049	2.109	Si
SLV 9	111	-49028	-237712	3.8	7274503	30.602	Si
SLV 10	-159	-59741	-3789499	4.63	7991049	2.109	Si
SLV 10	111	-49028	-237712	3.8	7274503	30.602	Si
SLV 6	-159	-60677	-4097003	4.7	8038793	1.962	Si
SLV 6	111	-48009	-143918	3.72	7190065	49.959	Si
SLV 11	-159	-39002	4165500	3.02	6320334	1.517	Si
SLV 11	111	-56147	3379962	4.35	7785600	2.303	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 70	-159	-64426	1448	227994		4.99	430.5	1.08	13991			9.66	Si
SLU 70	111	-67930	4240	2172549		5.26	430.5	1.08	13991			3.3	Si
SLU 72	-159	-63733	1516	237714		4.93	430.5	1.08	13991			9.23	Si
SLU 72	111	-67156	4274	2148610		5.2	430.5	1.08	13991			3.27	Si
SLU 84	-159	-76087	1126	65971		5.89	430.5	1.08	13991			12.43	Si
SLU 84	111	-81455	4355	2471483		6.31	430.5	1.08	13991			3.21	Si
SLU 78	-159	-73091	1492	167603		5.66	430.5	1.08	13991			9.38	Si
SLU 78	111	-78192	4633	2422057		6.05	430.5	1.08	13991			3.02	Si
SLU 69	-159	-64450	1451	227797		4.99	430.5	1.08	13991			9.64	Si
SLU 69	111	-67958	4244	2172276		5.26	430.5	1.08	13991			3.3	Si
SLU 83	-159	-76111	1129	65774		5.89	430.5	1.08	13991			12.39	Si
SLU 83	111	-81483	4359	2471210		6.31	430.5	1.08	13991			3.21	Si
SLU 71	-159	-63757	1519	237517		4.94	430.5	1.08	13991			9.21	Si
SLU 71	111	-67185	4278	2148337		5.2	430.5	1.08	13991			3.27	Si
SLU 80	-159	-72398	1560	177323		5.61	430.5	1.08	13991			8.97	Si
SLU 80	111	-77419	4667	2398117		5.99	430.5	1.08	13991			3	Si
SLU 77	-159	-73115	1495	167406		5.66	430.5	1.08	13991			9.36	Si
SLU 77	111	-78220	4637	2421784		6.06	430.5	1.08	13991			3.02	Si
SLU 79	-159	-72422	1564	177126		5.61	430.5	1.08	13991			8.95	Si
SLU 79	111	-77447	4671	2397845		6	430.5	1.08	13991			3	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	-159	-39939	20384	3857996		3.74	355.96	1.58	16887			0.83	No, Vu<V
SLV 7	111	-55129	21875	3473756		4.27	430.5	1.63	20987			0.96	No, Vu<V
SLV 16	-159	-45169	10270	1740005		3.5	430.5	1.53	19796			1.93	Si
SLV 16	111	-54844	12047	2004349		4.25	430.5	1.63	20987			1.74	Si
SLV 10	-159	-59741	-19515	-3789499		4.63	430.5	1.63	20987			1.08	Si
SLV 10	111	-49028	-16790	-237712		3.8	430.5	1.59	20568			1.23	Si
SLV 12	-159	-39002	22503	4165500		4	325.35	1.63	15861			0.7	No, Vu<V
SLV 12	111	-56147	23914	3379962		4.35	430.5	1.63	20987			0.88	No, Vu<V
SLV 6	-159	-60677	-21635	-4097003		4.7	430.5	1.63	20987			0.97	No, Vu<V
SLV 6	111	-48009	-18829	-143918		3.72	430.5	1.58	20364			1.08	Si
SLV 5	-159	-60677	-21635	-4097003		4.7	430.5	1.63	20987			0.97	No, Vu<V
SLV 5	111	-48009	-18829	-143918		3.72	430.5	1.58	20364			1.08	Si
SLV 9	-159	-59741	-19515	-3789499		4.63	430.5	1.63	20987			1.08	Si
SLV 9	111	-49028	-16790	-237712		3.8	430.5	1.59	20568			1.23	Si
SLV 11	-159	-39002	22503	4165500		4	325.35	1.63	15861			0.7	No, Vu<V
SLV 11	111	-56147	23914	3379962		4.35	430.5	1.63	20987			0.88	No, Vu<V
SLV 8	-159	-39939	20384	3857996		3.74	355.96	1.58	16887			0.83	No, Vu<V





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	111	-55129	21875	3473756		4.27	430.5	1.63	20987			0.96	No, Vu<V
SLV 15	-159	-45169	10270	1740005		3.5	430.5	1.53	19796			1.93	Si
SLV 15	111	-54844	12047	2004349		4.25	430.5	1.63	20987			1.74	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.24	3.59	-46310	17252	490797	28.45	Si
SLV 11	14	0.24	3.59	-46310	17252	490797	28.45	Si
SLV 8	14	0.24	3.63	-46822	17252	493943	28.63	Si
SLV 7	14	0.24	3.63	-46822	17252	493943	28.63	Si
SLV 15	14	0.24	3.69	-47623	17252	498770	28.91	Si
SLV 16	14	0.24	3.69	-47623	17252	498770	28.91	Si
SLV 13	14	0.24	3.81	-49261	17252	508251	29.46	Si
SLV 14	14	0.24	3.81	-49261	17252	508251	29.46	Si
SLV 4	14	0.24	3.82	-49329	17252	508635	29.48	Si
SLV 3	14	0.24	3.82	-49329	17252	508635	29.48	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-49313	-54511	537	0.049	55.116	0.973	72.673	430.325	No
SLV 2	-49313	-54511	537	0.049	55.116	0.973	72.673	430.325	No
SLV 4	-51448	-48289	536	0.049	57.291	0.974	73.031	430.325	No
SLV 3	-51448	-48289	536	0.049	57.291	0.974	73.031	430.325	No
SLV 13	-52708	-51390	-543	0.049	58.574	0.974	73.046	430.325	No
SLV 14	-52708	-51390	-543	0.049	58.574	0.974	73.046	430.325	No
SLV 15	-54844	-45169	-544	0.049	60.749	0.975	73.316	430.325	No
SLV 16	-54844	-45169	-544	0.049	60.749	0.975	73.316	430.325	No
SLV 12	-56147	-39002	-167	0.056	62.077	0.976	82.954	439.851	No
SLV 11	-56147	-39002	-167	0.056	62.077	0.976	82.954	439.851	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.6	SLU 83	Si
V_SLU	2.995	SLU 79	Si
PF_SLV	1.517	SLV 11	Si
V_SLV	0.705	SLV 11	No
PFFP_SLV	28.449	SLV 11	Si
R_SLV	0.169	SLV 1	No

## Maschio 16

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1376.3	-478.4	-1376.3	-331.4	L1	L3	147	30	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	-159	-26210	60370	5.94	520718	8.625	Si
SLU 84	111	-30278	-32131	6.87	349505	10.878	Si
SLU 83	-159	-26149	55667	5.93	522767	9.391	Si
SLU 83	111	-30248	-33145	6.86	351006	10.59	Si
SLU 75	-159	-25161	57466	5.71	553878	9.638	Si
SLU 75	111	-29181	-30894	6.62	402330	13.023	Si
SLU 76	-159	-25151	59288	5.7	554162	9.347	Si
SLU 76	111	-29160	-31898	6.61	403325	12.644	Si
SLU 78	-159	-25515	53285	5.79	543168	10.194	Si
SLU 78	111	-29725	-34849	6.74	376743	10.811	Si
SLU 61	-159	-24357	57425	5.52	576227	10.034	Si
SLU 61	111	-28029	-33248	6.36	452519	13.61	Si
SLU 73	-159	-24796	63469	5.62	564344	8.892	Si
SLU 73	111	-28616	-27943	6.49	427653	15.305	Si
SLU 79	-159	-25404	47268	5.76	546580	11.563	Si
SLU 79	111	-29654	-37543	6.72	380169	10.126	Si
SLU 81	-159	-25794	59848	5.85	534396	8.929	Si
SLU 81	111	-29704	-29189	6.74	377758	12.942	Si
SLU 82	-159	-25855	64551	5.86	532436	8.248	Si
SLU 82	111	-29734	-28175	6.74	376323	13.356	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	-159	-4781	204703	1.08	320177	1.564	Si
SLV 8	111	-6108	-37008	1.39	398016	10.755	Si
SLV 16	-159	-22891	93839	5.19	967591	10.311	Si
SLV 16	111	-17347	227441	3.93	864432	3.801	Si
SLV 3	-159	-5903	81178	1.34	386316	4.759	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	111	-14972	-241604	3.4	794579	3.289	Si
SLV 11	-159	-9877	208502	2.24	592834	2.843	Si
SLV 11	111	-6821	103705	1.55	437819	4.222	Si
SLV 4	-159	-5903	81178	1.34	386316	4.759	Si
SLV 4	111	-14972	-241604	3.4	794579	3.289	Si
SLV 1	-159	-11962	-20903	2.71	683943	32.721	Si
SLV 1	111	-23282	-276258	5.28	971699	3.517	Si
SLV 12	-159	-9877	208502	2.24	592834	2.843	Si
SLV 12	111	-6821	103705	1.55	437819	4.222	Si
SLV 2	-159	-11962	-20903	2.71	683943	32.721	Si
SLV 2	111	-23282	-276258	5.28	971699	3.517	Si
SLV 15	-159	-22891	93839	5.19	967591	10.311	Si
SLV 15	111	-17347	227441	3.93	864432	3.801	Si
SLV 7	-159	-4781	204703	1.08	320177	1.564	Si
SLV 7	111	-6108	-37008	1.39	398016	10.755	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	-159	-25100	-5983	52763		5.69	146.99	1.08	4777			0.8	No, Vu<V
SLU 74	111	-29151	-3250	-31908		6.61	146.99	1.08	4777			1.47	Si
SLU 82	-159	-25855	-6092	64551		5.86	146.99	1.08	4777			0.78	No, Vu<V
SLU 82	111	-29734	-3318	-28175		6.74	146.99	1.08	4777			1.44	Si
SLU 78	-159	-25515	-6074	53285		5.79	146.99	1.08	4777			0.79	No, Vu<V
SLU 78	111	-29725	-3291	-34849		6.74	146.99	1.08	4777			1.45	Si
SLU 80	-159	-25465	-6064	51971		5.77	146.99	1.08	4777			0.79	No, Vu<V
SLU 80	111	-29684	-3285	-36529		6.73	146.99	1.08	4777			1.45	Si
SLU 79	-159	-25404	-6113	47268		5.76	146.99	1.08	4777			0.78	No, Vu<V
SLU 79	111	-29654	-3335	-37543		6.72	146.99	1.08	4777			1.43	Si
SLU 81	-159	-25794	-6141	59848		5.85	146.99	1.08	4777			0.78	No, Vu<V
SLU 81	111	-29704	-3368	-29189		6.74	146.99	1.08	4777			1.42	Si
SLU 84	-159	-26210	-6232	60370		5.94	146.99	1.08	4777			0.77	No, Vu<V
SLU 84	111	-30278	-3409	-32131		6.87	146.99	1.08	4777			1.4	Si
SLU 83	-159	-26149	-6281	55667		5.93	146.99	1.08	4777			0.76	No, Vu<V
SLU 83	111	-30248	-3458	-33145		6.86	146.99	1.08	4777			1.38	Si
SLU 75	-159	-25161	-5934	57466		5.71	146.99	1.08	4777			0.8	No, Vu<V
SLU 75	111	-29181	-3201	-30894		6.62	146.99	1.08	4777			1.49	Si
SLU 77	-159	-25454	-6123	48582		5.77	146.99	1.08	4777			0.78	No, Vu<V
SLU 77	111	-29695	-3341	-35863		6.73	146.99	1.08	4777			1.43	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	-159	-24976	-10409	-135565		5.66	146.99	1.63	7166			0.69	No, Vu<V
SLV 5	111	-33809	-7757	-152523		7.67	146.99	1.63	7166			0.92	No, Vu<V
SLV 9	-159	-30073	-12338	-131767		6.82	146.99	1.63	7166			0.58	No, Vu<V
SLV 9	111	-34521	-9793	-11810		7.83	146.99	1.63	7166			0.73	No, Vu<V
SLV 7	-159	-4781	4249	204703		1.73	92.02	1.18	3257			0.77	No, Vu<V
SLV 7	111	-6108	5542	-37008		1.39	146.99	1.11	4896			0.88	No, Vu<V
SLV 13	-159	-28950	-9459	-8242		6.57	146.99	1.63	7166			0.76	No, Vu<V
SLV 13	111	-25657	-7513	192786		5.82	146.99	1.63	7166			0.95	No, Vu<V
SLV 8	-159	-4781	4249	204703		1.73	92.02	1.18	3257			0.77	No, Vu<V
SLV 8	111	-6108	5542	-37008		1.39	146.99	1.11	4896			0.88	No, Vu<V
SLD 9	-159	-22856	-7638	-36194		5.18	146.99	1.63	7166			0.94	No, Vu<V
SLD 9	111	-26386	-5432	-18529		5.98	146.99	1.63	7166			1.32	Si
SLV 6	-159	-24976	-10409	-135565		5.66	146.99	1.63	7166			0.69	No, Vu<V
SLV 6	111	-33809	-7757	-152523		7.67	146.99	1.63	7166			0.92	No, Vu<V
SLV 10	-159	-30073	-12338	-131767		6.82	146.99	1.63	7166			0.58	No, Vu<V
SLV 10	111	-34521	-9793	-11810		7.83	146.99	1.63	7166			0.73	No, Vu<V
SLD 10	-159	-22856	-7638	-36194		5.18	146.99	1.63	7166			0.94	No, Vu<V
SLD 10	111	-26386	-5432	-18529		5.98	146.99	1.63	7166			1.32	Si
SLV 14	-159	-28950	-9459	-8242		6.57	146.99	1.63	7166			0.76	No, Vu<V
SLV 14	111	-25657	-7513	192786		5.82	146.99	1.63	7166			0.95	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.24	1.02	-4478	5890	61589	10.46	Si
SLV 8	14	0.24	1.02	-4478	5890	61589	10.46	Si
SLV 12	14	0.24	1.81	-7962	5890	101784	17.28	Si
SLV 11	14	0.24	1.81	-7962	5890	101784	17.28	Si
SLV 4	14	0.24	2.04	-9006	5890	112510	19.1	Si
SLV 3	14	0.24	2.04	-9006	5890	112510	19.1	Si
SLV 2	14	0.24	3.71	-16371	5890	170953	29.02	Si
SLV 1	14	0.24	3.71	-16371	5890	170953	29.02	Si
SLV 15	14	0.24	4.68	-20620	5890	190929	32.41	Si
SLV 16	14	0.24	4.68	-20620	5890	190929	32.41	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 6	-33809	-24976	104	0.054	36.11	0.985	80.076	439.851	No
SLV 5	-33809	-24976	104	0.054	36.11	0.985	80.076	439.851	No
SLV 2	-23282	-11962	122	0.053	25.384	0.979	78.62	430.325	No
SLV 1	-23282	-11962	122	0.053	25.384	0.979	78.62	430.325	No
SLV 12	-6821	-9877	-81	0.053	8.631	0.945	81.247	439.851	No
SLV 11	-6821	-9877	-81	0.053	8.631	0.945	81.247	439.851	No
SLV 16	-17347	-22891	-100	0.053	19.338	0.973	79.692	430.325	No
SLV 15	-17347	-22891	-100	0.053	19.338	0.973	79.692	430.325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 10	-34521	-30073	49	0.056	36.837	0.986	82.364	439.851	No
SLV 9	-34521	-30073	49	0.056	36.837	0.986	82.364	439.851	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.248	SLU 82	Si
V_SLU	0.761	SLU 83	No
PF_SLV	1.564	SLV 7	Si
V_SLV	0.581	SLV 9	No
PFFP_SLV	10.456	SLV 7	Si
R_SLV	0.182	SLV 5	No

## Maschio 18

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1376.3	-331.4	-1376.3	104.6	Z medio -60 cm	L3	436	30	171	72	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 84	39	-74854	-686946	5.72	4854487	7.067	Si
SLU 84	111	-70310	-2168161	5.38	5213470	2.405	Si
SLU 82	39	-74339	-661644	5.68	4899384	7.405	Si
SLU 82	111	-69802	-2145283	5.34	5248377	2.446	Si
SLU 77	39	-72010	-732450	5.51	5089079	6.948	Si
SLU 77	111	-67547	-2117708	5.16	5390481	2.545	Si
SLU 80	39	-71746	-748994	5.48	5109178	6.821	Si
SLU 80	111	-67313	-2136895	5.15	5404027	2.529	Si
SLU 76	39	-71427	-723397	5.46	5133058	7.096	Si
SLU 76	111	-66993	-2124344	5.12	5422199	2.552	Si
SLU 83	39	-74560	-687387	5.7	4880258	7.1	Si
SLU 83	111	-70028	-2152672	5.35	5233000	2.431	Si
SLU 81	39	-74046	-662084	5.66	4924536	7.438	Si
SLU 81	111	-69519	-2129795	5.31	5267319	2.473	Si
SLU 78	39	-72304	-732009	5.53	5066375	6.921	Si
SLU 78	111	-67829	-2133197	5.19	5373819	2.519	Si
SLU 79	39	-71452	-749434	5.46	5131211	6.847	Si
SLU 79	111	-67030	-2121406	5.12	5420091	2.555	Si
SLU 75	39	-71789	-706707	5.49	5105902	7.225	Si
SLU 75	111	-67321	-2110319	5.15	5403566	2.561	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 2	39	-33868	-973133	2.59	5818918	5.98	Si
SLV 2	111	-31172	-1834544	2.38	5470248	2.982	Si
SLD 6	39	-44282	-1186883	3.39	6979033	5.88	Si
SLD 6	111	-42106	-1922199	3.22	6761108	3.517	Si
SLD 5	39	-44282	-1186883	3.39	6979033	5.88	Si
SLD 5	111	-42106	-1922199	3.22	6761108	3.517	Si
SLV 9	39	-46101	-2004825	3.52	7151363	3.567	Si
SLV 9	111	-45382	-2444891	3.47	7084351	2.898	Si
SLV 1	39	-33868	-973133	2.59	5818918	5.98	Si
SLV 1	111	-31172	-1834544	2.38	5470248	2.982	Si
SLD 10	39	-47643	-1197009	3.64	7290389	6.091	Si
SLD 10	111	-45511	-1913166	3.48	7096480	3.709	Si
SLV 5	39	-38318	-1980557	2.93	6350866	3.207	Si
SLV 5	111	-37462	-2464085	2.86	6252643	2.538	Si
SLV 6	39	-38318	-1980557	2.93	6350866	3.207	Si
SLV 6	111	-37462	-2464085	2.86	6252643	2.538	Si
SLD 9	39	-47643	-1197009	3.64	7290389	6.091	Si
SLD 9	111	-45511	-1913166	3.48	7096480	3.709	Si
SLV 10	39	-46101	-2004825	3.52	7151363	3.567	Si
SLV 10	111	-45382	-2444891	3.47	7084351	2.898	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	39	-74339	2558	-661644		5.68	436.01	1.08	14170			5.54	Si
SLU 82	111	-69802	1940	-2145283		5.34	436.01	1.08	14170			7.31	Si
SLU 55	39	-65692	2255	-791402		5.02	436.01	1.08	14170			6.28	Si
SLU 55	111	-61590	1688	-2067846		4.71	436.01	1.08	14170			8.39	Si
SLU 61	39	-68604	2571	-729648		5.24	436.01	1.08	14170			5.51	Si
SLU 61	111	-64399	1983	-2088786		4.92	436.01	1.08	14170			7.14	Si
SLU 81	39	-74046	2233	-662084		5.66	436.01	1.08	14170			6.35	Si
SLU 81	111	-69519	1618	-2129795		5.31	436.01	1.08	14170			8.76	Si
SLU 60	39	-68310	2246	-730089		5.22	436.01	1.08	14170			6.31	Si
SLU 60	111	-64117	1661	-2073297		4.9	436.01	1.08	14170			8.53	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	39	-65177	2616	-766099		4.98	436.01	1.08	14170			5.42	Si
SLU 52	111	-61082	2065	-2044969		4.67	436.01	1.08	14170			6.86	Si
SLU 44	39	-56724	2214	-851837		4.34	436.01	1.08	14170			6.4	Si
SLU 44	111	-52902	1754	-1918634		4.04	436.01	1.08	14170			8.08	Si
SLU 76	39	-71427	2242	-723397		5.46	436.01	1.08	14170			6.32	Si
SLU 76	111	-66993	1644	-2124344		5.12	436.01	1.08	14170			8.62	Si
SLU 10	39	-53713	2227	-551417		4.11	436.01	1.08	14170			6.36	Si
SLU 10	111	-50407	1772	-1623065		3.85	436.01	1.07	13988			7.89	Si
SLU 73	39	-70913	2603	-698095		5.42	436.01	1.08	14170			5.44	Si
SLU 73	111	-66485	2021	-2101466		5.08	436.01	1.08	14170			7.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 8	39	-50004	9741	9083		3.82	436.01	1.6	20901			2.15	Si
SLD 8	111	-45763	8815	-1133140		3.5	436.01	1.53	20053			2.27	Si
SLV 8	39	-51546	20648	816900		3.94	436.01	1.62	21210			1.03	Si
SLV 8	111	-45892	19024	-601415		3.51	436.01	1.54	20079			1.06	Si
SLV 6	39	-38318	-17375	-1980557		2.93	436.01	1.42	18564			1.07	Si
SLV 6	111	-37462	-16999	-2464085		2.86	436.01	1.41	18393			1.08	Si
SLV 5	39	-38318	-17375	-1980557		2.93	436.01	1.42	18564			1.07	Si
SLV 5	111	-37462	-16999	-2464085		2.86	436.01	1.41	18393			1.08	Si
SLV 11	39	-59329	20163	792631		4.54	436.01	1.63	21256			1.05	Si
SLV 11	111	-53813	19002	-582221		4.11	436.01	1.63	21256			1.12	Si
SLV 12	39	-59329	20163	792631		4.54	436.01	1.63	21256			1.05	Si
SLV 12	111	-53813	19002	-582221		4.11	436.01	1.63	21256			1.12	Si
SLD 7	39	-50004	9741	9083		3.82	436.01	1.6	20901			2.15	Si
SLD 7	111	-45763	8815	-1133140		3.5	436.01	1.53	20053			2.27	Si
SLV 9	39	-46101	-17860	-2004825		3.52	436.01	1.54	20121			1.13	Si
SLV 9	111	-45382	-17021	-2444891		3.47	436.01	1.53	19977			1.17	Si
SLV 10	39	-46101	-17860	-2004825		3.52	436.01	1.54	20121			1.13	Si
SLV 10	111	-45382	-17021	-2444891		3.47	436.01	1.53	19977			1.17	Si
SLV 7	39	-51546	20648	816900		3.94	436.01	1.62	21210			1.03	Si
SLV 7	111	-45892	19024	-601415		3.51	436.01	1.54	20079			1.06	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 75 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.26	2.19	-28672	7459	352923	47.31	Si
SLV 2	14	0.26	2.19	-28672	7459	352923	47.31	Si
SLV 5	14	0.26	2.5	-32663	7459	389820	52.26	Si
SLV 6	14	0.26	2.5	-32663	7459	389820	52.26	Si
SLV 3	14	0.26	2.51	-32818	7459	391187	52.44	Si
SLV 4	14	0.26	2.51	-32818	7459	391187	52.44	Si
SLV 9	14	0.26	3.08	-40231	7459	451561	60.54	Si
SLV 10	14	0.26	3.08	-40231	7459	451561	60.54	Si
SLV 7	14	0.26	3.55	-46483	7459	494464	66.29	Si
SLV 8	14	0.26	3.55	-46483	7459	494464	66.29	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 75 Wa = 0.05 Ta = 0.0163

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-37462	-38318	314	0.084	41.292	0.976	125.395	316.051	No
SLV 6	-37462	-38318	314	0.084	41.292	0.976	125.395	316.051	No
SLV 2	-31172	-33868	304	0.084	34.886	0.972	125.358	313.562	No
SLV 1	-31172	-33868	304	0.084	34.886	0.972	125.358	313.562	No
SLV 9	-45382	-46101	265	0.086	49.361	0.98	127.317	316.051	No
SLV 10	-45382	-46101	265	0.086	49.361	0.98	127.317	316.051	No
SLV 4	-33701	-37837	247	0.086	37.461	0.974	127.919	313.562	No
SLV 3	-33701	-37837	247	0.086	37.461	0.974	127.919	313.562	No
SLV 14	-57574	-59811	141	0.088	61.784	0.984	130.448	313.562	No
SLV 13	-57574	-59811	141	0.088	61.784	0.984	130.448	313.562	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.405	SLU 84	Si
V_SLU	5.417	SLU 52	Si
PF_SLV	2.538	SLV 5	Si
V_SLV	1.027	SLV 7	Si
PFFP_SLV	47.315	SLV 1	Si
R_SLV	0.397	SLV 5	No

## Maschio 19

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-1246.3	-361.9	-1246.3	-331.5	L1	L3	30.4	30	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 56	-159	-487	3138	0.53	6915	2.204	Si
SLU 56	111	41	-1089	0	0	0	No, Trazione
SLU 57	-159	-485	3143	0.53	6891	2.193	Si
SLU 57	111	41	-1090	0	0	0	No, Trazione
SLU 55	-159	-503	3095	0.55	7125	2.302	Si
SLU 55	111	40	-1081	0	0	0	No, Trazione
SLU 58	-159	-497	3108	0.55	7058	2.271	Si
SLU 58	111	40	-1084	0	0	0	No, Trazione
SLU 61	-159	-663	3391	0.73	9176	2.706	Si
SLU 61	111	49	-1320	0	0	0	No, Trazione
SLU 59	-159	-496	3113	0.54	7034	2.259	Si
SLU 59	111	40	-1084	0	0	0	No, Trazione
SLU 53	-159	-495	3116	0.54	7023	2.254	Si
SLU 53	111	40	-1085	0	0	0	No, Trazione
SLU 54	-159	-493	3121	0.54	6999	2.243	Si
SLU 54	111	40	-1086	0	0	0	No, Trazione
SLU 1	-159	-115	1867	0	0	0	No, $e > l/2$
SLU 1	111	15	-419	0	0	0	No, Trazione
SLU 60	-159	-664	3386	0.73	9199	2.717	Si
SLU 60	111	49	-1319	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	-159	1162	6804	0	0	0	No, Trazione
SLV 12	111	38	-1032	0	0	0	No, Trazione
SLV 10	-159	-1392	-1913	1.53	18526	9.686	Si
SLV 10	111	12	-308	0	0	0	No, Trazione
SLV 14	-159	-289	1768	0.32	4274	2.417	Si
SLV 14	111	25	-688	0	0	0	No, Trazione
SLV 7	-159	982	6263	0	0	0	No, Trazione
SLV 7	111	34	-924	0	0	0	No, Trazione
SLV 6	-159	-1572	-2453	1.72	20534	8.371	Si
SLV 6	111	8	-200	0	0	0	No, Trazione
SLV 13	-159	-289	1768	0.32	4274	2.417	Si
SLV 13	111	25	-688	0	0	0	No, Trazione
SLV 8	-159	982	6263	0	0	0	No, Trazione
SLV 8	111	34	-924	0	0	0	No, Trazione
SLV 11	-159	1162	6804	0	0	0	No, Trazione
SLV 11	111	38	-1032	0	0	0	No, Trazione
SLV 9	-159	-1392	-1913	1.53	18526	9.686	Si
SLV 9	111	12	-308	0	0	0	No, Trazione
SLD 1	-159	-500	1223	0.55	7260	5.934	Si
SLD 1	111	18	-492	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	-159	-663	31	3391	0.73	30.26	0.65	593				19.42	Si
SLU 61	111	49	47	-1320	0	0	0.56	0				0	No, $V_u < V$
SLU 1	-159	-115	45	1867	0	0	0.56	0				0	No, $V_u < V$
SLU 1	111	15	17	-419	0	0	0.56	0				0	No, $V_u < V$
SLU 57	-159	-485	43	3143	0.62	26.17	0.64	501				11.52	Si
SLU 57	111	41	40	-1090	0	0	0.56	0				0	No, $V_u < V$
SLU 56	-159	-487	43	3138	0.62	26.27	0.64	503				11.68	Si
SLU 56	111	41	40	-1089	0	0	0.56	0				0	No, $V_u < V$
SLU 60	-159	-664	30	3386	0.73	30.33	0.65	594				19.74	Si
SLU 60	111	49	47	-1319	0	0	0.56	0				0	No, $V_u < V$
SLU 53	-159	-495	41	3116	0.62	26.73	0.64	511				12.41	Si
SLU 53	111	40	39	-1085	0	0	0.56	0				0	No, $V_u < V$
SLU 54	-159	-493	42	3121	0.62	26.62	0.64	509				12.24	Si
SLU 54	111	40	40	-1086	0	0	0.56	0				0	No, $V_u < V$
SLU 59	-159	-496	41	3113	0.62	26.77	0.64	512				12.5	Si
SLU 59	111	40	39	-1084	0	0	0.56	0				0	No, $V_u < V$
SLU 55	-159	-503	39	3095	0.62	27.14	0.64	519				13.17	Si
SLU 55	111	40	39	-1081	0	0	0.56	0				0	No, $V_u < V$
SLU 58	-159	-497	41	3108	0.62	26.87	0.64	514				12.67	Si
SLU 58	111	40	39	-1084	0	0	0.56	0				0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-159	1162	389	6804	0	0	0.83	0				0	No, $V_u < V$
SLV 12	111	38	94	-1032	0	0	0.83	0				0	No, $V_u < V$
SLV 9	-159	-1392	-256	-1913	1.53	30.41	1.14	1039				4.06	Si
SLV 9	111	12	-42	-308	0	0	0.83	0				0	No, $V_u < V$
SLV 11	-159	1162	389	6804	0	0	0.83	0				0	No, $V_u < V$
SLV 11	111	38	94	-1032	0	0	0.83	0				0	No, $V_u < V$
SLV 10	-159	-1392	-256	-1913	1.53	30.41	1.14	1039				4.06	Si
SLV 10	111	12	-42	-308	0	0	0.83	0				0	No, $V_u < V$
SLV 7	-159	982	346	6263	0	0	0.83	0				0	No, $V_u < V$
SLV 7	111	34	89	-924	0	0	0.83	0				0	No, $V_u < V$
SLV 14	-159	-289	20	1768	0.35	27.23	0.9	738				36.27	Si
SLV 14	111	25	11	-688	0	0	0.83	0				0	No, $V_u < V$
SLV 6	-159	-1572	-299	-2453	1.72	30.41	1.18	1075				3.6	Si
SLV 6	111	8	-47	-200	0	0	0.83	0				0	No, $V_u < V$
SLD 1	-159	-500	-27	1223	0.55	30.41	0.94	860				31.5	Si
SLD 1	111	18	9	-492	0	0	0.83	0				0	No, $V_u < V$
SLV 8	-159	982	346	6263	0	0	0.83	0				0	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	111	34	89	-924		0	0	0.83	0			0	No, Vu<V
SLV 13	-159	-289	20	1768		0.35	27.23	0.9	738			36.27	Si
SLV 13	111	25	11	-688		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.24	0	238	1219	0	0	No, Trazione
SLV 11	14	0.24	0	238	1219	0	0	No, Trazione
SLV 7	14	0.24	0	138	1219	0	0	No, Trazione
SLV 8	14	0.24	0	138	1219	0	0	No, Trazione
SLV 15	14	0.24	0.1	-96	1219	1421	1.17	Si
SLV 16	14	0.24	0.1	-96	1219	1421	1.17	Si
SLV 3	14	0.24	0.47	-428	1219	6168	5.06	Si
SLV 4	14	0.24	0.47	-428	1219	6168	5.06	Si
SLV 13	14	0.24	0.53	-481	1219	6901	5.66	Si
SLV 14	14	0.24	0.53	-481	1219	6901	5.66	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	34	982	11	0	0	0	0	439.851	No, Trazione
SLV 2	12	-888	26	0	0	0	0	430.325	No, Trazione
SLV 1	12	-888	26	0	0	0	0	430.325	No, Trazione
SLV 10	12	-1392	-16	0	0	0	0	439.851	No, Trazione
SLV 5	8	-1572	2	0	0	0	0	439.851	No, Trazione
SLV 4	20	-122	28	0	0	0	0	430.325	No, Trazione
SLV 7	34	982	11	0	0	0	0	439.851	No, Trazione
SLV 9	12	-1392	-16	0	0	0	0	439.851	No, Trazione
SLV 6	8	-1572	2	0	0	0	0	439.851	No, Trazione
SLV 3	20	-122	28	0	0	0	0	430.325	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 21

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1246.3	-331.5	-1246.3	-191.6	L2	L3	139.9	30	72	72	72			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 61	39	-853	16710	0.2	58152	3.48	Si
SLU 61	111	-9	-5641	0	0	0	No, e>l/2
SLU 59	39	-768	15424	0.18	52521	3.405	Si
SLU 59	111	0	-4983	0	0	0	No, e>l/2
SLU 56	39	-766	15587	0.18	52355	3.359	Si
SLU 56	111	0	-5029	0	0	0	No, Trazione
SLU 60	39	-853	16678	0.2	58185	3.489	Si
SLU 60	111	-9	-5632	0	0	0	No, e>l/2
SLU 1	39	-452	9288	0.11	31180	3.357	Si
SLU 1	111	13	-2597	0	0	0	No, Trazione
SLU 54	39	-767	15469	0.18	52475	3.392	Si
SLU 54	111	0	-4995	0	0	0	No, e>l/2
SLU 57	39	-765	15620	0.18	52322	3.35	Si
SLU 57	111	0	-5039	0	0	0	No, Trazione
SLU 53	39	-768	15437	0.18	52508	3.402	Si
SLU 53	111	0	-4986	0	0	0	No, e>l/2
SLU 55	39	-770	15295	0.18	52651	3.442	Si
SLU 55	111	-1	-4946	0	0	0	No, e>l/2
SLU 58	39	-769	15392	0.18	52553	3.414	Si
SLU 58	111	-1	-4974	0	0	0	No, e>l/2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	39	-173	24241	0	0	0	No, e>l/2
SLV 12	111	46	-7238	0	0	0	No, Trazione
SLV 11	39	-173	24241	0	0	0	No, e>l/2
SLV 11	111	46	-7238	0	0	0	No, Trazione
SLV 7	39	-218	21125	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	111	38	-6331	0	0	0	No, Trazione
SLV 3	39	-488	9258	0.12	33822	3.653	Si
SLV 3	111	5	-2821	0	0	0	No, Trazione
SLV 4	39	-488	9258	0.12	33822	3.653	Si
SLV 4	111	5	-2821	0	0	0	No, Trazione
SLV 14	39	-523	12585	0.12	36201	2.877	Si
SLV 14	111	12	-3743	0	0	0	No, Trazione
SLD 1	39	-579	7167	0.14	40012	5.583	Si
SLD 1	111	-2	-2175	0	0	0	No, $e>l/2$
SLV 8	39	-218	21125	0	0	0	No, $e>l/2$
SLV 8	111	38	-6331	0	0	0	No, Trazione
SLV 13	39	-523	12585	0.12	36201	2.877	Si
SLV 13	111	12	-3743	0	0	0	No, Trazione
SLV 15	39	-337	19642	0.08	23420	1.192	Si
SLV 15	111	32	-5845	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 57	39	-765	957	15620		0.18	139.91	0.58	2434			2.54	Si
SLU 57	111	0	352	-5039		0	0	0.56	0			0	No, $V_u < V$
SLU 59	39	-768	948	15424		0.18	139.91	0.58	2434			2.57	Si
SLU 59	111	0	348	-4983		0	0	0.56	0			0	No, $V_u < V$
SLU 53	39	-768	949	15437		0.18	139.91	0.58	2434			2.57	Si
SLU 53	111	0	349	-4986		0	0	0.56	0			0	No, $V_u < V$
SLU 55	39	-770	943	15295		0.18	139.91	0.58	2434			2.58	Si
SLU 55	111	-1	346	-4946		0	0	0.56	0			0	No, $V_u < V$
SLU 54	39	-767	950	15469		0.18	139.91	0.58	2434			2.56	Si
SLU 54	111	0	349	-4995		0	0	0.56	0			0	No, $V_u < V$
SLU 56	39	-766	955	15587		0.18	139.91	0.58	2434			2.55	Si
SLU 56	111	0	351	-5029		0	0	0.56	0			0	No, $V_u < V$
SLU 1	39	-452	528	9288		0.11	139.91	0.57	2392			4.53	Si
SLU 1	111	13	210	-2597		0	0	0.56	0			0	No, $V_u < V$
SLU 61	39	-853	1056	16710		0.2	139.91	0.58	2446			2.32	Si
SLU 61	111	-9	378	-5641		0	0	0.56	0			0	No, $V_u < V$
SLU 60	39	-853	1055	16678		0.2	139.91	0.58	2446			2.32	Si
SLU 60	111	-9	377	-5632		0	0	0.56	0			0	No, $V_u < V$
SLU 58	39	-769	947	15392		0.18	139.91	0.58	2434			2.57	Si
SLU 58	111	-1	348	-4974		0	0	0.56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	39	-173	1392	24241		0	0	0.83	0			0	No, $V_u < V$
SLV 12	111	46	187	-7238		0	0	0.83	0			0	No, $V_u < V$
SLV 3	39	-488	566	9258		0.12	139.91	0.86	3595			6.35	Si
SLV 3	111	5	140	-2821		0	0	0.83	0			0	No, $V_u < V$
SLV 15	39	-337	1114	19642		0.32	35.01	0.9	943			0.85	No, $V_u < V$
SLV 15	111	32	301	-5845		0	0	0.83	0			0	No, $V_u < V$
SLV 7	39	-218	1228	21125		0	0	0.83	0			0	No, $V_u < V$
SLV 7	111	38	139	-6331		0	0	0.83	0			0	No, $V_u < V$
SLV 8	39	-218	1228	21125		0	0	0.83	0			0	No, $V_u < V$
SLV 8	111	38	139	-6331		0	0	0.83	0			0	No, $V_u < V$
SLV 14	39	-523	711	12585		0.13	137.65	0.86	3546			4.99	Si
SLV 14	111	12	350	-3743		0	0	0.83	0			0	No, $V_u < V$
SLV 13	39	-523	711	12585		0.13	137.65	0.86	3546			4.99	Si
SLV 13	111	12	350	-3743		0	0	0.83	0			0	No, $V_u < V$
SLV 4	39	-488	566	9258		0.12	139.91	0.86	3595			6.35	Si
SLV 4	111	5	140	-2821		0	0	0.83	0			0	No, $V_u < V$
SLD 1	39	-579	434	7167		0.14	139.91	0.86	3613			8.33	Si
SLD 1	111	-2	220	-2175		0	0	0.83	0			0	No, $V_u < V$
SLV 11	39	-173	1392	24241		0	0	0.83	0			0	No, $V_u < V$
SLV 11	111	46	187	-7238		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 75 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.26	0	-11	424	0	0	No, $e>t/2$
SLV 11	14	0.26	0	32	424	0	0	No, Trazione
SLV 8	14	0.26	0	-11	424	0	0	No, $e>t/2$
SLV 12	14	0.26	0	32	424	0	0	No, Trazione
SLV 16	14	0.26	0.01	-34	424	513	1.21	Si
SLV 15	14	0.26	0.01	-34	424	513	1.21	Si
SLV 13	14	0.26	0.03	-135	424	2020	4.76	Si
SLV 14	14	0.26	0.03	-135	424	2020	4.76	Si
SLV 3	14	0.26	0.04	-180	424	2691	6.34	Si
SLV 4	14	0.26	0.04	-180	424	2691	6.34	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 75 Wa = 0.05 Ta = 0.0029

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 15	32	-337	-47	0	0	0	0	259.853	No, Trazione
SLV 12	46	-173	-4	0	0	0	0	260.194	No, Trazione
SLV 8	38	-218	27	0	0	0	0	260.194	No, Trazione
SLV 3	5	-488	57	0	0	0	0	259.853	No, Trazione
SLV 13	12	-523	-52	0	0	0	0	259.853	No, Trazione
SLV 14	12	-523	-52	0	0	0	0	259.853	No, Trazione
SLV 4	5	-488	57	0	0	0	0	259.853	No, Trazione
SLV 7	38	-218	27	0	0	0	0	260.194	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 11	46	-173	-4	0	0	0	0	260.194	No, Trazione
SLV 16	32	-337	-47	0	0	0	0	259.853	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 80	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 23

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1246.3	-191.6	-1246.3	-35.4	Z medio -60 cm	Z medio 75 cm	156.2	30	135	63.5	206.4			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 29	-25	-3165	131308	0.68	226650	1.726	Si
SLU 29	39	-1352	13060	0.29	101869	7.8	Si
SLU 30	-25	-3168	131648	0.68	226856	1.723	Si
SLU 30	39	-1353	13079	0.29	101913	7.792	Si
SLU 66	-25	-3898	157567	0.83	273326	1.735	Si
SLU 66	39	-1649	15437	0.35	123185	7.98	Si
SLU 69	-25	-3911	159162	0.83	274115	1.722	Si
SLU 69	39	-1648	15398	0.35	123138	7.997	Si
SLU 70	-25	-3914	159501	0.84	274312	1.72	Si
SLU 70	39	-1649	15417	0.35	123182	7.99	Si
SLU 67	-25	-3901	157907	0.83	273523	1.732	Si
SLU 67	39	-1649	15456	0.35	123229	7.973	Si
SLU 28	-25	-3184	133647	0.68	227905	1.705	Si
SLU 28	39	-1353	13078	0.29	101919	7.793	Si
SLU 24	-25	-3168	131713	0.68	226872	1.722	Si
SLU 24	39	-1353	13097	0.29	101922	7.782	Si
SLU 27	-25	-3181	133307	0.68	227699	1.708	Si
SLU 27	39	-1352	13058	0.29	101874	7.801	Si
SLU 25	-25	-3171	132052	0.68	227078	1.72	Si
SLU 25	39	-1354	13117	0.29	101966	7.774	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 16	-25	-3737	190435	0.8	272780	1.432	Si
SLV 16	39	-1499	6898	0.32	114028	16.532	Si
SLD 11	-25	-3483	152173	0.74	255428	1.679	Si
SLD 11	39	-1501	9539	0.32	114108	11.963	Si
SLD 12	-25	-3483	152173	0.74	255428	1.679	Si
SLD 12	39	-1501	9539	0.32	114108	11.963	Si
SLV 12	-25	-3674	191426	0.78	268488	1.403	Si
SLV 12	39	-1372	-31	0.29	104593	1000	Si
SLV 7	-25	-3478	160382	0.74	255128	1.591	Si
SLV 7	39	-1393	3151	0.3	106113	33.681	Si
SLV 15	-25	-3737	190435	0.8	272780	1.432	Si
SLV 15	39	-1499	6898	0.32	114028	16.532	Si
SLV 11	-25	-3674	191426	0.78	268488	1.403	Si
SLV 11	39	-1372	-31	0.29	104593	1000	Si
SLV 8	-25	-3478	160382	0.74	255128	1.591	Si
SLV 8	39	-1393	3151	0.3	106113	33.681	Si
SLV 13	-25	-3596	158542	0.77	263153	1.66	Si
SLV 13	39	-1629	16018	0.35	123589	7.716	Si
SLV 14	-25	-3596	158542	0.77	263153	1.66	Si
SLV 14	39	-1629	16018	0.35	123589	7.716	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 65	-25	-3875	1048	154541		1.13	114.62	0.71	2427			2.32	Si
SLU 65	39	-1650	1777	15510		0.35	156.18	0.6	2823			1.59	Si
SLU 67	-25	-3901	1074	157907		1.15	112.85	0.71	2401			2.24	Si
SLU 67	39	-1649	1822	15456		0.35	156.18	0.6	2823			1.55	Si
SLU 68	-25	-3887	1059	156135		1.14	113.78	0.71	2415			2.28	Si
SLU 68	39	-1650	1798	15471		0.35	156.18	0.6	2823			1.57	Si
SLU 64	-25	-3869	1043	153975		1.12	114.89	0.71	2431			2.33	Si
SLU 64	39	-1649	1769	15478		0.35	156.18	0.6	2823			1.6	Si
SLU 69	-25	-3911	1082	159162		1.16	112.18	0.71	2391			2.21	Si
SLU 69	39	-1648	1838	15398		0.35	156.18	0.6	2823			1.54	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	-25	-5442	1075	189627		1.4	129.73	0.74	2888			2.69	Si
SLU 78	39	-2935	1865	34325		0.63	156.18	0.64	2994			1.61	Si
SLU 71	-25	-3895	1066	157163		1.15	113.22	0.71	2406			2.26	Si
SLU 71	39	-1648	1811	15400		0.35	156.18	0.6	2823			1.56	Si
SLU 66	-25	-3898	1071	157567		1.15	113.01	0.71	2403			2.24	Si
SLU 66	39	-1649	1817	15437		0.35	156.18	0.6	2823			1.55	Si
SLU 70	-25	-3914	1085	159501		1.16	112.02	0.71	2389			2.2	Si
SLU 70	39	-1649	1843	15417		0.35	156.18	0.6	2823			1.53	Si
SLU 72	-25	-3898	1069	157503		1.15	113.05	0.71	2404			2.25	Si
SLU 72	39	-1649	1816	15419		0.35	156.18	0.6	2823			1.55	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-25	-3674	3514	191426		1.57	77.96	1.15	2684			0.76	No, Vu<V
SLV 12	39	-1372	4097	-31		0.29	156.18	0.89	4179			1.02	Si
SLD 8	-25	-3397	1854	138751		1.01	111.73	1.04	3473			1.87	Si
SLD 8	39	-1510	2312	10892		0.32	156.18	0.9	4207			1.82	Si
SLV 16	-25	-3737	1929	190435		1.53	81.4	1.14	2782			1.44	Si
SLV 16	39	-1499	2863	6898		0.32	156.18	0.9	4204			1.47	Si
SLD 11	-25	-3483	1950	152173		1.13	103.19	1.06	3276			1.68	Si
SLD 11	39	-1501	2515	9539		0.32	156.18	0.9	4205			1.67	Si
SLV 8	-25	-3478	3294	160382		1.21	95.95	1.08	3094			0.94	No, Vu<V
SLV 8	39	-1393	3630	3151		0.3	156.18	0.89	4183			1.15	Si
SLD 7	-25	-3397	1854	138751		1.01	111.73	1.04	3473			1.87	Si
SLD 7	39	-1510	2312	10892		0.32	156.18	0.9	4207			1.82	Si
SLV 11	-25	-3674	3514	191426		1.57	77.96	1.15	2684			0.76	No, Vu<V
SLV 11	39	-1372	4097	-31		0.29	156.18	0.89	4179			1.02	Si
SLD 12	-25	-3483	1950	152173		1.13	103.19	1.06	3276			1.68	Si
SLD 12	39	-1501	2515	9539		0.32	156.18	0.9	4205			1.67	Si
SLV 15	-25	-3737	1929	190435		1.53	81.4	1.14	2782			1.44	Si
SLV 15	39	-1499	2863	6898		0.32	156.18	0.9	4204			1.47	Si
SLV 7	-25	-3478	3294	160382		1.21	95.95	1.08	3094			0.94	No, Vu<V
SLV 7	39	-1393	3630	3151		0.3	156.18	0.89	4183			1.15	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.2 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.25	0.33	-1533	1574	22380	14.22	Si
SLV 1	14	0.25	0.33	-1533	1574	22380	14.22	Si
SLV 3	14	0.25	0.33	-1536	1574	22422	14.25	Si
SLV 4	14	0.25	0.33	-1536	1574	22422	14.25	Si
SLV 6	14	0.25	0.33	-1552	1574	22646	14.39	Si
SLV 5	14	0.25	0.33	-1552	1574	22646	14.39	Si
SLV 7	14	0.25	0.33	-1562	1574	22786	14.48	Si
SLV 8	14	0.25	0.33	-1562	1574	22786	14.48	Si
SLV 9	14	0.25	0.34	-1571	1574	22916	14.56	Si
SLV 10	14	0.25	0.34	-1571	1574	22916	14.56	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 7.2 Wa = 0.05 Ta = 0.0101

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 3	-1568	-3085	98	0.095	2.513	0.911	151.404	276.592	No
SLV 4	-1568	-3085	98	0.095	2.513	0.911	151.404	276.592	No
SLV 13	-1629	-3596	-89	0.099	2.574	0.912	158.291	276.592	No
SLV 14	-1629	-3596	-89	0.099	2.574	0.912	158.291	276.592	No
SLV 1	-1697	-2944	87	0.101	2.642	0.914	160.015	276.592	No
SLV 2	-1697	-2944	87	0.101	2.642	0.914	160.015	276.592	No
SLV 15	-1499	-3737	-78	0.104	2.445	0.909	166.078	276.592	No
SLV 16	-1499	-3737	-78	0.104	2.445	0.909	166.078	276.592	No
SLV 8	-1393	-3478	49	0.118	2.339	0.907	189.786	277.916	No
SLV 7	-1393	-3478	49	0.118	2.339	0.907	189.786	277.916	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.705	SLU 28	Si
V_SLU	1.532	SLU 70	Si
PF_SLV	1.403	SLV 11	Si
V_SLV	0.764	SLV 11	No
PFFP_SLV	14.219	SLV 1	Si
R_SLV	0.547	SLV 3	No

## Maschio 25

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1246.3	-35.4	-1246.3	104.6	Z medio -127 cm	L3	140	30	238.2	206.4	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 46	-95	-12054	125853	2.87	546505	4.342	Si
SLU 46	111	-2518	111533	0.6	163279	1.464	Si
SLU 47	-95	-11924	123975	2.84	543775	4.386	Si
SLU 47	111	-2488	109586	0.59	161473	1.473	Si
SLU 50	-95	-12000	125049	2.86	545379	4.361	Si
SLU 50	111	-2503	110789	0.6	162380	1.466	Si
SLU 49	-95	-12171	127482	2.9	548882	4.306	Si
SLU 49	111	-2545	113372	0.61	164919	1.455	Si
SLU 43	-95	-11768	121791	2.8	540407	4.437	Si
SLU 43	111	-2448	107109	0.58	159087	1.485	Si
SLU 44	-95	-11808	122346	2.81	541280	4.424	Si
SLU 44	111	-2460	107746	0.59	159826	1.483	Si
SLU 48	-95	-12147	127149	2.89	548395	4.313	Si
SLU 48	111	-2538	112990	0.6	164478	1.456	Si
SLU 7	-95	-9836	104149	2.34	490588	4.71	Si
SLU 7	111	-2089	91992	0.5	137300	1.493	Si
SLU 45	-95	-12030	125520	2.86	546006	4.35	Si
SLU 45	111	-2510	111151	0.6	162837	1.465	Si
SLU 51	-95	-12024	125382	2.86	545881	4.354	Si
SLU 51	111	-2510	111171	0.6	162822	1.465	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 13	-95	-11620	119493	2.77	629214	5.266	Si
SLD 13	111	-2874	111746	0.68	189930	1.7	Si
SLD 15	-95	-12469	134908	2.97	660775	4.898	Si
SLD 15	111	-3060	117361	0.73	201404	1.716	Si
SLV 10	-95	-8267	61811	1.97	485481	7.854	Si
SLV 10	111	-2079	82068	0.49	139628	1.701	Si
SLD 14	-95	-11620	119493	2.77	629214	5.266	Si
SLD 14	111	-2874	111746	0.68	189930	1.7	Si
SLV 9	-95	-8267	61811	1.97	485481	7.854	Si
SLV 9	111	-2079	82068	0.49	139628	1.701	Si
SLV 13	-95	-13071	135453	3.11	681941	5.035	Si
SLV 13	111	-3439	150385	0.82	224600	1.494	Si
SLV 14	-95	-13071	135453	3.11	681941	5.035	Si
SLV 14	111	-3439	150385	0.82	224600	1.494	Si
SLV 15	-95	-15051	171021	3.58	744582	4.354	Si
SLV 15	111	-3873	163710	0.92	250676	1.531	Si
SLV 16	-95	-15051	171021	3.58	744582	4.354	Si
SLV 16	111	-3873	163710	0.92	250676	1.531	Si
SLD 16	-95	-12469	134908	2.97	660775	4.898	Si
SLD 16	111	-3060	117361	0.73	201404	1.716	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	-95	-12171	-1468	127482		2.9	140	0.94	3956			2.69	Si
SLU 49	111	-2545	-752	113372		1.11	76.38	0.7	1612			2.15	Si
SLU 72	-95	-13470	-1657	143478		3.21	140	0.98	4129			2.49	Si
SLU 72	111	-2922	-823	123825		1.18	82.85	0.71	1770			2.15	Si
SLU 68	-95	-13370	-1639	142071		3.18	140	0.98	4116			2.51	Si
SLU 68	111	-2899	-812	122240		1.16	83.5	0.71	1778			2.19	Si
SLU 71	-95	-13446	-1653	143144		3.2	140	0.98	4126			2.5	Si
SLU 71	111	-2914	-822	123443		1.17	82.92	0.71	1771			2.15	Si
SLU 48	-95	-12147	-1465	127149		2.89	140	0.94	3953			2.7	Si
SLU 48	111	-2538	-750	112990		1.11	76.44	0.7	1612			2.15	Si
SLU 69	-95	-13592	-1677	145244		3.24	140	0.99	4146			2.47	Si
SLU 69	111	-2949	-835	125645		1.2	82.2	0.72	1763			2.11	Si
SLU 66	-95	-13476	-1657	143615		3.21	140	0.98	4130			2.49	Si
SLU 66	111	-2922	-822	123806		1.18	82.88	0.71	1771			2.15	Si
SLU 46	-95	-12054	-1448	125853		2.87	140	0.94	3941			2.72	Si
SLU 46	111	-2518	-739	111533		1.09	77.11	0.7	1621			2.19	Si
SLU 67	-95	-13500	-1661	143948		3.21	140	0.98	4133			2.49	Si
SLU 67	111	-2929	-824	124188		1.18	82.81	0.71	1771			2.15	Si
SLU 70	-95	-13616	-1680	145578		3.24	140	0.99	4149			2.47	Si
SLU 70	111	-2957	-836	126027		1.2	82.13	0.72	1763			2.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	-95	-13071	-1373	135453		3.11	140	1.46	6114			4.45	Si
SLV 13	111	-3439	-1106	150385		1.45	78.81	1.12	2658			2.4	Si
SLV 11	-95	-14866	-3178	180371		3.54	140	1.54	6473			2.04	Si
SLV 11	111	-3527	-516	126484		1.15	102.41	1.06	3266			6.33	Si
SLD 11	-95	-12378	-2073	138973		2.95	140	1.42	5976			2.88	Si
SLD 11	111	-2905	-535	100887		0.92	105.82	1.02	3226			6.03	Si
SLV 16	-95	-15051	-2414	171021		3.58	140	1.55	6510			2.7	Si
SLV 16	111	-3873	-993	163710		1.55	83.21	1.14	2855			2.87	Si
SLD 12	-95	-12378	-2073	138973		2.95	140	1.42	5976			2.88	Si
SLD 12	111	-2905	-535	100887		0.92	105.82	1.02	3226			6.03	Si
SLV 14	-95	-13071	-1373	135453		3.11	140	1.46	6114			4.45	Si
SLV 14	111	-3439	-1106	150385		1.45	78.81	1.12	2658			2.4	Si
SLV 8	-95	-12728	-2793	152817		3.03	140	1.44	6046			2.16	Si
SLV 8	111	-2796	-219	81252		0.76	122.81	0.99	3629			16.54	Si
SLV 7	-95	-12728	-2793	152817		3.03	140	1.44	6046			2.16	Si
SLV 7	111	-2796	-219	81252		0.76	122.81	0.99	3629			16.54	Si
SLV 15	-95	-15051	-2414	171021		3.58	140	1.55	6510			2.7	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	111	-3873	-993	163710		1.55	83.21	1.14	2855			2.87	Si
SLV 12	-95	-14866	-3178	180371		3.54	140	1.54	6473			2.04	Si
SLV 12	111	-3527	-516	126484		1.15	102.41	1.06	3266			6.33	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 7.8 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.25	0.94	-3929	4396	54425	12.38	Si
SLV 1	14	0.25	0.94	-3929	4396	54425	12.38	Si
SLV 5	14	0.25	1.12	-4702	4396	64062	14.57	Si
SLV 6	14	0.25	1.12	-4702	4396	64062	14.57	Si
SLV 3	14	0.25	1.27	-5345	4396	71830	16.34	Si
SLV 4	14	0.25	1.27	-5345	4396	71830	16.34	Si
SLV 10	14	0.25	1.61	-6780	4396	88261	20.08	Si
SLV 9	14	0.25	1.61	-6780	4396	88261	20.08	Si
SLV 7	14	0.25	2.24	-9422	4396	115386	26.25	Si
SLV 8	14	0.25	2.24	-9422	4396	115386	26.25	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 7.8 Wa = 0.05 Ta = 0.0316

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	-1001	-5944	169	0.004	2.54	0.889	6.5	380.134	No
SLV 1	-1001	-5944	169	0.004	2.54	0.889	6.5	380.134	No
SLV 4	-1435	-7924	180	0.01	2.95	0.894	16.646	380.134	No
SLV 3	-1435	-7924	180	0.01	2.95	0.894	16.646	380.134	No
SLV 14	-3439	-13071	-197	0.031	4.936	0.924	48.042	380.134	No
SLV 13	-3439	-13071	-197	0.031	4.936	0.924	48.042	380.134	No
SLV 16	-3873	-15051	-186	0.036	5.373	0.929	56.009	380.134	No
SLV 15	-3873	-15051	-186	0.036	5.373	0.929	56.009	380.134	No
SLV 10	-2079	-8267	-82	0.054	3.578	0.905	87.503	386.444	No
SLV 9	-2079	-8267	-82	0.054	3.578	0.905	87.503	386.444	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.455	SLU 49	Si
V_SLU	2.109	SLU 70	Si
PF_SLV	1.494	SLV 13	Si
V_SLV	2.037	SLV 11	Si
PFFP_SLV	12.379	SLV 1	Si
R_SLV	0.017	SLV 1	No

## Maschio 26

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-1963.8	104.6	-2465.3	104.6	L1	L3	501.5	45	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	-159	-107257	446126	4.75	11202868	25.111	Si
SLU 74	51	-102357	-1495293	4.54	11375203	7.607	Si
SLU 75	-159	-107007	452637	4.74	11213257	24.773	Si
SLU 75	51	-102046	-1449572	4.52	11383937	7.853	Si
SLU 82	-159	-110125	443682	4.88	11071633	24.954	Si
SLU 82	51	-105394	-1499330	4.67	11276109	7.521	Si
SLU 80	-159	-107757	431601	4.77	11181592	25.907	Si
SLU 80	51	-102843	-1492697	4.56	11361038	7.611	Si
SLU 79	-159	-108008	425090	4.79	11170690	26.278	Si
SLU 79	51	-103154	-1538418	4.57	11351627	7.379	Si
SLU 83	-159	-111804	438636	4.95	10984347	25.042	Si
SLU 83	51	-107243	-1595896	4.75	11203460	7.02	Si
SLU 81	-159	-110375	437171	4.89	11059115	25.297	Si
SLU 81	51	-105705	-1545051	4.68	11264532	7.291	Si
SLU 77	-159	-108687	447591	4.82	11140258	24.889	Si
SLU 77	51	-103895	-1546138	4.6	11328178	7.327	Si
SLU 78	-159	-108436	454102	4.8	11151623	24.558	Si
SLU 78	51	-103583	-1500417	4.59	11338218	7.557	Si
SLU 84	-159	-111554	445147	4.94	10997841	24.706	Si
SLU 84	51	-106932	-1550175	4.74	11216343	7.236	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	-159	-79195	7524798	3.51	14154870	1.881	Si
SLV 1	51	-87454	-463340	3.88	14974231	32.318	Si
SLV 13	-159	-64973	-7722735	2.88	12453163	1.613	Si
SLV 13	51	-49711	-1923284	2.2	10217790	5.313	Si
SLV 2	-159	-79195	7524798	3.51	14154870	1.881	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	51	-87454	-463340	3.88	14974231	32.318	Si
SLV 8	-159	-76253	3910374	3.38	13832989	3.538	Si
SLV 8	51	-71809	145955	3.18	13317031	91.241	Si
SLV 16	-159	-65912	-6927867	2.92	12576911	1.815	Si
SLV 16	51	-48587	-1406234	2.15	10036452	7.137	Si
SLV 4	-159	-80135	8319665	3.55	14254319	1.713	Si
SLV 4	51	-86331	53710	3.83	14870035	276.857	Si
SLV 14	-159	-64973	-7722735	2.88	12453163	1.613	Si
SLV 14	51	-49711	-1923284	2.2	10217790	5.313	Si
SLV 3	-159	-80135	8319665	3.55	14254319	1.713	Si
SLV 3	51	-86331	53710	3.83	14870035	276.857	Si
SLV 7	-159	-76253	3910374	3.38	13832989	3.538	Si
SLV 7	51	-71809	145955	3.18	13317031	91.241	Si
SLV 15	-159	-65912	-6927867	2.92	12576911	1.815	Si
SLV 15	51	-48587	-1406234	2.15	10036452	7.137	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	-159	-108436	15967	454102		4.8	501.5	1.08	24448			1.53	Si
SLU 78	51	-103583	16207	-1500417		4.59	501.5	1.08	24448			1.51	Si
SLU 77	-159	-108687	16226	447591		4.82	501.5	1.08	24448			1.51	Si
SLU 77	51	-103895	16476	-1546138		4.6	501.5	1.08	24448			1.48	Si
SLU 83	-159	-111804	16694	438636		4.95	501.5	1.08	24448			1.46	Si
SLU 83	51	-107243	16947	-1595896		4.75	501.5	1.08	24448			1.44	Si
SLU 84	-159	-111554	16436	445147		4.94	501.5	1.08	24448			1.49	Si
SLU 84	51	-106932	16678	-1550175		4.74	501.5	1.08	24448			1.47	Si
SLU 80	-159	-107757	15750	431601		4.77	501.5	1.08	24448			1.55	Si
SLU 80	51	-102843	15989	-1492697		4.56	501.5	1.08	24448			1.53	Si
SLU 79	-159	-108008	16009	425090		4.79	501.5	1.08	24448			1.53	Si
SLU 79	51	-103154	16258	-1538418		4.57	501.5	1.08	24448			1.5	Si
SLU 74	-159	-107257	15848	446126		4.75	501.5	1.08	24448			1.54	Si
SLU 74	51	-102357	16095	-1495293		4.54	501.5	1.08	24448			1.52	Si
SLU 81	-159	-110375	16317	437171		4.89	501.5	1.08	24448			1.5	Si
SLU 81	51	-105705	16565	-1545051		4.68	501.5	1.08	24448			1.48	Si
SLU 82	-159	-110125	16058	443682		4.88	501.5	1.08	24448			1.52	Si
SLU 82	51	-105394	16296	-1499330		4.67	501.5	1.08	24448			1.5	Si
SLU 75	-159	-107007	15589	452637		4.74	501.5	1.08	24448			1.57	Si
SLU 75	51	-102046	15826	-1449572		4.52	501.5	1.08	24448			1.54	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 3	-159	-75872	30790	3801142		3.36	501.5	1.51	33981			1.1	Si
SLD 3	51	-76002	29819	-517831		3.37	501.5	1.51	34007			1.14	Si
SLV 13	-159	-64973	-37425	-7722735		3.65	395.67	1.56	27832			0.74	No, Vu<V
SLV 13	51	-49711	-34668	-1923284		2.2	501.5	1.27	28748			0.83	No, Vu<V
SLV 16	-159	-65912	-35225	-6927867		3.35	436.93	1.5	29567			0.84	No, Vu<V
SLV 16	51	-48587	-33574	-1406234		2.15	501.5	1.26	28524			0.85	No, Vu<V
SLV 2	-159	-79195	55315	7524798		3.77	467.2	1.59	33359			0.6	No, Vu<V
SLV 2	51	-87454	54006	-463340		3.88	501.5	1.61	36297			0.67	No, Vu<V
SLV 1	-159	-79195	55315	7524798		3.77	467.2	1.59	33359			0.6	No, Vu<V
SLV 1	51	-87454	54006	-463340		3.88	501.5	1.61	36297			0.67	No, Vu<V
SLV 14	-159	-64973	-37425	-7722735		3.65	395.67	1.56	27832			0.74	No, Vu<V
SLV 14	51	-49711	-34668	-1923284		2.2	501.5	1.27	28748			0.83	No, Vu<V
SLV 15	-159	-65912	-35225	-6927867		3.35	436.93	1.5	29567			0.84	No, Vu<V
SLV 15	51	-48587	-33574	-1406234		2.15	501.5	1.26	28524			0.85	No, Vu<V
SLV 4	-159	-80135	57514	8319665		4.04	440.79	1.63	32233			0.56	No, Vu<V
SLV 4	51	-86331	55100	53710		3.83	501.5	1.6	36072			0.65	No, Vu<V
SLV 3	-159	-80135	57514	8319665		4.04	440.79	1.63	32233			0.56	No, Vu<V
SLV 3	51	-86331	55100	53710		3.83	501.5	1.6	36072			0.65	No, Vu<V
SLD 4	-159	-75872	30790	3801142		3.36	501.5	1.51	33981			1.1	Si
SLD 4	51	-76002	29819	-517831		3.37	501.5	1.51	34007			1.14	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.24	2.41	-54495	30146	983816	32.64	Si
SLV 15	14	0.24	2.41	-54495	30146	983816	32.64	Si
SLV 14	14	0.24	2.43	-54889	30146	989174	32.81	Si
SLV 13	14	0.24	2.43	-54889	30146	989174	32.81	Si
SLV 12	14	0.24	2.86	-64565	30146	1112563	36.91	Si
SLV 11	14	0.24	2.86	-64565	30146	1112563	36.91	Si
SLV 9	14	0.24	2.92	-65881	30146	1128163	37.42	Si
SLV 10	14	0.24	2.92	-65881	30146	1128163	37.42	Si
SLV 7	14	0.24	3.26	-73591	30146	1213899	40.27	Si
SLV 8	14	0.24	3.26	-73591	30146	1213899	40.27	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-66106	-73121	314	0.085	75.883	0.966	128.402	352.938	No
SLV 6	-66106	-73121	314	0.085	75.883	0.966	128.402	352.938	No
SLV 10	-59131	-68855	340	0.085	68.785	0.963	128.556	352.938	No
SLV 9	-59131	-68855	340	0.085	68.785	0.963	128.556	352.938	No
SLV 7	-61545	-76253	-259	0.086	71.241	0.964	130.113	352.938	No
SLV 8	-61545	-76253	-259	0.086	71.241	0.964	130.113	352.938	No
SLV 12	-54570	-71986	-233	0.087	64.146	0.96	131.774	352.938	No
SLV 11	-54570	-71986	-233	0.087	64.146	0.96	131.774	352.938	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 2	-72647	-79195	83	0.088	82.541	0.968	132.241	348.092	No
SLV 1	-72647	-79195	83	0.088	82.541	0.968	132.241	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.02	SLU 83	Si
V_SLU	1.443	SLU 83	Si
PF_SLV	1.613	SLV 13	Si
V_SLV	0.56	SLV 3	No
PFFP_SLV	32.635	SLV 15	Si
R_SLV	0.364	SLV 5	No

## Maschio 27

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1506.3	104.6	-1883.8	104.6	L1	L3	377.5	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 83	-159	-112664	-566250	6.63	3951533	6.978	Si
SLU 83	51	-109281	-624510	6.43	4337177	6.945	Si
SLU 84	-159	-111668	-630750	6.57	4068284	6.45	Si
SLU 84	51	-108671	-664332	6.4	4403395	6.628	Si
SLU 75	-159	-107139	-611225	6.31	4565222	7.469	Si
SLU 75	51	-103918	-634784	6.12	4884450	7.695	Si
SLU 81	-159	-110869	-572402	6.53	4160087	7.268	Si
SLU 81	51	-107514	-667167	6.33	4526213	6.784	Si
SLU 76	-159	-105568	-652042	6.21	4724457	7.246	Si
SLU 76	51	-102534	-639133	6.04	5013049	7.844	Si
SLU 77	-159	-109930	-540572	6.47	4265614	7.891	Si
SLU 77	51	-106296	-552305	6.26	4651498	8.422	Si
SLU 82	-159	-109873	-636902	6.47	4271960	6.707	Si
SLU 82	51	-106903	-706989	6.29	4589489	6.492	Si
SLU 80	-159	-108027	-602889	6.36	4472129	7.418	Si
SLU 80	51	-104708	-569928	6.16	4808840	8.438	Si
SLU 73	-159	-103772	-658194	6.11	4898253	7.442	Si
SLU 73	51	-100766	-681789	5.93	5169553	7.582	Si
SLU 78	-159	-108934	-605073	6.41	4374938	7.23	Si
SLU 78	51	-105686	-592127	6.22	4712747	7.959	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 16	-159	-86814	-6149767	5.11	9532672	1.55	Si
SLV 16	51	-76725	947735	4.52	9128777	9.632	Si
SLV 10	-159	-61033	-3382980	3.59	8132604	2.404	Si
SLV 10	51	-58394	826578	3.44	7921128	9.583	Si
SLV 13	-159	-78156	-6846330	4.6	9197296	1.343	Si
SLV 13	51	-69537	1402198	4.09	8728058	6.225	Si
SLV 14	-159	-78156	-6846330	4.6	9197296	1.343	Si
SLV 14	51	-69537	1402198	4.09	8728058	6.225	Si
SLV 3	-159	-66752	6067393	3.93	8547523	1.409	Si
SLV 3	51	-68849	-2211766	4.05	8684778	3.927	Si
SLV 4	-159	-66752	6067393	3.93	8547523	1.409	Si
SLV 4	51	-68849	-2211766	4.05	8684778	3.927	Si
SLV 1	-159	-58094	5370831	3.42	7896236	1.47	Si
SLV 1	51	-61661	-1757304	3.63	8181090	4.655	Si
SLV 15	-159	-86814	-6149767	5.11	9532672	1.55	Si
SLV 15	51	-76725	947735	4.52	9128777	9.632	Si
SLV 9	-159	-61033	-3382980	3.59	8132604	2.404	Si
SLV 9	51	-58394	826578	3.44	7921128	9.583	Si
SLV 2	-159	-58094	5370831	3.42	7896236	1.47	Si
SLV 2	51	-61661	-1757304	3.63	8181090	4.655	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	-159	-107139	3794	-611225		6.31	377.5	1.08	18403			4.85	Si
SLU 75	51	-103918	3607	-634784		6.12	377.5	1.08	18403			5.1	Si
SLU 76	-159	-105568	3756	-652042		6.21	377.5	1.08	18403			4.9	Si
SLU 76	51	-102534	3568	-639133		6.04	377.5	1.08	18403			5.16	Si
SLU 40	-159	-94127	3758	-543219		5.54	377.5	1.08	18403			4.9	Si
SLU 40	51	-92432	3590	-615857		5.44	377.5	1.08	18403			5.13	Si
SLU 83	-159	-112664	3842	-566250		6.63	377.5	1.08	18403			4.79	Si
SLU 83	51	-109281	3651	-624510		6.43	377.5	1.08	18403			5.04	Si
SLU 81	-159	-110869	4035	-572402		6.53	377.5	1.08	18403			4.56	Si
SLU 81	51	-107514	3847	-667167		6.33	377.5	1.08	18403			4.78	Si
SLU 73	-159	-103772	3950	-658194		6.11	377.5	1.08	18403			4.66	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	51	-100766	3763	-681789		5.93	377.5	1.08	18403			4.89	Si
SLU 84	-159	-111668	4007	-630750		6.57	377.5	1.08	18403			4.59	Si
SLU 84	51	-108671	3812	-664332		6.4	377.5	1.08	18403			4.83	Si
SLU 74	-159	-108134	3629	-546724		6.37	377.5	1.08	18403			5.07	Si
SLU 74	51	-104529	3446	-594962		6.15	377.5	1.08	18403			5.34	Si
SLU 61	-159	-98431	3776	-593001		5.79	377.5	1.08	18403			4.87	Si
SLU 61	51	-94908	3603	-660429		5.59	377.5	1.08	18403			5.11	Si
SLU 82	-159	-109873	4201	-636902		6.47	377.5	1.08	18403			4.38	Si
SLU 82	51	-106903	4007	-706989		6.29	377.5	1.08	18403			4.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	-159	-86814	-35649	-6149767		5.45	353.73	1.63	25867			0.73	No, Vu<V
SLV 16	51	-76725	-34667	947735		4.52	377.5	1.63	27605			0.8	No, Vu<V
SLD 4	-159	-69874	20255	2427583		4.11	377.5	1.63	27605			1.36	Si
SLD 4	51	-68951	19511	-1190763		4.06	377.5	1.63	27605			1.41	Si
SLV 13	-159	-78156	-38716	-6846330		5.72	303.45	1.63	22190			0.57	No, Vu<V
SLV 13	51	-69537	-37403	1402198		4.09	377.5	1.63	27605			0.74	No, Vu<V
SLD 3	-159	-69874	20255	2427583		4.11	377.5	1.63	27605			1.36	Si
SLD 3	51	-68951	19511	-1190763		4.06	377.5	1.63	27605			1.41	Si
SLV 14	-159	-78156	-38716	-6846330		5.72	303.45	1.63	22190			0.57	No, Vu<V
SLV 14	51	-69537	-37403	1402198		4.09	377.5	1.63	27605			0.74	No, Vu<V
SLV 15	-159	-86814	-35649	-6149767		5.45	353.73	1.63	25867			0.73	No, Vu<V
SLV 15	51	-76725	-34667	947735		4.52	377.5	1.63	27605			0.8	No, Vu<V
SLV 1	-159	-58094	40299	5370831		4.47	288.9	1.63	21126			0.52	No, Vu<V
SLV 1	51	-61661	39073	-1757304		3.63	377.5	1.56	26488			0.68	No, Vu<V
SLV 4	-159	-66752	43367	6067393		5.05	293.57	1.63	21467			0.5	No, Vu<V
SLV 4	51	-68849	41809	-2211766		4.05	377.5	1.63	27605			0.66	No, Vu<V
SLV 2	-159	-58094	40299	5370831		4.47	288.9	1.63	21126			0.52	No, Vu<V
SLV 2	51	-61661	39073	-1757304		3.63	377.5	1.56	26488			0.68	No, Vu<V
SLV 3	-159	-66752	43367	6067393		5.05	293.57	1.63	21467			0.5	No, Vu<V
SLV 3	51	-68849	41809	-2211766		4.05	377.5	1.63	27605			0.66	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.24	3.33	-56582	22692	926055	40.81	Si
SLV 5	14	0.24	3.33	-56582	22692	926055	40.81	Si
SLV 9	14	0.24	3.55	-60292	22692	962523	42.42	Si
SLV 10	14	0.24	3.55	-60292	22692	962523	42.42	Si
SLV 2	14	0.24	3.57	-60711	22692	966460	42.59	Si
SLV 1	14	0.24	3.57	-60711	22692	966460	42.59	Si
SLV 4	14	0.24	4	-67960	22692	1028453	45.32	Si
SLV 3	14	0.24	4	-67960	22692	1028453	45.32	Si
SLV 13	14	0.24	4.3	-73077	22692	1065351	46.95	Si
SLV 14	14	0.24	4.3	-73077	22692	1065351	46.95	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-52211	-55014	2763	0.04	59.614	0.967	60.7	352.938	No
SLV 5	-52211	-55014	2763	0.04	59.614	0.967	60.7	352.938	No
SLV 10	-53959	-61033	2674	0.043	61.394	0.968	64.878	352.938	No
SLV 9	-53959	-61033	2674	0.043	61.394	0.968	64.878	352.938	No
SLV 12	-72954	-89893	-2914	0.05	80.736	0.975	74.501	352.938	No
SLV 11	-72954	-89893	-2914	0.05	80.736	0.975	74.501	352.938	No
SLV 7	-71206	-83875	-2825	0.05	78.956	0.975	75.144	352.938	No
SLV 8	-71206	-83875	-2825	0.05	78.956	0.975	75.144	352.938	No
SLV 16	-68345	-86814	-1061	0.073	76.042	0.974	109.591	348.092	No
SLV 15	-68345	-86814	-1061	0.073	76.042	0.974	109.591	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.45	SLU 84	Si
V_SLU	4.381	SLU 82	Si
PF_SLV	1.343	SLV 13	Si
V_SLV	0.495	SLV 3	No
PFFP_SLV	40.81	SLV 5	Si
R_SLV	0.172	SLV 5	No

## Maschio 28

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1358.3	104.6	-1406.3	104.6	L1	L3	48	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	-159	-17274	-22302	8	7556	0.339	No, $M > M_u$
SLU 78	57	-10283	-122358	4.76	102562	0.838	No, $M > M_u$
SLU 74	-159	-17114	-21702	7.92	11237	0.518	No, $M > M_u$
SLU 74	57	-10165	-120975	4.71	103020	0.852	No, $M > M_u$
SLU 80	-159	-17085	-22248	7.91	11882	0.534	No, $M > M_u$
SLU 80	57	-10168	-120992	4.71	103007	0.851	No, $M > M_u$
SLU 84	-159	-17923	-22366	8.3	0	0	No, Rottura per schiacciamento
SLU 84	57	-10624	-126468	4.92	101020	0.799	No, $M > M_u$
SLU 81	-159	-17762	-21766	8.22	0	0	No, Rottura per schiacciamento
SLU 81	57	-10506	-125086	4.86	101588	0.812	No, $M > M_u$
SLU 75	-159	-17188	-21591	7.96	9549	0.442	No, $M > M_u$
SLU 75	57	-10160	-120908	4.7	103038	0.852	No, $M > M_u$
SLU 83	-159	-17849	-22477	8.26	0	0	No, Rottura per schiacciamento
SLU 83	57	-10629	-126536	4.92	100996	0.798	No, $M > M_u$
SLU 77	-159	-17200	-22413	7.96	9261	0.413	No, $M > M_u$
SLU 77	57	-10287	-122426	4.76	102542	0.838	No, $M > M_u$
SLU 76	-159	-17048	-21463	7.89	12722	0.593	No, $M > M_u$
SLU 76	57	-10043	-119497	4.65	103455	0.866	No, $M > M_u$
SLU 82	-159	-17836	-21655	8.26	0	0	No, Rottura per schiacciamento
SLU 82	57	-10501	-125018	4.86	101610	0.813	No, $M > M_u$

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	-159	-7338	119316	3.4	127145	1.066	Si
SLV 1	57	-4056	-54408	1.88	82390	1.514	Si
SLV 14	-159	-11883	-150297	5.5	156787	1.043	Si
SLV 14	57	-8655	-96095	4.01	139600	1.453	Si
SLV 12	-159	-18653	-52152	8.64	131280	2.517	Si
SLV 12	57	-8706	-102679	4.03	140022	1.364	Si
SLV 15	-159	-15742	-148552	7.29	152463	1.026	Si
SLV 15	57	-9421	-105868	4.36	145397	1.373	Si
SLV 13	-159	-11883	-150297	5.5	156787	1.043	Si
SLV 13	57	-8655	-96095	4.01	139600	1.453	Si
SLV 11	-159	-18653	-52152	8.64	131280	2.517	Si
SLV 11	57	-8706	-102679	4.03	140022	1.364	Si
SLV 16	-159	-15742	-148552	7.29	152463	1.026	Si
SLV 16	57	-9421	-105868	4.36	145397	1.373	Si
SLV 4	-159	-11197	121061	5.18	154719	1.278	Si
SLV 4	57	-4823	-64181	2.23	94598	1.474	Si
SLV 2	-159	-7338	119316	3.4	127145	1.066	Si
SLV 2	57	-4056	-54408	1.88	82390	1.514	Si
SLV 3	-159	-11197	121061	5.18	154719	1.278	Si
SLV 3	57	-4823	-64181	2.23	94598	1.474	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	-159	-17188	-281	-21591		7.96	48	1.08	2340			8.34	Si
SLU 75	57	-10160	317	-120908		6.22	36.3	1.08	1770			5.59	Si
SLU 74	-159	-17114	-285	-21702		7.92	48	1.08	2340			8.22	Si
SLU 74	57	-10165	319	-120975		6.22	36.3	1.08	1769			5.55	Si
SLU 79	-159	-17011	-295	-22358		7.88	48	1.08	2340			7.93	Si
SLU 79	57	-10173	324	-121060		6.23	36.3	1.08	1770			5.46	Si
SLU 77	-159	-17200	-296	-22413		7.96	48	1.08	2340			7.91	Si
SLU 77	57	-10287	326	-122426		6.3	36.3	1.08	1770			5.43	Si
SLU 78	-159	-17274	-292	-22302		8	48	1.08	2340			8.02	Si
SLU 78	57	-10283	324	-122358		6.29	36.3	1.08	1770			5.47	Si
SLU 81	-159	-17762	-284	-21766		8.22	48	1.08	2340			8.24	Si
SLU 81	57	-10506	327	-125086		6.43	36.28	1.08	1769			5.42	Si
SLU 80	-159	-17085	-291	-22248		7.91	48	1.08	2340			8.04	Si
SLU 80	57	-10168	322	-120992		6.22	36.3	1.08	1770			5.5	Si
SLU 82	-159	-17836	-280	-21655		8.26	48	1.08	2340			8.35	Si
SLU 82	57	-10501	324	-125018		6.43	36.29	1.08	1769			5.45	Si
SLU 83	-159	-17849	-295	-22477		8.26	48	1.08	2340			7.92	Si
SLU 83	57	-10629	334	-126536		6.51	36.28	1.08	1769			5.3	Si
SLU 84	-159	-17923	-291	-22366		8.3	48	1.08	2340			8.03	Si
SLU 84	57	-10624	331	-126468		6.51	36.29	1.08	1769			5.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	-159	-5790	-742	-57969		3.07	41.97	1.45	2732			3.68	Si
SLV 10	57	-6151	158	-70102		3.62	37.81	1.56	2648			16.76	Si
SLV 16	-159	-15742	-1466	-148552		8.01	43.69	1.63	3195			2.18	Si
SLV 16	57	-9421	127	-105868		5.47	38.29	1.63	2800			22	Si
SLV 9	-159	-5790	-742	-57969		3.07	41.97	1.45	2732			3.68	Si
SLV 9	57	-6151	158	-70102		3.62	37.81	1.56	2648			16.76	Si
SLV 4	-159	-11197	1184	121061		6.29	39.56	1.63	2893			2.44	Si
SLV 4	57	-4823	313	-64181		3.34	32.08	1.5	2167			6.92	Si
SLV 13	-159	-11883	-1560	-150297		7.75	34.06	1.63	2490			1.6	Si
SLV 13	57	-8655	111	-96095		4.97	38.69	1.63	2829			25.39	Si
SLV 15	-159	-15742	-1466	-148552		8.01	43.69	1.63	3195			2.18	Si
SLV 15	57	-9421	127	-105868		5.47	38.29	1.63	2800			22	Si
SLV 14	-159	-11883	-1560	-150297		7.75	34.06	1.63	2490			1.6	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	57	-8655	111	-96095		4.97	38.69	1.63	2829			25.39	Si
SLV 2	-159	-7338	1089	119316		7.02	23.22	1.63	1698			1.56	Si
SLV 2	57	-4056	298	-54408		2.84	31.76	1.4	2002			6.73	Si
SLV 1	-159	-7338	1089	119316		7.02	23.22	1.63	1698			1.56	Si
SLV 1	57	-4056	298	-54408		2.84	31.76	1.4	2002			6.73	Si
SLV 3	-159	-11197	1184	121061		6.29	39.56	1.63	2893			2.44	Si
SLV 3	57	-4823	313	-64181		3.34	32.08	1.5	2167			6.92	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore  $8 \gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.24	2.45	-5298	2885	95281	33.02	Si
SLV 2	14	0.24	2.45	-5298	2885	95281	33.02	Si
SLV 5	14	0.24	3.18	-6872	2885	114361	39.64	Si
SLV 6	14	0.24	3.18	-6872	2885	114361	39.64	Si
SLV 4	14	0.24	3.33	-7187	2885	117673	40.78	Si
SLV 3	14	0.24	3.33	-7187	2885	117673	40.78	Si
SLV 16	14	0.24	8.32	-17979	2885	128959	44.69	Si
SLV 15	14	0.24	8.32	-17979	2885	128959	44.69	Si
SLV 11	14	0.24	7.59	-16405	2885	139680	48.41	Si
SLV 12	14	0.24	7.59	-16405	2885	139680	48.41	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-6043	-5790	48	0.083	6.974	0.965	124.504	352.938	No
SLV 10	-6043	-5790	48	0.083	6.974	0.965	124.504	352.938	No
SLV 5	-4479	-4427	48	0.083	5.383	0.955	125.625	352.938	No
SLV 6	-4479	-4427	48	0.083	5.383	0.955	125.625	352.938	No
SLV 12	-8906	-18653	-32	0.085	9.889	0.974	126.114	352.938	No
SLV 11	-8906	-18653	-32	0.085	9.889	0.974	126.114	352.938	No
SLV 8	-7341	-17289	-33	0.085	8.295	0.97	126.929	352.938	No
SLV 7	-7341	-17289	-33	0.085	8.295	0.97	126.929	352.938	No
SLV 13	-8871	-11883	21	0.086	9.853	0.974	127.908	348.092	No
SLV 14	-8871	-11883	21	0.086	9.853	0.974	127.908	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 81	No
V_SLU	5.303	SLU 83	Si
PF_SLV	1.026	SLV 15	Si
V_SLV	1.558	SLV 1	Si
PFFP_SLV	33.023	SLV 1	Si
R_SLV	0.353	SLV 9	No

## Maschio 29

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1223.8	104.6	-1261.3	104.6	L1	L3	37.5	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	-159	-10124	-15562	6	50015	3.214	Si
SLU 75	57	-7760	-4583	4.6	63361	13.824	Si
SLU 78	-159	-10208	-15943	6.05	49267	3.09	Si
SLU 78	57	-7838	-4560	4.64	63166	13.851	Si
SLU 77	-159	-10190	-15878	6.04	49424	3.113	Si
SLU 77	57	-7825	-4563	4.64	63200	13.85	Si
SLU 82	-159	-10486	-15702	6.21	46625	2.969	Si
SLU 82	57	-8033	-4858	4.76	62598	12.885	Si
SLU 80	-159	-10105	-15769	5.99	50190	3.183	Si
SLU 80	57	-7750	-4503	4.59	63386	14.077	Si
SLU 83	-159	-10552	-16018	6.25	45969	2.87	Si
SLU 83	57	-8097	-4838	4.8	62390	12.896	Si
SLU 84	-159	-10570	-16083	6.26	45795	2.847	Si
SLU 84	57	-8110	-4835	4.81	62346	12.894	Si
SLU 74	-159	-10107	-15497	5.99	50169	3.237	Si
SLU 74	57	-7747	-4586	4.59	63392	13.822	Si
SLU 79	-159	-10087	-15705	5.98	50343	3.206	Si
SLU 79	57	-7737	-4506	4.58	63417	14.075	Si
SLU 81	-159	-10469	-15637	6.2	46796	2.993	Si
SLU 81	57	-8020	-4861	4.75	62639	12.886	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	-159	-3498	42459	2.07	54467	1.283	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	57	-2867	-16868	1.7	46283	2.744	Si
SLV 1	-159	-2115	42389	0	0	0	No, $e>l/2$
SLV 1	57	-1975	-16556	1.17	33484	2.023	Si
SLV 4	-159	-3498	42459	2.07	54467	1.283	Si
SLV 4	57	-2867	-16868	1.7	46283	2.744	Si
SLV 15	-159	-11481	-63105	6.8	95403	1.512	Si
SLV 15	57	-8341	10492	4.94	93127	8.876	Si
SLV 13	-159	-10098	-63175	5.98	96611	1.529	Si
SLV 13	57	-7448	10804	4.41	89208	8.257	Si
SLV 16	-159	-11481	-63105	6.8	95403	1.512	Si
SLV 16	57	-8341	10492	4.94	93127	8.876	Si
SLV 14	-159	-10098	-63175	5.98	96611	1.529	Si
SLV 14	57	-7448	10804	4.41	89208	8.257	Si
SLD 14	-159	-8237	-33587	4.88	92747	2.761	Si
SLD 14	57	-6155	3083	3.65	80957	26.262	Si
SLD 13	-159	-8237	-33587	4.88	92747	2.761	Si
SLD 13	57	-6155	3083	3.65	80957	26.262	Si
SLV 2	-159	-2115	42389	0	0	0	No, $e>l/2$
SLV 2	57	-1975	-16556	1.17	33484	2.023	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	-159	-10033	-135	-15432		5.95	37.5	1.08	1828			13.53	Si
SLU 76	57	-7681	-539	-4524		4.55	37.5	1.08	1828			3.39	Si
SLU 83	-159	-10552	-140	-16018		6.25	37.5	1.08	1828			13.03	Si
SLU 83	57	-8097	-569	-4838		4.8	37.5	1.08	1828			3.21	Si
SLU 80	-159	-10105	-139	-15769		5.99	37.5	1.08	1828			13.19	Si
SLU 80	57	-7750	-540	-4503		4.59	37.5	1.08	1828			3.39	Si
SLU 81	-159	-10469	-137	-15637		6.2	37.5	1.08	1828			13.39	Si
SLU 81	57	-8020	-567	-4861		4.75	37.5	1.08	1828			3.22	Si
SLU 82	-159	-10486	-137	-15702		6.21	37.5	1.08	1828			13.34	Si
SLU 82	57	-8033	-569	-4858		4.76	37.5	1.08	1828			3.22	Si
SLU 78	-159	-10208	-140	-15943		6.05	37.5	1.08	1828			13.05	Si
SLU 78	57	-7838	-548	-4560		4.64	37.5	1.08	1828			3.34	Si
SLU 75	-159	-10124	-136	-15562		6	37.5	1.08	1828			13.41	Si
SLU 75	57	-7760	-546	-4583		4.6	37.5	1.08	1828			3.35	Si
SLU 74	-159	-10107	-136	-15497		5.99	37.5	1.08	1828			13.47	Si
SLU 74	57	-7747	-545	-4586		4.59	37.5	1.08	1828			3.35	Si
SLU 84	-159	-10570	-141	-16083		6.26	37.5	1.08	1828			12.98	Si
SLU 84	57	-8110	-570	-4835		4.81	37.5	1.08	1828			3.21	Si
SLU 77	-159	-10190	-140	-15878		6.04	37.5	1.08	1828			13.1	Si
SLU 77	57	-7825	-547	-4563		4.64	37.5	1.08	1828			3.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 3	-159	-5359	100	12871		3.18	37.5	1.47	2478			24.78	Si
SLD 3	57	-4160	-593	-9146		2.47	37.5	1.33	2238			3.78	Si
SLD 2	-159	-4762	103	12834		2.82	37.5	1.4	2359			22.86	Si
SLD 2	57	-3780	-520	-8999		2.24	37.5	1.28	2162			4.15	Si
SLD 4	-159	-5359	100	12871		3.18	37.5	1.47	2478			24.78	Si
SLD 4	57	-4160	-593	-9146		2.47	37.5	1.33	2238			3.78	Si
SLV 1	-159	-2115	350	42389		0	0	0.83	0			0	No, $V_u < V$
SLV 1	57	-1975	-719	-16556		1.41	31.1	1.12	1561			2.17	Si
SLD 1	-159	-4762	103	12834		2.82	37.5	1.4	2359			22.86	Si
SLD 1	57	-3780	-520	-8999		2.24	37.5	1.28	2162			4.15	Si
SLV 7	-159	-7907	28	5593		4.69	37.5	1.63	2742			99.36	Si
SLV 7	57	-5824	-783	-7656		3.45	37.5	1.52	2571			3.28	Si
SLV 2	-159	-2115	350	42389		0	0	0.83	0			0	No, $V_u < V$
SLV 2	57	-1975	-719	-16556		1.41	31.1	1.12	1561			2.17	Si
SLV 8	-159	-7907	28	5593		4.69	37.5	1.63	2742			99.36	Si
SLV 8	57	-5824	-783	-7656		3.45	37.5	1.52	2571			3.28	Si
SLV 4	-159	-3498	342	42459		3.92	19.84	1.62	1444			4.22	Si
SLV 4	57	-2867	-892	-16868		1.7	37.5	1.17	1980			2.22	Si
SLV 3	-159	-3498	342	42459		3.92	19.84	1.62	1444			4.22	Si
SLV 3	57	-2867	-892	-16868		1.7	37.5	1.17	1980			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.24	2.24	-3785	2254	69536	30.85	Si
SLV 2	14	0.24	2.24	-3785	2254	69536	30.85	Si
SLV 6	14	0.24	2.53	-4267	2254	76134	33.78	Si
SLV 5	14	0.24	2.53	-4267	2254	76134	33.78	Si
SLV 3	14	0.24	3.08	-5204	2254	87536	38.83	Si
SLV 4	14	0.24	3.08	-5204	2254	87536	38.83	Si
SLV 9	14	0.24	3.61	-6097	2254	96622	42.86	Si
SLV 10	14	0.24	3.61	-6097	2254	96622	42.86	Si
SLV 7	14	0.24	5.33	-8995	2254	114096	50.62	Si
SLV 8	14	0.24	5.33	-8995	2254	114096	50.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-1984	-3498	68	0.069	2.669	0.934	107.464	348.092	No
SLV 3	-1984	-3498	68	0.069	2.669	0.934	107.464	348.092	No
SLV 8	-5385	-7907	66	0.078	6.124	0.968	116.813	352.938	No
SLV 7	-5385	-7907	66	0.078	6.124	0.968	116.813	352.938	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 12	-7515	-10302	40	0.083	8.293	0.976	122.97	352.938	No
SLV 11	-7515	-10302	40	0.083	8.293	0.976	122.97	352.938	No
SLV 10	-4898	-5690	-40	0.082	5.628	0.966	123.691	352.938	No
SLV 9	-4898	-5690	-40	0.082	5.628	0.966	123.691	352.938	No
SLV 13	-8299	-10098	-43	0.082	9.092	0.978	122.4	348.092	No
SLV 14	-8299	-10098	-43	0.082	9.092	0.978	122.4	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.847	SLU 84	Si
V_SLU	3.206	SLU 84	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	30.848	SLV 1	Si
R_SLV	0.309	SLV 3	No

## Maschio 30

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1071.3	104.6	-1123.8	104.6	L1	L3	52.5	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 76	-159	-18110	18574	7.67	28028	1.509	Si
SLU 76	57	-11064	26712	4.68	123458	4.622	Si
SLU 83	-159	-19010	20693	8.05	6078	0.294	No, M>Mu
SLU 83	57	-11748	28051	4.97	120130	4.283	Si
SLU 75	-159	-18270	18917	7.73	24277	1.283	Si
SLU 75	57	-11188	26931	4.74	122949	4.565	Si
SLU 81	-159	-19037	20682	8.06	5388	0.261	No, M>Mu
SLU 81	57	-11678	27585	4.94	120527	4.369	Si
SLU 77	-159	-18160	19348	7.69	26855	1.388	Si
SLU 77	57	-11255	27323	4.76	122655	4.489	Si
SLU 74	-159	-18187	19336	7.7	26227	1.356	Si
SLU 74	57	-11185	26857	4.73	122959	4.578	Si
SLU 82	-159	-19120	20262	8.09	3245	0.16	No, M>Mu
SLU 82	57	-11680	27659	4.94	120514	4.357	Si
SLU 84	-159	-19093	20274	8.08	3942	0.194	No, M>Mu
SLU 84	57	-11750	28125	4.97	120116	4.271	Si
SLU 73	-159	-18137	18562	7.68	27404	1.476	Si
SLU 73	57	-10994	26246	4.65	123725	4.714	Si
SLU 78	-159	-18243	18928	7.72	24911	1.316	Si
SLU 78	57	-11257	27397	4.77	122645	4.477	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 6	-159	-4461	69392	1.89	99009	1.427	Si
SLV 6	57	-5389	-4489	2.28	115050	25.627	Si
SLV 15	-159	-11973	-171604	5.07	183934	1.072	Si
SLV 15	57	-5982	82898	2.53	124480	1.502	Si
SLV 2	-159	-12567	196613	5.32	186271	0.947	No, M>Mu
SLV 2	57	-8807	-47159	3.73	160653	3.407	Si
SLV 3	-159	-17774	195522	7.52	179287	0.917	No, M>Mu
SLV 3	57	-10409	-45280	4.41	174710	3.858	Si
SLV 13	-159	-6766	-170513	2.86	135974	0.797	No, M>Mu
SLV 13	57	-4380	81019	1.85	97525	1.204	Si
SLV 16	-159	-11973	-171604	5.07	183934	1.072	Si
SLV 16	57	-5982	82898	2.53	124480	1.502	Si
SLV 4	-159	-17774	195522	7.52	179287	0.917	No, M>Mu
SLV 4	57	-10409	-45280	4.41	174710	3.858	Si
SLV 14	-159	-6766	-170513	2.86	135974	0.797	No, M>Mu
SLV 14	57	-4380	81019	1.85	97525	1.204	Si
SLV 5	-159	-4461	69392	1.89	99009	1.427	Si
SLV 5	57	-5389	-4489	2.28	115050	25.627	Si
SLV 1	-159	-12567	196613	5.32	186271	0.947	No, M>Mu
SLV 1	57	-8807	-47159	3.73	160653	3.407	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	-159	-19093	372	20274		8.08	52.5	1.08	2559			6.89	Si
SLU 84	57	-11750	726	28125		4.97	52.5	1.08	2559			3.52	Si
SLU 74	-159	-18187	356	19336		7.7	52.5	1.08	2559			7.2	Si
SLU 74	57	-11185	692	26857		4.73	52.5	1.08	2559			3.7	Si
SLU 75	-159	-18270	350	18917		7.73	52.5	1.08	2559			7.32	Si
SLU 75	57	-11188	694	26931		4.74	52.5	1.08	2559			3.69	Si
SLU 79	-159	-17945	358	19285		7.6	52.5	1.08	2559			7.16	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	57	-11130	688	27054		4.71	52.5	1.08	2559			3.72	Si
SLU 77	-159	-18160	360	19348		7.69	52.5	1.08	2559			7.12	Si
SLU 77	57	-11255	699	27323		4.76	52.5	1.08	2559			3.66	Si
SLU 81	-159	-19037	374	20682		8.06	52.5	1.08	2559			6.85	Si
SLU 81	57	-11678	718	27585		4.94	52.5	1.08	2559			3.57	Si
SLU 78	-159	-18243	354	18928		7.72	52.5	1.08	2559			7.24	Si
SLU 78	57	-11257	701	27397		4.77	52.5	1.08	2559			3.65	Si
SLU 80	-159	-18028	352	18865		7.63	52.5	1.08	2559			7.28	Si
SLU 80	57	-11132	690	27128		4.71	52.5	1.08	2559			3.71	Si
SLU 83	-159	-19010	378	20693		8.05	52.5	1.08	2559			6.78	Si
SLU 83	57	-11748	724	28051		4.97	52.5	1.08	2559			3.53	Si
SLU 82	-159	-19120	368	20262		8.09	52.5	1.08	2559			6.96	Si
SLU 82	57	-11680	720	27659		4.94	52.5	1.08	2559			3.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	-159	-6766	-1511	-170513		47.84	3.14	1.63	230			0.15	No, Vu<V
SLV 14	57	-4380	816	81019		4.19	23.25	1.63	1701			2.08	Si
SLV 2	-159	-12567	2027	196613		8.78	31.81	1.63	2326			1.15	Si
SLV 2	57	-8807	10	-47159		3.73	52.5	1.58	3730			380.21	Si
SLV 15	-159	-11973	-1567	-171604		7.44	35.75	1.63	2614			1.67	Si
SLV 15	57	-5982	891	82898		3.58	37.17	1.55	2590			2.91	Si
SLV 1	-159	-12567	2027	196613		8.78	31.81	1.63	2326			1.15	Si
SLV 1	57	-8807	10	-47159		3.73	52.5	1.58	3730			380.21	Si
SLV 4	-159	-17774	1970	195522		8.63	45.75	1.63	3345			1.7	Si
SLV 4	57	-10409	85	-45280		4.41	52.5	1.63	3839			45.15	Si
SLV 3	-159	-17774	1970	195522		8.63	45.75	1.63	3345			1.7	Si
SLV 3	57	-10409	85	-45280		4.41	52.5	1.63	3839			45.15	Si
SLV 13	-159	-6766	-1511	-170513		47.84	3.14	1.63	230			0.15	No, Vu<V
SLV 13	57	-4380	816	81019		4.19	23.25	1.63	1701			2.08	Si
SLV 5	-159	-4461	855	69392		3.09	32.09	1.45	2095			2.45	Si
SLV 5	57	-5389	204	-4489		2.28	52.5	1.29	3047			14.92	Si
SLV 6	-159	-4461	855	69392		3.09	32.09	1.45	2095			2.45	Si
SLV 6	57	-5389	204	-4489		2.28	52.5	1.29	3047			14.92	Si
SLV 16	-159	-11973	-1567	-171604		7.44	35.75	1.63	2614			1.67	Si
SLV 16	57	-5982	891	82898		3.58	37.17	1.55	2590			2.91	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.24	1.95	-4611	3156	87180	27.63	Si
SLV 9	14	0.24	1.95	-4611	3156	87180	27.63	Si
SLV 14	14	0.24	2.37	-5598	3156	101531	32.17	Si
SLV 13	14	0.24	2.37	-5598	3156	101531	32.17	Si
SLV 5	14	0.24	2.9	-6861	3156	117686	37.29	Si
SLV 6	14	0.24	2.9	-6861	3156	117686	37.29	Si
SLV 15	14	0.24	3.68	-8694	3156	136701	43.32	Si
SLV 16	14	0.24	3.68	-8694	3156	136701	43.32	Si
SLV 8	14	0.24	7.27	-17181	3156	156491	49.59	Si
SLV 7	14	0.24	7.27	-17181	3156	156491	49.59	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-2764	-2721	73	0.076	3.723	0.934	118.201	352.938	No
SLV 9	-2764	-2721	73	0.076	3.723	0.934	118.201	352.938	No
SLV 8	-9182	-21819	-70	0.081	10.246	0.973	121.016	352.938	No
SLV 7	-9182	-21819	-70	0.081	10.246	0.973	121.016	352.938	No
SLV 4	-9559	-17774	-60	0.082	10.631	0.974	122.501	348.092	No
SLV 3	-9559	-17774	-60	0.082	10.631	0.974	122.501	348.092	No
SLV 13	-2387	-6766	63	0.078	3.342	0.928	122.773	348.092	No
SLV 14	-2387	-6766	63	0.078	3.342	0.928	122.773	348.092	No
SLV 11	-7452	-20079	-44	0.084	8.485	0.968	125.858	352.938	No
SLV 12	-7452	-20079	-44	0.084	8.485	0.968	125.858	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.16	SLU 82	No
V_SLU	3.524	SLU 84	Si
PF_SLV	0.797	SLV 13	No
V_SLV	0.152	SLV 13	No
PFFP_SLV	27.625	SLV 9	Si
R_SLV	0.335	SLV 9	No

## Maschio 31

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-742.8	104.6	-971.3	104.6	L1	L3	228.5	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 75	-159	-70117	-333253	6.82	1304764	3.915	Si
SLU 75	51	-65248	342495	6.35	1647522	4.81	Si
SLU 77	-159	-71137	-330818	6.92	1224793	3.702	Si
SLU 77	51	-66268	306627	6.44	1581097	5.156	Si
SLU 83	-159	-73709	-338680	7.17	1010449	2.983	Si
SLU 83	51	-68840	340293	6.69	1400924	4.117	Si
SLU 74	-159	-70449	-326220	6.85	1279055	3.921	Si
SLU 74	51	-65580	318965	6.38	1626221	5.098	Si
SLU 81	-159	-73022	-334082	7.1	1069539	3.201	Si
SLU 81	51	-68152	352631	6.63	1450876	4.114	Si
SLU 79	-159	-70499	-322269	6.86	1275150	3.957	Si
SLU 79	51	-65630	297423	6.38	1622980	5.457	Si
SLU 84	-159	-73378	-345713	7.14	1039109	3.006	Si
SLU 84	51	-68508	363823	6.66	1425177	3.917	Si
SLU 82	-159	-72690	-341115	7.07	1097576	3.218	Si
SLU 82	51	-67820	376161	6.6	1474506	3.92	Si
SLU 78	-159	-70805	-337852	6.89	1251125	3.703	Si
SLU 78	51	-65936	330157	6.41	1603021	4.855	Si
SLU 80	-159	-70167	-329302	6.82	1300904	3.95	Si
SLU 80	51	-65298	320953	6.35	1644327	5.123	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 4	-159	-55416	3121669	5.39	3538731	1.134	Si
SLV 4	51	-51125	-1216357	4.97	3464204	2.848	Si
SLV 16	-159	-46069	-3650997	4.48	3333410	0.913	No, M>Mu
SLV 16	51	-42599	1806580	4.14	3216750	1.781	Si
SLV 14	-159	-38681	-3541092	3.76	3058729	0.864	No, M>Mu
SLV 14	51	-35481	1628329	3.45	2908941	1.786	Si
SLV 2	-159	-48029	3231574	4.67	3389639	1.049	Si
SLV 2	51	-44008	-1394608	4.28	3266761	2.342	Si
SLD 14	-159	-43444	-1666958	4.23	3247186	1.948	Si
SLD 14	51	-39934	828004	3.88	3112297	3.759	Si
SLV 15	-159	-46069	-3650997	4.48	3333410	0.913	No, M>Mu
SLV 15	51	-42599	1806580	4.14	3216750	1.781	Si
SLV 3	-159	-55416	3121669	5.39	3538731	1.134	Si
SLV 3	51	-51125	-1216357	4.97	3464204	2.848	Si
SLD 13	-159	-43444	-1666958	4.23	3247186	1.948	Si
SLD 13	51	-39934	828004	3.88	3112297	3.759	Si
SLV 1	-159	-48029	3231574	4.67	3389639	1.049	Si
SLV 1	51	-44008	-1394608	4.28	3266761	2.342	Si
SLV 13	-159	-38681	-3541092	3.76	3058729	0.864	No, M>Mu
SLV 13	51	-35481	1628329	3.45	2908941	1.786	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	-159	-64841	-3096	-307397		6.31	228.5	1.08	11139			3.6	Si
SLU 61	51	-59972	-3096	342788		5.83	228.5	1.08	11139			3.6	Si
SLU 81	-159	-73022	-3270	-334082		7.1	228.5	1.08	11139			3.41	Si
SLU 81	51	-68152	-3270	352631		6.63	228.5	1.08	11139			3.41	Si
SLU 76	-159	-69258	-3230	-329393		6.74	228.5	1.08	11139			3.45	Si
SLU 76	51	-64389	-3230	348977		6.26	228.5	1.08	11139			3.45	Si
SLU 83	-159	-73709	-3233	-338680		7.17	228.5	1.08	11139			3.45	Si
SLU 83	51	-68840	-3233	340293		6.69	228.5	1.08	11139			3.45	Si
SLU 80	-159	-70167	-3097	-329302		6.82	228.5	1.08	11139			3.6	Si
SLU 80	51	-65298	-3097	320953		6.35	228.5	1.08	11139			3.6	Si
SLU 82	-159	-72690	-3416	-341115		7.07	228.5	1.08	11139			3.26	Si
SLU 82	51	-67820	-3416	376161		6.6	228.5	1.08	11139			3.26	Si
SLU 78	-159	-70805	-3181	-337852		6.89	228.5	1.08	11139			3.5	Si
SLU 78	51	-65936	-3181	330157		6.41	228.5	1.08	11139			3.5	Si
SLU 73	-159	-68570	-3267	-324795		6.67	228.5	1.08	11139			3.41	Si
SLU 73	51	-63701	-3267	361315		6.2	228.5	1.08	11139			3.41	Si
SLU 84	-159	-73378	-3379	-345713		7.14	228.5	1.08	11139			3.3	Si
SLU 84	51	-68508	-3379	363823		6.66	228.5	1.08	11139			3.3	Si
SLU 75	-159	-70117	-3218	-333253		6.82	228.5	1.08	11139			3.46	Si
SLU 75	51	-65248	-3218	342495		6.35	228.5	1.08	11139			3.46	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	-159	-38681	-24889	-3541092		12.62	68.11	1.63	4981			0.2	No, Vu<V
SLV 13	51	-35481	-23658	1628329		3.84	205.07	1.6	14786			0.63	No, Vu<V
SLV 16	-159	-46069	-25999	-3650997		9.75	105	1.63	7678			0.3	No, Vu<V
SLV 16	51	-42599	-25271	1806580		4.39	215.52	1.63	15760			0.62	No, Vu<V
SLD 16	-159	-46597	-12481	-1714838		4.53	228.5	1.63	16709			1.34	Si
SLD 16	51	-42964	-12161	905468		4.18	228.5	1.63	16709			1.37	Si
SLV 15	-159	-46069	-25999	-3650997		9.75	105	1.63	7678			0.3	No, Vu<V
SLV 15	51	-42599	-25271	1806580		4.39	215.52	1.63	15760			0.62	No, Vu<V
SLD 15	-159	-46597	-12481	-1714838		4.53	228.5	1.63	16709			1.34	Si
SLD 15	51	-42964	-12161	905468		4.18	228.5	1.63	16709			1.37	Si
SLV 1	-159	-48029	22040	3231574		7.58	140.9	1.63	10303			0.47	No, Vu<V
SLV 1	51	-44008	21312	-1394608		4.28	228.5	1.63	16709			0.78	No, Vu<V
SLV 14	-159	-38681	-24889	-3541092		12.62	68.11	1.63	4981			0.2	No, Vu<V
SLV 14	51	-35481	-23658	1628329		3.84	205.07	1.6	14786			0.63	No, Vu<V
SLV 2	-159	-48029	22040	3231574		7.58	140.9	1.63	10303			0.47	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	51	-44008	21312	-1394608		4.28	228.5	1.63	16709			0.78	No, Vu<V
SLV 4	-159	-55416	20929	3121669		7.09	173.76	1.63	12706			0.61	No, Vu<V
SLV 4	51	-51125	19699	-1216357		4.97	228.5	1.63	16709			0.85	No, Vu<V
SLV 3	-159	-55416	20929	3121669		7.09	173.76	1.63	12706			0.61	No, Vu<V
SLV 3	51	-51125	19699	-1216357		4.97	228.5	1.63	16709			0.85	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.24	3.09	-31734	13735	533670	38.85	Si
SLV 10	14	0.24	3.09	-31734	13735	533670	38.85	Si
SLV 6	14	0.24	3.33	-34201	13735	560045	40.77	Si
SLV 5	14	0.24	3.33	-34201	13735	560045	40.77	Si
SLV 13	14	0.24	3.61	-37112	13735	588370	42.84	Si
SLV 14	14	0.24	3.61	-37112	13735	588370	42.84	Si
SLV 16	14	0.24	4.3	-44189	13735	644560	46.93	Si
SLV 15	14	0.24	4.3	-44189	13735	644560	46.93	Si
SLV 1	14	0.24	4.41	-45335	13735	651972	47.47	Si
SLV 2	14	0.24	4.41	-45335	13735	651972	47.47	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-42997	-60763	-84	0.086	47.686	0.975	128.342	352.938	No
SLV 7	-42997	-60763	-84	0.086	47.686	0.975	128.342	352.938	No
SLV 11	-40646	-57959	-65	0.087	45.292	0.973	129.371	352.938	No
SLV 12	-40646	-57959	-65	0.087	45.292	0.973	129.371	352.938	No
SLV 9	-23206	-33334	138	0.086	27.541	0.958	130.596	352.938	No
SLV 10	-23206	-33334	138	0.086	27.541	0.958	130.596	352.938	No
SLV 5	-25557	-36139	119	0.087	29.931	0.961	130.83	352.938	No
SLV 6	-25557	-36139	119	0.087	29.931	0.961	130.83	352.938	No
SLV 3	-39635	-55416	-34	0.087	44.262	0.973	130.66	348.092	No
SLV 4	-39635	-55416	-34	0.087	44.262	0.973	130.66	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.983	SLU 83	Si
V_SLU	3.261	SLU 82	Si
PF_SLV	0.864	SLV 13	No
V_SLV	0.2	SLV 13	No
PFFP_SLV	38.854	SLV 9	Si
R_SLV	0.364	SLV 7	No

## Maschio 32

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-598.8	104.6	-652.8	104.6	L1	L3	54	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	-159	-17261	-22756	7.1	59647	2.621	Si
SLU 80	51	-18241	-22693	7.51	38652	1.703	Si
SLU 79	-159	-17756	-22591	7.31	49363	2.185	Si
SLU 79	51	-18411	-22455	7.58	34750	1.548	Si
SLU 83	-159	-18306	-23828	7.53	37168	1.56	Si
SLU 83	51	-19172	-23784	7.89	16282	0.685	No, M>Mu
SLU 74	-159	-17552	-22735	7.22	53687	2.361	Si
SLU 74	51	-18304	-22654	7.53	37215	1.643	Si
SLU 81	-159	-17977	-23401	7.4	44565	1.904	Si
SLU 81	51	-18906	-23396	7.78	22898	0.979	No, M>Mu
SLU 78	-159	-17386	-23328	7.15	57123	2.449	Si
SLU 78	51	-18399	-23280	7.57	35009	1.504	Si
SLU 82	-159	-17482	-23567	7.19	55147	2.34	Si
SLU 82	51	-18737	-23633	7.71	27029	1.144	Si
SLU 84	-159	-17811	-23994	7.33	48195	2.009	Si
SLU 84	51	-19002	-24021	7.82	20536	0.855	No, M>Mu
SLU 75	-159	-17057	-22901	7.02	63695	2.781	Si
SLU 75	51	-18134	-22892	7.46	41067	1.794	Si
SLU 77	-159	-17881	-23162	7.36	46671	2.015	Si
SLU 77	51	-18569	-23042	7.64	31034	1.347	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	-159	-16785	-79588	6.91	196997	2.475	Si
SLV 11	51	-13174	96416	5.42	197876	2.052	Si
SLV 16	-159	-13317	-179108	5.48	198293	1.107	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	51	-12868	165858	5.3	196862	1.187	Si
SLV 15	-159	-13317	-179108	5.48	198293	1.107	Si
SLV 15	51	-12868	165858	5.3	196862	1.187	Si
SLV 13	-159	-10301	-168616	4.24	181632	1.077	Si
SLV 13	51	-12318	141600	5.07	194606	1.374	Si
SLV 3	-159	-13171	140208	5.42	197866	1.411	Si
SLV 3	51	-11907	-113406	4.9	192564	1.698	Si
SLV 2	-159	-10154	150700	4.18	180400	1.197	Si
SLV 2	51	-11356	-137663	4.67	189346	1.375	Si
SLV 14	-159	-10301	-168616	4.24	181632	1.077	Si
SLV 14	51	-12318	141600	5.07	194606	1.374	Si
SLV 1	-159	-10154	150700	4.18	180400	1.197	Si
SLV 1	51	-11356	-137663	4.67	189346	1.375	Si
SLV 12	-159	-16785	-79588	6.91	196997	2.475	Si
SLV 12	51	-13174	96416	5.42	197876	2.052	Si
SLV 4	-159	-13171	140208	5.42	197866	1.411	Si
SLV 4	51	-11907	-113406	4.9	192564	1.698	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	-159	-17756	-205	-22591		7.31	54	1.08	2633			12.84	Si
SLU 79	51	-18411	-207	22455		7.58	54	1.08	2633			12.73	Si
SLU 83	-159	-18306	-216	-23828		7.53	54	1.08	2633			12.18	Si
SLU 83	51	-19172	-218	23784		7.89	54	1.08	2633			12.07	Si
SLU 80	-159	-17261	-205	-22756		7.1	54	1.08	2633			12.85	Si
SLU 80	51	-18241	-208	22693		7.51	54	1.08	2633			12.68	Si
SLU 77	-159	-17881	-210	-23162		7.36	54	1.08	2633			12.51	Si
SLU 77	51	-18569	-212	23042		7.64	54	1.08	2633			12.41	Si
SLU 74	-159	-17552	-206	-22735		7.22	54	1.08	2633			12.77	Si
SLU 74	51	-18304	-208	22654		7.53	54	1.08	2633			12.66	Si
SLU 75	-159	-17057	-206	-22901		7.02	54	1.08	2633			12.78	Si
SLU 75	51	-18134	-209	22892		7.46	54	1.08	2633			12.61	Si
SLU 78	-159	-17386	-210	-23328		7.15	54	1.08	2633			12.53	Si
SLU 78	51	-18399	-213	23280		7.57	54	1.08	2633			12.36	Si
SLU 84	-159	-17811	-216	-23994		7.33	54	1.08	2633			12.19	Si
SLU 84	51	-19002	-219	24021		7.82	54	1.08	2633			12.03	Si
SLU 81	-159	-17977	-212	-23401		7.4	54	1.08	2633			12.41	Si
SLU 81	51	-18906	-214	23396		7.78	54	1.08	2633			12.31	Si
SLU 82	-159	-17482	-212	-23567		7.19	54	1.08	2633			12.43	Si
SLU 82	51	-18737	-215	23633		7.71	54	1.08	2633			12.27	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	-159	-13317	-1611	-179108		7.28	40.65	1.63	2973			1.85	Si
SLV 15	51	-12868	-1333	165858		6.75	42.33	1.63	3096			2.32	Si
SLD 16	-159	-12429	-779	-86240		5.11	54	1.63	3949			5.07	Si
SLD 16	51	-12439	-656	80339		5.12	54	1.63	3949			6.02	Si
SLD 15	-159	-12429	-779	-86240		5.11	54	1.63	3949			5.07	Si
SLD 15	51	-12439	-656	80339		5.12	54	1.63	3949			6.02	Si
SLV 16	-159	-13317	-1611	-179108		7.28	40.65	1.63	2973			1.85	Si
SLV 16	51	-12868	-1333	165858		6.75	42.33	1.63	3096			2.32	Si
SLV 4	-159	-13171	1230	140208		5.97	49.06	1.63	3588			2.92	Si
SLV 4	51	-11907	985	-113406		5.05	52.43	1.63	3834			3.89	Si
SLV 1	-159	-10154	1355	150700		6.19	36.48	1.63	2667			1.97	Si
SLV 1	51	-11356	1074	-137663		5.65	44.63	1.63	3264			3.04	Si
SLV 2	-159	-10154	1355	150700		6.19	36.48	1.63	2667			1.97	Si
SLV 2	51	-11356	1074	-137663		5.65	44.63	1.63	3264			3.04	Si
SLV 3	-159	-13171	1230	140208		5.97	49.06	1.63	3588			2.92	Si
SLV 3	51	-11907	985	-113406		5.05	52.43	1.63	3834			3.89	Si
SLV 14	-159	-10301	-1486	-168616		7.18	31.89	1.63	2332			1.57	Si
SLV 14	51	-12318	-1243	141600		5.88	46.51	1.63	3401			2.74	Si
SLV 13	-159	-10301	-1486	-168616		7.18	31.89	1.63	2332			1.57	Si
SLV 13	51	-12318	-1243	141600		5.88	46.51	1.63	3401			2.74	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.24	3.72	-9033	3246	141414	43.57	Si
SLV 5	14	0.24	3.72	-9033	3246	141414	43.57	Si
SLV 9	14	0.24	3.77	-9171	3246	142613	43.94	Si
SLV 10	14	0.24	3.77	-9171	3246	142613	43.94	Si
SLV 1	14	0.24	4.28	-10391	3246	151979	46.82	Si
SLV 2	14	0.24	4.28	-10391	3246	151979	46.82	Si
SLV 14	14	0.24	4.47	-10851	3246	154920	47.73	Si
SLV 13	14	0.24	4.47	-10851	3246	154920	47.73	Si
SLV 4	14	0.24	4.81	-11693	3246	159483	49.13	Si
SLV 3	14	0.24	4.81	-11693	3246	159483	49.13	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-6001	-16741	22	0.088	7.035	0.961	132.365	352.938	No
SLV 7	-6001	-16741	22	0.088	7.035	0.961	132.365	352.938	No
SLV 12	-6040	-16785	20	0.088	7.074	0.961	132.659	352.938	No
SLV 11	-6040	-16785	20	0.088	7.074	0.961	132.659	352.938	No
SLV 4	-5678	-13171	21	0.088	6.706	0.959	133.213	348.092	No
SLV 3	-5678	-13171	21	0.088	6.706	0.959	133.213	348.092	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	-5807	-13317	15	0.089	6.837	0.96	134.213	348.092	No
SLV 16	-5807	-13317	15	0.089	6.837	0.96	134.213	348.092	No
SLV 6	-5206	-6686	13	0.09	6.226	0.956	136.112	352.938	No
SLV 5	-5206	-6686	13	0.09	6.226	0.956	136.112	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.685	SLU 83	No
V_SLU	12.029	SLU 84	Si
PF_SLV	1.077	SLV 13	Si
V_SLV	1.569	SLV 13	Si
PFFP_SLV	43.566	SLV 5	Si
R_SLV	0.375	SLV 7	No

## Maschio 33

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	104.6	-508.8	104.6	L1	L3	496.5	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 42	-159	-96086	-617384	4.3	11259974	18.238	Si
SLU 42	51	-95542	958961	4.28	11267120	11.749	Si
SLU 74	-159	-108435	-749028	4.85	10880590	14.526	Si
SLU 74	51	-106050	969938	4.75	10986265	11.327	Si
SLU 79	-159	-108694	-745744	4.86	10868170	14.574	Si
SLU 79	51	-106355	992598	4.76	10973630	11.055	Si
SLU 41	-159	-95969	-582599	4.3	11261578	19.33	Si
SLU 41	51	-95505	1032516	4.27	11267574	10.913	Si
SLU 81	-159	-111728	-703923	5	10709179	15.214	Si
SLU 81	51	-109675	1053696	4.91	10819519	10.268	Si
SLU 39	-159	-95001	-559317	4.25	11273423	20.156	Si
SLU 39	51	-94404	1006436	4.23	11279456	11.207	Si
SLU 77	-159	-109403	-772310	4.9	10833273	14.027	Si
SLU 77	51	-107151	996019	4.8	10939396	10.983	Si
SLU 84	-159	-112813	-761990	5.05	10646226	13.972	Si
SLU 84	51	-110813	1006221	4.96	10759772	10.693	Si
SLU 82	-159	-111845	-738708	5.01	10702546	14.488	Si
SLU 82	51	-109712	980141	4.91	10817640	11.037	Si
SLU 83	-159	-112696	-727205	5.04	10653168	14.649	Si
SLU 83	51	-110776	1079777	4.96	10761762	9.967	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 3	-159	-76706	6740756	3.43	13691866	2.031	Si
SLV 3	51	-58118	1315476	2.6	11356338	8.633	Si
SLV 4	-159	-76706	6740756	3.43	13691866	2.031	Si
SLV 4	51	-58118	1315476	2.6	11356338	8.633	Si
SLV 15	-159	-70284	-8008795	3.15	12955992	1.618	Si
SLV 15	51	-82964	83299	3.71	14336762	172.112	Si
SLV 2	-159	-78094	6956449	3.5	13841035	1.99	Si
SLV 2	51	-59663	1011277	2.67	11574317	11.445	Si
SLD 15	-159	-72489	-3795764	3.24	13217128	3.482	Si
SLD 15	51	-76406	343803	3.42	13659113	39.729	Si
SLV 13	-159	-71672	-7793102	3.21	13121370	1.684	Si
SLV 13	51	-84509	-220900	3.78	14484957	65.572	Si
SLV 16	-159	-70284	-8008795	3.15	12955992	1.618	Si
SLV 16	51	-82964	83299	3.71	14336762	172.112	Si
SLD 16	-159	-72489	-3795764	3.24	13217128	3.482	Si
SLD 16	51	-76406	343803	3.42	13659113	39.729	Si
SLV 1	-159	-78094	6956449	3.5	13841035	1.99	Si
SLV 1	51	-59663	1011277	2.67	11574317	11.445	Si
SLV 14	-159	-71672	-7793102	3.21	13121370	1.684	Si
SLV 14	51	-84509	-220900	3.78	14484957	65.572	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	-159	-109520	-17595	-807095		4.9	496.5	1.08	24204			1.38	Si
SLU 78	51	-107188	-17674	922463		4.8	496.5	1.08	24204			1.37	Si
SLU 77	-159	-109403	-17872	-772310		4.9	496.5	1.08	24204			1.35	Si
SLU 77	51	-107151	-17954	996019		4.8	496.5	1.08	24204			1.35	Si
SLU 80	-159	-108811	-17349	-780529		4.87	496.5	1.08	24204			1.4	Si
SLU 80	51	-106392	-17428	919042		4.76	496.5	1.08	24204			1.39	Si
SLU 75	-159	-108552	-17203	-783813		4.86	496.5	1.08	24204			1.41	Si
SLU 75	51	-106087	-17282	896383		4.75	496.5	1.08	24204			1.4	Si
SLU 81	-159	-111728	-18054	-703923		5	496.5	1.08	24204			1.34	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	51	-109675	-18138	1053696		4.91	496.5	1.08	24204			1.33	Si
SLU 82	-159	-111845	-17777	-738708		5.01	496.5	1.08	24204			1.36	Si
SLU 82	51	-109712	-17858	980141		4.91	496.5	1.08	24204			1.36	Si
SLU 74	-159	-108435	-17480	-749028		4.85	496.5	1.08	24204			1.38	Si
SLU 74	51	-106050	-17561	969938		4.75	496.5	1.08	24204			1.38	Si
SLU 84	-159	-112813	-18169	-761990		5.05	496.5	1.08	24204			1.33	Si
SLU 84	51	-110813	-18251	1006221		4.96	496.5	1.08	24204			1.33	Si
SLU 83	-159	-112696	-18446	-727205		5.04	496.5	1.08	24204			1.31	Si
SLU 83	51	-110776	-18530	1079777		4.96	496.5	1.08	24204			1.31	Si
SLU 79	-159	-108694	-17626	-745744		4.86	496.5	1.08	24204			1.37	Si
SLU 79	51	-106355	-17707	992598		4.76	496.5	1.08	24204			1.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	-159	-70284	-63331	-8008795		3.88	402.9	1.61	29166			0.46	No, Vu<V
SLV 15	51	-82964	-61199	83299		3.71	496.5	1.58	35212			0.58	No, Vu<V
SLD 16	-159	-72489	-33891	-3795764		3.24	496.5	1.48	33117			0.98	No, Vu<V
SLD 16	51	-76406	-32991	343803		3.42	496.5	1.52	33900			1.03	Si
SLV 13	-159	-71672	-60178	-7793102		3.81	418.55	1.59	30030			0.5	No, Vu<V
SLV 13	51	-84509	-59028	-220900		3.78	496.5	1.59	35520			0.6	No, Vu<V
SLV 16	-159	-70284	-63331	-8008795		3.88	402.9	1.61	29166			0.46	No, Vu<V
SLV 16	51	-82964	-61199	83299		3.71	496.5	1.58	35212			0.58	No, Vu<V
SLV 3	-159	-76706	38102	6740756		3.54	481.12	1.54	33383			0.88	No, Vu<V
SLV 3	51	-58118	36844	1315476		2.6	496.5	1.35	30242			0.82	No, Vu<V
SLD 15	-159	-72489	-33891	-3795764		3.24	496.5	1.48	33117			0.98	No, Vu<V
SLD 15	51	-76406	-32991	343803		3.42	496.5	1.52	33900			1.03	Si
SLV 14	-159	-71672	-60178	-7793102		3.81	418.55	1.59	30030			0.5	No, Vu<V
SLV 14	51	-84509	-59028	-220900		3.78	496.5	1.59	35520			0.6	No, Vu<V
SLV 2	-159	-78094	41255	6956449		3.63	477.52	1.56	33526			0.81	No, Vu<V
SLV 2	51	-59663	39014	1011277		2.67	496.5	1.37	30551			0.78	No, Vu<V
SLV 4	-159	-76706	38102	6740756		3.54	481.12	1.54	33383			0.88	No, Vu<V
SLV 4	51	-58118	36844	1315476		2.6	496.5	1.35	30242			0.82	No, Vu<V
SLV 1	-159	-78094	41255	6956449		3.63	477.52	1.56	33526			0.81	No, Vu<V
SLV 1	51	-59663	39014	1011277		2.67	496.5	1.37	30551			0.78	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.24	2.96	-66032	29845	1126356	37.74	Si
SLV 4	14	0.24	2.96	-66032	29845	1126356	37.74	Si
SLV 1	14	0.24	3.01	-67347	29845	1141485	38.25	Si
SLV 2	14	0.24	3.01	-67347	29845	1141485	38.25	Si
SLV 7	14	0.24	3.07	-68674	29845	1156467	38.75	Si
SLV 8	14	0.24	3.07	-68674	29845	1156467	38.75	Si
SLV 12	14	0.24	3.23	-72253	29845	1195425	40.05	Si
SLV 11	14	0.24	3.23	-72253	29845	1195425	40.05	Si
SLV 6	14	0.24	3.27	-73056	29845	1203880	40.34	Si
SLV 5	14	0.24	3.27	-73056	29845	1203880	40.34	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-63571	-77466	639	0.081	73.217	0.965	121.42	352.938	No
SLV 6	-63571	-77466	639	0.081	73.217	0.965	121.42	352.938	No
SLV 10	-68647	-75539	595	0.081	78.383	0.967	122.336	352.938	No
SLV 9	-68647	-75539	595	0.081	78.383	0.967	122.336	352.938	No
SLV 12	-61530	-70913	-595	0.081	71.14	0.964	122.419	352.938	No
SLV 11	-61530	-70913	-595	0.081	71.14	0.964	122.419	352.938	No
SLV 8	-56454	-72839	-550	0.082	65.976	0.962	123.571	352.938	No
SLV 7	-56454	-72839	-550	0.082	65.976	0.962	123.571	352.938	No
SLV 15	-69943	-70284	-230	0.086	79.702	0.968	129.582	348.092	No
SLV 16	-69943	-70284	-230	0.086	79.702	0.968	129.582	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.967	SLU 83	Si
V_SLU	1.306	SLU 83	Si
PF_SLV	1.618	SLV 15	Si
V_SLV	0.461	SLV 15	No
PFFP_SLV	37.74	SLV 3	Si
R_SLV	0.344	SLV 5	No

## Maschio 34

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1969.3	657.6	-1776.8	657.6	L1	L3	192.5	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	41	-24687	-414956	2.85	1544824	3.723	Si
SLU 74	81	-24921	-518209	2.88	1551499	2.994	Si
SLU 77	41	-24871	-412361	2.87	1550107	3.759	Si
SLU 77	81	-25091	-520284	2.9	1556266	2.991	Si
SLU 84	41	-25490	-431016	2.94	1567143	3.636	Si
SLU 84	81	-25751	-536531	2.97	1574042	2.934	Si
SLU 81	41	-25305	-433238	2.92	1562168	3.606	Si
SLU 81	81	-25581	-534231	2.95	1569562	2.938	Si
SLU 75	41	-24687	-415330	2.85	1544826	3.72	Si
SLU 75	81	-24921	-518433	2.88	1551520	2.993	Si
SLU 82	41	-25305	-433612	2.92	1562170	3.603	Si
SLU 82	81	-25581	-534455	2.95	1569582	2.937	Si
SLU 78	41	-24872	-412735	2.87	1550110	3.756	Si
SLU 78	81	-25091	-520508	2.9	1556287	2.99	Si
SLU 79	41	-24630	-406565	2.84	1543165	3.796	Si
SLU 79	81	-24831	-514294	2.87	1548961	3.012	Si
SLU 80	41	-24630	-406939	2.84	1543167	3.792	Si
SLU 80	81	-24832	-514518	2.87	1548983	3.011	Si
SLU 83	41	-25490	-430642	2.94	1567141	3.639	Si
SLU 83	81	-25751	-536306	2.97	1574023	2.935	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 2	41	-15888	-466462	1.83	1299653	2.786	Si
SLD 2	81	-16457	-400609	1.9	1337686	3.339	Si
SLV 6	41	-9381	-361972	1.08	822927	2.273	Si
SLV 6	81	-9233	-279765	1.07	811174	2.899	Si
SLV 1	41	-14451	-699260	1.67	1200983	1.718	Si
SLV 1	81	-15593	-457140	1.8	1279751	2.799	Si
SLV 3	41	-18957	-729411	2.19	1497838	2.053	Si
SLV 3	81	-20472	-526295	2.36	1589338	3.02	Si
SLD 1	41	-15888	-466462	1.83	1299653	2.786	Si
SLD 1	81	-16457	-400609	1.9	1337686	3.339	Si
SLV 4	41	-18957	-729411	2.19	1497838	2.053	Si
SLV 4	81	-20472	-526295	2.36	1589338	3.02	Si
SLD 3	41	-17825	-477322	2.06	1426713	2.989	Si
SLD 3	81	-18542	-428613	2.14	1472050	3.434	Si
SLD 4	41	-17825	-477322	2.06	1426713	2.989	Si
SLD 4	81	-18542	-428613	2.14	1472050	3.434	Si
SLV 2	41	-14451	-699260	1.67	1200983	1.718	Si
SLV 2	81	-15593	-457140	1.8	1279751	2.799	Si
SLV 5	41	-9381	-361972	1.08	822927	2.273	Si
SLV 5	81	-9233	-279765	1.07	811174	2.899	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	41	-18307	322	-294927		2.11	192.5	0.84	7253			22.53	Si
SLU 29	81	-18420	653	-379572		2.13	192.5	0.84	7268			11.13	Si
SLU 71	41	-22193	340	-356440		2.56	192.5	0.9	7772			22.88	Si
SLU 71	81	-22289	740	-458091		2.57	192.5	0.9	7784			10.52	Si
SLU 8	41	-15982	340	-250559		1.84	192.5	0.8	6943			20.44	Si
SLU 8	81	-16001	627	-326516		1.85	192.5	0.8	6946			11.09	Si
SLU 49	41	-20110	313	-318242		2.32	192.5	0.87	7494			23.94	Si
SLU 49	81	-20131	674	-411249		2.32	192.5	0.87	7497			11.13	Si
SLU 72	41	-22193	334	-356814		2.56	192.5	0.9	7772			23.25	Si
SLU 72	81	-22290	734	-458315		2.57	192.5	0.9	7784			10.6	Si
SLU 51	41	-19868	352	-312446		2.29	192.5	0.86	7462			21.19	Si
SLU 51	81	-19871	708	-405260		2.29	192.5	0.86	7462			10.54	Si
SLU 69	41	-22435	301	-362236		2.59	192.5	0.9	7804			25.96	Si
SLU 69	81	-22548	705	-464081		2.6	192.5	0.9	7819			11.08	Si
SLU 50	41	-19868	357	-312072		2.29	192.5	0.86	7462			20.87	Si
SLU 50	81	-19870	713	-405036		2.29	192.5	0.86	7462			10.46	Si
SLU 70	41	-22435	295	-362610		2.59	192.5	0.9	7804			26.43	Si
SLU 70	81	-22549	700	-464305		2.6	192.5	0.9	7819			11.17	Si
SLU 48	41	-20110	318	-317868		2.32	192.5	0.87	7494			23.54	Si
SLU 48	81	-20130	679	-411025		2.32	192.5	0.87	7496			11.04	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	41	-14451	-14582	-699260		2.24	143.58	1.28	8274			0.57	No, Vu<V
SLV 1	81	-15593	-13809	-457140		1.8	192.5	1.19	10337			0.75	No, Vu<V
SLV 5	41	-9381	-6811	-361972		1.21	173	1.07	8364			1.23	Si
SLV 5	81	-9233	-6803	-279765		1.07	192.5	1.05	9065			1.33	Si
SLV 4	41	-18957	-12975	-729411		2.43	173.32	1.32	10291			0.79	No, Vu<V
SLV 4	81	-20472	-11913	-526295		2.36	192.5	1.31	11313			0.95	No, Vu<V
SLV 6	41	-9381	-6811	-361972		1.21	173	1.07	8364			1.23	Si
SLV 6	81	-9233	-6803	-279765		1.07	192.5	1.05	9065			1.33	Si
SLV 3	41	-18957	-12975	-729411		2.43	173.32	1.32	10291			0.79	No, Vu<V
SLV 3	81	-20472	-11913	-526295		2.36	192.5	1.31	11313			0.95	No, Vu<V
SLV 2	41	-14451	-14582	-699260		2.24	143.58	1.28	8274			0.57	No, Vu<V
SLV 2	81	-15593	-13809	-457140		1.8	192.5	1.19	10337			0.75	No, Vu<V
SLV 14	41	-14989	12978	163915		1.73	192.5	1.18	10217			0.79	No, Vu<V
SLV 14	81	-13685	12527	-180871		1.58	192.5	1.15	9956			0.79	No, Vu<V
SLV 16	41	-19496	14585	133764		2.25	192.5	1.28	11118			0.76	No, Vu<V
SLV 16	81	-18564	14423	-250026		2.14	192.5	1.26	10931			0.76	No, Vu<V
SLV 15	41	-19496	14585	133764		2.25	192.5	1.28	11118			0.76	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	81	-18564	14423	-250026		2.14	192.5	1.26	10931			0.76	No, Vu<V
SLV 13	41	-14989	12978	163915		1.73	192.5	1.18	10217			0.79	No, Vu<V
SLV 13	81	-13685	12527	-180871		1.58	192.5	1.15	9956			0.79	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.24	1.06	-9181	11571	188660	16.3	Si
SLV 10	14	0.24	1.06	-9181	11571	188660	16.3	Si
SLV 5	14	0.24	1.12	-9682	11571	197913	17.1	Si
SLV 6	14	0.24	1.12	-9682	11571	197913	17.1	Si
SLV 13	14	0.24	1.74	-15112	11571	291470	25.19	Si
SLV 14	14	0.24	1.74	-15112	11571	291470	25.19	Si
SLV 1	14	0.24	1.94	-16780	11571	317692	27.46	Si
SLV 2	14	0.24	1.94	-16780	11571	317692	27.46	Si
SLV 15	14	0.24	2.39	-20695	11571	374601	32.37	Si
SLV 16	14	0.24	2.39	-20695	11571	374601	32.37	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-18378	-29752	-1141	0.036	22.011	0.956	54.997	348.092	No
SLV 3	-18378	-29752	-1141	0.036	22.011	0.956	54.997	348.092	No
SLV 8	-24565	-38273	-1392	0.038	28.304	0.965	56.824	352.938	No
SLV 7	-24565	-38273	-1392	0.038	28.304	0.965	56.824	352.938	No
SLV 12	-24393	-36412	-1288	0.041	28.129	0.965	62.277	352.938	No
SLV 11	-24393	-36412	-1288	0.041	28.129	0.965	62.277	352.938	No
SLV 1	-12903	-20586	-823	0.04	16.452	0.943	61.897	348.092	No
SLV 2	-12903	-20586	-823	0.04	16.452	0.943	61.897	348.092	No
SLV 16	-17805	-23547	-796	0.052	21.428	0.955	79.379	348.092	No
SLV 15	-17805	-23547	-796	0.052	21.428	0.955	79.379	348.092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.934	SLU 84	Si
V_SLU	10.464	SLU 50	Si
PF_SLV	1.718	SLV 1	Si
V_SLV	0.567	SLV 1	No
PFFP_SLV	16.304	SLV 9	Si
R_SLV	0.158	SLV 3	No

## Maschio 35

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1676.8	657.6	-1288.8	657.6	L1	L3	388	45	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	41	-61685	-709270	3.53	6776717	9.554	Si
SLU 84	81	-56393	-467092	3.23	6602430	14.135	Si
SLU 81	41	-61184	-712986	3.5	6763485	9.486	Si
SLU 81	81	-55960	-463532	3.21	6584773	14.206	Si
SLU 75	41	-59566	-684412	3.41	6716099	9.813	Si
SLU 75	81	-54437	-451491	3.12	6518666	14.438	Si
SLU 82	41	-61167	-713578	3.5	6763029	9.478	Si
SLU 82	81	-55944	-463984	3.2	6584117	14.19	Si
SLU 74	41	-59583	-683819	3.41	6716629	9.822	Si
SLU 74	81	-54453	-451039	3.12	6519387	14.454	Si
SLU 78	41	-60084	-680104	3.44	6732050	9.899	Si
SLU 78	81	-54887	-454599	3.14	6538826	14.384	Si
SLU 77	41	-60101	-679511	3.44	6732555	9.908	Si
SLU 77	81	-54902	-454148	3.14	6539527	14.4	Si
SLU 76	41	-58951	-675359	3.38	6696211	9.915	Si
SLU 76	81	-53850	-446948	3.08	6491473	14.524	Si
SLU 73	41	-58433	-679668	3.35	6678659	9.826	Si
SLU 73	81	-53401	-443840	3.06	6470043	14.577	Si
SLU 83	41	-61701	-708678	3.53	6777149	9.563	Si
SLU 83	81	-56409	-466640	3.23	6603067	14.15	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 4	41	-42936	-1235185	2.46	6653148	5.386	Si
SLD 4	81	-39080	-597945	2.24	6192681	10.357	Si
SLV 1	41	-37945	-1935155	2.17	6052064	3.127	Si
SLV 1	81	-34740	-421746	1.99	5642137	13.378	Si
SLV 3	41	-46061	-2229426	2.64	7006579	3.143	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	81	-41813	-974167	2.39	6521848	6.695	Si
SLV 13	41	-35118	1293760	2.01	5691415	4.399	Si
SLV 13	81	-32233	358692	1.85	5308404	14.799	Si
SLD 3	41	-42936	-1235185	2.46	6653148	5.386	Si
SLD 3	81	-39080	-597945	2.24	6192681	10.357	Si
SLV 2	41	-37945	-1935155	2.17	6052064	3.127	Si
SLV 2	81	-34740	-421746	1.99	5642137	13.378	Si
SLV 4	41	-46061	-2229426	2.64	7006579	3.143	Si
SLV 4	81	-41813	-974167	2.39	6521848	6.695	Si
SLV 14	41	-35118	1293760	2.01	5691415	4.399	Si
SLV 14	81	-32233	358692	1.85	5308404	14.799	Si
SLV 8	41	-54540	-1442623	3.12	7875843	5.459	Si
SLV 8	81	-49186	-1345504	2.82	7342154	5.457	Si
SLV 7	41	-54540	-1442623	3.12	7875843	5.459	Si
SLV 7	81	-49186	-1345504	2.82	7342154	5.457	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	41	-61685	-3910	-709270		3.53	388	1.03	17925			4.58	Si
SLU 84	81	-56393	-3915	-467092		3.23	388	0.99	17219			4.4	Si
SLU 75	41	-59566	-3772	-684412		3.41	388	1.01	17642			4.68	Si
SLU 75	81	-54437	-3777	-451491		3.12	388	0.97	16958			4.49	Si
SLU 61	41	-55211	-3749	-642942		3.16	388	0.98	17061			4.55	Si
SLU 61	81	-50404	-3754	-418333		2.89	388	0.94	16421			4.37	Si
SLU 73	41	-58433	-3900	-679668		3.35	388	1	17491			4.48	Si
SLU 73	81	-53401	-3905	-443840		3.06	388	0.96	16820			4.31	Si
SLU 81	41	-61184	-4131	-712986		3.5	388	1.02	17858			4.32	Si
SLU 81	81	-55960	-4136	-463532		3.21	388	0.98	17161			4.15	Si
SLU 83	41	-61701	-3906	-708678		3.53	388	1.03	17927			4.59	Si
SLU 83	81	-56409	-3911	-466640		3.23	388	0.99	17221			4.4	Si
SLU 60	41	-55228	-3745	-642349		3.16	388	0.98	17064			4.56	Si
SLU 60	81	-50420	-3750	-417882		2.89	388	0.94	16423			4.38	Si
SLU 40	41	-52087	-3555	-610363		2.98	388	0.95	16645			4.68	Si
SLU 40	81	-47718	-3559	-395316		2.73	388	0.92	16062			4.51	Si
SLU 82	41	-61167	-4135	-713578		3.5	388	1.02	17856			4.32	Si
SLU 82	81	-55944	-4140	-463984		3.2	388	0.98	17159			4.14	Si
SLU 74	41	-59583	-3768	-683819		3.41	388	1.01	17644			4.68	Si
SLU 74	81	-54453	-3773	-451039		3.12	388	0.97	16960			4.5	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	41	-46061	-31886	-2229426		2.64	388	1.36	23762			0.75	No, Vu<V
SLV 4	81	-41813	-31291	-974167		2.39	388	1.31	22913			0.73	No, Vu<V
SLV 14	41	-35118	26602	1293760		2.01	388	1.24	21574			0.81	No, Vu<V
SLV 14	81	-32233	25999	358692		1.85	388	1.2	20997			0.81	No, Vu<V
SLD 2	41	-39487	-15486	-1109952		2.26	388	1.29	22447			1.45	Si
SLD 2	81	-36077	-15536	-362485		2.07	388	1.25	21765			1.4	Si
SLV 3	41	-46061	-31886	-2229426		2.64	388	1.36	23762			0.75	No, Vu<V
SLV 3	81	-41813	-31291	-974167		2.39	388	1.31	22913			0.73	No, Vu<V
SLV 1	41	-37945	-32131	-1935155		2.17	388	1.27	22139			0.69	No, Vu<V
SLV 1	81	-34740	-32555	-421746		1.99	388	1.23	21498			0.66	No, Vu<V
SLV 15	41	-43234	26847	999488		2.48	388	1.33	23197			0.86	No, Vu<V
SLV 15	81	-39305	27263	-193728		2.25	388	1.28	22411			0.82	No, Vu<V
SLD 1	41	-39487	-15486	-1109952		2.26	388	1.29	22447			1.45	Si
SLD 1	81	-36077	-15536	-362485		2.07	388	1.25	21765			1.4	Si
SLV 13	41	-35118	26602	1293760		2.01	388	1.24	21574			0.81	No, Vu<V
SLV 13	81	-32233	25999	358692		1.85	388	1.2	20997			0.81	No, Vu<V
SLV 16	41	-43234	26847	999488		2.48	388	1.33	23197			0.86	No, Vu<V
SLV 16	81	-39305	27263	-193728		2.25	388	1.28	22411			0.82	No, Vu<V
SLV 2	41	-37945	-32131	-1935155		2.17	388	1.27	22139			0.69	No, Vu<V
SLV 2	81	-34740	-32555	-421746		1.99	388	1.23	21498			0.66	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.24	1.4	-24452	23323	487106	20.89	Si
SLV 9	14	0.24	1.4	-24452	23323	487106	20.89	Si
SLV 5	14	0.24	1.44	-25202	23323	500059	21.44	Si
SLV 6	14	0.24	1.44	-25202	23323	500059	21.44	Si
SLV 13	14	0.24	2.01	-35052	23323	659097	28.26	Si
SLV 14	14	0.24	2.01	-35052	23323	659097	28.26	Si
SLV 1	14	0.24	2.15	-37554	23323	696220	29.85	Si
SLV 2	14	0.24	2.15	-37554	23323	696220	29.85	Si
SLV 15	14	0.24	2.57	-44889	23323	797489	34.19	Si
SLV 16	14	0.24	2.57	-44889	23323	797489	34.19	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-20982	-23745	-1717	0.029	28.074	0.935	45.518	352.938	No
SLV 6	-20982	-23745	-1717	0.029	28.074	0.935	45.518	352.938	No
SLV 9	-20270	-23131	-1661	0.03	27.354	0.933	46.682	352.938	No
SLV 10	-20270	-23131	-1661	0.03	27.354	0.933	46.682	352.938	No
SLV 1	-31423	-38548	-2054	0.036	38.656	0.95	54.535	348.092	No
SLV 2	-31423	-38548	-2054	0.036	38.656	0.95	54.535	348.092	No
SLV 14	-29049	-36501	-1868	0.038	36.246	0.947	58.048	348.092	No
SLV 13	-29049	-36501	-1868	0.038	36.246	0.947	58.048	348.092	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 4	-39661	-50622	-2287	0.039	47.026	0.958	59.603	348.092	No
SLV 3	-39661	-50622	-2287	0.039	47.026	0.958	59.603	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.478	SLU 82	Si
V_SLU	4.144	SLU 82	Si
PF_SLV	3.127	SLV 1	Si
V_SLV	0.66	SLV 1	No
PFFP_SLV	20.885	SLV 9	Si
R_SLV	0.129	SLV 5	No

## Maschio 36

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1188.8	657.6	-800.8	657.6	L1	L3	388	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 81	41	-62564	686751	3.58	6798284	9.899	Si
SLU 81	81	-62484	628907	3.58	6796395	10.807	Si
SLU 74	41	-61062	683030	3.5	6760171	9.897	Si
SLU 74	81	-60990	626109	3.49	6758181	10.794	Si
SLU 80	41	-61175	703607	3.5	6763247	9.612	Si
SLU 80	81	-61110	643544	3.5	6761479	10.507	Si
SLU 82	41	-62509	685696	3.58	6796983	9.913	Si
SLU 82	81	-62426	627559	3.58	6795032	10.828	Si
SLU 78	41	-61777	707979	3.54	6779085	9.575	Si
SLU 78	81	-61733	647651	3.54	6777959	10.465	Si
SLU 83	41	-63335	712754	3.63	6815451	9.562	Si
SLU 83	81	-63285	651797	3.62	6814379	10.455	Si
SLU 79	41	-61230	704662	3.51	6764750	9.6	Si
SLU 79	81	-61167	644893	3.5	6763049	10.487	Si
SLU 77	41	-61833	709034	3.54	6780497	9.563	Si
SLU 77	81	-61791	648999	3.54	6779430	10.446	Si
SLU 84	41	-63279	711699	3.62	6814267	9.575	Si
SLU 84	81	-63227	650449	3.62	6813143	10.475	Si
SLU 75	41	-61006	681975	3.49	6758642	9.91	Si
SLU 75	81	-60932	624761	3.49	6756583	10.815	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 4	41	-35954	-1105871	2.06	5799530	5.244	Si
SLV 4	81	-36288	43085	2.08	5842476	135.605	Si
SLV 11	41	-40257	1244442	2.31	6336150	5.092	Si
SLV 11	81	-42852	825046	2.45	6643444	8.052	Si
SLV 12	41	-40257	1244442	2.31	6336150	5.092	Si
SLV 12	81	-42852	825046	2.45	6643444	8.052	Si
SLV 2	41	-37403	-1289202	2.14	5984022	4.642	Si
SLV 2	81	-36132	-123665	2.07	5822467	47.082	Si
SLV 15	41	-45176	2180940	2.59	6908239	3.168	Si
SLV 15	81	-46106	946808	2.64	7011484	7.405	Si
SLV 13	41	-46625	1997609	2.67	7068422	3.538	Si
SLV 13	81	-45950	780058	2.63	6994262	8.966	Si
SLV 14	41	-46625	1997609	2.67	7068422	3.538	Si
SLV 14	81	-45950	780058	2.63	6994262	8.966	Si
SLV 1	41	-37403	-1289202	2.14	5984022	4.642	Si
SLV 1	81	-36132	-123665	2.07	5822467	47.082	Si
SLV 16	41	-45176	2180940	2.59	6908239	3.168	Si
SLV 16	81	-46106	946808	2.64	7011484	7.405	Si
SLV 3	41	-35954	-1105871	2.06	5799530	5.244	Si
SLV 3	81	-36288	43085	2.08	5842476	135.605	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	41	-63279	2360	711699		3.62	388	1.04	18137			7.68	Si
SLU 84	81	-63227	2362	650449		3.62	388	1.04	18130			7.68	Si
SLU 83	41	-63335	2354	712754		3.63	388	1.04	18145			7.71	Si
SLU 83	81	-63285	2355	651797		3.62	388	1.04	18138			7.7	Si
SLU 75	41	-61006	2247	681975		3.49	388	1.02	17834			7.94	Si
SLU 75	81	-60932	2248	624761		3.49	388	1.02	17824			7.93	Si
SLU 82	41	-62509	2266	685696		3.58	388	1.03	18034			7.96	Si
SLU 82	81	-62426	2267	627559		3.58	388	1.03	18023			7.95	Si
SLU 76	41	-60367	2233	676900		3.46	388	1.02	17749			7.95	Si
SLU 76	81	-60270	2235	619756		3.45	388	1.02	17736			7.94	Si
SLU 80	41	-61175	2324	703607		3.5	388	1.02	17857			7.68	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	81	-61110	2325	643544		3.5	388	1.02	17848			7.68	Si
SLU 79	41	-61230	2317	704662		3.51	388	1.02	17864			7.71	Si
SLU 79	81	-61167	2319	644893		3.5	388	1.02	17856			7.7	Si
SLU 74	41	-61062	2241	683030		3.5	388	1.02	17842			7.96	Si
SLU 74	81	-60990	2242	626109		3.49	388	1.02	17832			7.95	Si
SLU 78	41	-61777	2342	707979		3.54	388	1.03	17937			7.66	Si
SLU 78	81	-61733	2343	647651		3.54	388	1.03	17931			7.65	Si
SLU 77	41	-61833	2335	709034		3.54	388	1.03	17944			7.68	Si
SLU 77	81	-61791	2337	648999		3.54	388	1.03	17939			7.68	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	41	-37403	-28325	-1289202		2.14	388	1.26	22031			0.78	No, Vu<V
SLV 1	81	-36132	-28934	-123665		2.07	388	1.25	21776			0.75	No, Vu<V
SLV 3	41	-35954	-29350	-1105871		2.06	388	1.25	21741			0.74	No, Vu<V
SLV 3	81	-36288	-29071	43085		2.08	388	1.25	21808			0.75	No, Vu<V
SLV 14	41	-46625	32197	1997609		2.67	388	1.37	23875			0.74	No, Vu<V
SLV 14	81	-45950	31920	780058		2.63	388	1.36	23740			0.74	No, Vu<V
SLV 4	41	-35954	-29350	-1105871		2.06	388	1.25	21741			0.74	No, Vu<V
SLV 4	81	-36288	-29071	43085		2.08	388	1.25	21808			0.75	No, Vu<V
SLV 2	41	-37403	-28325	-1289202		2.14	388	1.26	22031			0.78	No, Vu<V
SLV 2	81	-36132	-28934	-123665		2.07	388	1.25	21776			0.75	No, Vu<V
SLV 16	41	-45176	31172	2180940		2.59	388	1.35	23585			0.76	No, Vu<V
SLV 16	81	-46106	31783	946808		2.64	388	1.36	23771			0.75	No, Vu<V
SLV 13	41	-46625	32197	1997609		2.67	388	1.37	23875			0.74	No, Vu<V
SLV 13	81	-45950	31920	780058		2.63	388	1.36	23740			0.74	No, Vu<V
SLV 15	41	-45176	31172	2180940		2.59	388	1.35	23585			0.76	No, Vu<V
SLV 15	81	-46106	31783	946808		2.64	388	1.36	23771			0.75	No, Vu<V
SLD 14	41	-43631	14839	1123864		2.5	388	1.33	23276			1.57	Si
SLD 14	81	-43243	14630	573872		2.48	388	1.33	23199			1.59	Si
SLD 13	41	-43631	14839	1123864		2.5	388	1.33	23276			1.57	Si
SLD 13	81	-43243	14630	573872		2.48	388	1.33	23199			1.59	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.24	1.9	-33163	23323	630175	27.02	Si
SLV 2	14	0.24	1.9	-33163	23323	630175	27.02	Si
SLV 6	14	0.24	1.94	-33857	23323	640888	27.48	Si
SLV 5	14	0.24	1.94	-33857	23323	640888	27.48	Si
SLV 4	14	0.24	1.98	-34530	23323	651173	27.92	Si
SLV 3	14	0.24	1.98	-34530	23323	651173	27.92	Si
SLV 9	14	0.24	2.05	-35819	23323	670615	28.75	Si
SLV 10	14	0.24	2.05	-35819	23323	670615	28.75	Si
SLV 7	14	0.24	2.2	-38414	23323	708680	30.39	Si
SLV 8	14	0.24	2.2	-38414	23323	708680	30.39	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-40830	-47923	-2976	0.025	48.215	0.959	38.125	352.938	No
SLV 12	-40830	-47923	-2976	0.025	48.215	0.959	38.125	352.938	No
SLV 7	-38175	-46626	-2777	0.026	45.516	0.957	39.792	352.938	No
SLV 8	-38175	-46626	-2777	0.026	45.516	0.957	39.792	352.938	No
SLV 16	-43148	-41833	-2973	0.028	50.572	0.961	42.429	348.092	No
SLV 15	-43148	-41833	-2973	0.028	50.572	0.961	42.429	348.092	No
SLV 13	-42480	-35317	-2773	0.032	49.893	0.96	47.745	348.092	No
SLV 14	-42480	-35317	-2773	0.032	49.893	0.96	47.745	348.092	No
SLV 4	-34299	-37512	-2312	0.033	41.577	0.953	49.593	348.092	No
SLV 3	-34299	-37512	-2312	0.033	41.577	0.953	49.593	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.562	SLU 83	Si
V_SLU	7.653	SLU 78	Si
PF_SLV	3.168	SLV 15	Si
V_SLV	0.741	SLV 3	No
PFFP_SLV	27.019	SLV 1	Si
R_SLV	0.108	SLV 11	No

## Maschio 37

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-700.8	657.6	-530.8	657.6	L1	L3	170	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	41	-14727	-89977	1.93	955956	10.624	Si
SLU 60	81	-14039	-168119	1.84	924474	5.499	Si
SLU 61	41	-14695	-89539	1.92	954545	10.661	Si
SLU 61	81	-14008	-167992	1.83	923004	5.494	Si
SLU 73	41	-15606	-93455	2.04	994316	10.64	Si
SLU 73	81	-14918	-176979	1.95	964485	5.45	Si
SLU 84	41	-16736	-98028	2.19	1040516	10.614	Si
SLU 84	81	-16048	-185826	2.1	1012806	5.45	Si
SLU 81	41	-16341	-96488	2.14	1024733	10.62	Si
SLU 81	81	-15653	-184863	2.05	996280	5.389	Si
SLU 74	41	-16196	-96544	2.12	1018877	10.553	Si
SLU 74	81	-15508	-180310	2.03	990153	5.491	Si
SLU 83	41	-16768	-98467	2.19	1041752	10.58	Si
SLU 83	81	-16080	-185952	2.1	1014100	5.454	Si
SLU 75	41	-16165	-96106	2.11	1017593	10.588	Si
SLU 75	81	-15477	-180183	2.02	988810	5.488	Si
SLU 76	41	-16033	-95433	2.1	1012191	10.606	Si
SLU 76	81	-15345	-178069	2.01	983161	5.521	Si
SLU 82	41	-16309	-96050	2.13	1023461	10.656	Si
SLU 82	81	-15621	-184736	2.04	994948	5.386	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	41	-12393	323859	1.62	913745	2.821	Si
SLV 13	81	-12237	-224873	1.6	903960	4.02	Si
SLV 10	41	-7858	48848	1.03	611794	12.524	Si
SLV 10	81	-8543	-349891	1.12	659761	1.886	Si
SLV 6	41	-6282	-186601	0.82	498075	2.669	Si
SLV 6	81	-6960	-328047	0.91	547584	1.669	Si
SLV 5	41	-6282	-186601	0.82	498075	2.669	Si
SLV 5	81	-6960	-328047	0.91	547584	1.669	Si
SLV 1	41	-7139	-460974	0.93	560442	1.216	Si
SLV 1	81	-6963	-152058	0.91	547765	3.602	Si
SLV 2	41	-7139	-460974	0.93	560442	1.216	Si
SLV 2	81	-6963	-152058	0.91	547765	3.602	Si
SLV 3	41	-9449	-460700	1.24	721995	1.567	Si
SLV 3	81	-8547	-23056	1.12	660083	28.63	Si
SLV 14	41	-12393	323859	1.62	913745	2.821	Si
SLV 14	81	-12237	-224873	1.6	903960	4.02	Si
SLV 4	41	-9449	-460700	1.24	721995	1.567	Si
SLV 4	81	-8547	-23056	1.12	660083	28.63	Si
SLV 9	41	-7858	48848	1.03	611794	12.524	Si
SLV 9	81	-8543	-349891	1.12	659761	1.886	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	41	-16624	2077	-98523		2.17	170	0.85	6466			3.11	Si
SLU 77	81	-15936	2077	-181399		2.08	170	0.83	6375			3.07	Si
SLU 75	41	-16165	2107	-96106		2.11	170	0.84	6405			3.04	Si
SLU 75	81	-15477	2107	-180183		2.02	170	0.83	6314			3	Si
SLU 83	41	-16768	2192	-98467		2.19	170	0.85	6486			2.96	Si
SLU 83	81	-16080	2192	-185952		2.1	170	0.84	6394			2.92	Si
SLU 78	41	-16592	2084	-98085		2.17	170	0.84	6462			3.1	Si
SLU 78	81	-15904	2084	-181273		2.08	170	0.83	6371			3.06	Si
SLU 73	41	-15606	2093	-93455		2.04	170	0.83	6331			3.03	Si
SLU 73	81	-14918	2093	-176979		1.95	170	0.82	6239			2.98	Si
SLU 84	41	-16736	2200	-98028		2.19	170	0.85	6482			2.95	Si
SLU 84	81	-16048	2200	-185826		2.1	170	0.84	6390			2.9	Si
SLU 76	41	-16033	2071	-95433		2.1	170	0.84	6388			3.08	Si
SLU 76	81	-15345	2071	-178069		2.01	170	0.82	6296			3.04	Si
SLU 81	41	-16341	2214	-96488		2.14	170	0.84	6429			2.9	Si
SLU 81	81	-15653	2214	-184863		2.05	170	0.83	6337			2.86	Si
SLU 82	41	-16309	2222	-96050		2.13	170	0.84	6425			2.89	Si
SLU 82	81	-15621	2222	-184736		2.04	170	0.83	6333			2.85	Si
SLU 74	41	-16196	2099	-96544		2.12	170	0.84	6410			3.05	Si
SLU 74	81	-15508	2099	-180310		2.03	170	0.83	6318			3.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	41	-7858	7635	48848		1.03	170	1.04	7947			1.04	Si
SLV 10	81	-8543	7524	-349891		1.44	132.13	1.12	6663			0.89	No, Vu<V
SLV 2	41	-7139	-8391	-460974		2.59	61.28	1.35	3726			0.44	No, Vu<V
SLV 2	81	-6963	-8024	-152058		0.91	170	1.02	7768			0.97	No, Vu<V
SLV 16	41	-14704	11175	324132		1.92	170	1.22	9316			0.83	No, Vu<V
SLV 16	81	-13821	10809	-95870		1.81	170	1.19	9139			0.85	No, Vu<V
SLV 14	41	-12393	12996	323859		1.62	170	1.16	8854			0.68	No, Vu<V
SLV 14	81	-12237	12629	-224873		1.6	170	1.15	8822			0.7	No, Vu<V
SLV 1	41	-7139	-8391	-460974		2.59	61.28	1.35	3726			0.44	No, Vu<V
SLV 1	81	-6963	-8024	-152058		0.91	170	1.02	7768			0.97	No, Vu<V
SLV 4	41	-9449	-10212	-460700		1.93	108.74	1.22	5967			0.58	No, Vu<V
SLV 4	81	-8547	-9845	-23056		1.12	170	1.06	8084			0.82	No, Vu<V
SLV 3	41	-9449	-10212	-460700		1.93	108.74	1.22	5967			0.58	No, Vu<V
SLV 3	81	-8547	-9845	-23056		1.12	170	1.06	8084			0.82	No, Vu<V
SLV 9	41	-7858	7635	48848		1.03	170	1.04	7947			1.04	Si
SLV 9	81	-8543	7524	-349891		1.44	132.13	1.12	6663			0.89	No, Vu<V
SLV 13	41	-12393	12996	323859		1.62	170	1.16	8854			0.68	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	81	-12237	12629	-224873		1.6	170	1.15	8822			0.7	No, Vu<V
SLV 15	41	-14704	11175	324132		1.92	170	1.22	9316			0.83	No, Vu<V
SLV 15	81	-13821	10809	-95870		1.81	170	1.19	9139			0.85	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.24	0.29	-2201	10219	48353	4.73	Si
SLV 1	14	0.24	0.29	-2201	10219	48353	4.73	Si
SLV 3	14	0.24	0.61	-4662	10219	99669	9.75	Si
SLV 4	14	0.24	0.61	-4662	10219	99669	9.75	Si
SLV 5	14	0.24	0.63	-4787	10219	102188	10	Si
SLV 6	14	0.24	0.63	-4787	10219	102188	10	Si
SLV 10	14	0.24	1.24	-9465	10219	191395	18.73	Si
SLV 9	14	0.24	1.24	-9465	10219	191395	18.73	Si
SLV 7	14	0.24	1.7	-12992	10219	251682	24.63	Si
SLV 8	14	0.24	1.7	-12992	10219	251682	24.63	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	-6809	2595	-74	0	0	0	0	348.092	No, Trazione
SLV 4	-8615	365	-105	0	0	0	0	348.092	No, Trazione
SLV 3	-8615	365	-105	0	0	0	0	348.092	No, Trazione
SLV 1	-6809	2595	-74	0	0	0	0	348.092	No, Trazione
SLV 15	-10499	-31052	-271	0.074	13.622	0.94	114.316	348.092	No
SLV 16	-10499	-31052	-271	0.074	13.622	0.94	114.316	348.092	No
SLV 12	-11947	-22658	-249	0.077	15.09	0.945	117.676	352.938	No
SLV 11	-11947	-22658	-249	0.077	15.09	0.945	117.676	352.938	No
SLV 13	-8693	-28822	-240	0.075	11.795	0.932	117.308	348.092	No
SLV 14	-8693	-28822	-240	0.075	11.795	0.932	117.308	348.092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.386	SLU 82	Si
V_SLU	2.85	SLU 82	Si
PF_SLV	1.216	SLV 1	Si
V_SLV	0.444	SLV 1	No
PFFP_SLV	4.732	SLV 1	Si
R_SLV	0	SLV 4	No

## Maschio 38

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1101.3	-478.4	-1101.3	-191.6	L1	L2	286.8	30	198	198	198			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	-159	-52778	334021	6.13	1869623	5.597	Si
SLU 83	39	-52018	124911	6.05	1923554	15.399	Si
SLU 82	-159	-51665	362304	6	1947865	5.376	Si
SLU 82	39	-50579	142725	5.88	2019256	14.148	Si
SLU 73	-159	-49487	341743	5.75	2086248	6.105	Si
SLU 73	39	-48261	117373	5.61	2155611	18.366	Si
SLU 78	-159	-51835	306700	6.02	1936221	6.313	Si
SLU 78	39	-51050	95473	5.93	1988906	20.832	Si
SLU 84	-159	-52812	343115	6.14	1867108	5.442	Si
SLU 84	39	-51912	127610	6.03	1930942	15.132	Si
SLU 77	-159	-51800	297605	6.02	1938598	6.514	Si
SLU 77	39	-51156	92775	5.95	1981895	21.362	Si
SLU 75	-159	-50687	325889	5.89	2012386	6.175	Si
SLU 75	39	-49717	110588	5.78	2072521	18.741	Si
SLU 76	-159	-50635	322554	5.88	2015720	6.249	Si
SLU 76	39	-49593	102257	5.76	2079934	20.34	Si
SLU 81	-159	-51630	353210	6	1950217	5.521	Si
SLU 81	39	-50686	140027	5.89	2012450	14.372	Si
SLU 74	-159	-50652	316794	5.89	2014600	6.359	Si
SLU 74	39	-49824	107890	5.79	2066092	19.15	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	-159	-13725	851293	1.6	1711396	2.01	Si
SLV 12	39	-13754	400043	1.6	1714465	4.286	Si
SLV 3	-159	-42907	351129	4.99	3642100	10.373	Si
SLV 3	39	-34250	553770	3.98	3311708	5.98	Si
SLV 8	-159	-21673	822361	2.52	2467420	3	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	39	-17242	620796	2	2067125	3.33	Si
SLV 16	-159	-16415	447571	1.91	1986524	4.438	Si
SLV 16	39	-22626	-182073	2.63	2546517	13.986	Si
SLD 12	-159	-25701	487660	2.99	2784778	5.71	Si
SLD 12	39	-25297	195706	2.94	2754949	14.077	Si
SLV 11	-159	-13725	851293	1.6	1711396	2.01	Si
SLV 11	39	-13754	400043	1.6	1714465	4.286	Si
SLD 11	-159	-25701	487660	2.99	2784778	5.71	Si
SLD 11	39	-25297	195706	2.94	2754949	14.077	Si
SLV 15	-159	-16415	447571	1.91	1986524	4.438	Si
SLV 15	39	-22626	-182073	2.63	2546517	13.986	Si
SLV 7	-159	-21673	822361	2.52	2467420	3	Si
SLV 7	39	-17242	620796	2	2067125	3.33	Si
SLV 4	-159	-42907	351129	4.99	3642100	10.373	Si
SLV 4	39	-34250	553770	3.98	3311708	5.98	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	-159	-51725	-7059	288208		6.01	286.82	1.08	9322			1.32	Si
SLU 79	39	-51104	-3285	82645		5.94	286.82	1.08	9322			2.84	Si
SLU 58	-159	-48302	-6455	245792		5.61	286.82	1.08	9322			1.44	Si
SLU 58	39	-47729	-2993	39652		5.55	286.82	1.08	9322			3.11	Si
SLU 74	-159	-50652	-6561	316794		5.89	286.82	1.08	9322			1.42	Si
SLU 74	39	-49824	-2824	107890		5.79	286.82	1.08	9322			3.3	Si
SLU 83	-159	-52778	-6884	334021		6.13	286.82	1.08	9322			1.35	Si
SLU 83	39	-52018	-3006	124911		6.05	286.82	1.08	9322			3.1	Si
SLU 81	-159	-51630	-6411	353210		6	286.82	1.08	9322			1.45	Si
SLU 81	39	-50686	-2589	140027		5.89	286.82	1.08	9322			3.6	Si
SLU 56	-159	-48378	-6429	255190		5.62	286.82	1.08	9322			1.45	Si
SLU 56	39	-47782	-2948	49781		5.55	286.82	1.08	9322			3.16	Si
SLU 84	-159	-52812	-6708	343115		6.14	286.82	1.08	9322			1.39	Si
SLU 84	39	-51912	-2828	127610		6.03	286.82	1.08	9322			3.3	Si
SLU 80	-159	-51760	-6883	297302		6.02	286.82	1.08	9322			1.35	Si
SLU 80	39	-50997	-3107	85343		5.93	286.82	1.08	9322			3	Si
SLU 78	-159	-51835	-6857	306700		6.02	286.82	1.08	9322			1.36	Si
SLU 78	39	-51050	-3063	95473		5.93	286.82	1.08	9322			3.04	Si
SLU 77	-159	-51800	-7033	297605		6.02	286.82	1.08	9322			1.33	Si
SLU 77	39	-51156	-3241	92775		5.95	286.82	1.08	9322			2.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	-159	-13725	11477	851293		1.87	244.16	1.21	8849			0.77	No, Vu<V
SLV 11	39	-13754	13439	400043		1.6	286.82	1.15	9921			0.74	No, Vu<V
SLV 8	-159	-21673	10123	822361		2.52	286.82	1.34	11505			1.14	Si
SLV 8	39	-17242	12780	620796		2	286.82	1.23	10619			0.83	No, Vu<V
SLV 7	-159	-21673	10123	822361		2.52	286.82	1.34	11505			1.14	Si
SLV 7	39	-17242	12780	620796		2	286.82	1.23	10619			0.83	No, Vu<V
SLV 9	-159	-47902	-18594	-398642		5.57	286.82	1.63	13982			0.75	No, Vu<V
SLV 9	39	-50727	-16114	-527303		5.9	286.82	1.63	13982			0.87	No, Vu<V
SLV 12	-159	-13725	11477	851293		1.87	244.16	1.21	8849			0.77	No, Vu<V
SLV 12	39	-13754	13439	400043		1.6	286.82	1.15	9921			0.74	No, Vu<V
SLV 5	-159	-55850	-19947	-427574		6.49	286.82	1.63	13982			0.7	No, Vu<V
SLV 5	39	-54214	-16774	-306550		6.3	286.82	1.63	13982			0.83	No, Vu<V
SLV 6	-159	-55850	-19947	-427574		6.49	286.82	1.63	13982			0.7	No, Vu<V
SLV 6	39	-54214	-16774	-306550		6.3	286.82	1.63	13982			0.83	No, Vu<V
SLV 10	-159	-47902	-18594	-398642		5.57	286.82	1.63	13982			0.75	No, Vu<V
SLV 10	39	-50727	-16114	-527303		5.9	286.82	1.63	13982			0.87	No, Vu<V
SLD 6	-159	-43874	-11083	-63941		5.1	286.82	1.63	13982			1.26	Si
SLD 6	39	-42671	-8244	-102213		4.96	286.82	1.63	13982			1.7	Si
SLD 5	-159	-43874	-11083	-63941		5.1	286.82	1.63	13982			1.26	Si
SLD 5	39	-42671	-8244	-102213		4.96	286.82	1.63	13982			1.7	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -60 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.24	1.49	-12797	6181	168592	27.28	Si
SLV 12	14	0.24	1.49	-12797	6181	168592	27.28	Si
SLV 15	14	0.24	1.94	-16653	6181	210232	34.01	Si
SLV 16	14	0.24	1.94	-16653	6181	210232	34.01	Si
SLV 7	14	0.24	2.31	-19898	6181	241981	39.15	Si
SLV 8	14	0.24	2.31	-19898	6181	241981	39.15	Si
SLV 14	14	0.24	3.14	-27059	6181	301425	48.76	Si
SLV 13	14	0.24	3.14	-27059	6181	301425	48.76	Si
SLV 3	14	0.24	4.69	-40322	6181	372868	60.32	Si
SLV 4	14	0.24	4.69	-40322	6181	372868	60.32	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -60 Wa = 0.05 Ta = 0.0218

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	-45342	-53160	145	0.075	48.578	0.984	110.923	315.011	No
SLV 2	-45342	-53160	145	0.075	48.578	0.984	110.923	315.011	No
SLV 6	-54214	-55850	77	0.076	57.619	0.987	112.618	318.459	No
SLV 5	-54214	-55850	77	0.076	57.619	0.987	112.618	318.459	No
SLV 4	-34250	-42907	134	0.075	37.275	0.98	111.619	315.011	No
SLV 3	-34250	-42907	134	0.075	37.275	0.98	111.619	315.011	No
SLV 10	-50727	-47902	6	0.078	54.065	0.986	114.767	318.459	No
SLV 9	-50727	-47902	6	0.078	54.065	0.986	114.767	318.459	No





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-33718	-26668	-89	0.077	36.733	0.98	113.536	315.011	No
SLV 13	-33718	-26668	-89	0.077	36.733	0.98	113.536	315.011	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.376	SLU 82	Si
V_SLU	1.32	SLU 79	Si
PF_SLV	2.01	SLV 11	Si
V_SLV	0.701	SLV 5	No
PFFP_SLV	27.275	SLV 11	Si
R_SLV	0.352	SLV 1	No

## Maschio 39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1101.3	-478.4	-1101.3	-191.6	L2	L3	286.8	30	72	72	72			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 79	39	-54304	-462515	6.31	1754144	3.793	Si
SLU 79	111	-54555	-235869	6.34	1734219	7.352	Si
SLU 56	39	-50826	-457723	5.91	2003480	4.377	Si
SLU 56	111	-50969	-250080	5.92	1994166	7.974	Si
SLU 78	39	-54248	-439534	6.3	1758509	4.001	Si
SLU 78	111	-54535	-222632	6.34	1735837	7.797	Si
SLU 83	39	-55088	-428829	6.4	1691039	3.943	Si
SLU 83	111	-55403	-211603	6.44	1664996	7.868	Si
SLU 84	39	-54985	-418635	6.39	1699498	4.06	Si
SLU 84	111	-55327	-209351	6.43	1671357	7.983	Si
SLU 58	39	-50778	-470510	5.9	2006571	4.265	Si
SLU 58	111	-50913	-261065	5.92	1997823	7.653	Si
SLU 80	39	-54200	-452321	6.3	1762271	3.896	Si
SLU 80	111	-54478	-233617	6.33	1740314	7.449	Si
SLU 59	39	-50674	-460316	5.89	2013206	4.374	Si
SLU 59	111	-50836	-258814	5.91	2002778	7.738	Si
SLU 62	39	-51562	-436824	5.99	1954789	4.475	Si
SLU 62	111	-51762	-236800	6.02	1941247	8.198	Si
SLU 77	39	-54352	-449728	6.32	1750361	3.892	Si
SLU 77	111	-54611	-224884	6.35	1729724	7.692	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 8	39	-19314	805909	2.24	2261036	2.806	Si
SLV 8	111	-19491	645193	2.27	2277043	3.529	Si
SLV 9	39	-53228	-1372480	6.19	3768829	2.746	Si
SLV 9	111	-53161	-955267	6.18	3768944	3.945	Si
SLV 10	39	-53228	-1372480	6.19	3768829	2.746	Si
SLV 10	111	-53161	-955267	6.18	3768944	3.945	Si
SLV 6	39	-57416	-1341464	6.67	3737366	2.786	Si
SLV 6	111	-56587	-646361	6.58	3747396	5.798	Si
SLV 7	39	-19314	805909	2.24	2261036	2.806	Si
SLV 7	111	-19491	645193	2.27	2277043	3.529	Si
SLV 11	39	-15126	774893	1.76	1857156	2.397	Si
SLV 11	111	-16065	336287	1.87	1951880	5.804	Si
SLV 12	39	-15126	774893	1.76	1857156	2.397	Si
SLV 12	111	-16065	336287	1.87	1951880	5.804	Si
SLV 14	39	-35006	-657084	4.07	3348706	5.096	Si
SLV 14	111	-36181	-863613	4.2	3403088	3.941	Si
SLV 5	39	-57416	-1341464	6.67	3737366	2.786	Si
SLV 5	111	-56587	-646361	6.58	3747396	5.798	Si
SLV 13	39	-35006	-657084	4.07	3348706	5.096	Si
SLV 13	111	-36181	-863613	4.2	3403088	3.941	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 69	39	-49160	-2380	-430104		5.71	286.82	1.08	9322			3.92	Si
SLU 69	111	-49235	-2528	-229603		5.72	286.82	1.08	9322			3.69	Si
SLU 56	39	-50826	-2390	-457723		5.91	286.82	1.08	9322			3.9	Si
SLU 56	111	-50969	-2514	-250080		5.92	286.82	1.08	9322			3.71	Si
SLU 80	39	-54200	-2512	-452321		6.3	286.82	1.08	9322			3.71	Si
SLU 80	111	-54478	-2637	-233617		6.33	286.82	1.08	9322			3.54	Si
SLU 58	39	-50778	-2433	-470510		5.9	286.82	1.08	9322			3.83	Si
SLU 58	111	-50913	-2556	-261065		5.92	286.82	1.08	9322			3.65	Si
SLU 37	39	-45378	-2431	-375785		5.27	286.82	1.08	9322			3.83	Si
SLU 37	111	-45679	-2523	-178154		5.31	286.82	1.08	9322			3.69	Si
SLU 83	39	-55088	-2396	-428829		6.4	286.82	1.08	9322			3.89	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	111	-55403	-2500	-211603		6.44	286.82	1.08	9322			3.73	Si
SLU 71	39	-49112	-2423	-442891		5.71	286.82	1.08	9322			3.85	Si
SLU 71	111	-49179	-2571	-240588		5.72	286.82	1.08	9322			3.63	Si
SLU 78	39	-54248	-2469	-439534		6.3	286.82	1.08	9322			3.78	Si
SLU 78	111	-54535	-2594	-222632		6.34	286.82	1.08	9322			3.59	Si
SLU 77	39	-54352	-2640	-449728		6.32	286.82	1.08	9322			3.53	Si
SLU 77	111	-54611	-2763	-224884		6.35	286.82	1.08	9322			3.37	Si
SLU 79	39	-54304	-2683	-462515		6.31	286.82	1.08	9322			3.47	Si
SLU 79	111	-54555	-2806	-235869		6.34	286.82	1.08	9322			3.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	39	-53228	-15117	-1372480		6.19	286.82	1.63	13982			0.92	No, Vu<V
SLV 10	111	-53161	-14287	-955267		6.18	286.82	1.63	13982			0.98	No, Vu<V
SLV 8	39	-19314	12575	805909		2.24	286.82	1.28	11033			0.88	No, Vu<V
SLV 8	111	-19491	11557	645193		2.27	286.82	1.29	11069			0.96	No, Vu<V
SLD 5	39	-45340	-7290	-737126		5.27	286.82	1.63	13982			1.92	Si
SLD 5	111	-45007	-7304	-363818		5.23	286.82	1.63	13982			1.91	Si
SLV 11	39	-15126	12552	774893		1.82	276.54	1.2	9939			0.79	No, Vu<V
SLV 11	111	-16065	12301	336287		1.87	286.82	1.21	10384			0.84	No, Vu<V
SLV 12	39	-15126	12552	774893		1.82	276.54	1.2	9939			0.79	No, Vu<V
SLV 12	111	-16065	12301	336287		1.87	286.82	1.21	10384			0.84	No, Vu<V
SLV 7	39	-19314	12575	805909		2.24	286.82	1.28	11033			0.88	No, Vu<V
SLV 7	111	-19491	11557	645193		2.27	286.82	1.29	11069			0.96	No, Vu<V
SLV 6	39	-57416	-15094	-1341464		6.67	286.82	1.63	13982			0.93	No, Vu<V
SLV 6	111	-56587	-15030	-646361		6.58	286.82	1.63	13982			0.93	No, Vu<V
SLV 5	39	-57416	-15094	-1341464		6.67	286.82	1.63	13982			0.93	No, Vu<V
SLV 5	111	-56587	-15030	-646361		6.58	286.82	1.63	13982			0.93	No, Vu<V
SLV 9	39	-53228	-15117	-1372480		6.19	286.82	1.63	13982			0.92	No, Vu<V
SLV 9	111	-53161	-14287	-955267		6.18	286.82	1.63	13982			0.98	No, Vu<V
SLD 6	39	-45340	-7290	-737126		5.27	286.82	1.63	13982			1.92	Si
SLD 6	111	-45007	-7304	-363818		5.23	286.82	1.63	13982			1.91	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 75 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.26	1.83	-15785	870	201228	231.33	Si
SLV 12	14	0.26	1.83	-15785	870	201228	231.33	Si
SLV 7	14	0.26	2.36	-20339	870	246069	282.87	Si
SLV 8	14	0.26	2.36	-20339	870	246069	282.87	Si
SLV 16	14	0.26	2.74	-23580	870	274372	315.41	Si
SLV 15	14	0.26	2.74	-23580	870	274372	315.41	Si
SLV 14	14	0.26	4.05	-34815	870	349298	401.54	Si
SLV 13	14	0.26	4.05	-34815	870	349298	401.54	Si
SLV 3	14	0.26	4.5	-38761	870	367062	421.96	Si
SLV 4	14	0.26	4.5	-38761	870	367062	421.96	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 75 Wa = 0.05 Ta = 0.0029

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-56587	-57416	727	0.198	58.537	0.995	288.625	260.194	Si
SLV 6	-56587	-57416	727	0.198	58.537	0.995	288.625	260.194	Si
SLV 10	-53161	-53228	637	0.199	55.045	0.995	290.156	260.194	Si
SLV 9	-53161	-53228	637	0.199	55.045	0.995	290.156	260.194	Si
SLV 2	-47601	-48967	578	0.199	49.377	0.994	290.496	259.853	Si
SLV 1	-47601	-48967	578	0.199	49.377	0.994	290.496	259.853	Si
SLV 4	-36472	-37536	360	0.202	38.033	0.993	295.372	259.853	Si
SLV 3	-36472	-37536	360	0.202	38.033	0.993	295.372	259.853	Si
SLV 14	-36181	-35006	279	0.204	37.736	0.993	298.554	259.853	Si
SLV 13	-36181	-35006	279	0.204	37.736	0.993	298.554	259.853	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.793	SLU 79	Si
V_SLU	3.323	SLU 79	Si
PF_SLV	2.397	SLV 11	Si
V_SLV	0.792	SLV 11	No
PFFP_SLV	231.325	SLV 11	Si
R_SLV	1.109	SLV 5	Si

## Maschio 40

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1101.3	-191.6	-1101.3	-35.4	L1	Z medio 75 cm	156.2	30	234	198	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	-159	-30774	24197	6.57	465450	19.236	Si
SLU 84	39	-29278	6315	6.25	532476	84.322	Si
SLU 81	-159	-30380	28320	6.48	483994	17.09	Si
SLU 81	39	-28875	6851	6.16	548950	80.123	Si
SLU 76	-159	-29300	22979	6.25	531527	23.131	Si
SLU 76	39	-27757	6063	5.92	591192	97.513	Si
SLU 39	-159	-25727	26596	5.49	654806	24.621	Si
SLU 39	39	-24624	8565	5.26	682301	79.659	Si
SLU 75	-159	-29474	23411	6.29	524214	22.392	Si
SLU 75	39	-27945	8292	5.96	584446	70.481	Si
SLU 61	-159	-27978	25759	5.97	583231	22.642	Si
SLU 61	39	-26426	-2606	5.64	634788	243.6	Si
SLU 82	-159	-30415	30909	6.49	482360	15.606	Si
SLU 82	39	-28906	5287	6.17	547689	103.588	Si
SLU 40	-159	-25762	29185	5.5	653844	22.404	Si
SLU 40	39	-24655	7001	5.26	681587	97.354	Si
SLU 83	-159	-30739	21608	6.56	467136	21.619	Si
SLU 83	39	-29246	7879	6.24	533784	67.748	Si
SLU 73	-159	-28941	29691	6.18	546271	18.399	Si
SLU 73	39	-27385	5035	5.84	604093	119.977	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	-159	-22912	248909	4.89	1073136	4.311	Si
SLV 8	39	-21416	-76824	4.57	1046782	13.626	Si
SLD 12	-159	-20132	120423	4.3	1019265	8.464	Si
SLD 12	39	-18835	-26729	4.02	986941	36.923	Si
SLV 12	-159	-20310	256969	4.33	1023360	3.982	Si
SLV 12	39	-18948	-67073	4.04	989939	14.759	Si
SLV 9	-159	-17072	-218775	3.64	935616	4.277	Si
SLV 9	39	-16065	86895	3.43	902476	10.386	Si
SLD 11	-159	-20132	120423	4.3	1019265	8.464	Si
SLD 11	39	-18835	-26729	4.02	986941	36.923	Si
SLV 11	-159	-20310	256969	4.33	1023360	3.982	Si
SLV 11	39	-18948	-67073	4.04	989939	14.759	Si
SLV 7	-159	-22912	248909	4.89	1073136	4.311	Si
SLV 7	39	-21416	-76824	4.57	1046782	13.626	Si
SLV 6	-159	-19674	-226835	4.2	1008370	4.445	Si
SLV 6	39	-18533	77144	3.96	978734	12.687	Si
SLV 5	-159	-19674	-226835	4.2	1008370	4.445	Si
SLV 5	39	-18533	77144	3.96	978734	12.687	Si
SLV 10	-159	-17072	-218775	3.64	935616	4.277	Si
SLV 10	39	-16065	86895	3.43	902476	10.386	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-159	-28941	1584	29691		6.18	156.18	1.08	5076			3.2	Si
SLU 73	39	-27385	1123	5035		5.84	156.18	1.08	5076			4.52	Si
SLU 52	-159	-26504	1593	24541		5.66	156.18	1.08	5076			3.19	Si
SLU 52	39	-24905	1132	-2858		5.32	156.18	1.08	5076			4.48	Si
SLU 61	-159	-27978	1592	25759		5.97	156.18	1.08	5076			3.19	Si
SLU 61	39	-26426	1146	-2606		5.64	156.18	1.08	5076			4.43	Si
SLU 63	-159	-28337	1436	19046		6.05	156.18	1.08	5076			3.54	Si
SLU 63	39	-26798	952	-1578		5.72	156.18	1.08	5076			5.33	Si
SLU 82	-159	-30415	1582	30909		6.49	156.18	1.08	5076			3.21	Si
SLU 82	39	-28906	1137	5287		6.17	156.18	1.08	5076			4.46	Si
SLU 60	-159	-27943	1487	23170		5.96	156.18	1.08	5076			3.41	Si
SLU 60	39	-26395	1037	-1042		5.63	156.18	1.08	5076			4.89	Si
SLU 55	-159	-26863	1437	17828		5.73	156.18	1.08	5076			3.53	Si
SLU 55	39	-25277	938	-1830		5.39	156.18	1.08	5076			5.41	Si
SLU 44	-159	-23009	1434	17672		4.91	156.18	1.08	5076			3.54	Si
SLU 44	39	-21307	931	-1013		4.55	156.18	1.08	5076			5.45	Si
SLU 76	-159	-29300	1428	22979		6.25	156.18	1.08	5076			3.56	Si
SLU 76	39	-27757	929	6063		5.92	156.18	1.08	5076			5.46	Si
SLU 81	-159	-30380	1478	28320		6.48	156.18	1.08	5076			3.43	Si
SLU 81	39	-28875	1029	6851		6.16	156.18	1.08	5076			4.93	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	-159	-22912	8557	248909		4.89	156.18	1.63	7614			0.89	No, Vu<V
SLV 7	39	-21416	8968	-76824		4.57	156.18	1.63	7614			0.85	No, Vu<V
SLV 11	-159	-20310	8433	256969		4.33	156.18	1.63	7614			0.9	No, Vu<V
SLV 11	39	-18948	8006	-67073		4.04	156.18	1.63	7614			0.95	No, Vu<V
SLV 9	-159	-17072	-6538	-218775		3.64	156.18	1.56	7319			1.12	Si
SLV 9	39	-16065	-7708	86895		3.43	156.18	1.52	7117			0.92	No, Vu<V
SLV 6	-159	-19674	-6414	-226835		4.2	156.18	1.63	7614			1.19	Si
SLV 6	39	-18533	-6747	77144		3.96	156.18	1.62	7611			1.13	Si
SLV 12	-159	-20310	8433	256969		4.33	156.18	1.63	7614			0.9	No, Vu<V
SLV 12	39	-18948	8006	-67073		4.04	156.18	1.63	7614			0.95	No, Vu<V
SLV 8	-159	-22912	8557	248909		4.89	156.18	1.63	7614			0.89	No, Vu<V
SLV 8	39	-21416	8968	-76824		4.57	156.18	1.63	7614			0.85	No, Vu<V
SLV 10	-159	-17072	-6538	-218775		3.64	156.18	1.56	7319			1.12	Si
SLV 10	39	-16065	-7708	86895		3.43	156.18	1.52	7117			0.92	No, Vu<V
SLV 5	-159	-19674	-6414	-226835		4.2	156.18	1.63	7614			1.19	Si
SLV 5	39	-18533	-6747	77144		3.96	156.18	1.62	7611			1.13	Si
SLV 3	-159	-24813	3462	72995		5.3	156.18	1.63	7614			2.2	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	39	-23287	4590	-34311		4.97	156.18	1.63	7614			1.66	Si
SLV 4	-159	-24813	3462	72995		5.3	156.18	1.63	7614			2.2	Si
SLV 4	39	-23287	4590	-34311		4.97	156.18	1.63	7614			1.66	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -60 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	14	0.24	3.19	-14955	4701	165724	35.25	Si
SLV 14	14	0.24	3.19	-14955	4701	165724	35.25	Si
SLV 16	14	0.24	3.39	-15905	4701	172295	36.65	Si
SLV 15	14	0.24	3.39	-15905	4701	172295	36.65	Si
SLV 9	14	0.24	3.6	-16889	4701	178597	37.99	Si
SLV 10	14	0.24	3.6	-16889	4701	178597	37.99	Si
SLV 6	14	0.24	4.16	-19496	4701	192854	41.02	Si
SLV 5	14	0.24	4.16	-19496	4701	192854	41.02	Si
SLV 12	14	0.24	4.28	-20056	4701	195449	41.58	Si
SLV 11	14	0.24	4.28	-20056	4701	195449	41.58	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -60 Wa = 0.05 Ta = 0.0305

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	-22421	-23842	109	0.062	24.375	0.98	92.144	359.246	No
SLV 1	-22421	-23842	109	0.062	24.375	0.98	92.144	359.246	No
SLV 4	-23287	-24813	106	0.062	25.257	0.981	92.383	359.246	No
SLV 3	-23287	-24813	106	0.062	25.257	0.981	92.383	359.246	No
SLV 5	-18533	-19674	54	0.065	20.414	0.977	96.095	364.972	No
SLV 6	-18533	-19674	54	0.065	20.414	0.977	96.095	364.972	No
SLV 8	-21416	-22912	43	0.065	23.351	0.979	96.442	364.972	No
SLV 7	-21416	-22912	43	0.065	23.351	0.979	96.442	364.972	No
SLV 15	-15060	-16142	-62	0.064	16.876	0.972	95.98	359.246	No
SLV 16	-15060	-16142	-62	0.064	16.876	0.972	95.98	359.246	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	15.606	SLU 82	Si
V_SLU	3.186	SLU 52	Si
PF_SLV	3.982	SLV 11	Si
V_SLV	0.849	SLV 7	No
PFFP_SLV	35.253	SLV 13	Si
R_SLV	0.256	SLV 1	No

## Maschio 42

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1101.3	-35.4	-1101.3	104.6	L1	L3	140	30	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	-159	-29796	132244	7.09	269236	2.036	Si
SLU 82	111	-25465	-55782	6.06	455784	8.171	Si
SLU 76	-159	-28374	120531	6.76	338964	2.812	Si
SLU 76	111	-24189	-53509	5.76	496078	9.271	Si
SLU 83	-159	-29808	123710	7.1	268633	2.171	Si
SLU 83	111	-25585	-55795	6.09	451652	8.095	Si
SLU 77	-159	-28623	112684	6.81	327362	2.905	Si
SLU 77	111	-24566	-52725	5.85	484879	9.196	Si
SLU 75	-159	-28611	121218	6.81	327908	2.705	Si
SLU 75	111	-24446	-52712	5.82	488511	9.268	Si
SLU 84	-159	-29892	126635	7.12	264274	2.087	Si
SLU 84	111	-25630	-56523	6.1	450088	7.963	Si
SLU 73	-159	-28279	126140	6.73	343335	2.722	Si
SLU 73	111	-24024	-52769	5.72	500802	9.491	Si
SLU 74	-159	-28528	118293	6.79	331830	2.805	Si
SLU 74	111	-24401	-51984	5.81	489857	9.423	Si
SLU 78	-159	-28706	115609	6.83	323408	2.797	Si
SLU 78	111	-24611	-53453	5.86	483503	9.045	Si
SLU 81	-159	-29713	129319	7.07	273563	2.115	Si
SLU 81	111	-25420	-55054	6.05	457318	8.307	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	-159	-27376	281767	6.52	894067	3.173	Si
SLV 12	111	-21136	-32525	5.03	870172	26.754	Si
SLV 11	-159	-27376	281767	6.52	894067	3.173	Si
SLV 11	111	-21136	-32525	5.03	870172	26.754	Si
SLV 3	-159	-27486	201071	6.54	893533	4.444	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	111	-22555	-26186	5.37	884941	33.795	Si
SLV 10	-159	-7976	-151831	1.9	471543	3.106	Si
SLV 10	111	-8570	-44182	2.04	499713	11.31	Si
SLV 9	-159	-7976	-151831	1.9	471543	3.106	Si
SLV 9	111	-8570	-44182	2.04	499713	11.31	Si
SLV 7	-159	-30560	314565	7.28	865321	2.751	Si
SLV 7	111	-23821	-27716	5.67	893473	32.236	Si
SLD 8	-159	-24158	182775	5.75	895008	4.897	Si
SLD 8	111	-19469	-33055	4.64	845805	25.588	Si
SLD 7	-159	-24158	182775	5.75	895008	4.897	Si
SLD 7	111	-19469	-33055	4.64	845805	25.588	Si
SLV 4	-159	-27486	201071	6.54	893533	4.444	Si
SLV 4	111	-22555	-26186	5.37	884941	33.795	Si
SLV 8	-159	-30560	314565	7.28	865321	2.751	Si
SLV 8	111	-23821	-27716	5.67	893473	32.236	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	-159	-28374	3711	120531		6.76	140	1.08	4550			1.23	Si
SLU 76	111	-24189	-86	-53509		5.76	140	1.08	4550			52.79	Si
SLU 61	-159	-27056	3730	119376		6.44	140	1.08	4550			1.22	Si
SLU 61	111	-22878	144	-56874		5.45	140	1.08	4550			31.54	Si
SLU 83	-159	-29808	3764	123710		7.1	140	1.08	4550			1.21	Si
SLU 83	111	-25585	-207	-55795		6.09	140	1.08	4550			21.94	Si
SLU 75	-159	-28611	3704	121218		6.81	140	1.08	4550			1.23	Si
SLU 75	111	-24446	-107	-52712		5.82	140	1.08	4550			42.38	Si
SLU 63	-159	-27151	3621	113766		6.46	140	1.08	4550			1.26	Si
SLU 63	111	-23043	-10	-57615		5.49	140	1.08	4550			462.64	Si
SLU 60	-159	-26972	3642	116451		6.42	140	1.08	4550			1.25	Si
SLU 60	111	-22833	64	-56146		5.44	140	1.08	4550			71.19	Si
SLU 84	-159	-29892	3852	126635		7.12	140	1.08	4550			1.18	Si
SLU 84	111	-25630	-127	-56523		6.1	140	1.08	4550			35.82	Si
SLU 81	-159	-29713	3873	129319		7.07	140	1.08	4550			1.17	Si
SLU 81	111	-25420	-53	-55054		6.05	140	1.08	4550			85.4	Si
SLU 73	-159	-28279	3820	126140		6.73	140	1.08	4550			1.19	Si
SLU 73	111	-24024	68	-52769		5.72	140	1.08	4550			67.01	Si
SLU 82	-159	-29796	3961	132244		7.09	140	1.08	4550			1.15	Si
SLU 82	111	-25465	27	-55782		6.06	140	1.08	4550			168.14	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 7	-159	-24158	5415	182775		5.75	140	1.63	6825			1.26	Si
SLD 7	111	-19469	2059	-33055		4.64	140	1.63	6825			3.31	Si
SLV 9	-159	-7976	-4030	-151831		1.9	140	1.21	5095			1.26	Si
SLV 9	111	-8570	-4845	-44182		2.04	140	1.24	5214			1.08	Si
SLD 8	-159	-24158	5415	182775		5.75	140	1.63	6825			1.26	Si
SLD 8	111	-19469	2059	-33055		4.64	140	1.63	6825			3.31	Si
SLV 5	-159	-11161	-3859	-119032		2.66	140	1.36	5732			1.49	Si
SLV 5	111	-11255	-5908	-39373		2.68	140	1.37	5751			0.97	No, Vu<V
SLV 6	-159	-11161	-3859	-119032		2.66	140	1.36	5732			1.49	Si
SLV 6	111	-11255	-5908	-39373		2.68	140	1.37	5751			0.97	No, Vu<V
SLV 7	-159	-30560	9128	314565		7.28	140	1.63	6825			0.75	No, Vu<V
SLV 7	111	-23821	4766	-27716		5.67	140	1.63	6825			1.43	Si
SLV 8	-159	-30560	9128	314565		7.28	140	1.63	6825			0.75	No, Vu<V
SLV 8	111	-23821	4766	-27716		5.67	140	1.63	6825			1.43	Si
SLV 12	-159	-27376	8956	281767		6.52	140	1.63	6825			0.76	No, Vu<V
SLV 12	111	-21136	5829	-32525		5.03	140	1.63	6825			1.17	Si
SLV 10	-159	-7976	-4030	-151831		1.9	140	1.21	5095			1.26	Si
SLV 10	111	-8570	-4845	-44182		2.04	140	1.24	5214			1.08	Si
SLV 11	-159	-27376	8956	281767		6.52	140	1.63	6825			0.76	No, Vu<V
SLV 11	111	-21136	5829	-32525		5.03	140	1.63	6825			1.17	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.24	2.12	-8896	5610	110307	19.66	Si
SLV 10	14	0.24	2.12	-8896	5610	110307	19.66	Si
SLV 14	14	0.24	2.71	-11372	5610	132779	23.67	Si
SLV 13	14	0.24	2.71	-11372	5610	132779	23.67	Si
SLV 5	14	0.24	2.74	-11527	5610	134072	23.9	Si
SLV 6	14	0.24	2.74	-11527	5610	134072	23.9	Si
SLV 15	14	0.24	3.84	-16126	5610	165879	29.57	Si
SLV 16	14	0.24	3.84	-16126	5610	165879	29.57	Si
SLV 2	14	0.24	4.8	-20144	5610	183554	32.72	Si
SLV 1	14	0.24	4.8	-20144	5610	183554	32.72	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-22555	-27486	289	0.046	24.564	0.98	67.827	430.325	No
SLV 3	-22555	-27486	289	0.046	24.564	0.98	67.827	430.325	No
SLV 1	-18786	-21666	233	0.047	20.724	0.976	69.458	430.325	No
SLV 2	-18786	-21666	233	0.047	20.724	0.976	69.458	430.325	No
SLV 8	-23821	-30560	240	0.048	25.854	0.981	71.402	439.851	No
SLV 7	-23821	-30560	240	0.048	25.854	0.981	71.402	439.851	No
SLV 11	-21136	-27376	143	0.052	23.118	0.979	76.746	439.851	No
SLV 12	-21136	-27376	143	0.052	23.118	0.979	76.746	439.851	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-9835	-11050	-91	0.052	11.612	0.959	79.425	430.325	No
SLV 14	-9835	-11050	-91	0.052	11.612	0.959	79.425	430.325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.036	SLU 82	Si
V_SLU	1.149	SLU 82	Si
PF_SLV	2.751	SLV 7	Si
V_SLV	0.748	SLV 7	No
PFFP_SLV	19.661	SLV 9	Si
R_SLV	0.158	SLV 3	No

## Maschio 43

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-972.8	220.1	-972.8	657.6	L1	L3	437.5	30	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 40	-159	-30906	-308791	2.35	4806343	15.565	Si
SLU 40	61	-21282	-459708	1.62	3728787	8.111	Si
SLU 41	-159	-30973	-288437	2.36	4812510	16.685	Si
SLU 41	61	-21274	-455156	1.62	3727711	8.19	Si
SLU 42	-159	-30967	-289664	2.36	4811946	16.612	Si
SLU 42	61	-21274	-455415	1.62	3727685	8.185	Si
SLU 34	-159	-28647	-211373	2.18	4587424	21.703	Si
SLU 34	61	-19222	-395916	1.46	3448895	8.711	Si
SLU 84	-159	-35309	-235886	2.69	5172982	21.93	Si
SLU 84	61	-23354	-473331	1.78	3992794	8.436	Si
SLU 39	-159	-30912	-307563	2.36	4806909	15.629	Si
SLU 39	61	-21283	-459449	1.62	3728812	8.116	Si
SLU 83	-159	-35315	-234659	2.69	5173437	22.047	Si
SLU 83	61	-23354	-473072	1.78	3992818	8.44	Si
SLU 82	-159	-35248	-255013	2.69	5168460	20.267	Si
SLU 82	61	-23363	-477623	1.78	3993825	8.362	Si
SLU 81	-159	-35254	-253785	2.69	5168916	20.367	Si
SLU 81	61	-23363	-477364	1.78	3993849	8.366	Si
SLU 31	-159	-28586	-230499	2.18	4581245	19.875	Si
SLU 31	61	-19231	-400208	1.47	3450067	8.621	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 5	-159	-33335	-2614424	2.54	5776248	2.209	Si
SLV 5	61	-18134	-15294	1.38	3518253	230.045	Si
SLV 8	-159	-10717	2302316	0.82	2187591	0.95	No, M>Mu
SLV 8	61	-8388	-462763	0.64	1738839	3.758	Si
SLV 10	-159	-32944	-2346775	2.51	5726076	2.44	Si
SLV 10	61	-18230	-4000	1.39	3534462	883.554	Si
SLV 7	-159	-10717	2302316	0.82	2187591	0.95	No, M>Mu
SLV 7	61	-8388	-462763	0.64	1738839	3.758	Si
SLV 12	-159	-10326	2569966	0	0	0	No, e>l/2
SLV 12	61	-8483	-451470	0.65	1757595	3.893	Si
SLV 9	-159	-32944	-2346775	2.51	5726076	2.44	Si
SLV 9	61	-18230	-4000	1.39	3534462	883.554	Si
SLV 15	-159	-17786	1161364	1.36	3459170	2.979	Si
SLV 15	61	-12006	-281680	0.91	2429786	8.626	Si
SLV 16	-159	-17786	1161364	1.36	3459170	2.979	Si
SLV 16	61	-12006	-281680	0.91	2429786	8.626	Si
SLV 6	-159	-33335	-2614424	2.54	5776248	2.209	Si
SLV 6	61	-18134	-15294	1.38	3518253	230.045	Si
SLV 11	-159	-10326	2569966	0	0	0	No, e>l/2
SLV 11	61	-8483	-451470	0.65	1757595	3.893	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	-159	-33060	654	-136423		2.52	437.5	0.89	11700			17.89	Si
SLU 79	61	-21295	816	-409107		1.62	437.5	0.77	10131			12.42	Si
SLU 78	-159	-33103	660	-125101		2.52	437.5	0.89	11705			17.74	Si
SLU 78	61	-21295	824	-405700		1.62	437.5	0.77	10131			12.3	Si
SLU 75	-159	-33042	651	-144227		2.52	437.5	0.89	11697			17.97	Si
SLU 75	61	-21303	803	-409992		1.62	437.5	0.77	10132			12.62	Si
SLU 80	-159	-33054	653	-137650		2.52	437.5	0.89	11699			17.92	Si
SLU 80	61	-21294	815	-409366		1.62	437.5	0.77	10131			12.43	Si
SLU 71	-159	-27656	571	48167		2.11	437.5	0.84	10979			19.23	Si
SLU 71	61	-16508	752	-269871		1.26	437.5	0.72	9493			12.63	Si
SLU 77	-159	-33109	661	-123873		2.52	437.5	0.89	11706			17.7	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	61	-21295	825	-405441		1.62	437.5	0.77	10131			12.28	Si
SLU 70	-159	-27699	577	-59489		2.11	437.5	0.84	10985			19.05	Si
SLU 70	61	-16508	760	-266464		1.26	437.5	0.72	9493			12.49	Si
SLU 69	-159	-27705	578	-60716		2.11	437.5	0.84	10986			19.01	Si
SLU 69	61	-16508	761	-266205		1.26	437.5	0.72	9493			12.48	Si
SLU 74	-159	-33048	652	-142999		2.52	437.5	0.89	11698			17.94	Si
SLU 74	61	-21303	803	-409733		1.62	437.5	0.77	10132			12.61	Si
SLU 72	-159	-27650	569	-46939		2.11	437.5	0.84	10978			19.28	Si
SLU 72	61	-16508	751	-270130		1.26	437.5	0.72	9493			12.64	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	-159	-10717	9854	2302316		30.44	11.74	1.63	572			0.06	No, Vu<V
SLV 7	61	-8388	7963	-462763		0.64	437.5	0.96	12615			1.58	Si
SLV 10	-159	-32944	-8989	-2346775		2.51	437.5	1.34	17526			1.95	Si
SLV 10	61	-18230	-6869	-4000		1.39	437.5	1.11	14583			2.12	Si
SLV 5	-159	-33335	-9390	-2614424		2.64	420.96	1.36	17191			1.83	Si
SLV 5	61	-18134	-7526	-15294		1.38	437.5	1.11	14564			1.94	Si
SLV 9	-159	-32944	-8989	-2346775		2.51	437.5	1.34	17526			1.95	Si
SLV 9	61	-18230	-6869	-4000		1.39	437.5	1.11	14583			2.12	Si
SLD 11	-159	-16898	4646	1090424		1.29	437.5	1.09	14317			3.08	Si
SLD 11	61	-11245	4013	-326454		0.86	437.5	1	13187			3.29	Si
SLD 12	-159	-16898	4646	1090424		1.29	437.5	1.09	14317			3.08	Si
SLD 12	61	-11245	4013	-326454		0.86	437.5	1	13187			3.29	Si
SLV 8	-159	-10717	9854	2302316		30.44	11.74	1.63	572			0.06	No, Vu<V
SLV 8	61	-8388	7963	-462763		0.64	437.5	0.96	12615			1.58	Si
SLV 6	-159	-33335	-9390	-2614424		2.64	420.96	1.36	17191			1.83	Si
SLV 6	61	-18134	-7526	-15294		1.38	437.5	1.11	14564			1.94	Si
SLV 12	-159	-10326	10255	2569966		0	0	0.83	0			0	No, Vu<V
SLV 12	61	-8483	8619	-451470		0.65	437.5	0.96	12634			1.47	Si
SLV 11	-159	-10326	10255	2569966		0	0	0.83	0			0	No, Vu<V
SLV 11	61	-8483	8619	-451470		0.65	437.5	0.96	12634			1.47	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.24	1.05	-13727	17532	188282	10.74	Si
SLV 7	14	0.24	1.05	-13727	17532	188282	10.74	Si
SLV 11	14	0.24	1.06	-13859	17532	189925	10.83	Si
SLV 12	14	0.24	1.06	-13859	17532	189925	10.83	Si
SLV 4	14	0.24	1.27	-16725	17532	224711	12.82	Si
SLV 3	14	0.24	1.27	-16725	17532	224711	12.82	Si
SLV 16	14	0.24	1.31	-17166	17532	229927	13.11	Si
SLV 15	14	0.24	1.31	-17166	17532	229927	13.11	Si
SLV 2	14	0.24	1.48	-19427	17532	256103	14.61	Si
SLV 1	14	0.24	1.48	-19427	17532	256103	14.61	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-10029	-19089	355	0.042	15.323	0.916	66.8	430.325	No
SLV 4	-10029	-19089	355	0.042	15.323	0.916	66.8	430.325	No
SLV 14	-10329	-24571	-354	0.042	15.623	0.917	67.266	430.325	No
SLV 13	-10329	-24571	-354	0.042	15.623	0.917	67.266	430.325	No
SLV 16	-9856	-17786	-314	0.045	15.15	0.915	71.547	430.325	No
SLV 15	-9856	-17786	-314	0.045	15.15	0.915	71.547	430.325	No
SLV 2	-10503	-25874	315	0.046	15.797	0.918	72.056	430.325	No
SLV 1	-10503	-25874	315	0.046	15.797	0.918	72.056	430.325	No
SLV 10	-10942	-32944	-167	0.056	16.238	0.92	88.925	439.851	No
SLV 9	-10942	-32944	-167	0.056	16.238	0.92	88.925	439.851	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.111	SLU 40	Si
V_SLU	12.284	SLU 77	Si
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	10.739	SLV 7	Si
R_SLV	0.155	SLV 3	No

## Maschio 44

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-772.3	-478.4	-1101.3	-478.4	L1	L3	329	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	-159	-29030	674793	1.96	3625886	5.373	Si
SLU 42	111	-15506	-40445	1.05	2222832	54.959	Si
SLU 84	-159	-36094	755487	2.44	4160474	5.507	Si
SLU 84	111	-19186	-112208	1.3	2654017	23.653	Si
SLU 78	-159	-35938	756543	2.43	4150101	5.486	Si
SLU 78	111	-19065	-102456	1.29	2640387	25.771	Si
SLU 76	-159	-34896	727554	2.36	4079389	5.607	Si
SLU 76	111	-18695	-139079	1.26	2598650	18.685	Si
SLU 35	-159	-29417	644078	1.99	3658737	5.681	Si
SLU 35	111	-15437	-27389	1.04	2214301	80.846	Si
SLU 37	-159	-29468	650344	1.99	3663057	5.632	Si
SLU 37	111	-15458	-21576	1.04	2216849	102.745	Si
SLU 36	-159	-28873	675849	1.95	3612494	5.345	Si
SLU 36	111	-15385	-30693	1.04	2207984	71.939	Si
SLU 34	-159	-27831	646859	1.88	3521706	5.444	Si
SLU 34	111	-15016	-67316	1.01	2162539	32.125	Si
SLU 38	-159	-28924	682115	1.95	3616890	5.302	Si
SLU 38	111	-15406	-24879	1.04	2210535	88.85	Si
SLU 80	-159	-35989	762809	2.43	4153508	5.445	Si
SLU 80	111	-19086	-96643	1.29	2642729	27.345	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	-159	-6801	-72039	0.46	1076757	14.947	Si
SLV 11	111	-6812	-425144	0.46	1078408	2.537	Si
SLV 1	-159	-23190	1291455	1.57	3325755	2.575	Si
SLV 1	111	-7495	-389177	0.51	1181837	3.037	Si
SLV 7	-159	-1341	418662	0	0	0	No, $e \geq l/2$
SLV 7	111	-1518	-620387	0	0	0	No, $e \geq l/2$
SLV 12	-159	-6801	-72039	0.46	1076757	14.947	Si
SLV 12	111	-6812	-425144	0.46	1078408	2.537	Si
SLD 7	-159	-15407	397572	1.04	2318618	5.832	Si
SLD 7	111	-8428	-366768	0.57	1321801	3.604	Si
SLV 4	-159	-10165	1152852	0.69	1578244	1.369	Si
SLV 4	111	-1886	-601021	0	0	0	No, $e \geq l/2$
SLV 8	-159	-1341	418662	0	0	0	No, $e \geq l/2$
SLV 8	111	-1518	-620387	0	0	0	No, $e \geq l/2$
SLV 3	-159	-10165	1152852	0.69	1578244	1.369	Si
SLV 3	111	-1886	-601021	0	0	0	No, $e \geq l/2$
SLV 2	-159	-23190	1291455	1.57	3325755	2.575	Si
SLV 2	111	-7495	-389177	0.51	1181837	3.037	Si
SLD 8	-159	-15407	397572	1.04	2318618	5.832	Si
SLD 8	111	-8428	-366768	0.57	1321801	3.604	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	-159	-35208	-5228	700107		2.38	329	0.87	12919			2.47	Si
SLU 75	111	-18709	-2007	-142689		1.26	329	0.72	10720			5.34	Si
SLU 77	-159	-36482	-5392	724772		2.46	329	0.88	13089			2.43	Si
SLU 77	111	-19116	-2036	-99152		1.29	329	0.73	10774			5.29	Si
SLU 78	-159	-35938	-5444	756543		2.43	329	0.88	13017			2.39	Si
SLU 78	111	-19065	-2087	-102456		1.29	329	0.73	10767			5.16	Si
SLU 76	-159	-34896	-5284	727554		2.36	329	0.87	12878			2.44	Si
SLU 76	111	-18695	-2050	-139079		1.26	329	0.72	10718			5.23	Si
SLU 80	-159	-35989	-5465	762809		2.43	329	0.88	13024			2.38	Si
SLU 80	111	-19086	-2096	-96643		1.29	329	0.73	10770			5.14	Si
SLU 83	-159	-36639	-5425	723717		2.47	329	0.89	13110			2.42	Si
SLU 83	111	-19238	-2031	-108905		1.3	329	0.73	10790			5.31	Si
SLU 82	-159	-35364	-5262	699051		2.39	329	0.87	12940			2.46	Si
SLU 82	111	-18830	-2002	-152442		1.27	329	0.73	10736			5.36	Si
SLU 63	-159	-34924	-5169	683672		2.36	329	0.87	12881			2.49	Si
SLU 63	111	-18526	-1976	-149358		1.25	329	0.72	10695			5.41	Si
SLU 79	-159	-36533	-5412	731038		2.47	329	0.88	13096			2.42	Si
SLU 79	111	-19137	-2044	-93339		1.29	329	0.73	10777			5.27	Si
SLU 84	-159	-36094	-5477	755487		2.44	329	0.88	13038			2.38	Si
SLU 84	111	-19186	-2083	-112208		1.3	329	0.73	10783			5.18	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	-159	-23190	2509	1291455		1.58	326.43	1.15	16879			6.73	Si
SLV 1	111	-7495	5251	-389177		0.51	329	0.93	13836			2.64	Si
SLV 14	-159	-41393	-11162	-344217		2.8	329	1.39	20616			1.85	Si
SLV 14	111	-25141	-8885	261634		1.7	329	1.17	17366			1.95	Si
SLV 3	-159	-10165	4148	1152852		1.47	153.27	1.13	7781			1.88	Si
SLV 3	111	-1886	6184	-601021		0	0	0.83	0		0	No, $V_u < V$	
SLV 13	-159	-41393	-11162	-344217		2.8	329	1.39	20616			1.85	Si
SLV 13	111	-25141	-8885	261634		1.7	329	1.17	17366			1.95	Si
SLV 16	-159	-28368	-9523	-482820		1.92	329	1.22	18011			1.89	Si
SLV 16	111	-19532	-7951	49791		1.32	329	1.1	16244			2.04	Si
SLV 15	-159	-28368	-9523	-482820		1.92	329	1.22	18011			1.89	Si
SLV 15	111	-19532	-7951	49791		1.32	329	1.1	16244			2.04	Si
SLV 7	-159	-1341	1276	418662		0	0	0.83	0		0	No, $V_u < V$	
SLV 7	111	-1518	2327	-620387		0	0	0.83	0		0	No, $V_u < V$	
SLV 2	-159	-23190	2509	1291455		1.58	326.43	1.15	16879			6.73	Si
SLV 2	111	-7495	5251	-389177		0.51	329	0.93	13836			2.64	Si
SLV 4	-159	-10165	4148	1152852		1.47	153.27	1.13	7781			1.88	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	111	-1886	6184	-601021		0	0	0.83	0			0	No, Vu<V
SLV 8	-159	-1341	1276	418662		0	0	0.83	0			0	No, Vu<V
SLV 8	111	-1518	2327	-620387		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.24	0.14	-2015	19776	44828	2.27	Si
SLV 7	14	0.24	0.14	-2015	19776	44828	2.27	Si
SLV 11	14	0.24	0.48	-7122	19776	153930	7.78	Si
SLV 12	14	0.24	0.48	-7122	19776	153930	7.78	Si
SLV 3	14	0.24	0.5	-7437	19776	160459	8.11	Si
SLV 4	14	0.24	0.5	-7437	19776	160459	8.11	Si
SLV 1	14	0.24	1.16	-17192	19776	350059	17.7	Si
SLV 2	14	0.24	1.16	-17192	19776	350059	17.7	Si
SLV 16	14	0.24	1.65	-24460	19776	475939	24.07	Si
SLV 15	14	0.24	1.65	-24460	19776	475939	24.07	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-25509	-50217	-1628	0.038	31.625	0.949	57.783	352.938	No
SLV 9	-25509	-50217	-1628	0.038	31.625	0.949	57.783	352.938	No
SLV 13	-25141	-41393	-1584	0.039	31.251	0.948	59.249	348.092	No
SLV 14	-25141	-41393	-1584	0.039	31.251	0.948	59.249	348.092	No
SLV 5	-20215	-44757	-1291	0.042	26.257	0.94	64.478	352.938	No
SLV 6	-20215	-44757	-1291	0.042	26.257	0.94	64.478	352.938	No
SLV 15	-19532	-28368	-1210	0.044	25.566	0.938	68.095	348.092	No
SLV 16	-19532	-28368	-1210	0.044	25.566	0.938	68.095	348.092	No
SLV 2	-7495	-23190	-463	0.069	13.496	0.901	110.603	348.092	No
SLV 1	-7495	-23190	-463	0.069	13.496	0.901	110.603	348.092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.302	SLU 38	Si
V_SLU	2.38	SLU 84	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.267	SLV 7	Si
R_SLV	0.164	SLV 9	No

## Maschio 45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-772.3	-328.4	-772.3	-478.4	L1	L3	150	45	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	-159	-20539	-159539	3.04	965074	6.049	Si
SLU 74	111	-12153	-219892	1.8	710060	3.229	Si
SLU 77	-159	-20659	-163411	3.06	967329	5.92	Si
SLU 77	111	-12267	-222369	1.82	714814	3.215	Si
SLU 35	-159	-16857	-146855	2.5	876726	5.97	Si
SLU 35	111	-10241	-195224	1.52	625060	3.202	Si
SLU 37	-159	-16787	-145768	2.49	874689	6.001	Si
SLU 37	111	-10172	-192879	1.51	621777	3.224	Si
SLU 41	-159	-17285	-154527	2.56	888897	5.752	Si
SLU 41	111	-10566	-205540	1.57	640186	3.115	Si
SLU 79	-159	-20589	-162324	3.05	966018	5.951	Si
SLU 79	111	-12198	-220024	1.81	711916	3.236	Si
SLU 32	-159	-16737	-142983	2.48	873227	6.107	Si
SLU 32	111	-10127	-192747	1.5	619676	3.215	Si
SLU 39	-159	-17165	-150656	2.54	885538	5.878	Si
SLU 39	111	-10452	-203064	1.55	634903	3.127	Si
SLU 81	-159	-20967	-167212	3.11	972945	5.819	Si
SLU 81	111	-12478	-230209	1.85	723494	3.143	Si
SLU 83	-159	-21087	-171083	3.12	975060	5.699	Si
SLU 83	111	-12592	-232685	1.87	728147	3.129	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	-159	-17640	-391308	2.61	1040090	2.658	Si
SLV 1	111	-10488	-333870	1.55	686612	2.057	Si
SLV 12	-159	-5998	-141591	0.89	417173	2.946	Si
SLV 12	111	5570	197045	0	0	0	No, Trazione
SLV 7	-159	-6210	-342587	0.92	430692	1.257	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	111	6982	137592	0	0	0	No, Trazione
SLV 5	-159	-23415	-56779	3.47	1257631	22.149	Si
SLV 5	111	-22428	-481026	3.32	1224734	2.546	Si
SLV 4	-159	-12478	-477050	1.85	794325	1.665	Si
SLV 4	111	-1665	-148285	0	0	0	No, $e > l/2$
SLV 11	-159	-5998	-141591	0.89	417173	2.946	Si
SLV 11	111	5570	197045	0	0	0	No, Trazione
SLV 6	-159	-23415	-56779	3.47	1257631	22.149	Si
SLV 6	111	-22428	-481026	3.32	1224734	2.546	Si
SLV 3	-159	-12478	-477050	1.85	794325	1.665	Si
SLV 3	111	-1665	-148285	0	0	0	No, $e > l/2$
SLV 2	-159	-17640	-391308	2.61	1040090	2.658	Si
SLV 2	111	-10488	-333870	1.55	686612	2.057	Si
SLV 8	-159	-6210	-342587	0.92	430692	1.257	Si
SLV 8	111	6982	137592	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	-159	-20659	171	-163411		3.06	150.01	0.96	6505			38.01	Si
SLU 77	111	-12267	1386	-222369		1.82	150.01	0.8	5386			3.89	Si
SLU 53	-159	-19404	143	-134635		2.87	150.01	0.94	6337			44.47	Si
SLU 53	111	-11218	1280	-190901		1.66	150.01	0.78	5246			4.1	Si
SLU 79	-159	-20589	167	-162324		3.05	150.01	0.96	6495			38.9	Si
SLU 79	111	-12198	1378	-220024		1.81	150.01	0.8	5376			3.9	Si
SLU 74	-159	-20539	179	-159539		3.04	150.01	0.96	6489			36.33	Si
SLU 74	111	-12153	1378	-219892		1.8	150.01	0.8	5371			3.9	Si
SLU 81	-159	-20967	205	-167212		3.11	150.01	0.97	6546			31.86	Si
SLU 81	111	-12478	1422	-230209		1.85	150.01	0.8	5414			3.81	Si
SLU 62	-159	-19952	162	-146178		2.96	150.01	0.95	6410			39.59	Si
SLU 62	111	-11656	1331	-203693		1.73	150.01	0.79	5304			3.98	Si
SLU 60	-159	-19832	169	-142307		2.94	150.01	0.95	6394			37.75	Si
SLU 60	111	-11542	1324	-201217		1.71	150.01	0.78	5289			4	Si
SLU 83	-159	-21087	198	-171083		3.12	150.01	0.97	6562			33.14	Si
SLU 83	111	-12592	1429	-232685		1.87	150.01	0.8	5429			3.8	Si
SLU 58	-159	-19454	131	-137419		2.88	150.01	0.94	6344			48.46	Si
SLU 58	111	-11262	1280	-191033		1.67	150.01	0.78	5252			4.1	Si
SLU 56	-159	-19524	135	-138506		2.89	150.01	0.94	6353			47.04	Si
SLU 56	111	-11332	1288	-193377		1.68	150.01	0.78	5261			4.08	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	-159	-23203	3151	144217		3.44	150.01	1.52	10266			3.26	Si
SLV 9	111	-23839	4175	-421574		3.53	150.01	1.54	10393			2.49	Si
SLV 8	-159	-6210	-2940	-342587		2.32	59.5	1.3	3473			1.18	Si
SLV 8	111	6982	-2253	137592		0	0	0.83	0			0	No, $V_u < V$
SLV 4	-159	-12478	-1099	-477050		2.51	110.32	1.34	6633			6.04	Si
SLV 4	111	-1665	-1418	-148285		0	0	0.83	0			0	No, $V_u < V$
SLV 12	-159	-5998	-2749	-141591		0.89	150.01	1.01	6825			2.48	Si
SLV 12	111	5570	-1320	197045		0	0	0.83	0			0	No, $V_u < V$
SLV 14	-159	-16935	1310	278679		2.51	150.01	1.34	9012			6.88	Si
SLV 14	111	-15192	3339	-135696		2.25	150.01	1.28	8664			2.59	Si
SLV 10	-159	-23203	3151	144217		3.44	150.01	1.52	10266			3.26	Si
SLV 10	111	-23839	4175	-421574		3.53	150.01	1.54	10393			2.49	Si
SLV 13	-159	-16935	1310	278679		2.51	150.01	1.34	9012			6.88	Si
SLV 13	111	-15192	3339	-135696		2.25	150.01	1.28	8664			2.59	Si
SLV 3	-159	-12478	-1099	-477050		2.51	110.32	1.34	6633			6.04	Si
SLV 3	111	-1665	-1418	-148285		0	0	0.83	0			0	No, $V_u < V$
SLV 7	-159	-6210	-2940	-342587		2.32	59.5	1.3	3473			1.18	Si
SLV 7	111	6982	-2253	137592		0	0	0.83	0			0	No, $V_u < V$
SLV 11	-159	-5998	-2749	-141591		0.89	150.01	1.01	6825			2.48	Si
SLV 11	111	5570	-1320	197045		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.24	0.66	-4461	9017	94948	10.53	Si
SLV 8	14	0.24	0.66	-4461	9017	94948	10.53	Si
SLV 11	14	0.24	0.73	-4916	9017	104024	11.54	Si
SLV 12	14	0.24	0.73	-4916	9017	104024	11.54	Si
SLV 4	14	0.24	1.52	-10286	9017	202570	22.47	Si
SLV 3	14	0.24	1.52	-10286	9017	202570	22.47	Si
SLV 16	14	0.24	1.75	-11803	9017	227564	25.24	Si
SLV 15	14	0.24	1.75	-11803	9017	227564	25.24	Si
SLV 1	14	0.24	2.33	-15734	9017	286476	31.77	Si
SLV 2	14	0.24	2.33	-15734	9017	286476	31.77	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	5570	-5998	52	0	0	0	0	352.938	No, Trazione
SLV 12	5570	-5998	52	0	0	0	0	352.938	No, Trazione
SLV 7	6982	-6210	88	0	0	0	0	352.938	No, Trazione
SLV 8	6982	-6210	88	0	0	0	0	352.938	No, Trazione
SLV 10	-23839	-23203	-231	0.08	26.836	0.971	119.203	352.938	No
SLV 9	-23839	-23203	-231	0.08	26.836	0.971	119.203	352.938	No
SLV 6	-22428	-23415	-196	0.081	25.4	0.969	121.27	352.938	No
SLV 5	-22428	-23415	-196	0.081	25.4	0.969	121.27	352.938	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-15192	-16935	-173	0.081	18.037	0.958	123.139	348.092	No
SLV 14	-15192	-16935	-173	0.081	18.037	0.958	123.139	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.115	SLU 41	Si
V_SLU	3.798	SLU 83	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 3	No
PFFP_SLV	10.53	SLV 7	Si
R_SLV	0	SLV 12	No

## Maschio 46

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-626.8	104.6	-626.8	-328.4	L1	L3	433	30	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 78	-159	-63623	-1331010	4.9	5492070	4.126	Si
SLU 78	111	-56194	905779	4.33	5704944	6.298	Si
SLU 41	-159	-55101	-1363019	4.24	5717192	4.195	Si
SLU 41	111	-48330	609280	3.72	5684191	9.329	Si
SLU 84	-159	-65155	-1355610	5.02	5420107	3.998	Si
SLU 84	111	-57567	913549	4.43	5682601	6.22	Si
SLU 83	-159	-64938	-1521778	5	5430854	3.569	Si
SLU 83	111	-56554	786223	4.35	5699836	7.25	Si
SLU 81	-159	-64192	-1464921	4.94	5466474	3.732	Si
SLU 81	111	-55854	789483	4.3	5709272	7.232	Si
SLU 77	-159	-63407	-1497179	4.88	5501462	3.675	Si
SLU 77	111	-55180	778453	4.25	5716478	7.343	Si
SLU 82	-159	-64408	-1298753	4.96	5456388	4.201	Si
SLU 82	111	-56868	916808	4.38	5694939	6.212	Si
SLU 74	-159	-62660	-1440322	4.82	5532403	3.841	Si
SLU 74	111	-54480	781713	4.19	5721983	7.32	Si
SLU 80	-159	-63182	-1320844	4.86	5511035	4.172	Si
SLU 80	111	-55738	903978	4.29	5710644	6.317	Si
SLU 79	-159	-62965	-1487012	4.85	5520036	3.712	Si
SLU 79	111	-54724	776653	4.21	5720289	7.365	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLD 11	-159	-39970	-1782560	3.08	6474241	3.632	Si
SLD 11	111	-32165	142202	2.48	5552437	39.046	Si
SLV 7	-159	-40069	-2887869	3.08	6484889	2.246	Si
SLV 7	111	-29917	-284758	2.3	5256080	18.458	Si
SLD 7	-159	-41660	-1755725	3.21	6651895	3.789	Si
SLD 7	111	-33946	227250	2.61	5777386	25.423	Si
SLV 16	-159	-34783	-1597465	2.68	5880099	3.681	Si
SLV 16	111	-27168	-21847	2.09	4875036	223.141	Si
SLD 12	-159	-39970	-1782560	3.08	6474241	3.632	Si
SLD 12	111	-32165	142202	2.48	5552437	39.046	Si
SLV 15	-159	-34783	-1597465	2.68	5880099	3.681	Si
SLV 15	111	-27168	-21847	2.09	4875036	223.141	Si
SLV 12	-159	-36055	-2941731	2.78	6032597	2.051	Si
SLV 12	111	-25691	-479083	1.98	4661702	9.73	Si
SLV 8	-159	-40069	-2887869	3.08	6484889	2.246	Si
SLV 8	111	-29917	-284758	2.3	5256080	18.458	Si
SLV 11	-159	-36055	-2941731	2.78	6032597	2.051	Si
SLV 11	111	-25691	-479083	1.98	4661702	9.73	Si
SLD 8	-159	-41660	-1755725	3.21	6651895	3.789	Si
SLD 8	111	-33946	227250	2.61	5777386	25.423	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-159	-61833	2335	-1096352		4.76	432.99	1.08	14072			6.03	Si
SLU 73	111	-55015	3931	995382		4.24	432.99	1.08	14072			3.58	Si
SLU 52	-159	-55999	2425	-876291		4.31	432.99	1.08	14072			5.8	Si
SLU 52	111	-49514	3896	994590		3.81	432.99	1.06	13818			3.55	Si
SLU 13	-159	-46909	2090	-774389		3.61	432.99	1.04	13471			6.45	Si
SLU 13	111	-41990	3308	814388		3.23	432.99	0.99	12815			3.87	Si
SLU 10	-159	-46163	2436	-717532		3.55	432.99	1.03	13372			5.49	Si
SLU 10	111	-41290	3638	817647		3.18	432.99	0.98	12722			3.5	Si
SLU 31	-159	-51996	2345	-937593		4	432.99	1.08	14072			6	Si
SLU 31	111	-46792	3673	818439		3.6	432.99	1.04	13455			3.66	Si
SLU 23	-159	-45650	2304	-723807		3.51	432.99	1.02	13303			5.77	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 23	111	-40891	3493	803715		3.15	432.99	0.98	12669			3.63	Si
SLU 5	-159	-40563	2049	-560603		3.12	432.99	0.97	12625			6.16	Si
SLU 5	111	-36089	3128	799663		2.78	432.99	0.93	12028			3.85	Si
SLU 2	-159	-39817	2394	-503746		3.07	432.99	0.96	12525			5.23	Si
SLU 2	111	-35390	3458	802923		2.72	432.99	0.92	11935			3.45	Si
SLU 65	-159	-55486	2293	-882566		4.27	432.99	1.08	14072			6.14	Si
SLU 65	111	-49115	3750	980657		3.78	432.99	1.06	13765			3.67	Si
SLU 44	-159	-49653	2384	-662505		3.82	432.99	1.07	13837			5.8	Si
SLU 44	111	-43614	3715	979866		3.36	432.99	1	13032			3.51	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	-159	-45802	18637	1078569		3.53	432.99	1.54	19985			1.07	Si
SLV 9	111	-43999	17656	1475052		3.39	432.99	1.51	19625			1.11	Si
SLV 12	-159	-36055	-19051	-2941731		2.97	404.72	1.43	17329			0.91	No, Vu<V
SLV 12	111	-25691	-17141	-479083		1.98	432.99	1.23	15963			0.93	No, Vu<V
SLV 8	-159	-40069	-18942	-2887869		3.08	432.99	1.45	18839			0.99	No, Vu<V
SLV 8	111	-29917	-15735	-284758		2.3	432.99	1.29	16808			1.07	Si
SLV 10	-159	-45802	18637	1078569		3.53	432.99	1.54	19985			1.07	Si
SLV 10	111	-43999	17656	1475052		3.39	432.99	1.51	19625			1.11	Si
SLD 6	-159	-45901	8016	-26740		3.53	432.99	1.54	20005			2.5	Si
SLD 6	111	-41750	8723	1048091		3.21	432.99	1.48	19175			2.2	Si
SLD 5	-159	-45901	8016	-26740		3.53	432.99	1.54	20005			2.5	Si
SLD 5	111	-41750	8723	1048091		3.21	432.99	1.48	19175			2.2	Si
SLV 11	-159	-36055	-19051	-2941731		2.97	404.72	1.43	17329			0.91	No, Vu<V
SLV 11	111	-25691	-17141	-479083		1.98	432.99	1.23	15963			0.93	No, Vu<V
SLV 6	-159	-49817	18745	1132431		3.84	432.99	1.6	20788			1.11	Si
SLV 6	111	-48225	19061	1669376		3.71	432.99	1.58	20470			1.07	Si
SLV 5	-159	-49817	18745	1132431		3.84	432.99	1.6	20788			1.11	Si
SLV 5	111	-48225	19061	1669376		3.71	432.99	1.58	20470			1.07	Si
SLV 7	-159	-40069	-18942	-2887869		3.08	432.99	1.45	18839			0.99	No, Vu<V
SLV 7	111	-29917	-15735	-284758		2.3	432.99	1.29	16808			1.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.24	2.49	-32374	17352	386557	22.28	Si
SLV 12	14	0.24	2.49	-32374	17352	386557	22.28	Si
SLV 15	14	0.24	2.52	-32798	17352	390309	22.49	Si
SLV 16	14	0.24	2.52	-32798	17352	390309	22.49	Si
SLV 8	14	0.24	2.8	-36382	17352	420641	24.24	Si
SLV 7	14	0.24	2.8	-36382	17352	420641	24.24	Si
SLV 13	14	0.24	2.86	-37171	17352	426984	24.61	Si
SLV 14	14	0.24	2.86	-37171	17352	426984	24.61	Si
SLV 3	14	0.24	3.55	-46161	17352	491036	28.3	Si
SLV 4	14	0.24	3.55	-46161	17352	491036	28.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-48225	-49817	-2	0.059	54.036	0.972	88.125	439.851	No
SLV 5	-48225	-49817	-2	0.059	54.036	0.972	88.125	439.851	No
SLV 9	-43999	-45802	15	0.059	49.733	0.97	88.368	439.851	No
SLV 10	-43999	-45802	15	0.059	49.733	0.97	88.368	439.851	No
SLV 1	-46747	-51089	-34	0.058	52.532	0.971	87.36	430.325	No
SLV 2	-46747	-51089	-34	0.058	52.532	0.971	87.36	430.325	No
SLV 4	-41255	-48165	-46	0.058	46.94	0.968	87.775	430.325	No
SLV 3	-41255	-48165	-46	0.058	46.94	0.968	87.775	430.325	No
SLV 7	-29917	-40069	-41	0.06	35.403	0.959	90.396	439.851	No
SLV 8	-29917	-40069	-41	0.06	35.403	0.959	90.396	439.851	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.569	SLU 83	Si
V_SLU	3.452	SLU 2	Si
PF_SLV	2.051	SLV 11	Si
V_SLV	0.91	SLV 11	No
PFFP_SLV	22.278	SLV 11	Si
R_SLV	0.2	SLV 5	No

## Maschio 47

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1101.3	-328.4	-1055.3	-328.4	L1	L3	46	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	-159	-10022	-65681	4.84	93502	1.424	Si
SLU 77	46	-10236	-2540	4.94	92513	36.426	Si
SLU 80	-159	-9954	-67291	4.81	93791	1.394	Si
SLU 80	46	-10257	-1907	4.95	92409	48.464	Si
SLU 84	-159	-10103	-70336	4.88	93144	1.324	Si
SLU 84	46	-10541	-1363	5.09	90884	66.692	Si
SLU 82	-159	-9850	-69986	4.76	94209	1.346	Si
SLU 82	46	-10342	-996	5	91975	92.346	Si
SLU 73	-159	-9408	-67833	4.55	95653	1.41	Si
SLU 73	46	-9885	-737	4.78	94072	127.611	Si
SLU 76	-159	-9661	-68183	4.67	94892	1.392	Si
SLU 76	46	-10084	-1104	4.87	93229	84.452	Si
SLU 83	-159	-10164	-68473	4.91	92860	1.356	Si
SLU 83	46	-10502	-2017	5.07	91108	45.174	Si
SLU 81	-159	-9911	-68123	4.79	93967	1.379	Si
SLU 81	46	-10303	-1650	4.98	92178	55.863	Si
SLU 75	-159	-9709	-67194	4.69	94729	1.41	Si
SLU 75	46	-10076	-1519	4.87	93264	61.404	Si
SLU 78	-159	-9961	-67544	4.81	93762	1.388	Si
SLU 78	46	-10275	-1886	4.96	92317	48.958	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	-159	-3690	-62880	1.78	72495	1.153	Si
SLV 8	46	-5663	2502	2.74	101082	40.408	Si
SLD 1	-159	-6280	-89144	3.03	108576	1.218	Si
SLD 1	46	-8340	3739	4.03	128573	34.386	Si
SLD 4	-159	-5636	-86212	2.72	100738	1.168	Si
SLD 4	46	-7818	3884	3.78	124233	31.984	Si
SLV 2	-159	-5726	-147262	0	0	0	No, $e \geq l/2$
SLV 2	46	-10307	10545	4.98	140458	13.32	Si
SLD 3	-159	-5636	-86212	2.72	100738	1.168	Si
SLD 3	46	-7818	3884	3.78	124233	31.984	Si
SLD 2	-159	-6280	-89144	3.03	108576	1.218	Si
SLD 2	46	-8340	3739	4.03	128573	34.386	Si
SLV 7	-159	-3690	-62880	1.78	72495	1.153	Si
SLV 7	46	-5663	2502	2.74	101082	40.408	Si
SLV 4	-159	-4216	-140389	0	0	0	No, $e \geq l/2$
SLV 4	46	-9088	10832	4.39	133917	12.363	Si
SLV 1	-159	-5726	-147262	0	0	0	No, $e \geq l/2$
SLV 1	46	-10307	10545	4.98	140458	13.32	Si
SLV 3	-159	-4216	-140389	0	0	0	No, $e \geq l/2$
SLV 3	46	-9088	10832	4.39	133917	12.363	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	-159	-9408	-1508	-67833		4.55	46	1.08	2242			1.49	Si
SLU 73	46	-9885	173	-737		4.78	46	1.08	2242			12.94	Si
SLU 78	-159	-9961	-1502	-67544		4.81	46	1.08	2242			1.49	Si
SLU 78	46	-10275	188	-1886		4.96	46	1.08	2242			11.96	Si
SLU 80	-159	-9954	-1497	-67291		4.81	46	1.08	2242			1.5	Si
SLU 80	46	-10257	186	-1907		4.95	46	1.08	2242			12.04	Si
SLU 83	-159	-10164	-1526	-68473		4.91	46	1.08	2242			1.47	Si
SLU 83	46	-10502	166	-2017		5.07	46	1.08	2242			13.51	Si
SLU 76	-159	-9661	-1516	-68183		4.67	46	1.08	2242			1.48	Si
SLU 76	46	-10084	183	-1104		4.87	46	1.08	2242			12.26	Si
SLU 75	-159	-9709	-1494	-67194		4.69	46	1.08	2242			1.5	Si
SLU 75	46	-10076	178	-1519		4.87	46	1.08	2242			12.6	Si
SLU 77	-159	-10022	-1462	-65681		4.84	46	1.08	2242			1.53	Si
SLU 77	46	-10236	178	-2540		4.94	46	1.08	2242			12.58	Si
SLU 84	-159	-10103	-1566	-70336		4.88	46	1.08	2242			1.43	Si
SLU 84	46	-10541	175	-1363		5.09	46	1.08	2242			12.79	Si
SLU 82	-159	-9850	-1558	-69986		4.76	46	1.08	2242			1.44	Si
SLU 82	46	-10342	166	-996		5	46	1.08	2242			13.53	Si
SLU 81	-159	-9911	-1518	-68123		4.79	46	1.08	2242			1.48	Si
SLU 81	46	-10303	156	-1650		4.98	46	1.08	2242			14.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 2	-159	-6280	-1695	-89144		5.28	26.41	1.63	1932			1.14	Si
SLD 2	46	-8340	204	3739		4.03	46	1.63	3364			16.5	Si
SLD 4	-159	-5636	-1670	-86212		5.42	23.11	1.63	1690			1.01	Si
SLD 4	46	-7818	76	3884		3.78	46	1.59	3289			43.45	Si
SLV 2	-159	-5726	-2604	-147262		0	0	0.83	0			0	No, $V_u < V$
SLV 2	46	-10307	308	10545		4.98	46	1.63	3364			10.93	Si
SLV 8	-159	-3690	-1371	-62880		4.59	17.88	1.63	1308			0.95	No, $V_u < V$
SLV 8	46	-5663	-369	2502		2.74	46	1.38	2858			7.74	Si
SLD 3	-159	-5636	-1670	-86212		5.42	23.11	1.63	1690			1.01	Si
SLD 3	46	-7818	76	3884		3.78	46	1.59	3289			43.45	Si
SLV 3	-159	-4216	-2547	-140389		0	0	0.83	0			0	No, $V_u < V$
SLV 3	46	-9088	6	10832		4.39	46	1.63	3364			567.79	Si
SLV 1	-159	-5726	-2604	-147262		0	0	0.83	0			0	No, $V_u < V$
SLV 1	46	-10307	308	10545		4.98	46	1.63	3364			10.93	Si
SLV 4	-159	-4216	-2547	-140389		0	0	0.83	0			0	No, $V_u < V$
SLV 4	46	-9088	6	10832		4.39	46	1.63	3364			567.79	Si
SLV 7	-159	-3690	-1371	-62880		4.59	17.88	1.63	1308			0.95	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	46	-5663	-369	2502		2.74	46	1.38	2858			7.74	Si
SLD 1	-159	-6280	-1695	-89144		5.28	26.41	1.63	1932			1.14	Si
SLD 1	46	-8340	204	3739		4.03	46	1.63	3364			16.5	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.24	2.39	-4946	2765	89527	32.38	Si
SLV 15	14	0.24	2.39	-4946	2765	89527	32.38	Si
SLV 12	14	0.24	2.48	-5138	2765	92123	33.32	Si
SLV 11	14	0.24	2.48	-5138	2765	92123	33.32	Si
SLV 13	14	0.24	3.35	-6940	2765	113305	40.98	Si
SLV 14	14	0.24	3.35	-6940	2765	113305	40.98	Si
SLV 8	14	0.24	3.52	-7296	2765	116809	42.24	Si
SLV 7	14	0.24	3.52	-7296	2765	116809	42.24	Si
SLV 2	14	0.24	6.83	-14134	2765	140303	50.74	Si
SLV 1	14	0.24	6.83	-14134	2765	140303	50.74	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-2953	-3690	188	0.041	3.8	0.941	63.388	352.938	No
SLV 7	-2953	-3690	188	0.041	3.8	0.941	63.388	352.938	No
SLV 11	-1674	-4749	131	0.042	2.509	0.918	67.114	352.938	No
SLV 12	-1674	-4749	131	0.042	2.509	0.918	67.114	352.938	No
SLV 4	-6143	-4216	243	0.053	7.041	0.966	79.929	348.092	No
SLV 3	-6143	-4216	243	0.053	7.041	0.966	79.929	348.092	No
SLV 2	-7597	-5726	232	0.06	8.521	0.972	89.478	348.092	No
SLV 1	-7597	-5726	232	0.06	8.521	0.972	89.478	348.092	No
SLV 5	-7801	-8723	154	0.07	8.729	0.972	104.41	352.938	No
SLV 6	-7801	-8723	154	0.07	8.729	0.972	104.41	352.938	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.324	SLU 84	Si
V_SLU	1.432	SLU 84	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	32.377	SLV 15	Si
R_SLV	0.18	SLV 7	No

## Maschio 48

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-825.3	-328.4	-746.3	-328.4	L1	L3	79	45	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	41	-18357	147876	5.16	265456	1.795	Si
SLU 84	81	-16756	272164	4.71	278892	1.025	Si
SLU 73	41	-17777	141395	5	271135	1.918	Si
SLU 73	81	-16274	265414	4.58	281569	1.061	Si
SLU 81	41	-17473	141666	4.92	273737	1.932	Si
SLU 81	81	-15868	257630	4.46	283334	1.1	Si
SLU 76	41	-17998	143863	5.06	269080	1.87	Si
SLU 76	81	-16479	268311	4.64	280512	1.045	Si
SLU 83	41	-17694	144134	4.98	271865	1.886	Si
SLU 83	81	-16072	260527	4.52	282504	1.084	Si
SLU 82	41	-18136	145408	5.1	267728	1.841	Si
SLU 82	81	-16552	269267	4.66	280104	1.04	Si
SLU 77	41	-17182	140687	4.83	276002	1.962	Si
SLU 77	81	-15610	253057	4.39	284219	1.123	Si
SLU 78	41	-17844	144428	5.02	270519	1.873	Si
SLU 78	81	-16295	264694	4.58	281470	1.063	Si
SLU 75	41	-17623	141960	4.96	272481	1.919	Si
SLU 75	81	-16090	261797	4.53	282424	1.079	Si
SLU 80	41	-17777	143837	5	271131	1.885	Si
SLU 80	81	-16227	263449	4.56	281799	1.07	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 2	41	-12127	71840	3.41	345286	4.806	Si
SLD 2	81	-11649	221074	3.28	336743	1.523	Si
SLV 5	41	-16360	142940	4.6	402835	2.818	Si
SLV 5	81	-15562	267836	4.38	394482	1.473	Si
SLV 1	41	-12885	44566	3.62	357989	8.033	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	81	-13182	287129	3.71	362682	1.263	Si
SLD 4	41	-10953	55303	3.08	323559	5.851	Si
SLD 4	81	-10496	203954	2.95	314410	1.542	Si
SLV 4	41	-9997	2462	2.81	304005	123.491	Si
SLV 4	81	-10379	246365	2.92	312015	1.266	Si
SLV 2	41	-12885	44566	3.62	357989	8.033	Si
SLV 2	81	-13182	287129	3.71	362682	1.263	Si
SLV 6	41	-16360	142940	4.6	402835	2.818	Si
SLV 6	81	-15562	267836	4.38	394482	1.473	Si
SLD 3	41	-10953	55303	3.08	323559	5.851	Si
SLD 3	81	-10496	203954	2.95	314410	1.542	Si
SLV 3	41	-9997	2462	2.81	304005	123.491	Si
SLV 3	81	-10379	246365	2.92	312015	1.266	Si
SLD 1	41	-12127	71840	3.41	345286	4.806	Si
SLD 1	81	-11649	221074	3.28	336743	1.523	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	41	-17777	-2116	141395		5	79	1.08	3851			1.82	Si
SLU 73	81	-16274	-1087	265414		5.2	69.57	1.08	3392			3.12	Si
SLU 65	41	-15908	-1965	126213		4.47	79	1.08	3851			1.96	Si
SLU 65	81	-14562	-1036	238322		4.66	69.4	1.08	3383			3.27	Si
SLU 76	41	-17998	-2107	143863		5.06	79	1.08	3851			1.83	Si
SLU 76	81	-16479	-1082	268311		5.26	69.65	1.08	3396			3.14	Si
SLU 55	41	-16499	-1957	131331		4.64	79	1.08	3851			1.97	Si
SLU 55	81	-15091	-1036	246013		4.82	69.6	1.08	3393			3.28	Si
SLU 84	41	-18357	-2021	147876		5.16	79	1.08	3851			1.91	Si
SLU 84	81	-16756	-959	272164		5.34	69.77	1.08	3401			3.55	Si
SLU 68	41	-16129	-1956	128681		4.54	79	1.08	3851			1.97	Si
SLU 68	81	-14766	-1031	241219		4.72	69.49	1.08	3388			3.29	Si
SLU 52	41	-16277	-1966	128863		4.58	79	1.08	3851			1.96	Si
SLU 52	81	-14887	-1041	243116		4.76	69.51	1.08	3389			3.25	Si
SLU 75	41	-17623	-1975	141960		4.96	79	1.08	3851			1.95	Si
SLU 75	81	-16090	-949	261797		5.13	69.69	1.08	3397			3.58	Si
SLU 82	41	-18136	-2030	145408		5.1	79	1.08	3851			1.9	Si
SLU 82	81	-16552	-965	269267		5.28	69.7	1.08	3398			3.52	Si
SLU 78	41	-17844	-1966	144428		5.02	79	1.08	3851			1.96	Si
SLU 78	81	-16295	-943	264694		5.19	69.77	1.08	3401			3.61	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	41	-10298	5234	143182		2.98	76.79	1.43	4939			0.94	No, Vu<V
SLV 16	81	-7835	2339	55362		2.2	79	1.27	4530			1.94	Si
SLV 15	41	-10298	5234	143182		2.98	76.79	1.43	4939			0.94	No, Vu<V
SLV 15	81	-7835	2339	55362		2.2	79	1.27	4530			1.94	Si
SLV 5	41	-16360	-5440	142940		4.6	79	1.63	5777			1.06	Si
SLV 5	81	-15562	-2789	267836		5.17	66.87	1.63	4890			1.75	Si
SLV 2	41	-12885	-7695	44566		3.62	79	1.56	5540			0.72	No, Vu<V
SLV 2	81	-13182	-3386	287129		5.51	53.16	1.63	3887			1.15	Si
SLV 1	41	-12885	-7695	44566		3.62	79	1.56	5540			0.72	No, Vu<V
SLV 1	81	-13182	-3386	287129		5.51	53.16	1.63	3887			1.15	Si
SLV 3	41	-9997	-6199	2462		2.81	79	1.4	4962			0.8	No, Vu<V
SLV 3	81	-10379	-2459	246365		4.88	47.29	1.63	3458			1.41	Si
SLV 6	41	-16360	-5440	142940		4.6	79	1.63	5777			1.06	Si
SLV 6	81	-15562	-2789	267836		5.17	66.87	1.63	4890			1.75	Si
SLV 4	41	-9997	-6199	2462		2.81	79	1.4	4962			0.8	No, Vu<V
SLV 4	81	-10379	-2459	246365		4.88	47.29	1.63	3458			1.41	Si
SLD 2	41	-12127	-4042	71840		3.41	79	1.52	5388			1.33	Si
SLD 2	81	-11649	-1760	221074		4.2	61.57	1.63	4502			2.56	Si
SLD 1	41	-12127	-4042	71840		3.41	79	1.52	5388			1.33	Si
SLD 1	81	-11649	-1760	221074		4.2	61.57	1.63	4502			2.56	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.24	1.9	-6766	4749	128528	27.07	Si
SLV 12	14	0.24	1.9	-6766	4749	128528	27.07	Si
SLV 16	14	0.24	1.99	-7090	4749	133481	28.11	Si
SLV 15	14	0.24	1.99	-7090	4749	133481	28.11	Si
SLV 8	14	0.24	2.35	-8370	4749	152030	32.01	Si
SLV 7	14	0.24	2.35	-8370	4749	152030	32.01	Si
SLV 14	14	0.24	2.52	-8970	4749	160147	33.72	Si
SLV 13	14	0.24	2.52	-8970	4749	160147	33.72	Si
SLV 4	14	0.24	3.5	-12434	4749	199679	42.05	Si
SLV 3	14	0.24	3.5	-12434	4749	199679	42.05	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-3100	-4428	470	0	4.534	0.921	0	352.938	No
SLV 15	-7612	699	549	0	0	0	0	348.092	No, Trazione
SLV 11	-3100	-4428	470	0	4.534	0.921	0	352.938	No
SLV 16	-7612	699	549	0	0	0	0	348.092	No, Trazione
SLV 8	-2312	-10882	317	0.006	3.747	0.91	10.096	352.938	No
SLV 7	-2312	-10882	317	0.006	3.747	0.91	10.096	352.938	No
SLV 13	-10692	-1362	464	0.049	12.237	0.967	74.332	348.092	No
SLV 14	-10692	-1362	464	0.049	12.237	0.967	74.332	348.092	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 9	-13366	-11296	186	0.075	14.96	0.972	112.617	352.938	No
SLV 10	-13366	-11296	186	0.075	14.96	0.972	112.617	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.025	SLU 84	Si
V_SLU	1.82	SLU 73	Si
PF_SLV	1.263	SLV 1	Si
V_SLV	0.72	SLV 1	No
PFFP_SLV	27.066	SLV 11	Si
R_SLV	0	SLV 16	No

## Maschio 49

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-646.3	-328.4	-323.3	-328.4	L1	L3	323	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 65	41	-34483	-1195746	2.37	3947056	3.301	Si
SLU 65	81	-33185	-1530240	2.28	3857225	2.521	Si
SLU 5	41	-24540	-936368	1.69	3141798	3.355	Si
SLU 5	81	-23542	-1219690	1.62	3046020	2.497	Si
SLU 52	41	-35242	-1208938	2.42	3997499	3.307	Si
SLU 52	81	-33944	-1544439	2.34	3910358	2.532	Si
SLU 73	41	-39147	-1284799	2.69	4231872	3.294	Si
SLU 73	81	-37849	-1638971	2.6	4158557	2.537	Si
SLU 55	41	-35544	-1214935	2.45	4017074	3.306	Si
SLU 55	81	-34246	-1555912	2.36	3931001	2.526	Si
SLU 68	41	-34784	-1201743	2.39	3967255	3.301	Si
SLU 68	81	-33486	-1541713	2.3	3878492	2.516	Si
SLU 2	41	-24239	-930372	1.67	3113175	3.346	Si
SLU 2	81	-23240	-1208217	1.6	3016576	2.497	Si
SLU 76	41	-39448	-1290796	2.71	4248237	3.291	Si
SLU 76	81	-38150	-1650445	2.62	4175990	2.53	Si
SLU 47	41	-30880	-1125882	2.12	3686418	3.274	Si
SLU 47	81	-29582	-1447181	2.04	3583828	2.476	Si
SLU 44	41	-30579	-1119885	2.1	3663008	3.271	Si
SLU 44	81	-29280	-1435708	2.01	3559351	2.479	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 3	41	-21409	-1995504	1.47	3040783	1.524	Si
SLV 3	81	-23788	-971843	1.64	3327177	3.424	Si
SLV 6	41	-45778	-1667264	3.15	5487460	3.291	Si
SLV 6	81	-30804	-1693545	2.12	4111930	2.428	Si
SLV 8	41	-9585	-689753	0.66	1464394	2.123	Si
SLV 8	81	-22113	-308404	1.52	3126567	10.138	Si
SLD 4	41	-25274	-1306998	1.74	3500886	2.679	Si
SLD 4	81	-25624	-950764	1.76	3541208	3.725	Si
SLV 4	41	-21409	-1995504	1.47	3040783	1.524	Si
SLV 4	81	-23788	-971843	1.64	3327177	3.424	Si
SLV 7	41	-9585	-689753	0.66	1464394	2.123	Si
SLV 7	81	-22113	-308404	1.52	3126567	10.138	Si
SLV 5	41	-45778	-1667264	3.15	5487460	3.291	Si
SLV 5	81	-30804	-1693545	2.12	4111930	2.428	Si
SLD 3	41	-25274	-1306998	1.74	3500886	2.679	Si
SLD 3	81	-25624	-950764	1.76	3541208	3.725	Si
SLV 1	41	-32267	-2288757	2.22	4264350	1.863	Si
SLV 1	81	-26395	-1387385	1.82	3629267	2.616	Si
SLV 2	41	-32267	-2288757	2.22	4264350	1.863	Si
SLV 2	81	-26395	-1387385	1.82	3629267	2.616	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 65	41	-34483	8376	-1195746		2.37	323	0.87	12673			1.51	Si
SLU 65	81	-33185	8376	-1530240		2.28	323	0.86	12500			1.49	Si
SLU 26	41	-28444	7561	-1012229		1.96	323	0.82	11868			1.57	Si
SLU 26	81	-27446	7561	-1314223		1.89	323	0.81	11734			1.55	Si
SLU 52	41	-35242	8402	-1208938		2.42	323	0.88	12774			1.52	Si
SLU 52	81	-33944	8402	-1544439		2.34	323	0.87	12601			1.5	Si
SLU 55	41	-35544	8538	-1214935		2.45	323	0.88	12814			1.5	Si
SLU 55	81	-34246	8538	-1555912		2.36	323	0.87	12641			1.48	Si
SLU 47	41	-30880	8047	-1125882		2.12	323	0.84	12192			1.52	Si
SLU 47	81	-29582	8047	-1447181		2.04	323	0.83	12019			1.49	Si
SLU 44	41	-30579	7910	-1119885		2.1	323	0.84	12152			1.54	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 44	81	-29280	7910	-1435708		2.01	323	0.82	11979			1.51	Si
SLU 76	41	-39448	9005	-1290796		2.71	323	0.92	13335			1.48	Si
SLU 76	81	-38150	9005	-1650445		2.62	323	0.91	13162			1.46	Si
SLU 73	41	-39147	8868	-1284799		2.69	323	0.91	13295			1.5	Si
SLU 73	81	-37849	8868	-1638971		2.6	323	0.9	13121			1.48	Si
SLU 34	41	-33108	8053	-1101282		2.28	323	0.86	12489			1.55	Si
SLU 34	81	-32110	8053	-1422954		2.21	323	0.85	12356			1.53	Si
SLU 68	41	-34784	8513	-1201743		2.39	323	0.87	12713			1.49	Si
SLU 68	81	-33486	8513	-1541713		2.3	323	0.86	12540			1.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	41	-9585	-18847	-689753		0.79	268.61	0.99	11990			0.64	No, Vu<V
SLV 7	81	-22113	-26559	-308404		1.52	323	1.14	16535			0.62	No, Vu<V
SLV 14	41	-34676	37587	464449		2.39	323	1.31	19048			0.51	No, Vu<V
SLV 14	81	-30300	39479	-876986		2.08	323	1.25	18172			0.46	No, Vu<V
SLV 3	41	-21409	-29621	-1995504		2.32	204.88	1.3	11965			0.4	No, Vu<V
SLV 3	81	-23788	-31513	-971843		1.64	323	1.16	16870			0.54	No, Vu<V
SLV 8	41	-9585	-18847	-689753		0.79	268.61	0.99	11990			0.64	No, Vu<V
SLV 8	81	-22113	-26559	-308404		1.52	323	1.14	16535			0.62	No, Vu<V
SLV 15	41	-23818	29181	757702		1.64	323	1.16	16876			0.58	No, Vu<V
SLV 15	81	-27693	26362	-461444		1.91	323	1.21	17651			0.67	No, Vu<V
SLV 13	41	-34676	37587	464449		2.39	323	1.31	19048			0.51	No, Vu<V
SLV 13	81	-30300	39479	-876986		2.08	323	1.25	18172			0.46	No, Vu<V
SLV 4	41	-21409	-29621	-1995504		2.32	204.88	1.3	11965			0.4	No, Vu<V
SLV 4	81	-23788	-31513	-971843		1.64	323	1.16	16870			0.54	No, Vu<V
SLV 9	41	-46500	26813	-841302		3.2	323	1.47	21413			0.8	No, Vu<V
SLV 9	81	-31975	34525	-1540425		2.2	323	1.27	18507			0.54	No, Vu<V
SLV 16	41	-23818	29181	757702		1.64	323	1.16	16876			0.58	No, Vu<V
SLV 16	81	-27693	26362	-461444		1.91	323	1.21	17651			0.67	No, Vu<V
SLV 10	41	-46500	26813	-841302		3.2	323	1.47	21413			0.8	No, Vu<V
SLV 10	81	-31975	34525	-1540425		2.2	323	1.27	18507			0.54	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.24	0.73	-10641	19416	225070	11.59	Si
SLV 7	14	0.24	0.73	-10641	19416	225070	11.59	Si
SLV 12	14	0.24	0.8	-11656	19416	245043	12.62	Si
SLV 11	14	0.24	0.8	-11656	19416	245043	12.62	Si
SLV 4	14	0.24	1.32	-19186	19416	385049	19.83	Si
SLV 3	14	0.24	1.32	-19186	19416	385049	19.83	Si
SLV 16	14	0.24	1.55	-22570	19416	443284	22.83	Si
SLV 15	14	0.24	1.55	-22570	19416	443284	22.83	Si
SLV 2	14	0.24	1.89	-27526	19416	523338	26.95	Si
SLV 1	14	0.24	1.89	-27526	19416	523338	26.95	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-19017	-11521	1369	0.036	24.939	0.938	55.291	352.938	No
SLV 8	-19017	-11521	1369	0.036	24.939	0.938	55.291	352.938	No
SLV 12	-19763	-13206	1381	0.037	25.694	0.94	56.712	352.938	No
SLV 11	-19763	-13206	1381	0.037	25.694	0.94	56.712	352.938	No
SLV 4	-20298	-19509	1113	0.049	26.235	0.941	75.677	348.092	No
SLV 3	-20298	-19509	1113	0.049	26.235	0.941	75.677	348.092	No
SLV 16	-22784	-25123	1156	0.051	28.755	0.945	77.821	348.092	No
SLV 15	-22784	-25123	1156	0.051	28.755	0.945	77.821	348.092	No
SLV 1	-22141	-28040	907	0.059	28.103	0.944	91.583	348.092	No
SLV 2	-22141	-28040	907	0.059	28.103	0.944	91.583	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.476	SLU 47	Si
V_SLU	1.462	SLU 76	Si
PF_SLV	1.524	SLV 3	Si
V_SLV	0.404	SLV 3	No
PFFP_SLV	11.592	SLV 7	Si
R_SLV	0.157	SLV 7	No

## Maschio 50

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-223.3	-328.4	-12.3	-328.4	L1	L3	211	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 26	41	-17847	335347	1.88	1448420	4.319	Si
SLU 26	81	-15934	314580	1.68	1334738	4.243	Si
SLU 23	41	-17562	327122	1.85	1432116	4.378	Si
SLU 23	81	-15670	308301	1.65	1318225	4.276	Si
SLU 55	41	-21937	383148	2.31	1657953	4.327	Si
SLU 55	81	-19658	349290	2.07	1546810	4.428	Si
SLU 44	41	-18977	364927	2	1510831	4.14	Si
SLU 44	81	-16770	341281	1.77	1385624	4.06	Si
SLU 47	41	-19262	373152	2.03	1526036	4.09	Si
SLU 47	81	-17035	347560	1.79	1401343	4.032	Si
SLU 2	41	-15123	306276	1.59	1283511	4.191	Si
SLU 2	81	-13303	295949	1.4	1162045	3.927	Si
SLU 76	41	-24377	403994	2.57	1761208	4.359	Si
SLU 76	81	-22025	361642	2.32	1661950	4.596	Si
SLU 5	41	-15408	314501	1.62	1301712	4.139	Si
SLU 5	81	-13567	302228	1.43	1180268	3.905	Si
SLU 68	41	-21701	393998	2.29	1647098	4.18	Si
SLU 68	81	-19402	359912	2.04	1533423	4.261	Si
SLU 65	41	-21416	385773	2.26	1633790	4.235	Si
SLU 65	81	-19137	353633	2.02	1519413	4.297	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	41	-28216	899362	2.97	2252841	2.505	Si
SLV 13	81	-24926	396532	2.63	2064735	5.207	Si
SLV 15	41	-19273	834988	2.03	1695550	2.031	Si
SLV 15	81	-20644	258800	2.17	1790434	6.918	Si
SLV 4	41	-5974	-443084	0.63	597787	1.349	Si
SLV 4	81	-6452	-58037	0.68	642785	11.075	Si
SLV 7	41	-195	-70862	0	0	0	No, $e \geq l/2$
SLV 7	81	-6423	-107832	0.68	640155	5.937	Si
SLV 11	41	-4185	312559	0.44	425581	1.362	Si
SLV 11	81	-10681	-12781	1.12	1023135	80.053	Si
SLV 3	41	-5974	-443084	0.63	597787	1.349	Si
SLV 3	81	-6452	-58037	0.68	642785	11.075	Si
SLV 14	41	-28216	899362	2.97	2252841	2.505	Si
SLV 14	81	-24926	396532	2.63	2064735	5.207	Si
SLV 16	41	-19273	834988	2.03	1695550	2.031	Si
SLV 16	81	-20644	258800	2.17	1790434	6.918	Si
SLV 8	41	-195	-70862	0	0	0	No, $e \geq l/2$
SLV 8	81	-6423	-107832	0.68	640155	5.937	Si
SLV 12	41	-4185	312559	0.44	425581	1.362	Si
SLV 12	81	-10681	-12781	1.12	1023135	80.053	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	41	-21652	-2905	374923		2.28	211	0.86	8162			2.81	Si
SLU 52	81	-19393	-2940	343011		2.04	211	0.83	7861			2.67	Si
SLU 44	41	-18977	-2975	364927		2	211	0.82	7805			2.62	Si
SLU 44	81	-16770	-3009	341281		1.77	211	0.79	7511			2.5	Si
SLU 26	41	-17847	-2789	335347		1.88	211	0.81	7655			2.74	Si
SLU 26	81	-15934	-2823	314580		1.68	211	0.78	7400			2.62	Si
SLU 2	41	-15123	-2807	306276		1.59	211	0.77	7291			2.6	Si
SLU 2	81	-13303	-2840	295949		1.4	211	0.74	7049			2.48	Si
SLU 68	41	-21701	-2957	393998		2.29	211	0.86	8168			2.76	Si
SLU 68	81	-19402	-2992	359912		2.04	211	0.83	7862			2.63	Si
SLU 47	41	-19262	-2979	373152		2.03	211	0.83	7843			2.63	Si
SLU 47	81	-17035	-3014	347560		1.79	211	0.79	7546			2.5	Si
SLU 5	41	-15408	-2811	314501		1.62	211	0.77	7329			2.61	Si
SLU 5	81	-13567	-2845	302228		1.43	211	0.75	7084			2.49	Si
SLU 65	41	-21416	-2953	385773		2.26	211	0.86	8130			2.75	Si
SLU 65	81	-19137	-2987	353633		2.02	211	0.82	7827			2.62	Si
SLU 10	41	-17798	-2737	316272		1.87	211	0.81	7648			2.79	Si
SLU 10	81	-15926	-2770	297679		1.68	211	0.78	7398			2.67	Si
SLU 23	41	-17562	-2784	327122		1.85	211	0.8	7617			2.74	Si
SLU 23	81	-15670	-2818	308301		1.65	211	0.78	7364			2.61	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	41	-5974	-12074	-443084		1.41	93.99	1.12	4719			0.39	No, $V_u < V$
SLV 3	81	-6452	-14456	-58037		0.68	211	0.97	9203			0.64	No, $V_u < V$
SLV 16	41	-19273	17139	834988		2.3	186.53	1.29	10850			0.63	No, $V_u < V$
SLV 16	81	-20644	18063	258800		2.17	211	1.27	12041			0.67	No, $V_u < V$
SLV 15	41	-19273	17139	834988		2.3	186.53	1.29	10850			0.63	No, $V_u < V$
SLV 15	81	-20644	18063	258800		2.17	211	1.27	12041			0.67	No, $V_u < V$
SLV 7	41	-195	5248	-70862		0	0	0.83	0			0	No, $V_u < V$
SLV 7	81	-6423	2334	-107832		0.68	211	0.97	9197			3.94	Si
SLV 1	41	-14917	-18157	-378710		1.57	211	1.15	10896			0.6	No, $V_u < V$
SLV 1	81	-10733	-19091	79695		1.13	211	1.06	10059			0.53	No, $V_u < V$
SLV 4	41	-5974	-12074	-443084		1.41	93.99	1.12	4719			0.39	No, $V_u < V$
SLV 4	81	-6452	-14456	-58037		0.68	211	0.97	9203			0.64	No, $V_u < V$
SLV 8	41	-195	5248	-70862		0	0	0.83	0			0	No, $V_u < V$
SLV 8	81	-6423	2334	-107832		0.68	211	0.97	9197			3.94	Si
SLV 2	41	-14917	-18157	-378710		1.57	211	1.15	10896			0.6	No, $V_u < V$
SLV 2	81	-10733	-19091	79695		1.13	211	1.06	10059			0.53	No, $V_u < V$
SLV 12	41	-4185	14012	312559		1.01	92.44	1.03	4303			0.31	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	81	-10681	12090	-12781		1.12	211	1.06	10049			0.83	No, Vu<V
SLV 11	41	-4185	14012	312559		1.01	92.44	1.03	4303			0.31	No, Vu<V
SLV 11	81	-10681	12090	-12781		1.12	211	1.06	10049			0.83	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.24	0.28	-2706	12683	59455	4.69	Si
SLV 7	14	0.24	0.28	-2706	12683	59455	4.69	Si
SLV 3	14	0.24	0.54	-5101	12683	109723	8.65	Si
SLV 4	14	0.24	0.54	-5101	12683	109723	8.65	Si
SLV 12	14	0.24	0.9	-8568	12683	178544	14.08	Si
SLV 11	14	0.24	0.9	-8568	12683	178544	14.08	Si
SLV 1	14	0.24	1.37	-13016	12683	260012	20.5	Si
SLV 2	14	0.24	1.37	-13016	12683	260012	20.5	Si
SLV 15	14	0.24	2.6	-24643	12683	436688	34.43	Si
SLV 16	14	0.24	2.6	-24643	12683	436688	34.43	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-14056	-12130	745	0.05	17.946	0.943	76.366	352.938	No
SLV 11	-14056	-12130	745	0.05	17.946	0.943	76.366	352.938	No
SLV 8	-11231	-2792	636	0.051	15.086	0.934	78.695	352.938	No
SLV 7	-11231	-2792	636	0.051	15.086	0.934	78.695	352.938	No
SLV 15	-17880	-33562	714	0.057	21.826	0.952	87.774	348.092	No
SLV 16	-17880	-33562	714	0.057	21.826	0.952	87.774	348.092	No
SLV 13	-18333	-42594	578	0.065	22.285	0.953	98.611	348.092	No
SLV 14	-18333	-42594	578	0.065	22.285	0.953	98.611	348.092	No
SLV 3	-8463	-2436	350	0.069	12.296	0.922	108.303	348.092	No
SLV 4	-8463	-2436	350	0.069	12.296	0.922	108.303	348.092	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.905	SLU 5	Si
V_SLU	2.482	SLU 2	Si
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	4.688	SLV 7	Si
R_SLV	0.216	SLV 11	No

## Maschio 51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	207.1	-515.8	680.1	L1	L3	473	30	270	270	270			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	-159	-114163	3645901	8.05	333106	0.091	No, M>Mu
SLU 74	51	-107341	3591433	7.56	1811631	0.504	No, M>Mu
SLU 75	-159	-113760	3640171	8.02	425909	0.117	No, M>Mu
SLU 75	51	-106937	3599998	7.54	1893161	0.526	No, M>Mu
SLU 79	-159	-116773	3863215	8.23	0	0	No, Rottura per schiacciamento
SLU 79	51	-109950	3727987	7.75	1268698	0.34	No, M>Mu
SLU 82	-159	-115054	3544652	8.11	125981	0.036	No, M>Mu
SLU 82	51	-108231	3563968	7.63	1629380	0.457	No, M>Mu
SLU 77	-159	-117396	3875484	8.27	0	0	No, Rottura per schiacciamento
SLU 77	51	-110573	3747288	7.79	1134882	0.303	No, M>Mu
SLU 84	-159	-118287	3774235	8.34	0	0	No, Rottura per schiacciamento
SLU 84	51	-111464	3719823	7.86	940847	0.253	No, M>Mu
SLU 80	-159	-116369	3857485	8.2	0	0	No, Rottura per schiacciamento
SLU 80	51	-109546	3736552	7.72	1354539	0.363	No, M>Mu
SLU 81	-159	-115458	3550382	8.14	31039	0.009	No, M>Mu
SLU 81	51	-108635	3555403	7.66	1545710	0.435	No, M>Mu
SLU 83	-159	-118690	3779965	8.36	0	0	No, Rottura per schiacciamento
SLU 83	51	-111868	3711258	7.88	851836	0.23	No, M>Mu
SLU 78	-159	-116992	3869754	8.24	0	0	No, Rottura per schiacciamento
SLU 78	51	-110169	3755853	7.76	1221753	0.325	No, M>Mu



#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 8	-159	-84949	4702088	5.99	10247191	2.179	Si
SLD 8	51	-81094	2835160	5.71	10208582	3.601	Si
SLV 3	-159	-91475	4079527	6.45	10220133	2.505	Si
SLV 3	51	-83606	3199821	5.89	10238343	3.2	Si
SLV 11	-159	-90295	7676007	6.36	10233624	1.333	Si
SLV 11	51	-90683	3122120	6.39	10229603	3.276	Si
SLD 11	-159	-82358	4670761	5.8	10225709	2.189	Si
SLD 11	51	-79532	2694818	5.6	10181402	3.778	Si
SLV 12	-159	-90295	7676007	6.36	10233624	1.333	Si
SLV 12	51	-90683	3122120	6.39	10229603	3.276	Si
SLV 7	-159	-96306	7743299	6.79	10125254	1.308	Si
SLV 7	51	-94321	3446501	6.65	10171942	2.951	Si
SLD 7	-159	-84949	4702088	5.99	10247191	2.179	Si
SLD 7	51	-81094	2835160	5.71	10208582	3.601	Si
SLV 8	-159	-96306	7743299	6.79	10125254	1.308	Si
SLV 8	51	-94321	3446501	6.65	10171942	2.951	Si
SLD 12	-159	-82358	4670761	5.8	10225709	2.189	Si
SLD 12	51	-79532	2694818	5.6	10181402	3.778	Si
SLV 4	-159	-91475	4079527	6.45	10220133	2.505	Si
SLV 4	51	-83606	3199821	5.89	10238343	3.2	Si

#### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	-159	-100701	833	3370926		7.1	473	1.08	15373			18.45	Si
SLU 35	51	-95453	833	3213082		6.73	473	1.08	15373			18.45	Si
SLU 29	-159	-88060	786	3017213		6.21	473	1.08	15373			19.55	Si
SLU 29	51	-82812	786	2869155		5.84	473	1.08	15373			19.55	Si
SLU 30	-159	-87656	718	3011483		6.18	473	1.08	15373			21.4	Si
SLU 30	51	-82408	718	2877719		5.81	473	1.08	15373			21.4	Si
SLU 38	-159	-99674	799	3352927		7.02	473	1.08	15373			19.25	Si
SLU 38	51	-94426	799	3202346		6.65	473	1.08	15373			19.25	Si
SLU 36	-159	-100297	765	3365196		7.07	473	1.08	15373			20.09	Si
SLU 36	51	-95049	765	3221647		6.7	473	1.08	15373			20.09	Si
SLU 28	-159	-88279	685	3023752		6.22	473	1.08	15373			22.44	Si
SLU 28	51	-83031	685	2897020		5.85	473	1.08	15373			22.44	Si
SLU 27	-159	-88683	753	3029482		6.25	473	1.08	15373			20.41	Si
SLU 27	51	-83435	753	2888456		5.88	473	1.08	15373			20.41	Si
SLU 77	-159	-117396	716	3875484		8.27	473	1.08	15373			21.46	Si
SLU 77	51	-110573	716	3747288		7.79	473	1.08	15373			21.46	Si
SLU 37	-159	-100078	867	3358657		7.05	473	1.08	15373			17.74	Si
SLU 37	51	-94829	867	3193781		6.68	473	1.08	15373			17.74	Si
SLU 79	-159	-116773	750	3863215		8.23	473	1.08	15373			20.5	Si
SLU 79	51	-109950	750	3727987		7.75	473	1.08	15373			20.5	Si

#### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	-159	-56454	-22621	-3016219		3.98	473	1.63	23059			1.02	Si
SLV 10	51	-47943	-22499	1336051		3.38	473	1.51	21414			0.95	No, Vu<V
SLV 12	-159	-90295	24379	7676007		6.62	454.47	1.63	22155			0.91	No, Vu<V
SLV 12	51	-90683	22743	3122120		6.39	473	1.63	23059			1.01	Si
SLV 6	-159	-62465	-24480	-2948927		4.4	473	1.63	23059			0.94	No, Vu<V
SLV 6	51	-51580	-22844	1660432		3.63	473	1.56	22141			0.97	No, Vu<V
SLV 8	-159	-96306	22520	7743299		6.86	468.29	1.63	22829			1.01	Si
SLV 8	51	-94321	22397	3446501		6.65	473	1.63	23059			1.03	Si
SLV 9	-159	-56454	-22621	-3016219		3.98	473	1.63	23059			1.02	Si
SLV 9	51	-47943	-22499	1336051		3.38	473	1.51	21414			0.95	No, Vu<V
SLV 7	-159	-96306	22520	7743299		6.86	468.29	1.63	22829			1.01	Si
SLV 7	51	-94321	22397	3446501		6.65	473	1.63	23059			1.03	Si
SLV 11	-159	-90295	24379	7676007		6.62	454.47	1.63	22155			0.91	No, Vu<V
SLV 11	51	-90683	22743	3122120		6.39	473	1.63	23059			1.01	Si
SLD 5	-159	-70402	-10688	56319		4.96	473	1.63	23059			2.16	Si
SLD 5	51	-62732	-9974	2087734		4.42	473	1.63	23059			2.31	Si
SLV 5	-159	-62465	-24480	-2948927		4.4	473	1.63	23059			0.94	No, Vu<V
SLV 5	51	-51580	-22844	1660432		3.63	473	1.56	22141			0.97	No, Vu<V
SLD 6	-159	-70402	-10688	56319		4.96	473	1.63	23059			2.16	Si
SLD 6	51	-62732	-9974	2087734		4.42	473	1.63	23059			2.31	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.24	3.63	-51515	18955	543135	28.65	Si
SLV 9	14	0.24	3.63	-51515	18955	543135	28.65	Si
SLV 6	14	0.24	4.04	-57269	18955	575296	30.35	Si
SLV 5	14	0.24	4.04	-57269	18955	575296	30.35	Si
SLV 14	14	0.24	4.08	-57872	18955	578331	30.51	Si
SLV 13	14	0.24	4.08	-57872	18955	578331	30.51	Si
SLV 15	14	0.24	4.87	-69075	18955	623340	32.89	Si
SLV 16	14	0.24	4.87	-69075	18955	623340	32.89	Si
SLV 2	14	0.24	5.43	-77054	18955	642154	33.88	Si
SLV 1	14	0.24	5.43	-77054	18955	642154	33.88	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.05 Ta = 0.0406

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	-62564	-81322	230	0.055	69.095	0.976	81.883	430.325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 2	-62564	-81322	230	0.055	69.095	0.976	81.883	430.325	No
SLV 15	-71475	-71438	-222	0.055	78.173	0.979	81.911	430.325	No
SLV 16	-71475	-71438	-222	0.055	78.173	0.979	81.911	430.325	No
SLV 11	-85287	-90295	-102	0.057	92.246	0.982	83.738	439.851	No
SLV 12	-85287	-90295	-102	0.057	92.246	0.982	83.738	439.851	No
SLV 3	-73727	-91475	204	0.055	80.467	0.979	82.22	430.325	No
SLV 4	-73727	-91475	204	0.055	80.467	0.979	82.22	430.325	No
SLV 13	-60312	-61286	-197	0.055	66.802	0.975	82.688	430.325	No
SLV 14	-60312	-61286	-197	0.055	66.802	0.975	82.688	430.325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 77	No
V_SLU	17.739	SLU 37	Si
PF_SLV	1.308	SLV 7	Si
V_SLV	0.909	SLV 11	No
PFFP_SLV	28.654	SLV 9	Si
R_SLV	0.19	SLV 1	No

## Maschio 52

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-500.8	587.6	-301.3	587.6	L1	L3	199.5	45	270	270	270			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 84	41	-23379	344933	2.6	1586504	4.599	Si
SLU 84	81	-22573	249174	2.51	1556617	6.247	Si
SLU 83	41	-23466	349656	2.61	1589626	4.546	Si
SLU 83	81	-22660	252183	2.52	1559929	6.186	Si
SLU 79	41	-22793	330533	2.54	1564950	4.735	Si
SLU 79	81	-21986	235955	2.45	1533773	6.5	Si
SLU 81	41	-22952	348922	2.56	1570907	4.502	Si
SLU 81	81	-22146	252001	2.47	1540081	6.111	Si
SLU 60	41	-20413	311020	2.27	1467808	4.719	Si
SLU 60	81	-19606	222359	2.18	1431397	6.437	Si
SLU 73	41	-21620	321194	2.41	1519019	4.729	Si
SLU 73	81	-20814	230578	2.32	1485264	6.441	Si
SLU 74	41	-22373	332038	2.49	1548927	4.665	Si
SLU 74	81	-21566	236475	2.4	1516826	6.414	Si
SLU 75	41	-22286	327315	2.48	1545546	4.722	Si
SLU 75	81	-21479	233466	2.39	1513253	6.482	Si
SLU 82	41	-22865	344199	2.55	1567664	4.555	Si
SLU 82	81	-22059	248992	2.46	1536647	6.171	Si
SLU 77	41	-22886	332772	2.55	1568457	4.713	Si
SLU 77	81	-22080	236657	2.46	1537486	6.497	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$ 

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 6	41	-2079	99929	0.23	203410	2.036	Si
SLV 6	81	981	389407	0	0	0	No, Trazione
SLV 13	41	-12944	865802	1.44	1138817	1.315	Si
SLV 13	81	-11423	268565	1.27	1020758	3.801	Si
SLV 16	41	-20286	826963	2.26	1649283	1.994	Si
SLV 16	81	-20256	121636	2.26	1647419	13.544	Si
SLV 15	41	-20286	826963	2.26	1649283	1.994	Si
SLV 15	81	-20256	121636	2.26	1647419	13.544	Si
SLV 2	41	-9405	-382173	1.05	857692	2.244	Si
SLV 2	81	-8194	190758	0.91	756301	3.965	Si
SLV 14	41	-12944	865802	1.44	1138817	1.315	Si
SLV 14	81	-11423	268565	1.27	1020758	3.801	Si
SLV 1	41	-9405	-382173	1.05	857692	2.244	Si
SLV 1	81	-8194	190758	0.91	756301	3.965	Si
SLV 10	41	-3140	474322	0	0	0	No, e>l/2
SLV 10	81	13	412749	0	0	0	No, Trazione
SLV 5	41	-2079	99929	0.23	203410	2.036	Si
SLV 5	81	981	389407	0	0	0	No, Trazione
SLV 9	41	-3140	474322	0	0	0	No, e>l/2
SLV 9	81	13	412749	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$ 

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	41	-22865	2376	344199		2.55	199.5	0.9	8036			3.38	Si
SLU 82	81	-22059	2376	248992		2.46	199.5	0.88	7929			3.34	Si
SLU 83	41	-23466	2433	349656		2.61	199.5	0.9	8116			3.34	Si
SLU 83	81	-22660	2433	252183		2.52	199.5	0.89	8009			3.29	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	41	-22952	2419	348922		2.56	199.5	0.9	8048			3.33	Si
SLU 81	81	-22146	2419	252001		2.47	199.5	0.88	7940			3.28	Si
SLU 74	41	-22373	2385	332038		2.49	199.5	0.89	7971			3.34	Si
SLU 74	81	-21566	2385	236475		2.4	199.5	0.88	7863			3.3	Si
SLU 75	41	-22286	2342	327315		2.48	199.5	0.89	7959			3.4	Si
SLU 75	81	-21479	2342	233466		2.39	199.5	0.87	7851			3.35	Si
SLU 84	41	-23379	2390	344933		2.6	199.5	0.9	8105			3.39	Si
SLU 84	81	-22573	2390	249174		2.51	199.5	0.89	7997			3.35	Si
SLU 78	41	-22799	2356	328049		2.54	199.5	0.89	8027			3.41	Si
SLU 78	81	-21993	2356	233648		2.45	199.5	0.88	7920			3.36	Si
SLU 79	41	-22793	2360	330533		2.54	199.5	0.89	8027			3.4	Si
SLU 79	81	-21986	2360	235955		2.45	199.5	0.88	7919			3.35	Si
SLU 80	41	-22706	2318	325810		2.53	199.5	0.89	8015			3.46	Si
SLU 80	81	-21899	2318	232947		2.44	199.5	0.88	7907			3.41	Si
SLU 77	41	-22886	2399	332772		2.55	199.5	0.9	8039			3.35	Si
SLU 77	81	-22080	2399	236657		2.46	199.5	0.88	7932			3.31	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	41	-2079	-16396	99929		0.3	155.02	0.89	6229			0.38	No, Vu<V
SLV 6	81	981	-23808	389407		0	0	0.83	0			0	No, Vu<V
SLV 9	41	-3140	-7710	474322		0	0	0.83	0			0	No, Vu<V
SLV 9	81	13	-15232	412749		0	0	0.83	0			0	No, Vu<V
SLV 11	41	-27612	19700	344861		3.08	199.5	1.45	13004			0.66	No, Vu<V
SLV 11	81	-29431	27112	-77013		3.28	199.5	1.49	13368			0.49	No, Vu<V
SLV 1	41	-9405	-16936	-382173		1.18	177.34	1.07	8531			0.5	No, Vu<V
SLV 1	81	-8194	-18993	190758		0.91	199.5	1.02	9120			0.48	No, Vu<V
SLV 16	41	-20286	20240	826963		2.55	176.95	1.34	10693			0.53	No, Vu<V
SLV 16	81	-20256	22297	121636		2.26	199.5	1.28	11532			0.52	No, Vu<V
SLV 5	41	-2079	-16396	99929		0.3	155.02	0.89	6229			0.38	No, Vu<V
SLV 5	81	981	-23808	389407		0	0	0.83	0			0	No, Vu<V
SLV 15	41	-20286	20240	826963		2.55	176.95	1.34	10693			0.53	No, Vu<V
SLV 15	81	-20256	22297	121636		2.26	199.5	1.28	11532			0.52	No, Vu<V
SLV 12	41	-27612	19700	344861		3.08	199.5	1.45	13004			0.66	No, Vu<V
SLV 12	81	-29431	27112	-77013		3.28	199.5	1.49	13368			0.49	No, Vu<V
SLV 2	41	-9405	-16936	-382173		1.18	177.34	1.07	8531			0.5	No, Vu<V
SLV 2	81	-8194	-18993	190758		0.91	199.5	1.02	9120			0.48	No, Vu<V
SLV 10	41	-3140	-7710	474322		0	0	0.83	0			0	No, Vu<V
SLV 10	81	13	-15232	412749		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.24	0.64	-5724	11992	122063	10.18	Si
SLV 9	14	0.24	0.64	-5724	11992	122063	10.18	Si
SLV 14	14	0.24	0.75	-6773	11992	142982	11.92	Si
SLV 13	14	0.24	0.75	-6773	11992	142982	11.92	Si
SLV 6	14	0.24	0.96	-8641	11992	179115	14.94	Si
SLV 5	14	0.24	0.96	-8641	11992	179115	14.94	Si
SLV 16	14	0.24	1.18	-10590	11992	215273	17.95	Si
SLV 15	14	0.24	1.18	-10590	11992	215273	17.95	Si
SLV 2	14	0.24	1.84	-16499	11992	315387	26.3	Si
SLV 1	14	0.24	1.84	-16499	11992	315387	26.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 14	-14178	1201	-399	0	0	0	0	348.092	No, Trazione
SLV 13	-14178	1201	-399	0	0	0	0	348.092	No, Trazione
SLV 16	-16732	-401	-448	0.069	20.46	0.951	105.827	348.092	No
SLV 15	-16732	-401	-448	0.069	20.46	0.951	105.827	348.092	No
SLV 12	-17626	-12406	-374	0.074	21.368	0.953	112.241	352.938	No
SLV 11	-17626	-12406	-374	0.074	21.368	0.953	112.241	352.938	No
SLV 7	-15838	-21095	-262	0.079	19.552	0.949	120.727	352.938	No
SLV 8	-15838	-21095	-262	0.079	19.552	0.949	120.727	352.938	No
SLV 9	-9112	-7066	-211	0.081	12.743	0.928	126.545	352.938	No
SLV 10	-9112	-7066	-211	0.081	12.743	0.928	126.545	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	4.502	SLU 81	Si
V_SLV	3.282	SLU 81	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLV 5	No
PFFP_SLV	10.179	SLV 9	Si
R_SLV	0	SLV 14	No

## Maschio 53

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-201.3	587.6	-12.3	587.6	L1	L3	189	45	270	270	270			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 49	41	-17049	74559	2	1214659	16.291	Si
SLU 49	81	-16090	79575	1.89	1167367	14.67	Si
SLU 45	41	-17357	90300	2.04	1229296	13.613	Si
SLU 45	81	-16373	95791	1.93	1181574	12.335	Si
SLU 43	41	-17059	91782	2.01	1215128	13.239	Si
SLU 43	81	-16083	96899	1.89	1167035	12.044	Si
SLU 3	41	-13990	67277	1.64	1055099	15.683	Si
SLU 3	81	-13232	71354	1.56	1011599	14.177	Si
SLU 1	41	-13692	68759	1.61	1038195	15.099	Si
SLU 1	81	-12942	72462	1.52	994580	13.726	Si
SLU 66	41	-19518	83313	2.29	1324831	15.902	Si
SLU 66	81	-18537	87921	2.18	1283031	14.593	Si
SLU 48	41	-17514	85591	2.06	1236669	14.449	Si
SLU 48	81	-16524	91838	1.94	1189077	12.948	Si
SLU 50	41	-17373	82366	2.04	1230062	14.934	Si
SLU 50	81	-16386	88992	1.93	1182217	13.285	Si
SLU 46	41	-16892	79267	1.99	1207087	15.228	Si
SLU 46	81	-15939	83529	1.87	1159685	13.884	Si
SLU 64	41	-19220	84795	2.26	1312420	15.477	Si
SLU 64	81	-18247	89029	2.15	1270201	14.267	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	41	-14353	-474895	1.69	1169030	2.462	Si
SLV 4	81	-12805	-55691	1.51	1060952	19.051	Si
SLV 13	41	-15684	601699	1.84	1258419	2.091	Si
SLV 13	81	-15743	188553	1.85	1262321	6.695	Si
SLV 2	41	-5872	-554753	0.69	523544	0.944	No, M>Mu
SLV 2	81	-4837	-85114	0.57	435795	5.12	Si
SLV 3	41	-14353	-474895	1.69	1169030	2.462	Si
SLV 3	81	-12805	-55691	1.51	1060952	19.051	Si
SLV 10	41	-2355	103773	0.28	217487	2.096	Si
SLV 10	81	-2630	58443	0.31	242203	4.144	Si
SLV 14	41	-15684	601699	1.84	1258419	2.091	Si
SLV 14	81	-15743	188553	1.85	1262321	6.695	Si
SLV 6	41	589	-243162	0	0	0	No, Trazione
SLV 6	81	642	-23657	0	0	0	No, Trazione
SLV 9	41	-2355	103773	0.28	217487	2.096	Si
SLV 9	81	-2630	58443	0.31	242203	4.144	Si
SLV 1	41	-5872	-554753	0.69	523544	0.944	No, M>Mu
SLV 1	81	-4837	-85114	0.57	435795	5.12	Si
SLV 5	41	589	-243162	0	0	0	No, Trazione
SLV 5	81	642	-23657	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	41	-19853	-723	70603		2.33	189	0.87	7372			10.2	Si
SLU 58	81	-18881	-829	75753		2.22	189	0.85	7242			8.74	Si
SLU 56	41	-19994	-720	73829		2.35	189	0.87	7391			10.27	Si
SLU 56	81	-19019	-828	78599		2.24	189	0.85	7261			8.77	Si
SLU 66	41	-19518	-730	83313		2.29	189	0.86	7327			10.03	Si
SLU 66	81	-18537	-837	87921		2.18	189	0.85	7197			8.6	Si
SLU 71	41	-19534	-768	75379		2.3	189	0.86	7330			9.54	Si
SLU 71	81	-18550	-875	81122		2.18	189	0.85	7198			8.23	Si
SLU 45	41	-17357	-748	90300		2.04	189	0.83	7039			9.41	Si
SLU 45	81	-16373	-844	95791		1.93	189	0.81	6908			8.19	Si
SLU 50	41	-17373	-786	82366		2.04	189	0.83	7041			8.96	Si
SLU 50	81	-16386	-882	88992		1.93	189	0.81	6910			7.84	Si
SLU 51	41	-16908	-680	71333		1.99	189	0.82	6979			10.26	Si
SLU 51	81	-15952	-776	76729		1.88	189	0.81	6852			8.83	Si
SLU 48	41	-17514	-783	85591		2.06	189	0.83	7060			9.01	Si
SLU 48	81	-16524	-880	91838		1.94	189	0.81	6928			7.87	Si
SLU 43	41	-17059	-716	91782		2.01	189	0.82	7000			9.78	Si
SLU 43	81	-16083	-809	96899		1.89	189	0.81	6869			8.49	Si
SLU 69	41	-19675	-766	78605		2.31	189	0.86	7348			9.6	Si
SLU 69	81	-18688	-873	83968		2.2	189	0.85	7217			8.27	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	41	-2355	9059	103773		0.35	151.29	0.9	6144			0.68	No, Vu<V
SLV 10	81	-2630	7162	58443		0.31	189	0.9	7613			1.06	Si
SLV 4	41	-14353	-16703	-474895		1.73	184.24	1.18	9780			0.59	No, Vu<V
SLV 4	81	-12805	-15522	-55691		1.51	189	1.13	9648			0.62	No, Vu<V
SLV 5	41	589	286	-243162		0	0	0.83	0			0	No, Vu<V
SLV 5	81	642	-1138	-23657		0	0	0.83	0			0	No, Vu<V
SLV 6	41	589	286	-243162		0	0	0.83	0			0	No, Vu<V
SLV 6	81	642	-1138	-23657		0	0	0.83	0			0	No, Vu<V
SLV 13	41	-15684	15658	601699		2.07	168.41	1.25	9452			0.6	No, Vu<V
SLV 13	81	-15743	14315	188553		1.85	189	1.2	10236			0.72	No, Vu<V
SLV 2	41	-5872	-13586	-554753		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	81	-4837	-13353	-85114		0.57	189	0.95	8055			0.6	No, Vu<V
SLV 9	41	-2355	9059	103773		0.35	151.29	0.9	6144			0.68	No, Vu<V
SLV 9	81	-2630	7162	58443		0.31	189	0.9	7613			1.06	Si
SLV 3	41	-14353	-16703	-474895		1.73	184.24	1.18	9780			0.59	No, Vu<V
SLV 3	81	-12805	-15522	-55691		1.51	189	1.13	9648			0.62	No, Vu<V
SLV 14	41	-15684	15658	601699		2.07	168.41	1.25	9452			0.6	No, Vu<V
SLV 14	81	-15743	14315	188553		1.85	189	1.2	10236			0.72	No, Vu<V
SLV 1	41	-5872	-13586	-554753		0	0	0.83	0			0	No, Vu<V
SLV 1	81	-4837	-13353	-85114		0.57	189	0.95	8055			0.6	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.24	0.16	-1373	11361	30484	2.68	Si
SLV 6	14	0.24	0.16	-1373	11361	30484	2.68	Si
SLV 1	14	0.24	0.51	-4360	11361	93993	8.27	Si
SLV 2	14	0.24	0.51	-4360	11361	93993	8.27	Si
SLV 10	14	0.24	0.73	-6168	11361	130537	11.49	Si
SLV 9	14	0.24	0.73	-6168	11361	130537	11.49	Si
SLV 4	14	0.24	1.38	-11716	11361	233888	20.59	Si
SLV 3	14	0.24	1.38	-11716	11361	233888	20.59	Si
SLV 13	14	0.24	2.39	-20343	11361	368116	32.4	Si
SLV 14	14	0.24	2.39	-20343	11361	368116	32.4	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-9925	-9312	-545	0.052	13.377	0.933	81.34	352.938	No
SLV 9	-9925	-9312	-545	0.052	13.377	0.933	81.34	352.938	No
SLV 5	-7765	-1540	-463	0.054	11.199	0.923	84.683	352.938	No
SLV 6	-7765	-1540	-463	0.054	11.199	0.923	84.683	352.938	No
SLV 13	-14964	-27500	-533	0.062	18.482	0.949	95.168	348.092	No
SLV 14	-14964	-27500	-533	0.062	18.482	0.949	95.168	348.092	No
SLV 16	-17122	-35317	-440	0.069	20.674	0.954	105.711	348.092	No
SLV 15	-17122	-35317	-440	0.069	20.674	0.954	105.711	348.092	No
SLV 2	-7763	-1593	-258	0.075	11.197	0.923	117.485	348.092	No
SLV 1	-7763	-1593	-258	0.075	11.197	0.923	117.485	348.092	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	12.044	SLU 43	Si
V_SLU	7.836	SLU 50	Si
PF_SLV	0	SLV 6	No
V_SLV	0	SLV 1	No
PFFP_SLV	2.683	SLV 5	Si
R_SLV	0.23	SLV 9	No

Maschio 54

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	610.1	-12.3	-328.4	L1	L3	938.5	45	270	270	270			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 65	-159	-183533	3533208	4.35	40176066	11.371	Si
SLU 65	111	-157528	5130326	3.73	40071200	7.811	Si
SLU 73	-159	-200003	3756188	4.74	39288275	10.46	Si
SLU 73	111	-172708	5420943	4.09	40356553	7.445	Si
SLU 31	-159	-165790	3482237	3.93	40304477	11.574	Si
SLU 31	111	-144409	4941024	3.42	39318224	7.958	Si
SLU 52	-159	-183959	3433525	4.36	40162423	11.697	Si
SLU 52	111	-157605	5003056	3.73	40074258	8.01	Si
SLU 47	-159	-169308	3414391	4.01	40347271	11.817	Si
SLU 47	111	-144197	4933612	3.41	39302182	7.966	Si
SLU 55	-159	-185777	3637371	4.4	40098619	11.024	Si
SLU 55	111	-159377	5224229	3.77	40139598	7.683	Si
SLU 26	-159	-151139	3463103	3.58	39763142	11.482	Si
SLU 26	111	-131001	4871580	3.1	38063449	7.813	Si
SLU 34	-159	-167609	3686084	3.97	40330818	10.941	Si
SLU 34	111	-146181	5162197	3.46	39447353	7.642	Si
SLU 68	-159	-185351	3737054	4.39	40114375	10.734	Si
SLU 68	111	-159300	5351500	3.77	40136915	7.5	Si
SLU 76	-159	-201821	3960035	4.78	39144867	9.885	Si
SLU 76	111	-174480	5642117	4.13	40348888	7.151	Si





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	-159	-53932	-6654067	1.28	22662442	3.406	Si
SLV 4	111	-57094	-4461526	1.35	23826989	5.341	Si
SLV 8	-159	-120790	-18671046	2.86	43412829	2.325	Si
SLV 8	111	-104296	-15065804	2.47	39049022	2.592	Si
SLV 11	-159	-174508	-17313312	4.13	54194940	3.13	Si
SLV 11	111	-142778	-14051996	3.38	48460554	3.449	Si
SLV 7	-159	-120790	-18671046	2.86	43412829	2.325	Si
SLV 7	111	-104296	-15065804	2.47	39049022	2.592	Si
SLV 5	-159	-108826	20188964	2.58	40296722	1.996	Si
SLV 5	111	-97706	18611493	2.31	37167219	1.997	Si
SLV 12	-159	-174508	-17313312	4.13	54194940	3.13	Si
SLV 12	111	-142778	-14051996	3.38	48460554	3.449	Si
SLV 10	-159	-162544	21546698	3.85	52247723	2.425	Si
SLV 10	111	-136188	19625301	3.22	47039960	2.397	Si
SLV 9	-159	-162544	21546698	3.85	52247723	2.425	Si
SLV 9	111	-136188	19625301	3.22	47039960	2.397	Si
SLV 3	-159	-53932	-6654067	1.28	22662442	3.406	Si
SLV 3	111	-57094	-4461526	1.35	23826989	5.341	Si
SLV 6	-159	-108826	20188964	2.58	40296722	1.996	Si
SLV 6	111	-97706	18611493	2.31	37167219	1.997	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 5	-159	-135095	1165	3140440		3.2	938.49	0.98	41475			35.59	Si
SLU 5	111	-115898	1231	4453692		2.74	938.49	0.92	38915			31.6	Si
SLU 2	-159	-133276	1141	2936593		3.16	938.49	0.98	41233			36.13	Si
SLU 2	111	-114126	1205	4232519		2.7	938.49	0.92	38679			32.09	Si
SLU 44	-159	-167489	991	3210544		3.97	938.49	1.08	45752			46.15	Si
SLU 44	111	-142425	1059	4712439		3.37	938.49	1.01	42452			40.09	Si
SLU 26	-159	-151139	1061	3463103		3.58	938.49	1.03	43614			41.1	Si
SLU 26	111	-131001	1130	4871580		3.1	938.49	0.97	40929			36.23	Si
SLU 13	-159	-151565	1064	3363420		3.59	938.49	1.03	43671			41.05	Si
SLU 13	111	-131078	1131	4744309		3.1	938.49	0.97	40939			36.21	Si
SLU 10	-159	-149746	1040	3159574		3.55	938.49	1.03	43429			41.77	Si
SLU 10	111	-129307	1105	4523136		3.06	938.49	0.96	40703			36.84	Si
SLU 34	-159	-167609	960	3686084		3.97	938.49	1.08	45752			47.68	Si
SLU 34	111	-146181	1029	5162197		3.46	938.49	1.02	42953			41.74	Si
SLU 31	-159	-165790	935	3482237		3.93	938.49	1.08	45568			48.72	Si
SLU 31	111	-144409	1003	4941024		3.42	938.49	1.01	42717			42.58	Si
SLU 23	-159	-149320	1037	3259257		3.54	938.49	1.03	43372			41.82	Si
SLU 23	111	-129229	1104	4650406		3.06	938.49	0.96	40693			36.87	Si
SLU 47	-159	-169308	1015	3414391		4.01	938.49	1.08	45752			45.06	Si
SLU 47	111	-144197	1085	4933612		3.41	938.49	1.01	42689			39.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	-159	-162544	46645	21546698		3.85	938.49	1.6	67702			1.45	Si
SLV 9	111	-136188	41160	19625301		3.22	938.49	1.48	62431			1.52	Si
SLV 8	-159	-120790	-48000	-18671046		2.86	938.49	1.41	59352			1.24	Si
SLV 8	111	-104296	-42483	-15065804		2.47	938.49	1.33	56053			1.32	Si
SLV 4	-159	-53932	-16238	-6654067		1.28	938.49	1.09	45980			2.83	Si
SLV 4	111	-57094	-14343	-4461526		1.35	938.49	1.1	46612			3.25	Si
SLV 11	-159	-174508	-47101	-17313312		4.13	938.49	1.63	68627			1.46	Si
SLV 11	111	-142778	-41735	-14051996		3.38	938.49	1.51	63749			1.53	Si
SLV 3	-159	-53932	-16238	-6654067		1.28	938.49	1.09	45980			2.83	Si
SLV 3	111	-57094	-14343	-4461526		1.35	938.49	1.1	46612			3.25	Si
SLV 5	-159	-108826	45746	20188964		2.84	851.19	1.4	53685			1.17	Si
SLV 5	111	-97706	40412	18611493		2.6	836.29	1.35	50902			1.26	Si
SLV 10	-159	-162544	46645	21546698		3.85	938.49	1.6	67702			1.45	Si
SLV 10	111	-136188	41160	19625301		3.22	938.49	1.48	62431			1.52	Si
SLV 12	-159	-174508	-47101	-17313312		4.13	938.49	1.63	68627			1.46	Si
SLV 12	111	-142778	-41735	-14051996		3.38	938.49	1.51	63749			1.53	Si
SLV 7	-159	-120790	-48000	-18671046		2.86	938.49	1.41	59352			1.24	Si
SLV 7	111	-104296	-42483	-15065804		2.47	938.49	1.33	56053			1.32	Si
SLV 6	-159	-108826	45746	20188964		2.84	851.19	1.4	53685			1.17	Si
SLV 6	111	-97706	40412	18611493		2.6	836.29	1.35	50902			1.26	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -24 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.24	1.2	-50795	56414	1030383	18.26	Si
SLV 1	14	0.24	1.2	-50795	56414	1030383	18.26	Si
SLV 4	14	0.24	1.27	-53531	56414	1079503	19.14	Si
SLV 3	14	0.24	1.27	-53531	56414	1079503	19.14	Si
SLV 5	14	0.24	2.4	-101150	56414	1829759	32.43	Si
SLV 6	14	0.24	2.4	-101150	56414	1829759	32.43	Si
SLV 7	14	0.24	2.61	-110271	56414	1950899	34.58	Si
SLV 8	14	0.24	2.61	-110271	56414	1950899	34.58	Si
SLV 9	14	0.24	3.48	-147047	56414	2365751	41.94	Si
SLV 10	14	0.24	3.48	-147047	56414	2365751	41.94	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = -24 Wa = 0.08 Ta = 0.0271

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 14	-183390	-229402	516	0.085	202.776	0.976	126.757	348.092	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-183390	-229402	516	0.085	202.776	0.976	126.757	348.092	No
SLV 15	-185367	-232991	438	0.085	204.79	0.976	127.3	348.092	No
SLV 16	-185367	-232991	438	0.085	204.79	0.976	127.3	348.092	No
SLV 9	-136188	-162544	367	0.087	154.707	0.968	130.057	352.938	No
SLV 10	-136188	-162544	367	0.087	154.707	0.968	130.057	352.938	No
SLV 11	-142778	-174508	105	0.088	161.416	0.97	132.246	352.938	No
SLV 12	-142778	-174508	105	0.088	161.416	0.97	132.246	352.938	No
SLV 7	-104296	-120790	-101	0.09	122.253	0.961	136.003	352.938	No
SLV 8	-104296	-120790	-101	0.09	122.253	0.961	136.003	352.938	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.151	SLU 76	Si
V_SLU	31.604	SLU 5	Si
PF_SLV	1.996	SLV 5	Si
V_SLV	1.174	SLV 5	Si
PFFP_SLV	18.265	SLV 1	Si
R_SLV	0.364	SLV 13	No

## Maschio 55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2467.8	-335.9	-2467.8	595.1	L3	L4	931.1	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 73	111	-85583	-3106080	3.28	23785309	7.658	Si
SLU 73	483	-53601	-970634	2.06	18654875	19.219	Si
SLU 13	111	-65820	-2706858	2.52	21144395	7.811	Si
SLU 13	483	-41120	-787267	1.58	15436151	19.607	Si
SLU 23	111	-64784	-2644235	2.48	20958612	7.926	Si
SLU 23	483	-40096	-770130	1.54	15141619	19.661	Si
SLU 55	111	-80080	-2967885	3.07	23222025	7.824	Si
SLU 55	483	-49194	-855403	1.89	17596254	20.571	Si
SLU 68	111	-80480	-3002774	3.09	23267377	7.749	Si
SLU 68	483	-49398	-867640	1.89	17647085	20.339	Si
SLU 76	111	-87019	-3203591	3.34	23910468	7.464	Si
SLU 76	483	-54829	-1000008	2.1	18934722	18.935	Si
SLU 5	111	-59281	-2506040	2.27	19893558	7.938	Si
SLU 5	483	-35688	-654899	1.37	13822020	21.106	Si
SLU 26	111	-66220	-2741746	2.54	21214717	7.738	Si
SLU 26	483	-41324	-799504	1.59	15494197	19.38	Si
SLU 31	111	-71323	-2845053	2.74	22051700	7.751	Si
SLU 31	483	-45528	-902498	1.75	16650786	18.45	Si
SLU 34	111	-72759	-2942563	2.79	22266638	7.567	Si
SLU 34	483	-46756	-931872	1.79	16974111	18.215	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 9	111	-49509	-9396738	1.9	19465782	2.072	Si
SLV 9	483	-33492	-869710	1.28	13952257	16.042	Si
SLV 15	111	-23520	2626326	0.9	10140719	3.861	Si
SLV 15	483	-17011	-253958	0.65	7496503	29.519	Si
SLV 8	111	-69120	6868358	2.65	25195532	3.668	Si
SLV 8	483	-39538	-73324	1.52	16121851	219.872	Si
SLV 7	111	-69120	6868358	2.65	25195532	3.668	Si
SLV 7	483	-39538	-73324	1.52	16121851	219.872	Si
SLV 12	111	-47797	7666937	1.83	18912430	2.467	Si
SLV 12	483	-28303	-19323	1.09	12005415	621.295	Si
SLV 6	111	-70831	-10195317	2.72	25642219	2.515	Si
SLV 6	483	-44727	-923710	1.72	17898306	19.377	Si
SLV 5	111	-70831	-10195317	2.72	25642219	2.515	Si
SLV 5	483	-44727	-923710	1.72	17898306	19.377	Si
SLV 11	111	-47797	7666937	1.83	18912430	2.467	Si
SLV 11	483	-28303	-19323	1.09	12005415	621.295	Si
SLV 16	111	-23520	2626326	0.9	10140719	3.861	Si
SLV 16	483	-17011	-253958	0.65	7496503	29.519	Si
SLV 10	111	-49509	-9396738	1.9	19465782	2.072	Si
SLV 10	483	-33492	-869710	1.28	13952257	16.042	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 26	111	-66220	-1744	-2741746		2.54	931.07	0.89	23313			13.37	Si
SLU 26	483	-41324	-1506	-799504		1.59	931.07	0.77	19993			13.28	Si
SLU 55	111	-80080	-1595	-2967885		3.07	931.07	0.97	25161			15.77	Si
SLU 55	483	-49194	-1352	-855403		1.89	931.07	0.81	21042			15.57	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 13	111	-65820	-1674	-2706858		2.52	931.07	0.89	23259			13.89	Si
SLU 13	483	-41120	-1435	-787267		1.58	931.07	0.77	19966			13.91	Si
SLU 2	111	-57845	-1505	-2408530		2.22	931.07	0.85	22196			14.74	Si
SLU 2	483	-34460	-1270	-625525		1.32	931.07	0.73	19078			15.02	Si
SLU 34	111	-72759	-1708	-2942563		2.79	931.07	0.93	24184			14.16	Si
SLU 34	483	-46756	-1466	-931872		1.79	931.07	0.79	20717			14.13	Si
SLU 10	111	-64384	-1469	-2609347		2.47	931.07	0.88	23068			15.71	Si
SLU 10	483	-39892	-1230	-757893		1.53	931.07	0.76	19802			16.09	Si
SLU 5	111	-59281	-1711	-2506040		2.27	931.07	0.86	22387			13.09	Si
SLU 5	483	-35688	-1475	-654899		1.37	931.07	0.74	19242			13.05	Si
SLU 68	111	-80480	-1665	-3002774		3.09	931.07	0.97	25214			15.14	Si
SLU 68	483	-49398	-1422	-867640		1.89	931.07	0.81	21070			14.81	Si
SLU 47	111	-73541	-1632	-2767068		2.82	931.07	0.93	24289			14.89	Si
SLU 47	483	-43762	-1391	-723035		1.68	931.07	0.78	20318			14.6	Si
SLU 23	111	-64784	-1539	-2644235		2.48	931.07	0.89	23121			15.03	Si
SLU 23	483	-40096	-1301	-770130		1.54	931.07	0.76	19829			15.24	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	111	-69120	46704	6868358		2.65	931.07	1.36	35549			0.76	No, Vu<V
SLV 7	483	-39538	29384	-73324		1.52	931.07	1.14	29633			1.01	Si
SLV 9	111	-49509	-46252	-9396738		2.14	827.2	1.26	29203			0.63	No, Vu<V
SLV 9	483	-33492	-28893	-869710		1.28	931.07	1.09	28423			0.98	No, Vu<V
SLV 8	111	-69120	46704	6868358		2.65	931.07	1.36	35549			0.76	No, Vu<V
SLV 8	483	-39538	29384	-73324		1.52	931.07	1.14	29633			1.01	Si
SLV 5	111	-70831	-46183	-10195317		2.72	931.07	1.38	35891			0.78	No, Vu<V
SLV 5	483	-44727	-28373	-923710		1.72	931.07	1.18	30670			1.08	Si
SLV 10	111	-49509	-46252	-9396738		2.14	827.2	1.26	29203			0.63	No, Vu<V
SLV 10	483	-33492	-28893	-869710		1.28	931.07	1.09	28423			0.98	No, Vu<V
SLD 12	111	-54305	20127	2597749		2.08	931.07	1.25	32586			1.62	Si
SLD 12	483	-33037	12712	-319745		1.27	931.07	1.09	28332			2.23	Si
SLV 11	111	-47797	46636	7666937		1.86	915.39	1.21	30918			0.66	No, Vu<V
SLV 11	483	-28303	28864	-19323		1.09	931.07	1.05	27386			0.95	No, Vu<V
SLV 6	111	-70831	-46183	-10195317		2.72	931.07	1.38	35891			0.78	No, Vu<V
SLV 6	483	-44727	-28373	-923710		1.72	931.07	1.18	30670			1.08	Si
SLV 12	111	-47797	46636	7666937		1.86	915.39	1.21	30918			0.66	No, Vu<V
SLV 12	483	-28303	28864	-19323		1.09	931.07	1.05	27386			0.95	No, Vu<V
SLD 11	111	-54305	20127	2597749		2.08	931.07	1.25	32586			1.62	Si
SLD 11	483	-33037	12712	-319745		1.27	931.07	1.09	28332			2.23	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.31	0.79	-20706	84909	271044	3.19	Si
SLV 16	14	0.31	0.79	-20706	84909	271044	3.19	Si
SLV 13	14	0.31	0.8	-20945	84909	273948	3.23	Si
SLV 14	14	0.31	0.8	-20945	84909	273948	3.23	Si
SLV 12	14	0.31	1.48	-38514	84909	474003	5.58	Si
SLV 11	14	0.31	1.48	-38514	84909	474003	5.58	Si
SLV 10	14	0.31	1.51	-39309	84909	482416	5.68	Si
SLV 9	14	0.31	1.51	-39309	84909	482416	5.68	Si
SLV 8	14	0.31	2.07	-54016	84909	627991	7.4	Si
SLV 7	14	0.31	2.07	-54016	84909	627991	7.4	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 15	-17011	-23520	732	0.022	31.595	0.899	35.499	1012.339	No
SLV 16	-17011	-23520	732	0.022	31.595	0.899	35.499	1012.339	No
SLV 14	-18568	-24033	705	0.024	33.12	0.902	38.41	1012.339	No
SLV 13	-18568	-24033	705	0.024	33.12	0.902	38.41	1012.339	No
SLV 1	-56019	-95109	-818	0.03	70.771	0.945	46.252	1012.339	No
SLV 2	-56019	-95109	-818	0.03	70.771	0.945	46.252	1012.339	No
SLV 3	-54462	-94596	-791	0.03	69.193	0.944	46.669	1012.339	No
SLV 4	-54462	-94596	-791	0.03	69.193	0.944	46.669	1012.339	No
SLV 6	-44727	-70831	-316	0.038	59.335	0.936	58.789	1054.325	No
SLV 5	-44727	-70831	-316	0.038	59.335	0.936	58.789	1054.325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.464	SLU 76	Si
V_SLU	13.046	SLU 5	Si
PF_SLV	2.072	SLV 9	Si
V_SLV	0.631	SLV 9	No
PFFP_SLV	3.192	SLV 15	Si
R_SLV	0.035	SLV 15	No

## Maschio 56

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-2276.3	595.1	-2467.8	595.1	L3	L4	191.5	28	372	372	372			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 51	201	-7910	324010	1.48	620228	1.914	Si
SLU 51	391	-6684	-552829	1.25	542051	0.981	No, M>Mu
SLU 50	201	-8029	330017	1.5	627458	1.901	Si
SLU 50	391	-6743	-559609	1.26	545936	0.976	No, M>Mu
SLU 48	201	-8115	331983	1.51	632629	1.906	Si
SLU 48	391	-6824	-563984	1.27	551345	0.978	No, M>Mu
SLU 79	201	-9761	391921	1.82	725763	1.852	Si
SLU 79	391	-8995	-697427	1.68	683914	0.981	No, M>Mu
SLU 77	201	-9847	393888	1.84	730283	1.854	Si
SLU 77	391	-9077	-701802	1.69	688514	0.981	No, M>Mu
SLU 69	201	-8974	363993	1.67	682710	1.876	Si
SLU 69	391	-7924	-633711	1.48	621102	0.98	No, M>Mu
SLU 71	201	-8888	362027	1.66	677861	1.872	Si
SLU 71	391	-7842	-629336	1.46	616088	0.979	No, M>Mu
SLU 45	201	-8005	323590	1.49	626026	1.935	Si
SLU 45	391	-6635	-547446	1.24	538822	0.984	No, M>Mu
SLU 72	201	-8769	356020	1.64	671079	1.885	Si
SLU 72	391	-7784	-622556	1.45	612485	0.984	No, M>Mu
SLU 49	201	-7996	325976	1.49	625443	1.919	Si
SLU 49	391	-6766	-557204	1.26	547481	0.983	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 3	201	-6258	588235	1.17	542001	0.921	No, M>Mu
SLD 3	391	-8036	-800728	0	0	0	No, e>l/2
SLV 4	201	-5633	1010193	0	0	0	No, e>l/2
SLV 4	391	-10921	-1243243	0	0	0	No, e>l/2
SLD 4	201	-6258	588235	1.17	542001	0.921	No, M>Mu
SLD 4	391	-8036	-800728	0	0	0	No, e>l/2
SLV 7	201	-4431	914787	0	0	0	No, e>l/2
SLV 7	391	-9460	-1065986	0	0	0	No, e>l/2
SLD 8	201	-5825	540220	1.09	508176	0.941	No, M>Mu
SLD 8	391	-7372	-717841	0	0	0	No, e>l/2
SLV 3	201	-5633	1010193	0	0	0	No, e>l/2
SLV 3	391	-10921	-1243243	0	0	0	No, e>l/2
SLV 2	201	-6931	730121	0	0	0	No, e>l/2
SLV 2	391	-9535	-999908	0	0	0	No, e>l/2
SLV 13	201	-7826	-476042	1.46	659865	1.386	Si
SLV 13	391	-737	317661	0	0	0	No, e>l/2
SLV 14	201	-7826	-476042	1.46	659865	1.386	Si
SLV 14	391	-737	317661	0	0	0	No, e>l/2
SLD 7	201	-5825	540220	1.09	508176	0.941	No, M>Mu
SLD 7	391	-7372	-717841	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 50	201	-8029	5291	330017		1.75	163.94	0.79	3621			0.68	No, Vu<V
SLU 50	391	-6743	5226	-559609		6.29	38.26	1.08	1161			0.22	No, Vu<V
SLU 69	201	-8974	5998	363993		1.94	165.57	0.81	3772			0.63	No, Vu<V
SLU 69	391	-7924	5927	-633711		5.98	47.34	1.08	1436			0.24	No, Vu<V
SLU 48	201	-8115	5323	331983		1.76	164.52	0.79	3641			0.68	No, Vu<V
SLU 48	391	-6824	5257	-563984		6.2	39.33	1.08	1193			0.23	No, Vu<V
SLU 46	201	-7886	5114	317583		1.69	166.44	0.78	3641			0.71	No, Vu<V
SLU 46	391	-6577	5049	-540666		5.78	40.63	1.08	1232			0.24	No, Vu<V
SLU 47	201	-7722	5057	311612		1.66	166.18	0.78	3615			0.71	No, Vu<V
SLU 47	391	-6456	4993	-531770		5.74	40.14	1.08	1218			0.24	No, Vu<V
SLU 45	201	-8005	5151	323590		1.72	165.99	0.79	3649			0.71	No, Vu<V
SLU 45	391	-6635	5086	-547446		5.96	39.74	1.08	1205			0.24	No, Vu<V
SLU 49	201	-7996	5286	325976		1.73	164.94	0.79	3632			0.69	No, Vu<V
SLU 49	391	-6766	5220	-557204		6.01	40.18	1.08	1219			0.23	No, Vu<V
SLU 71	201	-8888	5967	362027		1.92	165.06	0.81	3753			0.63	No, Vu<V
SLU 71	391	-7842	5895	-629336		6.02	46.51	1.08	1411			0.24	No, Vu<V
SLU 43	201	-7810	4947	313230		1.67	166.94	0.78	3638			0.74	No, Vu<V
SLU 43	391	-6364	4884	-526533		5.82	39.06	1.08	1185			0.24	No, Vu<V
SLU 51	201	-7910	5254	324010		1.72	164.37	0.78	3611			0.69	No, Vu<V
SLU 51	391	-6684	5189	-552829		6.1	39.12	1.08	1187			0.23	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	201	-5633	16725	1010193		0	0	0.83	0			0	No, Vu<V
SLV 4	391	-10921	13947	-1243243		0	0	0.83	0			0	No, Vu<V
SLV 3	201	-5633	16725	1010193		0	0	0.83	0			0	No, Vu<V
SLV 3	391	-10921	13947	-1243243		0	0	0.83	0			0	No, Vu<V
SLD 4	201	-6258	9702	588235		42.36	5.28	1.63	240			0.02	No, Vu<V
SLD 4	391	-8036	8497	-800728		0	0	0.83	0			0	No, Vu<V
SLD 7	201	-5825	9023	540220		23.02	9.04	1.63	411			0.05	No, Vu<V
SLD 7	391	-7372	7130	-717841		0	0	0.83	0			0	No, Vu<V
SLV 14	201	-7826	-7995	-476042		2.67	104.78	1.37	4010			0.5	No, Vu<V
SLV 14	391	-737	-5324	317661		0	0	0.83	0			0	No, Vu<V
SLD 3	201	-6258	9702	588235		42.36	5.28	1.63	240			0.02	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 3	391	-8036	8497	-800728		0	0	0.83	0			0	No, Vu<V
SLV 13	201	-7826	-7995	-476042		2.67	104.78	1.37	4010			0.5	No, Vu<V
SLV 13	391	-737	-5324	317661		0	0	0.83	0			0	No, Vu<V
SLV 2	201	-6931	11825	730121		0	0	0.83	0			0	No, Vu<V
SLV 2	391	-9535	11468	-999908		0	0	0.83	0			0	No, Vu<V
SLV 8	201	-4431	15505	914787		0	0	0.83	0			0	No, Vu<V
SLV 8	391	-9460	10963	-1065986		0	0	0.83	0			0	No, Vu<V
SLD 8	201	-5825	9023	540220		23.02	9.04	1.63	411			0.05	No, Vu<V
SLD 8	391	-7372	7130	-717841		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.31	0.65	-3504	17464	46426	2.66	Si
SLV 16	14	0.31	0.65	-3504	17464	46426	2.66	Si
SLV 14	14	0.31	0.67	-3583	17464	47415	2.72	Si
SLV 13	14	0.31	0.67	-3583	17464	47415	2.72	Si
SLV 11	14	0.31	1.01	-5428	17464	69691	3.99	Si
SLV 12	14	0.31	1.01	-5428	17464	69691	3.99	Si
SLV 9	14	0.31	1.06	-5691	17464	72759	4.17	Si
SLV 10	14	0.31	1.06	-5691	17464	72759	4.17	Si
SLV 8	14	0.31	1.33	-7156	17464	89241	5.11	Si
SLV 7	14	0.31	1.33	-7156	17464	89241	5.11	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-1717	-2306	102	0.028	4.81	0.889	45.447	1054.325	No
SLV 10	-1717	-2306	102	0.028	4.81	0.889	45.447	1054.325	No
SLV 6	-2214	-4340	107	0.028	5.266	0.89	45.45	1054.325	No
SLV 5	-2214	-4340	107	0.028	5.266	0.89	45.45	1054.325	No
SLV 12	-3736	-10949	-111	0.03	6.731	0.901	47.926	1054.325	No
SLV 11	-3736	-10949	-111	0.03	6.731	0.901	47.926	1054.325	No
SLV 7	-4233	-12983	-107	0.031	7.22	0.905	50.021	1054.325	No
SLV 8	-4233	-12983	-107	0.031	7.22	0.905	50.021	1054.325	No
SLV 1	-3501	-9738	38	0.043	6.5	0.899	69.937	1012.339	No
SLV 2	-3501	-9738	38	0.043	6.5	0.899	69.937	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.976	SLU 50	No
V_SLU	0.222	SLU 50	No
PF_SLV	0	SLD 3	No
V_SLV	0	SLD 3	No
PFFP_SLV	2.658	SLV 15	Si
R_SLV	0.043	SLV 9	No

## Maschio 57

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	595.1	-2176.3	595.1	L3	L4	214.5	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	201	-25160	-685532	4.19	1310703	1.912	Si
SLU 83	391	-25390	-198490	4.23	1309883	6.599	Si
SLU 74	201	-24341	-665965	4.05	1311739	1.97	Si
SLU 74	391	-24460	-193850	4.07	1311771	6.767	Si
SLU 78	201	-24758	-668907	4.12	1311579	1.961	Si
SLU 78	391	-25021	-216411	4.17	1311085	6.058	Si
SLU 80	201	-24535	-661795	4.09	1311760	1.982	Si
SLU 80	391	-24825	-216791	4.13	1311483	6.05	Si
SLU 84	201	-25124	-684819	4.18	1310809	1.914	Si
SLU 84	391	-25324	-201565	4.22	1310142	6.5	Si
SLU 79	201	-24570	-662509	4.09	1311746	1.98	Si
SLU 79	391	-24891	-213715	4.14	1311369	6.136	Si
SLU 82	201	-24671	-681164	4.11	1311675	1.926	Si
SLU 82	391	-24697	-182080	4.11	1311651	7.204	Si
SLU 81	201	-24707	-681877	4.11	1311640	1.924	Si
SLU 81	391	-24762	-179004	4.12	1311573	7.327	Si
SLU 75	201	-24305	-665252	4.05	1311718	1.972	Si
SLU 75	391	-24394	-196926	4.06	1311761	6.661	Si
SLU 77	201	-24794	-669620	4.13	1311530	1.959	Si
SLU 77	391	-25087	-213335	4.18	1310914	6.145	Si



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 14	201	-12617	-695841	2.1	1120560	1.61	Si
SLD 14	391	-17795	111959	2.96	1445743	12.913	Si
SLV 15	201	-14617	-876009	2.43	1255431	1.433	Si
SLV 15	391	-23020	295729	3.83	1694428	5.73	Si
SLD 13	201	-12617	-695841	2.1	1120560	1.61	Si
SLD 13	391	-17795	111959	2.96	1445743	12.913	Si
SLV 6	201	-6201	-533048	1.03	608898	1.142	Si
SLV 6	391	-9159	-64702	1.52	859709	13.287	Si
SLV 9	201	-2940	-821319	0	0	0	No, $e \geq l/2$
SLV 9	391	-12163	224658	2.03	1088255	4.844	Si
SLV 16	201	-14617	-876009	2.43	1255431	1.433	Si
SLV 16	391	-23020	295729	3.83	1694428	5.73	Si
SLV 14	201	-7471	-1005991	0	0	0	No, $e \geq l/2$
SLV 14	391	-19626	418737	3.27	1541972	3.682	Si
SLV 13	201	-7471	-1005991	0	0	0	No, $e \geq l/2$
SLV 13	391	-19626	418737	3.27	1541972	3.682	Si
SLV 5	201	-6201	-533048	1.03	608898	1.142	Si
SLV 5	391	-9159	-64702	1.52	859709	13.287	Si
SLV 10	201	-2940	-821319	0	0	0	No, $e \geq l/2$
SLV 10	391	-12163	224658	2.03	1088255	4.844	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	201	-24305	-4054	-665252		4.05	214.5	1.08	6507			1.6	Si
SLU 75	391	-24394	-4055	-196926		4.06	214.5	1.08	6507			1.6	Si
SLU 80	201	-24535	-4044	-661795		4.09	214.5	1.08	6507			1.61	Si
SLU 80	391	-24825	-4047	-216791		4.13	214.5	1.08	6507			1.61	Si
SLU 83	201	-25160	-4232	-685532		4.19	214.5	1.08	6507			1.54	Si
SLU 83	391	-25390	-4233	-198490		4.23	214.5	1.08	6507			1.54	Si
SLU 77	201	-24794	-4105	-669620		4.13	214.5	1.08	6507			1.59	Si
SLU 77	391	-25087	-4108	-213335		4.18	214.5	1.08	6507			1.58	Si
SLU 78	201	-24758	-4068	-668907		4.12	214.5	1.08	6507			1.6	Si
SLU 78	391	-25021	-4071	-216411		4.17	214.5	1.08	6507			1.6	Si
SLU 79	201	-24570	-4080	-662509		4.09	214.5	1.08	6507			1.59	Si
SLU 79	391	-24891	-4085	-213715		4.14	214.5	1.08	6507			1.59	Si
SLU 81	201	-24707	-4218	-681877		4.11	214.5	1.08	6507			1.54	Si
SLU 81	391	-24762	-4217	-179004		4.12	214.5	1.08	6507			1.54	Si
SLU 84	201	-25124	-4195	-684819		4.18	214.5	1.08	6507			1.55	Si
SLU 84	391	-25324	-4196	-201565		4.22	214.5	1.08	6507			1.55	Si
SLU 82	201	-24671	-4181	-681164		4.11	214.5	1.08	6507			1.56	Si
SLU 82	391	-24697	-4179	-182080		4.11	214.5	1.08	6507			1.56	Si
SLU 74	201	-24341	-4091	-665965		4.05	214.5	1.08	6507			1.59	Si
SLU 74	391	-24460	-4092	-193850		4.07	214.5	1.08	6507			1.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	201	-14617	-13352	-876009		3.68	141.96	1.57	6236			0.47	No, $V_u < V$
SLV 16	391	-23020	-11981	295729		3.83	214.5	1.6	9609			0.8	No, $V_u < V$
SLV 5	201	-6201	-3902	-533048		3.47	63.88	1.53	2731			0.7	No, $V_u < V$
SLV 5	391	-9159	-2825	-64702		1.52	214.5	1.14	6837			2.42	Si
SLV 10	201	-2940	-11031	-821319		0	0	0.83	0			0	No, $V_u < V$
SLV 10	391	-12163	-8838	224658		2.03	214.5	1.24	7438			0.84	No, $V_u < V$
SLV 6	201	-6201	-3902	-533048		3.47	63.88	1.53	2731			0.7	No, $V_u < V$
SLV 6	391	-9159	-2825	-64702		1.52	214.5	1.14	6837			2.42	Si
SLD 13	201	-12617	-8615	-695841		2.88	156.3	1.41	6171			0.72	No, $V_u < V$
SLD 13	391	-17795	-7607	111959		2.96	214.5	1.43	8564			1.13	Si
SLV 13	201	-7471	-16120	-1005991		0	0	0.83	0			0	No, $V_u < V$
SLV 13	391	-19626	-13768	418737		3.27	214.5	1.49	8930			0.65	No, $V_u < V$
SLV 14	201	-7471	-16120	-1005991		0	0	0.83	0			0	No, $V_u < V$
SLV 14	391	-19626	-13768	418737		3.27	214.5	1.49	8930			0.65	No, $V_u < V$
SLV 9	201	-2940	-11031	-821319		0	0	0.83	0			0	No, $V_u < V$
SLV 9	391	-12163	-8838	224658		2.03	214.5	1.24	7438			0.84	No, $V_u < V$
SLD 14	201	-12617	-8615	-695841		2.88	156.3	1.41	6171			0.72	No, $V_u < V$
SLD 14	391	-17795	-7607	111959		2.96	214.5	1.43	8564			1.13	Si
SLV 15	201	-14617	-13352	-876009		3.68	141.96	1.57	6236			0.47	No, $V_u < V$
SLV 15	391	-23020	-11981	295729		3.83	214.5	1.6	9609			0.8	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.31	1.02	-6109	19561	78404	4.01	Si
SLV 5	14	0.31	1.02	-6109	19561	78404	4.01	Si
SLV 10	14	0.31	1.13	-6759	19561	85915	4.39	Si
SLV 9	14	0.31	1.13	-6759	19561	85915	4.39	Si
SLV 2	14	0.31	2.06	-12399	19561	144253	7.37	Si
SLV 1	14	0.31	2.06	-12399	19561	144253	7.37	Si
SLV 13	14	0.31	2.43	-14567	19561	163458	8.36	Si
SLV 14	14	0.31	2.43	-14567	19561	163458	8.36	Si
SLV 4	14	0.31	3.07	-18440	19561	193293	9.88	Si
SLV 3	14	0.31	3.07	-18440	19561	193293	9.88	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	-9789	-7544	146	0.032	13.148	0.934	49.317	1054.325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 10	-9789	-7544	146	0.032	13.148	0.934	49.317	1054.325	No
SLV 7	-18473	-24664	-145	0.034	21.958	0.958	51.99	1054.325	No
SLV 8	-18473	-24664	-145	0.034	21.958	0.958	51.99	1054.325	No
SLV 4	-11444	-21526	-127	0.034	14.823	0.94	52.238	1012.339	No
SLV 3	-11444	-21526	-127	0.034	14.823	0.94	52.238	1012.339	No
SLV 14	-16817	-10681	128	0.035	20.276	0.954	53.053	1012.339	No
SLV 13	-16817	-10681	128	0.035	20.276	0.954	53.053	1012.339	No
SLV 12	-21103	-22781	-89	0.037	24.633	0.962	55.974	1054.325	No
SLV 11	-21103	-22781	-89	0.037	24.633	0.962	55.974	1054.325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.912	SLU 83	Si
V_SLU	1.537	SLU 83	Si
PF_SLV	0	SLV 9	No
V_SLV	0	SLV 9	No
PFFP_SLV	4.008	SLV 5	Si
R_SLV	0.047	SLV 9	No

## Maschio 58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2254.3	-335.9	-2467.8	-335.9	L3	L4	213.5	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 49	201	-7239	693866	1.21	657915	0.948	No, M>Mu
SLU 49	391	-7485	-805940	0	0	0	No, e>l/2
SLU 26	201	-5212	705886	0	0	0	No, e>l/2
SLU 26	391	-6268	-714352	0	0	0	No, e>l/2
SLU 34	201	-6142	761871	0	0	0	No, e>l/2
SLU 34	391	-7571	-812782	0	0	0	No, e>l/2
SLU 44	201	-5759	736311	0	0	0	No, e>l/2
SLU 44	391	-6254	-745525	0	0	0	No, e>l/2
SLU 55	201	-6871	809005	0	0	0	No, e>l/2
SLU 55	391	-7796	-865368	0	0	0	No, e>l/2
SLU 52	201	-6689	792295	0	0	0	No, e>l/2
SLU 52	391	-7557	-843955	0	0	0	No, e>l/2
SLU 31	201	-5959	745161	0	0	0	No, e>l/2
SLU 31	391	-7333	-791368	0	0	0	No, e>l/2
SLU 23	201	-5029	689176	0	0	0	No, e>l/2
SLU 23	391	-6029	-692939	0	0	0	No, e>l/2
SLU 65	201	-6704	797073	0	0	0	No, e>l/2
SLU 65	391	-7518	-844837	0	0	0	No, e>l/2
SLU 51	201	-7155	690003	1.2	651545	0.944	No, M>Mu
SLU 51	391	-7389	-798832	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 5	201	-4925	1297032	0	0	0	No, e>l/2
SLV 5	391	-10573	-1346333	0	0	0	No, e>l/2
SLV 3	201	-7738	1025754	0	0	0	No, e>l/2
SLV 3	391	-11665	-1396472	0	0	0	No, e>l/2
SLV 6	201	-4925	1297032	0	0	0	No, e>l/2
SLV 6	391	-10573	-1346333	0	0	0	No, e>l/2
SLV 15	201	-7999	-467228	1.34	760385	1.627	Si
SLV 15	391	-1478	293712	0	0	0	No, e>l/2
SLV 10	201	-5003	849137	0	0	0	No, e>l/2
SLV 10	391	-7517	-839277	0	0	0	No, e>l/2
SLV 1	201	-6397	1392133	0	0	0	No, e>l/2
SLV 1	391	-12807	-1646361	0	0	0	No, e>l/2
SLV 9	201	-5003	849137	0	0	0	No, e>l/2
SLV 9	391	-7517	-839277	0	0	0	No, e>l/2
SLV 4	201	-7738	1025754	0	0	0	No, e>l/2
SLV 4	391	-11665	-1396472	0	0	0	No, e>l/2
SLV 2	201	-6397	1392133	0	0	0	No, e>l/2
SLV 2	391	-12807	-1646361	0	0	0	No, e>l/2
SLD 1	201	-6884	862231	0	0	0	No, e>l/2
SLD 1	391	-9597	-1096805	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 26	201	-5212	9311	705886		0	0	0.56	0			0	No, Vu<V
SLU 26	391	-6268	9206	-714352		0	0	0.56	0			0	No, Vu<V
SLU 13	201	-5196	9293	701109		0	0	0.56	0			0	No, Vu<V
SLU 13	391	-6307	9188	-713470		0	0	0.56	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 46	201	-7057	9364	677156		7.78	32.39	1.08	982			0.1	No, Vu<V
SLU 46	391	-7247	9268	-784526		0	0	0.56	0			0	No, Vu<V
SLU 52	201	-6689	10675	792295		0	0	0.56	0			0	No, Vu<V
SLU 52	391	-7557	10557	-843955		0	0	0.56	0			0	No, Vu<V
SLU 34	201	-6142	10339	761871		0	0	0.56	0			0	No, Vu<V
SLU 34	391	-7571	10226	-812782		0	0	0.56	0			0	No, Vu<V
SLU 65	201	-6704	10693	797073		0	0	0.56	0			0	No, Vu<V
SLU 65	391	-7518	10575	-844837		0	0	0.56	0			0	No, Vu<V
SLU 55	201	-6871	10908	809005		0	0	0.56	0			0	No, Vu<V
SLU 55	391	-7796	10789	-865368		0	0	0.56	0			0	No, Vu<V
SLU 47	201	-5941	9881	753021		0	0	0.56	0			0	No, Vu<V
SLU 47	391	-6492	9769	-766939		0	0	0.56	0			0	No, Vu<V
SLU 73	201	-7634	11720	853057		0	0	0.56	0			0	No, Vu<V
SLU 73	391	-8822	11595	-943266		0	0	0.56	0			0	No, Vu<V
SLU 31	201	-5959	10105	745161		0	0	0.56	0			0	No, Vu<V
SLU 31	391	-7333	9994	-791368		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	201	-6397	21232	1392133		0	0	0.83	0			0	No, Vu<V
SLV 1	391	-12807	19110	-1646361		0	0	0.83	0			0	No, Vu<V
SLV 3	201	-7738	17411	1025754		0	0	0.83	0			0	No, Vu<V
SLV 3	391	-11665	16375	-1396472		0	0	0.83	0			0	No, Vu<V
SLD 1	201	-6884	13237	862231		0	0	0.83	0			0	No, Vu<V
SLD 1	391	-9597	12307	-1096805		0	0	0.83	0			0	No, Vu<V
SLV 2	201	-6397	21232	1392133		0	0	0.83	0			0	No, Vu<V
SLV 2	391	-12807	19110	-1646361		0	0	0.83	0			0	No, Vu<V
SLV 15	201	-7999	-6893	-467228		1.97	145.02	1.23	4984			0.72	No, Vu<V
SLV 15	391	-1478	-4891	293712		0	0	0.83	0			0	No, Vu<V
SLV 4	201	-7738	17411	1025754		0	0	0.83	0			0	No, Vu<V
SLV 4	391	-11665	16375	-1396472		0	0	0.83	0			0	No, Vu<V
SLV 6	201	-4925	17184	1297032		0	0	0.83	0			0	No, Vu<V
SLV 6	391	-10573	14859	-1346333		0	0	0.83	0			0	No, Vu<V
SLV 5	201	-4925	17184	1297032		0	0	0.83	0			0	No, Vu<V
SLV 5	391	-10573	14859	-1346333		0	0	0.83	0			0	No, Vu<V
SLV 10	201	-5003	9892	849137		0	0	0.83	0			0	No, Vu<V
SLV 10	391	-7517	8479	-839277		0	0	0.83	0			0	No, Vu<V
SLV 9	201	-5003	9892	849137		0	0	0.83	0			0	No, Vu<V
SLV 9	391	-7517	8479	-839277		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.31	0.64	-3841	19470	50946	2.62	Si
SLV 13	14	0.31	0.64	-3841	19470	50946	2.62	Si
SLV 16	14	0.31	0.68	-4050	19470	53555	2.75	Si
SLV 15	14	0.31	0.68	-4050	19470	53555	2.75	Si
SLV 9	14	0.31	1.01	-6015	19470	77273	3.97	Si
SLV 10	14	0.31	1.01	-6015	19470	77273	3.97	Si
SLV 11	14	0.31	1.12	-6711	19470	85324	4.38	Si
SLV 12	14	0.31	1.12	-6711	19470	85324	4.38	Si
SLV 6	14	0.31	1.35	-8087	19470	100683	5.17	Si
SLV 5	14	0.31	1.35	-8087	19470	100683	5.17	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-4233	-9776	84	0.036	7.571	0.902	58.29	1054.325	No
SLV 10	-4233	-9776	84	0.036	7.571	0.902	58.29	1054.325	No
SLV 8	-2338	-7476	-81	0.036	5.75	0.889	59.365	1054.325	No
SLV 7	-2338	-7476	-81	0.036	5.75	0.889	59.365	1054.325	No
SLV 6	-4685	-11429	65	0.039	8.016	0.905	62.933	1054.325	No
SLV 5	-4685	-11429	65	0.039	8.016	0.905	62.933	1054.325	No
SLV 11	-1887	-5823	-61	0.041	5.337	0.889	67.382	1054.325	No
SLV 12	-1887	-5823	-61	0.041	5.337	0.889	67.382	1054.325	No
SLV 3	-3687	-10788	-53	0.042	7.036	0.898	67.356	1012.339	No
SLV 4	-3687	-10788	-53	0.042	7.036	0.898	67.356	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 2	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	2.617	SLV 13	Si
R_SLV	0.055	SLV 9	No

## Maschio 59

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1936.8	-335.9	-2154.3	-335.9	L3	L4	217.5	28	372	372	372			





## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 47	311	-10523	-519828	1.73	901616	1.734	Si
SLU 47	391	-9450	-336406	1.55	831933	2.473	Si
SLU 10	311	-9767	-487115	1.6	853054	1.751	Si
SLU 10	391	-8938	-310726	1.47	796910	2.565	Si
SLU 5	311	-7854	-437079	1.29	718904	1.645	Si
SLU 5	391	-7025	-285108	1.15	655809	2.3	Si
SLU 44	311	-10452	-522257	1.72	897187	1.718	Si
SLU 44	391	-9380	-330126	1.54	827172	2.506	Si
SLU 65	311	-12174	-560189	2	999044	1.783	Si
SLU 65	391	-11088	-359563	1.82	936289	2.604	Si
SLU 52	311	-12436	-569864	2.04	1013381	1.778	Si
SLU 52	391	-11363	-362024	1.87	952695	2.632	Si
SLU 23	311	-9506	-477440	1.56	835655	1.75	Si
SLU 23	391	-8663	-308265	1.42	777575	2.522	Si
SLU 26	311	-9576	-475011	1.57	840377	1.769	Si
SLU 26	391	-8733	-314545	1.43	782557	2.488	Si
SLU 13	311	-9838	-484686	1.62	857695	1.77	Si
SLU 13	391	-9009	-317006	1.48	801807	2.529	Si
SLU 2	311	-7784	-439508	1.28	713650	1.624	Si
SLU 2	391	-6955	-278828	1.14	650298	2.332	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	311	-10049	-1050131	1.65	945239	0.9	No, M>Mu
SLV 10	391	-12355	-537758	2.03	1120552	2.084	Si
SLD 1	311	-9776	-343275	1.61	923432	2.69	Si
SLD 1	391	-9421	-640099	1.55	894842	1.398	Si
SLV 5	311	-7587	-941126	0	0	0	No, e>l/2
SLV 5	391	-10017	-1018151	1.64	942702	0.926	No, M>Mu
SLD 2	311	-9776	-343275	1.61	923432	2.69	Si
SLD 2	391	-9421	-640099	1.55	894842	1.398	Si
SLV 3	311	-8750	33658	1.44	839701	24.948	Si
SLV 3	391	-7163	-856077	0	0	0	No, e>l/2
SLV 1	311	-6888	-357547	1.13	679692	1.901	Si
SLV 1	391	-7221	-1189553	0	0	0	No, e>l/2
SLV 9	311	-10049	-1050131	1.65	945239	0.9	No, M>Mu
SLV 9	391	-12355	-537758	2.03	1120552	2.084	Si
SLV 2	311	-6888	-357547	1.13	679692	1.901	Si
SLV 2	391	-7221	-1189553	0	0	0	No, e>l/2
SLV 4	311	-8750	33658	1.44	839701	24.948	Si
SLV 4	391	-7163	-856077	0	0	0	No, e>l/2
SLV 6	311	-7587	-941126	0	0	0	No, e>l/2
SLV 6	391	-10017	-1018151	1.64	942702	0.926	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 10	311	-9767	-2199	-487115		1.97	176.63	0.82	4050			1.84	Si
SLU 10	391	-8938	-2199	-310726		1.47	217.5	0.75	4575			2.08	Si
SLU 65	311	-12174	-2502	-560189		2.31	188.21	0.86	4551			1.82	Si
SLU 65	391	-11088	-2502	-359563		1.82	217.5	0.8	4862			1.94	Si
SLU 73	311	-14158	-2698	-607795		2.56	197.46	0.9	4959			1.84	Si
SLU 73	391	-13071	-2698	-391461		2.15	217.5	0.84	5126			1.9	Si
SLU 52	311	-12436	-2590	-569864		2.35	188.78	0.87	4595			1.77	Si
SLU 52	391	-11363	-2590	-362024		1.87	217.5	0.8	4898			1.89	Si
SLU 2	311	-7784	-2003	-439508		1.77	156.85	0.79	3478			1.74	Si
SLU 2	391	-6955	-2003	-278828		1.21	205.98	0.72	4131			2.06	Si
SLU 55	311	-12506	-2481	-567435		2.35	190.14	0.87	4625			1.86	Si
SLU 55	391	-11434	-2481	-368304		1.88	217.5	0.81	4908			1.98	Si
SLU 47	311	-10523	-2285	-519828		2.11	178.05	0.84	4173			1.83	Si
SLU 47	391	-9450	-2285	-336406		1.55	217.5	0.76	4643			2.03	Si
SLU 44	311	-10452	-2394	-522257		2.12	176.35	0.84	4137			1.73	Si
SLU 44	391	-9380	-2394	-330126		1.54	217.5	0.76	4634			1.94	Si
SLU 23	311	-9506	-2111	-477440		1.93	175.57	0.81	3998			1.89	Si
SLU 23	391	-8663	-2111	-308265		1.42	217.5	0.75	4538			2.15	Si
SLU 5	311	-7854	-1894	-437079		1.76	159.3	0.79	3525			1.86	Si
SLU 5	391	-7025	-1894	-285108		1.23	204.5	0.72	4118			2.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	311	-10049	-8128	-1050131		28.16	12.74	1.63	580			0.07	No, Vu<V
SLV 9	391	-12355	-7429	-537758		2.26	195.68	1.28	7037			0.95	No, Vu<V
SLV 4	311	-8750	12016	33658		1.44	217.5	1.12	6825			0.57	No, Vu<V
SLV 4	391	-7163	11324	-856077		0	0	0.83	0			0	No, Vu<V
SLV 13	311	-15095	-15042	-720898		2.95	182.97	1.42	7288			0.48	No, Vu<V
SLV 13	391	-15016	-14350	411756		2.47	217.5	1.33	8078			0.56	No, Vu<V
SLV 2	311	-6888	10330	-357547		1.44	170.51	1.12	5356			0.52	No, Vu<V
SLV 2	391	-7221	9963	-1189553		0	0	0.83	0			0	No, Vu<V
SLV 1	311	-6888	10330	-357547		1.44	170.51	1.12	5356			0.52	No, Vu<V
SLV 1	391	-7221	9963	-1189553		0	0	0.83	0			0	No, Vu<V
SLV 5	311	-7587	-517	-941126		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	391	-10017	-135	-1018151		16.78	21.32	1.63	970			7.18	Si
SLV 6	311	-7587	-517	-941126		0	0	0.83	0			0	No, Vu<V
SLV 6	391	-10017	-135	-1018151		16.78	21.32	1.63	970			7.18	Si
SLV 10	311	-10049	-8128	-1050131		28.16	12.74	1.63	580			0.07	No, Vu<V
SLV 10	391	-12355	-7429	-537758		2.26	195.68	1.28	7037			0.95	No, Vu<V
SLV 3	311	-8750	12016	33658		1.44	217.5	1.12	6825			0.57	No, Vu<V
SLV 3	391	-7163	11324	-856077		0	0	0.83	0			0	No, Vu<V
SLV 14	311	-15095	-15042	-720898		2.95	182.97	1.42	7288			0.48	No, Vu<V
SLV 14	391	-15016	-14350	411756		2.47	217.5	1.33	8078			0.56	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.31	0.52	-3194	19835	42798	2.16	Si
SLV 6	14	0.31	0.52	-3194	19835	42798	2.16	Si
SLV 10	14	0.31	0.72	-4402	19835	57987	2.92	Si
SLV 9	14	0.31	0.72	-4402	19835	57987	2.92	Si
SLV 1	14	0.31	1	-6093	19835	78314	3.95	Si
SLV 2	14	0.31	1	-6093	19835	78314	3.95	Si
SLV 3	14	0.31	1.61	-9785	19835	118981	6	Si
SLV 4	14	0.31	1.61	-9785	19835	118981	6	Si
SLV 13	14	0.31	1.66	-10120	19835	122414	6.17	Si
SLV 14	14	0.31	1.66	-10120	19835	122414	6.17	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-3457	-11757	-113	0.031	6.878	0.896	50.466	1054.325	No
SLV 8	-3457	-11757	-113	0.031	6.878	0.896	50.466	1054.325	No
SLV 9	-15728	-4218	112	0.036	19.214	0.952	54.458	1054.325	No
SLV 10	-15728	-4218	112	0.036	19.214	0.952	54.458	1054.325	No
SLV 11	-4502	-11249	-100	0.034	7.899	0.903	54.904	1054.325	No
SLV 12	-4502	-11249	-100	0.034	7.899	0.903	54.904	1054.325	No
SLV 6	-14683	-4726	99	0.036	18.152	0.949	55.596	1054.325	No
SLV 5	-14683	-4726	99	0.036	18.152	0.949	55.596	1054.325	No
SLV 14	-13019	-6087	53	0.039	16.464	0.945	60.336	1012.339	No
SLV 13	-13019	-6087	53	0.039	16.464	0.945	60.336	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.624	SLU 2	Si
V_SLU	1.728	SLU 44	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	2.158	SLV 5	Si
R_SLV	0.048	SLV 7	No

## Maschio 60

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1831.3	-335.9	-1886.8	-335.9	L3	L4	55.5	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	311	-9795	-12509	6.3	61491	4.916	Si
SLU 81	391	-9699	47320	6.24	62931	1.33	Si
SLU 75	311	-9639	-15463	6.2	63806	4.126	Si
SLU 75	391	-9505	48656	6.12	65708	1.35	Si
SLU 73	311	-9556	-19136	6.15	65000	3.397	Si
SLU 73	391	-9393	52834	6.04	67248	1.273	Si
SLU 78	311	-9714	-14260	6.25	62707	4.397	Si
SLU 78	391	-9593	46403	6.17	64472	1.389	Si
SLU 76	311	-9631	-17932	6.2	63928	3.565	Si
SLU 76	391	-9480	50580	6.1	66056	1.306	Si
SLU 83	311	-9870	-11306	6.35	60341	5.337	Si
SLU 83	391	-9786	45066	6.3	61622	1.367	Si
SLU 74	311	-9525	-11263	6.13	65435	5.81	Si
SLU 74	391	-9422	44250	6.06	66845	1.511	Si
SLU 80	311	-9629	-13929	6.2	63946	4.591	Si
SLU 80	391	-9512	45388	6.12	65608	1.445	Si
SLU 84	311	-9984	-15506	6.42	58540	3.775	Si
SLU 84	391	-9869	49473	6.35	60352	1.22	Si
SLU 82	311	-9909	-16710	6.38	59727	3.574	Si
SLU 82	391	-9782	51726	6.29	61693	1.193	Si



#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	311	-3535	-98009	2.27	79833	0.815	No, M>Mu
SLV 15	391	-4573	148230	0	0	0	No, e>l/2
SLD 14	311	-5868	-51465	3.78	112514	2.186	Si
SLD 14	391	-6020	97216	3.87	114092	1.174	Si
SLV 9	311	-8453	-52848	5.44	130144	2.463	Si
SLV 9	391	-7633	129664	4.91	126665	0.977	No, M>Mu
SLV 3	311	-7981	90003	5.14	128381	1.426	Si
SLV 3	391	-7313	-118513	4.71	124774	1.053	Si
SLV 16	311	-3535	-98009	2.27	79833	0.815	No, M>Mu
SLV 16	391	-4573	148230	0	0	0	No, e>l/2
SLV 14	311	-5087	-107537	3.27	103339	0.961	No, M>Mu
SLV 14	391	-5543	182751	0	0	0	No, e>l/2
SLV 10	311	-8453	-52848	5.44	130144	2.463	Si
SLV 10	391	-7633	129664	4.91	126665	0.977	No, M>Mu
SLV 4	311	-7981	90003	5.14	128381	1.426	Si
SLV 4	391	-7313	-118513	4.71	124774	1.053	Si
SLD 13	311	-5868	-51465	3.78	112514	2.186	Si
SLD 13	391	-6020	97216	3.87	114092	1.174	Si
SLV 13	311	-5087	-107537	3.27	103339	0.961	No, M>Mu
SLV 13	391	-5543	182751	0	0	0	No, e>l/2

#### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 68	311	-8628	-814	-17060		5.55	55.5	1.08	1684			2.07	Si
SLU 68	391	-8444	-795	46309		5.43	55.5	1.08	1684			2.12	Si
SLU 84	311	-9984	-844	-15506		6.42	55.5	1.08	1684			1.99	Si
SLU 84	391	-9869	-826	49473		6.35	55.5	1.08	1684			2.04	Si
SLU 61	311	-9063	-828	-16045		5.83	55.5	1.08	1684			2.03	Si
SLU 61	391	-8916	-811	48047		5.74	55.5	1.08	1684			2.08	Si
SLU 73	311	-9556	-925	-19136		6.15	55.5	1.08	1684			1.82	Si
SLU 73	391	-9393	-905	52834		6.04	55.5	1.08	1684			1.86	Si
SLU 76	311	-9631	-884	-17932		6.2	55.5	1.08	1684			1.9	Si
SLU 76	391	-9480	-863	50580		6.1	55.5	1.08	1684			1.95	Si
SLU 52	311	-8710	-868	-18471		5.6	55.5	1.08	1684			1.94	Si
SLU 52	391	-8527	-848	49154		5.49	55.5	1.08	1684			1.98	Si
SLU 55	311	-8784	-826	-17268		5.65	55.5	1.08	1684			2.04	Si
SLU 55	391	-8614	-807	46901		5.54	55.5	1.08	1684			2.09	Si
SLU 75	311	-9639	-830	-15463		6.2	55.5	1.08	1684			2.03	Si
SLU 75	391	-9505	-813	48656		6.12	55.5	1.08	1684			2.07	Si
SLU 65	311	-8553	-856	-18263		5.5	55.5	1.08	1684			1.97	Si
SLU 65	391	-8356	-836	48563		5.38	55.5	1.08	1684			2.01	Si
SLU 82	311	-9909	-885	-16710		6.38	55.5	1.08	1684			1.9	Si
SLU 82	391	-9782	-867	51726		6.29	55.5	1.08	1684			1.94	Si

#### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	311	-5868	-1941	-51465		3.78	55.5	1.59	2469			1.27	Si
SLD 13	391	-6020	-1889	97216		6.18	34.8	1.63	1584			0.84	No, Vu<V
SLV 13	311	-5087	-3777	-107537		9.16	19.83	1.63	902			0.24	No, Vu<V
SLV 13	391	-5543	-3681	182751		0	0	0.83	0			0	No, Vu<V
SLV 9	311	-8453	-2245	-52848		5.44	55.5	1.63	2525			1.12	Si
SLV 9	391	-7633	-2004	129664		8.44	32.28	1.63	1469			0.73	No, Vu<V
SLV 14	311	-5087	-3777	-107537		9.16	19.83	1.63	902			0.24	No, Vu<V
SLV 14	391	-5543	-3681	182751		0	0	0.83	0			0	No, Vu<V
SLV 10	311	-8453	-2245	-52848		5.44	55.5	1.63	2525			1.12	Si
SLV 10	391	-7633	-2004	129664		8.44	32.28	1.63	1469			0.73	No, Vu<V
SLV 3	311	-7981	2715	90003		5.77	49.42	1.63	2248			0.83	No, Vu<V
SLV 3	391	-7313	2637	-118513		7.54	34.63	1.63	1576			0.6	No, Vu<V
SLV 4	311	-7981	2715	90003		5.77	49.42	1.63	2248			0.83	No, Vu<V
SLV 4	391	-7313	2637	-118513		7.54	34.63	1.63	1576			0.6	No, Vu<V
SLV 15	311	-3535	-3289	-98009		0	0	0.83	0			0	No, Vu<V
SLV 15	391	-4573	-3329	148230		0	0	0.83	0			0	No, Vu<V
SLV 16	311	-3535	-3289	-98009		0	0	0.83	0			0	No, Vu<V
SLV 16	391	-4573	-3329	148230		0	0	0.83	0			0	No, Vu<V
SLD 14	311	-5868	-1941	-51465		3.78	55.5	1.59	2469			1.27	Si
SLD 14	391	-6020	-1889	97216		6.18	34.8	1.63	1584			0.84	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.31	1.8	-2804	5061	33462	6.61	Si
SLV 12	14	0.31	1.8	-2804	5061	33462	6.61	Si
SLV 7	14	0.31	2.08	-3235	5061	37574	7.42	Si
SLV 8	14	0.31	2.08	-3235	5061	37574	7.42	Si
SLV 15	14	0.31	2.75	-4275	5061	46375	9.16	Si
SLV 16	14	0.31	2.75	-4275	5061	46375	9.16	Si
SLV 3	14	0.31	3.67	-5711	5061	55905	11.05	Si
SLV 4	14	0.31	3.67	-5711	5061	55905	11.05	Si
SLV 14	14	0.31	3.84	-5966	5061	57282	11.32	Si
SLV 13	14	0.31	3.84	-5966	5061	57282	11.32	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-3676	-10415	9	0.04	4.561	0.948	61.472	1054.325	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 6	-3676	-10415	9	0.04	4.561	0.948	61.472	1054.325	No
SLV 1	-3566	-6998	16	0.039	4.449	0.947	59.068	1012.339	No
SLV 2	-3566	-6998	16	0.039	4.449	0.947	59.068	1012.339	No
SLV 4	-3087	-4833	14	0.039	3.963	0.942	60.53	1012.339	No
SLV 3	-3087	-4833	14	0.039	3.963	0.942	60.53	1012.339	No
SLV 9	-3293	-11179	1	0.042	4.171	0.944	65.389	1054.325	No
SLV 10	-3293	-11179	1	0.042	4.171	0.944	65.389	1054.325	No
SLV 13	-2286	-9545	-11	0.041	3.153	0.93	63.644	1012.339	No
SLV 14	-2286	-9545	-11	0.041	3.153	0.93	63.644	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.193	SLU 82	Si
V_SLU	1.819	SLU 73	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	6.611	SLV 11	Si
R_SLV	0.058	SLV 5	No

## Maschio 61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	104.6	-1961.8	581.1	L3	L4	476.5	14	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 83	111	-51592	2316684	7.73	622075	0.269	No, M>Mu
SLU 83	483	-36842	-33659	5.52	2826828	83.985	Si
SLU 84	111	-51411	2326369	7.71	660885	0.284	No, M>Mu
SLU 84	483	-36781	-29798	5.51	2832013	95.04	Si
SLU 75	111	-49872	2240835	7.48	977598	0.436	No, M>Mu
SLU 75	483	-35537	-25823	5.33	2930059	113.468	Si
SLU 78	111	-50990	2260500	7.64	749598	0.332	No, M>Mu
SLU 78	483	-37138	8043	5.57	2801388	348.308	Si
SLU 77	111	-51171	2250816	7.67	711460	0.316	No, M>Mu
SLU 77	483	-37199	4182	5.58	2796011	668.568	Si
SLU 81	111	-50475	2297019	7.57	855985	0.373	No, M>Mu
SLU 81	483	-35241	-67525	5.28	2951351	43.708	Si
SLU 80	111	-50513	2244863	7.57	848179	0.378	No, M>Mu
SLU 80	483	-36870	22569	5.53	2824454	125.147	Si
SLU 82	111	-50293	2306703	7.54	893012	0.387	No, M>Mu
SLU 82	483	-35180	-63664	5.27	2955675	46.426	Si
SLU 79	111	-50695	2235179	7.6	810801	0.363	No, M>Mu
SLU 79	483	-36931	18708	5.54	2819222	150.693	Si
SLU 74	111	-50054	2231150	7.5	941243	0.422	No, M>Mu
SLU 74	483	-35598	-29684	5.34	2925543	98.558	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLD 16	111	-34183	1801061	5.12	4729013	2.626	Si
SLD 16	483	-23381	146659	3.5	3972787	27.089	Si
SLV 15	111	-34624	2173687	5.19	4745376	2.183	Si
SLV 15	483	-23415	360766	3.51	3976308	11.022	Si
SLV 16	111	-34624	2173687	5.19	4745376	2.183	Si
SLV 16	483	-23415	360766	3.51	3976308	11.022	Si
SLV 13	111	-29602	2264501	4.44	4491594	1.983	Si
SLV 13	483	-20872	430390	3.13	3699561	8.596	Si
SLV 10	111	-24987	1885289	3.75	4128406	2.19	Si
SLV 10	483	-18752	225680	2.81	3439954	15.243	Si
SLD 14	111	-32021	1846029	4.8	4632264	2.509	Si
SLD 14	483	-22281	176203	3.34	3857543	21.893	Si
SLV 14	111	-29602	2264501	4.44	4491594	1.983	Si
SLV 14	483	-20872	430390	3.13	3699561	8.596	Si
SLV 9	111	-24987	1885289	3.75	4128406	2.19	Si
SLV 9	483	-18752	225680	2.81	3439954	15.243	Si
SLD 13	111	-32021	1846029	4.8	4632264	2.509	Si
SLD 13	483	-22281	176203	3.34	3857543	21.893	Si
SLD 15	111	-34183	1801061	5.12	4729013	2.626	Si
SLD 15	483	-23381	146659	3.5	3972787	27.089	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	111	-50054	3160	2231150		7.5	476.52	1.08	7227			2.29	Si
SLU 74	483	-35598	725	-29684		5.34	476.52	1.08	7227			9.97	Si
SLU 76	111	-49274	3020	2231654		7.39	476.52	1.08	7227			2.39	Si
SLU 76	483	-35228	576	-8723		5.28	476.52	1.08	7227			12.55	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	111	-48156	3136	2211989		7.22	476.52	1.08	7227			2.3	Si
SLU 73	483	-33627	849	-42588		5.04	476.52	1.08	7227			8.51	Si
SLU 75	111	-49872	3133	2240835		7.48	476.52	1.08	7227			2.31	Si
SLU 75	483	-35537	697	-25823		5.33	476.52	1.08	7227			10.37	Si
SLU 84	111	-51411	3259	2326369		7.71	476.52	1.08	7227			2.22	Si
SLU 84	483	-36781	747	-29798		5.51	476.52	1.08	7227			9.68	Si
SLU 82	111	-50293	3376	2306703		7.54	476.52	1.08	7227			2.14	Si
SLU 82	483	-35180	1020	-63664		5.27	476.52	1.08	7227			7.09	Si
SLU 77	111	-51171	3043	2250816		7.67	476.52	1.08	7227			2.38	Si
SLU 77	483	-37199	452	4182		5.58	476.52	1.08	7227			16	Si
SLU 78	111	-50990	3016	2260500		7.64	476.52	1.08	7227			2.4	Si
SLU 78	483	-37138	423	8043		5.57	476.52	1.08	7227			17.07	Si
SLU 81	111	-50475	3403	2297019		7.57	476.52	1.08	7227			2.12	Si
SLU 81	483	-35241	1048	-67525		5.28	476.52	1.08	7227			6.89	Si
SLU 83	111	-51592	3286	2316684		7.73	476.52	1.08	7227			2.2	Si
SLU 83	483	-36842	775	-33659		5.52	476.52	1.08	7227			9.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	111	-41727	17708	1582575		6.25	476.52	1.63	10841			0.61	No, Vu<V
SLV 12	483	-27230	10519	-6399		4.08	476.52	1.63	10841			1.03	Si
SLV 11	111	-41727	17708	1582575		6.25	476.52	1.63	10841			0.61	No, Vu<V
SLV 11	483	-27230	10519	-6399		4.08	476.52	1.63	10841			1.03	Si
SLV 6	111	-26053	-13494	1469437		3.91	476.52	1.61	10770			0.8	No, Vu<V
SLV 6	483	-19478	-9558	-19409		2.92	476.52	1.42	9455			0.99	No, Vu<V
SLV 7	111	-42794	20515	1166722		6.41	476.52	1.63	10841			0.53	No, Vu<V
SLV 7	483	-27956	13350	-251489		4.19	476.52	1.63	10841			0.81	No, Vu<V
SLV 3	111	-38179	11887	787511		5.72	476.52	1.63	10841			0.91	No, Vu<V
SLV 3	483	-25835	8634	-456199		3.87	476.52	1.61	10726			1.24	Si
SLV 4	111	-38179	11887	787511		5.72	476.52	1.63	10841			0.91	No, Vu<V
SLV 4	483	-25835	8634	-456199		3.87	476.52	1.61	10726			1.24	Si
SLV 9	111	-24987	-16302	1885289		3.75	476.52	1.58	10557			0.65	No, Vu<V
SLV 9	483	-18752	-12389	225680		2.81	476.52	1.4	9310			0.75	No, Vu<V
SLV 8	111	-42794	20515	1166722		6.41	476.52	1.63	10841			0.53	No, Vu<V
SLV 8	483	-27956	13350	-251489		4.19	476.52	1.63	10841			0.81	No, Vu<V
SLV 10	111	-24987	-16302	1885289		3.75	476.52	1.58	10557			0.65	No, Vu<V
SLV 10	483	-18752	-12389	225680		2.81	476.52	1.4	9310			0.75	No, Vu<V
SLV 5	111	-26053	-13494	1469437		3.91	476.52	1.61	10770			0.8	No, Vu<V
SLV 5	483	-19478	-9558	-19409		2.92	476.52	1.42	9455			0.99	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.31	3.44	-22935	23244	115373	4.96	Si
SLV 10	14	0.31	3.44	-22935	23244	115373	4.96	Si
SLV 6	14	0.31	3.54	-23636	23244	117476	5.05	Si
SLV 5	14	0.31	3.54	-23636	23244	117476	5.05	Si
SLV 13	14	0.31	3.9	-25986	23244	123912	5.33	Si
SLV 14	14	0.31	3.9	-25986	23244	123912	5.33	Si
SLV 1	14	0.31	4.25	-28321	23244	129369	5.57	Si
SLV 2	14	0.31	4.25	-28321	23244	129369	5.57	Si
SLV 15	14	0.31	4.39	-29301	23244	131380	5.65	Si
SLV 16	14	0.31	4.39	-29301	23244	131380	5.65	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.03 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-25835	-38179	14	0.02	29.798	0.965	29.829	1401.752	No
SLV 4	-25835	-38179	14	0.02	29.798	0.965	29.829	1401.752	No
SLV 7	-27956	-42794	10	0.02	31.956	0.967	29.855	1401.752	No
SLV 8	-27956	-42794	10	0.02	31.956	0.967	29.855	1401.752	No
SLV 15	-23415	-34624	-11	0.02	27.336	0.962	30.241	1401.752	No
SLV 16	-23415	-34624	-11	0.02	27.336	0.962	30.241	1401.752	No
SLV 14	-20872	-29602	-16	0.02	24.749	0.958	30.269	1401.752	No
SLV 13	-20872	-29602	-16	0.02	24.749	0.958	30.269	1401.752	No
SLV 11	-27230	-41727	3	0.02	31.217	0.966	30.312	1401.752	No
SLV 12	-27230	-41727	3	0.02	31.217	0.966	30.312	1401.752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.269	SLU 83	No
V_SLU	2.124	SLU 81	Si
PF_SLV	1.983	SLV 13	Si
V_SLV	0.528	SLV 7	No
PFFP_SLV	4.964	SLV 9	Si
R_SLV	0.021	SLV 3	No

## Maschio 62

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-1961.8	595.1	-1961.8	666.1	L3	L4	71	28	372	372	372			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	111	-16419	-97308	8.26	0	0	No, Rottura per schiacciamento
SLU 76	483	-7650	-2337	3.85	143284	61.308	Si
SLU 79	111	-16582	-97759	8.34	0	0	No, Rottura per schiacciamento
SLU 79	483	-8232	-4698	4.14	143681	30.583	Si
SLU 75	111	-16595	-98625	8.35	0	0	No, Rottura per schiacciamento
SLU 75	483	-7642	-1916	3.84	143268	74.792	Si
SLU 74	111	-16600	-98762	8.35	0	0	No, Rottura per schiacciamento
SLU 74	483	-7646	-1926	3.85	143275	74.399	Si
SLU 84	111	-17146	-101945	8.62	0	0	No, Rottura per schiacciamento
SLU 84	483	-7910	-1703	3.98	143644	84.365	Si
SLU 81	111	-16995	-101860	8.55	0	0	No, Rottura per schiacciamento
SLU 81	483	-7338	631	3.69	142458	225.736	Si
SLU 77	111	-16755	-98985	8.43	0	0	No, Rottura per schiacciamento
SLU 77	483	-8222	-4270	4.14	143687	33.653	Si
SLU 73	111	-16264	-97085	8.18	0	0	No, Rottura per schiacciamento
SLU 73	483	-7075	7	3.56	141431	1000	Si
SLU 80	111	-16577	-97622	8.34	0	0	No, Rottura per schiacciamento
SLU 80	483	-8228	-4688	4.14	143683	30.65	Si
SLU 83	111	-17150	-102083	8.63	0	0	No, Rottura per schiacciamento
SLU 83	483	-7913	-1713	3.98	143647	83.863	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	111	-14137	-151630	7.11	209783	1.384	Si
SLV 4	483	-1912	23567	0.96	62548	2.654	Si
SLV 5	111	-6937	-95500	3.49	175938	1.842	Si
SLV 5	483	-1002	19404	0.5	34096	1.757	Si
SLD 2	111	-11330	-104684	5.7	214610	2.05	Si
SLD 2	483	-2912	13010	1.46	90980	6.993	Si
SLD 1	111	-11330	-104684	5.7	214610	2.05	Si
SLD 1	483	-2912	13010	1.46	90980	6.993	Si
SLV 1	111	-11252	-153123	5.66	214416	1.4	Si
SLV 1	483	-233	30637	0	0	0	No, $e > l/2$
SLV 7	111	-16554	-90523	8.33	187179	2.068	Si
SLV 7	483	-6600	-4164	3.32	170640	40.983	Si
SLV 6	111	-6937	-95500	3.49	175938	1.842	Si
SLV 6	483	-1002	19404	0.5	34096	1.757	Si
SLV 3	111	-14137	-151630	7.11	209783	1.384	Si
SLV 3	483	-1912	23567	0.96	62548	2.654	Si
SLV 8	111	-16554	-90523	8.33	187179	2.068	Si
SLV 8	483	-6600	-4164	3.32	170640	40.983	Si
SLV 2	111	-11252	-153123	5.66	214416	1.4	Si
SLV 2	483	-233	30637	0	0	0	No, $e > l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	111	-16419	-2575	-97308		8.26	71	1.08	2154			0.84	No, $V_u < V$
SLU 76	483	-7650	-880	-2337		3.85	71	1.07	2125			2.41	Si
SLU 81	111	-16995	-2740	-101860		8.55	71	1.08	2154			0.79	No, $V_u < V$
SLU 81	483	-7338	-1148	631		3.69	71	1.05	2083			1.81	Si
SLU 78	111	-16751	-2583	-98848		8.43	71	1.08	2154			0.83	No, $V_u < V$
SLU 78	483	-8218	-753	-4259		4.13	71	1.08	2154			2.86	Si
SLU 73	111	-16264	-2609	-97085		8.18	71	1.08	2154			0.83	No, $V_u < V$
SLU 73	483	-7075	-1061	7		3.56	71	1.03	2048			1.93	Si
SLU 82	111	-16990	-2738	-101722		8.55	71	1.08	2154			0.79	No, $V_u < V$
SLU 82	483	-7334	-1150	641		3.69	71	1.05	2082			1.81	Si
SLU 83	111	-17150	-2706	-102083		8.63	71	1.08	2154			0.8	No, $V_u < V$
SLU 83	483	-7913	-967	-1713		3.98	71	1.08	2154			2.23	Si
SLU 77	111	-16755	-2585	-98985		8.43	71	1.08	2154			0.83	No, $V_u < V$
SLU 77	483	-8222	-750	-4270		4.14	71	1.08	2154			2.87	Si
SLU 75	111	-16595	-2618	-98625		8.35	71	1.08	2154			0.82	No, $V_u < V$
SLU 75	483	-7642	-934	-1916		3.84	71	1.07	2123			2.27	Si
SLU 84	111	-17146	-2704	-101945		8.62	71	1.08	2154			0.8	No, $V_u < V$
SLU 84	483	-7910	-969	-1703		3.98	71	1.08	2154			2.22	Si
SLU 74	111	-16600	-2619	-98762		8.35	71	1.08	2154			0.82	No, $V_u < V$
SLU 74	483	-7646	-931	-1926		3.85	71	1.07	2124			2.28	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	111	-6937	-1079	-95500		3.8	65.2	1.59	2909			2.7	Si
SLV 5	483	-1002	-3004	19404		0.74	48.39	0.98	1329			0.44	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 3	111	-12548	-3823	-104044		6.31	71	1.63	3230			0.85	No, Vu<V
SLD 3	483	-3621	-1769	9944		1.82	71	1.2	2381			1.35	Si
SLV 2	111	-11252	-5310	-153123		6.12	65.68	1.63	2988			0.56	No, Vu<V
SLV 2	483	-233	-4000	30637		0	0	0.83	0			0	No, Vu<V
SLV 7	111	-16554	-4992	-90523		8.33	71	1.63	3230			0.65	No, Vu<V
SLV 7	483	-6600	-101	-4164		3.32	71	1.5	2977			29.43	Si
SLD 4	111	-12548	-3823	-104044		6.31	71	1.63	3230			0.85	No, Vu<V
SLD 4	483	-3621	-1769	9944		1.82	71	1.2	2381			1.35	Si
SLV 8	111	-16554	-4992	-90523		8.33	71	1.63	3230			0.65	No, Vu<V
SLV 8	483	-6600	-101	-4164		3.32	71	1.5	2977			29.43	Si
SLV 1	111	-11252	-5310	-153123		6.12	65.68	1.63	2988			0.56	No, Vu<V
SLV 1	483	-233	-4000	30637		0	0	0.83	0			0	No, Vu<V
SLV 3	111	-14137	-6484	-151630		7.11	71	1.63	3230			0.5	No, Vu<V
SLV 3	483	-1912	-3129	23567		0.98	69.53	1.03	2005			0.64	No, Vu<V
SLV 6	111	-6937	-1079	-95500		3.8	65.2	1.59	2909			2.7	Si
SLV 6	483	-1002	-3004	19404		0.74	48.39	0.98	1329			0.44	No, Vu<V
SLV 4	111	-14137	-6484	-151630		7.11	71	1.63	3230			0.5	No, Vu<V
SLV 4	483	-1912	-3129	23567		0.98	69.53	1.03	2005			0.64	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\mu\text{M}$  = 2

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.31	2.03	-4029	6625	47051	7.1	Si
SLV 9	14	0.31	2.03	-4029	6625	47051	7.1	Si
SLV 6	14	0.31	2.13	-4231	6625	48914	7.38	Si
SLV 5	14	0.31	2.13	-4231	6625	48914	7.38	Si
SLV 13	14	0.31	3.32	-6594	6625	67255	10.15	Si
SLV 14	14	0.31	3.32	-6594	6625	67255	10.15	Si
SLV 1	14	0.31	3.65	-7266	6625	71295	10.76	Si
SLV 2	14	0.31	3.65	-7266	6625	71295	10.76	Si
SLV 16	14	0.31	4.52	-8994	6625	79293	11.97	Si
SLV 15	14	0.31	4.52	-8994	6625	79293	11.97	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-1002	-6937	-53	0.021	2.123	0.893	33.918	1054.325	No
SLV 6	-1002	-6937	-53	0.021	2.123	0.893	33.918	1054.325	No
SLV 9	-3340	-6123	-45	0.033	4.453	0.935	50.758	1054.325	No
SLV 10	-3340	-6123	-45	0.033	4.453	0.935	50.758	1054.325	No
SLV 12	-8938	-15740	50	0.035	10.141	0.969	52.532	1054.325	No
SLV 11	-8938	-15740	50	0.035	10.141	0.969	52.532	1054.325	No
SLV 7	-6600	-16554	42	0.035	7.762	0.96	53.418	1054.325	No
SLV 8	-6600	-16554	42	0.035	7.762	0.96	53.418	1054.325	No
SLV 1	-233	-11252	-29	0.033	1.455	0.912	52.618	1012.339	No
SLV 2	-233	-11252	-29	0.033	1.455	0.912	52.618	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 73	No
V_SLU	0.786	SLU 81	No
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	7.102	SLV 9	Si
R_SLV	0.032	SLV 5	No

## Maschio 63

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1638.3	-335.9	-1731.3	-335.9	L3	L4	93	28	372	372	372			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\mu\text{M}$  = 3

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	201	-16881	138952	6.48	160278	1.153	Si
SLU 77	391	-13372	122735	5.14	229811	1.872	Si
SLU 79	201	-16790	139889	6.45	162758	1.163	Si
SLU 79	391	-13220	120642	5.08	231608	1.92	Si
SLU 76	201	-17457	157785	6.7	143694	0.911	No, M>Mu
SLU 76	391	-12904	113393	4.96	235013	2.073	Si
SLU 84	201	-17800	152713	6.84	133127	0.872	No, M>Mu
SLU 84	391	-13702	123436	5.26	225577	1.827	Si
SLU 75	201	-17185	146579	6.6	151695	1.035	Si
SLU 75	391	-13202	119572	5.07	231810	1.939	Si
SLU 82	201	-17561	144938	6.74	140549	0.97	No, M>Mu
SLU 82	391	-13751	126401	5.28	224905	1.779	Si
SLU 80	201	-17334	155292	6.66	147364	0.949	No, M>Mu



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	391	-13001	114513	4.99	234015	2.044	Si
SLU 83	201	-17256	137310	6.63	149633	1.09	Si
SLU 83	391	-13921	129565	5.35	222497	1.717	Si
SLU 73	201	-17218	150011	6.61	150756	1.005	Si
SLU 73	391	-12953	116357	4.97	234513	2.015	Si
SLU 78	201	-17424	154354	6.69	144667	0.937	No, M>Mu
SLU 78	391	-13153	116607	5.05	232364	1.993	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	201	-9687	270935	3.72	313298	1.156	Si
SLV 7	391	2439	-149952	0	0	0	No, Trazione
SLV 4	201	-14643	362747	5.62	367537	1.013	Si
SLV 4	391	-3496	-70049	1.34	144689	2.066	Si
SLV 3	201	-14643	362747	5.62	367537	1.013	Si
SLV 3	391	-3496	-70049	1.34	144689	2.066	Si
SLV 10	201	-13247	-95600	5.09	359522	3.761	Si
SLV 10	391	-20935	326579	8.04	332966	1.02	Si
SLV 9	201	-13247	-95600	5.09	359522	3.761	Si
SLV 9	391	-20935	326579	8.04	332966	1.02	Si
SLV 12	201	-7240	125815	2.78	260062	2.067	Si
SLV 12	391	958	-92666	0	0	0	No, Trazione
SLV 11	201	-7240	125815	2.78	260062	2.067	Si
SLV 11	391	958	-92666	0	0	0	No, Trazione
SLV 8	201	-9687	270935	3.72	313298	1.156	Si
SLV 8	391	2439	-149952	0	0	0	No, Trazione
SLV 2	201	-16445	296322	6.32	369460	1.247	Si
SLV 2	391	-10063	55724	3.86	319942	5.742	Si
SLV 1	201	-16445	296322	6.32	369460	1.247	Si
SLV 1	391	-10063	55724	3.86	319942	5.742	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	201	-17256	1566	137310		6.63	93	1.08	2821			1.8	Si
SLU 83	391	-13921	-516	129565		5.35	93	1.08	2821			5.47	Si
SLU 58	201	-15497	1548	130256		5.95	93	1.08	2821			1.82	Si
SLU 58	391	-12031	-465	110053		4.62	93	1.08	2821			6.07	Si
SLU 80	201	-17334	1628	155292		6.66	93	1.08	2821			1.73	Si
SLU 80	391	-13001	-490	114513		4.99	93	1.08	2821			5.75	Si
SLU 59	201	-16041	1539	145658		6.16	93	1.08	2821			1.83	Si
SLU 59	391	-11812	-490	103925		4.54	93	1.08	2821			5.76	Si
SLU 56	201	-15588	1521	129319		5.99	93	1.08	2821			1.86	Si
SLU 56	391	-12184	-479	112147		4.68	93	1.08	2821			5.89	Si
SLU 57	201	-16131	1512	144721		6.19	93	1.08	2821			1.87	Si
SLU 57	391	-11964	-504	106018		4.59	93	1.08	2821			5.6	Si
SLU 78	201	-17424	1601	154354		6.69	93	1.08	2821			1.76	Si
SLU 78	391	-13153	-505	116607		5.05	93	1.08	2821			5.59	Si
SLU 84	201	-17800	1557	152713		6.84	93	1.08	2821			1.81	Si
SLU 84	391	-13702	-541	123436		5.26	93	1.08	2821			5.21	Si
SLU 77	201	-16881	1609	138952		6.48	93	1.08	2821			1.75	Si
SLU 77	391	-13372	-479	122735		5.14	93	1.08	2821			5.89	Si
SLU 79	201	-16790	1636	139889		6.45	93	1.08	2821			1.72	Si
SLU 79	391	-13220	-465	120642		5.08	93	1.08	2821			6.07	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	201	-16445	5907	296322		6.87	85.44	1.63	3888			0.66	No, Vu<V
SLV 1	391	-10063	604	55724		3.86	93	1.61	4183			6.92	Si
SLV 16	201	-6489	-3992	-120988		2.77	83.56	1.39	3247			0.81	No, Vu<V
SLV 16	391	-8432	-1420	120903		3.24	93	1.48	3856			2.72	Si
SLV 12	201	-7240	-950	125815		2.96	87.37	1.43	3487			3.67	Si
SLV 12	391	958	814	-92666		0	0	0.83	0			0	No, Vu<V
SLV 4	201	-14643	5628	362747		8.02	65.18	1.63	2966			0.53	No, Vu<V
SLV 4	391	-3496	1610	-70049		1.57	79.38	1.15	2551			1.58	Si
SLV 15	201	-6489	-3992	-120988		2.77	83.56	1.39	3247			0.81	No, Vu<V
SLV 15	391	-8432	-1420	120903		3.24	93	1.48	3856			2.72	Si
SLV 2	201	-16445	5907	296322		6.87	85.44	1.63	3888			0.66	No, Vu<V
SLV 2	391	-10063	604	55724		3.86	93	1.61	4183			6.92	Si
SLV 7	201	-9687	1936	270935		6.22	55.59	1.63	2529			1.31	Si
SLV 7	391	2439	1724	-149952		0	0	0.83	0			0	No, Vu<V
SLV 8	201	-9687	1936	270935		6.22	55.59	1.63	2529			1.31	Si
SLV 8	391	2439	1724	-149952		0	0	0.83	0			0	No, Vu<V
SLV 3	201	-14643	5628	362747		8.02	65.18	1.63	2966			0.53	No, Vu<V
SLV 3	391	-3496	1610	-70049		1.57	79.38	1.15	2551			1.58	Si
SLV 11	201	-7240	-950	125815		2.96	87.37	1.43	3487			3.67	Si
SLV 11	391	958	814	-92666		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.31	1.46	-3793	8481	46776	5.52	Si
SLV 12	14	0.31	1.46	-3793	8481	46776	5.52	Si
SLV 15	14	0.31	2.05	-5349	8481	62292	7.34	Si
SLV 16	14	0.31	2.05	-5349	8481	62292	7.34	Si
SLV 8	14	0.31	2.42	-6297	8481	70708	8.34	Si
SLV 7	14	0.31	2.42	-6297	8481	70708	8.34	Si
SLV 13	14	0.31	3.53	-9185	8481	91467	10.78	Si





Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.31	3.53	-9185	8481	91467	10.78	Si
SLV 6	14	0.31	7.33	-19084	8481	106926	12.61	Si
SLV 5	14	0.31	7.33	-19084	8481	106926	12.61	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297  $W_a = 0.05$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-2947	-3118	59	0.031	4.395	0.919	48.753	1054.325	No
SLV 8	-2947	-3118	59	0.031	4.395	0.919	48.753	1054.325	No
SLV 12	-4213	-2988	57	0.033	5.67	0.934	51.106	1054.325	No
SLV 11	-4213	-2988	57	0.033	5.67	0.934	51.106	1054.325	No
SLV 9	-10998	-15599	-46	0.036	12.561	0.967	54.835	1054.325	No
SLV 10	-10998	-15599	-46	0.036	12.561	0.967	54.835	1054.325	No
SLV 6	-9732	-15730	-45	0.036	11.272	0.964	55.048	1054.325	No
SLV 5	-9732	-15730	-45	0.036	11.272	0.964	55.048	1054.325	No
SLV 15	-8065	-7249	19	0.039	9.577	0.958	59.426	1012.339	No
SLV 16	-8065	-7249	19	0.039	9.577	0.958	59.426	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.872	SLU 84	No
V_SLU	1.724	SLU 79	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 7	No
PFFP_SLV	5.515	SLV 11	Si
R_SLV	0.046	SLV 7	No

## Maschio 64

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1844.8	-335.9	-1844.8	104.6	L3	L4	440.6	14	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 47	111	-17478	-542305	2.83	2510775	4.63	Si
SLU 47	483	-17895	250816	2.9	2537967	10.119	Si
SLU 52	111	-19500	-591636	3.16	2628415	4.443	Si
SLU 52	483	-20084	301508	3.26	2655680	8.808	Si
SLU 10	111	-16227	-497602	2.63	2420086	4.863	Si
SLU 10	483	-16826	265986	2.73	2465266	9.268	Si
SLU 68	111	-19501	-543293	3.16	2628439	4.838	Si
SLU 68	483	-20306	329613	3.29	2665280	8.086	Si
SLU 76	111	-21723	-562882	3.52	2716303	4.826	Si
SLU 76	483	-22895	401720	3.71	2745216	6.834	Si
SLU 2	111	-14005	-478014	2.27	2225149	4.655	Si
SLU 2	483	-14238	193879	2.31	2247565	11.593	Si
SLU 44	111	-17279	-572047	2.8	2497253	4.365	Si
SLU 44	483	-17495	229401	2.84	2511926	10.95	Si
SLU 55	111	-19700	-561894	3.19	2638057	4.695	Si
SLU 55	483	-20484	322923	3.32	2672644	8.276	Si
SLU 73	111	-21524	-592624	3.49	2710194	4.573	Si
SLU 73	483	-22495	380304	3.65	2736707	7.196	Si
SLU 65	111	-19302	-573035	3.13	2618450	4.569	Si
SLU 65	483	-19906	308197	3.23	2647693	8.591	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	111	-13058	-1018901	2.12	2378147	2.334	Si
SLV 13	483	-11716	302226	1.9	2179663	7.212	Si
SLV 14	111	-13058	-1018901	2.12	2378147	2.334	Si
SLV 14	483	-11716	302226	1.9	2179663	7.212	Si
SLV 5	111	-19229	-1177320	3.12	3155144	2.68	Si
SLV 5	483	-17955	354264	2.91	3012884	8.505	Si
SLV 12	111	-9643	536412	1.56	1852483	3.453	Si
SLV 12	483	-12130	148882	1.97	2241940	15.058	Si
SLV 11	111	-9643	536412	1.56	1852483	3.453	Si
SLV 11	483	-12130	148882	1.97	2241940	15.058	Si
SLV 9	111	-17679	-1420285	2.87	2980912	2.099	Si
SLV 9	483	-15643	365188	2.54	2730651	7.477	Si
SLV 7	111	-11193	779377	1.81	2099531	2.694	Si
SLV 7	483	-14442	137958	2.34	2571652	18.641	Si
SLV 6	111	-19229	-1177320	3.12	3155144	2.68	Si
SLV 6	483	-17955	354264	2.91	3012884	8.505	Si
SLV 8	111	-11193	779377	1.81	2099531	2.694	Si
SLV 8	483	-14442	137958	2.34	2571652	18.641	Si
SLV 10	111	-17679	-1420285	2.87	2980912	2.099	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	483	-15643	365188	2.54	2730651	7.477	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	111	-21524	-2158	-592624		3.49	440.57	1.02	6296			2.92	Si
SLU 73	483	-22495	-1290	380304		3.65	440.57	1.04	6426			4.98	Si
SLU 23	111	-16028	-2074	-479002		2.6	440.57	0.9	5564			2.68	Si
SLU 23	483	-16649	-1325	272675		2.7	440.57	0.92	5646			4.26	Si
SLU 65	111	-19302	-2089	-573035		3.13	440.57	0.97	6000			2.87	Si
SLU 65	483	-19906	-1264	308197		3.23	440.57	0.99	6081			4.81	Si
SLU 2	111	-14005	-2149	-478014		2.27	440.57	0.86	5294			2.46	Si
SLU 2	483	-14238	-1437	193879		2.31	440.57	0.86	5325			3.7	Si
SLU 31	111	-18250	-2142	-498590		2.96	440.57	0.95	5860			2.74	Si
SLU 31	483	-19238	-1352	344782		3.12	440.57	0.97	5992			4.43	Si
SLU 52	111	-19500	-2233	-591636		3.16	440.57	0.98	6027			2.7	Si
SLU 52	483	-20084	-1402	301508		3.26	440.57	0.99	6104			4.35	Si
SLU 10	111	-16227	-2217	-497602		2.63	440.57	0.91	5590			2.52	Si
SLU 10	483	-16826	-1464	265986		2.73	440.57	0.92	5670			3.87	Si
SLU 13	111	-16426	-1884	-467860		2.66	440.57	0.91	5617			2.98	Si
SLU 13	483	-17226	-1128	287402		2.79	440.57	0.93	5723			5.07	Si
SLU 5	111	-14204	-1815	-448272		2.3	440.57	0.86	5321			2.93	Si
SLU 5	483	-14637	-1102	215295		2.37	440.57	0.87	5378			4.88	Si
SLU 44	111	-17279	-2165	-572047		2.8	440.57	0.93	5730			2.65	Si
SLU 44	483	-17495	-1375	229401		2.84	440.57	0.93	5759			4.19	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	111	-19229	-21593	-1177320		3.12	440.57	1.46	8986			0.42	No, Vu<V
SLV 6	483	-17955	-13352	354264		2.91	440.57	1.42	8731			0.65	No, Vu<V
SLV 7	111	-11193	21841	779377		1.81	440.57	1.2	7379			0.34	No, Vu<V
SLV 7	483	-14442	12042	137958		2.34	440.57	1.3	8028			0.67	No, Vu<V
SLD 11	111	-12434	9013	33309		2.02	440.57	1.24	7627			0.85	No, Vu<V
SLD 11	483	-13871	6084	206414		2.25	440.57	1.28	7914			1.3	Si
SLV 8	111	-11193	21841	779377		1.81	440.57	1.2	7379			0.34	No, Vu<V
SLV 8	483	-14442	12042	137958		2.34	440.57	1.3	8028			0.67	No, Vu<V
SLD 12	111	-12434	9013	33309		2.02	440.57	1.24	7627			0.85	No, Vu<V
SLD 12	483	-13871	6084	206414		2.25	440.57	1.28	7914			1.3	Si
SLV 5	111	-19229	-21593	-1177320		3.12	440.57	1.46	8986			0.42	No, Vu<V
SLV 5	483	-17955	-13352	354264		2.91	440.57	1.42	8731			0.65	No, Vu<V
SLV 9	111	-17679	-21770	-1420285		3.01	419.85	1.43	8434			0.39	No, Vu<V
SLV 9	483	-15643	-11325	365188		2.54	440.57	1.34	8269			0.73	No, Vu<V
SLV 11	111	-9643	21665	536412		1.56	440.57	1.15	7069			0.33	No, Vu<V
SLV 11	483	-12130	14069	148882		1.97	440.57	1.23	7566			0.54	No, Vu<V
SLV 12	111	-9643	21665	536412		1.56	440.57	1.15	7069			0.33	No, Vu<V
SLV 12	483	-12130	14069	148882		1.97	440.57	1.23	7566			0.54	No, Vu<V
SLV 10	111	-17679	-21770	-1420285		3.01	419.85	1.43	8434			0.39	No, Vu<V
SLV 10	483	-15643	-11325	365188		2.54	440.57	1.34	8269			0.73	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.31	1.47	-9063	21490	55814	2.6	Si
SLV 16	14	0.31	1.47	-9063	21490	55814	2.6	Si
SLV 13	14	0.31	1.74	-10714	21490	64336	2.99	Si
SLV 14	14	0.31	1.74	-10714	21490	64336	2.99	Si
SLV 12	14	0.31	1.86	-11497	21490	68201	3.17	Si
SLV 11	14	0.31	1.86	-11497	21490	68201	3.17	Si
SLV 8	14	0.31	2.47	-15233	21490	85080	3.96	Si
SLV 7	14	0.31	2.47	-15233	21490	85080	3.96	Si
SLV 9	14	0.31	2.76	-16999	21490	92153	4.29	Si
SLV 10	14	0.31	2.76	-16999	21490	92153	4.29	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.03 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-19422	-18225	35	0.019	23.009	0.958	28.832	1401.752	No
SLV 2	-19422	-18225	35	0.019	23.009	0.958	28.832	1401.752	No
SLV 4	-18368	-15814	35	0.019	21.938	0.957	28.903	1401.752	No
SLV 3	-18368	-15814	35	0.019	21.938	0.957	28.903	1401.752	No
SLV 13	-11716	-13058	-32	0.019	15.186	0.94	29.872	1401.752	No
SLV 14	-11716	-13058	-32	0.019	15.186	0.94	29.872	1401.752	No
SLV 16	-10662	-10648	-32	0.019	14.119	0.936	30.055	1401.752	No
SLV 15	-10662	-10648	-32	0.019	14.119	0.936	30.055	1401.752	No
SLV 6	-17955	-19229	11	0.02	21.517	0.956	30.699	1401.752	No
SLV 5	-17955	-19229	11	0.02	21.517	0.956	30.699	1401.752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.365	SLU 44	Si
V_SLU	2.464	SLU 2	Si
PF_SLV	2.099	SLV 9	Si
V_SLV	0.326	SLV 11	No
PFFP_SLV	2.597	SLV 15	Si
R_SLV	0.021	SLV 1	No



## Maschio 65

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-335.9	-1548.3	-335.9	L3	L4	173	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 82	111	-11478	-594812	2.37	704030	1.184	Si
SLU 82	321	-16931	-142305	3.5	836128	5.876	Si
SLU 84	111	-11639	-594761	2.4	709806	1.193	Si
SLU 84	321	-16991	-156523	3.51	836857	5.347	Si
SLU 76	111	-11270	-576209	2.33	696430	1.209	Si
SLU 76	321	-16451	-143549	3.4	829723	5.78	Si
SLU 75	111	-11278	-573912	2.33	696727	1.214	Si
SLU 75	321	-16422	-150052	3.39	829315	5.527	Si
SLU 83	111	-11575	-585638	2.39	707538	1.208	Si
SLU 83	321	-16757	-170945	3.46	833928	4.878	Si
SLU 78	111	-11440	-573861	2.36	702644	1.224	Si
SLU 78	321	-16482	-164269	3.4	830177	5.054	Si
SLU 73	111	-11109	-576260	2.29	690393	1.198	Si
SLU 73	321	-16391	-129331	3.38	828852	6.409	Si
SLU 74	111	-11215	-564789	2.32	694358	1.229	Si
SLU 74	321	-16188	-164474	3.34	825802	5.021	Si
SLU 80	111	-11389	-570076	2.35	700804	1.229	Si
SLU 80	321	-16355	-167382	3.38	828324	4.949	Si
SLU 81	111	-11414	-585689	2.36	701717	1.198	Si
SLU 81	321	-16697	-156727	3.45	833138	5.316	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 13	111	-9434	-866772	0	0	0	No, e>l/2
SLV 13	321	-19980	348319	4.12	1144855	3.287	Si
SLV 7	111	-6166	-61213	1.27	477799	7.805	Si
SLV 7	321	-3458	-390820	0	0	0	No, e>l/2
SLV 10	111	-9552	-727449	1.97	692883	0.952	No, M>Mu
SLV 10	321	-19040	163396	3.93	1117163	6.837	Si
SLV 8	111	-6166	-61213	1.27	477799	7.805	Si
SLV 8	321	-3458	-390820	0	0	0	No, e>l/2
SLV 16	111	-8629	-740584	1.78	637583	0.861	No, M>Mu
SLV 16	321	-16570	257001	3.42	1032033	4.016	Si
SLV 15	111	-8629	-740584	1.78	637583	0.861	No, M>Mu
SLV 15	321	-16570	257001	3.42	1032033	4.016	Si
SLV 9	111	-9552	-727449	1.97	692883	0.952	No, M>Mu
SLV 9	321	-19040	163396	3.93	1117163	6.837	Si
SLV 14	111	-9434	-866772	0	0	0	No, e>l/2
SLV 14	321	-19980	348319	4.12	1144855	3.287	Si
SLV 3	111	-6284	78110	1.3	485866	6.22	Si
SLV 3	321	-2518	-575744	0	0	0	No, e>l/2
SLV 4	111	-6284	78110	1.3	485866	6.22	Si
SLV 4	321	-2518	-575744	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	111	-11270	-5445	-576209		3.79	106.12	1.06	3153			0.58	No, Vu<V
SLU 76	321	-16451	-5441	-143549		3.4	173	1.01	4885			0.9	No, Vu<V
SLU 84	111	-11639	-5545	-594761		3.91	106.2	1.08	3204			0.58	No, Vu<V
SLU 84	321	-16991	-5587	-156523		3.51	173	1.02	4957			0.89	No, Vu<V
SLU 65	111	-10150	-5035	-518783		3.41	106.16	1.01	3005			0.6	No, Vu<V
SLU 65	321	-14765	-4923	-121493		3.05	173	0.96	4660			0.95	No, Vu<V
SLU 73	111	-11109	-5550	-576260		3.82	103.88	1.06	3097			0.56	No, Vu<V
SLU 73	321	-16391	-5568	-129331		3.38	173	1.01	4877			0.88	No, Vu<V
SLU 81	111	-11414	-5469	-585689		3.86	105.56	1.07	3164			0.58	No, Vu<V
SLU 81	321	-16697	-5518	-156727		3.45	173	1.02	4917			0.89	No, Vu<V
SLU 82	111	-11478	-5650	-594812		3.94	104.03	1.08	3149			0.56	No, Vu<V
SLU 82	321	-16931	-5713	-142305		3.5	173	1.02	4949			0.87	No, Vu<V
SLU 75	111	-11278	-5390	-573912		3.77	106.84	1.06	3166			0.59	No, Vu<V
SLU 75	321	-16422	-5379	-150052		3.39	173	1.01	4881			0.91	No, Vu<V
SLU 40	111	-9477	-4792	-499883		3.34	101.26	1	2839			0.59	No, Vu<V
SLU 40	321	-14228	-4889	-109786		2.94	173	0.95	4588			0.94	No, Vu<V
SLU 31	111	-9109	-4691	-481331		3.22	100.97	0.99	2785			0.59	No, Vu<V
SLU 31	321	-13687	-4743	-96812		2.83	173	0.93	4516			0.95	No, Vu<V
SLU 61	111	-10836	-5178	-551776		3.63	106.74	1.04	3105			0.6	No, Vu<V
SLU 61	321	-15690	-5236	-140152		3.24	173	0.99	4783			0.91	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	111	-6166	333	-61213		1.27	173	1.09	5270			15.82	Si
SLV 7	321	-3458	-725	-390820		0	0	0.83	0			0	No, Vu<V
SLV 3	111	-6284	5835	78110		1.3	173	1.09	5293			0.91	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	321	-2518	1872	-575744		0	0	0.83	0			0	No, Vu<V
SLV 16	111	-8629	-12438	-740584		152.41	2.02	1.63	92			0.01	No, Vu<V
SLV 16	321	-16570	-8281	257001		3.42	173	1.52	7351			0.89	No, Vu<V
SLV 8	111	-6166	333	-61213		1.27	173	1.09	5270			15.82	Si
SLV 8	321	-3458	-725	-390820		0	0	0.83	0			0	No, Vu<V
SLV 14	111	-9434	-13204	-866772		0	0	0.83	0			0	No, Vu<V
SLV 14	321	-19980	-9102	348319		4.12	173	1.63	7871			0.86	No, Vu<V
SLV 9	111	-9552	-7702	-727449		11	31.02	1.63	1411			0.18	No, Vu<V
SLV 9	321	-19040	-6505	163396		3.93	173	1.62	7845			1.21	Si
SLV 13	111	-9434	-13204	-866772		0	0	0.83	0			0	No, Vu<V
SLV 13	321	-19980	-9102	348319		4.12	173	1.63	7871			0.86	No, Vu<V
SLV 15	111	-8629	-12438	-740584		152.41	2.02	1.63	92			0.01	No, Vu<V
SLV 15	321	-16570	-8281	257001		3.42	173	1.52	7351			0.89	No, Vu<V
SLV 10	111	-9552	-7702	-727449		11	31.02	1.63	1411			0.18	No, Vu<V
SLV 10	321	-19040	-6505	163396		3.93	173	1.62	7845			1.21	Si
SLV 4	111	-6284	5835	78110		1.3	173	1.09	5293			0.91	No, Vu<V
SLV 4	321	-2518	1872	-575744		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.31	0.61	-2975	15777	39560	2.51	Si
SLV 3	14	0.31	0.61	-2975	15777	39560	2.51	Si
SLV 8	14	0.31	0.65	-3134	15777	41551	2.63	Si
SLV 7	14	0.31	0.65	-3134	15777	41551	2.63	Si
SLV 2	14	0.31	1.33	-6448	15777	80438	5.1	Si
SLV 1	14	0.31	1.33	-6448	15777	80438	5.1	Si
SLV 12	14	0.31	1.39	-6743	15777	83642	5.3	Si
SLV 11	14	0.31	1.39	-6743	15777	83642	5.3	Si
SLV 5	14	0.31	3.04	-14710	15777	154755	9.81	Si
SLV 6	14	0.31	3.04	-14710	15777	154755	9.81	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-7732	-6869	-184	0.024	10.44	0.933	38.124	1054.325	No
SLV 11	-7732	-6869	-184	0.024	10.44	0.933	38.124	1054.325	No
SLV 7	-8089	-6166	-156	0.028	10.801	0.935	43.245	1054.325	No
SLV 8	-8089	-6166	-156	0.028	10.801	0.935	43.245	1054.325	No
SLV 5	-14207	-8848	191	0.029	17.006	0.956	44.743	1054.325	No
SLV 6	-14207	-8848	191	0.029	17.006	0.956	44.743	1054.325	No
SLV 10	-13850	-9552	163	0.031	16.644	0.955	47.226	1054.325	No
SLV 9	-13850	-9552	163	0.031	16.644	0.955	47.226	1054.325	No
SLV 2	-12482	-7089	102	0.035	15.254	0.952	53.072	1012.339	No
SLV 1	-12482	-7089	102	0.035	15.254	0.952	53.072	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.184	SLU 82	Si
V_SLU	0.557	SLU 82	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.508	SLV 3	Si
R_SLV	0.036	SLV 11	No

## Maschio 66

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	104.6	-1505.8	140.6	L3	L4	36	14	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	111	-944	-14921	1.87	13085	0.877	No, M>Mu
SLU 83	321	-1750	-6713	3.47	18073	2.692	Si
SLU 79	111	-904	-14295	1.79	12687	0.887	No, M>Mu
SLU 79	321	-1655	-6665	3.28	17779	2.668	Si
SLU 84	111	-943	-14904	1.87	13075	0.877	No, M>Mu
SLU 84	321	-1744	-6748	3.46	18056	2.676	Si
SLU 75	111	-907	-14324	1.8	12715	0.888	No, M>Mu
SLU 75	321	-1671	-6443	3.32	17836	2.768	Si
SLU 77	111	-916	-14486	1.82	12809	0.884	No, M>Mu
SLU 77	321	-1683	-6708	3.34	17874	2.665	Si
SLU 82	111	-935	-14760	1.85	12993	0.88	No, M>Mu
SLU 82	321	-1738	-6449	3.45	18041	2.798	Si
SLU 81	111	-936	-14777	1.86	13002	0.88	No, M>Mu
SLU 81	321	-1745	-6414	3.46	18058	2.816	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	111	-915	-14468	1.82	12799	0.885	No, M>Mu
SLU 78	321	-1676	-6743	3.33	17853	2.648	Si
SLU 74	111	-908	-14342	1.8	12725	0.887	No, M>Mu
SLU 74	321	-1677	-6408	3.33	17857	2.786	Si
SLU 80	111	-903	-14277	1.79	12677	0.888	No, M>Mu
SLU 80	321	-1648	-6700	3.27	17757	2.65	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	111	-1067	-14584	2.12	15876	1.089	Si
SLV 5	321	-8674	66243	17.21	0	0	No, Rottura per schiacciamento
SLV 11	111	-145	-4535	0	0	0	No, e>l/2
SLV 11	321	6460	-74428	0	0	0	No, Trazione
SLV 12	111	-145	-4535	0	0	0	No, e>l/2
SLV 12	321	6460	-74428	0	0	0	No, Trazione
SLV 7	111	-256	-6300	0	0	0	No, e>l/2
SLV 7	321	6132	-70289	0	0	0	No, Trazione
SLV 4	111	-670	-11259	1.33	10754	0.955	No, M>Mu
SLV 4	321	567	-17674	0	0	0	No, Trazione
SLV 6	111	-1067	-14584	2.12	15876	1.089	Si
SLV 6	321	-8674	66243	17.21	0	0	No, Rottura per schiacciamento
SLD 16	111	-475	-7768	0.94	7883	1.015	Si
SLD 16	321	43	-15467	0	0	0	No, Trazione
SLV 8	111	-256	-6300	0	0	0	No, e>l/2
SLV 8	321	6132	-70289	0	0	0	No, Trazione
SLV 10	111	-955	-12819	1.9	14525	1.133	Si
SLV 10	321	-8346	62104	16.56	0	0	No, Rottura per schiacciamento
SLV 9	111	-955	-12819	1.9	14525	1.133	Si
SLV 9	321	-8346	62104	16.56	0	0	No, Rottura per schiacciamento

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	111	-915	-184	-14468		9.96	6.56	1.08	100			0.54	No, Vu<V
SLU 78	321	-1676	-98	-6743		3.33	36	1	504			5.14	Si
SLU 82	111	-935	-191	-14760		10.08	6.62	1.08	100			0.53	No, Vu<V
SLU 82	321	-1738	-106	-6449		3.45	36	1.02	512			4.85	Si
SLU 84	111	-943	-191	-14904		10.23	6.59	1.08	100			0.52	No, Vu<V
SLU 84	321	-1744	-104	-6748		3.46	36	1.02	512			4.94	Si
SLU 74	111	-908	-185	-14342		9.83	6.59	1.08	100			0.54	No, Vu<V
SLU 74	321	-1677	-101	-6408		3.33	36	1	504			4.99	Si
SLU 75	111	-907	-184	-14324		9.81	6.6	1.08	100			0.54	No, Vu<V
SLU 75	321	-1671	-100	-6443		3.32	36	1	503			5.03	Si
SLU 77	111	-916	-185	-14486		9.98	6.56	1.08	99			0.54	No, Vu<V
SLU 77	321	-1683	-99	-6708		3.34	36	1	504			5.09	Si
SLU 83	111	-944	-191	-14921		10.25	6.58	1.08	100			0.52	No, Vu<V
SLU 83	321	-1750	-105	-6713		3.47	36	1.02	513			4.91	Si
SLU 79	111	-904	-182	-14295		9.86	6.55	1.08	99			0.55	No, Vu<V
SLU 79	321	-1655	-97	-6665		3.28	36	0.99	501			5.15	Si
SLU 80	111	-903	-181	-14277		9.84	6.56	1.08	99			0.55	No, Vu<V
SLU 80	321	-1648	-96	-6700		3.27	36	0.99	500			5.19	Si
SLU 81	111	-936	-192	-14777		10.1	6.61	1.08	100			0.52	No, Vu<V
SLU 81	321	-1745	-107	-6414		3.46	36	1.02	513			4.81	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	111	-256	361	-6300		0	0	0.83	0			0	No, Vu<V
SLV 7	321	6132	-1484	-70289		0	0	0.83	0			0	No, Vu<V
SLD 15	111	-475	-37	-7768		6.93	4.89	1.63	111			3.02	Si
SLD 15	321	43	-293	-15467		0	0	0.83	0			0	No, Vu<V
SLV 15	111	-298	86	-5375		0	0	0.83	0			0	No, Vu<V
SLV 15	321	1660	-610	-31470		0	0	0.83	0			0	No, Vu<V
SLV 8	111	-256	361	-6300		0	0	0.83	0			0	No, Vu<V
SLV 8	321	6132	-1484	-70289		0	0	0.83	0			0	No, Vu<V
SLD 16	111	-475	-37	-7768		6.93	4.89	1.63	111			3.02	Si
SLD 16	321	43	-293	-15467		0	0	0.83	0			0	No, Vu<V
SLV 12	111	-145	397	-4535		0	0	0.83	0			0	No, Vu<V
SLV 12	321	6460	-1548	-74428		0	0	0.83	0			0	No, Vu<V
SLV 4	111	-670	-34	-11259		13.24	3.62	1.63	82			2.43	Si
SLV 4	321	567	-397	-17674		0	0	0.83	0			0	No, Vu<V
SLV 11	111	-145	397	-4535		0	0	0.83	0			0	No, Vu<V
SLV 11	321	6460	-1548	-74428		0	0	0.83	0			0	No, Vu<V
SLD 12	111	-414	91	-7471		0	0	0.83	0			0	No, Vu<V
SLD 12	321	2016	-677	-33047		0	0	0.83	0			0	No, Vu<V
SLV 3	111	-670	-34	-11259		13.24	3.62	1.63	82			2.43	Si
SLV 3	321	567	-397	-17674		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.31	0	6333	1756	0	0	No, Trazione
SLV 8	14	0.31	0	6138	1756	0	0	No, Trazione
SLV 5	14	0.31	17.08	-8611	1756	0	0	No, Rottura per schiacciamento
SLV 7	14	0.31	0	6138	1756	0	0	No, Trazione



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.31	0	6333	1756	0	0	No, Trazione
SLV 9	14	0.31	16.7	-8415	1756	0	0	No, Rottura per schiacciamento
SLV 4	14	0.31	0	747	1756	0	0	No, Trazione
SLV 6	14	0.31	17.08	-8611	1756	0	0	No, Rottura per schiacciamento
SLV 3	14	0.31	0	747	1756	0	0	No, Trazione
SLV 10	14	0.31	16.7	-8415	1756	0	0	No, Rottura per schiacciamento

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297  $W_a = 0.03$   $T_a = 0.1651$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	65	-1067	1	0	0	0	0	1401.752	No, Trazione
SLV 6	65	-1067	1	0	0	0	0	1401.752	No, Trazione
SLV 12	-4380	-145	-1	0.019	4.725	0.982	28.547	1401.752	No
SLV 11	-4380	-145	-1	0.019	4.725	0.982	28.547	1401.752	No
SLV 15	-3017	-298	-2	0.019	3.336	0.976	28.718	1401.752	No
SLV 16	-3017	-298	-2	0.019	3.336	0.976	28.718	1401.752	No
SLV 7	-4253	-256	0	0.02	4.596	0.982	28.897	1401.752	No
SLV 8	-4253	-256	0	0.02	4.596	0.982	28.897	1401.752	No
SLV 3	-2594	-670	1	0.019	2.905	0.972	29.071	1401.752	No
SLV 4	-2594	-670	1	0.019	2.905	0.972	29.071	1401.752	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.877	SLU 83	No
V_SLU	0.521	SLU 83	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 3	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 6	No

## Maschio 67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	220.6	-1505.8	666.1	L3	L4	445.5	14	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 61	111	-58489	2766062	9.38	0	0	No, Rottura per schiacciamento
SLU 61	321	-42407	-157681	6.8	1561510	9.903	Si
SLU 58	111	-56694	2717101	9.09	0	0	No, Rottura per schiacciamento
SLU 58	321	-41476	-203552	6.65	1696504	8.334	Si
SLU 42	111	-55256	2697392	8.86	0	0	No, Rottura per schiacciamento
SLU 42	321	-40620	-175417	6.51	1814037	10.341	Si
SLU 60	111	-58518	2765935	9.38	0	0	No, Rottura per schiacciamento
SLU 60	321	-42432	-159430	6.8	1557768	9.771	Si
SLU 55	111	-56214	2669840	9.01	0	0	No, Rottura per schiacciamento
SLU 55	321	-40899	-175248	6.56	1776394	10.136	Si
SLU 57	111	-57465	2744829	9.21	0	0	No, Rottura per schiacciamento
SLU 57	321	-42051	-204091	6.74	1614030	7.908	Si
SLU 54	111	-57033	2697357	9.14	0	0	No, Rottura per schiacciamento
SLU 54	321	-41516	-178701	6.66	1690931	9.462	Si
SLU 62	111	-58950	2813407	9.45	0	0	No, Rottura per schiacciamento
SLU 62	321	-42968	-184819	6.89	1476565	7.989	Si
SLU 56	111	-57494	2744702	9.22	0	0	No, Rottura per schiacciamento
SLU 56	321	-42076	-205839	6.75	1610366	7.823	Si
SLU 59	111	-56665	2717228	9.09	0	0	No, Rottura per schiacciamento
SLU 59	321	-41451	-201804	6.65	1700036	8.424	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	111	-49105	4204111	7.87	3890129	0.925	No, $M > Mu$
SLV 12	321	-41336	-357440	6.63	4213320	11.787	Si
SLV 8	111	-47976	4283664	7.69	3959023	0.924	No, $M > Mu$
SLV 8	321	-40113	-230285	6.43	4232055	18.377	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 8	111	-45288	2980363	7.26	4093028	1.373	Si
SLD 8	321	-35086	-170862	5.63	4217219	24.682	Si
SLV 11	111	-49105	4204111	7.87	3890129	0.925	No, M>Mu
SLV 11	321	-41336	-357440	6.63	4213320	11.787	Si
SLV 4	111	-42986	2829393	6.89	4174192	1.475	Si
SLV 4	321	-32134	39453	5.15	4139673	104.927	Si
SLD 7	111	-45288	2980363	7.26	4093028	1.373	Si
SLD 7	321	-35086	-170862	5.63	4217219	24.682	Si
SLD 11	111	-45763	2946287	7.34	4072419	1.382	Si
SLD 11	321	-35608	-226672	5.71	4225645	18.642	Si
SLV 3	111	-42986	2829393	6.89	4174192	1.475	Si
SLV 3	321	-32134	39453	5.15	4139673	104.927	Si
SLD 12	111	-45763	2946287	7.34	4072419	1.382	Si
SLD 12	321	-35608	-226672	5.71	4225645	18.642	Si
SLV 7	111	-47976	4283664	7.69	3959023	0.924	No, M>Mu
SLV 7	321	-40113	-230285	6.43	4232055	18.377	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt <sub>lim</sub>	c.s.	Verifica
SLU 69	111	-57374	2197	2734884		9.2	445.5	1.08	6757			3.08	Si
SLU 69	321	-42024	1110	-209311		6.74	445.5	1.08	6757			6.09	Si
SLU 79	111	-62845	2391	3042765		10.08	445.5	1.08	6757			2.83	Si
SLU 79	321	-46153	1181	-222557		7.4	445.5	1.08	6757			5.72	Si
SLU 71	111	-56574	2257	2707283		9.07	445.5	1.08	6757			2.99	Si
SLU 71	321	-41424	1183	-207024		6.64	445.5	1.08	6757			5.71	Si
SLU 80	111	-62816	2388	3042891		10.07	445.5	1.08	6757			2.83	Si
SLU 80	321	-46128	1178	-220808		7.4	445.5	1.08	6757			5.74	Si
SLU 78	111	-63615	2328	3070492		10.2	445.5	1.08	6757			2.9	Si
SLU 78	321	-46728	1104	-223095		7.49	445.5	1.08	6757			6.12	Si
SLU 77	111	-63644	2332	3070366		10.2	445.5	1.08	6757			2.9	Si
SLU 77	321	-46753	1108	-224844		7.5	445.5	1.08	6757			6.1	Si
SLU 70	111	-57345	2194	2735010		9.19	445.5	1.08	6757			3.08	Si
SLU 70	321	-41999	1107	-207563		6.73	445.5	1.08	6757			6.11	Si
SLU 38	111	-53001	2235	2601086		8.5	445.5	1.08	6757			3.02	Si
SLU 38	321	-39128	1207	-194150		6.27	445.5	1.08	6757			5.6	Si
SLU 72	111	-56545	2253	2707409		9.07	445.5	1.08	6757			3	Si
SLU 72	321	-41399	1180	-205276		6.64	445.5	1.08	6757			5.73	Si
SLU 37	111	-53030	2239	2600960		8.5	445.5	1.08	6757			3.02	Si
SLU 37	321	-39153	1210	-195898		6.28	445.5	1.08	6757			5.58	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt <sub>lim</sub>	c.s.	Verifica
SLV 12	111	-49105	16664	4204111		8.53	411.41	1.63	9359			0.56	No, Vu<V
SLV 12	321	-41336	15143	-357440		6.63	445.5	1.63	10135			0.67	No, Vu<V
SLV 10	111	-38613	-13173	-216127		6.19	445.5	1.63	10135			0.77	No, Vu<V
SLV 10	321	-22615	-13539	-10614		3.63	445.5	1.56	9721			0.72	No, Vu<V
SLV 5	111	-37484	-14676	-136574		6.01	445.5	1.63	10135			0.69	No, Vu<V
SLV 5	321	-21392	-14804	116542		3.43	445.5	1.52	9476			0.64	No, Vu<V
SLV 15	111	-46750	7975	2564217		7.5	445.5	1.63	10135			1.27	Si
SLV 15	321	-36211	6581	-384400		5.81	445.5	1.63	10135			1.54	Si
SLV 8	111	-47976	15161	4283664		8.56	400.39	1.63	9109			0.6	No, Vu<V
SLV 8	321	-40113	13877	-230285		6.43	445.5	1.63	10135			0.73	No, Vu<V
SLV 6	111	-37484	-14676	-136574		6.01	445.5	1.63	10135			0.69	No, Vu<V
SLV 6	321	-21392	-14804	116542		3.43	445.5	1.52	9476			0.64	No, Vu<V
SLV 16	111	-46750	7975	2564217		7.5	445.5	1.63	10135			1.27	Si
SLV 16	321	-36211	6581	-384400		5.81	445.5	1.63	10135			1.54	Si
SLV 9	111	-38613	-13173	-216127		6.19	445.5	1.63	10135			0.77	No, Vu<V
SLV 9	321	-22615	-13539	-10614		3.63	445.5	1.56	9721			0.72	No, Vu<V
SLV 7	111	-47976	15161	4283664		8.56	400.39	1.63	9109			0.6	No, Vu<V
SLV 7	321	-40113	13877	-230285		6.43	445.5	1.63	10135			0.73	No, Vu<V
SLV 11	111	-49105	16664	4204111		8.53	411.41	1.63	9359			0.56	No, Vu<V
SLV 11	321	-41336	15143	-357440		6.63	445.5	1.63	10135			0.67	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.31	3.58	-22306	21731	110439	5.08	Si
SLV 6	14	0.31	3.58	-22306	21731	110439	5.08	Si
SLV 9	14	0.31	3.79	-23646	21731	114164	5.25	Si
SLV 10	14	0.31	3.79	-23646	21731	114164	5.25	Si
SLV 2	14	0.31	4.31	-26905	21731	121845	5.61	Si
SLV 1	14	0.31	4.31	-26905	21731	121845	5.61	Si
SLV 14	14	0.31	5.03	-31374	21731	129204	5.95	Si
SLV 13	14	0.31	5.03	-31374	21731	129204	5.95	Si
SLV 3	14	0.31	5.16	-32188	21731	130150	5.99	Si
SLV 4	14	0.31	5.16	-32188	21731	130150	5.99	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.03 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-29458	-49105	38	0.019	33.258	0.97	28.24	1401.752	No
SLV 11	-29458	-49105	38	0.019	33.258	0.97	28.24	1401.752	No
SLV 8	-28694	-47976	33	0.019	32.48	0.969	28.532	1401.752	No
SLV 7	-28694	-47976	33	0.019	32.48	0.969	28.532	1401.752	No
SLV 6	-15897	-37484	-37	0.019	19.463	0.951	28.92	1401.752	No
SLV 5	-15897	-37484	-37	0.019	19.463	0.951	28.92	1401.752	No
SLV 16	-25870	-46750	20	0.019	29.605	0.967	29.315	1401.752	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	-25870	-46750	20	0.019	29.605	0.967	29.315	1401.752	No
SLV 10	-16660	-38613	-32	0.019	20.239	0.953	29.316	1401.752	No
SLV 9	-16660	-38613	-32	0.019	20.239	0.953	29.316	1401.752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 31	No
V_SLU	2.825	SLU 79	Si
PF_SLV	0.924	SLV 7	No
V_SLV	0.562	SLV 11	No
PFFP_SLV	5.082	SLV 5	Si
R_SLV	0.02	SLV 11	No

## Maschio 68

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-485.9	-1375.3	-331.4	L3	Z medio 313 cm	154.5	28	202	202	202			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 80	111	-32055	-82438	7.41	223761	2.714	Si
SLU 80	313	-23349	129432	5.4	608582	4.702	Si
SLU 83	111	-32611	-80850	7.54	187888	2.324	Si
SLU 83	313	-23860	148792	5.52	595165	4	Si
SLU 84	111	-32665	-78554	7.55	184278	2.346	Si
SLU 84	313	-23890	147910	5.52	594348	4.018	Si
SLU 79	111	-32000	-84734	7.4	227225	2.682	Si
SLU 79	313	-23319	130315	5.39	609327	4.676	Si
SLU 82	111	-32068	-71589	7.41	222917	3.114	Si
SLU 82	313	-23428	148936	5.42	606589	4.073	Si
SLU 81	111	-32013	-73884	7.4	226384	3.064	Si
SLU 81	313	-23398	149818	5.41	607345	4.054	Si
SLU 77	111	-32039	-82618	7.41	224724	2.72	Si
SLU 77	313	-23351	131991	5.4	608546	4.61	Si
SLU 78	111	-32094	-80322	7.42	221251	2.755	Si
SLU 78	313	-23380	131109	5.4	607796	4.636	Si
SLU 74	111	-31442	-75652	7.27	261723	3.46	Si
SLU 74	313	-22888	133018	5.29	619693	4.659	Si
SLU 76	111	-31493	-73942	7.28	258579	3.497	Si
SLU 76	313	-22907	129870	5.3	619267	4.768	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 1	111	-29780	-422623	6.88	1004414	2.377	Si
SLV 1	313	-19615	-27888	4.53	952974	34.171	Si
SLV 11	111	-6107	253789	1.41	417238	1.644	Si
SLV 11	313	-6105	123721	1.41	417154	3.372	Si
SLV 12	111	-6107	253789	1.41	417238	1.644	Si
SLV 12	313	-6105	123721	1.41	417154	3.372	Si
SLV 3	111	-20890	-295222	4.83	975991	3.306	Si
SLV 3	313	-13979	-19457	3.23	794280	40.822	Si
SLV 16	111	-14102	320740	3.26	798762	2.49	Si
SLV 16	313	-11983	185684	2.77	715823	3.855	Si
SLV 6	111	-37776	-355672	8.73	832658	2.341	Si
SLV 6	313	-25493	34075	5.89	1019545	29.921	Si
SLV 2	111	-29780	-422623	6.88	1004414	2.377	Si
SLV 2	313	-19615	-27888	4.53	952974	34.171	Si
SLV 15	111	-14102	320740	3.26	798762	2.49	Si
SLV 15	313	-11983	185684	2.77	715823	3.855	Si
SLV 4	111	-20890	-295222	4.83	975991	3.306	Si
SLV 4	313	-13979	-19457	3.23	794280	40.822	Si
SLV 5	111	-37776	-355672	8.73	832658	2.341	Si
SLV 5	313	-25493	34075	5.89	1019545	29.921	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	111	-32665	-2119	-78554	7.55	154.5	1.08	4687				2.21	Si
SLU 84	313	-23890	-1248	147910	5.52	154.5	1.08	4687				3.76	Si
SLU 78	111	-32094	-2031	-80322	7.42	154.5	1.08	4687				2.31	Si
SLU 78	313	-23380	-1109	131109	5.4	154.5	1.08	4687				4.22	Si
SLU 81	111	-32013	-2110	-73884	7.4	154.5	1.08	4687				2.22	Si
SLU 81	313	-23398	-1278	149818	5.41	154.5	1.08	4687				3.67	Si
SLU 82	111	-32068	-2052	-71589	7.41	154.5	1.08	4687				2.28	Si
SLU 82	313	-23428	-1235	148936	5.42	154.5	1.08	4687				3.8	Si
SLU 75	111	-31497	-1964	-73356	7.28	154.5	1.08	4687				2.39	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	313	-22918	-1097	132135		5.3	154.5	1.08	4687			4.27	Si
SLU 74	111	-31442	-2022	-75652		7.27	154.5	1.08	4687			2.32	Si
SLU 74	313	-22888	-1140	133018		5.29	154.5	1.08	4687			4.11	Si
SLU 79	111	-32000	-2082	-84734		7.4	154.5	1.08	4687			2.25	Si
SLU 79	313	-23319	-1145	130315		5.39	154.5	1.08	4687			4.09	Si
SLU 80	111	-32055	-2025	-82438		7.41	154.5	1.08	4687			2.31	Si
SLU 80	313	-23349	-1101	129432		5.4	154.5	1.08	4687			4.26	Si
SLU 77	111	-32039	-2088	-82618		7.41	154.5	1.08	4687			2.24	Si
SLU 77	313	-23351	-1153	131991		5.4	154.5	1.08	4687			4.06	Si
SLU 83	111	-32611	-2177	-80850		7.54	154.5	1.08	4687			2.15	Si
SLU 83	313	-23860	-1291	148792		5.52	154.5	1.08	4687			3.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	111	-22992	-6748	193339		5.31	154.5	1.63	7030			1.04	Si
SLV 13	313	-17619	-4904	177253		4.07	154.5	1.63	7030			1.43	Si
SLV 11	111	-6107	2899	253789		2.04	107.07	1.24	3720			1.28	Si
SLV 11	313	-6105	2729	123721		1.41	154.5	1.12	4826			1.77	Si
SLV 5	111	-37776	-5441	-355672		8.73	154.5	1.63	7030			1.29	Si
SLV 5	313	-25493	-4024	34075		5.89	154.5	1.63	7030			1.75	Si
SLV 12	111	-6107	2899	253789		2.04	107.07	1.24	3720			1.28	Si
SLV 12	313	-6105	2729	123721		1.41	154.5	1.12	4826			1.77	Si
SLV 6	111	-37776	-5441	-355672		8.73	154.5	1.63	7030			1.29	Si
SLV 6	313	-25493	-4024	34075		5.89	154.5	1.63	7030			1.75	Si
SLV 7	111	-8143	5226	69001		1.88	154.5	1.21	5234			1	Si
SLV 7	313	-6704	4515	62178		1.55	154.5	1.14	4946			1.1	Si
SLV 10	111	-35740	-7768	-170883		8.26	154.5	1.63	7030			0.9	No, Vu<V
SLV 10	313	-24894	-5810	95617		5.75	154.5	1.63	7030			1.21	Si
SLV 9	111	-35740	-7768	-170883		8.26	154.5	1.63	7030			0.9	No, Vu<V
SLV 9	313	-24894	-5810	95617		5.75	154.5	1.63	7030			1.21	Si
SLV 8	111	-8143	5226	69001		1.88	154.5	1.21	5234			1	Si
SLV 8	313	-6704	4515	62178		1.55	154.5	1.14	4946			1.1	Si
SLV 14	111	-22992	-6748	193339		5.31	154.5	1.63	7030			1.04	Si
SLV 14	313	-17619	-4904	177253		4.07	154.5	1.63	7030			1.43	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 212 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.29	1.26	-5451	4004	68444	17.09	Si
SLV 11	14	0.29	1.26	-5451	4004	68444	17.09	Si
SLV 7	14	0.29	1.53	-6624	4004	81119	20.26	Si
SLV 8	14	0.29	1.53	-6624	4004	81119	20.26	Si
SLV 16	14	0.29	2.85	-12313	4004	132226	33.02	Si
SLV 15	14	0.29	2.85	-12313	4004	132226	33.02	Si
SLV 4	14	0.29	3.75	-16224	4004	157423	39.31	Si
SLV 3	14	0.29	3.75	-16224	4004	157423	39.31	Si
SLV 13	14	0.29	4.48	-19368	4004	171798	42.9	Si
SLV 14	14	0.29	4.48	-19368	4004	171798	42.9	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 212 Wa = 0.05 Ta = 0.0243

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-6105	-6107	127	0.059	7.45	0.952	89.817	384.424	No
SLV 12	-6105	-6107	127	0.059	7.45	0.952	89.817	384.424	No
SLV 7	-6704	-8143	111	0.062	8.059	0.955	94.063	384.424	No
SLV 8	-6704	-8143	111	0.062	8.059	0.955	94.063	384.424	No
SLV 16	-11983	-14102	107	0.065	13.43	0.972	97.461	379.731	No
SLV 15	-11983	-14102	107	0.065	13.43	0.972	97.461	379.731	No
SLV 13	-17619	-22992	74	0.068	19.172	0.98	101.183	379.731	No
SLV 14	-17619	-22992	74	0.068	19.172	0.98	101.183	379.731	No
SLV 9	-24894	-35740	17	0.071	26.585	0.985	104.359	384.424	No
SLV 10	-24894	-35740	17	0.071	26.585	0.985	104.359	384.424	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.324	SLU 83	Si
V_SLU	2.153	SLU 83	Si
PF_SLV	1.644	SLV 11	Si
V_SLV	0.905	SLV 9	No
PFFP_SLV	17.093	SLV 11	Si
R_SLV	0.234	SLV 11	No

## Maschio 69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-349.9	-1375.3	-331.4	Z medio 313 cm	L4	18.6	28	170	170	170			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 81	313	-2790	1209	5.37	8838	7.309	Si
SLU 81	483	-2155	18852	4.14	9826	0.521	No, M>Mu
SLU 75	313	-2859	2427	5.5	8625	3.553	Si
SLU 75	483	-2117	18526	4.07	9829	0.531	No, M>Mu
SLU 77	313	-2912	2213	5.6	8447	3.816	Si
SLU 77	483	-2135	19034	4.11	9829	0.516	No, M>Mu
SLU 84	313	-2849	1340	5.48	8657	6.46	Si
SLU 84	483	-2195	19213	4.22	9816	0.511	No, M>Mu
SLU 80	313	-2903	2325	5.58	8476	3.645	Si
SLU 80	483	-2135	18905	4.11	9829	0.52	No, M>Mu
SLU 82	313	-2793	1382	5.37	8829	6.39	Si
SLU 82	483	-2166	18778	4.17	9824	0.523	No, M>Mu
SLU 83	313	-2846	1168	5.47	8666	7.422	Si
SLU 83	483	-2183	19287	4.2	9820	0.509	No, M>Mu
SLU 74	313	-2856	2255	5.49	8635	3.829	Si
SLU 74	483	-2106	18600	4.05	9829	0.528	No, M>Mu
SLU 79	313	-2900	2153	5.58	8486	3.942	Si
SLU 79	483	-2123	18979	4.08	9829	0.518	No, M>Mu
SLU 78	313	-2915	2386	5.61	8437	3.536	Si
SLU 78	483	-2146	18960	4.13	9827	0.518	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	313	-2233	2701	4.3	13443	4.977	Si
SLV 13	483	-1880	23979	0	0	0	No, e>l/2
SLD 5	313	-2358	-2067	4.53	13764	6.659	Si
SLD 5	483	-1554	17660	0	0	0	No, e>l/2
SLD 9	313	-2345	-1320	4.51	13735	10.406	Si
SLD 9	483	-1638	19486	0	0	0	No, e>l/2
SLV 11	313	-1508	14332	0	0	0	No, e>l/2
SLV 11	483	-1224	1596	2.35	9172	5.746	Si
SLV 16	313	-1883	9041	3.62	12300	1.36	Si
SLV 16	483	-1682	15944	0	0	0	No, e>l/2
SLV 10	313	-2674	-6802	5.14	14375	2.113	Si
SLV 10	483	-1884	28381	0	0	0	No, e>l/2
SLV 12	313	-1508	14332	0	0	0	No, e>l/2
SLV 12	483	-1224	1596	2.35	9172	5.746	Si
SLD 10	313	-2345	-1320	4.51	13735	10.406	Si
SLD 10	483	-1638	19486	0	0	0	No, e>l/2
SLV 14	313	-2233	2701	4.3	13443	4.977	Si
SLV 14	483	-1880	23979	0	0	0	No, e>l/2
SLD 6	313	-2358	-2067	4.53	13764	6.659	Si
SLD 6	483	-1554	17660	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	313	-2739	-1	4710		5.27	18.57	1.08	563			375.57	Si
SLU 49	483	-1791	98	16152		79.92	0.8	1.08	24			0.25	No, Vu<V
SLU 71	313	-2896	-26	4549		5.57	18.57	1.08	563			21.63	Si
SLU 71	483	-1916	105	17248		80.32	0.85	1.08	26			0.25	No, Vu<V
SLU 56	313	-2740	-120	2141		5.27	18.57	1.08	563			4.69	Si
SLU 56	483	-1987	106	17958		96.23	0.74	1.08	22			0.21	No, Vu<V
SLU 58	313	-2729	-123	2081		5.25	18.57	1.08	563			4.59	Si
SLU 58	483	-1976	103	17902		105.54	0.67	1.08	20			0.2	No, Vu<V
SLU 50	313	-2725	-18	4477		5.24	18.57	1.08	563			32.08	Si
SLU 50	483	-1769	84	16171		148.62	0.43	1.08	13			0.15	No, Vu<V
SLU 8	313	-2167	-21	3443		4.17	18.57	1.08	563			26.57	Si
SLU 8	483	-1413	66	12924		123.15	0.41	1.08	12			0.19	No, Vu<V
SLU 48	313	-2736	-15	4537		5.26	18.57	1.08	563			38.34	Si
SLU 48	483	-1780	88	16226		126.28	0.5	1.08	15			0.17	No, Vu<V
SLU 51	313	-2727	-4	4649		5.25	18.57	1.08	563			129.02	Si
SLU 51	483	-1780	94	16097		87.75	0.72	1.08	22			0.23	No, Vu<V
SLU 6	313	-2178	-18	3504		4.19	18.57	1.08	563			30.72	Si
SLU 6	483	-1424	70	12979		100.16	0.51	1.08	15			0.22	No, Vu<V
SLU 45	313	-2680	-3	4579		5.15	18.57	1.08	563			196.81	Si
SLU 45	483	-1751	97	15792		78.32	0.8	1.08	24			0.25	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	313	-2674	-892	-6802		5.14	18.57	1.63	845			0.95	No, Vu<V
SLV 10	483	-1884	-436	28381		0	0	0.83	0			0	No, Vu<V
SLV 13	313	-2233	-547	2701		4.3	18.57	1.63	845			1.55	Si
SLV 13	483	-1880	-39	23979		0	0	0.83	0			0	No, Vu<V
SLD 6	313	-2358	-329	-2067		4.53	18.57	1.63	845			2.57	Si
SLD 6	483	-1554	-141	17660		0	0	0.83	0			0	No, Vu<V
SLD 9	313	-2345	-401	-1320		4.51	18.57	1.63	845			2.1	Si
SLD 9	483	-1638	-133	19486		0	0	0.83	0			0	No, Vu<V
SLV 16	313	-1883	-81	9041		5	13.45	1.63	612			7.59	Si
SLV 16	483	-1682	285	15944		0	0	0.83	0			0	No, Vu<V
SLV 14	313	-2233	-547	2701		4.3	18.57	1.63	845			1.55	Si
SLV 14	483	-1880	-39	23979		0	0	0.83	0			0	No, Vu<V
SLV 12	313	-1508	662	14332		0	0	0.83	0			0	No, Vu<V
SLV 12	483	-1224	643	1596		2.35	18.57	1.3	678			1.06	Si
SLD 10	313	-2345	-401	-1320		4.51	18.57	1.63	845			2.1	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 10	483	-1638	-133	19486		0	0	0.83	0			0	No, Vu<V
SLD 5	313	-2358	-329	-2067		4.53	18.57	1.63	845			2.57	Si
SLD 5	483	-1554	-141	17660		0	0	0.83	0			0	No, Vu<V
SLV 11	313	-1508	662	14332		0	0	0.83	0			0	No, Vu<V
SLV 11	483	-1224	643	1596		2.35	18.57	1.3	678			1.06	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 398 Wa 0.05 denominatore  $8 \gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.33	2.25	-1168	387	13342	34.49	Si
SLV 7	14	0.33	2.25	-1168	387	13342	34.49	Si
SLV 4	14	0.33	2.25	-1172	387	13378	34.59	Si
SLV 3	14	0.33	2.25	-1172	387	13378	34.59	Si
SLV 11	14	0.33	2.65	-1378	387	15107	39.05	Si
SLV 12	14	0.33	2.65	-1378	387	15107	39.05	Si
SLV 2	14	0.33	2.67	-1386	387	15168	39.21	Si
SLV 1	14	0.33	2.67	-1386	387	15168	39.21	Si
SLV 15	14	0.33	3.6	-1873	387	18491	47.8	Si
SLV 16	14	0.33	3.6	-1873	387	18491	47.8	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 398 Wa = 0.05 Ta = 0.0172

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-1224	-1508	18	0.073	1.37	0.972	109.648	377.4	No
SLV 11	-1224	-1508	18	0.073	1.37	0.972	109.648	377.4	No
SLV 5	-1690	-2702	-20	0.075	1.845	0.979	110.655	377.4	No
SLV 6	-1690	-2702	-20	0.075	1.845	0.979	110.655	377.4	No
SLV 8	-1029	-1536	14	0.076	1.172	0.968	113.98	377.4	No
SLV 7	-1029	-1536	14	0.076	1.172	0.968	113.98	377.4	No
SLV 10	-1884	-2674	-16	0.078	2.043	0.981	115.04	377.4	No
SLV 9	-1884	-2674	-16	0.078	2.043	0.981	115.04	377.4	No
SLV 2	-1232	-2327	-14	0.077	1.378	0.972	114.836	374.239	No
SLV 1	-1232	-2327	-14	0.077	1.378	0.972	114.836	374.239	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.509	SLU 83	No
V_SLU	0.153	SLU 50	No
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	34.491	SLV 7	Si
R_SLV	0.291	SLV 11	No

## Maschio 71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-331.4	-1375.3	-35.4	Z medio 212 cm	L4	296	28	271	0	372			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	313	-45330	562917	5.47	2204329	3.916	Si
SLU 82	483	-37500	59610	4.52	2467241	41.39	Si
SLU 75	313	-43983	518304	5.31	2268676	4.377	Si
SLU 75	483	-36270	27138	4.38	2484104	91.537	Si
SLU 79	313	-44028	513362	5.31	2266655	4.415	Si
SLU 79	483	-36230	15692	4.37	2484548	158.328	Si
SLU 81	313	-45241	565050	5.46	2208816	3.909	Si
SLU 81	483	-37400	61749	4.51	2468856	39.982	Si
SLU 83	313	-45704	568335	5.51	2185057	3.845	Si
SLU 83	483	-37749	53151	4.55	2463015	46.34	Si
SLU 80	313	-44117	511229	5.32	2262639	4.426	Si
SLU 80	483	-36329	13554	4.38	2483445	183.231	Si
SLU 78	313	-44446	521589	5.36	2247468	4.309	Si
SLU 78	483	-36619	18540	4.42	2479991	133.765	Si
SLU 84	313	-45792	566202	5.53	2180390	3.851	Si
SLU 84	483	-37849	51012	4.57	2461248	48.248	Si
SLU 74	313	-43895	520437	5.3	2272639	4.367	Si
SLU 74	483	-36171	29277	4.36	2485181	84.886	Si
SLU 77	313	-44357	523722	5.35	2251611	4.299	Si
SLU 77	483	-36520	20679	4.41	2481221	119.989	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 12	313	-29583	424124	3.57	3099309	7.308	Si
SLD 12	483	-25094	118670	3.03	2793613	23.541	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	313	-36558	588643	4.41	3457360	5.873	Si
SLV 14	483	-29022	-86203	3.5	3064292	35.547	Si
SLD 15	313	-32129	473507	3.88	3246464	6.856	Si
SLD 15	483	-26463	33901	3.19	2893080	85.339	Si
SLV 11	313	-29037	585213	3.5	3065247	5.238	Si
SLV 11	483	-25742	296024	3.11	2841393	9.599	Si
SLV 13	313	-36558	588643	4.41	3457360	5.873	Si
SLV 13	483	-29022	-86203	3.5	3064292	35.547	Si
SLV 12	313	-29037	585213	3.5	3065247	5.238	Si
SLV 12	483	-25742	296024	3.11	2841393	9.599	Si
SLD 11	313	-29583	424124	3.57	3099309	7.308	Si
SLD 11	483	-25094	118670	3.03	2793613	23.541	Si
SLV 15	313	-34949	695632	4.22	3387397	4.87	Si
SLV 15	483	-28916	95333	3.49	3057617	32.073	Si
SLD 16	313	-32129	473507	3.88	3246464	6.856	Si
SLD 16	483	-26463	33901	3.19	2893080	85.339	Si
SLV 16	313	-34949	695632	4.22	3387397	4.87	Si
SLV 16	483	-28916	95333	3.49	3057617	32.073	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	313	-45330	1502	562917		5.47	296	1.08	8979			5.98	Si
SLU 82	483	-37500	299	59610		4.52	296	1.08	8979			30.02	Si
SLU 31	313	-36157	1339	458219		4.36	296	1.08	8979			6.71	Si
SLU 31	483	-29887	404	46345		3.61	296	1.04	8589			21.26	Si
SLU 19	313	-34795	1332	435869		4.2	296	1.08	8979			6.74	Si
SLU 19	483	-28892	228	58289		3.49	296	1.02	8457			37.02	Si
SLU 10	313	-32716	1357	376188		3.95	296	1.08	8967			6.61	Si
SLU 10	483	-27091	390	28002		3.27	296	0.99	8217			21.07	Si
SLU 73	313	-43251	1527	503236		5.22	296	1.08	8979			5.88	Si
SLU 73	483	-35698	461	29323		4.31	296	1.08	8979			19.49	Si
SLU 61	313	-41889	1520	480887		5.05	296	1.08	8979			5.91	Si
SLU 61	483	-34703	285	41267		4.19	296	1.08	8979			31.49	Si
SLU 40	313	-38236	1313	517900		4.61	296	1.08	8979			6.84	Si
SLU 40	483	-31689	242	76632		3.82	296	1.07	8830			36.41	Si
SLU 81	313	-45241	1250	565050		5.46	296	1.08	8979			7.18	Si
SLU 81	483	-37400	125	61749		4.51	296	1.08	8979			71.95	Si
SLU 52	313	-39810	1546	421206		4.8	296	1.08	8979			5.81	Si
SLU 52	483	-32902	447	10981		3.97	296	1.08	8979			20.11	Si
SLU 60	313	-41800	1269	483020		5.04	296	1.08	8979			7.08	Si
SLU 60	483	-34603	111	43406		4.18	296	1.08	8979			81.06	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	313	-25578	13750	383580		3.09	296	1.45	12022			0.87	No, Vu<V
SLV 8	483	-23127	8364	286509		2.79	296	1.39	11532			1.38	Si
SLV 7	313	-25578	13750	383580		3.09	296	1.45	12022			0.87	No, Vu<V
SLV 7	483	-23127	8364	286509		2.79	296	1.39	11532			1.38	Si
SLV 9	313	-34399	-12358	228585		4.15	296	1.63	13468			1.09	Si
SLV 9	483	-26094	-8006	-309097		3.15	296	1.46	12125			1.51	Si
SLV 10	313	-34399	-12358	228585		4.15	296	1.63	13468			1.09	Si
SLV 10	483	-26094	-8006	-309097		3.15	296	1.46	12125			1.51	Si
SLV 12	313	-29037	14455	585213		3.5	296	1.53	12714			0.88	No, Vu<V
SLV 12	483	-25742	9234	296024		3.11	296	1.45	12055			1.31	Si
SLV 11	313	-29037	14455	585213		3.5	296	1.53	12714			0.88	No, Vu<V
SLV 11	483	-25742	9234	296024		3.11	296	1.45	12055			1.31	Si
SLD 12	313	-29583	6618	424124		3.57	296	1.55	12823			1.94	Si
SLD 12	483	-25094	4049	118670		3.03	296	1.44	11925			2.95	Si
SLD 11	313	-29583	6618	424124		3.57	296	1.55	12823			1.94	Si
SLD 11	483	-25094	4049	118670		3.03	296	1.44	11925			2.95	Si
SLV 5	313	-30940	-13062	26952		3.73	296	1.58	13095			1	Si
SLV 5	483	-23478	-8876	-318612		2.83	296	1.4	11602			1.31	Si
SLV 6	313	-30940	-13062	26952		3.73	296	1.58	13095			1	Si
SLV 6	483	-23478	-8876	-318612		2.83	296	1.4	11602			1.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 398 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.33	2.68	-22185	15670	242545	15.48	Si
SLV 1	14	0.33	2.68	-22185	15670	242545	15.48	Si
SLV 3	14	0.33	2.72	-22577	15670	245610	15.67	Si
SLV 4	14	0.33	2.72	-22577	15670	245610	15.67	Si
SLV 5	14	0.33	2.99	-24819	15670	262310	16.74	Si
SLV 6	14	0.33	2.99	-24819	15670	262310	16.74	Si
SLV 7	14	0.33	3.15	-26127	15670	271408	17.32	Si
SLV 8	14	0.33	3.15	-26127	15670	271408	17.32	Si
SLV 10	14	0.33	3.31	-27470	15670	280258	17.88	Si
SLV 9	14	0.33	3.31	-27470	15670	280258	17.88	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 398 Wa = 0.05 Ta = 0.0438

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-23478	-30940	84	0.052	27.066	0.965	79	577.817	No
SLV 6	-23478	-30940	84	0.052	27.066	0.965	79	577.817	No
SLV 9	-26094	-34399	67	0.053	29.728	0.968	79.577	577.817	No
SLV 10	-26094	-34399	67	0.053	29.728	0.968	79.577	577.817	No
SLV 1	-20304	-25027	79	0.053	23.837	0.96	79.904	564.181	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 2	-20304	-25027	79	0.053	23.837	0.96	79.904	564.181	No
SLV 11	-25742	-29037	-7	0.055	29.371	0.967	82.913	577.817	No
SLV 12	-25742	-29037	-7	0.055	29.371	0.967	82.913	577.817	No
SLV 13	-29022	-36558	21	0.054	32.71	0.97	81.382	564.181	No
SLV 14	-29022	-36558	21	0.054	32.71	0.97	81.382	564.181	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.845	SLU 83	Si
V_SLU	5.809	SLU 52	Si
PF_SLV	4.87	SLV 15	Si
V_SLV	0.874	SLV 7	No
PFFP_SLV	15.478	SLV 1	Si
R_SLV	0.137	SLV 5	No

## Maschio 72

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-35.4	-1375.3	-22.8	L3	L4	12.6	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 56	111	-1965	-1560	5.58	3885	2.491	Si
SLU 56	321	-585	-10454	0	0	0	No, e>1/2
SLU 61	111	-2133	-1027	6.06	3432	3.342	Si
SLU 61	321	-572	-10438	0	0	0	No, e>1/2
SLU 58	111	-1937	-1564	5.5	3948	2.525	Si
SLU 58	321	-580	-10355	0	0	0	No, e>1/2
SLU 60	111	-2101	-1147	5.97	3528	3.077	Si
SLU 60	321	-578	-10504	0	0	0	No, e>1/2
SLU 54	111	-2022	-1244	5.75	3744	3.009	Si
SLU 54	321	-561	-10143	0	0	0	No, e>1/2
SLU 59	111	-1970	-1444	5.6	3874	2.683	Si
SLU 59	321	-574	-10289	0	0	0	No, e>1/2
SLU 55	111	-2016	-1169	5.73	3760	3.217	Si
SLU 55	321	-552	-10000	0	0	0	No, e>1/2
SLU 53	111	-1990	-1364	5.65	3825	2.804	Si
SLU 53	321	-567	-10209	0	0	0	No, e>1/2
SLU 57	111	-1997	-1440	5.68	3807	2.645	Si
SLU 57	321	-579	-10389	0	0	0	No, e>1/2
SLU 1	111	-1372	-1018	3.9	4496	4.416	Si
SLU 1	321	-374	-6742	0	0	0	No, e>1/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 8	111	-3006	4921	8.54	5685	1.155	Si
SLV 8	321	-2	-2826	0	0	0	No, e>1/2
SLV 7	111	-3006	4921	8.54	5685	1.155	Si
SLV 7	321	-2	-2826	0	0	0	No, e>1/2
SLV 11	111	-3445	5186	9.79	4305	0.83	No, M>Mu
SLV 11	321	-122	-4356	0	0	0	No, e>1/2
SLV 14	111	-1711	-2471	4.86	6475	2.621	Si
SLV 14	321	-723	-11218	0	0	0	No, e>1/2
SLV 10	111	11	-7068	0	0	0	No, Trazione
SLV 10	321	-831	-12167	0	0	0	No, e>1/2
SLV 13	111	-1711	-2471	4.86	6475	2.621	Si
SLV 13	321	-723	-11218	0	0	0	No, e>1/2
SLV 12	111	-3445	5186	9.79	4305	0.83	No, M>Mu
SLV 12	321	-122	-4356	0	0	0	No, e>1/2
SLV 9	111	11	-7068	0	0	0	No, Trazione
SLV 9	321	-831	-12167	0	0	0	No, e>1/2
SLV 6	111	450	-7333	0	0	0	No, Trazione
SLV 6	321	-711	-10637	0	0	0	No, e>1/2
SLD 1	111	-965	-2052	2.74	4705	2.293	Si
SLD 1	321	-375	-6893	0	0	0	No, e>1/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 1	111	-1372	83	-1018		3.9	12.57	1.08	378			4.57	Si
SLU 1	321	-374	-101	-6742		0	0	0.56	0			0	No, Vu<V
SLU 57	111	-1997	120	-1440		5.68	12.57	1.08	381			3.17	Si
SLU 57	321	-579	-171	-10389		0	0	0.56	0			0	No, Vu<V
SLU 56	111	-1965	110	-1560		5.58	12.57	1.08	381			3.46	Si
SLU 56	321	-585	-184	-10454		0	0	0.56	0			0	No, Vu<V
SLU 55	111	-2016	138	-1169		5.73	12.57	1.08	381			2.77	Si
SLU 55	321	-552	-135	-10000		0	0	0.56	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 53	111	-1990	124	-1364		5.65	12.57	1.08	381			3.08	Si
SLU 53	321	-567	-156	-10209		0	0	0.56	0			0	No, Vu<V
SLU 54	111	-2022	134	-1244		5.75	12.57	1.08	381			2.85	Si
SLU 54	321	-561	-143	-10143		0	0	0.56	0			0	No, Vu<V
SLU 61	111	-2133	156	-1027		6.06	12.57	1.08	381			2.44	Si
SLU 61	321	-572	-119	-10438		0	0	0.56	0			0	No, Vu<V
SLU 59	111	-1970	117	-1444		5.6	12.57	1.08	381			3.25	Si
SLU 59	321	-574	-172	-10289		0	0	0.56	0			0	No, Vu<V
SLU 58	111	-1937	107	-1564		5.5	12.57	1.08	381			3.56	Si
SLU 58	321	-580	-185	-10355		0	0	0.56	0			0	No, Vu<V
SLU 60	111	-2101	146	-1147		5.97	12.57	1.08	381			2.61	Si
SLU 60	321	-578	-132	-10504		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	111	-3445	547	5186		9.79	12.57	1.63	572			1.05	Si
SLV 11	321	-122	532	-4356		0	0	0.83	0			0	No, Vu<V
SLV 10	111	11	-515	-7068		0	0	0.83	0			0	No, Vu<V
SLV 10	321	-831	-958	-12167		0	0	0.83	0			0	No, Vu<V
SLV 14	111	-1711	-319	-2471		4.86	12.57	1.63	572			1.79	Si
SLV 14	321	-723	-666	-11218		0	0	0.83	0			0	No, Vu<V
SLV 12	111	-3445	547	5186		9.79	12.57	1.63	572			1.05	Si
SLV 12	321	-122	532	-4356		0	0	0.83	0			0	No, Vu<V
SLD 1	111	-965	127	-2052		2.76	12.48	1.39	484			3.8	Si
SLD 1	321	-375	-69	-6893		0	0	0.83	0			0	No, Vu<V
SLV 13	111	-1711	-319	-2471		4.86	12.57	1.63	572			1.79	Si
SLV 13	321	-723	-666	-11218		0	0	0.83	0			0	No, Vu<V
SLV 9	111	11	-515	-7068		0	0	0.83	0			0	No, Vu<V
SLV 9	321	-831	-958	-12167		0	0	0.83	0			0	No, Vu<V
SLV 6	111	450	-364	-7333		0	0	0.83	0			0	No, Vu<V
SLV 6	321	-711	-761	-10637		0	0	0.83	0			0	No, Vu<V
SLV 7	111	-3006	698	4921		8.54	12.57	1.63	572			0.82	No, Vu<V
SLV 7	321	-2	728	-2826		0	0	0.83	0			0	No, Vu<V
SLV 8	111	-3006	698	4921		8.54	12.57	1.63	572			0.82	No, Vu<V
SLV 8	321	-2	728	-2826		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.31	2.25	-791	1173	9037	7.7	Si
SLV 8	14	0.31	2.25	-791	1173	9037	7.7	Si
SLV 4	14	0.31	2.65	-933	1173	10229	8.72	Si
SLV 3	14	0.31	2.65	-933	1173	10229	8.72	Si
SLV 12	14	0.31	3.38	-1190	1173	12048	10.27	Si
SLV 11	14	0.31	3.38	-1190	1173	12048	10.27	Si
SLV 9	14	0.31	8.31	-2925	1173	13097	11.17	Si
SLV 10	14	0.31	8.31	-2925	1173	13097	11.17	Si
SLV 1	14	0.31	4.13	-1454	1173	13473	11.49	Si
SLV 2	14	0.31	4.13	-1454	1173	13473	11.49	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	269	11	96	0	0	0	0	1054.325	No, Trazione
SLV 3	-1333	-1285	271	0	1.541	0.964	0	1012.339	No
SLV 1	-120	-248	368	0	0.322	0.889	0	1012.339	No
SLV 11	-3774	-3445	-229	0	4.028	0.986	0	1054.325	No
SLV 2	-120	-248	368	0	0.322	0.889	0	1012.339	No
SLV 6	742	450	274	0	0	0	0	1054.325	No, Trazione
SLV 12	-3774	-3445	-229	0	4.028	0.986	0	1054.325	No
SLV 10	269	11	96	0	0	0	0	1054.325	No, Trazione
SLV 5	742	450	274	0	0	0	0	1054.325	No, Trazione
SLV 4	-1333	-1285	271	0	1.541	0.964	0	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 1	No
PFFP_SLV	7.704	SLV 7	Si
R_SLV	0	SLV 10	No

## Maschio 73

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	67.2	-1375.3	104.6	L3	L4	37.4	28	372	372	372			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 79	111	-8983	-25279	8.57	0	0	No, Rottura per schiacciamento
SLU 79	321	-6153	8363	5.87	32159	3.845	Si
SLU 84	111	-9204	-23873	8.78	0	0	No, Rottura per schiacciamento
SLU 84	321	-6649	5877	6.34	27524	4.683	Si
SLU 83	111	-9254	-24636	8.83	0	0	No, Rottura per schiacciamento
SLU 83	321	-6583	6725	6.28	28200	4.193	Si
SLU 74	111	-8876	-23723	8.47	0	0	No, Rottura per schiacciamento
SLU 74	321	-6279	6646	5.99	31088	4.677	Si
SLU 80	111	-8933	-24517	8.52	0	0	No, Rottura per schiacciamento
SLU 80	321	-6219	7515	5.93	31607	4.206	Si
SLU 82	111	-9006	-22268	8.59	0	0	No, Rottura per schiacciamento
SLU 82	321	-6676	4283	6.37	27246	6.361	Si
SLU 75	111	-8825	-22961	8.42	0	0	No, Rottura per schiacciamento
SLU 75	321	-6344	5798	6.05	30500	5.26	Si
SLU 76	111	-8701	-22404	8.3	0	0	No, Rottura per schiacciamento
SLU 76	321	-6289	5355	6	30995	5.788	Si
SLU 77	111	-9074	-25328	8.66	0	0	No, Rottura per schiacciamento
SLU 77	321	-6252	8240	5.97	31320	3.801	Si
SLU 81	111	-9056	-23031	8.64	0	0	No, Rottura per schiacciamento
SLU 81	321	-6610	5131	6.31	27929	5.443	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	111	-9498	-49281	9.06	45914	0.932	No, M>Mu
SLV 13	321	-4938	4343	4.71	56782	13.076	Si
SLV 6	111	-7354	-53498	7.02	58596	1.095	Si
SLV 6	321	501	49430	0	0	0	No, Trazione
SLV 5	111	-7354	-53498	7.02	58596	1.095	Si
SLV 5	321	501	49430	0	0	0	No, Trazione
SLV 1	111	-3635	-7783	3.47	48722	6.26	Si
SLV 1	321	-967	28241	0	0	0	No, e>l/2
SLV 8	111	-2593	35617	2.47	38701	1.087	Si
SLV 8	321	-7665	-35008	7.31	57591	1.645	Si
SLV 9	111	-9113	-65947	8.69	49187	0.746	No, M>Mu
SLV 9	321	-690	42260	0	0	0	No, e>l/2
SLV 14	111	-9498	-49281	9.06	45914	0.932	No, M>Mu
SLV 14	321	-4938	4343	4.71	56782	13.076	Si
SLV 7	111	-2593	35617	2.47	38701	1.087	Si
SLV 7	321	-7665	-35008	7.31	57591	1.645	Si
SLV 2	111	-3635	-7783	3.47	48722	6.26	Si
SLV 2	321	-967	28241	0	0	0	No, e>l/2
SLV 10	111	-9113	-65947	8.69	49187	0.746	No, M>Mu
SLV 10	321	-690	42260	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	111	-9254	-353	-24636		8.83	37.43	1.08	1135			3.22	Si
SLU 83	321	-6583	-338	6725		6.28	37.43	1.08	1135			3.36	Si
SLU 77	111	-9074	-376	-25328		8.66	37.43	1.08	1135			3.02	Si
SLU 77	321	-6252	-363	8240		5.97	37.43	1.08	1135			3.13	Si
SLU 80	111	-8933	-358	-24517		8.52	37.43	1.08	1135			3.17	Si
SLU 80	321	-6219	-346	7515		5.93	37.43	1.08	1135			3.28	Si
SLU 37	111	-7756	-340	-22339		7.4	37.43	1.08	1135			3.34	Si
SLU 37	321	-5256	-330	8053		5.01	37.43	1.08	1135			3.44	Si
SLU 79	111	-8983	-377	-25279		8.57	37.43	1.08	1135			3.02	Si
SLU 79	321	-6153	-364	8363		5.87	37.43	1.08	1135			3.12	Si
SLU 35	111	-7847	-340	-22388		7.49	37.43	1.08	1135			3.34	Si
SLU 35	321	-5355	-329	7930		5.11	37.43	1.08	1135			3.45	Si
SLU 71	111	-7888	-351	-23036		7.53	37.43	1.08	1135			3.24	Si
SLU 71	321	-5211	-342	8464		4.97	37.43	1.08	1135			3.32	Si
SLU 74	111	-8876	-341	-23723		8.47	37.43	1.08	1135			3.33	Si
SLU 74	321	-6279	-327	6646		5.99	37.43	1.08	1135			3.47	Si
SLU 78	111	-9024	-358	-24566		8.61	37.43	1.08	1135			3.17	Si
SLU 78	321	-6318	-345	7392		6.03	37.43	1.08	1135			3.29	Si
SLU 69	111	-7979	-350	-23085		7.61	37.43	1.08	1135			3.25	Si
SLU 69	321	-5310	-340	8342		5.07	37.43	1.08	1135			3.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	111	-9498	-1283	-49281		9.06	37.43	1.63	1703			1.33	Si
SLV 14	321	-4938	-983	4343		4.71	37.43	1.63	1703			1.73	Si
SLV 2	111	-3635	112	-7783		3.47	37.43	1.53	1600			14.35	Si
SLV 2	321	-967	54	28241		0	0	0.83	0			0	No, Vu<V
SLV 6	111	-7354	-1251	-53498		7.65	34.32	1.63	1562			1.25	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	321	501	-923	49430		0	0	0.83	0			0	No, Vu<V
SLV 5	111	-7354	-1251	-53498		7.65	34.32	1.63	1562			1.25	Si
SLV 5	321	501	-923	49430		0	0	0.83	0			0	No, Vu<V
SLV 1	111	-3635	112	-7783		3.47	37.43	1.53	1600			14.35	Si
SLV 1	321	-967	54	28241		0	0	0.83	0			0	No, Vu<V
SLV 10	111	-9113	-1670	-65947		9.45	34.44	1.63	1567			0.94	No, Vu<V
SLV 10	321	-690	-1234	42260		0	0	0.83	0			0	No, Vu<V
SLV 7	111	-2593	1247	35617		6.2	14.94	1.63	680			0.54	No, Vu<V
SLV 7	321	-7665	832	-35008		7.31	37.43	1.63	1703			2.05	Si
SLV 13	111	-9498	-1283	-49281		9.06	37.43	1.63	1703			1.33	Si
SLV 13	321	-4938	-983	4343		4.71	37.43	1.63	1703			1.73	Si
SLV 8	111	-2593	1247	35617		6.2	14.94	1.63	680			0.54	No, Vu<V
SLV 8	321	-7665	832	-35008		7.31	37.43	1.63	1703			2.05	Si
SLV 9	111	-9113	-1670	-65947		9.45	34.44	1.63	1567			0.94	No, Vu<V
SLV 9	321	-690	-1234	42260		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.31	0	403	3493	0	0	No, Trazione
SLV 6	14	0.31	0	403	3493	0	0	No, Trazione
SLV 10	14	0.31	0.67	-707	3493	9346	2.68	Si
SLV 9	14	0.31	0.67	-707	3493	9346	2.68	Si
SLV 1	14	0.31	1.11	-1167	3493	14852	4.25	Si
SLV 2	14	0.31	1.11	-1167	3493	14852	4.25	Si
SLV 4	14	0.31	3.46	-3622	3493	36367	10.41	Si
SLV 3	14	0.31	3.46	-3622	3493	36367	10.41	Si
SLV 11	14	0.31	8.48	-8890	3493	38060	10.9	Si
SLV 12	14	0.31	8.48	-8890	3493	38060	10.9	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-5420	-9113	-1	0.04	6.067	0.972	59.541	1054.325	No
SLV 9	-5420	-9113	-1	0.04	6.067	0.972	59.541	1054.325	No
SLV 5	-4988	-7354	1	0.04	5.627	0.97	59.779	1054.325	No
SLV 6	-4988	-7354	1	0.04	5.627	0.97	59.779	1054.325	No
SLV 13	-4679	-9498	-4	0.039	5.312	0.969	59.21	1012.339	No
SLV 14	-4679	-9498	-4	0.039	5.312	0.969	59.21	1012.339	No
SLV 15	-3611	-8070	-5	0.04	4.226	0.961	59.876	1012.339	No
SLV 16	-3611	-8070	-5	0.04	4.226	0.961	59.876	1012.339	No
SLV 11	-1861	-4352	-5	0.041	2.449	0.937	63.973	1054.325	No
SLV 12	-1861	-4352	-5	0.041	2.449	0.937	63.973	1054.325	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 74	No
V_SLU	3.015	SLU 79	Si
PF_SLV	0	SLV 6	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 6	No
R_SLV	0.056	SLV 9	No

## Maschio 74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2066.8	104.6	-2465.3	104.6	L3	L4	398.5	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	111	-68972	327277	6.18	3314146	10.126	Si
SLU 84	321	-63258	-1466765	5.67	3831980	2.613	Si
SLU 82	111	-67817	313921	6.08	3430357	10.927	Si
SLU 82	321	-62103	-1424073	5.57	3919255	2.752	Si
SLU 81	111	-67999	329789	6.09	3412485	10.347	Si
SLU 81	321	-62284	-1435857	5.58	3905929	2.72	Si
SLU 78	111	-67659	318388	6.06	3445817	10.823	Si
SLU 78	321	-61945	-1425847	5.55	3930752	2.757	Si
SLU 79	111	-67207	324257	6.02	3489415	10.761	Si
SLU 79	321	-61493	-1421530	5.51	3963019	2.788	Si
SLU 83	111	-69154	343145	6.2	3295355	9.603	Si
SLU 83	321	-63439	-1478549	5.69	3817735	2.582	Si
SLU 80	111	-67025	308388	6.01	3506657	11.371	Si
SLU 80	321	-61311	-1409746	5.49	3975715	2.82	Si
SLU 74	111	-66686	320901	5.98	3538551	11.027	Si
SLU 74	321	-60971	-1394939	5.46	3999097	2.867	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	111	-66504	305032	5.96	3555378	11.656	Si
SLU 75	321	-60790	-1383155	5.45	4011378	2.9	Si
SLU 77	111	-67840	334257	6.08	3428071	10.256	Si
SLU 77	321	-62126	-1437631	5.57	3917552	2.725	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	111	-57270	3510536	5.13	6617693	1.885	Si
SLV 1	321	-53971	-1568526	4.84	6496682	4.142	Si
SLV 2	111	-57270	3510536	5.13	6617693	1.885	Si
SLV 2	321	-53971	-1568526	4.84	6496682	4.142	Si
SLD 1	111	-50187	1624679	4.5	6318743	3.889	Si
SLD 1	321	-46274	-1181757	4.15	6090685	5.154	Si
SLV 13	111	-33445	-3116492	3	5029137	1.614	Si
SLV 13	321	-27845	-376839	2.5	4414988	11.716	Si
SLV 4	111	-56235	3470773	5.04	6583163	1.897	Si
SLV 4	321	-53104	-1359264	4.76	6459625	4.752	Si
SLV 14	111	-33445	-3116492	3	5029137	1.614	Si
SLV 14	321	-27845	-376839	2.5	4414988	11.716	Si
SLV 15	111	-32410	-3156254	2.9	4922541	1.56	Si
SLV 15	321	-26978	-167578	2.42	4311760	25.73	Si
SLV 16	111	-32410	-3156254	2.9	4922541	1.56	Si
SLV 16	321	-26978	-167578	2.42	4311760	25.73	Si
SLV 3	111	-56235	3470773	5.04	6583163	1.897	Si
SLV 3	321	-53104	-1359264	4.76	6459625	4.752	Si
SLD 2	111	-50187	1624679	4.5	6318743	3.889	Si
SLD 2	321	-46274	-1181757	4.15	6090685	5.154	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	111	-67207	8322	324257		6.02	398.5	1.08	12088			1.45	Si
SLU 79	321	-61493	8322	-1421530		5.51	398.5	1.08	12088			1.45	Si
SLU 78	111	-67659	8314	318388		6.06	398.5	1.08	12088			1.45	Si
SLU 78	321	-61945	8314	-1425847		5.55	398.5	1.08	12088			1.45	Si
SLU 83	111	-69154	8683	343145		6.2	398.5	1.08	12088			1.39	Si
SLU 83	321	-63439	8683	-1478549		5.69	398.5	1.08	12088			1.39	Si
SLU 77	111	-67840	8446	334257		6.08	398.5	1.08	12088			1.43	Si
SLU 77	321	-62126	8446	-1437631		5.57	398.5	1.08	12088			1.43	Si
SLU 80	111	-67025	8190	308388		6.01	398.5	1.08	12088			1.48	Si
SLU 80	321	-61311	8190	-1409746		5.49	398.5	1.08	12088			1.48	Si
SLU 81	111	-67999	8416	329789		6.09	398.5	1.08	12088			1.44	Si
SLU 81	321	-62284	8416	-1435857		5.58	398.5	1.08	12088			1.44	Si
SLU 84	111	-68972	8551	327277		6.18	398.5	1.08	12088			1.41	Si
SLU 84	321	-63258	8551	-1466765		5.67	398.5	1.08	12088			1.41	Si
SLU 75	111	-66504	8047	305032		5.96	398.5	1.08	12088			1.5	Si
SLU 75	321	-60790	8047	-1383155		5.45	398.5	1.08	12088			1.5	Si
SLU 82	111	-67817	8284	313921		6.08	398.5	1.08	12088			1.46	Si
SLU 82	321	-62103	8284	-1424073		5.57	398.5	1.08	12088			1.46	Si
SLU 74	111	-66686	8179	320901		5.98	398.5	1.08	12088			1.48	Si
SLU 74	321	-60971	8179	-1394939		5.46	398.5	1.08	12088			1.48	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	111	-57270	26503	3510536		5.13	398.5	1.63	18132			0.68	No, Vu<V
SLV 2	321	-53971	24327	-1568526		4.84	398.5	1.63	18132			0.75	No, Vu<V
SLD 2	111	-50187	14381	1624679		4.5	398.5	1.63	18132			1.26	Si
SLD 2	321	-46274	13413	-1181757		4.15	398.5	1.63	18132			1.35	Si
SLV 14	111	-33445	-15655	-3116492		3.75	318.2	1.58	14114			0.9	No, Vu<V
SLV 14	321	-27845	-12860	-376839		2.5	398.5	1.33	14867			1.16	Si
SLV 1	111	-57270	26503	3510536		5.13	398.5	1.63	18132			0.68	No, Vu<V
SLV 1	321	-53971	24327	-1568526		4.84	398.5	1.63	18132			0.75	No, Vu<V
SLV 15	111	-32410	-16535	-3156254		3.79	305.59	1.59	13612			0.82	No, Vu<V
SLV 15	321	-26978	-14360	-167578		2.42	398.5	1.32	14694			1.02	Si
SLV 16	111	-32410	-16535	-3156254		3.79	305.59	1.59	13612			0.82	No, Vu<V
SLV 16	321	-26978	-14360	-167578		2.42	398.5	1.32	14694			1.02	Si
SLV 3	111	-56235	25622	3470773		5.04	398.5	1.63	18132			0.71	No, Vu<V
SLV 3	321	-53104	22827	-1359264		4.76	398.5	1.63	18132			0.79	No, Vu<V
SLV 13	111	-33445	-15655	-3116492		3.75	318.2	1.58	14114			0.9	No, Vu<V
SLV 13	321	-27845	-12860	-376839		2.5	398.5	1.33	14867			1.16	Si
SLV 4	111	-56235	25622	3470773		5.04	398.5	1.63	18132			0.71	No, Vu<V
SLV 4	321	-53104	22827	-1359264		4.76	398.5	1.63	18132			0.79	No, Vu<V
SLD 1	111	-50187	14381	1624679		4.5	398.5	1.63	18132			1.26	Si
SLD 1	321	-46274	13413	-1181757		4.15	398.5	1.63	18132			1.35	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.31	2.6	-28983	37186	319500	8.59	Si
SLV 16	14	0.31	2.6	-28983	37186	319500	8.59	Si
SLV 13	14	0.31	2.66	-29689	37186	325132	8.74	Si
SLV 14	14	0.31	2.66	-29689	37186	325132	8.74	Si
SLV 11	14	0.31	3.28	-36564	37186	374612	10.07	Si
SLV 12	14	0.31	3.28	-36564	37186	374612	10.07	Si
SLV 9	14	0.31	3.49	-38918	37186	389322	10.47	Si
SLV 10	14	0.31	3.49	-38918	37186	389322	10.47	Si
SLV 8	14	0.31	3.92	-43769	37186	416045	11.19	Si
SLV 7	14	0.31	3.92	-43769	37186	416045	11.19	Si



## Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 6	-31961	-50138	201	0.036	38.397	0.955	54.696	1054.325	No
SLV 5	-31961	-50138	201	0.036	38.397	0.955	54.696	1054.325	No
SLV 11	-33705	-39541	-199	0.036	40.17	0.957	54.766	1054.325	No
SLV 12	-33705	-39541	-199	0.036	40.17	0.957	54.766	1054.325	No
SLV 9	-32001	-42991	171	0.037	38.437	0.955	55.961	1054.325	No
SLV 10	-32001	-42991	171	0.037	38.437	0.955	55.961	1054.325	No
SLV 7	-33665	-46689	-170	0.037	40.129	0.957	55.971	1054.325	No
SLV 8	-33665	-46689	-170	0.037	40.129	0.957	55.971	1054.325	No
SLV 15	-33155	-32410	-104	0.039	39.61	0.956	58.674	1012.339	No
SLV 16	-33155	-32410	-104	0.039	39.61	0.956	58.674	1012.339	No

## Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.582	SLU 83	Si
V_SLU	1.392	SLU 83	Si
PF_SLV	1.56	SLV 15	Si
V_SLV	0.684	SLV 1	No
PFFP_SLV	8.592	SLV 15	Si
R_SLV	0.052	SLV 5	No

## Maschio 75

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1228.3	104.6	-1986.8	104.6	L3	L4	758.5	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 82	111	-153730	2083790	7.24	6494392	3.117	Si
SLU 82	361	-134736	-1778769	6.34	11302131	6.354	Si
SLU 80	111	-151145	2466459	7.12	7241898	2.936	Si
SLU 80	361	-131912	-1436576	6.21	11882024	8.271	Si
SLU 77	111	-153377	2584430	7.22	6598354	2.553	Si
SLU 77	361	-133778	-1456358	6.3	11502837	7.898	Si
SLU 84	111	-156405	2305043	7.36	5690175	2.469	Si
SLU 84	361	-137176	-1689208	6.46	10773235	6.378	Si
SLU 81	111	-154302	2214291	7.27	6325213	2.857	Si
SLU 81	361	-134936	-1744933	6.35	11259849	6.453	Si
SLU 74	111	-150701	2363177	7.1	7367047	3.117	Si
SLU 74	361	-131339	-1545918	6.18	11995396	7.759	Si
SLU 78	111	-152805	2453929	7.19	6765215	2.757	Si
SLU 78	361	-133578	-1490194	6.29	11544107	7.747	Si
SLU 75	111	-150130	2232676	7.07	7527204	3.371	Si
SLU 75	361	-131139	-1579754	6.17	12034532	7.618	Si
SLU 79	111	-151716	2596960	7.14	7079198	2.726	Si
SLU 79	361	-132111	-1402740	6.22	11842212	8.442	Si
SLU 83	111	-156977	2435544	7.39	5514293	2.264	Si
SLU 83	361	-137375	-1655372	6.47	10728819	6.481	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 15	111	-110341	-5110133	5.2	24053425	4.707	Si
SLV 15	361	-90578	-701666	4.26	22361403	31.869	Si
SLV 1	111	-89466	8149105	4.21	22232279	2.728	Si
SLV 1	361	-80678	-1300807	3.8	21084554	16.209	Si
SLV 5	111	-86110	5787676	4.05	21820666	3.77	Si
SLV 5	361	-78881	-174428	3.71	20822165	119.374	Si
SLV 2	111	-89466	8149105	4.21	22232279	2.728	Si
SLV 2	361	-80678	-1300807	3.8	21084554	16.209	Si
SLV 16	111	-110341	-5110133	5.2	24053425	4.707	Si
SLV 16	361	-90578	-701666	4.26	22361403	31.869	Si
SLV 6	111	-86110	5787676	4.05	21820666	3.77	Si
SLV 6	361	-78881	-174428	3.71	20822165	119.374	Si
SLV 4	111	-96496	6646266	4.54	22987824	3.459	Si
SLV 4	361	-84147	-1905211	3.96	21564576	11.319	Si
SLD 1	111	-95459	4397223	4.49	22885425	5.205	Si
SLD 1	361	-83527	-1145300	3.93	21481352	18.756	Si
SLV 3	111	-96496	6646266	4.54	22987824	3.459	Si
SLV 3	361	-84147	-1905211	3.96	21564576	11.319	Si
SLD 2	111	-95459	4397223	4.49	22885425	5.205	Si
SLD 2	361	-83527	-1145300	3.93	21481352	18.756	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	111	-154302	6197	2214291		7.27	758.5	1.08	23008			3.71	Si
SLU 81	361	-134936	6302	-1744933		6.35	758.5	1.08	23008			3.65	Si
SLU 60	111	-137321	5589	1894520		6.47	758.5	1.08	23008			4.12	Si
SLU 60	361	-118771	5738	-1601149		5.59	758.5	1.08	23008			4.01	Si
SLU 83	111	-156977	5970	2435544		7.39	758.5	1.08	23008			3.85	Si
SLU 83	361	-137375	6000	-1655372		6.47	758.5	1.08	23008			3.83	Si
SLU 84	111	-156405	6092	2305043		7.36	758.5	1.08	23008			3.78	Si
SLU 84	361	-137176	6167	-1689208		6.46	758.5	1.08	23008			3.73	Si
SLU 61	111	-136750	5712	1764019		6.44	758.5	1.08	23008			4.03	Si
SLU 61	361	-118571	5905	-1634985		5.58	758.5	1.08	23008			3.9	Si
SLU 82	111	-153730	6319	2083790		7.24	758.5	1.08	23008			3.64	Si
SLU 82	361	-134736	6469	-1778769		6.34	758.5	1.08	23008			3.56	Si
SLU 73	111	-145413	5863	1936953		6.85	758.5	1.08	23008			3.92	Si
SLU 73	361	-126900	6040	-1638254		5.98	758.5	1.08	23008			3.81	Si
SLU 75	111	-150130	5787	2232676		7.07	758.5	1.08	23008			3.98	Si
SLU 75	361	-131139	5856	-1579754		6.17	758.5	1.08	23008			3.93	Si
SLU 40	111	-132624	5604	1776956		6.24	758.5	1.08	23008			4.11	Si
SLU 40	361	-117517	5709	-1572634		5.53	758.5	1.08	23008			4.03	Si
SLU 76	111	-148088	5635	2158206		6.97	758.5	1.08	23008			4.08	Si
SLU 76	361	-129340	5738	-1548694		6.09	758.5	1.08	23008			4.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	111	-110341	-37926	-5110133		5.2	758.5	1.63	34512			0.91	No, Vu<V
SLV 15	361	-90578	-28986	-701666		4.26	758.5	1.63	34512			1.19	Si
SLV 14	111	-103311	-42228	-3607294		4.86	758.5	1.63	34512			0.82	No, Vu<V
SLV 14	361	-87109	-33005	-97262		4.1	758.5	1.63	34512			1.05	Si
SLV 4	111	-96496	49452	6646266		4.54	758.5	1.63	34512			0.7	No, Vu<V
SLV 4	361	-84147	40403	-1905211		3.96	758.5	1.63	34512			0.85	No, Vu<V
SLV 13	111	-103311	-42228	-3607294		4.86	758.5	1.63	34512			0.82	No, Vu<V
SLV 13	361	-87109	-33005	-97262		4.1	758.5	1.63	34512			1.05	Si
SLV 3	111	-96496	49452	6646266		4.54	758.5	1.63	34512			0.7	No, Vu<V
SLV 3	361	-84147	40403	-1905211		3.96	758.5	1.63	34512			0.85	No, Vu<V
SLV 1	111	-89466	45150	8149105		4.21	758.5	1.63	34512			0.76	No, Vu<V
SLV 1	361	-80678	36383	-1300807		3.8	758.5	1.59	33834			0.93	No, Vu<V
SLV 7	111	-109544	23888	778216		5.16	758.5	1.63	34512			1.44	Si
SLV 7	361	-90445	20807	-2189109		4.26	758.5	1.63	34512			1.66	Si
SLV 2	111	-89466	45150	8149105		4.21	758.5	1.63	34512			0.76	No, Vu<V
SLV 2	361	-80678	36383	-1300807		3.8	758.5	1.59	33834			0.93	No, Vu<V
SLV 8	111	-109544	23888	778216		5.16	758.5	1.63	34512			1.44	Si
SLV 8	361	-90445	20807	-2189109		4.26	758.5	1.63	34512			1.66	Si
SLV 16	111	-110341	-37926	-5110133		5.2	758.5	1.63	34512			0.91	No, Vu<V
SLV 16	361	-90578	-28986	-701666		4.26	758.5	1.63	34512			1.19	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.31	3.86	-81886	70780	784654	11.09	Si
SLV 6	14	0.31	3.86	-81886	70780	784654	11.09	Si
SLV 1	14	0.31	3.91	-82951	70780	790096	11.16	Si
SLV 2	14	0.31	3.91	-82951	70780	790096	11.16	Si
SLV 9	14	0.31	4	-84872	70780	799595	11.3	Si
SLV 10	14	0.31	4	-84872	70780	799595	11.3	Si
SLV 4	14	0.31	4.09	-86851	70780	808967	11.43	Si
SLV 3	14	0.31	4.09	-86851	70780	808967	11.43	Si
SLV 13	14	0.31	4.37	-92905	70780	835014	11.8	Si
SLV 14	14	0.31	4.37	-92905	70780	835014	11.8	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-73784	-86110	1040	0.028	86.251	0.961	42.456	1054.325	No
SLV 5	-73784	-86110	1040	0.028	86.251	0.961	42.456	1054.325	No
SLV 10	-74225	-90264	1021	0.028	86.701	0.962	42.878	1054.325	No
SLV 9	-74225	-90264	1021	0.028	86.701	0.962	42.878	1054.325	No
SLV 12	-87376	-113697	-1039	0.029	100.082	0.966	44.319	1054.325	No
SLV 11	-87376	-113697	-1039	0.029	100.082	0.966	44.319	1054.325	No
SLV 8	-86934	-109544	-1020	0.03	99.633	0.966	44.57	1054.325	No
SLV 7	-86934	-109544	-1020	0.03	99.633	0.966	44.57	1054.325	No
SLV 15	-83288	-110341	-340	0.037	95.922	0.965	55.47	1012.339	No
SLV 16	-83288	-110341	-340	0.037	95.922	0.965	55.47	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	2.264	SLU 83	Si
V_SLV	3.557	SLU 82	Si
PF_SLV	2.728	SLV 1	Si
V_SLV	0.698	SLV 3	No
PFFP_SLV	11.086	SLV 5	Si
R_SLV	0.04	SLV 5	No



## Maschio 76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-496.8	104.6	-1116.3	104.6	L3	L4	619.5	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 82	111	-105011	122190	6.05	8353260	68.363	Si
SLU 82	361	-97629	1091720	5.63	9345941	8.561	Si
SLU 81	111	-105566	55009	6.09	8268998	150.322	Si
SLU 81	361	-97769	1084888	5.64	9329431	8.599	Si
SLU 73	111	-99030	119074	5.71	9175953	77.061	Si
SLU 73	361	-91643	985915	5.28	9975551	10.118	Si
SLU 76	111	-100433	53333	5.79	8997117	168.696	Si
SLU 76	361	-93193	954018	5.37	9827567	10.301	Si
SLU 83	111	-106969	-10732	6.17	8049970	750.112	Si
SLU 83	361	-99319	1052992	5.73	9139804	8.68	Si
SLU 77	111	-103932	-109112	5.99	8513285	78.023	Si
SLU 77	361	-96144	941358	5.54	9516770	10.11	Si
SLU 78	111	-103377	-41931	5.96	8593573	204.945	Si
SLU 78	361	-96005	948190	5.53	9532289	10.053	Si
SLU 74	111	-102530	-43372	5.91	8713641	200.905	Si
SLU 74	361	-94594	973254	5.45	9684816	9.951	Si
SLU 75	111	-101975	23809	5.88	8790517	369.205	Si
SLU 75	361	-94455	980086	5.45	9699389	9.896	Si
SLU 84	111	-106414	56450	6.13	8137644	144.158	Si
SLU 84	361	-99180	1059823	5.72	9157260	8.64	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 10	111	-52736	-2794603	3.04	12270542	4.391	Si
SLV 10	361	-49325	75902	2.84	11722687	154.445	Si
SLV 14	111	-61924	-3172511	3.57	13576939	4.28	Si
SLV 14	361	-55720	2472527	3.21	12721918	5.145	Si
SLV 9	111	-52736	-2794603	3.04	12270542	4.391	Si
SLV 9	361	-49325	75902	2.84	11722687	154.445	Si
SLV 16	111	-70751	-1978847	4.08	14599567	7.378	Si
SLV 16	361	-62510	3188884	3.6	13651904	4.281	Si
SLV 8	111	-83111	2701863	4.79	15648741	5.792	Si
SLV 8	361	-73266	1125865	4.22	14849228	13.189	Si
SLV 7	111	-83111	2701863	4.79	15648741	5.792	Si
SLV 7	361	-73266	1125865	4.22	14849228	13.189	Si
SLV 3	111	-73923	3079772	4.26	14911355	4.842	Si
SLV 3	361	-66871	-1270761	3.86	14178009	11.157	Si
SLV 13	111	-61924	-3172511	3.57	13576939	4.28	Si
SLV 13	361	-55720	2472527	3.21	12721918	5.145	Si
SLV 15	111	-70751	-1978847	4.08	14599567	7.378	Si
SLV 15	361	-62510	3188884	3.6	13651904	4.281	Si
SLV 4	111	-73923	3079772	4.26	14911355	4.842	Si
SLV 4	361	-66871	-1270761	3.86	14178009	11.157	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	111	-103932	-6434	-109112		5.99	619.5	1.08	18791			2.92	Si
SLU 77	361	-96144	-6321	941358		5.54	619.5	1.08	18791			2.97	Si
SLU 74	111	-102530	-6462	-43372		5.91	619.5	1.08	18791			2.91	Si
SLU 74	361	-94594	-6391	973254		5.45	619.5	1.08	18791			2.94	Si
SLU 81	111	-105566	-6792	55009		6.09	619.5	1.08	18791			2.77	Si
SLU 81	361	-97769	-6765	1084888		5.64	619.5	1.08	18791			2.78	Si
SLU 84	111	-106414	-6906	56450		6.13	619.5	1.08	18791			2.72	Si
SLU 84	361	-99180	-6898	1059823		5.72	619.5	1.08	18791			2.72	Si
SLU 75	111	-101975	-6604	23809		5.88	619.5	1.08	18791			2.85	Si
SLU 75	361	-94455	-6594	980086		5.45	619.5	1.08	18791			2.85	Si
SLU 83	111	-106969	-6764	-10732		6.17	619.5	1.08	18791			2.78	Si
SLU 83	361	-99319	-6695	1052992		5.73	619.5	1.08	18791			2.81	Si
SLU 73	111	-99030	-6539	119074		5.71	619.5	1.08	18791			2.87	Si
SLU 73	361	-91643	-6626	985915		5.28	619.5	1.08	18791			2.84	Si
SLU 76	111	-100433	-6511	53333		5.79	619.5	1.08	18791			2.89	Si
SLU 76	361	-93193	-6556	954018		5.37	619.5	1.08	18791			2.87	Si
SLU 82	111	-105011	-6934	122190		6.05	619.5	1.08	18791			2.71	Si
SLU 82	361	-97629	-6968	1091720		5.63	619.5	1.08	18791			2.7	Si
SLU 78	111	-103377	-6577	-41931		5.96	619.5	1.08	18791			2.86	Si
SLU 78	361	-96005	-6524	948190		5.53	619.5	1.08	18791			2.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	111	-73923	26247	3079772		4.26	619.5	1.63	28187			1.07	Si
SLV 4	361	-66871	19455	-1270761		3.86	619.5	1.6	27829			1.43	Si
SLV 2	111	-65096	29856	1886108		3.75	619.5	1.58	27474			0.92	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	361	-60080	22819	-1987117		3.46	619.5	1.53	26471			1.16	Si
SLV 1	111	-65096	29856	1886108		3.75	619.5	1.58	27474			0.92	No, Vu<V
SLV 1	361	-60080	22819	-1987117		3.46	619.5	1.53	26471			1.16	Si
SLV 11	111	-82160	-19828	1184277		4.74	619.5	1.63	28187			1.42	Si
SLV 11	361	-71958	-17361	2463758		4.15	619.5	1.63	28187			1.62	Si
SLV 14	111	-61924	-34551	-3172511		3.57	619.5	1.55	26840			0.78	No, Vu<V
SLV 14	361	-55720	-27784	2472527		3.21	619.5	1.48	25599			0.92	No, Vu<V
SLV 13	111	-61924	-34551	-3172511		3.57	619.5	1.55	26840			0.78	No, Vu<V
SLV 13	361	-55720	-27784	2472527		3.21	619.5	1.48	25599			0.92	No, Vu<V
SLV 16	111	-70751	-38160	-1978847		4.08	619.5	1.63	28187			0.74	No, Vu<V
SLV 16	361	-62510	-31147	3188884		3.6	619.5	1.55	26957			0.87	No, Vu<V
SLV 3	111	-73923	26247	3079772		4.26	619.5	1.63	28187			1.07	Si
SLV 3	361	-66871	19455	-1270761		3.86	619.5	1.6	27829			1.43	Si
SLV 12	111	-82160	-19828	1184277		4.74	619.5	1.63	28187			1.42	Si
SLV 12	361	-71958	-17361	2463758		4.15	619.5	1.63	28187			1.62	Si
SLV 15	111	-70751	-38160	-1978847		4.08	619.5	1.63	28187			0.74	No, Vu<V
SLV 15	361	-62510	-31147	3188884		3.6	619.5	1.55	26957			0.87	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.31	2.94	-50978	57809	542035	9.38	Si
SLV 10	14	0.31	2.94	-50978	57809	542035	9.38	Si
SLV 6	14	0.31	3.05	-52871	57809	555552	9.61	Si
SLV 5	14	0.31	3.05	-52871	57809	555552	9.61	Si
SLV 13	14	0.31	3.31	-57397	57809	585946	10.14	Si
SLV 14	14	0.31	3.31	-57397	57809	585946	10.14	Si
SLV 1	14	0.31	3.67	-63707	57809	623810	10.79	Si
SLV 2	14	0.31	3.67	-63707	57809	623810	10.79	Si
SLV 15	14	0.31	3.74	-64791	57809	629788	10.89	Si
SLV 16	14	0.31	3.74	-64791	57809	629788	10.89	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-48860	-52736	421	0.034	58.852	0.955	51.647	1054.325	No
SLV 10	-48860	-52736	421	0.034	58.852	0.955	51.647	1054.325	No
SLV 6	-49965	-53687	416	0.034	59.975	0.955	51.857	1054.325	No
SLV 5	-49965	-53687	416	0.034	59.975	0.955	51.857	1054.325	No
SLV 7	-66073	-83111	-425	0.035	76.357	0.964	52.398	1054.325	No
SLV 8	-66073	-83111	-425	0.035	76.357	0.964	52.398	1054.325	No
SLV 11	-64968	-82160	-420	0.035	75.233	0.964	52.465	1054.325	No
SLV 12	-64968	-82160	-420	0.035	75.233	0.964	52.465	1054.325	No
SLV 4	-61724	-73923	-136	0.039	71.933	0.962	58.681	1012.339	No
SLV 3	-61724	-73923	-136	0.039	71.933	0.962	58.681	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.561	SLU 82	Si
V_SLU	2.697	SLU 82	Si
PF_SLV	4.28	SLV 13	Si
V_SLV	0.739	SLV 15	No
PFFP_SLV	9.376	SLV 9	Si
R_SLV	0.049	SLV 9	No

## Maschio 77

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	104.6	-416.8	104.6	L3	L4	404.5	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	111	-69306	98595	6.12	3487404	35.371	Si
SLU 79	321	-68291	1045708	6.03	3588254	3.431	Si
SLU 78	111	-70207	85323	6.2	3394099	39.779	Si
SLU 78	321	-69177	1021702	6.11	3500425	3.426	Si
SLU 84	111	-71577	115595	6.32	3245331	28.075	Si
SLU 84	321	-70834	1064789	6.25	3326980	3.125	Si
SLU 77	111	-69960	93390	6.18	3419965	36.62	Si
SLU 77	321	-69012	1057500	6.09	3517086	3.326	Si
SLU 83	111	-71331	123661	6.3	3272677	26.465	Si
SLU 83	321	-70669	1100586	6.24	3344842	3.039	Si
SLU 82	111	-70737	119508	6.25	3337503	27.927	Si
SLU 82	321	-69893	1033676	6.17	3426963	3.315	Si
SLU 80	111	-69552	90529	6.14	3462245	38.245	Si
SLU 80	321	-68457	1009911	6.04	3572117	3.537	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	111	-69120	97304	6.1	3506183	36.033	Si
SLU 74	321	-68071	1026387	6.01	3609550	3.517	Si
SLU 81	111	-70491	127575	6.22	3363942	26.368	Si
SLU 81	321	-69728	1069473	6.16	3444142	3.22	Si
SLU 75	111	-69367	89237	6.12	3481224	39.011	Si
SLU 75	321	-68236	990589	6.02	3593572	3.628	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	111	-43126	2329708	3.81	6004123	2.577	Si
SLV 1	321	-33720	439284	2.98	5158183	11.742	Si
SLV 14	111	-52824	-2326150	4.66	6605661	2.84	Si
SLV 14	321	-59146	852580	5.22	6849736	8.034	Si
SLV 15	111	-51478	-2232645	4.55	6538575	2.929	Si
SLV 15	321	-57640	796984	5.09	6802193	8.535	Si
SLV 3	111	-41779	2423213	3.69	5898861	2.434	Si
SLV 3	321	-32215	383689	2.84	4998737	13.028	Si
SLV 4	111	-41779	2423213	3.69	5898861	2.434	Si
SLV 4	321	-32215	383689	2.84	4998737	13.028	Si
SLV 13	111	-52824	-2326150	4.66	6605661	2.84	Si
SLV 13	321	-59146	852580	5.22	6849736	8.034	Si
SLV 16	111	-51478	-2232645	4.55	6538575	2.929	Si
SLV 16	321	-57640	796984	5.09	6802193	8.535	Si
SLD 3	111	-44910	1081881	3.97	6135456	5.671	Si
SLD 3	321	-39825	512165	3.52	5736697	11.201	Si
SLV 2	111	-43126	2329708	3.81	6004123	2.577	Si
SLV 2	321	-33720	439284	2.98	5158183	11.742	Si
SLD 4	111	-44910	1081881	3.97	6135456	5.671	Si
SLD 4	321	-39825	512165	3.52	5736697	11.201	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	111	-70491	-9547	127575		6.22	404.5	1.08	12270			1.29	Si
SLU 81	321	-69728	-9568	1069473		6.16	404.5	1.08	12270			1.28	Si
SLU 74	111	-69120	-9210	97304		6.1	404.5	1.08	12270			1.33	Si
SLU 74	321	-68071	-9231	1026387		6.01	404.5	1.08	12270			1.33	Si
SLU 83	111	-71331	-9811	123661		6.3	404.5	1.08	12270			1.25	Si
SLU 83	321	-70669	-9832	1100586		6.24	404.5	1.08	12270			1.25	Si
SLU 80	111	-69552	-9117	90529		6.14	404.5	1.08	12270			1.35	Si
SLU 80	321	-68457	-9146	1009911		6.04	404.5	1.08	12270			1.34	Si
SLU 82	111	-70737	-9334	119508		6.25	404.5	1.08	12270			1.31	Si
SLU 82	321	-69893	-9364	1033676		6.17	404.5	1.08	12270			1.31	Si
SLU 84	111	-71577	-9598	115595		6.32	404.5	1.08	12270			1.28	Si
SLU 84	321	-70834	-9628	1064789		6.25	404.5	1.08	12270			1.27	Si
SLU 75	111	-69367	-8998	89237		6.12	404.5	1.08	12270			1.36	Si
SLU 75	321	-68236	-9027	990589		6.02	404.5	1.08	12270			1.36	Si
SLU 79	111	-69306	-9330	98595		6.12	404.5	1.08	12270			1.32	Si
SLU 79	321	-68291	-9351	1045708		6.03	404.5	1.08	12270			1.31	Si
SLU 78	111	-70207	-9262	85323		6.2	404.5	1.08	12270			1.32	Si
SLU 78	321	-69177	-9291	1021702		6.11	404.5	1.08	12270			1.32	Si
SLU 77	111	-69960	-9474	93390		6.18	404.5	1.08	12270			1.3	Si
SLU 77	321	-69012	-9495	1057500		6.09	404.5	1.08	12270			1.29	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	111	-52824	-26994	-2326150		4.66	404.5	1.63	18405			0.68	No, Vu<V
SLV 14	321	-59146	-24358	852580		5.22	404.5	1.63	18405			0.76	No, Vu<V
SLV 16	111	-51478	-27177	-2232645		4.55	404.5	1.63	18405			0.68	No, Vu<V
SLV 16	321	-57640	-23573	796984		5.09	404.5	1.63	18405			0.78	No, Vu<V
SLV 15	111	-51478	-27177	-2232645		4.55	404.5	1.63	18405			0.68	No, Vu<V
SLV 15	321	-57640	-23573	796984		5.09	404.5	1.63	18405			0.78	No, Vu<V
SLV 4	111	-41779	15823	2423213		3.69	404.5	1.57	17794			1.12	Si
SLV 4	321	-32215	13159	383689		2.84	404.5	1.4	15881			1.21	Si
SLD 15	111	-49124	-15025	-944664		4.34	404.5	1.63	18405			1.22	Si
SLD 15	321	-50904	-13455	701062		4.49	404.5	1.63	18405			1.37	Si
SLV 2	111	-43126	16007	2329708		3.81	404.5	1.59	18063			1.13	Si
SLV 2	321	-33720	12374	439284		2.98	404.5	1.43	16182			1.31	Si
SLD 16	111	-49124	-15025	-944664		4.34	404.5	1.63	18405			1.22	Si
SLD 16	321	-50904	-13455	701062		4.49	404.5	1.63	18405			1.37	Si
SLV 13	111	-52824	-26994	-2326150		4.66	404.5	1.63	18405			0.68	No, Vu<V
SLV 13	321	-59146	-24358	852580		5.22	404.5	1.63	18405			0.76	No, Vu<V
SLV 3	111	-41779	15823	2423213		3.69	404.5	1.57	17794			1.12	Si
SLV 3	321	-32215	13159	383689		2.84	404.5	1.4	15881			1.21	Si
SLV 1	111	-43126	16007	2329708		3.81	404.5	1.59	18063			1.13	Si
SLV 1	321	-33720	12374	439284		2.98	404.5	1.43	16182			1.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.31	2.99	-33821	37746	357780	9.48	Si
SLV 4	14	0.31	2.99	-33821	37746	357780	9.48	Si
SLV 2	14	0.31	3.11	-35239	37746	367721	9.74	Si
SLV 1	14	0.31	3.11	-35239	37746	367721	9.74	Si
SLV 7	14	0.31	3.58	-40502	37746	401079	10.63	Si
SLV 8	14	0.31	3.58	-40502	37746	401079	10.63	Si
SLV 6	14	0.31	3.99	-45227	37746	426249	11.29	Si
SLV 5	14	0.31	3.99	-45227	37746	426249	11.29	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.31	4.21	-47646	37746	437388	11.59	Si
SLV 12	14	0.31	4.21	-47646	37746	437388	11.59	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-37607	-43602	-319	0.033	44.226	0.96	50.517	1054.325	No
SLV 7	-37607	-43602	-319	0.033	44.226	0.96	50.517	1054.325	No
SLV 10	-43007	-51001	320	0.034	49.719	0.964	51.035	1054.325	No
SLV 9	-43007	-51001	320	0.034	49.719	0.964	51.035	1054.325	No
SLV 5	-39106	-48091	304	0.034	45.751	0.961	51.21	1054.325	No
SLV 6	-39106	-48091	304	0.034	45.751	0.961	51.21	1054.325	No
SLV 12	-41507	-46512	-304	0.034	48.193	0.963	51.427	1054.325	No
SLV 11	-41507	-46512	-304	0.034	48.193	0.963	51.427	1054.325	No
SLV 13	-47032	-52824	119	0.038	53.816	0.967	57.273	1012.339	No
SLV 14	-47032	-52824	119	0.038	53.816	0.967	57.273	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.039	SLU 83	Si
V_SLU	1.248	SLU 83	Si
PF_SLV	2.434	SLV 3	Si
V_SLV	0.677	SLV 15	No
PFFP_SLV	9.479	SLV 3	Si
R_SLV	0.048	SLV 7	No

## Maschio 78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1969.3	666.1	-1776.8	666.1	L3	L4	192.5	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	201	-21536	-364768	4	1056108	2.895	Si
SLU 73	391	-24855	14404	4.61	1038027	72.068	Si
SLU 83	201	-22728	-378183	4.22	1055171	2.79	Si
SLU 83	391	-26049	7905	4.83	1019717	128.989	Si
SLU 81	201	-22588	-379404	4.19	1055604	2.782	Si
SLU 81	391	-26256	21922	4.87	1015894	46.342	Si
SLU 78	201	-22079	-366649	4.1	1056455	2.881	Si
SLU 78	391	-24853	-10582	4.61	1038053	98.093	Si
SLU 82	201	-22587	-379725	4.19	1055609	2.78	Si
SLU 82	391	-26263	22254	4.87	1015769	45.645	Si
SLU 75	201	-21939	-367869	4.07	1056489	2.872	Si
SLU 75	391	-25061	3434	4.65	1035318	301.5	Si
SLU 84	201	-22727	-378504	4.22	1055176	2.788	Si
SLU 84	391	-26055	8238	4.83	1019598	123.774	Si
SLU 74	201	-21940	-367549	4.07	1056489	2.874	Si
SLU 74	391	-25054	3102	4.65	1035408	333.817	Si
SLU 77	201	-22080	-366328	4.1	1056454	2.884	Si
SLU 77	391	-24846	-10914	4.61	1038137	95.116	Si
SLU 76	201	-21676	-363548	4.02	1056321	2.906	Si
SLU 76	391	-24647	387	4.57	1040575	1000	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	201	-7640	-306027	1.42	650042	2.124	Si
SLV 5	391	-15108	191013	2.8	1120575	5.866	Si
SLV 15	201	-17755	189348	3.29	1248191	6.592	Si
SLV 15	391	-8113	-594216	1.51	684675	1.152	Si
SLV 2	201	-12001	-700991	2.23	944633	1.348	Si
SLV 2	391	-25667	593878	4.76	1507642	2.539	Si
SLV 14	201	-13551	244301	2.51	1035933	4.24	Si
SLV 14	391	-5202	-585666	0	0	0	No, e>1/2
SLV 4	201	-16205	-755944	3.01	1175933	1.556	Si
SLV 4	391	-28577	585328	5.3	1557052	2.66	Si
SLV 6	201	-7640	-306027	1.42	650042	2.124	Si
SLV 6	391	-15108	191013	2.8	1120575	5.866	Si
SLV 13	201	-13551	244301	2.51	1035933	4.24	Si
SLV 13	391	-5202	-585666	0	0	0	No, e>1/2
SLV 16	201	-17755	189348	3.29	1248191	6.592	Si
SLV 16	391	-8113	-594216	1.51	684675	1.152	Si
SLV 3	201	-16205	-755944	3.01	1175933	1.556	Si
SLV 3	391	-28577	585328	5.3	1557052	2.66	Si
SLV 1	201	-12001	-700991	2.23	944633	1.348	Si
SLV 1	391	-25667	593878	4.76	1507642	2.539	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	201	-19321	-4312	-320135		3.58	192.5	1.03	5571			1.29	Si
SLU 40	391	-22702	-4314	27265		4.21	192.5	1.08	5839			1.35	Si
SLU 60	201	-20284	-4505	-346450		3.76	192.5	1.06	5699			1.27	Si
SLU 60	391	-23400	-4508	14114		4.34	192.5	1.08	5839			1.3	Si
SLU 83	201	-22728	-4748	-378183		4.22	192.5	1.08	5839			1.23	Si
SLU 83	391	-26049	-4754	7905		4.83	192.5	1.08	5839			1.23	Si
SLU 81	201	-22588	-4991	-379404		4.19	192.5	1.08	5839			1.17	Si
SLU 81	391	-26256	-4995	21922		4.87	192.5	1.08	5839			1.17	Si
SLU 73	201	-21536	-4712	-364768		4	192.5	1.08	5839			1.24	Si
SLU 73	391	-24855	-4714	14404		4.61	192.5	1.08	5839			1.24	Si
SLU 75	201	-21939	-4578	-367869		4.07	192.5	1.08	5839			1.28	Si
SLU 75	391	-25061	-4582	3434		4.65	192.5	1.08	5839			1.27	Si
SLU 82	201	-22587	-4999	-379725		4.19	192.5	1.08	5839			1.17	Si
SLU 82	391	-26263	-5002	22254		4.87	192.5	1.08	5839			1.17	Si
SLU 74	201	-21940	-4570	-367549		4.07	192.5	1.08	5839			1.28	Si
SLU 74	391	-25054	-4576	3102		4.65	192.5	1.08	5839			1.28	Si
SLU 84	201	-22727	-4755	-378504		4.22	192.5	1.08	5839			1.23	Si
SLU 84	391	-26055	-4760	8238		4.83	192.5	1.08	5839			1.23	Si
SLU 61	201	-20283	-4513	-346771		3.76	192.5	1.06	5699			1.26	Si
SLU 61	391	-23407	-4515	14446		4.34	192.5	1.08	5839			1.29	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	201	-7640	-8015	-306027		1.62	168.58	1.16	5462			0.68	No, Vu<V
SLV 6	391	-15108	-8644	191013		2.8	192.5	1.39	7513			0.87	No, Vu<V
SLV 3	201	-16205	-14302	-755944		3.89	148.8	1.61	6713			0.47	No, Vu<V
SLV 3	391	-28577	-12363	585328		5.3	192.5	1.63	8759			0.71	No, Vu<V
SLV 13	201	-13551	7946	244301		2.51	192.5	1.34	7202			0.91	No, Vu<V
SLV 13	391	-5202	6000	-585666		0	0	0.83	0			0	No, Vu<V
SLV 5	201	-7640	-8015	-306027		1.62	168.58	1.16	5462			0.68	No, Vu<V
SLV 5	391	-15108	-8644	191013		2.8	192.5	1.39	7513			0.87	No, Vu<V
SLV 1	201	-12001	-15128	-700991		3.78	113.52	1.59	5049			0.33	No, Vu<V
SLV 1	391	-25667	-13853	593878		4.76	192.5	1.63	8759			0.63	No, Vu<V
SLV 2	201	-12001	-15128	-700991		3.78	113.52	1.59	5049			0.33	No, Vu<V
SLV 2	391	-25667	-13853	593878		4.76	192.5	1.63	8759			0.63	No, Vu<V
SLV 16	201	-17755	8771	189348		3.29	192.5	1.49	8043			0.92	No, Vu<V
SLV 16	391	-8113	7490	-594216		4.2	69.02	1.63	3140			0.42	No, Vu<V
SLV 15	201	-17755	8771	189348		3.29	192.5	1.49	8043			0.92	No, Vu<V
SLV 15	391	-8113	7490	-594216		4.2	69.02	1.63	3140			0.42	No, Vu<V
SLV 14	201	-13551	7946	244301		2.51	192.5	1.34	7202			0.91	No, Vu<V
SLV 14	391	-5202	6000	-585666		0	0	0.83	0			0	No, Vu<V
SLV 4	201	-16205	-14302	-755944		3.89	148.8	1.61	6713			0.47	No, Vu<V
SLV 4	391	-28577	-12363	585328		5.3	192.5	1.63	8759			0.71	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	14	0.31	1.69	-9119	17555	109993	6.27	Si
SLV 14	14	0.31	1.69	-9119	17555	109993	6.27	Si
SLV 10	14	0.31	1.7	-9166	17555	110468	6.29	Si
SLV 9	14	0.31	1.7	-9166	17555	110468	6.29	Si
SLV 16	14	0.31	2.33	-12555	17555	142259	8.1	Si
SLV 15	14	0.31	2.33	-12555	17555	142259	8.1	Si
SLV 5	14	0.31	2.35	-12642	17555	143014	8.15	Si
SLV 6	14	0.31	2.35	-12642	17555	143014	8.15	Si
SLV 12	14	0.31	3.83	-20617	17555	198282	11.29	Si
SLV 11	14	0.31	3.83	-20617	17555	198282	11.29	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-20786	-19661	63	0.038	23.986	0.965	57.039	1054.325	No
SLV 7	-20786	-19661	63	0.038	23.986	0.965	57.039	1054.325	No
SLV 12	-15116	-18844	66	0.038	18.22	0.955	57.467	1054.325	No
SLV 11	-15116	-18844	66	0.038	18.22	0.955	57.467	1054.325	No
SLV 6	-16457	-7953	-58	0.038	19.583	0.957	57.924	1054.325	No
SLV 5	-16457	-7953	-58	0.038	19.583	0.957	57.924	1054.325	No
SLV 10	-10787	-7136	-55	0.039	13.827	0.942	59.608	1054.325	No
SLV 9	-10787	-7136	-55	0.039	13.827	0.942	59.608	1054.325	No
SLV 4	-25885	-16515	17	0.039	29.176	0.97	59.127	1012.339	No
SLV 3	-25885	-16515	17	0.039	29.176	0.97	59.127	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.78	SLU 82	Si
V_SLU	1.167	SLU 82	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	6.266	SLV 13	Si
R_SLV	0.054	SLV 7	No





## Maschio 79

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1676.8	666.1	-1288.8	666.1	L3	L4	388	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 84	201	-55088	-626650	5.07	4034502	6.438	Si
SLU 84	391	-59611	-194294	5.49	3774688	19.428	Si
SLU 75	201	-53066	-604503	4.88	4121611	6.818	Si
SLU 75	391	-57246	-190824	5.27	3921733	20.552	Si
SLU 73	201	-52080	-607067	4.79	4157622	6.849	Si
SLU 73	391	-56258	-182913	5.18	3975903	21.737	Si
SLU 77	201	-53400	-590218	4.92	4108455	6.961	Si
SLU 77	391	-57429	-199334	5.29	3911195	19.621	Si
SLU 74	201	-53078	-603659	4.89	4121143	6.827	Si
SLU 74	391	-57262	-191062	5.27	3920827	20.521	Si
SLU 81	201	-54778	-639249	5.04	4049012	6.334	Si
SLU 81	391	-59459	-186259	5.47	3784865	20.32	Si
SLU 78	201	-53388	-591061	4.91	4108940	6.952	Si
SLU 78	391	-57413	-199097	5.28	3912113	19.649	Si
SLU 76	201	-52401	-593626	4.82	4146344	6.985	Si
SLU 76	391	-56425	-191186	5.19	3967010	20.75	Si
SLU 82	201	-54766	-640092	5.04	4049571	6.327	Si
SLU 82	391	-59443	-186022	5.47	3785925	20.352	Si
SLU 83	201	-55100	-625807	5.07	4033927	6.446	Si
SLU 83	391	-59627	-194532	5.49	3773617	19.398	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 2	201	-34184	-2060901	3.15	4923962	2.389	Si
SLV 2	391	-38752	2147606	3.57	5323216	2.479	Si
SLV 16	201	-37388	1233253	3.44	5210323	4.225	Si
SLV 16	391	-37751	-2416551	3.47	5240884	2.169	Si
SLV 3	201	-40168	-2618247	3.7	5434572	2.076	Si
SLV 3	391	-42111	1878276	3.88	5577904	2.97	Si
SLV 7	201	-46175	-1920459	4.25	5841963	3.042	Si
SLV 7	391	-44504	60868	4.1	5739206	94.29	Si
SLV 14	201	-31404	1790599	2.89	4651088	2.598	Si
SLV 14	391	-34392	-2147221	3.17	4943381	2.302	Si
SLV 15	201	-37388	1233253	3.44	5210323	4.225	Si
SLV 15	391	-37751	-2416551	3.47	5240884	2.169	Si
SLV 8	201	-46175	-1920459	4.25	5841963	3.042	Si
SLV 8	391	-44504	60868	4.1	5739206	94.29	Si
SLV 4	201	-40168	-2618247	3.7	5434572	2.076	Si
SLV 4	391	-42111	1878276	3.88	5577904	2.97	Si
SLV 1	201	-34184	-2060901	3.15	4923962	2.389	Si
SLV 1	391	-38752	2147606	3.57	5323216	2.479	Si
SLV 13	201	-31404	1790599	2.89	4651088	2.598	Si
SLV 13	391	-34392	-2147221	3.17	4943381	2.302	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	201	-53066	-3273	-604503	4.88	388	1.08	11769				3.6	Si
SLU 75	391	-57246	-3273	-190824	5.27	388	1.08	11769				3.6	Si
SLU 81	201	-54778	-3541	-639249	5.04	388	1.08	11769				3.32	Si
SLU 81	391	-59459	-3540	-186259	5.47	388	1.08	11769				3.32	Si
SLU 83	201	-55100	-3408	-625807	5.07	388	1.08	11769				3.45	Si
SLU 83	391	-59627	-3407	-194532	5.49	388	1.08	11769				3.45	Si
SLU 60	201	-49003	-3165	-574745	4.51	388	1.08	11769				3.72	Si
SLU 60	391	-52807	-3164	-171673	4.86	388	1.08	11769				3.72	Si
SLU 82	201	-54766	-3546	-640092	5.04	388	1.08	11769				3.32	Si
SLU 82	391	-59443	-3546	-186022	5.47	388	1.08	11769				3.32	Si
SLU 76	201	-52401	-3195	-593626	4.82	388	1.08	11769				3.68	Si
SLU 76	391	-56425	-3195	-191186	5.19	388	1.08	11769				3.68	Si
SLU 61	201	-48991	-3170	-575588	4.51	388	1.08	11769				3.71	Si
SLU 61	391	-52791	-3169	-171435	4.86	388	1.08	11769				3.71	Si
SLU 84	201	-55088	-3413	-626650	5.07	388	1.08	11769				3.45	Si
SLU 84	391	-59611	-3413	-194294	5.49	388	1.08	11769				3.45	Si
SLU 73	201	-52080	-3328	-607067	4.79	388	1.08	11769				3.54	Si
SLU 73	391	-56258	-3328	-182913	5.18	388	1.08	11769				3.54	Si
SLU 74	201	-53078	-3268	-603659	4.89	388	1.08	11769				3.6	Si
SLU 74	391	-57262	-3267	-191062	5.27	388	1.08	11769				3.6	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	201	-37388	21033	1233253	3.44	388	1.52	16531				0.79	No, Vu<V
SLV 16	391	-37751	17826	-2416551	3.47	388	1.53	16603				0.93	No, Vu<V
SLV 3	201	-40168	-25279	-2618247	3.71	386.45	1.58	17051				0.67	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	391	-42111	-22048	1878276		3.88	388	1.61	17476			0.79	No, Vu<V
SLD 1	201	-35139	-12378	-1139249		3.23	388	1.48	16081			1.3	Si
SLD 1	391	-38498	-10995	859609		3.54	388	1.54	16753			1.52	Si
SLV 1	201	-34184	-25475	-2060901		3.15	388	1.46	15890			0.62	No, Vu<V
SLV 1	391	-38752	-22267	2147606		3.57	388	1.55	16804			0.75	No, Vu<V
SLV 14	201	-31404	20837	1790599		2.89	388	1.41	15334			0.74	No, Vu<V
SLV 14	391	-34392	17607	-2147221		3.17	388	1.47	15932			0.9	No, Vu<V
SLV 2	201	-34184	-25475	-2060901		3.15	388	1.46	15890			0.62	No, Vu<V
SLV 2	391	-38752	-22267	2147606		3.57	388	1.55	16804			0.75	No, Vu<V
SLV 15	201	-37388	21033	1233253		3.44	388	1.52	16531			0.79	No, Vu<V
SLV 15	391	-37751	17826	-2416551		3.47	388	1.53	16603			0.93	No, Vu<V
SLD 2	201	-35139	-12378	-1139249		3.23	388	1.48	16081			1.3	Si
SLD 2	391	-38498	-10995	859609		3.54	388	1.54	16753			1.52	Si
SLV 4	201	-40168	-25279	-2618247		3.71	386.45	1.58	17051			0.67	No, Vu<V
SLV 4	391	-42111	-22048	1878276		3.88	388	1.61	17476			0.79	No, Vu<V
SLV 13	201	-31404	20837	1790599		2.89	388	1.41	15334			0.74	No, Vu<V
SLV 13	391	-34392	17607	-2147221		3.17	388	1.47	15932			0.9	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.31	2.8	-30421	35384	328290	9.28	Si
SLV 10	14	0.31	2.8	-30421	35384	328290	9.28	Si
SLV 5	14	0.31	2.91	-31580	35384	336941	9.52	Si
SLV 6	14	0.31	2.91	-31580	35384	336941	9.52	Si
SLV 13	14	0.31	3.13	-34048	35384	354410	10.02	Si
SLV 14	14	0.31	3.13	-34048	35384	354410	10.02	Si
SLV 1	14	0.31	3.49	-37913	35384	379186	10.72	Si
SLV 2	14	0.31	3.49	-37913	35384	379186	10.72	Si
SLV 16	14	0.31	3.53	-38317	35384	381593	10.78	Si
SLV 15	14	0.31	3.53	-38317	35384	381593	10.78	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-28585	-20872	656	0.022	34.812	0.952	32.832	1054.325	No
SLV 9	-28585	-20872	656	0.022	34.812	0.952	32.832	1054.325	No
SLV 5	-29357	-21070	656	0.022	35.595	0.953	33.374	1054.325	No
SLV 6	-29357	-21070	656	0.022	35.595	0.953	33.374	1054.325	No
SLV 12	-36150	-42260	-661	0.024	42.5	0.96	37.032	1054.325	No
SLV 11	-36150	-42260	-661	0.024	42.5	0.96	37.032	1054.325	No
SLV 7	-36921	-42458	-661	0.025	43.285	0.961	37.386	1054.325	No
SLV 8	-36921	-42458	-661	0.025	43.285	0.961	37.386	1054.325	No
SLV 15	-32602	-34542	-200	0.036	38.893	0.957	54.524	1012.339	No
SLV 16	-32602	-34542	-200	0.036	38.893	0.957	54.524	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.327	SLU 82	Si
V_SLU	3.319	SLU 82	Si
PF_SLV	2.076	SLV 3	Si
V_SLV	0.624	SLV 1	No
PFFP_SLV	9.278	SLV 9	Si
R_SLV	0.031	SLV 9	No

## Maschio 80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1188.8	666.1	-800.8	666.1	L3	L4	388	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	201	-56427	572537	5.19	3966934	6.929	Si
SLU 79	391	-51504	415950	4.74	4176668	10.041	Si
SLU 83	201	-58687	579926	5.4	3835044	6.613	Si
SLU 83	391	-53764	426437	4.95	4093566	9.599	Si
SLU 78	201	-57044	576456	5.25	3933167	6.823	Si
SLU 78	391	-52121	418970	4.8	4156214	9.92	Si
SLU 75	201	-56364	554801	5.19	3970257	7.156	Si
SLU 75	391	-51441	410241	4.74	4178645	10.186	Si
SLU 77	201	-57092	576622	5.26	3930456	6.816	Si
SLU 77	391	-52169	420840	4.8	4154545	9.872	Si
SLU 84	201	-58639	579760	5.4	3838092	6.62	Si
SLU 84	391	-53716	424567	4.94	4095573	9.646	Si
SLU 74	201	-56413	554967	5.19	3967690	7.149	Si
SLU 74	391	-51490	412111	4.74	4177119	10.136	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	201	-58008	558271	5.34	3877029	6.945	Si
SLU 81	391	-53085	417708	4.89	4120891	9.865	Si
SLU 80	201	-56379	572371	5.19	3969503	6.935	Si
SLU 80	391	-51456	414080	4.74	4178197	10.09	Si
SLU 82	201	-57960	558105	5.34	3879933	6.952	Si
SLU 82	391	-53037	415838	4.88	4122754	9.914	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	201	-41779	2220784	3.85	5554211	2.501	Si
SLV 13	391	-37351	-1969605	3.44	5207243	2.644	Si
SLV 1	201	-33338	-1672101	3.07	4843315	2.897	Si
SLV 1	391	-28848	2083558	2.66	4380249	2.102	Si
SLV 14	201	-41779	2220784	3.85	5554211	2.501	Si
SLV 14	391	-37351	-1969605	3.44	5207243	2.644	Si
SLV 2	201	-33338	-1672101	3.07	4843315	2.897	Si
SLV 2	391	-28848	2083558	2.66	4380249	2.102	Si
SLV 15	201	-41957	2390794	3.86	5566963	2.328	Si
SLV 15	391	-38900	-1532893	3.58	5335153	3.48	Si
SLV 3	201	-33516	-1502090	3.09	4860460	3.236	Si
SLV 3	391	-30397	2520270	2.8	4546665	1.804	Si
SLV 7	201	-36679	58765	3.38	5149517	87.629	Si
SLV 7	391	-35181	1611160	3.24	5016240	3.113	Si
SLV 8	201	-36679	58765	3.38	5149517	87.629	Si
SLV 8	391	-35181	1611160	3.24	5016240	3.113	Si
SLV 4	201	-33516	-1502090	3.09	4860460	3.236	Si
SLV 4	391	-30397	2520270	2.8	4546665	1.804	Si
SLV 16	201	-41957	2390794	3.86	5566963	2.328	Si
SLV 16	391	-38900	-1532893	3.58	5335153	3.48	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	201	-56364	762	554801		5.19	388	1.08	11769			15.45	Si
SLU 75	391	-51441	762	410241		4.74	388	1.08	11769			15.45	Si
SLU 83	201	-58687	809	579926		5.4	388	1.08	11769			14.55	Si
SLU 83	391	-53764	809	426437		4.95	388	1.08	11769			14.55	Si
SLU 38	201	-48394	768	499591		4.45	388	1.08	11769			15.33	Si
SLU 38	391	-44578	768	353884		4.1	388	1.08	11769			15.33	Si
SLU 36	201	-49059	763	503676		4.52	388	1.08	11769			15.42	Si
SLU 36	391	-45243	763	358774		4.16	388	1.08	11769			15.42	Si
SLU 78	201	-57044	830	576456		5.25	388	1.08	11769			14.18	Si
SLU 78	391	-52121	830	418970		4.8	388	1.08	11769			14.18	Si
SLU 76	201	-55667	772	550605		5.12	388	1.08	11769			15.24	Si
SLU 76	391	-50744	772	404104		4.67	388	1.08	11769			15.24	Si
SLU 84	201	-58639	818	579760		5.4	388	1.08	11769			14.39	Si
SLU 84	391	-53716	818	424567		4.94	388	1.08	11769			14.39	Si
SLU 79	201	-56427	825	572537		5.19	388	1.08	11769			14.26	Si
SLU 79	391	-51504	825	415950		4.74	388	1.08	11769			14.26	Si
SLU 80	201	-56379	834	572371		5.19	388	1.08	11769			14.11	Si
SLU 80	391	-51456	834	414080		4.74	388	1.08	11769			14.11	Si
SLU 77	201	-57092	821	576622		5.26	388	1.08	11769			14.34	Si
SLU 77	391	-52169	821	420840		4.8	388	1.08	11769			14.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	201	-33338	-22177	-1672101		3.07	388	1.45	15721			0.71	No, Vu<V
SLV 2	391	-28848	-19287	2083558		2.82	365.32	1.4	14294			0.74	No, Vu<V
SLV 14	201	-41779	22541	2220784		3.85	388	1.6	17409			0.77	No, Vu<V
SLV 14	391	-37351	19498	-1969605		3.44	388	1.52	16524			0.85	No, Vu<V
SLD 16	201	-39557	10317	1245438		3.64	388	1.56	16965			1.64	Si
SLD 16	391	-36075	9068	-518442		3.32	388	1.5	16268			1.79	Si
SLD 15	201	-39557	10317	1245438		3.64	388	1.56	16965			1.64	Si
SLD 15	391	-36075	9068	-518442		3.32	388	1.5	16268			1.79	Si
SLV 4	201	-33516	-21655	-1502090		3.09	388	1.45	15757			0.73	No, Vu<V
SLV 4	391	-30397	-18612	2520270		3.26	333.26	1.48	13856			0.74	No, Vu<V
SLV 1	201	-33338	-22177	-1672101		3.07	388	1.45	15721			0.71	No, Vu<V
SLV 1	391	-28848	-19287	2083558		2.82	365.32	1.4	14294			0.74	No, Vu<V
SLV 16	201	-41957	23063	2390794		3.86	388	1.61	17445			0.76	No, Vu<V
SLV 16	391	-38900	20173	-1532893		3.58	388	1.55	16833			0.83	No, Vu<V
SLV 15	201	-41957	23063	2390794		3.86	388	1.61	17445			0.76	No, Vu<V
SLV 15	391	-38900	20173	-1532893		3.58	388	1.55	16833			0.83	No, Vu<V
SLV 13	201	-41779	22541	2220784		3.85	388	1.6	17409			0.77	No, Vu<V
SLV 13	391	-37351	19498	-1969605		3.44	388	1.52	16524			0.85	No, Vu<V
SLV 3	201	-33516	-21655	-1502090		3.09	388	1.45	15757			0.73	No, Vu<V
SLV 3	391	-30397	-18612	2520270		3.26	333.26	1.48	13856			0.74	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.31	2.8	-30437	35384	328411	9.28	Si
SLV 2	14	0.31	2.8	-30437	35384	328411	9.28	Si
SLV 6	14	0.31	2.91	-31651	35384	337457	9.54	Si
SLV 5	14	0.31	2.91	-31651	35384	337457	9.54	Si
SLV 4	14	0.31	2.94	-31908	35384	339333	9.59	Si
SLV 3	14	0.31	2.94	-31908	35384	339333	9.59	Si
SLV 10	14	0.31	3.14	-34162	35384	355187	10.04	Si
SLV 9	14	0.31	3.14	-34162	35384	355187	10.04	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.31	3.36	-36554	35384	370834	10.48	Si
SLV 7	14	0.31	3.36	-36554	35384	370834	10.48	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-28639	-39597	-211	0.035	34.866	0.952	53.932	1054.325	No
SLV 9	-28639	-39597	-211	0.035	34.866	0.952	53.932	1054.325	No
SLV 5	-26967	-36477	-205	0.035	33.168	0.95	54.169	1054.325	No
SLV 6	-26967	-36477	-205	0.035	33.168	0.95	54.169	1054.325	No
SLV 7	-28898	-33559	179	0.036	35.129	0.953	55.429	1054.325	No
SLV 8	-28898	-33559	179	0.036	35.129	0.953	55.429	1054.325	No
SLV 11	-30570	-36679	173	0.037	36.828	0.955	55.686	1054.325	No
SLV 12	-30570	-36679	173	0.037	36.828	0.955	55.686	1054.325	No
SLV 13	-31265	-42215	-84	0.039	37.534	0.955	59.568	1012.339	No
SLV 14	-31265	-42215	-84	0.039	37.534	0.955	59.568	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.613	SLU 83	Si
V_SLU	14.11	SLU 80	Si
PF_SLV	1.804	SLV 3	Si
V_SLV	0.709	SLV 1	No
PFFP_SLV	9.281	SLV 1	Si
R_SLV	0.051	SLV 9	No

## Maschio 81

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-700.8	666.1	-515.8	666.1	L3	L4	185	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	201	-23942	502460	4.62	958033	1.907	Si
SLU 80	391	-31382	-17240	6.06	743899	43.149	Si
SLU 75	201	-23464	492660	4.53	963490	1.956	Si
SLU 75	391	-31017	-39770	5.99	760066	19.111	Si
SLU 84	201	-24372	509755	4.7	952273	1.868	Si
SLU 84	391	-32320	-46300	6.24	699662	15.111	Si
SLU 78	201	-24148	506829	4.66	955367	1.885	Si
SLU 78	391	-31737	-22109	6.13	727618	32.911	Si
SLU 77	201	-24198	507318	4.67	954694	1.882	Si
SLU 77	391	-31782	-20489	6.14	725500	35.409	Si
SLU 81	201	-23738	496076	4.58	960492	1.936	Si
SLU 81	391	-31646	-62342	6.11	731860	11.739	Si
SLU 79	201	-23992	502949	4.63	957405	1.904	Si
SLU 79	391	-31428	-15621	6.07	741852	47.491	Si
SLU 83	201	-24422	510244	4.71	951551	1.865	Si
SLU 83	391	-32366	-44681	6.25	697428	15.609	Si
SLU 74	201	-23514	493150	4.54	962967	1.953	Si
SLU 74	391	-31063	-38151	6	758091	19.871	Si
SLU 82	201	-23688	495586	4.57	961065	1.939	Si
SLU 82	391	-31601	-63962	6.1	733951	11.475	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	201	-18113	744679	3.5	1195984	1.606	Si
SLV 12	391	-27213	-168603	5.25	1434931	8.511	Si
SLV 2	201	-14458	-291325	2.79	1031882	3.542	Si
SLV 2	391	-9762	544244	1.88	763723	1.403	Si
SLV 13	201	-15220	799505	2.94	1069308	1.337	Si
SLV 13	391	-28590	-608551	5.52	1450001	2.383	Si
SLV 1	201	-14458	-291325	2.79	1031882	3.542	Si
SLV 1	391	-9762	544244	1.88	763723	1.403	Si
SLV 3	201	-15917	-140419	3.07	1102042	7.848	Si
SLV 3	391	-12168	561076	2.35	909165	1.62	Si
SLV 15	201	-16678	950411	3.22	1136220	1.196	Si
SLV 15	391	-30996	-591719	5.98	1463035	2.473	Si
SLV 14	201	-15220	799505	2.94	1069308	1.337	Si
SLV 14	391	-28590	-608551	5.52	1450001	2.383	Si
SLV 11	201	-18113	744679	3.5	1195984	1.606	Si
SLV 11	391	-27213	-168603	5.25	1434931	8.511	Si
SLV 16	201	-16678	950411	3.22	1136220	1.196	Si
SLV 16	391	-30996	-591719	5.98	1463035	2.473	Si
SLV 4	201	-15917	-140419	3.07	1102042	7.848	Si
SLV 4	391	-12168	561076	2.35	909165	1.62	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	201	-24422	7958	510244		4.71	185	1.08	5612			0.71	No, Vu<V
SLU 83	391	-32366	7928	-44681		6.25	185	1.08	5612			0.71	No, Vu<V
SLU 81	201	-23738	7958	496076		4.58	185	1.08	5612			0.71	No, Vu<V
SLU 81	391	-31646	7929	-62342		6.11	185	1.08	5612			0.71	No, Vu<V
SLU 73	201	-22541	7534	473797		4.35	185	1.08	5612			0.74	No, Vu<V
SLU 73	391	-29912	7505	-53643		5.77	185	1.08	5612			0.75	No, Vu<V
SLU 74	201	-23514	7640	493150		4.54	185	1.08	5612			0.73	No, Vu<V
SLU 74	391	-31063	7611	-38151		6	185	1.08	5612			0.74	No, Vu<V
SLU 78	201	-24148	7649	506829		4.66	185	1.08	5612			0.73	No, Vu<V
SLU 78	391	-31737	7617	-22109		6.13	185	1.08	5612			0.74	No, Vu<V
SLU 76	201	-23225	7534	487965		4.48	185	1.08	5612			0.74	No, Vu<V
SLU 76	391	-30632	7503	-35982		5.91	185	1.08	5612			0.75	No, Vu<V
SLU 82	201	-23688	7967	495586		4.57	185	1.08	5612			0.7	No, Vu<V
SLU 82	391	-31601	7937	-63962		6.1	185	1.08	5612			0.71	No, Vu<V
SLU 75	201	-23464	7649	492660		4.53	185	1.08	5612			0.73	No, Vu<V
SLU 75	391	-31017	7619	-39770		5.99	185	1.08	5612			0.74	No, Vu<V
SLU 77	201	-24198	7640	507318		4.67	185	1.08	5612			0.73	No, Vu<V
SLU 77	391	-31782	7609	-20489		6.14	185	1.08	5612			0.74	No, Vu<V
SLU 84	201	-24372	7967	509755		4.7	185	1.08	5612			0.7	No, Vu<V
SLU 84	391	-32320	7935	-46300		6.24	185	1.08	5612			0.71	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	201	-15220	15447	799505		4.53	119.91	1.63	5456			0.35	No, Vu<V
SLV 14	391	-28590	14108	-608551		5.52	185	1.63	8417			0.6	No, Vu<V
SLV 15	201	-16678	16850	950411		5.59	106.55	1.63	4848			0.29	No, Vu<V
SLV 15	391	-30996	15046	-591719		5.98	185	1.63	8417			0.56	No, Vu<V
SLD 14	201	-15434	9633	536489		3.18	173.22	1.47	7129			0.74	No, Vu<V
SLD 14	391	-24000	9038	-279254		4.63	185	1.63	8417			0.93	No, Vu<V
SLD 13	201	-15434	9633	536489		3.18	173.22	1.47	7129			0.74	No, Vu<V
SLD 13	391	-24000	9038	-279254		4.63	185	1.63	8417			0.93	No, Vu<V
SLD 16	201	-16050	10227	599854		3.47	165.37	1.53	7069			0.69	No, Vu<V
SLD 16	391	-25010	9434	-272772		4.83	185	1.63	8417			0.89	No, Vu<V
SLD 15	201	-16050	10227	599854		3.47	165.37	1.53	7069			0.69	No, Vu<V
SLD 15	391	-25010	9434	-272772		4.83	185	1.63	8417			0.89	No, Vu<V
SLV 11	201	-18113	10749	744679		4.2	154.16	1.63	7014			0.65	No, Vu<V
SLV 11	391	-27213	9491	-168603		5.25	185	1.63	8417			0.89	No, Vu<V
SLV 13	201	-15220	15447	799505		4.53	119.91	1.63	5456			0.35	No, Vu<V
SLV 13	391	-28590	14108	-608551		5.52	185	1.63	8417			0.6	No, Vu<V
SLV 12	201	-18113	10749	744679		4.2	154.16	1.63	7014			0.65	No, Vu<V
SLV 12	391	-27213	9491	-168603		5.25	185	1.63	8417			0.89	No, Vu<V
SLV 16	201	-16678	16850	950411		5.59	106.55	1.63	4848			0.29	No, Vu<V
SLV 16	391	-30996	15046	-591719		5.98	185	1.63	8417			0.56	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.31	2.45	-12688	16871	142025	8.42	Si
SLV 2	14	0.31	2.45	-12688	16871	142025	8.42	Si
SLV 5	14	0.31	2.72	-14082	16871	153288	9.09	Si
SLV 6	14	0.31	2.72	-14082	16871	153288	9.09	Si
SLV 3	14	0.31	2.79	-14464	16871	156222	9.26	Si
SLV 4	14	0.31	2.79	-14464	16871	156222	9.26	Si
SLV 10	14	0.31	3.29	-17053	16871	174421	10.34	Si
SLV 9	14	0.31	3.29	-17053	16871	174421	10.34	Si
SLV 7	14	0.31	3.86	-20002	16871	191535	11.35	Si
SLV 8	14	0.31	3.86	-20002	16871	191535	11.35	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-18331	-6418	34	0.039	21.378	0.962	59.207	1054.325	No
SLV 9	-18331	-6418	34	0.039	21.378	0.962	59.207	1054.325	No
SLV 14	-24963	-9894	37	0.039	28.128	0.971	57.969	1012.339	No
SLV 13	-24963	-9894	37	0.039	28.128	0.971	57.969	1012.339	No
SLV 11	-21526	-15184	-4	0.04	24.629	0.967	60.521	1054.325	No
SLV 12	-21526	-15184	-4	0.04	24.629	0.967	60.521	1054.325	No
SLV 8	-16800	-14834	-18	0.04	19.821	0.959	60.88	1054.325	No
SLV 7	-16800	-14834	-18	0.04	19.821	0.959	60.88	1054.325	No
SLV 15	-25921	-12524	25	0.039	29.103	0.971	58.48	1012.339	No
SLV 16	-25921	-12524	25	0.039	29.103	0.971	58.48	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.865	SLU 83	Si
V_SLU	0.704	SLU 84	No
PF_SLV	1.196	SLV 15	Si
V_SLV	0.288	SLV 15	No
PFFP_SLV	8.418	SLV 1	Si
R_SLV	0.056	SLV 9	No



## Maschio 82

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-470.9	-1100.3	-331.4	L3	Z medio 313 cm	139.5	28	202	202	202			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 76	111	-25127	-225658	6.43	368534	1.633	Si
SLU 76	313	-16689	45543	4.27	553486	12.153	Si
SLU 78	111	-25934	-237674	6.64	334478	1.407	Si
SLU 78	313	-17265	47776	4.42	550785	11.529	Si
SLU 77	111	-25996	-239750	6.66	331757	1.384	Si
SLU 77	313	-17312	48536	4.43	550505	11.342	Si
SLU 80	111	-25965	-239720	6.65	333132	1.39	Si
SLU 80	313	-17283	47108	4.42	550682	11.69	Si
SLU 79	111	-26027	-241795	6.66	330403	1.366	Si
SLU 79	313	-17329	47869	4.44	550398	11.498	Si
SLU 84	111	-26188	-233984	6.7	323174	1.381	Si
SLU 84	313	-17437	52846	4.46	549703	10.402	Si
SLU 83	111	-26250	-236059	6.72	320385	1.357	Si
SLU 83	313	-17483	53607	4.48	549388	10.249	Si
SLU 82	111	-25392	-221305	6.5	357691	1.616	Si
SLU 82	313	-16873	51787	4.32	552780	10.674	Si
SLU 74	111	-25199	-227071	6.45	365602	1.61	Si
SLU 74	313	-16749	47478	4.29	553273	11.653	Si
SLU 81	111	-25453	-223380	6.52	355117	1.59	Si
SLU 81	313	-16920	52548	4.33	552579	10.516	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLV 10	111	-30145	-461313	7.72	774556	1.679	Si
SLV 10	313	-19071	25701	4.88	798670	31.076	Si
SLV 14	111	-23465	-412194	6.01	831997	2.018	Si
SLV 14	313	-13316	6080	3.41	669640	110.141	Si
SLV 5	111	-28626	-352916	7.33	799071	2.264	Si
SLV 5	313	-19335	38802	4.95	802267	20.676	Si
SLV 7	111	-4477	148748	1.15	282990	1.902	Si
SLV 7	313	-3771	26413	0.97	242257	9.172	Si
SLV 6	111	-28626	-352916	7.33	799071	2.264	Si
SLV 6	313	-19335	38802	4.95	802267	20.676	Si
SLV 15	111	-16220	-261695	4.15	746852	2.854	Si
SLV 15	313	-8646	2363	2.21	493827	208.971	Si
SLV 16	111	-16220	-261695	4.15	746852	2.854	Si
SLV 16	313	-8646	2363	2.21	493827	208.971	Si
SLV 9	111	-30145	-461313	7.72	774556	1.679	Si
SLV 9	313	-19071	25701	4.88	798670	31.076	Si
SLV 13	111	-23465	-412194	6.01	831997	2.018	Si
SLV 13	313	-13316	6080	3.41	669640	110.141	Si
SLV 8	111	-4477	148748	1.15	282990	1.902	Si
SLV 8	313	-3771	26413	0.97	242257	9.172	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	111	-26027	-2123	-241795		6.66	139.5	1.08	4231			1.99	Si
SLU 79	313	-17329	-1390	47869		4.44	139.5	1.08	4231			3.04	Si
SLU 84	111	-26188	-2023	-233984		6.7	139.5	1.08	4231			2.09	Si
SLU 84	313	-17437	-1375	52846		4.46	139.5	1.08	4231			3.08	Si
SLU 78	111	-25934	-2073	-237674		6.64	139.5	1.08	4231			2.04	Si
SLU 78	313	-17265	-1359	47776		4.42	139.5	1.08	4231			3.11	Si
SLU 81	111	-25453	-1908	-223380		6.52	139.5	1.08	4231			2.22	Si
SLU 81	313	-16920	-1293	52548		4.33	139.5	1.08	4231			3.27	Si
SLU 83	111	-26250	-2064	-236059		6.72	139.5	1.08	4231			2.05	Si
SLU 83	313	-17483	-1404	53607		4.48	139.5	1.08	4231			3.01	Si
SLU 74	111	-25199	-1959	-227071		6.45	139.5	1.08	4231			2.16	Si
SLU 74	313	-16749	-1277	47478		4.29	139.5	1.08	4231			3.31	Si
SLU 58	111	-24513	-1914	-230985		6.28	139.5	1.08	4231			2.21	Si
SLU 58	313	-16266	-1223	41180		4.16	139.5	1.08	4231			3.46	Si
SLU 75	111	-25138	-1917	-224995		6.44	139.5	1.08	4231			2.21	Si
SLU 75	313	-16702	-1248	46717		4.28	139.5	1.08	4231			3.39	Si
SLU 77	111	-25996	-2114	-239750		6.66	139.5	1.08	4231			2	Si
SLU 77	313	-17312	-1388	48536		4.43	139.5	1.08	4231			3.05	Si
SLU 80	111	-25965	-2081	-239720		6.65	139.5	1.08	4231			2.03	Si
SLU 80	313	-17283	-1362	47108		4.42	139.5	1.08	4231			3.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	111	-18402	-5261	-50870		4.71	139.5	1.63	6347			1.21	Si
SLV 2	313	-14196	-3583	49750		3.63	139.5	1.56	6094			1.7	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	111	-18402	-5261	-50870		4.71	139.5	1.63	6347			1.21	Si
SLV 1	313	-14196	-3583	49750		3.63	139.5	1.56	6094			1.7	Si
SLV 12	111	-5996	4087	40351		1.54	139.5	1.14	4454			1.09	Si
SLV 12	313	-3507	2797	13312		0.9	139.5	1.01	3956			1.41	Si
SLV 5	111	-28626	-6562	-352916		7.33	139.5	1.63	6347			0.97	No, Vu<V
SLV 5	313	-19335	-4242	38802		4.95	139.5	1.63	6347			1.5	Si
SLV 9	111	-30145	-4961	-461313		7.72	139.5	1.63	6347			1.28	Si
SLV 9	313	-19071	-3052	25701		4.88	139.5	1.63	6347			2.08	Si
SLV 10	111	-30145	-4961	-461313		7.72	139.5	1.63	6347			1.28	Si
SLV 10	313	-19071	-3052	25701		4.88	139.5	1.63	6347			2.08	Si
SLV 8	111	-4477	2487	148748		1.46	109.58	1.13	3452			1.39	Si
SLV 8	313	-3771	1607	26413		0.97	139.5	1.03	4009			2.49	Si
SLV 7	111	-4477	2487	148748		1.46	109.58	1.13	3452			1.39	Si
SLV 7	313	-3771	1607	26413		0.97	139.5	1.03	4009			2.49	Si
SLV 6	111	-28626	-6562	-352916		7.33	139.5	1.63	6347			0.97	No, Vu<V
SLV 6	313	-19335	-4242	38802		4.95	139.5	1.63	6347			1.5	Si
SLV 11	111	-5996	4087	40351		1.54	139.5	1.14	4454			1.09	Si
SLV 11	313	-3507	2797	13312		0.9	139.5	1.01	3956			1.41	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 212 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.29	1.17	-4563	3615	57776	15.98	Si
SLV 7	14	0.29	1.17	-4563	3615	57776	15.98	Si
SLV 12	14	0.29	1.25	-4889	3615	61432	16.99	Si
SLV 11	14	0.29	1.25	-4889	3615	61432	16.99	Si
SLV 4	14	0.29	3.01	-11764	3615	124098	34.32	Si
SLV 3	14	0.29	3.01	-11764	3615	124098	34.32	Si
SLV 15	14	0.29	3.29	-12849	3615	131457	36.36	Si
SLV 16	14	0.29	3.29	-12849	3615	131457	36.36	Si
SLV 2	14	0.29	4.68	-18261	3615	157837	43.66	Si
SLV 1	14	0.29	4.68	-18261	3615	157837	43.66	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 212 Wa = 0.05 Ta = 0.0243

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-3507	-5996	-302	0.009	4.694	0.935	14.5	384.424	No
SLV 11	-3507	-5996	-302	0.009	4.694	0.935	14.5	384.424	No
SLV 8	-3771	-4477	-314	0.01	4.961	0.937	15.762	384.424	No
SLV 7	-3771	-4477	-314	0.01	4.961	0.937	15.762	384.424	No
SLV 4	-9527	-11158	-158	0.059	10.81	0.969	88.088	379.731	No
SLV 3	-9527	-11158	-158	0.059	10.81	0.969	88.088	379.731	No
SLV 9	-19071	-30145	185	0.062	20.533	0.983	92.284	384.424	No
SLV 10	-19071	-30145	185	0.062	20.533	0.983	92.284	384.424	No
SLV 6	-19335	-28626	173	0.063	20.802	0.983	93.288	384.424	No
SLV 5	-19335	-28626	173	0.063	20.802	0.983	93.288	384.424	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.357	SLU 83	Si
V_SLU	1.994	SLU 79	Si
PF_SLV	1.679	SLV 9	Si
V_SLV	0.967	SLV 5	No
PFFP_SLV	15.98	SLV 7	Si
R_SLV	0.038	SLV 11	No

## Maschio 83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-1100.3	-331.4	-1100.3	-35.4	L3	Z medio 398 cm	296	28	287	202	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	111	-46384	34667	5.6	2148384	61.972	Si
SLU 80	313	-42814	439518	5.17	2318107	5.274	Si
SLU 82	111	-46880	93602	5.66	2120377	22.653	Si
SLU 82	313	-43272	482688	5.22	2299452	4.764	Si
SLU 74	111	-45797	62376	5.53	2180117	34.951	Si
SLU 74	313	-42268	454980	5.1	2339130	5.141	Si
SLU 76	111	-45542	61519	5.49	2193470	35.655	Si
SLU 76	313	-41959	444669	5.06	2350453	5.286	Si
SLU 84	111	-47731	70725	5.76	2069871	29.266	Si
SLU 84	313	-44127	478560	5.32	2262175	4.727	Si
SLU 77	111	-46648	39500	5.63	2133647	54.016	Si
SLU 77	313	-43123	450851	5.2	2305616	5.114	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	111	-46659	45463	5.63	2132986	46.917	Si
SLU 78	313	-43124	452384	5.2	2305603	5.097	Si
SLU 83	111	-47719	64762	5.76	2070586	31.972	Si
SLU 83	313	-44127	477027	5.32	2262190	4.742	Si
SLU 75	111	-45809	68340	5.53	2179499	31.892	Si
SLU 75	313	-42269	456513	5.1	2339117	5.124	Si
SLU 81	111	-46869	87638	5.66	2121049	24.202	Si
SLU 81	313	-43272	481155	5.22	2299466	4.779	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	111	-41334	54228	4.99	3620526	66.765	Si
SLV 4	313	-30076	592758	3.63	3129279	5.279	Si
SLV 5	111	-37255	-689646	4.5	3485325	5.054	Si
SLV 5	313	-31579	60845	3.81	3216292	52.861	Si
SLV 11	111	-24834	758826	3	2774097	3.656	Si
SLV 11	313	-25140	516580	3.03	2797067	5.415	Si
SLV 3	111	-41334	54228	4.99	3620526	66.765	Si
SLV 3	313	-30076	592758	3.63	3129279	5.279	Si
SLV 7	111	-31523	650037	3.8	3213173	4.943	Si
SLV 7	313	-26617	646315	3.21	2903908	4.493	Si
SLV 8	111	-31523	650037	3.8	3213173	4.943	Si
SLV 8	313	-26617	646315	3.21	2903908	4.493	Si
SLV 9	111	-30565	-580857	3.69	3158318	5.437	Si
SLV 9	313	-30103	-68890	3.63	3130868	45.447	Si
SLV 12	111	-24834	758826	3	2774097	3.656	Si
SLV 12	313	-25140	516580	3.03	2797067	5.415	Si
SLV 6	111	-37255	-689646	4.5	3485325	5.054	Si
SLV 6	313	-31579	60845	3.81	3216292	52.861	Si
SLV 10	111	-30565	-580857	3.69	3158318	5.437	Si
SLV 10	313	-30103	-68890	3.63	3130868	45.447	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 8	111	-30188	-445	-30107		3.64	296	1.04	8629			19.4	Si
SLU 8	313	-27569	-766	237468		3.33	296	1	8280			10.81	Si
SLU 71	111	-41247	-381	-2053		4.98	296	1.08	8979			23.54	Si
SLU 71	313	-37754	-795	356523		4.56	296	1.08	8979			11.29	Si
SLU 10	111	-33632	781	56341		4.06	296	1.08	8979			11.49	Si
SLU 10	313	-30918	503	329742		3.73	296	1.05	8727			17.33	Si
SLU 29	111	-34012	-498	5442		4.1	296	1.08	8979			18.01	Si
SLU 29	313	-31264	-840	306460		3.77	296	1.06	8773			10.44	Si
SLU 52	111	-40867	898	48847		4.93	296	1.08	8979			9.99	Si
SLU 52	313	-37409	548	379805		4.51	296	1.08	8979			16.38	Si
SLU 27	111	-34288	-440	16238		4.14	296	1.08	8979			20.41	Si
SLU 27	313	-31573	-784	319326		3.81	296	1.06	8814			11.24	Si
SLU 61	111	-43056	819	58053		5.19	296	1.08	8979			10.97	Si
SLU 61	313	-39577	485	413696		4.78	296	1.08	8979			18.51	Si
SLU 44	111	-35742	776	18090		4.31	296	1.08	8979			11.57	Si
SLU 44	313	-32350	412	298343		3.9	296	1.08	8918			21.64	Si
SLU 73	111	-44692	845	84396		5.39	296	1.08	8979			10.63	Si
SLU 73	313	-41104	474	448798		4.96	296	1.08	8979			18.94	Si
SLU 6	111	-30463	-386	-19311		3.68	296	1.05	8666			22.43	Si
SLU 6	313	-27878	-710	250333		3.36	296	1	8322			11.72	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	111	-24834	12795	758826		3	296	1.43	11873			0.93	No, Vu<V
SLV 12	313	-25140	10710	516580		3.03	296	1.44	11935			1.11	Si
SLV 5	111	-37255	-12098	-689646		4.5	296	1.63	13468			1.11	Si
SLV 5	313	-31579	-10547	60845		3.81	296	1.6	13223			1.25	Si
SLV 14	111	-20755	-5253	14952		2.5	296	1.33	11058			2.1	Si
SLV 14	313	-26643	-5656	-15334		3.21	296	1.48	12235			2.16	Si
SLV 11	111	-24834	12795	758826		3	296	1.43	11873			0.93	No, Vu<V
SLV 11	313	-25140	10710	516580		3.03	296	1.44	11935			1.11	Si
SLV 8	111	-31523	13823	650037		3.8	296	1.59	13211			0.96	No, Vu<V
SLV 8	313	-26617	12114	646315		3.21	296	1.48	12230			1.01	Si
SLV 13	111	-20755	-5253	14952		2.5	296	1.33	11058			2.1	Si
SLV 13	313	-26643	-5656	-15334		3.21	296	1.48	12235			2.16	Si
SLV 7	111	-31523	13823	650037		3.8	296	1.59	13211			0.96	No, Vu<V
SLV 7	313	-26617	12114	646315		3.21	296	1.48	12230			1.01	Si
SLV 9	111	-30565	-13126	-580857		3.69	296	1.57	13020			0.99	No, Vu<V
SLV 9	313	-30103	-11950	-68890		3.63	296	1.56	12927			1.08	Si
SLV 10	111	-30565	-13126	-580857		3.69	296	1.57	13020			0.99	No, Vu<V
SLV 10	313	-30103	-11950	-68890		3.63	296	1.56	12927			1.08	Si
SLV 6	111	-37255	-12098	-689646		4.5	296	1.63	13468			1.11	Si
SLV 6	313	-31579	-10547	60845		3.81	296	1.6	13223			1.25	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 212 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.29	3.05	-25242	15486	265305	17.13	Si
SLV 15	14	0.29	3.05	-25242	15486	265305	17.13	Si
SLV 11	14	0.29	3.18	-26353	15486	272930	17.62	Si
SLV 12	14	0.29	3.18	-26353	15486	272930	17.62	Si
SLV 13	14	0.29	3.34	-27711	15486	281797	18.2	Si
SLV 14	14	0.29	3.34	-27711	15486	281797	18.2	Si





Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.29	3.59	-29773	15486	294279	19	Si
SLV 7	14	0.29	3.59	-29773	15486	294279	19	Si
SLV 9	14	0.29	4.17	-34583	15486	318822	20.59	Si
SLV 10	14	0.29	4.17	-34583	15486	318822	20.59	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 212 Wa = 0.05 Ta = 0.0491

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-30076	-41334	161	0.047	33.97	0.97	70.442	562.296	No
SLV 3	-30076	-41334	161	0.047	33.97	0.97	70.442	562.296	No
SLV 1	-31565	-43053	150	0.047	35.486	0.971	70.97	562.296	No
SLV 2	-31565	-43053	150	0.047	35.486	0.971	70.97	562.296	No
SLV 13	-26643	-20755	-132	0.048	30.475	0.967	71.919	562.296	No
SLV 14	-26643	-20755	-132	0.048	30.475	0.967	71.919	562.296	No
SLV 15	-25155	-19035	-120	0.048	28.96	0.965	72.581	562.296	No
SLV 16	-25155	-19035	-120	0.048	28.96	0.965	72.581	562.296	No
SLV 7	-26617	-31523	76	0.05	30.448	0.967	74.826	577.78	No
SLV 8	-26617	-31523	76	0.05	30.448	0.967	74.826	577.78	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.727	SLU 84	Si
V_SLU	9.994	SLU 52	Si
PF_SLV	3.656	SLV 11	Si
V_SLV	0.928	SLV 11	No
PFFP_SLV	17.132	SLV 15	Si
R_SLV	0.125	SLV 3	No

## Maschio 84

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-944.8	-335.9	-1100.3	-335.9	L3	L4	155.5	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	t <sub>0</sub>	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	111	-9725	428510	2.23	548806	1.281	Si
SLU 76	321	-13882	168161	3.19	656864	3.906	Si
SLU 81	111	-9760	439398	2.24	550010	1.252	Si
SLU 81	321	-13981	178304	3.21	658518	3.693	Si
SLU 40	111	-8080	378235	1.86	485110	1.283	Si
SLU 40	321	-11864	136624	2.72	613862	4.493	Si
SLU 84	111	-10065	448818	2.31	560472	1.249	Si
SLU 84	321	-14407	179799	3.31	665134	3.699	Si
SLU 80	111	-9987	431873	2.29	557855	1.292	Si
SLU 80	321	-14127	184371	3.24	660880	3.585	Si
SLU 75	111	-9730	427332	2.23	548978	1.285	Si
SLU 75	321	-13864	172679	3.18	656565	3.802	Si
SLU 82	111	-9786	443032	2.25	550912	1.244	Si
SLU 82	321	-14089	169475	3.24	660276	3.896	Si
SLU 78	111	-10010	433118	2.3	558605	1.29	Si
SLU 78	321	-14182	183002	3.26	661737	3.616	Si
SLU 73	111	-9446	422724	2.17	538830	1.275	Si
SLU 73	321	-13564	157838	3.12	651273	4.126	Si
SLU 83	111	-10039	445184	2.31	559602	1.257	Si
SLU 83	321	-14299	188628	3.28	663527	3.518	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	111	-5786	629852	0	0	0	No, e>1/2
SLV 3	321	-14559	-224451	3.34	822191	3.663	Si
SLV 7	111	-2674	423208	0	0	0	No, e>1/2
SLV 7	321	-5072	132861	1.17	356778	2.685	Si
SLV 13	111	-7633	-57107	1.75	508320	8.901	Si
SLV 13	321	-4200	473497	0	0	0	No, e>1/2
SLV 14	111	-7633	-57107	1.75	508320	8.901	Si
SLV 14	321	-4200	473497	0	0	0	No, e>1/2
SLV 8	111	-2674	423208	0	0	0	No, e>1/2
SLV 8	321	-5072	132861	1.17	356778	2.685	Si
SLV 11	111	-2484	223804	0	0	0	No, e>1/2
SLV 11	321	-805	364604	0	0	0	No, e>1/2
SLV 12	111	-2484	223804	0	0	0	No, e>1/2
SLV 12	321	-805	364604	0	0	0	No, e>1/2
SLV 4	111	-5786	629852	0	0	0	No, e>1/2
SLV 4	321	-14559	-224451	3.34	822191	3.663	Si
SLV 15	111	-5155	-34827	1.18	361942	10.393	Si
SLV 15	321	-336	548023	0	0	0	No, e>1/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	111	-5155	-34827	1.18	361942	10.393	Si
SLV 16	321	-336	548023	0	0	0	No, $e>l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	111	-9446	3208	422724		3.41	99	1.01	2799			0.87	No, $V_u < V$
SLU 73	321	-13564	4265	157838		3.12	155.5	0.97	4227			0.99	No, $V_u < V$
SLU 82	111	-9786	3290	443032		3.59	97.43	1.03	2820			0.86	No, $V_u < V$
SLU 82	321	-14089	4459	169475		3.24	155.5	0.99	4297			0.96	No, $V_u < V$
SLU 83	111	-10039	3189	445184		3.58	100.21	1.03	2897			0.91	No, $V_u < V$
SLU 83	321	-14299	4336	188628		3.28	155.5	0.99	4325			1	No, $V_u < V$
SLU 75	111	-9730	3160	427332		3.42	101.5	1.01	2876			0.91	No, $V_u < V$
SLU 75	321	-13864	4207	172679		3.18	155.5	0.98	4267			1.01	Si
SLU 31	111	-7741	2740	357927		2.92	94.53	0.95	2503			0.91	No, $V_u < V$
SLU 31	321	-11338	3667	124987		2.6	155.5	0.9	3931			1.07	Si
SLU 40	111	-8080	2821	378235		3.11	92.82	0.97	2521			0.89	No, $V_u < V$
SLU 40	321	-11864	3861	136624		2.72	155.5	0.92	4001			1.04	Si
SLU 76	111	-9725	3194	428510		3.44	101.07	1.01	2869			0.9	No, $V_u < V$
SLU 76	321	-13882	4247	168161		3.19	155.5	0.98	4270			1.01	Si
SLU 84	111	-10065	3276	448818		3.61	99.47	1.04	2889			0.88	No, $V_u < V$
SLU 84	321	-14407	4441	179799		3.31	155.5	1	4340			0.98	No, $V_u < V$
SLU 81	111	-9760	3203	439398		3.55	98.19	1.03	2829			0.88	No, $V_u < V$
SLU 81	321	-13981	4354	178304		3.21	155.5	0.98	4283			0.98	No, $V_u < V$
SLU 42	111	-8359	2807	384020		3.13	95.43	0.97	2599			0.93	No, $V_u < V$
SLU 42	321	-12182	3843	146948		2.8	155.5	0.93	4043			1.05	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	111	-5786	10998	629852		0	0	0.83	0			0	No, $V_u < V$
SLV 3	321	-14559	6577	-224451		3.34	155.5	1.5	6540			0.99	No, $V_u < V$
SLV 8	111	-2674	3442	423208		0	0	0.83	0			0	No, $V_u < V$
SLV 8	321	-5072	1034	132861		1.17	154.67	1.07	4623			4.47	Si
SLV 16	111	-5155	-7632	-34827		1.18	155.5	1.07	4659			0.61	No, $V_u < V$
SLV 16	321	-336	-2951	548023		0	0	0.83	0			0	No, $V_u < V$
SLV 14	111	-7633	-6745	-57107		1.75	155.5	1.18	5155			0.76	No, $V_u < V$
SLV 14	321	-4200	-1059	473497		0	0	0.83	0			0	No, $V_u < V$
SLV 4	111	-5786	10998	629852		0	0	0.83	0			0	No, $V_u < V$
SLV 4	321	-14559	6577	-224451		3.34	155.5	1.5	6540			0.99	No, $V_u < V$
SLV 13	111	-7633	-6745	-57107		1.75	155.5	1.18	5155			0.76	No, $V_u < V$
SLV 13	321	-4200	-1059	473497		0	0	0.83	0			0	No, $V_u < V$
SLV 7	111	-2674	3442	423208		0	0	0.83	0			0	No, $V_u < V$
SLV 7	321	-5072	1034	132861		1.17	154.67	1.07	4623			4.47	Si
SLV 11	111	-2484	-2147	223804		0	0	0.83	0			0	No, $V_u < V$
SLV 11	321	-805	-1824	364604		0	0	0.83	0			0	No, $V_u < V$
SLV 15	111	-5155	-7632	-34827		1.18	155.5	1.07	4659			0.61	No, $V_u < V$
SLV 15	321	-336	-2951	548023		0	0	0.83	0			0	No, $V_u < V$
SLV 12	111	-2484	-2147	223804		0	0	0.83	0			0	No, $V_u < V$
SLV 12	321	-805	-1824	364604		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.31	0	-1012	14181	0	0	No, $e>t/2$
SLV 11	14	0.31	0	-703	14181	0	0	No, $e>t/2$
SLV 12	14	0.31	0	-703	14181	0	0	No, $e>t/2$
SLV 15	14	0.31	0	-1012	14181	0	0	No, $e>t/2$
SLV 7	14	0.31	0.99	-4289	14181	55205	3.89	Si
SLV 8	14	0.31	0.99	-4289	14181	55205	3.89	Si
SLV 14	14	0.31	1.12	-4864	14181	61869	4.36	Si
SLV 13	14	0.31	1.12	-4864	14181	61869	4.36	Si
SLV 4	14	0.31	2.98	-12966	14181	137285	9.68	Si
SLV 3	14	0.31	2.98	-12966	14181	137285	9.68	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-5322	-2674	-155	0.023	7.744	0.922	35.94	1054.325	No
SLV 8	-5322	-2674	-155	0.023	7.744	0.922	35.94	1054.325	No
SLV 11	-6184	-2484	-126	0.028	8.611	0.928	44.362	1054.325	No
SLV 12	-6184	-2484	-126	0.028	8.611	0.928	44.362	1054.325	No
SLV 10	-14448	-10746	160	0.031	16.993	0.96	46.982	1054.325	No
SLV 9	-14448	-10746	160	0.031	16.993	0.96	46.982	1054.325	No
SLV 6	-13587	-10935	130	0.033	16.117	0.958	49.479	1054.325	No
SLV 5	-13587	-10935	130	0.033	16.117	0.958	49.479	1054.325	No
SLV 4	-7210	-5786	-90	0.034	9.646	0.935	52.251	1012.339	No
SLV 3	-7210	-5786	-90	0.034	9.646	0.935	52.251	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.244	SLU 82	Si
V_SLU	0.857	SLU 82	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0.034	SLV 7	No



## Maschio 85

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-626.8	-335.9	-626.8	104.6	L3	L4	440.5	14	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 76	111	-54325	-1226359	8.81	0	0	No, Rottura per schiacciamento
SLU 76	483	-33079	209144	5.36	2488188	11.897	Si
SLU 75	111	-54048	-1117803	8.76	0	0	No, Rottura per schiacciamento
SLU 75	483	-33217	217000	5.39	2478494	11.422	Si
SLU 77	111	-53642	-934816	8.7	0	0	No, Rottura per schiacciamento
SLU 77	483	-33476	223541	5.43	2459759	11.004	Si
SLU 78	111	-54730	-1106639	8.87	0	0	No, Rottura per schiacciamento
SLU 78	483	-33828	223814	5.49	2433450	10.873	Si
SLU 73	111	-53643	-1237523	8.7	0	0	No, Rottura per schiacciamento
SLU 73	483	-32468	202331	5.26	2529219	12.5	Si
SLU 81	111	-54229	-966753	8.79	0	0	No, Rottura per schiacciamento
SLU 81	483	-33435	223786	5.42	2462818	11.005	Si
SLU 84	111	-56000	-1127411	9.08	0	0	No, Rottura per schiacciamento
SLU 84	483	-34397	230873	5.58	2388541	10.346	Si
SLU 74	111	-52960	-945981	8.59	0	0	No, Rottura per schiacciamento
SLU 74	483	-32865	216727	5.33	2502920	11.549	Si
SLU 83	111	-54911	-955588	8.9	0	0	No, Rottura per schiacciamento
SLU 83	483	-34046	230599	5.52	2416605	10.48	Si
SLU 63	111	-50751	-1109411	8.23	0	0	No, Rottura per schiacciamento
SLU 63	483	-30919	171576	5.01	2618516	15.262	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 1	111	-45315	-1371095	7.35	3978591	2.902	Si
SLV 1	483	-25689	546045	4.17	3729103	6.829	Si
SLD 9	111	-39117	-1273171	6.34	4143062	3.254	Si
SLD 9	483	-23047	75244	3.74	3523540	46.828	Si
SLD 5	111	-40759	-1335776	6.61	4121357	3.085	Si
SLD 5	483	-23722	181725	3.85	3579938	19.7	Si
SLD 6	111	-40759	-1335776	6.61	4121357	3.085	Si
SLD 6	483	-23722	181725	3.85	3579938	19.7	Si
SLV 10	111	-43298	-2047058	7.02	4056745	1.982	Si
SLV 10	483	-24426	14401	3.96	3635937	252.471	Si
SLV 9	111	-43298	-2047058	7.02	4056745	1.982	Si
SLV 9	483	-24426	14401	3.96	3635937	252.471	Si
SLV 5	111	-47218	-2190126	7.66	3883009	1.773	Si
SLV 5	483	-26053	267309	4.22	3754210	14.044	Si
SLV 2	111	-45315	-1371095	7.35	3978591	2.902	Si
SLV 2	483	-25689	546045	4.17	3729103	6.829	Si
SLD 10	111	-39117	-1273171	6.34	4143062	3.254	Si
SLD 10	483	-23047	75244	3.74	3523540	46.828	Si
SLV 6	111	-47218	-2190126	7.66	3883009	1.773	Si
SLV 6	483	-26053	267309	4.22	3754210	14.044	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 23	111	-39969	-2147	-998927		6.48	440.5	1.08	6681			3.11	Si
SLU 23	483	-24044	-1329	145740		3.9	440.5	1.08	6632			4.99	Si
SLU 73	111	-53643	-2233	-1237523		8.7	440.5	1.08	6681			2.99	Si
SLU 73	483	-32468	-1286	202331		5.26	440.5	1.08	6681			5.19	Si
SLU 13	111	-41004	-1944	-1006164		6.65	440.5	1.08	6681			3.44	Si
SLU 13	483	-24800	-1119	144382		4.02	440.5	1.08	6681			5.97	Si
SLU 2	111	-34721	-2223	-980928		5.63	440.5	1.08	6681			3	Si
SLU 2	483	-20566	-1447	86443		3.33	440.5	1	6168			4.26	Si
SLU 10	111	-40322	-2286	-1017328		6.54	440.5	1.08	6681			2.92	Si
SLU 10	483	-24188	-1467	137568		3.92	440.5	1.08	6651			4.53	Si
SLU 55	111	-49077	-1966	-1208359		7.96	440.5	1.08	6681			3.4	Si
SLU 55	483	-29601	-1056	149848		4.8	440.5	1.08	6681			6.33	Si
SLU 31	111	-45570	-2210	-1035328		7.39	440.5	1.08	6681			3.02	Si
SLU 31	483	-27666	-1349	196864		4.49	440.5	1.08	6681			4.95	Si
SLU 65	111	-48041	-2170	-1201123		7.79	440.5	1.08	6681			3.08	Si
SLU 65	483	-28845	-1266	151206		4.68	440.5	1.08	6681			5.28	Si
SLU 44	111	-42793	-2246	-1183123		6.94	440.5	1.08	6681			2.97	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 44	483	-25367	-1384	91909		4.11	440.5	1.08	6681			4.83	Si
SLU 52	111	-48394	-2309	-1219524		7.85	440.5	1.08	6681			2.89	Si
SLU 52	483	-28990	-1404	143034		4.7	440.5	1.08	6681			4.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	111	-28714	13623	626859		4.66	440.5	1.63	10021			0.74	No, Vu<V
SLV 8	483	-19591	11489	220672		3.18	440.5	1.47	9057			0.79	No, Vu<V
SLD 12	111	-31253	6159	-84423		5.07	440.5	1.63	10021			1.63	Si
SLD 12	483	-20295	5045	53349		3.29	440.5	1.49	9198			1.82	Si
SLV 12	111	-24794	14309	769927		4.02	440.5	1.63	10021			0.7	No, Vu<V
SLV 12	483	-17964	11323	-32236		2.91	440.5	1.42	8732			0.77	No, Vu<V
SLD 11	111	-31253	6159	-84423		5.07	440.5	1.63	10021			1.63	Si
SLD 11	483	-20295	5045	53349		3.29	440.5	1.49	9198			1.82	Si
SLV 11	111	-24794	14309	769927		4.02	440.5	1.63	10021			0.7	No, Vu<V
SLV 11	483	-17964	11323	-32236		2.91	440.5	1.42	8732			0.77	No, Vu<V
SLV 10	111	-43298	-13590	-2047058		7.02	440.5	1.63	10021			0.74	No, Vu<V
SLV 10	483	-24426	-10744	14401		3.96	440.5	1.63	10021			0.93	No, Vu<V
SLV 9	111	-43298	-13590	-2047058		7.02	440.5	1.63	10021			0.74	No, Vu<V
SLV 9	483	-24426	-10744	14401		3.96	440.5	1.63	10021			0.93	No, Vu<V
SLV 7	111	-28714	13623	626859		4.66	440.5	1.63	10021			0.74	No, Vu<V
SLV 7	483	-19591	11489	220672		3.18	440.5	1.47	9057			0.79	No, Vu<V
SLV 5	111	-47218	-14276	-2190126		7.66	440.5	1.63	10021			0.7	No, Vu<V
SLV 5	483	-26053	-10578	267309		4.22	440.5	1.63	10021			0.95	No, Vu<V
SLV 6	111	-47218	-14276	-2190126		7.66	440.5	1.63	10021			0.7	No, Vu<V
SLV 6	483	-26053	-10578	267309		4.22	440.5	1.63	10021			0.95	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.31	3.33	-20555	21487	104635	4.87	Si
SLV 12	14	0.31	3.33	-20555	21487	104635	4.87	Si
SLV 16	14	0.31	3.52	-21704	21487	108168	5.03	Si
SLV 15	14	0.31	3.52	-21704	21487	108168	5.03	Si
SLV 7	14	0.31	3.77	-23273	21487	112595	5.24	Si
SLV 8	14	0.31	3.77	-23273	21487	112595	5.24	Si
SLV 14	14	0.31	4.12	-25407	21487	117884	5.49	Si
SLV 13	14	0.31	4.12	-25407	21487	117884	5.49	Si
SLV 3	14	0.31	4.99	-30764	21487	127429	5.93	Si
SLV 4	14	0.31	4.99	-30764	21487	127429	5.93	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.03 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-23750	-39764	28	0.019	27.411	0.965	28.973	1401.752	No
SLV 4	-23750	-39764	28	0.019	27.411	0.965	28.973	1401.752	No
SLV 1	-25689	-45315	25	0.019	29.384	0.967	29.046	1401.752	No
SLV 2	-25689	-45315	25	0.019	29.384	0.967	29.046	1401.752	No
SLV 13	-20266	-32249	-27	0.019	23.867	0.96	29.266	1401.752	No
SLV 14	-20266	-32249	-27	0.019	23.867	0.96	29.266	1401.752	No
SLV 15	-18328	-26697	-24	0.02	21.896	0.956	29.689	1401.752	No
SLV 16	-18328	-26697	-24	0.02	21.896	0.956	29.689	1401.752	No
SLV 9	-24426	-43298	-13	0.02	28.099	0.965	29.795	1401.752	No
SLV 10	-24426	-43298	-13	0.02	28.099	0.965	29.795	1401.752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 63	No
V_SLU	2.894	SLU 52	Si
PF_SLV	1.773	SLV 5	Si
V_SLV	0.7	SLV 11	No
PFFP_SLV	4.87	SLV 11	Si
R_SLV	0.021	SLV 3	No

## Maschio 86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-746.3	-335.9	-854.8	-335.9	L3	L4	108.5	28	372	372	372			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	201	-18755	-340641	6.17	246368	0.723	No, M>Mu
SLU 83	391	-13716	-91869	4.51	331683	3.61	Si
SLU 80	201	-19048	-360878	6.27	237969	0.659	No, M>Mu
SLU 80	391	-13104	-78928	4.31	334461	4.238	Si
SLU 82	201	-19012	-358028	6.26	239038	0.668	No, M>Mu



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	391	-13395	-85429	4.41	333343	3.902	Si
SLU 78	201	-19130	-361501	6.3	235550	0.652	No, M>Mu
SLU 78	391	-13217	-80572	4.35	334072	4.146	Si
SLU 73	201	-18703	-360740	6.16	247801	0.687	No, M>Mu
SLU 73	391	-12670	-76296	4.17	335440	4.397	Si
SLU 75	201	-18743	-352704	6.17	246688	0.699	No, M>Mu
SLU 75	391	-13051	-81818	4.3	334625	4.09	Si
SLU 79	201	-18404	-334695	6.06	255902	0.765	No, M>Mu
SLU 79	391	-13259	-86614	4.36	333914	3.855	Si
SLU 76	201	-19090	-369537	6.28	236730	0.641	No, M>Mu
SLU 76	391	-12835	-75050	4.22	335164	4.466	Si
SLU 77	201	-18486	-335318	6.09	253715	0.757	No, M>Mu
SLU 77	391	-13372	-88258	4.4	333448	3.778	Si
SLU 84	201	-19399	-366824	6.39	227445	0.62	No, M>Mu
SLU 84	391	-13561	-84183	4.46	332540	3.95	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	201	-3552	-75226	1.17	174268	2.317	Si
SLV 8	391	1617	132571	0	0	0	No, Trazione
SLV 14	201	-20156	-519104	6.63	499726	0.963	No, M>Mu
SLV 14	391	-10485	11386	3.45	408149	35.847	Si
SLV 16	201	-15842	-481870	5.21	492651	1.022	Si
SLV 16	391	-3801	154371	1.25	185103	1.199	Si
SLV 12	201	-6902	-242859	2.27	304805	1.255	Si
SLV 12	391	2715	219624	0	0	0	No, Trazione
SLV 9	201	-21281	-366970	7	492630	1.342	Si
SLV 9	391	-19564	-256992	6.44	501976	1.953	Si
SLV 15	201	-15842	-481870	5.21	492651	1.022	Si
SLV 15	391	-3801	154371	1.25	185103	1.199	Si
SLV 13	201	-20156	-519104	6.63	499726	0.963	No, M>Mu
SLV 13	391	-10485	11386	3.45	408149	35.847	Si
SLV 7	201	-3552	-75226	1.17	174268	2.317	Si
SLV 7	391	1617	132571	0	0	0	No, Trazione
SLV 10	201	-21281	-366970	7	492630	1.342	Si
SLV 10	391	-19564	-256992	6.44	501976	1.953	Si
SLV 11	201	-6902	-242859	2.27	304805	1.255	Si
SLV 11	391	2715	219624	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	201	-19012	-3681	-358028		6.39	106.25	1.08	3223			0.88	No, Vu<V
SLU 82	391	-13395	-661	-85429		4.41	108.5	1.08	3291			4.98	Si
SLU 84	201	-19399	-3818	-366824		6.53	106.02	1.08	3216			0.84	No, Vu<V
SLU 84	391	-13561	-700	-84183		4.46	108.5	1.08	3291			4.7	Si
SLU 78	201	-19130	-3779	-361501		6.44	106.06	1.08	3217			0.85	No, Vu<V
SLU 78	391	-13217	-690	-80572		4.35	108.5	1.08	3291			4.77	Si
SLU 76	201	-19090	-3705	-369537		6.51	104.68	1.08	3175			0.86	No, Vu<V
SLU 76	391	-12835	-655	-75050		4.22	108.5	1.08	3291			5.02	Si
SLU 75	201	-18743	-3643	-352704		6.3	106.3	1.08	3224			0.89	No, Vu<V
SLU 75	391	-13051	-652	-81818		4.3	108.5	1.08	3291			5.05	Si
SLU 73	201	-18703	-3569	-360740		6.37	104.89	1.08	3182			0.89	No, Vu<V
SLU 73	391	-12670	-617	-76296		4.17	108.5	1.08	3291			5.34	Si
SLU 79	201	-18404	-3699	-334695		6.08	108.19	1.08	3282			0.89	No, Vu<V
SLU 79	391	-13259	-702	-86614		4.36	108.5	1.08	3291			4.69	Si
SLU 80	201	-19048	-3784	-360878		6.42	105.91	1.08	3213			0.85	No, Vu<V
SLU 80	391	-13104	-697	-78928		4.31	108.5	1.08	3291			4.72	Si
SLU 77	201	-18486	-3694	-335318		6.09	108.33	1.08	3286			0.89	No, Vu<V
SLU 77	391	-13372	-695	-88258		4.4	108.5	1.08	3291			4.74	Si
SLU 83	201	-18755	-3733	-340641		6.19	108.26	1.08	3284			0.88	No, Vu<V
SLU 83	391	-13716	-705	-91869		4.51	108.5	1.08	3291			4.67	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	201	-21281	-5928	-366970		7	108.5	1.63	4937			0.83	No, Vu<V
SLV 10	391	-19564	589	-256992		6.44	108.5	1.63	4937			8.38	Si
SLV 9	201	-21281	-5928	-366970		7	108.5	1.63	4937			0.83	No, Vu<V
SLV 9	391	-19564	589	-256992		6.44	108.5	1.63	4937			8.38	Si
SLV 11	201	-6902	-2309	-242859		4.31	57.19	1.63	2602			1.13	Si
SLV 11	391	2715	-2509	219624		0	0	0.83	0			0	No, Vu<V
SLV 14	201	-20156	-8711	-519104		8.42	85.49	1.63	3890			0.45	No, Vu<V
SLV 14	391	-10485	-1774	11386		3.45	108.5	1.52	4629			2.61	Si
SLV 8	201	-3552	1162	-75226		1.28	99.22	1.09	3026			2.6	Si
SLV 8	391	1617	-1413	132571		0	0	0.83	0			0	No, Vu<V
SLV 16	201	-15842	-7625	-481870		7.91	71.5	1.63	3253			0.43	No, Vu<V
SLV 16	391	-3801	-2704	154371		3.32	40.92	1.5	1715			0.63	No, Vu<V
SLV 7	201	-3552	1162	-75226		1.28	99.22	1.09	3026			2.6	Si
SLV 7	391	1617	-1413	132571		0	0	0.83	0			0	No, Vu<V
SLV 15	201	-15842	-7625	-481870		7.91	71.5	1.63	3253			0.43	No, Vu<V
SLV 15	391	-3801	-2704	154371		3.32	40.92	1.5	1715			0.63	No, Vu<V
SLV 12	201	-6902	-2309	-242859		4.31	57.19	1.63	2602			1.13	Si
SLV 12	391	2715	-2509	219624		0	0	0.83	0			0	No, Vu<V
SLV 13	201	-20156	-8711	-519104		8.42	85.49	1.63	3890			0.45	No, Vu<V
SLV 13	391	-10485	-1774	11386		3.45	108.5	1.52	4629			2.61	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.31	0.89	-2693	9895	34969	3.53	Si
SLV 8	14	0.31	0.89	-2693	9895	34969	3.53	Si
SLV 4	14	0.31	1.43	-4353	9895	53797	5.44	Si
SLV 3	14	0.31	1.43	-4353	9895	53797	5.44	Si
SLV 12	14	0.31	1.97	-5981	9895	70240	7.1	Si
SLV 11	14	0.31	1.97	-5981	9895	70240	7.1	Si
SLV 2	14	0.31	2.98	-9064	9895	95908	9.69	Si
SLV 1	14	0.31	2.98	-9064	9895	95908	9.69	Si
SLV 16	14	0.31	5.04	-15312	9895	125942	12.73	Si
SLV 15	14	0.31	5.04	-15312	9895	125942	12.73	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-3861	-2444	62	0.033	5.551	0.924	51.546	1054.325	No
SLV 8	-3861	-2444	62	0.033	5.551	0.924	51.546	1054.325	No
SLV 11	-2587	-2922	55	0.033	4.278	0.908	52.756	1054.325	No
SLV 12	-2587	-2922	55	0.033	4.278	0.908	52.756	1054.325	No
SLV 10	-10544	-17110	-59	0.036	12.328	0.961	54.187	1054.325	No
SLV 9	-10544	-17110	-59	0.036	12.328	0.961	54.187	1054.325	No
SLV 5	-11818	-16632	-52	0.037	13.623	0.965	55.076	1054.325	No
SLV 6	-11818	-16632	-52	0.037	13.623	0.965	55.076	1054.325	No
SLV 4	-8131	-6852	30	0.039	9.874	0.953	58.748	1012.339	No
SLV 3	-8131	-6852	30	0.039	9.874	0.953	58.748	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.62	SLV 84	No
V_SLV	0.842	SLV 84	No
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 7	No
PFFP_SLV	3.534	SLV 7	Si
R_SLV	0.049	SLV 7	No

## Maschio 87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	104.6	-515.8	581.1	L3	L4	476.5	14	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 59	111	-54371	2448124	8.15	0	0	No, Rottura per schiacciamento
SLV 59	483	-36259	95851	5.44	2874554	29.99	Si
SLV 57	111	-54766	2455628	8.21	0	0	No, Rottura per schiacciamento
SLV 57	483	-36505	78517	5.47	2854640	36.357	Si
SLV 69	111	-55672	2482555	8.35	0	0	No, Rottura per schiacciamento
SLV 69	483	-37216	118323	5.58	2794234	23.615	Si
SLV 84	111	-61265	2711493	9.18	0	0	No, Rottura per schiacciamento
SLV 84	483	-40511	9811	6.07	2456350	250.371	Si
SLV 83	111	-61580	2708882	9.23	0	0	No, Rottura per schiacciamento
SLV 83	483	-40604	14117	6.09	2445488	173.225	Si
SLV 56	111	-55081	2453017	8.26	0	0	No, Rottura per schiacciamento
SLV 56	483	-36598	82824	5.49	2847029	34.375	Si
SLV 63	111	-54812	2437699	8.22	0	0	No, Rottura per schiacciamento
SLV 63	483	-35972	20964	5.39	2897039	138.19	Si
SLV 58	111	-54686	2445513	8.2	0	0	No, Rottura per schiacciamento
SLV 58	483	-36351	100157	5.45	2867142	28.626	Si
SLV 71	111	-55277	2475051	8.29	0	0	No, Rottura per schiacciamento
SLV 71	483	-36969	135656	5.54	2815685	20.756	Si
SLV 62	111	-55127	2435089	8.26	0	0	No, Rottura per schiacciamento
SLV 62	483	-36064	25271	5.41	2889860	114.356	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	111	-51860	2098638	7.77	4494586	2.142	Si
SLV 12	483	-32122	-18107	4.82	4637161	256.101	Si
SLV 11	111	-51860	2098638	7.77	4494586	2.142	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	483	-32122	-18107	4.82	4637161	256.101	Si
SLD 4	111	-41828	2126324	6.27	4851654	2.282	Si
SLD 4	483	-26454	197871	3.97	4257210	21.515	Si
SLV 1	111	-37222	2301206	5.58	4818512	2.094	Si
SLV 1	483	-23742	396086	3.56	4008973	10.121	Si
SLV 2	111	-37222	2301206	5.58	4818512	2.094	Si
SLV 2	483	-23742	396086	3.56	4008973	10.121	Si
SLD 3	111	-41828	2126324	6.27	4851654	2.282	Si
SLD 3	483	-26454	197871	3.97	4257210	21.515	Si
SLV 8	111	-52726	2542677	7.9	4436216	1.745	Si
SLV 8	483	-32244	231734	4.83	4643254	20.037	Si
SLV 4	111	-44843	2651752	6.72	4806175	1.812	Si
SLV 4	483	-27732	454761	4.16	4359218	9.586	Si
SLV 7	111	-52726	2542677	7.9	4436216	1.745	Si
SLV 7	483	-32244	231734	4.83	4643254	20.037	Si
SLV 3	111	-44843	2651752	6.72	4806175	1.812	Si
SLV 3	483	-27732	454761	4.16	4359218	9.586	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	111	-52610	3136	2346773		7.89	476.5	1.08	7227			2.3	Si
SLU 36	483	-35666	1895	55879		5.35	476.5	1.08	7227			3.81	Si
SLU 83	111	-61580	3345	2708882		9.23	476.5	1.08	7227			2.16	Si
SLU 83	483	-40604	2004	14117		6.09	476.5	1.08	7227			3.61	Si
SLU 79	111	-61139	3470	2719306		9.16	476.5	1.08	7227			2.08	Si
SLU 79	483	-40891	2009	89004		6.13	476.5	1.08	7227			3.6	Si
SLU 84	111	-61265	3277	2711493		9.18	476.5	1.08	7227			2.21	Si
SLU 84	483	-40511	1941	9811		6.07	476.5	1.08	7227			3.72	Si
SLU 35	111	-52925	3203	2344162		7.93	476.5	1.08	7227			2.26	Si
SLU 35	483	-35758	1958	60185		5.36	476.5	1.08	7227			3.69	Si
SLU 80	111	-60825	3402	2721917		9.12	476.5	1.08	7227			2.12	Si
SLU 80	483	-40798	1946	84697		6.12	476.5	1.08	7227			3.71	Si
SLU 74	111	-59462	3152	2611705		8.91	476.5	1.08	7227			2.29	Si
SLU 74	483	-39170	1864	16778		5.87	476.5	1.08	7227			3.88	Si
SLU 37	111	-52530	3194	2336658		7.87	476.5	1.08	7227			2.26	Si
SLU 37	483	-35512	1922	77518		5.32	476.5	1.08	7227			3.76	Si
SLU 78	111	-61219	3411	2729421		9.18	476.5	1.08	7227			2.12	Si
SLU 78	483	-41045	1981	67364		6.15	476.5	1.08	7227			3.65	Si
SLU 77	111	-61534	3479	2726810		9.22	476.5	1.08	7227			2.08	Si
SLU 77	483	-41137	2044	71671		6.17	476.5	1.08	7227			3.54	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	111	-52726	15149	2542677		7.9	476.5	1.63	10840			0.72	No, Vu<V
SLV 7	483	-32244	10952	231734		4.83	476.5	1.63	10840			0.99	No, Vu<V
SLV 5	111	-27320	-13733	1374189		4.1	476.5	1.63	10840			0.79	No, Vu<V
SLV 5	483	-18946	-11475	36152		2.84	476.5	1.4	9348			0.81	No, Vu<V
SLV 15	111	-41959	9862	1171621		6.29	476.5	1.63	10840			1.1	Si
SLV 15	483	-27326	8490	-378041		4.1	476.5	1.63	10840			1.28	Si
SLV 10	111	-26455	-11508	930150		3.97	476.5	1.63	10840			0.94	No, Vu<V
SLV 10	483	-18825	-8989	-213689		2.82	476.5	1.4	9324			1.04	Si
SLV 6	111	-27320	-13733	1374189		4.1	476.5	1.63	10840			0.79	No, Vu<V
SLV 6	483	-18946	-11475	36152		2.84	476.5	1.4	9348			0.81	No, Vu<V
SLV 11	111	-51860	17374	2098638		7.77	476.5	1.63	10840			0.62	No, Vu<V
SLV 11	483	-32122	13438	-18107		4.82	476.5	1.63	10840			0.81	No, Vu<V
SLV 8	111	-52726	15149	2542677		7.9	476.5	1.63	10840			0.72	No, Vu<V
SLV 8	483	-32244	10952	231734		4.83	476.5	1.63	10840			0.99	No, Vu<V
SLV 9	111	-26455	-11508	930150		3.97	476.5	1.63	10840			0.94	No, Vu<V
SLV 9	483	-18825	-8989	-213689		2.82	476.5	1.4	9324			1.04	Si
SLV 12	111	-51860	17374	2098638		7.77	476.5	1.63	10840			0.62	No, Vu<V
SLV 12	483	-32122	13438	-18107		4.82	476.5	1.63	10840			0.81	No, Vu<V
SLV 16	111	-41959	9862	1171621		6.29	476.5	1.63	10840			1.1	Si
SLV 16	483	-27326	8490	-378041		4.1	476.5	1.63	10840			1.28	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.31	3.41	-22730	23243	114740	4.94	Si
SLV 9	14	0.31	3.41	-22730	23243	114740	4.94	Si
SLV 6	14	0.31	3.64	-24262	23243	119281	5.13	Si
SLV 5	14	0.31	3.64	-24262	23243	119281	5.13	Si
SLV 14	14	0.31	4.09	-27269	23243	127023	5.46	Si
SLV 13	14	0.31	4.09	-27269	23243	127023	5.46	Si
SLV 2	14	0.31	4.85	-32376	23243	136614	5.88	Si
SLV 1	14	0.31	4.85	-32376	23243	136614	5.88	Si
SLV 16	14	0.31	4.9	-32691	23243	137060	5.9	Si
SLV 15	14	0.31	4.9	-32691	23243	137060	5.9	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.03 Ta = 0.1651

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-32244	-52726	42	0.019	36.322	0.971	28.182	1401.752	No
SLV 8	-32244	-52726	42	0.019	36.322	0.971	28.182	1401.752	No
SLV 12	-32122	-51860	30	0.019	36.198	0.971	28.711	1401.752	No
SLV 11	-32122	-51860	30	0.019	36.198	0.971	28.711	1401.752	No
SLV 3	-27732	-44843	32	0.019	31.728	0.967	28.79	1401.752	No
SLV 4	-27732	-44843	32	0.019	31.728	0.967	28.79	1401.752	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 10	-18825	-26455	-39	0.019	22.668	0.955	28.898	1401.752	No
SLV 9	-18825	-26455	-39	0.019	22.668	0.955	28.898	1401.752	No
SLV 14	-23337	-34337	-29	0.019	27.256	0.962	29.226	1401.752	No
SLV 13	-23337	-34337	-29	0.019	27.256	0.962	29.226	1401.752	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 56	No
V_SLU	2.077	SLU 77	Si
PF_SLV	1.745	SLV 7	Si
V_SLV	0.624	SLV 11	No
PFFP_SLV	4.936	SLV 9	Si
R_SLV	0.02	SLV 7	No

## Maschio 88

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	595.1	-515.8	600.6	L3	L4	5.5	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 55	311	-1160	1822	7.53	241	0.132	No, M>Mu
SLU 55	391	-1515	4391	0	0	0	No, e>l/2
SLU 56	311	-1257	2043	8.16	0	0	No, Rottura per schiacciamento
SLU 56	391	-1594	4546	0	0	0	No, e>l/2
SLU 1	311	-789	1228	5.13	805	0.655	No, M>Mu
SLU 1	391	-1029	3000	0	0	0	No, e>l/2
SLU 59	311	-1251	2038	8.12	11	0.005	No, M>Mu
SLU 59	391	-1578	4480	0	0	0	No, e>l/2
SLU 60	311	-1130	1698	7.34	308	0.181	No, M>Mu
SLU 60	391	-1538	4567	0	0	0	No, e>l/2
SLU 57	311	-1251	2026	8.12	11	0.005	No, M>Mu
SLU 57	391	-1592	4543	0	0	0	No, e>l/2
SLU 58	311	-1257	2055	8.16	0	0	No, Rottura per schiacciamento
SLU 58	391	-1580	4483	0	0	0	No, e>l/2
SLU 61	311	-1124	1681	7.3	322	0.192	No, M>Mu
SLU 61	391	-1535	4564	0	0	0	No, e>l/2
SLU 53	311	-1171	1838	7.6	215	0.117	No, M>Mu
SLU 53	391	-1533	4458	0	0	0	No, e>l/2
SLU 54	311	-1164	1821	7.56	231	0.127	No, M>Mu
SLU 54	391	-1530	4456	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 9	311	-167	-447	1.08	418	0.935	No, M>Mu
SLV 9	391	-997	4125	0	0	0	No, e>l/2
SLD 15	311	-721	649	4.68	1223	1.883	Si
SLD 15	391	-1435	4273	0	0	0	No, e>l/2
SLV 14	311	-216	-931	0	0	0	No, e>l/2
SLV 14	391	-1629	5562	0	0	0	No, e>l/2
SLV 6	311	-455	692	2.95	948	1.371	Si
SLV 6	391	-646	2813	0	0	0	No, e>l/2
SLD 1	311	-1001	2010	6.5	1288	0.641	No, M>Mu
SLD 1	391	-843	2398	0	0	0	No, e>l/2
SLV 10	311	-167	-447	1.08	418	0.935	No, M>Mu
SLV 10	391	-997	4125	0	0	0	No, e>l/2
SLD 14	311	-583	343	3.78	1106	3.229	Si
SLD 14	391	-1356	4309	0	0	0	No, e>l/2
SLV 13	311	-216	-931	0	0	0	No, e>l/2
SLV 13	391	-1629	5562	0	0	0	No, e>l/2
SLV 5	311	-455	692	2.95	948	1.371	Si
SLV 5	391	-646	2813	0	0	0	No, e>l/2
SLV 15	311	-546	-206	3.54	1066	5.161	Si
SLV 15	391	-1820	5482	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 56	311	-1257	106	2043		13.31	3.37	1.08	102			0.97	No, Vu<V
SLU 56	391	-1594	-216	4546		0	0	0.56	0			0	No, Vu<V
SLU 58	311	-1257	106	2055		13.42	3.35	1.08	102			0.96	No, Vu<V
SLU 58	391	-1580	-213	4483		0	0	0.56	0			0	No, Vu<V
SLU 53	311	-1171	96	1838		11.81	3.54	1.08	107			1.12	Si
SLU 53	391	-1533	-211	4458		0	0	0.56	0			0	No, Vu<V
SLU 1	311	-789	64	1228		7.87	3.58	1.08	109			1.7	Si
SLU 1	391	-1029	-142	3000		0	0	0.56	0			0	No, Vu<V





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	311	-1124	89	1681		10.67	3.76	1.08	114			1.29	Si
SLU 61	391	-1535	-216	4564		0	0	0.56	0			0	No, Vu<V
SLU 54	311	-1164	95	1821		11.69	3.56	1.08	108			1.14	Si
SLU 54	391	-1530	-211	4456		0	0	0.56	0			0	No, Vu<V
SLU 60	311	-1130	90	1698		10.78	3.74	1.08	114			1.27	Si
SLU 60	391	-1538	-216	4567		0	0	0.56	0			0	No, Vu<V
SLU 59	311	-1251	105	2038		13.29	3.36	1.08	102			0.97	No, Vu<V
SLU 59	391	-1578	-213	4480		0	0	0.56	0			0	No, Vu<V
SLU 57	311	-1251	105	2026		13.18	3.39	1.08	103			0.98	No, Vu<V
SLU 57	391	-1592	-216	4543		0	0	0.56	0			0	No, Vu<V
SLU 55	311	-1160	95	1822		11.71	3.54	1.08	107			1.13	Si
SLU 55	391	-1515	-208	4391		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	311	-455	32	692		4.41	3.69	1.63	168			5.27	Si
SLV 5	391	-646	-155	2813		0	0	0.83	0			0	No, Vu<V
SLV 15	311	-546	-29	-206		3.54	5.5	1.54	237			8.08	Si
SLV 15	391	-1820	-241	5482		0	0	0.83	0			0	No, Vu<V
SLD 14	311	-583	7	343		3.78	5.5	1.59	245			34.93	Si
SLD 14	391	-1356	-200	4309		0	0	0.83	0			0	No, Vu<V
SLV 13	311	-216	-74	-931		0	0	0.83	0			0	No, Vu<V
SLV 13	391	-1629	-255	5562		0	0	0.83	0			0	No, Vu<V
SLV 14	311	-216	-74	-931		0	0	0.83	0			0	No, Vu<V
SLV 14	391	-1629	-255	5562		0	0	0.83	0			0	No, Vu<V
SLD 1	311	-1001	113	2010		16.05	2.23	1.63	101			0.9	No, Vu<V
SLD 1	391	-843	-122	2398		0	0	0.83	0			0	No, Vu<V
SLD 15	311	-721	26	649		4.68	5.5	1.63	250			9.57	Si
SLD 15	391	-1435	-194	4273		0	0	0.83	0			0	No, Vu<V
SLV 9	311	-167	-41	-447		0	0	0.83	0			0	No, Vu<V
SLV 9	391	-997	-209	4125		0	0	0.83	0			0	No, Vu<V
SLV 6	311	-455	32	692		4.41	3.69	1.63	168			5.27	Si
SLV 6	391	-646	-155	2813		0	0	0.83	0			0	No, Vu<V
SLV 10	311	-167	-41	-447		0	0	0.83	0			0	No, Vu<V
SLV 10	391	-997	-209	4125		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	14	0.31	0.29	-45	513	608	1.19	Si
SLV 14	14	0.31	0.29	-45	513	608	1.19	Si
SLV 10	14	0.31	0.44	-68	513	917	1.79	Si
SLV 9	14	0.31	0.44	-68	513	917	1.79	Si
SLV 16	14	0.31	1.37	-211	513	2623	5.11	Si
SLV 15	14	0.31	1.37	-211	513	2623	5.11	Si
SLV 6	14	0.31	1.65	-255	513	3082	6.01	Si
SLV 5	14	0.31	1.65	-255	513	3082	6.01	Si
SLV 12	14	0.31	4.05	-623	513	5834	11.37	Si
SLV 11	14	0.31	4.05	-623	513	5834	11.37	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-513	-2377	2	0.038	0.603	0.96	57.02	1054.325	No
SLV 8	-513	-2377	2	0.038	0.603	0.96	57.02	1054.325	No
SLV 12	-525	-2374	2	0.038	0.615	0.961	57.905	1054.325	No
SLV 11	-525	-2374	2	0.038	0.615	0.961	57.905	1054.325	No
SLV 10	-243	-1249	-2	0.038	0.329	0.933	59.151	1054.325	No
SLV 9	-243	-1249	-2	0.038	0.329	0.933	59.151	1054.325	No
SLV 5	-231	-1252	-1	0.039	0.317	0.931	61.257	1054.325	No
SLV 6	-231	-1252	-1	0.039	0.317	0.931	61.257	1054.325	No
SLV 4	-400	-1987	1	0.039	0.488	0.952	60.171	1012.339	No
SLV 3	-400	-1987	1	0.039	0.488	0.952	60.171	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	1.185	SLV 13	Si
R_SLV	0.054	SLV 7	No

## Maschio 89

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	650.6	-515.8	666.1	L3	L4	15.5	28	372	372	372			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 61	311	-4657	-16837	10.73	0	0	No, Rottura per schiacciamento
SLU 61	391	-2463	12781	5.68	5789	0.453	No, M>Mu
SLU 56	311	-4763	-15489	10.98	0	0	No, Rottura per schiacciamento
SLU 56	391	-2772	11092	6.39	4639	0.418	No, M>Mu
SLU 55	311	-4553	-15484	10.49	0	0	No, Rottura per schiacciamento
SLU 55	391	-2548	11377	5.87	5515	0.485	No, M>Mu
SLU 59	311	-4706	-15171	10.84	0	0	No, Rottura per schiacciamento
SLU 59	391	-2756	10804	6.35	4706	0.436	No, M>Mu
SLU 54	311	-4608	-15815	10.62	0	0	No, Rottura per schiacciamento
SLU 54	391	-2558	11683	5.89	5479	0.469	No, M>Mu
SLU 57	311	-4755	-15530	10.96	0	0	No, Rottura per schiacciamento
SLU 57	391	-2757	11147	6.35	4704	0.422	No, M>Mu
SLU 60	311	-4666	-16796	10.75	0	0	No, Rottura per schiacciamento
SLU 60	391	-2478	12726	5.71	5743	0.451	No, M>Mu
SLU 42	311	-4646	-16087	10.71	0	0	No, Rottura per schiacciamento
SLU 42	391	-2580	11911	5.94	5403	0.454	No, M>Mu
SLU 53	311	-4617	-15775	10.64	0	0	No, Rottura per schiacciamento
SLU 53	391	-2573	11628	5.93	5427	0.467	No, M>Mu
SLU 58	311	-4715	-15130	10.86	0	0	No, Rottura per schiacciamento
SLU 58	391	-2771	10750	6.39	4641	0.432	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 13	311	-4557	-33229	10.5	4969	0.15	No, M>Mu
SLV 13	391	-75	31184	0	0	0	No, e>l/2
SLD 14	311	-3936	-21264	9.07	7864	0.37	No, M>Mu
SLD 14	391	-1099	18652	0	0	0	No, e>l/2
SLV 14	311	-4557	-33229	10.5	4969	0.15	No, M>Mu
SLV 14	391	-75	31184	0	0	0	No, e>l/2
SLV 9	311	-2770	-18276	6.38	10254	0.561	No, M>Mu
SLV 9	391	-250	19761	0	0	0	No, e>l/2
SLV 15	311	-5220	-33272	12.03	631	0.019	No, M>Mu
SLV 15	391	-796	28432	0	0	0	No, e>l/2
SLD 16	311	-4216	-21287	9.71	6699	0.315	No, M>Mu
SLD 16	391	-1404	17448	0	0	0	No, e>l/2
SLD 15	311	-4216	-21287	9.71	6699	0.315	No, M>Mu
SLD 15	391	-1404	17448	0	0	0	No, e>l/2
SLV 10	311	-2770	-18276	6.38	10254	0.561	No, M>Mu
SLV 10	391	-250	19761	0	0	0	No, e>l/2
SLV 16	311	-5220	-33272	12.03	631	0.019	No, M>Mu
SLV 16	391	-796	28432	0	0	0	No, e>l/2
SLD 13	311	-3936	-21264	9.07	7864	0.37	No, M>Mu
SLD 13	391	-1099	18652	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	311	-5244	-649	-18830		15.01	12.48	1.08	378			0.58	No, Vu<V
SLU 81	391	-2802	-634	14235		12.49	8.01	1.08	243			0.38	No, Vu<V
SLU 19	311	-3922	-496	-14339		11.4	12.28	1.08	373			0.75	No, Vu<V
SLU 19	391	-2057	-485	10938		10.07	7.3	1.08	221			0.46	No, Vu<V
SLU 39	311	-4508	-564	-16332		13	12.38	1.08	376			0.67	No, Vu<V
SLU 39	391	-2396	-551	12392		11.06	7.73	1.08	235			0.43	No, Vu<V
SLU 61	311	-4657	-581	-16837		13.41	12.4	1.08	376			0.65	No, Vu<V
SLU 61	391	-2463	-568	12781		11.45	7.68	1.08	233			0.41	No, Vu<V
SLU 60	311	-4666	-579	-16796		13.38	12.45	1.08	378			0.65	No, Vu<V
SLU 60	391	-2478	-567	12726		11.28	7.84	1.08	238			0.42	No, Vu<V
SLU 82	311	-5235	-651	-18870		15.03	12.44	1.08	377			0.58	No, Vu<V
SLU 82	391	-2787	-636	14290		12.65	7.87	1.08	239			0.38	No, Vu<V
SLU 40	311	-4500	-566	-16373		13.03	12.33	1.08	374			0.66	No, Vu<V
SLU 40	391	-2381	-553	12447		11.24	7.57	1.08	230			0.42	No, Vu<V
SLU 84	311	-5382	-637	-18585		14.91	12.89	1.08	391			0.61	No, Vu<V
SLU 84	391	-2986	-620	13754		11.31	9.43	1.08	286			0.46	No, Vu<V
SLU 73	311	-4984	-613	-17803		14.2	12.53	1.08	380			0.62	No, Vu<V
SLU 73	391	-2673	-599	13422		11.66	8.19	1.08	248			0.41	No, Vu<V
SLU 52	311	-4406	-543	-15770		12.58	12.51	1.08	380			0.7	No, Vu<V
SLU 52	391	-2349	-531	11913		10.44	8.04	1.08	244			0.46	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	311	-4557	-1289	-33229		118.52	1.37	1.63	62			0.05	No, Vu<V
SLV 14	391	-75	-1256	31184		0	0	0.83	0			0	No, Vu<V
SLD 15	311	-4216	-733	-21287		18.59	8.1	1.63	369			0.5	No, Vu<V
SLD 15	391	-1404	-730	17448		0	0	0.83	0			0	No, Vu<V
SLD 16	311	-4216	-733	-21287		18.59	8.1	1.63	369			0.5	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 16	391	-1404	-730	17448		0	0	0.83	0			0	No, Vu<V
SLD 13	311	-3936	-795	-21264		19.96	7.04	1.63	320			0.4	No, Vu<V
SLD 13	391	-1099	-775	18652		0	0	0.83	0			0	No, Vu<V
SLV 10	311	-2770	-887	-18276		28.62	3.46	1.63	157			0.18	No, Vu<V
SLV 10	391	-250	-811	19761		0	0	0.83	0			0	No, Vu<V
SLV 15	311	-5220	-1149	-33272		45.16	4.13	1.63	188			0.16	No, Vu<V
SLV 15	391	-796	-1154	28432		0	0	0.83	0			0	No, Vu<V
SLV 16	311	-5220	-1149	-33272		45.16	4.13	1.63	188			0.16	No, Vu<V
SLV 16	391	-796	-1154	28432		0	0	0.83	0			0	No, Vu<V
SLD 14	311	-3936	-795	-21264		19.96	7.04	1.63	320			0.4	No, Vu<V
SLD 14	391	-1099	-775	18652		0	0	0.83	0			0	No, Vu<V
SLV 9	311	-2770	-887	-18276		28.62	3.46	1.63	157			0.18	No, Vu<V
SLV 9	391	-250	-811	19761		0	0	0.83	0			0	No, Vu<V
SLV 13	311	-4557	-1289	-33229		118.52	1.37	1.63	62			0.05	No, Vu<V
SLV 13	391	-75	-1256	31184		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.31	2.57	-1117	1446	12346	8.54	Si
SLV 2	14	0.31	2.57	-1117	1446	12346	8.54	Si
SLV 6	14	0.31	3.35	-1453	1446	14770	10.21	Si
SLV 5	14	0.31	3.35	-1453	1446	14770	10.21	Si
SLV 16	14	0.31	8.8	-3821	1446	14951	10.34	Si
SLV 15	14	0.31	8.8	-3821	1446	14951	10.34	Si
SLV 3	14	0.31	3.5	-1520	1446	15178	10.49	Si
SLV 4	14	0.31	3.5	-1520	1446	15178	10.49	Si
SLV 12	14	0.31	8.03	-3485	1446	16728	11.57	Si
SLV 11	14	0.31	8.03	-3485	1446	16728	11.57	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-268	-2109	-22	0	0.511	0.898	0	1054.325	No
SLV 6	-268	-2109	-22	0	0.511	0.898	0	1054.325	No
SLV 10	273	-2997	-11	0	0	0	0	1054.325	No, Trazione
SLV 9	273	-2997	-11	0	0	0	0	1054.325	No, Trazione
SLV 15	23	-5675	29	0	0	0	0	1012.339	No, Trazione
SLV 13	429	-4917	16	0	0	0	0	1012.339	No, Trazione
SLV 16	23	-5675	29	0	0	0	0	1012.339	No, Trazione
SLV 14	429	-4917	16	0	0	0	0	1012.339	No, Trazione
SLV 11	-1082	-5523	32	0.016	1.33	0.95	24.225	1054.325	No
SLV 12	-1082	-5523	32	0.016	1.33	0.95	24.225	1054.325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 10	No
V_SLU	0.375	SLU 82	No
PF_SLV	0	SLD 9	No
V_SLV	0	SLD 9	No
PFFP_SLV	8.536	SLV 1	Si
R_SLV	0	SLV 16	No

Maschio 90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-600.8	-335.9	-646.3	-335.9	L3	L4	45.5	28	372	372	372			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	311	-10235	16674	8.03	3203	0.192	No, M>Mu
SLU 75	391	-11251	-25925	8.83	0	0	No, Rottura per schiacciamento
SLU 61	311	-9551	15844	7.5	17315	1.093	Si
SLU 61	391	-10460	-24675	8.21	0	0	No, Rottura per schiacciamento
SLU 74	311	-9913	13376	7.78	10104	0.755	No, M>Mu
SLU 74	391	-10944	-22681	8.59	0	0	No, Rottura per schiacciamento
SLU 83	311	-10276	13623	8.07	2284	0.168	No, M>Mu
SLU 83	391	-11367	-22998	8.92	0	0	No, Rottura per schiacciamento
SLU 57	311	-9491	15162	7.45	18454	1.217	Si
SLU 57	391	-10418	-23069	8.18	0	0	No, Rottura per schiacciamento
SLU 73	311	-10226	18895	8.03	3392	0.18	No, M>Mu



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	391	-11191	-28261	8.78	0	0	No, Rottura per schiacciamento
SLU 77	311	-10065	13158	7.9	6909	0.525	No, M>Mu
SLU 77	391	-11134	-22036	8.74	0	0	No, Rottura per schiacciamento
SLU 84	311	-10599	16921	8.32	0	0	No, Rottura per schiacciamento
SLU 84	391	-11674	-26242	9.16	0	0	No, Rottura per schiacciamento
SLU 78	311	-10387	16456	8.15	0	0	No, Rottura per schiacciamento
SLU 78	391	-11441	-25281	8.98	0	0	No, Rottura per schiacciamento
SLU 63	311	-9703	15627	7.62	14361	0.919	No, M>Mu
SLU 63	391	-10651	-24031	8.36	0	0	No, Rottura per schiacciamento

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	311	-3649	78175	2.86	63559	0.813	No, M>Mu
SLV 3	391	-4726	-109552	0	0	0	No, e>l/2
SLV 15	311	-7867	-65565	6.18	88525	1.35	Si
SLV 15	391	-8132	89289	6.38	88358	0.99	No, M>Mu
SLV 16	311	-7867	-65565	6.18	88525	1.35	Si
SLV 16	391	-8132	89289	6.38	88358	0.99	No, M>Mu
SLV 13	311	-9882	-59127	7.76	82100	1.389	Si
SLV 13	391	-10132	77144	7.95	80476	1.043	Si
SLV 2	311	-5664	84613	4.45	81972	0.969	No, M>Mu
SLV 2	391	-6726	-121697	5.28	86902	0.714	No, M>Mu
SLV 4	311	-3649	78175	2.86	63559	0.813	No, M>Mu
SLV 4	391	-4726	-109552	0	0	0	No, e>l/2
SLV 6	311	-9491	41816	7.45	84275	2.015	Si
SLV 6	391	-10251	-66271	8.05	79635	1.202	Si
SLV 5	311	-9491	41816	7.45	84275	2.015	Si
SLV 5	391	-10251	-66271	8.05	79635	1.202	Si
SLV 14	311	-9882	-59127	7.76	82100	1.389	Si
SLV 14	391	-10132	77144	7.95	80476	1.043	Si
SLV 1	311	-5664	84613	4.45	81972	0.969	No, M>Mu
SLV 1	391	-6726	-121697	5.28	86902	0.714	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	311	-10447	603	17138		8.2	45.5	1.08	1380			2.29	Si
SLU 82	391	-11484	602	-26886		9.01	45.5	1.08	1380			2.29	Si
SLU 84	311	-10599	594	16921		8.32	45.5	1.08	1380			2.32	Si
SLU 84	391	-11674	592	-26242		9.16	45.5	1.08	1380			2.33	Si
SLU 65	311	-9211	598	17864		7.23	45.5	1.08	1380			2.31	Si
SLU 65	391	-10031	596	-26421		7.87	45.5	1.08	1380			2.32	Si
SLU 55	311	-9482	581	17383		7.44	45.5	1.08	1380			2.37	Si
SLU 55	391	-10358	579	-25405		8.13	45.5	1.08	1380			2.38	Si
SLU 73	311	-10226	640	18895		8.03	45.5	1.08	1380			2.16	Si
SLU 73	391	-11191	637	-28261		8.78	45.5	1.08	1380			2.17	Si
SLU 78	311	-10387	575	16456		8.15	45.5	1.08	1380			2.4	Si
SLU 78	391	-11441	574	-25281		8.98	45.5	1.08	1380			2.41	Si
SLU 76	311	-10378	630	18677		8.15	45.5	1.08	1380			2.19	Si
SLU 76	391	-11382	628	-27617		8.93	45.5	1.08	1380			2.2	Si
SLU 52	311	-9330	591	17601		7.32	45.5	1.08	1380			2.34	Si
SLU 52	391	-10168	588	-26049		7.98	45.5	1.08	1380			2.35	Si
SLU 75	311	-10235	584	16674		8.03	45.5	1.08	1380			2.36	Si
SLU 75	391	-11251	583	-25925		8.83	45.5	1.08	1380			2.37	Si
SLU 68	311	-9363	589	17646		7.35	45.5	1.08	1380			2.34	Si
SLU 68	391	-10222	586	-25777		8.02	45.5	1.08	1380			2.35	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	311	-5664	2813	84613		8.63	23.43	1.63	1066			0.38	No, Vu<V
SLV 2	391	-6726	2575	-121697		17.19	13.97	1.63	636			0.25	No, Vu<V
SLV 14	311	-9882	-1599	-59127		7.76	45.5	1.63	2070			1.29	Si
SLV 14	391	-10132	-1762	77144		7.97	45.41	1.63	2066			1.17	Si
SLV 6	311	-9491	1854	41816		7.45	45.5	1.63	2070			1.12	Si
SLV 6	391	-10251	1176	-66271		8.05	45.5	1.63	2070			1.76	Si
SLV 4	311	-3649	2312	78175		32.7	3.99	1.63	181			0.08	No, Vu<V
SLV 4	391	-4726	2474	-109552		0	0	0.83	0			0	No, Vu<V
SLV 3	311	-3649	2312	78175		32.7	3.99	1.63	181			0.08	No, Vu<V
SLV 3	391	-4726	2474	-109552		0	0	0.83	0			0	No, Vu<V
SLV 1	311	-5664	2813	84613		8.63	23.43	1.63	1066			0.38	No, Vu<V
SLV 1	391	-6726	2575	-121697		17.19	13.97	1.63	636			0.25	No, Vu<V
SLV 5	311	-9491	1854	41816		7.45	45.5	1.63	2070			1.12	Si
SLV 5	391	-10251	1176	-66271		8.05	45.5	1.63	2070			1.76	Si
SLV 15	311	-7867	-2101	-65565		6.5	43.25	1.63	1968			0.94	No, Vu<V
SLV 15	391	-8132	-1863	89289		8.23	35.31	1.63	1607			0.86	No, Vu<V
SLV 16	311	-7867	-2101	-65565		6.5	43.25	1.63	1968			0.94	No, Vu<V
SLV 16	391	-8132	-1863	89289		8.23	35.31	1.63	1607			0.86	No, Vu<V
SLV 13	311	-9882	-1599	-59127		7.76	45.5	1.63	2070			1.29	Si
SLV 13	391	-10132	-1762	77144		7.97	45.41	1.63	2066			1.17	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.31	1.59	-2025	4149	24658	5.94	Si
SLV 7	14	0.31	1.59	-2025	4149	24658	5.94	Si
SLV 12	14	0.31	1.88	-2393	4149	28355	6.83	Si
SLV 11	14	0.31	1.88	-2393	4149	28355	6.83	Si
SLV 4	14	0.31	2.98	-3801	4149	40220	9.69	Si
SLV 3	14	0.31	2.98	-3801	4149	40220	9.69	Si
SLV 15	14	0.31	3.95	-5030	4149	47665	11.49	Si
SLV 16	14	0.31	3.95	-5030	4149	47665	11.49	Si
SLV 1	14	0.31	4.47	-5692	4149	50551	12.18	Si
SLV 2	14	0.31	4.47	-5692	4149	50551	12.18	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297  $W_a = 0.05$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$a_0^*$	aLim	Verifica
SLV 9	-3895	-8776	7	0.04	4.634	0.957	60.306	1054.325	No
SLV 10	-3895	-8776	7	0.04	4.634	0.957	60.306	1054.325	No
SLV 5	-3502	-9281	7	0.04	4.235	0.954	60.767	1054.325	No
SLV 6	-3502	-9281	7	0.04	4.235	0.954	60.767	1054.325	No
SLV 11	-2066	-1338	-13	0.039	2.778	0.934	60.782	1054.325	No
SLV 12	-2066	-1338	-13	0.039	2.778	0.934	60.782	1054.325	No
SLV 8	-1673	-1844	-12	0.039	2.382	0.925	61.926	1054.325	No
SLV 7	-1673	-1844	-12	0.039	2.382	0.925	61.926	1054.325	No
SLV 16	-3164	-3351	-6	0.04	3.891	0.95	61.869	1012.339	No
SLV 15	-3164	-3351	-6	0.04	3.891	0.95	61.869	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0	SLV 57	No
V_SLV	2.158	SLV 73	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	5.943	SLV 7	Si
R_SLV	0.057	SLV 9	No

## Maschio 91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-323.3	-335.9	-550.8	-335.9	L3	L4	227.5	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 2	311	-10011	595275	1.57	919061	1.544	Si
SLU 2	391	-9140	297680	1.43	856529	2.877	Si
SLU 52	311	-15355	773186	2.41	1229785	1.591	Si
SLU 52	391	-14228	383024	2.23	1174643	3.067	Si
SLU 68	311	-15436	773549	2.42	1233502	1.595	Si
SLU 68	391	-14293	380929	2.24	1178012	3.092	Si
SLU 73	311	-17410	831091	2.73	1315924	1.583	Si
SLU 73	391	-16268	409367	2.55	1270322	3.103	Si
SLU 47	311	-13381	715644	2.1	1129577	1.578	Si
SLU 47	391	-12253	354585	1.92	1064673	3.003	Si
SLU 65	311	-15160	765523	2.38	1220637	1.595	Si
SLU 65	391	-14018	377404	2.2	1163767	3.084	Si
SLU 55	311	-15631	781212	2.45	1242415	1.59	Si
SLU 55	391	-14503	386549	2.28	1188635	3.075	Si
SLU 44	311	-13105	707618	2.06	1114229	1.575	Si
SLU 44	391	-11978	351060	1.88	1047962	2.985	Si
SLU 5	311	-10287	603301	1.61	938148	1.555	Si
SLU 5	391	-9415	301205	1.48	876669	2.911	Si
SLU 76	311	-17686	839117	2.78	1326070	1.58	Si
SLU 76	391	-16543	412892	2.6	1281848	3.105	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	311	-20723	1049031	3.25	1729607	1.649	Si
SLV 5	391	-24458	-212492	3.84	1907867	8.979	Si
SLV 16	311	-9668	112578	1.52	963120	8.555	Si
SLV 16	391	-7532	1063005	0	0	0	No, $e > l/2$
SLV 15	311	-9668	112578	1.52	963120	8.555	Si
SLV 15	391	-7532	1063005	0	0	0	No, $e > l/2$
SLV 7	311	-8497	29042	1.33	860978	29.646	Si
SLV 7	391	-2929	195639	0.46	320611	1.639	Si
SLV 6	311	-20723	1049031	3.25	1729607	1.649	Si
SLV 6	391	-24458	-212492	3.84	1907867	8.979	Si
SLV 12	311	-7062	-97170	1.11	730434	7.517	Si
SLV 12	391	-1576	661891	0	0	0	No, $e > l/2$



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	311	-8497	29042	1.33	860978	29.646	Si
SLV 8	391	-2929	195639	0.46	320611	1.639	Si
SLV 11	311	-7062	-97170	1.11	730434	7.517	Si
SLV 11	391	-1576	661891	0	0	0	No, $e \geq l/2$
SLV 13	311	-13336	418575	2.09	1257026	3.003	Si
SLV 13	391	-13991	940566	2.2	1305418	1.388	Si
SLV 14	311	-13336	418575	2.09	1257026	3.003	Si
SLV 14	391	-13991	940566	2.2	1305418	1.388	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	311	-15631	4924	781212		2.92	191.31	0.94	5060			1.03	Si
SLU 55	391	-14503	4924	386549		2.28	227.5	0.86	5473			1.11	Si
SLU 68	311	-15436	4900	773549		2.89	190.91	0.94	5028			1.03	Si
SLU 68	391	-14293	4900	380929		2.24	227.5	0.85	5445			1.11	Si
SLU 47	311	-13381	4504	715644		2.64	180.8	0.91	4597			1.02	Si
SLU 47	391	-12253	4504	354585		1.92	227.5	0.81	5173			1.15	Si
SLU 5	311	-10287	3770	603301		2.22	165.31	0.85	3943			1.05	Si
SLU 5	391	-9415	3770	301205		1.48	227.5	0.75	4794			1.27	Si
SLU 73	311	-17410	5264	831091		3.14	198.04	0.97	5402			1.03	Si
SLU 73	391	-16268	5264	409367		2.55	227.5	0.9	5708			1.08	Si
SLU 2	311	-10011	3713	595275		2.2	162.87	0.85	3868			1.04	Si
SLU 2	391	-9140	3713	297680		1.43	227.5	0.75	4758			1.28	Si
SLU 76	311	-17686	5321	839117		3.18	198.91	0.98	5452			1.02	Si
SLU 76	391	-16543	5321	412892		2.6	227.5	0.9	5745			1.08	Si
SLU 44	311	-13105	4448	707618		2.61	179.27	0.9	4536			1.02	Si
SLU 44	391	-11978	4448	351060		1.88	227.5	0.81	5136			1.15	Si
SLU 65	311	-15160	4844	765523		2.85	189.76	0.94	4973			1.03	Si
SLU 65	391	-14018	4844	377404		2.2	227.5	0.85	5408			1.12	Si
SLU 52	311	-15355	4868	773186		2.88	190.19	0.94	5006			1.03	Si
SLU 52	391	-14228	4868	383024		2.23	227.5	0.85	5436			1.12	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	311	-9668	-10742	112578		1.52	227.5	1.14	7242			0.67	No, Vu<V
SLV 16	391	-7532	-10719	1063005		0	0	0.83	0			0	No, Vu<V
SLV 5	311	-20723	11009	1049031		3.91	189.38	1.61	8563			0.78	No, Vu<V
SLV 5	391	-24458	12214	-212492		3.84	227.5	1.6	10200			0.84	No, Vu<V
SLV 15	311	-9668	-10742	112578		1.52	227.5	1.14	7242			0.67	No, Vu<V
SLV 15	391	-7532	-10719	1063005		0	0	0.83	0			0	No, Vu<V
SLV 11	311	-7062	-4741	-97170		1.11	227.5	1.06	6721			1.42	Si
SLV 11	391	-1576	-5946	661891		0	0	0.83	0			0	No, Vu<V
SLV 2	311	-18117	17010	839282		3.2	202.27	1.47	8343			0.49	No, Vu<V
SLV 2	391	-18501	16987	-613606		2.9	227.5	1.41	9009			0.53	No, Vu<V
SLV 12	311	-7062	-4741	-97170		1.11	227.5	1.06	6721			1.42	Si
SLV 12	391	-1576	-5946	661891		0	0	0.83	0			0	No, Vu<V
SLV 1	311	-18117	17010	839282		3.2	202.27	1.47	8343			0.49	No, Vu<V
SLV 1	391	-18501	16987	-613606		2.9	227.5	1.41	9009			0.53	No, Vu<V
SLV 3	311	-14449	14563	533286		2.27	227.5	1.29	8198			0.56	No, Vu<V
SLV 3	391	-12043	13740	-491167		1.96	218.89	1.23	7516			0.55	No, Vu<V
SLV 6	311	-20723	11009	1049031		3.91	189.38	1.61	8563			0.78	No, Vu<V
SLV 6	391	-24458	12214	-212492		3.84	227.5	1.6	10200			0.84	No, Vu<V
SLV 4	311	-14449	14563	533286		2.27	227.5	1.29	8198			0.56	No, Vu<V
SLV 4	391	-12043	13740	-491167		1.96	218.89	1.23	7516			0.55	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.31	1.45	-9227	20747	113861	5.49	Si
SLV 12	14	0.31	1.45	-9227	20747	113861	5.49	Si
SLV 7	14	0.31	1.47	-9378	20747	115472	5.57	Si
SLV 8	14	0.31	1.47	-9378	20747	115472	5.57	Si
SLV 15	14	0.31	1.64	-10445	20747	126611	6.1	Si
SLV 16	14	0.31	1.64	-10445	20747	126611	6.1	Si
SLV 3	14	0.31	1.72	-10950	20747	131730	6.35	Si
SLV 4	14	0.31	1.72	-10950	20747	131730	6.35	Si
SLV 13	14	0.31	1.83	-11641	20747	138604	6.68	Si
SLV 14	14	0.31	1.83	-11641	20747	138604	6.68	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\sigma_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-5076	869	-103	0	0	0	0	1054.325	No, Trazione
SLV 8	-5076	869	-103	0	0	0	0	1054.325	No, Trazione
SLV 11	-4852	-277	-128	0.031	8.402	0.904	49.601	1054.325	No
SLV 12	-4852	-277	-128	0.031	8.402	0.904	49.601	1054.325	No
SLV 6	-18553	-17449	127	0.035	22.232	0.956	53.782	1054.325	No
SLV 5	-18553	-17449	127	0.035	22.232	0.956	53.782	1054.325	No
SLV 10	-18329	-18595	102	0.037	22.005	0.955	55.623	1054.325	No
SLV 9	-18329	-18595	102	0.037	22.005	0.955	55.623	1054.325	No
SLV 1	-14097	-9702	76	0.038	17.708	0.946	58.238	1012.339	No
SLV 2	-14097	-9702	76	0.038	17.708	0.946	58.238	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	1.544	SLU 2	Si
V SLU	1.02	SLU 44	Si



Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	5,488	SLV 11	Si
R_SLV	0	SLV 8	No

## Maschio 92

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12,3	-335,9	-223,3	-335,9	L3	L4	211	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34,5	0,9	2	0,58	0,77	3,25	32000	12800	1,2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 23	201	-11194	-690946	1.89	906298	1.312	Si
SLU 23	391	-15913	-79276	2.69	1123703	14.174	Si
SLU 76	201	-15715	-852962	2.66	1116538	1.309	Si
SLU 76	391	-21988	-69269	3.72	1259874	18.188	Si
SLU 26	201	-11476	-699751	1.94	922009	1.318	Si
SLU 26	391	-16290	-80971	2.76	1136853	14.04	Si
SLU 5	201	-9905	-644865	1.68	829885	1.287	Si
SLU 5	391	-13961	-89730	2.36	1045587	11.653	Si
SLU 73	201	-15433	-844157	2.61	1106059	1.31	Si
SLU 73	391	-21611	-67574	3.66	1256136	18.589	Si
SLU 2	201	-9623	-636060	1.63	812233	1.277	Si
SLU 2	391	-13584	-88035	2.3	1028590	11.684	Si
SLU 47	201	-12633	-745290	2.14	982942	1.319	Si
SLU 47	391	-17336	-93115	2.93	1170112	12.566	Si
SLU 13	201	-11415	-697651	1.93	918622	1.317	Si
SLU 13	391	-16284	-74643	2.76	1136647	15.228	Si
SLU 44	201	-12352	-736485	2.09	968659	1.315	Si
SLU 44	391	-16959	-91420	2.87	1158690	12.674	Si
SLU 10	201	-11133	-688846	1.88	902835	1.311	Si
SLU 10	391	-15907	-72948	2.69	1123487	15.401	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	201	-7162	345275	1.21	680603	1.971	Si
SLV 4	391	-4073	-519592	0	0	0	No, e>/2
SLV 8	201	-4876	289113	0.83	479683	1.659	Si
SLV 8	391	-2768	-201862	0.47	280793	1.391	Si
SLV 15	201	-12747	-881777	2.16	1107342	1.256	Si
SLV 15	391	-20396	497796	3.45	1543810	3.101	Si
SLV 3	201	-7162	345275	1.21	680603	1.971	Si
SLV 3	391	-4073	-519592	0	0	0	No, e>/2
SLV 7	201	-4876	289113	0.83	479683	1.659	Si
SLV 7	391	-2768	-201862	0.47	280793	1.391	Si
SLV 9	201	-18667	-1145591	3.16	1460128	1.275	Si
SLV 9	391	-27716	212943	4.69	1801388	8.459	Si
SLV 10	201	-18667	-1145591	3.16	1460128	1.275	Si
SLV 10	391	-27716	212943	4.69	1801388	8.459	Si
SLV 16	201	-12747	-881777	2.16	1107342	1.256	Si
SLV 16	391	-20396	497796	3.45	1543810	3.101	Si
SLV 13	201	-16382	-1201753	2.77	1336071	1.112	Si
SLV 13	391	-26411	530673	4.47	1766945	3.33	Si
SLV 14	201	-16382	-1201753	2.77	1336071	1.112	Si
SLV 14	391	-26411	530673	4.47	1766945	3.33	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	201	-13862	-8273	-789271		3,4	145,68	1,01	4114			0,5	No, Vu<V
SLU 52	391	-19282	-8222	-76332		3,26	211	0,99	5853			0,71	No, Vu<V
SLU 2	201	-9623	-6258	-636060		2,91	118,21	0,94	3122			0,5	No, Vu<V
SLU 2	391	-13584	-6212	-88035		2,3	211	0,86	5093			0,82	No, Vu<V
SLU 31	201	-12704	-7841	-743732		3,22	140,88	0,98	3885			0,5	No, Vu<V
SLU 31	391	-18236	-7791	-64189		3,09	211	0,97	5714			0,73	No, Vu<V
SLU 65	201	-13923	-8238	-791370		3,41	145,98	1,01	4127			0,5	No, Vu<V
SLU 65	391	-19288	-8187	-82661		3,26	211	0,99	5854			0,72	No, Vu<V
SLU 13	201	-11415	-7157	-697651		3,06	133,14	0,96	3593			0,5	No, Vu<V
SLU 13	391	-16284	-7109	-74643		2,76	211	0,92	5453			0,77	No, Vu<V
SLU 76	201	-15715	-9138	-852962		3,65	153,67	1,04	4486			0,49	No, Vu<V
SLU 76	391	-21988	-9085	-69269		3,72	211	1,05	6214			0,68	No, Vu<V
SLU 55	201	-14143	-8364	-798076		3,43	147,22	1,01	4176			0,5	No, Vu<V
SLU 55	391	-19659	-8312	-78027		3,33	211	1	5903			0,71	No, Vu<V
SLU 73	201	-15433	-9047	-844157		3,62	152,41	1,04	4429			0,49	No, Vu<V
SLU 73	391	-21611	-8995	-67574		3,66	211	1,04	6164			0,69	No, Vu<V
SLU 34	201	-12986	-7931	-752537		3,25	142,65	0,99	3950			0,5	No, Vu<V
SLU 34	391	-18613	-7882	-65884		3,15	211	0,98	5764			0,73	No, Vu<V
SLU 10	201	-11133	-7067	-688846		3,04	130,88	0,96	3520			0,5	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 10	391	-15907	-7019	-72948		2.69	211	0.91	5403			0.77	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	201	-13716	-10398	-761131		3.27	150.02	1.49	6244			0.6	No, Vu<V
SLD 13	391	-20038	-9637	233543		3.39	211	1.51	8931			0.93	No, Vu<V
SLV 9	201	-18667	-14413	-1145591		5.04	132.39	1.63	6024			0.42	No, Vu<V
SLV 9	391	-27716	-12478	212943		4.69	211	1.63	9601			0.77	No, Vu<V
SLV 13	201	-16382	-17040	-1201753		6.07	96.42	1.63	4387			0.26	No, Vu<V
SLV 13	391	-26411	-15263	530673		4.47	211	1.63	9601			0.63	No, Vu<V
SLV 15	201	-12747	-13380	-881777		4.18	108.97	1.63	4958			0.37	No, Vu<V
SLV 15	391	-20396	-12522	497796		3.45	211	1.52	9003			0.72	No, Vu<V
SLV 14	201	-16382	-17040	-1201753		6.07	96.42	1.63	4387			0.26	No, Vu<V
SLV 14	391	-26411	-15263	530673		4.47	211	1.63	9601			0.63	No, Vu<V
SLV 4	201	-7162	6321	345275		1.49	171.87	1.13	5443			0.86	No, Vu<V
SLV 4	391	-4073	4573	-519592		0	0	0.83	0			0	No, Vu<V
SLV 3	201	-7162	6321	345275		1.49	171.87	1.13	5443			0.86	No, Vu<V
SLV 3	391	-4073	4573	-519592		0	0	0.83	0			0	No, Vu<V
SLD 14	201	-13716	-10398	-761131		3.27	150.02	1.49	6244			0.6	No, Vu<V
SLD 14	391	-20038	-9637	233543		3.39	211	1.51	8931			0.93	No, Vu<V
SLV 16	201	-12747	-13380	-881777		4.18	108.97	1.63	4958			0.37	No, Vu<V
SLV 16	391	-20396	-12522	497796		3.45	211	1.52	9003			0.72	No, Vu<V
SLV 10	201	-18667	-14413	-1145591		5.04	132.39	1.63	6024			0.42	No, Vu<V
SLV 10	391	-27716	-12478	212943		4.69	211	1.63	9601			0.77	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.31	0	82	19242	0	0	No, Trazione
SLV 8	14	0.31	0	82	19242	0	0	No, Trazione
SLV 12	14	0.31	0.61	-3629	19242	48251	2.51	Si
SLV 11	14	0.31	0.61	-3629	19242	48251	2.51	Si
SLV 3	14	0.31	0.72	-4248	19242	55968	2.91	Si
SLV 4	14	0.31	0.72	-4248	19242	55968	2.91	Si
SLV 2	14	0.31	1.98	-11669	19242	136959	7.12	Si
SLV 1	14	0.31	1.98	-11669	19242	136959	7.12	Si
SLV 15	14	0.31	2.81	-16616	19242	179081	9.31	Si
SLV 16	14	0.31	2.81	-16616	19242	179081	9.31	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-3941	1963	-65	0	0	0	0	1054.325	No, Trazione
SLV 8	-3941	1963	-65	0	0	0	0	1054.325	No, Trazione
SLV 11	-7425	-299	-93	0.036	10.712	0.923	56.064	1054.325	No
SLV 12	-7425	-299	-93	0.036	10.712	0.923	56.064	1054.325	No
SLV 6	-18966	-19835	75	0.038	22.408	0.959	57.021	1054.325	No
SLV 5	-18966	-19835	75	0.038	22.408	0.959	57.021	1054.325	No
SLV 10	-22450	-22098	47	0.039	25.951	0.964	58.442	1054.325	No
SLV 9	-22450	-22098	47	0.039	25.951	0.964	58.442	1054.325	No
SLV 16	-16748	-10568	-77	0.038	20.153	0.955	57.077	1012.339	No
SLV 15	-16748	-10568	-77	0.038	20.153	0.955	57.077	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.277	SLU 2	Si
V_SLU	0.489	SLU 73	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 8	No
R_SLV	0	SLV 8	No

## Maschio 93

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-301.3	595.1	-515.8	595.1	L3	L4	214.5	28	372	372	372			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	201	-24345	599455	4.05	1311742	2.188	Si
SLU 81	391	-27967	439590	4.66	1284847	2.923	Si
SLU 74	201	-24389	604711	4.06	1311760	2.169	Si
SLU 74	391	-28040	455503	4.67	1283699	2.818	Si
SLU 76	201	-24062	596251	4.01	1311420	2.199	Si
SLU 76	391	-27606	461925	4.6	1290104	2.793	Si
SLU 77	201	-25335	630123	4.22	1310101	2.079	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	391	-29245	486050	4.87	1261613	2.596	Si
SLU 75	201	-24277	600910	4.04	1311697	2.183	Si
SLU 75	391	-27869	460533	4.64	1286318	2.793	Si
SLU 80	201	-25082	624197	4.18	1310929	2.1	Si
SLU 80	391	-28925	489119	4.82	1268112	2.593	Si
SLU 78	201	-25223	626321	4.2	1310502	2.092	Si
SLU 78	391	-29074	491079	4.84	1265135	2.576	Si
SLU 84	201	-25179	621065	4.19	1310646	2.11	Si
SLU 84	391	-29000	475165	4.83	1266617	2.666	Si
SLU 83	201	-25291	624866	4.21	1310266	2.097	Si
SLU 83	391	-29171	470136	4.86	1263151	2.687	Si
SLU 79	201	-25194	627998	4.19	1310597	2.087	Si
SLU 79	391	-29096	484090	4.84	1264703	2.613	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	201	-14880	810961	2.48	1272308	1.569	Si
SLV 4	391	-23562	-340739	3.92	1715660	5.035	Si
SLV 14	201	-17449	254	2.91	1426443	1000	Si
SLV 14	391	-13171	931556	2.19	1159032	1.244	Si
SLV 10	201	-5661	589060	0.94	560316	0.951	No, M>Mu
SLV 10	391	-8236	646515	1.37	784160	1.213	Si
SLV 2	201	-7701	1012099	0	0	0	No, e>l/2
SLV 2	391	-17910	-235071	2.98	1452062	6.177	Si
SLV 9	201	-5661	589060	0.94	560316	0.951	No, M>Mu
SLV 9	391	-8236	646515	1.37	784160	1.213	Si
SLV 5	201	-2737	892613	0	0	0	No, e>l/2
SLV 5	391	-9658	296527	1.61	899472	3.033	Si
SLV 1	201	-7701	1012099	0	0	0	No, e>l/2
SLV 1	391	-17910	-235071	2.98	1452062	6.177	Si
SLV 3	201	-14880	810961	2.48	1272308	1.569	Si
SLV 3	391	-23562	-340739	3.92	1715660	5.035	Si
SLV 6	201	-2737	892613	0	0	0	No, e>l/2
SLV 6	391	-9658	296527	1.61	899472	3.033	Si
SLV 13	201	-17449	254	2.91	1426443	1000	Si
SLV 13	391	-13171	931556	2.19	1159032	1.244	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	201	-25194	4529	627998		4.19	214.5	1.08	6507			1.44	Si
SLU 79	391	-29096	4483	484090		4.84	214.5	1.08	6507			1.45	Si
SLU 80	201	-25082	4450	624197		4.18	214.5	1.08	6507			1.46	Si
SLU 80	391	-28925	4403	489119		4.82	214.5	1.08	6507			1.48	Si
SLU 77	201	-25335	4535	630123		4.22	214.5	1.08	6507			1.43	Si
SLU 77	391	-29245	4489	486050		4.87	214.5	1.08	6507			1.45	Si
SLU 84	201	-25179	4495	621065		4.19	214.5	1.08	6507			1.45	Si
SLU 84	391	-29000	4449	475165		4.83	214.5	1.08	6507			1.46	Si
SLU 74	201	-24389	4414	604711		4.06	214.5	1.08	6507			1.47	Si
SLU 74	391	-28040	4371	455503		4.67	214.5	1.08	6507			1.49	Si
SLU 81	201	-24345	4453	599455		4.05	214.5	1.08	6507			1.46	Si
SLU 81	391	-27967	4410	439590		4.66	214.5	1.08	6507			1.48	Si
SLU 75	201	-24277	4335	600910		4.04	214.5	1.08	6507			1.5	Si
SLU 75	391	-27869	4291	460533		4.64	214.5	1.08	6507			1.52	Si
SLU 83	201	-25291	4574	624866		4.21	214.5	1.08	6507			1.42	Si
SLU 83	391	-29171	4529	470136		4.86	214.5	1.08	6507			1.44	Si
SLU 78	201	-25223	4456	626321		4.2	214.5	1.08	6507			1.46	Si
SLU 78	391	-29074	4409	491079		4.84	214.5	1.08	6507			1.48	Si
SLU 82	201	-24233	4374	595654		4.03	214.5	1.08	6507			1.49	Si
SLU 82	391	-27796	4330	444619		4.63	214.5	1.08	6507			1.5	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	201	-14880	15011	810961		3.36	158.25	1.5	6669			0.44	No, Vu<V
SLV 3	391	-23562	12525	-340739		3.92	214.5	1.62	9717			0.78	No, Vu<V
SLV 13	201	-17449	-8968	254		2.91	214.5	1.41	8495			0.95	No, Vu<V
SLV 13	391	-13171	-6537	931556		4.29	109.56	1.63	4985			0.76	No, Vu<V
SLV 9	201	-5661	-6228	589060		21.09	9.59	1.63	436			0.07	No, Vu<V
SLV 9	391	-8236	-2604	646515		3.41	86.25	1.52	3660			1.41	Si
SLV 14	201	-17449	-8968	254		2.91	214.5	1.41	8495			0.95	No, Vu<V
SLV 14	391	-13171	-6537	931556		4.29	109.56	1.63	4985			0.76	No, Vu<V
SLV 2	201	-7701	11284	1012099		0	0	0.83	0			0	No, Vu<V
SLV 2	391	-17910	10720	-235071		2.98	214.5	1.43	8587			0.8	No, Vu<V
SLV 10	201	-5661	-6228	589060		21.09	9.59	1.63	436			0.07	No, Vu<V
SLV 10	391	-8236	-2604	646515		3.41	86.25	1.52	3660			1.41	Si
SLV 4	201	-14880	15011	810961		3.36	158.25	1.5	6669			0.44	No, Vu<V
SLV 4	391	-23562	12525	-340739		3.92	214.5	1.62	9717			0.78	No, Vu<V
SLV 5	201	-2737	-153	892613		0	0	0.83	0			0	No, Vu<V
SLV 5	391	-9658	2573	296527		1.61	214.5	1.15	6937			2.7	Si
SLV 6	201	-2737	-153	892613		0	0	0.83	0			0	No, Vu<V
SLV 6	391	-9658	2573	296527		1.61	214.5	1.15	6937			2.7	Si
SLV 1	201	-7701	11284	1012099		0	0	0.83	0			0	No, Vu<V
SLV 1	391	-17910	10720	-235071		2.98	214.5	1.43	8587			0.8	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.31	0.87	-5237	19561	68084	3.48	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.31	0.87	-5237	19561	68084	3.48	Si
SLV 5	14	0.31	0.96	-5768	19561	74400	3.8	Si
SLV 6	14	0.31	0.96	-5768	19561	74400	3.8	Si
SLV 14	14	0.31	2.11	-12664	19561	146704	7.5	Si
SLV 13	14	0.31	2.11	-12664	19561	146704	7.5	Si
SLV 2	14	0.31	2.4	-14433	19561	162326	8.3	Si
SLV 1	14	0.31	2.4	-14433	19561	162326	8.3	Si
SLV 16	14	0.31	3.26	-19562	19561	200862	10.27	Si
SLV 15	14	0.31	3.26	-19562	19561	200862	10.27	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297  $W_a = 0.05$   $T_a = 0.0825$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-8248	410	109	0	0	0	0	1054.325	No, Trazione
SLV 10	-8248	410	109	0	0	0	0	1054.325	No, Trazione
SLV 5	-9765	3000	150	0	0	0	0	1054.325	No, Trazione
SLV 6	-9765	3000	150	0	0	0	0	1054.325	No, Trazione
SLV 11	-20007	-28001	-141	0.035	23.518	0.96	52.483	1054.325	No
SLV 12	-20007	-28001	-141	0.035	23.518	0.96	52.483	1054.325	No
SLV 7	-21525	-25411	-99	0.037	25.062	0.962	55.315	1054.325	No
SLV 8	-21525	-25411	-99	0.037	25.062	0.962	55.315	1054.325	No
SLV 2	-15652	-3922	112	0.036	19.091	0.952	54.355	1012.339	No
SLV 1	-15652	-3922	112	0.036	19.091	0.952	54.355	1012.339	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.079	SLU 77	Si
V_SLU	1.423	SLU 83	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	3.481	SLV 9	Si
R_SLV	0	SLV 10	No

## Maschio 94

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	595.1	-201.3	595.1	L3	L4	189	28	372	372	372			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	201	-14998	-413994	2.83	924188	2.232	Si
SLU 80	391	-19375	122683	3.66	1008012	8.216	Si
SLU 74	201	-15478	-429633	2.92	937481	2.182	Si
SLU 74	391	-19831	103246	3.75	1011915	9.801	Si
SLU 79	201	-15455	-426523	2.92	936873	2.197	Si
SLU 79	391	-19822	114979	3.75	1011843	8.8	Si
SLU 82	201	-15347	-427135	2.9	933972	2.187	Si
SLU 82	391	-19901	108464	3.76	1012430	9.334	Si
SLU 78	201	-15148	-418351	2.86	928455	2.219	Si
SLU 78	391	-19579	122242	3.7	1009870	8.261	Si
SLU 83	201	-15932	-440911	3.01	949132	2.153	Si
SLU 83	391	-20542	112051	3.88	1016177	9.069	Si
SLU 84	201	-15475	-428382	2.92	937403	2.188	Si
SLU 84	391	-20095	119755	3.8	1013757	8.465	Si
SLU 77	201	-15605	-430880	2.95	940839	2.184	Si
SLU 77	391	-20026	114537	3.78	1013301	8.847	Si
SLU 75	201	-15020	-417105	2.84	924842	2.217	Si
SLU 75	391	-19384	110951	3.66	1008102	9.086	Si
SLU 81	201	-15804	-439664	2.99	945956	2.152	Si
SLU 81	391	-20348	100760	3.84	1015231	10.076	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	201	-5930	273090	1.12	508996	1.864	Si
SLV 2	391	-1072	-272813	0	0	0	No, e>l/2
SLV 16	201	-15492	-874930	2.93	1113257	1.272	Si
SLV 16	391	-25876	386493	4.89	1466739	3.795	Si
SLV 14	201	-9867	-688931	1.86	790149	1.147	Si
SLV 14	391	-19134	310122	3.62	1273103	4.105	Si
SLV 5	201	-745	153382	0	0	0	No, e>l/2
SLV 5	391	472	-157885	0	0	0	No, Trazione
SLV 15	201	-15492	-874930	2.93	1113257	1.272	Si
SLV 15	391	-25876	386493	4.89	1466739	3.795	Si
SLV 9	201	-1926	-135224	0.36	176607	1.306	Si
SLV 9	391	-4946	16995	0.93	431681	25.4	Si
SLV 10	201	-1926	-135224	0.36	176607	1.306	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	391	-4946	16995	0.93	431681	25.4	Si
SLV 1	201	-5930	273090	1.12	508996	1.864	Si
SLV 1	391	-1072	-272813	0	0	0	No, e>l/2
SLV 13	201	-9867	-688931	1.86	790149	1.147	Si
SLV 13	391	-19134	310122	3.62	1273103	4.105	Si
SLV 6	201	-745	153382	0	0	0	No, e>l/2
SLV 6	391	472	-157885	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	201	-15455	-6228	-426523	2.92	189	0.94	5001				0.8	No, Vu<V
SLU 79	391	-19822	-6212	114979	3.75	189	1.05	5583				0.9	No, Vu<V
SLU 80	201	-14998	-6208	-413994	2.83	189	0.93	4940				0.8	No, Vu<V
SLU 80	391	-19375	-6191	122683	3.66	189	1.04	5523				0.89	No, Vu<V
SLU 83	201	-15932	-6410	-440911	3.01	189	0.96	5064				0.79	No, Vu<V
SLU 83	391	-20542	-6394	112051	3.88	189	1.07	5679				0.89	No, Vu<V
SLU 82	201	-15347	-6290	-427135	2.9	189	0.94	4986				0.79	No, Vu<V
SLU 82	391	-19901	-6273	108464	3.76	189	1.06	5593				0.89	No, Vu<V
SLU 77	201	-15605	-6276	-430880	2.95	189	0.95	5021				0.8	No, Vu<V
SLU 77	391	-20026	-6260	114537	3.78	189	1.06	5610				0.9	No, Vu<V
SLU 81	201	-15804	-6310	-439664	2.99	189	0.95	5047				0.8	No, Vu<V
SLU 81	391	-20348	-6294	100760	3.84	189	1.07	5653				0.9	No, Vu<V
SLU 75	201	-15020	-6156	-417105	2.84	189	0.93	4943				0.8	No, Vu<V
SLU 75	391	-19384	-6139	110951	3.66	189	1.04	5525				0.9	No, Vu<V
SLU 76	201	-14565	-6096	-404395	2.75	189	0.92	4882				0.8	No, Vu<V
SLU 76	391	-18882	-6078	116529	3.57	189	1.03	5458				0.9	No, Vu<V
SLU 78	201	-15148	-6256	-418351	2.86	189	0.94	4960				0.79	No, Vu<V
SLU 78	391	-19579	-6239	122242	3.7	189	1.05	5551				0.89	No, Vu<V
SLU 84	201	-15475	-6390	-428382	2.92	189	0.95	5003				0.78	No, Vu<V
SLU 84	391	-20095	-6373	119755	3.8	189	1.06	5619				0.88	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	201	-5930	5894	273090	1.46	145.34	1.12	4577				0.78	No, Vu<V
SLV 2	391	-1072	4003	-272813	0	0	0.83	0				0	No, Vu<V
SLV 12	201	-20677	-13236	-755223	4.25	173.93	1.63	7914				0.6	No, Vu<V
SLV 12	391	-27420	-11067	271565	5.18	189	1.63	8600				0.78	No, Vu<V
SLV 6	201	-745	4875	153382	0	0	0.83	0				0	No, Vu<V
SLV 6	391	472	2726	-157885	0	0	0.83	0				0	No, Vu<V
SLV 5	201	-745	4875	153382	0	0	0.83	0				0	No, Vu<V
SLV 5	391	472	2726	-157885	0	0	0.83	0				0	No, Vu<V
SLV 11	201	-20677	-13236	-755223	4.25	173.93	1.63	7914				0.6	No, Vu<V
SLV 11	391	-27420	-11067	271565	5.18	189	1.63	8600				0.78	No, Vu<V
SLV 13	201	-9867	-10278	-688931	4.76	74.04	1.63	3369				0.33	No, Vu<V
SLV 13	391	-19134	-9414	310122	3.62	189	1.56	8237				0.87	No, Vu<V
SLV 14	201	-9867	-10278	-688931	4.76	74.04	1.63	3369				0.33	No, Vu<V
SLV 14	391	-19134	-9414	310122	3.62	189	1.56	8237				0.87	No, Vu<V
SLV 1	201	-5930	5894	273090	1.46	145.34	1.12	4577				0.78	No, Vu<V
SLV 1	391	-1072	4003	-272813	0	0	0.83	0				0	No, Vu<V
SLV 15	201	-15492	-14256	-874930	4.85	114.07	1.63	5190				0.36	No, Vu<V
SLV 15	391	-25876	-12344	386493	4.89	189	1.63	8600				0.7	No, Vu<V
SLV 16	201	-15492	-14256	-874930	4.85	114.07	1.63	5190				0.36	No, Vu<V
SLV 16	391	-25876	-12344	386493	4.89	189	1.63	8600				0.7	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.31	0	2064	17236	0	0	No, Trazione
SLV 9	14	0.31	0	-967	17236	0	0	No, e>t/2
SLV 6	14	0.31	0	2064	17236	0	0	No, Trazione
SLV 10	14	0.31	0	-967	17236	0	0	No, e>t/2
SLV 1	14	0.31	0.68	-3606	17236	47663	2.77	Si
SLV 2	14	0.31	0.68	-3606	17236	47663	2.77	Si
SLV 3	14	0.31	2.17	-11495	17236	132326	7.68	Si
SLV 4	14	0.31	2.17	-11495	17236	132326	7.68	Si
SLV 13	14	0.31	2.59	-13707	17236	151219	8.77	Si
SLV 14	14	0.31	2.59	-13707	17236	151219	8.77	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-2163	5018	98	0	0	0	0	1054.325	No, Trazione
SLV 9	-5092	3352	103	0	0	0	0	1054.325	No, Trazione
SLV 10	-5092	3352	103	0	0	0	0	1054.325	No, Trazione
SLV 5	-2163	5018	98	0	0	0	0	1054.325	No, Trazione
SLV 8	-17725	-22549	-98	0.036	20.82	0.96	54.51	1054.325	No
SLV 7	-17725	-22549	-98	0.036	20.82	0.96	54.51	1054.325	No
SLV 12	-20655	-24215	-93	0.036	23.801	0.965	54.913	1054.325	No
SLV 11	-20655	-24215	-93	0.036	23.801	0.965	54.913	1054.325	No
SLV 13	-13957	-8240	41	0.039	16.99	0.952	59.964	1012.339	No
SLV 14	-13957	-8240	41	0.039	16.99	0.952	59.964	1012.339	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	2.152	SLU 81	Si
V SLU	0.783	SLU 84	No
PF SLV	0	SLV 6	No



Stato limite	Coeff.s.	Comb.	Verifica
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 6	No
R_SLV	0	SLV 10	No

## Maschio 95

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	-328.4	-12.3	595.1	L3	L4	923.5	28	372	372	372			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 55	111	-158975	-4698942	6.15	18003149	3.831	Si
SLU 55	483	-104161	-2066729	4.03	24311942	11.763	Si
SLU 84	111	-178916	-4192246	6.92	12440143	2.967	Si
SLU 84	483	-118072	-1854362	4.57	23958210	12.92	Si
SLU 82	111	-177152	-3974857	6.85	13002647	3.271	Si
SLU 82	483	-116746	-1696544	4.51	24028537	14.163	Si
SLU 78	111	-175972	-4324226	6.81	13371158	3.092	Si
SLU 78	483	-116357	-1973638	4.5	24047671	12.184	Si
SLU 65	111	-157225	-4613696	6.08	18408209	3.99	Si
SLU 65	483	-102991	-2018233	3.98	24303006	12.042	Si
SLU 75	111	-174208	-4106836	6.74	13910888	3.387	Si
SLU 75	483	-115030	-1815819	4.45	24108024	13.277	Si
SLU 73	111	-171999	-4827828	6.65	14567221	3.017	Si
SLU 73	483	-113091	-2102203	4.37	24182365	11.503	Si
SLU 76	111	-173764	-5045217	6.72	14044574	2.784	Si
SLU 76	483	-114418	-2260021	4.42	24133290	10.678	Si
SLU 68	111	-158989	-4831085	6.15	17999852	3.726	Si
SLU 68	483	-104317	-2176052	4.03	24312678	11.173	Si
SLU 80	111	-174348	-4317865	6.74	13868325	3.212	Si
SLU 80	483	-115070	-1976194	4.45	24106352	12.198	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 5	111	-97631	-18447211	3.78	31150507	1.689	Si
SLV 5	483	-66796	-8844691	2.58	24322254	2.75	Si
SLV 6	111	-97631	-18447211	3.78	31150507	1.689	Si
SLV 6	483	-66796	-8844691	2.58	24322254	2.75	Si
SLV 8	111	-105445	15786361	4.08	32439541	2.055	Si
SLV 8	483	-72190	7488633	2.79	25717287	3.434	Si
SLV 7	111	-105445	15786361	4.08	32439541	2.055	Si
SLV 7	483	-72190	7488633	2.79	25717287	3.434	Si
SLV 9	111	-133844	-19220884	5.18	35621308	1.853	Si
SLV 9	483	-84925	-8857987	3.28	28673586	3.237	Si
SLV 10	111	-133844	-19220884	5.18	35621308	1.853	Si
SLV 10	483	-84925	-8857987	3.28	28673586	3.237	Si
SLV 11	111	-141659	15012688	5.48	36083219	2.404	Si
SLV 11	483	-90319	7475337	3.49	29782784	3.984	Si
SLD 5	111	-110068	-8844569	4.26	33118113	3.744	Si
SLD 5	483	-73449	-4124539	2.84	26030598	6.311	Si
SLV 12	111	-141659	15012688	5.48	36083219	2.404	Si
SLV 12	483	-90319	7475337	3.49	29782784	3.984	Si
SLD 6	111	-110068	-8844569	4.26	33118113	3.744	Si
SLD 6	483	-73449	-4124539	2.84	26030598	6.311	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 47	111	-144200	-945	-4484809		5.58	923.49	1.08	28013			29.65	Si
SLU 47	483	-94061	-655	-1982759		3.64	923.49	1.04	26907			41.09	Si
SLU 2	111	-114147	-1059	-3919000		4.41	923.49	1.08	28013			26.46	Si
SLU 2	483	-74428	-776	-1709574		2.88	923.49	0.94	24289			31.29	Si
SLU 13	111	-130686	-989	-4350521		5.05	923.49	1.08	28013			28.34	Si
SLU 13	483	-85856	-703	-1951363		3.32	923.49	1	25813			36.72	Si
SLU 5	111	-115911	-1086	-4136389		4.48	923.49	1.08	28013			25.81	Si
SLU 5	483	-75755	-803	-1867393		2.93	923.49	0.95	24466			30.47	Si
SLU 74	111	-172438	908	-2689723		6.67	923.49	1.08	28013			30.86	Si
SLU 74	483	-114018	951	-1153350		4.41	923.49	1.08	28013			29.45	Si
SLU 26	111	-130700	-987	-4482665		5.05	923.49	1.08	28013			28.38	Si
SLU 26	483	-86011	-701	-2060685		3.33	923.49	1	25834			36.83	Si
SLU 23	111	-128936	-960	-4265276		4.99	923.49	1.08	28013			29.17	Si
SLU 23	483	-84685	-675	-1902867		3.28	923.49	0.99	25657			38.03	Si
SLU 83	111	-177147	932	-2775133		6.85	923.49	1.08	28013			30.05	Si
SLU 83	483	-117060	977	-1191893		4.53	923.49	1.08	28013			28.68	Si
SLU 81	111	-175382	959	-2557744		6.78	923.49	1.08	28013			29.21	Si
SLU 81	483	-115733	1003	-1034074		4.48	923.49	1.08	28013			27.92	Si
SLU 10	111	-128922	-962	-4133132		4.99	923.49	1.08	28013			29.13	Si
SLU 10	483	-84529	-676	-1793544		3.27	923.49	0.99	25636			37.92	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	111	-105445	37618	15786361		4.08	923.49	1.63	42019			1.12	Si
SLV 8	483	-72190	25248	7488633		2.79	923.49	1.39	35986			1.43	Si
SLV 9	111	-133844	-36343	-19220884		5.18	923.49	1.63	42019			1.16	Si
SLV 9	483	-84925	-23912	-8857987		3.28	923.49	1.49	38533			1.61	Si
SLV 7	111	-105445	37618	15786361		4.08	923.49	1.63	42019			1.12	Si
SLV 7	483	-72190	25248	7488633		2.79	923.49	1.39	35986			1.43	Si
SLD 7	111	-113506	16727	5736196		4.39	923.49	1.63	42019			2.51	Si
SLD 7	483	-75879	11378	2759738		2.93	923.49	1.42	36724			3.23	Si
SLD 8	111	-113506	16727	5736196		4.39	923.49	1.63	42019			2.51	Si
SLD 8	483	-75879	11378	2759738		2.93	923.49	1.42	36724			3.23	Si
SLV 6	111	-97631	-36268	-18447211		4.26	818.4	1.63	37237			1.03	Si
SLV 6	483	-66796	-23475	-8844691		2.58	923.49	1.35	34907			1.49	Si
SLV 11	111	-141659	37543	15012688		5.48	923.49	1.63	42019			1.12	Si
SLV 11	483	-90319	24811	7475337		3.49	923.49	1.53	39612			1.6	Si
SLV 5	111	-97631	-36268	-18447211		4.26	818.4	1.63	37237			1.03	Si
SLV 5	483	-66796	-23475	-8844691		2.58	923.49	1.35	34907			1.49	Si
SLV 12	111	-141659	37543	15012688		5.48	923.49	1.63	42019			1.12	Si
SLV 12	483	-90319	24811	7475337		3.49	923.49	1.53	39612			1.6	Si
SLV 10	111	-133844	-36343	-19220884		5.18	923.49	1.63	42019			1.16	Si
SLV 10	483	-84925	-23912	-8857987		3.28	923.49	1.49	38533			1.61	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 297 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.31	2.11	-54468	84218	631094	7.49	Si
SLV 2	14	0.31	2.11	-54468	84218	631094	7.49	Si
SLV 4	14	0.31	2.16	-55740	84218	642687	7.63	Si
SLV 3	14	0.31	2.16	-55740	84218	642687	7.63	Si
SLV 5	14	0.31	3.16	-81710	84218	848098	10.07	Si
SLV 6	14	0.31	3.16	-81710	84218	848098	10.07	Si
SLV 8	14	0.31	3.32	-85949	84218	875951	10.4	Si
SLV 7	14	0.31	3.32	-85949	84218	875951	10.4	Si
SLV 10	14	0.31	4.11	-106332	84218	987647	11.73	Si
SLV 9	14	0.31	4.11	-106332	84218	987647	11.73	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 297 Wa = 0.05 Ta = 0.0825

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-90319	-141659	-134	0.04	105.508	0.962	59.806	1054.325	No
SLV 12	-90319	-141659	-134	0.04	105.508	0.962	59.806	1054.325	No
SLV 9	-84925	-133844	67	0.04	100.022	0.96	61.173	1054.325	No
SLV 10	-84925	-133844	67	0.04	100.022	0.96	61.173	1054.325	No
SLV 16	-109583	-181173	-113	0.039	125.11	0.967	59.256	1012.339	No
SLV 15	-109583	-181173	-113	0.039	125.11	0.967	59.256	1012.339	No
SLV 8	-72190	-105445	-92	0.041	87.075	0.954	61.719	1054.325	No
SLV 7	-72190	-105445	-92	0.041	87.075	0.954	61.719	1054.325	No
SLV 5	-66796	-97631	110	0.04	81.595	0.952	61.847	1054.325	No
SLV 6	-66796	-97631	110	0.04	81.595	0.952	61.847	1054.325	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.784	SLU 76	Si
V_SLU	25.806	SLU 5	Si
PF_SLV	1.689	SLV 5	Si
V_SLV	1.027	SLV 5	Si
PFFP_SLV	7.494	SLV 1	Si
R_SLV	0.057	SLV 11	No

## Maschio 96

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2467.8	-335.9	-2467.8	126.6	L4	L5	462.6	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	483	-60757	-2993558	4.69	5959902	1.991	Si
SLU 76	693	-47476	-1615070	3.67	6039367	3.739	Si
SLU 84	483	-62039	-2919358	4.79	5911299	2.025	Si
SLU 84	693	-48380	-1632979	3.74	6058474	3.71	Si
SLU 80	483	-61046	-2940797	4.71	5949592	2.023	Si
SLU 80	693	-47913	-1624037	3.7	6049043	3.725	Si
SLU 55	483	-55039	-2813626	4.25	6088922	2.164	Si
SLU 55	693	-43135	-1463052	3.33	5897619	4.031	Si
SLU 68	483	-55357	-2856930	4.27	6085509	2.13	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 68	693	-43551	-1478385	3.36	5914775	4.001	Si
SLU 82	483	-60719	-2839364	4.69	5961259	2.1	Si
SLU 82	693	-47164	-1583342	3.64	6031934	3.81	Si
SLU 70	483	-56213	-2811814	4.34	6074130	2.16	Si
SLU 70	693	-44462	-1493774	3.43	5949706	3.983	Si
SLU 75	483	-60292	-2868448	4.66	5975749	2.083	Si
SLU 75	693	-47172	-1580821	3.64	6032120	3.816	Si
SLU 78	483	-61613	-2948442	4.76	5928257	2.011	Si
SLU 78	693	-48387	-1630458	3.74	6058619	3.716	Si
SLU 73	483	-59436	-2913564	4.59	6002437	2.06	Si
SLU 73	693	-46261	-1565433	3.57	6008013	3.838	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	483	-45267	-4327447	3.49	7474868	1.727	Si
SLV 10	693	-38479	-1458211	2.97	6735749	4.619	Si
SLV 6	483	-56230	-4539634	4.34	8384312	1.847	Si
SLV 6	693	-44007	-1780406	3.4	7347841	4.127	Si
SLV 14	483	-24859	-2292625	1.92	4846347	2.114	Si
SLV 14	693	-25025	-667329	1.93	4872602	7.302	Si
SLD 5	483	-46849	-3021022	3.62	7627822	2.525	Si
SLD 5	693	-36713	-1340445	2.83	6521300	4.865	Si
SLV 9	483	-45267	-4327447	3.49	7474868	1.727	Si
SLV 9	693	-38479	-1458211	2.97	6735749	4.619	Si
SLD 9	483	-42143	-2930165	3.25	7151445	2.441	Si
SLD 9	693	-34349	-1200747	2.65	6220111	5.18	Si
SLD 6	483	-46849	-3021022	3.62	7627822	2.525	Si
SLD 6	693	-36713	-1340445	2.83	6521300	4.865	Si
SLV 13	483	-24859	-2292625	1.92	4846347	2.114	Si
SLV 13	693	-25025	-667329	1.93	4872602	7.302	Si
SLV 5	483	-56230	-4539634	4.34	8384312	1.847	Si
SLV 5	693	-44007	-1780406	3.4	7347841	4.127	Si
SLD 10	483	-42143	-2930165	3.25	7151445	2.441	Si
SLD 10	693	-34349	-1200747	2.65	6220111	5.18	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	483	-60757	-8688	-2993558		4.69	462.57	1.08	14031			1.62	Si
SLU 76	693	-47476	-8444	-1615070		3.67	462.57	1.04	13526			1.6	Si
SLU 82	483	-60719	-8514	-2839364		4.69	462.57	1.08	14031			1.65	Si
SLU 82	693	-47164	-8368	-1583342		3.64	462.57	1.04	13484			1.61	Si
SLU 78	483	-61613	-8718	-2948442		4.76	462.57	1.08	14031			1.61	Si
SLU 78	693	-48387	-8572	-1630458		3.74	462.57	1.05	13647			1.59	Si
SLU 77	483	-60065	-8322	-2749309		4.64	462.57	1.08	14031			1.69	Si
SLU 77	693	-47219	-8323	-1569454		3.65	462.57	1.04	13491			1.62	Si
SLU 80	483	-61046	-8652	-2940797		4.71	462.57	1.08	14031			1.62	Si
SLU 80	693	-47913	-8506	-1624037		3.7	462.57	1.05	13584			1.6	Si
SLU 79	483	-59497	-8256	-2741664		4.59	462.57	1.08	14031			1.7	Si
SLU 79	693	-46744	-8257	-1563032		3.61	462.57	1.04	13428			1.63	Si
SLU 73	483	-59436	-8460	-2913564		4.59	462.57	1.08	14031			1.66	Si
SLU 73	693	-46261	-8216	-1565433		3.57	462.57	1.03	13364			1.63	Si
SLU 75	483	-60292	-8490	-2868448		4.66	462.57	1.08	14031			1.65	Si
SLU 75	693	-47172	-8344	-1580821		3.64	462.57	1.04	13485			1.62	Si
SLU 84	483	-62039	-8742	-2919358		4.79	462.57	1.08	14031			1.6	Si
SLU 84	693	-48380	-8596	-1632979		3.74	462.57	1.05	13646			1.59	Si
SLU 83	483	-60491	-8346	-2720225		4.67	462.57	1.08	14031			1.68	Si
SLU 83	693	-47211	-8347	-1571975		3.65	462.57	1.04	13490			1.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 6	483	-46849	-12436	-3021022		3.62	462.57	1.56	20163			1.62	Si
SLD 6	693	-36713	-11054	-1340445		2.83	462.57	1.4	18136			1.64	Si
SLV 2	483	-61404	-12889	-2999916		4.74	462.57	1.63	21047			1.63	Si
SLV 2	693	-43450	-12344	-1741313		3.35	462.57	1.5	19483			1.58	Si
SLD 5	483	-46849	-12436	-3021022		3.62	462.57	1.56	20163			1.62	Si
SLD 5	693	-36713	-11054	-1340445		2.83	462.57	1.4	18136			1.64	Si
SLV 9	483	-45267	-19774	-4327447		3.97	407.06	1.63	18521			0.94	No, Vu<V
SLV 9	693	-38479	-16295	-1458211		2.97	462.57	1.43	18489			1.13	Si
SLV 12	483	-23504	10561	779040		1.81	462.57	1.2	15494			1.47	Si
SLV 12	693	-18463	7356	-272532		1.43	462.57	1.12	14486			1.97	Si
SLV 1	483	-61404	-12889	-2999916		4.74	462.57	1.63	21047			1.63	Si
SLV 1	693	-43450	-12344	-1741313		3.35	462.57	1.5	19483			1.58	Si
SLV 5	483	-56230	-21496	-4539634		4.45	451.66	1.63	20550			0.96	No, Vu<V
SLV 5	693	-44007	-18292	-1780406		3.4	462.57	1.51	19595			1.07	Si
SLV 11	483	-23504	10561	779040		1.81	462.57	1.2	15494			1.47	Si
SLV 11	693	-18463	7356	-272532		1.43	462.57	1.12	14486			1.97	Si
SLV 10	483	-45267	-19774	-4327447		3.97	407.06	1.63	18521			0.94	No, Vu<V
SLV 10	693	-38479	-16295	-1458211		2.97	462.57	1.43	18489			1.13	Si
SLV 6	483	-56230	-21496	-4539634		4.45	451.66	1.63	20550			0.96	No, Vu<V
SLV 6	693	-44007	-18292	-1780406		3.4	462.57	1.51	19595			1.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.38	1.48	-19105	47112	235180	4.99	Si
SLV 12	14	0.38	1.48	-19105	47112	235180	4.99	Si
SLV 16	14	0.38	1.54	-19917	47112	243743	5.17	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.38	1.54	-19917	47112	243743	5.17	Si
SLV 7	14	0.38	1.9	-24547	47112	290349	6.16	Si
SLV 8	14	0.38	1.9	-24547	47112	290349	6.16	Si
SLV 14	14	0.38	2.01	-26054	47112	304707	6.47	Si
SLV 13	14	0.38	2.01	-26054	47112	304707	6.47	Si
SLV 4	14	0.38	2.94	-38055	47112	404660	8.59	Si
SLV 3	14	0.38	2.94	-38055	47112	404660	8.59	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-34112	-56230	12	0.044	41.165	0.954	66.598	1083.091	No
SLV 6	-34112	-56230	12	0.044	41.165	0.954	66.598	1083.091	No
SLV 10	-30493	-45267	0	0.044	37.489	0.95	68.034	1083.091	No
SLV 9	-30493	-45267	0	0.044	37.489	0.95	68.034	1083.091	No
SLV 2	-33504	-61404	24	0.043	40.547	0.954	66.255	1041.05	No
SLV 1	-33504	-61404	24	0.043	40.547	0.954	66.255	1041.05	No
SLV 3	-29363	-54875	22	0.044	36.343	0.949	67.361	1041.05	No
SLV 4	-29363	-54875	22	0.044	36.343	0.949	67.361	1041.05	No
SLV 7	-20311	-34467	6	0.046	27.171	0.935	71.827	1083.091	No
SLV 8	-20311	-34467	6	0.046	27.171	0.935	71.827	1083.091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.991	SLU 76	Si
V_SLU	1.587	SLU 84	Si
PF_SLV	1.727	SLV 9	Si
V_SLV	0.937	SLV 9	No
PFFP_SLV	4.992	SLV 11	Si
R_SLV	0.061	SLV 5	No

## Maschio 97

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2467.8	206.6	-2467.8	595.1	L4	L5	388.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	483	-42259	2210936	3.88	4293967	1.942	Si
SLU 74	693	-36974	513777	3.4	4185331	8.146	Si
SLU 77	483	-42964	2206478	3.95	4299198	1.948	Si
SLU 77	693	-37791	526126	3.47	4210117	8.002	Si
SLU 82	483	-42206	2189595	3.88	4293484	1.961	Si
SLU 82	693	-36638	496212	3.37	4174280	8.412	Si
SLU 60	483	-39127	2089205	3.6	4244369	2.032	Si
SLU 60	693	-33816	491194	3.11	4061930	8.269	Si
SLU 84	483	-42911	2185137	3.94	4298880	1.967	Si
SLU 84	693	-37455	508560	3.44	4200270	8.259	Si
SLU 75	483	-41853	2117103	3.85	4289958	2.026	Si
SLU 75	693	-36471	503387	3.35	4168604	8.281	Si
SLU 83	483	-43317	2278970	3.98	4301003	1.887	Si
SLU 83	693	-37958	518950	3.49	4214827	8.122	Si
SLU 78	483	-42557	2112645	3.91	4296445	2.034	Si
SLU 78	693	-37288	515736	3.43	4195192	8.134	Si
SLU 81	483	-42613	2283428	3.92	4296863	1.882	Si
SLU 81	693	-37141	506601	3.41	4190639	8.272	Si
SLU 79	483	-42582	2181898	3.91	4296634	1.969	Si
SLU 79	693	-37426	526764	3.44	4199389	7.972	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	483	-33233	3113569	3.06	4841471	1.555	Si
SLV 11	693	-31103	471329	2.86	4627916	9.819	Si
SLV 4	483	-45618	2993012	4.19	5820000	1.945	Si
SLV 4	693	-39348	536442	3.62	5380664	10.03	Si
SLD 12	483	-30973	2220686	2.85	4614522	2.078	Si
SLD 12	693	-27814	413224	2.56	4272265	10.339	Si
SLV 3	483	-45618	2993012	4.19	5820000	1.945	Si
SLV 3	693	-39348	536442	3.62	5380664	10.03	Si
SLV 7	483	-41573	3654281	3.82	5549735	1.519	Si
SLV 7	693	-37885	543246	3.48	5261607	9.685	Si
SLV 8	483	-41573	3654281	3.82	5549735	1.519	Si
SLV 8	693	-37885	543246	3.48	5261607	9.685	Si
SLD 11	483	-30973	2220686	2.85	4614522	2.078	Si
SLD 11	693	-27814	413224	2.56	4272265	10.339	Si
SLV 12	483	-33233	3113569	3.06	4841471	1.555	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	693	-31103	471329	2.86	4627916	9.819	Si
SLD 7	483	-34538	2453985	3.18	4965674	2.024	Si
SLD 7	693	-30715	444162	2.82	4587673	10.329	Si
SLD 8	483	-34538	2453985	3.18	4965674	2.024	Si
SLD 8	693	-30715	444162	2.82	4587673	10.329	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	483	-41853	7777	2117103		3.85	388.5	1.07	11624			1.49	Si
SLU 75	693	-36471	7781	503387		3.35	388.5	1	10906			1.4	Si
SLU 82	483	-42206	7984	2189595		3.88	388.5	1.07	11671			1.46	Si
SLU 82	693	-36638	7988	496212		3.37	388.5	1	10928			1.37	Si
SLU 60	483	-39127	7714	2089205		3.6	388.5	1.04	11260			1.46	Si
SLU 60	693	-33816	7718	491194		3.11	388.5	0.97	10552			1.37	Si
SLU 81	483	-42613	8470	2283428		3.92	388.5	1.08	11725			1.38	Si
SLU 81	693	-37141	8475	506601		3.41	388.5	1.01	10996			1.3	Si
SLU 83	483	-43317	8494	2278970		3.98	388.5	1.08	11785			1.39	Si
SLU 83	693	-37958	8499	518950		3.49	388.5	1.02	11104			1.31	Si
SLU 74	483	-42259	8263	2210936		3.88	388.5	1.07	11678			1.41	Si
SLU 74	693	-36974	8268	513777		3.4	388.5	1.01	10973			1.33	Si
SLU 79	483	-42582	8182	2181898		3.91	388.5	1.08	11721			1.43	Si
SLU 79	693	-37426	8187	526764		3.44	388.5	1.01	11033			1.35	Si
SLU 77	483	-42964	8287	2206478		3.95	388.5	1.08	11772			1.42	Si
SLU 77	693	-37791	8292	526126		3.47	388.5	1.02	11082			1.34	Si
SLU 84	483	-42911	8007	2185137		3.94	388.5	1.08	11765			1.47	Si
SLU 84	693	-37455	8012	508560		3.44	388.5	1.01	11037			1.38	Si
SLU 62	483	-39832	7737	2084747		3.66	388.5	1.04	11354			1.47	Si
SLU 62	693	-34632	7742	503543		3.18	388.5	0.98	10661			1.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	483	-45618	13387	2993012		4.22	385.92	1.63	17559			1.31	Si
SLV 4	693	-39348	11306	536442		3.62	388.5	1.56	16935			1.5	Si
SLV 12	483	-33233	16471	3113569		3.93	301.69	1.62	13686			0.83	No, Vu<V
SLV 12	693	-31103	14107	471329		2.86	388.5	1.41	15286			1.08	Si
SLD 11	483	-30973	10419	2220686		3.01	367.66	1.44	14773			1.42	Si
SLD 11	693	-27814	9405	413224		2.56	388.5	1.34	14628			1.56	Si
SLV 11	483	-33233	16471	3113569		3.93	301.69	1.62	13686			0.83	No, Vu<V
SLV 11	693	-31103	14107	471329		2.86	388.5	1.41	15286			1.08	Si
SLV 7	483	-41573	18919	3654281		4.65	319.05	1.63	14517			0.77	No, Vu<V
SLV 7	693	-37885	15798	543246		3.48	388.5	1.53	16642			1.05	Si
SLV 3	483	-45618	13387	2993012		4.22	385.92	1.63	17559			1.31	Si
SLV 3	693	-39348	11306	536442		3.62	388.5	1.56	16935			1.5	Si
SLD 7	483	-34538	11454	2453985		3.34	369.59	1.5	15531			1.36	Si
SLD 7	693	-30715	10115	444162		2.82	388.5	1.4	15208			1.5	Si
SLD 8	483	-34538	11454	2453985		3.34	369.59	1.5	15531			1.36	Si
SLD 8	693	-30715	10115	444162		2.82	388.5	1.4	15208			1.5	Si
SLD 12	483	-30973	10419	2220686		3.01	367.66	1.44	14773			1.42	Si
SLD 12	693	-27814	9405	413224		2.56	388.5	1.34	14628			1.56	Si
SLV 8	483	-41573	18919	3654281		4.65	319.05	1.63	14517			0.77	No, Vu<V
SLV 8	693	-37885	15798	543246		3.48	388.5	1.53	16642			1.05	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.38	1.1	-12020	39568	153058	3.87	Si
SLV 13	14	0.38	1.1	-12020	39568	153058	3.87	Si
SLV 10	14	0.38	1.28	-13910	39568	174362	4.41	Si
SLV 9	14	0.38	1.28	-13910	39568	174362	4.41	Si
SLV 15	14	0.38	1.58	-17211	39568	209755	5.3	Si
SLV 16	14	0.38	1.58	-17211	39568	209755	5.3	Si
SLV 5	14	0.38	1.9	-20722	39568	244880	6.19	Si
SLV 6	14	0.38	1.9	-20722	39568	244880	6.19	Si
SLV 11	14	0.38	2.87	-31215	39568	334380	8.45	Si
SLV 12	14	0.38	2.87	-31215	39568	334380	8.45	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	-27926	-41573	-51	0.043	33.839	0.953	64.813	1083.091	No
SLV 7	-27926	-41573	-51	0.043	33.839	0.953	64.813	1083.091	No
SLV 11	-23608	-33233	-69	0.042	29.454	0.947	64.874	1083.091	No
SLV 12	-23608	-33233	-69	0.042	29.454	0.947	64.874	1083.091	No
SLV 6	-15737	-25329	69	0.043	21.484	0.931	67.619	1083.091	No
SLV 5	-15737	-25329	69	0.043	21.484	0.931	67.619	1083.091	No
SLV 1	-25041	-40744	48	0.043	30.909	0.95	65.665	1041.05	No
SLV 2	-25041	-40744	48	0.043	30.909	0.95	65.665	1041.05	No
SLV 4	-28698	-45618	12	0.044	34.623	0.954	66.493	1041.05	No
SLV 3	-28698	-45618	12	0.044	34.623	0.954	66.493	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.882	SLU 81	Si
V_SLU	1.297	SLU 81	Si
PF_SLV	1.519	SLV 7	Si
V_SLV	0.767	SLV 7	No
PFFP_SLV	3.868	SLV 13	Si





Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0.06	SLV 7	No

## Maschio 98

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2271.3	595.1	-2467.8	595.1	L4	L5	196.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	573	-24091	529526	4.38	1094652	2.067	Si
SLU 84	753	-21675	-57432	3.94	1099668	19.147	Si
SLU 83	573	-24510	541849	4.45	1091175	2.014	Si
SLU 83	753	-21996	-54097	4	1100477	20.343	Si
SLU 77	573	-24304	523626	4.42	1092981	2.087	Si
SLU 77	753	-21587	-30708	3.92	1099371	35.801	Si
SLU 80	573	-23620	506436	4.29	1097635	2.167	Si
SLU 80	753	-20980	-28179	3.81	1096372	38.907	Si
SLU 79	573	-24040	518758	4.37	1095023	2.111	Si
SLU 79	753	-21301	-24845	3.87	1098159	44.201	Si
SLU 82	573	-23756	530596	4.32	1096873	2.067	Si
SLU 82	753	-21467	-77704	3.9	1098905	14.142	Si
SLU 75	573	-23550	512374	4.28	1097997	2.143	Si
SLU 75	753	-21059	-54315	3.83	1096852	20.194	Si
SLU 74	573	-23969	524696	4.36	1095514	2.088	Si
SLU 74	753	-21380	-50980	3.89	1098528	21.548	Si
SLU 78	573	-23885	511304	4.34	1096079	2.144	Si
SLU 78	753	-21266	-34042	3.87	1097987	32.254	Si
SLU 81	573	-24176	542919	4.39	1094011	2.015	Si
SLU 81	753	-21788	-74370	3.96	1100006	14.791	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	573	-24047	931177	4.37	1517525	1.63	Si
SLV 4	753	-23721	-196297	4.31	1508260	7.684	Si
SLV 7	573	-25978	684813	4.72	1566059	2.287	Si
SLV 7	753	-22506	-77005	4.09	1470956	19.102	Si
SLD 2	573	-17789	567179	3.23	1285316	2.266	Si
SLD 2	753	-17077	-111154	3.1	1251625	11.26	Si
SLV 3	573	-24047	931177	4.37	1517525	1.63	Si
SLV 3	753	-23721	-196297	4.31	1508260	7.684	Si
SLD 3	573	-19803	610584	3.6	1372538	2.248	Si
SLD 3	753	-18533	-108171	3.37	1318908	12.193	Si
SLV 1	573	-19357	832665	3.52	1354239	1.626	Si
SLV 1	753	-20315	-201996	3.69	1392791	6.895	Si
SLV 2	573	-19357	832665	3.52	1354239	1.626	Si
SLV 2	753	-20315	-201996	3.69	1392791	6.895	Si
SLD 1	573	-17789	567179	3.23	1285316	2.266	Si
SLD 1	753	-17077	-111154	3.1	1251625	11.26	Si
SLV 8	573	-25978	684813	4.72	1566059	2.287	Si
SLV 8	753	-22506	-77005	4.09	1470956	19.102	Si
SLD 4	573	-19803	610584	3.6	1372538	2.248	Si
SLD 4	753	-18533	-108171	3.37	1318908	12.193	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	573	-24510	3305	541849		4.45	196.5	1.08	5961			1.8	Si
SLU 83	753	-21996	3306	-54097		4	196.5	1.08	5961			1.8	Si
SLU 39	573	-20174	3040	457202		3.67	196.5	1.04	5747			1.89	Si
SLU 39	753	-18454	3040	-68488		3.35	196.5	1	5517			1.81	Si
SLU 81	573	-24176	3493	542919		4.39	196.5	1.08	5961			1.71	Si
SLU 81	753	-21788	3493	-74370		3.96	196.5	1.08	5961			1.71	Si
SLU 82	573	-23756	3498	530596		4.32	196.5	1.08	5961			1.7	Si
SLU 82	753	-21467	3496	-77704		3.9	196.5	1.08	5919			1.69	Si
SLU 73	573	-22672	3276	500360		4.12	196.5	1.08	5961			1.82	Si
SLU 73	753	-20350	3272	-70948		3.7	196.5	1.05	5770			1.76	Si
SLU 60	573	-22237	3131	497149		4.04	196.5	1.08	5961			1.9	Si
SLU 60	753	-19767	3131	-65525		3.59	196.5	1.03	5692			1.82	Si
SLU 75	573	-23550	3156	512374		4.28	196.5	1.08	5961			1.89	Si
SLU 75	753	-21059	3154	-54315		3.83	196.5	1.07	5864			1.86	Si
SLU 84	573	-24091	3310	529526		4.38	196.5	1.08	5961			1.8	Si
SLU 84	753	-21675	3308	-57432		3.94	196.5	1.08	5947			1.8	Si
SLU 61	573	-21818	3135	484826		3.97	196.5	1.08	5961			1.9	Si
SLU 61	753	-19446	3133	-68860		3.53	196.5	1.03	5649			1.8	Si
SLU 40	573	-19755	3045	444880		3.59	196.5	1.03	5691			1.87	Si
SLU 40	753	-18133	3042	-71823		3.3	196.5	0.99	5474			1.8	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 2	573	-17789	4582	567179		3.23	196.5	1.48	8143			1.78	Si
SLD 2	753	-17077	4132	-111154		3.1	196.5	1.45	8000			1.94	Si
SLV 14	573	-9240	-3642	-199602		1.68	196.5	1.17	6433			1.77	Si
SLV 14	753	-5486	-2736	119846		1	196.5	1.03	5682			2.08	Si
SLV 3	573	-24047	8001	931177		4.81	178.58	1.63	8125			1.02	Si
SLV 3	753	-23721	7096	-196297		4.31	196.5	1.63	8941			1.26	Si
SLV 13	573	-9240	-3642	-199602		1.68	196.5	1.17	6433			1.77	Si
SLV 13	753	-5486	-2736	119846		1	196.5	1.03	5682			2.08	Si
SLD 4	573	-19803	4715	610584		3.6	196.5	1.55	8546			1.81	Si
SLD 4	753	-18533	4317	-108171		3.37	196.5	1.51	8292			1.92	Si
SLD 3	573	-19803	4715	610584		3.6	196.5	1.55	8546			1.81	Si
SLD 3	753	-18533	4317	-108171		3.37	196.5	1.51	8292			1.92	Si
SLV 1	573	-19357	7658	832665		4.17	165.7	1.63	7539			0.98	No, Vu<V
SLV 1	753	-20315	6635	-201996		3.69	196.5	1.57	8648			1.3	Si
SLV 2	573	-19357	7658	832665		4.17	165.7	1.63	7539			0.98	No, Vu<V
SLV 2	753	-20315	6635	-201996		3.69	196.5	1.57	8648			1.3	Si
SLV 4	573	-24047	8001	931177		4.81	178.58	1.63	8125			1.02	Si
SLV 4	753	-23721	7096	-196297		4.31	196.5	1.63	8941			1.26	Si
SLD 1	573	-17789	4582	567179		3.23	196.5	1.48	8143			1.78	Si
SLD 1	753	-17077	4132	-111154		3.1	196.5	1.45	8000			1.94	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.38	1.33	-7334	20013	91475	4.57	Si
SLV 10	14	0.38	1.33	-7334	20013	91475	4.57	Si
SLV 13	14	0.38	1.36	-7485	20013	93118	4.65	Si
SLV 14	14	0.38	1.36	-7485	20013	93118	4.65	Si
SLV 5	14	0.38	2.01	-11078	20013	129531	6.47	Si
SLV 6	14	0.38	2.01	-11078	20013	129531	6.47	Si
SLV 16	14	0.38	2.06	-11357	20013	132139	6.6	Si
SLV 15	14	0.38	2.06	-11357	20013	132139	6.6	Si
SLV 1	14	0.38	3.63	-19963	20013	196491	9.82	Si
SLV 2	14	0.38	3.63	-19963	20013	196491	9.82	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-14783	-22925	-46	0.041	17.783	0.955	62.694	1083.091	No
SLV 11	-14783	-22925	-46	0.041	17.783	0.955	62.694	1083.091	No
SLV 8	-17618	-27861	-18	0.042	20.666	0.961	64.156	1083.091	No
SLV 7	-17618	-27861	-18	0.042	20.666	0.961	64.156	1083.091	No
SLV 1	-15362	-22040	55	0.041	18.372	0.956	61.714	1041.05	No
SLV 2	-15362	-22040	55	0.041	18.372	0.956	61.714	1041.05	No
SLV 5	-9059	-10048	45	0.042	11.977	0.937	65.171	1083.091	No
SLV 6	-9059	-10048	45	0.042	11.977	0.937	65.171	1083.091	No
SLV 4	-17930	-27384	36	0.041	20.983	0.961	62.698	1041.05	No
SLV 3	-17930	-27384	36	0.041	20.983	0.961	62.698	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.014	SLU 83	Si
V_SLU	1.693	SLU 82	Si
PF_SLV	1.626	SLV 1	Si
V_SLV	0.985	SLV 1	No
PFFP_SLV	4.571	SLV 9	Si
R_SLV	0.058	SLV 11	No

## Maschio 99

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	595.1	-2181.3	595.1	L4	L5	219.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 30	573	-14533	-104587	2.36	1131980	10.823	Si
SLU 30	753	-11705	-4762	1.9	984288	206.687	Si
SLU 28	573	-14736	-96780	2.4	1141234	11.792	Si
SLU 28	753	-12032	955	1.96	1003163	1000	Si
SLU 9	573	-12727	-89974	2.07	1041710	11.578	Si
SLU 9	753	-9981	-4465	1.62	877005	196.416	Si
SLU 38	573	-16068	-101484	2.61	1197494	11.8	Si
SLU 38	753	-13570	9157	2.21	1085629	118.553	Si
SLU 8	573	-12768	-88063	2.08	1043920	11.854	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 8	753	-10004	-1457	1.63	878572	602.995	Si
SLU 71	573	-17395	-102133	2.83	1245768	12.198	Si
SLU 71	753	-14137	13675	2.3	1113409	81.421	Si
SLU 72	573	-17354	-104044	2.82	1244390	11.96	Si
SLU 72	753	-14113	10667	2.3	1112273	104.276	Si
SLU 27	573	-14777	-94869	2.4	1143083	12.049	Si
SLU 27	753	-12056	3964	1.96	1004516	253.44	Si
SLU 29	573	-14574	-102676	2.37	1133865	11.043	Si
SLU 29	753	-11729	-1754	1.91	985675	561.897	Si
SLU 37	573	-16109	-99573	2.62	1199103	12.042	Si
SLU 37	753	-13594	12165	2.21	1086822	89.337	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	573	-11707	-366135	1.9	1084532	2.962	Si
SLV 13	753	-16673	248782	2.71	1423583	5.722	Si
SLV 15	573	-14712	-350310	2.39	1298347	3.706	Si
SLV 15	753	-17609	277550	2.87	1479434	5.33	Si
SLV 4	573	-13136	329779	2.14	1189475	3.607	Si
SLV 4	753	-5373	-138818	0.87	547462	3.944	Si
SLV 9	573	-7648	-146565	1.24	753927	5.144	Si
SLV 9	753	-11298	69491	1.84	1053382	15.159	Si
SLV 10	573	-7648	-146565	1.24	753927	5.144	Si
SLV 10	753	-11298	69491	1.84	1053382	15.159	Si
SLV 14	573	-11707	-366135	1.9	1084532	2.962	Si
SLV 14	753	-16673	248782	2.71	1423583	5.722	Si
SLV 3	573	-13136	329779	2.14	1189475	3.607	Si
SLV 3	753	-5373	-138818	0.87	547462	3.944	Si
SLV 1	573	-10130	313955	1.65	961809	3.064	Si
SLV 1	753	-4436	-167586	0.72	458123	2.734	Si
SLV 2	573	-10130	313955	1.65	961809	3.064	Si
SLV 2	753	-4436	-167586	0.72	458123	2.734	Si
SLV 16	573	-14712	-350310	2.39	1298347	3.706	Si
SLV 16	753	-17609	277550	2.87	1479434	5.33	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	573	-18287	-1265	-24526		2.98	219.5	0.95	5853			4.63	Si
SLU 81	753	-16794	-1263	86107		2.73	219.5	0.92	5654			4.48	Si
SLU 18	573	-13660	-1034	-10456		2.22	219.5	0.85	5236			5.06	Si
SLU 18	753	-12661	-1032	70975		2.06	219.5	0.83	5103			4.94	Si
SLU 52	573	-15755	-1111	-14428		2.56	219.5	0.9	5515			4.97	Si
SLU 52	753	-14230	-1110	75425		2.32	219.5	0.86	5312			4.79	Si
SLU 61	573	-16440	-1220	-11824		2.67	219.5	0.91	5606			4.6	Si
SLU 61	753	-15045	-1218	83396		2.45	219.5	0.88	5420			4.45	Si
SLU 19	573	-13619	-1038	-12367		2.22	219.5	0.85	5230			5.04	Si
SLU 19	753	-12638	-1037	67967		2.06	219.5	0.83	5099			4.92	Si
SLU 73	573	-17560	-1160	-29041		2.86	219.5	0.94	5756			4.96	Si
SLU 73	753	-15955	-1158	75128		2.6	219.5	0.9	5542			4.78	Si
SLU 40	573	-15425	-1087	-26980		2.51	219.5	0.89	5471			5.03	Si
SLU 40	753	-14362	-1086	67670		2.34	219.5	0.87	5329			4.91	Si
SLU 39	573	-15466	-1083	-25069		2.52	219.5	0.89	5477			5.06	Si
SLU 39	753	-14386	-1081	70678		2.34	219.5	0.87	5333			4.93	Si
SLU 82	573	-18246	-1269	-26437		2.97	219.5	0.95	5847			4.61	Si
SLU 82	753	-16770	-1267	83099		2.73	219.5	0.92	5650			4.46	Si
SLU 60	573	-16481	-1215	-9912		2.68	219.5	0.91	5612			4.62	Si
SLU 60	753	-15069	-1214	86404		2.45	219.5	0.88	5424			4.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	573	-7648	-4649	-146565		1.24	219.5	1.08	6651			1.43	Si
SLV 10	753	-11298	-4770	69491		1.84	219.5	1.2	7381			1.55	Si
SLV 3	573	-13136	6705	329779		2.14	219.5	1.26	7749			1.16	Si
SLV 3	753	-5373	5692	-138818		0.87	219.5	1.01	6196			1.09	Si
SLV 9	573	-7648	-4649	-146565		1.24	219.5	1.08	6651			1.43	Si
SLV 9	753	-11298	-4770	69491		1.84	219.5	1.2	7381			1.55	Si
SLV 15	573	-14712	-7109	-350310		2.39	219.5	1.31	8064			1.13	Si
SLV 15	753	-17609	-5812	277550		2.87	219.5	1.41	8643			1.49	Si
SLV 16	573	-14712	-7109	-350310		2.39	219.5	1.31	8064			1.13	Si
SLV 16	753	-17609	-5812	277550		2.87	219.5	1.41	8643			1.49	Si
SLV 14	573	-11707	-8205	-366135		1.9	219.5	1.21	7463			0.91	No, Vu<V
SLV 14	753	-16673	-7190	248782		2.71	219.5	1.38	8456			1.18	Si
SLV 13	573	-11707	-8205	-366135		1.9	219.5	1.21	7463			0.91	No, Vu<V
SLV 13	753	-16673	-7190	248782		2.71	219.5	1.38	8456			1.18	Si
SLV 4	573	-13136	6705	329779		2.14	219.5	1.26	7749			1.16	Si
SLV 4	753	-5373	5692	-138818		0.87	219.5	1.01	6196			1.09	Si
SLV 2	573	-10130	5609	313955		1.65	219.5	1.16	7148			1.27	Si
SLV 2	753	-4436	4315	-167586		0.73	215.92	0.98	5925			1.37	Si
SLV 1	573	-10130	5609	313955		1.65	219.5	1.16	7148			1.27	Si
SLV 1	753	-4436	4315	-167586		0.73	215.92	0.98	5925			1.37	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.38	1.26	-7730	22356	97076	4.34	Si
SLV 6	14	0.38	1.26	-7730	22356	97076	4.34	Si
SLV 2	14	0.38	1.29	-7904	22356	99014	4.43	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.38	1.29	-7904	22356	99014	4.43	Si
SLV 10	14	0.38	1.55	-9542	22356	116611	5.22	Si
SLV 9	14	0.38	1.55	-9542	22356	116611	5.22	Si
SLV 4	14	0.38	1.61	-9866	22356	119980	5.37	Si
SLV 3	14	0.38	1.61	-9866	22356	119980	5.37	Si
SLV 13	14	0.38	2.27	-13945	22356	158974	7.11	Si
SLV 14	14	0.38	2.27	-13945	22356	158974	7.11	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-5730	-16634	388	0	8.963	0.914	0	1083.091	No
SLV 7	-5730	-16634	388	0	8.963	0.914	0	1083.091	No
SLV 6	-8205	-6177	-455	0.003	11.447	0.928	4.059	1083.091	No
SLV 5	-8205	-6177	-455	0.003	11.447	0.928	4.059	1083.091	No
SLV 11	-8845	-18673	460	0.004	12.092	0.931	6.802	1083.091	No
SLV 12	-8845	-18673	460	0.004	12.092	0.931	6.802	1083.091	No
SLV 1	-3705	-7457	-244	0.01	6.961	0.899	16.635	1041.05	No
SLV 2	-3705	-7457	-244	0.01	6.961	0.899	16.635	1041.05	No
SLV 10	-11320	-8216	-383	0.017	14.595	0.941	25.871	1083.091	No
SLV 9	-11320	-8216	-383	0.017	14.595	0.941	25.871	1083.091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	10.823	SLU 30	Si
V_SLU	4.45	SLU 61	Si
PF_SLV	2.734	SLV 1	Si
V_SLV	0.91	SLV 13	No
PFFP_SLV	4.342	SLV 5	Si
R_SLV	0	SLV 7	No

## Maschio 100

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-2249.3	-335.9	-2467.8	-335.9	L4	L5	218.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	573	-27340	1147983	4.47	1348297	1.174	Si
SLU 80	753	-27076	-173082	4.43	1350944	7.805	Si
SLU 84	573	-27512	1163102	4.5	1346398	1.158	Si
SLU 84	753	-27393	-185744	4.48	1347726	7.256	Si
SLU 73	573	-25917	1150495	4.24	1358963	1.181	Si
SLU 73	753	-25825	-175181	4.22	1359348	7.76	Si
SLU 77	573	-27585	1075891	4.51	1345566	1.251	Si
SLU 77	753	-27022	-176767	4.42	1351447	7.645	Si
SLU 68	573	-24566	1081714	4.02	1360879	1.258	Si
SLU 68	753	-24109	-147046	3.94	1359717	9.247	Si
SLU 76	573	-26629	1175622	4.35	1354736	1.152	Si
SLU 76	753	-26557	-174122	4.34	1355260	7.783	Si
SLU 82	573	-26801	1137974	4.38	1353381	1.189	Si
SLU 82	753	-26660	-186803	4.36	1354497	7.251	Si
SLU 83	573	-27511	1083951	4.5	1346411	1.242	Si
SLU 83	753	-27072	-185772	4.42	1350981	7.272	Si
SLU 78	573	-27586	1155042	4.51	1345553	1.165	Si
SLU 78	753	-27343	-176740	4.47	1348263	7.629	Si
SLU 75	573	-26874	1129914	4.39	1352765	1.197	Si
SLU 75	753	-26610	-177798	4.35	1354873	7.62	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	573	-20880	1153243	3.41	1643998	1.426	Si
SLV 3	753	-22837	-390755	3.73	1732737	4.434	Si
SLV 5	573	-28136	1295834	4.6	1916912	1.479	Si
SLV 5	753	-27328	-212367	4.47	1894154	8.919	Si
SLD 3	573	-19483	905321	3.18	1573763	1.738	Si
SLD 3	753	-19941	-237053	3.26	1597400	6.739	Si
SLD 4	573	-19483	905321	3.18	1573763	1.738	Si
SLD 4	753	-19941	-237053	3.26	1597400	6.739	Si
SLV 1	573	-25818	1400457	4.22	1846470	1.318	Si
SLV 1	753	-27292	-398305	4.46	1893079	4.753	Si
SLD 2	573	-21594	1010848	3.53	1677659	1.66	Si
SLD 2	753	-21826	-239319	3.57	1688305	7.055	Si
SLV 6	573	-28136	1295834	4.6	1916912	1.479	Si
SLV 6	753	-27328	-212367	4.47	1894154	8.919	Si
SLV 4	573	-20880	1153243	3.41	1643998	1.426	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	753	-22837	-390755	3.73	1732737	4.434	Si
SLV 2	573	-25818	1400457	4.22	1846470	1.318	Si
SLV 2	753	-27292	-398305	4.46	1893079	4.753	Si
SLD 1	573	-21594	1010848	3.53	1677659	1.66	Si
SLD 1	753	-21826	-239319	3.57	1688305	7.055	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	573	-26801	8933	1137974		4.78	200.37	1.08	6078			0.68	No, Vu<V
SLU 82	753	-26660	8902	-186803		4.36	218.5	1.08	6628			0.74	No, Vu<V
SLU 34	573	-22267	7969	1013422		4.16	191.22	1.08	5800			0.73	No, Vu<V
SLU 34	753	-22590	7917	-152033		3.69	218.5	1.05	6411			0.81	No, Vu<V
SLU 55	573	-24318	8199	1072115		4.44	195.49	1.08	5930			0.72	No, Vu<V
SLU 55	753	-23921	8148	-149653		3.91	218.5	1.08	6588			0.81	No, Vu<V
SLU 80	573	-27340	8837	1147983		4.84	201.78	1.08	6121			0.69	No, Vu<V
SLU 80	753	-27076	8807	-173082		4.43	218.5	1.08	6628			0.75	No, Vu<V
SLU 75	573	-26874	8763	1129914		4.76	201.62	1.08	6116			0.7	No, Vu<V
SLU 75	753	-26610	8733	-177798		4.35	218.5	1.08	6628			0.76	No, Vu<V
SLU 78	573	-27586	8910	1155042		4.87	202.14	1.08	6131			0.69	No, Vu<V
SLU 78	753	-27343	8879	-176740		4.47	218.5	1.08	6628			0.75	No, Vu<V
SLU 84	573	-27512	9079	1163102		4.89	200.92	1.08	6095			0.67	No, Vu<V
SLU 84	753	-27393	9049	-185744		4.48	218.5	1.08	6628			0.73	No, Vu<V
SLU 76	573	-26629	9124	1175622		4.87	195.3	1.08	5924			0.65	No, Vu<V
SLU 76	753	-26557	9073	-174122		4.34	218.5	1.08	6628			0.73	No, Vu<V
SLU 68	573	-24566	8218	1081714		4.48	195.65	1.08	5935			0.72	No, Vu<V
SLU 68	753	-24109	8167	-147046		3.94	218.5	1.08	6613			0.81	No, Vu<V
SLU 73	573	-25917	8978	1150495		4.76	194.58	1.08	5902			0.66	No, Vu<V
SLU 73	753	-25825	8927	-175181		4.22	218.5	1.08	6628			0.74	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	573	-25818	13046	1400457		5.59	165.02	1.63	7509			0.58	No, Vu<V
SLV 2	753	-27292	12097	-398305		4.46	218.5	1.63	9942			0.82	No, Vu<V
SLD 1	573	-21594	8722	1010848		4.12	187.31	1.63	8523			0.98	No, Vu<V
SLD 1	753	-21826	8301	-239319		3.57	218.5	1.55	9464			1.14	Si
SLV 6	573	-28136	10088	1295834		5.3	189.58	1.63	8626			0.86	No, Vu<V
SLV 6	753	-27328	9802	-212367		4.47	218.5	1.63	9942			1.01	Si
SLD 4	573	-19483	8090	905321		3.69	188.35	1.57	8291			1.02	Si
SLD 4	753	-19941	7680	-237053		3.26	218.5	1.49	9086			1.18	Si
SLD 3	573	-19483	8090	905321		3.69	188.35	1.57	8291			1.02	Si
SLD 3	753	-19941	7680	-237053		3.26	218.5	1.49	9086			1.18	Si
SLD 2	573	-21594	8722	1010848		4.12	187.31	1.63	8523			0.98	No, Vu<V
SLD 2	753	-21826	8301	-239319		3.57	218.5	1.55	9464			1.14	Si
SLV 1	573	-25818	13046	1400457		5.59	165.02	1.63	7509			0.58	No, Vu<V
SLV 1	753	-27292	12097	-398305		4.46	218.5	1.63	9942			0.82	No, Vu<V
SLV 3	573	-20880	11482	1153243		4.6	162.06	1.63	7374			0.64	No, Vu<V
SLV 3	753	-22837	10535	-390755		3.73	218.5	1.58	9666			0.92	No, Vu<V
SLV 5	573	-28136	10088	1295834		5.3	189.58	1.63	8626			0.86	No, Vu<V
SLV 5	753	-27328	9802	-212367		4.47	218.5	1.63	9942			1.01	Si
SLV 4	573	-20880	11482	1153243		4.6	162.06	1.63	7374			0.64	No, Vu<V
SLV 4	753	-22837	10535	-390755		3.73	218.5	1.58	9666			0.92	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.38	1.3	-7963	22254	99607	4.48	Si
SLV 12	14	0.38	1.3	-7963	22254	99607	4.48	Si
SLV 16	14	0.38	1.52	-9327	22254	114284	5.14	Si
SLV 15	14	0.38	1.52	-9327	22254	114284	5.14	Si
SLV 7	14	0.38	1.93	-11815	22254	139271	6.26	Si
SLV 8	14	0.38	1.93	-11815	22254	139271	6.26	Si
SLV 13	14	0.38	2.35	-14348	22254	162320	7.29	Si
SLV 14	14	0.38	2.35	-14348	22254	162320	7.29	Si
SLV 4	14	0.38	3.62	-22168	22254	218320	9.81	Si
SLV 3	14	0.38	3.62	-22168	22254	218320	9.81	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-17956	-27699	74	0.04	21.318	0.958	60.556	1083.091	No
SLV 10	-17956	-27699	74	0.04	21.318	0.958	60.556	1083.091	No
SLV 8	-9986	-11762	-75	0.04	13.231	0.936	61.985	1083.091	No
SLV 7	-9986	-11762	-75	0.04	13.231	0.936	61.985	1083.091	No
SLV 6	-20713	-32687	47	0.041	24.122	0.962	62.1	1083.091	No
SLV 5	-20713	-32687	47	0.041	24.122	0.962	62.1	1083.091	No
SLV 3	-16956	-24905	-65	0.04	20.302	0.956	61.44	1041.05	No
SLV 4	-16956	-24905	-65	0.04	20.302	0.956	61.44	1041.05	No
SLV 13	-10987	-14557	64	0.041	14.243	0.94	63.043	1041.05	No
SLV 14	-10987	-14557	64	0.041	14.243	0.94	63.043	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.152	SLU 76	Si
V_SLV	0.649	SLU 76	No
PF_SLV	1.318	SLV 1	Si
V_SLV	0.576	SLV 1	No
PFFP_SLV	4.476	SLV 11	Si



Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0.056	SLV 9	No

## Maschio 101

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1936.8	-335.9	-2159.3	-335.9	L4	L5	222.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	683	-11680	-161848	1.87	1000311	6.181	Si
SLU 52	763	-10504	-160180	1.69	926720	5.785	Si
SLU 73	683	-13038	-172815	2.09	1077808	6.237	Si
SLU 73	763	-11849	-177473	1.9	1010430	5.693	Si
SLU 65	683	-11541	-154704	1.85	991954	6.412	Si
SLU 65	763	-10375	-159322	1.67	918252	5.763	Si
SLU 76	683	-13172	-166893	2.11	1085034	6.501	Si
SLU 76	763	-11986	-178463	1.92	1018527	5.707	Si
SLU 68	683	-11675	-148781	1.87	1000061	6.722	Si
SLU 68	763	-10512	-160312	1.69	927235	5.784	Si
SLU 84	683	-14442	-167109	2.32	1149434	6.878	Si
SLU 84	763	-13172	-187305	2.11	1085041	5.793	Si
SLU 55	683	-11814	-155926	1.9	1008336	6.467	Si
SLU 55	763	-10642	-161170	1.71	935626	5.805	Si
SLU 82	683	-14307	-173031	2.3	1142956	6.605	Si
SLU 82	763	-13035	-186315	2.09	1077658	5.784	Si
SLU 44	683	-10183	-143737	1.63	905547	6.3	Si
SLU 44	763	-9030	-142030	1.45	825849	5.815	Si
SLU 75	683	-14071	-162426	2.26	1131368	6.965	Si
SLU 75	763	-12808	-183218	2.06	1065264	5.814	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	683	-7159	-57821	1.15	721534	12.479	Si
SLV 4	763	-8268	-400364	1.33	819940	2.048	Si
SLD 2	683	-9957	-74951	1.6	962816	12.846	Si
SLD 2	763	-9479	-265628	1.52	923216	3.476	Si
SLV 1	683	-9701	-31698	1.56	941722	29.709	Si
SLV 1	763	-9921	-447324	1.59	959851	2.146	Si
SLD 3	683	-8921	-85951	1.43	876139	10.193	Si
SLD 3	763	-8790	-246106	1.41	864948	3.515	Si
SLV 6	683	-13917	-44969	2.23	1265208	28.135	Si
SLV 6	763	-11903	-293609	1.91	1117119	3.805	Si
SLV 2	683	-9701	-31698	1.56	941722	29.709	Si
SLV 2	763	-9921	-447324	1.59	959851	2.146	Si
SLV 3	683	-7159	-57821	1.15	721534	12.479	Si
SLV 3	763	-8268	-400364	1.33	819940	2.048	Si
SLD 1	683	-9957	-74951	1.6	962816	12.846	Si
SLD 1	763	-9479	-265628	1.52	923216	3.476	Si
SLD 4	683	-8921	-85951	1.43	876139	10.193	Si
SLD 4	763	-8790	-246106	1.41	864948	3.515	Si
SLV 5	683	-13917	-44969	2.23	1265208	28.135	Si
SLV 5	763	-11903	-293609	1.91	1117119	3.805	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 28	683	-10355	299	-112468	1.66	222.5	0.78	4842				16.17	Si
SLU 28	763	-9422	120	-137229	1.51	222.5	0.76	4717				39.24	Si
SLU 30	683	-10084	295	-109389	1.62	222.5	0.77	4806				16.31	Si
SLU 30	763	-9155	128	-133537	1.47	222.5	0.75	4682				36.62	Si
SLU 69	683	-13652	280	-127074	2.19	222.5	0.85	5281				18.84	Si
SLU 69	763	-12302	124	-167653	1.97	222.5	0.82	5101				41.05	Si
SLU 70	683	-12709	279	-138393	2.04	222.5	0.83	5156				18.48	Si
SLU 70	763	-11471	96	-166058	1.84	222.5	0.8	4991				52.09	Si
SLU 72	683	-12438	274	-135314	2	222.5	0.82	5120				18.67	Si
SLU 72	763	-11203	103	-162366	1.8	222.5	0.8	4955				47.9	Si
SLU 36	683	-11851	273	-130579	1.9	222.5	0.81	5041				18.48	Si
SLU 36	763	-10896	59	-155379	1.75	222.5	0.79	4914				82.88	Si
SLU 27	683	-11297	301	-101150	1.81	222.5	0.8	4967				16.51	Si
SLU 27	763	-10253	149	-138824	1.65	222.5	0.77	4828				32.47	Si
SLU 35	683	-12794	274	-119261	2.05	222.5	0.83	5167				18.85	Si
SLU 35	763	-11727	88	-156975	1.88	222.5	0.81	5025				57.26	Si
SLU 38	683	-11580	268	-127500	1.86	222.5	0.8	5005				18.67	Si
SLU 38	763	-10629	67	-151688	1.71	222.5	0.78	4878				72.9	Si
SLU 29	683	-11027	296	-98071	1.77	222.5	0.79	4931				16.66	Si
SLU 29	763	-9985	156	-135133	1.6	222.5	0.77	4793				30.66	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	683	-9701	7735	-31698		1.56	222.5	1.14	7132			0.92	No, Vu<V
SLV 1	763	-9921	5848	-447324		1.79	198.48	1.19	6615			1.13	Si
SLV 14	683	-13272	-6493	-156692		2.13	222.5	1.26	7846			1.21	Si
SLV 14	763	-10075	-5107	148392		1.62	222.5	1.16	7207			1.41	Si
SLV 16	683	-10730	-7643	-182815		1.72	222.5	1.18	7338			0.96	No, Vu<V
SLV 16	763	-8422	-5960	195351		1.35	222.5	1.1	6876			1.15	Si
SLV 15	683	-10730	-7643	-182815		1.72	222.5	1.18	7338			0.96	No, Vu<V
SLV 15	763	-8422	-5960	195351		1.35	222.5	1.1	6876			1.15	Si
SLV 2	683	-9701	7735	-31698		1.56	222.5	1.14	7132			0.92	No, Vu<V
SLV 2	763	-9921	5848	-447324		1.79	198.48	1.19	6615			1.13	Si
SLV 3	683	-7159	6585	-57821		1.15	222.5	1.06	6623			1.01	Si
SLV 3	763	-8268	4996	-400364		1.57	188.49	1.15	6052			1.21	Si
SLV 12	683	-6514	-4005	-169544		1.05	222.5	1.04	6494			1.62	Si
SLV 12	763	-6441	-3120	41637		1.03	222.5	1.04	6480			2.08	Si
SLV 13	683	-13272	-6493	-156692		2.13	222.5	1.26	7846			1.21	Si
SLV 13	763	-10075	-5107	148392		1.62	222.5	1.16	7207			1.41	Si
SLV 4	683	-7159	6585	-57821		1.15	222.5	1.06	6623			1.01	Si
SLV 4	763	-8268	4996	-400364		1.57	188.49	1.15	6052			1.21	Si
SLV 11	683	-6514	-4005	-169544		1.05	222.5	1.04	6494			1.62	Si
SLV 11	763	-6441	-3120	41637		1.03	222.5	1.04	6480			2.08	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.38	0.85	-5326	22661	69346	3.06	Si
SLV 7	14	0.38	0.85	-5326	22661	69346	3.06	Si
SLV 11	14	0.38	0.92	-5722	22661	74087	3.27	Si
SLV 12	14	0.38	0.92	-5722	22661	74087	3.27	Si
SLV 4	14	0.38	1.25	-7777	22661	97755	4.31	Si
SLV 3	14	0.38	1.25	-7777	22661	97755	4.31	Si
SLV 16	14	0.38	1.46	-9097	22661	112142	4.95	Si
SLV 15	14	0.38	1.46	-9097	22661	112142	4.95	Si
SLV 1	14	0.38	1.65	-10274	22661	124423	5.49	Si
SLV 2	14	0.38	1.65	-10274	22661	124423	5.49	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-9764	-12799	85	0.039	13.064	0.935	60.925	1083.091	No
SLV 6	-9764	-12799	85	0.039	13.064	0.935	60.925	1083.091	No
SLV 11	-6214	-3800	-84	0.039	9.49	0.916	62.084	1083.091	No
SLV 12	-6214	-3800	-84	0.039	9.49	0.916	62.084	1083.091	No
SLV 2	-8101	-9071	80	0.04	11.385	0.927	62.076	1041.05	No
SLV 1	-8101	-9071	80	0.04	11.385	0.927	62.076	1041.05	No
SLV 16	-7878	-7528	-79	0.04	11.16	0.926	62.426	1041.05	No
SLV 15	-7878	-7528	-79	0.04	11.16	0.926	62.426	1041.05	No
SLV 10	-10042	-13181	50	0.042	13.344	0.936	65.479	1083.091	No
SLV 9	-10042	-13181	50	0.042	13.344	0.936	65.479	1083.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.693	SLU 73	Si
V_SLU	16.167	SLU 28	Si
PF_SLV	2.048	SLV 3	Si
V_SLV	0.922	SLV 1	No
PFFP_SLV	3.06	SLV 7	Si
R_SLV	0.056	SLV 5	No

## Maschio 102

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1826.3	-335.9	-1886.8	-335.9	L4	L5	60.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	683	-4434	2257	2.62	91031	40.332	Si
SLU 73	763	-3890	33629	2.3	84507	2.513	Si
SLU 2	683	-2696	654	1.59	65612	100.306	Si
SLU 2	763	-2279	21753	1.35	57544	2.645	Si
SLU 10	683	-3198	644	1.89	74317	115.453	Si
SLU 10	763	-2792	25690	1.65	67373	2.623	Si
SLU 52	683	-3998	1666	2.36	85902	51.557	Si
SLU 52	763	-3464	30827	2.04	78484	2.546	Si
SLU 82	683	-4838	3624	2.86	95035	26.222	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	763	-4290	34745	2.53	89428	2.574	Si
SLU 31	683	-3634	1235	2.15	80976	65.59	Si
SLU 31	763	-3219	28492	1.9	74651	2.62	Si
SLU 44	683	-3496	1677	2.06	78959	47.096	Si
SLU 44	763	-2950	26890	1.74	70169	2.61	Si
SLU 65	683	-3932	2267	2.32	85048	37.509	Si
SLU 65	763	-3377	29692	1.99	77151	2.598	Si
SLU 76	683	-4520	3590	2.67	91943	25.608	Si
SLU 76	763	-3952	31940	2.33	85308	2.671	Si
SLU 61	683	-4402	3033	2.6	90678	29.893	Si
SLU 61	763	-3864	31943	2.28	84153	2.634	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	683	-1095	-58015	0	0	0	No, $e \geq l/2$
SLV 15	763	-2951	82558	1.74	76544	0.927	No, $M > Mu$
SLV 14	683	-1296	-49006	0	0	0	No, $e \geq l/2$
SLV 14	763	-2000	83282	0	0	0	No, $e \geq l/2$
SLV 10	683	-3097	1937	1.83	79662	41.129	Si
SLV 10	763	-1255	41659	0	0	0	No, $e \geq l/2$
SLD 16	683	-2421	-22712	1.43	64665	2.847	Si
SLD 16	763	-2961	48428	1.75	76756	1.585	Si
SLV 9	683	-3097	1937	1.83	79662	41.129	Si
SLV 9	763	-1255	41659	0	0	0	No, $e \geq l/2$
SLD 14	683	-2505	-18958	1.48	66610	3.513	Si
SLD 14	763	-2579	48622	1.52	68293	1.405	Si
SLD 15	683	-2421	-22712	1.43	64665	2.847	Si
SLD 15	763	-2961	48428	1.75	76756	1.585	Si
SLD 13	683	-2505	-18958	1.48	66610	3.513	Si
SLD 13	763	-2579	48622	1.52	68293	1.405	Si
SLV 16	683	-1095	-58015	0	0	0	No, $e \geq l/2$
SLV 16	763	-2951	82558	1.74	76544	0.927	No, $M > Mu$
SLV 13	683	-1296	-49006	0	0	0	No, $e \geq l/2$
SLV 13	763	-2000	83282	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	683	-4434	-291	2257		2.62	60.5	0.9	1532			5.27	Si
SLU 73	763	-3890	-161	33629		2.3	60.5	0.86	1460			9.08	Si
SLU 31	683	-3634	-263	1235		2.15	60.5	0.84	1426			5.41	Si
SLU 31	763	-3219	-144	28492		1.9	60.5	0.81	1370			9.51	Si
SLU 44	683	-3496	-247	1677		2.06	60.5	0.83	1407			5.7	Si
SLU 44	763	-2950	-89	26890		1.74	60.5	0.79	1335			15.07	Si
SLU 10	683	-3198	-253	644		1.89	60.5	0.81	1367			5.4	Si
SLU 10	763	-2792	-119	25690		1.65	60.5	0.78	1313			11.08	Si
SLU 61	683	-4402	-249	3033		2.6	60.5	0.9	1528			6.14	Si
SLU 61	763	-3864	-161	31943		2.28	60.5	0.86	1456			9.07	Si
SLU 82	683	-4838	-259	3624		2.86	60.5	0.94	1586			6.12	Si
SLU 82	763	-4290	-186	34745		2.53	60.5	0.89	1513			8.13	Si
SLU 2	683	-2696	-219	654		1.59	60.5	0.77	1301			5.93	Si
SLU 2	763	-2279	-72	21753		1.35	60.5	0.73	1245			17.34	Si
SLU 23	683	-3131	-229	1245		1.85	60.5	0.8	1359			5.92	Si
SLU 23	763	-2705	-97	24555		1.6	60.5	0.77	1302			13.37	Si
SLU 65	683	-3932	-257	2267		2.32	60.5	0.87	1465			5.71	Si
SLU 65	763	-3377	-114	29692		1.99	60.5	0.82	1391			12.2	Si
SLU 52	683	-3998	-281	1666		2.36	60.5	0.87	1474			5.25	Si
SLU 52	763	-3464	-135	30827		2.04	60.5	0.83	1403			10.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	683	-5573	2401	57504		3.33	59.79	1.5	2510			1.05	Si
SLV 4	763	-3991	101	-38782		2.36	60.5	1.3	2210			21.9	Si
SLV 1	683	-5773	1860	66514		3.67	56.19	1.57	2466			1.33	Si
SLV 1	763	-3040	504	-38057		2.04	53.2	1.24	1849			3.67	Si
SLV 2	683	-5773	1860	66514		3.67	56.19	1.57	2466			1.33	Si
SLV 2	763	-3040	504	-38057		2.04	53.2	1.24	1849			3.67	Si
SLV 9	683	-3097	-1693	1937		1.83	60.5	1.2	2031			1.2	Si
SLV 9	763	-1255	444	41659		0	0	0.83	0			0	No, $Vu < V$
SLV 10	683	-3097	-1693	1937		1.83	60.5	1.2	2031			1.2	Si
SLV 10	763	-1255	444	41659		0	0	0.83	0			0	No, $Vu < V$
SLV 13	683	-1296	-2633	-49006		0	0	0.83	0			0	No, $Vu < V$
SLV 13	763	-2000	-312	83282		0	0	0.83	0			0	No, $Vu < V$
SLV 14	683	-1296	-2633	-49006		0	0	0.83	0			0	No, $Vu < V$
SLV 14	763	-2000	-312	83282		0	0	0.83	0			0	No, $Vu < V$
SLV 3	683	-5573	2401	57504		3.33	59.79	1.5	2510			1.05	Si
SLV 3	763	-3991	101	-38782		2.36	60.5	1.3	2210			21.9	Si
SLV 15	683	-1095	-2092	-58015		0	0	0.83	0			0	No, $Vu < V$
SLV 15	763	-2951	-715	82558		15.44	6.83	1.63	311			0.43	No, $Vu < V$
SLV 16	683	-1095	-2092	-58015		0	0	0.83	0			0	No, $Vu < V$
SLV 16	763	-2951	-715	82558		15.44	6.83	1.63	311			0.43	No, $Vu < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.38	1.01	-1714	6162	22006	3.57	Si
SLV 12	14	0.38	1.01	-1714	6162	22006	3.57	Si
SLV 15	14	0.38	1.1	-1865	6162	23760	3.86	Si





Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.38	1.1	-1865	6162	23760	3.86	Si
SLV 7	14	0.38	1.32	-2240	6162	27964	4.54	Si
SLV 8	14	0.38	1.32	-2240	6162	27964	4.54	Si
SLV 14	14	0.38	1.49	-2521	6162	30996	5.03	Si
SLV 13	14	0.38	1.49	-2521	6162	30996	5.03	Si
SLV 3	14	0.38	2.14	-3619	6162	41805	6.78	Si
SLV 4	14	0.38	2.14	-3619	6162	41805	6.78	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-2197	-1346	-8	0.045	3.09	0.927	69.84	1083.091	No
SLV 8	-2197	-1346	-8	0.045	3.09	0.927	69.84	1083.091	No
SLV 3	-2334	-2314	-7	0.045	3.228	0.929	69.861	1041.05	No
SLV 4	-2334	-2314	-7	0.045	3.228	0.929	69.861	1041.05	No
SLV 11	-1856	-1231	-6	0.046	2.748	0.92	73.286	1083.091	No
SLV 12	-1856	-1231	-6	0.046	2.748	0.92	73.286	1083.091	No
SLV 2	-2110	-3028	-4	0.046	3.003	0.925	73.013	1041.05	No
SLV 1	-2110	-3028	-4	0.046	3.003	0.925	73.013	1041.05	No
SLV 5	-1451	-3726	4	0.049	2.343	0.91	77.441	1083.091	No
SLV 6	-1451	-3726	4	0.049	2.343	0.91	77.441	1083.091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.513	SLU 73	Si
V_SLU	5.25	SLU 52	Si
PF_SLV	0	SLV 9	No
V_SLV	0	SLV 9	No
PFFP_SLV	3.571	SLV 11	Si
R_SLV	0.064	SLV 7	No

## Maschio 103

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	104.6	-1961.8	581.1	L4	L5	476.5	14	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 72	483	-32593	-17393	4.89	3108018	178.698	Si
SLU 72	835	-26848	642828	4.02	3236424	5.035	Si
SLU 8	483	-23952	8964	3.59	3191435	356.041	Si
SLU 8	835	-20599	604573	3.09	3047509	5.041	Si
SLU 51	483	-28768	3120	4.31	3225701	1000	Si
SLU 51	835	-23654	579206	3.55	3182658	5.495	Si
SLU 30	483	-27726	-9423	4.16	3235535	343.381	Si
SLU 30	835	-23802	657598	3.57	3187118	4.847	Si
SLU 71	483	-32643	-19519	4.89	3105613	159.105	Si
SLU 71	835	-26838	653425	4.02	3236397	4.953	Si
SLU 29	483	-27776	-11549	4.16	3235279	280.127	Si
SLU 29	835	-23793	668195	3.57	3186832	4.769	Si
SLU 9	483	-23901	11090	3.58	3190002	287.635	Si
SLU 9	835	-20609	593976	3.09	3048066	5.132	Si
SLU 27	483	-28022	-25427	4.2	3233712	127.176	Si
SLU 27	835	-23631	600309	3.54	3181920	5.3	Si
SLU 28	483	-27971	-23300	4.19	3234077	138.8	Si
SLU 28	835	-23640	589711	3.54	3182220	5.396	Si
SLU 50	483	-28819	994	4.32	3224985	1000	Si
SLU 50	835	-23645	589803	3.54	3182359	5.396	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	483	-18364	-272831	2.75	3389659	12.424	Si
SLV 10	835	-10558	-228346	1.58	2189775	9.59	Si
SLV 2	483	-22386	-439431	3.36	3868867	8.804	Si
SLV 2	835	-15088	-32870	2.26	2929444	89.122	Si
SLV 5	483	-18940	-443435	2.84	3464091	7.812	Si
SLV 5	835	-11262	-215681	1.69	2312470	10.722	Si
SLV 7	483	-26866	136684	4.03	4291288	31.396	Si
SLV 7	835	-19850	264419	2.98	3577752	13.531	Si
SLV 8	483	-26866	136684	4.03	4291288	31.396	Si
SLV 8	835	-19850	264419	2.98	3577752	13.531	Si
SLV 15	483	-22844	303283	3.42	3917401	12.917	Si
SLV 15	835	-15321	68944	2.3	2964184	42.994	Si
SLV 9	483	-18364	-272831	2.75	3389659	12.424	Si
SLV 9	835	-10558	-228346	1.58	2189775	9.59	Si
SLV 1	483	-22386	-439431	3.36	3868867	8.804	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	835	-15088	-32870	2.26	2929444	89.122	Si
SLV 16	483	-22844	303283	3.42	3917401	12.917	Si
SLV 16	835	-15321	68944	2.3	2964184	42.994	Si
SLV 6	483	-18940	-443435	2.84	3464091	7.812	Si
SLV 6	835	-11262	-215681	1.69	2312470	10.722	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	483	-29009	730	-129411		4.35	476.52	1.08	7227			9.9	Si
SLU 40	835	-19455	250	-41588		2.92	476.52	0.94	6300			25.17	Si
SLU 18	483	-25234	615	-111024		3.78	476.52	1.06	7071			11.5	Si
SLU 18	835	-16252	198	-94613		2.44	476.52	0.88	5873			29.71	Si
SLU 31	483	-27583	576	-109688		4.13	476.52	1.08	7227			12.54	Si
SLU 31	835	-18727	125	-13226		2.81	476.52	0.93	6203			49.56	Si
SLU 60	483	-30101	617	-118994		4.51	476.52	1.08	7227			11.72	Si
SLU 60	835	-19298	131	-109383		2.89	476.52	0.94	6279			47.97	Si
SLU 39	483	-29059	762	-131537		4.36	476.52	1.08	7227			9.49	Si
SLU 39	835	-19446	303	-30991		2.91	476.52	0.94	6299			20.77	Si
SLU 82	483	-33876	732	-137381		5.08	476.52	1.08	7227			9.88	Si
SLU 82	835	-22501	184	-56358		3.37	476.52	1.01	6706			36.53	Si
SLU 73	483	-32450	578	-117658		4.86	476.52	1.08	7227			12.5	Si
SLU 73	835	-21772	58	-27996		3.26	476.52	0.99	6609			113.19	Si
SLU 61	483	-30051	585	-116868		4.5	476.52	1.08	7227			12.35	Si
SLU 61	835	-19308	78	-119980		2.89	476.52	0.94	6281			80.51	Si
SLU 19	483	-25184	583	-108898		3.78	476.52	1.06	7064			12.11	Si
SLU 19	835	-16262	145	-105210		2.44	476.52	0.88	5874			40.57	Si
SLU 81	483	-33926	764	-139507		5.09	476.52	1.08	7227			9.46	Si
SLU 81	835	-22491	236	-45761		3.37	476.52	1.01	6705			28.36	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	483	-26290	9911	307287		3.94	476.52	1.62	10817			1.09	Si
SLV 11	835	-19147	8094	251754		2.87	476.52	1.41	9389			1.16	Si
SLV 12	483	-26290	9911	307287		3.94	476.52	1.62	10817			1.09	Si
SLV 12	835	-19147	8094	251754		2.87	476.52	1.41	9389			1.16	Si
SLV 7	483	-26866	12201	136684		4.03	476.52	1.63	10841			0.89	No, Vu<V
SLV 7	835	-19850	9967	264419		2.98	476.52	1.43	9529			0.96	No, Vu<V
SLV 9	483	-18364	-11594	-272831		2.75	476.52	1.38	9232			0.8	No, Vu<V
SLV 9	835	-10558	-9991	-228346		1.58	476.52	1.15	7671			0.77	No, Vu<V
SLV 13	483	-20466	-6739	129248		3.07	476.52	1.45	9653			1.43	Si
SLV 13	835	-12744	-5847	-75086		1.91	476.52	1.22	8108			1.39	Si
SLV 5	483	-18940	-9304	-443435		2.84	476.52	1.4	9347			1	Si
SLV 5	835	-11262	-8118	-215681		1.69	476.52	1.17	7812			0.96	No, Vu<V
SLV 8	483	-26866	12201	136684		4.03	476.52	1.63	10841			0.89	No, Vu<V
SLV 8	835	-19850	9967	264419		2.98	476.52	1.43	9529			0.96	No, Vu<V
SLV 14	483	-20466	-6739	129248		3.07	476.52	1.45	9653			1.43	Si
SLV 14	835	-12744	-5847	-75086		1.91	476.52	1.22	8108			1.39	Si
SLV 6	483	-18940	-9304	-443435		2.84	476.52	1.4	9347			1	Si
SLV 6	835	-11262	-8118	-215681		1.69	476.52	1.17	7812			0.96	No, Vu<V
SLV 10	483	-18364	-11594	-272831		2.75	476.52	1.38	9232			0.8	No, Vu<V
SLV 10	835	-10558	-9991	-228346		1.58	476.52	1.15	7671			0.77	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.38	2.12	-14155	25959	81879	3.15	Si
SLV 5	14	0.38	2.12	-14155	25959	81879	3.15	Si
SLV 10	14	0.38	2.17	-14492	25959	83411	3.21	Si
SLV 9	14	0.38	2.17	-14492	25959	83411	3.21	Si
SLV 2	14	0.38	2.47	-16478	25959	92028	3.55	Si
SLV 1	14	0.38	2.47	-16478	25959	92028	3.55	Si
SLV 14	14	0.38	2.64	-17603	25959	96609	3.72	Si
SLV 13	14	0.38	2.64	-17603	25959	96609	3.72	Si
SLV 3	14	0.38	2.82	-18806	25959	101272	3.9	Si
SLV 4	14	0.38	2.82	-18806	25959	101272	3.9	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	-15088	-22386	-61	0.019	18.682	0.949	28.79	1649.646	No
SLV 2	-15088	-22386	-61	0.019	18.682	0.949	28.79	1649.646	No
SLV 15	-15321	-22844	59	0.019	18.918	0.949	28.94	1649.646	No
SLV 16	-15321	-22844	59	0.019	18.918	0.949	28.94	1649.646	No
SLV 11	-19147	-26290	46	0.02	22.806	0.957	29.899	1649.646	No
SLV 12	-19147	-26290	46	0.02	22.806	0.957	29.899	1649.646	No
SLV 5	-11262	-18940	-48	0.019	14.804	0.938	30.152	1649.646	No
SLV 6	-11262	-18940	-48	0.019	14.804	0.938	30.152	1649.646	No
SLV 4	-17665	-24764	-42	0.02	21.299	0.954	30.311	1649.646	No
SLV 3	-17665	-24764	-42	0.02	21.299	0.954	30.311	1649.646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.769	SLU 29	Si
V_SLU	9.464	SLU 81	Si
PF_SLV	7.812	SLV 5	Si
V_SLV	0.768	SLV 9	No
PFFP_SLV	3.154	SLV 5	Si



Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0.017	SLV 1	No

## Maschio 104

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	595.1	-1961.8	666.1	L4	L5	71	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 40	483	-5397	-37376	2.71	127740	3.418	Si
SLU 40	835	-4857	21077	2.44	120712	5.727	Si
SLU 81	483	-6393	-42207	3.22	137355	3.254	Si
SLU 81	835	-5607	24255	2.82	130135	5.365	Si
SLU 19	483	-4642	-33771	2.34	117554	3.481	Si
SLU 19	835	-3944	20588	1.98	105920	5.145	Si
SLU 73	483	-6239	-38451	3.14	136153	3.541	Si
SLU 73	835	-5412	21258	2.72	127919	6.017	Si
SLU 82	483	-6387	-42311	3.21	137314	3.245	Si
SLU 82	835	-5582	24199	2.81	129857	5.366	Si
SLU 60	483	-5638	-38602	2.84	130465	3.38	Si
SLU 60	835	-4695	23766	2.36	118345	4.98	Si
SLU 61	483	-5633	-38705	2.83	130407	3.369	Si
SLU 61	835	-4669	23709	2.35	117965	4.975	Si
SLU 18	483	-4647	-33667	2.34	117635	3.494	Si
SLU 18	835	-3970	20644	2	106380	5.153	Si
SLU 39	483	-5402	-37272	2.72	127803	3.429	Si
SLU 39	835	-4883	21134	2.46	121071	5.729	Si
SLU 52	483	-5484	-34845	2.76	128755	3.695	Si
SLU 52	835	-4499	20768	2.26	115348	5.554	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 1	483	1896	-116162	0	0	0	No, Trazione
SLV 1	835	-5999	124670	3.02	160375	1.286	Si
SLV 13	483	-9110	55057	4.58	202114	3.671	Si
SLV 13	835	-1314	-86127	0	0	0	No, e>l/2
SLV 4	483	156	-103495	0	0	0	No, Trazione
SLV 4	835	-6331	112208	3.18	166176	1.481	Si
SLD 1	483	-1706	-64453	0	0	0	No, e>l/2
SLD 1	835	-4772	61510	2.4	136117	2.213	Si
SLV 3	483	156	-103495	0	0	0	No, Trazione
SLV 3	835	-6331	112208	3.18	166176	1.481	Si
SLV 2	483	1896	-116162	0	0	0	No, Trazione
SLV 2	835	-5999	124670	3.02	160375	1.286	Si
SLV 14	483	-9110	55057	4.58	202114	3.671	Si
SLV 14	835	-1314	-86127	0	0	0	No, e>l/2
SLV 15	483	-10850	67724	5.46	213127	3.147	Si
SLV 15	835	-1645	-98588	0	0	0	No, e>l/2
SLV 6	483	74	-71014	0	0	0	No, Trazione
SLV 6	835	-3972	65429	2	117953	1.803	Si
SLV 5	483	74	-71014	0	0	0	No, Trazione
SLV 5	835	-3972	65429	2	117953	1.803	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 18	483	-4647	-673	-33667		2.34	71	0.87	1724			2.56	Si
SLU 18	835	-3970	-246	20644		2	71	0.82	1634			6.65	Si
SLU 82	483	-6387	-849	-42311		3.21	71	0.98	1956			2.3	Si
SLU 82	835	-5582	-303	24199		2.81	71	0.93	1849			6.1	Si
SLU 40	483	-5397	-740	-37376		2.71	71	0.92	1824			2.47	Si
SLU 40	835	-4857	-265	21077		2.44	71	0.88	1752			6.62	Si
SLU 19	483	-4642	-675	-33771		2.34	71	0.87	1723			2.55	Si
SLU 19	835	-3944	-243	20588		1.98	71	0.82	1630			6.71	Si
SLU 73	483	-6239	-779	-38451		3.14	71	0.97	1936			2.49	Si
SLU 73	835	-5412	-273	21258		2.72	71	0.92	1826			6.68	Si
SLU 52	483	-5484	-714	-34845		2.76	71	0.92	1836			2.57	Si
SLU 52	835	-4499	-252	20768		2.26	71	0.86	1704			6.77	Si
SLU 61	483	-5633	-784	-38705		2.83	71	0.93	1855			2.37	Si
SLU 61	835	-4669	-281	23709		2.35	71	0.87	1727			6.14	Si
SLU 39	483	-5402	-738	-37272		2.72	71	0.92	1825			2.47	Si
SLU 39	835	-4883	-267	21134		2.46	71	0.88	1755			6.57	Si
SLU 81	483	-6393	-847	-42207		3.22	71	0.98	1957			2.31	Si
SLU 81	835	-5607	-306	24255		2.82	71	0.93	1852			6.06	Si
SLU 60	483	-5638	-782	-38602		2.84	71	0.93	1856			2.37	Si
SLU 60	835	-4695	-284	23766		2.36	71	0.87	1730			6.09	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	483	156	-2361	-103495		0	0	0.83	0			0	No, Vu<V
SLV 4	835	-6331	-1059	112208		4.24	53.33	1.63	2427			2.29	Si
SLV 6	483	74	-2558	-71014		0	0	0.83	0			0	No, Vu<V
SLV 6	835	-3972	-1838	65429		2.49	57.08	1.33	2126			1.16	Si
SLV 14	483	-9110	1354	55057		4.58	71	1.63	3230			2.39	Si
SLV 14	835	-1314	704	-86127		0	0	0.83	0			0	No, Vu<V
SLV 13	483	-9110	1354	55057		4.58	71	1.63	3230			2.39	Si
SLV 13	835	-1314	704	-86127		0	0	0.83	0			0	No, Vu<V
SLV 1	483	1896	-3185	-116162		0	0	0.83	0			0	No, Vu<V
SLV 1	835	-5999	-1828	124670		4.85	44.16	1.63	2009			1.1	Si
SLV 3	483	156	-2361	-103495		0	0	0.83	0			0	No, Vu<V
SLV 3	835	-6331	-1059	112208		4.24	53.33	1.63	2427			2.29	Si
SLV 2	483	1896	-3185	-116162		0	0	0.83	0			0	No, Vu<V
SLV 2	835	-5999	-1828	124670		4.85	44.16	1.63	2009			1.1	Si
SLV 5	483	74	-2558	-71014		0	0	0.83	0			0	No, Vu<V
SLV 5	835	-3972	-1838	65429		2.49	57.08	1.33	2126			1.16	Si
SLD 1	483	-1706	-1667	-64453		0	0	0.83	0			0	No, Vu<V
SLD 1	835	-4772	-883	61510		2.51	67.83	1.34	2537			2.87	Si
SLV 15	483	-10850	2178	67724		5.46	71	1.63	3230			1.48	Si
SLV 15	835	-1645	1473	-98588		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.38	1.04	-2072	7399	26537	3.59	Si
SLV 5	14	0.38	1.04	-2072	7399	26537	3.59	Si
SLV 2	14	0.38	1.22	-2432	7399	30640	4.14	Si
SLV 1	14	0.38	1.22	-2432	7399	30640	4.14	Si
SLV 10	14	0.38	1.4	-2785	7399	34519	4.67	Si
SLV 9	14	0.38	1.4	-2785	7399	34519	4.67	Si
SLV 4	14	0.38	1.74	-3453	7399	41470	5.6	Si
SLV 3	14	0.38	1.74	-3453	7399	41470	5.6	Si
SLV 13	14	0.38	2.42	-4807	7399	53984	7.3	Si
SLV 14	14	0.38	2.42	-4807	7399	53984	7.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-3673	-9027	359	0	4.732	0.941	0	1083.091	No
SLV 6	-3972	74	-355	0	0	0	0	1083.091	No, Trazione
SLV 13	-1314	-9110	275	0	2.364	0.901	0	1041.05	No
SLV 1	-5999	1896	-423	0	0	0	0	1041.05	No, Trazione
SLV 2	-5999	1896	-423	0	0	0	0	1041.05	No, Trazione
SLV 14	-1314	-9110	275	0	2.364	0.901	0	1041.05	No
SLV 4	-6331	156	-271	0	0	0	0	1041.05	No, Trazione
SLV 5	-3972	74	-355	0	0	0	0	1083.091	No, Trazione
SLV 3	-6331	156	-271	0	0	0	0	1041.05	No, Trazione
SLV 11	-3673	-9027	359	0	4.732	0.941	0	1083.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.245	SLU 82	Si
V_SLU	2.305	SLU 82	Si
PF_SLV	0	SLV 6	No
V_SLV	0	SLD 1	No
PFFP_SLV	3.586	SLV 5	Si
R_SLV	0	SLV 6	No

## Maschio 105

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1633.3	-335.9	-1736.3	-335.9	L4	L5	103	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	573	-9885	-86783	3.43	294873	3.398	Si
SLU 76	753	-8247	115581	2.86	275625	2.385	Si
SLU 73	573	-9687	-96407	3.36	293169	3.041	Si
SLU 73	753	-8294	121925	2.88	276341	2.266	Si
SLU 65	573	-8831	-88457	3.06	283830	3.209	Si
SLU 65	753	-7297	109799	2.53	259078	2.36	Si
SLU 82	573	-10171	-92505	3.53	297030	3.211	Si
SLU 82	753	-8906	125509	3.09	284785	2.269	Si
SLU 75	573	-10100	-82820	3.5	296524	3.58	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	753	-8595	117333	2.98	280698	2.392	Si
SLU 84	573	-10370	-82881	3.6	298313	3.599	Si
SLU 84	753	-8859	119165	3.07	284195	2.385	Si
SLU 44	573	-8132	-81230	2.82	273831	3.371	Si
SLU 44	753	-6495	100160	2.25	242014	2.416	Si
SLU 81	573	-10348	-81542	3.59	298181	3.657	Si
SLU 81	753	-9184	123089	3.18	288071	2.34	Si
SLU 61	573	-9473	-85278	3.28	291138	3.414	Si
SLU 61	753	-8104	115870	2.81	273380	2.359	Si
SLU 52	573	-8988	-89180	3.12	285793	3.205	Si
SLU 52	753	-7492	112286	2.6	262783	2.34	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	573	-6233	70631	2.16	264215	3.741	Si
SLV 11	753	-152	-110683	0	0	0	No, $e \geq l/2$
SLV 13	573	-5251	-350038	0	0	0	No, $e \geq l/2$
SLV 13	753	-9719	298560	3.37	362484	1.214	Si
SLV 14	573	-5251	-350038	0	0	0	No, $e \geq l/2$
SLV 14	753	-9719	298560	3.37	362484	1.214	Si
SLV 12	573	-6233	70631	2.16	264215	3.741	Si
SLV 12	753	-152	-110683	0	0	0	No, $e \geq l/2$
SLV 7	573	-7401	212525	2.57	301096	1.417	Si
SLV 7	753	874	-197567	0	0	0	No, Trazione
SLV 10	573	-6819	-321869	2.36	283235	0.88	No, $M > Mu$
SLV 10	753	-13029	362975	4.52	422907	1.165	Si
SLV 3	573	-8969	240694	3.11	344336	1.431	Si
SLV 3	753	-2436	-133152	0	0	0	No, $e \geq l/2$
SLV 8	573	-7401	212525	2.57	301096	1.417	Si
SLV 8	753	874	-197567	0	0	0	No, Trazione
SLV 9	573	-6819	-321869	2.36	283235	0.88	No, $M > Mu$
SLV 9	753	-13029	362975	4.52	422907	1.165	Si
SLV 4	573	-8969	240694	3.11	344336	1.431	Si
SLV 4	753	-2436	-133152	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	573	-7927	-1366	-83784		2.75	103	0.92	2659			1.95	Si
SLU 31	753	-6900	-692	102285		2.39	103	0.87	2522			3.64	Si
SLU 65	573	-8831	-1471	-88457		3.06	103	0.96	2780			1.89	Si
SLU 65	753	-7297	-795	109799		2.53	103	0.89	2575			3.24	Si
SLU 61	573	-9473	-1355	-85278		3.28	103	0.99	2865			2.11	Si
SLU 61	753	-8104	-774	115870		2.81	103	0.93	2683			3.47	Si
SLU 10	573	-7228	-1249	-76557		2.51	103	0.89	2566			2.06	Si
SLU 10	753	-6098	-689	92646		2.11	103	0.84	2415			3.51	Si
SLU 73	573	-9687	-1568	-96407		3.36	103	1	2894			1.85	Si
SLU 73	753	-8294	-833	121925		2.88	103	0.94	2708			3.25	Si
SLU 52	573	-8988	-1451	-89180		3.12	103	0.97	2801			1.93	Si
SLU 52	753	-7492	-829	112286		2.6	103	0.9	2601			3.14	Si
SLU 82	573	-10171	-1472	-92505		3.53	103	1.03	2958			2.01	Si
SLU 82	753	-8906	-777	125509		3.09	103	0.97	2790			3.59	Si
SLU 23	573	-7070	-1268	-75835		2.45	103	0.88	2545			2.01	Si
SLU 23	753	-5903	-655	90158		2.05	103	0.83	2389			3.65	Si
SLU 76	573	-9885	-1418	-86783		3.43	103	1.01	2920			2.06	Si
SLU 76	753	-8247	-743	115581		2.86	103	0.94	2702			3.64	Si
SLU 44	573	-8132	-1354	-81230		2.82	103	0.93	2686			1.98	Si
SLU 44	753	-6495	-792	100160		2.25	103	0.86	2468			3.12	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	573	-8969	3949	240694		4.33	73.99	1.63	3367			0.85	No, $V_u < V$
SLV 3	753	-2436	989	-133152		0	0	0.83	0			0	No, $V_u < V$
SLV 10	573	-6819	-4088	-321869		18.88	12.9	1.63	587			0.14	No, $V_u < V$
SLV 10	753	-13029	-1761	362975		6.56	70.92	1.63	3227			1.83	Si
SLV 13	573	-5251	-5687	-350038		0	0	0.83	0			0	No, $V_u < V$
SLV 13	753	-9719	-1957	298560		5.57	62.34	1.63	2837			1.45	Si
SLV 14	573	-5251	-5687	-350038		0	0	0.83	0			0	No, $V_u < V$
SLV 14	753	-9719	-1957	298560		5.57	62.34	1.63	2837			1.45	Si
SLV 7	573	-7401	2350	212525		3.87	68.35	1.61	3075			1.31	Si
SLV 7	753	874	793	-197567		0	0	0.83	0			0	No, $V_u < V$
SLV 8	573	-7401	2350	212525		3.87	68.35	1.61	3075			1.31	Si
SLV 8	753	874	793	-197567		0	0	0.83	0			0	No, $V_u < V$
SLV 9	573	-6819	-4088	-321869		18.88	12.9	1.63	587			0.14	No, $V_u < V$
SLV 9	753	-13029	-1761	362975		6.56	70.92	1.63	3227			1.83	Si
SLV 11	573	-6233	-189	70631		2.16	103	1.27	3650			19.28	Si
SLV 11	753	-152	75	-110683		0	0	0.83	0			0	No, $V_u < V$
SLV 12	573	-6233	-189	70631		2.16	103	1.27	3650			19.28	Si
SLV 12	753	-152	75	-110683		0	0	0.83	0			0	No, $V_u < V$
SLV 4	573	-8969	3949	240694		4.33	73.99	1.63	3367			0.85	No, $V_u < V$
SLV 4	753	-2436	989	-133152		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.38	1.34	-3869	10490	48220	4.6	Si
SLV 16	14	0.38	1.34	-3869	10490	48220	4.6	Si
SLV 11	14	0.38	1.45	-4195	10490	51733	4.93	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.38	1.45	-4195	10490	51733	4.93	Si
SLV 13	14	0.38	1.72	-4958	10490	59643	5.69	Si
SLV 14	14	0.38	1.72	-4958	10490	59643	5.69	Si
SLV 7	14	0.38	1.93	-5562	10490	65578	6.25	Si
SLV 8	14	0.38	1.93	-5562	10490	65578	6.25	Si
SLV 10	14	0.38	2.71	-7823	10490	85209	8.12	Si
SLV 9	14	0.38	2.71	-7823	10490	85209	8.12	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	1571	-5493	-69	0	0	0	0	1083.091	No, Trazione
SLV 12	604	-6832	-81	0	0	0	0	1083.091	No, Trazione
SLV 11	604	-6832	-81	0	0	0	0	1083.091	No, Trazione
SLV 8	1571	-5493	-69	0	0	0	0	1083.091	No, Trazione
SLV 5	-10084	-8150	83	0.035	11.696	0.963	53.556	1083.091	No
SLV 6	-10084	-8150	83	0.035	11.696	0.963	53.556	1083.091	No
SLV 10	-11050	-9488	71	0.037	12.68	0.966	55.528	1083.091	No
SLV 9	-11050	-9488	71	0.037	12.68	0.966	55.528	1083.091	No
SLV 2	-4877	-5658	45	0.038	6.408	0.938	59.335	1041.05	No
SLV 1	-4877	-5658	45	0.038	6.408	0.938	59.335	1041.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.266	SLU 73	Si
V_SLU	1.846	SLU 73	Si
PF_SLV	0	SLV 8	No
V_SLV	0	SLV 3	No
PFFP_SLV	4.597	SLV 15	Si
R_SLV	0	SLV 12	No

## Maschio 106

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-1844.8	-335.9	-1844.8	104.6	L4	L5	440.6	14	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	483	-23117	447915	3.75	2749342	6.138	Si
SLU 78	835	-16972	524591	2.75	2475743	4.719	Si
SLU 36	483	-19808	406803	3.21	2643154	6.497	Si
SLU 36	835	-14559	472317	2.36	2277754	4.823	Si
SLU 34	483	-19294	344893	3.13	2618032	7.591	Si
SLU 34	835	-13679	471799	2.22	2192922	4.648	Si
SLU 26	483	-16854	281110	2.73	2467240	8.777	Si
SLU 26	835	-11947	415560	1.94	2006004	4.827	Si
SLU 73	483	-22203	352002	3.6	2729597	7.754	Si
SLU 73	835	-15657	501662	2.54	2374191	4.733	Si
SLU 76	483	-22603	386005	3.66	2739145	7.096	Si
SLU 76	835	-16092	524073	2.61	2409516	4.598	Si
SLU 31	483	-18893	310890	3.06	2596863	8.353	Si
SLU 31	835	-13244	449388	2.15	2148378	4.781	Si
SLU 68	483	-20163	322221	3.27	2659161	8.253	Si
SLU 68	835	-14361	467834	2.33	2259246	4.829	Si
SLU 84	483	-23448	435024	3.8	2754672	6.332	Si
SLU 84	835	-16926	516080	2.74	2472490	4.791	Si
SLU 80	483	-22803	441691	3.7	2743378	6.211	Si
SLU 80	835	-16620	514388	2.69	2450046	4.763	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	483	-14128	637594	2.29	2528828	3.966	Si
SLV 8	835	-11028	66868	1.79	2073761	3.1013	Si
SLV 9	483	-15888	-108036	2.58	2762108	25.567	Si
SLV 9	835	-10979	498645	1.78	2066219	4.144	Si
SLV 11	483	-12520	560773	2.03	2299788	4.101	Si
SLV 11	835	-9707	144775	1.57	1862887	12.868	Si
SLV 7	483	-14128	637594	2.29	2528828	3.966	Si
SLV 7	835	-11028	66868	1.79	2073761	3.1013	Si
SLV 15	483	-11822	237065	1.92	2195748	9.262	Si
SLV 15	835	-8612	359520	1.4	1680235	4.674	Si
SLV 10	483	-15888	-108036	2.58	2762108	25.567	Si
SLV 10	835	-10979	498645	1.78	2066219	4.144	Si
SLV 16	483	-11822	237065	1.92	2195748	9.262	Si
SLV 16	835	-8612	359520	1.4	1680235	4.674	Si
SLV 12	483	-12520	560773	2.03	2299788	4.101	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	835	-9707	144775	1.57	1862887	12.868	Si
SLV 14	483	-12833	36422	2.08	2345530	64.399	Si
SLV 14	835	-8993	465681	1.46	1744672	3.746	Si
SLV 13	483	-12833	36422	2.08	2345530	64.399	Si
SLV 13	835	-8993	465681	1.46	1744672	3.746	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 23	483	-16453	-1220	247106		2.67	440.57	0.91	5620			4.61	Si
SLU 23	835	-11512	-534	393149		1.87	440.57	0.8	4962			9.3	Si
SLU 71	483	-20062	1179	410431		3.25	440.57	0.99	6102			5.18	Si
SLU 71	835	-15025	1154	410005		2.44	440.57	0.88	5430			4.7	Si
SLU 50	483	-17766	1067	333770		2.88	440.57	0.94	5795			5.43	Si
SLU 50	835	-13300	1043	345295		2.16	440.57	0.84	5200			4.99	Si
SLU 8	483	-14456	1005	292658		2.34	440.57	0.87	5354			5.33	Si
SLU 8	835	-10887	986	293022		1.77	440.57	0.79	4878			4.95	Si
SLU 44	483	-17467	-1270	211556		2.83	440.57	0.93	5756			4.53	Si
SLU 44	835	-12200	-588	380713		1.98	440.57	0.82	5053			8.59	Si
SLU 29	483	-16752	1117	369320		2.72	440.57	0.92	5660			5.07	Si
SLU 29	835	-12612	1097	357731		2.04	440.57	0.83	5108			4.65	Si
SLU 2	483	-14158	-1332	170445		2.3	440.57	0.86	5314			3.99	Si
SLU 2	835	-9787	-645	328439		1.59	440.57	0.77	4732			7.34	Si
SLU 31	483	-18893	-1246	310890		3.06	440.57	0.96	5946			4.77	Si
SLU 31	835	-13244	-560	449388		2.15	440.57	0.84	5192			9.27	Si
SLU 52	483	-19907	-1296	275340		3.23	440.57	0.99	6081			4.69	Si
SLU 52	835	-13932	-615	436952		2.26	440.57	0.86	5284			8.6	Si
SLU 10	483	-16598	-1358	234229		2.69	440.57	0.91	5640			4.15	Si
SLU 10	835	-11518	-672	384679		1.87	440.57	0.8	4962			7.39	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	483	-12520	13448	560773		2.03	440.57	1.24	7644			0.57	No, Vu<V
SLV 12	835	-9707	10927	144775		1.57	440.57	1.15	7081			0.65	No, Vu<V
SLV 6	483	-17497	-12730	-31214		2.84	440.57	1.4	8639			0.68	No, Vu<V
SLV 6	835	-12300	-10246	420739		1.99	440.57	1.23	7600			0.74	No, Vu<V
SLV 15	483	-11822	7276	237065		1.92	440.57	1.22	7504			1.03	Si
SLV 15	835	-8612	5950	359520		1.4	440.57	1.11	6862			1.15	Si
SLV 8	483	-14128	11476	637594		2.29	440.57	1.29	7966			0.69	No, Vu<V
SLV 8	835	-11028	9322	66868		1.79	440.57	1.19	7345			0.79	No, Vu<V
SLV 16	483	-11822	7276	237065		1.92	440.57	1.22	7504			1.03	Si
SLV 16	835	-8612	5950	359520		1.4	440.57	1.11	6862			1.15	Si
SLV 11	483	-12520	13448	560773		2.03	440.57	1.24	7644			0.57	No, Vu<V
SLV 11	835	-9707	10927	144775		1.57	440.57	1.15	7081			0.65	No, Vu<V
SLV 5	483	-17497	-12730	-31214		2.84	440.57	1.4	8639			0.68	No, Vu<V
SLV 5	835	-12300	-10246	420739		1.99	440.57	1.23	7600			0.74	No, Vu<V
SLV 7	483	-14128	11476	637594		2.29	440.57	1.29	7966			0.69	No, Vu<V
SLV 7	835	-11028	9322	66868		1.79	440.57	1.19	7345			0.79	No, Vu<V
SLV 9	483	-15888	-10758	-108036		2.58	440.57	1.35	8318			0.77	No, Vu<V
SLV 9	835	-10979	-8641	498645		1.78	440.57	1.19	7336			0.85	No, Vu<V
SLV 10	483	-15888	-10758	-108036		2.58	440.57	1.35	8318			0.77	No, Vu<V
SLV 10	835	-10979	-8641	498645		1.78	440.57	1.19	7336			0.85	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.38	1.63	-10038	24001	60905	2.54	Si
SLV 16	14	0.38	1.63	-10038	24001	60905	2.54	Si
SLV 14	14	0.38	1.77	-10899	24001	65260	2.72	Si
SLV 13	14	0.38	1.77	-10899	24001	65260	2.72	Si
SLV 11	14	0.38	1.84	-11349	24001	67481	2.81	Si
SLV 12	14	0.38	1.84	-11349	24001	67481	2.81	Si
SLV 7	14	0.38	2.16	-13335	24001	76829	3.2	Si
SLV 8	14	0.38	2.16	-13335	24001	76829	3.2	Si
SLV 10	14	0.38	2.31	-14221	24001	80762	3.36	Si
SLV 9	14	0.38	2.31	-14221	24001	80762	3.36	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 2	-13395	-18195	3	0.022	16.71	0.947	34.052	1649.646	No
SLV 1	-13395	-18195	3	0.022	16.71	0.947	34.052	1649.646	No
SLV 3	-13014	-17184	3	0.022	16.323	0.946	34.199	1649.646	No
SLV 4	-13014	-17184	3	0.022	16.323	0.946	34.199	1649.646	No
SLV 5	-12300	-17497	1	0.023	15.599	0.944	34.673	1649.646	No
SLV 6	-12300	-17497	1	0.023	15.599	0.944	34.673	1649.646	No
SLV 8	-11028	-14128	1	0.023	14.31	0.94	35.3	1649.646	No
SLV 7	-11028	-14128	1	0.023	14.31	0.94	35.3	1649.646	No
SLV 10	-10979	-15888	-1	0.023	14.261	0.94	35.31	1649.646	No
SLV 9	-10979	-15888	-1	0.023	14.261	0.94	35.31	1649.646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.598	SLU 76	Si
V_SLU	3.99	SLU 2	Si
PF_SLV	3.746	SLV 13	Si
V_SLV	0.568	SLV 11	No
PFFP_SLV	2.538	SLV 15	Si



Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0.021	SLV 1	No

## Maschio 107

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1389.3	-335.9	-1543.3	-335.9	L4	L5	154	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 73	483	-13249	-144664	3.07	635362	4.392	Si
SLU 73	693	-14813	238736	3.44	659586	2.763	Si
SLU 61	483	-13021	-126753	3.02	630947	4.978	Si
SLU 61	693	-14214	218109	3.3	651570	2.987	Si
SLU 84	483	-13950	-133460	3.24	647547	4.852	Si
SLU 84	693	-15317	233600	3.55	665105	2.847	Si
SLU 65	483	-12220	-130415	2.83	613589	4.705	Si
SLU 65	693	-13301	215139	3.08	636352	2.958	Si
SLU 83	483	-13984	-121335	3.24	648088	5.341	Si
SLU 83	693	-15161	223589	3.52	663510	2.968	Si
SLU 82	483	-13713	-142687	3.18	643661	4.511	Si
SLU 82	693	-15357	242176	3.56	665490	2.748	Si
SLU 76	483	-13486	-135436	3.13	639731	4.723	Si
SLU 76	693	-14774	230161	3.43	659108	2.864	Si
SLU 75	483	-13597	-130684	3.15	641683	4.91	Si
SLU 75	693	-14866	229031	3.45	660210	2.883	Si
SLU 81	483	-13747	-130563	3.19	644238	4.934	Si
SLU 81	693	-15200	232165	3.53	663921	2.86	Si
SLU 78	483	-13835	-121457	3.21	645689	5.316	Si
SLU 78	693	-14826	220456	3.44	659740	2.993	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 13	483	-8001	-347807	1.86	522538	1.502	Si
SLV 13	693	-13666	419530	3.17	779330	1.858	Si
SLV 11	483	-5637	-223557	1.31	387633	1.734	Si
SLV 11	693	-10241	115293	2.38	635296	5.51	Si
SLV 10	483	-12010	-114429	2.79	713986	6.24	Si
SLV 10	693	-12088	332620	2.8	717246	2.156	Si
SLD 15	483	-8101	-212524	1.88	527881	2.484	Si
SLD 15	693	-11476	241296	2.66	691184	2.864	Si
SLV 14	483	-8001	-347807	1.86	522538	1.502	Si
SLV 14	693	-13666	419530	3.17	779330	1.858	Si
SLV 9	483	-12010	-114429	2.79	713986	6.24	Si
SLV 9	693	-12088	332620	2.8	717246	2.156	Si
SLV 12	483	-5637	-223557	1.31	387633	1.734	Si
SLV 12	693	-10241	115293	2.38	635296	5.51	Si
SLV 15	483	-6089	-380545	1.41	414693	1.09	Si
SLV 15	693	-13112	354332	3.04	758347	2.14	Si
SLV 16	483	-6089	-380545	1.41	414693	1.09	Si
SLV 16	693	-13112	354332	3.04	758347	2.14	Si
SLD 16	483	-8101	-212524	1.88	527881	2.484	Si
SLD 16	693	-11476	241296	2.66	691184	2.864	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	483	-12558	-2469	-128729		2.91	154	0.94	4070			1.65	Si
SLU 52	693	-13670	-3323	214670		3.17	154	0.98	4218			1.27	Si
SLU 40	483	-11221	-2455	-125135		2.6	154	0.9	3892			1.59	Si
SLU 40	693	-12913	-3286	208279		2.99	154	0.95	4117			1.25	Si
SLU 61	483	-13021	-2470	-126753		3.02	154	0.96	4132			1.67	Si
SLU 61	693	-14214	-3412	218109		3.3	154	1	4291			1.26	Si
SLU 84	483	-13950	-2623	-133460		3.24	154	0.99	4256			1.62	Si
SLU 84	693	-15317	-3564	233600		3.55	154	1.03	4438			1.25	Si
SLU 81	483	-13747	-2630	-130563		3.19	154	0.98	4228			1.61	Si
SLU 81	693	-15200	-3636	232165		3.53	154	1.03	4422			1.22	Si
SLU 75	483	-13597	-2584	-130684		3.15	154	0.98	4208			1.63	Si
SLU 75	693	-14866	-3464	229031		3.45	154	1.02	4378			1.26	Si
SLU 82	483	-13713	-2805	-142687		3.18	154	0.98	4224			1.51	Si
SLU 82	693	-15357	-3791	242176		3.56	154	1.03	4443			1.17	Si
SLU 76	483	-13486	-2622	-135436		3.13	154	0.97	4194			1.6	Si
SLU 76	693	-14774	-3476	230161		3.43	154	1.01	4365			1.26	Si
SLU 73	483	-13249	-2804	-144664		3.07	154	0.97	4162			1.48	Si
SLU 73	693	-14813	-3702	238736		3.44	154	1.01	4371			1.18	Si
SLU 31	483	-10757	-2454	-127111		2.49	154	0.89	3830			1.56	Si
SLU 31	693	-12369	-3197	204840		2.87	154	0.94	4045			1.27	Si





Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 16	483	-8101	-3864	-212524		1.9	152.3	1.21	5174			1.34	Si
SLD 16	693	-11476	-3985	241296		2.66	154	1.37	5889			1.48	Si
SLV 14	483	-8001	-6370	-347807		2.84	100.59	1.4	3947			0.62	No, Vu<V
SLV 14	693	-13666	-5583	419530		3.51	138.9	1.54	5974			1.07	Si
SLV 11	483	-5637	-3679	-223557		1.8	112.03	1.19	3742			1.02	Si
SLV 11	693	-10241	-4375	115293		2.38	154	1.31	5642			1.29	Si
SLV 12	483	-5637	-3679	-223557		1.8	112.03	1.19	3742			1.02	Si
SLV 12	693	-10241	-4375	115293		2.38	154	1.31	5642			1.29	Si
SLD 15	483	-8101	-3864	-212524		1.9	152.3	1.21	5174			1.34	Si
SLD 15	693	-11476	-3985	241296		2.66	154	1.37	5889			1.48	Si
SLD 14	483	-8894	-3736	-198867		2.06	154	1.25	5372			1.44	Si
SLD 14	693	-11696	-3746	268044		2.71	154	1.38	5933			1.58	Si
SLD 13	483	-8894	-3736	-198867		2.06	154	1.25	5372			1.44	Si
SLD 13	693	-11696	-3746	268044		2.71	154	1.38	5933			1.58	Si
SLV 16	483	-6089	-6678	-380545		5	43.52	1.63	1980			0.3	No, Vu<V
SLV 16	693	-13112	-6163	354332		3.12	149.93	1.46	6121			0.99	No, Vu<V
SLV 15	483	-6089	-6678	-380545		5	43.52	1.63	1980			0.3	No, Vu<V
SLV 15	693	-13112	-6163	354332		3.12	149.93	1.46	6121			0.99	No, Vu<V
SLV 13	483	-8001	-6370	-347807		2.84	100.59	1.4	3947			0.62	No, Vu<V
SLV 13	693	-13666	-5583	419530		3.51	138.9	1.54	5974			1.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.38	1.7	-7343	15685	88471	5.64	Si
SLV 4	14	0.38	1.7	-7343	15685	88471	5.64	Si
SLV 8	14	0.38	1.8	-7769	15685	92730	5.91	Si
SLV 7	14	0.38	1.8	-7769	15685	92730	5.91	Si
SLV 1	14	0.38	1.96	-8453	15685	99360	6.33	Si
SLV 2	14	0.38	1.96	-8453	15685	99360	6.33	Si
SLV 11	14	0.38	2.14	-9246	15685	106725	6.8	Si
SLV 12	14	0.38	2.14	-9246	15685	106725	6.8	Si
SLV 5	14	0.38	2.66	-11472	15685	125637	8.01	Si
SLV 6	14	0.38	2.66	-11472	15685	125637	8.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-1769	-13535	328	0	4.086	0.891	0	1083.091	No
SLV 5	-1769	-13535	328	0	4.086	0.891	0	1083.091	No
SLV 10	-1499	-12010	281	0	3.835	0.889	0	1083.091	No
SLV 9	-1499	-12010	281	0	3.835	0.889	0	1083.091	No
SLV 11	-13541	-5637	-299	0.023	15.926	0.96	35.402	1083.091	No
SLV 12	-13541	-5637	-299	0.023	15.926	0.96	35.402	1083.091	No
SLV 1	-6300	-13083	180	0.023	8.578	0.932	36.525	1041.05	No
SLV 2	-6300	-13083	180	0.023	8.578	0.932	36.525	1041.05	No
SLV 7	-13812	-7162	-252	0.027	16.201	0.961	40.497	1083.091	No
SLV 8	-13812	-7162	-252	0.027	16.201	0.961	40.497	1083.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.748	SLU 82	Si
V_SLU	1.172	SLU 82	Si
PF_SLV	1.09	SLV 15	Si
V_SLV	0.297	SLV 15	No
PFFP_SLV	5.641	SLV 3	Si
R_SLV	0	SLV 5	No

## Maschio 108

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	104.6	-1505.8	140.6	L4	L5	36	14	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 63	483	-4173	28145	8.28	0	0	No, Rottura per schiacciamento
SLU 63	693	-1203	-16047	2.39	15308	0.954	No, M>Mu
SLU 62	483	-4179	28208	8.29	0	0	No, Rottura per schiacciamento
SLU 62	693	-1203	-16057	2.39	15310	0.953	No, M>Mu
SLU 56	483	-4152	28180	8.24	0	0	No, Rottura per schiacciamento
SLU 56	693	-1178	-16306	2.34	15118	0.927	No, M>Mu



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	483	-4167	29328	8.27	0	0	No, Rottura per schiacciamento
SLU 42	693	-1052	-17704	2.09	14084	0.796	No, M>Mu
SLU 38	483	-4089	29171	8.11	291	0.01	No, M>Mu
SLU 38	693	-977	-18034	0	0	0	No, e>l/2
SLU 83	483	-4747	32680	9.42	0	0	No, Rottura per schiacciamento
SLU 83	693	-1291	-19114	2.56	15928	0.833	No, M>Mu
SLU 41	483	-4174	29390	8.28	0	0	No, Rottura per schiacciamento
SLU 41	693	-1052	-17714	2.09	14086	0.795	No, M>Mu
SLU 69	483	-4112	27809	8.16	0	0	No, Rottura per schiacciamento
SLU 69	693	-1187	-16042	2.36	15188	0.947	No, M>Mu
SLU 37	483	-4096	29234	8.13	172	0.006	No, M>Mu
SLU 37	693	-978	-18045	0	0	0	No, e>l/2
SLU 57	483	-4145	28118	8.22	0	0	No, Rottura per schiacciamento
SLU 57	693	-1177	-16296	2.34	15116	0.928	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	483	893	-35897	0	0	0	No, Trazione
SLV 10	693	-3513	27405	6.97	27163	0.991	No, M>Mu
SLV 9	483	893	-35897	0	0	0	No, Trazione
SLV 9	693	-3513	27405	6.97	27163	0.991	No, M>Mu
SLD 16	483	-3591	28858	7.12	26947	0.934	No, M>Mu
SLD 16	693	-402	-18597	0	0	0	No, e>l/2
SLV 12	483	-6964	77529	13.82	0	0	No, Rottura per schiacciamento
SLV 12	693	1901	-52289	0	0	0	No, Trazione
SLV 7	483	-6679	73378	13.25	0	0	No, Rottura per schiacciamento
SLV 7	693	1630	-47367	0	0	0	No, Trazione
SLV 5	483	1178	-40048	0	0	0	No, Trazione
SLV 5	693	-3784	32327	7.51	26261	0.812	No, M>Mu
SLV 8	483	-6679	73378	13.25	0	0	No, Rottura per schiacciamento
SLV 8	693	1630	-47367	0	0	0	No, Trazione
SLV 4	483	-3596	28836	7.13	26931	0.934	No, M>Mu
SLV 4	693	-581	-13732	0	0	0	No, e>l/2
SLV 11	483	-6964	77529	13.82	0	0	No, Rottura per schiacciamento
SLV 11	693	1901	-52289	0	0	0	No, Trazione
SLV 6	483	1178	-40048	0	0	0	No, Trazione
SLV 6	693	-3784	32327	7.51	26261	0.812	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	483	-4662	517	32461		10.06	33.11	1.08	502			0.97	No, Vu<V
SLU 80	693	-1216	514	-19434		14.37	6.04	1.08	92			0.18	No, Vu<V
SLU 38	483	-4089	471	29171		8.96	32.6	1.08	494			1.05	Si
SLU 38	693	-977	468	-18034		0	0	0.56	0			0	No, Vu<V
SLU 37	483	-4096	473	29234		8.98	32.59	1.08	494			1.04	Si
SLU 37	693	-978	468	-18045		0	0	0.56	0			0	No, Vu<V
SLU 35	483	-4146	474	29363		9.04	32.75	1.08	497			1.05	Si
SLU 35	693	-1027	468	-17963		48.19	1.52	1.08	23			0.05	No, Vu<V
SLU 16	483	-3529	397	24761		7.65	32.95	1.08	500			1.26	Si
SLU 16	693	-890	393	-14988		18.2	3.49	1.08	53			0.13	No, Vu<V
SLU 17	483	-3522	395	24698		7.63	32.96	1.08	500			1.27	Si
SLU 17	693	-890	393	-14978		18.09	3.51	1.08	53			0.14	No, Vu<V
SLU 79	483	-4669	519	32524		10.07	33.1	1.08	502			0.97	No, Vu<V
SLU 79	693	-1216	514	-19444		14.41	6.03	1.08	91			0.18	No, Vu<V
SLU 41	483	-4174	473	29390		9.07	32.88	1.08	499			1.05	Si
SLU 41	693	-1052	467	-17714		21.48	3.5	1.08	53			0.11	No, Vu<V
SLU 36	483	-4139	472	29300		9.02	32.77	1.08	497			1.05	Si
SLU 36	693	-1027	468	-17953		47.65	1.54	1.08	23			0.05	No, Vu<V
SLU 42	483	-4167	471	29328		9.05	32.89	1.08	499			1.06	Si
SLU 42	693	-1052	467	-17704		21.37	3.52	1.08	53			0.11	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	483	1178	-1397	-40048		0	0	0.83	0			0	No, Vu<V
SLV 6	693	-3784	-602	32327		9.53	28.37	1.63	645			1.07	Si
SLD 16	483	-3591	584	28858		8.58	29.89	1.63	680			1.16	Si
SLD 16	693	-402	453	-18597		0	0	0.83	0			0	No, Vu<V
SLV 7	483	-6679	1833	73378		22.67	21.04	1.63	479			0.26	No, Vu<V
SLV 7	693	1630	1079	-47367		0	0	0.83	0			0	No, Vu<V
SLV 5	483	1178	-1397	-40048		0	0	0.83	0			0	No, Vu<V
SLV 5	693	-3784	-602	32327		9.53	28.37	1.63	645			1.07	Si
SLV 12	483	-6964	1968	77529		24.14	20.6	1.63	469			0.24	No, Vu<V
SLV 12	693	1901	1168	-52289		0	0	0.83	0			0	No, Vu<V
SLV 8	483	-6679	1833	73378		22.67	21.04	1.63	479			0.26	No, Vu<V
SLV 8	693	1630	1079	-47367		0	0	0.83	0			0	No, Vu<V
SLV 11	483	-6964	1968	77529		24.14	20.6	1.63	469			0.24	No, Vu<V
SLV 11	693	1901	1168	-52289		0	0	0.83	0			0	No, Vu<V
SLV 4	483	-3596	546	28836		8.58	29.94	1.63	681			1.25	Si
SLV 4	693	-581	386	-13732		0	0	0.83	0			0	No, Vu<V
SLV 10	483	893	-1262	-35897		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	693	-3513	-513	27405		8.2	30.6	1.63	696			1.36	Si
SLV 9	483	893	-1262	-35897		0	0	0.83	0			0	No, Vu<V
SLV 9	693	-3513	-513	27405		8.2	30.6	1.63	696			1.36	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.38	0	594	1961	0	0	No, Trazione
SLV 7	14	0.38	0	594	1961	0	0	No, Trazione
SLV 12	14	0.38	0	847	1961	0	0	No, Trazione
SLV 11	14	0.38	0	847	1961	0	0	No, Trazione
SLV 16	14	0.38	0.57	-288	1961	1924	0.98	No, M>Mu
SLV 15	14	0.38	0.57	-288	1961	1924	0.98	No, M>Mu
SLV 3	14	0.38	2.25	-1132	1961	6466	3.3	Si
SLV 4	14	0.38	2.25	-1132	1961	6466	3.3	Si
SLV 14	14	0.38	3.01	-1515	1961	7995	4.08	Si
SLV 13	14	0.38	3.01	-1515	1961	7995	4.08	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 659 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	70	893	-10	0	0	0	0	1649.646	No, Trazione
SLV 13	-1083	-2190	-29	0	1.353	0.947	0	1649.646	No
SLV 5	164	1178	7	0	0	0	0	1649.646	No, Trazione
SLV 10	70	893	-10	0	0	0	0	1649.646	No, Trazione
SLV 14	-1083	-2190	-29	0	1.353	0.947	0	1649.646	No
SLV 6	164	1178	7	0	0	0	0	1649.646	No, Trazione
SLV 2	-771	-1239	28	0	1.038	0.934	0	1649.646	No
SLV 1	-771	-1239	28	0	1.038	0.934	0	1649.646	No
SLV 3	-1666	-3596	29	0.006	1.946	0.962	8.749	1649.646	No
SLV 4	-1666	-3596	29	0.006	1.946	0.962	8.749	1649.646	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 35	No
V_SLU	0	SLU 37	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 10	No

## Maschio 109

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	220.6	-1505.8	666.1	L4	L5	445.5	14	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 75	483	-31085	-752983	4.98	2687677	3.569	Si
SLU 75	693	-27858	-747181	4.47	2802812	3.751	Si
SLU 83	483	-31877	-785940	5.11	2645479	3.366	Si
SLU 83	693	-28649	-785941	4.59	2783020	3.541	Si
SLU 84	483	-31862	-784154	5.11	2646296	3.375	Si
SLU 84	693	-28635	-784309	4.59	2783429	3.549	Si
SLU 73	483	-30088	-778711	4.82	2733010	3.51	Si
SLU 73	693	-26860	-700808	4.31	2819920	4.024	Si
SLU 77	483	-31668	-704392	5.08	2657161	3.772	Si
SLU 77	693	-28440	-786767	4.56	2788783	3.545	Si
SLU 74	483	-31099	-754769	4.99	2686958	3.56	Si
SLU 74	693	-27872	-748813	4.47	2802501	3.743	Si
SLU 81	483	-31309	-836317	5.02	2676317	3.2	Si
SLU 81	693	-28081	-747987	4.5	2797780	3.74	Si
SLU 82	483	-31294	-834531	5.02	2677063	3.208	Si
SLU 82	693	-28067	-746355	4.5	2798117	3.749	Si
SLU 78	483	-31653	-702605	5.08	2657952	3.783	Si
SLU 78	693	-28426	-785135	4.56	2789166	3.552	Si
SLU 79	483	-31248	-680934	5.01	2679439	3.935	Si
SLU 79	693	-28021	-779437	4.49	2799187	3.591	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	483	-14170	-1907952	2.27	2569413	1.347	Si
SLV 10	693	-11761	-255107	1.89	2215421	8.684	Si
SLD 6	483	-17792	-1162074	2.85	3037883	2.614	Si
SLD 6	693	-15594	-143098	2.5	2762837	19.307	Si
SLD 10	483	-18203	-1101395	2.92	3086224	2.802	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 10	693	-15762	-164782	2.53	2784875	16.9	Si
SLV 6	483	-13205	-2050312	2.12	2431673	1.186	Si
SLV 6	693	-11371	304810	1.82	2154952	7.07	Si
SLV 1	483	-17303	-1196840	2.77	2979179	2.489	Si
SLV 1	693	-15910	-161978	2.55	2804145	17.312	Si
SLD 9	483	-18203	-1101395	2.92	3086224	2.802	Si
SLD 9	693	-15762	-164782	2.53	2784875	16.9	Si
SLV 5	483	-13205	-2050312	2.12	2431673	1.186	Si
SLV 5	693	-11371	304810	1.82	2154952	7.07	Si
SLV 2	483	-17303	-1196840	2.77	2979179	2.489	Si
SLV 2	693	-15910	-161978	2.55	2804145	17.312	Si
SLD 5	483	-17792	-1162074	2.85	3037883	2.614	Si
SLD 5	693	-15594	-143098	2.5	2762837	19.307	Si
SLV 9	483	-14170	-1907952	2.27	2569413	1.347	Si
SLV 9	693	-11761	255107	1.89	2215421	8.684	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 27	483	-24059	632	-464306		3.86	445.5	1.07	6673			10.56	Si
SLU 27	693	-21504	632	-592532		3.45	445.5	1.02	6332			10.02	Si
SLU 6	483	-21049	541	-386743		3.37	445.5	1.01	6271			11.6	Si
SLU 6	693	-18640	541	-495637		2.99	445.5	0.95	5950			11.01	Si
SLU 9	483	-20615	618	-361499		3.31	445.5	1	6214			10.05	Si
SLU 9	693	-18206	618	-486675		2.92	445.5	0.94	5893			9.53	Si
SLU 30	483	-23625	710	-439062		3.79	445.5	1.06	6615			9.32	Si
SLU 30	693	-21070	710	-583570		3.38	445.5	1.01	6274			8.84	Si
SLU 8	483	-20629	617	-363286		3.31	445.5	1	6216			10.07	Si
SLU 8	693	-18221	617	-488307		2.92	445.5	0.95	5894			9.55	Si
SLU 28	483	-24045	633	-462519		3.86	445.5	1.07	6671			10.54	Si
SLU 28	693	-21490	633	-590900		3.45	445.5	1.01	6330			10	Si
SLU 71	483	-28455	610	-553467		4.56	445.5	1.08	6757			11.07	Si
SLU 71	693	-25228	610	-675700		4.04	445.5	1.08	6757			11.07	Si
SLU 72	483	-28441	611	-551681		4.56	445.5	1.08	6757			11.06	Si
SLU 72	693	-25213	611	-674068		4.04	445.5	1.08	6757			11.06	Si
SLU 29	483	-23639	709	-440848		3.79	445.5	1.06	6617			9.33	Si
SLU 29	693	-21084	709	-585202		3.38	445.5	1.01	6276			8.85	Si
SLU 7	483	-21034	541	-384957		3.37	445.5	1.01	6270			11.58	Si
SLU 7	693	-18626	541	-494005		2.99	445.5	0.95	5948			10.99	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	483	-17303	-4947	-1196840		2.77	445.5	1.39	8658			1.75	Si
SLV 1	693	-15910	-5087	-161978		2.55	445.5	1.34	8380			1.65	Si
SLV 8	483	-28132	8940	862712		4.51	445.5	1.63	10135			1.13	Si
SLV 8	693	-25640	9925	-1194549		4.11	445.5	1.63	10135			1.02	Si
SLV 11	483	-29097	10023	1005072		4.67	445.5	1.63	10135			1.01	Si
SLV 11	693	-26030	10922	-1244252		4.17	445.5	1.63	10135			0.93	No, Vu<V
SLV 12	483	-29097	10023	1005072		4.67	445.5	1.63	10135			1.01	Si
SLV 12	693	-26030	10922	-1244252		4.17	445.5	1.63	10135			0.93	No, Vu<V
SLV 5	483	-13205	-10483	-2050312		4.66	202.43	1.63	4605			0.44	No, Vu<V
SLV 5	693	-11371	-11382	304810		1.82	445.5	1.2	7472			0.66	No, Vu<V
SLV 7	483	-28132	8940	862712		4.51	445.5	1.63	10135			1.13	Si
SLV 7	693	-25640	9925	-1194549		4.11	445.5	1.63	10135			1.02	Si
SLV 10	483	-14170	-9400	-1907952		3.83	264.29	1.6	5917			0.63	No, Vu<V
SLV 10	693	-11761	-10385	255107		1.89	445.5	1.21	7550			0.73	No, Vu<V
SLV 9	483	-14170	-9400	-1907952		3.83	264.29	1.6	5917			0.63	No, Vu<V
SLV 9	693	-11761	-10385	255107		1.89	445.5	1.21	7550			0.73	No, Vu<V
SLV 6	483	-13205	-10483	-2050312		4.66	202.43	1.63	4605			0.44	No, Vu<V
SLV 6	693	-11371	-11382	304810		1.82	445.5	1.2	7472			0.66	No, Vu<V
SLV 2	483	-17303	-4947	-1196840		2.77	445.5	1.39	8658			1.75	Si
SLV 2	693	-15910	-5087	-161978		2.55	445.5	1.34	8380			1.65	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.38	1.87	-11636	24269	69018	2.84	Si
SLV 6	14	0.38	1.87	-11636	24269	69018	2.84	Si
SLV 10	14	0.38	1.94	-12083	24269	71169	2.93	Si
SLV 9	14	0.38	1.94	-12083	24269	71169	2.93	Si
SLV 1	14	0.38	2.6	-16242	24269	89462	3.69	Si
SLV 2	14	0.38	2.6	-16242	24269	89462	3.69	Si
SLV 14	14	0.38	2.84	-17729	24269	95233	3.92	Si
SLV 13	14	0.38	2.84	-17729	24269	95233	3.92	Si
SLV 4	14	0.38	3.31	-20636	24269	105336	4.34	Si
SLV 3	14	0.38	3.31	-20636	24269	105336	4.34	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-12837	-14170	136	0.013	16.179	0.945	20.488	1649.646	No
SLV 9	-12837	-14170	136	0.013	16.179	0.945	20.488	1649.646	No
SLV 8	-16974	-28132	-136	0.015	20.379	0.955	22.45	1649.646	No
SLV 7	-16974	-28132	-136	0.015	20.379	0.955	22.45	1649.646	No
SLV 5	-12875	-13205	118	0.015	16.218	0.945	22.469	1649.646	No
SLV 6	-12875	-13205	118	0.015	16.218	0.945	22.469	1649.646	No
SLV 12	-16936	-29097	-118	0.016	20.34	0.955	23.958	1649.646	No
SLV 11	-16936	-29097	-118	0.016	20.34	0.955	23.958	1649.646	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-14227	-20520	70	0.018	17.589	0.949	27.583	1649.646	No
SLV 14	-14227	-20520	70	0.018	17.589	0.949	27.583	1649.646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.2	SLU 81	Si
V_SLU	8.841	SLU 30	Si
PF_SLV	1.186	SLV 5	Si
V_SLV	0.439	SLV 5	No
PFFP_SLV	2.844	SLV 5	Si
R_SLV	0.012	SLV 9	No

## Maschio 111

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-35.4	-1375.3	-22.8	L4	L5	12.6	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 55	483	-1117	663	3.17	4285	6.466	Si
SLU 55	693	-633	-11045	0	0	0	No, e>l/2
SLU 60	483	-1149	1150	3.26	4327	3.762	Si
SLU 60	693	-644	-11350	0	0	0	No, e>l/2
SLU 1	483	-818	-209	2.32	3674	17.548	Si
SLU 1	693	-425	-7368	0	0	0	No, e>l/2
SLU 57	483	-1085	305	3.08	4238	13.904	Si
SLU 57	693	-696	-11914	0	0	0	No, e>l/2
SLU 54	483	-1123	597	3.19	4293	7.194	Si
SLU 54	693	-648	-11251	0	0	0	No, e>l/2
SLU 56	483	-1062	175	3.02	4202	24.078	Si
SLU 56	693	-709	-12091	0	0	0	No, e>l/2
SLU 59	483	-1064	284	3.02	4206	14.81	Si
SLU 59	693	-690	-11826	0	0	0	No, e>l/2
SLU 61	483	-1172	1281	3.33	4355	3.401	Si
SLU 61	693	-631	-11173	0	0	0	No, e>l/2
SLU 58	483	-1041	154	2.96	4167	27.122	Si
SLU 58	693	-704	-12003	0	0	0	No, e>l/2
SLU 53	483	-1100	466	3.12	4260	9.133	Si
SLU 53	693	-661	-11428	0	0	0	No, e>l/2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 7	483	-2127	6755	6.04	6756	1	Si
SLV 7	693	416	3511	0	0	0	No, Trazione
SLV 14	483	-1011	-585	2.87	4860	8.306	Si
SLV 14	693	-1024	-15396	0	0	0	No, e>l/2
SLD 1	483	-425	-1558	1.21	2405	1.543	Si
SLD 1	693	-443	-7812	0	0	0	No, e>l/2
SLV 13	483	-1011	-585	2.87	4860	8.306	Si
SLV 13	693	-1024	-15396	0	0	0	No, e>l/2
SLV 12	483	-2477	7682	7.04	6601	0.859	No, M>Mu
SLV 12	693	230	1091	0	0	0	No, Trazione
SLV 6	483	758	-7628	0	0	0	No, Trazione
SLV 6	693	-1180	-17511	0	0	0	No, e>l/2
SLV 10	483	408	-6701	0	0	0	No, Trazione
SLV 10	693	-1366	-19931	0	0	0	No, e>l/2
SLV 11	483	-2477	7682	7.04	6601	0.859	No, M>Mu
SLV 11	693	230	1091	0	0	0	No, Trazione
SLV 9	483	408	-6701	0	0	0	No, Trazione
SLV 9	693	-1366	-19931	0	0	0	No, e>l/2
SLV 8	483	-2127	6755	6.04	6756	1	Si
SLV 8	693	416	3511	0	0	0	No, Trazione

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	483	-1041	99	154		2.96	12.57	0.95	334			3.38	Si
SLU 58	693	-704	-261	-12003		0	0	0.56	0			0	No, Vu<V
SLU 55	483	-1117	144	663		3.17	12.57	0.98	345			2.39	Si
SLU 55	693	-633	-198	-11045		0	0	0.56	0			0	No, Vu<V
SLU 56	483	-1062	103	175		3.02	12.57	0.96	337			3.28	Si
SLU 56	693	-709	-264	-12091		0	0	0.56	0			0	No, Vu<V
SLU 57	483	-1085	115	305		3.08	12.57	0.97	340			2.96	Si
SLU 57	693	-696	-251	-11914		0	0	0.56	0			0	No, Vu<V
SLU 59	483	-1064	111	284		3.02	12.57	0.96	337			3.04	Si
SLU 59	693	-690	-248	-11826		0	0	0.56	0			0	No, Vu<V
SLU 61	483	-1172	183	1281		3.33	12.57	1	352			1.93	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	693	-631	-172	-11173		0	0	0.56	0			0	No, Vu<V
SLU 53	483	-1100	128	466		3.12	12.57	0.97	342			2.67	Si
SLU 53	693	-661	-221	-11428		0	0	0.56	0			0	No, Vu<V
SLU 60	483	-1149	171	1150		3.26	12.57	0.99	349			2.04	Si
SLU 60	693	-644	-184	-11350		0	0	0.56	0			0	No, Vu<V
SLU 1	483	-818	74	-209		2.32	12.57	0.87	305			4.1	Si
SLU 1	693	-425	-138	-7368		0	0	0.56	0			0	No, Vu<V
SLU 54	483	-1123	140	597		3.19	12.57	0.98	345			2.47	Si
SLU 54	693	-648	-209	-11251		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	483	-1011	-393	-585		2.87	12.57	1.41	495			1.26	Si
SLV 13	693	-1024	-703	-15396		0	0	0.83	0			0	No, Vu<V
SLV 10	483	408	-672	-6701		0	0	0.83	0			0	No, Vu<V
SLV 10	693	-1366	-1032	-19931		0	0	0.83	0			0	No, Vu<V
SLV 11	483	-2477	680	7682		9.26	9.55	1.63	435			0.64	No, Vu<V
SLV 11	693	230	529	1091		0	0	0.83	0			0	No, Vu<V
SLV 6	483	758	-505	-7628		0	0	0.83	0			0	No, Vu<V
SLV 6	693	-1180	-846	-17511		0	0	0.83	0			0	No, Vu<V
SLV 14	483	-1011	-393	-585		2.87	12.57	1.41	495			1.26	Si
SLV 14	693	-1024	-703	-15396		0	0	0.83	0			0	No, Vu<V
SLD 1	483	-425	121	-1558		1.93	7.84	1.22	268			2.22	Si
SLD 1	693	-443	-125	-7812		0	0	0.83	0			0	No, Vu<V
SLV 8	483	-2127	846	6755		8.14	9.33	1.63	424			0.5	No, Vu<V
SLV 8	693	416	715	3511		0	0	0.83	0			0	No, Vu<V
SLV 7	483	-2127	846	6755		8.14	9.33	1.63	424			0.5	No, Vu<V
SLV 7	693	416	715	3511		0	0	0.83	0			0	No, Vu<V
SLV 9	483	408	-672	-6701		0	0	0.83	0			0	No, Vu<V
SLV 9	693	-1366	-1032	-19931		0	0	0.83	0			0	No, Vu<V
SLV 12	483	-2477	680	7682		9.26	9.55	1.63	435			0.64	No, Vu<V
SLV 12	693	230	529	1091		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.38	0	384	1310	0	0	No, Trazione
SLV 12	14	0.38	0	66	1310	0	0	No, Trazione
SLV 11	14	0.38	0	66	1310	0	0	No, Trazione
SLV 7	14	0.38	0	384	1310	0	0	No, Trazione
SLV 3	14	0.38	0.47	-167	1310	2246	1.71	Si
SLV 4	14	0.38	0.47	-167	1310	2246	1.71	Si
SLV 2	14	0.38	2.72	-957	1310	10420	7.95	Si
SLV 1	14	0.38	2.72	-957	1310	10420	7.95	Si
SLV 15	14	0.38	3.49	-1227	1310	12279	9.37	Si
SLV 16	14	0.38	3.49	-1227	1310	12279	9.37	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	199	-2127	-40	0	0	0	0	1083.091	No, Trazione
SLV 4	-1106	-708	219	0	1.3	0.96	0	1041.05	No
SLV 6	-2719	758	224	0	0	0	0	1083.091	No, Trazione
SLV 1	-1981	157	298	0	0	0	0	1041.05	No, Trazione
SLV 5	-2719	758	224	0	0	0	0	1083.091	No, Trazione
SLV 10	-2476	408	82	0	0	0	0	1083.091	No, Trazione
SLV 3	-1106	-708	219	0	1.3	0.96	0	1041.05	No
SLV 9	-2476	408	82	0	0	0	0	1083.091	No, Trazione
SLV 7	199	-2127	-40	0	0	0	0	1083.091	No, Trazione
SLV 2	-1981	157	298	0	0	0	0	1041.05	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 12	No

## Maschio 112

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	67.2	-1375.3	104.6	L4	L5	37.4	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	483	-6902	-22220	6.59	24743	1.114	Si
SLU 74	693	-4804	7411	4.58	39317	5.305	Si
SLU 75	483	-6830	-21128	6.52	25563	1.21	Si
SLU 75	693	-4860	6480	4.64	39180	6.047	Si
SLU 78	483	-7123	-24030	6.8	22089	0.919	No, M>Mu
SLU 78	693	-4848	8854	4.63	39210	4.429	Si
SLU 77	483	-7195	-25122	6.86	21177	0.843	No, M>Mu
SLU 77	693	-4792	9786	4.57	39345	4.021	Si
SLU 81	483	-6834	-19808	6.52	25521	1.288	Si
SLU 81	693	-5010	4854	4.78	38739	7.981	Si
SLU 83	483	-7126	-22710	6.8	22042	0.971	No, M>Mu
SLU 83	693	-4998	7228	4.77	38777	5.365	Si
SLU 69	483	-6443	-23748	6.15	29584	1.246	Si
SLU 69	693	-4110	10258	3.92	39890	3.889	Si
SLU 84	483	-7054	-21618	6.73	22932	1.061	Si
SLU 84	693	-5054	6296	4.82	38592	6.129	Si
SLU 79	483	-7097	-25023	6.77	22411	0.896	No, M>Mu
SLU 79	693	-4694	9805	4.48	39548	4.034	Si
SLU 80	483	-7025	-23931	6.7	23292	0.973	No, M>Mu
SLU 80	693	-4750	8873	4.53	39437	4.445	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	483	-3908	-9394	3.73	50821	5.41	Si
SLV 1	693	-288	35655	0	0	0	No, e>l/2
SLV 7	483	-583	59632	0	0	0	No, e>l/2
SLV 7	693	-6455	-42796	6.16	59913	1.4	Si
SLV 5	483	-7381	-71732	7.04	58519	0.816	No, M>Mu
SLV 5	693	1102	59778	0	0	0	No, Trazione
SLV 8	483	-583	59632	0	0	0	No, e>l/2
SLV 8	693	-6455	-42796	6.16	59913	1.4	Si
SLV 2	483	-3908	-9394	3.73	50821	5.41	Si
SLV 2	693	-288	35655	0	0	0	No, e>l/2
SLV 6	483	-7381	-71732	7.04	58519	0.816	No, M>Mu
SLV 6	693	1102	59778	0	0	0	No, Trazione
SLV 9	483	-8319	-85756	7.94	54555	0.636	No, M>Mu
SLV 9	693	27	49682	0	0	0	No, Trazione
SLV 12	483	-1521	45609	0	0	0	No, e>l/2
SLV 12	693	-7531	-52892	7.19	58059	1.098	Si
SLD 6	483	-5701	-38122	5.44	59196	1.553	Si
SLD 6	693	-1377	27441	0	0	0	No, e>l/2
SLV 10	483	-8319	-85756	7.94	54555	0.636	No, M>Mu
SLV 10	693	27	49682	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	483	-7097	-336	-25023	6.77	37.43	1.08	1135				3.37	Si
SLU 79	693	-4694	-332	9805	4.48	37.43	1.08	1135				3.42	Si
SLU 29	483	-5453	-314	-21909	5.2	37.43	1.08	1135				3.62	Si
SLU 29	693	-3273	-314	10519	3.12	37.43	0.97	1019				3.25	Si
SLU 69	483	-6443	-325	-23748	6.15	37.43	1.08	1135				3.5	Si
SLU 69	693	-4110	-324	10258	3.92	37.43	1.08	1130				3.49	Si
SLU 77	483	-7195	-337	-25122	6.86	37.43	1.08	1135				3.37	Si
SLU 77	693	-4792	-332	9786	4.57	37.43	1.08	1135				3.42	Si
SLU 27	483	-5551	-314	-22008	5.3	37.43	1.08	1135				3.61	Si
SLU 27	693	-3371	-314	10500	3.22	37.43	0.98	1032				3.29	Si
SLU 37	483	-6205	-326	-23284	5.92	37.43	1.08	1135				3.48	Si
SLU 37	693	-3955	-322	10047	3.77	37.43	1.06	1110				3.44	Si
SLU 35	483	-6303	-327	-23383	6.01	37.43	1.08	1135				3.48	Si
SLU 35	693	-4053	-322	10028	3.87	37.43	1.07	1123				3.48	Si
SLU 30	483	-5381	-292	-20817	5.13	37.43	1.08	1135				3.89	Si
SLU 30	693	-3329	-293	9587	3.18	37.43	0.98	1026				3.51	Si
SLU 28	483	-5479	-293	-20916	5.23	37.43	1.08	1135				3.88	Si
SLU 28	693	-3427	-293	9568	3.27	37.43	0.99	1039				3.55	Si
SLU 71	483	-6345	-324	-23649	6.05	37.43	1.08	1135				3.5	Si
SLU 71	693	-4012	-324	10277	3.83	37.43	1.07	1117				3.45	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	483	-3908	58	-9394	3.73	37.43	1.58	1655				28.68	Si
SLV 1	693	-288	-864	35655	0	0	0.83	0				0	No, Vu<V
SLV 6	483	-7381	-1357	-71732	9.77	26.99	1.63	1228				0.9	No, Vu<V
SLV 6	693	1102	-1425	59778	0	0	0.83	0				0	No, Vu<V
SLV 2	483	-3908	58	-9394	3.73	37.43	1.58	1655				28.68	Si
SLV 2	693	-288	-864	35655	0	0	0.83	0				0	No, Vu<V
SLV 9	483	-8319	-1735	-85756	11.78	25.22	1.63	1147				0.66	No, Vu<V
SLV 9	693	27	-1207	49682	0	0	0.83	0				0	No, Vu<V
SLV 10	483	-8319	-1735	-85756	11.78	25.22	1.63	1147				0.66	No, Vu<V
SLV 10	693	27	-1207	49682	0	0	0.83	0				0	No, Vu<V
SLV 7	483	-583	1425	59632	0	0	0.83	0				0	No, Vu<V
SLV 7	693	-6455	904	-42796	6.36	36.26	1.63	1650				1.83	Si
SLV 12	483	-1521	1047	45609	0	0	0.83	0				0	No, Vu<V
SLV 12	693	-7531	1122	-52892	7.67	35.08	1.63	1596				1.42	Si
SLV 11	483	-1521	1047	45609	0	0	0.83	0				0	No, Vu<V
SLV 11	693	-7531	1122	-52892	7.67	35.08	1.63	1596				1.42	Si
SLV 5	483	-7381	-1357	-71732	9.77	26.99	1.63	1228				0.9	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	693	1102	-1425	59778		0	0	0.83	0			0	No, Vu<V
SLV 8	483	-583	1425	59632		0	0	0.83	0			0	No, Vu<V
SLV 8	693	-6455	904	-42796		6.36	36.26	1.63	1650			1.83	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.38	0	-203	3901	0	0	No, e>t/2
SLV 5	14	0.38	0	-203	3901	0	0	No, e>t/2
SLV 1	14	0.38	0.93	-973	3901	12589	3.23	Si
SLV 2	14	0.38	0.93	-973	3901	12589	3.23	Si
SLV 10	14	0.38	1.13	-1188	3901	15084	3.87	Si
SLV 9	14	0.38	1.13	-1188	3901	15084	3.87	Si
SLV 4	14	0.38	2.5	-2619	3901	29165	7.48	Si
SLV 3	14	0.38	2.5	-2619	3901	29165	7.48	Si
SLV 14	14	0.38	4.06	-4257	3901	39784	10.2	Si
SLV 13	14	0.38	4.06	-4257	3901	39784	10.2	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	59	-1521	-30	0	0	0	0	1083.091	No, Trazione
SLV 11	59	-1521	-30	0	0	0	0	1083.091	No, Trazione
SLV 16	-1502	-4994	-77	0.005	2.055	0.931	8.029	1041.05	No
SLV 15	-1502	-4994	-77	0.005	2.055	0.931	8.029	1041.05	No
SLV 3	-2327	-1869	70	0.018	2.891	0.948	28.347	1041.05	No
SLV 4	-2327	-1869	70	0.018	2.891	0.948	28.347	1041.05	No
SLV 13	-3087	-7033	-73	0.022	3.664	0.958	33.855	1041.05	No
SLV 14	-3087	-7033	-73	0.022	3.664	0.958	33.855	1041.05	No
SLV 1	-3913	-3908	74	0.026	4.503	0.965	38.461	1041.05	No
SLV 2	-3913	-3908	74	0.026	4.503	0.965	38.461	1041.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.843	SLU 77	No
V_SLU	3.249	SLU 29	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 5	No
R_SLV	0	SLV 12	No

## Maschio 113

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1975.8	666.1	-1771.8	666.1	L4	L5	204	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	573	-21295	23217	3.73	1177990	50.738	Si
SLU 84	753	-18754	205425	3.28	1141897	5.559	Si
SLU 39	573	-18761	3548	2.98	1142031	321.872	Si
SLU 39	753	-16793	193713	2.94	1094683	5.651	Si
SLU 75	573	-20794	25723	3.64	1173111	45.606	Si
SLU 75	753	-18253	196820	3.2	1131432	5.749	Si
SLU 73	573	-20965	12704	3.67	1174899	92.482	Si
SLU 73	753	-18424	206780	3.23	1135124	5.49	Si
SLU 61	573	-20065	9495	3.51	1164044	122.591	Si
SLU 61	753	-17550	198272	3.07	1114913	5.623	Si
SLU 40	573	-18763	2787	3.28	1142075	409.715	Si
SLU 40	753	-16795	194381	2.94	1094746	5.632	Si
SLU 60	573	-20062	10256	3.51	1164013	113.497	Si
SLU 60	753	-17548	197604	3.07	1114857	5.642	Si
SLU 81	573	-22040	9527	3.86	1183201	124.2	Si
SLU 81	753	-19499	221172	3.41	1155401	5.224	Si
SLU 83	573	-21293	23978	3.73	1177971	49.128	Si
SLU 83	753	-18752	204758	3.28	1141853	5.577	Si
SLU 82	573	-22042	8766	3.86	1183213	134.978	Si
SLU 82	753	-19501	221840	3.41	1155438	5.208	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	573	-13473	-196116	2.36	1108934	5.654	Si
SLV 6	753	-12167	363163	2.13	1024698	2.822	Si
SLV 5	573	-13473	-196116	2.36	1108934	5.654	Si
SLV 5	753	-12167	363163	2.13	1024698	2.822	Si
SLV 13	573	-7819	483075	1.37	708179	1.466	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	753	-5658	-248253	0.99	530307	2.136	Si
SLV 3	573	-21127	-451229	3.7	1502623	3.33	Si
SLV 3	753	-19390	519320	3.39	1428327	2.75	Si
SLV 16	573	-9468	522649	1.66	834746	1.597	Si
SLV 16	753	-6988	-310175	1.22	641412	2.068	Si
SLV 15	573	-9468	522649	1.66	834746	1.597	Si
SLV 15	753	-6988	-310175	1.22	641412	2.068	Si
SLV 2	573	-19477	-490803	3.41	1432262	2.918	Si
SLV 2	753	-18060	581243	3.16	1365446	2.349	Si
SLV 14	573	-7819	483075	1.37	708179	1.466	Si
SLV 14	753	-5658	-248253	0.99	530307	2.136	Si
SLV 1	573	-19477	-490803	3.41	1432262	2.918	Si
SLV 1	753	-18060	581243	3.16	1365446	2.349	Si
SLV 4	573	-21127	-451229	3.7	1502623	3.33	Si
SLV 4	753	-19390	519320	3.39	1428327	2.75	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 39	573	-18761	-1022	3548		3.28	204	0.99	5675			5.56	Si
SLU 39	753	-16793	-1022	193713		2.94	204	0.95	5412			5.3	Si
SLU 40	573	-18763	-1029	2787		3.28	204	0.99	5675			5.51	Si
SLU 40	753	-16795	-1029	194381		2.94	204	0.95	5413			5.26	Si
SLU 61	573	-20065	-1004	9495		3.51	204	1.02	5849			5.83	Si
SLU 61	753	-17550	-1004	198272		3.07	204	0.97	5513			5.49	Si
SLU 82	573	-22042	-1138	8766		3.86	204	1.07	6112			5.37	Si
SLU 82	753	-19501	-1138	221840		3.41	204	1.01	5773			5.07	Si
SLU 73	573	-20965	-1033	12704		3.67	204	1.04	5969			5.78	Si
SLU 73	753	-18424	-1033	206780		3.23	204	0.99	5630			5.45	Si
SLU 31	573	-17686	-924	6726		3.1	204	0.97	5532			5.99	Si
SLU 31	753	-15718	-924	179322		2.75	204	0.92	5269			5.7	Si
SLU 81	573	-22040	-1130	9527		3.86	204	1.07	6112			5.41	Si
SLU 81	753	-19499	-1130	221172		3.41	204	1.01	5773			5.11	Si
SLU 60	573	-20062	-996	10256		3.51	204	1.02	5848			5.87	Si
SLU 60	753	-17548	-996	197604		3.07	204	0.97	5513			5.54	Si
SLU 18	573	-16784	-887	4277		2.94	204	0.95	5411			6.1	Si
SLU 18	753	-14843	-887	170145		2.6	204	0.9	5152			5.81	Si
SLU 19	573	-16786	-895	3517		2.94	204	0.95	5411			6.05	Si
SLU 19	753	-14845	-895	170813		2.6	204	0.9	5153			5.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	573	-7819	4798	483075		2.31	120.65	1.3	4379			0.91	No, Vu<V
SLV 14	753	-5658	3731	-248253		1.16	174.36	1.07	5200			1.39	Si
SLV 1	573	-19477	-6729	-490803		3.41	204	1.52	8655			1.29	Si
SLV 1	753	-18060	-5678	581243		3.16	204	1.47	8372			1.47	Si
SLV 5	573	-13473	-3477	-196116		2.36	204	1.31	7455			2.14	Si
SLV 5	753	-12167	-3187	363163		2.13	204	1.26	7193			2.26	Si
SLV 2	573	-19477	-6729	-490803		3.41	204	1.52	8655			1.29	Si
SLV 2	753	-18060	-5678	581243		3.16	204	1.47	8372			1.47	Si
SLV 3	573	-21127	-6058	-451229		3.7	204	1.57	8985			1.48	Si
SLV 3	753	-19390	-4990	519320		3.39	204	1.51	8638			1.73	Si
SLV 16	573	-9468	5469	522649		2.41	140.4	1.32	5170			0.95	No, Vu<V
SLV 16	753	-6988	4418	-310175		1.44	172.84	1.12	5431			1.23	Si
SLV 15	573	-9468	5469	522649		2.41	140.4	1.32	5170			0.95	No, Vu<V
SLV 15	753	-6988	4418	-310175		1.44	172.84	1.12	5431			1.23	Si
SLV 6	573	-13473	-3477	-196116		2.36	204	1.31	7455			2.14	Si
SLV 6	753	-12167	-3187	363163		2.13	204	1.26	7193			2.26	Si
SLV 4	573	-21127	-6058	-451229		3.7	204	1.57	8985			1.48	Si
SLV 4	753	-19390	-4990	519320		3.39	204	1.51	8638			1.73	Si
SLV 13	573	-7819	4798	483075		2.31	120.65	1.3	4379			0.91	No, Vu<V
SLV 13	753	-5658	3731	-248253		1.16	174.36	1.07	5200			1.39	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.38	1.09	-6199	20777	79075	3.81	Si
SLV 13	14	0.38	1.09	-6199	20777	79075	3.81	Si
SLV 10	14	0.38	1.41	-8076	20777	99982	4.81	Si
SLV 9	14	0.38	1.41	-8076	20777	99982	4.81	Si
SLV 16	14	0.38	1.45	-8280	20777	102170	4.92	Si
SLV 15	14	0.38	1.45	-8280	20777	102170	4.92	Si
SLV 5	14	0.38	2.06	-11767	20777	136961	6.59	Si
SLV 6	14	0.38	2.06	-11767	20777	136961	6.59	Si
SLV 11	14	0.38	2.63	-15014	20777	164980	7.94	Si
SLV 12	14	0.38	2.63	-15014	20777	164980	7.94	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-6721	-10152	334	0.009	9.728	0.923	14.332	1083.091	No
SLV 9	-6721	-10152	334	0.009	9.728	0.923	14.332	1083.091	No
SLV 6	-8417	-16271	315	0.016	11.436	0.932	24.948	1083.091	No
SLV 5	-8417	-16271	315	0.016	11.436	0.932	24.948	1083.091	No
SLV 12	-11851	-12100	-311	0.022	14.913	0.946	34.195	1083.091	No
SLV 11	-11851	-12100	-311	0.022	14.913	0.946	34.195	1083.091	No
SLV 8	-13547	-18219	-330	0.023	16.634	0.951	35.13	1083.091	No
SLV 7	-13547	-18219	-330	0.023	16.634	0.951	35.13	1083.091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-6538	-3695	130	0.033	9.544	0.922	51.84	1041.05	No
SLV 14	-6538	-3695	130	0.033	9.544	0.922	51.84	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.208	SLU 82	Si
V_SLU	5.071	SLU 82	Si
PF_SLV	1.466	SLV 13	Si
V_SLV	0.913	SLV 13	No
PFFP_SLV	3.806	SLV 13	Si
R_SLV	0.013	SLV 9	No

## Maschio 114

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1681.8	666.1	-1283.8	666.1	L4	L5	398	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 84	573	-45976	-367983	4.13	4515408	12.271	Si
SLU 84	753	-40975	195007	3.68	4473458	22.94	Si
SLU 82	573	-45962	-412189	4.12	4515443	10.955	Si
SLU 82	753	-40961	164338	3.68	4473196	27.22	Si
SLU 83	573	-45985	-366474	4.13	4515384	12.321	Si
SLU 83	753	-40984	194571	3.68	4473638	22.992	Si
SLU 60	573	-41400	-381323	3.71	4481282	11.752	Si
SLU 60	753	-36451	132069	3.27	4341060	32.87	Si
SLU 74	573	-44717	-356854	4.01	4515176	12.653	Si
SLU 74	753	-39716	182233	3.56	4445631	24.395	Si
SLU 73	573	-43813	-389456	3.93	4510721	11.582	Si
SLU 73	753	-38812	154020	3.48	4421347	28.706	Si
SLU 52	573	-39241	-360099	3.52	4433311	12.311	Si
SLU 52	753	-34292	122187	3.08	4246254	34.752	Si
SLU 61	573	-41390	-382832	3.71	4481118	11.705	Si
SLU 61	753	-36442	132505	3.27	4340694	32.759	Si
SLU 75	573	-44708	-358363	4.01	4515148	12.599	Si
SLU 75	753	-39707	182669	3.56	4445399	24.336	Si
SLU 81	573	-45972	-410680	4.13	4515419	10.995	Si
SLU 81	753	-40971	163902	3.68	4473377	27.293	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 15	573	-29152	859391	2.62	4559299	5.305	Si
SLV 15	753	-25113	-1242096	2.25	4075759	3.281	Si
SLV 13	573	-27363	906569	2.46	4350957	4.799	Si
SLV 13	753	-23748	-1076167	2.13	3901635	3.625	Si
SLV 16	573	-29152	859391	2.62	4559299	5.305	Si
SLV 16	753	-25113	-1242096	2.25	4075759	3.281	Si
SLV 14	573	-27363	906569	2.46	4350957	4.799	Si
SLV 14	753	-23748	-1076167	2.13	3901635	3.625	Si
SLV 1	573	-31430	-1388215	2.82	4810913	3.466	Si
SLV 1	753	-27799	1440002	2.49	4402667	3.057	Si
SLV 3	573	-33220	-1435393	2.98	4997976	3.482	Si
SLV 3	753	-29164	1274073	2.62	4560630	3.58	Si
SLV 5	573	-27919	-530000	2.51	4416667	8.333	Si
SLV 5	753	-24789	752926	2.22	4034994	5.359	Si
SLV 4	573	-33220	-1435393	2.98	4997976	3.482	Si
SLV 4	753	-29164	1274073	2.62	4560630	3.58	Si
SLV 2	573	-31430	-1388215	2.82	4810913	3.466	Si
SLV 2	753	-27799	1440002	2.49	4402667	3.057	Si
SLV 6	573	-27919	-530000	2.51	4416667	8.333	Si
SLV 6	753	-24789	752926	2.22	4034994	5.359	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	573	-45972	-3185	-410680		4.13	398	1.08	12073			3.79	Si
SLU 81	753	-40971	-3185	163902		3.68	398	1.05	11654			3.66	Si
SLU 82	573	-45962	-3196	-412189		4.12	398	1.08	12073			3.78	Si
SLU 82	753	-40961	-3196	164338		3.68	398	1.05	11653			3.65	Si
SLU 83	573	-45985	-3110	-366474		4.13	398	1.08	12073			3.88	Si
SLU 83	753	-40984	-3110	194571		3.68	398	1.05	11656			3.75	Si
SLU 61	573	-41390	-2856	-382832		3.71	398	1.05	11710			4.1	Si
SLU 61	753	-36442	-2856	132505		3.27	398	0.99	11050			3.87	Si
SLU 73	573	-43813	-3012	-389456		3.93	398	1.08	12033			3.99	Si
SLU 73	753	-38812	-3012	154020		3.48	398	1.02	11366			3.77	Si
SLU 74	573	-44717	-2988	-356854		4.01	398	1.08	12073			4.04	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 74	753	-39716	-2988	182233		3.56	398	1.03	11487			3.84	Si
SLU 84	573	-45976	-3121	-367983		4.13	398	1.08	12073			3.87	Si
SLU 84	753	-40975	-3121	195007		3.68	398	1.05	11654			3.73	Si
SLU 75	573	-44708	-2999	-358363		4.01	398	1.08	12073			4.03	Si
SLU 75	753	-39707	-2999	182669		3.56	398	1.03	11485			3.83	Si
SLU 76	573	-43826	-2937	-345249		3.93	398	1.08	12035			4.1	Si
SLU 76	753	-38825	-2937	184689		3.48	398	1.02	11368			3.87	Si
SLU 60	573	-41400	-2845	-381323		3.71	398	1.05	11711			4.12	Si
SLU 60	753	-36451	-2845	132069		3.27	398	0.99	11051			3.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	573	-33220	-15732	-1435393		2.98	398	1.43	15931			1.01	Si
SLV 3	753	-29164	-14099	1274073		2.62	398	1.36	15119			1.07	Si
SLV 2	573	-31430	-17032	-1388215		2.82	398	1.4	15573			0.91	No, Vu<V
SLV 2	753	-27799	-15134	1440002		2.49	398	1.33	14847			0.98	No, Vu<V
SLV 14	573	-27363	11705	906569		2.46	398	1.32	14759			1.26	Si
SLV 14	753	-23748	10072	-1076167		2.13	398	1.26	14036			1.39	Si
SLV 1	573	-31430	-17032	-1388215		2.82	398	1.4	15573			0.91	No, Vu<V
SLV 1	753	-27799	-15134	1440002		2.49	398	1.33	14847			0.98	No, Vu<V
SLV 4	573	-33220	-15732	-1435393		2.98	398	1.43	15931			1.01	Si
SLV 4	753	-29164	-14099	1274073		2.62	398	1.36	15119			1.07	Si
SLV 6	573	-27919	-8492	-530000		2.51	398	1.33	14870			1.75	Si
SLV 6	753	-24789	-7519	752926		2.22	398	1.28	14245			1.89	Si
SLV 13	573	-27363	11705	906569		2.46	398	1.32	14759			1.26	Si
SLV 13	753	-23748	10072	-1076167		2.13	398	1.26	14036			1.39	Si
SLV 16	573	-29152	13005	859391		2.62	398	1.36	15117			1.16	Si
SLV 16	753	-25113	11107	-1242096		2.25	398	1.28	14309			1.29	Si
SLV 5	573	-27919	-8492	-530000		2.51	398	1.33	14870			1.75	Si
SLV 5	753	-24789	-7519	752926		2.22	398	1.28	14245			1.89	Si
SLV 15	573	-29152	13005	859391		2.62	398	1.36	15117			1.16	Si
SLV 15	753	-25113	11107	-1242096		2.25	398	1.28	14309			1.29	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.38	2.25	-25100	40535	286623	7.07	Si
SLV 9	14	0.38	2.25	-25100	40535	286623	7.07	Si
SLV 13	14	0.38	2.26	-25198	40535	287489	7.09	Si
SLV 14	14	0.38	2.26	-25198	40535	287489	7.09	Si
SLV 6	14	0.38	2.37	-26442	40535	298298	7.36	Si
SLV 5	14	0.38	2.37	-26442	40535	298298	7.36	Si
SLV 16	14	0.38	2.39	-26624	40535	299853	7.4	Si
SLV 15	14	0.38	2.39	-26624	40535	299853	7.4	Si
SLV 1	14	0.38	2.66	-29670	40535	324874	8.01	Si
SLV 2	14	0.38	2.66	-29670	40535	324874	8.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-18398	-27220	523	0.022	24.31	0.937	34.604	1083.091	No
SLV 10	-18398	-27220	523	0.022	24.31	0.937	34.604	1083.091	No
SLV 6	-19248	-28448	527	0.023	25.17	0.939	35.273	1083.091	No
SLV 5	-19248	-28448	527	0.023	25.17	0.939	35.273	1083.091	No
SLV 11	-23252	-31093	-542	0.025	29.227	0.946	38.06	1083.091	No
SLV 12	-23252	-31093	-542	0.025	29.227	0.946	38.06	1083.091	No
SLV 8	-24102	-32321	-538	0.025	30.09	0.947	38.937	1083.091	No
SLV 7	-24102	-32321	-538	0.025	30.09	0.947	38.937	1083.091	No
SLV 15	-20561	-28305	-174	0.038	26.5	0.941	59.27	1041.05	No
SLV 16	-20561	-28305	-174	0.038	26.5	0.941	59.27	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	10.955	SLU 82	Si
V_SLU	3.646	SLU 82	Si
PF_SLV	3.057	SLV 1	Si
V_SLV	0.914	SLV 1	No
PFFP_SLV	7.071	SLV 9	Si
R_SLV	0.032	SLV 9	No

## Maschio 115

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1193.8	666.1	-795.8	666.1	L4	L5	398	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	573	-42772	395783	3.84	4501161	11.373	Si
SLU 77	753	-37814	-2841	3.39	4390373	1000	Si
SLU 83	573	-43457	383873	3.9	4507987	11.743	Si
SLU 83	753	-38498	14875	3.45	4412087	296.606	Si
SLU 76	573	-41366	365311	3.71	4480695	12.265	Si
SLU 76	753	-36407	8628	3.27	4339333	502.928	Si
SLU 38	573	-35839	349313	3.22	4316238	12.356	Si
SLU 38	753	-31998	-16430	2.87	4123103	250.957	Si
SLU 78	573	-42739	395690	3.84	4500778	11.375	Si
SLU 78	753	-37780	-4402	3.39	4389270	997.164	Si
SLU 84	573	-43424	383779	3.9	4507704	11.746	Si
SLU 84	753	-38465	13315	3.45	4411083	331.29	Si
SLU 80	573	-41937	393274	3.76	4490050	11.417	Si
SLU 80	753	-36978	-10178	3.32	4361101	428.469	Si
SLU 74	573	-42224	367882	3.79	4494205	12.216	Si
SLU 74	753	-37265	17005	3.34	4371485	257.065	Si
SLU 79	573	-41970	393368	3.77	4490549	11.416	Si
SLU 79	753	-37011	-8618	3.32	4362321	506.19	Si
SLU 75	573	-42190	367789	3.79	4493743	12.218	Si
SLU 75	753	-37232	15445	3.34	4370302	282.959	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	573	-25427	-1038099	2.28	4115135	3.964	Si
SLV 1	753	-21418	1215280	1.92	3591711	2.955	Si
SLV 14	573	-30948	1270379	2.78	4758857	3.746	Si
SLV 14	753	-27255	-1213204	2.45	4338120	3.576	Si
SLV 13	573	-30948	1270379	2.78	4758857	3.746	Si
SLV 13	753	-27255	-1213204	2.45	4338120	3.576	Si
SLV 16	573	-30871	1494541	2.77	4750554	3.179	Si
SLV 16	753	-27275	-1174772	2.45	4340489	3.695	Si
SLV 12	573	-28850	948097	2.59	4524740	4.772	Si
SLV 12	753	-25255	-279965	2.27	4093594	14.622	Si
SLV 11	573	-28850	948097	2.59	4524740	4.772	Si
SLV 11	753	-25255	-279965	2.27	4093594	14.622	Si
SLV 15	573	-30871	1494541	2.77	4750554	3.179	Si
SLV 15	753	-27275	-1174772	2.45	4340489	3.695	Si
SLV 3	573	-25351	-813937	2.27	4105599	5.044	Si
SLV 3	753	-21437	1253712	1.92	3594418	2.867	Si
SLV 4	573	-25351	-813937	2.27	4105599	5.044	Si
SLV 4	753	-21437	1253712	1.92	3594418	2.867	Si
SLV 2	573	-25427	-1038099	2.28	4115135	3.964	Si
SLV 2	753	-21418	1215280	1.92	3591711	2.955	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	573	-42772	2234	395783		3.84	398	1.07	11894			5.32	Si
SLU 77	753	-37814	2234	-2841		3.39	398	1.01	11233			5.03	Si
SLU 38	573	-35839	2047	349313		3.22	398	0.98	10970			5.36	Si
SLU 38	753	-31998	2047	-16430		2.87	398	0.94	10458			5.11	Si
SLU 72	573	-37187	2070	350326		3.34	398	1	11149			5.39	Si
SLU 72	753	-32228	2070	-18687		2.89	398	0.94	10488			5.07	Si
SLU 69	573	-38022	2043	352835		3.41	398	1.01	11261			5.51	Si
SLU 69	753	-33063	2043	-11350		2.97	398	0.95	10600			5.19	Si
SLU 79	573	-41970	2253	393368		3.77	398	1.06	11787			5.23	Si
SLU 79	753	-37011	2253	-8618		3.32	398	1	11126			4.94	Si
SLU 37	573	-35872	2039	349406		3.22	398	0.98	10974			5.38	Si
SLU 37	753	-32031	2039	-14869		2.87	398	0.94	10462			5.13	Si
SLU 80	573	-41937	2261	393274		3.76	398	1.06	11783			5.21	Si
SLU 80	753	-36978	2261	-10178		3.32	398	1	11122			4.92	Si
SLU 71	573	-37220	2062	350420		3.34	398	1	11154			5.41	Si
SLU 71	753	-32261	2062	-17126		2.89	398	0.94	10493			5.09	Si
SLU 78	573	-42739	2242	395690		3.84	398	1.07	11890			5.3	Si
SLU 78	753	-37780	2242	-4402		3.39	398	1.01	11228			5.01	Si
SLU 70	573	-37989	2051	352742		3.41	398	1.01	11256			5.49	Si
SLU 70	753	-33030	2051	-12910		2.96	398	0.95	10595			5.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	573	-25427	-14138	-1038099		2.28	398	1.29	14372			1.02	Si
SLV 2	753	-21418	-11607	1215280		1.92	398	1.22	13570			1.17	Si
SLV 1	573	-25427	-14138	-1038099		2.28	398	1.29	14372			1.02	Si
SLV 1	753	-21418	-11607	1215280		1.92	398	1.22	13570			1.17	Si
SLV 14	573	-30948	14542	1270379		2.78	398	1.39	15476			1.06	Si
SLV 14	753	-27255	13511	-1213204		2.45	398	1.32	14738			1.09	Si
SLV 12	573	-28850	8700	948097		2.59	398	1.35	15057			1.73	Si
SLV 12	753	-25255	5667	-279965		2.27	398	1.29	14338			2.53	Si
SLV 16	573	-30871	16479	1494541		2.77	398	1.39	15461			0.94	No, Vu<V
SLV 16	753	-27275	13948	-1174772		2.45	398	1.32	14742			1.06	Si
SLV 15	573	-30871	16479	1494541		2.77	398	1.39	15461			0.94	No, Vu<V
SLV 15	753	-27275	13948	-1174772		2.45	398	1.32	14742			1.06	Si
SLV 4	573	-25351	-12201	-813937		2.27	398	1.29	14357			1.18	Si
SLV 4	753	-21437	-11170	1253712		1.92	398	1.22	13574			1.22	Si
SLV 13	573	-30948	14542	1270379		2.78	398	1.39	15476			1.06	Si
SLV 13	753	-27255	13511	-1213204		2.45	398	1.32	14738			1.09	Si
SLV 3	573	-25351	-12201	-813937		2.27	398	1.29	14357			1.18	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	753	-21437	-11170	1253712		1.92	398	1.22	13574			1.22	Si
SLV 11	573	-28850	8700	948097		2.59	398	1.35	15057			1.73	Si
SLV 11	753	-25255	5667	-279965		2.27	398	1.29	14338			2.53	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.38	2.07	-23092	40535	268466	6.62	Si
SLV 2	14	0.38	2.07	-23092	40535	268466	6.62	Si
SLV 3	14	0.38	2.09	-23249	40535	269911	6.66	Si
SLV 4	14	0.38	2.09	-23249	40535	269911	6.66	Si
SLV 6	14	0.38	2.24	-24923	40535	285062	7.03	Si
SLV 5	14	0.38	2.24	-24923	40535	285062	7.03	Si
SLV 7	14	0.38	2.28	-25445	40535	289662	7.15	Si
SLV 8	14	0.38	2.28	-25445	40535	289662	7.15	Si
SLV 9	14	0.38	2.39	-26649	40535	300073	7.4	Si
SLV 10	14	0.38	2.39	-26649	40535	300073	7.4	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-23397	-25843	-60	0.043	29.374	0.946	65.678	1083.091	No
SLV 9	-23397	-25843	-60	0.043	29.374	0.946	65.678	1083.091	No
SLV 8	-18271	-24553	72	0.043	24.181	0.936	66.585	1083.091	No
SLV 7	-18271	-24553	72	0.043	24.181	0.936	66.585	1083.091	No
SLV 5	-22240	-24294	-49	0.043	28.201	0.944	66.674	1083.091	No
SLV 6	-22240	-24294	-49	0.043	28.201	0.944	66.674	1083.091	No
SLV 11	-19427	-26102	61	0.043	25.352	0.939	66.908	1083.091	No
SLV 12	-19427	-26102	61	0.043	25.352	0.939	66.908	1083.091	No
SLV 13	-23357	-27741	-30	0.044	29.334	0.946	67.382	1041.05	No
SLV 14	-23357	-27741	-30	0.044	29.334	0.946	67.382	1041.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	11.373	SLU 77	Si
V_SLU	4.919	SLU 80	Si
PF_SLV	2.867	SLV 3	Si
V_SLV	0.938	SLV 15	No
PFFP_SLV	6.623	SLV 1	Si
R_SLV	0.061	SLV 9	No

## Maschio 116

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-705.8	666.1	-501.8	666.1	L4	L5	204	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	573	-25339	110209	4.44	1177055	10.68	Si
SLU 81	753	-22751	-357769	3.98	1185913	3.315	Si
SLU 76	573	-24246	93730	4.24	1184379	12.636	Si
SLU 76	753	-21658	-327233	3.79	1180833	3.609	Si
SLU 74	573	-24781	94062	4.34	1181445	12.56	Si
SLU 74	753	-22194	-333501	3.89	1183976	3.55	Si
SLU 82	573	-25316	111616	4.43	1177260	10.547	Si
SLU 82	753	-22729	-358945	3.98	1185860	3.304	Si
SLU 73	573	-24052	101242	4.21	1185129	11.706	Si
SLU 73	753	-21465	-336364	3.76	1179387	3.506	Si
SLU 75	573	-24759	95469	4.33	1181595	12.377	Si
SLU 75	753	-22171	-334677	3.88	1183869	3.537	Si
SLU 78	573	-24952	87958	4.37	1180244	13.418	Si
SLU 78	753	-22365	-325546	3.92	1184715	3.639	Si
SLU 84	573	-25510	104104	4.47	1175436	11.291	Si
SLU 84	753	-22922	-349813	4.01	1186233	3.391	Si
SLU 77	573	-24975	86550	4.37	1180075	13.635	Si
SLU 77	753	-22387	-324370	3.92	1184803	3.653	Si
SLU 83	573	-25533	102697	4.47	1175211	11.444	Si
SLU 83	753	-22945	-348637	4.02	1186266	3.403	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	573	-15490	204150	2.71	1229304	6.022	Si
SLV 10	753	-15182	-433198	2.66	1211710	2.797	Si
SLV 13	573	-21635	513985	3.79	1522716	2.963	Si
SLV 13	753	-20488	-663396	3.59	1476311	2.225	Si
SLV 9	573	-15490	204150	2.71	1229304	6.022	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	753	-15182	-433198	2.66	1211710	2.797	Si
SLV 2	573	-9734	-389143	1.7	854401	2.196	Si
SLV 2	753	-7853	167816	1.37	710843	4.236	Si
SLV 16	573	-23333	508619	4.08	1584296	3.115	Si
SLV 16	753	-21245	-611346	3.72	1507365	2.466	Si
SLV 1	573	-9734	-389143	1.7	854401	2.196	Si
SLV 1	753	-7853	167816	1.37	710843	4.236	Si
SLV 3	573	-11431	-394509	2	975022	2.471	Si
SLV 3	753	-8610	219866	1.51	769862	3.502	Si
SLV 4	573	-11431	-394509	2	975022	2.471	Si
SLV 4	753	-8610	219866	1.51	769862	3.502	Si
SLV 15	573	-23333	508619	4.08	1584296	3.115	Si
SLV 15	753	-21245	-611346	3.72	1507365	2.466	Si
SLV 14	573	-21635	513985	3.79	1522716	2.963	Si
SLV 14	753	-20488	-663396	3.59	1476311	2.225	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	573	-25316	2577	111616		4.43	204	1.08	6188			2.4	Si
SLU 82	753	-22729	2577	-358945		3.98	204	1.08	6188			2.4	Si
SLU 75	573	-24759	2353	95469		4.33	204	1.08	6188			2.63	Si
SLU 75	753	-22171	2353	-334677		3.88	204	1.07	6129			2.61	Si
SLU 84	573	-25510	2485	104104		4.47	204	1.08	6188			2.49	Si
SLU 84	753	-22922	2485	-349813		4.01	204	1.08	6188			2.49	Si
SLU 73	573	-24052	2394	101242		4.21	204	1.08	6188			2.58	Si
SLU 73	753	-21465	2394	-336364		3.76	204	1.06	6035			2.52	Si
SLU 40	573	-21753	2292	102922		3.81	204	1.06	6074			2.65	Si
SLU 40	753	-19749	2292	-314851		3.46	204	1.02	5807			2.53	Si
SLU 83	573	-25533	2470	102697		4.47	204	1.08	6188			2.5	Si
SLU 83	753	-22945	2470	-348637		4.02	204	1.08	6188			2.5	Si
SLU 60	573	-22663	2242	93959		3.97	204	1.08	6188			2.76	Si
SLU 60	753	-20102	2242	-316321		3.52	204	1.02	5854			2.61	Si
SLU 39	573	-21776	2278	101514		3.81	204	1.06	6077			2.67	Si
SLU 39	753	-19772	2278	-313675		3.46	204	1.02	5810			2.55	Si
SLU 81	573	-25339	2563	110209		4.44	204	1.08	6188			2.41	Si
SLU 81	753	-22751	2563	-357769		3.98	204	1.08	6188			2.41	Si
SLU 61	573	-22640	2257	95366		3.96	204	1.08	6188			2.74	Si
SLU 61	753	-20080	2257	-317497		3.52	204	1.02	5851			2.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	573	-21635	7464	513985		3.79	204	1.59	9087			1.22	Si
SLV 14	753	-20488	6306	-663396		3.59	204	1.55	8858			1.4	Si
SLV 9	573	-15490	4629	204150		2.71	204	1.38	7858			1.7	Si
SLV 9	753	-15182	3620	-433198		2.66	204	1.36	7796			2.15	Si
SLV 4	573	-11431	-4393	-394509		2.02	202.47	1.24	7011			1.6	Si
SLV 4	753	-8610	-3235	219866		1.51	204	1.13	6482			2	Si
SLV 1	573	-9734	-3527	-389143		1.87	186.07	1.21	6288			1.78	Si
SLV 1	753	-7853	-2804	167816		1.37	204	1.11	6331			2.26	Si
SLV 10	573	-15490	4629	204150		2.71	204	1.38	7858			1.7	Si
SLV 10	753	-15182	3620	-433198		2.66	204	1.36	7796			2.15	Si
SLV 2	573	-9734	-3527	-389143		1.87	186.07	1.21	6288			1.78	Si
SLV 2	753	-7853	-2804	167816		1.37	204	1.11	6331			2.26	Si
SLV 15	573	-23333	6598	508619		4.08	204	1.63	9282			1.41	Si
SLV 15	753	-21245	5875	-611346		3.72	204	1.58	9009			1.53	Si
SLV 3	573	-11431	-4393	-394509		2.02	202.47	1.24	7011			1.6	Si
SLV 3	753	-8610	-3235	219866		1.51	204	1.13	6482			2	Si
SLV 16	573	-23333	6598	508619		4.08	204	1.63	9282			1.41	Si
SLV 16	753	-21245	5875	-611346		3.72	204	1.58	9009			1.53	Si
SLV 13	573	-21635	7464	513985		3.79	204	1.59	9087			1.22	Si
SLV 13	753	-20488	6306	-663396		3.59	204	1.55	8858			1.4	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.38	1.54	-8773	20777	107382	5.17	Si
SLV 2	14	0.38	1.54	-8773	20777	107382	5.17	Si
SLV 3	14	0.38	1.78	-10167	20777	121603	5.85	Si
SLV 4	14	0.38	1.78	-10167	20777	121603	5.85	Si
SLV 5	14	0.38	1.98	-11303	20777	132613	6.38	Si
SLV 6	14	0.38	1.98	-11303	20777	132613	6.38	Si
SLV 9	14	0.38	2.6	-14866	20777	163790	7.88	Si
SLV 10	14	0.38	2.6	-14866	20777	163790	7.88	Si
SLV 7	14	0.38	2.79	-15950	20777	172270	8.29	Si
SLV 8	14	0.38	2.79	-15950	20777	172270	8.29	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 6	-9050	-13692	309	0.018	12.076	0.935	27.907	1083.091	No
SLV 5	-9050	-13692	309	0.018	12.076	0.935	27.907	1083.091	No
SLV 8	-11724	-14288	-348	0.019	14.784	0.945	29.775	1083.091	No
SLV 7	-11724	-14288	-348	0.019	14.784	0.945	29.775	1083.091	No
SLV 10	-10669	-19656	326	0.019	13.715	0.942	29.956	1083.091	No
SLV 9	-10669	-19656	326	0.019	13.715	0.942	29.956	1083.091	No
SLV 12	-13344	-20252	-331	0.023	16.428	0.95	34.697	1083.091	No
SLV 11	-13344	-20252	-331	0.023	16.428	0.95	34.697	1083.091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 3	-8899	-7122	-138	0.034	11.923	0.934	52.233	1041.05	No
SLV 4	-8899	-7122	-138	0.034	11.923	0.934	52.233	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.304	SLU 82	Si
V_SLU	2.401	SLU 82	Si
PF_SLV	2.196	SLV 1	Si
V_SLV	1.217	SLV 13	Si
PFFP_SLV	5.168	SLV 1	Si
R_SLV	0.026	SLV 5	No

## Maschio 117

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-2066.8	104.6	-2467.8	104.6	L4	L5	401	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 80	483	-41883	-731697	3.73	4552052	6.221	Si
SLU 80	693	-40670	-1214374	3.62	4528350	3.729	Si
SLU 83	483	-42425	-777991	3.78	4560551	5.862	Si
SLU 83	693	-41561	-1264054	3.7	4546384	3.597	Si
SLU 77	483	-42494	-733132	3.78	4561535	6.222	Si
SLU 77	693	-41318	-1261984	3.68	4541822	3.599	Si
SLU 79	483	-41870	-718861	3.73	4551826	6.332	Si
SLU 79	693	-40617	-1237952	3.62	4527177	3.657	Si
SLU 74	483	-41653	-735190	3.71	4548045	6.186	Si
SLU 74	693	-40382	-1210381	3.6	4521782	3.736	Si
SLU 81	483	-41584	-780048	3.7	4546809	5.829	Si
SLU 81	693	-40624	-1212450	3.62	4527340	3.734	Si
SLU 82	483	-41597	-792884	3.7	4547052	5.735	Si
SLU 82	693	-40677	-1188872	3.62	4528511	3.809	Si
SLU 78	483	-42507	-745968	3.79	4561725	6.115	Si
SLU 78	693	-41371	-1238406	3.68	4542833	3.668	Si
SLU 75	483	-41666	-748026	3.71	4548285	6.08	Si
SLU 75	693	-40434	-1186803	3.6	4523009	3.811	Si
SLU 84	483	-42439	-790827	3.78	4560745	5.767	Si
SLU 84	693	-41613	-1240476	3.71	4547339	3.666	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLD 4	483	-29146	-195987	2.6	4602296	23.483	Si
SLD 4	693	-29378	-1187146	2.62	4628956	3.899	Si
SLV 1	483	-29176	177633	2.6	4605735	25.928	Si
SLV 1	693	-33553	-1807098	2.99	5082029	2.812	Si
SLV 3	483	-29984	171092	2.67	4697913	27.458	Si
SLV 3	693	-32921	-1759779	2.93	5016781	2.851	Si
SLD 3	483	-29146	-195987	2.6	4602296	23.483	Si
SLD 3	693	-29378	-1187146	2.62	4628956	3.899	Si
SLV 14	483	-27107	-1107129	2.41	4361040	3.939	Si
SLV 14	693	-20470	269660	1.82	3491871	12.949	Si
SLD 2	483	-28788	-193601	2.56	4560818	23.558	Si
SLD 2	693	-29633	-1205068	2.64	4658104	3.865	Si
SLD 1	483	-28788	-193601	2.56	4560818	23.558	Si
SLD 1	693	-29633	-1205068	2.64	4658104	3.865	Si
SLV 2	483	-29176	177633	2.6	4605735	25.928	Si
SLV 2	693	-33553	-1807098	2.99	5082029	2.812	Si
SLV 4	483	-29984	171092	2.67	4697913	27.458	Si
SLV 4	693	-32921	-1759779	2.93	5016781	2.851	Si
SLV 13	483	-27107	-1107129	2.41	4361040	3.939	Si
SLV 13	693	-20470	269660	1.82	3491871	12.949	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	483	-35686	6505	-695268		3.18	401	0.98	10996			1.69	Si
SLU 41	693	-35851	6561	-1134377		3.19	401	0.98	11018			1.68	Si
SLU 77	483	-42494	6863	-733132		3.78	401	1.06	11904			1.73	Si
SLU 77	693	-41318	6929	-1261984		3.68	401	1.05	11747			1.7	Si
SLU 79	483	-41870	6743	-718861		3.73	401	1.05	11820			1.75	Si
SLU 79	693	-40617	6809	-1237952		3.62	401	1.04	11653			1.71	Si
SLU 83	483	-42425	6956	-777991		3.78	401	1.06	11894			1.71	Si
SLU 83	693	-41561	7023	-1264054		3.7	401	1.05	11779			1.68	Si
SLU 42	483	-35699	6363	-708104		3.18	401	0.98	10998			1.73	Si
SLU 42	693	-35903	6436	-1110799		3.2	401	0.98	11025			1.71	Si
SLU 78	483	-42507	6721	-745968		3.79	401	1.06	11905			1.77	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	693	-41371	6804	-1238406		3.68	401	1.05	11754			1.73	Si
SLU 36	483	-35768	6271	-663246		3.19	401	0.98	11007			1.76	Si
SLU 36	693	-35661	6343	-1108729		3.18	401	0.98	10993			1.73	Si
SLU 35	483	-35755	6413	-650410		3.18	401	0.98	11005			1.72	Si
SLU 35	693	-35608	6468	-1132307		3.17	401	0.98	10986			1.7	Si
SLU 37	483	-35131	6293	-636138		3.13	401	0.97	10922			1.74	Si
SLU 37	693	-34907	6348	-1108275		3.11	401	0.97	10892			1.72	Si
SLU 84	483	-42439	6814	-790827		3.78	401	1.06	11896			1.75	Si
SLU 84	693	-41613	6897	-1240476		3.71	401	1.05	11786			1.71	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	483	-29176	18500	177633		2.6	401	1.35	15192			0.82	No, Vu<V
SLV 1	693	-33553	16886	-1807098		2.99	401	1.43	16067			0.95	No, Vu<V
SLV 15	483	-27915	-11022	-1113671		2.49	401	1.33	14940			1.36	Si
SLV 15	693	-19839	-9318	316979		1.77	401	1.19	13324			1.43	Si
SLV 16	483	-27915	-11022	-1113671		2.49	401	1.33	14940			1.36	Si
SLV 16	693	-19839	-9318	316979		1.77	401	1.19	13324			1.43	Si
SLV 4	483	-29984	17199	171092		2.67	401	1.37	15354			0.89	No, Vu<V
SLV 4	693	-32921	15467	-1759779		2.93	401	1.42	15941			1.03	Si
SLV 2	483	-29176	18500	177633		2.6	401	1.35	15192			0.82	No, Vu<V
SLV 2	693	-33553	16886	-1807098		2.99	401	1.43	16067			0.95	No, Vu<V
SLD 1	483	-28788	10093	-193601		2.56	401	1.35	15114			1.5	Si
SLD 1	693	-29633	9427	-1205068		2.64	401	1.36	15283			1.62	Si
SLV 3	483	-29984	17199	171092		2.67	401	1.37	15354			0.89	No, Vu<V
SLV 3	693	-32921	15467	-1759779		2.93	401	1.42	15941			1.03	Si
SLV 5	483	-27509	10141	-264402		2.45	401	1.32	14858			1.47	Si
SLV 5	693	-29710	9867	-1135439		2.65	401	1.36	15299			1.55	Si
SLD 2	483	-28788	10093	-193601		2.56	401	1.35	15114			1.5	Si
SLD 2	693	-29633	9427	-1205068		2.64	401	1.36	15283			1.62	Si
SLV 6	483	-27509	10141	-264402		2.45	401	1.32	14858			1.47	Si
SLV 6	693	-29710	9867	-1135439		2.65	401	1.36	15299			1.55	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.38	1.83	-20558	41791	244681	5.85	Si
SLV 16	14	0.38	1.83	-20558	41791	244681	5.85	Si
SLV 14	14	0.38	1.89	-21187	41791	250807	6	Si
SLV 13	14	0.38	1.89	-21187	41791	250807	6	Si
SLV 12	14	0.38	2.17	-24398	41791	280828	6.72	Si
SLV 11	14	0.38	2.17	-24398	41791	280828	6.72	Si
SLV 10	14	0.38	2.36	-26495	41791	299292	7.16	Si
SLV 9	14	0.38	2.36	-26495	41791	299292	7.16	Si
SLV 7	14	0.38	2.52	-28319	41791	314626	7.53	Si
SLV 8	14	0.38	2.52	-28319	41791	314626	7.53	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-23247	-29582	-570	0.024	29.265	0.946	36.583	1083.091	No
SLV 12	-23247	-29582	-570	0.024	29.265	0.946	36.583	1083.091	No
SLV 5	-24167	-27509	571	0.024	30.198	0.947	37.256	1083.091	No
SLV 6	-24167	-27509	571	0.024	30.198	0.947	37.256	1083.091	No
SLV 10	-22586	-26888	464	0.027	28.595	0.944	42.209	1083.091	No
SLV 9	-22586	-26888	464	0.027	28.595	0.944	42.209	1083.091	No
SLV 8	-24827	-30203	-463	0.028	30.868	0.948	43.626	1083.091	No
SLV 7	-24827	-30203	-463	0.028	30.868	0.948	43.626	1083.091	No
SLV 16	-21172	-27915	-333	0.032	27.161	0.942	49.444	1041.05	No
SLV 15	-21172	-27915	-333	0.032	27.161	0.942	49.444	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.597	SLU 83	Si
V_SLU	1.677	SLU 83	Si
PF_SLV	2.812	SLV 1	Si
V_SLV	0.821	SLV 1	No
PFFP_SLV	5.855	SLV 15	Si
R_SLV	0.034	SLV 11	No

## Maschio 118

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1228.3	104.6	-1986.8	104.6	L4	L5	758.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	483	-109546	-519827	5.16	15238480	29.315	Si
SLU 84	733	-101858	-1720750	4.8	15885683	9.232	Si
SLU 81	483	-106876	-582106	5.03	15492584	26.615	Si
SLU 81	733	-98822	-1735546	4.65	16069849	9.259	Si
SLU 83	483	-109605	-494206	5.16	15232433	30.822	Si
SLU 83	733	-101686	-1776037	4.79	15897157	8.951	Si
SLU 80	483	-107572	-362713	5.07	15429309	42.539	Si
SLU 80	733	-99491	-1650330	4.68	16032723	9.715	Si
SLU 78	483	-109331	-387433	5.15	15260006	39.388	Si
SLU 78	733	-101349	-1697906	4.77	15919387	9.376	Si
SLU 77	483	-109391	-361812	5.15	15254015	42.16	Si
SLU 77	733	-101177	-1753193	4.76	15930478	9.087	Si
SLU 79	483	-107632	-337092	5.07	15423779	45.755	Si
SLU 79	733	-99320	-1705617	4.68	16042419	9.406	Si
SLU 75	483	-106602	-475332	5.02	15516881	32.644	Si
SLU 75	733	-98485	-1657416	4.64	16087840	9.707	Si
SLU 74	483	-106662	-449712	5.02	15511605	34.492	Si
SLU 74	733	-98313	-1712703	4.63	16096779	9.398	Si
SLU 82	483	-106816	-607726	5.03	15497916	25.501	Si
SLU 82	733	-98994	-1680259	4.66	16060527	9.558	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	483	-71546	-4659484	3.37	19652868	4.218	Si
SLV 14	733	-59329	19470	2.79	17356369	891.431	Si
SLV 16	483	-74659	-4827388	3.52	20168313	4.178	Si
SLV 16	733	-63108	-304509	2.97	18113236	59.483	Si
SLV 1	483	-67128	4209113	3.16	18872803	4.484	Si
SLV 1	733	-63887	-1868621	3.01	18264207	9.774	Si
SLV 2	483	-67128	4209113	3.16	18872803	4.484	Si
SLV 2	733	-63887	-1868621	3.01	18264207	9.774	Si
SLV 15	483	-74659	-4827388	3.52	20168313	4.178	Si
SLV 15	733	-63108	-304509	2.97	18113236	59.483	Si
SLV 3	483	-70241	4041210	3.31	19428444	4.808	Si
SLV 3	733	-67666	-2192601	3.19	18970736	8.652	Si
SLD 15	483	-72450	-2246174	3.41	19805491	8.817	Si
SLD 15	733	-63278	-735468	2.98	18146301	24.673	Si
SLV 13	483	-71546	-4659484	3.37	19652868	4.218	Si
SLV 13	733	-59329	19470	2.79	17356369	891.431	Si
SLV 4	483	-70241	4041210	3.31	19428444	4.808	Si
SLV 4	733	-67666	-2192601	3.19	18970736	8.652	Si
SLD 16	483	-72450	-2246174	3.41	19805491	8.817	Si
SLD 16	733	-63278	-735468	2.98	18146301	24.673	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	483	-102074	2139	-555592		4.81	758.5	1.08	23008			10.76	Si
SLU 73	733	-93878	1486	-1532492		4.42	758.5	1.08	23008			15.49	Si
SLU 60	483	-95975	2267	-548862		4.52	758.5	1.08	23008			10.15	Si
SLU 60	733	-87010	1629	-1562524		4.1	758.5	1.08	23008			14.12	Si
SLU 39	483	-91220	2109	-517455		4.3	758.5	1.08	23008			10.91	Si
SLU 39	733	-85882	1405	-1505911		4.04	758.5	1.08	23008			16.37	Si
SLU 81	483	-106876	2364	-582106		5.03	758.5	1.08	23008			9.73	Si
SLU 81	733	-98822	1575	-1735546		4.65	758.5	1.08	23008			14.61	Si
SLU 19	483	-80259	2065	-509831		3.78	758.5	1.06	22500			10.89	Si
SLU 19	733	-74240	1578	-1277602		3.5	758.5	1.02	21698			13.75	Si
SLU 61	483	-95915	2321	-574482		4.52	758.5	1.08	23008			9.91	Si
SLU 61	733	-87181	1747	-1507237		4.1	758.5	1.08	23008			13.17	Si
SLU 40	483	-91161	2162	-543076		4.29	758.5	1.08	23008			10.64	Si
SLU 40	733	-86053	1524	-1450624		4.05	758.5	1.08	23008			15.1	Si
SLU 84	483	-109546	2100	-519827		5.16	758.5	1.08	23008			10.96	Si
SLU 84	733	-101858	1231	-1720750		4.8	758.5	1.08	23008			18.68	Si
SLU 18	483	-80319	2012	-484211		3.78	758.5	1.06	22508			11.19	Si
SLU 18	733	-74069	1459	-1332889		3.49	758.5	1.02	21675			14.85	Si
SLU 82	483	-106816	2418	-607726		5.03	758.5	1.08	23008			9.52	Si
SLU 82	733	-98994	1693	-1680259		4.66	758.5	1.08	23008			13.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	483	-74659	-30784	-4827388		3.52	758.5	1.54	32630			1.06	Si
SLV 15	733	-63108	-24886	-304509		2.97	758.5	1.43	30320			1.22	Si
SLV 16	483	-74659	-30784	-4827388		3.52	758.5	1.54	32630			1.06	Si
SLV 16	733	-63108	-24886	-304509		2.97	758.5	1.43	30320			1.22	Si
SLV 14	483	-71546	-34491	-4659484		3.37	758.5	1.51	32008			0.93	No, Vu<V
SLV 14	733	-59329	-29172	19470		2.79	758.5	1.39	29564			1.01	Si
SLV 2	483	-67128	33183	4209113		3.16	758.5	1.47	31124			0.94	No, Vu<V
SLV 2	733	-63887	26245	-1868621		3.01	758.5	1.43	30476			1.16	Si
SLV 4	483	-70241	36891	4041210		3.31	758.5	1.49	31747			0.86	No, Vu<V
SLV 4	733	-67666	30531	-2192601		3.19	758.5	1.47	31231			1.02	Si
SLV 7	483	-75419	17530	741313		3.55	758.5	1.54	32782			1.87	Si
SLV 7	733	-70479	16135	-1909745		3.32	758.5	1.5	31794			1.97	Si
SLV 3	483	-70241	36891	4041210		3.31	758.5	1.49	31747			0.86	No, Vu<V
SLV 3	733	-67666	30531	-2192601		3.19	758.5	1.47	31231			1.02	Si
SLV 8	483	-75419	17530	741313		3.55	758.5	1.54	32782			1.87	Si
SLV 8	733	-70479	16135	-1909745		3.32	758.5	1.5	31794			1.97	Si
SLV 13	483	-71546	-34491	-4659484		3.37	758.5	1.51	32008			0.93	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	733	-59329	-29172	19470		2.79	758.5	1.39	29564			1.01	Si
SLV 1	483	-67128	33183	4209113		3.16	758.5	1.47	31124			0.94	No, Vu<V
SLV 1	733	-63887	26245	-1868621		3.01	758.5	1.43	30476			1.16	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.38	2.82	-59941	79048	645338	8.16	Si
SLV 6	14	0.38	2.82	-59941	79048	645338	8.16	Si
SLV 9	14	0.38	2.86	-60766	79048	651514	8.24	Si
SLV 10	14	0.38	2.86	-60766	79048	651514	8.24	Si
SLV 2	14	0.38	2.96	-62947	79048	667490	8.44	Si
SLV 1	14	0.38	2.96	-62947	79048	667490	8.44	Si
SLV 13	14	0.38	3.09	-65696	79048	686900	8.69	Si
SLV 14	14	0.38	3.09	-65696	79048	686900	8.69	Si
SLV 4	14	0.38	3.12	-66348	79048	691381	8.75	Si
SLV 3	14	0.38	3.12	-66348	79048	691381	8.75	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-53601	-66368	1198	0.024	65.129	0.953	37.149	1083.091	No
SLV 10	-53601	-66368	1198	0.024	65.129	0.953	37.149	1083.091	No
SLV 5	-54436	-65043	1166	0.025	65.977	0.953	38.252	1083.091	No
SLV 6	-54436	-65043	1166	0.025	65.977	0.953	38.252	1083.091	No
SLV 7	-64928	-75419	-1195	0.027	76.643	0.959	40.642	1083.091	No
SLV 8	-64928	-75419	-1195	0.027	76.643	0.959	40.642	1083.091	No
SLV 12	-64093	-76745	-1163	0.027	75.793	0.959	41.118	1083.091	No
SLV 11	-64093	-76745	-1163	0.027	75.793	0.959	41.118	1083.091	No
SLV 13	-56299	-71546	409	0.038	67.87	0.954	57.143	1041.05	No
SLV 14	-56299	-71546	409	0.038	67.87	0.954	57.143	1041.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.951	SLU 83	Si
V_SLU	9.516	SLU 82	Si
PF_SLV	4.178	SLV 15	Si
V_SLV	0.861	SLV 3	No
PFFP_SLV	8.164	SLV 5	Si
R_SLV	0.034	SLV 9	No

## Maschio 119

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1046.6	104.6	-1116.3	104.6	L4	L5	69.6	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 74	483	-13026	-28244	6.68	81580	2.888	Si
SLU 74	733	-11934	22573	6.12	103318	4.577	Si
SLU 84	483	-13478	-29348	6.91	71054	2.421	Si
SLU 84	733	-12375	23807	6.35	95168	3.998	Si
SLU 82	483	-13349	-30130	6.85	74150	2.461	Si
SLU 82	733	-12050	24899	6.18	101256	4.067	Si
SLU 83	483	-13440	-27615	6.89	71987	2.607	Si
SLU 83	733	-12418	21927	6.37	94319	4.302	Si
SLU 77	483	-13155	-27462	6.75	78666	2.865	Si
SLU 77	733	-12259	21481	6.29	97396	4.534	Si
SLU 76	483	-12824	-30047	6.58	86005	2.862	Si
SLU 76	733	-11654	24698	5.98	108036	4.374	Si
SLU 78	483	-13194	-29195	6.77	77781	2.664	Si
SLU 78	733	-12215	23361	6.26	98215	4.204	Si
SLU 75	483	-13065	-29977	6.7	80717	2.693	Si
SLU 75	733	-11890	24454	6.1	104075	4.256	Si
SLU 81	483	-13311	-28397	6.83	75062	2.643	Si
SLU 81	733	-12093	23019	6.2	100468	4.365	Si
SLU 73	483	-12695	-30830	6.51	88731	2.878	Si
SLU 73	733	-11329	25791	5.81	113096	4.385	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	483	-11440	-234475	5.87	207058	0.883	No, M>Mu
SLV 15	733	-7945	234116	4.07	184380	0.788	No, M>Mu
SLV 16	483	-11440	-234475	5.87	207058	0.883	No, M>Mu
SLV 16	733	-7945	234116	4.07	184380	0.788	No, M>Mu
SLV 1	483	-5901	191507	3.03	154566	0.807	No, M>Mu



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	733	-7361	-198548	3.78	177111	0.892	No, M>Mu
SLV 12	483	-13384	-110495	6.86	204220	1.848	Si
SLV 12	733	-7570	123578	3.88	179827	1.455	Si
SLV 3	483	-8460	174949	4.34	189967	1.086	Si
SLV 3	733	-7249	-171584	3.72	175597	1.023	Si
SLV 14	483	-8881	-217916	4.55	193953	0.89	No, M>Mu
SLV 14	733	-8057	207152	4.13	185666	0.896	No, M>Mu
SLV 2	483	-5901	191507	3.03	154566	0.807	No, M>Mu
SLV 2	733	-7361	-198548	3.78	177111	0.892	No, M>Mu
SLV 13	483	-8881	-217916	4.55	193953	0.89	No, M>Mu
SLV 13	733	-8057	207152	4.13	185666	0.896	No, M>Mu
SLV 11	483	-13384	-110495	6.86	204220	1.848	Si
SLV 11	733	-7570	123578	3.88	179827	1.455	Si
SLV 4	483	-8460	174949	4.34	189967	1.086	Si
SLV 4	733	-7249	-171584	3.72	175597	1.023	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	483	-12048	-233	-30700		6.18	69.64	1.08	2112			9.06	Si
SLU 60	733	-10558	-255	26495		5.41	69.64	1.08	2112			8.29	Si
SLU 55	483	-11561	-249	-32351		5.93	69.64	1.08	2112			8.49	Si
SLU 55	733	-10119	-263	28173		5.19	69.64	1.08	2112			8.04	Si
SLU 63	483	-12215	-232	-31651		6.26	69.64	1.08	2112			9.12	Si
SLU 63	733	-10840	-253	27282		5.56	69.64	1.08	2112			8.35	Si
SLU 43	483	-9780	-244	-29178		5.02	69.64	1.08	2112			8.67	Si
SLU 43	733	-8253	-242	25288		4.23	69.64	1.08	2112			8.72	Si
SLU 44	483	-9844	-279	-32068		5.05	69.64	1.08	2112			7.58	Si
SLU 44	733	-8181	-277	28421		4.2	69.64	1.08	2112			7.64	Si
SLU 54	483	-11802	-248	-32281		6.05	69.64	1.08	2112			8.52	Si
SLU 54	733	-10355	-262	27929		5.31	69.64	1.08	2112			8.06	Si
SLU 61	483	-12086	-254	-32434		6.2	69.64	1.08	2112			8.31	Si
SLU 61	733	-10515	-275	28375		5.39	69.64	1.08	2112			7.67	Si
SLU 52	483	-11432	-271	-33133		5.86	69.64	1.08	2112			7.79	Si
SLU 52	733	-9794	-285	29266		5.02	69.64	1.08	2112			7.4	Si
SLU 46	483	-10215	-255	-31216		5.24	69.64	1.08	2112			8.28	Si
SLU 46	733	-8742	-253	27084		4.48	69.64	1.08	2112			8.35	Si
SLU 47	483	-9973	-256	-31286		5.12	69.64	1.08	2112			8.25	Si
SLU 47	733	-8506	-254	27329		4.36	69.64	1.08	2112			8.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	483	-8460	1645	174949		7.12	42.42	1.63	1930			1.17	Si
SLV 3	733	-7249	1230	-171584		7.74	33.44	1.63	1522			1.24	Si
SLV 11	483	-13384	-1252	-110495		6.86	69.64	1.63	3168			2.53	Si
SLV 11	733	-7570	-1208	123578		4.87	55.48	1.63	2524			2.09	Si
SLV 13	483	-8881	-1964	-217916		10.28	30.84	1.63	1403			0.71	No, Vu<V
SLV 13	733	-8057	-1558	207152		10.53	27.33	1.63	1243			0.8	No, Vu<V
SLV 2	483	-5901	1948	191507		29.73	7.09	1.63	323			0.17	No, Vu<V
SLV 2	733	-7361	1575	-198548		11.17	23.54	1.63	1071			0.68	No, Vu<V
SLV 12	483	-13384	-1252	-110495		6.86	69.64	1.63	3168			2.53	Si
SLV 12	733	-7570	-1208	123578		4.87	55.48	1.63	2524			2.09	Si
SLV 15	483	-11440	-2267	-234475		9.51	42.97	1.63	1955			0.86	No, Vu<V
SLV 15	733	-7945	-1902	234116		17.68	16.05	1.63	730			0.38	No, Vu<V
SLV 16	483	-11440	-2267	-234475		9.51	42.97	1.63	1955			0.86	No, Vu<V
SLV 16	733	-7945	-1902	234116		17.68	16.05	1.63	730			0.38	No, Vu<V
SLV 14	483	-8881	-1964	-217916		10.28	30.84	1.63	1403			0.71	No, Vu<V
SLV 14	733	-8057	-1558	207152		10.53	27.33	1.63	1243			0.8	No, Vu<V
SLV 1	483	-5901	1948	191507		29.73	7.09	1.63	323			0.17	No, Vu<V
SLV 1	733	-7361	1575	-198548		11.17	23.54	1.63	1071			0.68	No, Vu<V
SLV 4	483	-8460	1645	174949		7.12	42.42	1.63	1930			1.17	Si
SLV 4	733	-7249	1230	-171584		7.74	33.44	1.63	1522			1.24	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.38	3.43	-6694	7257	67387	9.29	Si
SLV 6	14	0.38	3.43	-6694	7257	67387	9.29	Si
SLV 9	14	0.38	3.47	-6775	7257	67878	9.35	Si
SLV 10	14	0.38	3.47	-6775	7257	67878	9.35	Si
SLV 1	14	0.38	3.73	-7270	7257	70724	9.75	Si
SLV 2	14	0.38	3.73	-7270	7257	70724	9.75	Si
SLV 13	14	0.38	3.87	-7540	7257	72150	9.94	Si
SLV 14	14	0.38	3.87	-7540	7257	72150	9.94	Si
SLV 3	14	0.38	4.02	-7845	7257	73664	10.15	Si
SLV 4	14	0.38	4.02	-7845	7257	73664	10.15	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-3992	-3957	226	0	5.036	0.945	0	1083.091	No
SLV 10	-4414	-4852	250	0	5.464	0.949	0	1083.091	No
SLV 9	-4414	-4852	250	0	5.464	0.949	0	1083.091	No
SLV 7	-4679	-12489	-252	0	5.734	0.951	0	1083.091	No
SLV 8	-4679	-12489	-252	0	5.734	0.951	0	1083.091	No
SLV 6	-3992	-3957	226	0	5.036	0.945	0	1083.091	No
SLV 11	-5101	-13384	-228	0.004	6.163	0.954	6.534	1083.091	No
SLV 12	-5101	-13384	-228	0.004	6.163	0.954	6.534	1083.091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 4	-3946	-8460	-114	0.02	4.99	0.945	31.131	1041.05	No
SLV 3	-3946	-8460	-114	0.02	4.99	0.945	31.131	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.421	SLU 84	Si
V_SLU	7.401	SLU 52	Si
PF_SLV	0.788	SLV 15	No
V_SLV	0.166	SLV 1	No
PFFP_SLV	9.285	SLV 5	Si
R_SLV	0	SLV 5	No

## Maschio 120

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-727.8	104.6	-938.6	104.6	L4	L5	210.9	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 76	483	-36884	-178653	6.25	906412	5.074	Si
SLU 76	733	-31577	379290	5.35	1143388	3.015	Si
SLU 83	483	-38771	-157926	6.57	792398	5.018	Si
SLU 83	733	-33282	393296	5.64	1080697	2.748	Si
SLU 75	483	-37504	-172124	6.35	870715	5.059	Si
SLU 75	733	-32138	383046	5.44	1124146	2.935	Si
SLU 74	483	-37509	-151803	6.35	870423	5.734	Si
SLU 74	733	-32072	375687	5.43	1126506	2.999	Si
SLU 80	483	-37827	-154218	6.41	851419	5.521	Si
SLU 80	733	-32381	374047	5.48	1115420	2.982	Si
SLU 82	483	-37827	-189135	6.41	851394	4.502	Si
SLU 82	733	-32500	400991	5.5	1111020	2.771	Si
SLU 81	483	-37832	-168814	6.41	851095	5.042	Si
SLU 81	733	-32434	393633	5.49	1113486	2.829	Si
SLU 78	483	-38443	-161236	6.51	813370	5.045	Si
SLU 78	733	-32987	382708	5.59	1092455	2.855	Si
SLU 77	483	-38448	-140915	6.51	813058	5.77	Si
SLU 77	733	-32920	375350	5.58	1095064	2.917	Si
SLU 84	483	-38766	-178247	6.57	792717	4.447	Si
SLU 84	733	-33349	400654	5.65	1077982	2.691	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 13	483	-21361	-914471	3.62	1585263	1.734	Si
SLV 13	733	-19858	568273	3.36	1517352	2.67	Si
SLV 4	483	-27796	706765	4.71	1801421	2.549	Si
SLV 4	733	-21371	-80501	3.62	1585710	19.698	Si
SLV 1	483	-26405	849777	4.47	1764947	2.077	Si
SLV 1	733	-19393	-181578	3.28	1494996	8.233	Si
SLV 15	483	-22752	-1057482	3.85	1642245	1.553	Si
SLV 15	733	-21836	669350	3.7	1605377	2.398	Si
SLV 3	483	-27796	706765	4.71	1801421	2.549	Si
SLV 3	733	-21371	-80501	3.62	1585710	19.698	Si
SLV 14	483	-21361	-914471	3.62	1585263	1.734	Si
SLV 14	733	-19858	568273	3.36	1517352	2.67	Si
SLV 11	483	-26140	-606843	4.43	1757371	2.896	Si
SLV 11	733	-23981	524826	4.06	1687903	3.216	Si
SLV 12	483	-26140	-606843	4.43	1757371	2.896	Si
SLV 12	733	-23981	524826	4.06	1687903	3.216	Si
SLV 2	483	-26405	849777	4.47	1764947	2.077	Si
SLV 2	733	-19393	-181578	3.28	1494996	8.233	Si
SLV 16	483	-22752	-1057482	3.85	1642245	1.553	Si
SLV 16	733	-21836	669350	3.7	1605377	2.398	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	483	-36884	-1591	-178653		6.25	210.86	1.08	6396			4.02	Si
SLU 76	733	-31577	-917	379290		5.35	210.86	1.08	6396			6.97	Si
SLU 82	483	-37827	-1717	-189135		6.41	210.86	1.08	6396			3.73	Si
SLU 82	733	-32500	-1020	400991		5.5	210.86	1.08	6396			6.27	Si
SLU 52	483	-31584	-1581	-184677		5.35	210.86	1.08	6396			4.05	Si
SLU 52	733	-26695	-1007	338385		4.52	210.86	1.08	6396			6.35	Si
SLU 81	483	-37832	-1568	-168814		6.41	210.86	1.08	6396			4.08	Si
SLU 81	733	-32434	-926	393633		5.49	210.86	1.08	6396			6.91	Si
SLU 75	483	-37504	-1555	-172124		6.35	210.86	1.08	6396			4.11	Si
SLU 75	733	-32138	-875	383046		5.44	210.86	1.08	6396			7.31	Si
SLU 84	483	-38766	-1633	-178247		6.57	210.86	1.08	6396			3.92	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	733	-33349	-928	400654		5.65	210.86	1.08	6396			6.89	Si
SLU 61	483	-33466	-1623	-184271		5.67	210.86	1.08	6396			3.94	Si
SLU 61	733	-28468	-1017	359749		4.82	210.86	1.08	6396			6.29	Si
SLU 63	483	-34405	-1540	-173383		5.83	210.86	1.08	6396			4.15	Si
SLU 63	733	-29316	-925	359411		4.97	210.86	1.08	6396			6.91	Si
SLU 40	483	-32699	-1510	-162692		5.54	210.86	1.08	6396			4.24	Si
SLU 40	733	-28408	-863	350754		4.81	210.86	1.08	6396			7.41	Si
SLU 73	483	-35945	-1674	-189541		6.09	210.86	1.08	6396			3.82	Si
SLU 73	733	-30728	-1009	379627		5.2	210.86	1.08	6396			6.34	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	483	-27796	5801	706765		4.71	210.86	1.63	9594			1.65	Si
SLV 3	733	-21371	2693	-80501		3.62	210.86	1.56	9194			3.41	Si
SLV 1	483	-26405	6942	849777		4.47	210.86	1.63	9594			1.38	Si
SLV 1	733	-19393	3582	-181578		3.28	210.86	1.49	8799			2.46	Si
SLV 4	483	-27796	5801	706765		4.71	210.86	1.63	9594			1.65	Si
SLV 4	733	-21371	2693	-80501		3.62	210.86	1.56	9194			3.41	Si
SLV 12	483	-26140	-5004	-606843		4.43	210.86	1.63	9594			1.92	Si
SLV 12	733	-23981	-3169	524826		4.06	210.86	1.63	9594			3.03	Si
SLV 11	483	-26140	-5004	-606843		4.43	210.86	1.63	9594			1.92	Si
SLV 11	733	-23981	-3169	524826		4.06	210.86	1.63	9594			3.03	Si
SLV 14	483	-21361	-7634	-914471		4.06	187.86	1.63	8548			1.12	Si
SLV 14	733	-19858	-3841	568273		3.36	210.86	1.51	8892			2.31	Si
SLV 16	483	-22752	-8775	-1057482		4.59	176.86	1.63	8047			0.92	No, Vu<V
SLV 16	733	-21836	-4730	669350		3.7	210.86	1.57	9287			1.96	Si
SLV 13	483	-21361	-7634	-914471		4.06	187.86	1.63	8548			1.12	Si
SLV 13	733	-19858	-3841	568273		3.36	210.86	1.51	8892			2.31	Si
SLV 15	483	-22752	-8775	-1057482		4.59	176.86	1.63	8047			0.92	No, Vu<V
SLV 15	733	-21836	-4730	669350		3.7	210.86	1.57	9287			1.96	Si
SLV 2	483	-26405	6942	849777		4.47	210.86	1.63	9594			1.38	Si
SLV 2	733	-19393	3582	-181578		3.28	210.86	1.49	8799			2.46	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.38	3.23	-19070	21975	196406	8.94	Si
SLV 9	14	0.38	3.23	-19070	21975	196406	8.94	Si
SLV 14	14	0.38	3.27	-19287	21975	197831	9	Si
SLV 13	14	0.38	3.27	-19287	21975	197831	9	Si
SLV 5	14	0.38	3.49	-20618	21975	206154	9.38	Si
SLV 6	14	0.38	3.49	-20618	21975	206154	9.38	Si
SLV 15	14	0.38	3.56	-21021	21975	208543	9.49	Si
SLV 16	14	0.38	3.56	-21021	21975	208543	9.49	Si
SLV 2	14	0.38	4.14	-24446	21975	226271	10.3	Si
SLV 1	14	0.38	4.14	-24446	21975	226271	10.3	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-16910	-21503	383	0.023	20.148	0.957	35.463	1083.091	No
SLV 10	-16910	-21503	383	0.023	20.148	0.957	35.463	1083.091	No
SLV 5	-16320	-23016	362	0.024	19.548	0.956	36.47	1083.091	No
SLV 6	-16320	-23016	362	0.024	19.548	0.956	36.47	1083.091	No
SLV 8	-19291	-27653	-383	0.025	22.569	0.961	38.061	1083.091	No
SLV 7	-19291	-27653	-383	0.025	22.569	0.961	38.061	1083.091	No
SLV 11	-19882	-26140	-362	0.027	23.169	0.962	40.097	1083.091	No
SLV 12	-19882	-26140	-362	0.027	23.169	0.962	40.097	1083.091	No
SLV 4	-17562	-27796	-147	0.036	20.811	0.958	54.621	1041.05	No
SLV 3	-17562	-27796	-147	0.036	20.811	0.958	54.621	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.691	SLU 84	Si
V_SLU	3.726	SLU 82	Si
PF_SLV	1.553	SLV 15	Si
V_SLV	0.917	SLV 15	No
PFFP_SLV	8.938	SLV 9	Si
R_SLV	0.033	SLV 9	No

## Maschio 121

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-496.8	104.6	-647.8	104.6	L4	L5	151	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	483	-23925	-104758	5.66	551531	5.265	Si
SLU 84	693	-24830	183839	5.87	523124	2.846	Si
SLU 75	483	-23342	-101028	5.52	567924	5.621	Si
SLU 75	693	-23980	176009	5.67	549906	3.124	Si
SLU 81	483	-23319	-100691	5.52	568531	5.646	Si
SLU 81	693	-24069	176524	5.69	547232	3.1	Si
SLU 79	483	-23716	-101967	5.61	557572	5.468	Si
SLU 79	693	-23815	177226	5.63	554725	3.13	Si
SLU 77	483	-24066	-105571	5.69	547328	5.184	Si
SLU 77	693	-24221	182449	5.73	542637	2.974	Si
SLU 80	483	-23656	-101729	5.6	559256	5.498	Si
SLU 80	693	-24075	177663	5.69	547065	3.079	Si
SLU 74	483	-23401	-101266	5.53	566321	5.592	Si
SLU 74	693	-23720	175572	5.61	557457	3.175	Si
SLU 83	483	-23984	-104996	5.67	549776	5.236	Si
SLU 83	693	-24570	183402	5.81	531644	2.899	Si
SLU 82	483	-23260	-100453	5.5	570112	5.675	Si
SLU 82	693	-24329	176961	5.75	539282	3.047	Si
SLU 78	483	-24007	-105333	5.68	549104	5.213	Si
SLU 78	693	-24480	182886	5.79	534515	2.923	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	483	-16693	-356869	3.95	853091	2.39	Si
SLV 11	693	-16885	329735	3.99	858162	2.603	Si
SLV 14	483	-14649	-584165	3.46	792370	1.356	Si
SLV 14	693	-14589	585020	3.45	790400	1.351	Si
SLV 3	483	-16621	462398	3.93	851157	1.841	Si
SLV 3	693	-16425	-373510	3.88	845805	2.264	Si
SLV 1	483	-15876	538913	3.75	830278	1.541	Si
SLV 1	693	-15514	-417657	3.67	819560	1.962	Si
SLV 2	483	-15876	538913	3.75	830278	1.541	Si
SLV 2	693	-15514	-417657	3.67	819560	1.962	Si
SLV 15	483	-15394	-660679	3.64	815924	1.235	Si
SLV 15	693	-15499	629167	3.67	819108	1.302	Si
SLV 4	483	-16621	462398	3.93	851157	1.841	Si
SLV 4	693	-16425	-373510	3.88	845805	2.264	Si
SLV 16	483	-15394	-660679	3.64	815924	1.235	Si
SLV 16	693	-15499	629167	3.67	819108	1.302	Si
SLV 13	483	-14649	-584165	3.46	792370	1.356	Si
SLV 13	693	-14589	585020	3.45	790400	1.351	Si
SLV 12	483	-16693	-356869	3.95	853091	2.39	Si
SLV 12	693	-16885	329735	3.99	858162	2.603	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	483	-23716	-1770	-101967	5.61	151	1.08	4580				2.59	Si
SLU 79	693	-23815	-1769	177226	5.63	151	1.08	4580				2.59	Si
SLU 35	483	-20599	-1645	-93951	4.87	151	1.08	4580				2.79	Si
SLU 35	693	-21039	-1644	163599	4.98	151	1.08	4580				2.79	Si
SLU 83	483	-23984	-1814	-104996	5.67	151	1.08	4580				2.52	Si
SLU 83	693	-24570	-1813	183402	5.81	151	1.08	4580				2.53	Si
SLU 80	483	-23656	-1649	-101729	5.6	151	1.08	4580				2.78	Si
SLU 80	693	-24075	-1645	177663	5.69	151	1.08	4580				2.78	Si
SLU 78	483	-24007	-1703	-105333	5.68	151	1.08	4580				2.69	Si
SLU 78	693	-24480	-1699	182886	5.79	151	1.08	4580				2.7	Si
SLU 84	483	-23925	-1693	-104758	5.66	151	1.08	4580				2.71	Si
SLU 84	693	-24830	-1689	183839	5.87	151	1.08	4580				2.71	Si
SLU 41	483	-20517	-1634	-93376	4.85	151	1.08	4580				2.8	Si
SLU 41	693	-21389	-1634	164551	5.06	151	1.08	4580				2.8	Si
SLU 81	483	-23319	-1729	-100691	5.52	151	1.08	4580				2.65	Si
SLU 81	693	-24069	-1728	176524	5.69	151	1.08	4580				2.65	Si
SLU 77	483	-24066	-1824	-105571	5.69	151	1.08	4580				2.51	Si
SLU 77	693	-24221	-1824	182449	5.73	151	1.08	4580				2.51	Si
SLU 74	483	-23401	-1739	-101266	5.53	151	1.08	4580				2.63	Si
SLU 74	693	-23720	-1738	175572	5.61	151	1.08	4580				2.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	483	-16621	4662	462398	4.15	143.04	1.63	6508				1.4	Si
SLV 4	693	-16425	4016	-373510	3.88	151	1.61	6808				1.7	Si
SLV 1	483	-15876	6538	538913	4.55	124.66	1.63	5672				0.87	No, Vu<V
SLV 1	693	-15514	6044	-417657	3.8	145.74	1.59	6503				1.08	Si
SLV 2	483	-15876	6538	538913	4.55	124.66	1.63	5672				0.87	No, Vu<V
SLV 2	693	-15514	6044	-417657	3.8	145.74	1.59	6503				1.08	Si
SLV 13	483	-14649	-6724	-584165	4.9	106.86	1.63	4862				0.72	No, Vu<V
SLV 13	693	-14589	-6077	585020	4.91	106.2	1.63	4832				0.8	No, Vu<V
SLV 16	483	-15394	-8600	-660679	5.62	97.75	1.63	4448				0.52	No, Vu<V
SLV 16	693	-15499	-8105	629167	5.29	104.72	1.63	4765				0.59	No, Vu<V
SLV 14	483	-14649	-6724	-584165	4.9	106.86	1.63	4862				0.72	No, Vu<V
SLV 14	693	-14589	-6077	585020	4.91	106.2	1.63	4832				0.8	No, Vu<V
SLV 3	483	-16621	4662	462398	4.15	143.04	1.63	6508				1.4	Si
SLV 3	693	-16425	4016	-373510	3.88	151	1.61	6808				1.7	Si
SLV 15	483	-15394	-8600	-660679	5.62	97.75	1.63	4448				0.52	No, Vu<V
SLV 15	693	-15499	-8105	629167	5.29	104.72	1.63	4765				0.59	No, Vu<V
SLV 11	483	-16693	-6147	-356869	3.95	151	1.62	6862				1.12	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	693	-16885	-6229	329735		3.99	151	1.63	6871			1.1	Si
SLV 12	483	-16693	-6147	-356869		3.95	151	1.62	6862			1.12	Si
SLV 12	693	-16885	-6229	329735		3.99	151	1.63	6871			1.1	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.38	3.28	-13885	15737	142140	9.03	Si
SLV 10	14	0.38	3.28	-13885	15737	142140	9.03	Si
SLV 6	14	0.38	3.34	-14134	15737	143741	9.13	Si
SLV 5	14	0.38	3.34	-14134	15737	143741	9.13	Si
SLV 13	14	0.38	3.43	-14491	15737	145968	9.28	Si
SLV 14	14	0.38	3.43	-14491	15737	145968	9.28	Si
SLV 16	14	0.38	3.61	-15261	15737	150538	9.57	Si
SLV 15	14	0.38	3.61	-15261	15737	150538	9.57	Si
SLV 1	14	0.38	3.62	-15324	15737	150897	9.59	Si
SLV 2	14	0.38	3.62	-15324	15737	150897	9.59	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-11927	-14577	102	0.036	14.243	0.957	54.814	1083.091	No
SLV 6	-11927	-14577	102	0.036	14.243	0.957	54.814	1083.091	No
SLV 10	-11833	-14208	102	0.036	14.147	0.956	54.861	1083.091	No
SLV 9	-11833	-14208	102	0.036	14.147	0.956	54.861	1083.091	No
SLV 12	-12663	-16693	-102	0.036	14.99	0.959	55.077	1083.091	No
SLV 11	-12663	-16693	-102	0.036	14.99	0.959	55.077	1083.091	No
SLV 7	-12757	-17062	-101	0.036	15.086	0.959	55.166	1083.091	No
SLV 8	-12757	-17062	-101	0.036	15.086	0.959	55.166	1083.091	No
SLV 2	-12327	-15876	32	0.041	14.649	0.958	62.731	1041.05	No
SLV 1	-12327	-15876	32	0.041	14.649	0.958	62.731	1041.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.846	SLU 84	Si
V_SLU	2.511	SLU 77	Si
PF_SLV	1.235	SLV 15	Si
V_SLV	0.517	SLV 15	No
PFFP_SLV	9.032	SLV 9	Si
R_SLV	0.051	SLV 5	No

## Maschio 122

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	104.6	-416.8	104.6	L4	L5	404.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	483	-51482	198694	4.55	4602094	23.162	Si
SLU 77	693	-49492	927449	4.37	4640094	5.003	Si
SLU 80	483	-51097	196075	4.51	4610788	23.515	Si
SLU 80	693	-48935	887353	4.32	4647627	5.238	Si
SLU 78	483	-51802	199083	4.57	4594344	23.078	Si
SLU 78	693	-49722	908890	4.39	4636599	5.101	Si
SLU 83	483	-51752	214390	4.57	4595597	21.436	Si
SLU 83	693	-50088	928355	4.42	4630530	4.988	Si
SLU 84	483	-52072	214779	4.6	4587467	21.359	Si
SLU 84	693	-50318	909795	4.44	4626435	5.085	Si
SLU 82	483	-51286	214297	4.53	4606607	21.496	Si
SLU 82	693	-49469	871226	4.37	4640436	5.326	Si
SLU 81	483	-50965	213909	4.5	4613631	21.568	Si
SLU 81	693	-49240	889786	4.35	4643678	5.219	Si
SLU 74	483	-50695	198213	4.48	4619196	23.304	Si
SLU 74	693	-48644	888880	4.29	4651025	5.232	Si
SLU 75	483	-51016	198602	4.5	4612552	23.225	Si
SLU 75	693	-48873	870321	4.32	4648383	5.341	Si
SLU 79	483	-50777	195687	4.48	4617547	23.597	Si
SLU 79	693	-48706	905913	4.3	4650332	5.133	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	483	-30807	1316159	2.72	4843720	3.68	Si
SLV 2	693	-23754	-231319	2.1	3979588	17.204	Si
SLV 3	483	-30594	1456206	2.7	4819678	3.31	Si
SLV 3	693	-24111	-72918	2.13	4026901	55.225	Si
SLV 4	483	-30594	1456206	2.7	4819678	3.31	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	693	-24111	-72918	2.13	4026901	55.225	Si
SLV 12	483	-35781	-28247	3.16	5365676	189.955	Si
SLV 12	693	-35658	1009198	3.15	5353592	5.305	Si
SLV 15	483	-38958	-1078935	3.44	5661201	5.247	Si
SLV 15	693	-41233	1307567	3.64	5854695	4.478	Si
SLV 14	483	-39172	-1218983	3.46	5680019	4.66	Si
SLV 14	693	-40876	1149166	3.61	5825280	5.069	Si
SLV 16	483	-38958	-1078935	3.44	5661201	5.247	Si
SLV 16	693	-41233	1307567	3.64	5854695	4.478	Si
SLV 11	483	-35781	-28247	3.16	5365676	189.955	Si
SLV 11	693	-35658	1009198	3.15	5353592	5.305	Si
SLV 13	483	-39172	-1218983	3.46	5680019	4.66	Si
SLV 13	693	-40876	1149166	3.61	5825280	5.069	Si
SLV 1	483	-30807	1316159	2.72	4843720	3.68	Si
SLV 1	693	-23754	-231319	2.1	3979588	17.204	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	483	-51752	-7186	214390		4.57	404.5	1.08	12270			1.71	Si
SLU 83	693	-50088	-7196	928355		4.42	404.5	1.08	12270			1.7	Si
SLU 78	483	-51802	-6748	199083		4.57	404.5	1.08	12270			1.82	Si
SLU 78	693	-49722	-6795	908890		4.39	404.5	1.08	12270			1.81	Si
SLU 82	483	-51286	-6751	214297		4.53	404.5	1.08	12270			1.82	Si
SLU 82	693	-49469	-6797	871226		4.37	404.5	1.08	12270			1.81	Si
SLU 84	483	-52072	-6992	214779		4.6	404.5	1.08	12270			1.75	Si
SLU 84	693	-50318	-7038	909795		4.44	404.5	1.08	12270			1.74	Si
SLU 41	483	-43547	-6744	201231		3.84	404.5	1.07	12098			1.79	Si
SLU 41	693	-43030	-6753	838716		3.8	404.5	1.06	12030			1.78	Si
SLU 79	483	-50777	-6776	195687		4.48	404.5	1.08	12270			1.81	Si
SLU 79	693	-48706	-6787	905913		4.3	404.5	1.08	12270			1.81	Si
SLU 42	483	-43867	-6550	201620		3.87	404.5	1.07	12141			1.85	Si
SLU 42	693	-43259	-6595	820156		3.82	404.5	1.06	12060			1.83	Si
SLU 77	483	-51482	-6943	198694		4.55	404.5	1.08	12270			1.77	Si
SLU 77	693	-49492	-6953	927449		4.37	404.5	1.08	12270			1.76	Si
SLU 74	483	-50695	-6702	198213		4.48	404.5	1.08	12270			1.83	Si
SLU 74	693	-48644	-6712	888880		4.29	404.5	1.08	12270			1.83	Si
SLU 81	483	-50965	-6946	213909		4.5	404.5	1.08	12270			1.77	Si
SLU 81	693	-49240	-6955	889786		4.35	404.5	1.08	12270			1.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	483	-39172	-17931	-1218983		3.46	404.5	1.53	17273			0.96	No, Vu<V
SLV 13	693	-40876	-16429	1149166		3.61	404.5	1.56	17613			1.07	Si
SLV 2	483	-30807	9643	1316159		2.72	404.5	1.38	15600			1.62	Si
SLV 2	693	-23754	8224	-231319		2.1	404.5	1.25	14189			1.73	Si
SLV 16	483	-38958	-17274	-1078935		3.44	404.5	1.52	17230			1	No, Vu<V
SLV 16	693	-41233	-15868	1307567		3.64	404.5	1.56	17685			1.11	Si
SLD 14	483	-36747	-9911	-454067		3.24	404.5	1.48	16788			1.69	Si
SLD 14	693	-36134	-9246	807050		3.19	404.5	1.47	16665			1.8	Si
SLV 14	483	-39172	-17931	-1218983		3.46	404.5	1.53	17273			0.96	No, Vu<V
SLV 14	693	-40876	-16429	1149166		3.61	404.5	1.56	17613			1.07	Si
SLD 13	483	-36747	-9911	-454067		3.24	404.5	1.48	16788			1.69	Si
SLD 13	693	-36134	-9246	807050		3.19	404.5	1.47	16665			1.8	Si
SLV 4	483	-30594	10300	1456206		2.7	404.5	1.37	15557			1.51	Si
SLV 4	693	-24111	8785	-72918		2.13	404.5	1.26	14261			1.62	Si
SLV 3	483	-30594	10300	1456206		2.7	404.5	1.37	15557			1.51	Si
SLV 3	693	-24111	8785	-72918		2.13	404.5	1.26	14261			1.62	Si
SLV 1	483	-30807	9643	1316159		2.72	404.5	1.38	15600			1.62	Si
SLV 1	693	-23754	8224	-231319		2.1	404.5	1.25	14189			1.73	Si
SLV 15	483	-38958	-17274	-1078935		3.44	404.5	1.52	17230			1	No, Vu<V
SLV 15	693	-41233	-15868	1307567		3.64	404.5	1.56	17685			1.11	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.38	2.22	-25136	42156	287984	6.83	Si
SLV 3	14	0.38	2.22	-25136	42156	287984	6.83	Si
SLV 2	14	0.38	2.22	-25148	42156	288095	6.83	Si
SLV 1	14	0.38	2.22	-25148	42156	288095	6.83	Si
SLV 7	14	0.38	2.69	-30520	42156	333051	7.9	Si
SLV 8	14	0.38	2.69	-30520	42156	333051	7.9	Si
SLV 6	14	0.38	2.7	-30562	42156	333375	7.91	Si
SLV 5	14	0.38	2.7	-30562	42156	333375	7.91	Si
SLV 11	14	0.38	3.1	-35148	42156	367096	8.71	Si
SLV 12	14	0.38	3.1	-35148	42156	367096	8.71	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	-27649	-33272	-523	0.028	33.782	0.952	42.134	1083.091	No
SLV 7	-27649	-33272	-523	0.028	33.782	0.952	42.134	1083.091	No
SLV 10	-28147	-36494	525	0.028	34.288	0.952	42.336	1083.091	No
SLV 9	-28147	-36494	525	0.028	34.288	0.952	42.336	1083.091	No
SLV 6	-25911	-33984	486	0.028	32.018	0.949	43.055	1083.091	No
SLV 5	-25911	-33984	486	0.028	32.018	0.949	43.055	1083.091	No
SLV 12	-29885	-35781	-485	0.03	36.054	0.954	44.993	1083.091	No
SLV 11	-29885	-35781	-485	0.03	36.054	0.954	44.993	1083.091	No





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 3	-24432	-30594	-214	0.037	30.517	0.947	57.099	1041.05	No
SLV 4	-24432	-30594	-214	0.037	30.517	0.947	57.099	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.988	SLU 83	Si
V_SLU	1.705	SLU 83	Si
PF_SLV	3.31	SLV 3	Si
V_SLV	0.963	SLV 13	No
PFFP_SLV	6.831	SLV 3	Si
R_SLV	0.039	SLV 7	No

## Maschio 124

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-944.8	-335.9	-1100.3	-335.9	L4	L5	155.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 40	483	-11794	30423	2.71	612062	20.119	Si
SLU 40	693	-11964	-114389	2.75	616425	5.389	Si
SLU 73	483	-13832	30599	3.18	656022	21.439	Si
SLU 73	693	-13740	-120869	3.16	654432	5.414	Si
SLU 39	483	-11817	25475	2.71	612644	24.048	Si
SLU 39	693	-11907	-109112	2.73	614966	5.636	Si
SLU 76	483	-14369	24527	3.3	664573	27.096	Si
SLU 76	693	-14137	-117087	3.25	661032	5.646	Si
SLU 83	483	-14891	18741	3.42	671672	35.839	Si
SLU 83	693	-14580	-118389	3.35	667583	5.639	Si
SLU 42	483	-12331	24350	2.83	625411	25.684	Si
SLU 42	693	-12361	-110606	2.84	626114	5.661	Si
SLU 31	483	-11295	31261	2.59	598514	19.146	Si
SLU 31	693	-11464	-107810	2.63	603227	5.595	Si
SLU 81	483	-14354	24814	3.3	664348	26.774	Si
SLU 81	693	-14183	-122171	3.26	661753	5.417	Si
SLU 82	483	-14332	29761	3.29	664016	22.312	Si
SLU 82	693	-14241	-127449	3.27	662639	5.199	Si
SLU 84	483	-14869	23689	3.41	671392	28.342	Si
SLU 84	693	-14637	-123666	3.36	668369	5.405	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 3	483	-5246	354833	1.2	367662	1.036	Si
SLV 3	693	-11766	-297392	2.7	712467	2.396	Si
SLV 7	483	-3993	185883	0.92	287160	1.545	Si
SLV 7	693	-6994	-127562	1.61	472270	3.702	Si
SLV 14	483	-14641	-329990	3.36	825048	2.5	Si
SLV 14	693	-7493	154302	1.72	500547	3.244	Si
SLV 15	483	-11647	-283350	2.67	707282	2.496	Si
SLV 15	693	-5333	162041	1.22	373067	2.302	Si
SLV 13	483	-14641	-329990	3.36	825048	2.5	Si
SLV 13	693	-7493	154302	1.72	500547	3.244	Si
SLV 8	483	-3993	185883	0.92	287160	1.545	Si
SLV 8	693	-6994	-127562	1.61	472270	3.702	Si
SLV 4	483	-5246	354833	1.2	367662	1.036	Si
SLV 4	693	-11766	-297392	2.7	712467	2.396	Si
SLV 2	483	-8240	308193	1.89	541442	1.757	Si
SLV 2	693	-13926	-305131	3.2	799324	2.62	Si
SLV 16	483	-11647	-283350	2.67	707282	2.496	Si
SLV 16	693	-5333	162041	1.22	373067	2.302	Si
SLV 1	483	-8240	308193	1.89	541442	1.757	Si
SLV 1	693	-13926	-305131	3.2	799324	2.62	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	483	-11794	1202	30423		2.71	155.5	0.92	3991			3.32	Si
SLU 40	693	-11964	1840	-114389		2.75	155.5	0.92	4014			2.18	Si
SLU 73	483	-13832	1331	30599		3.18	155.5	0.98	4263			3.2	Si
SLU 73	693	-13740	2057	-120869		3.16	155.5	0.98	4251			2.07	Si
SLU 39	483	-11817	1125	25475		2.71	155.5	0.92	3994			3.55	Si
SLU 39	693	-11907	1782	-109112		2.73	155.5	0.92	4006			2.25	Si
SLU 81	483	-14354	1254	24814		3.3	155.5	1	4333			3.45	Si
SLU 81	693	-14183	2050	-122171		3.26	155.5	0.99	4310			2.1	Si
SLU 75	483	-14420	1225	22592		3.31	155.5	1	4342			3.54	Si
SLU 75	693	-14183	1923	-116145		3.26	155.5	0.99	4310			2.24	Si
SLU 76	483	-14369	1243	24527		3.3	155.5	1	4335			3.49	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	693	-14137	1911	-117087		3.25	155,5	0.99	4304			2.25	Si
SLU 84	483	-14869	1242	23689		3.41	155,5	1.01	4401			3.54	Si
SLU 84	693	-14637	1962	-123666		3.36	155,5	1	4371			2.23	Si
SLU 65	483	-12702	1213	24859		2.92	155,5	0.94	4112			3.39	Si
SLU 65	693	-12484	1849	-97309		2.87	155,5	0.94	4083			2.21	Si
SLU 82	483	-14332	1331	29761		3.29	155,5	0.99	4330			3.25	Si
SLU 82	693	-14241	2108	-127449		3.27	155,5	0.99	4318			2.05	Si
SLU 31	483	-11295	1202	31261		2.59	155,5	0.9	3925			3.26	Si
SLU 31	693	-11464	1790	-107810		2.63	155,5	0.91	3947			2.21	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	483	-14641	-4789	-329990		3.36	155,5	1.51	6556			1.37	Si
SLV 13	693	-7493	-3461	154302		1.72	155,5	1.18	5127			1.48	Si
SLV 4	483	-5246	6417	354833		6.18	30.34	1.63	1380			0.22	No, Vu<V
SLV 4	693	-11766	6153	-297392		2.7	155,5	1.37	5981			0.97	No, Vu<V
SLV 15	483	-11647	-4023	-283350		2.67	155,5	1.37	5958			1.48	Si
SLV 15	693	-5333	-2265	162041		1.34	142.09	1.1	4382			1.93	Si
SLV 1	483	-8240	5651	308193		2.43	121.05	1.32	4472			0.79	No, Vu<V
SLV 1	693	-13926	4957	-305131		3.2	155,5	1.47	6414			1.29	Si
SLV 8	483	-3993	3657	185883		1.52	93.6	1.14	2983			0.82	No, Vu<V
SLV 8	693	-6994	4603	-127562		1.61	155,5	1.15	5027			1.09	Si
SLV 2	483	-8240	5651	308193		2.43	121.05	1.32	4472			0.79	No, Vu<V
SLV 2	693	-13926	4957	-305131		3.2	155,5	1.47	6414			1.29	Si
SLV 7	483	-3993	3657	185883		1.52	93.6	1.14	2983			0.82	No, Vu<V
SLV 7	693	-6994	4603	-127562		1.61	155,5	1.15	5027			1.09	Si
SLV 3	483	-5246	6417	354833		6.18	30.34	1.63	1380			0.22	No, Vu<V
SLV 3	693	-11766	6153	-297392		2.7	155,5	1.37	5981			0.97	No, Vu<V
SLV 14	483	-14641	-4789	-329990		3.36	155,5	1.51	6556			1.37	Si
SLV 14	693	-7493	-3461	154302		1.72	155,5	1.18	5127			1.48	Si
SLV 16	483	-11647	-4023	-283350		2.67	155,5	1.37	5958			1.48	Si
SLV 16	693	-5333	-2265	162041		1.34	142.09	1.1	4382			1.93	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.38	1.19	-5180	15837	65456	4.13	Si
SLV 12	14	0.38	1.19	-5180	15837	65456	4.13	Si
SLV 15	14	0.38	1.4	-6081	15837	75398	4.76	Si
SLV 16	14	0.38	1.4	-6081	15837	75398	4.76	Si
SLV 7	14	0.38	1.54	-6719	15837	82184	5.19	Si
SLV 8	14	0.38	1.54	-6719	15837	82184	5.19	Si
SLV 13	14	0.38	1.93	-8392	15837	98951	6.25	Si
SLV 14	14	0.38	1.93	-8392	15837	98951	6.25	Si
SLV 4	14	0.38	2.57	-11211	15837	123875	7.82	Si
SLV 3	14	0.38	2.57	-11211	15837	123875	7.82	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-2914	-3993	-234	0	5.214	0.902	0	1083.091	No
SLV 8	-2914	-3993	-234	0	5.214	0.902	0	1083.091	No
SLV 12	-3726	-5913	-200	0.011	6.018	0.91	18.153	1083.091	No
SLV 11	-3726	-5913	-200	0.011	6.018	0.91	18.153	1083.091	No
SLV 9	-11698	-15894	283	0.022	14.073	0.955	33.984	1083.091	No
SLV 10	-11698	-15894	283	0.022	14.073	0.955	33.984	1083.091	No
SLV 6	-10886	-13974	249	0.024	13.247	0.952	36.562	1083.091	No
SLV 5	-10886	-13974	249	0.024	13.247	0.952	36.562	1083.091	No
SLV 13	-9856	-14641	154	0.031	12.202	0.949	47.421	1041.05	No
SLV 14	-9856	-14641	154	0.031	12.202	0.949	47.421	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.199	SLU 82	Si
V_SLU	2.049	SLU 82	Si
PF_SLV	1.036	SLV 3	Si
V_SLV	0.215	SLV 3	No
PFFP_SLV	4.133	SLV 11	Si
R_SLV	0	SLV 7	No

## Maschio 125

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-626.8	-335.9	-626.8	104.6	L4	L5	440.5	14	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	483	-31298	250318	5.08	2598616	10.381	Si
SLU 73	835	-19954	435431	3.24	2649174	6.084	Si
SLU 82	483	-32560	289125	5.28	2523246	8.727	Si
SLU 82	835	-20909	425945	3.39	2688430	6.312	Si
SLU 75	483	-32091	294275	5.2	2552884	8.675	Si
SLU 75	835	-20966	426828	3.4	2690519	6.304	Si
SLU 31	483	-26591	227356	4.31	2756567	12.124	Si
SLU 31	835	-16921	392042	2.74	2471551	6.304	Si
SLU 80	483	-32326	307802	5.24	2538289	8.246	Si
SLU 80	835	-21178	422991	3.43	2698038	6.378	Si
SLU 76	483	-31907	270761	5.17	2563984	9.47	Si
SLU 76	835	-20550	444563	3.33	2674623	6.016	Si
SLU 34	483	-27200	247800	4.41	2747073	11.086	Si
SLU 34	835	-17518	401174	2.84	2512861	6.264	Si
SLU 68	483	-28518	218939	4.62	2715378	12.402	Si
SLU 68	835	-18394	395055	2.98	2567890	6.5	Si
SLU 84	483	-33169	309568	5.38	2481875	8.017	Si
SLU 84	835	-21506	435077	3.49	2708883	6.226	Si
SLU 78	483	-32700	314718	5.3	2514017	7.988	Si
SLU 78	835	-21563	435960	3.5	2710673	6.218	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	483	-25159	-88902	4.08	3691121	41.519	Si
SLV 6	835	-15088	404503	2.45	2657715	6.57	Si
SLV 2	483	-25125	362942	4.07	3688678	10.163	Si
SLV 2	835	-13647	534791	2.21	2461387	4.603	Si
SLV 8	483	-19276	630411	3.13	3159488	5.012	Si
SLV 8	835	-12281	236615	1.99	2264090	9.569	Si
SLV 5	483	-25159	-88902	4.08	3691121	41.519	Si
SLV 5	835	-15088	404503	2.45	2657715	6.57	Si
SLV 12	483	-17540	458911	2.84	2963916	6.459	Si
SLV 12	835	-12674	74574	2.06	2321986	31.137	Si
SLV 3	483	-23361	578735	3.79	3550086	6.134	Si
SLV 3	835	-12805	484424	2.08	2341042	4.833	Si
SLV 11	483	-17540	458911	2.84	2963916	6.459	Si
SLV 11	835	-12674	74574	2.06	2321986	31.137	Si
SLV 7	483	-19276	630411	3.13	3159488	5.012	Si
SLV 7	835	-12281	236615	1.99	2264090	9.569	Si
SLV 1	483	-25125	362942	4.07	3688678	10.163	Si
SLV 1	835	-13647	534791	2.21	2461387	4.603	Si
SLV 4	483	-23361	578735	3.79	3550086	6.134	Si
SLV 4	835	-12805	484424	2.08	2341042	4.833	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	483	-19919	-1338	109972		3.23	440.5	0.99	6082			4.54	Si
SLU 2	835	-12555	-651	286000		2.04	440.5	0.83	5100			7.84	Si
SLU 44	483	-24626	-1274	132933		3.99	440.5	1.08	6681			5.24	Si
SLU 44	835	-15588	-589	329390		2.53	440.5	0.89	5504			9.35	Si
SLU 71	483	-28652	1226	280876		4.65	440.5	1.08	6681			5.45	Si
SLU 71	835	-19069	1214	327428		3.09	440.5	0.97	5969			4.92	Si
SLU 27	483	-24319	1094	264831		3.94	440.5	1.08	6669			6.09	Si
SLU 27	835	-16421	1084	297007		2.66	440.5	0.91	5616			5.18	Si
SLU 29	483	-23945	1162	257915		3.88	440.5	1.07	6619			5.7	Si
SLU 29	835	-16037	1152	284038		2.6	440.5	0.9	5564			4.83	Si
SLU 50	483	-25368	1108	215314		4.11	440.5	1.08	6681			6.03	Si
SLU 50	835	-16859	1096	270894		2.73	440.5	0.92	5674			5.17	Si
SLU 8	483	-20661	1044	192353		3.35	440.5	1	6181			5.92	Si
SLU 8	835	-13827	1035	227505		2.24	440.5	0.85	5270			5.09	Si
SLU 52	483	-28014	-1294	184756		4.54	440.5	1.08	6681			5.16	Si
SLU 52	835	-17744	-610	378898		2.88	440.5	0.94	5792			9.49	Si
SLU 10	483	-23307	-1358	161794		3.78	440.5	1.06	6534			4.81	Si
SLU 10	835	-14711	-672	335508		2.39	440.5	0.87	5388			8.01	Si
SLU 37	483	-27333	1142	309737		4.43	440.5	1.08	6681			5.85	Si
SLU 37	835	-18193	1130	333546		2.95	440.5	0.95	5852			5.18	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	483	-25159	-9824	-88902		4.08	440.5	1.63	10021			1.02	Si
SLV 5	835	-15088	-8202	404503		2.45	440.5	1.32	8157			0.99	No, Vu<V
SLD 8	483	-20460	4872	372553		3.32	440.5	1.5	9231			1.89	Si
SLD 8	835	-13228	4120	236130		2.14	440.5	1.26	7785			1.89	Si
SLV 9	483	-23422	-10217	-260402		3.8	440.5	1.59	9824			0.96	No, Vu<V
SLV 9	835	-15481	-8559	242462		2.51	440.5	1.34	8235			0.96	No, Vu<V
SLV 8	483	-19276	10969	630411		3.13	440.5	1.46	8994			0.82	No, Vu<V
SLV 8	835	-12281	9295	236615		1.99	440.5	1.23	7595			0.82	No, Vu<V
SLV 11	483	-17540	10576	458911		2.84	440.5	1.4	8647			0.82	No, Vu<V
SLV 11	835	-12674	8937	74574		2.06	440.5	1.24	7674			0.86	No, Vu<V
SLD 7	483	-20460	4872	372553		3.32	440.5	1.5	9231			1.89	Si
SLD 7	835	-13228	4120	236130		2.14	440.5	1.26	7785			1.89	Si
SLV 7	483	-19276	10969	630411		3.13	440.5	1.46	8994			0.82	No, Vu<V
SLV 7	835	-12281	9295	236615		1.99	440.5	1.23	7595			0.82	No, Vu<V
SLV 10	483	-23422	-10217	-260402		3.8	440.5	1.59	9824			0.96	No, Vu<V
SLV 10	835	-15481	-8559	242462		2.51	440.5	1.34	8235			0.96	No, Vu<V
SLV 6	483	-25159	-9824	-88902		4.08	440.5	1.63	10021			1.02	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	835	-15088	-8202	404503		2.45	440.5	1.32	8157			0.99	No, Vu<V
SLV 12	483	-17540	10576	458911		2.84	440.5	1.4	8647			0.82	No, Vu<V
SLV 12	835	-12674	8937	74574		2.06	440.5	1.24	7674			0.86	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.38	2.53	-15618	23997	86665	3.61	Si
SLV 8	14	0.38	2.53	-15618	23997	86665	3.61	Si
SLV 12	14	0.38	2.56	-15772	23997	87297	3.64	Si
SLV 11	14	0.38	2.56	-15772	23997	87297	3.64	Si
SLV 3	14	0.38	2.78	-17150	23997	92729	3.86	Si
SLV 4	14	0.38	2.78	-17150	23997	92729	3.86	Si
SLV 16	14	0.38	2.86	-17667	23997	94673	3.95	Si
SLV 15	14	0.38	2.86	-17667	23997	94673	3.95	Si
SLV 2	14	0.38	3.02	-18619	23997	98130	4.09	Si
SLV 1	14	0.38	3.02	-18619	23997	98130	4.09	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-15481	-23422	26	0.021	18.827	0.953	31.438	1649.646	No
SLV 10	-15481	-23422	26	0.021	18.827	0.953	31.438	1649.646	No
SLV 6	-15088	-25159	27	0.021	18.428	0.952	31.464	1649.646	No
SLV 5	-15088	-25159	27	0.021	18.428	0.952	31.464	1649.646	No
SLV 11	-12674	-17540	-27	0.021	15.978	0.945	31.846	1649.646	No
SLV 12	-12674	-17540	-27	0.021	15.978	0.945	31.846	1649.646	No
SLV 8	-12281	-19276	-26	0.021	15.58	0.944	31.956	1649.646	No
SLV 7	-12281	-19276	-26	0.021	15.58	0.944	31.956	1649.646	No
SLV 14	-14957	-19338	7	0.022	18.295	0.951	33.223	1649.646	No
SLV 13	-14957	-19338	7	0.022	18.295	0.951	33.223	1649.646	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.016	SLU 76	Si
V_SLU	4.545	SLU 2	Si
PF_SLV	4.603	SLV 1	Si
V_SLV	0.817	SLV 7	No
PFFP_SLV	3.611	SLV 7	Si
R_SLV	0.019	SLV 9	No

## Maschio 126

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-741.3	-335.9	-854.8	-335.9	L4	L5	113.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	573	-12122	5438	3.81	365798	67.266	Si
SLU 81	753	-9960	-105424	3.13	347768	3.299	Si
SLU 84	573	-12405	7820	3.9	366643	46.884	Si
SLU 84	753	-9914	-104852	3.12	347154	3.311	Si
SLU 83	573	-12507	-1231	3.94	366860	298.118	Si
SLU 83	753	-10153	-102746	3.19	350208	3.408	Si
SLU 75	573	-12047	9822	3.79	365517	37.216	Si
SLU 75	753	-9589	-103297	3.02	342604	3.317	Si
SLU 52	573	-10613	18929	3.34	355371	18.774	Si
SLU 52	753	-8168	-95312	2.57	317273	3.329	Si
SLU 65	573	-10501	20369	3.3	354202	17.389	Si
SLU 65	753	-8056	-94903	2.53	314902	3.318	Si
SLU 76	573	-11902	13808	3.75	364901	26.427	Si
SLU 76	753	-9303	-102047	2.93	338214	3.314	Si
SLU 61	573	-11116	12941	3.5	359956	27.816	Si
SLU 61	753	-8779	-98117	2.76	329254	3.356	Si
SLU 82	573	-12021	14489	3.78	365410	25.22	Si
SLU 82	753	-9721	-107531	3.06	344511	3.204	Si
SLU 73	573	-11518	20477	3.62	362819	17.719	Si
SLU 73	753	-9110	-104725	2.87	335054	3.199	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	573	-4370	-194250	1.38	220107	1.133	Si
SLV 11	753	2371	144762	0	0	0	No, Trazione
SLV 3	573	-4447	233128	1.4	223452	0.958	No, M>Mu
SLV 3	753	-5418	-189428	1.7	264581	1.397	Si
SLV 2	573	-7246	304244	2.28	334468	1.099	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	753	-10550	-288667	3.32	436051	1.511	Si
SLV 4	573	-4447	233128	1.4	223452	0.958	No, M>Mu
SLV 4	753	-5418	-189428	1.7	264581	1.397	Si
SLV 16	573	-9353	-296733	2.94	402945	1.358	Si
SLV 16	753	-2645	146589	0.83	139899	0.954	No, M>Mu
SLV 7	573	-2898	-35292	0.91	152209	4.313	Si
SLV 7	753	1539	43957	0	0	0	No, Trazione
SLV 15	573	-9353	-296733	2.94	402945	1.358	Si
SLV 15	753	-2645	146589	0.83	139899	0.954	No, M>Mu
SLV 8	573	-2898	-35292	0.91	152209	4.313	Si
SLV 8	753	1539	43957	0	0	0	No, Trazione
SLV 1	573	-7246	304244	2.28	334468	1.099	Si
SLV 1	753	-10550	-288667	3.32	436051	1.511	Si
SLV 12	573	-4370	-194250	1.38	220107	1.133	Si
SLV 12	753	2371	144762	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 47	573	-9982	276	12153		3.14	113.5	0.97	3096			11.22	Si
SLU 47	753	-7307	284	-82811		2.3	113.5	0.86	2740			9.65	Si
SLU 73	573	-11518	403	20477		3.62	113.5	1.04	3301			8.19	Si
SLU 73	753	-9110	297	-104725		2.87	113.5	0.94	2980			10.05	Si
SLU 65	573	-10501	424	20369		3.3	113.5	1	3166			7.47	Si
SLU 65	753	-8056	317	-94903		2.53	113.5	0.89	2840			8.95	Si
SLU 31	573	-9502	390	20023		2.99	113.5	0.95	3033			7.78	Si
SLU 31	753	-7624	247	-88290		2.4	113.5	0.88	2782			11.28	Si
SLU 2	573	-7582	375	18367		2.39	113.5	0.87	2776			7.41	Si
SLU 2	753	-5628	297	-69054		1.77	113.5	0.79	2516			8.47	Si
SLU 44	573	-9597	388	18821		3.02	113.5	0.96	3045			7.84	Si
SLU 44	753	-7114	347	-85489		2.24	113.5	0.85	2714			7.82	Si
SLU 52	573	-10613	368	18929		3.34	113.5	1	3181			8.65	Si
SLU 52	753	-8168	326	-95312		2.57	113.5	0.9	2855			8.75	Si
SLU 23	573	-8486	410	19915		2.67	113.5	0.91	2897			7.06	Si
SLU 23	753	-6571	267	-78467		2.07	113.5	0.83	2642			9.88	Si
SLU 26	573	-8871	298	13247		2.79	113.5	0.93	2948			9.9	Si
SLU 26	753	-6763	204	-75789		2.13	113.5	0.84	2667			13.04	Si
SLU 10	573	-8598	354	18475		2.71	113.5	0.92	2912			8.22	Si
SLU 10	753	-6682	276	-78876		2.1	113.5	0.84	2657			9.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	573	-7246	4972	304244		5.84	44.28	1.63	2015			0.41	No, Vu<V
SLV 1	753	-10550	1695	-288667		4.27	88.17	1.63	4012			2.37	Si
SLV 16	573	-9353	-4792	-296733		4.45	75.08	1.63	3416			0.71	No, Vu<V
SLV 16	753	-2645	-1458	146589		23.54	4.01	1.63	183			0.13	No, Vu<V
SLV 3	573	-4447	4555	233128		12.25	12.97	1.63	590			0.13	No, Vu<V
SLV 3	753	-5418	1672	-189428		2.96	65.37	1.43	2609			1.56	Si
SLV 8	573	-2898	797	-35292		0.91	113.5	1.02	3228			4.05	Si
SLV 8	753	1539	549	43957		0	0	0.83	0			0	No, Vu<V
SLV 4	573	-4447	4555	233128		12.25	12.97	1.63	590			0.13	No, Vu<V
SLV 4	753	-5418	1672	-189428		2.96	65.37	1.43	2609			1.56	Si
SLV 11	573	-4370	-2007	-194250		4.23	36.91	1.63	1679			0.84	No, Vu<V
SLV 11	753	2371	-389	144762		0	0	0.83	0			0	No, Vu<V
SLV 12	573	-4370	-2007	-194250		4.23	36.91	1.63	1679			0.84	No, Vu<V
SLV 12	753	2371	-389	144762		0	0	0.83	0			0	No, Vu<V
SLV 7	573	-2898	797	-35292		0.91	113.5	1.02	3228			4.05	Si
SLV 7	753	1539	549	43957		0	0	0.83	0			0	No, Vu<V
SLV 2	573	-7246	4972	304244		5.84	44.28	1.63	2015			0.41	No, Vu<V
SLV 2	753	-10550	1695	-288667		4.27	88.17	1.63	4012			2.37	Si
SLV 15	573	-9353	-4792	-296733		4.45	75.08	1.63	3416			0.71	No, Vu<V
SLV 15	753	-2645	-1458	146589		23.54	4.01	1.63	183			0.13	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.38	0	-685	11560	0	0	No, $e > t/2$
SLV 8	14	0.38	0	-685	11560	0	0	No, $e > t/2$
SLV 11	14	0.38	0.83	-2649	11560	34561	2.99	Si
SLV 12	14	0.38	0.83	-2649	11560	34561	2.99	Si
SLV 4	14	0.38	0.88	-2786	11560	36211	3.13	Si
SLV 3	14	0.38	0.88	-2786	11560	36211	3.13	Si
SLV 2	14	0.38	2.06	-6553	11560	76257	6.6	Si
SLV 1	14	0.38	2.06	-6553	11560	76257	6.6	Si
SLV 15	14	0.38	2.94	-9336	11560	99276	8.59	Si
SLV 16	14	0.38	2.94	-9336	11560	99276	8.59	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha^*$	aLim	Verifica
SLV 7	668	-6460	-82	0	0	0	0	1083.091	No, Trazione
SLV 12	1598	-5248	-67	0	0	0	0	1083.091	No, Trazione
SLV 11	1598	-5248	-67	0	0	0	0	1083.091	No, Trazione
SLV 8	668	-6460	-82	0	0	0	0	1083.091	No, Trazione
SLV 9	-10914	-8407	81	0.036	12.687	0.963	54.849	1083.091	No
SLV 10	-10914	-8407	81	0.036	12.687	0.963	54.849	1083.091	No
SLV 5	-11844	-9619	66	0.038	13.634	0.965	56.891	1083.091	No
SLV 6	-11844	-9619	66	0.038	13.634	0.965	56.891	1083.091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 4	-4796	-8979	-48	0.038	6.477	0.933	59.724	1041.05	No
SLV 3	-4796	-8979	-48	0.038	6.477	0.933	59.724	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.199	SLU 73	Si
V_SLU	7.061	SLU 23	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 7	No
PFFP_SLV	0	SLV 7	No
R_SLV	0	SLV 12	No

## Maschio 127

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	104.6	-515.8	581.1	L4	L5	476.5	14	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 27	483	-31133	60672	4.67	3167828	52.212	Si
SLU 27	835	-24925	338109	3.74	3214570	9.507	Si
SLU 28	483	-31056	53534	4.66	3170480	59.223	Si
SLU 28	835	-24915	319485	3.73	3214378	10.061	Si
SLU 71	483	-36175	69686	5.42	2881194	41.345	Si
SLU 71	835	-28361	360824	4.25	3230464	8.953	Si
SLU 6	483	-26786	64285	4.02	3236031	50.339	Si
SLU 6	835	-21513	308302	3.22	3096345	10.043	Si
SLU 50	483	-31828	73299	4.77	3141562	42.86	Si
SLU 50	835	-24949	331017	3.74	3215039	9.713	Si
SLU 8	483	-26553	83462	3.98	3235008	38.76	Si
SLU 8	835	-21620	370793	3.24	3101590	8.365	Si
SLU 30	483	-30823	72711	4.62	3178180	43.71	Si
SLU 30	835	-25022	381976	3.75	3216439	8.421	Si
SLU 72	483	-36098	62548	5.41	2887252	46.161	Si
SLU 72	835	-28351	342200	4.25	3230565	9.441	Si
SLU 29	483	-30900	79849	4.63	3175686	39.771	Si
SLU 29	835	-25032	400600	3.75	3216621	8.03	Si
SLU 9	483	-26476	76324	3.97	3234565	42.38	Si
SLU 9	835	-21610	352169	3.24	3101117	8.806	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 9	483	-18488	-572965	2.77	3405691	5.944	Si
SLV 9	835	-11344	-371965	1.7	2326594	6.255	Si
SLV 13	483	-22555	-516321	3.38	3886711	7.528	Si
SLV 13	835	-15570	-182209	2.33	3000930	16.47	Si
SLV 3	483	-27136	416751	4.07	4312815	10.349	Si
SLV 3	835	-17513	-49877	2.63	3275971	65.681	Si
SLV 8	483	-31202	473396	4.68	4588255	9.692	Si
SLV 8	835	-21738	139880	3.26	3797929	27.151	Si
SLV 4	483	-27136	416751	4.07	4312815	10.349	Si
SLV 4	835	-17513	-49877	2.63	3275971	65.681	Si
SLV 10	483	-18488	-572965	2.77	3405691	5.944	Si
SLV 10	835	-11344	-371965	1.7	2326594	6.255	Si
SLV 5	483	-18741	-368846	2.81	3438418	9.322	Si
SLV 5	835	-10957	-378962	1.64	2259540	5.962	Si
SLV 7	483	-31202	473396	4.68	4588255	9.692	Si
SLV 7	835	-21738	139880	3.26	3797929	27.151	Si
SLV 6	483	-18741	-368846	2.81	3438418	9.322	Si
SLV 6	835	-10957	-378962	1.64	2259540	5.962	Si
SLV 14	483	-22555	-516321	3.38	3886711	7.528	Si
SLV 14	835	-15570	-182209	2.33	3000930	16.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	483	-34743	1620	15921		5.21	476.5	1.08	7227			4.46	Si
SLU 36	835	-26909	969	228352		4.03	476.5	1.08	7227			7.46	Si
SLU 80	483	-39784	1634	24934		5.96	476.5	1.08	7227			4.42	Si
SLU 80	835	-30345	891	251067		4.55	476.5	1.08	7227			8.11	Si
SLU 83	483	-39439	1658	-44782		5.91	476.5	1.08	7227			4.36	Si
SLU 83	835	-27898	768	-4023		4.18	476.5	1.08	7227			9.4	Si
SLU 78	483	-40017	1660	5758		6	476.5	1.08	7227			4.35	Si
SLU 78	835	-30238	884	188576		4.53	476.5	1.08	7227			8.17	Si
SLU 77	483	-40094	1728	12896		6.01	476.5	1.08	7227			4.18	Si
SLU 77	835	-30248	971	207200		4.53	476.5	1.08	7227			7.44	Si
SLU 35	483	-34820	1687	23059		5.22	476.5	1.08	7227			4.28	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	835	-26919	1056	246976		4.04	476.5	1.08	7227			6.85	Si
SLU 41	483	-34165	1617	-34618		5.12	476.5	1.08	7227			4.47	Si
SLU 41	835	-24569	853	35753		3.68	476.5	1.05	6982			8.18	Si
SLU 37	483	-34587	1661	42235		5.18	476.5	1.08	7227			4.35	Si
SLU 37	835	-27025	1062	309467		4.05	476.5	1.08	7227			6.8	Si
SLU 79	483	-39861	1702	32072		5.98	476.5	1.08	7227			4.25	Si
SLU 79	835	-30355	977	269691		4.55	476.5	1.08	7227			7.39	Si
SLU 38	483	-34510	1593	35097		5.17	476.5	1.08	7227			4.54	Si
SLU 38	835	-27016	976	290843		4.05	476.5	1.08	7227			7.41	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	483	-31202	10210	473396		4.68	476.5	1.63	10840			1.06	Si
SLV 7	835	-21738	8815	139880		3.26	476.5	1.49	9907			1.12	Si
SLV 12	483	-30949	12415	269276		4.64	476.5	1.63	10840			0.87	No, Vu<V
SLV 12	835	-22126	10489	146876		3.32	476.5	1.5	9984			0.95	No, Vu<V
SLV 8	483	-31202	10210	473396		4.68	476.5	1.63	10840			1.06	Si
SLV 8	835	-21738	8815	139880		3.26	476.5	1.49	9907			1.12	Si
SLV 11	483	-30949	12415	269276		4.64	476.5	1.63	10840			0.87	No, Vu<V
SLV 11	835	-22126	10489	146876		3.32	476.5	1.5	9984			0.95	No, Vu<V
SLV 5	483	-18741	-10900	-368846		2.81	476.5	1.4	9307			0.85	No, Vu<V
SLV 5	835	-10957	-10177	-378962		1.64	476.5	1.16	7751			0.76	No, Vu<V
SLV 10	483	-18488	-8696	-572965		2.77	476.5	1.39	9257			1.06	Si
SLV 10	835	-11344	-8502	-371965		1.7	476.5	1.17	7828			0.92	No, Vu<V
SLV 16	483	-26293	7598	-263648		3.94	476.5	1.62	10818			1.42	Si
SLV 16	835	-18804	5796	-26556		2.82	476.5	1.4	9320			1.61	Si
SLV 9	483	-18488	-8696	-572965		2.77	476.5	1.39	9257			1.06	Si
SLV 9	835	-11344	-8502	-371965		1.7	476.5	1.17	7828			0.92	No, Vu<V
SLV 15	483	-26293	7598	-263648		3.94	476.5	1.62	10818			1.42	Si
SLV 15	835	-18804	5796	-26556		2.82	476.5	1.4	9320			1.61	Si
SLV 6	483	-18741	-10900	-368846		2.81	476.5	1.4	9307			0.85	No, Vu<V
SLV 6	835	-10957	-10177	-378962		1.64	476.5	1.16	7751			0.76	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.38	2.19	-14601	25958	83899	3.23	Si
SLV 10	14	0.38	2.19	-14601	25958	83899	3.23	Si
SLV 13	14	0.38	2.39	-15935	25958	89741	3.46	Si
SLV 14	14	0.38	2.39	-15935	25958	89741	3.46	Si
SLV 6	14	0.38	2.43	-16210	25958	90902	3.5	Si
SLV 5	14	0.38	2.43	-16210	25958	90902	3.5	Si
SLV 16	14	0.38	2.8	-18688	25958	100824	3.88	Si
SLV 15	14	0.38	2.8	-18688	25958	100824	3.88	Si
SLV 2	14	0.38	3.19	-21297	25958	110129	4.24	Si
SLV 1	14	0.38	3.19	-21297	25958	110129	4.24	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 659 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 13	-15570	-22555	58	0.019	19.171	0.95	29.073	1649.646	No
SLV 14	-15570	-22555	58	0.019	19.171	0.95	29.073	1649.646	No
SLV 4	-17513	-27136	-57	0.019	21.145	0.954	29.13	1649.646	No
SLV 3	-17513	-27136	-57	0.019	21.145	0.954	29.13	1649.646	No
SLV 8	-21738	-31202	-43	0.02	25.441	0.961	30.033	1649.646	No
SLV 7	-21738	-31202	-43	0.02	25.441	0.961	30.033	1649.646	No
SLV 16	-18804	-26293	41	0.02	22.457	0.957	30.313	1649.646	No
SLV 15	-18804	-26293	41	0.02	22.457	0.957	30.313	1649.646	No
SLV 9	-11344	-18488	43	0.02	14.887	0.938	30.675	1649.646	No
SLV 10	-11344	-18488	43	0.02	14.887	0.938	30.675	1649.646	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.03	SLU 29	Si
V_SLU	4.182	SLU 77	Si
PF_SLV	5.944	SLV 9	Si
V_SLV	0.762	SLV 5	No
PFFP_SLV	3.232	SLV 9	Si
R_SLV	0.018	SLV 13	No

## Maschio 128

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	595.1	-515.8	600.6	L4	L5	5.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	683	-827	158	5.37	775	4.918	Si
SLU 83	763	-1052	2651	6.83	466	0.176	No, $M > M_u$
SLU 61	683	-619	-115	4.02	862	7.53	Si
SLU 61	763	-797	2209	0	0	0	No, $e > l/2$
SLU 78	683	-900	376	5.84	700	1.86	Si
SLU 78	763	-1130	2667	7.34	309	0.116	No, $M > M_u$
SLU 18	683	-521	-109	3.38	838	7.704	Si
SLU 18	763	-677	1887	0	0	0	No, $e > l/2$
SLU 77	683	-906	392	5.88	693	1.768	Si
SLU 77	763	-1135	2664	7.37	297	0.111	No, $M > M_u$
SLU 80	683	-908	423	5.89	690	1.63	Si
SLU 80	763	-1136	2642	7.38	295	0.112	No, $M > M_u$
SLU 10	683	-492	-83	3.19	822	9.886	Si
SLU 10	763	-635	1755	0	0	0	No, $e > l/2$
SLU 79	683	-913	439	5.93	683	1.556	Si
SLU 79	763	-1141	2640	7.41	284	0.107	No, $M > M_u$
SLU 19	683	-515	-124	3.35	835	6.714	Si
SLU 19	763	-671	1889	0	0	0	No, $e > l/2$
SLU 40	683	-612	-98	3.98	862	8.822	Si
SLU 40	763	-799	2210	0	0	0	No, $e > l/2$

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	683	-77	-2611	0	0	0	No, $e > l/2$
SLV 13	763	-761	4199	0	0	0	No, $e > l/2$
SLV 9	683	-82	-1725	0	0	0	No, $e > l/2$
SLV 9	763	-332	2936	0	0	0	No, $e > l/2$
SLV 2	683	-725	2046	0	0	0	No, $e > l/2$
SLV 2	763	-269	-610	1.74	633	1.038	Si
SLV 10	683	-82	-1725	0	0	0	No, $e > l/2$
SLV 10	763	-332	2936	0	0	0	No, $e > l/2$
SLV 3	683	-915	2684	0	0	0	No, $e > l/2$
SLV 3	763	-489	-971	3.17	995	1.025	Si
SLV 4	683	-915	2684	0	0	0	No, $e > l/2$
SLV 4	763	-489	-971	3.17	995	1.025	Si
SLV 5	683	-277	-328	1.8	649	1.981	Si
SLV 5	763	-184	1494	0	0	0	No, $e > l/2$
SLD 16	683	-397	-835	2.58	861	1.03	Si
SLD 16	763	-779	2582	0	0	0	No, $e > l/2$
SLV 14	683	-77	-2611	0	0	0	No, $e > l/2$
SLV 14	763	-761	4199	0	0	0	No, $e > l/2$
SLV 6	683	-277	-328	1.8	649	1.981	Si
SLV 6	763	-184	1494	0	0	0	No, $e > l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	683	-589	-10	-57		3.82	5.5	1.07	164			16.69	Si
SLU 31	763	-763	-143	2075		0	0	0.56	0			0	No, $V_u < V$
SLU 81	683	-721	-12	-72		4.68	5.5	1.08	167			13.62	Si
SLU 81	763	-931	-174	2527		0	0	0.56	0			0	No, $V_u < V$
SLU 39	683	-618	-12	-82		4.01	5.5	1.08	167			13.93	Si
SLU 39	763	-805	-152	2207		0	0	0.56	0			0	No, $V_u < V$
SLU 52	683	-595	-11	-73		3.86	5.5	1.07	165			14.91	Si
SLU 52	763	-761	-143	2075		0	0	0.56	0			0	No, $V_u < V$
SLU 40	683	-612	-13	-98		3.98	5.5	1.08	167			12.78	Si
SLU 40	763	-799	-152	2210		0	0	0.56	0			0	No, $V_u < V$
SLU 10	683	-492	-11	-83		3.19	5.5	0.98	151			14	Si
SLU 10	763	-635	-121	1755		0	0	0.56	0			0	No, $V_u < V$
SLU 60	683	-624	-13	-99		4.05	5.5	1.08	167			12.63	Si
SLU 60	763	-803	-152	2206		0	0	0.56	0			0	No, $V_u < V$
SLU 18	683	-521	-13	-109		3.38	5.5	1.01	155			11.98	Si
SLU 18	763	-677	-130	1887		0	0	0.56	0			0	No, $V_u < V$
SLU 19	683	-515	-14	-124		3.35	5.5	1	154			11	Si
SLU 19	763	-671	-130	1889		0	0	0.56	0			0	No, $V_u < V$
SLU 73	683	-692	-10	-47		4.49	5.5	1.08	167			16.53	Si
SLU 73	763	-889	-165	2395		0	0	0.56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	683	-915	171	2684		0	0	0.83	0			0	No, $V_u < V$
SLV 4	763	-489	40	-971		7.63	2.29	1.63	104			2.61	Si
SLV 5	683	-277	-35	-328		2.1	4.7	1.25	165			4.7	Si
SLV 5	763	-184	-12	1494		0	0	0.83	0			0	No, $V_u < V$
SLV 6	683	-277	-35	-328		2.1	4.7	1.25	165			4.7	Si
SLV 6	763	-184	-12	1494		0	0	0.83	0			0	No, $V_u < V$
SLV 13	683	-77	-175	-2611		0	0	0.83	0			0	No, $V_u < V$
SLV 13	763	-761	-262	4199		0	0	0.83	0			0	No, $V_u < V$
SLV 14	683	-77	-175	-2611		0	0	0.83	0			0	No, $V_u < V$
SLV 14	763	-761	-262	4199		0	0	0.83	0			0	No, $V_u < V$
SLV 9	683	-82	-125	-1725		0	0	0.83	0			0	No, $V_u < V$
SLV 9	763	-332	-111	2936		0	0	0.83	0			0	No, $V_u < V$
SLV 3	683	-915	171	2684		0	0	0.83	0			0	No, $V_u < V$
SLV 3	763	-489	40	-971		7.63	2.29	1.63	104			2.61	Si
SLV 10	683	-82	-125	-1725		0	0	0.83	0			0	No, $V_u < V$
SLV 10	763	-332	-111	2936		0	0	0.83	0			0	No, $V_u < V$
SLD 16	683	-397	-57	-835		7.34	1.93	1.63	88			1.53	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 16	763	-779	-190	2582		0	0	0.83	0			0	No, Vu<V
SLV 2	683	-725	124	2046		0	0	0.83	0			0	No, Vu<V
SLV 2	763	-269	70	-610		6.69	1.43	1.63	65			0.94	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.38	0	-23	573	0	0	No, e>t/2
SLV 13	14	0.38	0	-23	573	0	0	No, e>t/2
SLV 16	14	0.38	0.5	-77	573	1038	1.81	Si
SLV 15	14	0.38	0.5	-77	573	1038	1.81	Si
SLV 10	14	0.38	0.51	-78	573	1045	1.82	Si
SLV 9	14	0.38	0.51	-78	573	1045	1.82	Si
SLV 5	14	0.38	1.16	-179	573	2264	3.95	Si
SLV 6	14	0.38	1.16	-179	573	2264	3.95	Si
SLV 12	14	0.38	1.68	-258	573	3117	5.44	Si
SLV 11	14	0.38	1.68	-258	573	3117	5.44	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	-149	-385	-22	0	0.23	0.915	0	1041.05	No
SLV 4	-204	-474	-25	0	0.286	0.928	0	1041.05	No
SLV 9	-68	-153	12	0	0.15	0.891	0	1083.091	No
SLV 15	-179	-279	22	0	0.26	0.922	0	1041.05	No
SLV 3	-204	-474	-25	0	0.286	0.928	0	1041.05	No
SLV 14	-124	-189	25	0	0.205	0.908	0	1041.05	No
SLV 1	-149	-385	-22	0	0.23	0.915	0	1041.05	No
SLV 10	-68	-153	12	0	0.15	0.891	0	1083.091	No
SLV 13	-124	-189	25	0	0.205	0.908	0	1041.05	No
SLV 16	-179	-279	22	0	0.26	0.922	0	1041.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 10	No
V_SLU	0	SLU 10	No
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 13	No
R_SLV	0	SLV 1	No

## Maschio 129

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	650.6	-515.8	666.1	L4	L5	15.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	683	-2908	-2931	6.7	4000	1.365	Si
SLU 84	763	-2824	560	6.51	4402	7.857	Si
SLU 80	683	-3178	-2950	7.32	2488	0.843	No, M>Mu
SLU 80	763	-3095	391	7.13	2989	7.646	Si
SLU 79	683	-3196	-2948	7.36	2375	0.806	No, M>Mu
SLU 79	763	-3113	376	7.17	2883	7.673	Si
SLU 72	683	-2979	-2617	6.86	3634	1.388	Si
SLU 72	763	-2895	227	6.67	4062	17.889	Si
SLU 83	683	-2926	-2929	6.74	3909	1.335	Si
SLU 83	763	-2842	545	6.55	4318	7.921	Si
SLU 77	683	-3173	-2971	7.31	2521	0.849	No, M>Mu
SLU 77	763	-3089	411	7.12	3020	7.352	Si
SLU 70	683	-2955	-2641	6.81	3757	1.423	Si
SLU 70	763	-2872	262	6.62	4177	15.932	Si
SLU 71	683	-2997	-2615	6.91	3537	1.353	Si
SLU 71	763	-2913	212	6.71	3972	18.744	Si
SLU 69	683	-2973	-2639	6.85	3663	1.388	Si
SLU 69	763	-2890	247	6.66	4089	16.553	Si
SLU 78	683	-3155	-2973	7.27	2632	0.885	No, M>Mu
SLU 78	763	-3071	426	7.08	3124	7.335	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	683	-1266	3104	2.92	7471	2.407	Si
SLV 1	763	-1236	-4257	2.85	7348	1.726	Si
SLD 16	683	-1941	-3899	4.47	9537	2.446	Si
SLD 16	763	-1862	2349	4.29	9364	3.986	Si
SLV 14	683	-1830	-6271	4.22	9289	1.481	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	763	-1726	5509	3.98	9024	1.638	Si
SLD 15	683	-1941	-3899	4.47	9537	2.446	Si
SLD 15	763	-1862	2349	4.29	9364	3.986	Si
SLV 16	683	-2208	-6666	5.09	9987	1.498	Si
SLV 16	763	-2110	4950	4.86	9846	1.989	Si
SLV 4	683	-1644	2710	3.79	8792	3.245	Si
SLV 4	763	-1620	-4815	3.73	8720	1.811	Si
SLV 3	683	-1644	2710	3.79	8792	3.245	Si
SLV 3	763	-1620	-4815	3.73	8720	1.811	Si
SLV 2	683	-1266	3104	2.92	7471	2.407	Si
SLV 2	763	-1236	-4257	2.85	7348	1.726	Si
SLV 13	683	-1830	-6271	4.22	9289	1.481	Si
SLV 13	763	-1726	5509	3.98	9024	1.638	Si
SLV 15	683	-2208	-6666	5.09	9987	1.498	Si
SLV 15	763	-2110	4950	4.86	9846	1.989	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	683	-2926	-43	-2929		6.74	15.5	1.08	470			10.83	Si
SLU 83	763	-2842	-43	545		6.55	15.5	1.08	470			10.83	Si
SLU 82	683	-2552	-43	-2769		5.88	15.5	1.08	470			10.97	Si
SLU 82	763	-2468	-43	660		5.69	15.5	1.08	470			10.97	Si
SLU 81	683	-2570	-43	-2767		5.92	15.5	1.08	470			11.03	Si
SLU 81	763	-2486	-43	644		5.73	15.5	1.08	470			11.03	Si
SLU 78	683	-3155	-42	-2973		7.27	15.5	1.08	470			11.06	Si
SLU 78	763	-3071	-42	426		7.08	15.5	1.08	470			11.06	Si
SLU 74	683	-2817	-41	-2810		6.49	15.5	1.08	470			11.33	Si
SLU 74	763	-2733	-41	510		6.3	15.5	1.08	470			11.33	Si
SLU 75	683	-2799	-42	-2812		6.45	15.5	1.08	470			11.27	Si
SLU 75	763	-2715	-42	525		6.26	15.5	1.08	470			11.27	Si
SLU 77	683	-3173	-42	-2971		7.31	15.5	1.08	470			11.12	Si
SLU 77	763	-3089	-42	411		7.12	15.5	1.08	470			11.12	Si
SLU 79	683	-3196	-42	-2948		7.36	15.5	1.08	470			11.32	Si
SLU 79	763	-3113	-42	376		7.17	15.5	1.08	470			11.32	Si
SLU 84	683	-2908	-44	-2931		6.7	15.5	1.08	470			10.77	Si
SLU 84	763	-2824	-44	560		6.51	15.5	1.08	470			10.77	Si
SLU 80	683	-3178	-42	-2950		7.32	15.5	1.08	470			11.26	Si
SLU 80	763	-3095	-42	391		7.13	15.5	1.08	470			11.26	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	683	-1266	74	3104		2.92	15.5	1.42	615			8.36	Si
SLV 1	763	-1236	50	-4257		3.42	12.92	1.52	549			10.97	Si
SLV 14	683	-1830	-106	-6271		5.04	12.97	1.63	590			5.54	Si
SLV 14	763	-1726	-108	5509		4.51	13.68	1.63	622			5.79	Si
SLV 11	683	-2452	-87	-3844		5.65	15.5	1.63	705			8.07	Si
SLV 11	763	-2386	-43	881		5.5	15.5	1.63	705			16.36	Si
SLV 2	683	-1266	74	3104		2.92	15.5	1.42	615			8.36	Si
SLV 2	763	-1236	50	-4257		3.42	12.92	1.52	549			10.97	Si
SLD 15	683	-1941	-70	-3899		4.47	15.5	1.63	705			10.06	Si
SLD 15	763	-1862	-60	2349		4.29	15.5	1.63	705			11.67	Si
SLV 12	683	-2452	-87	-3844		5.65	15.5	1.63	705			8.07	Si
SLV 12	763	-2386	-43	881		5.5	15.5	1.63	705			16.36	Si
SLV 16	683	-2208	-127	-6666		5.56	14.19	1.63	646			5.1	Si
SLV 16	763	-2110	-103	4950		4.86	15.5	1.63	705			6.83	Si
SLV 15	683	-2208	-127	-6666		5.56	14.19	1.63	646			5.1	Si
SLV 15	763	-2110	-103	4950		4.86	15.5	1.63	705			6.83	Si
SLV 13	683	-1830	-106	-6271		5.04	12.97	1.63	590			5.54	Si
SLV 13	763	-1726	-108	5509		4.51	13.68	1.63	622			5.79	Si
SLD 16	683	-1941	-70	-3899		4.47	15.5	1.63	705			10.06	Si
SLD 16	763	-1862	-60	2349		4.29	15.5	1.63	705			11.67	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.38	1.38	-600	1615	7448	4.61	Si
SLV 10	14	0.38	1.38	-600	1615	7448	4.61	Si
SLV 5	14	0.38	1.61	-700	1615	8503	5.26	Si
SLV 6	14	0.38	1.61	-700	1615	8503	5.26	Si
SLV 13	14	0.38	1.72	-747	1615	8982	5.56	Si
SLV 14	14	0.38	1.72	-747	1615	8982	5.56	Si
SLV 16	14	0.38	2.24	-972	1615	11118	6.88	Si
SLV 15	14	0.38	2.24	-972	1615	11118	6.88	Si
SLV 2	14	0.38	2.49	-1080	1615	12037	7.45	Si
SLV 1	14	0.38	2.49	-1080	1615	12037	7.45	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-1526	287	-52	0	0	0	0	1083.091	No, Trazione
SLV 9	-2906	1764	-388	0	0	0	0	1083.091	No, Trazione
SLV 4	743	-2713	634	0	0	0	0	1041.05	No, Trazione
SLV 2	439	-2123	498	0	0	0	0	1041.05	No, Trazione
SLV 8	-512	-1678	400	0	0.74	0.923	0	1083.091	No
SLV 6	-1526	287	-52	0	0	0	0	1083.091	No, Trazione
SLV 10	-2906	1764	-388	0	0	0	0	1083.091	No, Trazione
SLV 3	743	-2713	634	0	0	0	0	1041.05	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 1	439	-2123	498	0	0	0	0	1041.05	No, Trazione
SLV 7	-512	-1678	400	0	0.74	0.923	0	1083.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.806	SLU 79	No
V_SLU	10.775	SLU 84	Si
PF_SLV	1.481	SLV 13	Si
V_SLV	5.095	SLV 15	Si
PFFP_SLV	4.611	SLV 9	Si
R_SLV	0	SLV 16	No

## Maschio 130

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-600.8	-335.9	-651.3	-335.9	L4	L5	50.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 76	683	-5562	-4696	3.93	72623	15.466	Si
SLU 76	763	-4943	-30899	3.5	71248	2.306	Si
SLU 84	683	-5930	-5624	4.19	72644	12.917	Si
SLU 84	763	-5321	-32361	3.76	72288	2.234	Si
SLU 78	683	-5906	-6145	4.18	72661	11.824	Si
SLU 78	763	-5283	-31452	3.74	72212	2.296	Si
SLU 74	683	-5928	-6785	4.19	72646	10.708	Si
SLU 74	763	-5322	-31169	3.76	72290	2.319	Si
SLU 82	683	-5770	-5011	4.08	72708	14.511	Si
SLU 82	763	-5165	-32225	3.65	71935	2.232	Si
SLU 73	683	-5402	-4083	3.82	72428	17.741	Si
SLU 73	763	-4787	-30764	3.39	70635	2.296	Si
SLU 77	683	-6088	-7398	4.31	72471	9.796	Si
SLU 77	763	-5478	-31304	3.87	72536	2.317	Si
SLU 75	683	-5746	-5532	4.06	72708	13.143	Si
SLU 75	763	-5127	-31317	3.63	71833	2.294	Si
SLU 81	683	-5952	-6263	4.21	72627	11.595	Si
SLU 81	763	-5360	-32077	3.79	72360	2.256	Si
SLU 83	683	-6112	-6876	4.32	72435	10.534	Si
SLU 83	763	-5516	-32213	3.9	72579	2.253	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLD 4	683	-2883	18189	2.04	60656	3.335	Si
SLD 4	763	-3281	-40750	2.32	67109	1.647	Si
SLV 8	683	-2039	19558	1.44	45414	2.322	Si
SLV 8	763	-4069	-43963	2.88	78549	1.787	Si
SLV 1	683	-2194	42412	1.55	48369	1.14	Si
SLV 1	763	-2498	-61084	1.77	53963	0.883	No, M>Mu
SLV 7	683	-2039	19558	1.44	45414	2.322	Si
SLV 7	763	-4069	-43963	2.88	78549	1.787	Si
SLV 2	683	-2194	42412	1.55	48369	1.14	Si
SLV 2	763	-2498	-61084	1.77	53963	0.883	No, M>Mu
SLD 3	683	-2883	18189	2.04	60656	3.335	Si
SLD 3	763	-3281	-40750	2.32	67109	1.647	Si
SLV 4	683	-1416	47932	0	0	0	No, e>l/2
SLV 4	763	-2964	-67103	2.1	61995	0.924	No, M>Mu
SLD 2	683	-3203	15637	2.26	65875	4.213	Si
SLD 2	763	-3091	-38429	2.19	64083	1.668	Si
SLD 1	683	-3203	15637	2.26	65875	4.213	Si
SLD 1	763	-3091	-38429	2.19	64083	1.668	Si
SLV 3	683	-1416	47932	0	0	0	No, e>l/2
SLV 3	763	-2964	-67103	2.1	61995	0.924	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	683	-5906	-33	-6145		4.18	50.5	1.08	1532			45.86	Si
SLU 78	763	-5283	229	-31452		3.74	50.5	1.05	1490			6.49	Si
SLU 35	683	-5170	-75	-6202		3.66	50.5	1.04	1475			19.64	Si
SLU 35	763	-4694	218	-26704		3.32	50.5	1	1411			6.47	Si
SLU 79	683	-6026	-90	-7397		4.26	50.5	1.08	1532			16.98	Si
SLU 79	763	-5424	245	-30788		3.84	50.5	1.07	1509			6.16	Si
SLU 77	683	-6088	-83	-7398		4.31	50.5	1.08	1532			18.46	Si
SLU 77	763	-5478	242	-31304		3.87	50.5	1.07	1516			6.27	Si
SLU 81	683	-5952	-29	-6263		4.21	50.5	1.08	1532			53.49	Si
SLU 81	763	-5360	228	-32077		3.79	50.5	1.06	1500			6.58	Si
SLU 37	683	-5108	-82	-6201		3.61	50.5	1.04	1467			17.82	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	763	-4640	221	-26188		3.28	50.5	0.99	1404			6.34	Si
SLU 41	683	-5194	-51	-5681		3.67	50.5	1.05	1478			29.08	Si
SLU 41	763	-4732	222	-27613		3.35	50.5	1	1417			6.38	Si
SLU 83	683	-6112	-59	-6876		4.32	50.5	1.08	1532			26.08	Si
SLU 83	763	-5516	246	-32213		3.9	50.5	1.08	1521			6.19	Si
SLU 80	683	-5843	-41	-6144		4.13	50.5	1.08	1532			37.71	Si
SLU 80	763	-5229	233	-30936		3.7	50.5	1.05	1483			6.37	Si
SLU 84	683	-5930	-9	-5624		4.19	50.5	1.08	1532			167.58	Si
SLU 84	763	-5321	233	-32361		3.76	50.5	1.06	1495			6.41	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	683	-5789	-1751	-51536		4.22	49.04	1.63	2232			1.27	Si
SLV 15	763	-4572	16	19079		3.23	50.5	1.48	2093			132.61	Si
SLV 3	683	-1416	1878	47932		0	0	0.83	0			0	No, Vu<V
SLV 3	763	-2964	531	-67103		13.53	7.82	1.63	356			0.67	No, Vu<V
SLV 16	683	-5789	-1751	-51536		4.22	49.04	1.63	2232			1.27	Si
SLV 16	763	-4572	16	19079		3.23	50.5	1.48	2093			132.61	Si
SLV 14	683	-6567	-1927	-57056		4.72	49.69	1.63	2261			1.17	Si
SLV 14	763	-4107	-262	25098		2.9	50.5	1.41	2000			7.64	Si
SLV 7	683	-2039	814	19558		1.55	46.98	1.14	1504			1.85	Si
SLV 7	763	-4069	674	-43963		3.35	43.34	1.5	1825			2.71	Si
SLV 13	683	-6567	-1927	-57056		4.72	49.69	1.63	2261			1.17	Si
SLV 13	763	-4107	-262	25098		2.9	50.5	1.41	2000			7.64	Si
SLV 2	683	-2194	1701	42412		4.41	17.77	1.63	808			0.48	No, Vu<V
SLV 2	763	-2498	253	-61084		37.11	2.4	1.63	109			0.43	No, Vu<V
SLV 4	683	-1416	1878	47932		0	0	0.83	0			0	No, Vu<V
SLV 4	763	-2964	531	-67103		13.53	7.82	1.63	356			0.67	No, Vu<V
SLV 1	683	-2194	1701	42412		4.41	17.77	1.63	808			0.48	No, Vu<V
SLV 1	763	-2498	253	-61084		37.11	2.4	1.63	109			0.43	No, Vu<V
SLV 8	683	-2039	814	19558		1.55	46.98	1.14	1504			1.85	Si
SLV 8	763	-4069	674	-43963		3.35	43.34	1.5	1825			2.71	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.38	0.9	-1273	5143	16503	3.21	Si
SLV 8	14	0.38	0.9	-1273	5143	16503	3.21	Si
SLV 4	14	0.38	1.24	-1757	5143	22100	4.3	Si
SLV 3	14	0.38	1.24	-1757	5143	22100	4.3	Si
SLV 12	14	0.38	1.26	-1784	5143	22394	4.35	Si
SLV 11	14	0.38	1.26	-1784	5143	22394	4.35	Si
SLV 1	14	0.38	1.9	-2684	5143	31739	6.17	Si
SLV 2	14	0.38	1.9	-2684	5143	31739	6.17	Si
SLV 16	14	0.38	2.45	-3461	5143	38750	7.53	Si
SLV 15	14	0.38	2.45	-3461	5143	38750	7.53	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-1888	-1173	-14	0.042	2.634	0.928	65.072	1083.091	No
SLV 11	-1888	-1173	-14	0.042	2.634	0.928	65.072	1083.091	No
SLV 15	-2453	-2377	-12	0.042	3.205	0.939	64.695	1041.05	No
SLV 16	-2453	-2377	-12	0.042	3.205	0.939	64.695	1041.05	No
SLV 5	-1597	-4012	11	0.043	2.341	0.921	68.343	1083.091	No
SLV 6	-1597	-4012	11	0.043	2.341	0.921	68.343	1083.091	No
SLV 9	-2037	-4151	6	0.044	2.784	0.931	69.444	1083.091	No
SLV 10	-2037	-4151	6	0.044	2.784	0.931	69.444	1083.091	No
SLV 7	-1448	-1034	-9	0.044	2.192	0.917	70.237	1083.091	No
SLV 8	-1448	-1034	-9	0.044	2.192	0.917	70.237	1083.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.232	SLU 82	Si
V_SLU	6.155	SLU 79	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	3.209	SLV 7	Si
R_SLV	0.06	SLV 11	No

## Maschio 131

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-318.3	-335.9	-550.8	-335.9	L4	L5	232.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	683	-19102	223652	2.93	1420713	6.352	Si
SLU 77	763	-16919	240134	2.6	1339318	5.577	Si
SLU 76	683	-17210	236107	2.64	1351388	5.724	Si
SLU 76	763	-15248	231505	2.34	1262883	5.455	Si
SLU 81	683	-18840	227704	2.89	1412045	6.201	Si
SLU 81	763	-16699	239427	2.57	1329967	5.555	Si
SLU 73	683	-16820	234183	2.58	1335122	5.701	Si
SLU 73	763	-14896	228243	2.29	1245225	5.456	Si
SLU 82	683	-18101	237598	2.78	1385997	5.833	Si
SLU 82	763	-16065	238554	2.47	1301783	5.457	Si
SLU 84	683	-18492	239522	2.84	1400068	5.845	Si
SLU 84	763	-16417	241816	2.52	1317637	5.449	Si
SLU 80	683	-18093	231436	2.78	1385697	5.987	Si
SLU 80	763	-16023	235349	2.46	1299846	5.523	Si
SLU 83	683	-19231	229628	2.95	1424852	6.205	Si
SLU 83	763	-17051	242689	2.62	1344842	5.541	Si
SLU 75	683	-17973	231621	2.76	1381222	5.963	Si
SLU 75	763	-15933	235999	2.45	1295686	5.49	Si
SLU 78	683	-18364	233546	2.82	1395514	5.975	Si
SLU 78	763	-16285	239261	2.5	1311744	5.482	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	683	-13575	62260	2.09	1308811	21.022	Si
SLV 14	763	-13105	506838	2.01	1272433	2.511	Si
SLV 16	683	-10234	69834	1.57	1036662	14.845	Si
SLV 16	763	-10293	457108	1.58	1041709	2.279	Si
SLV 8	683	-7242	190657	1.11	765259	4.014	Si
SLV 8	763	-6182	-18319	0.95	662761	36.179	Si
SLV 7	683	-7242	190657	1.11	765259	4.014	Si
SLV 7	763	-6182	-18319	0.95	662761	36.179	Si
SLD 16	683	-11594	117802	1.78	1151331	9.773	Si
SLD 16	763	-10737	289400	1.65	1079693	3.731	Si
SLD 13	683	-12989	113427	2	1263402	11.138	Si
SLD 13	763	-11922	310445	1.83	1178232	3.795	Si
SLD 15	683	-11594	117802	1.78	1151331	9.773	Si
SLD 15	763	-10737	289400	1.65	1079693	3.731	Si
SLV 15	683	-10234	69834	1.57	1036662	14.845	Si
SLV 15	763	-10293	457108	1.58	1041709	2.279	Si
SLD 14	683	-12989	113427	2	1263402	11.138	Si
SLD 14	763	-11922	310445	1.83	1178232	3.795	Si
SLV 13	683	-13575	62260	2.09	1308811	21.022	Si
SLV 13	763	-13105	506838	2.01	1272433	2.511	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	683	-18101	980	237598		2.78	232.5	0.93	6030			6.16	Si
SLU 82	763	-16065	978	238554		2.47	232.5	0.88	5759			5.89	Si
SLU 80	683	-18093	994	231436		2.78	232.5	0.93	6029			6.07	Si
SLU 80	763	-16023	959	235349		2.46	232.5	0.88	5753			6	Si
SLU 78	683	-18364	981	233546		2.82	232.5	0.93	6065			6.18	Si
SLU 78	763	-16285	956	239261		2.5	232.5	0.89	5788			6.05	Si
SLU 84	683	-18492	1017	239522		2.84	232.5	0.93	6082			5.98	Si
SLU 84	763	-16417	999	241816		2.52	232.5	0.89	5806			5.81	Si
SLU 63	683	-16704	948	221447		2.57	232.5	0.9	5844			6.17	Si
SLU 63	763	-14732	916	219859		2.26	232.5	0.86	5581			6.09	Si
SLU 83	683	-19231	1028	229628		2.95	232.5	0.95	6181			6.01	Si
SLU 83	763	-17051	974	242689		2.62	232.5	0.9	5890			6.05	Si
SLU 73	683	-16820	911	234183		2.58	232.5	0.9	5859			6.43	Si
SLU 73	763	-14896	934	228243		2.29	232.5	0.86	5603			6	Si
SLU 79	683	-18832	1004	221543		2.89	232.5	0.94	6128			6.1	Si
SLU 79	763	-16657	934	236222		2.56	232.5	0.9	5838			6.25	Si
SLU 76	683	-17210	949	236107		2.64	232.5	0.91	5911			6.23	Si
SLU 76	763	-15248	955	231505		2.34	232.5	0.87	5650			5.91	Si
SLU 81	683	-18840	990	227704		2.89	232.5	0.94	6129			6.19	Si
SLU 81	763	-16699	953	239427		2.57	232.5	0.9	5843			6.13	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	683	-14969	6979	234548		2.3	232.5	1.29	8419			1.21	Si
SLV 1	763	-11826	5539	-135329		1.82	232.5	1.2	7790			1.41	Si
SLV 3	683	-11628	8623	242122		1.79	232.5	1.19	7751			0.9	No, Vu<V
SLV 3	763	-9015	7059	-185059		1.38	232.5	1.11	7228			1.02	Si
SLV 7	683	-7242	5522	190657		1.11	232.5	1.06	6873			1.24	Si
SLV 7	763	-6182	4842	-18319		0.95	232.5	1.02	6661			1.38	Si
SLV 8	683	-7242	5522	190657		1.11	232.5	1.06	6873			1.24	Si
SLV 8	763	-6182	4842	-18319		0.95	232.5	1.02	6661			1.38	Si
SLV 2	683	-14969	6979	234548		2.3	232.5	1.29	8419			1.21	Si
SLV 2	763	-11826	5539	-135329		1.82	232.5	1.2	7790			1.41	Si
SLV 15	683	-10234	-5716	69834		1.57	232.5	1.15	7472			1.31	Si
SLV 15	763	-10293	-4341	457108		1.71	215.52	1.17	7087			1.63	Si
SLV 16	683	-10234	-5716	69834		1.57	232.5	1.15	7472			1.31	Si
SLV 16	763	-10293	-4341	457108		1.71	215.52	1.17	7087			1.63	Si
SLV 4	683	-11628	8623	242122		1.79	232.5	1.19	7751			0.9	No, Vu<V
SLV 4	763	-9015	7059	-185059		1.38	232.5	1.11	7228			1.02	Si
SLV 13	683	-13575	-7360	62260		2.09	232.5	1.25	8140			1.11	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	763	-13105	-5861	506838		2.01	232.5	1.24	8046			1.37	Si
SLV 14	683	-13575	-7360	62260		2.09	232.5	1.25	8140			1.11	Si
SLV 14	763	-13105	-5861	506838		2.01	232.5	1.24	8046			1.37	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.38	0.97	-6342	23680	81710	3.45	Si
SLV 8	14	0.38	0.97	-6342	23680	81710	3.45	Si
SLV 11	14	0.38	1.01	-6588	23680	84599	3.57	Si
SLV 12	14	0.38	1.01	-6588	23680	84599	3.57	Si
SLV 3	14	0.38	1.51	-9816	23680	120462	5.09	Si
SLV 4	14	0.38	1.51	-9816	23680	120462	5.09	Si
SLV 16	14	0.38	1.63	-10637	23680	129005	5.45	Si
SLV 15	14	0.38	1.63	-10637	23680	129005	5.45	Si
SLV 2	14	0.38	2	-13040	23680	152628	6.45	Si
SLV 1	14	0.38	2	-13040	23680	152628	6.45	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-13156	-16788	63	0.041	16.64	0.945	63.093	1083.091	No
SLV 9	-13156	-16788	63	0.041	16.64	0.945	63.093	1083.091	No
SLV 5	-12874	-16265	46	0.042	16.355	0.944	64.972	1083.091	No
SLV 6	-12874	-16265	46	0.042	16.355	0.944	64.972	1083.091	No
SLV 8	-6059	-3906	-62	0.042	9.483	0.913	67.17	1083.091	No
SLV 7	-6059	-3906	-62	0.042	9.483	0.913	67.17	1083.091	No
SLV 14	-11099	-13072	46	0.043	14.557	0.938	65.908	1041.05	No
SLV 13	-11099	-13072	46	0.043	14.557	0.938	65.908	1041.05	No
SLV 12	-6341	-4429	-45	0.044	9.764	0.915	70.186	1083.091	No
SLV 11	-6341	-4429	-45	0.044	9.764	0.915	70.186	1083.091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.449	SLU 84	Si
V_SLU	5.811	SLU 84	Si
PF_SLV	2.279	SLV 15	Si
V_SLV	0.899	SLV 3	No
PFFP_SLV	3.451	SLV 7	Si
R_SLV	0.058	SLV 9	No

## Maschio 132

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	-335.9	-228.3	-335.9	L4	L5	216	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	573	-15281	-213711	2.53	1138446	5.327	Si
SLU 73	753	-17901	185732	2.96	1230832	6.627	Si
SLU 26	573	-11826	-176103	1.96	970600	5.512	Si
SLU 26	753	-13803	135394	2.28	1073060	7.925	Si
SLU 10	573	-11247	-174306	1.86	937378	5.378	Si
SLU 10	753	-13272	137565	2.19	1047211	7.612	Si
SLU 76	573	-15682	-213049	2.59	1154543	5.419	Si
SLU 76	753	-18322	185548	3.03	1242874	6.698	Si
SLU 2	573	-10023	-157293	1.66	862261	5.482	Si
SLU 2	753	-11467	111640	1.9	950204	8.511	Si
SLU 65	573	-14057	-196699	2.32	1084975	5.516	Si
SLU 65	753	-16097	159806	2.66	1170445	7.324	Si
SLU 34	573	-13050	-193115	2.16	1036044	5.365	Si
SLU 34	753	-15607	161319	2.58	1151593	7.139	Si
SLU 13	573	-11648	-173644	1.93	960570	5.532	Si
SLU 13	753	-13693	137381	2.26	1067801	7.773	Si
SLU 23	573	-11424	-176765	1.89	947720	5.361	Si
SLU 23	753	-13382	135578	2.21	1052674	7.764	Si
SLU 31	573	-12648	-193778	2.09	1015317	5.24	Si
SLU 31	753	-15186	161504	2.51	1134538	7.025	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	573	-4226	-207293	0.7	430265	2.076	Si
SLV 11	753	-8010	181220	1.32	771347	4.256	Si
SLV 16	573	-10517	-380614	1.74	974209	2.56	Si
SLV 16	753	-14972	403086	2.48	1289388	3.199	Si
SLV 15	573	-10517	-380614	1.74	974209	2.56	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	753	-14972	403086	2.48	1289388	3.199	Si
SLV 3	573	-7306	166728	1.21	711036	4.265	Si
SLV 3	753	-6271	-175077	1.04	619838	3.54	Si
SLD 15	573	-10872	-220220	1.8	1001413	4.547	Si
SLD 15	753	-13460	244251	2.23	1188921	4.868	Si
SLV 14	573	-14947	-364973	2.47	1287754	3.528	Si
SLV 14	753	-18329	419808	3.03	1488567	3.546	Si
SLV 4	573	-7306	166728	1.21	711036	4.265	Si
SLV 4	753	-6271	-175077	1.04	619838	3.54	Si
SLD 16	573	-10872	-220220	1.8	1001413	4.547	Si
SLD 16	753	-13460	244251	2.23	1188921	4.868	Si
SLV 12	573	-4226	-207293	0.7	430265	2.076	Si
SLV 12	753	-8010	181220	1.32	771347	4.256	Si
SLV 13	573	-14947	-364973	2.47	1287754	3.528	Si
SLV 13	753	-18329	419808	3.03	1488567	3.546	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	573	-15281	-5355	-213711		2.53	216	0.89	5397			1.01	Si
SLU 73	753	-17901	-5298	185732		2.96	216	0.95	5747			1.08	Si
SLU 52	573	-13879	-4787	-194239		2.29	216	0.86	5211			1.09	Si
SLU 52	753	-15987	-4730	161793		2.64	216	0.91	5492			1.16	Si
SLU 75	573	-16026	-5106	-187500		2.65	216	0.91	5497			1.08	Si
SLU 75	753	-18478	-5071	187377		3.06	216	0.96	5824			1.15	Si
SLU 84	573	-16348	-5302	-192902		2.7	216	0.92	5540			1.04	Si
SLU 84	753	-19004	-5267	195250		3.14	216	0.97	5894			1.12	Si
SLU 34	573	-13050	-4723	-193115		2.16	216	0.84	5100			1.08	Si
SLU 34	753	-15607	-4666	161319		2.58	216	0.9	5441			1.17	Si
SLU 78	573	-16428	-5113	-186837		2.72	216	0.92	5550			1.09	Si
SLU 78	753	-18899	-5078	187192		3.12	216	0.97	5880			1.16	Si
SLU 80	573	-16224	-5058	-184948		2.68	216	0.91	5523			1.09	Si
SLU 80	753	-18651	-5023	183955		3.08	216	0.97	5847			1.16	Si
SLU 76	573	-15682	-5363	-213049		2.59	216	0.9	5451			1.02	Si
SLU 76	753	-18322	-5305	185548		3.03	216	0.96	5803			1.09	Si
SLU 31	573	-12648	-4716	-193778		2.09	216	0.83	5046			1.07	Si
SLU 31	753	-15186	-4658	161504		2.51	216	0.89	5385			1.16	Si
SLU 82	573	-15947	-5295	-193564		2.64	216	0.91	5486			1.04	Si
SLU 82	753	-18582	-5260	195434		3.07	216	0.97	5838			1.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	573	-10517	-7902	-380614		1.74	215.43	1.18	7130			0.9	No, Vu<V
SLV 16	753	-14972	-7609	403086		2.48	216	1.33	8034			1.06	Si
SLV 15	573	-10517	-7902	-380614		1.74	215.43	1.18	7130			0.9	No, Vu<V
SLV 15	753	-14972	-7609	403086		2.48	216	1.33	8034			1.06	Si
SLV 9	573	-18991	-6577	-155154		3.14	216	1.46	8838			1.34	Si
SLV 9	753	-19201	-4500	236959		3.17	216	1.47	8880			1.97	Si
SLD 16	573	-10872	-5206	-220220		1.8	216	1.19	7214			1.39	Si
SLD 16	753	-13460	-5061	244251		2.23	216	1.28	7732			1.53	Si
SLD 15	573	-10872	-5206	-220220		1.8	216	1.19	7214			1.39	Si
SLD 15	753	-13460	-5061	244251		2.23	216	1.28	7732			1.53	Si
SLV 14	573	-14947	-9019	-364973		2.47	216	1.33	8029			0.89	No, Vu<V
SLV 14	753	-18329	-7631	419808		3.03	216	1.44	8706			1.14	Si
SLD 14	573	-12735	-5661	-214611		2.11	216	1.25	7587			1.34	Si
SLD 14	753	-14882	-5063	251499		2.46	216	1.33	8016			1.58	Si
SLD 13	573	-12735	-5661	-214611		2.11	216	1.25	7587			1.34	Si
SLD 13	753	-14882	-5063	251499		2.46	216	1.33	8016			1.58	Si
SLV 10	573	-18991	-6577	-155154		3.14	216	1.46	8838			1.34	Si
SLV 10	753	-19201	-4500	236959		3.17	216	1.47	8880			1.97	Si
SLV 13	573	-14947	-9019	-364973		2.47	216	1.33	8029			0.89	No, Vu<V
SLV 13	753	-18329	-7631	419808		3.03	216	1.44	8706			1.14	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.38	0.8	-4829	21999	63194	2.87	Si
SLV 8	14	0.38	0.8	-4829	21999	63194	2.87	Si
SLV 12	14	0.38	1.07	-6478	21999	82747	3.76	Si
SLV 11	14	0.38	1.07	-6478	21999	82747	3.76	Si
SLV 4	14	0.38	1.21	-7333	21999	92478	4.2	Si
SLV 3	14	0.38	1.21	-7333	21999	92478	4.2	Si
SLV 1	14	0.38	1.84	-11128	21999	132337	6.02	Si
SLV 2	14	0.38	1.84	-11128	21999	132337	6.02	Si
SLV 15	14	0.38	2.12	-12830	21999	148435	6.75	Si
SLV 16	14	0.38	2.12	-12830	21999	148435	6.75	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-6487	-5511	-99	0.037	9.668	0.919	58.621	1083.091	No
SLV 11	-6487	-5511	-99	0.037	9.668	0.919	58.621	1083.091	No
SLV 6	-13491	-17220	98	0.038	16.747	0.948	58.817	1083.091	No
SLV 5	-13491	-17220	98	0.038	16.747	0.948	58.817	1083.091	No
SLV 15	-11146	-13589	-91	0.039	14.369	0.941	59.681	1041.05	No
SLV 16	-11146	-13589	-91	0.039	14.369	0.941	59.681	1041.05	No
SLV 10	-14946	-19845	58	0.041	18.224	0.952	62.402	1083.091	No
SLV 9	-14946	-19845	58	0.041	18.224	0.952	62.402	1083.091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 1	-8832	-9142	90	0.039	12.028	0.932	60.081	1041.05	No
SLV 2	-8832	-9142	90	0.039	12.028	0.932	60.081	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.24	SLU 31	Si
V_SLU	1.008	SLU 73	Si
PF_SLV	2.076	SLV 11	Si
V_SLV	0.89	SLV 13	No
PFFP_SLV	2.873	SLV 7	Si
R_SLV	0.054	SLV 11	No

## Maschio 133

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-296.3	595.1	-515.8	595.1	L4	L5	219.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 30	573	-16173	23404	2.63	1201577	51.341	Si
SLU 30	753	-14714	121252	2.39	1140242	9.404	Si
SLU 72	573	-19166	6731	3.12	1298191	192.873	Si
SLU 72	753	-17411	124156	2.83	1246315	10.038	Si
SLU 8	573	-14279	15799	2.32	1120176	70.903	Si
SLU 8	753	-12735	105054	2.07	1042135	9.92	Si
SLU 71	573	-19328	3566	3.14	1302303	365.235	Si
SLU 71	753	-17566	121642	2.86	1251449	10.288	Si
SLU 29	573	-16335	20239	2.66	1207817	59.679	Si
SLU 29	753	-14869	118738	2.42	1147212	9.662	Si
SLU 28	573	-16336	14634	2.66	1207850	82.536	Si
SLU 28	753	-14951	114952	2.43	1150835	10.011	Si
SLU 9	573	-14117	18964	2.3	1112475	58.663	Si
SLU 9	753	-12580	107567	2.05	1033712	9.61	Si
SLU 7	573	-14280	10194	2.32	1120217	109.887	Si
SLU 7	753	-12817	101267	2.09	1046522	10.334	Si
SLU 51	573	-17110	2291	2.78	1236059	539.57	Si
SLU 51	753	-15277	110471	2.49	1165023	10.546	Si
SLU 27	573	-16498	11469	2.68	1213974	105.847	Si
SLU 27	753	-15106	112438	2.46	1157644	10.296	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 10	573	-6664	-26590	1.08	666447	25.064	Si
SLV 10	753	-7725	159339	1.26	760634	4.774	Si
SLV 5	573	-7340	200340	1.19	726866	3.628	Si
SLV 5	753	-10794	16491	1.76	1014334	61.509	Si
SLV 15	573	-14174	-472872	2.31	1262002	2.669	Si
SLV 15	753	-8495	247258	1.38	826891	3.344	Si
SLV 16	573	-14174	-472872	2.31	1262002	2.669	Si
SLV 16	753	-8495	247258	1.38	826891	3.344	Si
SLV 9	573	-6664	-26590	1.08	666447	25.064	Si
SLV 9	753	-7725	159339	1.26	760634	4.774	Si
SLV 14	573	-10343	-389088	1.68	978837	2.516	Si
SLV 14	753	-6488	283598	1.06	650523	2.294	Si
SLV 13	573	-10343	-389088	1.68	978837	2.516	Si
SLV 13	753	-6488	283598	1.06	650523	2.294	Si
SLV 6	573	-7340	200340	1.19	726866	3.628	Si
SLV 6	753	-10794	16491	1.76	1014334	61.509	Si
SLV 2	573	-12599	367345	2.05	1150768	3.133	Si
SLV 2	753	-16715	-192563	2.72	1426175	7.406	Si
SLV 1	573	-12599	367345	2.05	1150768	3.133	Si
SLV 1	753	-16715	-192563	2.72	1426175	7.406	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	573	-16590	486	-60547		2.7	219.5	0.92	5626			11.58	Si
SLU 40	753	-16238	487	32111		2.64	219.5	0.91	5579			11.47	Si
SLU 52	573	-16708	468	-74255		2.72	219.5	0.92	5642			12.07	Si
SLU 52	753	-15849	468	25828		2.58	219.5	0.9	5528			11.81	Si
SLU 60	573	-17690	524	-84825		2.88	219.5	0.94	5773			11.01	Si
SLU 60	753	-16956	525	18817		2.76	219.5	0.92	5675			10.82	Si
SLU 61	573	-17527	532	-81660		2.85	219.5	0.94	5751			10.81	Si
SLU 61	753	-16801	533	21331		2.73	219.5	0.92	5655			10.62	Si
SLU 19	573	-14535	469	-64987		2.36	219.5	0.87	5352			11.41	Si
SLU 19	753	-14104	470	18427		2.29	219.5	0.86	5295			11.27	Si
SLU 18	573	-14697	461	-68152		2.39	219.5	0.87	5374			11.65	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 18	753	-14259	462	15914		2.32	219.5	0.86	5316			11.51	Si
SLU 82	573	-19583	549	-77220		3.19	219.5	0.98	6026			10.98	Si
SLU 82	753	-18935	550	35015		3.08	219.5	0.97	5939			10.81	Si
SLU 39	573	-16752	478	-63712		2.73	219.5	0.92	5648			11.81	Si
SLU 39	753	-16393	479	29598		2.67	219.5	0.91	5600			11.7	Si
SLU 81	573	-19745	541	-80385		3.21	219.5	0.98	6047			11.18	Si
SLU 81	753	-19090	541	32502		3.11	219.5	0.97	5960			11.01	Si
SLU 73	573	-18763	484	-69815		3.05	219.5	0.96	5916			12.22	Si
SLU 73	753	-17983	485	39512		2.93	219.5	0.95	5812			11.98	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	573	-10343	-4865	-389088		1.71	216.4	1.17	7118			1.46	Si
SLV 13	753	-6488	-4138	283598		1.17	198.11	1.07	5920			1.43	Si
SLV 6	573	-7340	6444	200340		1.19	219.5	1.07	6590			1.02	Si
SLV 6	753	-10794	5877	16491		1.76	219.5	1.18	7280			1.24	Si
SLV 5	573	-7340	6444	200340		1.19	219.5	1.07	6590			1.02	Si
SLV 5	753	-10794	5877	16491		1.76	219.5	1.18	7280			1.24	Si
SLV 1	573	-12599	7969	367345		2.05	219.5	1.24	7641			0.96	No, Vu<V
SLV 1	753	-16715	7050	-192563		2.72	219.5	1.38	8465			1.2	Si
SLV 14	573	-10343	-4865	-389088		1.71	216.4	1.17	7118			1.46	Si
SLV 14	753	-6488	-4138	283598		1.17	198.11	1.07	5920			1.43	Si
SLV 2	573	-12599	7969	367345		2.05	219.5	1.24	7641			0.96	No, Vu<V
SLV 2	753	-16715	7050	-192563		2.72	219.5	1.38	8465			1.2	Si
SLV 12	573	-19433	-5885	-305867		3.16	219.5	1.47	9008			1.53	Si
SLV 12	753	-14417	-5317	38204		2.35	219.5	1.3	8005			1.51	Si
SLV 16	573	-14174	-7409	-472872		2.31	219.5	1.29	7957			1.07	Si
SLV 16	753	-8495	-6489	247258		1.38	219.5	1.11	6821			1.05	Si
SLV 15	573	-14174	-7409	-472872		2.31	219.5	1.29	7957			1.07	Si
SLV 15	753	-8495	-6489	247258		1.38	219.5	1.11	6821			1.05	Si
SLV 11	573	-19433	-5885	-305867		3.16	219.5	1.47	9008			1.53	Si
SLV 11	753	-14417	-5317	38204		2.35	219.5	1.3	8005			1.51	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.38	1.11	-6794	22356	86507	3.87	Si
SLV 9	14	0.38	1.11	-6794	22356	86507	3.87	Si
SLV 13	14	0.38	1.31	-8072	22356	100864	4.51	Si
SLV 14	14	0.38	1.31	-8072	22356	100864	4.51	Si
SLV 6	14	0.38	1.45	-8893	22356	109756	4.91	Si
SLV 5	14	0.38	1.45	-8893	22356	109756	4.91	Si
SLV 16	14	0.38	1.83	-11267	22356	134076	6	Si
SLV 15	14	0.38	1.83	-11267	22356	134076	6	Si
SLV 2	14	0.38	2.45	-15069	22356	168635	7.54	Si
SLV 1	14	0.38	2.45	-15069	22356	168635	7.54	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-8183	-6622	-384	0.01	11.424	0.928	14.915	1083.091	No
SLV 9	-8183	-6622	-384	0.01	11.424	0.928	14.915	1083.091	No
SLV 11	-8357	-18138	343	0.014	11.599	0.929	21.847	1083.091	No
SLV 12	-8357	-18138	343	0.014	11.599	0.929	21.847	1083.091	No
SLV 7	-11118	-19603	391	0.016	14.39	0.94	24.405	1083.091	No
SLV 8	-11118	-19603	391	0.016	14.39	0.94	24.405	1083.091	No
SLV 6	-10944	-8087	-337	0.02	14.214	0.94	30.43	1083.091	No
SLV 5	-10944	-8087	-337	0.02	14.214	0.94	30.43	1083.091	No
SLV 13	-5023	-8944	-185	0.024	8.258	0.909	39.028	1041.05	No
SLV 14	-5023	-8944	-185	0.024	8.258	0.909	39.028	1041.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.404	SLU 30	Si
V_SLU	10.617	SLU 61	Si
PF_SLV	2.294	SLV 13	Si
V_SLV	0.959	SLV 1	No
PFFP_SLV	3.87	SLV 9	Si
R_SLV	0.014	SLV 9	No

## Maschio 134

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	595.1	-206.3	595.1	L4	L5	194	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 31	573	-11918	13416	2.19	844665	62.959	Si
SLU 31	753	-13107	104760	2.41	894764	8.541	Si
SLU 40	573	-12704	10240	2.34	878472	85.789	Si
SLU 40	753	-14034	113980	2.58	929531	8.155	Si
SLU 61	573	-14021	8865	2.58	929083	104.809	Si
SLU 61	753	-14933	113728	2.75	959649	8.438	Si
SLU 19	573	-11427	6782	2.1	822191	121.236	Si
SLU 19	753	-12420	99540	2.29	866575	8.706	Si
SLU 84	573	-15529	25847	2.86	977656	37.825	Si
SLU 84	753	-16616	114422	3.06	1006519	8.797	Si
SLU 39	573	-13106	8231	2.41	894727	108.705	Si
SLU 39	753	-14310	112425	2.63	939174	8.354	Si
SLU 60	573	-14423	6855	2.66	943016	137.557	Si
SLU 60	753	-15209	112173	2.8	968201	8.631	Si
SLU 81	573	-15699	10314	2.89	982534	95.266	Si
SLU 81	753	-16823	126613	3.1	1011420	7.988	Si
SLU 73	573	-14512	15499	2.67	945980	61.036	Si
SLU 73	753	-15620	118948	2.88	980271	8.241	Si
SLU 82	573	-15297	12323	2.82	970851	78.785	Si
SLU 82	753	-16547	128168	3.05	1004824	7.84	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	573	-11921	277018	2.19	948650	3.425	Si
SLV 4	753	-9145	-102484	1.68	764851	7.463	Si
SLV 5	573	-3062	90969	0.56	283325	3.115	Si
SLV 5	753	-3741	-30746	0.69	342442	11.138	Si
SLV 2	573	-7471	277239	1.38	643128	2.32	Si
SLV 2	753	-5388	-131291	0.99	480171	3.657	Si
SLV 14	573	-9707	-255701	1.79	803854	3.144	Si
SLV 14	753	-13209	252004	2.43	1026285	4.073	Si
SLV 1	573	-7471	277239	1.38	643128	2.32	Si
SLV 1	753	-5388	-131291	0.99	480171	3.657	Si
SLV 13	573	-9707	-255701	1.79	803854	3.144	Si
SLV 13	753	-13209	252004	2.43	1026285	4.073	Si
SLV 6	573	-3062	90969	0.56	283325	3.115	Si
SLV 6	753	-3741	-30746	0.69	342442	11.138	Si
SLV 15	573	-14157	-255923	2.61	1080299	4.221	Si
SLV 15	753	-16967	280811	3.12	1225060	4.363	Si
SLV 16	573	-14157	-255923	2.61	1080299	4.221	Si
SLV 16	753	-16967	280811	3.12	1225060	4.363	Si
SLV 3	573	-11921	277018	2.19	948650	3.425	Si
SLV 3	753	-9145	-102484	1.68	764851	7.463	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	573	-12704	-2241	10240		2.34	194	0.87	4712			2.1	Si
SLU 40	753	-14034	-2237	113980		2.58	194	0.9	4889			2.19	Si
SLU 61	573	-14021	-2279	8865		2.58	194	0.9	4887			2.14	Si
SLU 61	753	-14933	-2275	113728		2.75	194	0.92	5009			2.2	Si
SLU 84	573	-15529	-2299	25847		2.86	194	0.94	5088			2.21	Si
SLU 84	753	-16616	-2295	114422		3.06	194	0.96	5233			2.28	Si
SLU 73	573	-14512	-2394	15499		2.67	194	0.91	4953			2.07	Si
SLU 73	753	-15620	-2388	118948		2.88	194	0.94	5100			2.14	Si
SLU 52	573	-13235	-2135	12041		2.44	194	0.88	4782			2.24	Si
SLU 52	753	-14006	-2128	104507		2.58	194	0.9	4885			2.3	Si
SLU 60	573	-14423	-2211	6855		2.66	194	0.91	4941			2.23	Si
SLU 60	753	-15209	-2212	112173		2.8	194	0.93	5046			2.28	Si
SLU 39	573	-13106	-2173	8231		2.41	194	0.88	4765			2.19	Si
SLU 39	753	-14310	-2174	112425		2.63	194	0.91	4926			2.27	Si
SLU 82	573	-15297	-2538	12323		2.82	194	0.93	5057			1.99	Si
SLU 82	753	-16547	-2534	128168		3.05	194	0.96	5224			2.06	Si
SLU 81	573	-15699	-2470	10314		2.89	194	0.94	5111			2.07	Si
SLU 81	753	-16823	-2471	126613		3.1	194	0.97	5261			2.13	Si
SLU 31	573	-11918	-2097	13416		2.19	194	0.85	4607			2.2	Si
SLU 31	753	-13107	-2090	104760		2.41	194	0.88	4765			2.28	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 13	573	-10340	-3768	-104124		1.9	194	1.21	6595			1.75	Si
SLD 13	753	-12070	-3177	152203		2.22	194	1.28	6941			2.18	Si
SLV 3	573	-11921	3780	277018		2.19	194	1.27	6911			1.83	Si
SLV 3	753	-9145	2423	-102484		1.68	194	1.17	6356			2.62	Si
SLV 13	573	-9707	-6752	-255701		1.79	194	1.19	6468			0.96	No, Vu<V
SLV 13	753	-13209	-5396	252004		2.43	194	1.32	7168			1.33	Si
SLV 15	573	-14157	-5526	-255923		2.61	194	1.35	7358			1.33	Si
SLV 15	753	-16967	-5285	280811		3.12	194	1.46	7920			1.5	Si
SLV 16	573	-14157	-5526	-255923		2.61	194	1.35	7358			1.33	Si
SLV 16	753	-16967	-5285	280811		3.12	194	1.46	7920			1.5	Si
SLV 14	573	-9707	-6752	-255701		1.79	194	1.19	6468			0.96	No, Vu<V
SLV 14	753	-13209	-5396	252004		2.43	194	1.32	7168			1.33	Si
SLV 9	573	-3733	-4926	-68913		0.69	194	0.97	5273			1.07	Si
SLV 9	753	-6088	-2827	84242		1.12	194	1.06	5744			2.03	Si
SLD 14	573	-10340	-3768	-104124		1.9	194	1.21	6595			1.75	Si
SLD 14	753	-12070	-3177	152203		2.22	194	1.28	6941			2.18	Si
SLV 4	573	-11921	3780	277018		2.19	194	1.27	6911			1.83	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	753	-9145	2423	-102484		1.68	194	1.17	6356			2.62	Si
SLV 10	573	-3733	-4926	-68913		0.69	194	0.97	5273			1.07	Si
SLV 10	753	-6088	-2827	84242		1.12	194	1.06	5744			2.03	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.38	0.69	-3765	19758	49722	2.52	Si
SLV 5	14	0.38	0.69	-3765	19758	49722	2.52	Si
SLV 9	14	0.38	1	-5424	19758	69725	3.53	Si
SLV 10	14	0.38	1	-5424	19758	69725	3.53	Si
SLV 2	14	0.38	1.2	-6495	19758	82035	4.15	Si
SLV 1	14	0.38	1.2	-6495	19758	82035	4.15	Si
SLV 3	14	0.38	1.93	-10494	19758	123686	6.26	Si
SLV 4	14	0.38	1.93	-10494	19758	123686	6.26	Si
SLV 14	14	0.38	2.21	-12023	19758	137835	6.98	Si
SLV 13	14	0.38	2.21	-12023	19758	137835	6.98	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-12860	-16435	-23	0.043	15.795	0.951	65.55	1083.091	No
SLV 8	-12860	-16435	-23	0.043	15.795	0.951	65.55	1083.091	No
SLV 12	-14431	-18642	-15	0.043	17.391	0.955	65.601	1083.091	No
SLV 11	-14431	-18642	-15	0.043	17.391	0.955	65.601	1083.091	No
SLV 16	-13118	-16030	9	0.044	16.057	0.951	66.936	1041.05	No
SLV 15	-13118	-16030	9	0.044	16.057	0.951	66.936	1041.05	No
SLV 13	-10422	-11585	20	0.044	13.322	0.943	67.437	1041.05	No
SLV 14	-10422	-11585	20	0.044	13.322	0.943	67.437	1041.05	No
SLV 4	-7882	-8674	-19	0.045	10.753	0.931	70.039	1041.05	No
SLV 3	-7882	-8674	-19	0.045	10.753	0.931	70.039	1041.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.84	SLU 82	Si
V_SLU	1.993	SLU 82	Si
PF_SLV	2.32	SLV 1	Si
V_SLV	0.958	SLV 13	No
PFFP_SLV	2.516	SLV 5	Si
R_SLV	0.061	SLV 7	No

## Maschio 135

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	-335.9	-12.3	595.1	L4	L5	931	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 65	483	-101057	-1799945	3.88	24654350	13.697	Si
SLU 65	835	-63242	-355422	2.43	20671346	58.16	Si
SLU 68	483	-102383	-1952866	3.93	24680235	12.638	Si
SLU 68	835	-64674	-371631	2.48	20936512	56.337	Si
SLU 73	483	-110613	-1856378	4.24	24668497	13.289	Si
SLU 73	835	-69125	-362615	2.65	21702824	59.851	Si
SLU 55	483	-102153	-1842297	3.92	24676290	13.394	Si
SLU 55	835	-64084	-338483	2.46	20828298	61.534	Si
SLU 34	483	-93825	-1922914	3.6	24377478	12.677	Si
SLU 34	835	-59298	-406937	2.27	19894914	48.889	Si
SLU 76	483	-111939	-2009298	4.29	24638830	12.262	Si
SLU 76	835	-70557	-378823	2.71	21931037	57.893	Si
SLU 47	483	-92597	-1785865	3.55	24307692	13.611	Si
SLU 47	835	-58201	-331291	2.23	19666793	59.364	Si
SLU 26	483	-84269	-1866481	3.23	23659978	12.676	Si
SLU 26	835	-53415	-399745	2.05	18609961	46.555	Si
SLU 5	483	-74483	-1699481	2.86	22510232	13.245	Si
SLU 5	835	-46941	-359404	1.8	17020661	47.358	Si
SLU 13	483	-84039	-1755913	3.22	23637736	13.462	Si
SLU 13	835	-52824	-366597	2.03	18472593	50.389	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	483	-47990	-3036648	1.84	18973601	6.248	Si
SLV 1	835	-35010	-1791654	1.34	14505777	8.096	Si
SLV 5	483	-66177	-8656267	2.54	24405179	2.819	Si
SLV 5	835	-42482	-4134980	1.63	17137782	4.145	Si
SLV 9	483	-83206	-8616761	3.19	28614316	3.321	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	835	-50168	-3755872	1.92	19674995	5.238	Si
SLV 11	483	-88004	7570980	3.38	29647260	3.916	Si
SLV 11	835	-54440	4203038	2.09	21010625	4.999	Si
SLV 10	483	-83206	-8616761	3.19	28614316	3.321	Si
SLV 10	835	-50168	-3755872	1.92	19674995	5.238	Si
SLV 7	483	-70975	7531474	2.72	25676932	3.409	Si
SLV 7	835	-46754	3823930	1.79	18569397	4.856	Si
SLV 2	483	-47990	-3036648	1.84	18973601	6.248	Si
SLV 2	835	-35010	-1791654	1.34	14505777	8.096	Si
SLV 12	483	-88004	7570980	3.38	29647260	3.916	Si
SLV 12	835	-54440	4203038	2.09	21010625	4.999	Si
SLV 8	483	-70975	7531474	2.72	25676932	3.409	Si
SLV 8	835	-46754	3823930	1.79	18569397	4.856	Si
SLV 6	483	-66177	-8656267	2.54	24405179	2.819	Si
SLV 6	835	-42482	-4134980	1.63	17137782	4.145	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 64	483	-99464	866	-732190		3.82	931	1.06	27744			32.04	Si
SLU 64	835	-62664	872	35384		2.4	931	0.88	22837			26.19	Si
SLU 79	483	-111672	913	-1094463		4.28	931	1.08	28240			30.93	Si
SLU 79	835	-71412	922	-4226		2.74	931	0.92	24004			26.03	Si
SLU 74	483	-111613	957	-937904		4.28	931	1.08	28240			29.5	Si
SLU 74	835	-70938	965	2914		2.72	931	0.92	23941			24.81	Si
SLU 83	483	-114441	983	-965729		4.39	931	1.08	28240			28.73	Si
SLU 83	835	-72501	991	8900		2.78	931	0.93	24149			24.37	Si
SLU 77	483	-112939	931	-1090824		4.33	931	1.08	28240			30.34	Si
SLU 77	835	-72371	940	-13295		2.78	931	0.93	24132			25.69	Si
SLU 53	483	-101827	855	-770903		3.91	931	1.08	28059			32.81	Si
SLU 53	835	-64465	862	43254		2.47	931	0.89	23078			26.77	Si
SLU 62	483	-104655	881	-798728		4.01	931	1.08	28240			32.06	Si
SLU 62	835	-66027	888	49241		2.53	931	0.89	23286			26.23	Si
SLU 81	483	-113115	1010	-812808		4.34	931	1.08	28240			27.97	Si
SLU 81	835	-71068	1017	25109		2.73	931	0.92	23958			23.57	Si
SLU 39	483	-95002	860	-726424		3.64	931	1.04	27149			31.55	Si
SLU 39	835	-59809	866	-3005		2.29	931	0.86	22457			25.92	Si
SLU 60	483	-103329	907	-645808		3.96	931	1.08	28240			31.12	Si
SLU 60	835	-64595	913	65449		2.48	931	0.89	23095			25.28	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	483	-88004	22548	7570980		3.38	931	1.51	39324			1.74	Si
SLV 12	835	-54440	15351	4203038		2.09	931	1.25	32611			2.12	Si
SLV 7	483	-70975	22981	7531474		2.72	931	1.38	35918			1.56	Si
SLV 7	835	-46754	15638	3823930		1.79	931	1.19	31074			1.99	Si
SLV 6	483	-66177	-21204	-8656267		2.54	931	1.34	34959			1.65	Si
SLV 6	835	-42482	-13997	-4134980		1.63	931	1.16	30220			2.16	Si
SLV 5	483	-66177	-21204	-8656267		2.54	931	1.34	34959			1.65	Si
SLV 5	835	-42482	-13997	-4134980		1.63	931	1.16	30220			2.16	Si
SLD 8	483	-74526	10410	2867177		2.86	931	1.41	36629			3.52	Si
SLD 8	835	-47751	7177	1639672		1.83	931	1.2	31274			4.36	Si
SLV 8	483	-70975	22981	7531474		2.72	931	1.38	35918			1.56	Si
SLV 8	835	-46754	15638	3823930		1.79	931	1.19	31074			1.99	Si
SLD 7	483	-74526	10410	2867177		2.86	931	1.41	36629			3.52	Si
SLD 7	835	-47751	7177	1639672		1.83	931	1.2	31274			4.36	Si
SLV 10	483	-83206	-21636	-8616761		3.19	931	1.47	38364			1.77	Si
SLV 10	835	-50168	-14284	-3755872		1.92	931	1.22	31757			2.22	Si
SLV 11	483	-88004	22548	7570980		3.38	931	1.51	39324			1.74	Si
SLV 11	835	-54440	15351	4203038		2.09	931	1.25	32611			2.12	Si
SLV 9	483	-83206	-21636	-8616761		3.19	931	1.47	38364			1.77	Si
SLV 9	835	-50168	-14284	-3755872		1.92	931	1.22	31757			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 659 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.38	1.6	-41651	94820	506863	5.35	Si
SLV 2	14	0.38	1.6	-41651	94820	506863	5.35	Si
SLV 3	14	0.38	1.64	-42696	94820	517618	5.46	Si
SLV 4	14	0.38	1.64	-42696	94820	517618	5.46	Si
SLV 5	14	0.38	2.09	-54425	94820	631761	6.66	Si
SLV 6	14	0.38	2.09	-54425	94820	631761	6.66	Si
SLV 7	14	0.38	2.22	-57908	94820	663325	7	Si
SLV 8	14	0.38	2.22	-57908	94820	663325	7	Si
SLV 10	14	0.38	2.55	-66420	94820	735974	7.76	Si
SLV 9	14	0.38	2.55	-66420	94820	735974	7.76	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 659 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 11	-54440	-88004	-54	0.044	68.419	0.946	67.832	1083.091	No
SLV 12	-54440	-88004	-54	0.044	68.419	0.946	67.832	1083.091	No
SLV 10	-50168	-83206	39	0.045	64.087	0.943	68.956	1083.091	No
SLV 9	-50168	-83206	39	0.045	64.087	0.943	68.956	1083.091	No
SLV 8	-46754	-70975	-43	0.045	60.629	0.94	69.525	1083.091	No
SLV 7	-46754	-70975	-43	0.045	60.629	0.94	69.525	1083.091	No
SLV 15	-61912	-106191	-35	0.044	76.002	0.951	67.196	1041.05	No
SLV 16	-61912	-106191	-35	0.044	76.002	0.951	67.196	1041.05	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 5	-42482	-66177	50	0.045	56.305	0.936	70.254	1083.091	No
SLV 6	-42482	-66177	50	0.045	56.305	0.936	70.254	1083.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	12.262	SLU 76	Si
V_SLU	23.568	SLU 81	Si
PF_SLV	2.819	SLV 5	Si
V_SLV	1.563	SLV 7	Si
PFFP_SLV	5.346	SLV 1	Si
R_SLV	0.063	SLV 11	No

## Maschio 136

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2467.8	-335.9	-2467.8	126.6	L5	L6	462.6	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 37	835	-31861	-533542	2.46	5143611	9.64	Si
SLU 37	1045	-20466	-648068	1.58	3815306	5.887	Si
SLU 35	835	-32300	-523083	2.49	5183417	9.909	Si
SLU 35	1045	-20735	-647100	1.6	3853118	5.954	Si
SLU 29	835	-28847	-520763	2.23	4847664	9.309	Si
SLU 29	1045	-18909	-562345	1.46	3589517	6.383	Si
SLU 77	835	-38132	-615539	2.94	5631786	9.149	Si
SLU 77	1045	-24586	-699914	1.9	4361263	6.231	Si
SLU 38	835	-32498	-588299	2.51	5201092	8.841	Si
SLU 38	1045	-20977	-642262	1.62	3887030	6.052	Si
SLU 80	835	-38330	-680756	2.96	5644397	8.291	Si
SLU 80	1045	-24829	-695076	1.92	4391081	6.317	Si
SLU 36	835	-32937	-577840	2.54	5239671	9.068	Si
SLU 36	1045	-21245	-641293	1.64	3924241	6.119	Si
SLU 78	835	-38769	-670296	2.99	5671746	8.462	Si
SLU 78	1045	-25097	-694108	1.94	4423762	6.373	Si
SLU 41	835	-32102	-478230	2.48	5165562	10.801	Si
SLU 41	1045	-20225	-608136	1.56	3781023	6.217	Si
SLU 79	835	-37692	-625999	2.91	5603210	8.951	Si
SLU 79	1045	-24318	-700882	1.88	4327981	6.175	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 5	835	-33161	-1405551	2.56	6062566	4.313	Si
SLV 5	1045	-22449	-482957	1.73	4455671	9.226	Si
SLV 6	835	-33161	-1405551	2.56	6062566	4.313	Si
SLV 6	1045	-22449	-482957	1.73	4455671	9.226	Si
SLV 11	835	-17182	660544	1.33	3542410	5.363	Si
SLV 11	1045	-9788	-228730	0.76	2123754	9.285	Si
SLV 3	835	-29327	-100197	2.26	5525932	55.15	Si
SLV 3	1045	-16249	-639400	1.25	3372336	5.274	Si
SLV 10	835	-29554	-1384849	2.28	5558936	4.014	Si
SLV 10	1045	-21332	-305880	1.65	4268727	13.956	Si
SLV 7	835	-20789	639843	1.61	4176481	6.527	Si
SLV 7	1045	-10905	-405808	0.84	2348402	5.787	Si
SLV 8	835	-20789	639843	1.61	4176481	6.527	Si
SLV 8	1045	-10905	-405808	0.84	2348402	5.787	Si
SLV 12	835	-17182	660544	1.33	3542410	5.363	Si
SLV 12	1045	-9788	-228730	0.76	2123754	9.285	Si
SLV 4	835	-29327	-100197	2.26	5525932	55.15	Si
SLV 4	1045	-16249	-639400	1.25	3372336	5.274	Si
SLV 9	835	-29554	-1384849	2.28	5558936	4.014	Si
SLV 9	1045	-21332	-305880	1.65	4268727	13.956	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	835	-37520	-2473	-564654		2.9	462.57	0.94	12198			4.93	Si
SLU 82	1045	-23678	-2321	-578474		1.83	462.57	0.8	10353			4.46	Si
SLU 73	835	-36654	-2481	-595682		2.83	462.57	0.93	12083			4.87	Si
SLU 73	1045	-23351	-2230	-537864		1.8	462.57	0.8	10309			4.62	Si
SLU 78	835	-38769	-2358	-670296		2.99	462.57	0.95	12365			5.24	Si
SLU 78	1045	-25097	-2205	-694108		1.94	462.57	0.81	10542			4.78	Si
SLU 76	835	-37704	-2470	-656471		2.91	462.57	0.94	12223			4.95	Si
SLU 76	1045	-24260	-2218	-614535		1.87	462.57	0.81	10430			4.7	Si
SLU 81	835	-36883	-2272	-509897		2.85	462.57	0.94	12113			5.33	Si
SLU 81	1045	-23168	-2269	-584280		1.79	462.57	0.79	10285			4.53	Si
SLU 84	835	-38571	-2462	-625443		2.98	462.57	0.95	12338			5.01	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 84	1045	-24587	-2309	-655144		1.9	462.57	0.81	10474			4.54	Si
SLU 80	835	-38330	-2325	-680756		2.96	462.57	0.95	12306			5.29	Si
SLU 80	1045	-24829	-2172	-695076		1.92	462.57	0.81	10506			4.84	Si
SLU 75	835	-37718	-2369	-609507		2.91	462.57	0.94	12225			5.16	Si
SLU 75	1045	-24188	-2217	-617437		1.87	462.57	0.8	10421			4.7	Si
SLU 74	835	-37081	-2169	-554750		2.86	462.57	0.94	12140			5.6	Si
SLU 74	1045	-23677	-2165	-623243		1.83	462.57	0.8	10352			4.78	Si
SLU 83	835	-37934	-2261	-570686		2.93	462.57	0.95	12253			5.42	Si
SLU 83	1045	-24077	-2257	-660950		1.86	462.57	0.8	10406			4.61	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	835	-33161	-10508	-1405551		2.56	462.57	1.35	17426			1.66	Si
SLV 5	1045	-22449	-8375	-482957		1.73	462.57	1.18	15283			1.82	Si
SLV 10	835	-29554	-10199	-1384849		2.28	462.57	1.29	16704			1.64	Si
SLV 10	1045	-21332	-7788	-305880		1.65	462.57	1.16	15060			1.93	Si
SLV 9	835	-29554	-10199	-1384849		2.28	462.57	1.29	16704			1.64	Si
SLV 9	1045	-21332	-7788	-305880		1.65	462.57	1.16	15060			1.93	Si
SLV 12	835	-17182	7600	660544		1.33	462.57	1.1	14230			1.87	Si
SLV 12	1045	-9788	5472	-228730		0.76	462.57	0.98	12751			2.33	Si
SLV 6	835	-33161	-10508	-1405551		2.56	462.57	1.35	17426			1.66	Si
SLV 6	1045	-22449	-8375	-482957		1.73	462.57	1.18	15283			1.82	Si
SLV 7	835	-20789	7292	639843		1.61	462.57	1.15	14951			2.05	Si
SLV 7	1045	-10905	4884	-405808		0.84	462.57	1	12974			2.66	Si
SLV 8	835	-20789	7292	639843		1.61	462.57	1.15	14951			2.05	Si
SLV 8	1045	-10905	4884	-405808		0.84	462.57	1	12974			2.66	Si
SLD 6	835	-28580	-5406	-816425		2.21	462.57	1.27	16509			3.05	Si
SLD 6	1045	-18843	-4469	-404544		1.45	462.57	1.12	14562			3.26	Si
SLD 5	835	-28580	-5406	-816425		2.21	462.57	1.27	16509			3.05	Si
SLD 5	1045	-18843	-4469	-404544		1.45	462.57	1.12	14562			3.26	Si
SLV 11	835	-17182	7600	660544		1.33	462.57	1.1	14230			1.87	Si
SLV 11	1045	-9788	5472	-228730		0.76	462.57	0.98	12751			2.33	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.46	0.82	-10605	56195	138517	2.46	Si
SLV 11	14	0.46	0.82	-10605	56195	138517	2.46	Si
SLV 8	14	0.46	0.9	-11719	56195	151920	2.7	Si
SLV 7	14	0.46	0.9	-11719	56195	151920	2.7	Si
SLV 16	14	0.46	1.03	-13348	56195	171112	3.04	Si
SLV 15	14	0.46	1.03	-13348	56195	171112	3.04	Si
SLV 14	14	0.46	1.3	-16814	56195	210387	3.74	Si
SLV 13	14	0.46	1.3	-16814	56195	210387	3.74	Si
SLV 4	14	0.46	1.32	-17063	56195	213128	3.79	Si
SLV 3	14	0.46	1.32	-17063	56195	213128	3.79	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-12499	-33161	-70	0.045	19.31	0.915	72.071	1241.353	No
SLV 5	-12499	-33161	-70	0.045	19.31	0.915	72.071	1241.353	No
SLV 2	-10758	-33039	-99	0.044	17.575	0.909	70.451	1193.169	No
SLV 1	-10758	-33039	-99	0.044	17.575	0.909	70.451	1193.169	No
SLV 10	-12306	-29554	-22	0.048	19.117	0.914	76.866	1241.353	No
SLV 9	-12306	-29554	-22	0.048	19.117	0.914	76.866	1241.353	No
SLV 16	-8426	-17304	83	0.046	15.272	0.901	74.438	1193.169	No
SLV 15	-8426	-17304	83	0.046	15.272	0.901	74.438	1193.169	No
SLV 3	-9071	-29327	-76	0.046	15.907	0.903	74.617	1193.169	No
SLV 4	-9071	-29327	-76	0.046	15.907	0.903	74.617	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.887	SLU 37	Si
V_SLU	4.46	SLU 82	Si
PF_SLV	4.014	SLV 9	Si
V_SLV	1.638	SLV 9	Si
PFFP_SLV	2.465	SLV 11	Si
R_SLV	0.058	SLV 5	No

## Maschio 137

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-2467.8	206.6	-2467.8	595.1	L5	L6	388.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 32	835	-24035	573537	2.21	3402415	5.932	Si
SLU 32	1045	-18948	-411	1.74	2893599	1000	Si
SLU 35	835	-25017	599969	2.3	3487601	5.813	Si
SLU 35	1045	-19962	77182	1.84	3004058	38.922	Si
SLU 39	835	-23664	573494	2.18	3369137	5.875	Si
SLU 39	1045	-18457	-83680	1.7	2838501	33.921	Si
SLU 77	835	-29758	685223	2.74	3839237	5.603	Si
SLU 77	1045	-23436	75991	2.15	3348426	44.063	Si
SLU 74	835	-28776	658790	2.65	3774468	5.729	Si
SLU 74	1045	-22423	-1602	2.06	3253412	1000	Si
SLU 79	835	-29522	677689	2.71	3824051	5.643	Si
SLU 79	1045	-23233	89910	2.14	3329777	37.035	Si
SLU 83	835	-29387	685179	2.7	3815269	5.568	Si
SLU 83	1045	-22945	-7278	2.11	3302987	453.809	Si
SLU 81	835	-28405	658747	2.61	3748903	5.691	Si
SLU 81	1045	-21932	-84872	2.02	3205791	37.772	Si
SLU 41	835	-24646	599926	2.27	3455921	5.761	Si
SLU 41	1045	-19471	-6087	1.79	2951142	484.809	Si
SLU 37	835	-24781	592436	2.28	3467506	5.853	Si
SLU 37	1045	-19759	91101	1.82	2982318	32.736	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 12	835	-21037	681915	1.93	3439683	5.044	Si
SLD 12	1045	-16943	-95730	1.56	2871704	29.998	Si
SLV 11	835	-22791	1020065	2.1	3667968	3.596	Si
SLV 11	1045	-19430	-175540	1.79	3222571	18.358	Si
SLV 4	835	-27820	1023028	2.56	4272957	4.177	Si
SLV 4	1045	-22044	-155414	2.03	3571917	22.983	Si
SLD 8	835	-22724	780573	2.09	3659452	4.688	Si
SLD 8	1045	-18281	-115931	1.68	3062644	26.418	Si
SLD 7	835	-22724	780573	2.09	3659452	4.688	Si
SLD 7	1045	-18281	-115931	1.68	3062644	26.418	Si
SLV 8	835	-26740	1251262	2.46	4149295	3.316	Si
SLV 8	1045	-22562	-221839	2.07	3638758	16.403	Si
SLV 12	835	-22791	1020065	2.1	3667968	3.596	Si
SLV 12	1045	-19430	-175540	1.79	3222571	18.358	Si
SLV 3	835	-27820	1023028	2.56	4272957	4.177	Si
SLV 3	1045	-22044	-155414	2.03	3571917	22.983	Si
SLD 11	835	-21037	681915	1.93	3439683	5.044	Si
SLD 11	1045	-16943	-95730	1.56	2871704	29.998	Si
SLV 7	835	-26740	1251262	2.46	4149295	3.316	Si
SLV 7	1045	-22562	-221839	2.07	3638758	16.403	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 62	835	-27037	2187	602932		2.49	388.5	0.89	9648			4.41	Si
SLU 62	1045	-20866	2188	-561		1.92	388.5	0.81	8825			4.03	Si
SLU 83	835	-29387	2413	685179		2.7	388.5	0.92	9962			4.13	Si
SLU 83	1045	-22945	2414	-7278		2.11	388.5	0.84	9103			3.77	Si
SLU 53	835	-26425	2116	576543		2.43	388.5	0.88	9567			4.52	Si
SLU 53	1045	-20343	2117	5115		1.87	388.5	0.8	8756			4.14	Si
SLU 39	835	-23664	2243	573494		2.18	388.5	0.85	9199			4.1	Si
SLU 39	1045	-18457	2243	-83680		1.7	388.5	0.78	8504			3.79	Si
SLU 64	835	-25580	2153	545674		2.35	388.5	0.87	9454			4.39	Si
SLU 64	1045	-19512	2154	-19556		1.79	388.5	0.79	8645			4.01	Si
SLU 18	835	-21314	2017	491247		1.96	388.5	0.82	8885			4.41	Si
SLU 18	1045	-16378	2017	-76963		1.51	388.5	0.76	8227			4.08	Si
SLU 74	835	-28776	2342	658790		2.65	388.5	0.91	9880			4.22	Si
SLU 74	1045	-22423	2343	-1602		2.06	388.5	0.83	9033			3.86	Si
SLU 60	835	-26054	2402	576500		2.4	388.5	0.87	9517			3.96	Si
SLU 60	1045	-19852	2402	-78154		1.82	388.5	0.8	8690			3.62	Si
SLU 81	835	-28405	2628	658747		2.61	388.5	0.9	9831			3.74	Si
SLU 81	1045	-21932	2629	-84872		2.02	388.5	0.82	8968			3.41	Si
SLU 82	835	-28174	2237	608273		2.59	388.5	0.9	9800			4.38	Si
SLU 82	1045	-21617	2237	-69451		1.99	388.5	0.82	8926			3.99	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	835	-22791	7977	1020065		2.1	388.5	1.25	13623			1.71	Si
SLV 12	1045	-19430	6290	-175540		1.79	388.5	1.19	12951			2.06	Si
SLV 9	835	-12710	-5308	-402687		1.17	388.5	1.07	11607			2.19	Si
SLV 9	1045	-7510	-3291	168580		0.69	388.5	0.97	10567			3.21	Si
SLV 5	835	-16660	-4574	-171491		1.53	388.5	1.14	12397			2.71	Si
SLV 5	1045	-10642	-2886	122280		0.98	388.5	1.03	11193			3.88	Si
SLV 8	835	-26740	8711	1251262		2.46	388.5	1.32	14413			1.65	Si
SLV 8	1045	-22562	6695	-221839		2.07	388.5	1.25	13577			2.03	Si
SLV 11	835	-22791	7977	1020065		2.1	388.5	1.25	13623			1.71	Si
SLV 11	1045	-19430	6290	-175540		1.79	388.5	1.19	12951			2.06	Si
SLD 7	835	-22724	4762	780573		2.09	388.5	1.25	13610			2.86	Si
SLD 7	1045	-18281	3882	-115931		1.68	388.5	1.17	12721			3.28	Si
SLV 6	835	-16660	-4574	-171491		1.53	388.5	1.14	12397			2.71	Si
SLV 6	1045	-10642	-2886	122280		0.98	388.5	1.03	11193			3.88	Si
SLD 8	835	-22724	4762	780573		2.09	388.5	1.25	13610			2.86	Si
SLD 8	1045	-18281	3882	-115931		1.68	388.5	1.17	12721			3.28	Si
SLV 7	835	-26740	8711	1251262		2.46	388.5	1.32	14413			1.65	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1045	-22562	6695	-221839		2.07	388.5	1.25	13577			2.03	Si
SLV 10	835	-12710	-5308	-402687		1.17	388.5	1.07	11607			2.19	Si
SLV 10	1045	-7510	-3291	168580		0.69	388.5	0.97	10567			3.21	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore  $8 \gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.46	0.75	-8204	47197	107769	2.28	Si
SLV 10	14	0.46	0.75	-8204	47197	107769	2.28	Si
SLV 14	14	0.46	0.8	-8701	47197	113835	2.41	Si
SLV 13	14	0.46	0.8	-8701	47197	113835	2.41	Si
SLV 5	14	0.46	1.04	-11348	47197	145310	3.08	Si
SLV 6	14	0.46	1.04	-11348	47197	145310	3.08	Si
SLV 15	14	0.46	1.13	-12270	47197	155923	3.3	Si
SLV 16	14	0.46	1.13	-12270	47197	155923	3.3	Si
SLV 2	14	0.46	1.76	-19181	47197	229778	4.87	Si
SLV 1	14	0.46	1.76	-19181	47197	229778	4.87	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-12732	-27820	68	0.044	18.457	0.923	69.401	1193.169	No
SLV 3	-12732	-27820	68	0.044	18.457	0.923	69.401	1193.169	No
SLV 8	-13003	-26740	34	0.046	18.73	0.924	72.471	1241.353	No
SLV 7	-13003	-26740	34	0.046	18.73	0.924	72.471	1241.353	No
SLV 2	-11083	-24796	56	0.045	16.804	0.917	71.871	1193.169	No
SLV 1	-11083	-24796	56	0.045	16.804	0.917	71.871	1193.169	No
SLV 16	-8012	-14654	-68	0.046	13.748	0.905	73.537	1193.169	No
SLV 15	-8012	-14654	-68	0.046	13.748	0.905	73.537	1193.169	No
SLV 11	-11587	-22791	-7	0.048	17.308	0.919	76.595	1241.353	No
SLV 12	-11587	-22791	-7	0.048	17.308	0.919	76.595	1241.353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.568	SLU 83	Si
V_SLU	3.412	SLU 81	Si
PF_SLV	3.316	SLV 7	Si
V_SLV	1.655	SLV 7	Si
PFFP_SLV	2.283	SLV 9	Si
R_SLV	0.058	SLV 3	No

## Maschio 138

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2271.3	595.1	-2467.8	595.1	L5	L6	196.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	925	-12309	42733	2.24	877221	20.528	Si
SLU 60	1105	-10778	-95179	1.96	804283	8.45	Si
SLU 18	925	-10011	38678	1.82	763895	19.75	Si
SLU 18	1105	-8978	-80600	1.63	705381	8.752	Si
SLU 73	925	-12622	48688	2.29	890862	18.297	Si
SLU 73	1105	-11297	-91587	2.05	830143	9.064	Si
SLU 81	925	-13333	55402	2.42	920256	16.611	Si
SLU 81	1105	-11999	-98802	2.18	863266	8.737	Si
SLU 82	925	-13119	53297	2.38	911651	17.105	Si
SLU 82	1105	-11862	-99488	2.16	857000	8.614	Si
SLU 52	925	-11598	36019	2.11	844636	23.45	Si
SLU 52	1105	-10076	-87964	1.83	767403	8.724	Si
SLU 40	925	-10821	49242	1.97	806486	16.378	Si
SLU 40	1105	-10062	-84909	1.83	766657	9.029	Si
SLU 10	925	-9300	31964	1.69	724149	22.655	Si
SLU 10	1105	-8276	-73385	1.5	662961	9.034	Si
SLU 61	925	-12095	40627	2.2	867657	21.356	Si
SLU 61	1105	-10642	-95865	1.93	797288	8.317	Si
SLU 19	925	-9798	36573	1.78	752178	20.567	Si
SLU 19	1105	-8841	-81286	1.61	697310	8.578	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	925	-8902	-171710	1.62	758794	4.419	Si
SLV 16	1105	-6105	105763	1.11	545368	5.157	Si
SLV 13	925	-6668	-193626	1.21	590179	3.048	Si
SLV 13	1105	-4147	137474	0.75	382337	2.781	Si
SLV 3	925	-12048	261127	2.19	971573	3.721	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	1105	-11974	-256164	2.18	966914	3.775	Si
SLV 15	925	-8902	-171710	1.62	758794	4.419	Si
SLV 15	1105	-6105	105763	1.11	545368	5.157	Si
SLV 4	925	-12048	261127	2.19	971573	3.721	Si
SLV 4	1105	-11974	-256164	2.18	966914	3.775	Si
SLD 3	925	-10498	131374	1.91	870375	6.625	Si
SLD 3	1105	-9733	-144043	1.77	817790	5.677	Si
SLV 1	925	-9814	239211	1.78	823496	3.443	Si
SLV 1	1105	-10016	-224453	1.82	837471	3.731	Si
SLV 2	925	-9814	239211	1.78	823496	3.443	Si
SLV 2	1105	-10016	-224453	1.82	837471	3.731	Si
SLV 14	925	-6668	-193626	1.21	590179	3.048	Si
SLV 14	1105	-4147	137474	0.75	382337	2.781	Si
SLD 4	925	-10498	131374	1.91	870375	6.625	Si
SLD 4	1105	-9733	-144043	1.77	817790	5.677	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	925	-13739	1358	70427		2.5	196.5	0.89	4889			3.6	Si
SLU 83	1105	-12397	1360	-66598		2.25	196.5	0.86	4710			3.46	Si
SLU 39	925	-11035	1326	51347		2.01	196.5	0.82	4528			3.41	Si
SLU 39	1105	-10199	1327	-84223		1.85	196.5	0.8	4416			3.33	Si
SLU 40	925	-10821	1362	49242		1.97	196.5	0.82	4500			3.3	Si
SLU 40	1105	-10062	1360	-84909		1.83	196.5	0.8	4398			3.23	Si
SLU 31	925	-10324	1256	44633		1.88	196.5	0.81	4433			3.53	Si
SLU 31	1105	-9497	1252	-77008		1.73	196.5	0.79	4323			3.45	Si
SLU 82	925	-13119	1494	53297		2.38	196.5	0.87	4806			3.22	Si
SLU 82	1105	-11862	1492	-99488		2.16	196.5	0.84	4638			3.11	Si
SLU 61	925	-12095	1282	40627		2.2	196.5	0.85	4669			3.64	Si
SLU 61	1105	-10642	1280	-95865		1.93	196.5	0.81	4476			3.5	Si
SLU 42	925	-11228	1262	64268		2.04	196.5	0.83	4554			3.61	Si
SLU 42	1105	-10461	1261	-52705		1.9	196.5	0.81	4451			3.53	Si
SLU 81	925	-13333	1458	55402		2.42	196.5	0.88	4834			3.32	Si
SLU 81	1105	-11999	1459	-98802		2.18	196.5	0.85	4656			3.19	Si
SLU 73	925	-12622	1388	48688		2.29	196.5	0.86	4740			3.42	Si
SLU 73	1105	-11297	1384	-91587		2.05	196.5	0.83	4563			3.3	Si
SLU 84	925	-13526	1394	68322		2.46	196.5	0.88	4860			3.49	Si
SLU 84	1105	-12261	1393	-67284		2.23	196.5	0.85	4691			3.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	925	-9814	4091	239211		1.78	196.5	1.19	6548			1.6	Si
SLV 2	1105	-10016	3425	-224453		1.82	196.5	1.2	6588			1.92	Si
SLV 3	925	-12048	4337	261127		2.19	196.5	1.27	6995			1.61	Si
SLV 3	1105	-11974	3748	-256164		2.18	196.5	1.27	6980			1.86	Si
SLD 3	925	-10498	2340	131374		1.91	196.5	1.21	6685			2.86	Si
SLD 3	1105	-9733	2082	-144043		1.77	196.5	1.19	6532			3.14	Si
SLV 1	925	-9814	4091	239211		1.78	196.5	1.19	6548			1.6	Si
SLV 1	1105	-10016	3425	-224453		1.82	196.5	1.2	6588			1.92	Si
SLD 4	925	-10498	2340	131374		1.91	196.5	1.21	6685			2.86	Si
SLD 4	1105	-9733	2082	-144043		1.77	196.5	1.19	6532			3.14	Si
SLV 14	925	-6668	-2679	-193626		1.21	196.5	1.08	5919			2.21	Si
SLV 14	1105	-4147	-2089	137474		0.76	195.31	0.99	5387			2.58	Si
SLV 4	925	-12048	4337	261127		2.19	196.5	1.27	6995			1.61	Si
SLV 4	1105	-11974	3748	-256164		2.18	196.5	1.27	6980			1.86	Si
SLV 15	925	-8902	-2433	-171710		1.62	196.5	1.16	6365			2.62	Si
SLV 15	1105	-6105	-1767	105763		1.11	196.5	1.06	5806			3.29	Si
SLV 13	925	-6668	-2679	-193626		1.21	196.5	1.08	5919			2.21	Si
SLV 13	1105	-4147	-2089	137474		0.76	195.31	0.99	5387			2.58	Si
SLV 16	925	-8902	-2433	-171710		1.62	196.5	1.16	6365			2.62	Si
SLV 16	1105	-6105	-1767	105763		1.11	196.5	1.06	5806			3.29	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011  $W_a 0.05$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.46	0.89	-4894	23872	63534	2.66	Si
SLV 10	14	0.46	0.89	-4894	23872	63534	2.66	Si
SLV 14	14	0.46	1.02	-5636	23872	72285	3.03	Si
SLV 13	14	0.46	1.02	-5636	23872	72285	3.03	Si
SLV 6	14	0.46	1.13	-6239	23872	79239	3.32	Si
SLV 5	14	0.46	1.13	-6239	23872	79239	3.32	Si
SLV 15	14	0.46	1.38	-7615	23872	94538	3.96	Si
SLV 16	14	0.46	1.38	-7615	23872	94538	3.96	Si
SLV 1	14	0.46	1.84	-10117	23872	120323	5.04	Si
SLV 2	14	0.46	1.84	-10117	23872	120323	5.04	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011  $W_a = 0.05$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-3585	-4815	146	0.025	6.494	0.901	41.029	1241.353	No
SLV 9	-3585	-4815	146	0.025	6.494	0.901	41.029	1241.353	No
SLV 8	-8773	-14915	-145	0.033	11.688	0.935	50.599	1241.353	No
SLV 7	-8773	-14915	-145	0.033	11.688	0.935	50.599	1241.353	No
SLV 5	-4600	-7063	117	0.032	7.496	0.909	51.674	1241.353	No
SLV 6	-4600	-7063	117	0.032	7.496	0.909	51.674	1241.353	No
SLV 12	-7758	-12667	-116	0.035	10.663	0.93	54.474	1241.353	No
SLV 11	-7758	-12667	-116	0.035	10.663	0.93	54.474	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 13	-3861	-4941	88	0.036	6.765	0.903	58.562	1193.169	No
SLV 14	-3861	-4941	88	0.036	6.765	0.903	58.562	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.317	SLU 61	Si
V_SLU	3.109	SLU 82	Si
PF_SLV	2.781	SLV 13	Si
V_SLV	1.601	SLV 1	Si
PFFP_SLV	2.661	SLV 9	Si
R_SLV	0.033	SLV 9	No

## Maschio 139

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	595.1	-2181.3	595.1	L5	L6	219.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 9	925	-2053	299379	0	0	0	No, e>l/2
SLU 9	1105	-18	113672	0	0	0	No, e>l/2
SLU 27	925	-3017	328233	0.49	311199	0.948	No, M>Mu
SLU 27	1105	-951	126254	0	0	0	No, e>l/2
SLU 7	925	-2829	288757	0.46	292949	1.015	Si
SLU 7	1105	-793	110792	0	0	0	No, e>l/2
SLU 6	925	-2809	296192	0.46	290961	0.982	No, M>Mu
SLU 6	1105	-773	111443	0	0	0	No, e>l/2
SLU 8	925	-2033	306814	0	0	0	No, e>l/2
SLU 8	1105	3	114323	0	0	0	No, Trazione
SLU 30	925	-2262	331420	0	0	0	No, e>l/2
SLU 30	1105	-196	128483	0	0	0	No, e>l/2
SLU 50	925	-3826	346216	0.62	387854	1.12	Si
SLU 50	1105	-1191	128303	0.19	127556	0.994	No, M>Mu
SLU 28	925	-3038	320798	0.49	313168	0.976	No, M>Mu
SLU 28	1105	-971	125603	0	0	0	No, e>l/2
SLU 51	925	-3847	338781	0.63	389751	1.15	Si
SLU 51	1105	-1211	127652	0.2	129689	1.016	Si
SLU 29	925	-2242	338855	0	0	0	No, e>l/2
SLU 29	1105	-175	129134	0	0	0	No, e>l/2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 4	925	-2611	665639	0	0	0	No, e>l/2
SLV 4	1105	-23	-94186	0	0	0	No, e>l/2
SLD 7	925	-5529	345244	0.9	562151	1.628	Si
SLD 7	1105	-3409	37834	0.55	357193	9.441	Si
SLD 3	925	-4905	385053	0.8	503176	1.307	Si
SLD 3	1105	-2625	-2023	0.43	278060	137.475	Si
SLD 8	925	-5529	345244	0.9	562151	1.628	Si
SLD 8	1105	-3409	37834	0.55	357193	9.441	Si
SLV 7	925	-4041	576850	0	0	0	No, e>l/2
SLV 7	1105	-1811	-1751	0.29	193963	110.756	Si
SLV 2	925	-3515	498263	0	0	0	No, e>l/2
SLV 2	1105	-943	-79868	0.15	102155	1.279	Si
SLV 3	925	-2611	665639	0	0	0	No, e>l/2
SLV 3	1105	-23	-94186	0	0	0	No, e>l/2
SLV 8	925	-4041	576850	0	0	0	No, e>l/2
SLV 8	1105	-1811	-1751	0.29	193963	110.756	Si
SLV 1	925	-3515	498263	0	0	0	No, e>l/2
SLV 1	1105	-943	-79868	0.15	102155	1.279	Si
SLD 4	925	-4905	385053	0.8	503176	1.307	Si
SLD 4	1105	-2625	-2023	0.43	278060	137.475	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 8	925	-2033	1051	306814		0	0	0.56	0			0	No, Vu<V
SLU 8	1105	3	1051	114323		0	0	0.56	0			0	No, Vu<V
SLU 50	925	-3826	1187	346216		2.36	57.81	0.87	1409			1.19	Si
SLU 50	1105	-1191	1187	128303		7.15	5.95	1.08	180			0.15	No, Vu<V
SLU 28	925	-3038	1067	320798		8.72	12.44	1.08	377			0.35	No, Vu<V
SLU 28	1105	-971	1067	125603		0	0	0.56	0			0	No, Vu<V
SLU 51	925	-3847	1149	338781		2.11	65.05	0.84	1525			1.33	Si
SLU 51	1105	-1211	1149	127652		3.32	13.01	1	364			0.32	No, Vu<V
SLU 7	925	-2829	971	288757		4.38	23.05	1.08	699			0.72	No, Vu<V
SLU 7	1105	-793	971	110792		0	0	0.56	0			0	No, Vu<V
SLU 30	925	-2262	1110	331420		0	0	0.56	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 30	1105	-196	1110	128483		0	0	0.56	0			0	No, Vu<V
SLU 9	925	-2053	1014	299379		0	0	0.56	0			0	No, Vu<V
SLU 9	1105	-18	1014	113672		0	0	0.56	0			0	No, Vu<V
SLU 27	925	-3017	1105	328233		37.05	2.91	1.08	88			0.08	No, Vu<V
SLU 27	1105	-951	1105	126254		0	0	0.56	0			0	No, Vu<V
SLU 6	925	-2809	1008	296192		7.79	12.88	1.08	391			0.39	No, Vu<V
SLU 6	1105	-773	1008	111443		0	0	0.56	0			0	No, Vu<V
SLU 29	925	-2242	1148	338855		0	0	0.56	0			0	No, Vu<V
SLU 29	1105	-175	1148	129134		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	925	-2611	4760	665639		0	0	0.83	0			0	No, Vu<V
SLV 4	1105	-23	4140	-94186		0	0	0.83	0			0	No, Vu<V
SLV 2	925	-3515	3585	498263		0	0	0.83	0			0	No, Vu<V
SLV 2	1105	-943	3083	-79868		0.45	75.06	0.92	1940			0.63	No, Vu<V
SLV 3	925	-2611	4760	665639		0	0	0.83	0			0	No, Vu<V
SLV 3	1105	-23	4140	-94186		0	0	0.83	0			0	No, Vu<V
SLD 3	925	-4905	2375	385053		1.87	93.75	1.21	3169			1.33	Si
SLD 3	1105	-2625	2102	-2023		0.43	219.5	0.92	5647			2.69	Si
SLV 8	925	-4041	3616	576850		0	0	0.83	0			0	No, Vu<V
SLV 8	1105	-1811	3250	-1751		0.29	219.5	0.89	5484			1.69	Si
SLV 1	925	-3515	3585	498263		0	0	0.83	0			0	No, Vu<V
SLV 1	1105	-943	3083	-79868		0.45	75.06	0.92	1940			0.63	No, Vu<V
SLV 14	925	-10618	-3604	-313341		1.73	219.5	1.18	7245			2.01	Si
SLV 14	1105	-9117	-2984	231960		1.48	219.5	1.13	6945			2.33	Si
SLD 4	925	-4905	2375	385053		1.87	93.75	1.21	3169			1.33	Si
SLD 4	1105	-2625	2102	-2023		0.43	219.5	0.92	5647			2.69	Si
SLV 13	925	-10618	-3604	-313341		1.73	219.5	1.18	7245			2.01	Si
SLV 13	1105	-9117	-2984	231960		1.48	219.5	1.13	6945			2.33	Si
SLV 7	925	-4041	3616	576850		0	0	0.83	0			0	No, Vu<V
SLV 7	1105	-1811	3250	-1751		0.29	219.5	0.89	5484			1.69	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.46	0	-1593	26666	0	0	No, $e > t/2$
SLV 3	14	0.46	0	-1593	26666	0	0	No, $e > t/2$
SLV 1	14	0.46	0.4	-2466	26666	33385	1.25	Si
SLV 2	14	0.46	0.4	-2466	26666	33385	1.25	Si
SLV 7	14	0.46	0.51	-3156	26666	42327	1.59	Si
SLV 8	14	0.46	0.51	-3156	26666	42327	1.59	Si
SLV 11	14	0.46	0.87	-5368	26666	69777	2.62	Si
SLV 12	14	0.46	0.87	-5368	26666	69777	2.62	Si
SLV 6	14	0.46	0.99	-6064	26666	78038	2.93	Si
SLV 5	14	0.46	0.99	-6064	26666	78038	2.93	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-958	604	-81	0	0	0	0	1193.169	No, Trazione
SLV 3	-958	604	-81	0	0	0	0	1193.169	No, Trazione
SLV 8	-1753	-2017	-95	0.035	5.119	0.889	57.324	1241.353	No
SLV 7	-1753	-2017	-95	0.035	5.119	0.889	57.324	1241.353	No
SLV 10	-5224	-10741	86	0.039	8.459	0.91	61.716	1241.353	No
SLV 9	-5224	-10741	86	0.039	8.459	0.91	61.716	1241.353	No
SLV 13	-6020	-13363	72	0.04	9.252	0.915	64.261	1193.169	No
SLV 14	-6020	-13363	72	0.04	9.252	0.915	64.261	1193.169	No
SLV 12	-3079	-5759	-62	0.043	6.354	0.894	69.572	1241.353	No
SLV 11	-3079	-5759	-62	0.043	6.354	0.894	69.572	1241.353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 8	No
V_SLU	0	SLU 6	No
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 3	No
R_SLV	0	SLV 4	No

## Maschio 140

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2249.3	-335.9	-2467.8	-335.9	L5	L6	218.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	925	-13441	173938	2.2	1072376	6.165	Si
SLU 52	1105	-12584	-224162	2.06	1027675	4.585	Si
SLU 81	925	-14990	179670	2.45	1145083	6.373	Si
SLU 81	1105	-14427	-249553	2.36	1119885	4.488	Si
SLU 84	925	-15658	212172	2.56	1173176	5.529	Si
SLU 84	1105	-15270	-246580	2.5	1157069	4.692	Si
SLU 75	925	-15472	201173	2.53	1165564	5.794	Si
SLU 75	1105	-14971	-242910	2.45	1144268	4.711	Si
SLU 40	925	-12509	180739	2.04	1023589	5.663	Si
SLU 40	1105	-12499	-222875	2.04	1023018	4.59	Si
SLU 60	925	-13759	150116	2.25	1088144	7.249	Si
SLU 60	1105	-12852	-223385	2.1	1041972	4.664	Si
SLU 73	925	-14672	203492	2.4	1131031	5.558	Si
SLU 73	1105	-14160	-250331	2.31	1107434	4.424	Si
SLU 82	925	-15045	199933	2.46	1147453	5.739	Si
SLU 82	1105	-14610	-257690	2.39	1128195	4.378	Si
SLU 31	925	-12137	184297	1.98	1003027	5.442	Si
SLU 31	1105	-12049	-215516	1.97	998096	4.631	Si
SLU 61	925	-13813	170379	2.26	1090809	6.402	Si
SLU 61	1105	-13034	-231522	2.13	1051541	4.542	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 5	925	-14518	328889	2.37	1278059	3.886	Si
SLV 5	1105	-14590	-291833	2.38	1282829	4.396	Si
SLD 4	925	-10819	151371	1.77	1010876	6.678	Si
SLD 4	1105	-10281	-230194	1.68	968704	4.208	Si
SLV 6	925	-14518	328889	2.37	1278059	3.886	Si
SLV 6	1105	-14590	-291833	2.38	1282829	4.396	Si
SLV 2	925	-13355	305142	2.18	1198341	3.927	Si
SLV 2	1105	-13539	-363971	2.21	1211235	3.328	Si
SLD 2	925	-11719	194557	1.92	1079560	5.549	Si
SLD 2	1105	-11322	-248507	1.85	1049576	4.224	Si
SLV 4	925	-11263	200726	1.84	1045076	5.206	Si
SLV 4	1105	-11060	-318296	1.81	1029505	3.234	Si
SLV 1	925	-13355	305142	2.18	1198341	3.927	Si
SLV 1	1105	-13539	-363971	2.21	1211235	3.328	Si
SLV 3	925	-11263	200726	1.84	1045076	5.206	Si
SLV 3	1105	-11060	-318296	1.81	1029505	3.234	Si
SLD 3	925	-10819	151371	1.77	1010876	6.678	Si
SLD 3	1105	-10281	-230194	1.68	968704	4.208	Si
SLD 1	925	-11719	194557	1.92	1079560	5.549	Si
SLD 1	1105	-11322	-248507	1.85	1049576	4.224	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 40	925	-12509	3556	180739		2.04	218.5	0.83	5067			1.43	Si
SLU 40	1105	-12499	3526	-222875		2.04	218.5	0.83	5065			1.44	Si
SLU 81	925	-14990	3726	179670		2.45	218.5	0.88	5398			1.45	Si
SLU 81	1105	-14427	3726	-249553		2.36	218.5	0.87	5323			1.43	Si
SLU 84	925	-15658	4011	212172		2.56	218.5	0.9	5487			1.37	Si
SLU 84	1105	-15270	3982	-246580		2.5	218.5	0.89	5435			1.36	Si
SLU 82	925	-15045	3977	199933		2.46	218.5	0.88	5405			1.36	Si
SLU 82	1105	-14610	3947	-257690		2.39	218.5	0.87	5347			1.35	Si
SLU 31	925	-12137	3498	184297		1.98	218.5	0.82	5017			1.43	Si
SLU 31	1105	-12049	3448	-215516		1.97	218.5	0.82	5005			1.45	Si
SLU 42	925	-13122	3590	192978		2.14	218.5	0.84	5149			1.43	Si
SLU 42	1105	-13159	3561	-211765		2.15	218.5	0.84	5153			1.45	Si
SLU 75	925	-15472	3861	201173		2.53	218.5	0.89	5462			1.41	Si
SLU 75	1105	-14971	3833	-242910		2.45	218.5	0.88	5395			1.41	Si
SLU 73	925	-14672	3920	203492		2.4	218.5	0.88	5355			1.37	Si
SLU 73	1105	-14160	3870	-250331		2.31	218.5	0.86	5287			1.37	Si
SLU 78	925	-16086	3895	213412		2.63	218.5	0.91	5544			1.42	Si
SLU 78	1105	-15631	3868	-231799		2.55	218.5	0.9	5483			1.42	Si
SLU 76	925	-15286	3954	215731		2.5	218.5	0.89	5437			1.38	Si
SLU 76	1105	-14820	3905	-239220		2.42	218.5	0.88	5375			1.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	925	-14518	3863	328889		2.37	218.5	1.31	8002			2.07	Si
SLV 6	1105	-14590	3596	-291833		2.38	218.5	1.31	8016			2.23	Si
SLD 3	925	-10819	3429	151371		1.77	218.5	1.19	7262			2.12	Si
SLD 3	1105	-10281	3124	-230194		1.68	218.5	1.17	7154			2.29	Si
SLV 1	925	-13355	5304	305142		2.18	218.5	1.27	7769			1.46	Si
SLV 1	1105	-13539	4573	-363971		2.21	218.5	1.28	7806			1.71	Si
SLD 2	925	-11719	3598	194557		1.92	218.5	1.22	7442			2.07	Si
SLD 2	1105	-11322	3280	-248507		1.85	218.5	1.2	7363			2.24	Si
SLV 4	925	-11263	4877	200726		1.84	218.5	1.2	7351			1.51	Si
SLV 4	1105	-11060	4178	-318296		1.81	218.5	1.19	7310			1.75	Si
SLD 1	925	-11719	3598	194557		1.92	218.5	1.22	7442			2.07	Si
SLD 1	1105	-11322	3280	-248507		1.85	218.5	1.2	7363			2.24	Si
SLD 4	925	-10819	3429	151371		1.77	218.5	1.19	7262			2.12	Si
SLD 4	1105	-10281	3124	-230194		1.68	218.5	1.17	7154			2.29	Si
SLV 3	925	-11263	4877	200726		1.84	218.5	1.2	7351			1.51	Si
SLV 3	1105	-11060	4178	-318296		1.81	218.5	1.19	7310			1.75	Si
SLV 2	925	-13355	5304	305142		2.18	218.5	1.27	7769			1.46	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	1105	-13539	4573	-363971		2.21	218.5	1.28	7806			1.71	Si
SLV 5	925	-14518	3863	328889		2.37	218.5	1.31	8002			2.07	Si
SLV 5	1105	-14590	3596	-291833		2.38	218.5	1.31	8016			2.23	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.46	0.85	-5171	26544	67384	2.54	Si
SLV 12	14	0.46	0.85	-5171	26544	67384	2.54	Si
SLV 16	14	0.46	1.07	-6545	26544	83612	3.15	Si
SLV 15	14	0.46	1.07	-6545	26544	83612	3.15	Si
SLV 7	14	0.46	1.08	-6577	26544	83980	3.16	Si
SLV 8	14	0.46	1.08	-6577	26544	83980	3.16	Si
SLV 13	14	0.46	1.49	-9130	26544	112211	4.23	Si
SLV 14	14	0.46	1.49	-9130	26544	112211	4.23	Si
SLV 4	14	0.46	1.84	-11234	26544	133639	5.03	Si
SLV 3	14	0.46	1.84	-11234	26544	133639	5.03	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-9978	-17658	-46	0.042	13.223	0.936	65.812	1241.353	No
SLV 6	-9978	-17658	-46	0.042	13.223	0.936	65.812	1241.353	No
SLV 10	-9047	-15456	-49	0.042	12.281	0.932	65.958	1241.353	No
SLV 9	-9047	-15456	-49	0.042	12.281	0.932	65.958	1241.353	No
SLV 8	-4870	-7943	47	0.044	8.092	0.908	70.773	1241.353	No
SLV 7	-4870	-7943	47	0.044	8.092	0.908	70.773	1241.353	No
SLV 12	-3938	-5741	44	0.045	7.173	0.9	73.398	1241.353	No
SLV 11	-3938	-5741	44	0.045	7.173	0.9	73.398	1241.353	No
SLV 1	-9277	-16826	-9	0.046	12.514	0.933	71.335	1193.169	No
SLV 2	-9277	-16826	-9	0.046	12.514	0.933	71.335	1193.169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.378	SLU 82	Si
V_SLU	1.355	SLU 82	Si
PF_SLV	3.234	SLV 3	Si
V_SLV	1.465	SLV 1	Si
PFFP_SLV	2.539	SLV 11	Si
R_SLV	0.053	SLV 5	No

## Maschio 141

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1936.8	-335.9	-2159.3	-335.9	L5	L6	222.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 5	1035	-5711	20709	0.92	563879	27.228	Si
SLU 5	1115	-5017	-93427	0.81	502948	5.383	Si
SLU 26	1035	-6551	22186	1.05	634694	28.608	Si
SLU 26	1115	-5879	-108998	0.94	578232	5.305	Si
SLU 65	1035	-8133	12398	1.31	759817	61.287	Si
SLU 65	1115	-7154	-127596	1.15	683691	5.358	Si
SLU 34	1035	-7420	17249	1.19	704820	40.861	Si
SLU 34	1115	-6751	-121067	1.08	651171	5.379	Si
SLU 72	1035	-8565	29960	1.37	792036	26.436	Si
SLU 72	1115	-7618	-135096	1.22	720288	5.332	Si
SLU 47	1035	-7354	21159	1.18	699539	33.061	Si
SLU 47	1115	-6393	-115495	1.03	621633	5.382	Si
SLU 76	1035	-9063	17699	1.45	828174	46.792	Si
SLU 76	1115	-8128	-143135	1.3	759389	5.305	Si
SLU 73	1035	-9003	7461	1.45	823907	110.427	Si
SLU 73	1115	-8027	-139664	1.29	751749	5.383	Si
SLU 80	1035	-9435	25024	1.51	854481	34.147	Si
SLU 80	1115	-8491	-147165	1.36	786569	5.345	Si
SLU 68	1035	-8193	22636	1.32	764310	33.766	Si
SLU 68	1115	-7255	-131066	1.16	691718	5.278	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	1035	-6608	82814	1.06	671356	8.107	Si
SLV 2	1115	-6645	-313967	1.07	674687	2.149	Si
SLV 6	1035	-7625	91178	1.22	763336	8.372	Si
SLV 6	1115	-7486	-258716	1.2	750920	2.902	Si
SLV 1	1035	-6608	82814	1.06	671356	8.107	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	1115	-6645	-313967	1.07	674687	2.149	Si
SLV 4	1035	-6082	40092	0.98	622596	15.529	Si
SLV 4	1115	-5824	-251298	0.93	598317	2.381	Si
SLD 1	1035	-6784	36556	1.09	687485	18.806	Si
SLD 1	1115	-6311	-191027	1.01	643854	3.37	Si
SLD 3	1035	-6560	18241	1.05	666883	36.559	Si
SLD 3	1115	-5964	-165509	0.96	611505	3.695	Si
SLV 5	1035	-7625	91178	1.22	763336	8.372	Si
SLV 5	1115	-7486	-258716	1.2	750920	2.902	Si
SLD 4	1035	-6560	18241	1.05	666883	36.559	Si
SLD 4	1115	-5964	-165509	0.96	611505	3.695	Si
SLV 3	1035	-6082	40092	0.98	622596	15.529	Si
SLV 3	1115	-5824	-251298	0.93	598317	2.381	Si
SLD 2	1035	-6784	36556	1.09	687485	18.806	Si
SLD 2	1115	-6311	-191027	1.01	643854	3.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	1035	-9904	2305	20653		1.59	222.5	0.77	4782			2.07	Si
SLU 79	1115	-8885	1636	-148005		1.43	222.5	0.75	4646			2.84	Si
SLU 76	1035	-9063	2331	17699		1.45	222.5	0.75	4669		2		Si
SLU 76	1115	-8128	1628	-143135		1.3	222.5	0.73	4545			2.79	Si
SLU 72	1035	-8565	2361	29960		1.37	222.5	0.74	4603			1.95	Si
SLU 72	1115	-7618	1683	-135096		1.22	222.5	0.72	4477			2.66	Si
SLU 80	1035	-9435	2461	25024		1.51	222.5	0.76	4719			1.92	Si
SLU 80	1115	-8491	1736	-147165		1.36	222.5	0.74	4593			2.65	Si
SLU 70	1035	-8949	2350	27058		1.44	222.5	0.75	4654			1.98	Si
SLU 70	1115	-7986	1664	-138726		1.28	222.5	0.73	4526			2.72	Si
SLU 38	1035	-7793	2197	24574		1.25	222.5	0.72	4500			2.05	Si
SLU 38	1115	-7115	1544	-125097		1.14	222.5	0.71	4410			2.86	Si
SLU 68	1035	-8193	2231	22636		1.32	222.5	0.73	4553			2.04	Si
SLU 68	1115	-7255	1575	-131066		1.16	222.5	0.71	4428			2.81	Si
SLU 30	1035	-6923	2097	29510		1.11	222.5	0.7	4384			2.09	Si
SLU 30	1115	-6242	1491	-113028		1	222.5	0.69	4293			2.88	Si
SLU 36	1035	-8177	2186	21671		1.31	222.5	0.73	4551			2.08	Si
SLU 36	1115	-7483	1524	-128727		1.2	222.5	0.72	4459			2.93	Si
SLU 78	1035	-9819	2450	22121		1.58	222.5	0.77	4770			1.95	Si
SLU 78	1115	-8859	1717	-150795		1.42	222.5	0.75	4642			2.7	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	1035	-7235	-3812	-78417		1.16	222.5	1.07	6639			1.74	Si
SLV 15	1115	-5491	-2997	115461		0.88	222.5	1.01	6290			2.1	Si
SLV 3	1035	-6082	4703	40092		0.98	222.5	1.03	6408			1.36	Si
SLV 3	1115	-5824	3524	-251298		1.02	204.3	1.04	5932			1.68	Si
SLV 6	1035	-7625	5438	91178		1.22	222.5	1.08	6717			1.24	Si
SLV 6	1115	-7486	4106	-258716		1.2	222.5	1.07	6689			1.63	Si
SLD 1	1035	-6784	3492	36556		1.09	222.5	1.05	6549			1.88	Si
SLD 1	1115	-6311	2600	-191027		1.01	222.5	1.04	6454			2.48	Si
SLV 2	1035	-6608	6418	82814		1.06	222.5	1.05	6513			1.01	Si
SLV 2	1115	-6645	4846	-313967		1.24	192	1.08	5809			1.2	Si
SLV 16	1035	-7235	-3812	-78417		1.16	222.5	1.07	6639			1.74	Si
SLV 16	1115	-5491	-2997	115461		0.88	222.5	1.01	6290			2.1	Si
SLV 4	1035	-6082	4703	40092		0.98	222.5	1.03	6408			1.36	Si
SLV 4	1115	-5824	3524	-251298		1.02	204.3	1.04	5932			1.68	Si
SLD 2	1035	-6784	3492	36556		1.09	222.5	1.05	6549			1.88	Si
SLD 2	1115	-6311	2600	-191027		1.01	222.5	1.04	6454			2.48	Si
SLV 5	1035	-7625	5438	91178		1.22	222.5	1.08	6717			1.24	Si
SLV 5	1115	-7486	4106	-258716		1.2	222.5	1.07	6689			1.63	Si
SLV 1	1035	-6608	6418	82814		1.06	222.5	1.05	6513			1.01	Si
SLV 1	1115	-6645	4846	-313967		1.24	192	1.08	5809			1.2	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011  $W_a 0.05$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.46	0.89	-5555	27030	72092	2.67	Si
SLV 12	14	0.46	0.89	-5555	27030	72092	2.67	Si
SLV 8	14	0.46	0.9	-5634	27030	73038	2.7	Si
SLV 7	14	0.46	0.9	-5634	27030	73038	2.7	Si
SLV 15	14	0.46	1.01	-6309	27030	81002	3	Si
SLV 16	14	0.46	1.01	-6309	27030	81002	3	Si
SLV 3	14	0.46	1.05	-6573	27030	84071	3.11	Si
SLV 4	14	0.46	1.05	-6573	27030	84071	3.11	Si
SLV 13	14	0.46	1.13	-7034	27030	89377	3.31	Si
SLV 14	14	0.46	1.13	-7034	27030	89377	3.31	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011  $W_a = 0.05$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 3	-4407	-6338	102	0.036	7.694	0.903	57.999	1193.169	No
SLV 4	-4407	-6338	102	0.036	7.694	0.903	57.999	1193.169	No
SLV 14	-5083	-6646	-98	0.037	8.362	0.908	59.312	1193.169	No
SLV 13	-5083	-6646	-98	0.037	8.362	0.908	59.312	1193.169	No
SLV 8	-3794	-4471	87	0.038	7.093	0.899	62.019	1241.353	No
SLV 7	-3794	-4471	87	0.038	7.093	0.899	62.019	1241.353	No
SLV 9	-5696	-8513	-82	0.039	8.972	0.913	62.604	1241.353	No
SLV 10	-5696	-8513	-82	0.039	8.972	0.913	62.604	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 1	-4967	-7640	66	0.042	8.248	0.908	66.483	1193.169	No
SLV 2	-4967	-7640	66	0.042	8.248	0.908	66.483	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	5.278	SLV 68	Si
V_SLV	1.917	SLV 80	Si
PF_SLV	2.149	SLV 1	Si
V_SLV	1.015	SLV 1	Si
PFFP_SLV	2.667	SLV 11	Si
R_SLV	0.049	SLV 3	No

## Maschio 142

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1826.3	-335.9	-1886.8	-335.9	L5	L6	60.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 51	1035	-2557	19392	1.51	63017	3.25	Si
SLV 51	1115	-1783	-1825	1.05	46959	25.733	Si
SLV 26	1035	-2035	15917	1.2	52481	3.297	Si
SLV 26	1115	-1432	62	0.85	38815	628.234	Si
SLV 68	1035	-2555	18958	1.51	62977	3.322	Si
SLV 68	1115	-1809	1096	1.07	47546	43.369	Si
SLV 28	1035	-2425	18435	1.43	60461	3.28	Si
SLV 28	1115	-1763	-1872	1.04	46509	24.846	Si
SLV 72	1035	-2845	21453	1.68	68322	3.185	Si
SLV 72	1115	-2037	-1932	1.2	52531	27.188	Si
SLV 30	1035	-2325	18412	1.37	58487	3.176	Si
SLV 30	1115	-1660	-2967	0.98	44178	14.891	Si
SLV 70	1035	-2945	21476	1.74	70069	3.263	Si
SLV 70	1115	-2140	-837	1.26	54693	65.315	Si
SLV 80	1035	-3116	22190	1.84	72968	3.288	Si
SLV 80	1115	-2323	-411	1.37	58441	142.299	Si
SLV 71	1035	-3105	21938	1.83	72789	3.318	Si
SLV 71	1115	-2295	-1877	1.35	57868	30.826	Si
SLV 9	1035	-2037	16351	1.2	52526	3.212	Si
SLV 9	1115	-1405	-2859	0.83	38185	13.354	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 16	1035	-569	-33946	0	0	0	No, e>1/2
SLV 16	1115	-1500	44918	0.89	42093	0.937	No, M>Mu
SLV 9	1035	-1726	30023	1.02	47850	1.594	Si
SLV 9	1115	-511	9746	0.3	15065	1.546	Si
SLV 6	1035	-2718	53263	1.6	71418	1.341	Si
SLV 6	1115	-819	-13920	0.48	23795	1.709	Si
SLV 13	1035	-569	-16936	0.34	16726	0.988	No, M>Mu
SLV 13	1115	-877	41428	0	0	0	No, e>1/2
SLV 2	1035	-3875	60530	2.29	95281	1.574	Si
SLV 2	1115	-1905	-37459	1.12	52332	1.397	Si
SLV 14	1035	-569	-16936	0.34	16726	0.988	No, M>Mu
SLV 14	1115	-877	41428	0	0	0	No, e>1/2
SLV 5	1035	-2718	53263	1.6	71418	1.341	Si
SLV 5	1115	-819	-13920	0.48	23795	1.709	Si
SLV 15	1035	-569	-33946	0	0	0	No, e>1/2
SLV 15	1115	-1500	44918	0.89	42093	0.937	No, M>Mu
SLV 10	1035	-1726	30023	1.02	47850	1.594	Si
SLV 10	1115	-511	9746	0.3	15065	1.546	Si
SLV 1	1035	-3875	60530	2.29	95281	1.574	Si
SLV 1	1115	-1905	-37459	1.12	52332	1.397	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt <sub>lim</sub>	c.s.	Verifica
SLV 69	1035	-3204	571	21960		1.89	60.5	0.81	1368			2.4	Si
SLV 69	1115	-2397	105	-782		1.41	60.5	0.74	1261			11.97	Si
SLV 71	1035	-3105	585	21938		1.83	60.5	0.8	1355			2.31	Si
SLV 71	1115	-2295	110	-1877		1.35	60.5	0.74	1247			11.35	Si
SLV 79	1035	-3375	590	22675		1.99	60.5	0.82	1391			2.36	Si
SLV 79	1115	-2580	82	-356		1.52	60.5	0.76	1285			15.62	Si
SLV 72	1035	-2845	556	21453		1.68	60.5	0.78	1320			2.38	Si
SLV 72	1115	-2037	135	-1932		1.2	60.5	0.72	1213			8.97	Si
SLV 70	1035	-2945	542	21476		1.74	60.5	0.79	1334			2.46	Si
SLV 70	1115	-2140	131	-837		1.26	60.5	0.72	1226			9.38	Si
SLV 77	1035	-3475	576	22697		2.05	60.5	0.83	1404			2.44	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	1115	-2683	78	739		1.58	60.5	0.77	1299			16.71	Si
SLU 50	1035	-2817	529	19877		1.66	60.5	0.78	1317			2.49	Si
SLU 50	1115	-2040	111	-1770		1.2	60.5	0.72	1213			10.88	Si
SLU 80	1035	-3116	561	22190		1.84	60.5	0.8	1357			2.42	Si
SLU 80	1115	-2323	108	-411		1.37	60.5	0.74	1251			11.62	Si
SLU 29	1035	-2585	528	18897		1.53	60.5	0.76	1286			2.44	Si
SLU 29	1115	-1917	88	-2912		1.13	60.5	0.71	1197			13.63	Si
SLU 37	1035	-2855	532	19634		1.69	60.5	0.78	1322			2.48	Si
SLU 37	1115	-2203	60	-1390		1.3	60.5	0.73	1235			20.5	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	1035	-569	-1368	-33946		0	0	0.83	0			0	No, Vu<V
SLV 16	1115	-1500	-665	44918		57.72	0.93	1.63	42			0.06	No, Vu<V
SLV 14	1035	-569	-1109	-16936		14.65	1.39	1.63	63			0.06	No, Vu<V
SLV 14	1115	-877	-257	41428		0	0	0.83	0			0	No, Vu<V
SLV 1	1035	-3875	1919	60530		3.15	43.89	1.46	1799			0.94	No, Vu<V
SLV 1	1115	-1905	791	-37459		2.14	31.77	1.26	1122			1.42	Si
SLV 6	1035	-2718	1161	53263		3.04	31.96	1.44	1289			1.11	Si
SLV 6	1115	-819	901	-13920		0.74	39.76	0.98	1092			1.21	Si
SLV 5	1035	-2718	1161	53263		3.04	31.96	1.44	1289			1.11	Si
SLV 5	1115	-819	901	-13920		0.74	39.76	0.98	1092			1.21	Si
SLV 4	1035	-3876	1659	43519		2.43	57.06	1.32	2107			1.27	Si
SLV 4	1115	-2528	383	-33968		1.79	50.44	1.19	1683			4.39	Si
SLV 13	1035	-569	-1109	-16936		14.65	1.39	1.63	63			0.06	No, Vu<V
SLV 13	1115	-877	-257	41428		0	0	0.83	0			0	No, Vu<V
SLV 15	1035	-569	-1368	-33946		0	0	0.83	0			0	No, Vu<V
SLV 15	1115	-1500	-665	44918		57.72	0.93	1.63	42			0.06	No, Vu<V
SLV 2	1035	-3875	1919	60530		3.15	43.89	1.46	1799			0.94	No, Vu<V
SLV 2	1115	-1905	791	-37459		2.14	31.77	1.26	1122			1.42	Si
SLV 3	1035	-3876	1659	43519		2.43	57.06	1.32	2107			1.27	Si
SLV 3	1115	-2528	383	-33968		1.79	50.44	1.19	1683			4.39	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.46	0.56	-950	7350	12690	1.73	Si
SLV 15	14	0.46	0.56	-950	7350	12690	1.73	Si
SLV 13	14	0.46	0.62	-1044	7350	13883	1.89	Si
SLV 14	14	0.46	0.62	-1044	7350	13883	1.89	Si
SLV 12	14	0.46	0.79	-1342	7350	17574	2.39	Si
SLV 11	14	0.46	0.79	-1342	7350	17574	2.39	Si
SLV 9	14	0.46	0.98	-1657	7350	21337	2.9	Si
SLV 10	14	0.46	0.98	-1657	7350	21337	2.9	Si
SLV 7	14	0.46	1.05	-1773	7350	22695	3.09	Si
SLV 8	14	0.46	1.05	-1773	7350	22695	3.09	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 15	-609	-1259	-68	0	1.525	0.889	0	1193.169	No
SLV 13	-408	-1289	-61	0	1.345	0.891	0	1193.169	No
SLV 14	-408	-1289	-61	0	1.345	0.891	0	1193.169	No
SLV 16	-609	-1259	-68	0	1.525	0.889	0	1193.169	No
SLV 2	-1322	-1478	64	0.017	2.214	0.907	26.729	1193.169	No
SLV 1	-1322	-1478	64	0.017	2.214	0.907	26.729	1193.169	No
SLV 4	-1523	-1448	58	0.022	2.414	0.912	35.38	1193.169	No
SLV 3	-1523	-1448	58	0.022	2.414	0.912	35.38	1193.169	No
SLV 12	-1164	-1290	-32	0.034	2.059	0.903	54.327	1241.353	No
SLV 11	-1164	-1290	-32	0.034	2.059	0.903	54.327	1241.353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.176	SLU 30	Si
V_SLU	2.315	SLU 71	Si
PF_SLV	0	SLV 13	No
V_SLV	0	SLV 13	No
PFFP_SLV	1.727	SLV 15	Si
R_SLV	0	SLV 13	No

## Maschio 143

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	104.6	-1961.8	581.1	L5	L6	476.5	14	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 38	835	-24244	408173	3.63	3199312	7.838	Si
SLU 38	1187	-16401	752825	2.46	2728270	3.624	Si
SLU 9	835	-19786	418390	2.97	2997765	7.165	Si
SLU 9	1187	-13853	674438	2.08	2459184	3.646	Si
SLU 27	835	-22566	424416	3.38	3143893	7.408	Si
SLU 27	1187	-15546	720055	2.33	2644320	3.672	Si
SLU 30	835	-22740	473165	3.41	3150775	6.659	Si
SLU 30	1187	-15870	782141	2.38	2676912	3.423	Si
SLU 8	835	-19770	430938	2.96	2996726	6.954	Si
SLU 8	1187	-13807	685374	2.07	2453811	3.58	Si
SLU 37	835	-24228	420721	3.63	3198900	7.603	Si
SLU 37	1187	-16355	763761	2.45	2723923	3.566	Si
SLU 72	835	-25684	436963	3.85	3227180	7.385	Si
SLU 72	1187	-17356	766740	2.6	2814491	3.671	Si
SLU 28	835	-22582	411868	3.38	3144539	7.635	Si
SLU 28	1187	-15592	709119	2.34	2648993	3.736	Si
SLU 71	835	-25668	449510	3.85	3226970	7.179	Si
SLU 71	1187	-17310	777676	2.59	2810529	3.614	Si
SLU 29	835	-22724	485712	3.41	3150151	6.486	Si
SLU 29	1187	-15824	793077	2.37	2672351	3.37	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	835	-10113	-588057	1.52	2110571	3.589	Si
SLV 9	1187	-6968	66157	1.04	1518343	22.951	Si
SLV 14	835	-12039	-328264	1.8	2444794	7.448	Si
SLV 14	1187	-7750	34533	1.16	1670896	48.386	Si
SLV 13	835	-12039	-328264	1.8	2444794	7.448	Si
SLV 13	1187	-7750	34533	1.16	1670896	48.386	Si
SLV 6	835	-10850	-516089	1.63	2241071	4.342	Si
SLV 6	1187	-6923	99928	1.04	1509393	15.105	Si
SLV 12	835	-18075	394104	2.71	3351511	8.504	Si
SLV 12	1187	-9050	88370	1.36	1916832	21.691	Si
SLV 5	835	-10850	-516089	1.63	2241071	4.342	Si
SLV 5	1187	-6923	99928	1.04	1509393	15.105	Si
SLV 10	835	-10113	-588057	1.52	2110571	3.589	Si
SLV 10	1187	-6968	66157	1.04	1518343	22.951	Si
SLV 7	835	-18812	466072	2.82	3447694	7.397	Si
SLV 7	1187	-9005	122141	1.35	1908434	15.625	Si
SLV 8	835	-18812	466072	2.82	3447694	7.397	Si
SLV 8	1187	-9005	122141	1.35	1908434	15.625	Si
SLV 11	835	-18075	394104	2.71	3351511	8.504	Si
SLV 11	1187	-9050	88370	1.36	1916832	21.691	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 7	835	-19629	-824	357094		2.94	476.52	0.95	6323			7.67	Si
SLU 7	1187	-13575	-154	601416		2.03	476.52	0.83	5516			35.75	Si
SLU 30	835	-22740	-872	473165		3.41	476.52	1.01	6738			7.73	Si
SLU 30	1187	-15870	-58	782141		2.38	476.52	0.87	5822			99.82	Si
SLU 50	835	-22714	-958	394736		3.4	476.52	1.01	6735			7.03	Si
SLU 50	1187	-15293	-214	669973		2.29	476.52	0.86	5745			26.9	Si
SLU 48	835	-22557	-868	333440		3.38	476.52	1.01	6714			7.73	Si
SLU 48	1187	-15015	-175	596951		2.25	476.52	0.86	5708			32.58	Si
SLU 51	835	-22730	-1009	382189		3.41	476.52	1.01	6737			6.68	Si
SLU 51	1187	-15339	-277	659037		2.3	476.52	0.86	5751			20.75	Si
SLU 8	835	-19770	-863	430938		2.96	476.52	0.95	6342			7.34	Si
SLU 8	1187	-13807	-129	685374		2.07	476.52	0.83	5547			42.98	Si
SLU 9	835	-19786	-914	418390		2.97	476.52	0.95	6344			6.94	Si
SLU 9	1187	-13853	-193	674438		2.08	476.52	0.83	5553			28.82	Si
SLU 49	835	-22573	-919	320892		3.38	476.52	1.01	6716			7.31	Si
SLU 49	1187	-15061	-239	586015		2.26	476.52	0.86	5714			23.93	Si
SLU 72	835	-25684	-966	436963		3.85	476.52	1.07	7131			7.38	Si
SLU 72	1187	-17356	-143	766740		2.6	476.52	0.9	6020			42.15	Si
SLU 71	835	-25668	-916	449510		3.85	476.52	1.07	7129			7.78	Si
SLU 71	1187	-17310	-79	777676		2.59	476.52	0.9	6014			75.91	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	835	-18812	8191	466072		2.82	476.52	1.4	9322			1.14	Si
SLV 7	1187	-9005	6872	122141		1.35	476.52	1.1	7360			1.07	Si
SLV 10	835	-10113	-8575	-588057		1.52	476.52	1.14	7582			0.88	No, Vu<V
SLV 10	1187	-6968	-6955	66157		1.04	476.52	1.04	6953			1	No, Vu<V
SLV 11	835	-18075	6590	394104		2.71	476.52	1.38	9174			1.39	Si
SLV 11	1187	-9050	5994	88370		1.36	476.52	1.1	7369			1.23	Si
SLV 12	835	-18075	6590	394104		2.71	476.52	1.38	9174			1.39	Si
SLV 12	1187	-9050	5994	88370		1.36	476.52	1.1	7369			1.23	Si
SLV 13	835	-12039	-5135	-328264		1.8	476.52	1.19	7967			1.55	Si
SLV 13	1187	-7750	-3447	34533		1.16	476.52	1.07	7109			2.06	Si
SLV 5	835	-10850	-6973	-516089		1.63	476.52	1.16	7729			1.11	Si
SLV 5	1187	-6923	-6077	99928		1.04	476.52	1.04	6944			1.14	Si
SLV 6	835	-10850	-6973	-516089		1.63	476.52	1.16	7729			1.11	Si
SLV 6	1187	-6923	-6077	99928		1.04	476.52	1.04	6944			1.14	Si
SLV 14	835	-12039	-5135	-328264		1.8	476.52	1.19	7967			1.55	Si
SLV 14	1187	-7750	-3447	34533		1.16	476.52	1.07	7109			2.06	Si
SLV 9	835	-10113	-8575	-588057		1.52	476.52	1.14	7582			0.88	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	1187	-6968	-6955	66157		1.04	476.52	1.04	6953			1	No, Vu<V
SLV 8	835	-18812	8191	466072		2.82	476.52	1.4	9322			1.14	Si
SLV 8	1187	-9005	6872	122141		1.35	476.52	1.1	7360			1.07	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.46	1.28	-8507	30964	53334	1.72	Si
SLV 9	14	0.46	1.28	-8507	30964	53334	1.72	Si
SLV 5	14	0.46	1.28	-8535	30964	53492	1.73	Si
SLV 6	14	0.46	1.28	-8535	30964	53492	1.73	Si
SLV 13	14	0.46	1.56	-10387	30964	63445	2.05	Si
SLV 14	14	0.46	1.56	-10387	30964	63445	2.05	Si
SLV 2	14	0.46	1.57	-10482	30964	63939	2.06	Si
SLV 1	14	0.46	1.57	-10482	30964	63939	2.06	Si
SLV 16	14	0.46	1.8	-12027	30964	71768	2.32	Si
SLV 15	14	0.46	1.8	-12027	30964	71768	2.32	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-9005	-18812	14	0.022	12.524	0.929	35.02	1890.693	No
SLV 7	-9005	-18812	14	0.022	12.524	0.929	35.02	1890.693	No
SLV 11	-9050	-18075	12	0.023	12.569	0.929	35.375	1890.693	No
SLV 12	-9050	-18075	12	0.023	12.569	0.929	35.375	1890.693	No
SLV 4	-8223	-16886	9	0.023	11.737	0.925	36.332	1890.693	No
SLV 3	-8223	-16886	9	0.023	11.737	0.925	36.332	1890.693	No
SLV 9	-6968	-10113	-14	0.023	10.477	0.918	36.407	1890.693	No
SLV 10	-6968	-10113	-14	0.023	10.477	0.918	36.407	1890.693	No
SLV 14	-7750	-12039	-8	0.023	11.261	0.922	36.768	1890.693	No
SLV 13	-7750	-12039	-8	0.023	11.261	0.922	36.768	1890.693	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.37	SLU 29	Si
V_SLU	6.68	SLU 51	Si
PF_SLV	3.589	SLV 9	Si
V_SLV	0.884	SLV 9	No
PFFP_SLV	1.722	SLV 9	Si
R_SLV	0.019	SLV 7	No

## Maschio 144

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	581.1	-1961.8	652.1	L5	L6	71	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 72	835	-11215	40134	5.64	122402	3.05	Si
SLU 72	1187	-10325	17762	5.19	132840	7.479	Si
SLU 69	835	-10785	37423	5.43	127879	3.417	Si
SLU 69	1187	-9915	16950	4.99	136479	8.052	Si
SLU 70	835	-10721	37276	5.39	128631	3.451	Si
SLU 70	1187	-9872	16884	4.97	136812	8.103	Si
SLU 38	835	-10373	36210	5.22	132363	3.655	Si
SLU 38	1187	-10018	17991	5.04	135627	7.539	Si
SLU 71	835	-11280	40282	5.67	121510	3.016	Si
SLU 71	1187	-10367	17828	5.21	132423	7.428	Si
SLU 29	835	-10627	39621	5.35	129689	3.273	Si
SLU 29	1187	-9973	17618	5.02	136002	7.719	Si
SLU 37	835	-10438	36358	5.25	131709	3.623	Si
SLU 37	1187	-10061	18057	5.06	135267	7.491	Si
SLU 79	835	-11091	37019	5.58	124072	3.352	Si
SLU 79	1187	-10454	18267	5.26	131538	7.201	Si
SLU 80	835	-11026	36871	5.55	124910	3.388	Si
SLU 80	1187	-10412	18200	5.24	131971	7.251	Si
SLU 30	835	-10562	39473	5.31	130396	3.303	Si
SLU 30	1187	-9931	17552	5	136346	7.768	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	835	-4364	58370	2.2	127085	2.177	Si
SLV 15	1187	-3101	4066	1.56	96028	23.617	Si
SLV 16	835	-4364	58370	2.2	127085	2.177	Si
SLV 16	1187	-3101	4066	1.56	96028	23.617	Si
SLV 14	835	-2128	56699	1.07	68925	1.216	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	1187	-2197	3257	1.11	70952	21.787	Si
SLV 5	835	-344	-10818	0.17	12030	1.112	Si
SLV 5	1187	-1956	3566	0.98	63844	17.903	Si
SLV 9	835	37	19443	0	0	0	No, Trazione
SLV 9	1187	-1581	2987	0.8	52470	17.564	Si
SLV 13	835	-2128	56699	1.07	68925	1.216	Si
SLV 13	1187	-2197	3257	1.11	70952	21.787	Si
SLV 1	835	-3396	-44173	1.71	103705	2.348	Si
SLV 1	1187	-3447	5186	1.73	105013	20.251	Si
SLV 2	835	-3396	-44173	1.71	103705	2.348	Si
SLV 2	1187	-3447	5186	1.73	105013	20.251	Si
SLV 6	835	-344	-10818	0.17	12030	1.112	Si
SLV 6	1187	-1956	3566	0.98	63844	17.903	Si
SLV 10	835	37	19443	0	0	0	No, Trazione
SLV 10	1187	-1581	2987	0.8	52470	17.564	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 71	835	-11280	439	40282		5.67	71	1.08	2154			4.9	Si
SLU 71	1187	-10367	-386	17828		5.21	71	1.08	2154			5.58	Si
SLU 29	835	-10627	448	39621		5.35	71	1.08	2154			4.81	Si
SLU 29	1187	-9973	-372	17618		5.02	71	1.08	2154			5.8	Si
SLU 30	835	-10562	446	39473		5.31	71	1.08	2154			4.82	Si
SLU 30	1187	-9931	-374	17552		5	71	1.08	2154			5.76	Si
SLU 28	835	-10068	405	36615		5.06	71	1.08	2154			5.32	Si
SLU 28	1187	-9479	-365	16674		4.77	71	1.08	2154			5.91	Si
SLU 9	835	-9332	411	35394		4.69	71	1.08	2154			5.24	Si
SLU 9	1187	-8575	-316	14891		4.31	71	1.08	2154			6.82	Si
SLU 79	835	-11091	363	37019		5.58	71	1.08	2154			5.93	Si
SLU 79	1187	-10454	-411	18267		5.26	71	1.08	2154			5.24	Si
SLU 72	835	-11215	437	40134		5.64	71	1.08	2154			4.92	Si
SLU 72	1187	-10325	-388	17762		5.19	71	1.08	2154			5.55	Si
SLU 80	835	-11026	361	36871		5.55	71	1.08	2154			5.96	Si
SLU 80	1187	-10412	-413	18200		5.24	71	1.08	2154			5.21	Si
SLU 27	835	-10132	406	36762		5.1	71	1.08	2154			5.3	Si
SLU 27	1187	-9521	-362	16741		4.79	71	1.08	2154			5.95	Si
SLU 8	835	-9397	412	35541		4.73	71	1.08	2154			5.22	Si
SLU 8	1187	-8618	-313	14958		4.33	71	1.08	2154			6.88	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	835	-3396	-929	-44173		1.8	67.48	1.19	2254			2.43	Si
SLV 1	1187	-3447	-188	5186		1.73	71	1.18	2346			12.49	Si
SLV 5	835	-344	-706	-10818		1.02	12.08	1.04	351			0.5	No, Vu<V
SLV 5	1187	-1956	-331	3566		0.98	71	1.03	2048			6.18	Si
SLV 10	835	37	-233	19443		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	-1581	-337	2987		0.8	71	0.99	1973			5.86	Si
SLV 14	835	-2128	646	56699		2.86	26.57	1.41	1045			1.62	Si
SLV 14	1187	-2197	-205	3257		1.11	71	1.05	2096			10.22	Si
SLV 16	835	-4364	928	58370		2.35	66.37	1.3	2421			2.61	Si
SLV 16	1187	-3101	-87	4066		1.56	71	1.15	2277			26.12	Si
SLV 2	835	-3396	-929	-44173		1.8	67.48	1.19	2254			2.43	Si
SLV 2	1187	-3447	-188	5186		1.73	71	1.18	2346			12.49	Si
SLV 9	835	37	-233	19443		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	-1581	-337	2987		0.8	71	0.99	1973			5.86	Si
SLV 6	835	-344	-706	-10818		1.02	12.08	1.04	351			0.5	No, Vu<V
SLV 6	1187	-1956	-331	3566		0.98	71	1.03	2048			6.18	Si
SLV 15	835	-4364	928	58370		2.35	66.37	1.3	2421			2.61	Si
SLV 15	1187	-3101	-87	4066		1.56	71	1.15	2277			26.12	Si
SLV 13	835	-2128	646	56699		2.86	26.57	1.41	1045			1.62	Si
SLV 13	1187	-2197	-205	3257		1.11	71	1.05	2096			10.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.46	0.58	-1154	8826	15383	1.74	Si
SLV 9	14	0.46	0.58	-1154	8826	15383	1.74	Si
SLV 6	14	0.46	0.8	-1597	8826	20891	2.37	Si
SLV 5	14	0.46	0.8	-1597	8826	20891	2.37	Si
SLV 13	14	0.46	1.1	-2179	8826	27770	3.15	Si
SLV 14	14	0.46	1.1	-2179	8826	27770	3.15	Si
SLV 15	14	0.46	1.76	-3502	8826	41956	4.75	Si
SLV 16	14	0.46	1.76	-3502	8826	41956	4.75	Si
SLV 1	14	0.46	1.84	-3658	8826	43498	4.93	Si
SLV 2	14	0.46	1.84	-3658	8826	43498	4.93	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-1581	37	11	0	0	0	0	1241.353	No, Trazione
SLV 9	-1581	37	11	0	0	0	0	1241.353	No, Trazione
SLV 11	-4592	-7416	-16	0.041	5.665	0.95	63.438	1241.353	No
SLV 12	-4592	-7416	-16	0.041	5.665	0.95	63.438	1241.353	No
SLV 8	-4967	-7797	-9	0.043	6.046	0.952	65.043	1241.353	No
SLV 7	-4967	-7797	-9	0.043	6.046	0.952	65.043	1241.353	No
SLV 1	-3447	-3396	17	0.042	4.504	0.939	64.613	1193.169	No
SLV 2	-3447	-3396	17	0.042	4.504	0.939	64.613	1193.169	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 6	-1956	-344	18	0.042	3.001	0.916	67.33	1241.353	No
SLV 5	-1956	-344	18	0.042	3.001	0.916	67.33	1241.353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	3.016	SLV 71	Si
V_SLV	4.805	SLV 29	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLV 9	No
PFFP_SLV	1.743	SLV 9	Si
R_SLV	0	SLV 10	No

## Maschio 145

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1633.3	-335.9	-1736.3	-335.9	L5	L6	103	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 31	925	-3911	-37344	1.36	167894	4.496	Si
SLV 31	1105	-3884	51821	1.35	166954	3.222	Si
SLV 61	925	-5072	-35812	1.76	204808	5.719	Si
SLV 61	1105	-4402	57052	1.53	184230	3.229	Si
SLV 44	925	-4233	-36990	1.47	178727	4.832	Si
SLV 44	1105	-3593	52082	1.25	156739	3.009	Si
SLV 10	925	-3515	-36213	1.22	153921	4.25	Si
SLV 10	1105	-3408	48948	1.18	150059	3.066	Si
SLV 82	925	-5469	-36943	1.9	216072	5.849	Si
SLV 82	1105	-4878	59924	1.69	199052	3.322	Si
SLV 2	925	-3165	-32495	1.1	141044	4.34	Si
SLV 2	1105	-2868	42921	0.99	129664	3.021	Si
SLV 73	925	-4979	-41838	1.73	202084	4.83	Si
SLV 73	1105	-4609	60982	1.6	190799	3.129	Si
SLV 65	925	-4630	-38121	1.61	191451	5.022	Si
SLV 65	1105	-4069	54955	1.41	173249	3.153	Si
SLV 23	925	-3562	-33626	1.24	155625	4.628	Si
SLV 23	1105	-3344	45794	1.16	147687	3.225	Si
SLV 52	925	-4583	-40707	1.59	189969	4.667	Si
SLV 52	1105	-4133	58109	1.43	175416	3.019	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 14	925	-2749	-231176	0	0	0	No, e>/2
SLV 14	1105	-5782	169325	2.01	248930	1.47	Si
SLV 8	925	-4111	151246	1.43	187017	1.237	Si
SLV 8	1105	562	-72011	0	0	0	No, Trazione
SLV 16	925	-2380	-162044	0	0	0	No, e>/2
SLV 16	1105	-3769	124171	1.31	173349	1.396	Si
SLV 3	925	-5705	195856	1.98	246247	1.257	Si
SLV 3	1105	-720	-96601	0	0	0	No, e>/2
SLV 10	925	-4343	-186566	1.51	196090	1.051	Si
SLV 10	1105	-7064	144735	2.45	290871	2.01	Si
SLV 13	925	-2749	-231176	0	0	0	No, e>/2
SLV 13	1105	-5782	169325	2.01	248930	1.47	Si
SLV 9	925	-4343	-186566	1.51	196090	1.051	Si
SLV 9	1105	-7064	144735	2.45	290871	2.01	Si
SLV 4	925	-5705	195856	1.98	246247	1.257	Si
SLV 4	1105	-720	-96601	0	0	0	No, e>/2
SLV 15	925	-2380	-162044	0	0	0	No, e>/2
SLV 15	1105	-3769	124171	1.31	173349	1.396	Si
SLV 7	925	-4111	151246	1.43	187017	1.237	Si
SLV 7	1105	562	-72011	0	0	0	No, Trazione

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 73	925	-4979	-623	-41838		1.73	103	0.79	2266			3.64	Si
SLV 73	1105	-4609	-547	60982		1.6	103	0.77	2217			4.06	Si
SLV 31	925	-3911	-530	-37344		1.36	103	0.74	2124			4.01	Si
SLV 31	1105	-3884	-449	51821		1.35	103	0.74	2120			4.72	Si
SLV 44	925	-4233	-556	-36990		1.47	103	0.75	2167			3.9	Si
SLV 44	1105	-3593	-527	52082		1.25	103	0.72	2081			3.95	Si
SLV 2	925	-3165	-463	-32495		1.1	103	0.7	2024			4.37	Si
SLV 2	1105	-2868	-429	42921		0.99	103	0.69	1985			4.62	Si
SLV 10	925	-3515	-505	-36213		1.22	103	0.72	2071			4.1	Si
SLV 10	1105	-3408	-476	48948		1.18	103	0.71	2057			4.32	Si
SLV 52	925	-4583	-598	-40707		1.59	103	0.77	2213			3.7	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	1105	-4133	-573	58109		1.43	103	0.75	2153			3.76	Si
SLU 65	925	-4630	-581	-38121		1.61	103	0.77	2220			3.82	Si
SLU 65	1105	-4069	-500	54955		1.41	103	0.74	2145			4.29	Si
SLU 61	925	-5072	-567	-35812		1.76	103	0.79	2278			4.02	Si
SLU 61	1105	-4402	-539	57052		1.53	103	0.76	2189			4.06	Si
SLU 23	925	-3562	-488	-33626		1.24	103	0.72	2077			4.26	Si
SLU 23	1105	-3344	-403	45794		1.16	103	0.71	2048			5.09	Si
SLU 82	925	-5469	-592	-36943		1.9	103	0.81	2331			3.94	Si
SLU 82	1105	-4878	-513	59924		1.69	103	0.78	2253			4.39	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	925	-2749	-3897	-231176		0	0	0.83	0			0	No, Vu<V
SLV 14	1105	-5782	-1175	169325		3.1	66.65	1.45	2712			2.31	Si
SLV 9	925	-4343	-2868	-186566		6.05	25.62	1.63	1166			0.41	No, Vu<V
SLV 9	1105	-7064	-361	144735		2.71	93.03	1.38	3584			9.92	Si
SLV 16	925	-2380	-2942	-162044		0	0	0.83	0			0	No, Vu<V
SLV 16	1105	-3769	-1308	124171		2.42	55.67	1.32	2053			1.57	Si
SLV 10	925	-4343	-2868	-186566		6.05	25.62	1.63	1166			0.41	No, Vu<V
SLV 10	1105	-7064	-361	144735		2.71	93.03	1.38	3584			9.92	Si
SLV 4	925	-5705	3181	195856		3.96	51.51	1.62	2343			0.74	No, Vu<V
SLV 4	1105	-720	574	-96601		0	0	0.83	0			0	No, Vu<V
SLV 7	925	-4111	2152	151246		3.33	44.13	1.5	1852			0.86	No, Vu<V
SLV 7	1105	562	-239	-72011		0	0	0.83	0			0	No, Vu<V
SLV 8	925	-4111	2152	151246		3.33	44.13	1.5	1852			0.86	No, Vu<V
SLV 8	1105	562	-239	-72011		0	0	0.83	0			0	No, Vu<V
SLV 3	925	-5705	3181	195856		3.96	51.51	1.62	2343			0.74	No, Vu<V
SLV 3	1105	-720	574	-96601		0	0	0.83	0			0	No, Vu<V
SLV 15	925	-2380	-2942	-162044		0	0	0.83	0			0	No, Vu<V
SLV 15	1105	-3769	-1308	124171		2.42	55.67	1.32	2053			1.57	Si
SLV 13	925	-2749	-3897	-231176		0	0	0.83	0			0	No, Vu<V
SLV 13	1105	-5782	-1175	169325		3.1	66.65	1.45	2712			2.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.46	0	-747	12513	0	0	No, e>t/2
SLV 11	14	0.46	0	-747	12513	0	0	No, e>t/2
SLV 15	14	0.46	0.55	-1583	12513	21172	1.69	Si
SLV 16	14	0.46	0.55	-1583	12513	21172	1.69	Si
SLV 8	14	0.46	0.56	-1602	12513	21403	1.71	Si
SLV 7	14	0.46	0.56	-1602	12513	21403	1.71	Si
SLV 14	14	0.46	1.09	-3155	12513	40221	3.21	Si
SLV 13	14	0.46	1.09	-3155	12513	40221	3.21	Si
SLV 3	14	0.46	1.54	-4433	12513	54254	4.34	Si
SLV 4	14	0.46	1.54	-4433	12513	54254	4.34	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	1129	-683	-88	0	0	0	0	1241.353	No, Trazione
SLV 12	257	-1497	-92	0	0	0	0	1241.353	No, Trazione
SLV 11	257	-1497	-92	0	0	0	0	1241.353	No, Trazione
SLV 7	1129	-683	-88	0	0	0	0	1241.353	No, Trazione
SLV 5	-5400	-7599	89	0.031	6.938	0.942	48.424	1241.353	No
SLV 6	-5400	-7599	89	0.031	6.938	0.942	48.424	1241.353	No
SLV 9	-6272	-8413	85	0.033	7.822	0.947	50.56	1241.353	No
SLV 10	-6272	-8413	85	0.033	7.822	0.947	50.56	1241.353	No
SLV 15	-3045	-4868	-35	0.04	4.562	0.918	63.569	1193.169	No
SLV 16	-3045	-4868	-35	0.04	4.562	0.918	63.569	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.009	SLU 44	Si
V_SLU	3.636	SLU 73	Si
PF_SLV	0	SLV 8	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0	SLV 12	No

## Maschio 146

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-1844.8	-335.9	-1844.8	104.6	L5	L6	440.6	14	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 26	835	-11550	395166	1.87	1959360	4.958	Si
SLU 26	1187	-6332	278321	1.03	1218978	4.38	Si
SLU 34	835	-13067	443560	2.12	2129859	4.802	Si
SLU 34	1187	-6969	297420	1.13	1322242	4.446	Si
SLU 5	835	-10002	331939	1.62	1764674	5.316	Si
SLU 5	1187	-5510	244376	0.89	1080585	4.422	Si
SLU 13	835	-11519	380333	1.87	1955767	5.142	Si
SLU 13	1187	-6147	263475	1	1188444	4.511	Si
SLU 28	835	-12410	421463	2.01	2058521	4.884	Si
SLU 28	1187	-7128	294330	1.16	1347369	4.578	Si
SLU 76	835	-15477	496327	2.51	2359109	4.753	Si
SLU 76	1187	-8245	333061	1.34	1518178	4.558	Si
SLU 38	835	-13573	462876	2.2	2182173	4.714	Si
SLU 38	1187	-7486	306060	1.21	1403306	4.585	Si
SLU 30	835	-12055	414482	1.95	2018400	4.87	Si
SLU 30	1187	-6848	286961	1.11	1302930	4.54	Si
SLU 36	835	-13928	469858	2.26	2217570	4.72	Si
SLU 36	1187	-7765	313429	1.26	1446182	4.614	Si
SLU 68	835	-13959	447932	2.26	2220674	4.958	Si
SLU 68	1187	-7607	313962	1.23	1422047	4.529	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	835	-9295	505831	1.51	1794969	3.549	Si
SLV 11	1187	-5563	47032	0.9	1134895	24.13	Si
SLV 14	835	-9124	336060	1.48	1766470	5.256	Si
SLV 14	1187	-5243	366262	0.85	1074605	2.934	Si
SLV 15	835	-8619	451098	1.4	1681545	3.728	Si
SLV 15	1187	-5278	265102	0.86	1081209	4.078	Si
SLV 10	835	-10976	122371	1.78	2065636	16.88	Si
SLV 10	1187	-5446	384233	0.88	1113048	2.897	Si
SLV 16	835	-8619	451098	1.4	1681545	3.728	Si
SLV 16	1187	-5278	265102	0.86	1081209	4.078	Si
SLV 5	835	-12059	54247	1.96	2231319	41.132	Si
SLV 5	1187	-5656	298476	0.92	1152334	3.861	Si
SLV 13	835	-9124	336060	1.48	1766470	5.256	Si
SLV 13	1187	-5243	366262	0.85	1074605	2.934	Si
SLV 9	835	-10976	122371	1.78	2065636	16.88	Si
SLV 9	1187	-5446	384233	0.88	1113048	2.897	Si
SLV 12	835	-9295	505831	1.51	1794969	3.549	Si
SLV 12	1187	-5563	47032	0.9	1134895	24.13	Si
SLV 6	835	-12059	54247	1.96	2231319	41.132	Si
SLV 6	1187	-5656	298476	0.92	1152334	3.861	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	835	-12186	1094	386849		1.98	440.57	0.82	5051			4.62	Si
SLU 29	1187	-6933	1080	253473		1.12	440.57	0.71	4351			4.03	Si
SLU 27	835	-12541	1026	393831		2.03	440.57	0.83	5099			4.97	Si
SLU 27	1187	-7213	1012	260842		1.17	440.57	0.71	4388			4.34	Si
SLU 30	835	-12055	620	414482		1.95	440.57	0.82	5034			8.12	Si
SLU 30	1187	-6848	1008	286961		1.11	440.57	0.7	4340			4.31	Si
SLU 8	835	-10638	983	323623		1.72	440.57	0.79	4845			4.93	Si
SLU 8	1187	-6112	966	219528		0.99	440.57	0.69	4242			4.39	Si
SLU 69	835	-14950	1082	446597		2.42	440.57	0.88	5420			5.01	Si
SLU 69	1187	-8489	1059	296484		1.38	440.57	0.74	4558			4.3	Si
SLU 79	835	-16113	1123	488010		2.61	440.57	0.9	5575			4.96	Si
SLU 79	1187	-8847	1101	308214		1.43	440.57	0.75	4606			4.18	Si
SLU 37	835	-13703	1067	435244		2.22	440.57	0.85	5254			4.92	Si
SLU 37	1187	-7571	1054	272572		1.23	440.57	0.72	4436			4.21	Si
SLU 71	835	-14595	1150	439616		2.37	440.57	0.87	5373			4.67	Si
SLU 71	1187	-8209	1127	289115		1.33	440.57	0.73	4521			4.01	Si
SLU 50	835	-13048	1039	376389		2.12	440.57	0.84	5166			4.97	Si
SLU 50	1187	-7387	1013	255169		1.2	440.57	0.72	4412			4.35	Si
SLU 72	835	-14465	676	467248		2.35	440.57	0.87	5355			7.93	Si
SLU 72	1187	-8124	1055	322602		1.32	440.57	0.73	4510			4.27	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	835	-10976	-8220	122371		1.78	440.57	1.19	7335			0.89	No, Vu<V
SLV 9	1187	-5446	-5792	384233		0.88	440.57	1.01	6229			1.08	Si
SLV 11	835	-9295	10254	505831		1.51	440.57	1.13	6999			0.68	No, Vu<V
SLV 11	1187	-5563	7191	47032		0.9	440.57	1.01	6252			0.87	No, Vu<V
SLV 7	835	-10378	8893	437708		1.68	440.57	1.17	7216			0.81	No, Vu<V
SLV 7	1187	-5772	6418	-38724		0.94	440.57	1.02	6294			0.98	No, Vu<V
SLV 10	835	-10976	-8220	122371		1.78	440.57	1.19	7335			0.89	No, Vu<V
SLV 10	1187	-5446	-5792	384233		0.88	440.57	1.01	6229			1.08	Si
SLV 15	835	-8619	5376	451098		1.4	440.57	1.11	6864			1.28	Si
SLV 15	1187	-5278	3549	265102		0.86	440.57	1	6196			1.75	Si
SLV 16	835	-8619	5376	451098		1.4	440.57	1.11	6864			1.28	Si
SLV 16	1187	-5278	3549	265102		0.86	440.57	1	6196			1.75	Si
SLV 5	835	-12059	-9581	54247		1.96	440.57	1.22	7552			0.79	No, Vu<V
SLV 5	1187	-5656	-6565	298476		0.92	440.57	1.02	6271			0.96	No, Vu<V
SLV 8	835	-10378	8893	437708		1.68	440.57	1.17	7216			0.81	No, Vu<V
SLV 8	1187	-5772	6418	-38724		0.94	440.57	1.02	6294			0.98	No, Vu<V
SLV 6	835	-12059	-9581	54247		1.96	440.57	1.22	7552			0.79	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	1187	-5656	-6565	298476		0.92	440.57	1.02	6271			0.96	No, Vu<V
SLV 12	835	-9295	10254	505831		1.51	440.57	1.13	6999			0.68	No, Vu<V
SLV 12	1187	-5563	7191	47032		0.9	440.57	1.01	6252			0.87	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.46	1.18	-7296	28628	46125	1.61	Si
SLV 15	14	0.46	1.18	-7296	28628	46125	1.61	Si
SLV 13	14	0.46	1.21	-7479	28628	47160	1.65	Si
SLV 14	14	0.46	1.21	-7479	28628	47160	1.65	Si
SLV 11	14	0.46	1.26	-7746	28628	48647	1.7	Si
SLV 12	14	0.46	1.26	-7746	28628	48647	1.7	Si
SLV 7	14	0.46	1.35	-8315	28628	51786	1.81	Si
SLV 8	14	0.46	1.35	-8315	28628	51786	1.81	Si
SLV 10	14	0.46	1.36	-8359	28628	52021	1.82	Si
SLV 9	14	0.46	1.36	-8359	28628	52021	1.82	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-5772	-10378	10	0.024	9.015	0.914	37.502	1890.693	No
SLV 7	-5772	-10378	10	0.024	9.015	0.914	37.502	1890.693	No
SLV 9	-5446	-10976	-10	0.024	8.691	0.911	37.927	1890.693	No
SLV 10	-5446	-10976	-10	0.024	8.691	0.911	37.927	1890.693	No
SLV 4	-5975	-12230	7	0.024	9.218	0.915	38.007	1890.693	No
SLV 3	-5975	-12230	7	0.024	9.218	0.915	38.007	1890.693	No
SLV 5	-5656	-12059	-8	0.024	8.9	0.913	38.189	1890.693	No
SLV 6	-5656	-12059	-8	0.024	8.9	0.913	38.189	1890.693	No
SLV 11	-5563	-9295	8	0.024	8.807	0.912	38.224	1890.693	No
SLV 12	-5563	-9295	8	0.024	8.807	0.912	38.224	1890.693	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.38	SLU 26	Si
V_SLU	4.011	SLU 71	Si
PF_SLV	2.897	SLV 9	Si
V_SLV	0.683	SLV 11	No
PFFP_SLV	1.611	SLV 15	Si
R_SLV	0.02	SLV 7	No

## Maschio 147

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1389.3	-335.9	-1543.3	-335.9	L5	L6	154	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 40	835	-7545	-72467	1.75	456176	6.295	Si
SLU 40	1045	-9291	112871	2.15	526182	4.662	Si
SLU 73	835	-9020	-80213	2.09	516165	6.435	Si
SLU 73	1045	-10649	125633	2.47	571364	4.548	Si
SLU 82	835	-9311	-78118	2.16	526890	6.745	Si
SLU 82	1045	-11008	129760	2.55	581979	4.485	Si
SLU 76	835	-9048	-70039	2.1	517218	7.385	Si
SLU 76	1045	-10423	122396	2.42	564416	4.611	Si
SLU 81	835	-9367	-67568	2.17	528931	7.828	Si
SLU 81	1045	-10889	127011	2.53	578540	4.555	Si
SLU 83	835	-9396	-57394	2.18	529941	9.233	Si
SLU 83	1045	-10664	123774	2.47	571830	4.62	Si
SLU 84	835	-9339	-67944	2.17	527907	7.77	Si
SLU 84	1045	-10783	126523	2.5	575386	4.548	Si
SLU 78	835	-9300	-55655	2.16	526508	9.46	Si
SLU 78	1045	-10469	120224	2.43	565860	4.707	Si
SLU 75	835	-9272	-65829	2.15	525487	7.983	Si
SLU 75	1045	-10695	123461	2.48	572762	4.639	Si
SLU 74	835	-9329	-55279	2.16	527538	9.543	Si
SLU 74	1045	-10576	120712	2.45	569161	4.715	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 10	835	-3330	-85324	0.77	240233	2.816	Si
SLD 10	1045	-3585	208169	0.83	257264	1.236	Si
SLV 10	835	1134	-145184	0	0	0	No, Trazione
SLV 10	1045	1483	372902	0	0	0	No, Trazione
SLD 6	835	-3659	-33187	0.85	262190	7.9	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 6	1045	-2841	153903	0.66	206973	1.345	Si
SLV 5	835	373	-23694	0	0	0	No, Trazione
SLV 5	1045	3233	246481	0	0	0	No, Trazione
SLD 9	835	-3330	-85324	0.77	240233	2.816	Si
SLD 9	1045	-3585	208169	0.83	257264	1.236	Si
SLV 6	835	373	-23694	0	0	0	No, Trazione
SLV 6	1045	3233	246481	0	0	0	No, Trazione
SLD 5	835	-3659	-33187	0.85	262190	7.9	Si
SLD 5	1045	-2841	153903	0.66	206973	1.345	Si
SLV 13	835	-3151	-255726	0	0	0	No, e>l/2
SLV 13	1045	-7348	361647	1.7	486869	1.346	Si
SLV 14	835	-3151	-255726	0	0	0	No, e>l/2
SLV 14	1045	-7348	361647	1.7	486869	1.346	Si
SLV 9	835	1134	-145184	0	0	0	No, Trazione
SLV 9	1045	1483	372902	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	835	-9311	-2113	-78118		2.16	154	0.84	3637			1.72	Si
SLU 82	1045	-11008	-3277	129760		2.55	154	0.9	3863			1.18	Si
SLU 39	835	-7602	-1745	-61917		1.76	154	0.79	3409			1.95	Si
SLU 39	1045	-9173	-2785	110123		2.13	154	0.84	3619			1.3	Si
SLU 84	835	-9339	-1981	-67944		2.17	154	0.84	3641			1.84	Si
SLU 84	1045	-10783	-3049	126523		2.5	154	0.89	3833			1.26	Si
SLU 76	835	-9048	-1982	-70039		2.1	154	0.84	3602			1.82	Si
SLU 76	1045	-10423	-2907	122396		2.42	154	0.88	3785			1.3	Si
SLU 81	835	-9367	-1985	-67568		2.17	154	0.85	3645			1.84	Si
SLU 81	1045	-10889	-3197	127011		2.53	154	0.89	3847			1.2	Si
SLU 61	835	-8904	-1803	-65696		2.07	154	0.83	3583			1.99	Si
SLU 61	1045	-10080	-2922	113910		2.34	154	0.87	3740			1.28	Si
SLU 73	835	-9020	-2114	-80213		2.09	154	0.83	3598			1.7	Si
SLU 73	1045	-10649	-3135	125633		2.47	154	0.88	3815			1.22	Si
SLU 40	835	-7545	-1873	-72467		1.75	154	0.79	3402			1.82	Si
SLU 40	1045	-9291	-2864	112871		2.15	154	0.84	3634			1.27	Si
SLU 75	835	-9272	-1976	-65829		2.15	154	0.84	3632			1.84	Si
SLU 75	1045	-10695	-2962	123461		2.48	154	0.89	3822			1.29	Si
SLU 83	835	-9396	-1852	-57394		2.18	154	0.85	3648			1.97	Si
SLU 83	1045	-10664	-2970	123774		2.47	154	0.89	3817			1.29	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 10	835	-3330	-2277	-85324		0.77	154	0.99	4259			1.87	Si
SLD 10	1045	-3585	-1928	208169		2.25	56.8	1.28	2042			1.06	Si
SLD 9	835	-3330	-2277	-85324		0.77	154	0.99	4259			1.87	Si
SLD 9	1045	-3585	-1928	208169		2.25	56.8	1.28	2042			1.06	Si
SLV 13	835	-3151	-5412	-255726		0	0	0.83	0			0	No, Vu<V
SLV 13	1045	-7348	-4555	361647		3.15	83.34	1.46	3414			0.75	No, Vu<V
SLV 14	835	-3151	-5412	-255726		0	0	0.83	0			0	No, Vu<V
SLV 14	1045	-7348	-4555	361647		3.15	83.34	1.46	3414			0.75	No, Vu<V
SLV 5	835	373	-1358	-23694		0	0	0.83	0			0	No, Vu<V
SLV 5	1045	3233	-47	246481		0	0	0.83	0			0	No, Vu<V
SLV 16	835	-7584	-4700	-228988		1.93	140.42	1.22	4793			1.02	Si
SLV 16	1045	-13167	-5217	225578		3.05	154	1.44	6227			1.19	Si
SLV 9	835	1134	-3612	-145184		0	0	0.83	0			0	No, Vu<V
SLV 9	1045	1483	-1771	372902		0	0	0.83	0			0	No, Vu<V
SLV 10	835	1134	-3612	-145184		0	0	0.83	0			0	No, Vu<V
SLV 10	1045	1483	-1771	372902		0	0	0.83	0			0	No, Vu<V
SLV 15	835	-7584	-4700	-228988		1.93	140.42	1.22	4793			1.02	Si
SLV 15	1045	-13167	-5217	225578		3.05	154	1.44	6227			1.19	Si
SLV 6	835	373	-1358	-23694		0	0	0.83	0			0	No, Vu<V
SLV 6	1045	3233	-47	246481		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.46	0	1013	18709	0	0	No, Trazione
SLV 6	14	0.46	0	2835	18709	0	0	No, Trazione
SLV 5	14	0.46	0	2835	18709	0	0	No, Trazione
SLV 9	14	0.46	0	1013	18709	0	0	No, Trazione
SLV 2	14	0.46	0.38	-1639	18709	22237	1.19	Si
SLV 1	14	0.46	0.38	-1639	18709	22237	1.19	Si
SLV 3	14	0.46	1.69	-7297	18709	88007	4.7	Si
SLV 4	14	0.46	1.69	-7297	18709	88007	4.7	Si
SLV 14	14	0.46	1.79	-7713	18709	92179	4.93	Si
SLV 13	14	0.46	1.79	-7713	18709	92179	4.93	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	2719	1134	144	0	0	0	0	1241.353	No, Trazione
SLV 10	2719	1134	144	0	0	0	0	1241.353	No, Trazione
SLV 6	3372	373	127	0	0	0	0	1241.353	No, Trazione
SLV 5	3372	373	127	0	0	0	0	1241.353	No, Trazione
SLV 7	-11322	-14404	-147	0.032	13.67	0.954	49.432	1241.353	No
SLV 8	-11322	-14404	-147	0.032	13.67	0.954	49.432	1241.353	No
SLV 12	-11974	-13644	-131	0.034	14.333	0.956	51.765	1241.353	No
SLV 11	-11974	-13644	-131	0.034	14.333	0.956	51.765	1241.353	No





Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-5418	-10120	-70	0.037	7.69	0.926	58.714	1193.169	No
SLV 4	-5418	-10120	-70	0.037	7.69	0.926	58.714	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	4.485	SLV 82	Si
V_SLV	1.179	SLV 82	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLV 5	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 10	No

## Maschio 148

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota s.	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	104.6	-1505.8	140.6	L5	L6	36	14	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\alpha_0$	Mu	c.s.	Verifica
SLU 37	835	-3104	18246	6.16	13632	0.747	No, M>Mu
SLU 37	1045	-399	-15197	0	0	0	No, e>l/2
SLU 83	835	-3469	19418	6.88	9682	0.499	No, M>Mu
SLU 83	1045	-572	-15711	0	0	0	No, e>l/2
SLU 40	835	-2853	16322	5.66	15666	0.96	No, M>Mu
SLU 40	1045	-430	-13138	0	0	0	No, e>l/2
SLU 55	835	-2855	14691	5.67	15652	1.065	Si
SLU 55	1045	-619	-11770	0	0	0	No, e>l/2
SLU 41	835	-3069	18046	6.09	13944	0.773	No, M>Mu
SLU 41	1045	-399	-14788	0	0	0	No, e>l/2
SLU 39	835	-2855	16356	5.66	15654	0.957	No, M>Mu
SLU 39	1045	-431	-13114	0	0	0	No, e>l/2
SLU 56	835	-3132	16576	6.21	13369	0.806	No, M>Mu
SLU 56	1045	-633	-13481	0	0	0	No, e>l/2
SLU 42	835	-3068	18012	6.09	13960	0.775	No, M>Mu
SLU 42	1045	-398	-14811	0	0	0	No, e>l/2
SLU 36	835	-3161	18352	6.27	13087	0.713	No, M>Mu
SLU 36	1045	-442	-15298	0	0	0	No, e>l/2
SLU 38	835	-3102	18212	6.15	13648	0.749	No, M>Mu
SLU 38	1045	-398	-15221	0	0	0	No, e>l/2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\alpha_0$	Mu	c.s.	Verifica
SLV 8	835	-5015	52357	9.95	16753	0.32	No, M>Mu
SLV 8	1045	1395	-29864	0	0	0	No, Trazione
SLV 7	835	-5015	52357	9.95	16753	0.32	No, M>Mu
SLV 7	1045	1395	-29864	0	0	0	No, Trazione
SLV 9	835	881	-32132	0	0	0	No, Trazione
SLV 9	1045	-2450	14261	4.86	26556	1.862	Si
SLV 4	835	-2617	17969	5.19	27089	1.507	Si
SLV 4	1045	-323	-10097	0	0	0	No, e>l/2
SLV 11	835	-5236	55533	10.39	14114	0.254	No, M>Mu
SLV 11	1045	1641	-32714	0	0	0	No, Trazione
SLV 5	835	1101	-35308	0	0	0	No, Trazione
SLV 5	1045	-2696	17112	5.35	27283	1.594	Si
SLD 16	835	-2609	17854	5.18	27066	1.516	Si
SLD 16	1045	-91	-12852	0	0	0	No, e>l/2
SLV 6	835	1101	-35308	0	0	0	No, Trazione
SLV 6	1045	-2696	17112	5.35	27283	1.594	Si
SLV 10	835	881	-32132	0	0	0	No, Trazione
SLV 10	1045	-2450	14261	4.86	26556	1.862	Si
SLV 12	835	-5236	55533	10.39	14114	0.254	No, M>Mu
SLV 12	1045	1641	-32714	0	0	0	No, Trazione

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha_0$	$\alpha_N$	l'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt <sub>lim</sub>	c.s.	Verifica
SLU 83	835	-3469	394	19418		6.88	36	1.08	546			1.39	Si
SLU 83	1045	-572	401	-15711		0	0	0.56	0			0	No, Vu<V
SLU 36	835	-3161	376	18352		6.27	36	1.08	546			1.45	Si
SLU 36	1045	-442	384	-15298		0	0	0.56	0			0	No, Vu<V
SLU 39	835	-2855	332	16356		5.66	36	1.08	546			1.64	Si
SLU 39	1045	-431	335	-13114		0	0	0.56	0			0	No, Vu<V
SLU 40	835	-2853	331	16322		5.66	36	1.08	546			1.65	Si
SLU 40	1045	-430	336	-13138		0	0	0.56	0			0	No, Vu<V
SLU 38	835	-3102	373	18212		6.15	36	1.08	546			1.46	Si
SLU 38	1045	-398	382	-15221		0	0	0.56	0			0	No, Vu<V
SLU 55	835	-2855	293	14691		5.67	36	1.08	546			1.86	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	1045	-619	305	-11770		0	0	0.56	0			0	No, Vu<V
SLU 56	835	-3132	335	16576		6.21	36	1.08	546			1.63	Si
SLU 56	1045	-633	344	-13481		0	0	0.56	0			0	No, Vu<V
SLU 37	835	-3104	374	18246		6.16	36	1.08	546			1.46	Si
SLU 37	1045	-399	381	-15197		0	0	0.56	0			0	No, Vu<V
SLU 41	835	-3069	369	18046		6.09	36	1.08	546			1.48	Si
SLU 41	1045	-399	374	-14788		0	0	0.56	0			0	No, Vu<V
SLU 42	835	-3068	368	18012		6.09	36	1.08	546			1.48	Si
SLU 42	1045	-398	375	-14811		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	835	-5236	1554	55533		16.86	22.18	1.63	505			0.32	No, Vu<V
SLV 12	1045	1641	743	-32714		0	0	0.83	0			0	No, Vu<V
SLV 7	835	-5015	1453	52357		15.79	22.68	1.63	516			0.36	No, Vu<V
SLV 7	1045	1395	672	-29864		0	0	0.83	0			0	No, Vu<V
SLV 10	835	881	-1055	-32132		0	0	0.83	0			0	No, Vu<V
SLV 10	1045	-2450	-262	14261		4.86	36	1.63	819			3.13	Si
SLD 16	835	-2609	433	17854		5.57	33.47	1.63	761			1.76	Si
SLD 16	1045	-91	320	-12852		0	0	0.83	0			0	No, Vu<V
SLV 8	835	-5015	1453	52357		15.79	22.68	1.63	516			0.36	No, Vu<V
SLV 8	1045	1395	672	-29864		0	0	0.83	0			0	No, Vu<V
SLV 6	835	1101	-1156	-35308		0	0	0.83	0			0	No, Vu<V
SLV 6	1045	-2696	-333	17112		5.51	34.96	1.63	795			2.39	Si
SLV 11	835	-5236	1554	55533		16.86	22.18	1.63	505			0.32	No, Vu<V
SLV 11	1045	1641	743	-32714		0	0	0.83	0			0	No, Vu<V
SLV 5	835	1101	-1156	-35308		0	0	0.83	0			0	No, Vu<V
SLV 5	1045	-2696	-333	17112		5.51	34.96	1.63	795			2.39	Si
SLV 4	835	-2617	422	17969		5.6	33.4	1.63	760			1.8	Si
SLV 4	1045	-323	237	-10097		0	0	0.83	0			0	No, Vu<V
SLV 9	835	881	-1055	-32132		0	0	0.83	0			0	No, Vu<V
SLV 9	1045	-2450	-262	14261		4.86	36	1.63	819			3.13	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.46	0	454	2339	0	0	No, Trazione
SLV 11	14	0.46	0	1595	2339	0	0	No, Trazione
SLV 7	14	0.46	0	1350	2339	0	0	No, Trazione
SLV 8	14	0.46	0	1350	2339	0	0	No, Trazione
SLV 12	14	0.46	0	1595	2339	0	0	No, Trazione
SLV 16	14	0.46	0	454	2339	0	0	No, Trazione
SLV 3	14	0.46	0.72	-362	2339	2386	1.02	Si
SLV 4	14	0.46	0.72	-362	2339	2386	1.02	Si
SLV 13	14	0.46	1.53	-769	2339	4709	2.01	Si
SLV 14	14	0.46	1.53	-769	2339	4709	2.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	92	881	15	0	0	0	0	1890.693	No, Trazione
SLV 5	176	1101	18	0	0	0	0	1890.693	No, Trazione
SLV 9	92	881	15	0	0	0	0	1890.693	No, Trazione
SLV 6	176	1101	18	0	0	0	0	1890.693	No, Trazione
SLV 2	-516	-782	9	0.011	0.781	0.917	17.377	1890.693	No
SLV 1	-516	-782	9	0.011	0.781	0.917	17.377	1890.693	No
SLV 12	-2166	-5236	-18	0.014	2.455	0.969	20.377	1890.693	No
SLV 11	-2166	-5236	-18	0.014	2.455	0.969	20.377	1890.693	No
SLV 8	-2081	-5015	-15	0.015	2.369	0.968	21.775	1890.693	No
SLV 7	-2081	-5015	-15	0.015	2.369	0.968	21.775	1890.693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 6	No
V_SLU	0	SLU 6	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 3	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 10	No

## Maschio 149

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	220.6	-1505.8	652.1	L5	L6	431.5	14	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 9	835	-13435	-89077	2.22	2107209	23.656	Si
SLU 9	1045	-11104	-226835	1.84	1855129	8.178	Si
SLU 72	835	-18511	-140266	3.06	2491429	17.762	Si
SLU 72	1045	-15388	-281208	2.55	2281768	8.114	Si
SLU 8	835	-13443	-90117	2.23	2108059	23.393	Si
SLU 8	1045	-11113	-227019	1.84	1856156	8.176	Si
SLU 37	835	-17248	-132983	2.86	2416968	18.175	Si
SLU 37	1045	-14775	-267311	2.45	2230621	8.345	Si
SLU 38	835	-17240	-131943	2.85	2416407	18.314	Si
SLU 38	1045	-14767	-267127	2.44	2229872	8.348	Si
SLU 27	835	-15768	-112662	2.61	2311874	20.52	Si
SLU 27	1045	-13295	-253314	2.2	2093423	8.264	Si
SLU 29	835	-15421	-104134	2.55	2284473	21.938	Si
SLU 29	1045	-12948	-260827	2.14	2058500	7.892	Si
SLU 30	835	-15413	-103094	2.55	2283774	22.152	Si
SLU 30	1045	-12939	-260643	2.14	2057613	7.894	Si
SLU 71	835	-18520	-141306	3.07	2491893	17.635	Si
SLU 71	1045	-15396	-281392	2.55	2282469	8.111	Si
SLU 28	835	-15759	-111622	2.61	2311201	20.706	Si
SLU 28	1045	-13286	-253130	2.2	2092561	8.267	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	835	-9926	-679141	1.64	1853561	2.729	Si
SLV 9	1045	-8547	904741	1.41	1630468	1.802	Si
SLV 7	835	-17427	374790	2.88	2872131	7.663	Si
SLV 7	1045	-14063	-1142139	2.33	2456041	2.15	Si
SLV 11	835	-17459	450324	2.89	2875816	6.386	Si
SLV 11	1045	-14056	-1238242	2.33	2455042	1.983	Si
SLV 15	835	-14860	143135	2.46	2560632	17.89	Si
SLV 15	1045	-12119	-600319	2.01	2185356	3.64	Si
SLV 12	835	-17459	450324	2.89	2875816	6.386	Si
SLV 12	1045	-14056	-1238242	2.33	2455042	1.983	Si
SLV 8	835	-17427	374790	2.88	2872131	7.663	Si
SLV 8	1045	-14063	-1142139	2.33	2456041	2.15	Si
SLV 10	835	-9926	-679141	1.64	1853561	2.729	Si
SLV 10	1045	-8547	904741	1.41	1630468	1.802	Si
SLV 16	835	-14860	143135	2.46	2560632	17.89	Si
SLV 16	1045	-12119	-600319	2.01	2185356	3.64	Si
SLV 6	835	-9894	-754675	1.64	1848450	2.449	Si
SLV 6	1045	-8554	1000845	1.42	1631708	1.63	Si
SLV 5	835	-9894	-754675	1.64	1848450	2.449	Si
SLV 5	1045	-8554	1000845	1.42	1631708	1.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	835	-18511	697	-140266		3.06	431.5	0.96	5824			8.36	Si
SLU 72	1045	-15388	697	-281208		2.55	431.5	0.9	5408			7.76	Si
SLU 27	835	-15768	689	-112662		2.61	431.5	0.9	5459			7.92	Si
SLU 27	1045	-13295	689	-253314		2.2	431.5	0.85	5129			7.44	Si
SLU 8	835	-13443	672	-90117		2.23	431.5	0.85	5149			7.67	Si
SLU 8	1045	-11113	672	-227019		1.84	431.5	0.8	4838			7.2	Si
SLU 71	835	-18520	693	-141306		3.07	431.5	0.96	5825			8.41	Si
SLU 71	1045	-15396	693	-281392		2.55	431.5	0.9	5409			7.81	Si
SLU 29	835	-15421	766	-104134		2.55	431.5	0.9	5412			7.07	Si
SLU 29	1045	-12948	766	-260827		2.14	431.5	0.84	5083			6.64	Si
SLU 9	835	-13435	676	-89077		2.22	431.5	0.85	5147			7.62	Si
SLU 9	1045	-11104	676	-226835		1.84	431.5	0.8	4837			7.16	Si
SLU 38	835	-17240	663	-131943		2.85	431.5	0.94	5655			8.53	Si
SLU 38	1045	-14767	663	-267127		2.44	431.5	0.88	5325			8.03	Si
SLU 30	835	-15413	770	-103094		2.55	431.5	0.9	5411			7.03	Si
SLU 30	1045	-12939	770	-260643		2.14	431.5	0.84	5081			6.6	Si
SLU 28	835	-15759	693	-111622		2.61	431.5	0.9	5457			7.87	Si
SLU 28	1045	-13286	693	-253130		2.2	431.5	0.85	5128			7.4	Si
SLU 37	835	-17248	659	-132983		2.86	431.5	0.94	5656			8.58	Si
SLU 37	1045	-14775	659	-267311		2.45	431.5	0.88	5326			8.08	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	835	-12492	-3123	-447485		2.07	431.5	1.25	7533			2.41	Si
SLV 1	1045	-10491	-3710	362922		1.74	431.5	1.18	7132			1.92	Si
SLV 9	835	-9926	-4966	-679141		1.64	431.5	1.16	7019			1.41	Si
SLV 9	1045	-8547	-7456	904741		1.85	329.68	1.2	5556			0.75	No, Vu<V
SLV 2	835	-12492	-3123	-447485		2.07	431.5	1.25	7533			2.41	Si
SLV 2	1045	-10491	-3710	362922		1.74	431.5	1.18	7132			1.92	Si
SLV 10	835	-9926	-4966	-679141		1.64	431.5	1.16	7019			1.41	Si
SLV 10	1045	-8547	-7456	904741		1.85	329.68	1.2	5556			0.75	No, Vu<V
SLV 6	835	-9894	-5811	-754675		1.69	418.41	1.17	6860			1.18	Si
SLV 6	1045	-8554	-8214	1000845		2.06	296.25	1.25	5167			0.63	No, Vu<V
SLV 5	835	-9894	-5811	-754675		1.69	418.41	1.17	6860			1.18	Si
SLV 5	1045	-8554	-8214	1000845		2.06	296.25	1.25	5167			0.63	No, Vu<V
SLV 8	835	-17427	4686	374790		2.88	431.5	1.41	8519			1.82	Si
SLV 8	1045	-14063	7177	-1142139		2.49	403.6	1.33	7521			1.05	Si
SLV 12	835	-17459	5531	450324		2.89	431.5	1.41	8526			1.54	Si
SLV 12	1045	-14056	7934	-1238242		2.62	382.96	1.36	7279			0.92	No, Vu<V
SLV 11	835	-17459	5531	450324		2.89	431.5	1.41	8526			1.54	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	1045	-14056	7934	-1238242		2.62	382.96	1.36	7279			0.92	No, Vu<V
SLV 7	835	-17427	4686	374790		2.88	431.5	1.41	8519			1.82	Si
SLV 7	1045	-14063	7177	-1142139		2.49	403.6	1.33	7521			1.05	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.03 denominatore  $8 \gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.46	1.46	-8824	28039	54385	1.94	Si
SLV 9	14	0.46	1.46	-8824	28039	54385	1.94	Si
SLV 5	14	0.46	1.46	-8833	28039	54429	1.94	Si
SLV 6	14	0.46	1.46	-8833	28039	54429	1.94	Si
SLV 14	14	0.46	1.8	-10875	28039	64907	2.31	Si
SLV 13	14	0.46	1.8	-10875	28039	64907	2.31	Si
SLV 1	14	0.46	1.8	-10902	28039	65043	2.32	Si
SLV 2	14	0.46	1.8	-10902	28039	65043	2.32	Si
SLV 15	14	0.46	2.09	-12640	28039	73330	2.62	Si
SLV 16	14	0.46	2.09	-12640	28039	73330	2.62	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 13	-7533	-12600	88	0.015	10.716	0.925	22.913	1890.693	No
SLV 14	-7533	-12600	88	0.015	10.716	0.925	22.913	1890.693	No
SLV 4	-8473	-14752	-89	0.015	11.662	0.93	23.441	1890.693	No
SLV 3	-8473	-14752	-89	0.015	11.662	0.93	23.441	1890.693	No
SLV 16	-6800	-14860	64	0.017	9.979	0.921	26.643	1890.693	No
SLV 15	-6800	-14860	64	0.017	9.979	0.921	26.643	1890.693	No
SLV 8	-7032	-17427	-63	0.017	10.211	0.922	26.915	1890.693	No
SLV 7	-7032	-17427	-63	0.017	10.211	0.922	26.915	1890.693	No
SLV 1	-9206	-12492	-65	0.017	12.403	0.933	27.204	1890.693	No
SLV 2	-9206	-12492	-65	0.017	12.403	0.933	27.204	1890.693	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.892	SLU 29	Si
V_SLU	6.602	SLU 30	Si
PF_SLV	1.63	SLV 5	Si
V_SLV	0.629	SLV 5	No
PFFP_SLV	1.94	SLV 9	Si
R_SLV	0.012	SLV 13	No

## Maschio 150

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-35.4	-1375.3	-22.8	L5	L6	12.6	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 59	835	-933	9808	0	0	0	No, e>1/2
SLU 59	1045	-974	-10152	0	0	0	No, e>1/2
SLU 57	835	-932	9713	0	0	0	No, e>1/2
SLU 57	1045	-971	-10078	0	0	0	No, e>1/2
SLU 1	835	-509	4650	0	0	0	No, e>1/2
SLU 1	1045	-576	-5861	0	0	0	No, e>1/2
SLU 53	835	-878	9930	0	0	0	No, e>1/2
SLU 53	1045	-900	-9471	0	0	0	No, e>1/2
SLU 55	835	-852	10294	0	0	0	No, e>1/2
SLU 55	1045	-871	-9246	0	0	0	No, e>1/2
SLU 61	835	-870	12416	0	0	0	No, e>1/2
SLU 61	1045	-836	-9206	0	0	0	No, e>1/2
SLU 54	835	-862	10091	0	0	0	No, e>1/2
SLU 54	1045	-880	-9291	0	0	0	No, e>1/2
SLU 58	835	-949	9647	0	0	0	No, e>1/2
SLU 58	1045	-994	-10332	0	0	0	No, e>1/2
SLU 56	835	-948	9551	0	0	0	No, e>1/2
SLU 56	1045	-990	-10257	0	0	0	No, e>1/2
SLU 60	835	-885	12255	0	0	0	No, e>1/2
SLU 60	1045	-855	-9386	0	0	0	No, e>1/2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	835	-1837	233	5.22	6613	28.351	Si
SLV 6	1045	-2313	-22508	0	0	0	No, e>1/2
SLV 8	835	836	12146	0	0	0	No, Trazione
SLV 8	1045	780	6921	0	0	0	No, Trazione
SLV 12	835	660	11469	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	1045	1047	9415	0	0	0	No, Trazione
SLV 10	835	-2013	-443	5.72	6729	15.173	Si
SLV 10	1045	-2047	-20014	0	0	0	No, e>l/2
SLV 11	835	660	11469	0	0	0	No, Trazione
SLV 11	1045	1047	9415	0	0	0	No, Trazione
SLV 13	835	-1283	2936	3.64	5657	1.927	Si
SLV 13	1045	-653	-6804	0	0	0	No, e>l/2
SLV 14	835	-1283	2936	3.64	5657	1.927	Si
SLV 14	1045	-653	-6804	0	0	0	No, e>l/2
SLV 9	835	-2013	-443	5.72	6729	15.173	Si
SLV 9	1045	-2047	-20014	0	0	0	No, e>l/2
SLD 1	835	-633	5583	0	0	0	No, e>l/2
SLD 1	1045	-1022	-10217	0	0	0	No, e>l/2
SLV 7	835	836	12146	0	0	0	No, Trazione
SLV 7	1045	780	6921	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 56	835	-948	59	9551		0	0	0.56	0			0	No, Vu<V
SLU 56	1045	-990	-32	-10257		0	0	0.56	0			0	No, Vu<V
SLU 60	835	-885	135	12255		0	0	0.56	0			0	No, Vu<V
SLU 60	1045	-855	0	-9386		0	0	0.56	0			0	No, Vu<V
SLU 58	835	-949	61	9647		0	0	0.56	0			0	No, Vu<V
SLU 58	1045	-994	-32	-10332		0	0	0.56	0			0	No, Vu<V
SLU 53	835	-878	81	9930		0	0	0.56	0			0	No, Vu<V
SLU 53	1045	-900	-17	-9471		0	0	0.56	0			0	No, Vu<V
SLU 54	835	-862	89	10091		0	0	0.56	0			0	No, Vu<V
SLU 54	1045	-880	-14	-9291		0	0	0.56	0			0	No, Vu<V
SLU 1	835	-509	24	4650		0	0	0.56	0			0	No, Vu<V
SLU 1	1045	-576	-10	-5861		0	0	0.56	0			0	No, Vu<V
SLU 59	835	-933	68	9808		0	0	0.56	0			0	No, Vu<V
SLU 59	1045	-974	-29	-10152		0	0	0.56	0			0	No, Vu<V
SLU 55	835	-852	96	10294		0	0	0.56	0			0	No, Vu<V
SLU 55	1045	-871	-13	-9246		0	0	0.56	0			0	No, Vu<V
SLU 61	835	-870	142	12416		0	0	0.56	0			0	No, Vu<V
SLU 61	1045	-836	3	-9206		0	0	0.56	0			0	No, Vu<V
SLU 57	835	-932	66	9713		0	0	0.56	0			0	No, Vu<V
SLU 57	1045	-971	-29	-10078		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	835	-2013	-392	-443		5.72	12.57	1.63	572			1.46	Si
SLV 9	1045	-2047	-227	-20014		0	0	0.83	0			0	No, Vu<V
SLV 7	835	836	466	12146		0	0	0.83	0			0	No, Vu<V
SLV 7	1045	780	205	6921		0	0	0.83	0			0	No, Vu<V
SLV 14	835	-1283	-247	2936		3.82	11.99	1.6	536			2.17	Si
SLV 14	1045	-653	-14	-6804		0	0	0.83	0			0	No, Vu<V
SLV 11	835	660	363	11469		0	0	0.83	0			0	No, Vu<V
SLV 11	1045	1047	246	9415		0	0	0.83	0			0	No, Vu<V
SLV 8	835	836	466	12146		0	0	0.83	0			0	No, Vu<V
SLV 8	1045	780	205	6921		0	0	0.83	0			0	No, Vu<V
SLV 13	835	-1283	-247	2936		3.82	11.99	1.6	536			2.17	Si
SLV 13	1045	-653	-14	-6804		0	0	0.83	0			0	No, Vu<V
SLD 1	835	-633	63	5583		0	0	0.83	0			0	No, Vu<V
SLD 1	1045	-1022	-70	-10217		0	0	0.83	0			0	No, Vu<V
SLV 6	835	-1837	-289	233		5.22	12.57	1.63	572			1.98	Si
SLV 6	1045	-2313	-268	-22508		0	0	0.83	0			0	No, Vu<V
SLV 12	835	660	363	11469		0	0	0.83	0			0	No, Vu<V
SLV 12	1045	1047	246	9415		0	0	0.83	0			0	No, Vu<V
SLV 10	835	-2013	-392	-443		5.72	12.57	1.63	572			1.46	Si
SLV 10	1045	-2047	-227	-20014		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.46	0	1022	1563	0	0	No, Trazione
SLV 15	14	0.46	0	250	1563	0	0	No, Trazione
SLV 11	14	0.46	0	1022	1563	0	0	No, Trazione
SLV 16	14	0.46	0	250	1563	0	0	No, Trazione
SLV 7	14	0.46	0	756	1563	0	0	No, Trazione
SLV 8	14	0.46	0	756	1563	0	0	No, Trazione
SLV 3	14	0.46	1.81	-638	1563	7603	4.87	Si
SLV 4	14	0.46	1.81	-638	1563	7603	4.87	Si
SLV 13	14	0.46	1.93	-678	1563	7996	5.12	Si
SLV 14	14	0.46	1.93	-678	1563	7996	5.12	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-131	-2013	83	0	0.321	0.89	0	1241.353	No
SLV 2	-329	-696	113	0	0.514	0.914	0	1193.169	No
SLV 8	-273	836	-73	0	0	0	0	1241.353	No, Trazione
SLV 6	-213	-1837	130	0	0.399	0.899	0	1241.353	No
SLV 5	-213	-1837	130	0	0.399	0.899	0	1241.353	No
SLV 7	-273	836	-73	0	0	0	0	1241.353	No, Trazione
SLV 1	-329	-696	113	0	0.514	0.914	0	1193.169	No
SLV 9	-131	-2013	83	0	0.321	0.89	0	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 3	-347	106	52	0	0	0	0	1193.169	No, Trazione
SLV 4	-347	106	52	0	0	0	0	1193.169	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 12	No

## Maschio 151

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	67.2	-1375.3	104.6	L5	L6	37.4	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 78	835	-6156	-26523	5.87	32138	1.212	Si
SLU 78	1045	-2681	18801	2.56	34418	1.831	Si
SLU 79	835	-6132	-27572	5.85	32331	1.173	Si
SLU 79	1045	-2532	19663	2.42	33331	1.695	Si
SLU 80	835	-6040	-26334	5.76	33068	1.256	Si
SLU 80	1045	-2589	18574	2.47	33762	1.818	Si
SLU 70	835	-5760	-26415	5.5	35067	1.328	Si
SLU 70	1045	-2281	19840	2.18	31286	1.577	Si
SLU 77	835	-6248	-27760	5.96	31354	1.129	Si
SLU 77	1045	-2623	19891	2.5	34009	1.71	Si
SLU 71	835	-5737	-27464	5.47	35220	1.282	Si
SLU 71	1045	-2132	20702	2.03	29938	1.446	Si
SLU 29	835	-5041	-26257	4.81	38637	1.471	Si
SLU 29	1045	-1633	20464	1.56	24720	1.208	Si
SLU 27	835	-5157	-26446	4.92	38214	1.445	Si
SLU 27	1045	-1725	20692	1.65	25759	1.245	Si
SLU 69	835	-5853	-27652	5.58	34444	1.246	Si
SLU 69	1045	-2224	20930	2.12	30777	1.47	Si
SLU 30	835	-4949	-25020	4.72	38931	1.556	Si
SLU 30	1045	-1691	19375	1.61	25379	1.31	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLD 1	835	-5095	-35393	4.86	57418	1.622	Si
SLD 1	1045	-879	30241	0	0	0	No, e>l/2
SLV 10	835	-8342	-88933	7.96	54420	0.612	No, M>Mu
SLV 10	1045	2096	64720	0	0	0	No, Trazione
SLV 7	835	1203	64849	0	0	0	No, Trazione
SLV 7	1045	-5898	-49956	5.63	59544	1.192	Si
SLV 9	835	-8342	-88933	7.96	54420	0.612	No, M>Mu
SLV 9	1045	2096	64720	0	0	0	No, Trazione
SLV 2	835	-7138	-66627	6.81	59128	0.887	No, M>Mu
SLV 2	1045	488	60599	0	0	0	No, Trazione
SLV 5	835	-9518	-106282	9.08	45732	0.43	No, M>Mu
SLV 5	1045	2751	84545	0	0	0	No, Trazione
SLV 6	835	-9518	-106282	9.08	45732	0.43	No, M>Mu
SLV 6	1045	2751	84545	0	0	0	No, Trazione
SLV 11	835	2379	82198	0	0	0	No, Trazione
SLV 11	1045	-6553	-69781	6.25	59884	0.858	No, M>Mu
SLV 12	835	2379	82198	0	0	0	No, Trazione
SLV 12	1045	-6553	-69781	6.25	59884	0.858	No, M>Mu
SLV 8	835	1203	64849	0	0	0	No, Trazione
SLV 8	1045	-5898	-49956	5.63	59544	1.192	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	835	-5437	-486	-26365		5.19	37.43	1.08	1135			2.34	Si
SLU 37	1045	-2033	-490	19425		2.64	27.48	0.91	699			1.43	Si
SLU 27	835	-5157	-494	-26446		4.92	37.43	1.08	1135			2.3	Si
SLU 27	1045	-1725	-500	20692		3.06	20.16	0.96	544			1.09	Si
SLU 30	835	-4949	-464	-25020		4.72	37.43	1.08	1135			2.45	Si
SLU 30	1045	-1691	-472	19375		2.77	21.77	0.93	564			1.2	Si
SLU 69	835	-5853	-507	-27652		5.58	37.43	1.08	1135			2.24	Si
SLU 69	1045	-2224	-514	20930		2.85	27.91	0.93	731			1.42	Si
SLU 35	835	-5553	-491	-26553		5.3	37.43	1.08	1135			2.31	Si
SLU 35	1045	-2124	-494	19653		2.67	28.39	0.91	725			1.47	Si
SLU 29	835	-5041	-489	-26257		4.81	37.43	1.08	1135			2.32	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	1045	-1633	-496	20464		3.14	18.56	0.97	506			1.02	Si
SLU 70	835	-5760	-482	-26415		5.5	37.43	1.08	1135			2.36	Si
SLU 70	1045	-2281	-490	19840		2.71	30.05	0.92	772			1.57	Si
SLU 71	835	-5737	-503	-27464		5.47	37.43	1.08	1135			2.26	Si
SLU 71	1045	-2132	-511	20702		2.82	27.02	0.93	705			1.38	Si
SLU 72	835	-5644	-477	-26227		5.39	37.43	1.08	1135			2.38	Si
SLU 72	1045	-2190	-486	19613		2.67	29.28	0.91	747			1.54	Si
SLU 28	835	-5065	-469	-25208		4.83	37.43	1.08	1135			2.42	Si
SLU 28	1045	-1783	-476	19602		2.75	23.15	0.92	598			1.26	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	835	-8342	-1877	-88933		12.33	24.17	1.63	1100			0.59	No, Vu<V
SLV 10	1045	2096	-1506	64720		0	0	0.83	0			0	No, Vu<V
SLV 7	835	1203	1468	64849		0	0	0.83	0			0	No, Vu<V
SLV 7	1045	-5898	1090	-49956		6.85	30.74	1.63	1398			1.28	Si
SLV 5	835	-9518	-2241	-106282		15.01	22.65	1.63	1031			0.46	No, Vu<V
SLV 5	1045	2751	-1816	84545		0	0	0.83	0			0	No, Vu<V
SLV 8	835	1203	1468	64849		0	0	0.83	0			0	No, Vu<V
SLV 8	1045	-5898	1090	-49956		6.85	30.74	1.63	1398			1.28	Si
SLV 11	835	2379	1831	82198		0	0	0.83	0			0	No, Vu<V
SLV 11	1045	-6553	1400	-69781		9.67	24.2	1.63	1101			0.79	No, Vu<V
SLV 9	835	-8342	-1877	-88933		12.33	24.17	1.63	1100			0.59	No, Vu<V
SLV 9	1045	2096	-1506	64720		0	0	0.83	0			0	No, Vu<V
SLV 6	835	-9518	-2241	-106282		15.01	22.65	1.63	1031			0.46	No, Vu<V
SLV 6	1045	2751	-1816	84545		0	0	0.83	0			0	No, Vu<V
SLV 2	835	-7138	-1367	-66627		9.06	28.14	1.63	1281			0.94	No, Vu<V
SLV 2	1045	488	-1160	60599		0	0	0.83	0			0	No, Vu<V
SLD 1	835	-5095	-702	-35393		5.15	35.31	1.63	1607			2.29	Si
SLD 1	1045	-879	-615	30241		0	0	0.83	0			0	No, Vu<V
SLV 12	835	2379	1831	82198		0	0	0.83	0			0	No, Vu<V
SLV 12	1045	-6553	1400	-69781		9.67	24.2	1.63	1101			0.79	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.46	0	2307	4653	0	0	No, Trazione
SLV 10	14	0.46	0	2380	4653	0	0	No, Trazione
SLV 9	14	0.46	0	2380	4653	0	0	No, Trazione
SLV 6	14	0.46	0	2307	4653	0	0	No, Trazione
SLV 14	14	0.46	0.54	-561	4653	7511	1.61	Si
SLV 13	14	0.46	0.54	-561	4653	7511	1.61	Si
SLV 2	14	0.46	0.77	-805	4653	10560	2.27	Si
SLV 1	14	0.46	0.77	-805	4653	10560	2.27	Si
SLV 15	14	0.46	3.01	-3156	4653	33292	7.15	Si
SLV 16	14	0.46	3.01	-3156	4653	33292	7.15	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-1457	2379	-23	0	0	0	0	1241.353	No, Trazione
SLV 11	-1457	2379	-23	0	0	0	0	1241.353	No, Trazione
SLV 7	-1727	1203	-1	0	0	0	0	1241.353	No, Trazione
SLV 8	-1727	1203	-1	0	0	0	0	1241.353	No, Trazione
SLV 16	-926	-2	-41	0.018	1.477	0.911	28.742	1193.169	No
SLV 15	-926	-2	-41	0.018	1.477	0.911	28.742	1193.169	No
SLV 14	-741	-3218	-34	0.02	1.294	0.903	32.193	1193.169	No
SLV 13	-741	-3218	-34	0.02	1.294	0.903	32.193	1193.169	No
SLV 2	-1642	-7138	38	0.027	2.197	0.935	42.652	1193.169	No
SLV 1	-1642	-7138	38	0.027	2.197	0.935	42.652	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.129	SLU 77	Si
V_SLU	1.022	SLU 29	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 12	No

## Maschio 152

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1975.8	666.1	-1771.8	666.1	L5	L6	204	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 8	925	-4366	26081	0.76	403549	15.473	Si
SLU 8	1105	-2396	137992	0.42	231772	1.68	Si
SLU 9	925	-4365	25378	0.76	403431	15.897	Si
SLU 9	1105	-2394	138605	0.42	231642	1.671	Si
SLU 38	925	-6301	9900	1.1	555645	56.127	Si
SLU 38	1105	-4304	176356	0.75	398378	2.259	Si
SLU 28	925	-5729	20035	1	512419	25.576	Si
SLU 28	1105	-3732	159890	0.65	350148	2.19	Si
SLU 27	925	-5731	20738	1	512528	24.715	Si
SLU 27	1105	-3734	159277	0.65	350270	2.199	Si
SLU 29	925	-4960	22268	0.87	452008	20.298	Si
SLU 29	1105	-2963	163704	0.52	283005	1.729	Si
SLU 30	925	-4959	21566	0.87	451893	20.954	Si
SLU 30	1105	-2962	164317	0.52	282878	1.722	Si
SLU 37	925	-6302	10603	1.1	555750	52.417	Si
SLU 37	1105	-4305	175742	0.75	398496	2.268	Si
SLU 6	925	-5136	24550	0.9	466077	18.985	Si
SLU 6	1105	-3166	133565	0.55	300955	2.253	Si
SLU 7	925	-5135	23847	0.9	465963	19.54	Si
SLU 7	1105	-3165	134178	0.55	300829	2.242	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	925	-6241	224843	1.09	579655	2.578	Si
SLV 16	1105	-3437	-90030	0.6	333289	3.702	Si
SLV 1	925	-10055	-225347	1.76	877823	3.895	Si
SLV 1	1105	-8903	248955	1.56	792248	3.182	Si
SLV 10	925	-5455	-2712	0.96	512934	189.103	Si
SLV 10	1105	-3738	169249	0.65	360849	2.132	Si
SLV 14	925	-5074	186317	0.89	479893	2.576	Si
SLV 14	1105	-2549	-12616	0.45	250546	19.859	Si
SLV 9	925	-5455	-2712	0.96	512934	189.103	Si
SLV 9	1105	-3738	169249	0.65	360849	2.132	Si
SLV 6	925	-6949	-126212	1.22	638261	5.057	Si
SLV 6	1105	-5644	247721	0.99	529127	2.136	Si
SLV 15	925	-6241	224843	1.09	579655	2.578	Si
SLV 15	1105	-3437	-90030	0.6	333289	3.702	Si
SLV 5	925	-6949	-126212	1.22	638261	5.057	Si
SLV 5	1105	-5644	247721	0.99	529127	2.136	Si
SLV 13	925	-5074	186317	0.89	479893	2.576	Si
SLV 13	1105	-2549	-12616	0.45	250546	19.859	Si
SLV 2	925	-10055	-225347	1.76	877823	3.895	Si
SLV 2	1105	-8903	248955	1.56	792248	3.182	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	925	-6302	-900	10603		1.1	204	0.7	4014			4.46	Si
SLU 37	1105	-4305	-900	175742		0.84	183.54	0.67	3429			3.81	Si
SLU 79	925	-8377	-947	13161		1.47	204	0.75	4290			4.53	Si
SLU 79	1105	-5798	-947	187530		1.02	204	0.69	3946			4.17	Si
SLU 30	925	-4959	-776	21566		0.87	204	0.67	3835			4.94	Si
SLU 30	1105	-2962	-776	164317		0.76	139.57	0.66	2566			3.31	Si
SLU 28	925	-5729	-760	20035		1	204	0.69	3937			5.18	Si
SLU 28	1105	-3732	-760	159890		0.75	177.48	0.66	3258			4.29	Si
SLU 80	925	-8375	-954	12458		1.47	204	0.75	4290			4.5	Si
SLU 80	1105	-5796	-954	188143		1.01	204	0.69	3946			4.14	Si
SLU 72	925	-7033	-822	24124		1.23	204	0.72	4111			5	Si
SLU 72	1105	-4454	-822	176104		0.85	187.4	0.67	3509			4.27	Si
SLU 9	925	-4365	-612	25378		0.76	204	0.66	3755			6.14	Si
SLU 9	1105	-2394	-612	138605		0.65	132.32	0.64	2378			3.88	Si
SLU 29	925	-4960	-769	22268		0.87	204	0.67	3835			4.99	Si
SLU 29	1105	-2963	-769	163704		0.75	140.27	0.66	2577			3.35	Si
SLU 8	925	-4366	-605	26081		0.76	204	0.66	3755			6.21	Si
SLU 8	1105	-2396	-605	137992		0.64	133.19	0.64	2391			3.95	Si
SLU 38	925	-6301	-908	9900		1.1	204	0.7	4013			4.42	Si
SLU 38	1105	-4304	-908	176356		0.84	183.07	0.67	3422			3.77	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	925	-5074	1983	186317		0.93	195.83	1.02	5584			2.82	Si
SLV 14	1105	-2549	1229	-12616		0.45	204	0.92	5270			4.29	Si
SLV 15	925	-6241	2258	224843		1.13	197.92	1.06	5866			2.6	Si
SLV 15	1105	-3437	1654	-90030		0.6	204	0.95	5447			3.29	Si
SLV 6	925	-6949	-1648	-126212		1.22	204	1.08	6150			3.73	Si
SLV 6	1105	-5644	-1694	247721		1.16	174.33	1.06	5196			3.07	Si
SLV 4	925	-11222	-2835	-186822		1.96	204	1.23	7004			2.47	Si
SLV 4	1105	-9790	-2080	171541		1.71	204	1.18	6718			3.23	Si
SLV 13	925	-5074	1983	186317		0.93	195.83	1.02	5584			2.82	Si
SLV 13	1105	-2549	1229	-12616		0.45	204	0.92	5270			4.29	Si
SLV 5	925	-6949	-1648	-126212		1.22	204	1.08	6150			3.73	Si
SLV 5	1105	-5644	-1694	247721		1.16	174.33	1.06	5196			3.07	Si
SLV 2	925	-10055	-3110	-225347		1.76	204	1.19	6771			2.18	Si
SLV 2	1105	-8903	-2505	248955		1.56	204	1.15	6541			2.61	Si
SLV 16	925	-6241	2258	224843		1.13	197.92	1.06	5866			2.6	Si
SLV 16	1105	-3437	1654	-90030		0.6	204	0.95	5447			3.29	Si
SLV 1	925	-10055	-3110	-225347		1.76	204	1.19	6771			2.18	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	1105	-8903	-2505	248955		1.56	204	1.15	6541			2.61	Si
SLV 3	925	-11222	-2835	-186822		1.96	204	1.23	7004			2.47	Si
SLV 3	1105	-9790	-2080	171541		1.71	204	1.18	6718			3.23	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.46	0.67	-3809	24783	50417	2.03	Si
SLV 13	14	0.46	0.67	-3809	24783	50417	2.03	Si
SLV 9	14	0.46	0.77	-4407	24783	57800	2.33	Si
SLV 10	14	0.46	0.77	-4407	24783	57800	2.33	Si
SLV 16	14	0.46	0.86	-4908	24783	63876	2.58	Si
SLV 15	14	0.46	0.86	-4908	24783	63876	2.58	Si
SLV 6	14	0.46	1.05	-6018	24783	76984	3.11	Si
SLV 5	14	0.46	1.05	-6018	24783	76984	3.11	Si
SLV 12	14	0.46	1.41	-8069	24783	99902	4.03	Si
SLV 11	14	0.46	1.41	-8069	24783	99902	4.03	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-6951	-11094	437	0	9.959	0.924	0	1241.353	No
SLV 6	-2997	-8890	-397	0	6.036	0.895	0	1241.353	No
SLV 5	-2997	-8890	-397	0	6.036	0.895	0	1241.353	No
SLV 9	-1848	-5950	-421	0	4.954	0.889	0	1241.353	No
SLV 12	-5802	-8153	413	0	8.806	0.917	0	1241.353	No
SLV 11	-5802	-8153	413	0	8.806	0.917	0	1241.353	No
SLV 10	-1848	-5950	-421	0	4.954	0.889	0	1241.353	No
SLV 7	-6951	-11094	437	0	9.959	0.924	0	1241.353	No
SLV 14	-1893	-3290	-158	0.016	4.994	0.889	26.95	1193.169	No
SLV 13	-1893	-3290	-158	0.016	4.994	0.889	26.95	1193.169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.671	SLU 9	Si
V_SLU	3.307	SLU 30	Si
PF_SLV	2.132	SLV 9	Si
V_SLV	2.177	SLV 1	Si
PFFP_SLV	2.034	SLV 13	Si
R_SLV	0	SLV 5	No

## Maschio 153

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1681.8	666.1	-1283.8	666.1	L5	L6	398	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	925	-21255	46460	1.91	3239356	69.723	Si
SLU 37	1105	-17712	348171	1.59	2836948	8.148	Si
SLU 30	925	-19042	65249	1.71	2994447	45.892	Si
SLU 30	1105	-15499	319346	1.39	2557660	8.009	Si
SLU 8	925	-16721	60146	1.5	2714611	45.133	Si
SLU 8	1105	-13240	267673	1.19	2250530	8.408	Si
SLU 80	925	-25322	29417	2.27	3633442	123.514	Si
SLU 80	1105	-20756	373124	1.86	3186020	8.539	Si
SLU 38	925	-21255	45440	1.91	3239331	71.288	Si
SLU 38	1105	-17712	349131	1.59	2836918	8.126	Si
SLU 36	925	-22102	34712	1.98	3327375	95.856	Si
SLU 36	1105	-18559	343958	1.67	2938119	8.542	Si
SLU 27	925	-19889	55542	1.78	3090735	55.647	Si
SLU 27	1105	-16346	313213	1.47	2667108	8.515	Si
SLU 29	925	-19042	66270	1.71	2994474	45.186	Si
SLU 29	1105	-15499	318387	1.39	2557691	8.033	Si
SLU 28	925	-19889	54522	1.78	3090708	56.688	Si
SLU 28	1105	-16346	314173	1.47	2667077	8.489	Si
SLU 9	925	-16721	59126	1.5	2714581	45.912	Si
SLU 9	1105	-13240	268633	1.19	2250496	8.378	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	925	-18387	-639238	1.65	3164891	4.951	Si
SLV 1	1105	-15363	906654	1.38	2712291	2.992	Si
SLD 2	925	-17888	-307217	1.61	3092073	10.065	Si
SLD 2	1105	-14593	487205	1.31	2592852	5.322	Si
SLV 15	925	-16624	538594	1.49	2904263	5.392	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	1105	-12650	-584786	1.14	2283521	3.905	Si
SLV 2	925	-18387	-639238	1.65	3164891	4.951	Si
SLV 2	1105	-15363	906654	1.38	2712291	2.992	Si
SLV 4	925	-18825	-663029	1.69	3228259	4.869	Si
SLV 4	1105	-14739	848240	1.32	2615588	3.084	Si
SLV 3	925	-18825	-663029	1.69	3228259	4.869	Si
SLV 3	1105	-14739	848240	1.32	2615588	3.084	Si
SLV 14	925	-16186	562385	1.45	2838076	5.046	Si
SLV 14	1105	-13274	-526372	1.19	2384033	4.529	Si
SLV 16	925	-16624	538594	1.49	2904263	5.392	Si
SLV 16	1105	-12650	-584786	1.14	2283521	3.905	Si
SLD 1	925	-17888	-307217	1.61	3092073	10.065	Si
SLD 1	1105	-14593	487205	1.31	2592852	5.322	Si
SLV 13	925	-16186	562385	1.45	2838076	5.046	Si
SLV 13	1105	-13274	-526372	1.19	2384033	4.529	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	925	-25913	-1763	-34590		2.33	398	0.87	9646			5.47	Si
SLU 75	1105	-21347	-1763	303081		1.92	398	0.81	9037			5.13	Si
SLU 84	925	-26015	-1850	-32352		2.33	398	0.87	9660			5.22	Si
SLU 84	1105	-21449	-1850	321019		1.92	398	0.81	9051			4.89	Si
SLU 81	925	-25759	-1775	-84610		2.31	398	0.86	9626			5.42	Si
SLU 81	1105	-21193	-1775	255190		1.9	398	0.81	9017			5.08	Si
SLU 82	925	-25759	-1786	-85631		2.31	398	0.86	9626			5.39	Si
SLU 82	1105	-21193	-1786	256150		1.9	398	0.81	9017			5.05	Si
SLU 77	925	-26169	-1816	19710		2.35	398	0.87	9680			5.33	Si
SLU 77	1105	-21603	-1816	366991		1.94	398	0.81	9072			4.99	Si
SLU 76	925	-25066	-1739	-24542		2.25	398	0.86	9533			5.48	Si
SLU 76	1105	-20500	-1739	308894		1.84	398	0.8	8924			5.13	Si
SLU 80	925	-25322	-1797	29417		2.27	398	0.86	9567			5.33	Si
SLU 80	1105	-20756	-1797	373124		1.86	398	0.8	8959			4.99	Si
SLU 79	925	-25322	-1786	30438		2.27	398	0.86	9567			5.36	Si
SLU 79	1105	-20756	-1786	372164		1.86	398	0.8	8959			5.02	Si
SLU 78	925	-26169	-1827	18689		2.35	398	0.87	9680			5.3	Si
SLU 78	1105	-21603	-1827	367951		1.94	398	0.81	9071			4.96	Si
SLU 83	925	-26015	-1839	-31331		2.33	398	0.87	9660			5.25	Si
SLU 83	1105	-21449	-1839	320060		1.92	398	0.81	9051			4.92	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	925	-17105	-5191	-190914		1.53	398	1.14	12708			2.45	Si
SLV 6	1105	-15360	-3681	473244		1.38	398	1.11	12359			3.36	Si
SLV 2	925	-18387	-9708	-639238		1.65	398	1.16	12964			1.34	Si
SLV 2	1105	-15363	-7922	906654		1.38	398	1.11	12359			1.56	Si
SLV 15	925	-16624	7534	538594		1.49	398	1.13	12611			1.67	Si
SLV 15	1105	-12650	5749	-584786		1.14	398	1.06	11817			2.06	Si
SLV 5	925	-17105	-5191	-190914		1.53	398	1.14	12708			2.45	Si
SLV 5	1105	-15360	-3681	473244		1.38	398	1.11	12359			3.36	Si
SLV 13	925	-16186	6534	562385		1.45	398	1.12	12524			1.92	Si
SLV 13	1105	-13274	5390	-526372		1.19	398	1.07	11941			2.22	Si
SLV 4	925	-18825	-8707	-663029		1.69	398	1.17	13052			1.5	Si
SLV 4	1105	-14739	-7564	848240		1.32	398	1.1	12234			1.62	Si
SLV 16	925	-16624	7534	538594		1.49	398	1.13	12611			1.67	Si
SLV 16	1105	-12650	5749	-584786		1.14	398	1.06	11817			2.06	Si
SLV 1	925	-18387	-9708	-639238		1.65	398	1.16	12964			1.34	Si
SLV 1	1105	-15363	-7922	906654		1.38	398	1.11	12359			1.56	Si
SLV 3	925	-18825	-8707	-663029		1.69	398	1.17	13052			1.5	Si
SLV 3	1105	-14739	-7564	848240		1.32	398	1.1	12234			1.62	Si
SLV 14	925	-16186	6534	562385		1.45	398	1.12	12524			1.92	Si
SLV 14	1105	-13274	5390	-526372		1.19	398	1.07	11941			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.46	1.32	-14702	48351	183600	3.8	Si
SLV 15	14	0.46	1.32	-14702	48351	183600	3.8	Si
SLV 13	14	0.46	1.33	-14812	48351	184809	3.82	Si
SLV 14	14	0.46	1.33	-14812	48351	184809	3.82	Si
SLV 11	14	0.46	1.37	-15266	48351	189762	3.92	Si
SLV 12	14	0.46	1.37	-15266	48351	189762	3.92	Si
SLV 9	14	0.46	1.4	-15633	48351	193740	4.01	Si
SLV 10	14	0.46	1.4	-15633	48351	193740	4.01	Si
SLV 7	14	0.46	1.42	-15860	48351	196177	4.06	Si
SLV 8	14	0.46	1.42	-15860	48351	196177	4.06	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	$\alpha_{lim}$	Verifica
SLV 12	-9959	-17765	-661	0.001	15.821	0.912	1.932	1241.353	No
SLV 11	-9959	-17765	-661	0.001	15.821	0.912	1.932	1241.353	No
SLV 7	-10040	-18469	-660	0.002	15.902	0.912	2.408	1241.353	No
SLV 8	-10040	-18469	-660	0.002	15.902	0.912	2.408	1241.353	No
SLV 9	-10132	-17831	617	0.005	15.994	0.913	7.738	1241.353	No
SLV 10	-10132	-17831	617	0.005	15.994	0.913	7.738	1241.353	No
SLV 5	-10214	-18535	618	0.005	16.075	0.913	7.963	1241.353	No
SLV 6	-10214	-18535	618	0.005	16.075	0.913	7.963	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 16	-9924	-16968	-214	0.034	15.786	0.912	54.642	1193.169	No
SLV 15	-9924	-16968	-214	0.034	15.786	0.912	54.642	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.009	SLU 30	Si
V_SLU	4.892	SLU 84	Si
PF_SLV	2.992	SLV 1	Si
V_SLV	1.335	SLV 1	Si
PFFP_SLV	3.797	SLV 15	Si
R_SLV	0.002	SLV 11	No

## Maschio 154

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-1193.8	666.1	-795.8	666.1	L5	L6	398	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 27	925	-20600	94983	1.85	3169079	33.365	Si
SLU 27	1105	-17168	-199294	1.54	2770298	13.901	Si
SLU 71	925	-23655	101204	2.12	3480696	34.393	Si
SLU 71	1105	-19234	-215066	1.73	3016624	14.026	Si
SLU 38	925	-22118	108723	1.98	3329075	30.62	Si
SLU 38	1105	-18687	-209068	1.68	2953143	14.125	Si
SLU 29	925	-19698	94936	1.77	3069351	32.331	Si
SLU 29	1105	-16267	-212747	1.46	2657010	12.489	Si
SLU 7	925	-18028	77292	1.62	2875085	37.197	Si
SLU 7	1105	-14659	-173291	1.32	2446111	14.116	Si
SLU 30	925	-19681	95210	1.77	3067446	32.218	Si
SLU 30	1105	-16250	-214534	1.46	2654851	12.375	Si
SLU 8	925	-17144	76971	1.54	2767290	35.952	Si
SLU 8	1105	-13775	-184956	1.24	2325256	12.572	Si
SLU 9	925	-17127	77245	1.54	2765196	35.798	Si
SLU 9	1105	-13758	-186744	1.23	2322911	12.439	Si
SLU 72	925	-23638	101479	2.12	3479084	34.284	Si
SLU 72	1105	-19218	-216853	1.72	3014685	13.902	Si
SLU 28	925	-20583	95257	1.85	3167241	33.249	Si
SLU 28	1105	-17151	-201081	1.54	2768205	13.767	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 11	925	-15382	250012	1.38	2715177	10.86	Si
SLV 11	1105	-13130	-336052	1.18	2360905	7.025	Si
SLV 14	925	-19655	629886	1.76	3346755	5.313	Si
SLV 14	1105	-15922	-732566	1.43	2797958	3.819	Si
SLV 1	925	-16950	-543221	1.52	2953183	5.436	Si
SLV 1	1105	-13228	687159	1.19	2376652	3.459	Si
SLV 13	925	-19655	629886	1.76	3346755	5.313	Si
SLV 13	1105	-15922	-732566	1.43	2797958	3.819	Si
SLV 16	925	-18120	644062	1.63	3125980	4.854	Si
SLV 16	1105	-15068	-778900	1.35	2666778	3.424	Si
SLV 4	925	-15415	-529045	1.38	2720269	5.142	Si
SLV 4	1105	-12375	640825	1.11	2238753	3.494	Si
SLV 2	925	-16950	-543221	1.52	2953183	5.436	Si
SLV 2	1105	-13228	687159	1.19	2376652	3.459	Si
SLV 3	925	-15415	-529045	1.38	2720269	5.142	Si
SLV 3	1105	-12375	640825	1.11	2238753	3.494	Si
SLV 12	925	-15382	250012	1.38	2715177	10.86	Si
SLV 12	1105	-13130	-336052	1.18	2360905	7.025	Si
SLV 15	925	-18120	644062	1.63	3125980	4.854	Si
SLV 15	1105	-15068	-778900	1.35	2666778	3.424	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 28	925	-20583	1623	95257		1.85	398	0.8	8935			5.51	Si
SLU 28	1105	-17151	1623	-201081		1.54	398	0.76	8478			5.22	Si
SLU 72	925	-23638	1738	101479		2.12	398	0.84	9343			5.37	Si
SLU 72	1105	-19218	1738	-216853		1.72	398	0.79	8753			5.04	Si
SLU 79	925	-26092	1772	114718		2.34	398	0.87	9670			5.46	Si
SLU 79	1105	-16171	1772	-209600		1.94	398	0.81	9081			5.13	Si
SLU 37	925	-22135	1731	108449		1.99	398	0.82	9142			5.28	Si
SLU 37	1105	-18703	1731	-207281		1.68	398	0.78	8685			5.02	Si
SLU 38	925	-22118	1742	108723		1.98	398	0.82	9140			5.25	Si
SLU 38	1105	-18687	1742	-209068		1.68	398	0.78	8683			4.98	Si
SLU 29	925	-19698	1686	94936		1.77	398	0.79	8818			5.23	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	1105	-16267	1686	-212747		1.46	398	0.75	8360			4.96	Si
SLU 30	925	-19681	1698	95210		1.77	398	0.79	8815			5.19	Si
SLU 30	1105	-16250	1698	-214534		1.46	398	0.75	8358			4.92	Si
SLU 71	925	-23655	1727	101204		2.12	398	0.84	9345			5.41	Si
SLU 71	1105	-19234	1727	-215066		1.73	398	0.79	8756			5.07	Si
SLU 80	925	-26075	1783	114992		2.34	398	0.87	9668			5.42	Si
SLU 80	1105	-21654	1783	-211387		1.94	398	0.81	9078			5.09	Si
SLU 27	925	-20600	1612	94983		1.85	398	0.8	8938			5.55	Si
SLU 27	1105	-17168	1612	-199294		1.54	398	0.76	8480			5.26	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 16	925	-17801	4084	308909		1.6	398	1.15	12847			3.15	Si
SLD 16	1105	-14560	3385	-366587		1.31	398	1.09	12199			3.6	Si
SLV 15	925	-18120	8688	644062		1.63	398	1.16	12911			1.49	Si
SLV 15	1105	-15068	7096	-778900		1.35	398	1.1	12300			1.73	Si
SLV 4	925	-15415	-7670	-529045		1.38	398	1.11	12370			1.61	Si
SLV 4	1105	-12375	-6095	640825		1.11	398	1.06	11762			1.93	Si
SLV 3	925	-15415	-7670	-529045		1.38	398	1.11	12370			1.61	Si
SLV 3	1105	-12375	-6095	640825		1.11	398	1.06	11762			1.93	Si
SLV 13	925	-19655	8693	629886		1.76	398	1.19	13218			1.52	Si
SLV 13	1105	-15922	7119	-732566		1.43	398	1.12	12471			1.75	Si
SLV 2	925	-16950	-7664	-543221		1.52	398	1.14	12677			1.65	Si
SLV 2	1105	-13228	-6072	687159		1.19	398	1.07	11932			1.97	Si
SLV 14	925	-19655	8693	629886		1.76	398	1.19	13218			1.52	Si
SLV 14	1105	-15922	7119	-732566		1.43	398	1.12	12471			1.75	Si
SLV 1	925	-16950	-7664	-543221		1.52	398	1.14	12677			1.65	Si
SLV 1	1105	-13228	-6072	687159		1.19	398	1.07	11932			1.97	Si
SLV 16	925	-18120	8688	644062		1.63	398	1.16	12911			1.49	Si
SLV 16	1105	-15068	7096	-778900		1.35	398	1.1	12300			1.73	Si
SLD 15	925	-17801	4084	308909		1.6	398	1.15	12847			3.15	Si
SLD 15	1105	-14560	3385	-366587		1.31	398	1.09	12199			3.6	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.46	1.2	-13396	48351	169096	3.5	Si
SLV 8	14	0.46	1.2	-13396	48351	169096	3.5	Si
SLV 3	14	0.46	1.25	-13877	48351	174474	3.61	Si
SLV 4	14	0.46	1.25	-13877	48351	174474	3.61	Si
SLV 11	14	0.46	1.28	-14225	48351	178346	3.69	Si
SLV 12	14	0.46	1.28	-14225	48351	178346	3.69	Si
SLV 1	14	0.46	1.36	-15117	48351	188143	3.89	Si
SLV 2	14	0.46	1.36	-15117	48351	188143	3.89	Si
SLV 15	14	0.46	1.49	-16639	48351	204483	4.23	Si
SLV 16	14	0.46	1.49	-16639	48351	204483	4.23	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-11986	-18371	99	0.042	17.847	0.919	67.074	1241.353	No
SLV 5	-11986	-18371	99	0.042	17.847	0.919	67.074	1241.353	No
SLV 10	-12572	-19251	84	0.043	18.435	0.921	68.257	1241.353	No
SLV 9	-12572	-19251	84	0.043	18.435	0.921	68.257	1241.353	No
SLV 2	-10518	-15934	72	0.045	16.379	0.914	71.031	1193.169	No
SLV 1	-10518	-15934	72	0.045	16.379	0.914	71.031	1193.169	No
SLV 12	-10333	-15218	-45	0.047	16.194	0.913	74.222	1241.353	No
SLV 11	-10333	-15218	-45	0.047	16.194	0.913	74.222	1241.353	No
SLV 8	-9747	-14339	-30	0.048	15.609	0.911	76.699	1241.353	No
SLV 7	-9747	-14339	-30	0.048	15.609	0.911	76.699	1241.353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	12.375	SLU 30	Si
V_SLU	4.923	SLU 30	Si
PF_SLV	3.424	SLV 15	Si
V_SLV	1.486	SLV 15	Si
PFFP_SLV	3.497	SLV 7	Si
R_SLV	0.054	SLV 5	No

## Maschio 155

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-705.8	666.1	-501.8	666.1	L5	L6	204	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 71	925	-11378	79131	1.99	876758	11.08	Si
SLU 71	1105	-8796	-194846	1.54	727554	3.734	Si
SLU 72	925	-11368	80391	1.99	876228	10.9	Si
SLU 72	1105	-8785	-195488	1.54	726908	3.718	Si
SLU 79	925	-12984	105615	2.27	954791	9.04	Si
SLU 79	1105	-10401	-222059	1.82	823768	3.71	Si
SLU 30	925	-9136	71436	1.6	748929	10.484	Si
SLU 30	1105	-7135	-173043	1.25	616168	3.561	Si
SLU 37	925	-10752	96660	1.88	843302	8.724	Si
SLU 37	1105	-8751	-199614	1.53	724721	3.631	Si
SLU 8	925	-7882	50453	1.38	667762	13.235	Si
SLU 8	1105	-5911	-142802	1.03	526302	3.686	Si
SLU 29	925	-9147	70176	1.6	749559	10.681	Si
SLU 29	1105	-7145	-172402	1.25	616888	3.578	Si
SLU 9	925	-7872	51713	1.38	667075	12.9	Si
SLU 9	1105	-5900	-143443	1.03	525527	3.664	Si
SLU 38	925	-10742	97920	1.88	842743	8.606	Si
SLU 38	1105	-8741	-200256	1.53	724073	3.616	Si
SLU 80	925	-12974	106875	2.27	954332	8.929	Si
SLU 80	1105	-10391	-222701	1.82	823194	3.696	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	925	-10852	206982	1.9	934807	4.516	Si
SLV 9	1105	-7948	-288981	1.39	718369	2.486	Si
SLV 6	925	-9262	81485	1.62	819332	10.055	Si
SLV 6	1105	-6210	-189032	1.09	577035	3.053	Si
SLV 16	925	-12248	251162	2.14	1030068	4.101	Si
SLV 16	1105	-10814	-257221	1.89	932126	3.624	Si
SLV 14	925	-12460	298346	2.18	1044044	3.499	Si
SLV 14	1105	-10427	-325699	1.83	904675	2.778	Si
SLV 13	925	-12460	298346	2.18	1044044	3.499	Si
SLV 13	1105	-10427	-325699	1.83	904675	2.778	Si
SLV 15	925	-12248	251162	2.14	1030068	4.101	Si
SLV 15	1105	-10814	-257221	1.89	932126	3.624	Si
SLV 5	925	-9262	81485	1.62	819332	10.055	Si
SLV 5	1105	-6210	-189032	1.09	577035	3.053	Si
SLV 10	925	-10852	206982	1.9	934807	4.516	Si
SLV 10	1105	-7948	-288981	1.39	718369	2.486	Si
SLD 9	925	-10200	126258	1.79	888343	7.036	Si
SLD 9	1105	-7832	-195191	1.37	709184	3.633	Si
SLD 10	925	-10200	126258	1.79	888343	7.036	Si
SLD 10	1105	-7832	-195191	1.37	709184	3.633	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	925	-13619	1819	108801		2.38	204	0.87	4989			2.74	Si
SLU 78	1105	-11036	1819	-223829		1.93	204	0.81	4645			2.55	Si
SLU 38	925	-10742	1634	97920		1.88	204	0.81	4606			2.82	Si
SLU 38	1105	-8741	1634	-200256		1.53	204	0.76	4339			2.66	Si
SLU 79	925	-12984	1791	105615		2.27	204	0.86	4905			2.74	Si
SLU 79	1105	-10401	1791	-222059		1.82	204	0.8	4560			2.55	Si
SLU 37	925	-10752	1623	96660		1.88	204	0.81	4607			2.84	Si
SLU 37	1105	-8751	1623	-199614		1.53	204	0.76	4340			2.67	Si
SLU 84	925	-14163	1840	119195		2.48	204	0.89	5062			2.75	Si
SLU 84	1105	-11580	1840	-217284		2.03	204	0.83	4717			2.56	Si
SLU 77	925	-13629	1808	107540		2.39	204	0.87	4991			2.76	Si
SLU 77	1105	-11047	1808	-223187		1.93	204	0.81	4646			2.57	Si
SLU 42	925	-11931	1672	110240		2.09	204	0.83	4764			2.85	Si
SLU 42	1105	-9930	1672	-194840		1.74	204	0.79	4497			2.69	Si
SLU 83	925	-14173	1830	117934		2.48	204	0.89	5063			2.77	Si
SLU 83	1105	-11590	1830	-216643		2.03	204	0.83	4719			2.58	Si
SLU 36	925	-11388	1651	99846		1.99	204	0.82	4692			2.84	Si
SLU 36	1105	-9386	1651	-201384		1.64	204	0.77	4425			2.68	Si
SLU 80	925	-12974	1802	106875		2.27	204	0.86	4903			2.72	Si
SLU 80	1105	-10391	1802	-222701		1.82	204	0.8	4559			2.53	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	925	-12460	3768	298346		2.18	204	1.27	7252			1.92	Si
SLV 14	1105	-10427	3037	-325699		1.83	204	1.2	6845			2.25	Si
SLV 13	925	-12460	3768	298346		2.18	204	1.27	7252			1.92	Si
SLV 13	1105	-10427	3037	-325699		1.83	204	1.2	6845			2.25	Si
SLV 16	925	-12248	3359	251162		2.14	204	1.26	7210			2.15	Si
SLV 16	1105	-10814	2632	-257221		1.89	204	1.21	6923			2.63	Si
SLD 13	925	-10897	2227	166536		1.91	204	1.21	6939			3.12	Si
SLD 13	1105	-8901	1906	-212232		1.56	204	1.14	6540			3.43	Si
SLV 10	925	-10852	2476	206982		1.9	204	1.21	6930			2.8	Si
SLV 10	1105	-7948	2252	-288981		1.44	196.92	1.12	6184			2.75	Si
SLD 14	925	-10897	2227	166536		1.91	204	1.21	6939			3.12	Si
SLD 14	1105	-8901	1906	-212232		1.56	204	1.14	6540			3.43	Si
SLV 9	925	-10852	2476	206982		1.9	204	1.21	6930			2.8	Si
SLV 9	1105	-7948	2252	-288981		1.44	196.92	1.12	6184			2.75	Si
SLD 16	925	-10806	2054	146503		1.89	204	1.21	6921			3.37	Si
SLD 16	1105	-9063	1733	-183150		1.59	204	1.15	6573			3.79	Si
SLD 15	925	-10806	2054	146503		1.89	204	1.21	6921			3.37	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 15	1105	-9063	1733	-183150		1.59	204	1.15	6573			3.79	Si
SLV 15	925	-12248	3359	251162		2.14	204	1.26	7210			2.15	Si
SLV 15	1105	-10814	2632	-257221		1.89	204	1.21	6923			2.63	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.46	1.05	-5982	24783	76573	3.09	Si
SLV 1	14	0.46	1.05	-5982	24783	76573	3.09	Si
SLV 3	14	0.46	1.08	-6141	24783	78408	3.16	Si
SLV 4	14	0.46	1.08	-6141	24783	78408	3.16	Si
SLV 5	14	0.46	1.35	-7699	24783	95894	3.87	Si
SLV 6	14	0.46	1.35	-7699	24783	95894	3.87	Si
SLV 8	14	0.46	1.44	-8228	24783	101609	4.1	Si
SLV 7	14	0.46	1.44	-8228	24783	101609	4.1	Si
SLV 10	14	0.46	1.63	-9329	24783	113147	4.57	Si
SLV 9	14	0.46	1.63	-9329	24783	113147	4.57	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-5166	-11581	34	0.045	8.171	0.912	71.962	1241.353	No
SLV 10	-5166	-11581	34	0.045	8.171	0.912	71.962	1241.353	No
SLV 14	-6537	-14972	32	0.045	9.542	0.922	70.17	1193.169	No
SLV 13	-6537	-14972	32	0.045	9.542	0.922	70.17	1193.169	No
SLV 8	-5984	-9359	-17	0.047	8.988	0.918	74.058	1241.353	No
SLV 7	-5984	-9359	-17	0.047	8.988	0.918	74.058	1241.353	No
SLV 15	-6997	-15130	20	0.046	10.005	0.925	71.758	1193.169	No
SLV 16	-6997	-15130	20	0.046	10.005	0.925	71.758	1193.169	No
SLV 11	-6699	-12108	-7	0.047	9.705	0.923	74.746	1241.353	No
SLV 12	-6699	-12108	-7	0.047	9.705	0.923	74.746	1241.353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.561	SLU 30	Si
V_SLU	2.53	SLU 80	Si
PF_SLV	2.486	SLV 9	Si
V_SLV	1.925	SLV 13	Si
PFFP_SLV	3.09	SLV 1	Si
R_SLV	0.058	SLV 9	No

## Maschio 156

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2066.8	104.6	-2467.8	104.6	L5	L6	401	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 38	835	-21963	-228243	1.96	3346159	14.661	Si
SLU 38	1045	-22008	-725812	1.96	3350812	4.617	Si
SLU 37	835	-21844	-219815	1.95	3333732	15.166	Si
SLU 37	1045	-21900	-741363	1.95	3339568	4.505	Si
SLU 35	835	-22661	-238682	2.02	3417758	14.319	Si
SLU 35	1045	-22843	-764939	2.03	3436156	4.492	Si
SLU 78	835	-27292	-293192	2.43	3839197	13.094	Si
SLU 78	1045	-26548	-832241	2.36	3777838	4.539	Si
SLU 77	835	-27173	-284764	2.42	3829550	13.448	Si
SLU 77	1045	-26440	-847793	2.35	3768741	4.445	Si
SLU 69	835	-25734	-262440	2.29	3707909	14.129	Si
SLU 69	1045	-23932	-758592	2.13	3542784	4.67	Si
SLU 79	835	-26357	-265896	2.35	3761673	14.147	Si
SLU 79	1045	-25497	-824217	2.27	3687027	4.473	Si
SLU 83	835	-26344	-273981	2.35	3760552	13.726	Si
SLU 83	1045	-25837	-796189	2.3	3716945	4.668	Si
SLU 36	835	-22780	-247111	2.03	3429759	13.879	Si
SLU 36	1045	-22951	-749387	2.04	3446954	4.6	Si
SLU 80	835	-26476	-274324	2.36	3771747	13.749	Si
SLU 80	1045	-25605	-808666	2.28	3696570	4.571	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	835	-19940	352841	1.78	3416858	9.684	Si
SLV 1	1045	-22153	-1253694	1.97	3724420	2.971	Si
SLV 3	835	-20286	304800	1.81	3465923	11.371	Si
SLV 3	1045	-21156	-1287554	1.88	3587603	2.786	Si
SLV 7	835	-19343	-112506	1.72	3331446	29.611	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	1045	-16497	-762404	1.47	2909928	3.817	Si
SLV 4	835	-20286	304800	1.81	3465923	11.371	Si
SLV 4	1045	-21156	-1287554	1.88	3587603	2.786	Si
SLV 2	835	-19940	352841	1.78	3416858	9.684	Si
SLV 2	1045	-22153	-1253694	1.97	3724420	2.971	Si
SLV 15	835	-16437	-727367	1.46	2900802	3.988	Si
SLV 15	1045	-11170	325739	0.99	2057172	6.315	Si
SLV 8	835	-19343	-112506	1.72	3331446	29.611	Si
SLV 8	1045	-16497	-762404	1.47	2909928	3.817	Si
SLV 16	835	-16437	-727367	1.46	2900802	3.988	Si
SLV 16	1045	-11170	325739	0.99	2057172	6.315	Si
SLD 4	835	-19086	21896	1.7	3294314	150.455	Si
SLD 4	1045	-18591	-817331	1.66	3222358	3.943	Si
SLD 3	835	-19086	21896	1.7	3294314	150.455	Si
SLD 3	1045	-18591	-817331	1.66	3222358	3.943	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	835	-21831	6878	-227900		1.94	401	0.81	9149			1.33	Si
SLU 41	1045	-22240	6884	-713335		1.98	401	0.82	9203			1.34	Si
SLU 37	835	-21844	6712	-219815		1.95	401	0.81	9150			1.36	Si
SLU 37	1045	-21900	6721	-741363		1.95	401	0.82	9158			1.36	Si
SLU 35	835	-22661	6855	-238682		2.02	401	0.82	9259			1.35	Si
SLU 35	1045	-22843	6864	-764939		2.03	401	0.83	9284			1.35	Si
SLU 42	835	-21950	6740	-236328		1.95	401	0.82	9164			1.36	Si
SLU 42	1045	-22348	6772	-697783		1.99	401	0.82	9218			1.36	Si
SLU 80	835	-26476	7047	-274324		2.36	401	0.87	9768			1.39	Si
SLU 80	1045	-25605	7083	-808666		2.28	401	0.86	9652			1.36	Si
SLU 78	835	-27292	7191	-293192		2.43	401	0.88	9877			1.37	Si
SLU 78	1045	-26548	7226	-832241		2.36	401	0.87	9778			1.35	Si
SLU 77	835	-27173	7329	-284764		2.42	401	0.88	9861			1.35	Si
SLU 77	1045	-26440	7338	-847793		2.35	401	0.87	9763			1.33	Si
SLU 79	835	-26357	7185	-265896		2.35	401	0.87	9752			1.36	Si
SLU 79	1045	-25497	7195	-824217		2.27	401	0.86	9637			1.34	Si
SLU 84	835	-26463	7214	-282409		2.36	401	0.87	9766			1.35	Si
SLU 84	1045	-25945	7246	-780637		2.31	401	0.86	9697			1.34	Si
SLU 83	835	-26344	7351	-273981		2.35	401	0.87	9750			1.33	Si
SLU 83	1045	-25837	7358	-796189		2.3	401	0.86	9683			1.32	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 1	835	-18934	8370	41678		1.69	401	1.17	13143			1.57	Si
SLD 1	1045	-19007	7900	-801750		1.69	401	1.17	13158			1.67	Si
SLD 3	835	-19086	7861	21896		1.7	401	1.17	13174			1.68	Si
SLD 3	1045	-18591	7379	-817331		1.66	401	1.16	13075			1.77	Si
SLD 2	835	-18934	8370	41678		1.69	401	1.17	13143			1.57	Si
SLD 2	1045	-19007	7900	-801750		1.69	401	1.17	13158			1.67	Si
SLV 4	835	-20286	13089	304800		1.81	401	1.19	13414			1.02	Si
SLV 4	1045	-21156	11997	-1287554		1.88	401	1.21	13588			1.13	Si
SLV 1	835	-19940	14305	352841		1.78	401	1.19	13345			0.93	No, Vu<V
SLV 1	1045	-22153	13240	-1253694		1.97	401	1.23	13787			1.04	Si
SLV 3	835	-20286	13089	304800		1.81	401	1.19	13414			1.02	Si
SLV 3	1045	-21156	11997	-1287554		1.88	401	1.21	13588			1.13	Si
SLV 5	835	-18189	8899	47629		1.62	401	1.16	12994			1.46	Si
SLV 5	1045	-19821	8622	-649539		1.77	401	1.19	13321			1.54	Si
SLD 4	835	-19086	7861	21896		1.7	401	1.17	13174			1.68	Si
SLD 4	1045	-18591	7379	-817331		1.66	401	1.16	13075			1.77	Si
SLV 2	835	-19940	14305	352841		1.78	401	1.19	13345			0.93	No, Vu<V
SLV 2	1045	-22153	13240	-1253694		1.97	401	1.23	13787			1.04	Si
SLV 6	835	-18189	8899	47629		1.62	401	1.16	12994			1.46	Si
SLV 6	1045	-19821	8622	-649539		1.77	401	1.19	13321			1.54	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.46	1.07	-11967	49848	152922	3.07	Si
SLV 15	14	0.46	1.07	-11967	49848	152922	3.07	Si
SLV 13	14	0.46	1.13	-12723	49848	161604	3.24	Si
SLV 14	14	0.46	1.13	-12723	49848	161604	3.24	Si
SLV 12	14	0.46	1.3	-14590	49848	182542	3.66	Si
SLV 11	14	0.46	1.3	-14590	49848	182542	3.66	Si
SLV 9	14	0.46	1.52	-17111	49848	209680	4.21	Si
SLV 10	14	0.46	1.52	-17111	49848	209680	4.21	Si
SLV 8	14	0.46	1.57	-17595	49848	214743	4.31	Si
SLV 7	14	0.46	1.57	-17595	49848	214743	4.31	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-15459	-19343	619	0.015	21.385	0.929	22.965	1241.353	No
SLV 8	-15459	-19343	619	0.015	21.385	0.929	22.965	1241.353	No
SLV 9	-15387	-17034	-613	0.015	21.311	0.929	23.245	1241.353	No
SLV 10	-15387	-17034	-613	0.015	21.311	0.929	23.245	1241.353	No
SLV 12	-14044	-18188	552	0.016	19.959	0.925	25.834	1241.353	No
SLV 11	-14044	-18188	552	0.016	19.959	0.925	25.834	1241.353	No
SLV 6	-16802	-18189	-547	0.02	22.739	0.933	30.947	1241.353	No
SLV 5	-16802	-18189	-547	0.02	22.739	0.933	30.947	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-13266	-16091	-283	0.031	19.176	0.923	49.362	1193.169	No
SLV 13	-13266	-16091	-283	0.031	19.176	0.923	49.362	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	4.445	SLV 77	Si
V_SLV	1.316	SLV 83	Si
PF_SLV	2.786	SLV 3	Si
V_SLV	0.933	SLV 1	No
PFFP_SLV	3.068	SLV 15	Si
R_SLV	0.018	SLV 7	No

## Maschio 157

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1228.3	104.6	-1986.8	104.6	L5	L6	758.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 56	835	-68983	-767172	3.25	15729947	20.504	Si
SLV 56	1085	-61567	-1511003	2.9	15039873	9.954	Si
SLV 66	835	-67372	-766027	3.17	15600581	20.366	Si
SLV 66	1085	-59242	-1470129	2.79	14773766	10.049	Si
SLV 79	835	-73324	-855030	3.45	16022065	18.739	Si
SLV 79	1085	-66994	-1623678	3.15	15568530	9.588	Si
SLV 78	835	-75540	-828322	3.56	16139326	19.484	Si
SLV 78	1085	-69261	-1606857	3.26	15751174	9.802	Si
SLV 74	835	-72288	-874966	3.4	15959865	18.241	Si
SLV 74	1085	-65365	-1577355	3.08	15423433	9.778	Si
SLV 69	835	-70345	-775526	3.31	15830484	20.413	Si
SLV 69	1085	-62915	-1589815	2.96	15183232	9.55	Si
SLV 83	835	-72458	-892219	3.41	15970420	17.9	Si
SLV 83	1085	-65945	-1549946	3.11	15476388	9.985	Si
SLV 71	835	-68408	-746091	3.22	15685108	21.023	Si
SLV 71	1085	-60870	-1516452	2.87	14962589	9.867	Si
SLV 77	835	-75260	-884466	3.54	16125709	18.232	Si
SLV 77	1085	-69039	-1697041	3.25	15734266	9.272	Si
SLV 35	835	-63950	-774677	3.01	15287882	19.735	Si
SLV 35	1085	-60382	-1494328	2.84	14907253	9.976	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 14	835	-45702	-2127712	2.15	14279922	6.711	Si
SLV 14	1085	-35475	-1543969	1.67	11614797	7.523	Si
SLV 3	835	-50446	-998416	2.38	15412525	15.437	Si
SLV 3	1085	-47083	-3488204	2.22	14616348	4.19	Si
SLD 1	835	-47785	-258106	2.25	14785321	57.284	Si
SLD 1	1085	-43390	-2047231	2.04	13704262	6.694	Si
SLV 4	835	-50446	-998416	2.38	15412525	15.437	Si
SLV 4	1085	-47083	-3488204	2.22	14616348	4.19	Si
SLV 16	835	-48861	-2509415	2.3	15041445	5.994	Si
SLV 16	1085	-36420	-1523822	1.71	11873696	7.792	Si
SLV 13	835	-45702	-2127712	2.15	14279922	6.711	Si
SLV 13	1085	-35475	-1543969	1.67	11614797	7.523	Si
SLV 15	835	-48861	-2509415	2.3	15041445	5.994	Si
SLV 15	1085	-36420	-1523822	1.71	11873696	7.792	Si
SLV 1	835	-47287	-1380118	2.23	14665638	10.626	Si
SLV 1	1085	-46138	-3468057	2.17	14386878	4.148	Si
SLD 2	835	-47785	-258106	2.25	14785321	57.284	Si
SLD 2	1085	-43390	-2047231	2.04	13704262	6.694	Si
SLV 2	835	-47287	-1380118	2.23	14665638	10.626	Si
SLV 2	1085	-46138	-3468057	2.17	14386878	4.148	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 29	835	-57098	-1063	-636303		2.69	758.5	0.91	19412			18.27	Si
SLV 29	1085	-52213	-1091	-1313738		2.46	758.5	0.88	18761			17.2	Si
SLV 19	835	-52178	570	-599494		2.46	758.5	0.88	18756			32.89	Si
SLV 19	1085	-46365	848	-951324		2.18	758.5	0.85	17981			21.2	Si
SLV 30	835	-57378	-1026	-580160		2.7	758.5	0.92	19449			18.96	Si
SLV 30	1085	-52436	-1039	-1223554		2.47	758.5	0.88	18790			18.09	Si
SLV 72	835	-68688	-976	-689948		3.23	758.5	0.99	20957			21.48	Si
SLV 72	1085	-61092	-1007	-1426267		2.88	758.5	0.94	19945			19.81	Si
SLV 9	835	-51100	-806	-462866		2.41	758.5	0.88	18612			23.08	Si
SLV 9	1085	-44964	-908	-1037515		2.12	758.5	0.84	17794			19.59	Si
SLV 50	835	-62131	-793	-628798		2.93	758.5	0.95	20083			25.34	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 50	1085	-53399	-928	-1330413		2.51	758.5	0.89	18919			20.38	Si
SLU 71	835	-68408	-1012	-746091		3.22	758.5	0.99	20920			20.67	Si
SLU 71	1085	-60870	-1059	-1516452		2.87	758.5	0.94	19915			18.81	Si
SLU 51	835	-62410	-756	-572654		2.94	758.5	0.95	20120			26.61	Si
SLU 51	1085	-53621	-876	-1240229		2.52	758.5	0.89	18948			21.62	Si
SLU 8	835	-50820	-843	-519010		2.39	758.5	0.87	18575			22.04	Si
SLU 8	1085	-44742	-960	-1127700		2.11	758.5	0.84	17764			18.5	Si
SLU 61	835	-63488	621	-709282		2.99	758.5	0.95	20264			32.65	Si
SLU 61	1085	-55022	880	-1154038		2.59	758.5	0.9	19135			21.74	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	835	-47287	21666	1380118		2.23	758.5	1.28	27156			1.25	Si
SLV 2	1085	-46138	17220	-3468057		2.17	758.5	1.27	26926			1.56	Si
SLV 13	835	-45702	-26237	-2127712		2.15	758.5	1.26	26839			1.02	Si
SLV 13	1085	-35475	-21132	1543969		1.67	758.5	1.17	24793			1.17	Si
SLV 15	835	-48861	-21711	-2509415		2.3	758.5	1.29	27471			1.27	Si
SLV 15	1085	-36420	-17043	1523822		1.71	758.5	1.18	24982			1.47	Si
SLV 1	835	-47287	21666	1380118		2.23	758.5	1.28	27156			1.25	Si
SLV 1	1085	-46138	17220	-3468057		2.17	758.5	1.27	26926			1.56	Si
SLV 16	835	-48861	-21711	-2509415		2.3	758.5	1.29	27471			1.27	Si
SLV 16	1085	-36420	-17043	1523822		1.71	758.5	1.18	24982			1.47	Si
SLV 10	835	-42571	-14752	-454652		2	758.5	1.23	26212			1.78	Si
SLV 10	1085	-38106	-12480	-186736		1.79	758.5	1.19	25319			2.03	Si
SLV 14	835	-45702	-26237	-2127712		2.15	758.5	1.26	26839			1.02	Si
SLV 14	1085	-35475	-21132	1543969		1.67	758.5	1.17	24793			1.17	Si
SLV 4	835	-50446	26192	998416		2.38	758.5	1.31	27788			1.06	Si
SLV 4	1085	-47083	21309	-3488204		2.22	758.5	1.28	27115			1.27	Si
SLV 3	835	-50446	26192	998416		2.38	758.5	1.31	27788			1.06	Si
SLV 3	1085	-47083	21309	-3488204		2.22	758.5	1.28	27115			1.27	Si
SLV 9	835	-42571	-14752	-454652		2	758.5	1.23	26212			1.78	Si
SLV 9	1085	-38106	-12480	-186736		1.79	758.5	1.19	25319			2.03	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.46	1.95	-41373	94289	486875	5.16	Si
SLV 13	14	0.46	1.95	-41373	94289	486875	5.16	Si
SLV 16	14	0.46	1.98	-42132	94289	494086	5.24	Si
SLV 15	14	0.46	1.98	-42132	94289	494086	5.24	Si
SLV 9	14	0.46	2	-42463	94289	497205	5.27	Si
SLV 10	14	0.46	2	-42463	94289	497205	5.27	Si
SLV 5	14	0.46	2.08	-44157	94289	513004	5.44	Si
SLV 6	14	0.46	2.08	-44157	94289	513004	5.44	Si
SLV 12	14	0.46	2.12	-44995	94289	520704	5.52	Si
SLV 11	14	0.46	2.12	-44995	94289	520704	5.52	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-35994	-42571	1314	0.015	47.272	0.938	23.682	1241.353	No
SLV 9	-35994	-42571	1314	0.015	47.272	0.938	23.682	1241.353	No
SLV 8	-38249	-53577	-1310	0.017	49.555	0.94	25.658	1241.353	No
SLV 7	-38249	-53577	-1310	0.017	49.555	0.94	25.658	1241.353	No
SLV 12	-35791	-53101	-1201	0.018	47.067	0.938	27.626	1241.353	No
SLV 11	-35791	-53101	-1201	0.018	47.067	0.938	27.626	1241.353	No
SLV 5	-38452	-43046	1205	0.019	49.761	0.94	29.402	1241.353	No
SLV 6	-38452	-43046	1205	0.019	49.761	0.94	29.402	1241.353	No
SLV 14	-33056	-45702	561	0.032	44.3	0.934	50.399	1193.169	No
SLV 13	-33056	-45702	561	0.032	44.3	0.934	50.399	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.272	SLU 77	Si
V_SLU	17.197	SLU 29	Si
PF_SLV	4.148	SLV 1	Si
V_SLV	1.023	SLV 13	Si
PFFP_SLV	5.164	SLV 13	Si
R_SLV	0.019	SLV 9	No

## Maschio 158

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1046.6	104.6	-1116.3	104.6	L5	L6	69.6	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 39	835	-6021	16591	3.09	130169	7.846	Si
SLU 39	1085	-6759	-8410	3.47	135191	16.075	Si
SLU 35	835	-6420	18064	3.29	133180	7.373	Si
SLU 35	1085	-7609	-10835	3.9	138013	12.738	Si
SLU 32	835	-6224	15810	3.19	131789	8.336	Si
SLU 32	1085	-7122	-8596	3.65	136782	15.912	Si
SLU 83	835	-7447	15574	3.82	137720	8.843	Si
SLU 83	1085	-8256	-7011	4.23	138038	19.688	Si
SLU 36	835	-6430	16436	3.3	133245	8.107	Si
SLU 36	1085	-7560	-9399	3.88	137937	14.676	Si
SLU 42	835	-6227	17217	3.19	131808	7.656	Si
SLU 42	1085	-7198	-9212	3.69	137043	14.876	Si
SLU 37	835	-6181	18652	3.17	131462	7.048	Si
SLU 37	1085	-7393	-11500	3.79	137596	11.965	Si
SLU 40	835	-6031	14963	3.09	130251	8.705	Si
SLU 40	1085	-6710	-6974	3.44	134933	19.348	Si
SLU 38	835	-6191	17024	3.18	131538	7.727	Si
SLU 38	1085	-7344	-10064	3.77	137473	13.66	Si
SLU 41	835	-6217	18844	3.19	131735	6.991	Si
SLU 41	1085	-7247	-10648	3.72	137197	12.884	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	835	-6515	-196459	3.34	164815	0.839	No, M>Mu
SLV 15	1085	-4651	175117	0	0	0	No, e>l/2
SLV 13	835	-5635	-184592	2.89	149803	0.812	No, M>Mu
SLV 13	1085	-5977	165168	3.07	155896	0.944	No, M>Mu
SLV 4	835	-4406	191833	0	0	0	No, e>l/2
SLV 4	1085	-4217	-163983	0	0	0	No, e>l/2
SLV 2	835	-3526	203700	0	0	0	No, e>l/2
SLV 2	1085	-5542	-173932	2.84	148085	0.851	No, M>Mu
SLV 6	835	-3238	81643	1.66	97415	1.193	Si
SLV 6	1085	-7241	-66854	3.71	175493	2.625	Si
SLV 14	835	-5635	-184592	2.89	149803	0.812	No, M>Mu
SLV 14	1085	-5977	165168	3.07	155896	0.944	No, M>Mu
SLV 5	835	-3238	81643	1.66	97415	1.193	Si
SLV 5	1085	-7241	-66854	3.71	175493	2.625	Si
SLV 16	835	-6515	-196459	3.34	164815	0.839	No, M>Mu
SLV 16	1085	-4651	175117	0	0	0	No, e>l/2
SLV 1	835	-3526	203700	0	0	0	No, e>l/2
SLV 1	1085	-5542	-173932	2.84	148085	0.851	No, M>Mu
SLV 3	835	-4406	191833	0	0	0	No, e>l/2
SLV 3	1085	-4217	-163983	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	835	-6217	290	18844		3.19	69.64	0.98	1912			6.6	Si
SLU 41	1085	-7247	261	-10648		3.72	69.64	1.05	2049			7.84	Si
SLU 37	835	-6181	301	18652		3.17	69.64	0.98	1907			6.34	Si
SLU 37	1085	-7393	280	-11500		3.79	69.64	1.06	2069			7.38	Si
SLU 77	835	-7650	270	14793		3.92	69.64	1.08	2103			7.78	Si
SLU 77	1085	-8619	250	-7197		4.42	69.64	1.08	2112			8.46	Si
SLU 38	835	-6191	284	17024		3.18	69.64	0.98	1909			6.72	Si
SLU 38	1085	-7344	264	-10064		3.77	69.64	1.06	2062			7.82	Si
SLU 35	835	-6420	294	18064		3.29	69.64	0.99	1939			6.59	Si
SLU 35	1085	-7609	274	-10835		3.9	69.64	1.08	2098			7.66	Si
SLU 32	835	-6224	254	15810		3.19	69.64	0.98	1913			7.54	Si
SLU 32	1085	-7122	233	-8596		3.65	69.64	1.04	2033			8.71	Si
SLU 79	835	-7412	277	15381		3.8	69.64	1.06	2071			7.48	Si
SLU 79	1085	-8403	256	-7863		4.31	69.64	1.08	2112			8.24	Si
SLU 36	835	-6430	277	16436		3.3	69.64	1	1941			7	Si
SLU 36	1085	-7560	257	-9399		3.88	69.64	1.07	2091			8.13	Si
SLU 42	835	-6227	273	17217		3.19	69.64	0.98	1913			7.02	Si
SLU 42	1085	-7198	245	-9212		3.69	69.64	1.05	2043			8.35	Si
SLU 39	835	-6021	249	16591		3.09	69.64	0.97	1886			7.56	Si
SLU 39	1085	-6759	221	-8410		3.47	69.64	1.02	1984			8.99	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	835	-3238	1004	81643		4.01	28.81	1.63	1311			1.31	Si
SLV 6	1085	-7241	945	-66854		3.71	69.64	1.58	3073			3.25	Si
SLV 4	835	-4406	1703	191833		0	0	0.83	0			0	No, Vu<V
SLV 4	1085	-4217	1248	-163983		0	0	0.83	0			0	No, Vu<V
SLV 3	835	-4406	1703	191833		0	0	0.83	0			0	No, Vu<V
SLV 3	1085	-4217	1248	-163983		0	0	0.83	0			0	No, Vu<V
SLV 2	835	-3526	1938	203700		0	0	0.83	0			0	No, Vu<V
SLV 2	1085	-5542	1528	-173932		19.2	10.31	1.63	469			0.31	No, Vu<V
SLV 13	835	-5635	-1513	-184592		32.53	6.19	1.63	282			0.19	No, Vu<V
SLV 13	1085	-5977	-1074	165168		9.91	21.55	1.63	981			0.91	No, Vu<V
SLV 15	835	-6515	-1748	-196459		16.63	13.99	1.63	637			0.36	No, Vu<V
SLV 15	1085	-4651	-1354	175117		0	0	0.83	0			0	No, Vu<V
SLV 5	835	-3238	1004	81643		4.01	28.81	1.63	1311			1.31	Si
SLV 5	1085	-7241	945	-66854		3.71	69.64	1.58	3073			3.25	Si
SLV 1	835	-3526	1938	203700		0	0	0.83	0			0	No, Vu<V
SLV 1	1085	-5542	1528	-173932		19.2	10.31	1.63	469			0.31	No, Vu<V
SLV 14	835	-5635	-1513	-184592		32.53	6.19	1.63	282			0.19	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1085	-5977	-1074	165168		9.91	21.55	1.63	981			0.91	No, Vu<V
SLV 16	835	-6515	-1748	-196459		16.63	13.99	1.63	637			0.36	No, Vu<V
SLV 16	1085	-4651	-1354	175117		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.46	1.73	-3370	8657	40502	4.68	Si
SLV 8	14	0.46	1.73	-3370	8657	40502	4.68	Si
SLV 11	14	0.46	1.74	-3396	8657	40772	4.71	Si
SLV 12	14	0.46	1.74	-3396	8657	40772	4.71	Si
SLV 4	14	0.46	2.31	-4496	8657	51067	5.9	Si
SLV 3	14	0.46	2.31	-4496	8657	51067	5.9	Si
SLV 16	14	0.46	2.35	-4586	8657	51845	5.99	Si
SLV 15	14	0.46	2.35	-4586	8657	51845	5.99	Si
SLV 1	14	0.46	2.81	-5489	8657	59139	6.83	Si
SLV 2	14	0.46	2.81	-5489	8657	59139	6.83	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-1878	-4406	-140	0	2.903	0.915	0	1193.169	No
SLV 4	-1878	-4406	-140	0	2.903	0.915	0	1193.169	No
SLV 10	-3411	-3871	386	0	4.448	0.939	0	1241.353	No
SLV 11	-2219	-6804	-372	0	3.245	0.922	0	1241.353	No
SLV 5	-3061	-3238	371	0	4.094	0.935	0	1241.353	No
SLV 6	-3061	-3238	371	0	4.094	0.935	0	1241.353	No
SLV 9	-3411	-3871	386	0	4.448	0.939	0	1241.353	No
SLV 8	-1869	-6171	-388	0	2.894	0.915	0	1241.353	No
SLV 12	-2219	-6804	-372	0	3.245	0.922	0	1241.353	No
SLV 7	-1869	-6171	-388	0	2.894	0.915	0	1241.353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.991	SLU 41	Si
V_SLU	6.337	SLU 37	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	4.679	SLV 7	Si
R_SLV	0	SLV 3	No

## Maschio 159

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-727.8	104.6	-938.6	104.6	L5	L6	210.9	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	835	-23102	-183897	3.91	1265708	6.883	Si
SLU 73	1085	-18710	243755	3.17	1205225	4.944	Si
SLU 78	835	-25886	-155256	4.38	1260255	8.117	Si
SLU 78	1085	-21244	250026	3.6	1250441	5.001	Si
SLU 61	835	-21526	-183858	3.65	1253727	6.819	Si
SLU 61	1085	-17337	235839	2.94	1168959	4.957	Si
SLU 82	835	-23812	-192204	4.03	1267544	6.595	Si
SLU 82	1085	-19414	254538	3.29	1220601	4.795	Si
SLU 75	835	-24796	-169262	4.2	1266437	7.482	Si
SLU 75	1085	-20269	249019	3.43	1236366	4.965	Si
SLU 76	835	-24192	-169891	4.1	1267620	7.461	Si
SLU 76	1085	-19686	244762	3.33	1225965	5.009	Si
SLU 84	835	-24901	-178199	4.22	1266066	7.105	Si
SLU 84	1085	-20389	255545	3.45	1238333	4.846	Si
SLU 63	835	-22615	-169852	3.83	1263172	7.437	Si
SLU 63	1085	-18313	236846	3.1	1195573	5.048	Si
SLU 81	835	-23711	-180564	4.02	1267418	7.019	Si
SLU 81	1085	-19296	248696	3.27	1218190	4.898	Si
SLU 83	835	-24801	-166558	4.2	1266420	7.603	Si
SLU 83	1085	-20272	249703	3.43	1236422	4.952	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	835	-17093	-668652	2.9	1375169	2.057	Si
SLV 15	1085	-16883	607169	2.86	1363432	2.246	Si
SLV 11	835	-17376	-492464	2.94	1390732	2.824	Si
SLV 11	1085	-15935	436436	2.7	1308925	2.999	Si
SLV 14	835	-16524	-525399	2.8	1343122	2.556	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	1085	-15672	513052	2.65	1293361	2.521	Si
SLD 15	835	-16628	-346804	2.82	1349032	3.89	Si
SLD 15	1085	-14620	351299	2.48	1229058	3.499	Si
SLV 13	835	-16524	-525399	2.8	1343122	2.556	Si
SLV 13	1085	-15672	513052	2.65	1293361	2.521	Si
SLV 2	835	-15434	455504	2.61	1279129	2.808	Si
SLV 2	1085	-8925	-288484	1.51	824545	2.858	Si
SLV 1	835	-15434	455504	2.61	1279129	2.808	Si
SLV 1	1085	-8925	-288484	1.51	824545	2.858	Si
SLD 16	835	-16628	-346804	2.82	1349032	3.89	Si
SLD 16	1085	-14620	351299	2.48	1229058	3.499	Si
SLV 12	835	-17376	-492464	2.94	1390732	2.824	Si
SLV 12	1085	-15935	436436	2.7	1308925	2.999	Si
SLV 16	835	-17093	-668652	2.9	1375169	2.057	Si
SLV 16	1085	-16883	607169	2.86	1363432	2.246	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	835	-21425	-1390	-172217		3.63	210.86	1.04	6137			4.42	Si
SLU 60	1085	-17220	-815	229996		2.92	210.86	0.94	5576			6.84	Si
SLU 61	835	-21526	-1470	-183858		3.65	210.86	1.04	6150			4.18	Si
SLU 61	1085	-17337	-868	235839		2.94	210.86	0.95	5592			6.44	Si
SLU 19	835	-17781	-1269	-158676		3.01	210.86	0.96	5651			4.45	Si
SLU 19	1085	-14512	-758	198986		2.46	210.86	0.88	5215			6.88	Si
SLU 81	835	-23711	-1453	-180564		4.02	210.86	1.08	6396			4.4	Si
SLU 81	1085	-19296	-833	248696		3.27	210.86	0.99	5853			7.03	Si
SLU 63	835	-22615	-1371	-169852		3.83	210.86	1.07	6295			4.59	Si
SLU 63	1085	-18313	-743	236846		3.1	210.86	0.97	5722			7.7	Si
SLU 52	835	-20816	-1391	-175550		3.53	210.86	1.03	6056			4.35	Si
SLU 52	1085	-16633	-808	225055		2.82	210.86	0.93	5498			6.8	Si
SLU 73	835	-23102	-1455	-183897		3.91	210.86	1.08	6360			4.37	Si
SLU 73	1085	-18710	-826	243755		3.17	210.86	0.98	5775			6.99	Si
SLU 40	835	-20068	-1332	-167023		3.4	210.86	1.01	5956			4.47	Si
SLU 40	1085	-16589	-776	217685		2.81	210.86	0.93	5492			7.08	Si
SLU 82	835	-23812	-1534	-192204		4.03	210.86	1.08	6396			4.17	Si
SLU 82	1085	-19414	-886	254538		3.29	210.86	0.99	5869			6.62	Si
SLU 84	835	-24901	-1435	-178199		4.22	210.86	1.08	6396			4.46	Si
SLU 84	1085	-20389	-761	255545		3.45	210.86	1.02	5999			7.89	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	835	-17376	-4302	-492464		2.94	210.86	1.42	8395			1.95	Si
SLV 12	1085	-15935	-2735	436436		2.7	210.86	1.37	8107			2.96	Si
SLV 2	835	-15434	4665	455504		2.61	210.86	1.36	8007			1.72	Si
SLV 2	1085	-8925	2561	-288484		1.51	210.86	1.14	6705			2.62	Si
SLV 11	835	-17376	-4302	-492464		2.94	210.86	1.42	8395			1.95	Si
SLV 11	1085	-15935	-2735	436436		2.7	210.86	1.37	8107			2.96	Si
SLV 3	835	-16004	3481	312251		2.71	210.86	1.38	8121			2.33	Si
SLV 3	1085	-10136	1655	-194366		1.72	210.86	1.18	6947			4.2	Si
SLV 1	835	-15434	4665	455504		2.61	210.86	1.36	8007			1.72	Si
SLV 1	1085	-8925	2561	-288484		1.51	210.86	1.14	6705			2.62	Si
SLV 13	835	-16524	-5185	-525399		2.8	210.86	1.39	8225			1.59	Si
SLV 13	1085	-15672	-2568	513052		2.65	210.86	1.36	8054			3.14	Si
SLV 4	835	-16004	3481	312251		2.71	210.86	1.38	8121			2.33	Si
SLV 4	1085	-10136	1655	-194366		1.72	210.86	1.18	6947			4.2	Si
SLV 14	835	-16524	-5185	-525399		2.8	210.86	1.39	8225			1.59	Si
SLV 14	1085	-15672	-2568	513052		2.65	210.86	1.36	8054			3.14	Si
SLV 15	835	-17093	-6369	-668652		3.07	198.94	1.45	8061			1.27	Si
SLV 15	1085	-16883	-3473	607169		2.89	208.4	1.41	8239			2.37	Si
SLV 16	835	-17093	-6369	-668652		3.07	198.94	1.45	8061			1.27	Si
SLV 16	1085	-16883	-3473	607169		2.89	208.4	1.41	8239			2.37	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.46	2.23	-13149	26212	150529	5.74	Si
SLV 2	14	0.46	2.23	-13149	26212	150529	5.74	Si
SLV 5	14	0.46	2.24	-13233	26212	151277	5.77	Si
SLV 6	14	0.46	2.24	-13233	26212	151277	5.77	Si
SLV 3	14	0.46	2.32	-13680	26212	155199	5.92	Si
SLV 4	14	0.46	2.32	-13680	26212	155199	5.92	Si
SLV 9	14	0.46	2.34	-13836	26212	156553	5.97	Si
SLV 10	14	0.46	2.34	-13836	26212	156553	5.97	Si
SLV 8	14	0.46	2.54	-15003	26212	166360	6.35	Si
SLV 7	14	0.46	2.54	-15003	26212	166360	6.35	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 6	-8959	-15152	415	0.008	12.083	0.933	12.973	1241.353	No
SLV 5	-8959	-15152	415	0.008	12.083	0.933	12.973	1241.353	No
SLV 7	-10578	-17049	-434	0.011	13.72	0.94	16.789	1241.353	No
SLV 8	-10578	-17049	-434	0.011	13.72	0.94	16.789	1241.353	No
SLV 9	-10953	-15479	436	0.012	14.1	0.941	17.817	1241.353	No
SLV 10	-10953	-15479	436	0.012	14.1	0.941	17.817	1241.353	No
SLV 12	-12572	-17376	-413	0.016	15.741	0.947	25.088	1241.353	No
SLV 11	-12572	-17376	-413	0.016	15.741	0.947	25.088	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 3	-7686	-16004	-162	0.031	10.798	0.927	47.944	1193.169	No
SLV 4	-7686	-16004	-162	0.031	10.798	0.927	47.944	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.795	SLU 82	Si
V_SLU	4.17	SLU 82	Si
PF_SLV	2.057	SLV 15	Si
V_SLV	1.266	SLV 15	Si
PFFP_SLV	5.743	SLV 1	Si
R_SLV	0.01	SLV 5	No

## Maschio 160

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-496.8	104.6	-647.8	104.6	L5	L6	151	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 35	835	-14050	-115043	3.32	628028	5.459	Si
SLU 35	1045	-13942	158026	3.3	626510	3.965	Si
SLU 77	835	-16610	-130171	3.93	649250	4.988	Si
SLU 77	1045	-16082	177486	3.8	647226	3.647	Si
SLU 36	835	-14223	-113876	3.36	630371	5.536	Si
SLU 36	1045	-14218	158544	3.36	630300	3.976	Si
SLU 83	835	-16062	-131063	3.8	647124	4.938	Si
SLU 83	1045	-15862	170702	3.75	646020	3.784	Si
SLU 79	835	-16189	-126406	3.83	647734	5.124	Si
SLU 79	1045	-15598	173903	3.69	644298	3.705	Si
SLU 75	835	-16217	-124688	3.84	647857	5.196	Si
SLU 75	1045	-15899	165220	3.76	646241	3.911	Si
SLU 78	835	-16783	-129004	3.97	649647	5.036	Si
SLU 78	1045	-16357	178004	3.87	648433	3.643	Si
SLU 84	835	-16235	-129895	3.84	647938	4.988	Si
SLU 84	1045	-16137	171221	3.82	647494	3.782	Si
SLU 74	835	-16043	-125855	3.79	647029	5.141	Si
SLU 74	1045	-15624	164702	3.7	644481	3.913	Si
SLU 80	835	-16362	-125238	3.87	648452	5.178	Si
SLU 80	1045	-15873	174421	3.75	646089	3.704	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 15	835	-10788	-524900	2.55	644395	1.228	Si
SLV 15	1045	-10427	512977	2.47	628341	1.225	Si
SLV 2	835	-10780	370373	2.55	644055	1.739	Si
SLV 2	1045	-9769	-314936	2.31	598068	1.899	Si
SLV 1	835	-10780	370373	2.55	644055	1.739	Si
SLV 1	1045	-9769	-314936	2.31	598068	1.899	Si
SLV 11	835	-11136	-333671	2.63	659524	1.977	Si
SLV 11	1045	-10761	331594	2.55	643223	1.94	Si
SLD 15	835	-10797	-268566	2.55	644814	2.401	Si
SLD 15	1045	-10251	275802	2.42	620383	2.249	Si
SLV 13	835	-10556	-444383	2.5	634146	1.427	Si
SLV 13	1045	-10055	441514	2.38	611379	1.385	Si
SLD 16	835	-10797	-268566	2.55	644814	2.401	Si
SLD 16	1045	-10251	275802	2.42	620383	2.249	Si
SLV 14	835	-10556	-444383	2.5	634146	1.427	Si
SLV 14	1045	-10055	441514	2.38	611379	1.385	Si
SLV 16	835	-10788	-524900	2.55	644395	1.228	Si
SLV 16	1045	-10427	512977	2.47	628341	1.225	Si
SLV 12	835	-11136	-333671	2.63	659524	1.977	Si
SLV 12	1045	-10761	331594	2.55	643223	1.94	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 77	835	-16610	-1813	-130171		3.93	151	1.08	4564			2.52	Si
SLU 77	1045	-16082	-1813	177486		3.8	151	1.06	4493			2.48	Si
SLU 35	835	-14050	-1631	-115043		3.32	151	1	4222			2.59	Si
SLU 35	1045	-13942	-1631	158026		3.3	151	1	4208			2.58	Si
SLU 74	835	-16043	-1673	-125855		3.79	151	1.06	4488			2.68	Si
SLU 74	1045	-15624	-1673	164702		3.7	151	1.05	4432			2.65	Si
SLU 41	835	-13501	-1560	-115935		3.19	151	0.98	4149			2.66	Si
SLU 41	1045	-13722	-1560	151243		3.25	151	0.99	4178			2.68	Si
SLU 79	835	-16189	-1775	-126406		3.83	151	1.07	4507			2.54	Si
SLU 79	1045	-15598	-1776	173903		3.69	151	1.05	4429			2.49	Si
SLU 78	835	-16783	-1760	-129004		3.97	151	1.08	4580			2.6	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	1045	-16357	-1757	178004		3.87	151	1.07	4530			2.58	Si
SLU 80	835	-16362	-1723	-125238		3.87	151	1.07	4531			2.63	Si
SLU 80	1045	-15873	-1720	174421		3.75	151	1.06	4465			2.6	Si
SLU 83	835	-16062	-1741	-131063		3.8	151	1.06	4490			2.58	Si
SLU 83	1045	-15862	-1742	170702		3.75	151	1.06	4464			2.56	Si
SLU 56	835	-15241	-1598	-115573		3.6	151	1.04	4381			2.74	Si
SLU 56	1045	-14343	-1599	158048		3.39	151	1.01	4261			2.67	Si
SLU 37	835	-13628	-1594	-111278		3.22	151	0.99	4166			2.61	Si
SLU 37	1045	-13458	-1594	154444		3.18	151	0.98	4143			2.6	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	835	-10432	3110	179144		2.47	151	1.33	5610			1.8	Si
SLV 5	1045	-9434	3313	-133552		2.23	151	1.28	5410			1.63	Si
SLV 6	835	-10432	3110	179144		2.47	151	1.33	5610			1.8	Si
SLV 6	1045	-9434	3313	-133552		2.23	151	1.28	5410			1.63	Si
SLV 1	835	-10780	4676	370373		3.12	123.43	1.46	5036			1.08	Si
SLV 1	1045	-9769	4199	-314936		2.69	129.78	1.37	4982			1.19	Si
SLV 12	835	-11136	-5077	-333671		2.91	136.61	1.42	5415			1.07	Si
SLV 12	1045	-10761	-5280	331594		2.87	134.06	1.41	5280			1	Si
SLV 13	835	-10556	-5063	-444383		3.76	100.21	1.59	4450			0.88	No, Vu<V
SLV 13	1045	-10055	-4359	441514		3.79	94.77	1.59	4222			0.97	No, Vu<V
SLV 15	835	-10788	-6643	-524900		4.78	80.53	1.63	3664			0.55	No, Vu<V
SLV 15	1045	-10427	-6166	512977		4.72	78.91	1.63	3590			0.58	No, Vu<V
SLV 16	835	-10788	-6643	-524900		4.78	80.53	1.63	3664			0.55	No, Vu<V
SLV 16	1045	-10427	-6166	512977		4.72	78.91	1.63	3590			0.58	No, Vu<V
SLV 2	835	-10780	4676	370373		3.12	123.43	1.46	5036			1.08	Si
SLV 2	1045	-9769	4199	-314936		2.69	129.78	1.37	4982			1.19	Si
SLV 11	835	-11136	-5077	-333671		2.91	136.61	1.42	5415			1.07	Si
SLV 11	1045	-10761	-5280	331594		2.87	134.06	1.41	5280			1	Si
SLV 14	835	-10556	-5063	-444383		3.76	100.21	1.59	4450			0.88	No, Vu<V
SLV 14	1045	-10055	-4359	441514		3.79	94.77	1.59	4222			0.97	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.46	2.29	-9670	18771	110036	5.86	Si
SLV 6	14	0.46	2.29	-9670	18771	110036	5.86	Si
SLV 9	14	0.46	2.32	-9827	18771	111409	5.94	Si
SLV 10	14	0.46	2.32	-9827	18771	111409	5.94	Si
SLV 2	14	0.46	2.35	-9917	18771	112189	5.98	Si
SLV 1	14	0.46	2.35	-9917	18771	112189	5.98	Si
SLV 3	14	0.46	2.43	-10287	18771	115340	6.14	Si
SLV 4	14	0.46	2.43	-10287	18771	115340	6.14	Si
SLV 14	14	0.46	2.47	-10442	18771	116641	6.21	Si
SLV 13	14	0.46	2.47	-10442	18771	116641	6.21	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-6990	-10432	134	0.03	9.233	0.937	46.676	1241.353	No
SLV 6	-6990	-10432	134	0.03	9.233	0.937	46.676	1241.353	No
SLV 10	-7136	-10365	135	0.03	9.381	0.938	46.737	1241.353	No
SLV 9	-7136	-10365	135	0.03	9.381	0.938	46.737	1241.353	No
SLV 7	-7636	-11203	-135	0.031	9.887	0.94	47.456	1241.353	No
SLV 8	-7636	-11203	-135	0.031	9.887	0.94	47.456	1241.353	No
SLV 12	-7782	-11136	-134	0.031	10.035	0.941	47.788	1241.353	No
SLV 11	-7782	-11136	-134	0.031	10.035	0.941	47.788	1241.353	No
SLV 13	-7532	-10556	42	0.041	9.782	0.94	63.51	1193.169	No
SLV 14	-7532	-10556	42	0.041	9.782	0.94	63.51	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.643	SLU 78	Si
V_SLU	2.478	SLU 77	Si
PF_SLV	1.225	SLV 15	Si
V_SLV	0.552	SLV 15	No
PFFP_SLV	5.862	SLV 5	Si
R_SLV	0.038	SLV 5	No

## Maschio 161

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-12.3	104.6	-416.8	104.6	L5	L6	404.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	835	-32036	231815	2.83	4229409	18.245	Si
SLU 84	1045	-29325	839954	2.59	4045796	4.817	Si
SLU 35	835	-26969	202277	2.38	3860012	19.083	Si
SLU 35	1045	-25348	789761	2.24	3718084	4.708	Si
SLU 80	835	-31915	223502	2.82	4221896	18.89	Si
SLU 80	1045	-28811	832732	2.54	4007377	4.812	Si
SLU 83	835	-31756	224164	2.8	4211954	18.79	Si
SLU 83	1045	-29153	847225	2.57	4033097	4.76	Si
SLU 79	835	-31635	215851	2.79	4204293	19.478	Si
SLU 79	1045	-28640	840003	2.53	3994292	4.755	Si
SLU 37	835	-26152	184320	2.31	3789929	20.562	Si
SLU 37	1045	-24419	751513	2.16	3631597	4.832	Si
SLU 36	835	-27248	209927	2.41	3883338	18.498	Si
SLU 36	1045	-25519	782490	2.25	3733644	4.771	Si
SLU 78	835	-32731	241458	2.89	4271342	17.69	Si
SLU 78	1045	-29740	870981	2.63	4075985	4.68	Si
SLU 77	835	-32452	233807	2.87	4254740	18.198	Si
SLU 77	1045	-29568	878252	2.61	4063599	4.627	Si
SLU 74	835	-31827	232409	2.81	4216428	18.142	Si
SLU 74	1045	-28921	835534	2.55	4015655	4.806	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	835	-23898	-444099	2.11	3998764	9.004	Si
SLV 13	1045	-23299	1145573	2.06	3918921	3.421	Si
SLD 16	835	-23130	-65839	2.04	3896153	59.177	Si
SLD 16	1045	-21280	820997	1.88	3642080	4.436	Si
SLV 16	835	-24579	-355903	2.17	4088233	11.487	Si
SLV 16	1045	-24220	1252614	2.14	4041245	3.226	Si
SLV 12	835	-23828	130187	2.1	3989481	30.644	Si
SLV 12	1045	-22014	886718	1.94	3744155	4.222	Si
SLV 15	835	-24579	-355903	2.17	4088233	11.487	Si
SLV 15	1045	-24220	1252614	2.14	4041245	3.226	Si
SLV 14	835	-23898	-444099	2.11	3998764	9.004	Si
SLV 14	1045	-23299	1145573	2.06	3918921	3.421	Si
SLV 11	835	-23828	130187	2.1	3989481	30.644	Si
SLV 11	1045	-22014	886718	1.94	3744155	4.222	Si
SLD 14	835	-22844	-102195	2.02	3857598	37.747	Si
SLD 14	1045	-20892	776472	1.84	3587568	4.62	Si
SLD 15	835	-23130	-65839	2.04	3896153	59.177	Si
SLD 15	1045	-21280	820997	1.88	3642080	4.436	Si
SLD 13	835	-22844	-102195	2.02	3857598	37.747	Si
SLD 13	1045	-20892	776472	1.84	3587568	4.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	835	-26152	-5408	184320		2.31	404.5	0.86	9779			1.81	Si
SLU 37	1045	-24419	-5420	751513		2.16	404.5	0.84	9548			1.76	Si
SLU 77	835	-32452	-5909	233807		2.87	404.5	0.94	10619			1.8	Si
SLU 77	1045	-29568	-5921	878252		2.61	404.5	0.9	10235			1.73	Si
SLU 39	835	-25648	-5565	191235		2.26	404.5	0.86	9712			1.75	Si
SLU 39	1045	-24285	-5570	716017		2.14	404.5	0.84	9530			1.71	Si
SLU 84	835	-32036	-5885	231815		2.83	404.5	0.93	10564			1.79	Si
SLU 84	1045	-29325	-5930	839954		2.59	404.5	0.9	10202			1.72	Si
SLU 40	835	-25928	-5372	198886		2.29	404.5	0.86	9749			1.81	Si
SLU 40	1045	-24457	-5412	708746		2.16	404.5	0.84	9553			1.77	Si
SLU 35	835	-26969	-5612	202277		2.38	404.5	0.87	9888			1.76	Si
SLU 35	1045	-25348	-5624	789761		2.24	404.5	0.85	9672			1.72	Si
SLU 81	835	-31131	-5861	222766		2.75	404.5	0.92	10443			1.78	Si
SLU 81	1045	-28506	-5866	804508		2.52	404.5	0.89	10093			1.72	Si
SLU 41	835	-26273	-5782	192634		2.32	404.5	0.86	9795			1.69	Si
SLU 41	1045	-24933	-5791	758734		2.2	404.5	0.85	9617			1.66	Si
SLU 83	835	-31756	-6078	224164		2.8	404.5	0.93	10526			1.73	Si
SLU 83	1045	-29153	-6087	847225		2.57	404.5	0.9	10179			1.67	Si
SLU 42	835	-26553	-5589	200284		2.34	404.5	0.87	9833			1.76	Si
SLU 42	1045	-25104	-5633	751463		2.22	404.5	0.85	9639			1.71	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	835	-24579	-12551	-355903		2.17	404.5	1.27	14354			1.14	Si
SLV 16	1045	-24220	-11177	1252614		2.14	404.5	1.26	14282			1.28	Si
SLD 13	835	-22844	-6835	-102195		2.02	404.5	1.24	14007			2.05	Si
SLD 13	1045	-20892	-6356	776472		1.84	404.5	1.2	13617			2.14	Si
SLV 11	835	-23828	-6998	130187		2.1	404.5	1.25	14204			2.03	Si
SLV 11	1045	-22014	-6185	886718		1.94	404.5	1.22	13841			2.24	Si
SLV 12	835	-23828	-6998	130187		2.1	404.5	1.25	14204			2.03	Si
SLV 12	1045	-22014	-6185	886718		1.94	404.5	1.22	13841			2.24	Si
SLD 14	835	-22844	-6835	-102195		2.02	404.5	1.24	14007			2.05	Si
SLD 14	1045	-20892	-6356	776472		1.84	404.5	1.2	13617			2.14	Si
SLV 13	835	-23898	-11859	-444099		2.11	404.5	1.26	14218			1.2	Si
SLV 13	1045	-23299	-10751	1145573		2.06	404.5	1.24	14098			1.31	Si
SLD 15	835	-23130	-7124	-65839		2.04	404.5	1.24	14064			1.97	Si
SLD 15	1045	-21280	-6533	820997		1.88	404.5	1.21	13694			2.1	Si
SLV 14	835	-23898	-11859	-444099		2.11	404.5	1.26	14218			1.2	Si
SLV 14	1045	-23299	-10751	1145573		2.06	404.5	1.24	14098			1.31	Si
SLV 15	835	-24579	-12551	-355903		2.17	404.5	1.27	14354			1.14	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	1045	-24220	-11177	1252614		2.14	404.5	1.26	14282			1.28	Si
SLD 16	835	-23130	-7124	-65839		2.04	404.5	1.24	14064			1.97	Si
SLD 16	1045	-21280	-6533	820997		1.88	404.5	1.21	13694			2.1	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.46	1.3	-14695	50283	183880	3.66	Si
SLV 2	14	0.46	1.3	-14695	50283	183880	3.66	Si
SLV 4	14	0.46	1.38	-15613	50283	193926	3.86	Si
SLV 3	14	0.46	1.38	-15613	50283	193926	3.86	Si
SLV 5	14	0.46	1.49	-16868	50283	207373	4.12	Si
SLV 6	14	0.46	1.49	-16868	50283	207373	4.12	Si
SLV 10	14	0.46	1.73	-19651	50283	236044	4.69	Si
SLV 9	14	0.46	1.73	-19651	50283	236044	4.69	Si
SLV 8	14	0.46	1.76	-19931	50283	238848	4.75	Si
SLV 7	14	0.46	1.76	-19931	50283	238848	4.75	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-14572	-21559	532	0.018	20.541	0.927	28.727	1241.353	No
SLV 10	-14572	-21559	532	0.018	20.541	0.927	28.727	1241.353	No
SLV 5	-13451	-20234	505	0.018	19.413	0.923	29.101	1241.353	No
SLV 6	-13451	-20234	505	0.018	19.413	0.923	29.101	1241.353	No
SLV 8	-15375	-22504	-532	0.019	21.351	0.929	30.079	1241.353	No
SLV 7	-15375	-22504	-532	0.019	21.351	0.929	30.079	1241.353	No
SLV 12	-16496	-23828	-505	0.022	22.482	0.932	33.872	1241.353	No
SLV 11	-16496	-23828	-505	0.022	22.482	0.932	33.872	1241.353	No
SLV 4	-13394	-20164	-201	0.036	19.356	0.923	57.245	1193.169	No
SLV 3	-13394	-20164	-201	0.036	19.356	0.923	57.245	1193.169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.627	SLU 77	Si
V_SLU	1.661	SLU 41	Si
PF_SLV	3.226	SLV 15	Si
V_SLV	1.144	SLV 15	Si
PFFP_SLV	3.657	SLV 1	Si
R_SLV	0.023	SLV 9	No

## Maschio 162

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-350.9	-1100.3	-331.4	L5	L6	19.6	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	835	-775	-9210	0	0	0	No, e>1/2
SLU 1	1187	-191	-2962	0	0	0	No, e>1/2
SLU 53	835	-1133	-13684	0	0	0	No, e>1/2
SLU 53	1187	-268	-4209	0	0	0	No, e>1/2
SLU 58	835	-1179	-14576	0	0	0	No, e>1/2
SLU 58	1187	-291	-4132	0	0	0	No, e>1/2
SLU 61	835	-1127	-13345	0	0	0	No, e>1/2
SLU 61	1187	-245	-4128	0	0	0	No, e>1/2
SLU 54	835	-1138	-13692	0	0	0	No, e>1/2
SLU 54	1187	-268	-4233	0	0	0	No, e>1/2
SLU 55	835	-1138	-13710	0	0	0	No, e>1/2
SLU 55	1187	-267	-4096	0	0	0	No, e>1/2
SLU 56	835	-1183	-14564	0	0	0	No, e>1/2
SLU 56	1187	-292	-4286	0	0	0	No, e>1/2
SLU 59	835	-1185	-14584	0	0	0	No, e>1/2
SLU 59	1187	-290	-4157	0	0	0	No, e>1/2
SLU 57	835	-1188	-14572	0	0	0	No, e>1/2
SLU 57	1187	-291	-4311	0	0	0	No, e>1/2
SLU 60	835	-1122	-13336	0	0	0	No, e>1/2
SLU 60	1187	-246	-4103	0	0	0	No, e>1/2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	835	-513	-1265	0.94	4635	3.664	Si
SLV 7	1187	-119	-6733	0	0	0	No, e>1/2
SLV 8	835	-513	-1265	0.94	4635	3.664	Si
SLV 8	1187	-119	-6733	0	0	0	No, e>1/2
SLD 1	835	-902	-12577	0	0	0	No, e>1/2





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	1187	-211	-2611	0	0	0	No, $e \geq l/2$
SLV 13	835	-859	-9292	0	0	0	No, $e \geq l/2$
SLV 13	1187	-219	-2378	0	0	0	No, $e \geq l/2$
SLV 9	835	-1144	-18460	0	0	0	No, $e \geq l/2$
SLV 9	1187	-279	357	0.51	2613	7.33	Si
SLV 11	835	-470	812	0.86	4279	5.273	Si
SLV 11	1187	-116	-6900	0	0	0	No, $e \geq l/2$
SLV 14	835	-859	-9292	0	0	0	No, $e \geq l/2$
SLV 14	1187	-219	-2378	0	0	0	No, $e \geq l/2$
SLV 10	835	-1144	-18460	0	0	0	No, $e \geq l/2$
SLV 10	1187	-279	357	0.51	2613	7.33	Si
SLV 12	835	-470	812	0.86	4279	5.273	Si
SLV 12	1187	-116	-6900	0	0	0	No, $e \geq l/2$
SLV 6	835	-1187	-20537	0	0	0	No, $e \geq l/2$
SLV 6	1187	-281	523	0.51	2637	5.041	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 53	835	-1133	-45	-13684		0	0	0.56	0			0	No, $V_u < V$
SLU 53	1187	-268	38	-4209		0	0	0.56	0			0	No, $V_u < V$
SLU 61	835	-1127	-34	-13345		0	0	0.56	0			0	No, $V_u < V$
SLU 61	1187	-245	41	-4128		0	0	0.56	0			0	No, $V_u < V$
SLU 59	835	-1185	-57	-14584		0	0	0.56	0			0	No, $V_u < V$
SLU 59	1187	-290	31	-4157		0	0	0.56	0			0	No, $V_u < V$
SLU 1	835	-775	-22	-9210		0	0	0.56	0			0	No, $V_u < V$
SLU 1	1187	-191	27	-2962		0	0	0.56	0			0	No, $V_u < V$
SLU 58	835	-1179	-59	-14576		0	0	0.56	0			0	No, $V_u < V$
SLU 58	1187	-291	31	-4132		0	0	0.56	0			0	No, $V_u < V$
SLU 56	835	-1183	-58	-14564		0	0	0.56	0			0	No, $V_u < V$
SLU 56	1187	-292	34	-4286		0	0	0.56	0			0	No, $V_u < V$
SLU 55	835	-1138	-43	-13710		0	0	0.56	0			0	No, $V_u < V$
SLU 55	1187	-267	35	-4096		0	0	0.56	0			0	No, $V_u < V$
SLU 60	835	-1122	-36	-13336		0	0	0.56	0			0	No, $V_u < V$
SLU 60	1187	-246	40	-4103		0	0	0.56	0			0	No, $V_u < V$
SLU 54	835	-1138	-43	-13692		0	0	0.56	0			0	No, $V_u < V$
SLU 54	1187	-268	39	-4233		0	0	0.56	0			0	No, $V_u < V$
SLU 57	835	-1188	-56	-14572		0	0	0.56	0			0	No, $V_u < V$
SLU 57	1187	-291	35	-4311		0	0	0.56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	835	-470	323	812		0.86	19.57	1.01	551			1.71	Si
SLV 11	1187	-116	146	-6900		0	0	0.83	0			0	No, $V_u < V$
SLD 1	835	-902	-145	-12577		0	0	0.83	0			0	No, $V_u < V$
SLD 1	1187	-211	-8	-2611		0	0	0.83	0			0	No, $V_u < V$
SLV 13	835	-859	75	-9292		0	0	0.83	0			0	No, $V_u < V$
SLV 13	1187	-219	60	-2378		0	0	0.83	0			0	No, $V_u < V$
SLV 14	835	-859	75	-9292		0	0	0.83	0			0	No, $V_u < V$
SLV 14	1187	-219	60	-2378		0	0	0.83	0			0	No, $V_u < V$
SLV 7	835	-513	210	-1265		0.94	19.57	1.02	559			2.67	Si
SLV 7	1187	-119	110	-6733		0	0	0.83	0			0	No, $V_u < V$
SLV 6	835	-1187	-376	-20537		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1187	-281	-85	523		0.51	19.57	0.94	513			6.02	Si
SLV 10	835	-1144	-262	-18460		0	0	0.83	0			0	No, $V_u < V$
SLV 10	1187	-279	-50	357		0.51	19.57	0.94	512			10.26	Si
SLV 12	835	-470	323	812		0.86	19.57	1.01	551			1.71	Si
SLV 12	1187	-116	146	-6900		0	0	0.83	0			0	No, $V_u < V$
SLV 8	835	-513	210	-1265		0.94	19.57	1.02	559			2.67	Si
SLV 8	1187	-119	110	-6733		0	0	0.83	0			0	No, $V_u < V$
SLV 9	835	-1144	-262	-18460		0	0	0.83	0			0	No, $V_u < V$
SLV 9	1187	-279	-50	357		0.51	19.57	0.94	512			10.26	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011  $W_a 0.05$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.46	0.33	-179	2433	2438	1	Si
SLV 7	14	0.46	0.33	-179	2433	2438	1	Si
SLV 11	14	0.46	0.47	-256	2433	3442	1.41	Si
SLV 12	14	0.46	0.47	-256	2433	3442	1.41	Si
SLV 4	14	0.46	0.48	-261	2433	3505	1.44	Si
SLV 3	14	0.46	0.48	-261	2433	3505	1.44	Si
SLV 2	14	0.46	0.74	-407	2433	5353	2.2	Si
SLV 1	14	0.46	0.74	-407	2433	5353	2.2	Si
SLV 15	14	0.46	0.94	-516	2433	6669	2.74	Si
SLV 16	14	0.46	0.94	-516	2433	6669	2.74	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011  $W_a = 0.05$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 13	-219	-859	-27	0	0.513	0.89	0	1193.169	No
SLV 2	-228	-1001	33	0	0.522	0.891	0	1193.169	No
SLV 14	-219	-859	-27	0	0.513	0.89	0	1193.169	No
SLV 3	-179	-799	28	0	0.476	0.889	0	1193.169	No
SLV 15	-170	-657	-32	0	0.468	0.889	0	1193.169	No
SLV 1	-228	-1001	33	0	0.522	0.891	0	1193.169	No
SLV 16	-170	-657	-32	0	0.468	0.889	0	1193.169	No
SLV 4	-179	-799	28	0	0.476	0.889	0	1193.169	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 11	-116	-470	-16	0.007	0.421	0.893	11.792	1241.353	No
SLV 12	-116	-470	-16	0.007	0.421	0.893	11.792	1241.353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	1.002	SLV 7	Si
R_SLV	0	SLV 1	No

## Maschio 163

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-331.4	-1100.3	-35.4	L5	Z medio 1098 cm	296	28	263	174	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 18	835	-17767	-43213	2.14	1937493	44.836	Si
SLU 18	1009	-14494	-67696	1.75	1684584	24.885	Si
SLU 19	835	-17764	-44162	2.14	1937297	43.868	Si
SLU 19	1009	-14472	-68648	1.75	1682731	24.513	Si
SLU 21	835	-18600	-57893	2.24	1994409	34.45	Si
SLU 21	1009	-15211	-71240	1.84	1743997	24.48	Si
SLU 63	835	-22328	-70900	2.69	2211631	31.193	Si
SLU 63	1009	-18182	-69365	2.19	1966245	28.346	Si
SLU 20	835	-18603	-56945	2.24	1994595	35.027	Si
SLU 20	1009	-15233	-70289	1.84	1745779	24.837	Si
SLU 59	835	-22261	-81006	2.69	2208289	27.261	Si
SLU 59	1009	-18102	-47301	2.18	1960775	41.453	Si
SLU 62	835	-22330	-69952	2.69	2211771	31.618	Si
SLU 62	1009	-18204	-68413	2.2	1967741	28.763	Si
SLU 58	835	-22264	-80058	2.69	2208430	27.585	Si
SLU 58	1009	-18124	-46349	2.19	1962278	42.337	Si
SLU 61	835	-21491	-57169	2.59	2168188	37.926	Si
SLU 61	1009	-17443	-66772	2.1	1914604	28.674	Si
SLU 51	835	-20154	-72547	2.43	2092379	28.842	Si
SLU 51	1009	-16192	10232	1.95	1821669	178.036	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 1	835	-14996	-183987	1.81	1890744	10.277	Si
SLV 1	1009	-11803	-9959	1.42	1543231	154.953	Si
SLV 9	835	-19028	-253726	2.3	2286972	9.014	Si
SLV 9	1009	-15008	-72138	1.81	1892033	26.228	Si
SLV 8	835	-12856	192750	1.55	1661191	8.618	Si
SLV 8	1009	-10544	72371	1.27	1397985	19.317	Si
SLV 10	835	-19028	-253726	2.3	2286972	9.014	Si
SLV 10	1009	-15008	-72138	1.81	1892033	26.228	Si
SLV 6	835	-17997	-301355	2.17	2190230	7.268	Si
SLV 6	1009	-14104	-65752	1.7	1796673	27.325	Si
SLV 11	835	-13887	240380	1.68	1773416	7.378	Si
SLV 11	1009	-11448	65985	1.38	1502755	22.774	Si
SLV 5	835	-17997	-301355	2.17	2190230	7.268	Si
SLV 5	1009	-14104	-65752	1.7	1796673	27.325	Si
SLV 12	835	-13887	240380	1.68	1773416	7.378	Si
SLV 12	1009	-11448	65985	1.38	1502755	22.774	Si
SLV 2	835	-14996	-183987	1.81	1890744	10.277	Si
SLV 2	1009	-11803	-9959	1.42	1543231	154.953	Si
SLV 7	835	-12856	192750	1.55	1661191	8.618	Si
SLV 7	1009	-10544	72371	1.27	1397985	19.317	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 52	835	-20586	484	-54176		2.48	296	0.89	7349			15.19	Si
SLU 52	1009	-16610	839	-42750		2	296	0.82	6819			8.13	Si
SLU 40	835	-19805	410	-33461		2.39	296	0.87	7245			17.67	Si
SLU 40	1009	-16100	861	-61436		1.94	296	0.81	6751			7.84	Si
SLU 81	835	-23535	361	-45520		2.84	296	0.93	7742			21.43	Si
SLU 81	1009	-19093	859	-58608		2.3	296	0.86	7150			8.33	Si
SLU 82	835	-23532	462	-46468		2.84	296	0.93	7742			16.75	Si
SLU 82	1009	-19071	944	-59560		2.3	296	0.86	7147			7.57	Si
SLU 31	835	-18900	447	-30468		2.28	296	0.86	7124			15.95	Si
SLU 31	1009	-15267	793	-37413		1.84	296	0.8	6640			8.37	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	835	-21494	346	-56220		2.59	296	0.9	7470			21.59	Si
SLU 60	1009	-17465	821	-65821		2.11	296	0.84	6933			8.45	Si
SLU 61	835	-21491	447	-57169		2.59	296	0.9	7470			16.71	Si
SLU 61	1009	-17443	907	-66772		2.1	296	0.84	6930			7.64	Si
SLU 73	835	-22627	499	-43475		2.73	296	0.92	7621			15.27	Si
SLU 73	1009	-18238	877	-35538		2.2	296	0.85	7036			8.03	Si
SLU 10	835	-16859	431	-41169		2.03	296	0.83	6852			15.88	Si
SLU 10	1009	-13639	755	-44625		1.65	296	0.77	6423			8.5	Si
SLU 19	835	-17764	395	-44162		2.14	296	0.84	6973			17.67	Si
SLU 19	1009	-14472	823	-68648		1.75	296	0.79	6534			7.94	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	835	-12856	8349	192750		1.55	296	1.14	9478			1.14	Si
SLV 7	1009	-10544	8034	72371		1.27	296	1.09	9015			1.12	Si
SLV 5	835	-17997	-6659	-301355		2.17	296	1.27	10506			1.58	Si
SLV 5	1009	-14104	-5869	-65752		1.7	296	1.17	9727			1.66	Si
SLV 10	835	-19028	-7916	-253726		2.3	296	1.29	10712			1.35	Si
SLV 10	1009	-15008	-7203	-72138		1.81	296	1.2	9908			1.38	Si
SLV 4	835	-13454	4563	-35755		1.62	296	1.16	9597			2.1	Si
SLV 4	1009	-10735	4725	31477		1.3	296	1.09	9054			1.92	Si
SLV 12	835	-13887	7092	240380		1.68	296	1.17	9684			1.37	Si
SLV 12	1009	-11448	6700	65985		1.38	296	1.11	9196			1.37	Si
SLV 3	835	-13454	4563	-35755		1.62	296	1.16	9597			2.1	Si
SLV 3	1009	-10735	4725	31477		1.3	296	1.09	9054			1.92	Si
SLV 6	835	-17997	-6659	-301355		2.17	296	1.27	10506			1.58	Si
SLV 6	1009	-14104	-5869	-65752		1.7	296	1.17	9727			1.66	Si
SLV 8	835	-12856	8349	192750		1.55	296	1.14	9478			1.14	Si
SLV 8	1009	-10544	8034	72371		1.27	296	1.09	9015			1.12	Si
SLV 11	835	-13887	7092	240380		1.68	296	1.17	9684			1.37	Si
SLV 11	1009	-11448	6700	65985		1.38	296	1.11	9196			1.37	Si
SLV 9	835	-19028	-7916	-253726		2.3	296	1.29	10712			1.35	Si
SLV 9	1009	-15008	-7203	-72138		1.81	296	1.2	9908			1.38	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 922 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.44	1.41	-11694	19702	144810	7.35	Si
SLV 8	14	0.44	1.41	-11694	19702	144810	7.35	Si
SLV 4	14	0.44	1.44	-11964	19702	147708	7.5	Si
SLV 3	14	0.44	1.44	-11964	19702	147708	7.5	Si
SLV 11	14	0.44	1.55	-12843	19702	156995	7.97	Si
SLV 12	14	0.44	1.55	-12843	19702	156995	7.97	Si
SLV 2	14	0.44	1.61	-13344	19702	162202	8.23	Si
SLV 1	14	0.44	1.61	-13344	19702	162202	8.23	Si
SLV 16	14	0.44	1.91	-15793	19702	186621	9.47	Si
SLV 15	14	0.44	1.91	-15793	19702	186621	9.47	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 922 Wa = 0.05 Ta = 0.0413

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-10735	-13454	-306	0.037	14.026	0.939	57.878	673.448	No
SLV 3	-10735	-13454	-306	0.037	14.026	0.939	57.878	673.448	No
SLV 7	-10544	-12856	-256	0.041	13.833	0.938	63.748	688.642	No
SLV 8	-10544	-12856	-256	0.041	13.833	0.938	63.748	688.642	No
SLV 2	-11803	-14996	-275	0.041	15.108	0.942	62.965	673.448	No
SLV 1	-11803	-14996	-275	0.041	15.108	0.942	62.965	673.448	No
SLV 11	-11448	-13887	-182	0.047	14.748	0.941	73.24	688.642	No
SLV 12	-11448	-13887	-182	0.047	14.748	0.941	73.24	688.642	No
SLV 5	-14104	-17997	-154	0.05	17.442	0.949	76.798	688.642	No
SLV 6	-14104	-17997	-154	0.05	17.442	0.949	76.798	688.642	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	24.48	SLU 21	Si
V_SLU	7.569	SLU 82	Si
PF_SLV	7.268	SLV 5	Si
V_SLV	1.122	SLV 7	Si
PFFP_SLV	7.35	SLV 7	Si
R_SLV	0.086	SLV 3	No

## Maschio 165

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-1100.3	-35.4	-1100.3	104.6	L5	L6	140	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	835	-15763	-68492	4.02	558718	8.157	Si
SLU 77	1187	-9049	80170	2.31	453931	5.662	Si
SLU 72	835	-14278	-89180	3.64	552566	6.196	Si
SLU 72	1187	-8110	79177	2.07	423508	5.349	Si
SLU 29	835	-12007	-77995	3.06	524449	6.724	Si
SLU 29	1187	-6939	72401	1.77	380168	5.251	Si
SLU 71	835	-14319	-89656	3.65	552863	6.166	Si
SLU 71	1187	-8151	80103	2.08	424929	5.305	Si
SLU 70	835	-14645	-88939	3.74	554980	6.24	Si
SLU 70	1187	-8413	82146	2.15	433758	5.28	Si
SLU 27	835	-12373	-77755	3.16	530511	6.823	Si
SLU 27	1187	-7242	75369	1.85	391976	5.201	Si
SLU 69	835	-14685	-89416	3.75	555212	6.209	Si
SLU 69	1187	-8455	83071	2.16	435124	5.238	Si
SLU 28	835	-12332	-77278	3.15	529867	6.857	Si
SLU 28	1187	-7201	74443	1.84	390390	5.244	Si
SLU 30	835	-11966	-77519	3.05	523740	6.756	Si
SLU 30	1187	-6897	71475	1.76	378528	5.296	Si
SLU 24	835	-11871	-70972	3.03	522047	7.356	Si
SLU 24	1187	-6703	65736	1.71	370702	5.639	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	835	-10328	-112816	2.63	567068	5.027	Si
SLV 16	1187	-6052	31600	1.54	370096	11.712	Si
SLV 9	835	-10382	-163920	2.65	569220	3.473	Si
SLV 9	1187	-7416	114976	1.89	438737	3.816	Si
SLD 5	835	-10254	-75568	2.62	564102	7.465	Si
SLD 5	1187	-5985	71329	1.53	366622	5.14	Si
SLV 13	835	-10402	-165177	2.65	570024	3.451	Si
SLV 13	1187	-7045	73043	1.8	420600	5.758	Si
SLD 6	835	-10254	-75568	2.62	564102	7.465	Si
SLD 6	1187	-5985	71329	1.53	366622	5.14	Si
SLV 14	835	-10402	-165177	2.65	570024	3.451	Si
SLV 14	1187	-7045	73043	1.8	420600	5.758	Si
SLV 6	835	-10290	-110482	2.63	565564	5.119	Si
SLV 6	1187	-6741	109474	1.72	405459	3.704	Si
SLV 10	835	-10382	-163920	2.65	569220	3.473	Si
SLV 10	1187	-7416	114976	1.89	438737	3.816	Si
SLV 15	835	-10328	-112816	2.63	567068	5.027	Si
SLV 15	1187	-6052	31600	1.54	370096	11.712	Si
SLV 5	835	-10290	-110482	2.63	565564	5.119	Si
SLV 5	1187	-6741	109474	1.72	405459	3.704	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 29	835	-12007	-1197	-77995		3.06	140	0.96	3779			3.16	Si
SLU 29	1187	-6939	-1773	72401		1.77	140	0.79	3103			1.75	Si
SLU 70	835	-14645	-1149	-88939		3.74	140	1.05	4130			3.59	Si
SLU 70	1187	-8413	-1884	82146		2.15	140	0.84	3300			1.75	Si
SLU 69	835	-14685	-1196	-89416		3.75	140	1.06	4136			3.46	Si
SLU 69	1187	-8455	-1910	83071		2.16	140	0.84	3305			1.73	Si
SLU 77	835	-15763	-1192	-68492		4.02	140	1.08	4247			3.56	Si
SLU 77	1187	-9049	-1892	80170		2.31	140	0.86	3384			1.79	Si
SLU 71	835	-14319	-1223	-89656		3.65	140	1.04	4087			3.34	Si
SLU 71	1187	-8151	-1893	80103		2.08	140	0.83	3265			1.72	Si
SLU 30	835	-11966	-1151	-77519		3.05	140	0.96	3773			3.28	Si
SLU 30	1187	-6897	-1747	71475		1.76	140	0.79	3097			1.77	Si
SLU 28	835	-12332	-1123	-77278		3.15	140	0.98	3822			3.4	Si
SLU 28	1187	-7201	-1764	74443		1.84	140	0.8	3138			1.78	Si
SLU 27	835	-12373	-1170	-77755		3.16	140	0.98	3828			3.27	Si
SLU 27	1187	-7242	-1790	75369		1.85	140	0.8	3143			1.76	Si
SLU 72	835	-14278	-1177	-89180		3.64	140	1.04	4082			3.47	Si
SLU 72	1187	-8110	-1867	79177		2.07	140	0.83	3259			1.75	Si
SLU 79	835	-15397	-1220	-68733		3.93	140	1.08	4231			3.47	Si
SLU 79	1187	-8746	-1875	77202		2.23	140	0.85	3344			1.78	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	835	-10382	-4640	-163920		2.65	140	1.36	5343			1.15	Si
SLV 10	1187	-7416	-3799	114976		1.89	140	1.21	4750			1.25	Si
SLV 8	835	-10042	3605	64056		2.56	140	1.35	5275			1.46	Si
SLV 8	1187	-3431	2025	-28670		0.88	140	1.01	3953			1.95	Si
SLV 13	835	-10402	-2806	-165177		2.65	140	1.36	5347			1.91	Si
SLV 13	1187	-7045	-2776	73043		1.8	140	1.19	4676			1.68	Si
SLV 7	835	-10042	3605	64056		2.56	140	1.35	5275			1.46	Si
SLV 7	1187	-3431	2025	-28670		0.88	140	1.01	3953			1.95	Si
SLV 9	835	-10382	-4640	-163920		2.65	140	1.36	5343			1.15	Si
SLV 9	1187	-7416	-3799	114976		1.89	140	1.21	4750			1.25	Si
SLV 11	835	-10134	2912	10617		2.59	140	1.35	5293			1.82	Si
SLV 11	1187	-4106	1356	-23169		1.05	140	1.04	4088			3.02	Si
SLV 6	835	-10290	-3946	-110482		2.63	140	1.36	5325			1.35	Si
SLV 6	1187	-6741	-3130	109474		1.72	140	1.18	4615			1.47	Si
SLV 5	835	-10290	-3946	-110482		2.63	140	1.36	5325			1.35	Si
SLV 5	1187	-6741	-3130	109474		1.72	140	1.18	4615			1.47	Si
SLV 14	835	-10402	-2806	-165177		2.65	140	1.36	5347			1.91	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1187	-7045	-2776	73043		1.8	140	1.19	4676			1.68	Si
SLV 12	835	-10134	2912	10617		2.59	140	1.35	5293			1.82	Si
SLV 12	1187	-4106	1356	-23169		1.05	140	1.04	4088			3.02	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore  $8 \gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.46	1.31	-5150	17403	64350	3.7	Si
SLV 3	14	0.46	1.31	-5150	17403	64350	3.7	Si
SLV 8	14	0.46	1.43	-5614	17403	69385	3.99	Si
SLV 7	14	0.46	1.43	-5614	17403	69385	3.99	Si
SLV 1	14	0.46	1.6	-6281	17403	76404	4.39	Si
SLV 2	14	0.46	1.6	-6281	17403	76404	4.39	Si
SLV 11	14	0.46	1.82	-7143	17403	85085	4.89	Si
SLV 12	14	0.46	1.82	-7143	17403	85085	4.89	Si
SLV 6	14	0.46	2.39	-9384	17403	105635	6.07	Si
SLV 5	14	0.46	2.39	-9384	17403	105635	6.07	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-3431	-10042	327	0	5.493	0.911	0	1241.353	No
SLV 8	-3431	-10042	327	0	5.493	0.911	0	1241.353	No
SLV 11	-4106	-10134	245	0.003	6.167	0.918	5.144	1241.353	No
SLV 12	-4106	-10134	245	0.003	6.167	0.918	5.144	1241.353	No
SLV 4	-3802	-10022	224	0.005	5.863	0.915	8.101	1193.169	No
SLV 3	-3802	-10022	224	0.005	5.863	0.915	8.101	1193.169	No
SLV 9	-7416	-10382	-322	0.008	9.507	0.942	12.775	1241.353	No
SLV 10	-7416	-10382	-322	0.008	9.507	0.942	12.775	1241.353	No
SLV 6	-6741	-10290	-240	0.016	8.824	0.938	24.636	1241.353	No
SLV 5	-6741	-10290	-240	0.016	8.824	0.938	24.636	1241.353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.201	SLU 27	Si
V_SLU	1.724	SLU 71	Si
PF_SLV	3.451	SLV 13	Si
V_SLV	1.152	SLV 9	Si
PFFP_SLV	3.698	SLV 3	Si
R_SLV	0	SLV 7	No

## Maschio 166

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-944.8	-335.9	-1100.3	-335.9	L5	L6	155.5	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	835	-9060	58695	2.08	524465	8.935	Si
SLU 82	1045	-8525	-151761	1.96	503510	3.318	Si
SLU 73	835	-8782	59705	2.02	513724	8.604	Si
SLU 73	1045	-8259	-141962	1.9	492589	3.47	Si
SLU 42	835	-7842	49081	1.8	474890	9.676	Si
SLU 42	1045	-7530	-130566	1.73	461155	3.532	Si
SLU 40	835	-7327	56562	1.68	451987	7.991	Si
SLU 40	1045	-7147	-136263	1.64	443689	3.256	Si
SLU 61	835	-8610	46030	1.98	506916	11.013	Si
SLU 61	1045	-7738	-131478	1.78	470345	3.577	Si
SLU 84	835	-9575	51214	2.2	543458	10.611	Si
SLU 84	1045	-8909	-146064	2.05	518660	3.551	Si
SLU 31	835	-7049	57572	1.62	439134	7.628	Si
SLU 31	1045	-6880	-126465	1.58	431156	3.409	Si
SLU 39	835	-7432	48592	1.71	456772	9.4	Si
SLU 39	1045	-7155	-133632	1.64	444056	3.323	Si
SLU 19	835	-6877	43897	1.58	431021	9.819	Si
SLU 19	1045	-6359	-115980	1.46	405763	3.499	Si
SLU 81	835	-9165	50725	2.11	528449	10.418	Si
SLU 81	1045	-8533	-149129	1.96	503830	3.378	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 2	835	-6087	120786	1.4	419123	3.47	Si
SLD 2	1045	-7174	-195064	1.65	482555	2.474	Si
SLV 1	835	-5505	244564	1.26	383707	1.569	Si
SLV 1	1045	-8921	-339838	2.05	577294	1.699	Si
SLV 15	835	-7610	-188423	1.75	507015	2.691	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	1045	-2869	163166	0.66	211024	1.293	Si
SLV 2	835	-5505	244564	1.26	383707	1.569	Si
SLV 2	1045	-8921	-339838	2.05	577294	1.699	Si
SLV 4	835	-2966	269592	0	0	0	No, $e \geq l/2$
SLV 4	1045	-7206	-295031	1.66	484384	1.642	Si
SLV 16	835	-7610	-188423	1.75	507015	2.691	Si
SLV 16	1045	-2869	163166	0.66	211024	1.293	Si
SLV 7	835	-1629	138486	0	0	0	No, $e \geq l/2$
SLV 7	1045	-3687	-82388	0.85	266828	3.239	Si
SLV 3	835	-2966	269592	0	0	0	No, $e \geq l/2$
SLV 3	1045	-7206	-295031	1.66	484384	1.642	Si
SLV 8	835	-1629	138486	0	0	0	No, $e \geq l/2$
SLV 8	1045	-3687	-82388	0.85	266828	3.239	Si
SLD 1	835	-6087	120786	1.4	419123	3.47	Si
SLD 1	1045	-7174	-195064	1.65	482555	2.474	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	835	-9060	1386	58695		2.08	155.5	0.83	3627			2.62	Si
SLU 82	1045	-8525	2532	-151761		1.96	155.5	0.82	3556			1.4	Si
SLU 75	835	-9403	1295	49404		2.16	155.5	0.84	3673			2.84	Si
SLU 75	1045	-8758	2240	-139829		2.01	155.5	0.82	3587			1.6	Si
SLU 83	835	-9680	1194	43245		2.22	155.5	0.85	3710			3.11	Si
SLU 83	1045	-8916	2341	-143432		2.05	155.5	0.83	3608			1.54	Si
SLU 61	835	-8610	1103	46030		1.98	155.5	0.82	3567			3.23	Si
SLU 61	1045	-7738	2229	-131478		1.78	155.5	0.79	3451			1.55	Si
SLU 39	835	-7432	1176	48592		1.71	155.5	0.78	3410			2.9	Si
SLU 39	1045	-7155	2235	-133632		1.64	155.5	0.77	3373			1.51	Si
SLU 73	835	-8782	1393	59705		2.02	155.5	0.82	3590			2.58	Si
SLU 73	1045	-8259	2347	-141962		1.9	155.5	0.81	3520			1.5	Si
SLU 60	835	-8715	1010	38060		2	155.5	0.82	3581			3.55	Si
SLU 60	1045	-7745	2203	-128846		1.78	155.5	0.79	3452			1.57	Si
SLU 81	835	-9165	1292	50725		2.11	155.5	0.84	3641			2.82	Si
SLU 81	1045	-8533	2507	-149129		1.96	155.5	0.82	3557			1.42	Si
SLU 40	835	-7327	1269	56562		1.68	155.5	0.78	3396			2.68	Si
SLU 40	1045	-7147	2260	-136263		1.64	155.5	0.77	3372			1.49	Si
SLU 84	835	-9575	1287	51214		2.2	155.5	0.85	3695			2.87	Si
SLU 84	1045	-8909	2366	-146064		2.05	155.5	0.83	3607			1.52	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	835	-3022	245	1082		0.69	155.5	0.97	4233			17.31	Si
SLV 11	1045	-2386	2522	55071		0.55	155.5	0.94	4106			1.63	Si
SLD 3	835	-5048	2503	131364		1.16	155.17	1.07	4630			1.85	Si
SLD 3	1045	-6481	3134	-177950		1.53	150.88	1.14	4817			1.54	Si
SLD 4	835	-5048	2503	131364		1.16	155.17	1.07	4630			1.85	Si
SLD 4	1045	-6481	3134	-177950		1.53	150.88	1.14	4817			1.54	Si
SLV 7	835	-1629	2486	138486		0	0	0.83	0			0	No, Vu<V
SLV 7	1045	-3687	4493	-82388		0.85	155.5	1	4366			0.97	No, Vu<V
SLV 3	835	-2966	4726	269592		0	0	0.83	0			0	No, Vu<V
SLV 3	1045	-7206	5372	-295031		2.33	110.42	1.3	4018			0.75	No, Vu<V
SLV 2	835	-5505	4404	244564		1.97	99.97	1.23	3433			0.78	No, Vu<V
SLV 2	1045	-8921	4153	-339838		2.68	118.97	1.37	4560			1.1	Si
SLV 8	835	-1629	2486	138486		0	0	0.83	0			0	No, Vu<V
SLV 8	1045	-3687	4493	-82388		0.85	155.5	1	4366			0.97	No, Vu<V
SLV 12	835	-3022	245	1082		0.69	155.5	0.97	4233			17.31	Si
SLV 12	1045	-2386	2522	55071		0.55	155.5	0.94	4106			1.63	Si
SLV 4	835	-2966	4726	269592		0	0	0.83	0			0	No, Vu<V
SLV 4	1045	-7206	5372	-295031		2.33	110.42	1.3	4018			0.75	No, Vu<V
SLV 1	835	-5505	4404	244564		1.97	99.97	1.23	3433			0.78	No, Vu<V
SLV 1	1045	-8921	4153	-339838		2.68	118.97	1.37	4560			1.1	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.46	0.66	-2878	18891	38117	2.02	Si
SLV 11	14	0.46	0.66	-2878	18891	38117	2.02	Si
SLV 16	14	0.46	0.73	-3188	18891	41955	2.22	Si
SLV 15	14	0.46	0.73	-3188	18891	41955	2.22	Si
SLV 7	14	0.46	0.97	-4218	18891	54373	2.88	Si
SLV 8	14	0.46	0.97	-4218	18891	54373	2.88	Si
SLV 13	14	0.46	1.1	-4793	18891	61057	3.23	Si
SLV 14	14	0.46	1.1	-4793	18891	61057	3.23	Si
SLV 3	14	0.46	1.76	-7654	18891	91741	4.86	Si
SLV 4	14	0.46	1.76	-7654	18891	91741	4.86	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	-2136	-1629	-224	0	4.458	0.893	0	1241.353	No
SLV 8	-2136	-1629	-224	0	4.458	0.893	0	1241.353	No
SLV 12	-2312	-3022	-199	0.001	4.628	0.895	0.997	1241.353	No
SLV 11	-2312	-3022	-199	0.001	4.628	0.895	0.997	1241.353	No
SLV 10	-5306	-11485	223	0.015	7.599	0.924	23.063	1241.353	No
SLV 9	-5306	-11485	223	0.015	7.599	0.924	23.063	1241.353	No
SLV 6	-5130	-10092	198	0.018	7.421	0.923	28.087	1241.353	No
SLV 5	-5130	-10092	198	0.018	7.421	0.923	28.087	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 3	-2977	-2966	-106	0.028	5.276	0.902	45.161	1193.169	No
SLV 4	-2977	-2966	-106	0.028	5.276	0.902	45.161	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.256	SLU 40	Si
V_SLU	1.404	SLU 82	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.018	SLV 11	Si
R_SLV	0	SLV 7	No

## Maschio 167

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-626.8	-335.9	-626.8	104.6	L5	L6	440.5	14	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 68	835	-17737	409783	2.88	2527272	6.167	Si
SLU 68	1187	-9481	313797	1.54	1694030	5.398	Si
SLU 70	835	-18744	428447	3.04	2587948	6.04	Si
SLU 70	1187	-10409	328237	1.69	1817610	5.537	Si
SLU 76	835	-19639	453811	3.18	2634465	5.805	Si
SLU 76	1187	-10267	328617	1.66	1799157	5.475	Si
SLU 5	835	-12751	301482	2.07	2095545	6.951	Si
SLU 5	1187	-6898	244754	1.12	1310665	5.355	Si
SLU 23	835	-14163	334358	2.3	2239912	6.699	Si
SLU 23	1187	-7329	249967	1.19	1378668	5.515	Si
SLU 2	835	-12161	276357	1.97	2030075	7.346	Si
SLU 2	1187	-6287	218913	1.02	1211459	5.534	Si
SLU 34	835	-16654	403511	2.7	2451988	6.077	Si
SLU 34	1187	-8726	290628	1.41	1588052	5.464	Si
SLU 47	835	-15736	351782	2.55	2380175	6.766	Si
SLU 47	1187	-8439	282743	1.37	1546472	5.47	Si
SLU 26	835	-14752	359483	2.39	2295032	6.384	Si
SLU 26	1187	-7939	275808	1.29	1472297	5.338	Si
SLU 13	835	-14652	345510	2.38	2285870	6.616	Si
SLU 13	1187	-7684	259574	1.25	1433602	5.523	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 2	835	-13094	386683	2.12	2382761	6.162	Si
SLV 2	1187	-5775	222840	0.94	1174432	5.27	Si
SLV 12	835	-12116	446435	1.96	2239449	5.016	Si
SLV 12	1187	-6933	72417	1.12	1386567	19.147	Si
SLV 5	835	-14589	79777	2.37	2591136	32.48	Si
SLV 5	1187	-6766	278040	1.1	1356416	4.878	Si
SLV 7	835	-11701	564177	1.9	2176892	3.859	Si
SLV 7	1187	-6241	83473	1.01	1260771	15.104	Si
SLV 3	835	-12227	532002	1.98	2256033	4.241	Si
SLV 3	1187	-5617	164470	0.91	1144995	6.962	Si
SLV 11	835	-12116	446435	1.96	2239449	5.016	Si
SLV 11	1187	-6933	72417	1.12	1386567	19.147	Si
SLV 4	835	-12227	532002	1.98	2256033	4.241	Si
SLV 4	1187	-5617	164470	0.91	1144995	6.962	Si
SLV 1	835	-13094	386683	2.12	2382761	6.162	Si
SLV 1	1187	-5775	222840	0.94	1174432	5.27	Si
SLV 6	835	-14589	79777	2.37	2591136	32.48	Si
SLV 6	1187	-6766	278040	1.1	1356416	4.878	Si
SLV 8	835	-11701	564177	1.9	2176892	3.859	Si
SLV 8	1187	-6241	83473	1.01	1260771	15.104	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 8	835	-13417	1033	284205		2.18	440.5	0.85	5215			5.05	Si
SLU 8	1187	-7549	1023	213803		1.22	440.5	0.72	4433			4.33	Si
SLU 30	835	-15373	656	367647		2.49	440.5	0.89	5476			8.34	Si
SLU 30	1187	-8566	1046	278932		1.39	440.5	0.74	4568			4.37	Si
SLU 72	835	-18358	718	417947		2.98	440.5	0.95	5874			8.19	Si
SLU 72	1187	-10107	1103	316921		1.64	440.5	0.77	4774			4.33	Si
SLU 71	835	-18403	1212	392506		2.98	440.5	0.95	5880			4.85	Si
SLU 71	1187	-10132	1198	282847		1.64	440.5	0.77	4777			3.99	Si
SLU 69	835	-18789	1144	403006		3.05	440.5	0.96	5931			5.18	Si
SLU 69	1187	-10434	1130	294162		1.69	440.5	0.78	4817			4.26	Si
SLU 50	835	-16402	1095	334505		2.66	440.5	0.91	5613			5.13	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 50	1187	-9090	1080	251792		1.47	440.5	0.75	4638			4.3	Si
SLU 79	835	-20305	1191	436534		3.29	440.5	0.99	6133			5.15	Si
SLU 79	1187	-10918	1176	297666		1.77	440.5	0.79	4882			4.15	Si
SLU 37	835	-17320	1129	386233		2.81	440.5	0.93	5735			5.08	Si
SLU 37	1187	-9377	1119	259677		1.52	440.5	0.76	4676			4.18	Si
SLU 29	835	-15418	1151	342206		2.5	440.5	0.89	5482			4.76	Si
SLU 29	1187	-8590	1141	244857		1.39	440.5	0.74	4571			4.01	Si
SLU 27	835	-15804	1083	352705		2.56	440.5	0.9	5533			5.11	Si
SLU 27	1187	-8892	1073	256173		1.44	440.5	0.75	4612			4.3	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	835	-15004	-7879	-37965		2.43	440.5	1.32	8140			1.03	Si
SLV 9	1187	-7458	-5788	266984		1.21	440.5	1.08	6631			1.15	Si
SLV 8	835	-11701	8611	564177		1.9	440.5	1.21	7479			0.87	No, Vu<V
SLV 8	1187	-6241	6493	83473		1.01	440.5	1.04	6387			0.98	No, Vu<V
SLV 7	835	-11701	8611	564177		1.9	440.5	1.21	7479			0.87	No, Vu<V
SLV 7	1187	-6241	6493	83473		1.01	440.5	1.04	6387			0.98	No, Vu<V
SLV 10	835	-15004	-7879	-37965		2.43	440.5	1.32	8140			1.03	Si
SLV 10	1187	-7458	-5788	266984		1.21	440.5	1.08	6631			1.15	Si
SLV 12	835	-12116	8342	446435		1.96	440.5	1.23	7562			0.91	No, Vu<V
SLV 12	1187	-6933	6328	72417		1.12	440.5	1.06	6526			1.03	Si
SLV 6	835	-14589	-7611	79777		2.37	440.5	1.31	8057			1.06	Si
SLV 6	1187	-6766	-5623	278040		1.1	440.5	1.05	6492			1.15	Si
SLV 11	835	-12116	8342	446435		1.96	440.5	1.23	7562			0.91	No, Vu<V
SLV 11	1187	-6933	6328	72417		1.12	440.5	1.06	6526			1.03	Si
SLD 7	835	-12682	3824	387176		2.06	440.5	1.24	7676			2.01	Si
SLD 7	1187	-6606	2912	135776		1.07	440.5	1.05	6460			2.22	Si
SLV 5	835	-14589	-7611	79777		2.37	440.5	1.31	8057			1.06	Si
SLV 5	1187	-6766	-5623	278040		1.1	440.5	1.05	6492			1.15	Si
SLD 8	835	-12682	3824	387176		2.06	440.5	1.24	7676			2.01	Si
SLD 8	1187	-6606	2912	135776		1.07	440.5	1.05	6460			2.22	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.46	1.33	-8220	28624	51264	1.79	Si
SLV 4	14	0.46	1.33	-8220	28624	51264	1.79	Si
SLV 1	14	0.46	1.39	-8562	28624	53122	1.86	Si
SLV 2	14	0.46	1.39	-8562	28624	53122	1.86	Si
SLV 7	14	0.46	1.51	-9336	28624	57254	2	Si
SLV 8	14	0.46	1.51	-9336	28624	57254	2	Si
SLV 5	14	0.46	1.7	-10474	28624	63128	2.21	Si
SLV 6	14	0.46	1.7	-10474	28624	63128	2.21	Si
SLV 12	14	0.46	1.72	-10634	28624	63931	2.23	Si
SLV 11	14	0.46	1.72	-10634	28624	63931	2.23	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-6241	-11701	-57	0.018	9.484	0.917	27.959	1890.693	No
SLV 7	-6241	-11701	-57	0.018	9.484	0.917	27.959	1890.693	No
SLV 9	-7458	-15004	57	0.018	10.705	0.924	28.263	1890.693	No
SLV 10	-7458	-15004	57	0.018	10.705	0.924	28.263	1890.693	No
SLV 12	-6933	-12116	-56	0.018	10.178	0.921	28.295	1890.693	No
SLV 11	-6933	-12116	-56	0.018	10.178	0.921	28.295	1890.693	No
SLV 6	-6766	-14589	56	0.018	10.01	0.92	28.337	1890.693	No
SLV 5	-6766	-14589	56	0.018	10.01	0.92	28.337	1890.693	No
SLV 13	-8082	-14478	19	0.022	11.333	0.927	34.339	1890.693	No
SLV 14	-8082	-14478	19	0.022	11.333	0.927	34.339	1890.693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.338	SLU 26	Si
V_SLU	3.987	SLU 71	Si
PF_SLV	3.859	SLV 7	Si
V_SLV	0.869	SLV 7	No
PFFP_SLV	1.791	SLV 3	Si
R_SLV	0.015	SLV 7	No

## Maschio 168

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-741.3	-335.9	-854.8	-335.9	L5	L6	113.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 65	925	-5758	26590	1.81	254073	9.555	Si
SLU 65	1105	-4841	-64204	1.52	223339	3.479	Si
SLU 44	925	-5232	25033	1.65	236921	9.464	Si
SLU 44	1105	-4233	-58843	1.33	200932	3.415	Si
SLU 73	925	-6187	28563	1.95	267198	9.355	Si
SLU 73	1105	-5425	-70431	1.71	243338	3.455	Si
SLU 23	925	-4509	24968	1.42	211319	8.464	Si
SLU 23	1105	-4003	-54132	1.26	192043	3.548	Si
SLU 10	925	-4413	25384	1.39	207757	8.185	Si
SLU 10	1105	-3979	-54998	1.25	191103	3.475	Si
SLU 82	925	-6682	22920	2.1	281331	12.275	Si
SLU 82	1105	-5712	-69470	1.8	252616	3.636	Si
SLU 2	925	-3984	23411	1.25	191293	8.171	Si
SLU 2	1105	-3395	-48771	1.07	167404	3.432	Si
SLU 52	925	-5662	27006	1.78	251035	9.295	Si
SLU 52	1105	-4817	-65070	1.52	222487	3.419	Si
SLU 31	925	-4938	26941	1.55	226795	8.418	Si
SLU 31	1105	-4587	-60359	1.44	214186	3.549	Si
SLU 61	925	-6157	21363	1.94	266309	12.466	Si
SLU 61	1105	-5104	-64109	1.61	232531	3.627	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	925	2152	-46676	0	0	0	No, Trazione
SLV 11	1105	434	64415	0	0	0	No, Trazione
SLV 1	925	-5583	199509	1.76	271294	1.36	Si
SLV 1	1105	-6271	-191740	1.97	298389	1.556	Si
SLV 7	925	3212	68610	0	0	0	No, Trazione
SLV 7	1105	-334	-12400	0.1	18773	1.514	Si
SLV 8	925	3212	68610	0	0	0	No, Trazione
SLV 8	1105	-334	-12400	0.1	18773	1.514	Si
SLV 12	925	2152	-46676	0	0	0	No, Trazione
SLV 12	1105	434	64415	0	0	0	No, Trazione
SLV 4	925	-954	201171	0	0	0	No, e>l/2
SLV 4	1105	-3944	-150330	1.24	201086	1.338	Si
SLV 15	925	-4486	-183115	1.41	225172	1.23	Si
SLV 15	1105	-1384	105721	0	0	0	No, e>l/2
SLV 2	925	-5583	199509	1.76	271294	1.36	Si
SLV 2	1105	-6271	-191740	1.97	298389	1.556	Si
SLV 3	925	-954	201171	0	0	0	No, e>l/2
SLV 3	1105	-3944	-150330	1.24	201086	1.338	Si
SLV 16	925	-4486	-183115	1.41	225172	1.23	Si
SLV 16	1105	-1384	105721	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	925	-3984	281	23411		1.25	113.5	0.72	2297			8.17	Si
SLU 2	1105	-3395	151	-48771		1.07	113.5	0.7	2218			14.69	Si
SLU 52	925	-5662	342	27006		1.78	113.5	0.79	2520			7.37	Si
SLU 52	1105	-4817	171	-65070		1.52	113.5	0.76	2408			14.1	Si
SLU 31	925	-4938	332	26941		1.55	113.5	0.76	2424			7.31	Si
SLU 31	1105	-4587	92	-60359		1.44	113.5	0.75	2377			25.7	Si
SLU 65	925	-5758	356	26590		1.81	113.5	0.8	2533			7.11	Si
SLU 65	1105	-4841	140	-64204		1.52	113.5	0.76	2411			17.23	Si
SLU 10	925	-4413	299	25384		1.39	113.5	0.74	2354			7.87	Si
SLU 10	1105	-3979	137	-54998		1.25	113.5	0.72	2296			16.74	Si
SLU 23	925	-4509	314	24968		1.42	113.5	0.74	2367			7.55	Si
SLU 23	1105	-4003	106	-54132		1.26	113.5	0.72	2299			21.63	Si
SLU 82	925	-6682	341	22920		2.1	113.5	0.84	2657			7.79	Si
SLU 82	1105	-5712	84	-69470		1.8	113.5	0.8	2527			30.05	Si
SLU 73	925	-6187	374	28563		1.95	113.5	0.82	2590			6.92	Si
SLU 73	1105	-5425	126	-70431		1.71	113.5	0.78	2489			19.74	Si
SLU 40	925	-5434	298	21297		1.71	113.5	0.78	2490			8.35	Si
SLU 40	1105	-4874	51	-59398		1.53	113.5	0.76	2415			47.8	Si
SLU 44	925	-5232	324	25033		1.65	113.5	0.78	2463			7.61	Si
SLU 44	1105	-4233	185	-58843		1.33	113.5	0.73	2330			12.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	925	-5583	3726	199509		3.16	63.05	1.47	2588			0.69	No, Vu<V
SLV 2	1105	-6271	1177	-191740		2.85	78.52	1.4	3086			2.62	Si
SLV 15	925	-4486	-3340	-183115		3.35	47.79	1.5	2012			0.6	No, Vu<V
SLV 15	1105	-1384	-1088	105721		0	0	0.83	0			0	No, Vu<V
SLV 3	925	-954	3454	201171		0	0	0.83	0			0	No, Vu<V
SLV 3	1105	-3944	1181	-150330		2.52	55.9	1.34	2093			1.77	Si
SLV 8	925	3212	759	68610		0	0	0.83	0			0	No, Vu<V
SLV 8	1105	-334	391	-12400		0.2	58.76	0.87	1438			3.68	Si
SLV 4	925	-954	3454	201171		0	0	0.83	0			0	No, Vu<V
SLV 4	1105	-3944	1181	-150330		2.52	55.9	1.34	2093			1.77	Si
SLV 11	925	2152	-1279	-46676		0	0	0.83	0			0	No, Vu<V
SLV 11	1105	434	-289	64415		0	0	0.83	0			0	No, Vu<V
SLV 1	925	-5583	3726	199509		3.16	63.05	1.47	2588			0.69	No, Vu<V
SLV 1	1105	-6271	1177	-191740		2.85	78.52	1.4	3086			2.62	Si
SLV 16	925	-4486	-3340	-183115		3.35	47.79	1.5	2012			0.6	No, Vu<V
SLV 16	1105	-1384	-1088	105721		0	0	0.83	0			0	No, Vu<V
SLV 7	925	3212	759	68610		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1105	-334	391	-12400		0.2	58.76	0.87	1438			3.68	Si
SLV 12	925	2152	-1279	-46676		0	0	0.83	0			0	No, Vu<V
SLV 12	1105	434	-289	64415		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.46	0	684	13789	0	0	No, Trazione
SLV 8	14	0.46	0	684	13789	0	0	No, Trazione
SLV 11	14	0.46	0	-355	13789	0	0	No, e>t/2
SLV 12	14	0.46	0	-355	13789	0	0	No, e>t/2
SLV 4	14	0.46	0.46	-1478	13789	19898	1.44	Si
SLV 3	14	0.46	0.46	-1478	13789	19898	1.44	Si
SLV 1	14	0.46	1.38	-4370	13789	54299	3.94	Si
SLV 2	14	0.46	1.38	-4370	13789	54299	3.94	Si
SLV 16	14	0.46	1.56	-4943	13789	60396	4.38	Si
SLV 15	14	0.46	1.56	-4943	13789	60396	4.38	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	834	1381	-86	0	0	0	0	1241.353	No, Trazione
SLV 11	834	1381	-86	0	0	0	0	1241.353	No, Trazione
SLV 7	42	555	-107	0	0	0	0	1241.353	No, Trazione
SLV 8	42	555	-107	0	0	0	0	1241.353	No, Trazione
SLV 10	-5859	-10223	103	0.031	7.552	0.941	47.333	1241.353	No
SLV 9	-5859	-10223	103	0.031	7.552	0.941	47.333	1241.353	No
SLV 6	-6651	-11049	82	0.034	8.355	0.946	52.644	1241.353	No
SLV 5	-6651	-11049	82	0.034	8.355	0.946	52.644	1241.353	No
SLV 4	-3225	-4471	-65	0.034	4.896	0.917	53.861	1193.169	No
SLV 3	-3225	-4471	-65	0.034	4.896	0.917	53.861	1193.169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.415	SLU 44	Si
V_SLU	6.924	SLU 73	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 8	No
R_SLV	0	SLV 12	No

## Maschio 169

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	104.6	-515.8	581.1	L5	L6	476.5	14	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	835	-25965	218308	3.89	3230306	14.797	Si
SLU 37	1187	-17881	669172	2.68	2858359	4.271	Si
SLU 28	835	-24113	222091	3.61	3195685	14.389	Si
SLU 28	1187	-17001	623225	2.55	2783272	4.466	Si
SLU 27	835	-24112	243262	3.61	3195679	13.137	Si
SLU 27	1187	-16976	639924	2.54	2781054	4.346	Si
SLU 8	835	-21050	280130	3.16	3072430	10.968	Si
SLU 8	1187	-15041	630528	2.25	2591624	4.11	Si
SLU 9	835	-21050	258960	3.16	3072443	11.865	Si
SLU 9	1187	-15066	613829	2.26	2594263	4.226	Si
SLU 38	835	-25965	197137	3.89	3230309	16.386	Si
SLU 38	1187	-17906	652473	2.68	2860379	4.384	Si
SLU 29	835	-24233	307472	3.63	3198851	10.404	Si
SLU 29	1187	-17251	722443	2.59	2805248	3.883	Si
SLU 30	835	-24233	286302	3.63	3198857	11.173	Si
SLU 30	1187	-17276	705744	2.59	2807407	3.978	Si
SLU 72	835	-27465	221753	4.12	3236296	14.594	Si
SLU 72	1187	-18957	672207	2.84	2940911	4.375	Si
SLU 71	835	-27465	242923	4.12	3236297	13.322	Si
SLU 71	1187	-18932	688906	2.84	2939119	4.266	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	835	-11053	-679029	1.66	2276220	3.352	Si
SLV 10	1187	-7137	-11847	1.07	1551480	130.96	Si
SLV 6	835	-10546	-738123	1.58	2187516	2.964	Si
SLV 6	1187	-6971	-31792	1.05	1518896	47.775	Si
SLD 9	835	-13801	-400803	2.07	2731368	6.815	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 9	1187	-8180	-248	1.23	1753375	1000	Si
SLV 5	835	-10546	-738123	1.58	2187516	2.964	Si
SLV 5	1187	-6971	-31792	1.05	1518896	47.775	Si
SLV 9	835	-11053	-679029	1.66	2276220	3.352	Si
SLV 9	1187	-7137	-11847	1.07	1551480	130.96	Si
SLV 2	835	-13466	-452167	2.02	2678292	5.923	Si
SLV 2	1187	-8100	-36781	1.21	1738081	47.254	Si
SLD 5	835	-13582	-426050	2.04	2696732	6.33	Si
SLD 5	1187	-8112	-8163	1.22	1740430	213.21	Si
SLD 10	835	-13801	-400803	2.07	2731368	6.815	Si
SLD 10	1187	-8180	-248	1.23	1753375	1000	Si
SLV 1	835	-13466	-452167	2.02	2678292	5.923	Si
SLV 1	1187	-8100	-36781	1.21	1738081	47.254	Si
SLD 6	835	-13582	-426050	2.04	2696732	6.33	Si
SLD 6	1187	-8112	-8163	1.22	1740430	213.21	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 38	835	-25965	288	197137		3.89	476.5	1.07	7168			24.91	Si
SLU 38	1187	-17906	1173	652473		2.68	476.5	0.91	6094			5.2	Si
SLU 79	835	-29197	247	153759		4.38	476.5	1.08	7227			29.29	Si
SLU 79	1187	-19563	1133	635634		2.93	476.5	0.95	6314			5.57	Si
SLU 35	835	-25844	392	154098		3.87	476.5	1.07	7152			18.25	Si
SLU 35	1187	-17607	1216	586652		2.64	476.5	0.91	6054			4.98	Si
SLU 37	835	-25965	372	218308		3.89	476.5	1.07	7168			19.29	Si
SLU 37	1187	-17881	1288	669172		2.68	476.5	0.91	6090			4.73	Si
SLU 29	835	-24233	196	307472		3.63	476.5	1.04	6937			35.32	Si
SLU 29	1187	-17251	1245	722443		2.59	476.5	0.9	6006			4.82	Si
SLU 27	835	-24112	217	243262		3.61	476.5	1.04	6921			31.94	Si
SLU 27	1187	-16976	1173	639924		2.54	476.5	0.89	5970			5.09	Si
SLU 71	835	-27465	71	242923		4.12	476.5	1.08	7227			101.16	Si
SLU 71	1187	-18932	1090	688906		2.84	476.5	0.93	6230			5.72	Si
SLU 36	835	-25845	308	132927		3.87	476.5	1.07	7152			23.22	Si
SLU 36	1187	-17632	1101	569954		2.64	476.5	0.91	6057			5.5	Si
SLU 30	835	-24233	113	286302		3.63	476.5	1.04	6937			61.65	Si
SLU 30	1187	-17276	1129	705744		2.59	476.5	0.9	6010			5.32	Si
SLU 28	835	-24113	133	222091		3.61	476.5	1.04	6921			52.12	Si
SLU 28	1187	-17001	1057	623225		2.55	476.5	0.9	5973			5.65	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	835	-21084	8581	334966		3.16	476.5	1.47	9776			1.14	Si
SLV 12	1187	-10913	7643	40384		1.64	476.5	1.16	7742			1.01	Si
SLV 9	835	-11053	-7391	-679029		1.66	476.5	1.16	7770			1.05	Si
SLV 9	1187	-7137	-7070	-11847		1.07	476.5	1.05	6987			0.99	No, Vu<V
SLV 6	835	-10546	-8805	-738123		1.58	476.5	1.15	7668			0.87	No, Vu<V
SLV 6	1187	-6971	-7845	-31792		1.05	476.5	1.04	6953			0.89	No, Vu<V
SLV 7	835	-20578	7167	275872		3.08	476.5	1.45	9675			1.35	Si
SLV 7	1187	-10748	6868	20438		1.61	476.5	1.16	7709			1.12	Si
SLV 2	835	-13466	-4865	-452167		2.02	476.5	1.24	8252			1.7	Si
SLV 2	1187	-8100	-3600	-36781		1.21	476.5	1.08	7179			1.99	Si
SLV 8	835	-20578	7167	275872		3.08	476.5	1.45	9675			1.35	Si
SLV 8	1187	-10748	6868	20438		1.61	476.5	1.16	7709			1.12	Si
SLV 5	835	-10546	-8805	-738123		1.58	476.5	1.15	7668			0.87	No, Vu<V
SLV 5	1187	-6971	-7845	-31792		1.05	476.5	1.04	6953			0.89	No, Vu<V
SLV 1	835	-13466	-4865	-452167		2.02	476.5	1.24	8252			1.7	Si
SLV 1	1187	-8100	-3600	-36781		1.21	476.5	1.08	7179			1.99	Si
SLV 11	835	-21084	8581	334966		3.16	476.5	1.47	9776			1.14	Si
SLV 11	1187	-10913	7643	40384		1.64	476.5	1.16	7742			1.01	Si
SLV 10	835	-11053	-7391	-679029		1.66	476.5	1.16	7770			1.05	Si
SLV 10	1187	-7137	-7070	-11847		1.07	476.5	1.05	6987			0.99	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.46	1.32	-8779	30963	54835	1.77	Si
SLV 10	14	0.46	1.32	-8779	30963	54835	1.77	Si
SLV 6	14	0.46	1.34	-8918	30963	55595	1.8	Si
SLV 5	14	0.46	1.34	-8918	30963	55595	1.8	Si
SLV 13	14	0.46	1.66	-11077	30963	67004	2.16	Si
SLV 14	14	0.46	1.66	-11077	30963	67004	2.16	Si
SLV 2	14	0.46	1.73	-11539	30963	69340	2.24	Si
SLV 1	14	0.46	1.73	-11539	30963	69340	2.24	Si
SLV 15	14	0.46	1.98	-13186	30963	77370	2.5	Si
SLV 16	14	0.46	1.98	-13186	30963	77370	2.5	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.03 Ta = 0.1478

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 12	-10913	-21084	8	0.022	14.451	0.936	34.908	1890.693	No
SLV 11	-10913	-21084	8	0.022	14.451	0.936	34.908	1890.693	No
SLV 8	-10748	-20578	9	0.022	14.284	0.936	34.916	1890.693	No
SLV 7	-10748	-20578	9	0.022	14.284	0.936	34.916	1890.693	No
SLV 15	-9784	-18164	1	0.023	13.31	0.932	36.338	1890.693	No
SLV 16	-9784	-18164	1	0.023	13.31	0.932	36.338	1890.693	No
SLV 3	-9233	-16476	3	0.023	12.754	0.93	36.44	1890.693	No
SLV 4	-9233	-16476	3	0.023	12.754	0.93	36.44	1890.693	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 14	-8651	-15155	-4	0.023	12.168	0.927	36.748	1890.693	No
SLV 13	-8651	-15155	-4	0.023	12.168	0.927	36.748	1890.693	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.883	SLU 29	Si
V_SLU	4.728	SLU 37	Si
PF_SLV	2.964	SLV 5	Si
V_SLV	0.871	SLV 5	No
PFFP_SLV	1.771	SLV 9	Si
R_SLV	0.018	SLV 11	No

## Maschio 170

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	581.1	-515.8	600.6	L5	L6	19.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 69	1035	-4663	10822	8.54	0	0	No, Rottura per schiacciamento
SLU 69	1115	-4773	15346	8.74	0	0	No, Rottura per schiacciamento
SLU 30	1035	-4642	11051	8.5	0	0	No, Rottura per schiacciamento
SLU 30	1115	-4749	15179	8.7	0	0	No, Rottura per schiacciamento
SLU 72	1035	-4851	11342	8.88	0	0	No, Rottura per schiacciamento
SLU 72	1115	-4961	15919	9.09	0	0	No, Rottura per schiacciamento
SLU 29	1035	-4690	11244	8.59	0	0	No, Rottura per schiacciamento
SLU 29	1115	-4792	15264	8.78	0	0	No, Rottura per schiacciamento
SLU 70	1035	-4614	10630	8.45	0	0	No, Rottura per schiacciamento
SLU 70	1115	-4731	15261	8.66	0	0	No, Rottura per schiacciamento
SLU 71	1035	-4899	11535	8.97	0	0	No, Rottura per schiacciamento
SLU 71	1115	-5004	16004	9.16	0	0	No, Rottura per schiacciamento
SLU 28	1035	-4405	10339	8.07	407	0.039	No, M>Mu
SLU 28	1115	-4519	14522	8.28	0	0	No, Rottura per schiacciamento
SLU 38	1035	-4574	10436	8.38	0	0	No, Rottura per schiacciamento
SLU 38	1115	-4730	15411	8.66	0	0	No, Rottura per schiacciamento
SLU 27	1035	-4454	10531	8.16	0	0	No, Rottura per schiacciamento
SLU 27	1115	-4561	14607	8.35	0	0	No, Rottura per schiacciamento
SLU 36	1035	-4338	9724	7.94	1047	0.108	No, M>Mu
SLU 36	1115	-4499	14753	8.24	0	0	No, Rottura per schiacciamento

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 1	1035	-762	-1099	1.4	6584	5.993	Si
SLV 1	1115	-1022	5118	1.87	8440	1.649	Si
SLD 5	1035	-890	-459	1.63	7519	16.399	Si
SLD 5	1115	-1132	5320	2.07	9165	1.723	Si
SLV 2	1035	-762	-1099	1.4	6584	5.993	Si
SLV 2	1115	-1022	5118	1.87	8440	1.649	Si
SLV 10	1035	-231	-3703	0	0	0	No, e>l/2
SLV 10	1115	-657	5212	1.2	5772	1.107	Si
SLV 5	1035	-33	-4706	0	0	0	No, e>l/2
SLV 5	1115	-503	5070	0	0	0	No, e>l/2
SLV 6	1035	-33	-4706	0	0	0	No, e>l/2
SLV 6	1115	-503	5070	0	0	0	No, e>l/2
SLD 6	1035	-890	-459	1.63	7519	16.399	Si
SLD 6	1115	-1132	5320	2.07	9165	1.723	Si
SLV 9	1035	-231	-3703	0	0	0	No, e>l/2
SLV 9	1115	-657	5212	1.2	5772	1.107	Si
SLV 11	1035	-2972	9946	5.44	16068	1.615	Si
SLV 11	1115	-2650	5828	4.85	15574	2.672	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	1035	-2972	9946	5.44	16068	1.615	Si
SLV 12	1115	-2650	5828	4.85	15574	2.672	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	1035	-4623	404	10629		8.47	19.5	1.08	591			1.46	Si
SLU 37	1115	-4772	-582	15496		8.74	19.5	1.08	591			1.02	Si
SLU 78	1035	-4546	379	10015		8.33	19.5	1.08	591			1.56	Si
SLU 78	1115	-4711	-584	15493		8.68	19.38	1.08	588			1.01	Si
SLU 69	1035	-4663	411	10822		8.54	19.5	1.08	591			1.44	Si
SLU 69	1115	-4773	-577	15346		8.74	19.5	1.08	591			1.03	Si
SLU 77	1035	-4595	387	10207		8.42	19.5	1.08	591			1.53	Si
SLU 77	1115	-4753	-587	15578		8.74	19.42	1.08	589			1	Si
SLU 72	1035	-4851	431	11342		8.88	19.5	1.08	591			1.37	Si
SLU 72	1115	-4961	-598	15919		9.09	19.5	1.08	591			0.99	No, Vu<V
SLU 79	1035	-4831	414	10920		8.85	19.5	1.08	591			1.43	Si
SLU 79	1115	-4984	-611	16235		9.14	19.48	1.08	591			0.97	No, Vu<V
SLU 70	1035	-4614	404	10630		8.45	19.5	1.08	591			1.46	Si
SLU 70	1115	-4731	-574	15261		8.66	19.5	1.08	591			1.03	Si
SLU 71	1035	-4899	439	11535		8.97	19.5	1.08	591			1.35	Si
SLU 71	1115	-5004	-601	16004		9.16	19.5	1.08	591			0.98	No, Vu<V
SLU 38	1035	-4574	396	10436		8.38	19.5	1.08	591			1.49	Si
SLU 38	1115	-4730	-579	15411		8.67	19.47	1.08	591			1.02	Si
SLU 80	1035	-4783	407	10727		8.76	19.5	1.08	591			1.45	Si
SLU 80	1115	-4942	-608	16151		9.08	19.45	1.08	590			0.97	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1035	-2972	395	9946		5.53	19.21	1.63	874			2.21	Si
SLV 12	1115	-2650	-254	5828		4.85	19.5	1.63	887			3.5	Si
SLV 5	1035	-33	-202	-4706		0	0	0.83	0			0	No, Vu<V
SLV 5	1115	-503	-162	5070		0	0	0.83	0			0	No, Vu<V
SLV 7	1035	-2775	354	8943		5.08	19.5	1.63	887			2.51	Si
SLV 7	1115	-2497	-239	5685		4.57	19.5	1.63	887			3.71	Si
SLV 8	1035	-2775	354	8943		5.08	19.5	1.63	887			2.51	Si
SLV 8	1115	-2497	-239	5685		4.57	19.5	1.63	887			3.71	Si
SLV 9	1035	-231	-160	-3703		0	0	0.83	0			0	No, Vu<V
SLV 9	1115	-657	-177	5212		4.31	5.44	1.63	247			1.4	Si
SLV 6	1035	-33	-202	-4706		0	0	0.83	0			0	No, Vu<V
SLV 6	1115	-503	-162	5070		0	0	0.83	0			0	No, Vu<V
SLD 6	1035	-890	-29	-459		1.63	19.5	1.16	633			22.02	Si
SLD 6	1115	-1132	-190	5320		2.67	15.15	1.37	580			3.06	Si
SLV 11	1035	-2972	395	9946		5.53	19.21	1.63	874			2.21	Si
SLV 11	1115	-2650	-254	5828		4.85	19.5	1.63	887			3.5	Si
SLD 5	1035	-890	-29	-459		1.63	19.5	1.16	633			22.02	Si
SLD 5	1115	-1132	-190	5320		2.67	15.15	1.37	580			3.06	Si
SLV 10	1035	-231	-160	-3703		0	0	0.83	0			0	No, Vu<V
SLV 10	1115	-657	-177	5212		4.31	5.44	1.63	247			1.4	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.46	0	-68	2424	0	0	No, $e > t/2$
SLV 10	14	0.46	0	-68	2424	0	0	No, $e > t/2$
SLV 6	14	0.46	0	40	2424	0	0	No, Trazione
SLV 5	14	0.46	0	40	2424	0	0	No, Trazione
SLV 1	14	0.46	0.7	-381	2424	5024	2.07	Si
SLV 2	14	0.46	0.7	-381	2424	5024	2.07	Si
SLV 13	14	0.46	1.36	-743	2424	9240	3.81	Si
SLV 14	14	0.46	1.36	-743	2424	9240	3.81	Si
SLV 3	14	0.46	1.56	-850	2424	10384	4.28	Si
SLV 4	14	0.46	1.56	-850	2424	10384	4.28	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-413	250	-6	0	0	0	0	1241.353	No, Trazione
SLV 5	-355	546	-2	0	0	0	0	1241.353	No, Trazione
SLV 2	-523	166	4	0	0	0	0	1193.169	No, Trazione
SLV 9	-413	250	-6	0	0	0	0	1241.353	No, Trazione
SLV 1	-523	166	4	0	0	0	0	1193.169	No, Trazione
SLV 6	-355	546	-2	0	0	0	0	1241.353	No, Trazione
SLV 8	-1030	-1524	5	0.041	1.322	0.942	63.557	1241.353	No
SLV 7	-1030	-1524	5	0.041	1.322	0.942	63.557	1241.353	No
SLV 13	-718	-819	-7	0.04	1.006	0.927	62.15	1193.169	No
SLV 14	-718	-819	-7	0.04	1.006	0.927	62.15	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0	SLV 27	No
V_SLV	0.967	SLV 79	No
PF_SLV	0	SLV 5	No
V_SLV	0	SLV 5	No
PFFP_SLV	0	SLV 6	No
R_SLV	0	SLV 10	No



## Maschio 171

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	650.6	-515.8	652.1	L5	L6	1.5	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	1035	-548	-2	13.04	0	0	No, Rottura per schiacciamento
SLU 42	1115	-541	3	12.89	0	0	No, Rottura per schiacciamento
SLU 54	1035	-441	-1	10.51	0	0	No, Rottura per schiacciamento
SLU 54	1115	-433	2	10.32	0	0	No, Rottura per schiacciamento
SLU 58	1035	-734	-2	17.47	0	0	No, Rottura per schiacciamento
SLU 58	1115	-726	3	17.28	0	0	No, Rottura per schiacciamento
SLU 51	1035	-735	-2	17.5	0	0	No, Rottura per schiacciamento
SLU 51	1115	-727	3	17.31	0	0	No, Rottura per schiacciamento
SLU 59	1035	-725	-2	17.26	0	0	No, Rottura per schiacciamento
SLU 59	1115	-717	3	17.07	0	0	No, Rottura per schiacciamento
SLU 50	1035	-744	-2	17.71	0	0	No, Rottura per schiacciamento
SLU 50	1115	-736	3	17.52	0	0	No, Rottura per schiacciamento
SLU 55	1035	-478	-1	11.37	0	0	No, Rottura per schiacciamento
SLU 55	1115	-470	2	11.18	0	0	No, Rottura per schiacciamento
SLU 56	1035	-692	-2	16.47	0	0	No, Rottura per schiacciamento
SLU 56	1115	-684	3	16.28	0	0	No, Rottura per schiacciamento
SLU 53	1035	-450	-1	10.71	0	0	No, Rottura per schiacciamento
SLU 53	1115	-442	2	10.52	0	0	No, Rottura per schiacciamento
SLU 57	1035	-683	-2	16.27	0	0	No, Rottura per schiacciamento
SLU 57	1115	-675	3	16.08	0	0	No, Rottura per schiacciamento

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	1035	-483	9	11.5	21	2.499	Si
SLV 11	1115	-476	6	11.34	26	4.258	Si
SLV 5	1035	-23	-10	0.55	17	1.641	Si
SLV 5	1115	-18	-4	0.42	13	3.501	Si
SLV 9	1035	-56	-8	1.34	38	5	Si
SLV 9	1115	-48	-5	1.14	33	7.156	Si
SLV 2	1035	-134	-8	3.19	74	9.864	Si
SLV 2	1115	-132	1	3.15	74	68.191	Si
SLV 1	1035	-134	-8	3.19	74	9.864	Si
SLV 1	1115	-132	1	3.15	74	68.191	Si
SLV 8	1035	-450	6	10.71	42	7.02	Si
SLV 8	1115	-446	7	10.62	44	6.309	Si
SLV 7	1035	-450	6	10.71	42	7.02	Si
SLV 7	1115	-446	7	10.62	44	6.309	Si
SLV 12	1035	-483	9	11.5	21	2.499	Si
SLV 12	1115	-476	6	11.34	26	4.258	Si
SLV 10	1035	-56	-8	1.34	38	5	Si
SLV 10	1115	-48	-5	1.14	33	7.156	Si
SLV 6	1035	-23	-10	0.55	17	1.641	Si
SLV 6	1115	-18	-4	0.42	13	3.501	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 30	1035	-804	0	-2		19.14	1.5	1.08	46			633.74	Si
SLU 30	1115	-798	0	4		18.99	1.5	1.08	46			633.77	Si
SLU 80	1035	-827	0	-2		19.69	1.5	1.08	46			583.98	Si
SLU 80	1115	-819	0	4		19.5	1.5	1.08	46			584	Si
SLU 38	1035	-794	0	-2		18.9	1.5	1.08	46			604.12	Si
SLU 38	1115	-788	0	4		18.75	1.5	1.08	46			604.14	Si
SLU 36	1035	-752	0	-2		17.9	1.5	1.08	46			627.88	Si
SLU 36	1115	-746	0	4		17.75	1.5	1.08	46			627.89	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	1035	-785	0	-2		18.69	1.5	1.08	46			606.16	Si
SLU 78	1115	-777	0	4		18.5	1.5	1.08	46			606.17	Si
SLU 79	1035	-835	0	-2		19.89	1.5	1.08	46			589.7	Si
SLU 79	1115	-827	0	4		19.7	1.5	1.08	46			589.72	Si
SLU 37	1035	-802	0	-2		19.1	1.5	1.08	46			610.23	Si
SLU 37	1115	-796	0	4		18.95	1.5	1.08	46			610.25	Si
SLU 77	1035	-794	0	-2		18.89	1.5	1.08	46			612.32	Si
SLU 77	1115	-785	0	4		18.7	1.5	1.08	46			612.33	Si
SLU 71	1035	-846	0	-2		20.13	1.5	1.08	46			617.9	Si
SLU 71	1115	-837	0	4		19.94	1.5	1.08	46			617.92	Si
SLU 72	1035	-837	0	-2		19.93	1.5	1.08	46			611.62	Si
SLU 72	1115	-829	0	4		19.74	1.5	1.08	46			611.65	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	1035	-134	0	-8		3.19	1.5	1.47	62			418.29	Si
SLV 2	1115	-132	0	1		3.15	1.5	1.46	61			1000	Si
SLV 12	1035	-483	0	9		11.5	1.5	1.63	68			346.77	Si
SLV 12	1115	-476	0	6		11.34	1.5	1.63	68			1000	Si
SLV 10	1035	-56	0	-8		1.34	1.5	1.1	46			220.71	Si
SLV 10	1115	-48	0	-5		1.14	1.5	1.06	45			1000	Si
SLV 1	1035	-134	0	-8		3.19	1.5	1.47	62			418.29	Si
SLV 1	1115	-132	0	1		3.15	1.5	1.46	61			1000	Si
SLV 11	1035	-483	0	9		11.5	1.5	1.63	68			346.77	Si
SLV 11	1115	-476	0	6		11.34	1.5	1.63	68			1000	Si
SLV 9	1035	-56	0	-8		1.34	1.5	1.1	46			220.71	Si
SLV 9	1115	-48	0	-5		1.14	1.5	1.06	45			1000	Si
SLV 7	1035	-450	0	6		10.71	1.5	1.63	68			427.21	Si
SLV 7	1115	-446	0	7		10.62	1.5	1.63	68			1000	Si
SLV 5	1035	-23	0	-10		0.88	0.94	1.01	27			107.74	Si
SLV 5	1115	-18	0	-4		0.42	1.5	0.92	39			1000	Si
SLV 8	1035	-450	0	6		10.71	1.5	1.63	68			427.21	Si
SLV 8	1115	-446	0	7		10.62	1.5	1.63	68			1000	Si
SLV 6	1035	-23	0	-10		0.88	0.94	1.01	27			107.74	Si
SLV 6	1115	-18	0	-4		0.42	1.5	0.92	39			1000	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.46	0	-5	186	0	0	No, $e > t/2$
SLV 1	14	0.46	0	-5	186	0	0	No, $e > t/2$
SLV 5	14	0.46	0	-2	186	0	0	No, $e > t/2$
SLV 13	14	0.46	0	-10	186	0	0	No, $e > t/2$
SLV 14	14	0.46	0	-10	186	0	0	No, $e > t/2$
SLV 4	14	0.46	0	-8	186	0	0	No, $e > t/2$
SLV 3	14	0.46	0	-8	186	0	0	No, $e > t/2$
SLV 6	14	0.46	0	-2	186	0	0	No, $e > t/2$
SLV 10	14	0.46	0	-4	186	0	0	No, $e > t/2$
SLV 9	14	0.46	0	-4	186	0	0	No, $e > t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 5	-5	42	0	0	0	0	0	1241.353	No, Trazione
SLV 9	-8	64	-1	0	0	0	0	1241.353	No, Trazione
SLV 2	-11	-39	2	0	0.034	0.89	0	1193.169	No
SLV 14	-18	33	-3	0	0	0	0	1193.169	No, Trazione
SLV 13	-18	33	-3	0	0	0	0	1193.169	No, Trazione
SLV 10	-8	64	-1	0	0	0	0	1241.353	No, Trazione
SLV 6	-5	42	0	0	0	0	0	1241.353	No, Trazione
SLV 3	-18	-87	3	0	0.04	0.891	0	1193.169	No
SLV 4	-18	-87	3	0	0.04	0.891	0	1193.169	No
SLV 1	-11	-39	2	0	0.034	0.89	0	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 3	No
V_SLU	583.983	SLU 80	Si
PF_SLV	1.641	SLV 5	Si
V_SLV	107.743	SLV 5	Si
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 14	No

## Maschio 172

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-600.8	-335.9	-651.3	-335.9	L5	L6	50.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti



fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 73	1035	-2884	-6713	2.04	54584	8.131	Si
SLU 73	1115	-2461	-13334	1.74	48865	3.665	Si
SLU 82	1035	-3140	-7127	2.22	57672	8.092	Si
SLU 82	1115	-2730	-14369	1.93	52591	3.66	Si
SLU 10	1035	-2047	-4612	1.45	42494	9.214	Si
SLU 10	1115	-1725	-9857	1.22	37026	3.756	Si
SLU 81	1035	-3342	-7694	2.36	59897	7.785	Si
SLU 81	1115	-2932	-14646	2.07	55188	3.768	Si
SLU 40	1035	-2619	-5725	1.85	51096	8.925	Si
SLU 40	1115	-2315	-12380	1.64	46709	3.773	Si
SLU 60	1035	-3025	-6995	2.14	56326	8.053	Si
SLU 60	1115	-2610	-13158	1.85	50968	3.874	Si
SLU 19	1035	-2303	-5026	1.63	46523	9.257	Si
SLU 19	1115	-1993	-10892	1.41	41619	3.821	Si
SLU 61	1035	-2824	-6428	2	53821	8.373	Si
SLU 61	1115	-2408	-12881	1.7	48085	3.733	Si
SLU 31	1035	-2363	-5311	1.67	47422	8.93	Si
SLU 31	1115	-2047	-11345	1.45	42495	3.746	Si
SLU 52	1035	-2567	-6014	1.82	50377	8.377	Si
SLU 52	1115	-2139	-11846	1.51	43981	3.713	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 8	1035	-968	16115	0.68	23063	1.431	Si
SLV 8	1115	-2879	-21215	2.04	60574	2.855	Si
SLV 4	1035	-631	29886	0	0	0	No, $e \geq l/2$
SLV 4	1115	-1691	-37745	1.2	38517	1.02	Si
SLV 1	1035	-1166	22543	0.82	27450	1.218	Si
SLV 1	1115	-1019	-35526	0	0	0	No, $e \geq l/2$
SLV 7	1035	-968	16115	0.68	23063	1.431	Si
SLV 7	1115	-2879	-21215	2.04	60574	2.855	Si
SLD 1	1035	-1790	6386	1.27	40511	6.344	Si
SLD 1	1115	-1548	-20486	1.1	35595	1.738	Si
SLV 2	1035	-1166	22543	0.82	27450	1.218	Si
SLV 2	1115	-1019	-35526	0	0	0	No, $e \geq l/2$
SLV 5	1035	-2749	-8360	1.94	58364	6.981	Si
SLV 5	1115	-637	-13820	0.45	15502	1.122	Si
SLD 2	1035	-1790	6386	1.27	40511	6.344	Si
SLD 2	1115	-1548	-20486	1.1	35595	1.738	Si
SLV 6	1035	-2749	-8360	1.94	58364	6.981	Si
SLV 6	1115	-637	-13820	0.45	15502	1.122	Si
SLV 3	1035	-631	29886	0	0	0	No, $e \geq l/2$
SLV 3	1115	-1691	-37745	1.2	38517	1.02	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	1035	-3218	-221	-8619		2.28	50.5	0.86	1215			5.49	Si
SLU 58	1115	-2796	114	-11697		1.98	50.5	0.82	1158			10.13	Si
SLU 69	1035	-3329	-236	-9299		2.35	50.5	0.87	1229			5.21	Si
SLU 69	1115	-2879	105	-11812		2.04	50.5	0.83	1169			11.11	Si
SLU 77	1035	-3613	-236	-9383		2.56	50.5	0.9	1267			5.37	Si
SLU 77	1115	-3191	135	-13798		2.26	50.5	0.86	1211			9	Si
SLU 79	1035	-3534	-241	-9317		2.5	50.5	0.89	1257			5.21	Si
SLU 79	1115	-3118	135	-13185		2.21	50.5	0.85	1201			8.88	Si
SLU 48	1035	-3012	-216	-8600		2.13	50.5	0.84	1187			5.5	Si
SLU 48	1115	-2557	84	-10324		1.81	50.5	0.8	1127			13.36	Si
SLU 29	1035	-2728	-215	-7831		1.93	50.5	0.81	1149			5.35	Si
SLU 29	1115	-2392	100	-9210		1.69	50.5	0.78	1104			11	Si
SLU 71	1035	-3249	-241	-9233		2.3	50.5	0.86	1219			5.06	Si
SLU 71	1115	-2806	106	-11199		1.98	50.5	0.82	1160			10.95	Si
SLU 27	1035	-2808	-210	-7897		1.99	50.5	0.82	1160			5.53	Si
SLU 27	1115	-2465	100	-9823		1.74	50.5	0.79	1114			11.18	Si
SLU 37	1035	-3013	-215	-7915		2.13	50.5	0.84	1187			5.52	Si
SLU 37	1115	-2704	130	-11196		1.91	50.5	0.81	1146			8.84	Si
SLU 50	1035	-2933	-221	-8534		2.07	50.5	0.83	1177			5.33	Si
SLU 50	1115	-2484	85	-9711		1.76	50.5	0.79	1117			13.14	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	1035	-3907	-1361	-41277		3.17	44.06	1.47	1809			1.33	Si
SLV 13	1115	-2171	-158	19097		1.57	49.36	1.15	1586			10.01	Si
SLV 2	1035	-1166	987	22543		2.35	17.74	1.3	647			0.66	No, $V_u < V$
SLV 2	1115	-1019	51	-35526		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1035	-2749	-2	-8360		1.94	50.5	1.22	1728			1000	Si
SLV 6	1115	-637	-281	-13820		2.13	10.71	1.26	377			1.34	Si
SLV 14	1035	-3907	-1361	-41277		3.17	44.06	1.47	1809			1.33	Si
SLV 14	1115	-2171	-158	19097		1.57	49.36	1.15	1586			10.01	Si
SLV 16	1035	-3373	-1217	-33935		2.64	45.57	1.36	1738			1.43	Si
SLV 16	1115	-2843	63	16878		2.01	50.5	1.24	1747			27.78	Si
SLV 1	1035	-1166	987	22543		2.35	17.74	1.3	647			0.66	No, $V_u < V$
SLV 1	1115	-1019	51	-35526		0	0	0.83	0			0	No, $V_u < V$
SLV 15	1035	-3373	-1217	-33935		2.64	45.57	1.36	1738			1.43	Si
SLV 15	1115	-2843	63	16878		2.01	50.5	1.24	1747			27.78	Si
SLV 3	1035	-631	1131	29886		0	0	0.83	0			0	No, $V_u < V$





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	1115	-1691	272	-37745		6.88	8.78	1.63	400			1.47	Si
SLV 4	1035	-631	1131	29886		0		0.83	0			0	No, Vu<V
SLV 4	1115	-1691	272	-37745		6.88	8.78	1.63	400			1.47	Si
SLV 5	1035	-2749	-2	-8360		1.94	50.5	1.22	1728			1000	Si
SLV 5	1115	-637	-281	-13820		2.13	10.71	1.26	377			1.34	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.46	0	-377	6135	0	0	No, e>t/2
SLV 8	14	0.46	0	-377	6135	0	0	No, e>t/2
SLV 4	14	0.46	0.52	-742	6135	9944	1.62	Si
SLV 3	14	0.46	0.52	-742	6135	9944	1.62	Si
SLV 12	14	0.46	0.54	-759	6135	10158	1.66	Si
SLV 11	14	0.46	0.54	-759	6135	10158	1.66	Si
SLV 1	14	0.46	1.02	-1437	6135	18443	3.01	Si
SLV 2	14	0.46	1.02	-1437	6135	18443	3.01	Si
SLV 16	14	0.46	1.42	-2015	6135	24918	4.06	Si
SLV 15	14	0.46	1.42	-2015	6135	24918	4.06	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-1146	-1091	-15	0.041	1.89	0.908	66.187	1241.353	No
SLV 11	-1146	-1091	-15	0.041	1.89	0.908	66.187	1241.353	No
SLV 8	-820	-1055	-13	0.044	1.57	0.897	70.638	1241.353	No
SLV 7	-820	-1055	-13	0.044	1.57	0.897	70.638	1241.353	No
SLV 16	-1476	-1349	-9	0.044	2.22	0.918	69.812	1193.169	No
SLV 15	-1476	-1349	-9	0.044	2.22	0.918	69.812	1193.169	No
SLV 10	-1005	-1710	9	0.046	1.751	0.904	73.628	1241.353	No
SLV 9	-1005	-1710	9	0.046	1.751	0.904	73.628	1241.353	No
SLV 6	-680	-1674	11	0.045	1.435	0.893	73.931	1241.353	No
SLV 5	-680	-1674	11	0.045	1.435	0.893	73.931	1241.353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.66	SLU 82	Si
V_SLU	5.064	SLU 71	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 7	No
R_SLV	0.053	SLV 11	No

## Maschio 173

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-318.3	-335.9	-550.8	-335.9	L5	L6	232.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 82	1035	-11359	73725	1.74	1037647	14.075	Si
SLU 82	1115	-9976	87031	1.53	941568	10.819	Si
SLU 44	1035	-8546	50557	1.31	833339	16.483	Si
SLU 44	1115	-7220	68786	1.11	725062	10.541	Si
SLU 23	1035	-7810	44630	1.2	774190	17.347	Si
SLU 23	1115	-6776	65581	1.04	687054	10.476	Si
SLU 52	1035	-9549	60401	1.47	910217	15.07	Si
SLU 52	1115	-8215	75062	1.26	807066	10.752	Si
SLU 31	1035	-8814	54474	1.35	854307	15.683	Si
SLU 31	1115	-7771	71858	1.19	770996	10.73	Si
SLU 76	1035	-11033	64062	1.69	1015759	15.856	Si
SLU 76	1115	-9653	85572	1.48	917928	10.727	Si
SLU 2	1035	-6706	38658	1.03	680975	17.616	Si
SLU 2	1115	-5694	55790	0.87	590828	10.59	Si
SLU 73	1035	-10654	66373	1.64	989667	14.911	Si
SLU 73	1115	-9297	84853	1.43	891328	10.504	Si
SLU 68	1035	-10029	54218	1.54	945411	17.437	Si
SLU 68	1115	-8658	79295	1.33	842199	10.621	Si
SLU 65	1035	-9650	56529	1.48	917648	16.233	Si
SLU 65	1115	-8302	78577	1.28	814046	10.36	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	1035	-10015	-33141	1.54	1017631	30.706	Si
SLV 9	1115	-9044	278184	1.39	931863	3.35	Si
SLV 3	1035	-7863	125446	1.21	823678	6.566	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	1115	-6361	-206409	0.98	680284	3.296	Si
SLV 10	1035	-10015	-33141	1.54	1017631	30.706	Si
SLV 10	1115	-9044	278184	1.39	931863	3.35	Si
SLV 16	1035	-6827	17330	1.05	725494	41.865	Si
SLV 16	1115	-6185	232677	0.95	663094	2.85	Si
SLV 15	1035	-6827	17330	1.05	725494	41.865	Si
SLV 15	1115	-6185	232677	0.95	663094	2.85	Si
SLV 14	1035	-8131	-23429	1.25	848582	36.219	Si
SLV 14	1115	-7476	324609	1.15	787435	2.426	Si
SLV 4	1035	-7863	125446	1.21	823678	6.566	Si
SLV 4	1115	-6361	-206409	0.98	680284	3.296	Si
SLV 13	1035	-8131	-23429	1.25	848582	36.219	Si
SLV 13	1115	-7476	324609	1.15	787435	2.426	Si
SLV 8	1035	-5979	135158	0.92	642779	4.756	Si
SLV 8	1115	-4792	-159984	0.74	523555	3.273	Si
SLV 7	1035	-5979	135158	0.92	642779	4.756	Si
SLV 7	1115	-4792	-159984	0.74	523555	3.273	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 31	1035	-8814	-251	54474		1.35	232.5	0.74	4792			19.05	Si
SLU 31	1115	-7771	-147	71858		1.19	232.5	0.71	4653			31.72	Si
SLU 5	1035	-7086	-276	36346		1.09	232.5	0.7	4561			16.5	Si
SLU 5	1115	-6050	-193	56508		0.93	232.5	0.68	4423			22.95	Si
SLU 26	1035	-8190	-312	42319		1.26	232.5	0.72	4709			15.08	Si
SLU 26	1115	-7132	-211	66299		1.1	232.5	0.7	4568			21.62	Si
SLU 34	1035	-9194	-255	52163		1.41	232.5	0.74	4842			19.02	Si
SLU 34	1115	-8127	-147	72576		1.25	232.5	0.72	4700			31.9	Si
SLU 2	1035	-6706	-273	38658		1.03	232.5	0.69	4511			16.5	Si
SLU 2	1115	-5694	-192	55790		0.87	232.5	0.67	4376			22.78	Si
SLU 44	1035	-8546	-282	50557		1.31	232.5	0.73	4756			16.86	Si
SLU 44	1115	-7220	-196	68786		1.11	232.5	0.7	4579			23.38	Si
SLU 23	1035	-7810	-309	44630		1.2	232.5	0.72	4658			15.07	Si
SLU 23	1115	-6776	-211	65581		1.04	232.5	0.69	4520			21.46	Si
SLU 65	1035	-9650	-318	56529		1.48	232.5	0.75	4903			15.43	Si
SLU 65	1115	-8302	-214	78577		1.28	232.5	0.73	4724			22.03	Si
SLU 47	1035	-8925	-285	48245		1.37	232.5	0.74	4807			16.86	Si
SLU 47	1115	-7576	-197	69504		1.16	232.5	0.71	4627			23.54	Si
SLU 68	1035	-10029	-321	54218		1.54	232.5	0.76	4954			15.44	Si
SLU 68	1115	-8658	-215	79295		1.33	232.5	0.73	4771			22.18	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	1035	-7863	4798	125446		1.21	232.5	1.07	6998			1.46	Si
SLV 3	1115	-6361	4126	-206409		0.98	232.5	1.03	6697			1.62	Si
SLV 8	1035	-5979	3585	135158		0.92	232.5	1.02	6621			1.85	Si
SLV 8	1115	-4792	3173	-159984		0.74	232.5	0.98	6383			2.01	Si
SLV 13	1035	-8131	-4925	-23429		1.25	232.5	1.08	7051			1.43	Si
SLV 13	1115	-7476	-4168	324609		1.22	218.5	1.08	6593			1.58	Si
SLV 9	1035	-10015	-3712	-33141		1.54	232.5	1.14	7428			2	Si
SLV 9	1115	-9044	-3215	278184		1.39	232.5	1.11	7234			2.25	Si
SLV 14	1035	-8131	-4925	-23429		1.25	232.5	1.08	7051			1.43	Si
SLV 14	1115	-7476	-4168	324609		1.22	218.5	1.08	6593			1.58	Si
SLV 15	1035	-6827	-3482	17330		1.05	232.5	1.04	6790			1.95	Si
SLV 15	1115	-6185	-2882	232677		0.95	232.5	1.02	6662			2.31	Si
SLV 4	1035	-7863	4798	125446		1.21	232.5	1.07	6998			1.46	Si
SLV 4	1115	-6361	4126	-206409		0.98	232.5	1.03	6697			1.62	Si
SLV 16	1035	-6827	-3482	17330		1.05	232.5	1.04	6790			1.95	Si
SLV 16	1115	-6185	-2882	232677		0.95	232.5	1.02	6662			2.31	Si
SLV 10	1035	-10015	-3712	-33141		1.54	232.5	1.14	7428			2	Si
SLV 10	1115	-9044	-3215	278184		1.39	232.5	1.11	7234			2.25	Si
SLV 7	1035	-5979	3585	135158		0.92	232.5	1.02	6621			1.85	Si
SLV 7	1115	-4792	3173	-159984		0.74	232.5	0.98	6383			2.01	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.46	0.82	-5364	28245	70034	2.48	Si
SLV 7	14	0.46	0.82	-5364	28245	70034	2.48	Si
SLV 12	14	0.46	0.84	-5498	28245	71648	2.54	Si
SLV 11	14	0.46	0.84	-5498	28245	71648	2.54	Si
SLV 3	14	0.46	1.06	-6877	28245	87958	3.11	Si
SLV 4	14	0.46	1.06	-6877	28245	87958	3.11	Si
SLV 15	14	0.46	1.12	-7322	28245	93077	3.3	Si
SLV 16	14	0.46	1.12	-7322	28245	93077	3.3	Si
SLV 2	14	0.46	1.28	-8308	28245	104162	3.69	Si
SLV 1	14	0.46	1.28	-8308	28245	104162	3.69	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	-4955	-7980	156	0.029	8.386	0.906	47.001	1193.169	No
SLV 15	-4955	-7980	156	0.029	8.386	0.906	47.001	1193.169	No
SLV 2	-5902	-7738	-153	0.031	9.327	0.912	49.152	1193.169	No
SLV 1	-5902	-7738	-153	0.031	9.327	0.912	49.152	1193.169	No
SLV 11	-3855	-5235	117	0.034	7.305	0.898	54.724	1241.353	No
SLV 12	-3855	-5235	117	0.034	7.305	0.898	54.724	1241.353	No



Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-7003	-10482	-115	0.036	10.427	0.919	57.171	1241.353	No
SLV 5	-7003	-10482	-115	0.036	10.427	0.919	57.171	1241.353	No
SLV 14	-5900	-9733	110	0.036	9.324	0.912	57.847	1193.169	No
SLV 13	-5900	-9733	110	0.036	9.324	0.912	57.847	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	10.36	SLU 65	Si
V_SLU	15.066	SLU 23	Si
PF_SLV	2.426	SLV 13	Si
V_SLV	1.432	SLV 13	Si
PFFP_SLV	2.479	SLV 7	Si
R_SLV	0.039	SLV 15	No

## Maschio 174

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	-335.9	-228.3	-335.9	L5	L6	216	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\alpha_0$	Mu	c.s.	Verifica
SLU 84	925	-11614	-91346	1.92	958637	10.495	Si
SLU 84	1105	-11880	176268	1.96	973668	5.524	Si
SLU 73	925	-10856	-96328	1.79	914069	9.489	Si
SLU 73	1105	-11007	174362	1.82	923173	5.295	Si
SLU 81	925	-11172	-76595	1.85	932939	12.18	Si
SLU 81	1105	-11278	175644	1.86	939203	5.347	Si
SLU 31	925	-8940	-90974	1.48	790308	8.687	Si
SLU 31	1105	-9371	152730	1.55	819545	5.366	Si
SLU 19	925	-8331	-70816	1.38	747600	10.557	Si
SLU 19	1105	-8491	136359	1.4	759005	5.566	Si
SLU 82	925	-11150	-91957	1.84	931673	10.132	Si
SLU 82	1105	-11385	180815	1.88	945405	5.229	Si
SLU 75	925	-11547	-85950	1.91	954786	11.109	Si
SLU 75	1105	-11694	173708	1.93	963171	5.545	Si
SLU 61	925	-10247	-76170	1.69	876476	11.507	Si
SLU 61	1105	-10128	157991	1.67	868943	5.5	Si
SLU 40	925	-9235	-86603	1.53	810386	9.358	Si
SLU 40	1105	-9748	159182	1.61	844484	5.305	Si
SLU 39	925	-9256	-71241	1.53	811832	11.396	Si
SLU 39	1105	-9642	154012	1.59	837519	5.438	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\alpha_0$	Mu	c.s.	Verifica
SLV 15	925	-7014	-147239	1.16	685601	4.656	Si
SLV 15	1105	-8437	255657	1.4	807201	3.157	Si
SLD 16	925	-7501	-88307	1.24	727848	8.242	Si
SLD 16	1105	-7932	173462	1.31	764699	4.408	Si
SLD 13	925	-8481	-91930	1.4	810850	8.82	Si
SLD 13	1105	-8688	178347	1.44	827951	4.642	Si
SLV 11	925	-4106	-61188	0.68	418836	6.845	Si
SLV 11	1105	-5090	134722	0.84	511864	3.799	Si
SLD 14	925	-8481	-91930	1.4	810850	8.82	Si
SLD 14	1105	-8688	178347	1.44	827951	4.642	Si
SLV 13	925	-9323	-156472	1.54	879850	5.623	Si
SLV 13	1105	-10234	268773	1.69	952233	3.543	Si
SLV 16	925	-7014	-147239	1.16	685601	4.656	Si
SLV 16	1105	-8437	255657	1.4	807201	3.157	Si
SLV 12	925	-4106	-61188	0.68	418836	6.845	Si
SLV 12	1105	-5090	134722	0.84	511864	3.799	Si
SLV 14	925	-9323	-156472	1.54	879850	5.623	Si
SLV 14	1105	-10234	268773	1.69	952233	3.543	Si
SLD 15	925	-7501	-88307	1.24	727848	8.242	Si
SLD 15	1105	-7932	173462	1.31	764699	4.408	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\alpha_0$	$\alpha_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	925	-10856	-3231	-96328		1.79	216	0.79	4807			1.49	Si
SLU 73	1105	-11007	-3181	174362		1.82	216	0.8	4828			1.52	Si
SLU 78	925	-12011	-3145	-85339		1.99	216	0.82	4961			1.58	Si
SLU 78	1105	-12190	-3118	169162		2.02	216	0.82	4985			1.6	Si
SLU 82	925	-11150	-3281	-91957		1.84	216	0.8	4847			1.48	Si
SLU 82	1105	-11385	-3252	180815		1.88	216	0.81	4878			1.5	Si
SLU 40	925	-9235	-2936	-86603		1.53	216	0.76	4591			1.56	Si
SLU 40	1105	-9748	-2906	159182		1.61	216	0.77	4660			1.6	Si
SLU 75	925	-11547	-3155	-85950		1.91	216	0.81	4900			1.55	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 75	1105	-11694	-3127	173708		1.93	216	0.81	4919			1.57	Si
SLU 76	925	-11320	-3221	-95717		1.87	216	0.81	4869			1.51	Si
SLU 76	1105	-11503	-3172	169815		1.9	216	0.81	4894			1.54	Si
SLU 42	925	-9699	-2926	-85992		1.6	216	0.77	4653			1.59	Si
SLU 42	1105	-10244	-2897	154636		1.69	216	0.78	4726			1.63	Si
SLU 81	925	-11172	-3074	-76595		1.85	216	0.8	4850			1.58	Si
SLU 81	1105	-11278	-3075	175644		1.86	216	0.8	4864			1.58	Si
SLU 31	925	-8940	-2885	-90974		1.48	216	0.75	4552			1.58	Si
SLU 31	1105	-9371	-2835	152730		1.55	216	0.76	4609			1.63	Si
SLU 84	925	-11614	-3271	-91346		1.92	216	0.81	4909			1.5	Si
SLU 84	1105	-11880	-3243	176268		1.96	216	0.82	4944			1.52	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 15	925	-7501	-3112	-88307		1.24	216	1.08	6540			2.1	Si
SLD 15	1105	-7932	-2843	173462		1.31	216	1.1	6626			2.33	Si
SLV 16	925	-7014	-4724	-147239		1.16	216	1.07	6443			1.36	Si
SLV 16	1105	-8437	-4099	255657		1.4	216	1.11	6727			1.64	Si
SLV 13	925	-9323	-4450	-156472		1.54	216	1.14	6905			1.55	Si
SLV 13	1105	-10234	-3672	268773		1.69	216	1.17	7087			1.93	Si
SLD 16	925	-7501	-3112	-88307		1.24	216	1.08	6540			2.1	Si
SLD 16	1105	-7932	-2843	173462		1.31	216	1.1	6626			2.33	Si
SLD 14	925	-8481	-2994	-91930		1.4	216	1.11	6736			2.25	Si
SLD 14	1105	-8688	-2659	178347		1.44	216	1.12	6778			2.55	Si
SLV 15	925	-7014	-4724	-147239		1.16	216	1.07	6443			1.36	Si
SLV 15	1105	-8437	-4099	255657		1.4	216	1.11	6727			1.64	Si
SLV 14	925	-9323	-4450	-156472		1.54	216	1.14	6905			1.55	Si
SLV 14	1105	-10234	-3672	268773		1.69	216	1.17	7087			1.93	Si
SLV 12	925	-4106	-3169	-61188		0.68	216	0.97	5861			1.85	Si
SLV 12	1105	-5090	-3216	134722		0.84	216	1	6058			1.88	Si
SLV 11	925	-4106	-3169	-61188		0.68	216	0.97	5861			1.85	Si
SLV 11	1105	-5090	-3216	134722		0.84	216	1	6058			1.88	Si
SLD 13	925	-8481	-2994	-91930		1.4	216	1.11	6736			2.25	Si
SLD 13	1105	-8688	-2659	178347		1.44	216	1.12	6778			2.55	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011  $W_a$  0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.46	0.71	-4296	26241	56642	2.16	Si
SLV 8	14	0.46	0.71	-4296	26241	56642	2.16	Si
SLV 11	14	0.46	0.84	-5094	26241	66394	2.53	Si
SLV 12	14	0.46	0.84	-5094	26241	66394	2.53	Si
SLV 3	14	0.46	0.93	-5617	26241	72661	2.77	Si
SLV 4	14	0.46	0.93	-5617	26241	72661	2.77	Si
SLV 2	14	0.46	1.25	-7548	26241	94875	3.62	Si
SLV 1	14	0.46	1.25	-7548	26241	94875	3.62	Si
SLV 15	14	0.46	1.37	-8277	26241	102898	3.92	Si
SLV 16	14	0.46	1.37	-8277	26241	102898	3.92	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011  $W_a = 0.05$   $T_a = 0.0739$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-7455	-11785	-42	0.043	10.64	0.925	68.22	1241.353	No
SLV 5	-7455	-11785	-42	0.043	10.64	0.925	68.22	1241.353	No
SLV 10	-7886	-12821	-27	0.045	11.074	0.927	70.138	1241.353	No
SLV 9	-7886	-12821	-27	0.045	11.074	0.927	70.138	1241.353	No
SLV 11	-3912	-4639	41	0.046	7.109	0.901	73.871	1241.353	No
SLV 12	-3912	-4639	41	0.046	7.109	0.901	73.871	1241.353	No
SLV 15	-5806	-8712	34	0.045	8.986	0.915	71.832	1193.169	No
SLV 16	-5806	-8712	34	0.045	8.986	0.915	71.832	1193.169	No
SLV 2	-5561	-7712	-35	0.045	8.742	0.913	72.053	1193.169	No
SLV 1	-5561	-7712	-35	0.045	8.742	0.913	72.053	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.229	SLU 82	Si
V_SLU	1.477	SLU 82	Si
PF_SLV	3.157	SLV 15	Si
V_SLV	1.364	SLV 15	Si
PFFP_SLV	2.159	SLV 7	Si
R_SLV	0.055	SLV 5	No

## Maschio 175

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-296.3	595.1	-515.8	595.1	L5	L6	219.5	28	352	352	352			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 30	925	-4287	-199108	0.7	430226	2.161	Si
SLU 30	1105	-2303	-107850	0.37	241094	2.235	Si
SLU 27	925	-5005	-194747	0.81	494360	2.538	Si
SLU 27	1105	-3020	-106626	0.49	311471	2.921	Si
SLU 71	925	-6182	-222077	1.01	594675	2.678	Si
SLU 71	1105	-3623	-122475	0.59	368841	3.012	Si
SLU 29	925	-4352	-202459	0.71	436109	2.154	Si
SLU 29	1105	-2367	-108980	0.39	247540	2.271	Si
SLU 28	925	-4940	-191396	0.8	488663	2.553	Si
SLU 28	1105	-2955	-105497	0.48	305209	2.893	Si
SLU 8	925	-3854	-185105	0.63	390437	2.109	Si
SLU 8	1105	-1902	-96984	0.31	200858	2.071	Si
SLU 7	925	-4442	-174042	0.72	444273	2.553	Si
SLU 7	1105	-2490	-93500	0.41	259725	2.778	Si
SLU 9	925	-3789	-181754	0.62	384412	2.115	Si
SLU 9	1105	-1838	-95854	0.3	194279	2.027	Si
SLU 72	925	-6117	-218726	1	589312	2.694	Si
SLU 72	1105	-3558	-121345	0.58	362751	2.989	Si
SLU 6	925	-4507	-177393	0.73	450112	2.537	Si
SLU 6	1105	-2555	-94630	0.42	266119	2.812	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	925	-5520	-283348	0.9	561266	1.981	Si
SLD 15	1105	-3299	21461	0.54	346135	16.129	Si
SLV 12	925	-4860	-541589	0	0	0	No, $e \geq l/2$
SLV 12	1105	-2286	75629	0.37	243263	3.217	Si
SLV 15	925	-3322	-548995	0	0	0	No, $e \geq l/2$
SLV 15	1105	-751	134039	0	0	0	No, $e \geq l/2$
SLD 16	925	-5520	-283348	0.9	561266	1.981	Si
SLD 16	1105	-3299	21461	0.54	346135	16.129	Si
SLV 7	925	-6927	-327134	1.13	690098	2.11	Si
SLV 7	1105	-4634	-26897	0.75	477227	17.743	Si
SLV 14	925	-4071	-340889	0.66	422617	1.24	Si
SLV 14	1105	-1783	81578	0.29	191058	2.342	Si
SLV 16	925	-3322	-548995	0	0	0	No, $e \geq l/2$
SLV 16	1105	-751	134039	0	0	0	No, $e \geq l/2$
SLV 11	925	-4860	-541589	0	0	0	No, $e \geq l/2$
SLV 11	1105	-2286	75629	0.37	243263	3.217	Si
SLV 8	925	-6927	-327134	1.13	690098	2.11	Si
SLV 8	1105	-4634	-26897	0.75	477227	17.743	Si
SLV 13	925	-4071	-340889	0.66	422617	1.24	Si
SLV 13	1105	-1783	81578	0.29	191058	2.342	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 9	925	-3789	-495	-181754	0.73	185.36	0.65	3389				6.84	Si
SLU 9	1105	-1838	-495	-95854	0.38	172.77	0.61	2932				5.92	Si
SLU 71	925	-6182	-577	-222077	1.01	219.5	0.69	4239				7.35	Si
SLU 71	1105	-3623	-577	-122475	0.59	219.5	0.63	3897				6.75	Si
SLU 29	925	-4352	-538	-202459	0.82	189.69	0.66	3531				6.57	Si
SLU 29	1105	-2367	-538	-108980	0.44	191.15	0.61	3289				6.12	Si
SLU 69	925	-6835	-547	-214366	1.11	219.5	0.7	4326				7.9	Si
SLU 69	1105	-4276	-547	-120121	0.7	219.5	0.65	3985				7.28	Si
SLU 30	925	-4287	-525	-199108	0.81	189.92	0.66	3526				6.71	Si
SLU 30	1105	-2303	-525	-107850	0.44	188.74	0.61	3243				6.17	Si
SLU 51	925	-5619	-535	-201372	0.91	219.5	0.68	4164				7.79	Si
SLU 51	1105	-3093	-535	-109349	0.5	219.5	0.62	3827				7.16	Si
SLU 50	925	-5684	-547	-204723	0.92	219.5	0.68	4172				7.63	Si
SLU 50	1105	-3158	-547	-110478	0.51	219.5	0.62	3835				7.01	Si
SLU 70	925	-6770	-535	-211015	1.1	219.5	0.7	4317				8.07	Si
SLU 70	1105	-4211	-535	-118991	0.69	219.5	0.65	3976				7.43	Si
SLU 8	925	-3854	-508	-185105	0.74	185.17	0.65	3394				6.69	Si
SLU 8	1105	-1902	-508	-96984	0.39	176.31	0.61	2996				5.9	Si
SLU 72	925	-6117	-565	-218726	1	219.5	0.69	4230				7.49	Si
SLU 72	1105	-3558	-565	-121345	0.58	219.5	0.63	3889				6.89	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	925	-4860	-3866	-541589	0	0	0.83	0	0			0	No, $V_u < V$
SLV 12	1105	-2286	-3329	75629	0.37	219.5	0.91	5579				1.68	Si
SLV 16	925	-3322	-4302	-548995	0	0	0.83	0	0			0	No, $V_u < V$
SLV 16	1105	-751	-3699	134039	0	0	0.83	0	0			0	No, $V_u < V$
SLV 11	925	-4860	-3866	-541589	0	0	0.83	0	0			0	No, $V_u < V$
SLV 11	1105	-2286	-3329	75629	0.37	219.5	0.91	5579				1.68	Si
SLV 14	925	-4071	-2675	-340889	1.86	78.07	1.21	2636				0.99	No, $V_u < V$
SLV 14	1105	-1783	-2306	81578	0.33	192	0.9	4837				2.1	Si
SLV 2	925	-10961	3994	373958	1.78	219.5	1.19	7314				1.83	Si
SLV 2	1105	-9610	3390	-260175	1.56	219.5	1.15	7044				2.08	Si
SLV 13	925	-4071	-2675	-340889	1.86	78.07	1.21	2636				0.99	No, $V_u < V$
SLV 13	1105	-1783	-2306	81578	0.33	192	0.9	4837				2.1	Si
SLV 5	925	-9424	3558	366552	1.58	212.56	1.15	6845				1.92	Si
SLV 5	1105	-8075	3021	-201765	1.31	219.5	1.1	6737				2.23	Si
SLV 6	925	-9424	3558	366552	1.58	212.56	1.15	6845				1.92	Si
SLV 6	1105	-8075	3021	-201765	1.31	219.5	1.1	6737				2.23	Si
SLV 15	925	-3322	-4302	-548995	0	0	0.83	0	0			0	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma 0$	$\sigma N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	1105	-751	-3699	134039		0	0	0.83	0			0	No, Vu<V
SLV 1	925	-10961	3994	373958		1.78	219.5	1.19	7314			1.83	Si
SLV 1	1105	-9610	3390	-260175		1.56	219.5	1.15	7044			2.08	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\sigma 0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.46	0.39	-2374	26666	32189	1.21	Si
SLV 15	14	0.46	0.39	-2374	26666	32189	1.21	Si
SLV 14	14	0.46	0.53	-3238	26666	43375	1.63	Si
SLV 13	14	0.46	0.53	-3238	26666	43375	1.63	Si
SLV 11	14	0.46	0.62	-3804	26666	50561	1.9	Si
SLV 12	14	0.46	0.62	-3804	26666	50561	1.9	Si
SLV 8	14	0.46	0.96	-5893	26666	76031	2.85	Si
SLV 7	14	0.46	0.96	-5893	26666	76031	2.85	Si
SLV 10	14	0.46	1.09	-6683	26666	85231	3.2	Si
SLV 9	14	0.46	1.09	-6683	26666	85231	3.2	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 12	-3018	-4080	-90	0.037	6.296	0.894	60.708	1241.353	No
SLV 11	-3018	-4080	-90	0.037	6.296	0.894	60.708	1241.353	No
SLV 5	-4879	-10832	80	0.039	8.115	0.907	63.201	1241.353	No
SLV 6	-4879	-10832	80	0.039	8.115	0.907	63.201	1241.353	No
SLV 8	-4104	-7577	-65	0.042	7.351	0.902	67.364	1241.353	No
SLV 7	-4104	-7577	-65	0.042	7.351	0.902	67.364	1241.353	No
SLV 1	-5875	-13772	57	0.042	9.107	0.915	67.295	1193.169	No
SLV 2	-5875	-13772	57	0.042	9.107	0.915	67.295	1193.169	No
SLV 9	-3792	-7335	55	0.044	7.046	0.899	70.552	1241.353	No
SLV 10	-3792	-7335	55	0.044	7.046	0.899	70.552	1241.353	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.027	SLU 9	Si
V_SLU	5.902	SLU 8	Si
PF_SLV	0	SLV 11	No
V_SLV	0	SLV 11	No
PFFP_SLV	1.207	SLV 15	Si
R_SLV	0.049	SLV 11	No

## Maschio 176

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	595.1	-206.3	595.1	L5	L6	194	28	352	352	352			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 60	925	-9736	-30187	1.79	736620	24.401	Si
SLU 60	1105	-9325	80360	1.72	713893	8.884	Si
SLU 18	925	-7916	-27939	1.46	630505	22.567	Si
SLU 18	1105	-7789	68808	1.43	622553	9.048	Si
SLU 19	925	-7723	-28545	1.42	618362	21.663	Si
SLU 19	1105	-7698	69863	1.42	616783	8.828	Si
SLU 81	925	-10556	-37858	1.94	779668	20.595	Si
SLU 81	1105	-10393	85091	1.91	771329	9.065	Si
SLU 10	925	-7320	-25446	1.35	592570	23.287	Si
SLU 10	1105	-7202	63099	1.33	584871	9.269	Si
SLU 52	925	-9140	-27695	1.68	703445	25.4	Si
SLU 52	1105	-8737	74651	1.61	680167	9.111	Si
SLU 61	925	-9543	-30794	1.76	726022	23.577	Si
SLU 61	1105	-9233	81415	1.7	708740	8.705	Si
SLU 40	925	-8542	-36215	1.57	668647	18.463	Si
SLU 40	1105	-8766	74594	1.61	681838	9.141	Si
SLU 73	925	-9960	-35365	1.83	748636	21.169	Si
SLU 73	1105	-9805	79382	1.81	740354	9.326	Si
SLU 82	925	-10363	-38464	1.91	769766	20.013	Si
SLU 82	1105	-10301	86147	1.9	766604	8.899	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 3	925	-8599	187482	1.58	726028	3.873	Si
SLV 3	1105	-5687	-89943	1.05	504347	5.607	Si
SLV 14	925	-6242	-229059	1.15	548547	2.395	Si
SLV 14	1105	-8182	190432	1.51	695828	3.654	Si
SLV 15	925	-8844	-238055	1.63	743548	3.123	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	1105	-10288	249337	1.89	843240	3.382	Si
SLV 2	925	-5997	196478	1.1	529164	2.693	Si
SLV 2	1105	-3581	-148847	0.66	328616	2.208	Si
SLV 16	925	-8844	-238055	1.63	743548	3.123	Si
SLV 16	1105	-10288	249337	1.89	843240	3.382	Si
SLV 6	925	-3048	58035	0.56	282049	4.86	Si
SLV 6	1105	-2735	-98821	0.5	254343	2.574	Si
SLV 1	925	-5997	196478	1.1	529164	2.693	Si
SLV 1	1105	-3581	-148847	0.66	328616	2.208	Si
SLV 4	925	-8599	187482	1.58	726028	3.873	Si
SLV 4	1105	-5687	-89943	1.05	504347	5.607	Si
SLV 5	925	-3048	58035	0.56	282049	4.86	Si
SLV 5	1105	-2735	-98821	0.5	254343	2.574	Si
SLV 13	925	-6242	-229059	1.15	548547	2.395	Si
SLV 13	1105	-8182	190432	1.51	695828	3.654	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	925	-9543	-1649	-30794		1.76	194	0.79	4290			2.6	Si
SLU 61	1105	-9233	-1644	81415		1.7	194	0.78	4249			2.58	Si
SLU 73	925	-9960	-1763	-35365		1.83	194	0.8	4346			2.46	Si
SLU 73	1105	-9805	-1756	79382		1.81	194	0.8	4325			2.46	Si
SLU 83	925	-10866	-1645	-41019		2	194	0.82	4467			2.71	Si
SLU 83	1105	-10628	-1644	61043		1.96	194	0.82	4435			2.7	Si
SLU 60	925	-9736	-1582	-30187		1.79	194	0.79	4316			2.73	Si
SLU 60	1105	-9325	-1582	80360		1.72	194	0.78	4261			2.69	Si
SLU 81	925	-10556	-1801	-37858		1.94	194	0.81	4425			2.46	Si
SLU 81	1105	-10393	-1800	85091		1.91	194	0.81	4403			2.45	Si
SLU 82	925	-10363	-1867	-38464		1.91	194	0.81	4399			2.36	Si
SLU 82	1105	-10301	-1862	86147		1.9	194	0.81	4391			2.36	Si
SLU 40	925	-8542	-1673	-36215		1.57	194	0.77	4157			2.48	Si
SLU 40	1105	-8766	-1669	74594		1.61	194	0.77	4187			2.51	Si
SLU 31	925	-8140	-1570	-33116		1.5	194	0.76	4103			2.61	Si
SLU 31	1105	-8270	-1562	67830		1.52	194	0.76	4120			2.64	Si
SLU 39	925	-8736	-1607	-35609		1.61	194	0.77	4183			2.6	Si
SLU 39	1105	-8857	-1606	73539		1.63	194	0.77	4199			2.61	Si
SLU 84	925	-10672	-1711	-41625		1.96	194	0.82	4441			2.59	Si
SLU 84	1105	-10536	-1706	62098		1.94	194	0.81	4423			2.59	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	925	-8844	-5124	-238055		1.63	194	1.16	6295			1.23	Si
SLV 16	1105	-10288	-4318	249337		1.89	194	1.21	6584			1.53	Si
SLV 1	925	-5997	3011	196478		1.11	192.72	1.06	5696			1.89	Si
SLV 1	1105	-3581	2205	-148847		0.77	166.3	0.99	4597			2.08	Si
SLV 14	925	-6242	-4332	-229059		1.23	180.91	1.08	5470			1.26	Si
SLV 14	1105	-8182	-3821	190432		1.51	194	1.13	6163			1.61	Si
SLV 13	925	-6242	-4332	-229059		1.23	180.91	1.08	5470			1.26	Si
SLV 13	1105	-8182	-3821	190432		1.51	194	1.13	6163			1.61	Si
SLV 2	925	-5997	3011	196478		1.11	192.72	1.06	5696			1.89	Si
SLV 2	1105	-3581	2205	-148847		0.77	166.3	0.99	4597			2.08	Si
SLD 15	925	-8024	-2791	-113064		1.48	194	1.13	6131			2.2	Si
SLD 15	1105	-8359	-2443	135059		1.54	194	1.14	6198			2.54	Si
SLV 11	925	-11793	-3478	-99613		2.17	194	1.27	6885			1.98	Si
SLV 11	1105	-11134	-2787	199310		2.05	194	1.24	6753			2.42	Si
SLV 12	925	-11793	-3478	-99613		2.17	194	1.27	6885			1.98	Si
SLV 12	1105	-11134	-2787	199310		2.05	194	1.24	6753			2.42	Si
SLD 16	925	-8024	-2791	-113064		1.48	194	1.13	6131			2.2	Si
SLD 16	1105	-8359	-2443	135059		1.54	194	1.14	6198			2.54	Si
SLV 15	925	-8844	-5124	-238055		1.63	194	1.16	6295			1.23	Si
SLV 15	1105	-10288	-4318	249337		1.89	194	1.21	6584			1.53	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.46	0.62	-3359	23568	44645	1.89	Si
SLV 5	14	0.46	0.62	-3359	23568	44645	1.89	Si
SLV 10	14	0.46	0.78	-4216	23568	55273	2.35	Si
SLV 9	14	0.46	0.78	-4216	23568	55273	2.35	Si
SLV 1	14	0.46	0.91	-4935	23568	63949	2.71	Si
SLV 2	14	0.46	0.91	-4935	23568	63949	2.71	Si
SLV 3	14	0.46	1.31	-7142	23568	89230	3.79	Si
SLV 4	14	0.46	1.31	-7142	23568	89230	3.79	Si
SLV 13	14	0.46	1.43	-7791	23568	96271	4.08	Si
SLV 14	14	0.46	1.43	-7791	23568	96271	4.08	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 6	-3160	-2671	146	0.024	6.04	0.898	38.512	1241.353	No
SLV 5	-3160	-2671	146	0.024	6.04	0.898	38.512	1241.353	No
SLV 10	-3775	-3847	126	0.029	6.643	0.903	47.197	1241.353	No
SLV 9	-3775	-3847	126	0.029	6.643	0.903	47.197	1241.353	No
SLV 11	-7644	-12296	-146	0.032	10.512	0.93	49.257	1241.353	No
SLV 12	-7644	-12296	-146	0.032	10.512	0.93	49.257	1241.353	No
SLV 7	-7028	-11119	-125	0.033	9.891	0.927	52.222	1241.353	No
SLV 8	-7028	-11119	-125	0.033	9.891	0.927	52.222	1241.353	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	-7008	-10712	-75	0.039	9.871	0.927	61.264	1193.169	No
SLV 16	-7008	-10712	-75	0.039	9.871	0.927	61.264	1193.169	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.705	SLU 61	Si
V_SLU	2.356	SLU 82	Si
PF_SLV	2.208	SLV 1	Si
V_SLV	1.229	SLV 15	Si
PFFP_SLV	1.894	SLV 5	Si
R_SLV	0.031	SLV 5	No

## Maschio 177

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	-335.9	-12.3	595.1	L5	L6	931	28	352	352	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 8	835	-46824	89695	1.8	16990282	189.422	Si
SLU 8	1187	-23807	427799	0.91	9839562	23	Si
SLU 71	835	-63968	103897	2.45	20806927	200.264	Si
SLU 71	1187	-32167	542506	1.23	12705519	23.42	Si
SLU 16	835	-52191	91155	2	18323580	201.017	Si
SLU 16	1187	-26085	448254	1	10650819	23.761	Si
SLU 29	835	-52848	63549	2.03	18478219	290.769	Si
SLU 29	1187	-26982	478971	1.04	10964107	22.891	Si
SLU 79	835	-69335	105357	2.66	21736839	206.317	Si
SLU 79	1187	-34445	562961	1.32	13433275	23.862	Si
SLU 27	835	-53774	54478	2.06	18692894	343.124	Si
SLU 27	1187	-27507	465020	1.06	11145899	23.969	Si
SLU 37	835	-58215	65009	2.23	19669776	302.572	Si
SLU 37	1187	-29260	499425	1.12	11743652	23.514	Si
SLU 50	835	-57944	130043	2.22	19612684	150.816	Si
SLU 50	1187	-28992	491335	1.11	11653160	23.717	Si
SLU 58	835	-63311	131503	2.43	20684338	157.292	Si
SLU 58	1187	-31270	511789	1.2	12412629	24.253	Si
SLU 6	835	-47750	80624	1.83	17229421	213.7	Si
SLU 6	1187	-24332	413849	0.93	10028668	24.233	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 6	835	-41647	-4164350	1.6	16851835	4.047	Si
SLV 6	1187	-21242	-1362758	0.81	9228686	6.772	Si
SLV 11	835	-52764	4359467	2.02	20492899	4.701	Si
SLV 11	1187	-23701	1944219	0.91	10211737	5.252	Si
SLV 2	835	-35007	-1848709	1.34	14504804	7.846	Si
SLV 2	1187	-20105	-502896	0.77	8768226	17.435	Si
SLV 9	835	-48590	-3724111	1.86	19168313	5.147	Si
SLV 9	1187	-22559	-1166550	0.87	9757402	8.364	Si
SLV 8	835	-45821	3919229	1.76	18261124	4.659	Si
SLV 8	1187	-22384	1748012	0.86	9687415	5.542	Si
SLV 10	835	-48590	-3724111	1.86	19168313	5.147	Si
SLV 10	1187	-22559	-1166550	0.87	9757402	8.364	Si
SLV 5	835	-41647	-4164350	1.6	16851835	4.047	Si
SLV 5	1187	-21242	-1362758	0.81	9228686	6.772	Si
SLV 1	835	-35007	-1848709	1.34	14504804	7.846	Si
SLV 1	1187	-20105	-502896	0.77	8768226	17.435	Si
SLV 7	835	-45821	3919229	1.76	18261124	4.659	Si
SLV 7	1187	-22384	1748012	0.86	9687415	5.542	Si
SLV 12	835	-52764	4359467	2.02	20492899	4.701	Si
SLV 12	1187	-23701	1944219	0.91	10211737	5.252	Si

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 64	835	-61095	873	118814		2.34	931	0.87	22628			25.93	Si
SLU 64	1187	-29274	869	384973		1.12	931	0.71	18385			21.16	Si
SLU 39	835	-57642	867	80551		2.21	931	0.85	22168			25.57	Si
SLU 39	1187	-27343	863	350658		1.05	931	0.7	18128			21	Si
SLU 60	835	-62738	914	147045		2.41	931	0.88	22847			25	Si
SLU 60	1187	-29353	911	363022		1.13	931	0.71	18396			20.2	Si
SLU 53	835	-62800	863	129890		2.41	931	0.88	22856			26.49	Si
SLU 53	1187	-30349	858	419072		1.16	931	0.71	18529			21.6	Si
SLU 77	835	-70261	941	96286		2.7	931	0.91	23850			25.35	Si
SLU 77	1187	-34971	933	549010		1.34	931	0.73	19145			20.52	Si
SLU 81	835	-68762	1017	120899		2.64	931	0.91	23650			23.25	Si





Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1187	-32528	1013	414194		1.25	931	0.72	18819			18.57	Si
SLU 83	835	-70198	992	113440		2.69	931	0.91	23842			24.03	Si
SLU 83	1187	-33975	986	492960		1.3	931	0.73	19012			19.28	Si
SLU 74	835	-68824	966	103744		2.64	931	0.91	23659			24.49	Si
SLU 74	1187	-33524	960	470244		1.29	931	0.73	18952			19.74	Si
SLU 62	835	-64174	889	139586		2.46	931	0.88	23039			25.92	Si
SLU 62	1187	-30800	884	441789		1.18	931	0.71	18589			21.04	Si
SLU 79	835	-69335	924	105357		2.66	931	0.91	23727			25.69	Si
SLU 79	1187	-34445	915	562961		1.32	931	0.73	19075			20.84	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	835	-41647	-13028	-4164350		1.6	931	1.15	30053			2.31	Si
SLV 6	1187	-21242	-7718	-1362758		0.81	931	1	25972			3.36	Si
SLV 7	835	-45821	14750	3919229		1.76	931	1.18	30887			2.09	Si
SLV 7	1187	-22384	9388	1748012		0.86	931	1.01	26200			2.79	Si
SLV 5	835	-41647	-13028	-4164350		1.6	931	1.15	30053			2.31	Si
SLV 5	1187	-21242	-7718	-1362758		0.81	931	1	25972			3.36	Si
SLD 8	835	-46627	6780	1721042		1.79	931	1.19	31049			4.58	Si
SLD 8	1187	-22435	4414	910037		0.86	931	1.01	26210			5.94	Si
SLV 8	835	-45821	14750	3919229		1.76	931	1.18	30887			2.09	Si
SLV 8	1187	-22384	9388	1748012		0.86	931	1.01	26200			2.79	Si
SLV 10	835	-48590	-13395	-3724111		1.86	931	1.21	31441			2.35	Si
SLV 10	1187	-22559	-8038	-1166550		0.87	931	1.01	26235			3.26	Si
SLV 12	835	-52764	14383	4359467		2.02	931	1.24	32276			2.24	Si
SLV 12	1187	-23701	9068	1944219		0.91	931	1.02	26463			2.92	Si
SLV 11	835	-52764	14383	4359467		2.02	931	1.24	32276			2.24	Si
SLV 11	1187	-23701	9068	1944219		0.91	931	1.02	26463			2.92	Si
SLV 9	835	-48590	-13395	-3724111		1.86	931	1.21	31441			2.35	Si
SLV 9	1187	-22559	-8038	-1166550		0.87	931	1.01	26235			3.26	Si
SLD 7	835	-46627	6780	1721042		1.79	931	1.19	31049			4.58	Si
SLD 7	1187	-22435	4414	910037		0.86	931	1.01	26210			5.94	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1011 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.46	1.07	-27908	113103	356484	3.15	Si
SLV 1	14	0.46	1.07	-27908	113103	356484	3.15	Si
SLV 3	14	0.46	1.1	-28671	113103	365266	3.23	Si
SLV 4	14	0.46	1.1	-28671	113103	365266	3.23	Si
SLV 6	14	0.46	1.19	-31052	113103	392350	3.47	Si
SLV 5	14	0.46	1.19	-31052	113103	392350	3.47	Si
SLV 8	14	0.46	1.29	-33595	113103	420721	3.72	Si
SLV 7	14	0.46	1.29	-33595	113103	420721	3.72	Si
SLV 9	14	0.46	1.32	-34510	113103	430791	3.81	Si
SLV 10	14	0.46	1.32	-34510	113103	430791	3.81	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1011 Wa = 0.05 Ta = 0.0739

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	-24837	-59404	-187	0.044	38.546	0.914	69.998	1193.169	No
SLV 15	-24837	-59404	-187	0.044	38.546	0.914	69.998	1193.169	No
SLV 14	-24495	-58152	-186	0.044	38.204	0.914	70.18	1193.169	No
SLV 13	-24495	-58152	-186	0.044	38.204	0.914	70.18	1193.169	No
SLV 4	-20448	-36259	197	0.044	34.178	0.907	71.059	1193.169	No
SLV 3	-20448	-36259	197	0.044	34.178	0.907	71.059	1193.169	No
SLV 1	-20105	-35007	198	0.044	33.839	0.906	71.115	1193.169	No
SLV 2	-20105	-35007	198	0.044	33.839	0.906	71.115	1193.169	No
SLV 11	-23701	-52764	-54	0.048	37.412	0.913	76.999	1241.353	No
SLV 12	-23701	-52764	-54	0.048	37.412	0.913	76.999	1241.353	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	22.891	SLU 29	Si
V_SLU	18.575	SLU 81	Si
PF_SLV	4.047	SLV 5	Si
V_SLV	2.094	SLV 7	Si
PFFP_SLV	3.152	SLV 1	Si
R_SLV	0.059	SLV 15	No

## Maschio 178

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2467.8	-335.9	-2467.8	126.6	L6	L7	462.6	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	1187	-10836	-956856	0.84	2248820	2.35	Si
SLU 37	1397	-4544	-667517	0.35	1005605	1.506	Si
SLU 39	1187	-9611	-773320	0.74	2020312	2.613	Si
SLU 39	1397	-3482	-501639	0.27	778760	1.552	Si
SLU 38	1187	-11094	-976147	0.86	2296140	2.352	Si
SLU 38	1397	-4754	-668372	0.37	1050006	1.571	Si
SLU 32	1187	-10213	-850474	0.79	2133533	2.509	Si
SLU 32	1397	-3990	-574221	0.31	888025	1.546	Si
SLU 40	1187	-9869	-792611	0.76	2069020	2.61	Si
SLU 40	1397	-3693	-502495	0.29	824141	1.64	Si
SLU 42	1187	-10517	-915945	0.81	2189903	2.391	Si
SLU 42	1397	-4212	-604191	0.33	935328	1.548	Si
SLU 41	1187	-10258	-896653	0.79	2141928	2.389	Si
SLU 41	1397	-4002	-603335	0.31	890427	1.476	Si
SLU 36	1187	-11120	-993099	0.86	2300730	2.317	Si
SLU 36	1397	-4721	-676773	0.36	1042966	1.541	Si
SLU 33	1187	-10472	-869765	0.81	2181559	2.508	Si
SLU 33	1397	-4201	-575076	0.32	932937	1.622	Si
SLU 35	1187	-10861	-973807	0.84	2253438	2.314	Si
SLU 35	1397	-4510	-675917	0.35	998534	1.477	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 3	1187	-8710	-522545	0.67	1903516	3.643	Si
SLD 3	1397	-2797	-427956	0.22	635384	1.485	Si
SLD 7	1187	-8216	-238723	0.63	1801599	7.547	Si
SLD 7	1397	-2452	-342770	0.19	558218	1.629	Si
SLV 7	1187	-7132	76201	0.55	1575241	20.672	Si
SLV 7	1397	-1212	-373525	0	0	0	No, $e \geq l/2$
SLD 8	1187	-8216	-238723	0.63	1801599	7.547	Si
SLD 8	1397	-2452	-342770	0.19	558218	1.629	Si
SLV 3	1187	-8281	-589644	0.64	1814970	3.078	Si
SLV 3	1397	-2006	-579108	0	0	0	No, $e \geq l/2$
SLD 4	1187	-8710	-522545	0.67	1903516	3.643	Si
SLD 4	1397	-2797	-427956	0.22	635384	1.485	Si
SLV 4	1187	-8281	-589644	0.64	1814970	3.078	Si
SLV 4	1397	-2006	-579108	0	0	0	No, $e \geq l/2$
SLV 1	1187	-9380	-975553	0.72	2040900	2.092	Si
SLV 1	1397	-3162	-592785	0.24	716812	1.209	Si
SLV 8	1187	-7132	76201	0.55	1575241	20.672	Si
SLV 8	1397	-1212	-373525	0	0	0	No, $e \geq l/2$
SLV 2	1187	-9380	-975553	0.72	2040900	2.092	Si
SLV 2	1397	-3162	-592785	0.24	716812	1.209	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	1187	-10861	181	-973807		0.91	424.88	0.68	8057			44.55	Si
SLU 35	1397	-4510	238	-675917		0.66	244.26	0.64	4401			18.45	Si
SLU 69	1187	-13150	280	-878009		1.02	462.57	0.69	8949			32	Si
SLU 69	1397	-5482	338	-623464		0.56	352.67	0.63	6217			18.41	Si
SLU 78	1187	-13572	143	-1044607		1.05	462.57	0.7	9005			63.13	Si
SLU 78	1397	-5641	302	-711855		0.64	315.26	0.64	5656			18.75	Si
SLU 27	1187	-10698	228	-826501		0.83	462.07	0.67	8614			37.75	Si
SLU 27	1397	-4562	286	-588382		0.53	306.93	0.63	5383			18.84	Si
SLU 77	1187	-13313	232	-1025315		1.03	462.57	0.69	8971			38.62	Si
SLU 77	1397	-5430	290	-711000		0.64	301.06	0.64	5407			18.62	Si
SLU 71	1187	-13124	255	-861058		1.01	462.57	0.69	8945			35.13	Si
SLU 71	1397	-5516	316	-615064		0.55	359.31	0.63	6325			20.01	Si
SLU 70	1187	-13408	190	-897300		1.04	462.57	0.69	8983			47.28	Si
SLU 70	1397	-5693	349	-624320		0.56	364.84	0.63	6434			18.44	Si
SLU 72	1187	-13383	165	-880349		1.03	462.57	0.69	8980			54.42	Si
SLU 72	1397	-5726	327	-615919		0.55	371.16	0.63	6537			19.97	Si
SLU 28	1187	-10956	139	-845792		0.85	462.25	0.67	8651			62.43	Si
SLU 28	1397	-4772	297	-589237		0.53	323.46	0.63	5668			19.09	Si
SLU 36	1187	-11120	91	-993099		0.93	425.92	0.68	8108			88.88	Si
SLU 36	1397	-4721	250	-676773		0.64	263.76	0.64	4732			18.96	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	1187	-10913	-4044	-1025348		0.95	411.98	1.02	11795			2.92	Si
SLV 10	1397	-5545	-2520	-256575		0.43	462.57	0.92	11902			4.72	Si
SLV 4	1187	-8281	1572	-589644		0.64	462.57	0.96	12449			7.92	Si
SLV 4	1397	-2006	993	-579108		0	0	0.83	0			0	No, $V_u < V$
SLV 3	1187	-8281	1572	-589644		0.64	462.57	0.96	12449			7.92	Si
SLV 3	1397	-2006	993	-579108		0	0	0.83	0			0	No, $V_u < V$
SLV 5	1187	-10797	-3926	-1210163		1.08	357.62	1.05	10504			2.68	Si
SLV 5	1397	-5068	-2494	-419113		0.41	445.77	0.91	11415			4.58	Si
SLV 8	1187	-7132	4320	76201		0.55	462.57	0.94	12220			2.83	Si
SLV 8	1397	-1212	2825	-373525		0	0	0.83	0			0	No, $V_u < V$
SLV 9	1187	-10913	-4044	-1025348		0.95	411.98	1.02	11795			2.92	Si
SLV 9	1397	-5545	-2520	-256575		0.43	462.57	0.92	11902			4.72	Si
SLV 6	1187	-10797	-3926	-1210163		1.08	357.62	1.05	10504			2.68	Si
SLV 6	1397	-5068	-2494	-419113		0.41	445.77	0.91	11415			4.58	Si
SLV 11	1187	-7248	4201	261016		0.56	462.57	0.95	12243			2.91	Si
SLV 11	1397	-1688	2799	-210987		0.19	318.98	0.87	7780			2.78	Si
SLV 7	1187	-7132	4320	76201		0.55	462.57	0.94	12220			2.83	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1397	-1212	2825	-373525		0	0	0.83	0			0	No, Vu<V
SLV 12	1187	-7248	4201	261016		0.56	462.57	0.95	12243			2.91	Si
SLV 12	1397	-1688	2799	-210987		0.19	318.98	0.87	7780			2.78	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.53	0	-2602	52235	0	0	No, e>t/2
SLV 12	14	0.53	0	-2602	52235	0	0	No, e>t/2
SLV 3	14	0.53	0	-3134	52235	0	0	No, e>t/2
SLV 4	14	0.53	0	-3134	52235	0	0	No, e>t/2
SLV 7	14	0.53	0	-2200	52235	0	0	No, e>t/2
SLV 8	14	0.53	0	-2200	52235	0	0	No, e>t/2
SLV 2	14	0.53	0.33	-4336	52235	59046	1.13	Si
SLV 1	14	0.53	0.33	-4336	52235	59046	1.13	Si
SLV 15	14	0.53	0.35	-4474	52235	60859	1.17	Si
SLV 16	14	0.53	0.35	-4474	52235	60859	1.17	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	395	-7132	-256	0	0	0	0	1090.83	No, Trazione
SLV 2	-544	-9380	-566	0	7.636	0.947	0	1055.091	No
SLV 12	298	-7248	157	0	0	0	0	1090.83	No, Trazione
SLV 4	-58	-8281	-646	0	7.512	0.992	0	1055.091	No
SLV 9	-1322	-10913	422	0	8.073	0.911	0	1090.83	No
SLV 10	-1322	-10913	422	0	8.073	0.911	0	1090.83	No
SLV 11	298	-7248	157	0	0	0	0	1090.83	No, Trazione
SLV 3	-58	-8281	-646	0	7.512	0.992	0	1055.091	No
SLV 1	-544	-9380	-566	0	7.636	0.947	0	1055.091	No
SLV 8	395	-7132	-256	0	0	0	0	1090.83	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.476	SLU 41	Si
V_SLU	18.407	SLU 69	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 3	No
R_SLV	0	SLV 12	No

## Maschio 179

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2467.8	206.6	-2467.8	595.1	L6	L7	388.5	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 41	1187	-11551	517959	1.06	1951254	3.767	Si
SLU 41	1397	-5501	142870	0.51	1002210	7.015	Si
SLU 29	1187	-11812	508034	1.09	1988557	3.914	Si
SLU 29	1397	-5791	216375	0.53	1051372	4.859	Si
SLU 27	1187	-11834	514790	1.09	1991727	3.869	Si
SLU 27	1397	-5774	212199	0.53	1048496	4.941	Si
SLU 36	1187	-12314	549312	1.13	2059543	3.749	Si
SLU 36	1397	-5952	214974	0.55	1078484	5.017	Si
SLU 77	1187	-14636	622202	1.35	2373406	3.815	Si
SLU 77	1397	-6994	215895	0.64	1251430	5.796	Si
SLU 35	1187	-12374	578052	1.14	2068057	3.578	Si
SLU 35	1397	-6057	207043	0.56	1096116	5.294	Si
SLU 37	1187	-12352	571296	1.14	2064939	3.614	Si
SLU 37	1397	-6074	211219	0.56	1098971	5.203	Si
SLU 79	1187	-14613	615446	1.34	2370509	3.852	Si
SLU 79	1397	-7012	220071	0.64	1254215	5.699	Si
SLU 38	1187	-12291	542556	1.13	2056420	3.79	Si
SLU 38	1397	-5969	219150	0.55	1081348	4.934	Si
SLU 32	1187	-11341	497603	1.04	1921080	3.861	Si
SLU 32	1397	-5363	140903	0.49	978641	6.945	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	1187	-11704	735403	1.08	2073301	2.819	Si
SLV 7	1397	-5960	15227	0.55	1105807	72.62	Si
SLV 4	1187	-11470	585634	1.05	2035849	3.476	Si
SLV 4	1397	-5138	30380	0.47	959544	31.585	Si
SLV 3	1187	-11470	585634	1.05	2035849	3.476	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	1397	-5138	30380	0.47	959544	31.585	Si
SLV 8	1187	-11704	735403	1.08	2073301	2.819	Si
SLV 8	1397	-5960	15227	0.55	1105807	72.62	Si
SLV 12	1187	-10686	632529	0.98	1908793	3.018	Si
SLV 12	1397	-5624	27944	0.52	1046176	37.438	Si
SLV 11	1187	-10686	632529	0.98	1908793	3.018	Si
SLV 11	1397	-5624	27944	0.52	1046176	37.438	Si
SLD 7	1187	-10243	485247	0.94	1836436	3.785	Si
SLD 7	1397	-4875	40763	0.45	912192	22.378	Si
SLD 8	1187	-10243	485247	0.94	1836436	3.785	Si
SLD 8	1397	-4875	40763	0.45	912192	22.378	Si
SLV 10	1187	-6624	-138295	0.61	1222503	8.84	Si
SLV 10	1397	-2155	113627	0.2	411893	3.625	Si
SLV 9	1187	-6624	-138295	0.61	1222503	8.84	Si
SLV 9	1397	-2155	113627	0.2	411893	3.625	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	1187	-13004	-542	436882		1.2	388.5	0.71	7777			14.36	Si
SLU 49	1397	-6011	-660	203508		0.55	388.5	0.63	6845			10.37	Si
SLU 9	1187	-10720	-587	385976		0.99	388.5	0.69	7473			12.72	Si
SLU 9	1397	-5090	-713	198832		0.47	388.5	0.62	6722			9.43	Si
SLU 30	1187	-11751	-602	479294		1.08	388.5	0.7	7610			12.64	Si
SLU 30	1397	-5686	-748	224306		0.52	388.5	0.63	6801			9.09	Si
SLU 72	1187	-14012	-570	523444		1.29	388.5	0.73	7912			13.89	Si
SLU 72	1397	-6624	-717	233158		0.61	388.5	0.64	6926			9.66	Si
SLU 38	1187	-12291	-515	542556		1.13	388.5	0.71	7682			14.93	Si
SLU 38	1397	-5969	-661	219150		0.55	388.5	0.63	6839			10.35	Si
SLU 51	1187	-12982	-555	430126		1.19	388.5	0.71	7774			14.01	Si
SLU 51	1397	-6028	-682	207684		0.55	388.5	0.63	6847			10.04	Si
SLU 7	1187	-10743	-574	392732		0.99	388.5	0.69	7476			13.03	Si
SLU 7	1397	-5073	-691	194656		0.47	388.5	0.62	6720			9.72	Si
SLU 70	1187	-14034	-556	530200		1.29	388.5	0.73	7915			14.23	Si
SLU 70	1397	-6607	-696	228982		0.61	388.5	0.64	6924			9.95	Si
SLU 36	1187	-12314	-501	549312		1.13	388.5	0.71	7685			15.33	Si
SLU 36	1397	-5952	-639	214974		0.55	388.5	0.63	6837			10.7	Si
SLU 28	1187	-11773	-589	486051		1.08	388.5	0.7	7613			12.93	Si
SLU 28	1397	-5669	-727	220130		0.52	388.5	0.63	6799			9.36	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	1187	-10686	3095	632529		0.98	388.5	1.03	11202			3.62	Si
SLV 11	1397	-5624	1800	27944		0.52	388.5	0.94	10190			5.66	Si
SLV 12	1187	-10686	3095	632529		0.98	388.5	1.03	11202			3.62	Si
SLV 12	1397	-5624	1800	27944		0.52	388.5	0.94	10190			5.66	Si
SLV 10	1187	-6624	-2907	-138295		0.61	388.5	0.96	10390			3.57	Si
SLV 10	1397	-2155	-1684	113627		0.2	388.5	0.87	9496			5.64	Si
SLV 5	1187	-7642	-2871	-35421		0.7	388.5	0.97	10593			3.69	Si
SLV 5	1397	-2492	-1643	100911		0.23	388.5	0.88	9563			5.82	Si
SLD 7	1187	-10243	1427	485247		0.94	388.5	1.02	11114			7.79	Si
SLD 7	1397	-4875	832	40763		0.45	388.5	0.92	10040			12.07	Si
SLV 6	1187	-7642	-2871	-35421		0.7	388.5	0.97	10593			3.69	Si
SLV 6	1397	-2492	-1643	100911		0.23	388.5	0.88	9563			5.82	Si
SLV 8	1187	-11704	3131	735403		1.08	388.5	1.05	11406			3.64	Si
SLV 8	1397	-5960	1840	15227		0.55	388.5	0.94	10257			5.57	Si
SLD 8	1187	-10243	1427	485247		0.94	388.5	1.02	11114			7.79	Si
SLD 8	1397	-4875	832	40763		0.45	388.5	0.92	10040			12.07	Si
SLV 9	1187	-6624	-2907	-138295		0.61	388.5	0.96	10390			3.57	Si
SLV 9	1397	-2155	-1684	113627		0.2	388.5	0.87	9496			5.64	Si
SLV 7	1187	-11704	3131	735403		1.08	388.5	1.05	11406			3.64	Si
SLV 7	1397	-5960	1840	15227		0.55	388.5	0.94	10257			5.57	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.53	0	-3105	43871	0	0	No, $e > t/2$
SLV 10	14	0.53	0	-3105	43871	0	0	No, $e > t/2$
SLV 6	14	0.53	0.32	-3531	43871	48115	1.1	Si
SLV 5	14	0.53	0.32	-3531	43871	48115	1.1	Si
SLV 14	14	0.53	0.36	-3877	43871	52698	1.2	Si
SLV 13	14	0.53	0.36	-3877	43871	52698	1.2	Si
SLV 16	14	0.53	0.46	-4965	43871	66916	1.53	Si
SLV 15	14	0.53	0.46	-4965	43871	66916	1.53	Si
SLV 1	14	0.53	0.49	-5297	43871	71198	1.62	Si
SLV 2	14	0.53	0.49	-5297	43871	71198	1.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 13	-261	-6857	406	0	6.346	0.965	0	1055.091	No
SLV 11	-1169	-10686	509	0	6.82	0.909	0	1090.83	No
SLV 10	327	-6624	-28	0	0	0	0	1090.83	No, Trazione
SLV 9	327	-6624	-28	0	0	0	0	1090.83	No, Trazione
SLV 6	382	-7642	-239	0	0	0	0	1090.83	No, Trazione
SLV 5	382	-7642	-239	0	0	0	0	1090.83	No, Trazione
SLV 2	-78	-10252	-297	0	6.311	0.988	0	1055.091	No
SLV 12	-1169	-10686	509	0	6.82	0.909	0	1090.83	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 1	-78	-10252	-297	0	6.311	0.988	0	1055.091	No
SLV 14	-261	-6857	406	0	6.346	0.965	0	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	3.578	SLV 35	Si
V_SLV	9.09	SLV 30	Si
PF_SLV	2.819	SLV 7	Si
V_SLV	3.574	SLV 9	Si
PFFP_SLV	0	SLV 9	No
R_SLV	0	SLV 10	No

## Maschio 180

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2271.3	595.1	-2467.8	595.1	L6	L7	196.5	28	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 37	1277	-3729	293945	0.68	335897	1.143	Si
SLU 37	1457	-3005	-84433	0.55	275442	3.262	Si
SLU 34	1277	-3322	239236	0.6	302160	1.263	Si
SLU 34	1457	-2527	-57679	0.46	234316	4.062	Si
SLU 29	1277	-3833	268920	0.7	344392	1.281	Si
SLU 29	1457	-2937	-89323	0.53	269684	3.019	Si
SLU 38	1277	-3680	290460	0.67	331898	1.143	Si
SLU 38	1457	-2984	-87132	0.54	273701	3.141	Si
SLU 42	1277	-3310	252285	0.6	301151	1.194	Si
SLU 42	1457	-2570	-53785	0.47	238025	4.426	Si
SLU 16	1277	-3565	251539	0.65	322439	1.282	Si
SLU 16	1457	-2663	-73751	0.48	246056	3.336	Si
SLU 79	1277	-4578	318020	0.83	403853	1.27	Si
SLU 79	1457	-3400	-85612	0.62	308708	3.606	Si
SLU 30	1277	-3784	265435	0.69	340415	1.282	Si
SLU 30	1457	-2917	-92022	0.53	267936	2.912	Si
SLU 41	1277	-3358	255770	0.61	305230	1.193	Si
SLU 41	1457	-2590	-51086	0.47	239804	4.694	Si
SLU 80	1277	-4529	314535	0.82	400035	1.272	Si
SLU 80	1457	-3380	-88311	0.61	307002	3.476	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 11	1277	-3465	268834	0.63	322862	1.201	Si
SLV 11	1457	-2398	45495	0.44	227236	4.995	Si
SLV 2	1277	-2636	241364	0.48	248847	1.031	Si
SLV 2	1457	-1796	-80670	0.33	171715	2.129	Si
SLV 3	1277	-2841	339519	0	0	0	No, e>l/2
SLV 3	1457	-2168	-51379	0.39	206115	4.012	Si
SLV 8	1277	-3287	354310	0	0	0	No, e>l/2
SLV 8	1457	-2492	16557	0.45	235790	14.241	Si
SLV 4	1277	-2841	339519	0	0	0	No, e>l/2
SLV 4	1457	-2168	-51379	0.39	206115	4.012	Si
SLV 1	1277	-2636	241364	0.48	248847	1.031	Si
SLV 1	1457	-1796	-80670	0.33	171715	2.129	Si
SLD 4	1277	-2953	229251	0.54	277372	1.21	Si
SLD 4	1457	-1973	-31768	0.36	188201	5.924	Si
SLV 7	1277	-3287	354310	0	0	0	No, e>l/2
SLV 7	1457	-2492	16557	0.45	235790	14.241	Si
SLD 3	1277	-2953	229251	0.54	277372	1.21	Si
SLD 3	1457	-1973	-31768	0.36	188201	5.924	Si
SLV 12	1277	-3465	268834	0.63	322862	1.201	Si
SLV 12	1457	-2398	45495	0.44	227236	4.995	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt <sub>lim</sub>	c.s.	Verifica
SLU 80	1277	-4529	3022	314535		1.87	86.42	0.81	1948			0.64	No, Vu<V
SLU 80	1457	-3380	2803	-88311		0.61	196.5	0.64	3507			1.25	Si
SLU 35	1277	-4051	2803	282180		1.69	85.79	0.78	1875			0.67	No, Vu<V
SLU 35	1457	-3387	2599	-88413		0.62	196.5	0.64	3508			1.35	Si
SLU 29	1277	-3833	2613	268920		1.62	84.28	0.77	1822			0.7	No, Vu<V
SLU 29	1457	-2937	2396	-89323		0.53	196.5	0.63	3448			1.44	Si
SLU 37	1277	-3729	2818	293945		2.29	58.27	0.86	1404			0.5	No, Vu<V
SLU 37	1457	-3005	2602	-84433		0.55	196.5	0.63	3457			1.33	Si
SLU 30	1277	-3784	2624	265435		1.6	84.33	0.77	1816			0.69	No, Vu<V
SLU 30	1457	-2917	2407	-92022		0.53	196.5	0.63	3446			1.43	Si
SLU 41	1277	-3358	2369	255770		1.81	66.27	0.8	1479			0.62	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	1457	-2590	2225	-51086		0.47	196.5	0.62	3402			1.53	Si
SLU 36	1277	-4002	2815	-278695		1.66	85.85	0.78	1869			0.66	No, Vu<V
SLU 36	1457	-3367	2610	-91112		0.61	196.5	0.64	3506			1.34	Si
SLU 79	1277	-4578	3011	-318020		1.89	86.35	0.81	1954			0.65	No, Vu<V
SLU 79	1457	-3400	2792	-85612		0.62	196.5	0.64	3510			1.26	Si
SLU 38	1277	-3680	2830	-290460		2.27	57.98	0.86	1393			0.49	No, Vu<V
SLU 38	1457	-2984	2613	-87132		0.54	196.5	0.63	3455			1.32	Si
SLU 42	1277	-3310	2380	-252285		1.79	66.06	0.79	1469			0.62	No, Vu<V
SLU 42	1457	-2570	2236	-53785		0.47	196.5	0.62	3399			1.52	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	1277	-2636	2646	241364		4.69	20.07	1.63	913			0.35	No, Vu<V
SLV 1	1457	-1796	2189	-80670		0.4	159.98	0.91	4092			1.87	Si
SLV 8	1277	-3287	2605	354310		0	0	0.83	0			0	No, Vu<V
SLV 8	1457	-2492	1786	16557		0.45	196.5	0.92	5083			2.85	Si
SLV 7	1277	-3287	2605	354310		0	0	0.83	0			0	No, Vu<V
SLV 7	1457	-2492	1786	16557		0.45	196.5	0.92	5083			2.85	Si
SLD 8	1277	-3143	1847	235092		1.6	70.38	1.15	2271			1.23	Si
SLD 8	1457	-2107	1474	-3260		0.38	196.5	0.91	5006			3.4	Si
SLV 4	1277	-2841	3143	339519		0	0	0.83	0			0	No, Vu<V
SLV 4	1457	-2168	2329	-51379		0.39	196.5	0.91	5019			2.15	Si
SLD 3	1277	-2953	2081	229251		1.71	61.84	1.17	2033			0.98	No, Vu<V
SLD 3	1457	-1973	1699	-31768		0.36	196.5	0.91	4980			2.93	Si
SLV 3	1277	-2841	3143	339519		0	0	0.83	0			0	No, Vu<V
SLV 3	1457	-2168	2329	-51379		0.39	196.5	0.91	5019			2.15	Si
SLD 4	1277	-2953	2081	229251		1.71	61.84	1.17	2033			0.98	No, Vu<V
SLD 4	1457	-1973	1699	-31768		0.36	196.5	0.91	4980			2.93	Si
SLV 2	1277	-2636	2646	241364		4.69	20.07	1.63	913			0.35	No, Vu<V
SLV 2	1457	-1796	2189	-80670		0.4	159.98	0.91	4092			1.87	Si
SLD 7	1277	-3143	1847	235092		1.6	70.38	1.15	2271			1.23	Si
SLD 7	1457	-2107	1474	-3260		0.38	196.5	0.91	5006			3.4	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.53	0.41	-2274	22189	30759	1.39	Si
SLV 9	14	0.53	0.41	-2274	22189	30759	1.39	Si
SLV 5	14	0.53	0.42	-2286	22189	30913	1.39	Si
SLV 6	14	0.53	0.42	-2286	22189	30913	1.39	Si
SLV 14	14	0.53	0.48	-2642	22189	35539	1.6	Si
SLV 13	14	0.53	0.48	-2642	22189	35539	1.6	Si
SLV 2	14	0.53	0.49	-2682	22189	36046	1.62	Si
SLV 1	14	0.53	0.49	-2682	22189	36046	1.62	Si
SLV 16	14	0.53	0.54	-2970	22189	39741	1.79	Si
SLV 15	14	0.53	0.54	-2970	22189	39741	1.79	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-1848	-2981	-168	0.016	4.514	0.89	25.371	1090.83	No
SLV 5	-1848	-2981	-168	0.016	4.514	0.89	25.371	1090.83	No
SLV 9	-1540	-2245	-156	0.016	4.231	0.889	26.908	1090.83	No
SLV 10	-1540	-2245	-156	0.016	4.231	0.889	26.908	1090.83	No
SLV 1	-2174	-4943	-136	0.026	4.82	0.892	43.046	1055.091	No
SLV 2	-2174	-4943	-136	0.026	4.82	0.892	43.046	1055.091	No
SLV 13	-1147	-2491	-97	0.034	3.885	0.891	55.555	1055.091	No
SLV 14	-1147	-2491	-97	0.034	3.885	0.891	55.555	1055.091	No
SLV 3	-2145	-5889	-98	0.037	4.792	0.891	59.782	1055.091	No
SLV 4	-2145	-5889	-98	0.037	4.792	0.891	59.782	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.143	SLU 38	Si
V_SLU	0.492	SLU 38	No
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	1.386	SLV 9	Si
R_SLV	0.023	SLV 5	No

## Maschio 181

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1975.8	595.1	-2181.3	595.1	L6	L7	205.5	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	1277	-1674	114818	0.29	165825	1.444	Si
SLU 1	1457	327	99343	0	0	0	No, Trazione
SLU 53	1277	-1260	212423	0	0	0	No, $e \geq l/2$
SLU 53	1457	1332	242846	0	0	0	No, Trazione
SLU 60	1277	-2349	145963	0.41	229271	1.571	Si
SLU 60	1457	242	104198	0	0	0	No, Trazione
SLU 57	1277	619	290318	0	0	0	No, Trazione
SLU 57	1457	3210	396199	0	0	0	No, Trazione
SLU 59	1277	1379	298287	0	0	0	No, Trazione
SLU 59	1457	3971	408620	0	0	0	No, Trazione
SLU 54	1277	-1251	212616	0	0	0	No, $e \geq l/2$
SLU 54	1457	1340	246241	0	0	0	No, Trazione
SLU 58	1277	1370	298093	0	0	0	No, Trazione
SLU 58	1457	3962	405225	0	0	0	No, Trazione
SLU 56	1277	610	290124	0	0	0	No, Trazione
SLU 56	1457	3202	392804	0	0	0	No, Trazione
SLU 55	1277	-485	220714	0	0	0	No, $e \geq l/2$
SLU 55	1457	2107	260926	0	0	0	No, Trazione
SLU 61	1277	-2340	146156	0.41	228458	1.563	Si
SLU 61	1457	251	107593	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	1277	-1422	168810	0	0	0	No, $e \geq l/2$
SLD 1	1457	534	90373	0	0	0	No, Trazione
SLV 13	1277	-1152	-44104	0.2	116406	2.639	Si
SLV 13	1457	1340	304421	0	0	0	No, Trazione
SLV 7	1277	-2164	301213	0	0	0	No, $e \geq l/2$
SLV 7	1457	-871	-137949	0	0	0	No, $e \geq l/2$
SLV 10	1277	-753	-43529	0.13	76505	1.758	Si
SLV 10	1457	1971	370555	0	0	0	No, Trazione
SLV 8	1277	-2164	301213	0	0	0	No, $e \geq l/2$
SLV 8	1457	-871	-137949	0	0	0	No, $e \geq l/2$
SLV 9	1277	-753	-43529	0.13	76505	1.758	Si
SLV 9	1457	1971	370555	0	0	0	No, Trazione
SLV 11	1277	-2101	221278	0	0	0	No, $e \geq l/2$
SLV 11	1457	-631	-64207	0.11	64280	1.001	Si
SLV 12	1277	-2101	221278	0	0	0	No, $e \geq l/2$
SLV 12	1457	-631	-64207	0.11	64280	1.001	Si
SLV 6	1277	-815	36407	0.14	82780	2.274	Si
SLV 6	1457	1732	296812	0	0	0	No, Trazione
SLV 14	1277	-1152	-44104	0.2	116406	2.639	Si
SLV 14	1457	1340	304421	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	1277	1370	-552	298093		0	0	0.56	0			0	No, Vu<V
SLU 58	1457	3962	-552	405225		0	0	0.56	0			0	No, Vu<V
SLU 54	1277	-1251	-144	212616		0	0	0.56	0			0	No, Vu<V
SLU 54	1457	1340	-144	246241		0	0	0.56	0			0	No, Vu<V
SLU 1	1277	-1674	119	114818		0.58	102.44	0.63	1817			15.25	Si
SLU 1	1457	327	119	99343		0	0	0.56	0			0	No, Vu<V
SLU 59	1277	1379	-570	298287		0	0	0.56	0			0	No, Vu<V
SLU 59	1457	3971	-570	408620		0	0	0.56	0			0	No, Vu<V
SLU 61	1277	-2340	257	146156		0.69	120.89	0.65	2193			8.52	Si
SLU 61	1457	251	257	107593		0	0	0.56	0			0	No, Vu<V
SLU 60	1277	-2349	275	145963		0.69	121.84	0.65	2209			8.03	Si
SLU 60	1457	242	275	104198		0	0	0.56	0			0	No, Vu<V
SLU 53	1277	-1260	-126	212423		0	0	0.56	0			0	No, Vu<V
SLU 53	1457	1332	-126	242846		0	0	0.56	0			0	No, Vu<V
SLU 56	1277	610	-527	290124		0	0	0.56	0			0	No, Vu<V
SLU 56	1457	3202	-527	392804		0	0	0.56	0			0	No, Vu<V
SLU 55	1277	-485	-180	220714		0	0	0.56	0			0	No, Vu<V
SLU 55	1457	2107	-180	260926		0	0	0.56	0			0	No, Vu<V
SLU 57	1277	619	-545	290318		0	0	0.56	0			0	No, Vu<V
SLU 57	1457	3210	-545	396199		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1277	-2101	1335	221278		0	0	0.83	0			0	No, Vu<V
SLV 12	1457	-631	1820	-64207		7.24	3.12	1.63	142			0.08	No, Vu<V
SLV 7	1277	-2164	2253	301213		0	0	0.83	0			0	No, Vu<V
SLV 7	1457	-871	2595	-137949		0	0	0.83	0			0	No, Vu<V
SLV 6	1277	-815	-1130	36407		0.17	174.25	0.87	4229			3.74	Si
SLV 6	1457	1732	-1615	296812		0	0	0.83	0			0	No, Vu<V
SLV 14	1277	-1152	-1934	-44104		0.21	193.37	0.88	4742			2.45	Si
SLV 14	1457	1340	-1819	304421		0	0	0.83	0			0	No, Vu<V
SLV 11	1277	-2101	1335	221278		0	0	0.83	0			0	No, Vu<V
SLV 11	1457	-631	1820	-64207		7.24	3.12	1.63	142			0.08	No, Vu<V
SLV 9	1277	-753	-2048	-43529		0.2	134.74	0.87	3295			1.61	Si
SLV 9	1457	1971	-2389	370555		0	0	0.83	0			0	No, Vu<V
SLV 10	1277	-753	-2048	-43529		0.2	134.74	0.87	3295			1.61	Si
SLV 10	1457	1971	-2389	370555		0	0	0.83	0			0	No, Vu<V
SLV 13	1277	-1152	-1934	-44104		0.21	193.37	0.88	4742			2.45	Si
SLV 13	1457	1340	-1819	304421		0	0	0.83	0			0	No, Vu<V
SLD 1	1277	-1422	543	168810		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 1	1457	534	396	90373		0	0	0.83	0			0	No, Vu<V
SLV 8	1277	-2164	2253	301213		0	0	0.83	0			0	No, Vu<V
SLV 8	1457	-871	2595	-137949		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.53	0	204	23206	0	0	No, Trazione
SLV 14	14	0.53	0	-475	23206	0	0	No, e>t/2
SLV 1	14	0.53	0	-462	23206	0	0	No, e>t/2
SLV 4	14	0.53	0	-1038	23206	0	0	No, e>t/2
SLV 3	14	0.53	0	-1038	23206	0	0	No, e>t/2
SLV 2	14	0.53	0	-462	23206	0	0	No, e>t/2
SLV 6	14	0.53	0	204	23206	0	0	No, Trazione
SLV 10	14	0.53	0	201	23206	0	0	No, Trazione
SLV 13	14	0.53	0	-475	23206	0	0	No, e>t/2
SLV 9	14	0.53	0	201	23206	0	0	No, Trazione

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	2837	-2678	-487	0	0	0	0	1090.83	No, Trazione
SLV 7	-1115	-457	473	0	3.992	0.892	0	1090.83	No
SLV 5	2188	-1864	-464	0	0	0	0	1090.83	No, Trazione
SLV 12	-466	-1271	451	0	3.509	0.921	0	1090.83	No
SLV 8	-1115	-457	473	0	3.992	0.892	0	1090.83	No
SLV 1	275	-423	-110	0	0	0	0	1055.091	No, Trazione
SLV 6	2188	-1864	-464	0	0	0	0	1090.83	No, Trazione
SLV 11	-466	-1271	451	0	3.509	0.921	0	1090.83	No
SLV 9	2837	-2678	-487	0	0	0	0	1090.83	No, Trazione
SLV 2	275	-423	-110	0	0	0	0	1055.091	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 16	No

## Maschio 182

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2249.3	-335.9	-2467.8	-335.9	L6	L7	218.5	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 34	1277	-3715	286691	0.61	375627	1.31	Si
SLU 34	1457	-2603	20979	0.43	269549	12.848	Si
SLU 42	1277	-3727	286370	0.61	376757	1.316	Si
SLU 42	1457	-2660	17082	0.43	275081	16.104	Si
SLU 40	1277	-3292	236020	0.54	335923	1.423	Si
SLU 40	1457	-2164	7211	0.35	226189	31.368	Si
SLU 17	1277	-4000	274544	0.65	401885	1.464	Si
SLU 17	1457	-2760	20808	0.45	284840	13.689	Si
SLU 36	1277	-4505	311858	0.74	447717	1.436	Si
SLU 36	1457	-3500	14659	0.57	355513	24.252	Si
SLU 41	1277	-3809	265892	0.62	384311	1.445	Si
SLU 41	1457	-2699	8710	0.44	278867	32.015	Si
SLU 38	1277	-4205	323389	0.69	420593	1.301	Si
SLU 38	1457	-3125	25269	0.51	319962	12.662	Si
SLU 37	1277	-4286	302911	0.7	427977	1.413	Si
SLU 37	1457	-3163	16898	0.52	323669	19.154	Si
SLU 31	1277	-3280	236340	0.54	334770	1.416	Si
SLU 31	1457	-2108	11108	0.34	220534	19.853	Si
SLU 80	1277	-5127	343319	0.84	502505	1.464	Si
SLU 80	1457	-3521	20369	0.58	357446	17.548	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 10	1277	-3463	227758	0.57	360767	1.584	Si
SLD 10	1457	-2022	16827	0.33	214962	12.775	Si
SLV 5	1277	-3815	397879	0.62	395551	0.994	No, M>Mu
SLV 5	1457	-2459	66871	0.4	259825	3.885	Si
SLD 5	1277	-3546	251921	0.58	369040	1.465	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 5	1457	-2112	23372	0.35	224205	9.593	Si
SLV 2	1277	-3779	307015	0.62	391987	1.277	Si
SLV 2	1457	-2364	37794	0.39	250111	6.618	Si
SLD 9	1277	-3463	227758	0.57	360767	1.584	Si
SLD 9	1457	-2022	16827	0.33	214962	12.775	Si
SLV 9	1277	-3620	341123	0.59	376312	1.103	Si
SLV 9	1457	-2246	51100	0.37	237972	4.657	Si
SLV 10	1277	-3620	341123	0.59	376312	1.103	Si
SLV 10	1457	-2246	51100	0.37	237972	4.657	Si
SLV 6	1277	-3815	397879	0.62	395551	0.994	No, M>Mu
SLV 6	1457	-2459	66871	0.4	259825	3.885	Si
SLD 6	1277	-3546	251921	0.58	369040	1.465	Si
SLD 6	1457	-2112	23372	0.35	224205	9.593	Si
SLV 1	1277	-3779	307015	0.62	391987	1.277	Si
SLV 1	1457	-2364	37794	0.39	250111	6.618	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	1277	-5428	2607	331788		1.34	144.37	0.73	2969			1.14	Si
SLU 78	1457	-3896	2461	9759		0.64	218.5	0.64	3918			1.59	Si
SLU 84	1277	-4650	2401	306301		1.28	130.13	0.73	2644			1.1	Si
SLU 84	1457	-3056	2293	12182		0.5	218.5	0.62	3806			1.66	Si
SLU 36	1277	-4505	2407	311858		1.34	120.09	0.73	2469			1.03	Si
SLU 36	1457	-3500	2263	14659		0.57	218.5	0.63	3866			1.71	Si
SLU 37	1277	-4286	2266	302911		1.32	115.73	0.73	2372			1.05	Si
SLU 37	1457	-3163	2134	16898		0.52	218.5	0.62	3821			1.79	Si
SLU 34	1277	-3715	2161	286691		1.38	96.25	0.74	1993			0.92	No, Vu<V
SLU 34	1457	-2603	2041	20979		0.43	218.5	0.61	3746			1.84	Si
SLU 76	1277	-4638	2361	306621		1.28	129.41	0.73	2631			1.11	Si
SLU 76	1457	-2999	2240	16079		0.49	218.5	0.62	3799			1.7	Si
SLU 42	1277	-3727	2201	286370		1.37	97.26	0.74	2010			0.91	No, Vu<V
SLU 42	1457	-2660	2094	17082		0.43	218.5	0.61	3754			1.79	Si
SLU 38	1277	-4205	2370	323389		1.55	97.01	0.76	2070			0.87	No, Vu<V
SLU 38	1457	-3125	2218	25269		0.51	218.5	0.62	3816			1.72	Si
SLU 41	1277	-3809	2098	265892		1.15	118.32	0.71	2348			1.12	Si
SLU 41	1457	-2699	2010	8710		0.44	218.5	0.61	3759			1.87	Si
SLU 80	1277	-5127	2569	343319		1.44	126.86	0.75	2657			1.03	Si
SLU 80	1457	-3521	2416	20369		0.58	218.5	0.63	3868			1.6	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	1277	-3815	2431	397879		9.15	14.9	1.63	678			0.28	No, Vu<V
SLV 6	1457	-2459	1945	66871		0.4	218.5	0.91	5590			2.87	Si
SLD 5	1277	-3546	1752	251921		1.1	114.63	1.05	3384			1.93	Si
SLD 5	1457	-2112	1535	23372		0.35	218.5	0.9	5521			3.6	Si
SLV 5	1277	-3815	2431	397879		9.15	14.9	1.63	678			0.28	No, Vu<V
SLV 5	1457	-2459	1945	66871		0.4	218.5	0.91	5590			2.87	Si
SLD 1	1277	-3528	1721	213794		0.86	145.97	1.01	4112			2.39	Si
SLD 1	1457	-2072	1479	10753		0.34	218.5	0.9	5513			3.73	Si
SLV 1	1277	-3779	2347	307015		1.61	84.02	1.15	2716			1.16	Si
SLV 1	1457	-2364	1808	37794		0.39	218.5	0.91	5571			3.08	Si
SLV 2	1277	-3779	2347	307015		1.61	84.02	1.15	2716			1.16	Si
SLV 2	1457	-2364	1808	37794		0.39	218.5	0.91	5571			3.08	Si
SLD 2	1277	-3528	1721	213794		0.86	145.97	1.01	4112			2.39	Si
SLD 2	1457	-2072	1479	10753		0.34	218.5	0.9	5513			3.73	Si
SLV 9	1277	-3620	1949	341123		2.87	45.03	1.41	1775			0.91	No, Vu<V
SLV 9	1457	-2246	1708	51100		0.37	218.5	0.91	5547			3.25	Si
SLD 6	1277	-3546	1752	251921		1.1	114.63	1.05	3384			1.93	Si
SLD 6	1457	-2112	1535	23372		0.35	218.5	0.9	5521			3.6	Si
SLV 10	1277	-3620	1949	341123		2.87	45.03	1.41	1775			0.91	No, Vu<V
SLV 10	1457	-2246	1708	51100		0.37	218.5	0.91	5547			3.25	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.53	0.4	-2440	24674	33039	1.34	Si
SLV 11	14	0.53	0.4	-2440	24674	33039	1.34	Si
SLV 8	14	0.53	0.42	-2587	24674	34968	1.42	Si
SLV 7	14	0.53	0.42	-2587	24674	34968	1.42	Si
SLV 16	14	0.53	0.42	-2589	24674	34992	1.42	Si
SLV 15	14	0.53	0.42	-2589	24674	34992	1.42	Si
SLV 13	14	0.53	0.47	-2865	24674	38573	1.56	Si
SLV 14	14	0.53	0.47	-2865	24674	38573	1.56	Si
SLV 4	14	0.53	0.5	-3081	24674	41362	1.68	Si
SLV 3	14	0.53	0.5	-3081	24674	41362	1.68	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	-1824	-5717	319	0	4.806	0.889	0	1055.091	No
SLV 7	-1665	-3305	245	0	4.662	0.889	0	1090.83	No
SLV 2	-1631	-6945	254	0	4.632	0.889	0	1055.091	No
SLV 3	-1824	-5717	319	0	4.806	0.889	0	1055.091	No
SLV 8	-1665	-3305	245	0	4.662	0.889	0	1090.83	No
SLV 1	-1631	-6945	254	0	4.632	0.889	0	1055.091	No
SLV 13	-534	-4144	-174	0.002	3.754	0.918	2.504	1055.091	No
SLV 14	-534	-4144	-174	0.002	3.754	0.918	2.504	1055.091	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 11	-1336	-2465	117	0.031	4.372	0.891	51.21	1090.83	No
SLV 12	-1336	-2465	117	0.031	4.372	0.891	51.21	1090.83	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.301	SLU 38	Si
V_SLU	0.873	SLU 38	No
PF_SLV	0.994	SLV 5	No
V_SLV	0.279	SLV 5	No
PFFP_SLV	1.339	SLV 11	Si
R_SLV	0	SLV 1	No

## Maschio 183

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1936.8	-335.9	-2159.3	-335.9	L6	L7	222.5	28	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 10	1387	-1617	16344	0.26	174148	10.656	Si
SLU 10	1467	-856	-32689	0.14	93674	2.866	Si
SLU 34	1387	-1916	38680	0.31	205108	5.303	Si
SLU 34	1467	-1236	-41857	0.2	134137	3.205	Si
SLU 2	1387	-1659	19337	0.27	178569	9.235	Si
SLU 2	1467	-863	-28897	0.14	94420	3.268	Si
SLU 52	1387	-2145	21217	0.34	228506	10.77	Si
SLU 52	1467	-1113	-37366	0.18	121148	3.242	Si
SLU 31	1387	-1762	21401	0.28	189179	8.84	Si
SLU 31	1467	-1034	-39051	0.17	112715	2.886	Si
SLU 13	1387	-1771	33623	0.28	190176	5.656	Si
SLU 13	1467	-1058	-35495	0.17	115253	3.247	Si
SLU 73	1387	-2289	26274	0.37	243202	9.256	Si
SLU 73	1467	-1291	-43728	0.21	139988	3.201	Si
SLU 40	1387	-1849	21193	0.3	198256	9.355	Si
SLU 40	1467	-1110	-38262	0.18	120759	3.156	Si
SLU 23	1387	-1804	24394	0.29	193573	7.935	Si
SLU 23	1467	-1041	-35259	0.17	113456	3.218	Si
SLU 19	1387	-1705	16136	0.27	183281	11.359	Si
SLU 19	1467	-932	-31900	0.15	101777	3.19	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 2	1387	-1637	106436	0.26	178171	1.674	Si
SLV 2	1467	-1026	-49436	0.16	112630	2.278	Si
SLV 1	1387	-1637	106436	0.26	178171	1.674	Si
SLV 1	1467	-1026	-49436	0.16	112630	2.278	Si
SLV 6	1387	-1604	132261	0.26	174669	1.321	Si
SLV 6	1467	-1113	-98600	0.18	121981	1.237	Si
SLD 5	1387	-1800	69064	0.29	195519	2.831	Si
SLD 5	1467	-1105	-55742	0.18	121178	2.174	Si
SLD 9	1387	-1860	54812	0.3	201916	3.684	Si
SLD 9	1467	-1129	-55252	0.18	123746	2.24	Si
SLD 6	1387	-1800	69064	0.29	195519	2.831	Si
SLD 6	1467	-1105	-55742	0.18	121178	2.174	Si
SLV 9	1387	-1744	98683	0.28	189537	1.921	Si
SLV 9	1467	-1168	-97398	0.19	127920	1.313	Si
SLV 10	1387	-1744	98683	0.28	189537	1.921	Si
SLV 10	1467	-1168	-97398	0.19	127920	1.313	Si
SLD 10	1387	-1860	54812	0.3	201916	3.684	Si
SLD 10	1467	-1129	-55252	0.18	123746	2.24	Si
SLV 5	1387	-1604	132261	0.26	174669	1.321	Si
SLV 5	1467	-1113	-98600	0.18	121981	1.237	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	1387	-2654	1586	55011		0.43	222.5	0.61	3815			2.4	Si
SLU 36	1467	-1942	721	-43094		0.31	222.5	0.6	3720			5.16	Si
SLU 78	1387	-3182	1696	59884		0.51	222.5	0.62	3885			2.29	Si
SLU 78	1467	-2199	790	-47771		0.35	222.5	0.6	3754			4.75	Si
SLU 80	1387	-2704	1789	61908		0.43	222.5	0.61	3822			2.14	Si
SLU 80	1467	-1773	822	-46927		0.28	222.5	0.59	3697			4.5	Si
SLU 38	1387	-2176	1680	57035		0.35	222.5	0.6	3751			2.23	Si
SLU 38	1467	-1516	753	-42250		0.24	222.5	0.59	3663			4.86	Si
SLU 71	1387	-2906	1639	66514		0.47	222.5	0.62	3849			2.35	Si
SLU 71	1467	-1897	744	-39514		0.3	222.5	0.6	3714			4.99	Si
SLU 79	1387	-2863	1700	63520		0.46	222.5	0.62	3843			2.26	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	1467	-1891	785	-43306		0.3	222.5	0.6	3713			4.73	Si
SLU 70	1387	-3225	1635	62878		0.52	222.5	0.62	3891			2.38	Si
SLU 70	1467	-2206	749	-43979		0.35	222.5	0.6	3755			5.02	Si
SLU 37	1387	-2336	1591	58647		0.37	222.5	0.61	3773			2.37	Si
SLU 37	1467	-1634	717	-38629		0.26	222.5	0.59	3679			5.13	Si
SLU 72	1387	-2747	1728	64902		0.44	222.5	0.61	3827			2.21	Si
SLU 72	1467	-1780	781	-43135		0.29	222.5	0.59	3698			4.74	Si
SLU 30	1387	-2219	1618	60028		0.36	222.5	0.6	3757			2.32	Si
SLU 30	1467	-1523	712	-38457		0.24	222.5	0.59	3664			5.14	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1387	-2304	-2421	-87033		0.37	220.4	0.91	5603			2.31	Si
SLV 12	1467	-1104	-2098	47072		0.19	205.85	0.87	5024			2.39	Si
SLD 6	1387	-1800	2010	69064		0.29	218.65	0.89	5462			2.72	Si
SLD 6	1467	-1105	1434	-55742		0.22	182.46	0.88	4478			3.12	Si
SLV 5	1387	-1604	3818	132261		0.66	86.36	0.97	2336			0.61	No, Vu<V
SLV 5	1467	-1113	2889	-98600		0.59	67.92	0.95	1807			0.63	No, Vu<V
SLV 2	1387	-1637	2917	106436		0.42	138.66	0.92	3563			1.22	Si
SLV 2	1467	-1026	1997	-49436		0.19	189.23	0.87	4621			2.31	Si
SLV 11	1387	-2304	-2421	-87033		0.37	220.4	0.91	5603			2.31	Si
SLV 11	1467	-1104	-2098	47072		0.19	205.85	0.87	5024			2.39	Si
SLV 6	1387	-1604	3818	132261		0.66	86.36	0.97	2336			0.61	No, Vu<V
SLV 6	1467	-1113	2889	-98600		0.59	67.92	0.95	1807			0.63	No, Vu<V
SLV 9	1387	-1744	2972	98683		0.38	163.96	0.91	4175			1.4	Si
SLV 9	1467	-1168	2326	-97398		0.5	83.53	0.93	2183			0.94	No, Vu<V
SLV 10	1387	-1744	2972	98683		0.38	163.96	0.91	4175			1.4	Si
SLV 10	1467	-1168	2326	-97398		0.5	83.53	0.93	2183			0.94	No, Vu<V
SLV 1	1387	-1637	2917	106436		0.42	138.66	0.92	3563			1.22	Si
SLV 1	1467	-1026	1997	-49436		0.19	189.23	0.87	4621			2.31	Si
SLD 5	1387	-1800	2010	69064		0.29	218.65	0.89	5462			2.72	Si
SLD 5	1467	-1105	1434	-55742		0.22	182.46	0.88	4478			3.12	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.53	0.31	-1907	25125	26029	1.04	Si
SLV 11	14	0.53	0.31	-1907	25125	26029	1.04	Si
SLV 8	14	0.53	0.33	-2030	25125	27662	1.1	Si
SLV 7	14	0.53	0.33	-2030	25125	27662	1.1	Si
SLV 15	14	0.53	0.35	-2181	25125	29664	1.18	Si
SLV 16	14	0.53	0.35	-2181	25125	29664	1.18	Si
SLV 14	14	0.53	0.41	-2540	25125	34369	1.37	Si
SLV 13	14	0.53	0.41	-2540	25125	34369	1.37	Si
SLV 3	14	0.53	0.42	-2592	25125	35046	1.39	Si
SLV 4	14	0.53	0.42	-2592	25125	35046	1.39	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-339	-4202	-282	0	3.708	0.937	0	1090.83	No
SLV 12	-877	-2062	334	0	4.057	0.9	0	1090.83	No
SLV 6	-339	-4202	-282	0	3.708	0.937	0	1090.83	No
SLV 11	-877	-2062	334	0	4.057	0.9	0	1090.83	No
SLV 7	-901	-2280	325	0	4.076	0.899	0	1090.83	No
SLV 10	-315	-3984	-274	0	3.696	0.94	0	1090.83	No
SLV 8	-901	-2280	325	0	4.076	0.899	0	1090.83	No
SLV 9	-315	-3984	-274	0	3.696	0.94	0	1090.83	No
SLV 15	-652	-2480	132	0.022	3.894	0.91	35.749	1055.091	No
SLV 16	-652	-2480	132	0.022	3.894	0.91	35.749	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.866	SLU 10	Si
V_SLU	2.136	SLU 80	Si
PF_SLV	1.237	SLV 5	Si
V_SLV	0.612	SLV 5	No
PFFP_SLV	1.036	SLV 11	Si
R_SLV	0	SLV 5	No

## Maschio 184

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1826.3	-335.9	-1886.8	-335.9	L6	L7	60.5	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	1387	-493	8226	0.29	14372	1.747	Si
SLU 1	1467	103	-2293	0	0	0	No, Trazione
SLU 56	1387	-466	10116	0.28	13623	1.347	Si
SLU 56	1467	910	-7	0	0	0	No, Trazione
SLU 58	1387	-253	9352	0	0	0	No, $e \geq l/2$
SLU 58	1467	1176	50	0	0	0	No, Trazione
SLU 57	1387	-331	9943	0.2	9773	0.983	No, $M > \mu$
SLU 57	1467	1053	274	0	0	0	No, Trazione
SLU 55	1387	-231	9949	0	0	0	No, $e \geq l/2$
SLU 55	1467	857	-1430	0	0	0	No, Trazione
SLU 54	1387	-533	10827	0.31	15514	1.433	Si
SLU 54	1467	495	-1675	0	0	0	No, Trazione
SLU 59	1387	-118	9180	0	0	0	No, $e \geq l/2$
SLU 59	1467	1320	331	0	0	0	No, Trazione
SLU 60	1387	-661	11500	0.39	19025	1.654	Si
SLU 60	1467	58	-4231	0	0	0	No, Trazione
SLU 53	1387	-669	10999	0.39	19244	1.75	Si
SLU 53	1467	351	-1956	0	0	0	No, Trazione
SLU 61	1387	-525	11327	0.31	15290	1.35	Si
SLU 61	1467	202	-3950	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	1387	-2400	43014	1.42	64192	1.492	Si
SLV 9	1467	-777	-29949	0	0	0	No, $e \geq l/2$
SLV 14	1387	-504	13901	0.3	14880	1.07	Si
SLV 14	1467	317	3198	0	0	0	No, Trazione
SLV 10	1387	-2400	43014	1.42	64192	1.492	Si
SLV 10	1467	-777	-29949	0	0	0	No, $e \geq l/2$
SLV 7	1387	1433	-25289	0	0	0	No, Trazione
SLV 7	1467	1106	24807	0	0	0	No, Trazione
SLV 8	1387	1433	-25289	0	0	0	No, Trazione
SLV 8	1467	1106	24807	0	0	0	No, Trazione
SLD 1	1387	-1001	15790	0.59	28823	1.825	Si
SLD 1	1467	-174	-13092	0	0	0	No, $e \geq l/2$
SLV 13	1387	-504	13901	0.3	14880	1.07	Si
SLV 13	1467	317	3198	0	0	0	No, Trazione
SLV 12	1387	1799	-28722	0	0	0	No, Trazione
SLV 12	1467	1393	34026	0	0	0	No, Trazione
SLV 6	1387	-2766	46448	1.63	72490	1.561	Si
SLV 6	1467	-1063	-39169	0	0	0	No, $e \geq l/2$
SLV 11	1387	1799	-28722	0	0	0	No, Trazione
SLV 11	1467	1393	34026	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	1387	-533	384	10827		0.64	29.87	0.64	536			1.4	Si
SLU 54	1467	495	-178	-1675		0	0	0.56	0			0	No, $V_u < V$
SLU 53	1387	-669	390	10999		0.58	41.39	0.63	733			1.88	Si
SLU 53	1467	351	-155	-1956		0	0	0.56	0			0	No, $V_u < V$
SLU 56	1387	-466	426	10116		0.65	25.64	0.64	461			1.08	Si
SLU 56	1467	910	-239	-7		0	0	0.56	0			0	No, $V_u < V$
SLU 58	1387	-253	414	9352		0	0	0.56	0			0	No, $V_u < V$
SLU 58	1467	1176	-239	50		0	0	0.56	0			0	No, $V_u < V$
SLU 1	1387	-493	255	8226		0.43	40.66	0.61	698			2.74	Si
SLU 1	1467	103	-55	-2293		0	0	0.56	0			0	No, $V_u < V$
SLU 57	1387	-331	420	9943		18.54	0.64	1.08	19			0.05	No, $V_u < V$
SLU 57	1467	1053	-262	274		0	0	0.56	0			0	No, $V_u < V$
SLU 61	1387	-525	349	11327		0.72	26.08	0.65	476			1.36	Si
SLU 61	1467	202	-98	-3950		0	0	0.56	0			0	No, $V_u < V$
SLU 59	1387	-118	407	9180		0	0	0.56	0			0	No, $V_u < V$
SLU 59	1467	1320	-262	331		0	0	0.56	0			0	No, $V_u < V$
SLU 60	1387	-661	355	11500		0.61	38.52	0.64	687			1.93	Si
SLU 60	1467	58	-75	-4231		0	0	0.56	0			0	No, $V_u < V$
SLU 55	1387	-231	367	9949		0	0	0.56	0			0	No, $V_u < V$
SLU 55	1467	857	-193	-1430		0	0	0.56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1387	-504	250	13901		2.24	8.03	1.28	288			1.15	Si
SLV 14	1467	317	-27	3198		0	0	0.83	0			0	No, $V_u < V$
SLV 8	1387	1433	-753	-25289		0	0	0.83	0			0	No, $V_u < V$
SLV 8	1467	1106	-724	24807		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1387	1799	-979	-28722		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1467	1393	-826	34026		0	0	0.83	0			0	No, $V_u < V$
SLV 10	1387	-2400	1318	43014		2.32	36.99	1.3	1343			1.02	Si
SLV 10	1467	-777	586	-29949		0	0	0.83	0			0	No, $V_u < V$
SLV 9	1387	-2400	1318	43014		2.32	36.99	1.3	1343			1.02	Si
SLV 9	1467	-777	586	-29949		0	0	0.83	0			0	No, $V_u < V$
SLV 13	1387	-504	250	13901		2.24	8.03	1.28	288			1.15	Si
SLV 13	1467	317	-27	3198		0	0	0.83	0			0	No, $V_u < V$
SLD 1	1387	-1001	586	15790		0.82	43.44	1	1214			2.07	Si
SLD 1	1467	-174	89	-13092		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1387	-2766	1543	46448		2.45	40.37	1.32	1495			0.97	No, $V_u < V$
SLV 6	1467	-1063	687	-39169		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1387	1433	-753	-25289		0	0	0.83	0			0	No, $V_u < V$



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1467	1106	-724	24807		0	0	0.83	0			0	No, Vu<V
SLV 11	1387	1799	-979	-28722		0	0	0.83	0			0	No, Vu<V
SLV 11	1467	1393	-826	34026		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.53	0	-102	6832	0	0	No, e>t/2
SLV 3	14	0.53	0	-1	6832	0	0	No, e>t/2
SLV 2	14	0.53	0	-480	6832	0	0	No, e>t/2
SLV 8	14	0.53	0	523	6832	0	0	No, Trazione
SLV 1	14	0.53	0	-480	6832	0	0	No, e>t/2
SLV 12	14	0.53	0	492	6832	0	0	No, Trazione
SLV 11	14	0.53	0	492	6832	0	0	No, Trazione
SLV 16	14	0.53	0	-102	6832	0	0	No, e>t/2
SLV 4	14	0.53	0	-1	6832	0	0	No, e>t/2
SLV 7	14	0.53	0	523	6832	0	0	No, Trazione

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 15	1321	-424	-67	0	0	0	0	1055.091	No, Trazione
SLV 4	609	-706	-36	0	0	0	0	1055.091	No, Trazione
SLV 7	2193	-648	-72	0	0	0	0	1090.83	No, Trazione
SLV 12	2407	-563	-81	0	0	0	0	1090.83	No, Trazione
SLV 3	609	-706	-36	0	0	0	0	1055.091	No, Trazione
SLV 16	1321	-424	-67	0	0	0	0	1055.091	No, Trazione
SLV 8	2193	-648	-72	0	0	0	0	1090.83	No, Trazione
SLV 13	177	-390	-45	0	0	0	0	1055.091	No, Trazione
SLV 14	177	-390	-45	0	0	0	0	1055.091	No, Trazione
SLV 11	2407	-563	-81	0	0	0	0	1090.83	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 185

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1720.3	-335.9	-1736.3	-335.9	L6	L7	16	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 37	1277	-885	4196	1.97	5362	1.278	Si
SLU 37	1457	-200	-917	0.45	1516	1.653	Si
SLU 16	1277	-804	3852	1.79	5014	1.302	Si
SLU 16	1457	-178	-751	0.4	1356	1.806	Si
SLU 8	1277	-811	4109	1.81	5047	1.228	Si
SLU 8	1457	-175	-637	0.39	1330	2.089	Si
SLU 69	1277	-993	4514	2.22	5782	1.281	Si
SLU 69	1457	-299	-267	0.67	2195	8.207	Si
SLU 27	1277	-909	4330	2.03	5460	1.261	Si
SLU 27	1457	-255	-448	0.57	1899	4.242	Si
SLU 79	1277	-969	4379	2.16	5694	1.3	Si
SLU 79	1457	-244	-737	0.54	1822	2.473	Si
SLU 50	1277	-895	4292	2	5406	1.259	Si
SLU 50	1457	-218	-456	0.49	1641	3.596	Si
SLU 29	1277	-892	4452	1.99	5392	1.211	Si
SLU 29	1457	-197	-803	0.44	1490	1.856	Si
SLU 71	1277	-976	4636	2.18	5721	1.234	Si
SLU 71	1457	-240	-622	0.54	1797	2.887	Si
SLU 6	1277	-828	3986	1.85	5120	1.284	Si
SLU 6	1457	-233	-282	0.52	1745	6.194	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	1277	495	-6650	0	0	0	No, Trazione
SLV 12	1457	-563	-2034	1.26	4044	1.988	Si
SLV 11	1277	495	-6650	0	0	0	No, Trazione
SLV 11	1457	-563	-2034	1.26	4044	1.988	Si
SLV 14	1277	215	-3928	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	1457	-521	2419	1.16	3775	1.56	Si
SLV 9	1277	-801	4712	1.79	5471	1.161	Si
SLV 9	1457	-46	3454	0	0	0	No, $e > l/2$
SLV 6	1277	-1283	8709	2.86	7859	0.902	No, $M > Mu$
SLV 6	1457	207	2695	0	0	0	No, Trazione
SLV 10	1277	-801	4712	1.79	5471	1.161	Si
SLV 10	1457	-46	3454	0	0	0	No, $e > l/2$
SLV 7	1277	13	-2653	0	0	0	No, Trazione
SLV 7	1457	-311	-2793	0	0	0	No, $e > l/2$
SLV 8	1277	13	-2653	0	0	0	No, Trazione
SLV 8	1457	-311	-2793	0	0	0	No, $e > l/2$
SLD 1	1277	-813	4542	1.81	5538	1.219	Si
SLD 1	1457	31	104	0	0	0	No, Trazione
SLV 13	1277	215	-3928	0	0	0	No, Trazione
SLV 13	1457	-521	2419	1.16	3775	1.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 27	1277	-909	213	4330		3.34	9.71	1	272			1.28	Si
SLU 27	1457	-255	18	-448		0.57	16	0.63	283			15.54	Si
SLU 8	1277	-811	203	4109		3.29	8.81	0.99	245			1.21	Si
SLU 8	1457	-175	26	-637		0.48	13.06	0.62	226			8.76	Si
SLU 37	1277	-885	206	4196		3.23	9.77	0.99	270			1.31	Si
SLU 37	1457	-200	38	-917		0.7	10.28	0.65	187			4.85	Si
SLU 6	1277	-196	196	3986		3.09	9.55	0.97	259			1.32	Si
SLU 6	1457	-233	11	-282		0.52	16	0.62	280			25.45	Si
SLU 16	1277	-804	189	3852		2.98	9.62	0.95	257			1.36	Si
SLU 16	1457	-178	31	-751		0.56	11.36	0.63	200			6.41	Si
SLU 71	1277	-976	228	4636		3.57	9.76	1.03	282			1.23	Si
SLU 71	1457	-240	25	-622		0.54	16	0.63	281			11.14	Si
SLU 79	1277	-969	215	4379		3.31	10.44	1	292			1.36	Si
SLU 79	1457	-244	31	-737		0.58	14.94	0.63	265			8.65	Si
SLU 29	1277	-892	219	4452		3.53	9.03	1.03	259			1.18	Si
SLU 29	1457	-197	33	-803		0.6	11.77	0.64	209			6.33	Si
SLU 50	1277	-895	212	4292		3.32	9.62	1	269			1.27	Si
SLU 50	1457	-218	18	-456		0.49	16	0.62	278			15.42	Si
SLU 69	1277	-993	222	4514		3.42	10.36	1.01	294			1.32	Si
SLU 69	1457	-299	10	-267		0.67	16	0.64	289			27.85	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	1277	-801	553	4712		4.5	6.35	1.63	289			0.52	No, $V_u < V$
SLV 9	1457	-46	-228	3454		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1277	13	-454	-2653		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1457	-311	199	-2793		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1277	-1283	761	8709		12.59	3.64	1.63	166			0.22	No, $V_u < V$
SLV 6	1457	207	-195	2695		0	0	0.83	0			0	No, $V_u < V$
SLD 1	1277	-813	270	4542		4.01	7.24	1.63	329			1.22	Si
SLD 1	1457	31	-13	104		0	0	0.83	0			0	No, $V_u < V$
SLV 11	1277	495	-663	-6650		0	0	0.83	0			0	No, $V_u < V$
SLV 11	1457	-563	166	-2034		1.53	13.17	1.14	420			2.52	Si
SLV 13	1277	215	-116	-3928		0	0	0.83	0			0	No, $V_u < V$
SLV 13	1457	-521	-128	2419		1.85	10.08	1.2	340			2.64	Si
SLV 14	1277	215	-116	-3928		0	0	0.83	0			0	No, $V_u < V$
SLV 14	1457	-521	-128	2419		1.85	10.08	1.2	340			2.64	Si
SLV 12	1277	495	-663	-6650		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1457	-563	166	-2034		1.53	13.17	1.14	420			2.52	Si
SLV 8	1277	13	-454	-2653		0	0	0.83	0			0	No, $V_u < V$
SLV 8	1457	-311	199	-2793		0	0	0.83	0			0	No, $V_u < V$
SLV 10	1277	-801	553	4712		4.5	6.35	1.63	289			0.52	No, $V_u < V$
SLV 10	1457	-46	-228	3454		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.53	0	107	1807	0	0	No, Trazione
SLV 12	14	0.53	0	435	1807	0	0	No, Trazione
SLV 11	14	0.53	0	435	1807	0	0	No, Trazione
SLV 8	14	0.53	0	317	1807	0	0	No, Trazione
SLV 7	14	0.53	0	317	1807	0	0	No, Trazione
SLV 16	14	0.53	0	107	1807	0	0	No, Trazione
SLV 4	14	0.53	0.64	-287	1807	3804	2.11	Si
SLV 3	14	0.53	0.64	-287	1807	3804	2.11	Si
SLV 13	14	0.53	0.65	-292	1807	3870	2.14	Si
SLV 14	14	0.53	0.65	-292	1807	3870	2.14	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 10	-151	-580	32	0	0.368	0.89	0	1090.83	No
SLV 7	2	267	-81	0	0	0	0	1090.83	No, Trazione
SLV 5	-115	-673	28	0	0.335	0.889	0	1090.83	No
SLV 9	-151	-580	32	0	0.368	0.89	0	1090.83	No
SLV 8	2	267	-81	0	0	0	0	1090.83	No, Trazione
SLV 1	-32	-453	-15	0	0.27	0.926	0	1055.091	No
SLV 6	-115	-673	28	0	0.335	0.889	0	1090.83	No
SLV 3	4	-171	-47	0	0	0	0	1055.091	No, Trazione



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 2	-32	-453	-15	0	0.27	0.926	0	1055.091	No
SLV 4	4	-171	-47	0	0	0	0	1055.091	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.211	SLU 29	Si
V_SLU	1.182	SLU 29	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 16	No

## Maschio 186

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	104.6	-1961.8	581.1	L6	L7	476.5	14	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 17	1187	-13606	625135	2.04	2430078	3.887	Si
SLU 17	1503	-4164	756751	0.62	916080	1.211	Si
SLU 79	1187	-16838	737403	2.52	2768750	3.755	Si
SLU 79	1503	-4901	888327	0.73	1062480	1.196	Si
SLU 30	1187	-15036	745142	2.25	2591268	3.478	Si
SLU 30	1503	-4845	877911	0.73	1051378	1.198	Si
SLU 38	1187	-15415	743320	2.31	2630960	3.539	Si
SLU 38	1503	-4813	874163	0.72	1045186	1.196	Si
SLU 37	1187	-15368	755688	2.3	2626088	3.475	Si
SLU 37	1503	-4798	871942	0.72	1042208	1.195	Si
SLU 72	1187	-16506	726857	2.47	2738206	3.767	Si
SLU 72	1503	-4948	894295	0.74	1071608	1.198	Si
SLU 80	1187	-16885	725035	2.53	2773014	3.825	Si
SLU 80	1503	-4917	890547	0.74	1065445	1.196	Si
SLU 71	1187	-16459	739224	2.47	2733786	3.698	Si
SLU 71	1503	-4933	892075	0.74	1068648	1.198	Si
SLU 16	1187	-13559	637503	2.03	2424458	3.803	Si
SLU 16	1503	-4149	754531	0.62	913015	1.21	Si
SLU 29	1187	-14989	757509	2.25	2586240	3.414	Si
SLU 29	1503	-4830	875690	0.72	1048404	1.197	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 8	1187	-8248	318026	1.24	1766337	5.554	Si
SLV 8	1503	-544	-236254	0	0	0	No, e>l/2
SLV 10	1187	-6938	-103295	1.04	1512303	14.641	Si
SLV 10	1503	-1983	678805	0	0	0	No, e>l/2
SLD 6	1187	-7292	45024	1.09	1581919	35.135	Si
SLD 6	1503	-1469	381942	0	0	0	No, e>l/2
SLV 7	1187	-8248	318026	1.24	1766337	5.554	Si
SLV 7	1503	-544	-236254	0	0	0	No, e>l/2
SLD 9	1187	-7316	23207	1.1	1586733	68.374	Si
SLD 9	1503	-1548	408830	0	0	0	No, e>l/2
SLD 10	1187	-7316	23207	1.1	1586733	68.374	Si
SLD 10	1503	-1548	408830	0	0	0	No, e>l/2
SLV 6	1187	-6881	-51216	1.03	1501029	29.308	Si
SLV 6	1503	-1793	614756	0	0	0	No, e>l/2
SLV 9	1187	-6938	-103295	1.04	1512303	14.641	Si
SLV 9	1503	-1983	678805	0	0	0	No, e>l/2
SLD 5	1187	-7292	45024	1.09	1581919	35.135	Si
SLD 5	1503	-1469	381942	0	0	0	No, e>l/2
SLV 5	1187	-6881	-51216	1.03	1501029	29.308	Si
SLV 5	1503	-1793	614756	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	1187	-7046	-219	53506		1.06	476.52	0.7	4646			21.2	Si
SLU 2	1503	-1112	-130	192501		0.41	195.61	0.61	1670			12.88	Si
SLU 39	1187	-9319	276	189702		1.4	476.52	0.74	4949			17.94	Si
SLU 39	1503	-1691	119	300858		0.67	181.03	0.64	1633			13.73	Si
SLU 50	1187	-14650	-148	621039		2.2	476.52	0.85	5660			38.23	Si
SLU 50	1503	-4284	-129	774663		1.78	172.29	0.79	1911			14.78	Si
SLU 49	1187	-14434	-177	540260		2.16	476.52	0.84	5631			31.81	Si
SLU 49	1503	-4077	-151	723999		1.6	182	0.77	1959			13.01	Si
SLU 5	1187	-10152	-196	336109		1.52	476.52	0.76	5060			25.83	Si
SLU 5	1503	-2659	-139	477240		1.08	176.34	0.7	1726			12.38	Si
SLU 51	1187	-14697	-213	608672		2.2	476.52	0.85	5666			26.64	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 51	1503	-4299	-167	776884		1.78	172.65	0.79	1916			11.48	Si
SLU 9	1187	-13227	-130	626957		1.98	476.52	0.82	5470			42.22	Si
SLU 9	1503	-4196	-124	760499		1.75	170.99	0.79	1889			15.22	Si
SLU 47	1187	-11622	-279	317824		1.74	476.52	0.79	5256			18.84	Si
SLU 47	1503	-2763	-182	493625		1.1	178.73	0.7	1758			9.66	Si
SLU 44	1187	-8516	-302	35221		1.28	476.52	0.73	4842			16.02	Si
SLU 44	1503	-1216	-172	208886		0.44	199.41	0.61	1713			9.94	Si
SLU 46	1187	-11327	-200	257657		1.7	476.52	0.78	5217			26.05	Si
SLU 46	1503	-2530	-141	439260		0.93	193.93	0.68	1846			13.11	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 5	1187	-7292	-2351	45024		1.09	476.52	1.05	7018			2.98	Si
SLD 5	1503	-1469	-1101	381942		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	-8248	6404	318026		1.24	476.52	1.08	7209			1.13	Si
SLV 8	1503	-544	3112	-236254		0	0	0.83	0			0	No, Vu<V
SLV 14	1187	-7483	-3268	-34820		1.12	476.52	1.06	7056			2.16	Si
SLV 14	1503	-1767	-1755	455676		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	-6938	-6447	-103295		1.04	476.52	1.04	6947			1.08	Si
SLV 10	1503	-1983	-3160	678805		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	-6938	-6447	-103295		1.04	476.52	1.04	6947			1.08	Si
SLV 9	1503	-1983	-3160	678805		0	0	0.83	0			0	No, Vu<V
SLD 10	1187	-7316	-2717	23207		1.1	476.52	1.05	7023			2.58	Si
SLD 10	1503	-1548	-1321	408830		0	0	0.83	0			0	No, Vu<V
SLV 7	1187	-8248	6404	318026		1.24	476.52	1.08	7209			1.13	Si
SLV 7	1503	-544	3112	-236254		0	0	0.83	0			0	No, Vu<V
SLD 9	1187	-7316	-2717	23207		1.1	476.52	1.05	7023			2.58	Si
SLD 9	1503	-1548	-1321	408830		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	-6881	-5578	-51216		1.03	476.52	1.04	6936			1.24	Si
SLV 6	1503	-1793	-2639	614756		0	0	0.83	0			0	No, Vu<V
SLD 6	1187	-7292	-2351	45024		1.09	476.52	1.05	7018			2.98	Si
SLD 6	1503	-1469	-1101	381942		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.53	0	-3143	28782	0	0	No, e>t/2
SLV 7	14	0.53	0	-3143	28782	0	0	No, e>t/2
SLV 3	14	0.53	0	-3143	28782	0	0	No, e>t/2
SLV 1	14	0.53	0	-3607	28782	0	0	No, e>t/2
SLV 11	14	0.53	0	-3608	28782	0	0	No, e>t/2
SLV 2	14	0.53	0	-3607	28782	0	0	No, e>t/2
SLV 8	14	0.53	0	-3143	28782	0	0	No, e>t/2
SLV 12	14	0.53	0	-3608	28782	0	0	No, e>t/2
SLV 6	14	0.53	0.7	-4691	28782	30949	1.08	Si
SLV 5	14	0.53	0.7	-4691	28782	30949	1.08	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.03 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-734	-8305	28	0.028	4.194	0.909	44.116	2119.413	No
SLV 11	-734	-8305	28	0.028	4.194	0.909	44.116	2119.413	No
SLV 8	-544	-8248	25	0.029	4.07	0.92	45.905	2119.413	No
SLV 7	-544	-8248	25	0.029	4.07	0.92	45.905	2119.413	No
SLV 6	-1793	-6881	-20	0.028	5.064	0.889	45.983	2119.413	No
SLV 5	-1793	-6881	-20	0.028	5.064	0.889	45.983	2119.413	No
SLV 10	-1983	-6938	-17	0.029	5.236	0.889	46.603	2119.413	No
SLV 9	-1983	-6938	-17	0.029	5.236	0.889	46.603	2119.413	No
SLV 15	-1392	-7893	15	0.03	4.712	0.891	49.53	2119.251	No
SLV 16	-1392	-7893	15	0.03	4.712	0.891	49.53	2119.251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.195	SLU 37	Si
V_SLU	9.655	SLU 47	Si
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 1	No
R_SLV	0.021	SLV 11	No

## Maschio 187

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1961.8	581.1	-1961.8	652.1	L6	L7	71	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2





Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 78	1187	-10436	-1468	5.25	131730	89.741	Si
SLU 78	1503	-11499	133200	5.78	118347	0.888	No, M>Mu
SLU 29	1187	-10432	-582	5.25	131764	226.326	Si
SLU 29	1503	-11697	126006	5.88	115309	0.915	No, M>Mu
SLU 80	1187	-10906	-1285	5.49	126426	98.377	Si
SLU 80	1503	-12038	137993	6.06	109665	0.795	No, M>Mu
SLU 77	1187	-10476	-1312	5.27	131317	100.083	Si
SLU 77	1503	-11514	131483	5.79	118119	0.898	No, M>Mu
SLU 79	1187	-10946	-1129	5.51	125931	111.512	Si
SLU 79	1503	-12054	136276	6.06	109401	0.803	No, M>Mu
SLU 30	1187	-10393	-738	5.23	132169	179.091	Si
SLU 30	1503	-11682	127722	5.88	115549	0.905	No, M>Mu
SLU 71	1187	-10840	-907	5.45	127224	140.233	Si
SLU 71	1503	-11852	131551	5.96	112812	0.858	No, M>Mu
SLU 37	1187	-10538	-804	5.3	130660	162.46	Si
SLU 37	1503	-11899	130731	5.99	112034	0.857	No, M>Mu
SLU 72	1187	-10800	-1063	5.43	127700	120.127	Si
SLU 72	1503	-11837	133267	5.95	113063	0.848	No, M>Mu
SLU 38	1187	-10498	-960	5.28	131084	136.535	Si
SLU 38	1503	-11884	132447	5.98	112288	0.848	No, M>Mu

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	1187	-4462	1660	2.24	129304	77.889	Si
SLV 4	1503	-4616	81959	2.32	132720	1.619	Si
SLV 8	1187	-5041	3602	2.54	141822	39.376	Si
SLV 8	1503	-3833	91502	1.93	114591	1.252	Si
SLV 7	1187	-5041	3602	2.54	141822	39.376	Si
SLV 7	1503	-3833	91502	1.93	114591	1.252	Si
SLV 3	1187	-4462	1660	2.24	129304	77.889	Si
SLV 3	1503	-4616	81959	2.32	132720	1.619	Si
SLD 11	1187	-3902	452	1.96	116260	257.219	Si
SLD 11	1503	-2974	58347	1.5	92659	1.588	Si
SLV 12	1187	-4674	2678	2.35	134010	50.04	Si
SLV 12	1503	-2958	77014	1.49	92230	1.198	Si
SLD 8	1187	-4056	846	2.04	119952	141.778	Si
SLD 8	1503	-3345	64837	1.68	102389	1.579	Si
SLD 7	1187	-4056	846	2.04	119952	141.778	Si
SLD 7	1503	-3345	64837	1.68	102389	1.579	Si
SLV 11	1187	-4674	2678	2.35	134010	50.04	Si
SLV 11	1503	-2958	77014	1.49	92230	1.198	Si
SLD 12	1187	-3902	452	1.96	116260	257.219	Si
SLD 12	1503	-2974	58347	1.5	92659	1.588	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	1187	-10068	-474	-987		5.06	71	1.08	2154			4.55	Si
SLU 35	1503	-11360	-123	125938		5.71	71	1.08	2154			17.51	Si
SLU 72	1187	-10800	-479	-1063		5.43	71	1.08	2154			4.5	Si
SLU 72	1503	-11837	-293	133267		5.95	71	1.08	2154			7.35	Si
SLU 71	1187	-10840	-476	-907		5.45	71	1.08	2154			4.52	Si
SLU 71	1503	-11852	-260	131551		5.96	71	1.08	2154			8.28	Si
SLU 38	1187	-10498	-489	-960		5.28	71	1.08	2154			4.4	Si
SLU 38	1503	-11884	-181	132447		5.98	71	1.08	2154			11.91	Si
SLU 80	1187	-10906	-505	-1285		5.49	71	1.08	2154			4.27	Si
SLU 80	1503	-12038	-233	137993		6.06	71	1.08	2154			9.26	Si
SLU 77	1187	-10476	-489	-1312		5.27	71	1.08	2154			4.4	Si
SLU 77	1503	-11514	-175	131483		5.79	71	1.08	2154			12.31	Si
SLU 36	1187	-10028	-476	-1143		5.04	71	1.08	2154			4.52	Si
SLU 36	1503	-11344	-156	127654		5.71	71	1.08	2154			13.83	Si
SLU 78	1187	-10436	-491	-1468		5.25	71	1.08	2154			4.38	Si
SLU 78	1503	-11499	-208	133200		5.78	71	1.08	2154			10.37	Si
SLU 79	1187	-10946	-502	-1129		5.51	71	1.08	2154			4.29	Si
SLU 79	1503	-12054	-200	136276		6.06	71	1.08	2154			10.77	Si
SLU 37	1187	-10538	-487	-804		5.3	71	1.08	2154			4.42	Si
SLU 37	1503	-11899	-148	130731		5.99	71	1.08	2154			14.55	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	1187	-2164	-328	-5025		1.09	71	1.05	2089			6.36	Si
SLV 5	1503	-3155	-1627	15940		1.59	71	1.15	2288			1.41	Si
SLV 11	1187	-4674	8	2678		2.35	71	1.3	2592			307.53	Si
SLV 11	1503	-2958	1396	77014		3.72	28.4	1.58	1254			0.9	No, Vu<V
SLV 10	1187	-1797	-312	-5948		0.9	71	1.01	2016			6.45	Si
SLV 10	1503	-2281	-1908	1452		1.15	71	1.06	2113			1.11	Si
SLV 7	1187	-5041	-8	3602		2.54	71	1.34	2665			354.55	Si
SLV 7	1503	-3833	1677	91502		3.92	34.88	1.62	1580			0.94	No, Vu<V
SLV 12	1187	-4674	8	2678		2.35	71	1.3	2592			307.53	Si
SLV 12	1503	-2958	1396	77014		3.72	28.4	1.58	1254			0.9	No, Vu<V
SLV 14	1187	-2376	-181	-4007		1.2	71	1.07	2132			11.75	Si
SLV 14	1503	-1498	-1079	10995		0.75	71	0.98	1956			1.81	Si
SLV 8	1187	-5041	-8	3602		2.54	71	1.34	2665			354.55	Si
SLV 8	1503	-3833	1677	91502		3.92	34.88	1.62	1580			0.94	No, Vu<V
SLV 13	1187	-2376	-181	-4007		1.2	71	1.07	2132			11.75	Si
SLV 13	1503	-1498	-1079	10995		0.75	71	0.98	1956			1.81	Si
SLV 9	1187	-1797	-312	-5948		0.9	71	1.01	2016			6.45	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	1503	-2281	-1908	1452		1.15	71	1.06	2113			1.11	Si
SLV 6	1187	-2164	-328	-5025		1.09	71	1.05	2089			6.36	Si
SLV 6	1503	-3155	-1627	15940		1.59	71	1.15	2288			1.41	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.53	0.9	-1779	8204	23087	2.81	Si
SLV 10	14	0.53	0.9	-1779	8204	23087	2.81	Si
SLV 6	14	0.53	1.12	-2235	8204	28411	3.46	Si
SLV 5	14	0.53	1.12	-2235	8204	28411	3.46	Si
SLV 14	14	0.53	1.16	-2304	8204	29197	3.56	Si
SLV 13	14	0.53	1.16	-2304	8204	29197	3.56	Si
SLV 15	14	0.53	1.61	-3209	8204	38994	4.75	Si
SLV 16	14	0.53	1.61	-3209	8204	38994	4.75	Si
SLV 1	14	0.53	1.92	-3823	8204	45095	5.5	Si
SLV 2	14	0.53	1.92	-3823	8204	45095	5.5	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	-1701	-3240	167	0	2.64	0.914	0	1055.091	No
SLV 15	-1701	-3240	167	0	2.64	0.914	0	1055.091	No
SLV 13	-1498	-2376	183	0	2.437	0.91	0	1055.091	No
SLV 14	-1498	-2376	183	0	2.437	0.91	0	1055.091	No
SLV 4	-4616	-4462	-190	0.013	5.586	0.954	19.051	1055.091	No
SLV 3	-4616	-4462	-190	0.013	5.586	0.954	19.051	1055.091	No
SLV 2	-4412	-3599	-173	0.015	5.38	0.952	22.146	1055.091	No
SLV 1	-4412	-3599	-173	0.015	5.38	0.952	22.146	1055.091	No
SLV 10	-2281	-1797	78	0.026	3.222	0.926	40.484	1090.83	No
SLV 9	-2281	-1797	78	0.026	3.222	0.926	40.484	1090.83	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0.795	SLU 80	No
V_SLU	4.268	SLU 80	Si
PF_SLV	1.198	SLV 11	Si
V_SLV	0.898	SLV 11	No
PFFP_SLV	2.814	SLV 9	Si
R_SLV	0	SLV 13	No

## Maschio 188

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1844.8	-335.9	-1844.8	104.6	L6	L7	440.6	14	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 9	1187	-5714	285397	0.93	1115595	3.909	Si
SLU 9	1503	-1755	-358778	0.28	373059	1.04	Si
SLU 37	1187	-6830	304029	1.11	1300078	4.276	Si
SLU 37	1503	-1911	-398811	0.31	405053	1.016	Si
SLU 38	1187	-6783	330350	1.1	1292391	3.912	Si
SLU 38	1503	-1986	-416158	0.32	420217	1.01	Si
SLU 29	1187	-6402	292894	1.04	1230603	4.202	Si
SLU 29	1503	-1931	-399072	0.31	408976	1.025	Si
SLU 8	1187	-5762	259076	0.93	1123731	4.337	Si
SLU 8	1503	-1680	-341431	0.27	357743	1.048	Si
SLU 17	1187	-6142	296532	1	1187653	4.005	Si
SLU 17	1503	-1736	-358517	0.28	369106	1.03	Si
SLU 30	1187	-6354	319215	1.03	1222737	3.83	Si
SLU 30	1503	-2005	-416418	0.33	424127	1.019	Si
SLU 16	1187	-6190	270212	1	1195608	4.425	Si
SLU 16	1503	-1661	-341171	0.27	353778	1.037	Si
SLU 79	1187	-8081	340719	1.31	1493833	4.384	Si
SLU 79	1503	-1968	-397686	0.32	416629	1.048	Si
SLU 80	1187	-8033	367039	1.3	1486672	4.05	Si
SLU 80	1503	-2043	-415033	0.33	431756	1.04	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 12	1187	-5251	208924	0.85	1076098	5.151	Si
SLD 12	1503	-828	-207989	0	0	0	No, e>/2
SLV 6	1187	-5157	90789	0.84	1058180	11.655	Si
SLV 6	1503	135	236031	0	0	0	No, Trazione
SLV 10	1187	-5057	158678	0.82	1039213	6.549	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	1503	-43	236737	0	0	0	No, e>l/2
SLV 5	1187	-5157	90789	0.84	1058180	11.655	Si
SLV 5	1503	135	236031	0	0	0	No, Trazione
SLV 3	1187	-5402	75359	0.88	1104668	14.659	Si
SLV 3	1503	-422	-174164	0	0	0	No, e>l/2
SLV 4	1187	-5402	75359	0.88	1104668	14.659	Si
SLV 4	1503	-422	-174164	0	0	0	No, e>l/2
SLD 11	1187	-5251	208924	0.85	1076098	5.151	Si
SLD 11	1503	-828	-207989	0	0	0	No, e>l/2
SLV 8	1187	-5355	188903	0.87	1095863	5.801	Si
SLV 8	1503	-1041	-393773	0	0	0	No, e>l/2
SLV 9	1187	-5057	158678	0.82	1039213	6.549	Si
SLV 9	1503	-43	236737	0	0	0	No, e>l/2
SLV 7	1187	-5355	188903	0.87	1095863	5.801	Si
SLV 7	1503	-1041	-393773	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 38	1187	-6783	1084	330350		1.1	440.57	0.7	4331			3.99	Si
SLU 38	1503	-1986	2218	-416158		4.4	32.25	1.08	489			0.22	No, Vu<V
SLU 37	1187	-6830	1072	304029		1.11	440.57	0.7	4337			4.05	Si
SLU 37	1503	-1911	2013	-398811		3.91	34.94	1.08	527			0.26	No, Vu<V
SLU 80	1187	-8033	1131	367039		1.3	440.57	0.73	4498			3.98	Si
SLU 80	1503	-2043	2261	-415033		2.84	51.43	0.93	672			0.3	No, Vu<V
SLU 16	1187	-6190	955	270212		1	440.57	0.69	4252			4.45	Si
SLU 16	1503	-1661	1753	-341171		2.66	44.62	0.91	568			0.32	No, Vu<V
SLU 30	1187	-6354	1110	319215		1.03	440.57	0.69	4274			3.85	Si
SLU 30	1503	-2005	2237	-416418		3.78	37.91	1.06	562			0.25	No, Vu<V
SLU 29	1187	-6402	1097	292894		1.04	440.57	0.69	4280			3.9	Si
SLU 29	1503	-1931	2033	-399072		3.38	40.78	1.01	575			0.28	No, Vu<V
SLU 72	1187	-7605	1156	355904		1.23	440.57	0.72	4441			3.84	Si
SLU 72	1503	-2062	2281	-415293		2.6	56.75	0.9	716			0.31	No, Vu<V
SLU 17	1187	-6142	967	296532		1	440.57	0.69	4246			4.39	Si
SLU 17	1503	-1736	1958	-358517		3.01	41.13	0.96	551			0.28	No, Vu<V
SLU 36	1187	-7044	1016	334962		1.14	440.57	0.71	4366			4.3	Si
SLU 36	1503	-1926	2097	-388230		2.45	56.15	0.88	694			0.33	No, Vu<V
SLU 9	1187	-5714	992	285397		0.93	440.57	0.68	4189			4.22	Si
SLU 9	1503	-1755	1978	-358778		2.64	47.5	0.91	603			0.31	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	1187	-5402	892	75359		0.88	440.57	1.01	6220			6.97	Si
SLV 4	1503	-422	1165	-174164		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	-5157	-5316	90789		0.84	440.57	1	6171			1.16	Si
SLV 6	1503	135	-2705	236031		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	-5057	-4704	158678		0.82	440.57	1	6151			1.31	Si
SLV 10	1503	-43	-2534	236737		0	0	0.83	0			0	No, Vu<V
SLV 3	1187	-5402	892	75359		0.88	440.57	1.01	6220			6.97	Si
SLV 3	1503	-422	1165	-174164		0	0	0.83	0			0	No, Vu<V
SLD 12	1187	-5251	2641	208924		0.85	440.57	1	6190			2.34	Si
SLD 12	1503	-828	1838	-207989		0	0	0.83	0			0	No, Vu<V
SLV 5	1187	-5157	-5316	90789		0.84	440.57	1	6171			1.16	Si
SLV 5	1503	135	-2705	236031		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	-5355	5333	188903		0.87	440.57	1.01	6211			1.16	Si
SLV 8	1503	-1041	3556	-393773		0	0	0.83	0			0	No, Vu<V
SLV 7	1187	-5355	5333	188903		0.87	440.57	1.01	6211			1.16	Si
SLV 7	1503	-1041	3556	-393773		0	0	0.83	0			0	No, Vu<V
SLD 11	1187	-5251	2641	208924		0.85	440.57	1	6190			2.34	Si
SLD 11	1503	-828	1838	-207989		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	-5057	-4704	158678		0.82	440.57	1	6151			1.31	Si
SLV 9	1503	-43	-2534	236737		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.53	0	-2131	26611	0	0	No, e>t/2
SLV 2	14	0.53	0	-2473	26611	0	0	No, e>t/2
SLV 3	14	0.53	0	-2826	26611	0	0	No, e>t/2
SLV 6	14	0.53	0	-2131	26611	0	0	No, e>t/2
SLV 9	14	0.53	0	-2192	26611	0	0	No, e>t/2
SLV 10	14	0.53	0	-2192	26611	0	0	No, e>t/2
SLV 7	14	0.53	0	-3310	26611	0	0	No, e>t/2
SLV 1	14	0.53	0	-2473	26611	0	0	No, e>t/2
SLV 4	14	0.53	0	-2826	26611	0	0	No, e>t/2
SLV 8	14	0.53	0	-3310	26611	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.03 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	135	-5157	7	0	0	0	0	2119.413	No, Trazione
SLV 5	135	-5157	7	0	0	0	0	2119.413	No, Trazione
SLV 16	-1015	-5070	-22	0.028	4.132	0.896	45.806	2119.251	No
SLV 15	-1015	-5070	-22	0.028	4.132	0.896	45.806	2119.251	No
SLV 1	-69	-5342	22	0.031	3.581	0.982	46.262	2119.251	No
SLV 2	-69	-5342	22	0.031	3.581	0.982	46.262	2119.251	No
SLV 13	-663	-5010	-22	0.029	3.867	0.91	46.57	2119.251	No
SLV 14	-663	-5010	-22	0.029	3.867	0.91	46.57	2119.251	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 4	-422	-5402	22	0.03	3.716	0.928	46.698	2119.251	No
SLV 3	-422	-5402	22	0.03	3.716	0.928	46.698	2119.251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.01	SLU 38	Si
V_SLV	0.221	SLU 38	No
PF_SLV	0	SLV 6	No
V_SLV	0	SLD 3	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 6	No

## Maschio 189

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	104.6	-1505.8	140.6	L6	L7	36	14	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 54	1187	-2312	14411	4.59	18180	1.262	Si
SLU 54	1397	493	-12089	0	0	0	No, Trazione
SLU 53	1187	-2315	14443	4.59	18173	1.258	Si
SLU 53	1397	491	-12105	0	0	0	No, Trazione
SLU 55	1187	-2211	13929	4.39	18365	1.318	Si
SLU 55	1397	497	-11444	0	0	0	No, Trazione
SLU 57	1187	-2549	16231	5.06	17397	1.072	Si
SLU 57	1397	553	-12872	0	0	0	No, Trazione
SLU 61	1187	-2097	13416	4.16	18466	1.376	Si
SLU 61	1397	543	-11810	0	0	0	No, Trazione
SLU 60	1187	-2100	13448	4.17	18465	1.373	Si
SLU 60	1397	541	-11826	0	0	0	No, Trazione
SLU 58	1187	-2453	15802	4.87	17774	1.125	Si
SLU 58	1397	555	-12253	0	0	0	No, Trazione
SLU 56	1187	-2552	16263	5.06	17383	1.069	Si
SLU 56	1397	552	-12888	0	0	0	No, Trazione
SLU 59	1187	-2449	15771	4.86	17785	1.128	Si
SLU 59	1397	557	-12237	0	0	0	No, Trazione
SLU 1	1187	-1394	7830	2.77	16573	2.117	Si
SLU 1	1397	191	-6761	0	0	0	No, Trazione

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 13	1187	-1178	3447	2.34	17150	4.975	Si
SLV 13	1397	216	-8855	0	0	0	No, Trazione
SLV 11	1187	-3934	41642	7.81	25577	0.614	No, M>Mu
SLV 11	1397	1574	-14567	0	0	0	No, Trazione
SLV 7	1187	-3759	39691	7.46	26361	0.664	No, M>Mu
SLV 7	1397	1421	-13123	0	0	0	No, Trazione
SLV 12	1187	-3934	41642	7.81	25577	0.614	No, M>Mu
SLV 12	1397	1574	-14567	0	0	0	No, Trazione
SLV 14	1187	-1178	3447	2.34	17150	4.975	Si
SLV 14	1397	216	-8855	0	0	0	No, Trazione
SLD 1	1187	-1160	4278	2.3	16945	3.961	Si
SLD 1	1397	54	-6380	0	0	0	No, Trazione
SLV 10	1187	619	-20621	0	0	0	No, Trazione
SLV 10	1397	-792	-3186	1.57	12419	3.898	Si
SLV 6	1187	794	-22572	0	0	0	No, Trazione
SLV 6	1397	-946	-1742	1.88	14406	8.27	Si
SLV 9	1187	619	-20621	0	0	0	No, Trazione
SLV 9	1397	-792	-3186	1.57	12419	3.898	Si
SLV 8	1187	-3759	39691	7.46	26361	0.664	No, M>Mu
SLV 8	1397	1421	-13123	0	0	0	No, Trazione

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	1187	-2211	322	13929		4.5	35.1	1.08	532			1.65	Si
SLU 55	1397	497	340	-11444		0	0	0.56	0			0	No, Vu<V
SLU 56	1187	-2552	376	16263		5.23	34.88	1.08	529			1.41	Si
SLU 56	1397	552	391	-12888		0	0	0.56	0			0	No, Vu<V
SLU 53	1187	-2315	339	14443		4.69	35.28	1.08	535			1.58	Si
SLU 53	1397	491	352	-12105		0	0	0.56	0			0	No, Vu<V
SLU 1	1187	-1394	183	7830		2.77	36	0.92	466			2.55	Si
SLU 1	1397	191	194	-6761		0	0	0.56	0			0	No, Vu<V
SLU 61	1187	-2097	317	13416		4.3	34.8	1.08	528			1.66	Si
SLU 61	1397	543	333	-11810		0	0	0.56	0			0	No, Vu<V
SLU 59	1187	-2449	361	15771		5.04	34.68	1.08	526			1.46	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 59	1397	557	378	-12237		0	0	0.56	0			0	No, Vu<V
SLU 60	1187	-2100	319	13448		4.31	34.79	1.08	528			1.66	Si
SLU 60	1397	541	332	-11826		0	0	0.56	0			0	No, Vu<V
SLU 54	1187	-2312	337	14411		4.68	35.3	1.08	535			1.59	Si
SLU 54	1397	493	353	-12089		0	0	0.56	0			0	No, Vu<V
SLU 57	1187	-2549	374	16231		5.22	34.89	1.08	529			1.41	Si
SLU 57	1397	553	391	-12872		0	0	0.56	0			0	No, Vu<V
SLU 58	1187	-2453	362	15802		5.05	34.67	1.08	526			1.45	Si
SLU 58	1397	555	378	-12253		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1187	-3934	1548	41642		12.63	22.24	1.63	506			0.33	No, Vu<V
SLV 12	1397	1574	50	-14567		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	619	-1009	-20621		0	0	0.83	0			0	No, Vu<V
SLV 9	1397	-792	467	-3186		1.57	36	1.15	578			1.24	Si
SLV 13	1187	-1178	-7	3447		2.34	36	1.3	656			100.35	Si
SLV 13	1397	216	378	-8855		0	0	0.83	0			0	No, Vu<V
SLV 7	1187	-3759	1456	39691		12.03	22.32	1.63	508			0.35	No, Vu<V
SLV 7	1397	1421	1	-13123		0	0	0.83	0			0	No, Vu<V
SLD 1	1187	-1160	1	4278		2.3	36	1.29	652			939.57	Si
SLD 1	1397	54	225	-6380		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	619	-1009	-20621		0	0	0.83	0			0	No, Vu<V
SLV 10	1397	-792	467	-3186		1.57	36	1.15	578			1.24	Si
SLV 11	1187	-3934	1548	41642		12.63	22.24	1.63	506			0.33	No, Vu<V
SLV 11	1397	1574	50	-14567		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	794	-1101	-22572		0	0	0.83	0			0	No, Vu<V
SLV 6	1397	-946	418	-1742		1.88	36	1.21	609			1.46	Si
SLV 14	1187	-1178	-7	3447		2.34	36	1.3	656			100.35	Si
SLV 14	1397	216	378	-8855		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	-3759	1456	39691		12.03	22.32	1.63	508			0.35	No, Vu<V
SLV 8	1397	1421	1	-13123		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.53	0	-225	2174	0	0	No, $e > t/2$
SLV 13	14	0.53	0	-225	2174	0	0	No, $e > t/2$
SLV 11	14	0.53	0	974	2174	0	0	No, Trazione
SLV 4	14	0.53	0	44	2174	0	0	No, Trazione
SLV 12	14	0.53	0	974	2174	0	0	No, Trazione
SLV 3	14	0.53	0	44	2174	0	0	No, Trazione
SLV 15	14	0.53	0	383	2174	0	0	No, Trazione
SLV 7	14	0.53	0	872	2174	0	0	No, Trazione
SLV 8	14	0.53	0	872	2174	0	0	No, Trazione
SLV 16	14	0.53	0	383	2174	0	0	No, Trazione

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.03 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	258	794	13	0	0	0	0	2119.413	No, Trazione
SLV 3	-255	-1961	52	0	0.495	0.897	0	2119.251	No
SLV 14	-89	-1178	-52	0	0.343	0.894	0	2119.251	No
SLV 10	232	619	-17	0	0	0	0	2119.413	No, Trazione
SLV 1	-5	-595	50	0	0.293	0.985	0	2119.251	No
SLV 4	-255	-1961	52	0	0.495	0.897	0	2119.251	No
SLV 13	-89	-1178	-52	0	0.343	0.894	0	2119.251	No
SLV 6	258	794	13	0	0	0	0	2119.413	No, Trazione
SLV 9	232	619	-17	0	0	0	0	2119.413	No, Trazione
SLV 2	-5	-595	50	0	0.293	0.985	0	2119.251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 10	No

## Maschio 190

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1505.8	220.6	-1505.8	666.1	L6	L7	445.5	14	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 19	1187	-8439	358165	1.35	1567622	4.377	Si
SLU 19	1397	-3280	-175440	0.53	683458	3.896	Si
SLU 61	1187	-10091	394424	1.62	1801303	4.567	Si
SLU 61	1397	-3909	-199837	0.63	803743	4.022	Si
SLU 60	1187	-10098	394933	1.62	1802206	4.563	Si
SLU 60	1397	-3908	-199076	0.63	803636	4.037	Si
SLU 40	1187	-9558	423423	1.53	1728551	4.082	Si
SLU 40	1397	-3856	-207096	0.62	793784	3.833	Si
SLU 31	1187	-9055	374115	1.45	1657503	4.43	Si
SLU 31	1397	-3699	-190450	0.59	764033	4.012	Si
SLU 39	1187	-9565	423932	1.53	1729485	4.08	Si
SLU 39	1397	-3856	-206334	0.62	793676	3.847	Si
SLU 73	1187	-10706	410375	1.72	1882273	4.587	Si
SLU 73	1397	-4328	-214847	0.69	882005	4.105	Si
SLU 81	1187	-11216	460191	1.8	1946869	4.231	Si
SLU 81	1397	-4485	-230731	0.72	910786	3.947	Si
SLU 82	1187	-11210	459682	1.8	1946032	4.233	Si
SLU 82	1397	-4485	-231493	0.72	910890	3.935	Si
SLU 18	1187	-8446	358674	1.35	1568622	4.373	Si
SLU 18	1397	-3279	-174679	0.53	683348	3.912	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	1187	-8007	591096	1.28	1596210	2.7	Si
SLV 6	1397	-972	249392	0	0	0	No, $e \geq l/2$
SLV 7	1187	-7400	-64004	1.19	1488258	23.253	Si
SLV 7	1397	-5188	-475976	0.83	1077021	2.263	Si
SLV 8	1187	-7400	-64004	1.19	1488258	23.253	Si
SLV 8	1397	-5188	-475976	0.83	1077021	2.263	Si
SLV 10	1187	-7471	557476	1.2	1501058	2.693	Si
SLV 10	1397	-861	200014	0	0	0	No, $e \geq l/2$
SLV 12	1187	-6864	-97624	1.1	1391203	14.251	Si
SLV 12	1397	-5077	-525353	0.81	1055554	2.009	Si
SLV 5	1187	-8007	591096	1.28	1596210	2.7	Si
SLV 5	1397	-972	249392	0	0	0	No, $e \geq l/2$
SLV 11	1187	-6864	-97624	1.1	1391203	14.251	Si
SLV 11	1397	-5077	-525353	0.81	1055554	2.009	Si
SLV 9	1187	-7471	557476	1.2	1501058	2.693	Si
SLV 9	1397	-861	200014	0	0	0	No, $e \geq l/2$
SLV 15	1187	-6451	92438	1.03	1315321	14.229	Si
SLV 15	1397	-3471	-329082	0.56	738045	2.243	Si
SLV 16	1187	-6451	92438	1.03	1315321	14.229	Si
SLV 16	1397	-3471	-329082	0.56	738045	2.243	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1187	-11216	-318	460191		1.8	445.5	0.8	4961			15.61	Si
SLU 81	1397	-4485	-571	-230731		0.72	445.5	0.65	4063			7.11	Si
SLU 8	1187	-7041	567	135613		1.13	445.5	0.71	4404			7.76	Si
SLU 8	1397	-3813	-66	-122955		0.61	445.5	0.64	3973			60.57	Si
SLU 60	1187	-10098	-390	394933		1.62	445.5	0.77	4811			12.32	Si
SLU 60	1397	-3908	-539	-199076		0.63	445.5	0.64	3986			7.4	Si
SLU 29	1187	-8160	640	200871		1.31	445.5	0.73	4553			7.12	Si
SLU 29	1397	-4389	-98	-154610		0.7	445.5	0.65	4050			41.3	Si
SLU 73	1187	-10706	-256	410375		1.72	445.5	0.78	4893			19.13	Si
SLU 73	1397	-4328	-509	-214847		0.69	445.5	0.65	4042			7.94	Si
SLU 30	1187	-8153	649	200363		1.31	445.5	0.73	4552			7.02	Si
SLU 30	1397	-4389	-89	-155372		0.7	445.5	0.65	4050			45.48	Si
SLU 28	1187	-8431	567	229916		1.35	445.5	0.74	4589			8.09	Si
SLU 28	1397	-4441	-130	-161554		0.71	445.5	0.65	4057			31.33	Si
SLU 82	1187	-11210	-309	459682		1.8	445.5	0.8	4960			16.05	Si
SLU 82	1397	-4485	-562	-231493		0.72	445.5	0.65	4063			7.23	Si
SLU 9	1187	-7034	576	135105		1.13	445.5	0.71	4403			7.64	Si
SLU 9	1397	-3813	-57	-123717		0.61	445.5	0.64	3973			70.23	Si
SLU 61	1187	-10091	-382	394424		1.62	445.5	0.77	4810			12.61	Si
SLU 61	1397	-3909	-530	-199837		0.63	445.5	0.64	3986			7.53	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 2	1187	-8420	-2236	401034		1.35	445.5	1.1	6882			3.08	Si
SLV 2	1397	-2578	-1563	53120		0.41	445.5	0.92	5713			3.65	Si
SLV 8	1187	-7400	2816	-64004		1.19	445.5	1.07	6677			2.37	Si
SLV 8	1397	-5188	311	-475976		0.94	393.03	1.02	5623			18.08	Si
SLV 5	1187	-8007	-3801	591096		1.28	445.5	1.09	6799			1.79	Si
SLV 5	1397	-972	-1560	249392		0	0	0.83	0			0	No, $V_u < V$
SLV 1	1187	-8420	-2236	401034		1.35	445.5	1.1	6882			3.08	Si
SLV 1	1397	-2578	-1563	53120		0.41	445.5	0.92	5713			3.65	Si
SLV 9	1187	-7471	-3158	557476		1.2	444.4	1.07	6679			2.12	Si
SLV 9	1397	-861	-996	200014		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1187	-7400	2816	-64004		1.19	445.5	1.07	6677			2.37	Si
SLV 7	1397	-5188	311	-475976		0.94	393.03	1.02	5623			18.08	Si
SLV 12	1187	-6864	3459	-97624		1.1	445.5	1.05	6570			1.9	Si
SLV 12	1397	-5077	875	-525353		1.01	357.82	1.04	5190			5.93	Si
SLV 10	1187	-7471	-3158	557476		1.2	444.4	1.07	6679			2.12	Si
SLV 10	1397	-861	-996	200014		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1187	-8007	-3801	591096		1.28	445.5	1.09	6799			1.79	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	1397	-972	-1560	249392		0	0	0.83	0			0	No, Vu<V
SLV 11	1187	-6864	3459	-97624		1.1	445.5	1.05	6570			1.9	Si
SLV 11	1397	-5077	875	-525353		1.01	357.82	1.04	5190			5.93	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.53	0	-2848	26909	0	0	No, e>t/2
SLV 13	14	0.53	0	-2848	26909	0	0	No, e>t/2
SLV 6	14	0.53	0	-1710	26909	0	0	No, e>t/2
SLV 9	14	0.53	0	-1548	26909	0	0	No, e>t/2
SLV 10	14	0.53	0	-1548	26909	0	0	No, e>t/2
SLV 1	14	0.53	0	-3388	26909	0	0	No, e>t/2
SLV 2	14	0.53	0	-3388	26909	0	0	No, e>t/2
SLV 5	14	0.53	0	-1710	26909	0	0	No, e>t/2
SLV 15	14	0.53	0.66	-4125	26909	27309	1.01	Si
SLV 16	14	0.53	0.66	-4125	26909	27309	1.01	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.03 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-1196	-7400	-26	0.027	4.317	0.893	43.268	2119.413	No
SLV 7	-1196	-7400	-26	0.027	4.317	0.893	43.268	2119.413	No
SLV 9	-118	-7471	26	0.029	3.63	0.972	43.339	2119.413	No
SLV 10	-118	-7471	26	0.029	3.63	0.972	43.339	2119.413	No
SLV 11	-1040	-6864	-23	0.028	4.188	0.896	45.193	2119.413	No
SLV 12	-1040	-6864	-23	0.028	4.188	0.896	45.193	2119.413	No
SLV 5	-274	-8007	23	0.03	3.682	0.945	45.927	2119.413	No
SLV 6	-274	-8007	23	0.03	3.682	0.945	45.927	2119.413	No
SLV 4	-1056	-8238	-12	0.032	4.201	0.895	51.523	2119.251	No
SLV 3	-1056	-8238	-12	0.032	4.201	0.895	51.523	2119.251	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.833	SLU 40	Si
V_SLU	7.018	SLU 30	Si
PF_SLV	0	SLV 5	No
V_SLV	0	SLV 5	No
PFFP_SLV	0	SLV 1	No
R_SLV	0.02	SLV 7	No

## Maschio 191

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Maschio considerato membratura sismica secondaria

#### Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-35.4	-1375.3	-22.8	L6	L7	12.6	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 61	1187	-200	352	0.57	1169	3.324	Si
SLU 61	1397	-29	-624	0	0	0	No, e>l/2
SLU 54	1187	-223	228	0.63	1291	5.664	Si
SLU 54	1397	-29	-523	0	0	0	No, e>l/2
SLU 53	1187	-224	242	0.64	1299	5.363	Si
SLU 53	1397	-29	-502	0	0	0	No, e>l/2
SLU 1	1187	-207	-171	0.59	1207	7.047	Si
SLU 1	1397	-29	-506	0	0	0	No, e>l/2
SLU 57	1187	-229	291	0.65	1325	4.548	Si
SLU 57	1397	-26	-378	0	0	0	No, e>l/2
SLU 55	1187	-225	220	0.64	1303	5.925	Si
SLU 55	1397	-29	-518	0	0	0	No, e>l/2
SLU 59	1187	-232	293	0.66	1342	4.583	Si
SLU 59	1397	-26	-360	0	0	0	No, e>l/2
SLU 58	1187	-234	307	0.66	1350	4.396	Si
SLU 58	1397	-26	-340	0	0	0	No, e>l/2
SLU 56	1187	-231	306	0.66	1333	4.361	Si
SLU 56	1397	-26	-358	0	0	0	No, e>l/2
SLU 60	1187	-201	366	0.57	1177	3.217	Si
SLU 60	1397	-29	-603	0	0	0	No, e>l/2

#### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 58	1187	-234	1	307		0.66	12.57	0.64	227			433.19	Si
SLU 58	1397	-26	-10	-340		0	0	0.56	0			0	No, Vu<V
SLU 56	1187	-231	0	306		0.66	12.57	0.64	226			458.49	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 56	1397	-26	-7	-358		0	0	0.56	0			0	No, Vu<V
SLU 1	1187	-207	1	-171		0.59	12.57	0.63	223			428.02	Si
SLU 1	1397	-29	-1	-506		0	0	0.56	0			0	No, Vu<V
SLU 61	1187	-200	3	352		0.57	12.57	0.63	222			72.02	Si
SLU 61	1397	-29	23	-624		0	0	0.56	0			0	No, Vu<V
SLU 60	1187	-201	3	366		0.57	12.57	0.63	222			76.06	Si
SLU 60	1397	-29	22	-603		0	0	0.56	0			0	No, Vu<V
SLU 53	1187	-224	1	242		0.64	12.57	0.64	225			163.3	Si
SLU 53	1397	-29	5	-502		0	0	0.56	0			0	No, Vu<V
SLU 54	1187	-223	2	228		0.63	12.57	0.64	225			146.07	Si
SLU 54	1397	-29	7	-523		0	0	0.56	0			0	No, Vu<V
SLU 59	1187	-232	1	293		0.66	12.57	0.64	227			330.75	Si
SLU 59	1397	-26	-9	-360		0	0	0.56	0			0	No, Vu<V
SLU 55	1187	-225	2	220		0.64	12.57	0.64	226			134.29	Si
SLU 55	1397	-29	5	-518		0	0	0.56	0			0	No, Vu<V
SLU 57	1187	-229	1	291		0.65	12.57	0.64	226			345.14	Si
SLU 57	1397	-26	-6	-378		0	0	0.56	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.53	0	5	1452	0	0	No, Trazione
SLV 11	14	0.53	0	194	1452	0	0	No, Trazione
SLV 8	14	0.53	0	156	1452	0	0	No, Trazione
SLV 15	14	0.53	0	5	1452	0	0	No, Trazione
SLV 12	14	0.53	0	194	1452	0	0	No, Trazione
SLV 7	14	0.53	0	156	1452	0	0	No, Trazione
SLV 3	14	0.53	0.34	-121	1452	1643	1.13	Si
SLV 4	14	0.53	0.34	-121	1452	1643	1.13	Si
SLV 13	14	0.53	0.55	-194	1452	2589	1.78	Si
SLV 14	14	0.53	0.55	-194	1452	2589	1.78	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 2	132	-327	8	0	0	0	0	1055.091	No, Trazione
SLV 9	209	-418	17	0	0	0	0	1090.83	No, Trazione
SLV 4	22	-183	-2	0	0	0	0	1055.091	No, Trazione
SLV 5	233	-453	19	0	0	0	0	1090.83	No, Trazione
SLV 3	22	-183	-2	0	0	0	0	1055.091	No, Trazione
SLV 7	-134	27	-17	0	0	0	0	1090.83	No, Trazione
SLV 1	132	-327	8	0	0	0	0	1055.091	No, Trazione
SLV 8	-134	27	-17	0	0	0	0	1090.83	No, Trazione
SLV 10	209	-418	17	0	0	0	0	1090.83	No, Trazione
SLV 6	233	-453	19	0	0	0	0	1090.83	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 14	No

## Maschio 192

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Maschio considerato membratura sismica secondaria

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	67.2	-1375.3	104.6	L6	L7	37.4	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 70	1187	-1752	4349	1.67	26063	5.993	Si
SLU 70	1397	-1096	2201	1.05	17874	8.121	Si
SLU 36	1187	-1460	3988	1.39	22654	5.68	Si
SLU 36	1397	-932	2008	0.89	15533	7.737	Si
SLU 30	1187	-1331	3863	1.27	21031	5.444	Si
SLU 30	1397	-804	1955	0.77	13636	6.973	Si
SLU 6	1187	-1329	3729	1.27	21000	5.632	Si
SLU 6	1397	-821	1914	0.78	13882	7.252	Si
SLU 69	1187	-1741	4458	1.66	25942	5.82	Si
SLU 69	1397	-1081	2263	1.03	17676	7.812	Si
SLU 27	1187	-1371	4475	1.31	21537	4.813	Si
SLU 27	1397	-830	2277	0.79	14016	6.154	Si
SLU 35	1187	-1449	4097	1.38	22519	5.496	Si
SLU 35	1397	-917	2069	0.88	15325	7.406	Si
SLU 29	1187	-1320	3972	1.26	20890	5.259	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 29	1397	-790	2017	0.75	13420	6.654	Si
SLU 7	1187	-1340	3620	1.28	21141	5.841	Si
SLU 7	1397	-835	1853	0.8	14095	7.608	Si
SLU 28	1187	-1382	4366	1.32	21676	4.964	Si
SLU 28	1397	-844	2216	0.8	14229	6.421	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 71	1187	-1691	6	3955		1.61	37.43	0.77	808			125.88	Si
SLU 71	1397	-1042	-3	2002		0.99	37.43	0.69	721			286.38	Si
SLU 27	1187	-1371	6	4475		1.31	37.43	0.73	765			120.7	Si
SLU 27	1397	-830	-2	2277		0.79	37.43	0.66	693			306.86	Si
SLU 69	1187	-1741	6	4458		1.66	37.43	0.78	814			125.45	Si
SLU 69	1397	-1081	-3	2263		1.03	37.43	0.69	726			283.17	Si
SLU 70	1187	-1752	6	4349		1.67	37.43	0.78	816			129.69	Si
SLU 70	1397	-1096	-3	2201		1.05	37.43	0.69	728			285.12	Si
SLU 72	1187	-1702	6	3846		1.62	37.43	0.77	809			130.19	Si
SLU 72	1397	-1056	-3	1941		1.01	37.43	0.69	723			288.39	Si
SLU 37	1187	-1399	6	3594		1.33	37.43	0.73	769			131.79	Si
SLU 37	1397	-878	-2	1809		0.84	37.43	0.67	699			335.19	Si
SLU 35	1187	-1449	6	4097		1.38	37.43	0.74	775			131.23	Si
SLU 35	1397	-917	-2	2069		0.88	37.43	0.67	705			330.25	Si
SLU 28	1187	-1382	6	4366		1.32	37.43	0.73	767			124.88	Si
SLU 28	1397	-844	-2	2216		0.8	37.43	0.66	695			309.2	Si
SLU 29	1187	-1320	6	3972		1.26	37.43	0.72	758			121.08	Si
SLU 29	1397	-790	-2	2017		0.75	37.43	0.66	688			311.03	Si
SLU 30	1187	-1331	6	3863		1.27	37.43	0.72	760			125.34	Si
SLU 30	1397	-804	-2	1955		0.77	37.43	0.66	690			313.44	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.53	0	639	4325	0	0	No, Trazione
SLV 6	14	0.53	0	670	4325	0	0	No, Trazione
SLV 5	14	0.53	0	670	4325	0	0	No, Trazione
SLV 10	14	0.53	0	639	4325	0	0	No, Trazione
SLV 2	14	0.53	0.43	-451	4325	6096	1.41	Si
SLV 1	14	0.53	0.43	-451	4325	6096	1.41	Si
SLV 14	14	0.53	0.53	-555	4325	7432	1.72	Si
SLV 13	14	0.53	0.53	-555	4325	7432	1.72	Si
SLV 4	14	0.53	1.38	-1444	4325	17936	4.15	Si
SLV 3	14	0.53	1.38	-1444	4325	17936	4.15	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-58	588	-4	0	0	0	0	1090.83	No, Trazione
SLV 6	-154	510	-2	0	0	0	0	1090.83	No, Trazione
SLV 10	-58	588	-4	0	0	0	0	1090.83	No, Trazione
SLV 5	-154	510	-2	0	0	0	0	1090.83	No, Trazione
SLV 7	-598	-3221	4	0.054	1.096	0.9	87.28	1090.83	No
SLV 8	-598	-3221	4	0.054	1.096	0.9	87.28	1090.83	No
SLV 3	-555	-2005	4	0.055	1.054	0.898	88.517	1055.091	No
SLV 4	-555	-2005	4	0.055	1.054	0.898	88.517	1055.091	No
SLV 11	-502	-3144	3	0.058	1.002	0.895	93.353	1090.83	No
SLV 12	-502	-3144	3	0.058	1.002	0.895	93.353	1090.83	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.813	SLU 27	Si
V_SLU	120.696	SLU 27	Si
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 10	No

## Maschio 193

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.sx	a.s.dx
-1975.8	666.1	-1771.8	666.1	L6	L7	204	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	1277	-2211	40069	0.39	214824	5.361	Si
SLU 60	1457	362	206805	0	0	0	No, Trazione
SLU 59	1277	1618	187241	0	0	0	No, Trazione
SLU 59	1457	4191	659083	0	0	0	No, Trazione
SLU 56	1277	774	180352	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 56	1457	3347	632383	0	0	0	No, Trazione
SLU 54	1277	-1143	108545	0.2	113762	1.048	Si
SLU 54	1457	1430	406777	0	0	0	No, Trazione
SLU 55	1277	-304	115444	0	0	0	No, e>l/2
SLU 55	1457	2269	433077	0	0	0	No, Trazione
SLU 61	1277	-2197	40039	0.38	213501	5.332	Si
SLU 61	1457	377	208006	0	0	0	No, Trazione
SLU 53	1277	-1158	108575	0.2	115152	1.061	Si
SLU 53	1457	1416	405576	0	0	0	No, Trazione
SLU 1	1277	-1620	46412	0.28	159493	3.436	Si
SLU 1	1457	367	179729	0	0	0	No, Trazione
SLU 58	1277	1603	187271	0	0	0	No, Trazione
SLU 58	1457	4177	657882	0	0	0	No, Trazione
SLU 57	1277	788	180322	0	0	0	No, Trazione
SLU 57	1457	3361	633584	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	1277	-582	214566	0	0	0	No, e>l/2
SLV 14	1457	486	187026	0	0	0	No, Trazione
SLV 9	1277	144	291537	0	0	0	No, Trazione
SLV 9	1457	1511	334378	0	0	0	No, Trazione
SLD 1	1277	-1344	34405	0.24	134464	3.908	Si
SLD 1	1457	945	257406	0	0	0	No, Trazione
SLV 13	1277	-582	214566	0	0	0	No, e>l/2
SLV 13	1457	486	187026	0	0	0	No, Trazione
SLV 10	1277	144	291537	0	0	0	No, Trazione
SLV 10	1457	1511	334378	0	0	0	No, Trazione
SLV 6	1277	-74	231148	0	0	0	No, e>l/2
SLV 6	1457	1778	374512	0	0	0	No, Trazione
SLV 7	1277	-2878	-190066	0.5	281463	1.481	Si
SLV 7	1457	-255	87285	0	0	0	No, e>l/2
SLV 4	1277	-2152	-113095	0.38	212689	1.881	Si
SLV 4	1457	769	234637	0	0	0	No, Trazione
SLV 8	1277	-2878	-190066	0.5	281463	1.481	Si
SLV 8	1457	-255	87285	0	0	0	No, e>l/2
SLV 5	1277	-74	231148	0	0	0	No, e>l/2
SLV 5	1457	1778	374512	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 1	1277	-1620	-708	46412		0.28	204	0.59	3389			4.79	Si
SLU 1	1457	367	-708	179729		0	0	0.56	0			0	No, Vu<V
SLU 55	1277	-304	-1723	115444		0	0	0.56	0			0	No, Vu<V
SLU 55	1457	2269	-1723	433077		0	0	0.56	0			0	No, Vu<V
SLU 58	1277	1603	-2572	187271		0	0	0.56	0			0	No, Vu<V
SLU 58	1457	4177	-2572	657882		0	0	0.56	0			0	No, Vu<V
SLU 59	1277	1618	-2579	187241		0	0	0.56	0			0	No, Vu<V
SLU 59	1457	4191	-2579	659083		0	0	0.56	0			0	No, Vu<V
SLU 57	1277	788	-2476	180322		0	0	0.56	0			0	No, Vu<V
SLU 57	1457	3361	-2476	633584		0	0	0.56	0			0	No, Vu<V
SLU 56	1277	774	-2469	180352		0	0	0.56	0			0	No, Vu<V
SLU 56	1457	3347	-2469	632383		0	0	0.56	0			0	No, Vu<V
SLU 53	1277	-1158	-1608	108575		1.68	24.66	0.78	538			0.33	No, Vu<V
SLU 53	1457	1416	-1608	405576		0	0	0.56	0			0	No, Vu<V
SLU 61	1277	-2197	-891	40039		0.38	204	0.61	3466			3.89	Si
SLU 61	1457	377	-891	208006		0	0	0.56	0			0	No, Vu<V
SLU 60	1277	-2211	-884	40069		0.39	204	0.61	3468			3.92	Si
SLU 60	1457	362	-884	206805		0	0	0.56	0			0	No, Vu<V
SLU 54	1277	-1143	-1615	108545		1.93	21.21	0.81	482			0.3	No, Vu<V
SLU 54	1457	1430	-1615	406777		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	1277	-2152	-1816	-113095		0.52	148.3	0.94	3891			2.14	Si
SLV 4	1457	769	-1492	234637		0	0	0.83	0			0	No, Vu<V
SLD 1	1277	-1344	-1215	34405		0.24	204	0.88	5029			4.14	Si
SLD 1	1457	945	-1109	257406		0	0	0.83	0			0	No, Vu<V
SLV 14	1277	-582	102	214566		0	0	0.83	0			0	No, Vu<V
SLV 14	1457	486	-222	187026		0	0	0.83	0			0	No, Vu<V
SLV 9	1277	144	-362	291537		0	0	0.83	0			0	No, Vu<V
SLV 9	1457	1511	-612	334378		0	0	0.83	0			0	No, Vu<V
SLV 8	1277	-2878	-1352	-190066		0.95	107.89	1.02	3093			2.29	Si
SLV 8	1457	-255	-1102	87285		0	0	0.83	0			0	No, Vu<V
SLV 7	1277	-2878	-1352	-190066		0.95	107.89	1.02	3093			2.29	Si
SLV 7	1457	-255	-1102	87285		0	0	0.83	0			0	No, Vu<V
SLV 5	1277	-74	-896	231148		0	0	0.83	0			0	No, Vu<V
SLV 5	1457	1778	-982	374512		0	0	0.83	0			0	No, Vu<V
SLV 10	1277	144	-362	291537		0	0	0.83	0			0	No, Vu<V
SLV 10	1457	1511	-612	334378		0	0	0.83	0			0	No, Vu<V
SLV 6	1277	-74	-896	231148		0	0	0.83	0			0	No, Vu<V
SLV 6	1457	1778	-982	374512		0	0	0.83	0			0	No, Vu<V
SLV 13	1277	-582	102	214566		0	0	0.83	0			0	No, Vu<V
SLV 13	1457	486	-222	187026		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$



Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.53	0	617	23036	0	0	No, Trazione
SLV 13	14	0.53	0	-153	23036	0	0	No, $e > t/2$
SLV 1	14	0.53	0	-438	23036	0	0	No, $e > t/2$
SLV 10	14	0.53	0	617	23036	0	0	No, Trazione
SLV 4	14	0.53	0	-1184	23036	0	0	No, $e > t/2$
SLV 5	14	0.53	0	532	23036	0	0	No, Trazione
SLV 3	14	0.53	0	-1184	23036	0	0	No, $e > t/2$
SLV 6	14	0.53	0	532	23036	0	0	No, Trazione
SLV 2	14	0.53	0	-438	23036	0	0	No, $e > t/2$
SLV 14	14	0.53	0	-153	23036	0	0	No, $e > t/2$

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 7	120	-4522	-244	0	0	0	0	1090.83	No, Trazione
SLV 5	2762	-761	216	0	0	0	0	1090.83	No, Trazione
SLV 3	1601	-4209	-114	0	0	0	0	1055.091	No, Trazione
SLV 6	2762	-761	216	0	0	0	0	1090.83	No, Trazione
SLV 9	2286	99	243	0	0	0	0	1090.83	No, Trazione
SLV 8	120	-4522	-244	0	0	0	0	1090.83	No, Trazione
SLV 10	2286	99	243	0	0	0	0	1090.83	No, Trazione
SLV 2	2393	-3081	24	0	0	0	0	1055.091	No, Trazione
SLV 4	1601	-4209	-114	0	0	0	0	1055.091	No, Trazione
SLV 1	2393	-3081	24	0	0	0	0	1055.091	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0	SLV 84	No
V_SLV	0	SLV 1	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 16	No

## Maschio 194

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1681.8	666.1	-1283.8	666.1	L6	L7	398	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 16	1277	-6254	120642	0.56	1158731	9.605	Si
SLU 16	1457	-2980	27513	0.27	573494	20.845	Si
SLU 29	1277	-6933	145324	0.62	1274341	8.769	Si
SLU 29	1457	-3353	28216	0.3	642603	22.774	Si
SLU 8	1277	-6728	128985	0.6	1239570	9.61	Si
SLU 8	1457	-3046	22337	0.27	585770	26.224	Si
SLU 17	1277	-6261	119982	0.56	1159986	9.668	Si
SLU 17	1457	-2983	27589	0.27	574109	20.81	Si
SLU 37	1277	-6459	136981	0.58	1193930	8.716	Si
SLU 37	1457	-3287	33392	0.29	630416	18.879	Si
SLU 35	1277	-7272	128491	0.65	1331195	10.36	Si
SLU 35	1457	-4265	33497	0.38	808863	24.147	Si
SLU 30	1277	-6941	144664	0.62	1275574	8.818	Si
SLU 30	1457	-3356	28292	0.3	643214	22.735	Si
SLU 38	1277	-6467	136321	0.58	1195178	8.767	Si
SLU 38	1457	-3290	33468	0.3	631027	18.855	Si
SLU 27	1277	-7746	136834	0.7	1409917	10.304	Si
SLU 27	1457	-4331	28321	0.39	820767	28.981	Si
SLU 9	1277	-6735	128324	0.6	1240810	9.669	Si
SLU 9	1457	-3049	22413	0.27	586385	26.163	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 2	1277	-4859	-167505	0.44	932372	5.566	Si
SLV 2	1457	-2224	142594	0.2	435343	3.053	Si
SLV 4	1277	-5086	-304641	0.46	974313	3.198	Si
SLV 4	1457	-1179	171705	0.11	232639	1.355	Si
SLV 1	1277	-4859	-167505	0.44	932372	5.566	Si
SLV 1	1457	-2224	142594	0.2	435343	3.053	Si
SLV 9	1277	-4999	326181	0.45	958295	2.938	Si
SLV 9	1457	-4309	-72188	0.39	830294	11.502	Si
SLV 10	1277	-4999	326181	0.45	958295	2.938	Si
SLV 10	1457	-4309	-72188	0.39	830294	11.502	Si
SLV 13	1277	-5483	345870	0.49	1047141	3.028	Si
SLV 13	1457	-3556	-135589	0.32	689173	5.083	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	1277	-5570	-284951	0.5	1063036	3.731	Si
SLV 8	1457	-427	108304	0	0	0	No, $e \geq l/2$
SLV 7	1277	-5570	-284951	0.5	1063036	3.731	Si
SLV 7	1457	-427	108304	0	0	0	No, $e \geq l/2$
SLV 3	1277	-5086	-304641	0.46	974313	3.198	Si
SLV 3	1457	-1179	171705	0.11	232639	1.355	Si
SLV 14	1277	-5483	-345870	0.49	1047141	3.028	Si
SLV 14	1457	-3556	-135589	0.32	689173	5.083	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 27	1277	-7746	520	136834		0.7	398	0.65	7224			13.9	Si
SLU 27	1457	-4331	524	28321		0.39	398	0.61	6769			12.93	Si
SLU 50	1277	-8265	509	128882		0.74	398	0.65	7293			14.32	Si
SLU 50	1457	-3630	513	24791		0.33	398	0.6	6675			13.02	Si
SLU 8	1277	-6728	552	128985		0.6	398	0.64	7088			12.85	Si
SLU 8	1457	-3046	555	22337		0.27	398	0.59	6597			11.89	Si
SLU 9	1277	-6735	548	128324		0.6	398	0.64	7089			12.93	Si
SLU 9	1457	-3049	551	22413		0.27	398	0.59	6598			11.96	Si
SLU 51	1277	-8273	506	128221		0.74	398	0.65	7294			14.43	Si
SLU 51	1457	-3633	509	24867		0.33	398	0.6	6676			13.12	Si
SLU 29	1277	-6933	589	145324		0.62	398	0.64	7116			12.09	Si
SLU 29	1457	-3353	593	28216		0.3	398	0.6	6638			11.2	Si
SLU 28	1277	-7753	516	136174		0.7	398	0.65	7225			13.99	Si
SLU 28	1457	-4334	520	28397		0.39	398	0.61	6769			13.02	Si
SLU 30	1277	-6941	585	144664		0.62	398	0.64	7117			12.16	Si
SLU 30	1457	-3356	589	28292		0.3	398	0.6	6639			11.27	Si
SLU 72	1277	-8478	543	144561		0.76	398	0.66	7322			13.5	Si
SLU 72	1457	-3941	547	30746		0.35	398	0.6	6717			12.29	Si
SLU 71	1277	-8471	546	145221		0.76	398	0.66	7321			13.4	Si
SLU 71	1457	-3937	550	30670		0.35	398	0.6	6716			12.21	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1277	-5570	-816	-284951		0.5	398	0.93	10401			12.74	Si
SLV 8	1457	-427	-1051	108304		0	0	0.83	0			0	No, $V_u < V$
SLV 14	1277	-5483	2549	345870		0.49	398	0.93	10383			4.07	Si
SLV 14	1457	-3556	1290	-135589		0.32	398	0.9	9998			7.75	Si
SLV 4	1277	-5086	-2800	-304641		0.46	398	0.92	10304			3.68	Si
SLV 4	1457	-1179	-1538	171705		0.26	160.19	0.89	3974			2.58	Si
SLV 13	1277	-5483	2549	345870		0.49	398	0.93	10383			4.07	Si
SLV 13	1457	-3556	1290	-135589		0.32	398	0.9	9998			7.75	Si
SLV 16	1277	-5710	2622	208734		0.51	398	0.94	10429			3.98	Si
SLV 16	1457	-2511	958	-106478		0.23	398	0.88	9789			10.21	Si
SLV 1	1277	-4859	-2873	-167505		0.44	398	0.92	10258			3.57	Si
SLV 1	1457	-2224	-1207	142594		0.2	398	0.87	9731			8.06	Si
SLV 3	1277	-5086	-2800	-304641		0.46	398	0.92	10304			3.68	Si
SLV 3	1457	-1179	-1538	171705		0.26	160.19	0.89	3974			2.58	Si
SLV 15	1277	-5710	2622	208734		0.51	398	0.94	10429			3.98	Si
SLV 15	1457	-2511	958	-106478		0.23	398	0.88	9789			10.21	Si
SLV 2	1277	-4859	-2873	-167505		0.44	398	0.92	10258			3.57	Si
SLV 2	1457	-2224	-1207	142594		0.2	398	0.87	9731			8.06	Si
SLV 7	1277	-5570	-816	-284951		0.5	398	0.93	10401			12.74	Si
SLV 7	1457	-427	-1051	108304		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.53	0.32	-3593	44943	48970	1.09	Si
SLV 7	14	0.53	0.32	-3593	44943	48970	1.09	Si
SLV 11	14	0.53	0.33	-3667	44943	49959	1.11	Si
SLV 12	14	0.53	0.33	-3667	44943	49959	1.11	Si
SLV 3	14	0.53	0.38	-4182	44943	56753	1.26	Si
SLV 4	14	0.53	0.38	-4182	44943	56753	1.26	Si
SLV 15	14	0.53	0.4	-4431	44943	60017	1.34	Si
SLV 16	14	0.53	0.4	-4431	44943	60017	1.34	Si
SLV 2	14	0.53	0.43	-4762	44943	64341	1.43	Si
SLV 1	14	0.53	0.43	-4762	44943	64341	1.43	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 8	153	-7381	291	0	0	0	0	1090.83	No, Trazione
SLV 3	-65	-6073	341	0	6.464	0.99	0	1055.091	No
SLV 7	153	-7381	291	0	0	0	0	1090.83	No, Trazione
SLV 4	-65	-6073	341	0	6.464	0.99	0	1055.091	No
SLV 5	-1862	-4337	376	0	7.487	0.896	0	1090.83	No
SLV 1	-669	-5160	367	0	6.664	0.933	0	1055.091	No
SLV 2	-669	-5160	367	0	6.664	0.933	0	1055.091	No
SLV 6	-1862	-4337	376	0	7.487	0.896	0	1090.83	No
SLV 10	-2281	-4545	359	0.004	7.833	0.892	6.761	1090.83	No
SLV 9	-2281	-4545	359	0.004	7.833	0.892	6.761	1090.83	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	8.716	SLU 37	Si
V SLU	11.202	SLU 29	Si



Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	1.09	SLV 7	Si
R_SLV	0	SLV 8	No

## Maschio 195

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1193.8	666.1	-795.8	666.1	L6	L7	398	28	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 9	1277	-7493	53213	0.67	1368101	25.71	Si
SLU 9	1457	-3855	-47399	0.35	734601	15.498	Si
SLU 38	1277	-7925	64835	0.71	1439446	22.202	Si
SLU 38	1457	-4229	-55888	0.38	802328	14.356	Si
SLU 8	1277	-7495	52774	0.67	1368335	25.928	Si
SLU 8	1457	-3857	-47228	0.35	734857	15.56	Si
SLU 29	1277	-7976	63045	0.72	1447821	22.965	Si
SLU 29	1457	-4280	-56612	0.38	811529	14.335	Si
SLU 30	1277	-7975	63484	0.72	1447590	22.803	Si
SLU 30	1457	-4278	-56783	0.38	811275	14.287	Si
SLU 37	1277	-7927	64397	0.71	1439678	22.356	Si
SLU 37	1457	-4230	-55717	0.38	802581	14.405	Si
SLU 71	1277	-9694	62229	0.87	1723087	27.689	Si
SLU 71	1457	-4926	-53778	0.44	927061	17.239	Si
SLU 17	1277	-7444	54564	0.67	1359852	24.922	Si
SLU 17	1457	-3806	-46504	0.34	725561	15.602	Si
SLU 16	1277	-7445	54125	0.67	1360087	25.128	Si
SLU 16	1457	-3807	-46333	0.34	725818	15.665	Si
SLU 72	1277	-9693	62668	0.87	1722867	27.492	Si
SLU 72	1457	-4924	-53949	0.44	926812	17.179	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 1	1277	-7015	-278195	0.63	1324065	4.759	Si
SLV 1	1457	-3114	125771	0.28	605465	4.814	Si
SLV 16	1277	-5783	302875	0.52	1101922	3.638	Si
SLV 16	1457	-2374	-133177	0.21	464253	3.486	Si
SLV 13	1277	-6756	245592	0.61	1277652	5.202	Si
SLV 13	1457	-2943	-95804	0.26	573081	5.982	Si
SLV 3	1277	-6042	-220912	0.54	1149072	5.201	Si
SLV 3	1457	-2545	88397	0.23	496920	5.621	Si
SLV 12	1277	-4739	186380	0.43	910234	4.884	Si
SLV 12	1457	-1770	-99228	0.16	347649	3.504	Si
SLV 11	1277	-4739	186380	0.43	910234	4.884	Si
SLV 11	1457	-1770	-99228	0.16	347649	3.504	Si
SLV 2	1277	-7015	-278195	0.63	1324065	4.759	Si
SLV 2	1457	-3114	125771	0.28	605465	4.814	Si
SLV 14	1277	-6756	245592	0.61	1277652	5.202	Si
SLV 14	1457	-2943	-95804	0.26	573081	5.982	Si
SLV 4	1277	-6042	-220912	0.54	1149072	5.201	Si
SLV 4	1457	-2545	88397	0.23	496920	5.621	Si
SLV 15	1277	-5783	302875	0.52	1101922	3.638	Si
SLV 15	1457	-2374	-133177	0.21	464253	3.486	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 28	1277	-8945	596	60333		0.8	398	0.66	7384			12.39	Si
SLU 28	1457	-5249	596	-52596		0.47	398	0.62	6891			11.56	Si
SLU 72	1277	-9693	606	62668		0.87	398	0.67	7483			12.35	Si
SLU 72	1457	-4924	606	-53949		0.44	398	0.61	6848			11.3	Si
SLU 30	1277	-7975	637	63484		0.72	398	0.65	7254			11.39	Si
SLU 30	1457	-4278	637	-56783		0.38	398	0.61	6762			10.62	Si
SLU 71	1277	-9694	603	62229		0.87	398	0.67	7484			12.42	Si
SLU 71	1457	-4926	603	-53778		0.44	398	0.61	6848			11.36	Si
SLU 29	1277	-7976	633	63045		0.72	398	0.65	7255			11.45	Si
SLU 29	1457	-4280	633	-56612		0.38	398	0.61	6762			10.67	Si
SLU 79	1277	-9644	605	63581		0.87	398	0.67	7477			12.36	Si
SLU 79	1457	-4876	605	-52883		0.44	398	0.61	6841			11.31	Si
SLU 37	1277	-7927	636	64397		0.71	398	0.65	7248			11.4	Si
SLU 37	1457	-4230	636	-55717		0.38	398	0.61	6755			10.62	Si
SLU 38	1277	-7925	639	64835		0.71	398	0.65	7248			11.34	Si
SLU 38	1457	-4229	639	-55888		0.38	398	0.61	6755			10.56	Si
SLU 36	1277	-8896	599	61685		0.8	398	0.66	7377			12.32	Si
SLU 36	1457	-5199	599	-51701		0.47	398	0.62	6884			11.5	Si
SLU 80	1277	-9643	608	64019		0.87	398	0.67	7477			12.29	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	1457	-4875	608	-53054		0.44	398	0.61	6841			11.24	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	1277	-6756	2613	245592		0.61	398	0.95	10638			4.07	Si
SLV 13	1457	-2943	1738	-95804		0.26	398	0.89	9875			5.68	Si
SLV 15	1277	-5783	3123	302875		0.52	398	0.94	10443			3.34	Si
SLV 15	1457	-2374	2327	-133177		0.21	398	0.88	9762			4.2	Si
SLV 1	1277	-7015	-3010	-278195		0.63	398	0.96	10690			3.55	Si
SLV 1	1457	-3114	-2214	125771		0.28	398	0.89	9909			4.48	Si
SLV 11	1277	-4739	1750	186380		0.43	398	0.92	10234			5.85	Si
SLV 11	1457	-1770	1631	-99228		0.16	398	0.87	9641			5.91	Si
SLV 3	1277	-6042	-2500	-220912		0.54	398	0.94	10495			4.2	Si
SLV 3	1457	-2545	-1625	88397		0.23	398	0.88	9796			6.03	Si
SLV 12	1277	-4739	1750	186380		0.43	398	0.92	10234			5.85	Si
SLV 12	1457	-1770	1631	-99228		0.16	398	0.87	9641			5.91	Si
SLV 14	1277	-6756	2613	245592		0.61	398	0.95	10638			4.07	Si
SLV 14	1457	-2943	1738	-95804		0.26	398	0.89	9875			5.68	Si
SLV 4	1277	-6042	-2500	-220912		0.54	398	0.94	10495			4.2	Si
SLV 4	1457	-2545	-1625	88397		0.23	398	0.88	9796			6.03	Si
SLV 16	1277	-5783	3123	302875		0.52	398	0.94	10443			3.34	Si
SLV 16	1457	-2374	2327	-133177		0.21	398	0.88	9762			4.2	Si
SLV 2	1277	-7015	-3010	-278195		0.63	398	0.96	10690			3.55	Si
SLV 2	1457	-3114	-2214	125771		0.28	398	0.89	9909			4.48	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345  $W_a$  0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.53	0.33	-3687	44943	50227	1.12	Si
SLV 11	14	0.53	0.33	-3687	44943	50227	1.12	Si
SLV 7	14	0.53	0.33	-3724	44943	50710	1.13	Si
SLV 8	14	0.53	0.33	-3724	44943	50710	1.13	Si
SLV 15	14	0.53	0.41	-4532	44943	61337	1.36	Si
SLV 16	14	0.53	0.41	-4532	44943	61337	1.36	Si
SLV 3	14	0.53	0.42	-4654	44943	62927	1.4	Si
SLV 4	14	0.53	0.42	-4654	44943	62927	1.4	Si
SLV 13	14	0.53	0.47	-5293	44943	71215	1.58	Si
SLV 14	14	0.53	0.47	-5293	44943	71215	1.58	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-2319	-8145	714	0	7.866	0.891	0	1090.83	No
SLV 8	-803	-5790	-630	0	6.737	0.925	0	1090.83	No
SLV 9	-2288	-8440	716	0	7.839	0.891	0	1090.83	No
SLV 12	-772	-6085	-627	0	6.719	0.927	0	1090.83	No
SLV 10	-2288	-8440	716	0	7.839	0.891	0	1090.83	No
SLV 6	-2319	-8145	714	0	7.866	0.891	0	1090.83	No
SLV 11	-772	-6085	-627	0	6.719	0.927	0	1090.83	No
SLV 7	-803	-5790	-630	0	6.737	0.925	0	1090.83	No
SLV 13	-1721	-7959	249	0.022	7.375	0.898	35.67	1055.091	No
SLV 14	-1721	-7959	249	0.022	7.375	0.898	35.67	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	14.287	SLU 30	Si
V_SLU	10.565	SLU 38	Si
PF_SLV	3.486	SLV 15	Si
V_SLV	3.344	SLV 15	Si
PFFP_SLV	1.118	SLV 11	Si
R_SLV	0	SLV 5	No

## Maschio 196

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-705.8	666.1	-501.8	666.1	L6	L7	204	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 55	1277	-1729	-16527	0.3	169784	10.273	Si
SLU 55	1457	962	-333448	0	0	0	No, Trazione
SLU 61	1277	-2599	3449	0.45	250247	72.555	Si
SLU 61	1457	92	-199946	0	0	0	No, Trazione
SLU 56	1277	-1535	-32697	0.27	151412	4.631	Si
SLU 56	1457	1156	-457573	0	0	0	No, Trazione
SLU 57	1277	-1509	-32831	0.26	148967	4.537	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 57	1457	1181	-459644	0	0	0	No, Trazione
SLU 60	1277	-2624	3583	0.46	252570	70.485	Si
SLU 60	1457	67	-197875	0	0	0	No, Trazione
SLU 58	1277	-865	-31180	0.15	86582	2.777	Si
SLU 58	1457	1826	-467964	0	0	0	No, Trazione
SLU 53	1277	-2442	-17820	0.43	235983	13.243	Si
SLU 53	1457	249	-319606	0	0	0	No, Trazione
SLU 59	1277	-839	-31314	0.15	84062	2.684	Si
SLU 59	1457	1851	-470035	0	0	0	No, Trazione
SLU 1	1277	-2065	-9387	0.36	201258	21.441	Si
SLU 1	1457	13	-155937	0	0	0	No, Trazione
SLU 54	1277	-2416	-17954	0.42	233640	13.013	Si
SLU 54	1457	275	-321677	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	1277	-1871	36968	0.33	185687	5.023	Si
SLV 14	1457	579	-252527	0	0	0	No, Trazione
SLV 7	1277	-3080	138388	0.54	300304	2.17	Si
SLV 7	1457	1106	-227349	0	0	0	No, Trazione
SLV 10	1277	-778	-148962	0	0	0	No, $e \geq l/2$
SLV 10	1457	-793	-132863	0	0	0	No, $e \geq l/2$
SLV 12	1277	-3269	194668	0.57	317858	1.633	Si
SLV 12	1457	1572	-284444	0	0	0	No, Trazione
SLD 1	1277	-1638	-67032	0.29	163155	2.434	Si
SLD 1	1457	-324	-129615	0	0	0	No, $e \geq l/2$
SLV 9	1277	-778	-148962	0	0	0	No, $e \geq l/2$
SLV 9	1457	-793	-132863	0	0	0	No, $e \geq l/2$
SLV 13	1277	-1871	36968	0.33	185687	5.023	Si
SLV 13	1457	579	-252527	0	0	0	No, Trazione
SLV 6	1277	-588	-205242	0	0	0	No, $e \geq l/2$
SLV 6	1457	-1259	-75768	0.22	126099	1.664	Si
SLV 11	1277	-3269	194668	0.57	317858	1.633	Si
SLV 11	1457	1572	-284444	0	0	0	No, Trazione
SLV 8	1277	-3080	138388	0.54	300304	2.17	Si
SLV 8	1457	1106	-227349	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 53	1277	-2442	1664	-17820	0.43	204	0.61	3499				2.1	Si
SLU 53	1457	249	1664	-319606	0	0	0.56	0				0	No, Vu<V
SLU 61	1277	-2599	1117	3449	0.45	204	0.62	3520				3.15	Si
SLU 61	1457	92	1117	-199946	0	0	0.56	0				0	No, Vu<V
SLU 56	1277	-1535	2348	-32697	0.27	204	0.59	3378				1.44	Si
SLU 56	1457	1156	2348	-457573	0	0	0.56	0				0	No, Vu<V
SLU 54	1277	-2416	1675	-17954	0.42	204	0.61	3495				2.09	Si
SLU 54	1457	275	1675	-321677	0	0	0.56	0				0	No, Vu<V
SLU 57	1277	-1509	2359	-32831	0.26	204	0.59	3375				1.43	Si
SLU 57	1457	1181	2359	-459644	0	0	0.56	0				0	No, Vu<V
SLU 1	1277	-2065	804	-9387	0.36	204	0.6	3449				4.29	Si
SLU 1	1457	13	804	-155937	0	0	0.56	0				0	No, Vu<V
SLU 60	1277	-2624	1107	3583	0.46	204	0.62	3523				3.18	Si
SLU 60	1457	67	1107	-197875	0	0	0.56	0				0	No, Vu<V
SLU 58	1277	-865	2414	-31180	0.16	197.85	0.58	3193				1.32	Si
SLU 58	1457	1826	2414	-467964	0	0	0.56	0				0	No, Vu<V
SLU 59	1277	-839	2425	-31314	0.15	194.07	0.58	3131				1.29	Si
SLU 59	1457	1851	2425	-470035	0	0	0.56	0				0	No, Vu<V
SLU 55	1277	-1729	1748	-16527	0.3	204	0.6	3404				1.95	Si
SLU 55	1457	962	1748	-333448	0	0	0.56	0				0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	1277	-778	1141	-148962	0	0	0.83	0				0	No, Vu<V
SLV 10	1457	-793	172	-132863	0	0	0.83	0				0	No, Vu<V
SLV 13	1277	-1871	1765	36968	0.33	204	0.9	5134				2.91	Si
SLV 13	1457	579	1334	-252527	0	0	0.83	0				0	No, Vu<V
SLV 14	1277	-1871	1765	36968	0.33	204	0.9	5134				2.91	Si
SLV 14	1457	579	1334	-252527	0	0	0.83	0				0	No, Vu<V
SLV 9	1277	-778	1141	-148962	0	0	0.83	0				0	No, Vu<V
SLV 9	1457	-793	172	-132863	0	0	0.83	0				0	No, Vu<V
SLV 7	1277	-3080	782	138388	0.64	171.21	0.96	4611				5.89	Si
SLV 7	1457	1106	1751	-227349	0	0	0.83	0				0	No, Vu<V
SLV 6	1277	-588	646	-205242	0	0	0.83	0				0	No, Vu<V
SLV 6	1457	-1259	-229	-75768	0.36	125.45	0.91	3179				13.86	Si
SLV 11	1277	-3269	1277	194668	0.92	127.37	1.02	3626				2.84	Si
SLV 11	1457	1572	2152	-284444	0	0	0.83	0				0	No, Vu<V
SLD 1	1277	-1638	595	-67032	0.32	183.23	0.9	4603				7.74	Si
SLD 1	1457	-324	553	-129615	0	0	0.83	0				0	No, Vu<V
SLV 12	1277	-3269	1277	194668	0.92	127.37	1.02	3626				2.84	Si
SLV 12	1457	1572	2152	-284444	0	0	0.83	0				0	No, Vu<V
SLV 8	1277	-3080	782	138388	0.64	171.21	0.96	4611				5.89	Si
SLV 8	1457	1106	1751	-227349	0	0	0.83	0				0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.53	0	-1291	23036	0	0	No, $e \geq t/2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.53	0	-700	23036	0	0	No, $e > t/2$
SLV 9	14	0.53	0	-86	23036	0	0	No, $e > t/2$
SLV 10	14	0.53	0	-86	23036	0	0	No, $e > t/2$
SLV 13	14	0.53	0	-817	23036	0	0	No, $e > t/2$
SLV 6	14	0.53	0	-51	23036	0	0	No, $e > t/2$
SLV 4	14	0.53	0	-1291	23036	0	0	No, $e > t/2$
SLV 5	14	0.53	0	-51	23036	0	0	No, $e > t/2$
SLV 14	14	0.53	0	-817	23036	0	0	No, $e > t/2$
SLV 2	14	0.53	0	-700	23036	0	0	No, $e > t/2$

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 13	1943	-3552	-125	0	0	0	0	1055.091	No, Trazione
SLV 5	2206	-889	-27	0	0	0	0	1090.83	No, Trazione
SLV 1	597	-1515	64	0	0	0	0	1055.091	No, Trazione
SLV 10	2610	-1500	-84	0	0	0	0	1090.83	No, Trazione
SLV 2	597	-1515	64	0	0	0	0	1055.091	No, Trazione
SLV 14	1943	-3552	-125	0	0	0	0	1055.091	No, Trazione
SLV 15	967	-4700	-105	0	0	0	0	1055.091	No, Trazione
SLV 16	967	-4700	-105	0	0	0	0	1055.091	No, Trazione
SLV 6	2206	-889	-27	0	0	0	0	1090.83	No, Trazione
SLV 9	2610	-1500	-84	0	0	0	0	1090.83	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 197

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-2066.8	104.6	-2452.8	104.6	L6	L7	386	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 31	1187	-10279	581468	0.95	1752218	3.013	Si
SLU 31	1397	-5996	-218310	0.55	1078353	4.94	Si
SLU 41	1187	-10885	661844	1.01	1841123	2.782	Si
SLU 41	1397	-6602	-303911	0.61	1178646	3.878	Si
SLU 8	1187	-10414	212318	0.96	1772139	8.347	Si
SLU 8	1397	-6252	-385376	0.58	1120887	2.909	Si
SLU 42	1187	-10901	645159	1.01	1843422	2.857	Si
SLU 42	1397	-6618	-309424	0.61	1181243	3.818	Si
SLU 30	1187	-11261	347903	1.04	1895417	5.448	Si
SLU 30	1397	-6978	-428830	0.65	1239998	2.892	Si
SLU 81	1187	-12813	718389	1.19	2112966	2.941	Si
SLU 81	1397	-7322	-245765	0.68	1295648	5.272	Si
SLU 39	1187	-10316	690005	0.95	1757624	2.547	Si
SLU 39	1397	-6032	-203442	0.56	1084445	5.33	Si
SLU 40	1187	-10331	673320	0.96	1759963	2.614	Si
SLU 40	1397	-6048	-208954	0.56	1087082	5.202	Si
SLU 29	1187	-11245	364588	1.04	1893142	5.193	Si
SLU 29	1397	-6962	-423318	0.64	1237427	2.923	Si
SLU 9	1187	-10430	195633	0.96	1774471	9.07	Si
SLU 9	1397	-6267	-390889	0.58	1123508	2.874	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	1187	-10743	548416	0.99	1904731	3.473	Si
SLD 1	1397	-6488	-352697	0.6	1190748	3.376	Si
SLV 2	1187	-12356	796191	1.14	2161647	2.715	Si
SLV 2	1397	-8024	-571290	0.74	1454621	2.546	Si
SLV 1	1187	-12356	796191	1.14	2161647	2.715	Si
SLV 1	1397	-8024	-571290	0.74	1454621	2.546	Si
SLV 6	1187	-11016	655518	1.02	1948810	2.973	Si
SLV 6	1397	-6830	-388401	0.63	1250084	3.219	Si
SLD 2	1187	-10743	548416	0.99	1904731	3.473	Si
SLD 2	1397	-6488	-352697	0.6	1190748	3.376	Si
SLV 5	1187	-11016	655518	1.02	1948810	2.973	Si
SLV 5	1397	-6830	-388401	0.63	1250084	3.219	Si
SLV 4	1187	-11946	690376	1.11	2097068	3.038	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	1397	-7581	-516584	0.7	1379071	2.67	Si
SLV 16	1187	-6751	-64263	0.62	1236338	19.239	Si
SLV 16	1397	-2689	188310	0.25	508449	2.7	Si
SLV 15	1187	-6751	-64263	0.62	1236338	19.239	Si
SLV 15	1397	-2689	188310	0.25	508449	2.7	Si
SLV 3	1187	-11946	690376	1.11	2097068	3.038	Si
SLV 3	1397	-7581	-516584	0.7	1379071	2.67	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	1187	-10885	4585	661844		1.01	386	0.69	7456			1.63	Si
SLU 41	1397	-6602	4585	-303911		0.61	386	0.64	6885			1.5	Si
SLU 80	1187	-13905	4851	564654		1.29	386	0.73	7858			1.62	Si
SLU 80	1397	-8415	4851	-457897		0.78	386	0.66	7126			1.47	Si
SLU 81	1187	-12813	4573	718389		1.19	386	0.71	7713			1.69	Si
SLU 81	1397	-7322	4573	-245765		0.68	386	0.65	6981			1.53	Si
SLU 78	1187	-15240	4926	589025		1.41	386	0.74	8036			1.63	Si
SLU 78	1397	-9750	4926	-449183		0.9	386	0.68	7304			1.48	Si
SLU 77	1187	-15224	4979	605710		1.41	386	0.74	8034			1.61	Si
SLU 77	1397	-9734	4979	-443671		0.9	386	0.68	7302			1.47	Si
SLU 83	1187	-13383	4917	690229		1.24	386	0.72	7789			1.58	Si
SLU 83	1397	-7892	4917	-346234		0.73	386	0.65	7057			1.44	Si
SLU 42	1187	-10901	4532	645159		1.01	386	0.69	7458			1.65	Si
SLU 42	1397	-6618	4532	-309424		0.61	386	0.64	6887			1.52	Si
SLU 79	1187	-13889	4904	581339		1.29	386	0.73	7856			1.6	Si
SLU 79	1397	-8399	4904	-452385		0.78	386	0.66	7124			1.45	Si
SLU 37	1187	-11392	4572	552955		1.05	386	0.7	7523			1.65	Si
SLU 37	1397	-7109	4572	-410062		0.66	386	0.64	6952			1.52	Si
SLU 84	1187	-13398	4864	673544		1.24	386	0.72	7791			1.6	Si
SLU 84	1397	-7908	4864	-351746		0.73	386	0.65	7059			1.45	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	1187	-11016	4766	655518		1.02	386	1.04	11210			2.35	Si
SLV 5	1397	-6830	4705	-388401		0.63	386	0.96	10373			2.2	Si
SLD 1	1187	-10743	3955	548416		0.99	386	1.03	11155			2.82	Si
SLD 1	1397	-6488	4036	-352697		0.6	386	0.95	10304			2.55	Si
SLV 2	1187	-12356	5750	796191		1.14	385.69	1.06	11471			1.99	Si
SLV 2	1397	-8024	5937	-571290		0.78	365.42	0.99	10131			1.71	Si
SLD 3	1187	-10574	3627	503888		0.98	386	1.03	11121			3.07	Si
SLD 3	1397	-6306	3742	-330508		0.58	386	0.95	10268			2.74	Si
SLD 4	1187	-10574	3627	503888		0.98	386	1.03	11121			3.07	Si
SLD 4	1397	-6306	3742	-330508		0.58	386	0.95	10268			2.74	Si
SLV 4	1187	-11946	4963	690376		1.11	386	1.05	11396			2.3	Si
SLV 4	1397	-7581	5228	-516584		0.72	374.56	0.98	10256			1.96	Si
SLV 6	1187	-11016	4766	655518		1.02	386	1.04	11210			2.35	Si
SLV 6	1397	-6830	4705	-388401		0.63	386	0.96	10373			2.2	Si
SLV 1	1187	-12356	5750	796191		1.14	385.69	1.06	11471			1.99	Si
SLV 1	1397	-8024	5937	-571290		0.78	365.42	0.99	10131			1.71	Si
SLD 2	1187	-10743	3955	548416		0.99	386	1.03	11155			2.82	Si
SLD 2	1397	-6488	4036	-352697		0.6	386	0.95	10304			2.55	Si
SLV 3	1187	-11946	4963	690376		1.11	386	1.05	11396			2.3	Si
SLV 3	1397	-7581	5228	-516584		0.72	374.56	0.98	10256			1.96	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345  $W_a 0.05$  denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.53	0.34	-3669	44602	49938	1.12	Si
SLV 16	14	0.53	0.34	-3669	44602	49938	1.12	Si
SLV 13	14	0.53	0.38	-4092	44602	55513	1.24	Si
SLV 14	14	0.53	0.38	-4092	44602	55513	1.24	Si
SLV 12	14	0.53	0.46	-4939	44602	66562	1.49	Si
SLV 11	14	0.53	0.46	-4939	44602	66562	1.49	Si
SLV 10	14	0.53	0.59	-6350	44602	84620	1.9	Si
SLV 9	14	0.53	0.59	-6350	44602	84620	1.9	Si
SLV 8	14	0.53	0.6	-6451	44602	85903	1.93	Si
SLV 7	14	0.53	0.6	-6451	44602	85903	1.93	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 9	-1627	-9458	321	0.005	7.12	0.898	8.216	1090.83	No
SLV 10	-1627	-9458	321	0.005	7.12	0.898	8.216	1090.83	No
SLV 8	-1643	-9650	-320	0.005	7.132	0.898	8.686	1090.83	No
SLV 7	-1643	-9650	-320	0.005	7.132	0.898	8.686	1090.83	No
SLV 11	-1533	-8091	-261	0.017	7.047	0.9	27.799	1090.83	No
SLV 12	-1533	-8091	-261	0.017	7.047	0.9	27.799	1090.83	No
SLV 5	-1737	-11016	262	0.018	7.206	0.897	29.52	1090.83	No
SLV 6	-1737	-11016	262	0.018	7.206	0.897	29.52	1090.83	No
SLV 13	-1466	-7161	186	0.033	6.996	0.901	53.834	1055.091	No
SLV 14	-1466	-7161	186	0.033	6.996	0.901	53.834	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	2.547	SLU 39	Si
V SLU	1.435	SLU 83	Si
PF SLV	2.546	SLV 1	Si



Stato limite	Coeff.s.	Comb.	Verifica
V_SLV	1.707	SLV 1	Si
PFFP_SLV	1.12	SLV 15	Si
R_SLV	0.008	SLV 9	No

## Maschio 198

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1228.3	104.6	-1986.8	104.6	L6	L7	758.5	28	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	1187	-32381	-973726	1.52	9981949	10.251	Si
SLU 81	1437	-25140	-813705	1.18	8148836	10.014	Si
SLU 32	1187	-32525	-1016665	1.53	10015993	9.852	Si
SLU 32	1437	-28140	-585201	1.33	8936319	15.271	Si
SLU 24	1187	-33875	-1009326	1.59	10331432	10.236	Si
SLU 24	1437	-28405	-537504	1.34	9003769	16.751	Si
SLU 35	1187	-36841	-1106807	1.73	10996571	9.935	Si
SLU 35	1437	-33199	-386078	1.56	10174597	26.354	Si
SLU 41	1187	-29808	-935350	1.4	9356864	10.004	Si
SLU 41	1437	-25701	-456411	1.21	8299112	18.183	Si
SLU 39	1187	-25492	-845209	1.2	8243196	9.753	Si
SLU 39	1437	-20642	-655533	0.97	6894534	10.517	Si
SLU 77	1187	-43730	-1235325	2.06	12392517	10.032	Si
SLU 77	1437	-37697	-544250	1.77	11181295	20.544	Si
SLU 18	1187	-23412	-655587	1.1	7677557	11.711	Si
SLU 18	1437	-17829	-627460	0.84	6064911	9.666	Si
SLU 74	1187	-39414	-1145183	1.86	11542311	10.079	Si
SLU 74	1437	-32638	-743373	1.54	10042768	13.51	Si
SLU 60	1187	-30302	-784105	1.43	9479114	12.089	Si
SLU 60	1437	-22327	-785632	1.05	7374684	9.387	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 3	1187	-28881	-968722	1.36	9733961	10.048	Si
SLV 3	1437	-25030	-3488428	1.18	8577087	2.459	Si
SLV 2	1187	-29821	-1403389	1.4	10009877	7.133	Si
SLV 2	1437	-23651	-3360355	1.11	8152160	2.426	Si
SLV 4	1187	-28881	-968722	1.36	9733961	10.048	Si
SLV 4	1437	-25030	-3488428	1.18	8577087	2.459	Si
SLV 16	1187	-21278	634	1	7407901	1000	Si
SLV 16	1437	-14219	2198414	0.67	5097084	2.319	Si
SLV 13	1187	-22218	-434033	1.05	7704711	17.751	Si
SLV 13	1437	-12840	2326486	0.6	4628575	1.99	Si
SLV 1	1187	-29821	-1403389	1.4	10009877	7.133	Si
SLV 1	1437	-23651	-3360355	1.11	8152160	2.426	Si
SLD 4	1187	-26992	-818345	1.27	9171803	11.208	Si
SLD 4	1437	-21548	-1824578	1.01	7493502	4.107	Si
SLD 3	1187	-26992	-818345	1.27	9171803	11.208	Si
SLD 3	1437	-21548	-1824578	1.01	7493502	4.107	Si
SLV 14	1187	-22218	-434033	1.05	7704711	17.751	Si
SLV 14	1437	-12840	2326486	0.6	4628575	1.99	Si
SLV 15	1187	-21278	634	1	7407901	1000	Si
SLV 15	1437	-14219	2198414	0.67	5097084	2.319	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	1187	-33231	710	-830806		1.56	758.5	0.76	16230			22.85	Si
SLU 73	1437	-25400	1572	-680838		1.2	758.5	0.72	15186			9.66	Si
SLU 82	1187	-32544	960	-889861		1.53	758.5	0.76	16138			16.8	Si
SLU 82	1437	-25228	1948	-746250		1.19	758.5	0.71	15163			7.78	Si
SLU 19	1187	-23575	979	-571722		1.11	758.5	0.7	14942			15.26	Si
SLU 19	1437	-17918	1713	-560005		0.84	758.5	0.67	14188			8.28	Si
SLU 60	1187	-30302	1091	-784105		1.43	758.5	0.75	15839			14.52	Si
SLU 60	1437	-22327	1902	-785632		1.05	758.5	0.7	14776			7.77	Si
SLU 52	1187	-31152	826	-641184		1.47	758.5	0.75	15952			19.31	Si
SLU 52	1437	-22587	1484	-652765		1.06	758.5	0.7	14811			9.98	Si
SLU 81	1187	-32381	975	-973726		1.52	758.5	0.76	16116			16.53	Si
SLU 81	1437	-25140	1989	-813705		1.18	758.5	0.71	15151			7.62	Si
SLU 61	1187	-30465	1076	-700240		1.43	758.5	0.75	15861			14.74	Si
SLU 61	1437	-22415	1860	-718176		1.06	758.5	0.7	14788			7.95	Si
SLU 18	1187	-23412	994	-655587		1.1	758.5	0.7	14921			15.02	Si
SLU 18	1437	-17829	1754	-627460		0.84	758.5	0.67	14176			8.08	Si
SLU 40	1187	-25655	863	-761343		1.21	758.5	0.72	15220			17.63	Si
SLU 40	1437	-20731	1800	-588078		0.98	758.5	0.69	14563			8.09	Si
SLU 39	1187	-25492	878	-845209		1.2	758.5	0.72	15198			17.31	Si
SLU 39	1437	-20642	1842	-655533		0.97	758.5	0.69	14551			7.9	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1187	-25123	10203	-122336		1.18	758.5	1.07	22723			2.23	Si
SLV 8	1437	-22855	8704	-1647451		1.08	758.5	1.05	22269			2.56	Si
SLV 4	1187	-28881	15092	-968722		1.36	758.5	1.11	23474			1.56	Si
SLV 4	1437	-25030	11403	-3488428		1.24	719.64	1.08	21798			1.91	Si
SLV 16	1187	-21278	-10859	634		1	758.5	1.03	21954			2.02	Si
SLV 16	1437	-14219	-6612	2198414		0.75	673.92	0.98	18569			2.81	Si
SLV 15	1187	-21278	-10859	634		1	758.5	1.03	21954			2.02	Si
SLV 15	1437	-14219	-6612	2198414		0.75	673.92	0.98	18569			2.81	Si
SLV 2	1187	-29821	11498	-1403389		1.4	758.5	1.11	23662			2.06	Si
SLV 2	1437	-23651	8312	-3360355		1.19	711.51	1.07	21332			2.57	Si
SLV 14	1187	-22218	-14454	-434033		1.05	758.5	1.04	22142			1.53	Si
SLV 14	1437	-12840	-9703	2326486		0.77	594.17	0.99	16432			1.69	Si
SLV 13	1187	-22218	-14454	-434033		1.05	758.5	1.04	22142			1.53	Si
SLV 13	1437	-12840	-9703	2326486		0.77	594.17	0.99	16432			1.69	Si
SLV 7	1187	-25123	10203	-122336		1.18	758.5	1.07	22723			2.23	Si
SLV 7	1437	-22855	8704	-1647451		1.08	758.5	1.05	22269			2.56	Si
SLV 3	1187	-28881	15092	-968722		1.36	758.5	1.11	23474			1.56	Si
SLV 3	1437	-25030	11403	-3488428		1.24	719.64	1.08	21798			1.91	Si
SLV 1	1187	-29821	11498	-1403389		1.4	758.5	1.11	23662			2.06	Si
SLV 1	1437	-23651	8312	-3360355		1.19	711.51	1.07	21332			2.57	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	14	0.53	0.78	-16505	87644	216377	2.47	Si
SLV 14	14	0.53	0.78	-16505	87644	216377	2.47	Si
SLV 15	14	0.53	0.84	-17756	87644	231570	2.64	Si
SLV 16	14	0.53	0.84	-17756	87644	231570	2.64	Si
SLV 9	14	0.53	0.86	-18193	87644	236841	2.7	Si
SLV 10	14	0.53	0.86	-18193	87644	236841	2.7	Si
SLV 6	14	0.53	0.98	-20889	87644	268907	3.07	Si
SLV 5	14	0.53	0.98	-20889	87644	268907	3.07	Si
SLV 11	14	0.53	1.05	-22360	87644	286069	3.26	Si
SLV 12	14	0.53	1.05	-22360	87644	286069	3.26	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-16714	-22842	969	0.013	26.745	0.911	21.507	1090.83	No
SLV 11	-16714	-22842	969	0.013	26.745	0.911	21.507	1090.83	No
SLV 7	-18272	-25123	956	0.016	28.298	0.915	25.432	1090.83	No
SLV 8	-18272	-25123	956	0.016	28.298	0.915	25.432	1090.83	No
SLV 9	-12840	-25976	-747	0.019	22.91	0.902	30.483	1090.83	No
SLV 10	-12840	-25976	-747	0.019	22.91	0.902	30.483	1090.83	No
SLV 6	-14397	-28257	-760	0.02	24.446	0.906	32.416	1090.83	No
SLV 5	-14397	-28257	-760	0.02	24.446	0.906	32.416	1090.83	No
SLV 15	-13541	-21278	384	0.038	23.6	0.904	61.706	1055.091	No
SLV 16	-13541	-21278	384	0.038	23.6	0.904	61.706	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.387	SLU 60	Si
V_SLU	7.616	SLU 81	Si
PF_SLV	1.99	SLV 13	Si
V_SLV	1.532	SLV 13	Si
PFFP_SLV	2.469	SLV 13	Si
R_SLV	0.02	SLV 11	No

## Maschio 199

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1046.6	104.6	-1116.3	104.6	L6	L7	69.6	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 36	1187	-3261	23213	1.67	90223	3.887	Si
SLU 36	1437	-6925	293	2.93	127405	18.398	Si
SLU 32	1187	-2929	20518	1.5	83180	4.054	Si
SLU 32	1437	-4881	-5071	2.5	117716	23.216	Si
SLU 41	1187	-2539	24002	1.3	74275	3.095	Si
SLU 41	1437	-4422	-7365	2.27	111101	15.085	Si
SLU 39	1187	-2199	19956	1.13	65974	3.306	Si
SLU 39	1437	-3535	-4387	1.81	95690	21.811	Si
SLU 34	1187	-2648	19242	1.36	76820	3.992	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 34	1437	-4421	-4652	2.27	111085	23.88	Si
SLU 35	1187	-3269	24564	1.68	90394	3.68	Si
SLU 35	1437	-5768	-8048	2.96	127895	15.891	Si
SLU 40	1187	-2191	18605	1.12	65763	3.535	Si
SLU 40	1437	-3484	-3264	1.79	94704	29.019	Si
SLU 42	1187	-2531	22651	1.3	74077	3.27	Si
SLU 42	1437	-4371	-6241	2.24	110312	17.674	Si
SLU 38	1187	-2993	24188	1.54	84574	3.496	Si
SLU 38	1437	-5342	-8379	2.74	123439	14.732	Si
SLU 37	1187	-3001	25540	1.54	84756	3.319	Si
SLU 37	1437	-5393	-9502	2.77	124012	13.051	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	1187	-1591	67660	0	0	0	No, $e \geq l/2$
SLV 6	1437	-6060	-63751	3.11	157328	2.468	Si
SLV 12	1187	-3401	-55816	1.74	101516	1.819	Si
SLV 12	1437	-620	68086	0	0	0	No, $e \geq l/2$
SLV 4	1187	-1908	189842	0	0	0	No, $e \geq l/2$
SLV 4	1437	-1401	-142906	0	0	0	No, $e \geq l/2$
SLV 8	1187	-2928	55619	1.5	89412	1.608	Si
SLV 8	1437	-2	-22657	0	0	0	No, $e \geq l/2$
SLV 7	1187	-2928	55619	1.5	89412	1.608	Si
SLV 7	1437	-2	-22657	0	0	0	No, $e \geq l/2$
SLV 5	1187	-1591	67660	0	0	0	No, $e \geq l/2$
SLV 5	1437	-6060	-63751	3.11	157328	2.468	Si
SLV 14	1187	-3085	-177998	0	0	0	No, $e \geq l/2$
SLV 14	1437	-5279	147241	2.71	143075	0.972	No, $M > M_u$
SLV 11	1187	-3401	-55816	1.74	101516	1.819	Si
SLV 11	1437	-620	68086	0	0	0	No, $e \geq l/2$
SLV 13	1187	-3085	-177998	0	0	0	No, $e \geq l/2$
SLV 13	1437	-5279	147241	2.71	143075	0.972	No, $M > M_u$
SLD 1	1187	-2074	86143	0	0	0	No, $e \geq l/2$
SLD 1	1437	-3283	-65302	1.68	98557	1.509	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 80	1187	-3748	389	21056		1.92	69.64	0.81	1583			4.06	Si
SLU 80	1437	-6110	365	-4973		3.13	69.64	0.97	1898			5.19	Si
SLU 42	1187	-2531	344	22651		1.3	69.64	0.73	1421			4.13	Si
SLU 42	1437	-4371	314	-6241		2.24	69.64	0.85	1666			5.3	Si
SLU 36	1187	-3261	392	23213		1.67	69.64	0.78	1518			3.87	Si
SLU 36	1437	-5717	369	-6925		2.93	69.64	0.95	1845			5	Si
SLU 77	1187	-4024	401	21432		2.06	69.64	0.83	1620			4.04	Si
SLU 77	1437	-6535	377	-4642		3.35	69.64	1	1955			5.18	Si
SLU 41	1187	-2539	358	24002		1.3	69.64	0.73	1422			3.98	Si
SLU 41	1437	-4422	328	-7365		2.27	69.64	0.86	1673			5.11	Si
SLU 37	1187	-3001	408	25540		1.54	69.64	0.76	1483			3.64	Si
SLU 37	1437	-5393	384	-9502		2.77	69.64	0.92	1802			4.7	Si
SLU 35	1187	-3269	406	24564		1.68	69.64	0.78	1519			3.74	Si
SLU 35	1437	-5768	382	-8048		2.96	69.64	0.95	1852			4.84	Si
SLU 79	1187	-3757	403	22407		1.93	69.64	0.81	1584			3.93	Si
SLU 79	1437	-6160	378	-6096		3.16	69.64	0.98	1905			5.03	Si
SLU 78	1187	-4016	388	20080		2.06	69.64	0.83	1619			4.18	Si
SLU 78	1437	-6485	364	-3519		3.33	69.64	1	1948			5.35	Si
SLU 38	1187	-2993	394	24188		1.54	69.64	0.76	1482			3.76	Si
SLU 38	1437	-5342	371	-8379		2.74	69.64	0.92	1795			4.85	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1187	-2928	300	55619		2.2	47.46	1.27	1693			5.64	Si
SLV 8	1437	-2	49	-22657		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1187	-3401	-744	-55816		2.2	55.22	1.27	1969			2.65	Si
SLV 12	1437	-620	-598	68086		0	0	0.83	0			0	No, $V_u < V$
SLD 1	1187	-2074	942	86143		0	0	0.83	0			0	No, $V_u < V$
SLD 1	1437	-3283	663	-65302		2.62	44.78	1.36	1702			2.57	Si
SLV 13	1187	-3085	-1473	-177998		0	0	0.83	0			0	No, $V_u < V$
SLV 13	1437	-5279	-808	147241		9.07	20.78	1.63	945			1.17	Si
SLV 5	1187	-1591	1052	67660		0	0	0.83	0			0	No, $V_u < V$
SLV 5	1437	-6060	889	-63751		3.11	69.64	1.45	2837			3.19	Si
SLV 7	1187	-2928	300	55619		2.2	47.46	1.27	1693			5.64	Si
SLV 7	1437	-2	49	-22657		0	0	0.83	0			0	No, $V_u < V$
SLV 4	1187	-1908	1782	189842		0	0	0.83	0			0	No, $V_u < V$
SLV 4	1437	-1401	1098	-142906		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1187	-1591	1052	67660		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1437	-6060	889	-63751		3.11	69.64	1.45	2837			3.19	Si
SLV 14	1187	-3085	-1473	-177998		0	0	0.83	0			0	No, $V_u < V$
SLV 14	1437	-5279	-808	147241		9.07	20.78	1.63	945			1.17	Si
SLV 11	1187	-3401	-744	-55816		2.2	55.22	1.27	1969			2.65	Si
SLV 11	1437	-620	-598	68086		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.53	0.39	-763	8046	10334	1.28	Si
SLV 7	14	0.53	0.39	-763	8046	10334	1.28	Si
SLV 12	14	0.53	0.63	-1224	8046	16252	2.02	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.53	0.63	-1224	8046	16252	2.02	Si
SLV 3	14	0.53	0.77	-1507	8046	19758	2.46	Si
SLV 4	14	0.53	0.77	-1507	8046	19758	2.46	Si
SLV 2	14	0.53	1.34	-2605	8046	32487	4.04	Si
SLV 1	14	0.53	1.34	-2605	8046	32487	4.04	Si
SLV 16	14	0.53	1.56	-3044	8046	37168	4.62	Si
SLV 15	14	0.53	1.56	-3044	8046	37168	4.62	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-66	-2928	227	0	1.144	0.954	0	1090.83	No
SLV 3	-717	-1908	143	0	1.658	0.891	0	1055.091	No
SLV 10	-3328	-2065	-203	0	4.262	0.942	0	1090.83	No
SLV 4	-717	-1908	143	0	1.658	0.891	0	1055.091	No
SLV 9	-3328	-2065	-203	0	4.262	0.942	0	1090.83	No
SLV 12	-390	-3401	183	0	1.363	0.892	0	1090.83	No
SLV 8	-66	-2928	227	0	1.144	0.954	0	1090.83	No
SLV 11	-390	-3401	183	0	1.363	0.892	0	1090.83	No
SLV 6	-3005	-1591	-159	0.006	3.935	0.938	10.004	1090.83	No
SLV 5	-3005	-1591	-159	0.006	3.935	0.938	10.004	1090.83	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.095	SLU 41	Si
V_SLU	3.639	SLU 37	Si
PF_SLV	0	SLD 1	No
V_SLV	0	SLD 1	No
PFFP_SLV	1.284	SLV 7	Si
R_SLV	0	SLV 3	No

## Maschio 200

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-727.8	104.6	-938.6	104.6	L6	L7	210.9	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 81	1187	-9862	-142039	1.67	826538	5.819	Si
SLU 81	1437	-6498	127157	1.1	592507	4.66	Si
SLU 82	1187	-9954	-146582	1.69	832287	5.678	Si
SLU 82	1437	-6578	129232	1.11	598668	4.633	Si
SLU 19	1187	-7314	-124838	1.24	653869	5.238	Si
SLU 19	1437	-4812	109315	0.81	456558	4.177	Si
SLU 52	1187	-10149	-131718	1.72	844238	6.409	Si
SLU 52	1437	-6777	135137	1.15	613803	4.542	Si
SLU 40	1187	-7520	-126978	1.27	668869	5.268	Si
SLU 40	1437	-4933	99190	0.84	466777	4.706	Si
SLU 39	1187	-7427	-122436	1.26	662130	5.408	Si
SLU 39	1437	-4853	97116	0.82	460038	4.737	Si
SLU 18	1187	-7221	-120296	1.22	647046	5.379	Si
SLU 18	1437	-4732	107241	0.8	449776	4.194	Si
SLU 61	1187	-9749	-144441	1.65	819483	5.673	Si
SLU 61	1437	-6456	139357	1.09	589325	4.229	Si
SLU 60	1187	-9656	-139899	1.64	813650	5.816	Si
SLU 60	1437	-6376	137282	1.08	583121	4.248	Si
SLU 10	1187	-7715	-112115	1.31	682899	6.091	Si
SLU 10	1437	-5132	105096	0.87	483346	4.599	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	1187	-5087	109137	0.86	498550	4.568	Si
SLV 4	1437	-1809	-314943	0	0	0	No, $e \geq l/2$
SLV 1	1187	-5014	250039	0.85	491865	1.967	Si
SLV 1	1437	-1125	-439307	0	0	0	No, $e \geq l/2$
SLV 15	1187	-11353	-407844	1.92	1008589	2.473	Si
SLV 15	1437	-9830	618123	1.66	895178	1.448	Si
SLV 3	1187	-5087	109137	0.86	498550	4.568	Si
SLV 3	1437	-1809	-314943	0	0	0	No, $e \geq l/2$
SLV 12	1187	-9246	-391287	1.57	849883	2.172	Si
SLV 12	1437	-7820	436642	1.32	735092	1.684	Si
SLV 6	1187	-7121	233482	1.21	676634	2.898	Si
SLV 6	1437	-3136	-257826	0.53	316223	1.226	Si
SLV 5	1187	-7121	233482	1.21	676634	2.898	Si
SLV 5	1437	-3136	-257826	0.53	316223	1.226	Si
SLV 16	1187	-11353	-407844	1.92	1008589	2.473	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 16	1437	-9830	618123	1.66	895178	1.448	Si
SLV 2	1187	-5014	250039	0.85	491865	1.967	Si
SLV 2	1437	-1125	-439307	0	0	0	No, $e \geq l/2$
SLV 11	1187	-9246	-391287	1.57	849883	2.172	Si
SLV 11	1437	-7820	436642	1.32	735092	1.684	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	1187	-11134	-918	-116997		1.89	210.86	0.81	4765			5.19	Si
SLU 83	1437	-7582	-1396	109379		1.28	210.86	0.73	4291			3.07	Si
SLU 40	1187	-7520	-1010	-126978		1.27	210.86	0.73	4283			4.24	Si
SLU 40	1437	-4933	-1355	99190		0.84	210.86	0.67	3938			2.91	Si
SLU 39	1187	-7427	-988	-122436		1.26	210.86	0.72	4270			4.32	Si
SLU 39	1437	-4853	-1345	97116		0.82	210.86	0.67	3927			2.92	Si
SLU 19	1187	-7314	-1053	-124838		1.24	210.86	0.72	4255			4.04	Si
SLU 19	1437	-4812	-1254	109315		0.81	210.86	0.66	3922			3.13	Si
SLU 61	1187	-9749	-1258	-144441		1.65	210.86	0.78	4580			3.64	Si
SLU 61	1437	-6456	-1439	139357		1.09	210.86	0.7	4141			2.88	Si
SLU 84	1187	-11227	-940	-121540		1.9	210.86	0.81	4777			5.08	Si
SLU 84	1437	-7662	-1406	111454		1.3	210.86	0.73	4302			3.06	Si
SLU 82	1187	-9954	-1215	-146582		1.69	210.86	0.78	4607			3.79	Si
SLU 82	1437	-6578	-1540	129232		1.11	210.86	0.7	4157			2.7	Si
SLU 73	1187	-10355	-1110	-133858		1.75	210.86	0.79	4661			4.2	Si
SLU 73	1437	-6898	-1393	125012		1.17	210.86	0.71	4200			3.01	Si
SLU 60	1187	-9656	-1237	-139899		1.64	210.86	0.77	4568			3.69	Si
SLU 60	1437	-6376	-1429	137282		1.08	210.86	0.7	4130			2.89	Si
SLU 81	1187	-9862	-1194	-142039		1.67	210.86	0.78	4595			3.85	Si
SLU 81	1437	-6498	-1530	127157		1.1	210.86	0.7	4146			2.71	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	1187	-7121	2465	233482		1.21	210.86	1.07	6344			2.57	Si
SLV 5	1437	-3136	2101	-257826		1.61	69.62	1.16	2252			1.07	Si
SLV 15	1187	-11353	-5070	-407844		1.94	208.52	1.22	7136			1.41	Si
SLV 15	1437	-9830	-4047	618123		2.75	127.65	1.38	4945			1.22	Si
SLV 16	1187	-11353	-5070	-407844		1.94	208.52	1.22	7136			1.41	Si
SLV 16	1437	-9830	-4047	618123		2.75	127.65	1.38	4945			1.22	Si
SLV 6	1187	-7121	2465	233482		1.21	210.86	1.07	6344			2.57	Si
SLV 6	1437	-3136	2101	-257826		1.61	69.62	1.16	2252			1.07	Si
SLV 3	1187	-5087	2444	109137		0.86	210.86	1.01	5938			2.43	Si
SLV 3	1437	-1809	994	-314943		0	0	0.83	0			0	No, $V_u < V$
SLV 11	1187	-9246	-3867	-391287		1.74	189.34	1.18	6267			1.62	Si
SLV 11	1437	-7820	-3828	436642		1.88	148.78	1.21	5036			1.32	Si
SLV 4	1187	-5087	2444	109137		0.86	210.86	1.01	5938			2.43	Si
SLV 4	1437	-1809	994	-314943		0	0	0.83	0			0	No, $V_u < V$
SLV 2	1187	-5014	3667	250039		1.07	166.68	1.05	4892			1.33	Si
SLV 2	1437	-1125	2319	-439307		0	0	0.83	0			0	No, $V_u < V$
SLV 1	1187	-5014	3667	250039		1.07	166.68	1.05	4892			1.33	Si
SLV 1	1437	-1125	2319	-439307		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1187	-9246	-3867	-391287		1.74	189.34	1.18	6267			1.62	Si
SLV 12	1437	-7820	-3828	436642		1.88	148.78	1.21	5036			1.32	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.53	0.57	-3374	24365	45031	1.85	Si
SLV 2	14	0.53	0.57	-3374	24365	45031	1.85	Si
SLV 3	14	0.53	0.6	-3535	24365	47069	1.93	Si
SLV 4	14	0.53	0.6	-3535	24365	47069	1.93	Si
SLV 6	14	0.53	0.89	-5263	24365	68305	2.8	Si
SLV 5	14	0.53	0.89	-5263	24365	68305	2.8	Si
SLV 8	14	0.53	0.98	-5800	24365	74667	3.06	Si
SLV 7	14	0.53	0.98	-5800	24365	74667	3.06	Si
SLV 9	14	0.53	1.19	-7043	24365	88972	3.65	Si
SLV 10	14	0.53	1.19	-7043	24365	88972	3.65	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 11	-4978	-9246	-93	0.042	7.766	0.914	66.064	1090.83	No
SLV 12	-4978	-9246	-93	0.042	7.766	0.914	66.064	1090.83	No
SLV 8	-3601	-7366	-81	0.043	6.4	0.902	69.444	1090.83	No
SLV 7	-3601	-7366	-81	0.043	6.4	0.902	69.444	1090.83	No
SLV 5	-2649	-7121	77	0.044	5.474	0.894	70.874	1090.83	No
SLV 6	-2649	-7121	77	0.044	5.474	0.894	70.874	1090.83	No
SLV 10	-4026	-9000	65	0.046	6.82	0.906	73.606	1090.83	No
SLV 9	-4026	-9000	65	0.046	6.82	0.906	73.606	1090.83	No
SLV 15	-6252	-11353	-52	0.047	9.042	0.923	74.3	1055.091	No
SLV 16	-6252	-11353	-52	0.047	9.042	0.923	74.3	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.177	SLU 19	Si
V_SLU	2.7	SLU 82	Si
PF_SLV	0	SLV 1	No
V_SLV	0	SLV 1	No
PFFP_SLV	1.848	SLV 1	Si



Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0.061	SLV 11	No

## Maschio 201

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-496.8	104.6	-647.8	104.6	L6	L7	151	28	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 39	1187	-5343	-107553	1.26	340799	3.169	Si
SLU 39	1397	-6162	105346	1.46	381997	3.626	Si
SLU 19	1187	-5154	-93163	1.22	330920	3.552	Si
SLU 19	1397	-5383	99208	1.27	342887	3.456	Si
SLU 82	1187	-7013	-120465	1.66	421669	3.5	Si
SLU 82	1397	-7476	126221	1.77	441902	3.501	Si
SLU 60	1187	-6462	-109460	1.53	396333	3.621	Si
SLU 60	1397	-6418	122086	1.52	394281	3.23	Si
SLU 18	1187	-4973	-94855	1.18	321245	3.387	Si
SLU 18	1397	-5244	100210	1.24	335630	3.349	Si
SLU 40	1187	-5524	-105860	1.31	350180	3.308	Si
SLU 40	1397	-6301	104345	1.49	388695	3.725	Si
SLU 41	1187	-6238	-105854	1.48	385661	3.643	Si
SLU 41	1397	-7627	101290	1.8	448311	4.426	Si
SLU 61	1187	-6643	-107767	1.57	404823	3.756	Si
SLU 61	1397	-6557	121084	1.55	400823	3.31	Si
SLU 52	1187	-6888	-97141	1.63	416042	4.283	Si
SLU 52	1397	-6566	113991	1.55	401240	3.52	Si
SLU 81	1187	-6832	-122157	1.62	413474	3.385	Si
SLU 81	1397	-7337	127223	1.74	435920	3.426	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLD 16	1187	-5542	-179418	1.31	373536	2.082	Si
SLD 16	1397	-5822	180202	1.38	390051	2.165	Si
SLV 14	1187	-5481	-243506	1.3	369899	1.519	Si
SLV 14	1397	-5547	271961	1.31	373806	1.374	Si
SLV 12	1187	-5851	-269069	1.38	391730	1.456	Si
SLV 12	1397	-7185	207742	1.7	467019	2.248	Si
SLV 16	1187	-5713	-323217	1.35	383603	1.187	Si
SLV 16	1397	-6550	308827	1.55	431829	1.398	Si
SLV 13	1187	-5481	-243506	1.3	369899	1.519	Si
SLV 13	1397	-5547	271961	1.31	373806	1.374	Si
SLD 15	1187	-5542	-179418	1.31	373536	2.082	Si
SLD 15	1397	-5822	180202	1.38	390051	2.165	Si
SLV 2	1187	-5105	176910	1.21	347320	1.963	Si
SLV 2	1397	-4016	-139741	0.95	279613	2.001	Si
SLV 1	1187	-5105	176910	1.21	347320	1.963	Si
SLV 1	1397	-4016	-139741	0.95	279613	2.001	Si
SLV 15	1187	-5713	-323217	1.35	383603	1.187	Si
SLV 15	1397	-6550	308827	1.55	431829	1.398	Si
SLV 11	1187	-5851	-269069	1.38	391730	1.456	Si
SLV 11	1397	-7185	207742	1.7	467019	2.248	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1187	-6832	-1472	-122157	1.62	151	0.77	3260				2.21	Si
SLU 81	1397	-7337	-1472	127223	1.74	151	0.79	3327				2.26	Si
SLU 37	1187	-7257	-1494	-94656	1.72	151	0.78	3316				2.22	Si
SLU 37	1397	-9008	-1494	90809	2.13	151	0.84	3550				2.38	Si
SLU 74	1187	-8267	-1545	-114345	1.96	151	0.82	3451				2.23	Si
SLU 74	1397	-9218	-1545	121168	2.18	151	0.85	3578				2.32	Si
SLU 41	1187	-6238	-1432	-105854	1.48	151	0.75	3181				2.22	Si
SLU 41	1397	-7627	-1432	101290	1.8	151	0.8	3366				2.35	Si
SLU 77	1187	-9162	-1693	-112646	2.17	151	0.84	3571				2.11	Si
SLU 77	1397	-10683	-1693	117112	2.53	151	0.89	3773				2.23	Si
SLU 83	1187	-7727	-1620	-120458	1.83	151	0.8	3379				2.09	Si
SLU 83	1397	-8801	-1620	123167	2.08	151	0.83	3522				2.17	Si
SLU 80	1187	-8927	-1668	-107568	2.11	151	0.84	3539				2.12	Si
SLU 80	1397	-10321	-1666	111684	2.44	151	0.88	3725				2.24	Si
SLU 78	1187	-9344	-1679	-110954	2.21	151	0.85	3595				2.14	Si
SLU 78	1397	-10822	-1677	116110	2.56	151	0.9	3792				2.26	Si
SLU 84	1187	-7908	-1606	-118766	1.87	151	0.8	3403				2.12	Si
SLU 84	1397	-8940	-1604	122165	2.11	151	0.84	3541				2.21	Si
SLU 79	1187	-8746	-1682	-109261	2.07	151	0.83	3515				2.09	Si
SLU 79	1397	-10182	-1682	112685	2.41	151	0.88	3707				2.2	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	1187	-5851	-3926	-269069		2.36	88.54	1.31	3236			0.82	No, Vu<V
SLV 11	1397	-7185	-3674	207742		1.84	139.76	1.2	4698			1.28	Si
SLV 16	1187	-5713	-4259	-323217		3.59	56.76	1.55	2467			0.58	No, Vu<V
SLV 16	1397	-6550	-3442	308827		2.75	85.05	1.38	3295			0.96	No, Vu<V
SLD 16	1187	-5542	-2343	-179418		1.53	129.38	1.14	4127			1.76	Si
SLD 16	1397	-5822	-1999	180202		1.56	133.65	1.14	4283			2.14	Si
SLD 15	1187	-5542	-2343	-179418		1.53	129.38	1.14	4127			1.76	Si
SLD 15	1397	-5822	-1999	180202		1.56	133.65	1.14	4283			2.14	Si
SLV 2	1187	-5105	2396	176910		1.49	122.53	1.13	3880			1.62	Si
SLV 2	1397	-4016	1579	-139741		1.17	122.1	1.07	3652			2.31	Si
SLV 13	1187	-5481	-2943	-243506		2.1	93.21	1.25	3271			1.11	Si
SLV 13	1397	-5547	-2131	271961		2.49	79.4	1.33	2962			1.39	Si
SLV 14	1187	-5481	-2943	-243506		2.1	93.21	1.25	3271			1.11	Si
SLV 14	1397	-5547	-2131	271961		2.49	79.4	1.33	2962			1.39	Si
SLV 15	1187	-5713	-4259	-323217		3.59	56.76	1.55	2467			0.58	No, Vu<V
SLV 15	1397	-6550	-3442	308827		2.75	85.05	1.38	3295			0.96	No, Vu<V
SLV 12	1187	-5851	-3926	-269069		2.36	88.54	1.31	3236			0.82	No, Vu<V
SLV 12	1397	-7185	-3674	207742		1.84	139.76	1.2	4698			1.28	Si
SLV 1	1187	-5105	2396	176910		1.49	122.53	1.13	3880			1.62	Si
SLV 1	1397	-4016	1579	-139741		1.17	122.1	1.07	3652			2.31	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.53	0.98	-4125	17448	53139	3.05	Si
SLV 6	14	0.53	0.98	-4125	17448	53139	3.05	Si
SLV 10	14	0.53	1.05	-4456	17448	57006	3.27	Si
SLV 9	14	0.53	1.05	-4456	17448	57006	3.27	Si
SLV 2	14	0.53	1.06	-4463	17448	57078	3.27	Si
SLV 1	14	0.53	1.06	-4463	17448	57078	3.27	Si
SLV 4	14	0.53	1.2	-5083	17448	64159	3.68	Si
SLV 3	14	0.53	1.2	-5083	17448	64159	3.68	Si
SLV 13	14	0.53	1.32	-5566	17448	69532	3.99	Si
SLV 14	14	0.53	1.32	-5566	17448	69532	3.99	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-4447	-5851	42	0.046	6.445	0.923	73.029	1090.83	No
SLV 11	-4447	-5851	42	0.046	6.445	0.923	73.029	1090.83	No
SLV 7	-4085	-5738	34	0.048	6.082	0.919	75.877	1090.83	No
SLV 8	-4085	-5738	34	0.048	6.082	0.919	75.877	1090.83	No
SLV 15	-4225	-5713	33	0.048	6.222	0.921	75.92	1055.091	No
SLV 16	-4225	-5713	33	0.048	6.222	0.921	75.92	1055.091	No
SLV 14	-3673	-5481	17	0.052	5.669	0.915	82.117	1055.091	No
SLV 13	-3673	-5481	17	0.052	5.669	0.915	82.117	1055.091	No
SLV 5	-2244	-4966	-18	0.055	4.255	0.898	88.318	1090.83	No
SLV 6	-2244	-4966	-18	0.055	4.255	0.898	88.318	1090.83	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.169	SLU 39	Si
V_SLU	2.086	SLU 83	Si
PF_SLV	1.187	SLV 15	Si
V_SLV	0.579	SLV 15	No
PFFP_SLV	3.046	SLV 5	Si
R_SLV	0.067	SLV 11	No

## Maschio 202

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	104.6	-416.8	104.6	L6	L7	404.5	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 38	1187	-9336	114300	0.82	1697101	14.848	Si
SLU 38	1397	-6784	611160	0.6	1271252	2.08	Si
SLU 80	1187	-11963	141812	1.06	2105791	14.849	Si
SLU 80	1397	-8152	677525	0.72	1503119	2.219	Si
SLU 17	1187	-9248	116055	0.82	1682952	14.501	Si
SLU 17	1397	-6189	531495	0.55	1167804	2.197	Si
SLU 41	1187	-8443	76910	0.75	1551289	20.17	Si
SLU 41	1397	-6407	538030	0.57	1205860	2.241	Si
SLU 42	1187	-8567	83418	0.76	1571756	18.842	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 42	1397	-6434	537133	0.57	1210555	2.254	Si
SLU 30	1187	-10020	136871	0.88	1806511	13.199	Si
SLU 30	1397	-6665	572349	0.59	1250617	2.185	Si
SLU 37	1187	-9212	107792	0.81	1677052	15.558	Si
SLU 37	1397	-6757	612057	0.6	1266599	2.069	Si
SLU 79	1187	-11839	135303	1.05	2087171	15.426	Si
SLU 79	1397	-8125	678422	0.72	1498627	2.209	Si
SLU 16	1187	-9124	109546	0.81	1662855	15.179	Si
SLU 16	1397	-6162	532393	0.54	1163080	2.185	Si
SLU 29	1187	-9896	130363	0.87	1786834	13.707	Si
SLU 29	1397	-6638	573246	0.59	1245949	2.173	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	1187	-8993	67320	0.79	1700582	25.261	Si
SLD 15	1397	-6025	489596	0.53	1165552	2.381	Si
SLD 16	1187	-8993	67320	0.79	1700582	25.261	Si
SLD 16	1397	-6025	489596	0.53	1165552	2.381	Si
SLV 16	1187	-9416	45340	0.83	1774777	39.144	Si
SLV 16	1397	-6823	685642	0.6	1312007	1.914	Si
SLV 15	1187	-9416	45340	0.83	1774777	39.144	Si
SLV 15	1397	-6823	685642	0.6	1312007	1.914	Si
SLV 14	1187	-8659	-13063	0.76	1641743	125.677	Si
SLV 14	1397	-6178	560604	0.55	1193676	2.129	Si
SLV 12	1187	-10053	160104	0.89	1885543	11.777	Si
SLV 12	1397	-6837	637611	0.6	1314515	2.062	Si
SLD 11	1187	-9262	115049	0.82	1747886	15.193	Si
SLD 11	1397	-6030	468586	0.53	1166440	2.489	Si
SLD 12	1187	-9262	115049	0.82	1747886	15.193	Si
SLD 12	1397	-6030	468586	0.53	1166440	2.489	Si
SLV 11	1187	-10053	160104	0.89	1885543	11.777	Si
SLV 11	1397	-6837	637611	0.6	1314515	2.062	Si
SLV 13	1187	-8659	-13063	0.76	1641743	125.677	Si
SLV 13	1397	-6178	560604	0.55	1193676	2.129	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	1187	-8443	-4648	76910		0.75	404.5	0.65	7418			1.6	Si
SLU 41	1397	-6407	-4548	538030		0.64	354.83	0.64	6374			1.4	Si
SLU 77	1187	-12906	-4855	173219		1.14	404.5	0.71	8013			1.65	Si
SLU 77	1397	-9424	-4712	708149		0.88	381.32	0.67	7188			1.53	Si
SLU 83	1187	-11070	-4860	104421		0.98	404.5	0.69	7768			1.6	Si
SLU 83	1397	-7775	-4757	604395		0.74	373.55	0.65	6847			1.44	Si
SLU 80	1187	-11963	-4536	141812		1.06	404.5	0.7	7887			1.74	Si
SLU 80	1397	-8152	-4401	677525		0.81	357.43	0.66	6647			1.51	Si
SLU 42	1187	-8567	-4510	83418		0.76	404.5	0.66	7434			1.65	Si
SLU 42	1397	-6434	-4426	537133		0.64	356.31	0.64	6400			1.45	Si
SLU 84	1187	-11194	-4722	110929		0.99	404.5	0.69	7785			1.65	Si
SLU 84	1397	-7802	-4636	603497		0.74	374.7	0.65	6869			1.48	Si
SLU 37	1187	-9212	-4462	107792		0.81	404.5	0.66	7520			1.69	Si
SLU 37	1397	-6757	-4313	612057		0.72	335.03	0.65	6113			1.42	Si
SLU 35	1187	-10279	-4643	145708		0.91	404.5	0.68	7663			1.65	Si
SLU 35	1397	-8056	-4502	641784		0.78	367.75	0.66	6795			1.51	Si
SLU 79	1187	-11839	-4674	135303		1.05	404.5	0.69	7871			1.68	Si
SLU 79	1397	-8125	-4522	678422		0.81	356.27	0.66	6625			1.47	Si
SLU 38	1187	-9336	-4324	114300		0.82	404.5	0.67	7537			1.74	Si
SLU 38	1397	-6784	-4191	611160		0.72	336.5	0.65	6139			1.46	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1187	-10053	-4647	160104		0.89	404.5	1.01	11449			2.46	Si
SLV 12	1397	-6837	-3916	637611		0.75	326.98	0.98	8997			2.3	Si
SLV 15	1187	-9416	-5718	45340		0.83	404.5	1	11321			1.98	Si
SLV 15	1397	-6823	-3789	685642		0.8	305.3	0.99	8488			2.24	Si
SLD 15	1187	-8993	-3821	67320		0.79	404.5	0.99	11237			2.94	Si
SLD 15	1397	-6025	-2987	489596		0.59	362.98	0.95	9675			3.24	Si
SLV 7	1187	-9843	-2924	200071		0.87	404.5	1.01	11407			3.9	Si
SLV 7	1397	-6203	-3303	471404		0.58	378.77	0.95	10079			3.05	Si
SLV 11	1187	-10053	-4647	160104		0.89	404.5	1.01	11449			2.46	Si
SLV 11	1397	-6837	-3916	637611		0.75	326.98	0.98	8997			2.3	Si
SLV 8	1187	-9843	-2924	200071		0.87	404.5	1.01	11407			3.9	Si
SLV 8	1397	-6203	-3303	471404		0.58	378.77	0.95	10079			3.05	Si
SLD 16	1187	-8993	-3821	67320		0.79	404.5	0.99	11237			2.94	Si
SLD 16	1397	-6025	-2987	489596		0.59	362.98	0.95	9675			3.24	Si
SLV 14	1187	-8659	-4913	-13063		0.76	404.5	0.99	11170			2.27	Si
SLV 14	1397	-6178	-3067	560604		0.66	334.51	0.97	9041			2.95	Si
SLV 16	1187	-9416	-5718	45340		0.83	404.5	1	11321			1.98	Si
SLV 16	1397	-6823	-3789	685642		0.8	305.3	0.99	8488			2.24	Si
SLV 13	1187	-8659	-4913	-13063		0.76	404.5	0.99	11170			2.27	Si
SLV 13	1397	-6178	-3067	560604		0.66	334.51	0.97	9041			2.95	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.53	0.43	-4889	46740	66027	1.41	Si
SLV 2	14	0.53	0.43	-4889	46740	66027	1.41	Si
SLV 6	14	0.53	0.45	-5085	46740	68579	1.47	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.53	0.45	-5085	46740	68579	1.47	Si
SLV 3	14	0.53	0.49	-5494	46740	73866	1.58	Si
SLV 4	14	0.53	0.49	-5494	46740	73866	1.58	Si
SLV 9	14	0.53	0.52	-5859	46740	78555	1.68	Si
SLV 10	14	0.53	0.52	-5859	46740	78555	1.68	Si
SLV 7	14	0.53	0.63	-7103	46740	94341	2.02	Si
SLV 8	14	0.53	0.63	-7103	46740	94341	2.02	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-1889	-10053	-23	0.068	7.607	0.896	109.853	1090.83	No
SLV 12	-1889	-10053	-23	0.068	7.607	0.896	109.853	1090.83	No
SLV 5	-1581	-7321	28	0.068	7.365	0.901	110.135	1090.83	No
SLV 6	-1581	-7321	28	0.068	7.365	0.901	110.135	1090.83	No
SLV 1	-1737	-7958	28	0.068	7.485	0.898	109.303	1055.091	No
SLV 2	-1737	-7958	28	0.068	7.485	0.898	109.303	1055.091	No
SLV 8	-1921	-9843	-12	0.07	7.632	0.895	113.344	1090.83	No
SLV 7	-1921	-9843	-12	0.07	7.632	0.895	113.344	1090.83	No
SLV 10	-1549	-7531	16	0.071	7.341	0.901	114.249	1090.83	No
SLV 9	-1549	-7531	16	0.071	7.341	0.901	114.249	1090.83	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.069	SLU 37	Si
V_SLU	1.401	SLU 41	Si
PF_SLV	1.914	SLV 15	Si
V_SLV	1.98	SLV 15	Si
PFFP_SLV	1.413	SLV 1	Si
R_SLV	0.101	SLV 11	No

## Maschio 203

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X inl.	Y inl.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h inl.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-350.9	-1100.3	104.6	L6	L7	455.6	28	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 59	1187	-17466	450600	1.37	3309661	7.345	Si
SLU 59	1503	-843	206019	0	0	0	No, e>l/2
SLU 29	1187	-15684	458447	1.23	3033268	6.616	Si
SLU 29	1503	-845	210260	0	0	0	No, e>l/2
SLU 42	1187	-14804	355266	1.16	2891708	8.14	Si
SLU 42	1503	-666	153850	0	0	0	No, e>l/2
SLU 58	1187	-17530	455806	1.37	3319405	7.282	Si
SLU 58	1503	-853	208315	0	0	0	No, e>l/2
SLU 27	1187	-16197	511306	1.27	3114360	6.091	Si
SLU 27	1503	-948	223471	0	0	0	No, e>l/2
SLU 28	1187	-16133	506099	1.26	3104238	6.134	Si
SLU 28	1503	-938	221175	0	0	0	No, e>l/2
SLU 34	1187	-14682	367994	1.15	2871852	7.804	Si
SLU 34	1503	-681	157770	0	0	0	No, e>l/2
SLU 30	1187	-15619	453240	1.22	3023002	6.67	Si
SLU 30	1503	-835	207964	0	0	0	No, e>l/2
SLU 57	1187	-17979	503459	1.41	3386740	6.727	Si
SLU 57	1503	-945	219231	0	0	0	No, e>l/2
SLU 26	1187	-14499	405793	1.14	2841769	7.003	Si
SLU 26	1503	-730	170490	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	1187	-9793	280303	0.77	2090473	7.458	Si
SLV 4	1503	338	-79539	0	0	0	No, Trazione
SLV 2	1187	-11505	297053	0.9	2427260	8.171	Si
SLV 2	1503	-259	65554	0	0	0	No, e>l/2
SLV 10	1187	-15961	365965	1.25	3263377	8.917	Si
SLV 10	1503	-1754	401707	0	0	0	No, e>l/2
SLV 9	1187	-15961	365965	1.25	3263377	8.917	Si
SLV 9	1503	-1754	401707	0	0	0	No, e>l/2
SLV 6	1187	-14827	343179	1.16	3056017	8.905	Si
SLV 6	1503	-1385	324687	0	0	0	No, e>l/2
SLV 7	1187	-9118	287345	0.71	1955478	6.805	Si
SLV 7	1503	604	-158956	0	0	0	No, Trazione
SLV 8	1187	-9118	287345	0.71	1955478	6.805	Si
SLV 8	1503	604	-158956	0	0	0	No, Trazione
SLV 1	1187	-11505	297053	0.9	2427260	8.171	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 1	1503	-259	65554	0	0	0	No, e>l/2
SLV 5	1187	-14827	343179	1.16	3056017	8.905	Si
SLV 5	1503	-1385	324687	0	0	0	No, e>l/2
SLV 3	1187	-9793	280303	0.77	2090473	7.458	Si
SLV 3	1503	338	-79539	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 30	1187	-15619	-2283	453240		1.22	455.57	0.72	9169			4.02	Si
SLU 30	1503	-835	-713	207964		0	0	0.56	0			0	No, Vu<V
SLU 29	1187	-15684	-2350	458447		1.23	455.57	0.72	9178			3.91	Si
SLU 29	1503	-845	-728	210260		0	0	0.56	0			0	No, Vu<V
SLU 59	1187	-17466	-1958	450600		1.37	455.57	0.74	9415			4.81	Si
SLU 59	1503	-843	-594	206019		0	0	0.56	0			0	No, Vu<V
SLU 27	1187	-16197	-2263	511306		1.27	455.57	0.72	9246			4.09	Si
SLU 27	1503	-948	-685	223471		0	0	0.56	0			0	No, Vu<V
SLU 58	1187	-17530	-2025	455806		1.37	455.57	0.74	9424			4.65	Si
SLU 58	1503	-853	-609	208315		0	0	0.56	0			0	No, Vu<V
SLU 26	1187	-14499	-1519	405793		1.14	455.57	0.71	9020			5.94	Si
SLU 26	1503	-730	-458	170490		0	0	0.56	0			0	No, Vu<V
SLU 57	1187	-17979	-1871	503459		1.41	455.57	0.74	9484			5.07	Si
SLU 57	1503	-945	-552	219231		0	0	0.56	0			0	No, Vu<V
SLU 28	1187	-16133	-2197	506099		1.26	455.57	0.72	9238			4.21	Si
SLU 28	1503	-938	-671	221175		0	0	0.56	0			0	No, Vu<V
SLU 42	1187	-14804	-1527	355266		1.16	455.57	0.71	9061			5.93	Si
SLU 42	1503	-666	-469	153850		0	0	0.56	0			0	No, Vu<V
SLU 34	1187	-14682	-1494	367994		1.15	455.57	0.71	9044			6.06	Si
SLU 34	1503	-681	-459	157770		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1187	-10253	6006	310131		0.8	455.57	0.99	12680			2.11	Si
SLV 12	1503	236	2561	-81936		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	-9118	7133	287345		0.71	455.57	0.98	12454			1.75	Si
SLV 8	1503	604	2802	-158956		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	-15961	-8441	365965		1.25	455.57	1.08	13822			1.64	Si
SLV 9	1503	-1754	-3108	401707		0	0	0.83	0			0	No, Vu<V
SLV 1	1187	-11505	-943	297053		0.9	455.57	1.01	12931			13.72	Si
SLV 1	1503	-259	-602	65554		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	-14827	-7314	343179		1.16	455.57	1.07	13595			1.86	Si
SLV 6	1503	-1385	-2867	324687		0	0	0.83	0			0	No, Vu<V
SLV 4	1187	-9793	3391	280303		0.77	455.57	0.99	12588			3.71	Si
SLV 4	1503	338	1098	-79539		0	0	0.83	0			0	No, Vu<V
SLV 11	1187	-10253	6006	310131		0.8	455.57	0.99	12680			2.11	Si
SLV 11	1503	236	2561	-81936		0	0	0.83	0			0	No, Vu<V
SLV 3	1187	-9793	3391	280303		0.77	455.57	0.99	12588			3.71	Si
SLV 3	1503	338	1098	-79539		0	0	0.83	0			0	No, Vu<V
SLV 2	1187	-11505	-943	297053		0.9	455.57	1.01	12931			13.72	Si
SLV 2	1503	-259	-602	65554		0	0	0.83	0			0	No, Vu<V
SLV 5	1187	-14827	-7314	343179		1.16	455.57	1.07	13595			1.86	Si
SLV 5	1503	-1385	-2867	324687		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.53	0.29	-3762	52641	51393	0.98	No, M>Mu
SLV 7	14	0.53	0.29	-3762	52641	51393	0.98	No, M>Mu
SLV 4	14	0.53	0.34	-4291	52641	58416	1.11	Si
SLV 3	14	0.53	0.34	-4291	52641	58416	1.11	Si
SLV 12	14	0.53	0.38	-4836	52641	65599	1.25	Si
SLV 11	14	0.53	0.38	-4836	52641	65599	1.25	Si
SLV 1	14	0.53	0.46	-5818	52641	78412	1.49	Si
SLV 2	14	0.53	0.46	-5818	52641	78412	1.49	Si
SLV 16	14	0.53	0.62	-7871	52641	104623	1.99	Si
SLV 15	14	0.53	0.62	-7871	52641	104623	1.99	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	236	-10253	-36	0	0	0	0	1090.83	No, Trazione
SLV 4	338	-9793	0	0	0	0	0	1055.091	No, Trazione
SLV 7	604	-9118	-28	0	0	0	0	1090.83	No, Trazione
SLV 8	604	-9118	-28	0	0	0	0	1090.83	No, Trazione
SLV 12	236	-10253	-36	0	0	0	0	1090.83	No, Trazione
SLV 3	338	-9793	0	0	0	0	0	1055.091	No, Trazione
SLV 5	-1385	-14827	28	0.071	8.008	0.909	113.153	1090.83	No
SLV 6	-1385	-14827	28	0.071	8.008	0.909	113.153	1090.83	No
SLV 10	-1754	-15961	20	0.07	8.275	0.901	113.494	1090.83	No
SLV 9	-1754	-15961	20	0.07	8.275	0.901	113.494	1090.83	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 5	No
V_SLU	0	SLU 5	No
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 1	No
PFFP_SLV	0.976	SLV 7	No



Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0	SLV 12	No

## Maschio 204

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-626.8	-335.9	-626.8	104.6	L6	L7	440.5	14	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 30	1187	-7922	326582	1.28	1469679	4.5	Si
SLU 30	1503	-1146	-143925	0.19	246716	1.714	Si
SLU 38	1187	-8454	331041	1.37	1548627	4.678	Si
SLU 38	1503	-1145	-141753	0.19	246475	1.739	Si
SLU 16	1187	-7625	272944	1.24	1424492	5.219	Si
SLU 16	1503	-969	-111717	0.16	209288	1.873	Si
SLU 17	1187	-7627	300489	1.24	1424796	4.742	Si
SLU 17	1503	-1013	-121391	0.16	218683	1.801	Si
SLU 29	1187	-7920	299037	1.28	1469380	4.914	Si
SLU 29	1503	-1102	-134251	0.18	237373	1.768	Si
SLU 9	1187	-7095	296030	1.15	1341992	4.533	Si
SLU 9	1503	-1014	-123563	0.16	218925	1.772	Si
SLU 72	1187	-9411	369432	1.53	1684470	4.56	Si
SLU 72	1503	-1220	-138168	0.2	262253	1.898	Si
SLU 8	1187	-7093	268485	1.15	1341679	4.997	Si
SLU 8	1503	-970	-113889	0.16	209530	1.84	Si
SLU 37	1187	-8452	303496	1.37	1548338	5.102	Si
SLU 37	1503	-1101	-132079	0.18	237131	1.795	Si
SLU 28	1187	-8204	336014	1.33	1511881	4.499	Si
SLU 28	1503	-1152	-130994	0.19	248008	1.893	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	1187	-6289	289916	1.02	1269523	4.379	Si
SLV 11	1503	-630	-224895	0	0	0	No, $e \geq l/2$
SLV 4	1187	-5565	277379	0.9	1135203	4.093	Si
SLV 4	1503	-526	-133630	0	0	0	No, $e \geq l/2$
SLV 10	1187	-6705	53125	1.09	1345451	25.326	Si
SLV 10	1503	-221	239177	0	0	0	No, $e \geq l/2$
SLV 7	1187	-5888	322381	0.95	1195418	3.708	Si
SLV 7	1503	-648	-257738	0	0	0	No, $e \geq l/2$
SLV 5	1187	-6304	85589	1.02	1272323	14.865	Si
SLV 5	1503	-239	206333	0	0	0	No, $e \geq l/2$
SLV 8	1187	-5888	322381	0.95	1195418	3.708	Si
SLV 8	1503	-648	-257738	0	0	0	No, $e \geq l/2$
SLV 13	1187	-7028	98127	1.14	1403517	14.303	Si
SLV 13	1503	-343	115069	0	0	0	No, $e \geq l/2$
SLV 9	1187	-6705	53125	1.09	1345451	25.326	Si
SLV 9	1503	-221	239177	0	0	0	No, $e \geq l/2$
SLV 12	1187	-6289	289916	1.02	1269523	4.379	Si
SLV 12	1503	-630	-224895	0	0	0	No, $e \geq l/2$
SLV 3	1187	-5565	277379	0.9	1135203	4.093	Si
SLV 3	1503	-526	-133630	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	1187	-9411	1198	369432	1.53	440.5	4681	0.76				3.91	Si
SLU 72	1503	-1220	1857	-138168	0.27	321.09	2660	0.59				1.43	Si
SLU 30	1187	-7922	1141	326582	1.28	440.5	4482	0.73				3.93	Si
SLU 30	1503	-1146	1800	-143925	0.29	284.09	2362	0.59				1.31	Si
SLU 9	1187	-7095	1021	296030	1.15	440.5	4372	0.71				4.28	Si
SLU 9	1503	-1014	1610	-123563	0.25	295.35	2432	0.59				1.51	Si
SLU 38	1187	-8454	1120	331041	1.37	440.5	4553	0.74				4.07	Si
SLU 38	1503	-1145	1781	-141753	0.28	289.4	2404	0.59				1.35	Si
SLU 17	1187	-7627	999	300489	1.24	440.5	4443	0.72				4.45	Si
SLU 17	1503	-1013	1591	-121391	0.24	301.37	2479	0.59				1.56	Si
SLU 37	1187	-8452	1131	303496	1.37	440.5	4553	0.74				4.02	Si
SLU 37	1503	-1101	1594	-132079	0.26	300.78	2486	0.59				1.56	Si
SLU 28	1187	-8204	1073	336014	1.33	440.5	4520	0.73				4.21	Si
SLU 28	1503	-1152	1707	-130994	0.26	319.76	2641	0.59				1.55	Si
SLU 36	1187	-8736	1051	340473	1.42	440.5	4591	0.74				4.37	Si
SLU 36	1503	-1151	1688	-128822	0.25	325.08	2682	0.59				1.59	Si
SLU 80	1187	-9943	1176	373891	1.61	440.5	4752	0.77				4.04	Si
SLU 80	1503	-1219	1839	-135997	0.27	326.11	2699	0.59				1.47	Si
SLU 29	1187	-7920	1153	299037	1.28	440.5	4482	0.73				3.89	Si
SLU 29	1503	-1102	1613	-134251	0.27	295.25	2443	0.59				1.51	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1187	-5888	5263	322381		0.95	440.5	1.02	6317			1.2	Si
SLV 8	1503	-648	3964	-257738		0	0	0.83	0			0	No, Vu<V
SLV 4	1187	-5565	1982	277379		0.9	440.5	1.01	6252			3.15	Si
SLV 4	1503	-526	1968	-133630		0	0	0.83	0			0	No, Vu<V
SLV 12	1187	-6289	5161	289916		1.02	440.5	1.04	6397			1.24	Si
SLV 12	1503	-630	3662	-224895		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	-6304	-4451	85589		1.02	440.5	1.04	6400			1.44	Si
SLV 6	1503	-239	-2748	206333		0	0	0.83	0			0	No, Vu<V
SLV 3	1187	-5565	1982	277379		0.9	440.5	1.01	6252			3.15	Si
SLV 3	1503	-526	1968	-133630		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	-6705	-4553	53125		1.09	440.5	1.05	6480			1.42	Si
SLV 9	1503	-221	-3050	239177		0	0	0.83	0			0	No, Vu<V
SLV 5	1187	-6304	-4451	85589		1.02	440.5	1.04	6400			1.44	Si
SLV 5	1503	-239	-2748	206333		0	0	0.83	0			0	No, Vu<V
SLV 7	1187	-5888	5263	322381		0.95	440.5	1.02	6317			1.2	Si
SLV 7	1503	-648	3964	-257738		0	0	0.83	0			0	No, Vu<V
SLV 13	1187	-7028	-1273	98127		1.14	440.5	1.06	6545			5.14	Si
SLV 13	1503	-343	-1053	115069		0	0	0.83	0			0	No, Vu<V
SLV 11	1187	-6289	5161	289916		1.02	440.5	1.04	6397			1.24	Si
SLV 11	1503	-630	3662	-224895		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	14	0.53	0	-3795	26606	0	0	No, e>t/2
SLV 5	14	0.53	0	-3285	26606	0	0	No, e>t/2
SLV 6	14	0.53	0	-3285	26606	0	0	No, e>t/2
SLV 14	14	0.53	0	-3795	26606	0	0	No, e>t/2
SLV 9	14	0.53	0	-3411	26606	0	0	No, e>t/2
SLV 2	14	0.53	0	-3376	26606	0	0	No, e>t/2
SLV 4	14	0.53	0	-3580	26606	0	0	No, e>t/2
SLV 10	14	0.53	0	-3411	26606	0	0	No, e>t/2
SLV 3	14	0.53	0	-3580	26606	0	0	No, e>t/2
SLV 1	14	0.53	0	-3376	26606	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.03 Ta = 0.1191

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	-630	-6289	-2	0.037	3.844	0.911	59.757	2119.413	No
SLV 12	-630	-6289	-2	0.037	3.844	0.911	59.757	2119.413	No
SLV 7	-648	-5888	-2	0.037	3.857	0.91	59.842	2119.413	No
SLV 8	-648	-5888	-2	0.037	3.857	0.91	59.842	2119.413	No
SLV 16	-466	-6903	-1	0.039	3.741	0.923	61.465	2119.251	No
SLV 15	-466	-6903	-1	0.039	3.741	0.923	61.465	2119.251	No
SLV 3	-526	-5565	0	0.039	3.777	0.918	61.782	2119.251	No
SLV 4	-526	-5565	0	0.039	3.777	0.918	61.782	2119.251	No
SLV 2	-404	-5690	1	0.04	3.705	0.929	62.211	2119.251	No
SLV 1	-404	-5690	1	0.04	3.705	0.929	62.211	2119.251	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.714	SLU 30	Si
V_SLU	1.313	SLU 30	Si
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 1	No
R_SLV	0.028	SLV 11	No

## Maschio 205

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	104.6	-515.8	581.1	L6	L7	476.5	14	316	316	316			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 79	1187	-18481	657316	2.77	2905659	4.42	Si
SLU 79	1503	-5097	904175	0.76	1100519	1.217	Si
SLU 8	1187	-14342	619256	2.15	2515204	4.062	Si
SLU 8	1503	-4355	779506	0.65	954343	1.224	Si
SLU 30	1187	-16366	709114	2.45	2724907	3.843	Si
SLU 30	1503	-5038	900618	0.76	1089015	1.209	Si
SLU 80	1187	-18513	638517	2.78	2908030	4.554	Si
SLU 80	1503	-5114	907136	0.77	1103676	1.217	Si
SLU 72	1187	-18027	667804	2.7	2870128	4.298	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 72	1503	-5157	915556	0.77	1112076	1.215	Si
SLU 29	1187	-16335	727913	2.45	2721949	3.739	Si
SLU 29	1503	-5022	897656	0.75	1085846	1.21	Si
SLU 37	1187	-16821	698626	2.52	2767055	3.961	Si
SLU 37	1503	-4978	889236	0.75	1077395	1.212	Si
SLU 38	1187	-16852	679827	2.53	2769880	4.074	Si
SLU 38	1503	-4994	892198	0.75	1080569	1.211	Si
SLU 9	1187	-14374	600457	2.15	2518707	4.195	Si
SLU 9	1503	-4371	782468	0.66	957607	1.224	Si
SLU 71	1187	-17996	686604	2.7	2867624	4.177	Si
SLU 71	1503	-5141	912595	0.77	1108925	1.215	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	1187	-10055	224723	1.51	2100055	9.345	Si
SLV 11	1503	-358	-306170	0	0	0	No, $e \geq l/2$
SLV 6	1187	-6986	-206409	1.05	1521805	7.373	Si
SLV 6	1503	-2317	738520	0	0	0	No, $e \geq l/2$
SLV 8	1187	-9956	205334	1.49	2082282	10.141	Si
SLV 8	1503	-614	-231657	0	0	0	No, $e \geq l/2$
SLV 7	1187	-9956	205334	1.49	2082282	10.141	Si
SLV 7	1503	-614	-231657	0	0	0	No, $e \geq l/2$
SLV 10	1187	-7085	-187021	1.06	1541294	8.241	Si
SLV 10	1503	-2061	664007	0	0	0	No, $e \geq l/2$
SLV 12	1187	-10055	224723	1.51	2100055	9.345	Si
SLV 12	1503	-358	-306170	0	0	0	No, $e \geq l/2$
SLV 9	1187	-7085	-187021	1.06	1541294	8.241	Si
SLV 9	1503	-2061	664007	0	0	0	No, $e \geq l/2$
SLV 1	1187	-7910	-84919	1.19	1701729	20.04	Si
SLV 1	1503	-2020	485890	0	0	0	No, $e \geq l/2$
SLV 2	1187	-7910	-84919	1.19	1701729	20.04	Si
SLV 2	1503	-2020	485890	0	0	0	No, $e \geq l/2$
SLV 5	1187	-6986	-206409	1.05	1521805	7.373	Si
SLV 5	1503	-2317	738520	0	0	0	No, $e \geq l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	1187	-16821	1090	698626		2.52	476.5	0.89	5949			5.46	Si
SLU 37	1503	-4978	1781	889236		1.99	178.87	0.82	2055			1.15	Si
SLU 38	1187	-16852	975	679827		2.53	476.5	0.89	5953			6.1	Si
SLU 38	1503	-4994	1723	892198		1.99	178.84	0.82	2057			1.19	Si
SLU 36	1187	-16599	914	597236		2.49	476.5	0.89	5919			6.48	Si
SLU 36	1503	-4761	1664	835893		1.81	187.99	0.8	2097			1.26	Si
SLU 35	1187	-16568	1028	616035		2.48	476.5	0.89	5915			5.75	Si
SLU 35	1503	-4744	1722	832932		1.8	188.05	0.8	2095			1.22	Si
SLU 30	1187	-16366	932	709114		2.45	476.5	0.88	5888			6.32	Si
SLU 30	1503	-5038	1605	900618		2.02	178.45	0.82	2060			1.28	Si
SLU 77	1187	-18229	864	574725		2.73	476.5	0.92	6137			7.1	Si
SLU 77	1503	-4863	1681	847870		1.81	191.74	0.8	2140			1.27	Si
SLU 71	1187	-17996	882	686604		2.7	476.5	0.92	6106			6.92	Si
SLU 71	1503	-5141	1622	912595		2.02	182.19	0.82	2102			1.3	Si
SLU 80	1187	-18513	811	638517		2.78	476.5	0.93	6174			7.61	Si
SLU 80	1503	-5114	1683	907136		2	182.56	0.82	2102			1.25	Si
SLU 29	1187	-16335	1046	727913		2.45	476.5	0.88	5884			5.63	Si
SLU 29	1503	-5022	1662	897656		2.01	178.48	0.82	2058			1.24	Si
SLU 79	1187	-18481	925	657316		2.77	476.5	0.92	6170			6.67	Si
SLU 79	1503	-5097	1740	904175		1.99	182.6	0.82	2100			1.21	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	1187	-6986	-7373	-206409		1.05	476.5	1.04	6956			0.94	No, $V_u < V$
SLV 6	1503	-2317	-3366	738520		0	0	0.83	0			0	No, $V_u < V$
SLD 10	1187	-7914	-2839	-71190		1.19	476.5	1.07	7142			2.52	Si
SLD 10	1503	-1630	-961	402001		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1187	-9956	6186	205334		1.49	476.5	1.13	7550			1.22	Si
SLV 7	1503	-614	3544	-231657		0	0	0.83	0			0	No, $V_u < V$
SLV 5	1187	-6986	-7373	-206409		1.05	476.5	1.04	6956			0.94	No, $V_u < V$
SLV 5	1503	-2317	-3366	738520		0	0	0.83	0			0	No, $V_u < V$
SLV 2	1187	-7910	-3618	-84919		1.19	476.5	1.07	7141			1.97	Si
SLV 2	1503	-2020	-1598	485890		0	0	0.83	0			0	No, $V_u < V$
SLD 6	1187	-7874	-3196	-78787		1.18	476.5	1.07	7134			2.23	Si
SLD 6	1503	-1738	-1199	433633		0	0	0.83	0			0	No, $V_u < V$
SLD 9	1187	-7914	-2839	-71190		1.19	476.5	1.07	7142			2.52	Si
SLD 9	1503	-1630	-961	402001		0	0	0.83	0			0	No, $V_u < V$
SLV 9	1187	-7085	-6523	-187021		1.06	476.5	1.05	6976			1.07	Si
SLV 9	1503	-2061	-2808	664007		0	0	0.83	0			0	No, $V_u < V$
SLV 1	1187	-7910	-3618	-84919		1.19	476.5	1.07	7141			1.97	Si
SLV 1	1503	-2020	-1598	485890		0	0	0.83	0			0	No, $V_u < V$
SLV 8	1187	-9956	6186	205334		1.49	476.5	1.13	7550			1.22	Si
SLV 8	1503	-614	3544	-231657		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.03 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.53	0.64	-4282	28781	28402	0.99	No, $M > Mu$
SLV 13	14	0.53	0.64	-4282	28781	28402	0.99	No, $M > Mu$
SLV 16	14	0.53	0.65	-4369	28781	28942	1.01	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.53	0.65	-4369	28781	28942	1.01	Si
SLV 10	14	0.53	0.67	-4496	28781	29735	1.03	Si
SLV 9	14	0.53	0.67	-4496	28781	29735	1.03	Si
SLV 5	14	0.53	0.71	-4765	28781	31406	1.09	Si
SLV 6	14	0.53	0.71	-4765	28781	31406	1.09	Si
SLV 12	14	0.53	0.72	-4784	28781	31522	1.1	Si
SLV 11	14	0.53	0.72	-4784	28781	31522	1.1	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.03$   $T_a = 0.1191$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-2317	-6986	-16	0.028	5.544	0.89	46.335	2119.413	No
SLV 6	-2317	-6986	-16	0.028	5.544	0.89	46.335	2119.413	No
SLV 9	-2061	-7085	-12	0.03	5.307	0.889	48.606	2119.413	No
SLV 10	-2061	-7085	-12	0.03	5.307	0.889	48.606	2119.413	No
SLV 2	-2020	-7910	-10	0.03	5.269	0.889	49.376	2119.251	No
SLV 1	-2020	-7910	-10	0.03	5.269	0.889	49.376	2119.251	No
SLV 12	-358	-10055	16	0.034	3.968	0.937	52.32	2119.413	No
SLV 11	-358	-10055	16	0.034	3.968	0.937	52.32	2119.413	No
SLV 7	-614	-9956	12	0.034	4.114	0.915	54.102	2119.413	No
SLV 8	-614	-9956	12	0.034	4.114	0.915	54.102	2119.413	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.209	SLU 30	Si
V_SLU	1.154	SLU 37	Si
PF_SLV	0	SLD 5	No
V_SLV	0	SLD 5	No
PFFP_SLV	0.987	SLV 13	No
R_SLV	0.022	SLV 5	No

## Maschio 206

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	581.1	-515.8	600.6	L6	L7	19.5	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 49	1387	-5312	-4771	9.73	0	0	No, Rottura per schiacciamento
SLU 49	1467	-6653	31593	12.18	0	0	No, Rottura per schiacciamento
SLU 48	1387	-5348	-4624	9.79	0	0	No, Rottura per schiacciamento
SLU 48	1467	-6672	31359	12.22	0	0	No, Rottura per schiacciamento
SLU 47	1387	-3540	-3525	6.48	7046	1.999	Si
SLU 47	1467	-4505	23274	8.25	0	0	No, Rottura per schiacciamento
SLU 50	1387	-5654	-4950	10.35	0	0	No, Rottura per schiacciamento
SLU 50	1467	-7031	32443	12.88	0	0	No, Rottura per schiacciamento
SLU 38	1387	-6527	-5353	11.95	0	0	No, Rottura per schiacciamento
SLU 38	1467	-8183	38653	14.99	0	0	No, Rottura per schiacciamento
SLU 83	1387	-4650	-3688	8.52	0	0	No, Rottura per schiacciamento
SLU 83	1467	-5937	31292	10.87	0	0	No, Rottura per schiacciamento
SLU 42	1387	-4506	-3624	8.25	0	0	No, Rottura per schiacciamento
SLU 42	1467	-5756	29931	10.54	0	0	No, Rottura per schiacciamento
SLU 37	1387	-6562	-5206	12.02	0	0	No, Rottura per schiacciamento
SLU 37	1467	-8203	38419	15.02	0	0	No, Rottura per schiacciamento
SLU 51	1387	-5618	-5097	10.29	0	0	No, Rottura per schiacciamento
SLU 51	1467	-7011	32677	12.84	0	0	No, Rottura per schiacciamento
SLU 41	1387	-4541	-3477	8.32	0	0	No, Rottura per schiacciamento
SLU 41	1467	-5776	29698	10.58	0	0	No, Rottura per schiacciamento



Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	1387	-2302	-2434	4.22	14700	6.041	Si
SLV 12	1467	-3386	24722	6.2	16258	0.658	No, M>Mu
SLV 11	1387	-2302	-2434	4.22	14700	6.041	Si
SLV 11	1467	-3386	24722	6.2	16258	0.658	No, M>Mu
SLV 16	1387	-2124	-699	3.89	14114	20.193	Si
SLV 16	1467	-3029	25635	5.55	16124	0.629	No, M>Mu
SLD 15	1387	-1882	-1233	3.45	13173	10.684	Si
SLD 15	1467	-2581	18913	4.73	15430	0.816	No, M>Mu
SLV 8	1387	-2154	-3162	3.94	14219	4.498	Si
SLV 8	1467	-3104	19122	5.68	16183	0.846	No, M>Mu
SLV 15	1387	-2124	-699	3.89	14114	20.193	Si
SLV 15	1467	-3029	25635	5.55	16124	0.629	No, M>Mu
SLV 7	1387	-2154	-3162	3.94	14219	4.498	Si
SLV 7	1467	-3104	19122	5.68	16183	0.846	No, M>Mu
SLD 16	1387	-1882	-1233	3.45	13173	10.684	Si
SLD 16	1467	-2581	18913	4.73	15430	0.816	No, M>Mu
SLV 14	1387	-1822	60	3.34	12914	215.9	Si
SLV 14	1467	-2441	20818	4.47	15093	0.725	No, M>Mu
SLV 13	1387	-1822	60	3.34	12914	215.9	Si
SLV 13	1467	-2441	20818	4.47	15093	0.725	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 37	1387	-6562	-342	-5206		12.02	19.5	1.08	591			1.73	Si
SLU 37	1467	-8203	-1195	38419		19.27	15.2	1.08	461			0.39	No, Vu<V
SLU 38	1387	-6527	-345	-5353		11.95	19.5	1.08	591			1.71	Si
SLU 38	1467	-8183	-1206	38653		19.38	15.08	1.08	457			0.38	No, Vu<V
SLU 70	1387	-6250	-337	-5378		11.45	19.5	1.08	591			1.75	Si
SLU 70	1467	-7832	-1166	37209		18.65	15	1.08	455			0.39	No, Vu<V
SLU 79	1387	-6671	-348	-5417		12.22	19.5	1.08	591			1.7	Si
SLU 79	1467	-8364	-1255	40013		20.05	14.9	1.08	452			0.36	No, Vu<V
SLU 72	1387	-6556	-359	-5704		12.01	19.5	1.08	591			1.65	Si
SLU 72	1467	-8191	-1193	38292		19.21	15.22	1.08	462			0.39	No, Vu<V
SLU 77	1387	-6365	-326	-5092		11.66	19.5	1.08	591			1.81	Si
SLU 77	1467	-8005	-1227	38929		19.5	14.66	1.08	445			0.36	No, Vu<V
SLU 35	1387	-6256	-321	-4880		11.46	19.5	1.08	591			1.84	Si
SLU 35	1467	-7844	-1168	37335		18.71	14.97	1.08	454			0.39	No, Vu<V
SLU 78	1387	-6330	-329	-5239		11.59	19.5	1.08	591			1.8	Si
SLU 78	1467	-7985	-1238	39163		19.62	14.54	1.08	441			0.36	No, Vu<V
SLU 36	1387	-6221	-324	-5027		11.39	19.5	1.08	591			1.83	Si
SLU 36	1467	-7824	-1178	37569		18.82	14.85	1.08	450			0.38	No, Vu<V
SLU 80	1387	-6635	-351	-5564		12.15	19.5	1.08	591			1.69	Si
SLU 80	1467	-8344	-1266	40247		20.16	14.78	1.08	448			0.35	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1387	-1822	-38	60		3.34	19.5	1.5	819			21.55	Si
SLV 14	1467	-2441	-649	20818		23.77	3.67	1.63	167			0.26	No, Vu<V
SLD 15	1387	-1882	-69	-1233		3.45	19.5	1.52	831			11.97	Si
SLD 15	1467	-2581	-623	18913		12.68	7.27	1.63	331			0.53	No, Vu<V
SLV 13	1387	-1822	-38	60		3.34	19.5	1.5	819			21.55	Si
SLV 13	1467	-2441	-649	20818		23.77	3.67	1.63	167			0.26	No, Vu<V
SLV 11	1387	-2302	-104	-2434		4.22	19.5	1.63	887			8.53	Si
SLV 11	1467	-3386	-842	24722		16.46	7.34	1.63	334			0.4	No, Vu<V
SLD 14	1387	-1764	-62	-922		3.23	19.5	1.48	808			13.05	Si
SLD 14	1467	-2343	-549	16872		10.94	7.65	1.63	348			0.63	No, Vu<V
SLD 13	1387	-1764	-62	-922		3.23	19.5	1.48	808			13.05	Si
SLD 13	1467	-2343	-549	16872		10.94	7.65	1.63	348			0.63	No, Vu<V
SLD 16	1387	-1882	-69	-1233		3.45	19.5	1.52	831			11.97	Si
SLD 16	1467	-2581	-623	18913		12.68	7.27	1.63	331			0.53	No, Vu<V
SLV 12	1387	-2302	-104	-2434		4.22	19.5	1.63	887			8.53	Si
SLV 12	1467	-3386	-842	24722		16.46	7.34	1.63	334			0.4	No, Vu<V
SLV 16	1387	-2124	-59	-699		3.89	19.5	1.61	880			14.91	Si
SLV 16	1467	-3029	-825	25635		28.03	3.86	1.63	176			0.21	No, Vu<V
SLV 15	1387	-2124	-59	-699		3.89	19.5	1.61	880			14.91	Si
SLV 15	1467	-3029	-825	25635		28.03	3.86	1.63	176			0.21	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.53	0.86	-472	2253	6141	2.73	Si
SLV 5	14	0.53	0.86	-472	2253	6141	2.73	Si
SLV 9	14	0.53	0.96	-526	2253	6788	3.01	Si
SLV 10	14	0.53	0.96	-526	2253	6788	3.01	Si
SLV 2	14	0.53	0.97	-532	2253	6851	3.04	Si
SLV 1	14	0.53	0.97	-532	2253	6851	3.04	Si
SLV 4	14	0.53	1.17	-637	2253	8068	3.58	Si
SLV 3	14	0.53	1.17	-637	2253	8068	3.58	Si
SLV 14	14	0.53	1.31	-713	2253	8911	3.95	Si
SLV 13	14	0.53	1.31	-713	2253	8911	3.95	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-717	-444	120	0	0.976	0.932	0	1090.83	No





Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 15	-1335	-842	195	0	1.602	0.955	0	1055.091	No
SLV 13	-1236	-685	213	0	1.502	0.953	0	1055.091	No
SLV 4	-177	-675	-135	0	0.442	0.889	0	1055.091	No
SLV 1	-79	-518	-116	0	0.357	0.899	0	1055.091	No
SLV 10	-717	-444	120	0	0.976	0.932	0	1090.83	No
SLV 16	-1335	-842	195	0	1.602	0.955	0	1055.091	No
SLV 14	-1236	-685	213	0	1.502	0.953	0	1055.091	No
SLV 3	-177	-675	-135	0	0.442	0.889	0	1055.091	No
SLV 2	-79	-518	-116	0	0.357	0.899	0	1055.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 6	No
V_SLU	0.354	SLU 80	No
PF_SLV	0.629	SLV 15	No
V_SLV	0.213	SLV 15	No
PFFP_SLV	2.726	SLV 5	Si
R_SLV	0	SLV 1	No

## Maschio 207

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-515.8	650.6	-515.8	652.1	L6	L7	1.5	28	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau 0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLU 60	1387	-649	-17	15.46	0	0	No, Rottura per schiacciamento
SLU 60	1467	-641	22	15.27	0	0	No, Rottura per schiacciamento
SLU 59	1387	-1631	-56	38.83	0	0	No, Rottura per schiacciamento
SLU 59	1467	-1623	79	38.64	0	0	No, Rottura per schiacciamento
SLU 1	1387	-485	-15	11.55	0	0	No, Rottura per schiacciamento
SLU 1	1467	-479	20	11.4	0	0	No, Rottura per schiacciamento
SLU 53	1387	-1061	-33	25.27	0	0	No, Rottura per schiacciamento
SLU 53	1467	-1053	46	25.08	0	0	No, Rottura per schiacciamento
SLU 56	1387	-1569	-52	37.36	0	0	No, Rottura per schiacciamento
SLU 56	1467	-1561	74	37.17	0	0	No, Rottura per schiacciamento
SLU 55	1387	-1123	-37	26.74	0	0	No, Rottura per schiacciamento
SLU 55	1467	-1115	51	26.55	0	0	No, Rottura per schiacciamento
SLU 54	1387	-1061	-33	25.27	0	0	No, Rottura per schiacciamento
SLU 54	1467	-1053	46	25.08	0	0	No, Rottura per schiacciamento
SLU 58	1387	-1631	-56	38.82	0	0	No, Rottura per schiacciamento
SLU 58	1467	-1623	79	38.63	0	0	No, Rottura per schiacciamento
SLU 57	1387	-1569	-53	37.37	0	0	No, Rottura per schiacciamento
SLU 57	1467	-1561	74	37.18	0	0	No, Rottura per schiacciamento
SLU 61	1387	-649	-17	15.46	0	0	No, Rottura per schiacciamento
SLU 61	1467	-641	23	15.27	0	0	No, Rottura per schiacciamento

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma 0$	Mu	c.s.	Verifica
SLV 14	1387	-839	10	19.97	0	0	No, Rottura per schiacciamento
SLV 14	1467	-805	16	19.17	0	0	No, Rottura per schiacciamento
SLV 8	1387	-733	-70	17.46	0	0	No, Rottura per schiacciamento
SLV 8	1467	-717	55	17.08	0	0	No, Rottura per schiacciamento



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 14	1387	-696	-7	16.56	0	0	No, Rottura per schiacciamento
SLD 14	1467	-681	21	16.21	0	0	No, Rottura per schiacciamento
SLV 7	1387	-733	-70	17.46	0	0	No, Rottura per schiacciamento
SLV 7	1467	-717	55	17.08	0	0	No, Rottura per schiacciamento
SLV 13	1387	-839	10	19.97	0	0	No, Rottura per schiacciamento
SLV 13	1467	-805	16	19.17	0	0	No, Rottura per schiacciamento
SLV 12	1387	-927	-63	22.08	0	0	No, Rottura per schiacciamento
SLV 12	1467	-891	56	21.22	0	0	No, Rottura per schiacciamento
SLV 11	1387	-927	-63	22.08	0	0	No, Rottura per schiacciamento
SLV 11	1467	-891	56	21.22	0	0	No, Rottura per schiacciamento
SLD 15	1387	-757	-19	18.02	0	0	No, Rottura per schiacciamento
SLD 15	1467	-735	29	17.49	0	0	No, Rottura per schiacciamento
SLV 15	1387	-984	-19	23.43	0	0	No, Rottura per schiacciamento
SLV 15	1467	-938	35	22.34	0	0	No, Rottura per schiacciamento
SLD 16	1387	-757	-19	18.02	0	0	No, Rottura per schiacciamento
SLD 16	1467	-735	29	17.49	0	0	No, Rottura per schiacciamento

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	1387	-1911	-2	-64		45.49	1.5	1.08	46			23.39	Si
SLU 79	1467	-1903	-2	91		45.3	1.5	1.08	46			23.4	Si
SLU 30	1387	-1781	-2	-63		42.41	1.5	1.08	46			23.92	Si
SLU 30	1467	-1775	-2	89		42.26	1.5	1.08	46			23.92	Si
SLU 38	1387	-1861	-2	-63		44.32	1.5	1.08	46			23.75	Si
SLU 38	1467	-1855	-2	90		44.17	1.5	1.08	46			23.75	Si
SLU 80	1387	-1911	-2	-65		45.5	1.5	1.08	46			23.29	Si
SLU 80	1467	-1903	-2	92		45.31	1.5	1.08	46			23.3	Si
SLU 29	1387	-1781	-2	-63		42.4	1.5	1.08	46			24.02	Si
SLU 29	1467	-1775	-2	89		42.26	1.5	1.08	46			24.03	Si
SLU 78	1387	-1849	-2	-62		44.04	1.5	1.08	46			24.51	Si
SLU 78	1467	-1841	-2	87		43.84	1.5	1.08	46			24.52	Si
SLU 72	1387	-1831	-2	-64		43.59	1.5	1.08	46			23.46	Si
SLU 72	1467	-1823	-2	91		43.4	1.5	1.08	46			23.46	Si
SLU 37	1387	-1861	-2	-63		44.32	1.5	1.08	46			23.85	Si
SLU 37	1467	-1855	-2	89		44.17	1.5	1.08	46			23.86	Si
SLU 77	1387	-1849	-2	-61		44.03	1.5	1.08	46			24.62	Si
SLU 77	1467	-1841	-2	87		43.84	1.5	1.08	46			24.63	Si
SLU 71	1387	-1831	-2	-64		43.58	1.5	1.08	46			23.56	Si
SLU 71	1467	-1822	-2	91		43.39	1.5	1.08	46			23.56	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	1387	-927	-1	-63		22.08	1.5	1.63	68			100.47	Si
SLV 12	1467	-891	-1	56		21.22	1.5	1.63	68			73.04	Si
SLD 8	1387	-648	-1	-39		15.44	1.5	1.63	68			118.36	Si
SLD 8	1467	-634	-1	37		15.1	1.5	1.63	68			99.8	Si
SLD 11	1387	-731	-1	-36		17.41	1.5	1.63	68			117.95	Si
SLD 11	1467	-710	-1	38		16.89	1.5	1.63	68			99.03	Si
SLD 7	1387	-648	-1	-39		15.44	1.5	1.63	68			118.36	Si
SLD 7	1467	-634	-1	37		15.1	1.5	1.63	68			99.8	Si
SLD 12	1387	-731	-1	-36		17.41	1.5	1.63	68			117.95	Si
SLD 12	1467	-710	-1	38		16.89	1.5	1.63	68			99.03	Si
SLV 11	1387	-927	-1	-63		22.08	1.5	1.63	68			100.47	Si
SLV 11	1467	-891	-1	56		21.22	1.5	1.63	68			73.04	Si
SLV 15	1387	-984	-1	-19		23.43	1.5	1.63	68			122.61	Si
SLV 15	1467	-938	-1	35		22.34	1.5	1.63	68			103.86	Si
SLV 16	1387	-984	-1	-19		23.43	1.5	1.63	68			122.61	Si
SLV 16	1467	-938	-1	35		22.34	1.5	1.63	68			103.86	Si
SLV 7	1387	-733	-1	-70		17.46	1.5	1.63	68			99.92	Si
SLV 7	1467	-717	-1	55		17.08	1.5	1.63	68			74	Si
SLV 8	1387	-733	-1	-70		17.46	1.5	1.63	68			99.92	Si
SLV 8	1467	-717	-1	55		17.08	1.5	1.63	68			74	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.53	0	-4	173	0	0	No, $e > t/2$
SLV 5	14	0.53	0	-4	173	0	0	No, $e > t/2$
SLV 2	14	0.53	0	-9	173	0	0	No, $e > t/2$
SLV 1	14	0.53	0	-9	173	0	0	No, $e > t/2$
SLV 10	14	0.53	0.35	-15	173	198	1.14	Si
SLV 9	14	0.53	0.35	-15	173	198	1.14	Si
SLV 4	14	0.53	0.56	-24	173	315	1.82	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.53	0.56	-24	173	315	1.82	Si
SLV 13	14	0.53	1.04	-44	173	558	3.22	Si
SLV 14	14	0.53	1.04	-44	173	558	3.22	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	24	-33	-9	0	0	0	0	1055.091	No, Trazione
SLV 3	24	-33	-9	0	0	0	0	1055.091	No, Trazione
SLV 2	28	-23	-9	0	0	0	0	1055.091	No, Trazione
SLV 6	-11	-16	-2	0	0.032	0.889	0	1090.83	No
SLV 14	-98	-36	9	0	0.118	0.954	0	1055.091	No
SLV 1	28	-23	-9	0	0	0	0	1055.091	No, Trazione
SLV 13	-98	-36	9	0	0.118	0.954	0	1055.091	No
SLV 7	-25	-49	-3	0	0.045	0.901	0	1090.83	No
SLV 5	-11	-16	-2	0	0.032	0.889	0	1090.83	No
SLV 8	-25	-49	-3	0	0.045	0.901	0	1090.83	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	23.293	SLU 80	Si
PF_SLV	0	SLD 7	No
V_SLV	73.041	SLV 11	Si
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 4	No

## Maschio 208

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-296.3	595.1	-501.8	595.1	L6	L7	205.5	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 61	1277	-2358	-121259	0.41	230090	1.898	Si
SLU 61	1457	228	-110088	0	0	0	No, Trazione
SLU 59	1277	419	-198549	0	0	0	No, Trazione
SLU 59	1457	3005	-320948	0	0	0	No, Trazione
SLU 58	1277	384	-193774	0	0	0	No, Trazione
SLU 58	1457	2971	-317032	0	0	0	No, Trazione
SLU 56	1277	-295	-192168	0	0	0	No, e>l/2
SLU 56	1457	2291	-312378	0	0	0	No, Trazione
SLU 53	1277	-1700	-151555	0.3	168300	1.11	Si
SLU 53	1457	886	-206925	0	0	0	No, Trazione
SLU 60	1277	-2393	-116484	0.42	233294	2.003	Si
SLU 60	1457	193	-106173	0	0	0	No, Trazione
SLU 55	1277	-963	-161120	0	0	0	No, e>l/2
SLU 55	1457	1623	-218105	0	0	0	No, Trazione
SLU 57	1277	-260	-196943	0	0	0	No, e>l/2
SLU 57	1457	2326	-316293	0	0	0	No, Trazione
SLU 1	1277	-1785	-86446	0.31	176393	2.041	Si
SLU 1	1457	212	-93598	0	0	0	No, Trazione
SLU 54	1277	-1665	-156331	0.29	164991	1.055	Si
SLU 54	1457	921	-210841	0	0	0	No, Trazione

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 14	1277	-1150	-187557	0	0	0	No, e>l/2
SLV 14	1457	455	-74998	0	0	0	No, Trazione
SLV 8	1277	-3172	-106133	0.55	311193	2.932	Si
SLV 8	1457	-904	108382	0	0	0	No, e>l/2
SLV 11	1277	-3176	-168009	0.55	311622	1.855	Si
SLV 11	1457	-1119	171809	0	0	0	No, e>l/2
SLV 7	1277	-3172	-106133	0.55	311193	2.932	Si
SLV 7	1457	-904	108382	0	0	0	No, e>l/2
SLV 12	1277	-3176	-168009	0.55	311622	1.855	Si
SLV 12	1457	-1119	171809	0	0	0	No, e>l/2
SLV 6	1277	-46	-25148	0	0	0	No, e>l/2
SLV 6	1457	1905	-385162	0	0	0	No, Trazione
SLV 10	1277	-51	-87024	0	0	0	No, e>l/2
SLV 10	1457	1690	-321735	0	0	0	No, Trazione
SLV 9	1277	-51	-87024	0	0	0	No, e>l/2
SLV 9	1457	1690	-321735	0	0	0	No, Trazione
SLD 1	1277	-1407	-48228	0.24	141639	2.937	Si
SLD 1	1457	731	-183040	0	0	0	No, Trazione
SLV 13	1277	-1150	-187557	0	0	0	No, e>l/2



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 13	1457	455	-74998	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	1277	-1665	258	-156331		2.24	26.55	0.85	635			2.46	Si
SLU 54	1457	921	258	-210841		0	0	0.56	0			0	No, Vu<V
SLU 60	1277	-2393	-102	-116484		0.53	162.2	0.63	2842			27.95	Si
SLU 60	1457	193	-102	-106173		0	0	0.56	0			0	No, Vu<V
SLU 59	1277	419	636	-198549		0	0	0.56	0			0	No, Vu<V
SLU 59	1457	3005	636	-320948		0	0	0.56	0			0	No, Vu<V
SLU 53	1277	-1700	263	-151555		1.49	40.73	0.75	860			3.27	Si
SLU 53	1457	886	263	-206925		0	0	0.56	0			0	No, Vu<V
SLU 1	1277	-1785	6	-86446		0.39	162.94	0.61	2773			500.63	Si
SLU 1	1457	212	6	-93598		0	0	0.56	0			0	No, Vu<V
SLU 61	1277	-2358	-106	-121259		0.55	153.97	0.63	2710			25.45	Si
SLU 61	1457	228	-106	-110088		0	0	0.56	0			0	No, Vu<V
SLU 55	1277	-963	272	-161120		0	0	0.56	0			0	No, Vu<V
SLU 55	1457	1623	272	-218105		0	0	0.56	0			0	No, Vu<V
SLU 56	1277	-295	623	-192168		0	0	0.56	0			0	No, Vu<V
SLU 56	1457	2291	623	-312378		0	0	0.56	0			0	No, Vu<V
SLU 58	1277	384	640	-193774		0	0	0.56	0			0	No, Vu<V
SLU 58	1457	2971	640	-317032		0	0	0.56	0			0	No, Vu<V
SLU 57	1277	-260	619	-196943		0	0	0.56	0			0	No, Vu<V
SLU 57	1457	2326	619	-316293		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 1	1277	-1407	845	-48228		0.24	205.39	0.88	5074			6.01	Si
SLD 1	1457	731	549	-183040		0	0	0.83	0			0	No, Vu<V
SLV 12	1277	-3176	-2119	-168009		0.76	149.57	0.99	4125			1.95	Si
SLV 12	1457	-1119	-1355	171809		0	0	0.83	0			0	No, Vu<V
SLV 14	1277	-1150	-895	-187557		0	0	0.83	0			0	No, Vu<V
SLV 14	1457	455	-552	-74998		0	0	0.83	0			0	No, Vu<V
SLV 13	1277	-1150	-895	-187557		0	0	0.83	0			0	No, Vu<V
SLV 13	1457	455	-552	-74998		0	0	0.83	0			0	No, Vu<V
SLV 10	1277	-51	1304	-87024		0	0	0.83	0			0	No, Vu<V
SLV 10	1457	1690	856	-321735		0	0	0.83	0			0	No, Vu<V
SLV 8	1277	-3172	-1261	-106133		0.55	205.5	0.94	5429			4.31	Si
SLV 8	1457	-904	-812	108382		0	0	0.83	0			0	No, Vu<V
SLV 6	1277	-46	2162	-25148		0	0	0.83	0			0	No, Vu<V
SLV 6	1457	1905	1399	-385162		0	0	0.83	0			0	No, Vu<V
SLV 7	1277	-3172	-1261	-106133		0.55	205.5	0.94	5429			4.31	Si
SLV 7	1457	-904	-812	108382		0	0	0.83	0			0	No, Vu<V
SLV 11	1277	-3176	-2119	-168009		0.76	149.57	0.99	4125			1.95	Si
SLV 11	1457	-1119	-1355	171809		0	0	0.83	0			0	No, Vu<V
SLV 9	1277	-51	1304	-87024		0	0	0.83	0			0	No, Vu<V
SLV 9	1457	1690	856	-321735		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.53	0	675	23206	0	0	No, Trazione
SLV 6	14	0.53	0	675	23206	0	0	No, Trazione
SLV 1	14	0.53	0	-437	23206	0	0	No, e>t/2
SLV 3	14	0.53	0	-1391	23206	0	0	No, e>t/2
SLV 9	14	0.53	0	675	23206	0	0	No, Trazione
SLV 4	14	0.53	0	-1391	23206	0	0	No, e>t/2
SLV 13	14	0.53	0	-439	23206	0	0	No, e>t/2
SLV 2	14	0.53	0	-437	23206	0	0	No, e>t/2
SLV 10	14	0.53	0	675	23206	0	0	No, Trazione
SLV 14	14	0.53	0	-439	23206	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	1164	-3153	121	0	0	0	0	1055.091	No, Trazione
SLV 7	-722	-2470	491	0	3.681	0.904	0	1090.83	No
SLV 9	2305	-1375	-510	0	0	0	0	1090.83	No, Trazione
SLV 8	-722	-2470	491	0	3.681	0.904	0	1090.83	No
SLV 1	2236	-3036	-183	0	0	0	0	1055.091	No, Trazione
SLV 6	2850	-2079	-523	0	0	0	0	1090.83	No, Trazione
SLV 2	2236	-3036	-183	0	0	0	0	1055.091	No, Trazione
SLV 5	2850	-2079	-523	0	0	0	0	1090.83	No, Trazione
SLV 10	2305	-1375	-510	0	0	0	0	1090.83	No, Trazione
SLV 4	1164	-3153	121	0	0	0	0	1055.091	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0	SLV 14	No



## Maschio 209

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	595.1	-206.3	595.1	L6	L7	194	28	316	316	316			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 40	1277	-2701	-167124	0.5	245998	1.472	Si
SLU 40	1457	-1986	35520	0.37	183969	5.179	Si
SLU 38	1277	-3387	-193092	0.62	303363	1.571	Si
SLU 38	1457	-2678	114032	0.49	244052	2.14	Si
SLU 41	1277	-3057	-183881	0.56	276047	1.501	Si
SLU 41	1457	-2345	72103	0.43	215381	2.987	Si
SLU 42	1277	-3016	-185512	0.56	272602	1.469	Si
SLU 42	1457	-2347	73862	0.43	215569	2.919	Si
SLU 34	1277	-3044	-175792	0.56	274977	1.564	Si
SLU 34	1457	-2318	76863	0.43	213102	2.773	Si
SLU 39	1277	-2742	-165493	0.5	249500	1.508	Si
SLU 39	1457	-1984	33761	0.37	183777	5.444	Si
SLU 31	1277	-2729	-157404	0.5	248412	1.578	Si
SLU 31	1457	-1957	38521	0.36	181457	4.711	Si
SLU 37	1277	-3428	-191461	0.63	306742	1.602	Si
SLU 37	1457	-2676	112273	0.49	243866	2.172	Si
SLU 21	1277	-2875	-157022	0.53	260727	1.66	Si
SLU 21	1457	-2045	59084	0.38	189189	3.202	Si
SLU 84	1277	-3804	-206037	0.7	337230	1.637	Si
SLU 84	1457	-2718	76318	0.5	247444	3.242	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLD 16	1277	-2573	-173293	0.47	239880	1.384	Si
SLD 16	1457	-1868	45275	0.34	176081	3.889	Si
SLV 11	1277	-2830	-262331	0.52	262778	1.002	Si
SLV 11	1457	-2147	20362	0.4	201535	9.898	Si
SLV 13	1277	-2153	-180964	0.4	202063	1.117	Si
SLV 13	1457	-1897	81769	0.35	178723	2.186	Si
SLV 12	1277	-2830	-262331	0.52	262778	1.002	Si
SLV 12	1457	-2147	20362	0.4	201535	9.898	Si
SLV 14	1277	-2153	-180964	0.4	202063	1.117	Si
SLV 14	1457	-1897	81769	0.35	178723	2.186	Si
SLV 8	1277	-3174	-202637	0.58	293142	1.447	Si
SLV 8	1457	-1957	-7918	0.36	184192	23.263	Si
SLD 15	1277	-2573	-173293	0.47	239880	1.384	Si
SLD 15	1457	-1868	45275	0.34	176081	3.889	Si
SLV 16	1277	-2280	-250660	0	0	0	No, e>l/2
SLV 16	1457	-2115	68654	0.39	198610	2.893	Si
SLV 15	1277	-2280	-250660	0	0	0	No, e>l/2
SLV 15	1457	-2115	68654	0.39	198610	2.893	Si
SLV 7	1277	-3174	-202637	0.58	293142	1.447	Si
SLV 7	1457	-1957	-7918	0.36	184192	23.263	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	1277	-4215	-2569	-211986		1.07	140.14	0.7	2742			1.07	Si
SLU 79	1457	-3047	-2362	114728		0.61	178.04	0.64	3176			1.34	Si
SLU 84	1277	-3804	-2341	-206037		1.06	128.49	0.7	2506			1.07	Si
SLU 84	1457	-2718	-2201	76318		0.5	194	0.62	3380			1.54	Si
SLU 34	1277	-3044	-2076	-175792		0.92	117.76	0.68	2238			1.08	Si
SLU 34	1457	-2318	-1937	76863		0.43	191.54	0.61	3289			1.7	Si
SLU 42	1277	-3016	-2143	-185512		1.01	106.47	0.69	2058			0.96	No, Vu<V
SLU 42	1457	-2347	-2005	73862		0.43	194	0.61	3331			1.66	Si
SLU 41	1277	-3057	-2101	-183881		0.99	110.55	0.69	2127			1.01	Si
SLU 41	1457	-2345	-1963	72103		0.43	194	0.61	3330			1.7	Si
SLU 83	1277	-3845	-2298	-204406		1.04	131.5	0.69	2558			1.11	Si
SLU 83	1457	-2716	-2159	74559		0.5	194	0.62	3380			1.57	Si
SLU 37	1277	-3428	-2371	-191461		0.99	123.44	0.69	2377			1	Si
SLU 37	1457	-2676	-2166	112273		0.58	165.13	0.63	2925			1.35	Si
SLU 36	1277	-3687	-2435	-186539		0.95	139.23	0.68	2657			1.09	Si
SLU 36	1457	-3056	-2240	117642		0.62	175.5	0.64	3137			1.4	Si
SLU 38	1277	-3387	-2414	-193092		1.01	119.95	0.69	2318			0.96	No, Vu<V
SLU 38	1457	-2678	-2208	114032		0.59	163.26	0.63	2897			1.31	Si
SLU 80	1277	-4174	-2612	-213617		1.08	137.48	0.7	2695			1.03	Si
SLU 80	1457	-3049	-2404	116488		0.62	176.39	0.64	3150			1.31	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 12	1277	-2807	-1734	-178133		1	100.61	1.03	2909			1.68	Si
SLD 12	1457	-1881	-1193	24841		0.35	194	0.9	4903			4.11	Si
SLV 14	1277	-2153	-2642	-180964		1.98	38.84	1.23	1337			0.51	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1457	-1897	-2014	81769		0.42	161.67	0.92	4152			2.06	Si
SLV 11	1277	-2830	-2429	-262331		7.85	12.88	1.63	586			0.24	No, Vu<V
SLV 11	1457	-2147	-1204	20362		0.4	194	0.91	4956			4.12	Si
SLV 13	1277	-2153	-2642	-180964		1.98	38.84	1.23	1337			0.51	No, Vu<V
SLV 13	1457	-1897	-2014	81769		0.42	161.67	0.92	4152			2.06	Si
SLV 12	1277	-2830	-2429	-262331		7.85	12.88	1.63	586			0.24	No, Vu<V
SLV 12	1457	-2147	-1204	20362		0.4	194	0.91	4956			4.12	Si
SLV 15	1277	-2280	-3071	-250660		0	0	0.83	0			0	No, Vu<V
SLV 15	1457	-2115	-1890	68654		0.39	193.61	0.91	4941			2.61	Si
SLV 16	1277	-2280	-3071	-250660		0	0	0.83	0			0	No, Vu<V
SLV 16	1457	-2115	-1890	68654		0.39	193.61	0.91	4941			2.61	Si
SLD 11	1277	-2807	-1734	-178133		1	100.61	1.03	2909			1.68	Si
SLD 11	1457	-1881	-1193	24841		0.35	194	0.9	4903			4.11	Si
SLD 16	1277	-2573	-2006	-173293		1.03	88.93	1.04	2589			1.29	Si
SLD 16	1457	-1868	-1482	45275		0.34	194	0.9	4900			3.31	Si
SLD 15	1277	-2573	-2006	-173293		1.03	88.93	1.04	2589			1.29	Si
SLD 15	1457	-1868	-1482	45275		0.34	194	0.9	4900			3.31	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.53	0.41	-2246	21907	30385	1.39	Si
SLV 10	14	0.53	0.41	-2246	21907	30385	1.39	Si
SLV 6	14	0.53	0.43	-2320	21907	31348	1.43	Si
SLV 5	14	0.53	0.43	-2320	21907	31348	1.43	Si
SLV 14	14	0.53	0.44	-2393	21907	32300	1.47	Si
SLV 13	14	0.53	0.44	-2393	21907	32300	1.47	Si
SLV 15	14	0.53	0.48	-2593	21907	34889	1.59	Si
SLV 16	14	0.53	0.48	-2593	21907	34889	1.59	Si
SLV 2	14	0.53	0.49	-2640	21907	35486	1.62	Si
SLV 1	14	0.53	0.49	-2640	21907	35486	1.62	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1345 Wa = 0.05 Ta = 0.0596

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-927	-2422	-148	0.012	3.665	0.895	19.756	1090.83	No
SLV 10	-927	-2422	-148	0.012	3.665	0.895	19.756	1090.83	No
SLV 5	-865	-2051	-128	0.019	3.616	0.897	31.57	1090.83	No
SLV 6	-865	-2051	-128	0.019	3.616	0.897	31.57	1090.83	No
SLV 13	-1071	-3835	-119	0.025	3.784	0.892	40.74	1055.091	No
SLV 14	-1071	-3835	-119	0.025	3.784	0.892	40.74	1055.091	No
SLV 16	-1132	-4675	-74	0.042	3.835	0.891	68.584	1055.091	No
SLV 15	-1132	-4675	-74	0.042	3.835	0.891	68.584	1055.091	No
SLV 1	-864	-2598	-53	0.051	3.614	0.897	81.847	1055.091	No
SLV 2	-864	-2598	-53	0.051	3.614	0.897	81.847	1055.091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.469	SLU 42	Si
V_SLU	0.96	SLU 38	No
PF_SLV	0	SLV 15	No
V_SLV	0	SLV 15	No
PFFP_SLV	1.387	SLV 9	Si
R_SLV	0.018	SLV 9	No

## Maschio 210

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	-335.9	-12.3	595.1	L6	L7	931	28	316	316	316			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	1187	-20056	281892	0.77	8454314	29.991	Si
SLU 1	1503	-1108	89889	0.04	513101	5.708	Si
SLU 39	1187	-25292	370906	0.97	10371272	27.962	Si
SLU 39	1503	-1881	131948	0.07	868023	6.579	Si
SLU 60	1187	-27693	384045	1.06	11210024	29.189	Si
SLU 60	1503	-1430	118119	0.05	661232	5.598	Si
SLU 62	1187	-29072	454556	1.12	11680360	25.696	Si
SLU 62	1503	-2440	164183	0.09	1122625	6.838	Si
SLU 64	1187	-27842	401415	1.07	11261262	28.054	Si
SLU 64	1503	-1824	136819	0.07	841759	6.152	Si
SLU 22	1187	-22749	335084	0.87	9455091	28.217	Si
SLU 22	1503	-1692	120268	0.06	781183	6.495	Si
SLU 43	1187	-25150	348223	0.96	10320619	29.638	Si
SLU 43	1503	-1240	106439	0.05	574016	5.393	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 18	1187	-22600	317714	0.87	9400524	29.588	Si
SLU 18	1503	-1298	101568	0.05	600427	5.912	Si
SLU 81	1187	-30386	437236	1.17	12120638	27.721	Si
SLU 81	1503	-2014	148499	0.08	928490	6.253	Si
SLU 45	1187	-27008	406541	1.04	10973011	26.991	Si
SLU 45	1503	-2192	145736	0.08	1009868	6.929	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 10	1187	-21399	-1248046	0.82	9292191	7.445	Si
SLV 10	1503	-1405	-253462	0.05	651199	2.569	Si
SLV 8	1187	-21269	1856554	0.82	9239551	4.977	Si
SLV 8	1503	-1220	455271	0.05	565891	1.243	Si
SLV 7	1187	-21269	1856554	0.82	9239551	4.977	Si
SLV 7	1503	-1220	455271	0.05	565891	1.243	Si
SLV 11	1187	-22272	2052001	0.85	9642872	4.699	Si
SLV 11	1503	-1043	426340	0.04	484046	1.135	Si
SLV 9	1187	-21399	-1248046	0.82	9292191	7.445	Si
SLV 9	1503	-1405	-253462	0.05	651199	2.569	Si
SLD 7	1187	-21308	963989	0.82	9255306	9.601	Si
SLD 7	1503	-1268	250083	0.05	587860	2.351	Si
SLD 12	1187	-21733	1046933	0.83	9426384	9.004	Si
SLD 12	1503	-1196	237067	0.05	554871	2.341	Si
SLV 12	1187	-22272	2052001	0.85	9642872	4.699	Si
SLV 12	1503	-1043	426340	0.04	484046	1.135	Si
SLD 8	1187	-21308	963989	0.82	9255306	9.601	Si
SLD 8	1503	-1268	250083	0.05	587860	2.351	Si
SLD 11	1187	-21733	1046933	0.83	9426384	9.004	Si
SLD 11	1503	-1196	237067	0.05	554871	2.341	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 60	1187	-27693	912	384045		1.06	931	0.7	18175			19.94	Si
SLU 60	1503	-1430	879	118119		0.05	931	0.56	14673			16.69	Si
SLU 53	1187	-28788	860	431616		1.1	931	0.7	18321			21.3	Si
SLU 53	1503	-2325	788	153912		0.09	931	0.57	14792			18.78	Si
SLU 83	1187	-31765	989	507747		1.22	931	0.72	18718			18.93	Si
SLU 83	1503	-3023	887	194563		0.12	931	0.57	14885			16.78	Si
SLU 62	1187	-29072	886	454556		1.12	931	0.7	18359			20.72	Si
SLU 62	1503	-2440	805	164183		0.09	931	0.57	14808			18.39	Si
SLU 74	1187	-31481	963	484807		1.21	931	0.72	18680			19.4	Si
SLU 74	1503	-2908	870	184292		0.11	931	0.57	14870			17.1	Si
SLU 81	1187	-30386	1015	437236		1.17	931	0.71	18534			18.27	Si
SLU 81	1503	-2014	961	148499		0.08	931	0.57	14751			15.34	Si
SLU 82	1187	-30485	772	357472		1.17	931	0.71	18547			24.02	Si
SLU 82	1503	-2076	839	118056		0.08	931	0.57	14759			17.6	Si
SLU 64	1187	-27842	870	401415		1.07	931	0.7	18195			20.91	Si
SLU 64	1503	-1824	817	136819		0.07	931	0.56	14725			18.01	Si
SLU 77	1187	-32860	937	555318		1.26	931	0.72	18864			20.13	Si
SLU 77	1503	-3918	795	230356		0.15	931	0.58	15005			18.86	Si
SLU 39	1187	-25292	865	370906		0.97	931	0.68	17855			20.65	Si
SLU 39	1503	-1881	813	131948		0.07	931	0.57	14733			18.12	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	1187	-21399	-6960	-1248046		0.82	931	1	26003			3.74	Si
SLV 10	1503	-1405	-2671	-253462		0.06	855.35	0.85	20239			7.58	Si
SLD 8	1187	-21308	3945	963989		0.82	931	1	25985			6.59	Si
SLD 8	1503	-1268	2039	250083		0.06	804.78	0.84	19032			9.34	Si
SLD 7	1187	-21308	3945	963989		0.82	931	1	25985			6.59	Si
SLD 7	1503	-1268	2039	250083		0.06	804.78	0.84	19032			9.34	Si
SLV 6	1187	-20396	-6770	-1443493		0.78	931	0.99	25802			3.81	Si
SLV 6	1503	-1582	-2887	-224531		0.06	931	0.85	22040			7.63	Si
SLV 7	1187	-21269	8311	1856554		0.82	931	1	25977			3.13	Si
SLV 7	1503	-1220	3950	455271		0.16	277.29	0.86	6714			1.7	Si
SLV 11	1187	-22272	8121	2052001		0.85	931	1	26178			3.22	Si
SLV 11	1503	-1043	4166	426340		0.22	170.51	0.88	4187			1.01	Si
SLV 9	1187	-21399	-6960	-1248046		0.82	931	1	26003			3.74	Si
SLV 9	1503	-1405	-2671	-253462		0.06	855.35	0.85	20239			7.58	Si
SLV 8	1187	-21269	8311	1856554		0.82	931	1	25977			3.13	Si
SLV 8	1503	-1220	3950	455271		0.16	277.29	0.86	6714			1.7	Si
SLV 5	1187	-20396	-6770	-1443493		0.78	931	0.99	25802			3.81	Si
SLV 5	1503	-1582	-2887	-224531		0.06	931	0.85	22040			7.63	Si
SLV 12	1187	-22272	8121	2052001		0.85	931	1	26178			3.22	Si
SLV 12	1503	-1043	4166	426340		0.22	170.51	0.88	4187			1.01	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1345 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.53	0.39	-10174	108799	137888	1.27	Si
SLV 15	14	0.53	0.39	-10174	108799	137888	1.27	Si
SLV 13	14	0.53	0.39	-10191	108799	138113	1.27	Si
SLV 14	14	0.53	0.39	-10191	108799	138113	1.27	Si
SLV 12	14	0.53	0.4	-10315	108799	139739	1.28	Si
SLV 11	14	0.53	0.4	-10315	108799	139739	1.28	Si
SLV 9	14	0.53	0.4	-10373	108799	140487	1.29	Si
SLV 10	14	0.53	0.4	-10373	108799	140487	1.29	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.53	0.4	-10454	108799	141548	1.3	Si
SLV 7	14	0.53	0.4	-10454	108799	141548	1.3	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1345  $W_a = 0.05$   $T_a = 0.0596$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-1662	-19531	-772	0	15.639	0.93	0	1055.091	No
SLV 4	-1554	-19792	-795	0	15.582	0.933	0	1055.091	No
SLV 2	-1662	-19531	-772	0	15.639	0.93	0	1055.091	No
SLV 3	-1554	-19792	-795	0	15.582	0.933	0	1055.091	No
SLV 8	-1220	-21269	-477	0.027	15.423	0.943	41.824	1090.83	No
SLV 7	-1220	-21269	-477	0.027	15.423	0.943	41.824	1090.83	No
SLV 5	-1582	-20396	-398	0.037	15.597	0.932	56.953	1090.83	No
SLV 6	-1582	-20396	-398	0.037	15.597	0.932	56.953	1090.83	No
SLV 13	-1072	-22876	217	0.057	15.36	0.948	88.108	1055.091	No
SLV 14	-1072	-22876	217	0.057	15.36	0.948	88.108	1055.091	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	5.393	SLV 43	Si
V_SLV	15.344	SLV 81	Si
PF_SLV	1.135	SLV 11	Si
V_SLV	1.005	SLV 11	Si
PFFP_SLV	1.267	SLV 15	Si
R_SLV	0	SLV 1	No

## Maschio 211

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1633.3	-335.9	-1720.3	-335.9	L6	F1	87	28	319.3	319.3	319.3			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 52	1187	-2307	-40813	0.95	88686	2.173	Si
SLV 52	1397	-1673	14052	0.69	66627	4.741	Si
SLV 39	1187	-2100	-37860	0.86	81676	2.157	Si
SLV 39	1397	-1268	7221	0.52	51635	7.151	Si
SLV 31	1187	-1863	-36810	0.76	73428	1.995	Si
SLV 31	1397	-1693	11417	0.69	67348	5.899	Si
SLV 81	1187	-2667	-45478	1.09	100434	2.208	Si
SLV 81	1397	-1492	8909	0.61	60011	6.736	Si
SLV 73	1187	-2430	-44428	1	92776	2.088	Si
SLV 73	1397	-1916	13105	0.79	75309	5.747	Si
SLV 10	1187	-1739	-33196	0.71	69031	2.079	Si
SLV 10	1397	-1449	12364	0.59	58428	4.726	Si
SLV 82	1187	-2515	-45698	1.03	95537	2.091	Si
SLV 82	1397	-1747	12079	0.72	69287	5.736	Si
SLV 61	1187	-2392	-42084	0.98	91493	2.174	Si
SLV 61	1397	-1503	13026	0.62	60424	4.639	Si
SLV 19	1187	-1824	-34467	0.75	72048	2.09	Si
SLV 19	1397	-1279	11338	0.53	52058	4.592	Si
SLV 40	1187	-1947	-38081	0.8	76400	2.006	Si
SLV 40	1397	-1523	10390	0.63	61160	5.886	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	1187	1160	-4218	0	0	0	No, Trazione
SLV 11	1397	-914	-20943	0.38	38534	1.84	Si
SLV 13	1187	-4558	-89834	1.87	167919	1.869	Si
SLV 13	1397	-99	77961	0	0	0	No, e>1/2
SLV 12	1187	1160	-4218	0	0	0	No, Trazione
SLV 12	1397	-914	-20943	0.38	38534	1.84	Si
SLV 7	1187	2006	23388	0	0	0	No, Trazione
SLV 7	1397	-1491	-56821	0.61	61605	1.084	Si
SLV 14	1187	-4558	-89834	1.87	167919	1.869	Si
SLV 14	1397	-99	77961	0	0	0	No, e>1/2
SLV 9	1187	-6120	-86386	2.51	211472	2.448	Si
SLV 9	1397	-697	66819	0	0	0	No, e>1/2
SLV 10	1187	-6120	-86386	2.51	211472	2.448	Si
SLV 10	1397	-697	66819	0	0	0	No, e>1/2
SLV 4	1187	444	26835	0	0	0	No, Trazione
SLV 4	1397	-2088	-67963	0.86	84455	1.243	Si
SLV 16	1187	-2374	-65183	0.97	95047	1.458	Si
SLV 16	1397	-165	51632	0	0	0	No, e>1/2
SLV 8	1187	2006	23388	0	0	0	No, Trazione
SLV 8	1397	-1491	-56821	0.61	61605	1.084	Si





Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1187	-2667	-1054	-45478		1.2	79.35	0.72	1590			1.51	Si
SLU 81	1397	-1492	22	8909		0.61	87	0.64	1552			71.63	Si
SLU 83	1187	-2863	-962	-42265		1.19	86.21	0.71	1723			1.79	Si
SLU 83	1397	-2055	277	-1517		0.84	87	0.67	1627			5.86	Si
SLU 52	1187	-2307	-846	-40813		1.06	77.43	0.7	1512			1.79	Si
SLU 52	1397	-1673	-78	14052		0.69	87	0.65	1576			20.13	Si
SLU 60	1187	-2544	-964	-41864		1.12	81.13	0.7	1601			1.66	Si
SLU 60	1397	-1248	-40	9856		0.51	87	0.62	1520			37.53	Si
SLU 40	1187	-1947	-837	-38081		0.97	71.84	0.68	1377			1.65	Si
SLU 40	1397	-1523	11	10390		0.63	87	0.64	1556			146.53	Si
SLU 73	1187	-2430	-937	-44428		1.15	75.66	0.71	1501			1.6	Si
SLU 73	1397	-1916	-16	13105		0.79	87	0.66	1609			99.8	Si
SLU 82	1187	-2515	-1006	-45698		1.18	75.99	0.71	1517			1.51	Si
SLU 82	1397	-1747	-7	12079		0.72	87	0.65	1586			220.61	Si
SLU 39	1187	-2100	-885	-37860		0.98	76.41	0.69	1469			1.66	Si
SLU 39	1397	-1268	39	7221		0.52	87	0.62	1522			38.56	Si
SLU 61	1187	-2392	-916	-42084		1.1	77.71	0.7	1528			1.67	Si
SLU 61	1397	-1503	-69	13026		0.62	87	0.64	1554			22.4	Si
SLU 31	1187	-1863	-767	-36810		0.93	71.22	0.68	1356			1.77	Si
SLU 31	1397	-1693	2	11417		0.69	87	0.65	1579			933.93	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	1187	1160	55	-4218		0	0	0.83	0			0	No, Vu<V
SLV 11	1397	-914	439	-20943		0.53	61.75	0.94	1624			3.7	Si
SLV 7	1187	2006	502	23388		0	0	0.83	0			0	No, Vu<V
SLV 7	1397	-1491	1198	-56821		3.29	16.16	1.49	675			0.56	No, Vu<V
SLV 14	1187	-4558	-1763	-89834		2.28	71.38	1.29	2577			1.46	Si
SLV 14	1397	-99	-1481	77961		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	-6120	-1940	-86386		2.51	87	1.34	3254			1.68	Si
SLV 10	1397	-697	-1153	66819		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	-6120	-1940	-86386		2.51	87	1.34	3254			1.68	Si
SLV 9	1397	-697	-1153	66819		0	0	0.83	0			0	No, Vu<V
SLV 13	1187	-4558	-1763	-89834		2.28	71.38	1.29	2577			1.46	Si
SLV 13	1397	-99	-1481	77961		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	2006	502	23388		0	0	0.83	0			0	No, Vu<V
SLV 8	1397	-1491	1198	-56821		3.29	16.16	1.49	675			0.56	No, Vu<V
SLV 12	1187	1160	55	-4218		0	0	0.83	0			0	No, Vu<V
SLV 12	1397	-914	439	-20943		0.53	61.75	0.94	1624			3.7	Si
SLV 16	1187	-2374	-1165	-65183		1.76	48.14	1.19	1598			1.37	Si
SLV 16	1397	-165	-1004	51632		0	0	0.83	0			0	No, Vu<V
SLV 4	1187	444	325	26835		0	0	0.83	0			0	No, Vu<V
SLV 4	1397	-2088	1526	-67963		2.27	32.85	1.29	1184			0.78	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1346.7 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 14	14	0.53	0	427	10038	0	0	No, Trazione
SLV 10	14	0.53	0	1863	10038	0	0	No, Trazione
SLV 9	14	0.53	0	1863	10038	0	0	No, Trazione
SLV 5	14	0.53	0	1374	10038	0	0	No, Trazione
SLV 13	14	0.53	0	427	10038	0	0	No, Trazione
SLV 6	14	0.53	0	1374	10038	0	0	No, Trazione
SLV 1	14	0.53	0.49	-1203	10038	16159	1.61	Si
SLV 2	14	0.53	0.49	-1203	10038	16159	1.61	Si
SLV 15	14	0.53	0.53	-1293	10038	17322	1.73	Si
SLV 16	14	0.53	0.53	-1293	10038	17322	1.73	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1346.7 Wa = 0.05 Ta = 0.0608

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-131	-6120	-120	0	1.464	0.938	0	1115.306	No
SLV 4	-340	444	26	0	0	0	0	1078.026	No, Trazione
SLV 11	-366	1160	187	0	0	0	0	1115.306	No, Trazione
SLV 10	-131	-6120	-120	0	1.464	0.938	0	1115.306	No
SLV 12	-366	1160	187	0	0	0	0	1115.306	No, Trazione
SLV 3	-340	444	26	0	0	0	0	1078.026	No, Trazione
SLV 5	-157	-5274	-145	0	1.477	0.93	0	1115.306	No
SLV 6	-157	-5274	-145	0	1.477	0.93	0	1115.306	No
SLV 8	-392	2006	162	0	0	0	0	1115.306	No, Trazione
SLV 7	-392	2006	162	0	0	0	0	1115.306	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.995	SLU 31	Si
V_SLU	1.508	SLU 82	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 13	No
PFFP_SLV	0	SLV 14	No
R_SLV	0	SLV 12	No



## Maschio 212

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-335.9	-1543.3	-335.9	L6	F1	168	28	319.1	319.1	319.2			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	1187	-4410	-67734	0.94	327798	4.839	Si
SLU 60	1397	-2897	96684	0.62	224942	2.327	Si
SLU 19	1187	-3429	-59918	0.73	262245	4.377	Si
SLU 19	1397	-2358	82174	0.5	185911	2.262	Si
SLU 39	1187	-3516	-69184	0.75	268240	3.877	Si
SLU 39	1397	-2755	93327	0.59	214757	2.301	Si
SLU 31	1187	-3634	-65529	0.77	276304	4.217	Si
SLU 31	1397	-2774	92042	0.59	216120	2.348	Si
SLU 61	1187	-4451	-68740	0.95	330445	4.807	Si
SLU 61	1397	-2913	98205	0.62	226063	2.302	Si
SLU 18	1187	-3388	-58913	0.72	259414	4.403	Si
SLU 18	1397	-2343	80653	0.5	184751	2.291	Si
SLU 40	1187	-3557	-70189	0.76	271048	3.862	Si
SLU 40	1397	-2770	94848	0.59	215888	2.276	Si
SLU 10	1187	-3506	-55258	0.75	267544	4.842	Si
SLU 10	1397	-2362	79368	0.5	186148	2.345	Si
SLU 82	1187	-4579	-79011	0.97	338674	4.286	Si
SLU 82	1397	-3325	110879	0.71	255040	2.3	Si
SLU 81	1187	-4538	-78005	0.96	336050	4.308	Si
SLU 81	1397	-3309	109358	0.7	253946	2.322	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 10	1187	-170	-56820	0	0	0	No, e>l/2
SLD 10	1397	-2099	148092	0.45	169844	1.147	Si
SLD 9	1187	-170	-56820	0	0	0	No, e>l/2
SLD 9	1397	-2099	148092	0.45	169844	1.147	Si
SLD 6	1187	-139	-25254	0	0	0	No, e>l/2
SLD 6	1397	-1841	112807	0.39	149707	1.327	Si
SLV 13	1187	-1292	-166442	0	0	0	No, e>l/2
SLV 13	1397	-3152	253280	0.67	250285	0.988	No, M>Mu
SLV 14	1187	-1292	-166442	0	0	0	No, e>l/2
SLV 14	1397	-3152	253280	0.67	250285	0.988	No, M>Mu
SLD 5	1187	-139	-25254	0	0	0	No, e>l/2
SLD 5	1397	-1841	112807	0.39	149707	1.327	Si
SLV 10	1187	4393	-70809	0	0	0	No, Trazione
SLV 10	1397	-1753	253293	0	0	0	No, e>l/2
SLV 5	1187	4472	2943	0	0	0	No, Trazione
SLV 5	1397	-1148	170591	0	0	0	No, e>l/2
SLV 9	1187	4393	-70809	0	0	0	No, Trazione
SLV 9	1397	-1753	253293	0	0	0	No, e>l/2
SLV 6	1187	4472	2943	0	0	0	No, Trazione
SLV 6	1397	-1148	170591	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1187	-4538	-1356	-78005	0.96	168	0.68	3218				2.37	Si
SLU 81	1397	-3309	-1367	109358	0.77	152.85	0.66	2819				2.06	Si
SLU 75	1187	-5081	-1431	-63036	1.08	168	0.7	3291				2.3	Si
SLU 75	1397	-4136	-1441	116724	0.88	167.34	0.67	3154				2.19	Si
SLU 77	1187	-5232	-1535	-48831	1.11	168	0.7	3311				2.16	Si
SLU 77	1397	-4696	-1526	116800	1	168	0.69	3239				2.12	Si
SLU 80	1187	-5013	-1489	-47281	1.07	168	0.7	3282				2.2	Si
SLU 80	1397	-4469	-1486	110252	0.95	168	0.68	3209				2.16	Si
SLU 73	1187	-4656	-1285	-74350	0.99	168	0.69	3234				2.52	Si
SLU 73	1397	-3328	-1309	108073	0.77	154.57	0.66	2848				2.18	Si
SLU 84	1187	-4771	-1454	-65811	1.01	168	0.69	3250				2.24	Si
SLU 84	1397	-3901	-1463	112476	0.84	165.49	0.67	3094				2.12	Si
SLU 82	1187	-4579	-1353	-79011	0.97	168	0.69	3224				2.38	Si
SLU 82	1397	-3325	-1372	110879	0.78	151.95	0.66	2807				2.05	Si
SLU 83	1187	-4730	-1457	-64806	1.01	168	0.69	3244				2.23	Si
SLU 83	1397	-3885	-1457	110955	0.83	166.32	0.67	3105				2.13	Si
SLU 78	1187	-5273	-1532	-49837	1.12	168	0.71	3316				2.16	Si
SLU 78	1397	-4712	-1531	118321	1	168	0.69	3242				2.12	Si
SLU 79	1187	-4972	-1492	-46276	1.06	168	0.7	3276				2.2	Si
SLU 79	1397	-4454	-1481	108731	0.95	168	0.68	3207				2.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 6	1187	4472	-3009	2943	0	0	0	0.83	0			0	No, Vu<V
SLV 6	1397	-1148	-3602	170591	0	0	0	0.83	0			0	No, Vu<V
SLD 5	1187	-139	-1762	-25254	0	0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 5	1397	-1841	-2007	112807		0.96	68.2	1.03	1960			0.98	No, Vu<V
SLD 10	1187	-170	-2301	-56820		0	0	0.83	0			0	No, Vu<V
SLD 10	1397	-2099	-2226	148092		1.86	40.3	1.21	1360			0.61	No, Vu<V
SLV 14	1187	-1292	-3800	-166442		0	0	0.83	0			0	No, Vu<V
SLV 14	1397	-3152	-2626	253280		10.26	10.97	1.63	499			0.19	No, Vu<V
SLV 5	1187	4472	-3009	2943		0	0	0.83	0			0	No, Vu<V
SLV 5	1397	-1148	-3602	170591		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	4393	-4269	-70809		0	0	0.83	0			0	No, Vu<V
SLV 10	1397	-1753	-4116	253293		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	4393	-4269	-70809		0	0	0.83	0			0	No, Vu<V
SLV 9	1397	-1753	-4116	253293		0	0	0.83	0			0	No, Vu<V
SLD 6	1187	-139	-1762	-25254		0	0	0.83	0			0	No, Vu<V
SLD 6	1397	-1841	-2007	112807		0.96	68.2	1.03	1960			0.98	No, Vu<V
SLD 9	1187	-170	-2301	-56820		0	0	0.83	0			0	No, Vu<V
SLD 9	1397	-2099	-2226	148092		1.86	40.3	1.21	1360			0.61	No, Vu<V
SLV 13	1187	-1292	-3800	-166442		0	0	0.83	0			0	No, Vu<V
SLV 13	1397	-3152	-2626	253280		10.26	10.97	1.63	499			0.19	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1346.5 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.53	0	-786	19363	0	0	No, $e > t/2$
SLV 9	14	0.53	0	-786	19363	0	0	No, $e > t/2$
SLV 5	14	0.53	0	-417	19363	0	0	No, $e > t/2$
SLV 6	14	0.53	0	-417	19363	0	0	No, $e > t/2$
SLV 2	14	0.53	0.34	-1592	19363	21674	1.12	Si
SLV 1	14	0.53	0.34	-1592	19363	21674	1.12	Si
SLV 14	14	0.53	0.6	-2822	19363	37574	1.94	Si
SLV 13	14	0.53	0.6	-2822	19363	37574	1.94	Si
SLV 4	14	0.53	0.63	-2968	19363	39412	2.04	Si
SLV 3	14	0.53	0.63	-2968	19363	39412	2.04	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 1346.5 Wa = 0.05 Ta = 0.0607

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	-700	4393	12	0	0	0	0	1114.069	No, Trazione
SLV 9	-700	4393	12	0	0	0	0	1114.069	No, Trazione
SLV 16	-1504	-6086	203	0	3.812	0.889	0	1076.867	No
SLV 6	-564	4472	-52	0	0	0	0	1114.069	No, Trazione
SLV 5	-564	4472	-52	0	0	0	0	1114.069	No, Trazione
SLV 15	-1504	-6086	203	0	3.812	0.889	0	1076.867	No
SLV 11	-1694	-11586	191	0.001	3.989	0.89	0.867	1114.069	No
SLV 12	-1694	-11586	191	0.001	3.989	0.89	0.867	1114.069	No
SLV 14	-1205	-1292	150	0.009	3.542	0.889	13.974	1076.867	No
SLV 13	-1205	-1292	150	0.009	3.542	0.889	13.974	1076.867	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.262	SLU 19	Si
V_SLU	2.046	SLU 82	Si
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 5	No
PFFP_SLV	0	SLV 5	No
R_SLV	0	SLV 10	No

## Maschio 213

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-944.8	-335.9	-1100.3	-335.9	L6	F1	155.5	28	318.9	318.8	318.9			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 31	1187	-2526	46485	0.58	182429	3.924	Si
SLU 31	1397	-2501	-57614	0.57	180765	3.138	Si
SLU 61	1187	-3141	43624	0.72	222563	5.102	Si
SLU 61	1397	-2595	-60393	0.6	186994	3.096	Si
SLU 40	1187	-2429	50140	0.56	175907	3.508	Si
SLU 40	1397	-2511	-58899	0.58	181390	3.08	Si
SLU 19	1187	-2347	39532	0.54	170409	4.311	Si
SLU 19	1397	-2107	-50068	0.48	154084	3.078	Si
SLU 18	1187	-2368	39039	0.54	171801	4.401	Si
SLU 18	1397	-2111	-49673	0.48	154346	3.107	Si
SLU 39	1187	-2449	49647	0.56	177292	3.571	Si
SLU 39	1397	-2515	-58504	0.58	181645	3.105	Si
SLU 73	1187	-3320	50577	0.76	233960	4.626	Si
SLU 73	1397	-2989	-67939	0.69	212831	3.133	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	1187	-3161	43131	0.73	223883	5.191	Si
SLU 60	1397	-2599	-59998	0.6	187248	3.121	Si
SLU 81	1187	-3243	53739	0.74	229089	4.263	Si
SLU 81	1397	-3003	-68829	0.69	213683	3.105	Si
SLU 82	1187	-3222	54232	0.74	227777	4.2	Si
SLU 82	1397	-2999	-69224	0.69	213437	3.083	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	1187	-675	85562	0	0	0	No, $e > l/2$
SLV 7	1397	-1652	-45875	0.38	124446	2.713	Si
SLV 16	1187	-2868	-72781	0.66	210973	2.899	Si
SLV 16	1397	-673	67888	0	0	0	No, $e > l/2$
SLV 13	1187	-3946	-85356	0.91	284048	3.328	Si
SLV 13	1397	-1233	47533	0.28	93636	1.97	Si
SLV 14	1187	-3946	-85356	0.91	284048	3.328	Si
SLV 14	1397	-1233	47533	0.28	93636	1.97	Si
SLV 3	1187	-1430	148254	0	0	0	No, $e > l/2$
SLV 3	1397	-3183	-143666	0.73	232673	1.62	Si
SLV 2	1187	-2508	135680	0.58	185771	1.369	Si
SLV 2	1397	-3743	-164020	0.86	270512	1.649	Si
SLV 8	1187	-675	85562	0	0	0	No, $e > l/2$
SLV 8	1397	-1652	-45875	0.38	124446	2.713	Si
SLV 1	1187	-2508	135680	0.58	185771	1.369	Si
SLV 1	1397	-3743	-164020	0.86	270512	1.649	Si
SLV 15	1187	-2868	-72781	0.66	210973	2.899	Si
SLV 15	1397	-673	67888	0	0	0	No, $e > l/2$
SLV 4	1187	-1430	148254	0	0	0	No, $e > l/2$
SLV 4	1397	-3183	-143666	0.73	232673	1.62	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	1187	-3243	1303	53739		0.74	155.5	0.65	2851			2.19	Si
SLU 81	1397	-3003	1275	-68829		0.69	155.5	0.65	2819			2.21	Si
SLU 74	1187	-3972	1324	44040		0.91	155.5	0.68	2948			2.23	Si
SLU 74	1397	-3818	1289	-75998		0.88	155.5	0.67	2928			2.27	Si
SLU 40	1187	-2429	1171	50140		0.56	155.5	0.63	2743			2.34	Si
SLU 40	1397	-2511	1155	-58899		0.58	155.5	0.63	2754			2.38	Si
SLU 73	1187	-3320	1239	50577		0.76	155.5	0.66	2862			2.31	Si
SLU 73	1397	-2989	1231	-67939		0.69	155.5	0.65	2817			2.29	Si
SLU 82	1187	-3222	1307	54232		0.74	155.5	0.65	2849			2.18	Si
SLU 82	1397	-2999	1289	-69224		0.69	155.5	0.65	2819			2.19	Si
SLU 84	1187	-3763	1320	47181		0.86	155.5	0.67	2921			2.21	Si
SLU 84	1397	-3638	1292	-70897		0.84	155.5	0.67	2904			2.25	Si
SLU 75	1187	-3951	1328	44533		0.91	155.5	0.68	2946			2.22	Si
SLU 75	1397	-3814	1304	-76393		0.88	155.5	0.67	2927			2.24	Si
SLU 77	1187	-4512	1337	36990		1.04	155.5	0.69	3021			2.26	Si
SLU 77	1397	-4457	1292	-77671		1.02	155.5	0.69	3013			2.33	Si
SLU 83	1187	-3783	1316	46689		0.87	155.5	0.67	2923			2.22	Si
SLU 83	1397	-3642	1277	-70502		0.84	155.5	0.67	2904			2.27	Si
SLU 78	1187	-4491	1341	37482		1.03	155.5	0.69	3018			2.25	Si
SLU 78	1397	-4453	1307	-78065		1.02	155.5	0.69	3013			2.3	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 4	1187	-2157	1929	81454		0.64	119.96	0.96	3230			1.67	Si
SLD 4	1397	-2628	1449	-89208		0.71	131.42	0.98	3592			2.48	Si
SLV 16	1187	-2868	-1103	-72781		0.66	155.5	0.97	4202			3.81	Si
SLV 16	1397	-673	211	67888		0	0	0.83	0		0	No, Vu<V	
SLV 1	1187	-2508	2742	135680		1.26	70.92	1.09	2156			0.79	No, Vu<V
SLV 1	1397	-3743	1394	-164020		1.31	101.77	1.1	3123			2.24	Si
SLV 3	1187	-1430	3432	148254		0	0	0.83	0		0	No, Vu<V	
SLV 3	1397	-3183	2346	-143666		1.16	97.84	1.07	2920			1.24	Si
SLV 15	1187	-2868	-1103	-72781		0.66	155.5	0.97	4202			3.81	Si
SLV 15	1397	-673	211	67888		0	0	0.83	0		0	No, Vu<V	
SLV 8	1187	-675	2650	85562		0	0	0.83	0		0	No, Vu<V	
SLV 8	1397	-1652	2709	-45875		0.39	149.94	0.91	3829			1.41	Si
SLV 7	1187	-675	2650	85562		0	0	0.83	0		0	No, Vu<V	
SLV 7	1397	-1652	2709	-45875		0.39	149.94	0.91	3829			1.41	Si
SLD 3	1187	-2157	1929	81454		0.64	119.96	0.96	3230			1.67	Si
SLD 3	1397	-2628	1449	-89208		0.71	131.42	0.98	3592			2.48	Si
SLV 2	1187	-2508	2742	135680		1.26	70.92	1.09	2156			0.79	No, Vu<V
SLV 2	1397	-3743	1394	-164020		1.31	101.77	1.1	3123			2.24	Si
SLV 4	1187	-1430	3432	148254		0	0	0.83	0		0	No, Vu<V	
SLV 4	1397	-3183	2346	-143666		1.16	97.84	1.07	2920			1.24	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1346.4 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.53	0	-1239	17888	0	0	No, $e > t/2$
SLV 12	14	0.53	0	-1239	17888	0	0	No, $e > t/2$
SLV 15	14	0.53	0	-1035	17888	0	0	No, $e > t/2$
SLV 16	14	0.53	0	-1035	17888	0	0	No, $e > t/2$
SLV 14	14	0.53	0.35	-1509	17888	20531	1.15	Si
SLV 13	14	0.53	0.35	-1509	17888	20531	1.15	Si
SLV 8	14	0.53	0.43	-1888	17888	25499	1.43	Si
SLV 7	14	0.53	0.43	-1888	17888	25499	1.43	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.53	0.65	-2819	17888	37381	2.09	Si
SLV 9	14	0.53	0.65	-2819	17888	37381	2.09	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1346.4 Wa = 0.05 Ta = 0.0606

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-976	-675	163	0	3.154	0.89	0	1111.855	No
SLV 4	-1029	-1430	176	0	3.2	0.89	0	1074.792	No
SLV 7	-976	-675	163	0	3.154	0.89	0	1111.855	No
SLV 3	-1029	-1430	176	0	3.2	0.89	0	1074.792	No
SLV 2	-1029	-2508	129	0.012	3.2	0.89	18.843	1074.792	No
SLV 1	-1029	-2508	129	0.012	3.2	0.89	18.843	1074.792	No
SLV 12	-931	-1107	103	0.022	3.115	0.891	35.551	1111.855	No
SLV 11	-931	-1107	103	0.022	3.115	0.891	35.551	1111.855	No
SLV 14	-876	-3946	-70	0.037	3.068	0.892	59.711	1074.792	No
SLV 13	-876	-3946	-70	0.037	3.068	0.892	59.711	1074.792	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.078	SLU 19	Si
V_SLU	2.179	SLU 82	Si
PF_SLV	0	SLV 3	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0	SLV 3	No

## Maschio 214

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-741.3	-335.9	-854.8	-335.9	L6	F1	113.5	28	318.7	318.6	318.7			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	1277	-2790	-9159	0.88	141246	15.421	Si
SLU 52	1457	-1545	-17679	0.49	82445	4.663	Si
SLU 19	1277	-2190	-10014	0.69	113762	11.361	Si
SLU 19	1457	-1223	-13243	0.38	66147	4.995	Si
SLU 61	1277	-2752	-11774	0.87	139592	11.856	Si
SLU 61	1457	-1428	-15521	0.45	76586	4.934	Si
SLU 73	1277	-3059	-13155	0.96	153104	11.638	Si
SLU 73	1457	-1823	-18640	0.57	96159	5.159	Si
SLU 65	1277	-3083	-11465	0.97	154137	13.444	Si
SLU 65	1457	-1800	-18005	0.57	95032	5.278	Si
SLU 44	1277	-2813	-7469	0.89	142307	19.053	Si
SLU 44	1457	-1522	-17044	0.48	81290	4.769	Si
SLU 31	1277	-2497	-11395	0.79	128032	11.236	Si
SLU 31	1457	-1618	-16362	0.51	86074	5.261	Si
SLU 2	1277	-2251	-5709	0.71	116628	20.43	Si
SLU 2	1457	-1317	-14766	0.41	70935	4.804	Si
SLU 10	1277	-2227	-7399	0.7	115508	15.612	Si
SLU 10	1457	-1340	-15401	0.42	72110	4.682	Si
SLU 37	1277	-3653	-33084	1.15	178051	5.382	Si
SLU 37	1457	-2334	-4094	0.73	120508	29.438	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	1277	-1379	-81322	0	0	0	No, e>/2
SLV 11	1457	741	76916	0	0	0	No, Trazione
SLV 4	1277	-1159	66489	0	0	0	No, e>/2
SLV 4	1457	-864	-47781	0.27	47931	1.003	Si
SLV 3	1277	-1159	66489	0	0	0	No, e>/2
SLV 3	1457	-864	-47781	0.27	47931	1.003	Si
SLV 7	1277	-921	-26647	0.29	51011	1.914	Si
SLV 7	1457	562	41438	0	0	0	No, Trazione
SLV 12	1277	-1379	-81322	0	0	0	No, e>/2
SLV 12	1457	741	76916	0	0	0	No, Trazione
SLV 16	1277	-2686	-115763	0.85	141882	1.226	Si
SLV 16	1457	-267	70481	0	0	0	No, e>/2
SLV 8	1277	-921	-26647	0.29	51011	1.914	Si
SLV 8	1457	562	41438	0	0	0	No, Trazione
SLV 15	1277	-2686	-115763	0.85	141882	1.226	Si
SLV 15	1457	-267	70481	0	0	0	No, e>/2
SLD 12	1277	-1906	-40634	0.6	102839	2.531	Si
SLD 12	1457	-365	25483	0	0	0	No, e>/2
SLD 11	1277	-1906	-40634	0.6	102839	2.531	Si
SLD 11	1457	-365	25483	0	0	0	No, e>/2



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	1277	-4280	-392	-30319		1.35	113.5	0.74	2336			5.96	Si
SLU 72	1457	-2706	-206	-9381		0.85	113.5	0.67	2126			10.33	Si
SLU 71	1277	-4239	-395	-33155		1.33	113.5	0.73	2331			5.9	Si
SLU 71	1457	-2516	-228	-5736		0.79	113.5	0.66	2101			9.22	Si
SLU 38	1277	-3693	-389	-30249		1.16	113.5	0.71	2258			5.8	Si
SLU 38	1457	-2524	-178	-7738		0.79	113.5	0.66	2102			11.81	Si
SLU 80	1277	-4256	-393	-32009		1.34	113.5	0.73	2333			5.94	Si
SLU 80	1457	-2729	-169	-10016		0.86	113.5	0.67	2129			12.57	Si
SLU 29	1277	-3677	-391	-31394		1.16	113.5	0.71	2256			5.77	Si
SLU 29	1457	-2311	-237	-3458		0.73	113.5	0.65	2074			8.77	Si
SLU 27	1277	-3867	-384	-31391		1.22	113.5	0.72	2281			5.93	Si
SLU 27	1457	-2471	-214	-5942		0.78	113.5	0.66	2095			9.77	Si
SLU 79	1277	-4215	-396	-34845		1.33	113.5	0.73	2328			5.88	Si
SLU 79	1457	-2539	-192	-6372		0.8	113.5	0.66	2104			10.98	Si
SLU 30	1277	-3717	-389	-28559		1.17	113.5	0.71	2261			5.82	Si
SLU 30	1457	-2501	-214	-7103		0.79	113.5	0.66	2099			9.79	Si
SLU 35	1277	-3843	-385	-33082		1.21	113.5	0.72	2278			5.92	Si
SLU 35	1457	-2494	-178	-6577		0.78	113.5	0.66	2098			11.78	Si
SLU 37	1277	-3653	-392	-33084		1.15	113.5	0.71	2253			5.75	Si
SLU 37	1457	-2334	-200	-4094		0.73	113.5	0.65	2077			10.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 12	1277	-1906	-749	-40634		0.64	106.28	0.96	2861			3.82	Si
SLD 12	1457	-365	-477	25483		0	0	0.83	0			0	No, Vu<V
SLD 11	1277	-1906	-749	-40634		0.64	106.28	0.96	2861			3.82	Si
SLD 11	1457	-365	-477	25483		0	0	0.83	0			0	No, Vu<V
SLV 15	1277	-2686	-2026	-115763		2.34	40.95	1.3	1493			0.74	No, Vu<V
SLV 15	1457	-267	-420	70481		0	0	0.83	0			0	No, Vu<V
SLV 11	1277	-1379	-1753	-81322		0	0	0.83	0			0	No, Vu<V
SLV 11	1457	741	-1277	76916		0	0	0.83	0			0	No, Vu<V
SLV 4	1277	-1159	1167	66489		0	0	0.83	0			0	No, Vu<V
SLV 4	1457	-864	-273	-47781		7.16	4.31	1.63	196			0.72	No, Vu<V
SLV 16	1277	-2686	-2026	-115763		2.34	40.95	1.3	1493			0.74	No, Vu<V
SLV 16	1457	-267	-420	70481		0	0	0.83	0			0	No, Vu<V
SLV 7	1277	-921	-795	-26647		0.39	83.42	0.91	2131			2.68	Si
SLV 7	1457	562	-1232	41438		0	0	0.83	0			0	No, Vu<V
SLV 8	1277	-921	-795	-26647		0.39	83.42	0.91	2131			2.68	Si
SLV 8	1457	562	-1232	41438		0	0	0.83	0			0	No, Vu<V
SLV 3	1277	-1159	1167	66489		0	0	0.83	0			0	No, Vu<V
SLV 3	1457	-864	-273	-47781		7.16	4.31	1.63	196			0.72	No, Vu<V
SLV 12	1277	-1379	-1753	-81322		0	0	0.83	0			0	No, Vu<V
SLV 12	1457	741	-1277	76916		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1346.3 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.53	0	3133	13042	0	0	No, Trazione
SLV 3	14	0.53	0	526	13042	0	0	No, Trazione
SLV 12	14	0.53	0	2503	13042	0	0	No, Trazione
SLV 11	14	0.53	0	2503	13042	0	0	No, Trazione
SLV 4	14	0.53	0	526	13042	0	0	No, Trazione
SLV 8	14	0.53	0	3133	13042	0	0	No, Trazione
SLV 16	14	0.53	0.5	-1575	13042	21158	1.62	Si
SLV 15	14	0.53	0.5	-1575	13042	21158	1.62	Si
SLV 2	14	0.53	0.74	-2339	13042	30775	2.36	Si
SLV 1	14	0.53	0.74	-2339	13042	30775	2.36	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1346.3 Wa = 0.05 Ta = 0.0606

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	-561	1317	-122	0	0	0	0	1110.606	No, Trazione
SLV 10	-775	-6047	139	0	2.356	0.89	0	1110.606	No
SLV 16	-673	49	-31	0	0	0	0	1073.622	No, Trazione
SLV 12	-582	2038	-122	0	0	0	0	1110.606	No, Trazione
SLV 15	-673	49	-31	0	0	0	0	1073.622	No, Trazione
SLV 9	-775	-6047	139	0	2.356	0.89	0	1110.606	No
SLV 6	-755	-6768	139	0	2.338	0.89	0	1110.606	No
SLV 8	-561	1317	-122	0	0	0	0	1110.606	No, Trazione
SLV 5	-755	-6768	139	0	2.338	0.89	0	1110.606	No
SLV 11	-582	2038	-122	0	0	0	0	1110.606	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	4.663	SLU 52	Si
V_SLU	5.747	SLU 37	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 11	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No



## Maschio 215

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-600.8	-335.9	-651.3	-335.9	L6	F1	50.5	28	318.6	318.5	318.6			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 40	1387	-387	-4933	0.27	9434	1.912	Si
SLU 40	1467	-469	3521	0.33	11350	3.223	Si
SLU 26	1387	-264	-3341	0.19	6509	1.948	Si
SLU 26	1467	-654	4034	0.46	15583	3.863	Si
SLU 73	1387	-448	-5473	0.32	10861	1.985	Si
SLU 73	1467	-463	3690	0.33	11210	3.038	Si
SLU 31	1387	-315	-4602	0.22	7731	1.68	Si
SLU 31	1467	-394	3481	0.28	9597	2.757	Si
SLU 10	1387	-295	-3827	0.21	7253	1.895	Si
SLU 10	1467	-245	2513	0.17	6063	2.413	Si
SLU 2	1387	-290	-3408	0.21	7149	2.098	Si
SLU 2	1467	-229	2122	0.16	5671	2.672	Si
SLU 42	1387	-340	-4091	0.24	8331	2.036	Si
SLU 42	1467	-746	4465	0.53	17607	3.943	Si
SLU 13	1387	-248	-2985	0.18	6132	2.054	Si
SLU 13	1467	-522	3457	0.37	12591	3.642	Si
SLU 34	1387	-268	-3760	0.19	6613	1.759	Si
SLU 34	1467	-671	4425	0.47	15945	3.604	Si
SLU 23	1387	-310	-4183	0.22	7627	1.823	Si
SLU 23	1467	-377	3090	0.27	9216	2.982	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLD 7	1387	264	2531	0	0	0	No, Trazione
SLD 7	1467	141	-1350	0	0	0	No, Trazione
SLV 4	1387	430	4944	0	0	0	No, Trazione
SLV 4	1467	111	-8201	0	0	0	No, Trazione
SLV 7	1387	1316	12435	0	0	0	No, Trazione
SLV 7	1467	982	-6301	0	0	0	No, Trazione
SLV 16	1387	-374	-4077	0.26	9237	2.266	Si
SLV 16	1467	-172	9042	0	0	0	No, e>l/2
SLV 8	1387	1316	12435	0	0	0	No, Trazione
SLV 8	1467	982	-6301	0	0	0	No, Trazione
SLV 15	1387	-374	-4077	0.26	9237	2.266	Si
SLV 15	1467	-172	9042	0	0	0	No, e>l/2
SLV 3	1387	430	4944	0	0	0	No, Trazione
SLV 3	1467	111	-8201	0	0	0	No, Trazione
SLV 12	1387	1075	9728	0	0	0	No, Trazione
SLV 12	1467	897	-1128	0	0	0	No, Trazione
SLV 11	1387	1075	9728	0	0	0	No, Trazione
SLV 11	1467	897	-1128	0	0	0	No, Trazione
SLD 8	1387	264	2531	0	0	0	No, Trazione
SLD 8	1467	141	-1350	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 70	1387	-586	-291	-4286		0.41	50.5	0.61	864			2.97	Si
SLU 70	1467	-1175	395	4671		0.83	50.5	0.67	942			2.39	Si
SLU 36	1387	-458	-280	-3833		0.32	50.5	0.6	847			3.03	Si
SLU 36	1467	-1123	402	4852		0.79	50.5	0.66	935			2.33	Si
SLU 77	1387	-696	-314	-4933		0.49	50.5	0.62	878			2.79	Si
SLU 77	1467	-1294	407	4871		0.91	50.5	0.68	958			2.36	Si
SLU 34	1387	-268	-241	-3760		0.28	33.69	0.59	560			2.32	Si
SLU 34	1467	-671	343	4425		0.47	50.5	0.62	875			2.55	Si
SLU 31	1387	-315	-224	-4602		0.35	31.89	0.6	538			2.4	Si
SLU 31	1467	-394	269	3481		0.29	49.21	0.59	818			3.04	Si
SLU 38	1387	-292	-259	-3070		0.24	44.15	0.59	726			2.8	Si
SLU 38	1467	-1016	404	5241		0.72	50.5	0.65	921			2.28	Si
SLU 78	1387	-591	-313	-4704		0.42	50.5	0.61	864			2.76	Si
SLU 78	1467	-1192	426	5062		0.84	50.5	0.67	944			2.22	Si
SLU 80	1387	-424	-292	-3941		0.32	47.88	0.6	801			2.75	Si
SLU 80	1467	-1085	428	5450		0.77	50.5	0.66	930			2.18	Si
SLU 72	1387	-420	-270	-3523		0.3	50.5	0.6	842			3.12	Si
SLU 72	1467	-1068	397	5060		0.76	50.5	0.66	928			2.34	Si
SLU 79	1387	-529	-294	-4170		0.37	50.5	0.61	856			2.92	Si
SLU 79	1467	-1187	409	5259		0.84	50.5	0.67	944			2.31	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1387	1316	277	12435		0	0	0.83	0			0	No, Vu<V
SLV 8	1467	982	711	-6301		0	0	0.83	0			0	No, Vu<V
SLD 7	1387	264	5	2531		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 7	1467	141	397	-1350		0	0	0.83	0			0	No, Vu<V
SLD 8	1387	264	5	2531		0	0	0.83	0			0	No, Vu<V
SLD 8	1467	141	397	-1350		0	0	0.83	0			0	No, Vu<V
SLV 12	1387	1075	95	9728		0	0	0.83	0			0	No, Vu<V
SLV 12	1467	897	744	-1128		0	0	0.83	0			0	No, Vu<V
SLV 16	1387	-374	-373	-4077		0.31	43.04	0.9	1079			2.9	Si
SLV 16	1467	-172	393	9042		0	0	0.83	0			0	No, Vu<V
SLV 11	1387	1075	95	9728		0	0	0.83	0			0	No, Vu<V
SLV 11	1467	897	744	-1128		0	0	0.83	0			0	No, Vu<V
SLV 4	1387	430	233	4944		0	0	0.83	0			0	No, Vu<V
SLV 4	1467	111	285	-8201		0	0	0.83	0			0	No, Vu<V
SLD 12	1387	163	-72	1412		0	0	0.83	0			0	No, Vu<V
SLD 12	1467	105	410	841		0	0	0.83	0			0	No, Vu<V
SLV 7	1387	1316	277	12435		0	0	0.83	0			0	No, Vu<V
SLV 7	1467	982	711	-6301		0	0	0.83	0			0	No, Vu<V
SLD 11	1387	163	-72	1412		0	0	0.83	0			0	No, Vu<V
SLD 11	1467	105	410	841		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1346.3 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.53	0	-119	5798	0	0	No, $e > t/2$
SLV 12	14	0.53	0	725	5798	0	0	No, Trazione
SLV 11	14	0.53	0	725	5798	0	0	No, Trazione
SLV 8	14	0.53	0	655	5798	0	0	No, Trazione
SLV 15	14	0.53	0	115	5798	0	0	No, Trazione
SLV 4	14	0.53	0	-119	5798	0	0	No, $e > t/2$
SLV 16	14	0.53	0	115	5798	0	0	No, Trazione
SLV 7	14	0.53	0	655	5798	0	0	No, Trazione
SLV 13	14	0.53	0.34	-478	5798	6512	1.12	Si
SLV 14	14	0.53	0.34	-478	5798	6512	1.12	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1346.3 Wa = 0.05 Ta = 0.0605

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	80	-541	-32	0	0	0	0	1072.72	No, Trazione
SLV 12	1376	-422	-47	0	0	0	0	1109.643	No, Trazione
SLV 7	1643	-394	-48	0	0	0	0	1109.643	No, Trazione
SLV 4	970	-449	-33	0	0	0	0	1072.72	No, Trazione
SLV 8	1643	-394	-48	0	0	0	0	1109.643	No, Trazione
SLV 2	127	-524	-20	0	0	0	0	1072.72	No, Trazione
SLV 11	1376	-422	-47	0	0	0	0	1109.643	No, Trazione
SLV 15	80	-541	-32	0	0	0	0	1072.72	No, Trazione
SLV 1	127	-524	-20	0	0	0	0	1072.72	No, Trazione
SLV 3	970	-449	-33	0	0	0	0	1072.72	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.68	SLU 31	Si
V_SLU	2.175	SLU 80	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 16	No

## Maschio 216

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-318.3	-335.9	-550.8	-335.9	L6	F1	232.5	28	318.4	318.3	318.5			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 19	1387	-2032	8384	0.31	227210	27.1	Si
SLU 19	1467	-1118	14280	0.17	127250	8.911	Si
SLU 82	1387	-2904	7722	0.45	319120	41.326	Si
SLU 82	1467	-1689	17148	0.26	190110	11.087	Si
SLU 73	1387	-2810	6487	0.43	309381	47.695	Si
SLU 73	1467	-1613	17262	0.25	181814	10.532	Si
SLU 52	1387	-2511	7481	0.39	278085	37.17	Si
SLU 52	1467	-1320	16814	0.2	149607	8.898	Si
SLU 10	1387	-1938	7149	0.3	217111	30.371	Si
SLU 10	1467	-1042	14395	0.16	118763	8.25	Si
SLU 2	1387	-1976	2193	0.3	221126	100.829	Si
SLU 2	1467	-1056	11724	0.16	120295	10.261	Si
SLU 61	1387	-2605	8717	0.4	287948	33.034	Si
SLU 61	1467	-1396	16700	0.21	158001	9.461	Si





Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 44	1387	-2548	2526	0.39	282006	111.654	Si
SLU 44	1467	-1334	14143	0.2	151122	10.685	Si
SLU 40	1387	-2332	7389	0.36	259133	35.069	Si
SLU 40	1467	-1411	14729	0.22	159716	10.844	Si
SLU 31	1387	-2238	6154	0.34	249158	40.487	Si
SLU 31	1467	-1335	14843	0.21	151327	10.195	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	1387	-2313	-42078	0.36	261058	6.204	Si
SLV 6	1467	-1452	78076	0.22	165659	2.122	Si
SLV 5	1387	-2313	-42078	0.36	261058	6.204	Si
SLV 5	1467	-1452	78076	0.22	165659	2.122	Si
SLV 11	1387	-2338	44285	0.36	263773	5.956	Si
SLV 11	1467	-1230	-59141	0.19	140755	2.38	Si
SLV 10	1387	-2119	-66890	0.33	239775	3.585	Si
SLV 10	1467	-1440	87304	0.22	164411	1.883	Si
SLV 7	1387	-2532	69097	0.39	284932	4.124	Si
SLV 7	1467	-1241	-68369	0.19	142010	2.077	Si
SLV 12	1387	-2338	44285	0.36	263773	5.956	Si
SLV 12	1467	-1230	-59141	0.19	140755	2.38	Si
SLV 13	1387	-1969	-56927	0.3	223272	3.922	Si
SLV 13	1467	-1354	46815	0.21	154687	3.304	Si
SLV 9	1387	-2119	-66890	0.33	239775	3.585	Si
SLV 9	1467	-1440	87304	0.22	164411	1.883	Si
SLV 14	1387	-1969	-56927	0.3	223272	3.922	Si
SLV 14	1467	-1354	46815	0.21	154687	3.304	Si
SLV 8	1387	-2532	69097	0.39	284932	4.124	Si
SLV 8	1467	-1241	-68369	0.19	142010	2.077	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	1387	-3291	-177	-5869		0.51	232.5	0.62	4056			22.96	Si
SLU 76	1467	-2080	-25	6844		0.32	232.5	0.6	3894			156.42	Si
SLU 65	1387	-2848	-169	1531		0.44	232.5	0.61	3996			23.71	Si
SLU 65	1467	-1627	-85	14591		0.25	232.5	0.59	3834			44.92	Si
SLU 23	1387	-2275	-172	1198		0.35	232.5	0.6	3920			22.74	Si
SLU 23	1467	-1349	-82	12172		0.21	232.5	0.58	3797			46.4	Si
SLU 68	1387	-3329	-170	-10824		0.51	232.5	0.62	4060			23.82	Si
SLU 68	1467	-2093	-14	4174		0.32	232.5	0.6	3896			269.96	Si
SLU 31	1387	-2238	-179	6154		0.34	232.5	0.6	3915			21.92	Si
SLU 31	1467	-1335	-92	14843		0.21	232.5	0.58	3795			41.12	Si
SLU 13	1387	-2419	-152	-5206		0.37	232.5	0.61	3939			25.92	Si
SLU 13	1467	-1509	-7	3977		0.23	232.5	0.59	3818			543.33	Si
SLU 26	1387	-2756	-174	-11157		0.42	232.5	0.61	3984			22.86	Si
SLU 26	1467	-1816	-11	1754		0.28	232.5	0.59	3859			353.6	Si
SLU 73	1387	-2810	-175	6487		0.43	232.5	0.61	3991			22.84	Si
SLU 73	1467	-1613	-96	17262		0.25	232.5	0.59	3832			40	Si
SLU 10	1387	-1938	-150	7149		0.3	232.5	0.6	3875			25.82	Si
SLU 10	1467	-1042	-78	14395		0.16	232.5	0.58	3756			48.19	Si
SLU 34	1387	-2719	-180	-6201		0.42	232.5	0.61	3979			22.05	Si
SLU 34	1467	-1802	-21	4425		0.28	232.5	0.59	3857			180.43	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	1387	-1969	-1935	-56927		0.3	232.5	0.89	5819			3.01	Si
SLV 13	1467	-1354	-1285	46815		0.21	232.5	0.87	5696			4.43	Si
SLV 9	1387	-2119	-2459	-66890		0.33	232.5	0.9	5849			2.38	Si
SLV 9	1467	-1440	-1533	87304		0.31	166.91	0.89	4183			2.73	Si
SLV 6	1387	-2313	-1684	-42078		0.36	232.5	0.9	5888			3.5	Si
SLV 6	1467	-1452	-1006	78076		0.28	187.38	0.89	4663			4.64	Si
SLV 7	1387	-2532	2400	69097		0.39	232.5	0.91	5931			2.47	Si
SLV 7	1467	-1241	1463	-68369		0.24	183.47	0.88	4529			3.1	Si
SLV 5	1387	-2313	-1684	-42078		0.36	232.5	0.9	5888			3.5	Si
SLV 5	1467	-1452	-1006	78076		0.28	187.38	0.89	4663			4.64	Si
SLV 10	1387	-2119	-2459	-66890		0.33	232.5	0.9	5849			2.38	Si
SLV 10	1467	-1440	-1533	87304		0.31	166.91	0.89	4183			2.73	Si
SLV 4	1387	-2681	1875	59134		0.41	232.5	0.92	5961			3.18	Si
SLV 4	1467	-1328	1214	-27880		0.2	232.5	0.87	5691			4.69	Si
SLV 14	1387	-1969	-1935	-56927		0.3	232.5	0.89	5819			3.01	Si
SLV 14	1467	-1354	-1285	46815		0.21	232.5	0.87	5696			4.43	Si
SLV 8	1387	-2532	2400	69097		0.39	232.5	0.91	5931			2.47	Si
SLV 8	1467	-1241	1463	-68369		0.24	183.47	0.88	4529			3.1	Si
SLV 3	1387	-2681	1875	59134		0.41	232.5	0.92	5961			3.18	Si
SLV 3	1467	-1328	1214	-27880		0.2	232.5	0.87	5691			4.69	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1346.2 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.53	0.33	-2133	26669	29058	1.09	Si
SLV 8	14	0.53	0.33	-2133	26669	29058	1.09	Si
SLV 11	14	0.53	0.35	-2283	26669	31042	1.16	Si
SLV 12	14	0.53	0.35	-2283	26669	31042	1.16	Si
SLV 4	14	0.53	0.35	-2296	26669	31210	1.17	Si
SLV 3	14	0.53	0.35	-2296	26669	31210	1.17	Si
SLV 2	14	0.53	0.4	-2585	26669	35016	1.31	Si
SLV 1	14	0.53	0.4	-2585	26669	35016	1.31	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 15	14	0.53	0.43	-2796	26669	37766	1.42	Si
SLV 16	14	0.53	0.43	-2796	26669	37766	1.42	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1346.2 Wa = 0.05 Ta = 0.0605

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	-476	-4660	-240	0	3.967	0.925	0	1108.556	No
SLV 4	-878	-2976	227	0	4.237	0.902	0	1071.701	No
SLV 12	-1085	-2476	325	0	4.398	0.896	0	1108.556	No
SLV 3	-878	-2976	227	0	4.237	0.902	0	1071.701	No
SLV 11	-1085	-2476	325	0	4.398	0.896	0	1108.556	No
SLV 10	-472	-4805	-294	0	3.965	0.925	0	1108.556	No
SLV 7	-1088	-2330	380	0	4.401	0.896	0	1108.556	No
SLV 9	-472	-4805	-294	0	3.965	0.925	0	1108.556	No
SLV 8	-1088	-2330	380	0	4.401	0.896	0	1108.556	No
SLV 5	-476	-4660	-240	0	3.967	0.925	0	1108.556	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	8.25	SLU 10	Si
V_SLU	21.922	SLU 31	Si
PF_SLV	1.883	SLV 9	Si
V_SLV	2.378	SLV 9	Si
PFFP_SLV	1.09	SLV 7	Si
R_SLV	0	SLV 3	No

## Maschio 217

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-12.3	-335.9	-228.3	-335.9	L6	F1	216	28	318.2	318.1	318.3			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 34	1277	-3309	-133943	0.55	333402	2.489	Si
SLU 34	1457	-2685	32673	0.44	274137	8.39	Si
SLU 13	1277	-3114	-112571	0.51	315022	2.798	Si
SLU 13	1457	-2284	25232	0.38	235216	9.322	Si
SLU 82	1277	-3554	-133684	0.59	356149	2.664	Si
SLU 82	1457	-2430	31879	0.4	249467	7.825	Si
SLU 31	1277	-2774	-126720	0.46	282768	2.231	Si
SLU 31	1457	-2035	21495	0.34	210675	9.801	Si
SLU 19	1277	-2563	-103194	0.42	262434	2.543	Si
SLU 19	1457	-1674	18301	0.28	174682	9.545	Si
SLU 73	1277	-3570	-135837	0.59	357576	2.632	Si
SLU 73	1457	-2389	27632	0.4	245530	8.886	Si
SLU 40	1277	-2759	-124566	0.46	281286	2.258	Si
SLU 40	1457	-2075	25742	0.34	214674	8.34	Si
SLU 39	1277	-2839	-107325	0.47	288981	2.693	Si
SLU 39	1457	-2106	33444	0.35	217751	6.511	Si
SLU 10	1277	-2579	-105348	0.43	263928	2.505	Si
SLU 10	1457	-1634	14054	0.27	170612	12.14	Si
SLU 42	1277	-3294	-131789	0.54	331957	2.519	Si
SLU 42	1457	-2725	36920	0.45	278021	7.53	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	1277	-3643	-219907	0.6	374008	1.701	Si
SLV 6	1457	-2160	-74269	0.36	226444	3.049	Si
SLV 12	1277	-2125	85608	0.35	222885	2.604	Si
SLV 12	1457	-1375	135263	0.23	145775	1.078	Si
SLV 10	1277	-3416	-240580	0.56	351843	1.462	Si
SLV 10	1457	-2299	-45635	0.38	240529	5.271	Si
SLV 16	1277	-2312	-52676	0.38	241875	4.592	Si
SLV 16	1457	-1860	105356	0.31	195868	1.859	Si
SLV 8	1277	-2352	106280	0.39	245906	2.314	Si
SLV 8	1457	-1237	106629	0.2	131315	1.232	Si
SLV 5	1277	-3643	-219907	0.6	374008	1.701	Si
SLV 5	1457	-2160	-74269	0.36	226444	3.049	Si
SLV 9	1277	-3416	-240580	0.56	351843	1.462	Si
SLV 9	1457	-2299	-45635	0.38	240529	5.271	Si
SLV 11	1277	-2125	85608	0.35	222885	2.604	Si
SLV 11	1457	-1375	135263	0.23	145775	1.078	Si
SLV 7	1277	-2352	106280	0.39	245906	2.314	Si
SLV 7	1457	-1237	106629	0.2	131315	1.232	Si
SLV 15	1277	-2312	-52676	0.38	241875	4.592	Si
SLV 15	1457	-1860	105356	0.31	195868	1.859	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 34	1277	-3309	-1810	-133943		0.58	202.58	0.63	3592			1.99	Si
SLU 34	1457	-2685	-1700	32673		0.44	216	0.61	3718			2.19	Si
SLU 80	1277	-4693	-2104	-138788		0.78	216	0.66	3986			1.89	Si
SLU 80	1457	-3710	-1971	55124		0.61	216	0.64	3855			1.96	Si
SLU 76	1277	-4104	-1983	-143060		0.68	216	0.65	3907			1.97	Si
SLU 76	1457	-3039	-1872	38811		0.5	216	0.62	3765			2.01	Si
SLU 77	1277	-5031	-2067	-116160		0.83	216	0.67	4031			1.95	Si
SLU 77	1457	-4068	-1961	71433		0.67	216	0.65	3902			1.99	Si
SLU 40	1277	-2759	-1664	-124566		0.52	188.55	0.63	3301			1.98	Si
SLU 40	1457	-2075	-1604	25742		0.34	216	0.6	3637			2.27	Si
SLU 36	1277	-4156	-1987	-124285		0.69	216	0.65	3914			1.97	Si
SLU 36	1457	-3682	-1862	57593		0.61	216	0.64	3851			2.07	Si
SLU 79	1277	-4773	-2010	-121547		0.79	216	0.66	3996			1.99	Si
SLU 79	1457	-3741	-1898	62826		0.62	216	0.64	3859			2.03	Si
SLU 78	1277	-4951	-2161	-133402		0.82	216	0.66	4020			1.86	Si
SLU 78	1457	-4037	-2034	63731		0.67	216	0.64	3898			1.92	Si
SLU 84	1277	-4089	-2021	-140907		0.68	216	0.65	3905			1.93	Si
SLU 84	1457	-3080	-1923	43058		0.51	216	0.62	3771			1.96	Si
SLU 42	1277	-3294	-1847	-131789		0.58	203.97	0.63	3612			1.96	Si
SLU 42	1457	-2725	-1751	36920		0.45	216	0.62	3723			2.13	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	1277	-2312	-1822	-52676		0.38	216	0.91	5502			3.02	Si
SLV 16	1457	-1860	-1004	105356		0.43	154.11	0.92	3968			3.95	Si
SLV 12	1277	-2125	-1045	85608		0.37	203.13	0.91	5165			4.94	Si
SLV 12	1457	-1375	-1441	135263		1.7	28.96	1.17	951			0.66	No, Vu<V
SLV 11	1277	-2125	-1045	85608		0.37	203.13	0.91	5165			4.94	Si
SLV 11	1457	-1375	-1441	135263		1.7	28.96	1.17	951			0.66	No, Vu<V
SLV 15	1277	-2312	-1822	-52676		0.38	216	0.91	5502			3.02	Si
SLV 15	1457	-1860	-1004	105356		0.43	154.11	0.92	3968			3.95	Si
SLV 7	1277	-2352	-550	106280		0.45	188.42	0.92	4867			8.85	Si
SLV 7	1457	-1237	-1552	106629		0.68	65.31	0.97	1771			1.14	Si
SLV 14	1277	-2699	-1994	-150532		0.62	156.69	0.96	4196			2.1	Si
SLV 14	1457	-2137	-739	51087		0.35	216	0.9	5467			7.4	Si
SLV 8	1277	-2352	-550	106280		0.45	188.42	0.92	4867			8.85	Si
SLV 8	1457	-1237	-1552	106629		0.68	65.31	0.97	1771			1.14	Si
SLV 10	1277	-3416	-1617	-240580		1.08	112.7	1.05	3313			2.05	Si
SLV 10	1457	-2299	-560	-45635		0.38	216	0.91	5500			9.82	Si
SLV 13	1277	-2699	-1994	-150532		0.62	156.69	0.96	4196			2.1	Si
SLV 13	1457	-2137	-739	51087		0.35	216	0.9	5467			7.4	Si
SLV 9	1277	-3416	-1617	-240580		1.08	112.7	1.05	3313			2.05	Si
SLV 9	1457	-2299	-560	-45635		0.38	216	0.91	5500			9.82	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1346 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.53	0.36	-2152	24738	29249	1.18	Si
SLV 12	14	0.53	0.36	-2152	24738	29249	1.18	Si
SLV 7	14	0.53	0.37	-2229	24738	30266	1.22	Si
SLV 8	14	0.53	0.37	-2229	24738	30266	1.22	Si
SLV 16	14	0.53	0.37	-2266	24738	30745	1.24	Si
SLV 15	14	0.53	0.37	-2266	24738	30745	1.24	Si
SLV 13	14	0.53	0.4	-2440	24738	33036	1.34	Si
SLV 14	14	0.53	0.4	-2440	24738	33036	1.34	Si
SLV 4	14	0.53	0.42	-2523	24738	34118	1.38	Si
SLV 3	14	0.53	0.42	-2523	24738	34118	1.38	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1346 Wa = 0.05 Ta = 0.0604

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	-1285	-2244	242	0	4.314	0.891	0	1106.802	No
SLV 5	-326	-5509	-175	0	3.622	0.938	0	1106.802	No
SLV 6	-326	-5509	-175	0	3.622	0.938	0	1106.802	No
SLV 11	-1285	-2244	242	0	4.314	0.891	0	1106.802	No
SLV 15	-1165	-3759	188	0.005	4.212	0.893	8.821	1070.057	No
SLV 16	-1165	-3759	188	0.005	4.212	0.893	8.821	1070.057	No
SLV 8	-1143	-1998	182	0.007	4.194	0.893	11.766	1106.802	No
SLV 7	-1143	-1998	182	0.007	4.194	0.893	11.766	1106.802	No
SLV 1	-446	-3994	-121	0.024	3.686	0.925	36.985	1070.057	No
SLV 2	-446	-3994	-121	0.024	3.686	0.925	36.985	1070.057	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.231	SLU 31	Si
V_SLU	1.86	SLU 78	Si
PF_SLV	1.078	SLV 11	Si
V_SLV	0.66	SLV 11	No
PFFP_SLV	1.182	SLV 11	Si
R_SLV	0	SLV 5	No



## Maschio 220

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1376.3	-485.9	-1314.3	-485.9	L2	Z medio 313 cm	62	30	274	274	274			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 75	39	-7200	13595	3.87	117133	8.616	Si
SLU 75	289	-11331	68152	6.09	88566	1.3	Si
SLU 76	39	-7205	13881	3.87	117142	8.439	Si
SLU 76	289	-11383	68947	6.12	87760	1.273	Si
SLU 77	39	-7375	13268	3.96	117340	8.844	Si
SLU 77	289	-11620	69981	6.25	83959	1.2	Si
SLU 80	39	-7380	13725	3.97	117344	8.55	Si
SLU 80	289	-11685	71010	6.28	82873	1.167	Si
SLU 84	39	-7433	13210	4	117381	8.885	Si
SLU 84	289	-11774	71131	6.33	81367	1.144	Si
SLU 78	39	-7374	13781	3.96	117339	8.515	Si
SLU 78	289	-11659	70683	6.27	83308	1.179	Si
SLU 79	39	-7381	13213	3.97	117345	8.881	Si
SLU 79	289	-11646	70308	6.26	83528	1.188	Si
SLU 83	39	-7434	12698	4	117381	9.244	Si
SLU 83	289	-11734	70429	6.31	82036	1.165	Si
SLU 81	39	-7260	12512	3.9	117219	9.369	Si
SLU 81	289	-11406	67899	6.13	87396	1.287	Si
SLU 82	39	-7259	13024	3.9	117217	9	Si
SLU 82	289	-11446	68601	6.15	86778	1.265	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLV 11	39	-1552	-1350	0.83	44822	33.193	Si
SLV 11	289	1411	-43295	0	0	0	No, Trazione
SLV 14	39	-9380	62195	5.04	170768	2.746	Si
SLV 14	289	721	-117952	0	0	0	No, Trazione
SLV 4	39	-771	-41980	0	0	0	No, e>1/2
SLV 4	289	-16445	210957	8.84	140904	0.668	No, M>Mu
SLV 8	39	236	-28130	0	0	0	No, Trazione
SLV 8	289	-4845	62059	2.6	118170	1.904	Si
SLV 12	39	-1552	-1350	0.83	44822	33.193	Si
SLV 12	289	1411	-43295	0	0	0	No, Trazione
SLV 3	39	-771	-41980	0	0	0	No, e>1/2
SLV 3	289	-16445	210957	8.84	140904	0.668	No, M>Mu
SLV 15	39	-6730	47286	3.62	146846	3.105	Si
SLV 15	289	4408	-140224	0	0	0	No, Trazione
SLV 16	39	-6730	47286	3.62	146846	3.105	Si
SLV 16	289	4408	-140224	0	0	0	No, Trazione
SLV 13	39	-9380	62195	5.04	170768	2.746	Si
SLV 13	289	721	-117952	0	0	0	No, Trazione
SLV 7	39	236	-28130	0	0	0	No, Trazione
SLV 7	289	-4845	62059	2.6	118170	1.904	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 83	39	-7434	350	12698		4	62	1.08	2015			5.75	Si
SLU 83	289	-11734	-1696	70429		6.31	62	1.08	2015			1.19	Si
SLU 79	39	-7381	349	13213		3.97	62	1.08	2015			5.78	Si
SLU 79	289	-11646	-1690	70308		6.26	62	1.08	2015			1.19	Si
SLU 84	39	-7433	368	13210		4	62	1.08	2015			5.47	Si
SLU 84	289	-11774	-1720	71131		6.33	62	1.08	2015			1.17	Si
SLU 80	39	-7380	367	13725		3.97	62	1.08	2015			5.5	Si
SLU 80	289	-11685	-1714	71010		6.28	62	1.08	2015			1.18	Si
SLU 76	39	-7205	376	13881		3.87	62	1.07	1994			5.31	Si
SLU 76	289	-11383	-1672	68947		6.12	62	1.08	2015			1.21	Si
SLU 78	39	-7374	368	13781		3.96	62	1.08	2015			5.47	Si
SLU 78	289	-11659	-1706	70683		6.27	62	1.08	2015			1.18	Si
SLU 77	39	-7375	350	13268		3.96	62	1.08	2015			5.76	Si
SLU 77	289	-11620	-1682	69981		6.25	62	1.08	2015			1.2	Si
SLU 75	39	-7200	365	13595		3.87	62	1.07	1993			5.46	Si
SLU 75	289	-11331	-1648	68152		6.09	62	1.08	2015			1.22	Si
SLU 82	39	-7259	365	13024		3.9	62	1.08	2001			5.48	Si
SLU 82	289	-11446	-1662	68601		6.15	62	1.08	2015			1.21	Si
SLU 63	39	-7074	351	12570		3.8	62	1.06	1977			5.63	Si
SLU 63	289	-11220	-1651	67966		6.03	62	1.08	2015			1.22	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 15	39	-6730	441	47286		3.62	62	1.56	2896			6.57	Si
SLV 15	289	4408	4796	-140224		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	39	-9380	611	62195		5.04	62	1.63	3023			4.95	Si
SLV 14	289	721	4258	-117952		0	0	0.83	0			0	No, Vu<V
SLV 11	39	-1552	52	-1350		0.83	62	1	1860			35.54	Si
SLV 11	289	1411	1469	-43295		0	0	0.83	0			0	No, Vu<V
SLV 12	39	-1552	52	-1350		0.83	62	1	1860			35.54	Si
SLV 12	289	1411	1469	-43295		0	0	0.83	0			0	No, Vu<V
SLV 7	39	236	-110	-28130		0	0	0.83	0			0	No, Vu<V
SLV 7	289	-4845	-1921	62059		2.96	54.57	1.43	2333			1.21	Si
SLV 4	39	-771	-101	-41980		0	0	0.83	0			0	No, Vu<V
SLV 4	289	-16445	-6504	210957		10.06	54.52	1.63	2658			0.41	No, Vu<V
SLV 13	39	-9380	611	62195		5.04	62	1.63	3023			4.95	Si
SLV 13	289	721	4258	-117952		0	0	0.83	0			0	No, Vu<V
SLV 8	39	236	-110	-28130		0	0	0.83	0			0	No, Vu<V
SLV 8	289	-4845	-1921	62059		2.96	54.57	1.43	2333			1.21	Si
SLV 16	39	-6730	441	47286		3.62	62	1.56	2896			6.57	Si
SLV 16	289	4408	4796	-140224		0	0	0.83	0			0	No, Vu<V
SLV 3	39	-771	-101	-41980		0	0	0.83	0			0	No, Vu<V
SLV 3	289	-16445	-6504	210957		10.06	54.52	1.63	2658			0.41	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 176 Wa 0.05 denominatore  $8 \gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.28	0.29	-541	3010	7915	2.63	Si
SLV 11	14	0.28	0.29	-541	3010	7915	2.63	Si
SLV 7	14	0.28	0.95	-1767	3010	24444	8.12	Si
SLV 8	14	0.28	0.95	-1767	3010	24444	8.12	Si
SLV 15	14	0.28	1.55	-2891	3010	37853	12.57	Si
SLV 16	14	0.28	1.55	-2891	3010	37853	12.57	Si
SLV 13	14	0.28	3.3	-6133	3010	67168	22.31	Si
SLV 14	14	0.28	3.3	-6133	3010	67168	22.31	Si
SLV 4	14	0.28	3.75	-6979	3010	72540	24.1	Si
SLV 3	14	0.28	3.75	-6979	3010	72540	24.1	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 176 Wa = 0.05 Ta = 0.0418

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 12	694	-1552	-28	0	0	0	0	500.872	No, Trazione
SLV 7	-3152	236	-12	0	0	0	0	500.872	No, Trazione
SLV 15	1728	-6730	-32	0	0	0	0	489.658	No, Trazione
SLV 11	694	-1552	-28	0	0	0	0	500.872	No, Trazione
SLV 8	-3152	236	-12	0	0	0	0	500.872	No, Trazione
SLV 16	1728	-6730	-32	0	0	0	0	489.658	No, Trazione
SLV 5	-13018	-8599	30	0.054	13.976	0.984	80.315	500.872	No
SLV 6	-13018	-8599	30	0.054	13.976	0.984	80.315	500.872	No
SLV 1	-14052	-3421	34	0.054	15.029	0.985	79.89	489.658	No
SLV 2	-14052	-3421	34	0.054	15.029	0.985	79.89	489.658	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.144	SLU 84	Si
V_SLU	1.171	SLU 84	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLV 3	No
PFFP_SLV	2.629	SLV 11	Si
R_SLV	0	SLV 16	No

## Maschio 221

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1174.3	-485.9	-1101.3	-485.9	L2	Z medio 313 cm	73	30	274	274	274			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 76	39	-7737	6779	3.53	159925	23.592	Si
SLU 76	289	-11507	-51158	5.25	149092	2.914	Si
SLU 82	39	-7645	10401	3.49	159457	15.331	Si
SLU 82	289	-11535	-51974	5.27	148793	2.863	Si
SLU 84	39	-7935	10147	3.62	160799	15.847	Si
SLU 84	289	-11916	-52853	5.44	144419	2.732	Si
SLU 81	39	-7642	11677	3.49	159446	13.655	Si
SLU 81	289	-11515	-51133	5.26	149006	2.914	Si
SLU 78	39	-7996	7427	3.65	161037	21.681	Si
SLU 78	289	-11835	-51530	5.4	145398	2.822	Si
SLU 79	39	-8024	8652	3.66	161143	18.625	Si
SLU 79	289	-11854	-50634	5.41	145166	2.867	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	39	-7993	8704	3.65	161029	18.501	Si
SLU 77	289	-11815	-50688	5.39	145636	2.873	Si
SLU 80	39	-8026	7376	3.66	161151	21.849	Si
SLU 80	289	-11874	-51476	5.42	144925	2.815	Si
SLU 83	39	-7933	11423	3.62	160790	14.076	Si
SLU 83	289	-11896	-52011	5.43	144664	2.781	Si
SLU 75	39	-7705	7681	3.52	159768	20.8	Si
SLU 75	289	-11454	-50651	5.23	149645	2.954	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	39	237	30304	0	0	0	No, Trazione
SLV 11	289	-3973	-52007	1.81	123472	2.374	Si
SLV 1	39	-9809	-65321	4.48	226786	3.472	Si
SLV 1	289	344	167670	0	0	0	No, Trazione
SLV 7	39	-1539	-10225	0.7	52942	5.178	Si
SLV 7	289	2265	77779	0	0	0	No, Trazione
SLV 8	39	-1539	-10225	0.7	52942	5.178	Si
SLV 8	289	2265	77779	0	0	0	No, Trazione
SLV 15	39	-1030	73380	0	0	0	No, $e \geq l/2$
SLV 15	289	-16202	-236554	7.4	233307	0.986	No, $M > \mu$
SLV 4	39	-6948	-61715	3.17	187755	3.042	Si
SLV 4	289	4589	196066	0	0	0	No, Trazione
SLV 3	39	-6948	-61715	3.17	187755	3.042	Si
SLV 3	289	4589	196066	0	0	0	No, Trazione
SLV 16	39	-1030	73380	0	0	0	No, $e \geq l/2$
SLV 16	289	-16202	-236554	7.4	233307	0.986	No, $M > \mu$
SLV 2	39	-9809	-65321	4.48	226786	3.472	Si
SLV 2	289	344	167670	0	0	0	No, Trazione
SLV 12	39	237	30304	0	0	0	No, Trazione
SLV 12	289	-3973	-52007	1.81	123472	2.374	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 79	39	-8024	302	8652		3.66	73	1.04	2287			7.57	Si
SLU 79	289	-11854	1333	-50634		5.41	73	1.08	2373			1.78	Si
SLU 75	39	-7705	283	7681		3.52	73	1.02	2244			7.93	Si
SLU 75	289	-11454	1326	-50651		5.23	73	1.08	2373			1.79	Si
SLU 77	39	-7993	304	8704		3.65	73	1.04	2282			7.5	Si
SLU 77	289	-11815	1332	-50688		5.39	73	1.08	2373			1.78	Si
SLU 83	39	-7933	343	11423		3.62	73	1.04	2274			6.62	Si
SLU 83	289	-11896	1373	-52011		5.43	73	1.08	2373			1.73	Si
SLU 82	39	-7645	322	10401		3.49	73	1.02	2236			6.94	Si
SLU 82	289	-11535	1368	-51974		5.27	73	1.08	2373			1.73	Si
SLU 84	39	-7935	312	10147		3.62	73	1.04	2275			7.29	Si
SLU 84	289	-11916	1391	-52853		5.44	73	1.08	2373			1.71	Si
SLU 80	39	-8026	271	7376		3.66	73	1.04	2287			8.44	Si
SLU 80	289	-11874	1350	-51476		5.42	73	1.08	2373			1.76	Si
SLU 81	39	-7642	353	11677		3.49	73	1.02	2236			6.33	Si
SLU 81	289	-11515	1350	-51133		5.26	73	1.08	2373			1.76	Si
SLU 76	39	-7737	260	6779		3.53	73	1.03	2248			8.65	Si
SLU 76	289	-11507	1339	-51158		5.25	73	1.08	2373			1.77	Si
SLU 78	39	-7996	273	7427		3.65	73	1.04	2283			8.36	Si
SLU 78	289	-11835	1350	-51530		5.4	73	1.08	2373			1.76	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	39	-1030	764	73380		0	0	0.83	0			0	No, $V_u < V$
SLV 16	289	-16202	6079	-236554		8.22	65.7	1.63	3203			0.53	No, $V_u < V$
SLV 12	39	237	-193	30304		0	0	0.83	0			0	No, $V_u < V$
SLV 12	289	-3973	1356	-52007		1.89	70.22	1.21	2550			1.88	Si
SLV 2	39	-9809	-347	-65321		4.48	73	1.63	3559			10.25	Si
SLV 2	289	344	-4276	167670		0	0	0.83	0			0	No, $V_u < V$
SLV 3	39	-6948	-722	-61715		3.17	73	1.47	3215			4.45	Si
SLV 3	289	4589	-5001	196066		0	0	0.83	0			0	No, $V_u < V$
SLV 8	39	-1539	-639	-10225		0.7	73	0.97	2133			3.34	Si
SLV 8	289	2265	-1968	77779		0	0	0.83	0			0	No, $V_u < V$
SLV 7	39	-1539	-639	-10225		0.7	73	0.97	2133			3.34	Si
SLV 7	289	2265	-1968	77779		0	0	0.83	0			0	No, $V_u < V$
SLV 4	39	-6948	-722	-61715		3.17	73	1.47	3215			4.45	Si
SLV 4	289	4589	-5001	196066		0	0	0.83	0			0	No, $V_u < V$
SLV 1	39	-9809	-347	-65321		4.48	73	1.63	3559			10.25	Si
SLV 1	289	344	-4276	167670		0	0	0.83	0			0	No, $V_u < V$
SLV 15	39	-1030	764	73380		0	0	0.83	0			0	No, $V_u < V$
SLV 15	289	-16202	6079	-236554		8.22	65.7	1.63	3203			0.53	No, $V_u < V$
SLV 11	39	237	-193	30304		0	0	0.83	0			0	No, $V_u < V$
SLV 11	289	-3973	1356	-52007		1.89	70.22	1.21	2550			1.88	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 176 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.28	0.16	-356	3544	5276	1.49	Si
SLV 7	14	0.28	0.16	-356	3544	5276	1.49	Si
SLV 12	14	0.28	0.86	-1892	3544	26373	7.44	Si
SLV 11	14	0.28	0.86	-1892	3544	26373	7.44	Si
SLV 3	14	0.28	1.28	-2794	3544	37531	10.59	Si
SLV 4	14	0.28	1.28	-2794	3544	37531	10.59	Si



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.28	2.93	-6418	3544	73183	20.65	Si
SLV 2	14	0.28	2.93	-6418	3544	73183	20.65	Si
SLV 16	14	0.28	3.61	-7912	3544	83590	23.58	Si
SLV 15	14	0.28	3.61	-7912	3544	83590	23.58	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 176  $W_a = 0.05$   $T_a = 0.0418$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	1125	-1539	-24	0	0	0	0	500.872	No, Trazione
SLV 3	1619	-6948	-37	0	0	0	0	489.658	No, Trazione
SLV 11	-2719	237	-4	0	0	0	0	500.872	No, Trazione
SLV 12	-2719	237	-4	0	0	0	0	500.872	No, Trazione
SLV 7	1125	-1539	-24	0	0	0	0	500.872	No, Trazione
SLV 4	1619	-6948	-37	0	0	0	0	489.658	No, Trazione
SLV 9	-14122	-9299	24	0.055	15.227	0.983	81.554	500.872	No
SLV 10	-14122	-9299	24	0.055	15.227	0.983	81.554	500.872	No
SLV 14	-14616	-3890	37	0.054	15.73	0.983	80.228	489.658	No
SLV 13	-14616	-3890	37	0.054	15.73	0.983	80.228	489.658	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.732	SLU 84	Si
V_SLU	1.705	SLU 84	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLV 1	No
PFFP_SLV	1.489	SLV 7	Si
R_SLV	0	SLV 12	No

## Maschio 222

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-485.9	-1293.3	-485.9	Z medio 313 cm	Z medio 656 cm	82	30	343	343	343			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 59	408	-9401	18932	3.82	204630	10.808	Si
SLU 59	608	-8450	30812	3.43	200371	6.503	Si
SLU 83	408	-9872	19497	4.01	205368	10.533	Si
SLU 83	608	-8817	31238	3.58	202453	6.481	Si
SLU 84	408	-9906	19792	4.03	205387	10.377	Si
SLU 84	608	-8829	31259	3.59	202512	6.479	Si
SLU 79	408	-9873	19823	4.01	205369	10.36	Si
SLU 79	608	-8896	32061	3.62	202828	6.326	Si
SLU 80	408	-9907	20118	4.03	205387	10.209	Si
SLU 80	608	-8908	32081	3.62	202883	6.324	Si
SLU 56	408	-9350	18639	3.8	204495	10.971	Si
SLU 56	608	-8397	30324	3.41	200024	6.596	Si
SLU 57	408	-9384	18934	3.81	204586	10.805	Si
SLU 57	608	-8409	30344	3.42	200104	6.594	Si
SLU 77	408	-9856	19825	4.01	205358	10.359	Si
SLU 77	608	-8855	31593	3.6	202636	6.414	Si
SLU 58	408	-9367	18637	3.81	204542	10.975	Si
SLU 58	608	-8438	30791	3.43	200293	6.505	Si
SLU 78	408	-9890	20120	4.02	205379	10.208	Si
SLU 78	608	-8867	31614	3.6	202693	6.412	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 15	408	-7128	174007	2.9	222958	1.281	Si
SLV 15	608	2505	-177800	0	0	0	No, Trazione
SLV 11	408	-1095	41163	0.45	43279	1.051	Si
SLV 11	608	1686	-45435	0	0	0	No, Trazione
SLV 16	408	-7128	174007	2.9	222958	1.281	Si
SLV 16	608	2505	-177800	0	0	0	No, Trazione
SLV 13	408	-10904	187615	4.43	284908	1.519	Si
SLV 13	608	-802	-173908	0	0	0	No, e>1/2
SLV 3	408	-2480	-160187	0	0	0	No, e>1/2
SLV 3	608	-10856	213356	4.41	284362	1.333	Si
SLV 14	408	-10904	187615	4.43	284908	1.519	Si
SLV 14	608	-802	-173908	0	0	0	No, e>1/2
SLV 8	408	299	-59095	0	0	0	No, Trazione
SLV 8	608	-2322	71911	0.94	87856	1.222	Si
SLV 12	408	-1095	41163	0.45	43279	1.051	Si
SLV 12	608	1686	-45435	0	0	0	No, Trazione
SLV 7	408	299	-59095	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	608	-2322	71911	0.94	87856	1.222	Si
SLV 4	408	-2480	-160187	0	0	0	No, $e>l/2$
SLV 4	608	-10856	213356	4.41	284362	1.333	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 78	408	-9890	-151	20120		4.02	82	1.08	2665			17.6	Si
SLU 78	608	-8867	-321	31614		3.6	82	1.04	2549			7.93	Si
SLU 37	408	-8141	-135	16275		3.31	82	1	2452			18.22	Si
SLU 37	608	-7402	-310	26942		3.01	82	0.96	2354			7.59	Si
SLU 58	408	-9367	-176	18637		3.81	82	1.06	2616			14.88	Si
SLU 58	608	-8438	-314	30791		3.43	82	1.01	2492			7.94	Si
SLU 35	408	-8124	-127	16277		3.3	82	1	2450			19.31	Si
SLU 35	608	-7361	-298	26475		2.99	82	0.95	2348			7.88	Si
SLU 80	408	-9907	-159	20118		4.03	82	1.08	2665			16.74	Si
SLU 80	608	-8908	-333	32081		3.62	82	1.04	2554			7.67	Si
SLU 36	408	-8158	-122	16572		3.32	82	1	2454			20.17	Si
SLU 36	608	-7374	-294	26495		3	82	0.96	2350			8	Si
SLU 77	408	-9856	-157	19825		4.01	82	1.08	2665			17.02	Si
SLU 77	608	-8855	-326	31593		3.6	82	1.04	2547			7.82	Si
SLU 79	408	-9873	-164	19823		4.01	82	1.08	2665			16.22	Si
SLU 79	608	-8896	-338	32061		3.62	82	1.04	2553			7.56	Si
SLU 38	408	-8175	-129	16570		3.32	82	1	2457			18.98	Si
SLU 38	608	-7415	-306	26962		3.01	82	0.96	2355			7.71	Si
SLU 16	408	-7636	-146	15089		3.1	82	0.97	2385			16.33	Si
SLU 16	608	-6945	-286	25673		2.82	82	0.93	2293			8.01	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	408	-1095	568	41163		3.55	10.28	1.54	476			0.84	No, Vu<V
SLV 12	608	1686	1853	-45435		0	0	0.83	0			0	No, Vu<V
SLV 13	408	-10904	5204	187615		5.09	71.39	1.63	3480			0.67	No, Vu<V
SLV 13	608	-802	4716	-173908		0	0	0.83	0			0	No, Vu<V
SLV 11	408	-1095	568	41163		3.55	10.28	1.54	476			0.84	No, Vu<V
SLV 11	608	1686	1853	-45435		0	0	0.83	0			0	No, Vu<V
SLV 4	408	-2480	-5378	-160187		0	0	0.83	0			0	No, Vu<V
SLV 4	608	-10856	-5002	213356		5.65	64.05	1.63	3122			0.62	No, Vu<V
SLV 7	408	299	-2452	-59095		0	0	0.83	0			0	No, Vu<V
SLV 7	608	-2322	-1151	71911		2.57	30.1	1.35	1217			1.06	Si
SLV 3	408	-2480	-5378	-160187		0	0	0.83	0			0	No, Vu<V
SLV 3	608	-10856	-5002	213356		5.65	64.05	1.63	3122			0.62	No, Vu<V
SLV 15	408	-7128	4691	174007		4.77	49.77	1.63	2426			0.52	No, Vu<V
SLV 15	608	2505	5012	-177800		0	0	0.83	0			0	No, Vu<V
SLV 16	408	-7128	4691	174007		4.77	49.77	1.63	2426			0.52	No, Vu<V
SLV 16	608	2505	5012	-177800		0	0	0.83	0			0	No, Vu<V
SLV 14	408	-10904	5204	187615		5.09	71.39	1.63	3480			0.67	No, Vu<V
SLV 14	608	-802	4716	-173908		0	0	0.83	0			0	No, Vu<V
SLV 8	408	299	-2452	-59095		0	0	0.83	0			0	No, Vu<V
SLV 8	608	-2322	-1151	71911		2.57	30.1	1.35	1217			1.06	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 484.5 Wa 0.05 denominatore  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.35	0	-329	7673	0	0	No, $e>t/2$
SLV 12	14	0.35	0	-329	7673	0	0	No, $e>t/2$
SLV 7	14	0.35	0.38	-945	7673	13727	1.79	Si
SLV 8	14	0.35	0.38	-945	7673	13727	1.79	Si
SLV 16	14	0.35	1.54	-3791	7673	49695	6.48	Si
SLV 15	14	0.35	1.54	-3791	7673	49695	6.48	Si
SLV 4	14	0.35	2.38	-5843	7673	70606	9.2	Si
SLV 3	14	0.35	2.38	-5843	7673	70606	9.2	Si
SLV 13	14	0.35	3	-7374	7673	83474	10.88	Si
SLV 14	14	0.35	3	-7374	7673	83474	10.88	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 484.5 Wa = 0.05 Ta = 0.0655

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 11	1495	793	14	0	0	0	0	872.212	No, Trazione
SLV 12	1495	793	14	0	0	0	0	872.212	No, Trazione
SLV 15	1350	1799	5	0	0	0	0	841.059	No, Trazione
SLV 16	1350	1799	5	0	0	0	0	841.059	No, Trazione
SLV 5	-10929	-13787	-15	0.045	12.315	0.971	67.856	872.212	No
SLV 6	-10929	-13787	-15	0.045	12.315	0.971	67.856	872.212	No
SLV 10	-8158	-9759	-14	0.046	9.494	0.963	69.317	872.212	No
SLV 9	-8158	-9759	-14	0.046	9.494	0.963	69.317	872.212	No
SLV 1	-10783	-14794	-6	0.046	12.167	0.97	69.047	841.059	No
SLV 2	-10783	-14794	-6	0.046	12.167	0.97	69.047	841.059	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	6.324	SLU 80	Si
V_SLU	7.561	SLU 79	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLV 3	No
PFFP_SLV	0	SLV 11	No
R_SLV	0	SLV 16	No





## Maschio 223

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-1193.3	-485.9	-1100.3	-485.9	Z medio 313 cm	Z medio 656 cm	93	30	343	343	343			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLU 75	408	-10147	-20057	3.64	261157	13.02	Si
SLU 75	608	-8870	-47863	3.18	251463	5.254	Si
SLU 74	408	-10130	-19519	3.63	261072	13.375	Si
SLU 74	608	-8859	-47877	3.18	251351	5.25	Si
SLU 84	408	-10509	-20280	3.77	262690	12.953	Si
SLU 84	608	-9238	-50160	3.31	254943	5.083	Si
SLU 83	408	-10492	-19742	3.76	262631	13.303	Si
SLU 83	608	-9227	-50173	3.31	254848	5.079	Si
SLU 80	408	-10649	-22061	3.82	263139	11.928	Si
SLU 80	608	-9289	-48766	3.33	255380	5.237	Si
SLU 82	408	-10067	-18576	3.61	260745	14.037	Si
SLU 82	608	-8872	-49183	3.18	251488	5.113	Si
SLU 77	408	-10572	-21223	3.79	262903	12.388	Si
SLU 77	608	-9225	-48853	3.31	254826	5.216	Si
SLU 79	408	-10632	-21523	3.81	263089	12.224	Si
SLU 79	608	-9278	-48779	3.33	255287	5.233	Si
SLU 78	408	-10589	-21761	3.8	262957	12.084	Si
SLU 78	608	-9236	-48840	3.31	254922	5.22	Si
SLU 81	408	-10050	-18038	3.6	260655	14.45	Si
SLU 81	608	-8861	-49196	3.18	251376	5.11	Si

### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γ<sub>M</sub> = 2

Comb.	Quota	N	M	σ <sub>0</sub>	Mu	c.s.	Verifica
SLV 4	408	-7783	-202623	2.79	279273	1.378	Si
SLV 4	608	1992	204161	0	0	0	No, Trazione
SLV 16	408	-2573	180103	0	0	0	No, e>l/2
SLV 16	608	-10869	-241842	3.9	344250	1.423	Si
SLV 3	408	-7783	-202623	2.79	279273	1.378	Si
SLV 3	608	1992	204161	0	0	0	No, Trazione
SLV 2	408	-11516	-207765	4.13	354583	1.707	Si
SLV 2	608	-1368	176409	0	0	0	No, e>l/2
SLV 12	408	-41	52148	0	0	0	No, e>l/2
SLV 12	608	-2447	-53363	0.88	105626	1.979	Si
SLV 15	408	-2573	180103	0	0	0	No, e>l/2
SLV 15	608	-10869	-241842	3.9	344250	1.423	Si
SLV 11	408	-41	52148	0	0	0	No, e>l/2
SLV 11	608	-2447	-53363	0.88	105626	1.979	Si
SLV 7	408	-1604	-62670	0.58	71087	1.134	Si
SLV 7	608	1411	80438	0	0	0	No, Trazione
SLV 8	408	-1604	-62670	0.58	71087	1.134	Si
SLV 8	608	1411	80438	0	0	0	No, Trazione
SLV 1	408	-11516	-207765	4.13	354583	1.707	Si
SLV 1	608	-1368	176409	0	0	0	No, e>l/2

### Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γ<sub>M</sub> = 3

Comb.	Quota	N	V par	M	σ <sub>0</sub>	σ <sub>N</sub>	I'	f <sub>vd</sub>	V <sub>t</sub> scorr.	V <sub>t</sub> fess.diag.	V <sub>t,lim</sub>	c.s.	Verifica
SLU 77	408	-10572	-1	-21223		3.79	93	1.06	2960			1000	Si
SLU 77	608	-9225	426	-48853		3.31	93	1	2780			6.53	Si
SLU 42	408	-8676	24	-16487		3.11	93	0.97	2707			112.17	Si
SLU 42	608	-7661	394	-42045		2.75	93	0.92	2571			6.53	Si
SLU 41	408	-8659	29	-15949		3.1	93	0.97	2704			93.63	Si
SLU 41	608	-7650	401	-42059		2.74	93	0.92	2570			6.41	Si
SLU 83	408	-10492	32	-19742		3.76	93	1.06	2949			93.23	Si
SLU 83	608	-9227	454	-50173		3.31	93	1	2780			6.13	Si
SLU 79	408	-10632	-4	-21523		3.81	93	1.06	2968			761.08	Si
SLU 79	608	-9278	427	-48779		3.33	93	1	2787			6.52	Si
SLU 81	408	-10050	52	-18038		3.6	93	1.04	2890			55.18	Si
SLU 81	608	-8861	441	-49196		3.18	93	0.98	2731			6.2	Si
SLU 39	408	-8217	50	-14246		2.95	93	0.95	2646			53.31	Si
SLU 39	608	-7284	388	-41082		2.61	93	0.9	2521			6.51	Si
SLU 84	408	-10509	27	-20280		3.77	93	1.06	2951			109.81	Si
SLU 84	608	-9238	447	-50160		3.31	93	1	2782			6.23	Si
SLU 82	408	-10067	48	-18576		3.61	93	1.04	2892			60.74	Si
SLU 82	608	-8872	433	-49183		3.18	93	0.98	2733			6.31	Si
SLU 62	408	-9980	36	-18873		3.58	93	1.03	2881			80.59	Si
SLU 62	608	-8771	417	-47311		3.14	93	0.97	2719			6.51	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	408	-41	2195	52148		0	0	0.83	0			0	No, Vu<V
SLV 12	608	-2447	1681	-53363		1.1	74.08	1.05	2341			1.39	Si
SLV 8	408	-1604	-644	-62670		2.4	22.3	1.31	878			1.36	Si
SLV 8	608	1411	-1685	80438		0	0	0.83	0			0	No, Vu<V
SLV 1	408	-11516	-4946	-207765		4.5	85.37	1.63	4162			0.84	No, Vu<V
SLV 1	608	-1368	-5278	176409		0	0	0.83	0			0	No, Vu<V
SLV 15	408	-2573	4972	180103		0	0	0.83	0			0	No, Vu<V
SLV 15	608	-10869	5788	-241842		4.98	72.74	1.63	3546			0.61	No, Vu<V
SLV 16	408	-2573	4972	180103		0	0	0.83	0			0	No, Vu<V
SLV 16	608	-10869	5788	-241842		4.98	72.74	1.63	3546			0.61	No, Vu<V
SLV 11	408	-41	2195	52148		0	0	0.83	0			0	No, Vu<V
SLV 11	608	-2447	1681	-53363		1.1	74.08	1.05	2341			1.39	Si
SLV 4	408	-7783	-4489	-202623		4.23	61.39	1.63	2993			0.67	No, Vu<V
SLV 4	608	1992	-5432	204161		0	0	0.83	0			0	No, Vu<V
SLV 3	408	-7783	-4489	-202623		4.23	61.39	1.63	2993			0.67	No, Vu<V
SLV 3	608	1992	-5432	204161		0	0	0.83	0			0	No, Vu<V
SLV 2	408	-11516	-4946	-207765		4.5	85.37	1.63	4162			0.84	No, Vu<V
SLV 2	608	-1368	-5278	176409		0	0	0.83	0			0	No, Vu<V
SLV 7	408	-1604	-644	-62670		2.4	22.3	1.31	878			1.36	Si
SLV 7	608	1411	-1685	80438		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 484.5 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.35	0.38	-1057	8701	15356	1.76	Si
SLV 7	14	0.35	0.38	-1057	8701	15356	1.76	Si
SLV 12	14	0.35	0.44	-1224	8701	17705	2.03	Si
SLV 11	14	0.35	0.44	-1224	8701	17705	2.03	Si
SLV 4	14	0.35	1.77	-4925	8701	63197	7.26	Si
SLV 3	14	0.35	1.77	-4925	8701	63197	7.26	Si
SLV 15	14	0.35	1.97	-5484	8701	69024	7.93	Si
SLV 16	14	0.35	1.97	-5484	8701	69024	7.93	Si
SLV 1	14	0.35	3.01	-8408	8701	95011	10.92	Si
SLV 2	14	0.35	3.01	-8408	8701	95011	10.92	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 484.5 Wa = 0.05 Ta = 0.0655

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-145	268	9	0	0	0	0	841.059	No, Trazione
SLV 7	509	783	18	0	0	0	0	872.212	No, Trazione
SLV 8	509	783	18	0	0	0	0	872.212	No, Trazione
SLV 3	-145	268	9	0	0	0	0	841.059	No, Trazione
SLV 10	-10272	-14275	-19	0.045	11.806	0.966	68.367	872.212	No
SLV 9	-10272	-14275	-19	0.045	11.806	0.966	68.367	872.212	No
SLV 6	-8216	-11140	-16	0.046	9.713	0.959	69.833	872.212	No
SLV 5	-8216	-11140	-16	0.046	9.713	0.959	69.833	872.212	No
SLV 13	-9618	-13761	-10	0.046	11.14	0.964	69.982	841.059	No
SLV 14	-9618	-13761	-10	0.046	11.14	0.964	69.982	841.059	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.079	SLU 83	Si
V_SLU	6.126	SLU 83	Si
PF_SLV	0	SLV 8	No
V_SLV	0	SLV 1	No
PFFP_SLV	1.765	SLV 7	Si
R_SLV	0	SLV 8	No

## Maschio 224

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-485.9	-1293.3	-485.9	Z medio 656 cm	Z medio 1009 cm	82	30	353	353	353			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 84	751	-6955	23721	2.83	186202	7.85	Si
SLU 84	951	-5069	18813	2.06	155275	8.254	Si
SLU 79	751	-7218	24590	2.93	189360	7.701	Si
SLU 79	951	-5527	18340	2.25	164127	8.949	Si
SLU 70	751	-6748	23417	2.74	183519	7.837	Si
SLU 70	951	-5110	16511	2.08	156104	9.455	Si
SLU 78	751	-7159	24397	2.91	188673	7.733	Si
SLU 78	951	-5388	18506	2.19	161516	8.728	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 77	751	-7169	24409	2.91	188793	7.735	Si
SLU 77	951	-5420	18130	2.2	162129	8.943	Si
SLU 83	751	-6965	23732	2.83	186331	7.851	Si
SLU 83	951	-5102	18437	2.07	155930	8.458	Si
SLU 71	751	-6807	23610	2.77	184306	7.806	Si
SLU 71	951	-5250	16345	2.13	158874	9.72	Si
SLU 80	751	-7208	24579	2.93	189242	7.699	Si
SLU 80	951	-5495	18716	2.23	163528	8.737	Si
SLU 72	751	-6797	23599	2.76	184171	7.804	Si
SLU 72	951	-5218	16721	2.12	158238	9.463	Si
SLU 69	751	-6758	23429	2.75	183656	7.839	Si
SLU 69	951	-5143	16135	2.09	156754	9.715	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	751	1282	20862	0	0	0	No, Trazione
SLV 11	951	6014	-12046	0	0	0	No, Trazione
SLV 15	751	-6121	125261	2.49	199882	1.596	Si
SLV 15	951	5003	-110817	0	0	0	No, Trazione
SLV 12	751	1282	20862	0	0	0	No, Trazione
SLV 12	951	6014	-12046	0	0	0	No, Trazione
SLV 7	751	3449	-50138	0	0	0	No, Trazione
SLV 7	951	2420	64093	0	0	0	No, Trazione
SLV 14	751	-10301	143747	4.19	277633	1.931	Si
SLV 14	951	542	-119339	0	0	0	No, Trazione
SLV 3	751	1099	-111405	0	0	0	No, Trazione
SLV 3	951	-6977	142980	2.84	219674	1.536	Si
SLV 4	751	1099	-111405	0	0	0	No, Trazione
SLV 4	951	-6977	142980	2.84	219674	1.536	Si
SLV 8	751	3449	-50138	0	0	0	No, Trazione
SLV 8	951	2420	64093	0	0	0	No, Trazione
SLV 13	751	-10301	143747	4.19	277633	1.931	Si
SLV 13	951	542	-119339	0	0	0	No, Trazione
SLD 16	751	-5261	62738	2.14	177954	2.836	Si
SLD 16	951	297	-40528	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 61	751	-6103	300	21056		2.48	82	0.89	2180			7.28	Si
SLU 61	951	-4238	9	17346		1.72	82	0.79	1932			227.11	Si
SLU 65	751	-5933	302	21035		2.41	82	0.88	2158			7.14	Si
SLU 65	951	-4107	31	15455		1.67	82	0.78	1914			61.73	Si
SLU 75	751	-6730	305	23119		2.74	82	0.92	2264			7.43	Si
SLU 75	951	-4843	16	17747		1.97	82	0.82	2012			129.64	Si
SLU 31	751	-5180	280	17842		2.11	82	0.84	2057			7.35	Si
SLU 31	951	-3566	13	14378		1.45	82	0.75	1842			144.08	Si
SLU 73	751	-6343	329	22015		2.58	82	0.9	2213			6.73	Si
SLU 73	951	-4384	18	17450		1.78	82	0.79	1951			106.24	Si
SLU 52	751	-5920	298	20628		2.41	82	0.88	2156			7.23	Si
SLU 52	951	-4098	6	16742		1.67	82	0.78	1913			300.76	Si
SLU 82	751	-6526	330	22443		2.65	82	0.91	2237			6.78	Si
SLU 82	951	-4525	21	18054		1.84	82	0.8	1970			96.04	Si
SLU 81	751	-6537	315	22454		2.66	82	0.91	2238			7.11	Si
SLU 81	951	-4557	32	17678		1.85	82	0.8	1974			61.97	Si
SLU 76	751	-6772	303	23293		2.75	82	0.92	2270			7.49	Si
SLU 76	951	-4929	-3	18208		2	82	0.82	2024			621.99	Si
SLU 40	751	-5363	281	18269		2.18	82	0.85	2082			7.41	Si
SLU 40	951	-3706	15	14982		1.51	82	0.76	1861			124.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	751	1099	-4520	-111405		0	0	0.83	0			0	No, Vu<V
SLV 4	951	-6977	-3708	142980		3.78	61.53	1.59	2934			0.79	No, Vu<V
SLV 11	751	1282	1462	20862		0	0	0.83	0			0	No, Vu<V
SLV 11	951	6014	1086	-12046		0	0	0.83	0			0	No, Vu<V
SLV 13	751	-10301	4948	143747		4.23	81.14	1.63	3956			0.8	No, Vu<V
SLV 13	951	542	3772	-119339		0	0	0.83	0			0	No, Vu<V
SLD 16	751	-5261	2197	62738		2.14	82	1.26	3102			1.41	Si
SLD 16	951	297	1613	-40528		0	0	0.83	0			0	No, Vu<V
SLV 15	751	-6121	4853	125261		3.31	61.62	1.5	2765			0.57	No, Vu<V
SLV 15	951	5003	3734	-110817		0	0	0.83	0			0	No, Vu<V
SLV 14	751	-10301	4948	143747		4.23	81.14	1.63	3956			0.8	No, Vu<V
SLV 14	951	542	3772	-119339		0	0	0.83	0			0	No, Vu<V
SLV 7	751	3449	-1350	-50138		0	0	0.83	0			0	No, Vu<V
SLV 7	951	2420	-1147	64093		0	0	0.83	0			0	No, Vu<V
SLV 12	751	1282	1462	20862		0	0	0.83	0			0	No, Vu<V
SLV 12	951	6014	1086	-12046		0	0	0.83	0			0	No, Vu<V
SLV 3	751	1099	-4520	-111405		0	0	0.83	0			0	No, Vu<V
SLV 3	951	-6977	-3708	142980		3.78	61.53	1.59	2934			0.79	No, Vu<V
SLV 8	751	3449	-1350	-50138		0	0	0.83	0			0	No, Vu<V
SLV 8	951	2420	-1147	64093		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 832.5 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.42	0	3029	9839	0	0	No, Trazione
SLV 11	14	0.42	0	3029	9839	0	0	No, Trazione



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.42	0	3462	9839	0	0	No, Trazione
SLV 8	14	0.42	0	3462	9839	0	0	No, Trazione
SLV 3	14	0.42	0.51	-1249	9839	17963	1.83	Si
SLV 4	14	0.42	0.51	-1249	9839	17963	1.83	Si
SLV 15	14	0.42	1.09	-2691	9839	36749	3.73	Si
SLV 16	14	0.42	1.09	-2691	9839	36749	3.73	Si
SLV 2	14	0.42	2.33	-5720	9839	69473	7.06	Si
SLV 1	14	0.42	2.33	-5720	9839	69473	7.06	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 832.5 Wa = 0.05 Ta = 0.0694

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	2960	-118	32	0	0	0	0	1076.66	No, Trazione
SLV 16	3074	-484	9	0	0	0	0	1036.455	No, Trazione
SLV 15	3074	-484	9	0	0	0	0	1036.455	No, Trazione
SLV 11	5068	1217	31	0	0	0	0	1076.66	No, Trazione
SLV 7	2960	-118	32	0	0	0	0	1076.66	No, Trazione
SLV 12	5068	1217	31	0	0	0	0	1076.66	No, Trazione
SLV 6	-9767	-9429	-32	0.043	11.167	0.967	64.118	1076.66	No
SLV 5	-9767	-9429	-32	0.043	11.167	0.967	64.118	1076.66	No
SLV 10	-7659	-8094	-32	0.043	9.021	0.96	64.596	1076.66	No
SLV 9	-7659	-8094	-32	0.043	9.021	0.96	64.596	1076.66	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	7.699	SLU 80	Si
V_SLU	6.73	SLU 73	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 225

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1193.3	-485.9	-1114.3	-485.9	Z medio 656 cm	Z medio 1009 cm	79	30	353	353	353			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 80	751	-6221	-19502	2.63	166537	8.54	Si
SLU 80	951	-5244	-25922	2.21	150865	5.82	Si
SLU 75	751	-5796	-17016	2.45	160192	9.414	Si
SLU 75	951	-4882	-24273	2.06	144054	5.935	Si
SLU 77	751	-6149	-19187	2.59	165509	8.626	Si
SLU 77	951	-5167	-25640	2.18	149465	5.829	Si
SLU 78	751	-6154	-19110	2.6	165588	8.665	Si
SLU 78	951	-5185	-25760	2.19	149789	5.815	Si
SLU 81	751	-5639	-15518	2.38	157661	10.16	Si
SLU 81	951	-4770	-23911	2.01	141841	5.932	Si
SLU 79	751	-6216	-19578	2.62	166459	8.502	Si
SLU 79	951	-5227	-25802	2.21	150546	5.835	Si
SLU 76	751	-5866	-17357	2.48	161297	9.293	Si
SLU 76	951	-4953	-24514	2.09	145431	5.933	Si
SLU 83	751	-5997	-17613	2.53	163287	9.271	Si
SLU 83	951	-5073	-25398	2.14	147715	5.816	Si
SLU 84	751	-6003	-17536	2.53	163370	9.316	Si
SLU 84	951	-5091	-25518	2.15	148045	5.802	Si
SLU 82	751	-5644	-15442	2.38	157752	10.216	Si
SLU 82	951	-4787	-24031	2.02	142193	5.917	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 12	751	846	35591	0	0	0	No, Trazione
SLV 12	951	-939	-10757	0.4	35870	3.334	Si
SLV 3	751	-6737	-129124	2.84	204176	1.581	Si
SLV 3	951	1966	115863	0	0	0	No, Trazione
SLV 14	751	-1274	106205	0	0	0	No, e>l/2
SLV 14	951	-8620	-147820	3.64	239114	1.618	Si
SLV 16	751	946	112673	0	0	0	No, Trazione
SLV 16	951	-6431	-123174	2.71	197599	1.604	Si
SLV 13	751	-1274	106205	0	0	0	No, e>l/2
SLV 13	951	-8620	-147820	3.64	239114	1.618	Si
SLV 4	751	-6737	-129124	2.84	204176	1.581	Si
SLV 4	951	1966	115863	0	0	0	No, Trazione
SLV 8	751	-1458	-36948	0.62	54693	1.48	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	951	1581	60954	0	0	0	No, Trazione
SLV 2	751	-8956	-135592	3.78	244335	1.802	Si
SLV 2	951	-222	91217	0	0	0	No, $e > l/2$
SLV 11	751	846	35591	0	0	0	No, Trazione
SLV 11	951	-939	-10757	0.4	35870	3.334	Si
SLV 7	751	-1458	-36948	0.62	54693	1.48	Si
SLV 7	951	1581	60954	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 82	751	-5644	-12	-15442		2.38	79	0.87	2069			167.77	Si
SLU 82	951	-4787	232	-24031		2.02	79	0.82	1955			8.41	Si
SLU 76	751	-5866	-49	-17357		2.48	79	0.89	2099			42.59	Si
SLU 76	951	-4953	229	-24514		2.09	79	0.83	1977			8.64	Si
SLU 84	751	-6003	-34	-17536		2.53	79	0.89	2117			63.1	Si
SLU 84	951	-5091	241	-25518		2.15	79	0.84	1995			8.27	Si
SLU 78	751	-6154	-59	-19110		2.6	79	0.9	2137			36.08	Si
SLU 78	951	-5185	229	-25760		2.19	79	0.85	2008			8.78	Si
SLU 73	751	-5508	-28	-15262		2.32	79	0.87	2051			73.08	Si
SLU 73	951	-4649	220	-23027		1.96	79	0.82	1936			8.81	Si
SLU 83	751	-5997	-22	-17613		2.53	79	0.89	2116			97.74	Si
SLU 83	951	-5073	229	-25398		2.14	79	0.84	1993			8.69	Si
SLU 80	751	-6221	-63	-19502		2.63	79	0.91	2146			34.3	Si
SLU 80	951	-5244	230	-25922		2.21	79	0.85	2016			8.78	Si
SLU 42	751	-4959	-30	-14579		2.09	79	0.83	1978			65.08	Si
SLU 42	951	-4236	214	-21639		1.79	79	0.79	1881			8.78	Si
SLU 63	751	-5700	-28	-16474		2.41	79	0.88	2077			75.26	Si
SLU 63	951	-4827	225	-23891		2.04	79	0.83	1960			8.71	Si
SLU 81	751	-5639	0	-15518		2.38	79	0.87	2068			1000	Si
SLU 81	951	-4770	220	-23911		2.01	79	0.82	1953			8.87	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	751	-1458	-1195	-36948		1.14	42.48	1.06	1354			1.13	Si
SLV 7	951	1581	-1229	60954		0	0	0.83	0			0	No, $V_u < V$
SLV 12	751	846	1622	35591		0	0	0.83	0			0	No, $V_u < V$
SLV 12	951	-939	988	-10757		0.4	79	0.91	2163			2.19	Si
SLV 3	751	-6737	-4641	-129124		3.68	60.99	1.57	2872			0.62	No, $V_u < V$
SLV 3	951	1966	-3643	115863		0	0	0.83	0			0	No, $V_u < V$
SLV 16	751	946	4750	112673		0	0	0.83	0			0	No, $V_u < V$
SLV 16	951	-6431	3748	-123174		3.51	61.03	1.54	2812			0.75	No, $V_u < V$
SLV 2	751	-8956	-4777	-135592		4.09	73.07	1.63	3562			0.75	No, $V_u < V$
SLV 2	951	-222	-3495	91217		0	0	0.83	0			0	No, $V_u < V$
SLV 4	751	-6737	-4641	-129124		3.68	60.99	1.57	2872			0.62	No, $V_u < V$
SLV 4	951	1966	-3643	115863		0	0	0.83	0			0	No, $V_u < V$
SLV 11	751	846	1622	35591		0	0	0.83	0			0	No, $V_u < V$
SLV 11	951	-939	988	-10757		0.4	79	0.91	2163			2.19	Si
SLV 13	751	-1274	4613	106205		0	0	0.83	0			0	No, $V_u < V$
SLV 13	951	-8620	3897	-147820		4.29	67.05	1.63	3268			0.84	No, $V_u < V$
SLV 14	751	-1274	4613	106205		0	0	0.83	0			0	No, $V_u < V$
SLV 14	951	-8620	3897	-147820		4.29	67.05	1.63	3268			0.84	No, $V_u < V$
SLV 8	751	-1458	-1195	-36948		1.14	42.48	1.06	1354			1.13	Si
SLV 8	951	1581	-1229	60954		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 832.5 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 11	14	0.42	0	340	9478	0	0	No, Trazione
SLV 7	14	0.42	0	-529	9478	0	0	No, $e > t/2$
SLV 8	14	0.42	0	-529	9478	0	0	No, $e > t/2$
SLV 12	14	0.42	0	340	9478	0	0	No, Trazione
SLV 16	14	0.42	0.53	-1266	9478	18158	1.92	Si
SLV 15	14	0.42	0.53	-1266	9478	18158	1.92	Si
SLV 14	14	0.42	1.48	-3511	9478	46276	4.88	Si
SLV 13	14	0.42	1.48	-3511	9478	46276	4.88	Si
SLV 4	14	0.42	1.76	-4162	9478	53456	5.64	Si
SLV 3	14	0.42	1.76	-4162	9478	53456	5.64	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 832.5 Wa = 0.05 Ta = 0.0694

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 7	669	-20	33	0	0	0	0	1076.66	No, Trazione
SLV 8	669	-20	33	0	0	0	0	1076.66	No, Trazione
SLV 4	378	-1164	7	0	0	0	0	1036.455	No, Trazione
SLV 3	378	-1164	7	0	0	0	0	1036.455	No, Trazione
SLV 9	-5458	-7016	-33	0.042	6.739	0.949	64.734	1076.66	No
SLV 10	-5458	-7016	-33	0.042	6.739	0.949	64.734	1076.66	No
SLV 6	-4235	-6156	-35	0.042	5.5	0.94	64.81	1076.66	No
SLV 5	-4235	-6156	-35	0.042	5.5	0.94	64.81	1076.66	No
SLV 11	-553	-881	34	0.041	1.871	0.891	66.606	1076.66	No
SLV 12	-553	-881	34	0.041	1.871	0.891	66.606	1076.66	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	5.802	SLU 84	Si
V SLU	8.269	SLU 84	Si
PF SLV	0	SLV 16	No



Stato limite	Coeff.s.	Comb.	Verifica
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 8	No

## Maschio 226

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1101.3	-478.4	-1376.3	-478.4	L1	L2	275	45	198	198	198			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 52	-159	-33790	55249	2.73	3088741	55.906	Si
SLU 52	39	-19898	8653	1.61	2195949	253.768	Si
SLU 65	-159	-32281	49134	2.61	3017254	61.409	Si
SLU 65	39	-18538	17380	1.5	2080232	119.688	Si
SLU 73	-159	-35574	55032	2.87	3165239	57.516	Si
SLU 73	39	-21091	6150	1.7	2293227	372.905	Si
SLU 44	-159	-30498	49351	2.46	2924734	59.264	Si
SLU 44	39	-17346	19884	1.4	1974652	99.308	Si
SLU 10	-159	-27186	44627	2.2	2729940	61.173	Si
SLU 10	39	-16205	3669	1.31	1870023	509.682	Si
SLU 19	-159	-28661	45727	2.32	2820407	61.679	Si
SLU 19	39	-17307	-1603	1.4	1971165	1000	Si
SLU 82	-159	-37049	56133	2.99	3221947	57.399	Si
SLU 82	39	-22193	878	1.79	2379684	1000	Si
SLU 60	-159	-35362	54209	2.86	3156587	58.23	Si
SLU 60	39	-21012	2694	1.7	2286951	849.054	Si
SLU 61	-159	-35265	56350	2.85	3152629	55.948	Si
SLU 61	39	-21000	3382	1.7	2285990	676.025	Si
SLU 81	-159	-37145	53992	3	3225437	59.739	Si
SLU 81	39	-22205	190	1.79	2380606	1000	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 15	-159	-19376	-659	1.57	2322839	1000	Si
SLV 15	39	-11015	970608	0.89	1404268	1.447	Si
SLV 2	-159	-31631	74226	2.56	3439456	46.338	Si
SLV 2	39	-18470	-950950	1.49	2229425	2.344	Si
SLV 4	-159	-18530	70087	1.5	2235661	31.898	Si
SLV 4	39	-10131	-923358	0.82	1299703	1.408	Si
SLV 16	-159	-19376	-659	1.57	2322839	1000	Si
SLV 16	39	-11015	970608	0.89	1404268	1.447	Si
SLV 11	-159	-3796	19274	0.31	508806	26.399	Si
SLV 11	39	-977	339909	0	0	0	No, e>1/2
SLV 12	-159	-3796	19274	0.31	508806	26.399	Si
SLV 12	39	-977	339909	0	0	0	No, e>1/2
SLV 7	-159	-3542	40497	0.29	475596	11.744	Si
SLV 7	39	-712	-228280	0	0	0	No, e>1/2
SLV 3	-159	-18530	70087	1.5	2235661	31.898	Si
SLV 3	39	-10131	-923358	0.82	1299703	1.408	Si
SLV 8	-159	-3542	40497	0.29	475596	11.744	Si
SLV 8	39	-712	-228280	0	0	0	No, e>1/2
SLV 1	-159	-31631	74226	2.56	3439456	46.338	Si
SLV 1	39	-18470	-950950	1.49	2229425	2.344	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 81	-159	-37145	-615	53992		3	275	0.96	11828			19.22	Si
SLU 81	39	-22205	-748	190		1.79	275	0.79	9836			13.15	Si
SLU 84	-159	-38041	-536	41861		3.07	275	0.97	11947			22.29	Si
SLU 84	39	-22833	-686	-15506		1.85	275	0.8	9919			14.46	Si
SLU 61	-159	-35265	-592	56350		2.85	275	0.94	11577			19.55	Si
SLU 61	39	-21000	-716	3382		1.7	275	0.78	9675			13.51	Si
SLU 73	-159	-35574	-574	55032		2.87	275	0.94	11618			20.23	Si
SLU 73	39	-21091	-698	6150		1.7	275	0.78	9687			13.87	Si
SLU 74	-159	-36662	-543	40138		2.96	275	0.95	11763			21.68	Si
SLU 74	39	-21704	-673	-7761		1.75	275	0.79	9769			14.52	Si
SLU 82	-159	-37049	-603	56133		2.99	275	0.95	11815			19.59	Si
SLU 82	39	-22193	-739	878		1.79	275	0.79	9834			13.3	Si
SLU 62	-159	-36354	-537	39936		2.94	275	0.95	11722			21.83	Si
SLU 62	39	-21653	-672	-13690		1.75	275	0.79	9762			14.53	Si
SLU 52	-159	-33790	-563	55249		2.73	275	0.92	11380			20.21	Si
SLU 52	39	-19898	-675	8653		1.61	275	0.77	9528			14.11	Si
SLU 83	-159	-38137	-548	39720		3.08	275	0.97	11960			21.82	Si
SLU 83	39	-22845	-695	-16194		1.85	275	0.8	9921			14.28	Si
SLU 60	-159	-35362	-604	54209		2.86	275	0.94	11590			19.18	Si
SLU 60	39	-21012	-725	2694		1.7	275	0.78	9677			13.35	Si



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	-159	-3796	-2292	19274		0.31	275	0.89	11072			4.83	Si
SLV 12	39	-977	-1562	339909		0	0	0.83	0			0	No, Vu<V
SLV 3	-159	-18530	7227	70087		1.5	275	1.13	14019			1.94	Si
SLV 3	39	-10131	5257	-923358		1.62	139.08	1.16	7242			1.38	Si
SLV 14	-159	-32477	-8090	3480		2.62	275	1.36	16808			2.08	Si
SLV 14	39	-19354	-6266	943016		1.61	266.33	1.16	13858			2.21	Si
SLV 16	-159	-19376	-7850	-659		1.57	275	1.15	14188			1.81	Si
SLV 16	39	-11015	-5897	970608		1.65	148.16	1.16	7759			1.32	Si
SLV 7	-159	-3542	2231	40497		0.29	275	0.89	11021			4.94	Si
SLV 7	39	-712	1784	-228280		0	0	0.83	0			0	No, Vu<V
SLV 15	-159	-19376	-7850	-659		1.57	275	1.15	14188			1.81	Si
SLV 15	39	-11015	-5897	970608		1.65	148.16	1.16	7759			1.32	Si
SLV 13	-159	-32477	-8090	3480		2.62	275	1.36	16808			2.08	Si
SLV 13	39	-19354	-6266	943016		1.61	266.33	1.16	13858			2.21	Si
SLV 8	-159	-3542	2231	40497		0.29	275	0.89	11021			4.94	Si
SLV 8	39	-712	1784	-228280		0	0	0.83	0			0	No, Vu<V
SLV 11	-159	-3796	-2292	19274		0.31	275	0.89	11072			4.83	Si
SLV 11	39	-977	-1562	339909		0	0	0.83	0			0	No, Vu<V
SLV 4	-159	-18530	7227	70087		1.5	275	1.13	14019			1.94	Si
SLV 4	39	-10131	5257	-923358		1.62	139.08	1.16	7242			1.38	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota -60 Wa 0.08 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.24	0.16	-1946	8890	43224	4.86	Si
SLV 8	14	0.24	0.16	-1946	8890	43224	4.86	Si
SLV 12	14	0.24	0.19	-2326	8890	51526	5.8	Si
SLV 11	14	0.24	0.19	-2326	8890	51526	5.8	Si
SLV 3	14	0.24	1.15	-14258	8890	290561	32.69	Si
SLV 4	14	0.24	1.15	-14258	8890	290561	32.69	Si
SLV 16	14	0.24	1.25	-15524	8890	313429	35.26	Si
SLV 15	14	0.24	1.25	-15524	8890	313429	35.26	Si
SLV 1	14	0.24	2.04	-25191	8890	472375	53.14	Si
SLV 2	14	0.24	2.04	-25191	8890	472375	53.14	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = -60 Wa = 0.08 Ta = 0.0145

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	-28508	-47212	-1233	0.082	32.474	0.968	122.61	285.203	No
SLV 6	-28508	-47212	-1233	0.082	32.474	0.968	122.61	285.203	No
SLV 10	-28774	-47466	-1238	0.082	32.744	0.968	122.738	285.203	No
SLV 9	-28774	-47466	-1238	0.082	32.744	0.968	122.738	285.203	No
SLV 1	-18470	-31631	-786	0.088	22.263	0.955	133.574	283.212	No
SLV 2	-18470	-31631	-786	0.088	22.263	0.955	133.574	283.212	No
SLV 13	-19354	-32477	-804	0.088	23.162	0.956	133.748	283.212	No
SLV 14	-19354	-32477	-804	0.088	23.162	0.956	133.748	283.212	No
SLV 16	-11015	-19376	-426	0.1	14.703	0.935	156.049	283.212	No
SLV 15	-11015	-19376	-426	0.1	14.703	0.935	156.049	283.212	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	55.906	SLU 52	Si
V_SLU	13.148	SLU 81	Si
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	4.862	SLV 7	Si
R_SLV	0.43	SLV 5	No

## Maschio 227

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-485.9	-1293.3	-485.9	Z medio 1009 cm	F1	82	30	427.4	427.5	427.4			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 70	1104	-3717	13332	1.51	124150	9.312	Si
SLU 70	1304	-2176	7405	0.88	79532	10.741	Si
SLU 72	1104	-3813	13519	1.55	126600	9.364	Si
SLU 72	1304	-2249	7834	0.91	81860	10.449	Si
SLU 68	1104	-3268	11985	1.33	112131	9.356	Si
SLU 68	1304	-1825	6001	0.74	68017	11.334	Si
SLU 26	1104	-2755	10232	1.12	97418	9.521	Si
SLU 26	1304	-1590	5297	0.65	60031	11.333	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 65	1104	-2741	10394	1.11	97019	9.334	Si
SLU 65	1304	-1414	4184	0.57	53891	12.881	Si
SLU 69	1104	-3746	13246	1.52	124895	9.429	Si
SLU 69	1304	-2195	7428	0.89	80148	10.79	Si
SLU 71	1104	-3842	13434	1.56	127333	9.478	Si
SLU 71	1304	-2268	7858	0.92	82471	10.495	Si
SLU 23	1104	-2228	8640	0.91	81201	9.398	Si
SLU 23	1304	-1179	3480	0.48	45510	13.079	Si
SLU 66	1104	-3220	11655	1.31	110815	9.508	Si
SLU 66	1304	-1784	5611	0.73	66645	11.878	Si
SLU 67	1104	-3191	11740	1.3	110008	9.37	Si
SLU 67	1304	-1765	5587	0.72	65996	11.812	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 11	1104	506	1223	0	0	0	No, Trazione
SLD 11	1304	-229	8826	0.09	9315	1.055	Si
SLD 7	1104	925	-13425	0	0	0	No, Trazione
SLD 7	1304	-524	21286	0.21	21128	0.993	No, M>Mu
SLV 13	1104	-5698	74150	2.32	189342	2.554	Si
SLV 13	1304	-419	-53636	0	0	0	No, e>l/2
SLD 12	1104	506	1223	0	0	0	No, Trazione
SLD 12	1304	-229	8826	0.09	9315	1.055	Si
SLD 8	1104	925	-13425	0	0	0	No, Trazione
SLD 8	1304	-524	21286	0.21	21128	0.993	No, M>Mu
SLV 14	1104	-5698	74150	2.32	189342	2.554	Si
SLV 14	1304	-419	-53636	0	0	0	No, e>l/2
SLV 8	1104	4962	-41416	0	0	0	No, Trazione
SLV 8	1304	222	45167	0	0	0	No, Trazione
SLV 16	1104	-1756	55034	0.71	67790	1.232	Si
SLV 16	1304	568	-37190	0	0	0	No, Trazione
SLV 12	1104	3984	-7194	0	0	0	No, Trazione
SLV 12	1304	913	16011	0	0	0	No, Trazione
SLV 11	1104	3984	-7194	0	0	0	No, Trazione
SLV 11	1304	913	16011	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 2	1104	-1964	142	7402		0.8	82	0.66	1629			11.48	Si
SLU 2	1304	-979	22	2933		0.4	82	0.61	1497			68.26	Si
SLU 10	1104	-1997	134	7195		0.81	82	0.66	1633			12.21	Si
SLU 10	1304	-1011	13	3112		0.41	82	0.61	1502			118.82	Si
SLU 44	1104	-2477	171	9155		1.01	82	0.69	1697			9.91	Si
SLU 44	1304	-1214	29	3637		0.49	82	0.62	1529			52.55	Si
SLU 55	1104	-3037	139	10540		1.23	82	0.72	1772			12.71	Si
SLU 55	1304	-1657	44	5634		0.67	82	0.65	1588			36.36	Si
SLU 73	1104	-2775	157	10187		1.13	82	0.71	1737			11.04	Si
SLU 73	1304	-1446	35	4363		0.59	82	0.63	1560			44.42	Si
SLU 61	1104	-2544	139	8803		1.03	82	0.69	1706			12.23	Si
SLU 61	1304	-1273	24	3909		0.52	82	0.62	1536			65.18	Si
SLU 52	1104	-2510	163	8949		1.02	82	0.69	1701			10.43	Si
SLU 52	1304	-1246	20	3816		0.51	82	0.62	1533			77.45	Si
SLU 23	1104	-2228	136	8640		0.91	82	0.68	1664			12.24	Si
SLU 23	1304	-1179	37	3480		0.48	82	0.62	1524			40.91	Si
SLU 47	1104	-3003	147	10747		1.22	82	0.72	1767			11.98	Si
SLU 47	1304	-1625	53	5455		0.66	82	0.64	1583			29.9	Si
SLU 65	1104	-2741	165	10394		1.11	82	0.7	1732			10.47	Si
SLU 65	1304	-1414	44	4184		0.57	82	0.63	1555			35.03	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 16	1104	-1756	2229	55034		2.02	28.98	1.24	1076			0.48	No, Vu<V
SLV 16	1304	568	225	-37190		0	0	0.83	0			0	No, Vu<V
SLD 11	1104	506	-143	1223		0	0	0.83	0			0	No, Vu<V
SLD 11	1304	-229	-472	8826		1.04	7.35	1.04	229			0.49	No, Vu<V
SLV 4	1104	1504	-2835	-59041		0	0	0.83	0			0	No, Vu<V
SLV 4	1304	-1736	-969	59994		3	19.31	1.43	830			0.86	No, Vu<V
SLV 11	1104	3984	-454	-7194		0	0	0.83	0			0	No, Vu<V
SLV 11	1304	913	-1162	16011		0	0	0.83	0			0	No, Vu<V
SLD 12	1104	506	-143	1223		0	0	0.83	0			0	No, Vu<V
SLD 12	1304	-229	-472	8826		1.04	7.35	1.04	229			0.49	No, Vu<V
SLV 12	1104	3984	-454	-7194		0	0	0.83	0			0	No, Vu<V
SLV 12	1304	913	-1162	16011		0	0	0.83	0			0	No, Vu<V
SLV 7	1104	4962	-1973	-41416		0	0	0.83	0			0	No, Vu<V
SLV 7	1304	222	-1521	45167		0	0	0.83	0			0	No, Vu<V
SLD 7	1104	925	-792	-13425		0	0	0.83	0			0	No, Vu<V
SLD 7	1304	-524	-626	21286		14.07	1.24	1.63	61			0.1	No, Vu<V
SLV 3	1104	1504	-2835	-59041		0	0	0.83	0			0	No, Vu<V
SLV 3	1304	-1736	-969	59994		3	19.31	1.43	830			0.86	No, Vu<V
SLV 15	1104	-1756	2229	55034		2.02	28.98	1.24	1076			0.48	No, Vu<V
SLV 15	1304	568	225	-37190		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1222.7 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.5	0	2215	17242	0	0	No, Trazione
SLV 12	14	0.5	0	2385	17242	0	0	No, Trazione





Comb.	fd	Sa	$\alpha 0$	N	M	Mc	Coeff.s.	Verifica
SLV 16	14	0.5	0	-129	17242	0	0	No, $e > t/2$
SLV 3	14	0.5	0	-695	17242	0	0	No, $e > t/2$
SLV 4	14	0.5	0	-695	17242	0	0	No, $e > t/2$
SLV 15	14	0.5	0	-129	17242	0	0	No, $e > t/2$
SLV 7	14	0.5	0	2215	17242	0	0	No, Trazione
SLV 11	14	0.5	0	2385	17242	0	0	No, Trazione
SLV 14	14	0.5	1	-2454	17242	33803	1.96	Si
SLV 13	14	0.5	1	-2454	17242	33803	1.96	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1222.7  $W_a = 0.05$   $T_a = 0.1017$

Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 3	406	-1604	39	0	0	0	0	1867.76	No, Trazione
SLV 2	158	-5109	70	0	0	0	0	1867.76	No, Trazione
SLV 7	424	3441	-45	0	0	0	0	1922.222	No, Trazione
SLV 16	-370	1126	-96	0	0	0	0	1867.76	No, Trazione
SLV 4	406	-1604	39	0	0	0	0	1867.76	No, Trazione
SLV 12	191	4260	-85	0	0	0	0	1922.222	No, Trazione
SLV 1	158	-5109	70	0	0	0	0	1867.76	No, Trazione
SLV 11	191	4260	-85	0	0	0	0	1922.222	No, Trazione
SLV 15	-370	1126	-96	0	0	0	0	1867.76	No, Trazione
SLV 8	424	3441	-45	0	0	0	0	1922.222	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	9.312	SLU 70	Si
V_SLU	9.909	SLU 44	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 16	No

## Maschio 228

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1193.3	-485.9	-1114.3	-485.9	Z medio 1009 cm	F1	79	30	427.3	427.3	427.3			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau 0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 77	1104	-2973	-4143	1.25	99352	23.982	Si
SLU 77	1304	-2366	-18547	1	81995	4.421	Si
SLU 80	1104	-3047	-4507	1.29	101358	22.491	Si
SLU 80	1304	-2421	-18891	1.02	83626	4.427	Si
SLU 37	1104	-2573	-4049	1.09	88074	21.751	Si
SLU 37	1304	-2173	-17324	0.92	76160	4.396	Si
SLU 79	1104	-3042	-4521	1.28	101209	22.388	Si
SLU 79	1304	-2432	-18962	1.03	83961	4.428	Si
SLU 36	1104	-2510	-3657	1.06	86248	23.582	Si
SLU 36	1304	-2095	-16838	0.88	73774	4.381	Si
SLU 41	1104	-2268	-2162	0.96	79065	36.578	Si
SLU 41	1304	-1805	-14569	0.76	64615	4.435	Si
SLU 35	1104	-2504	-3671	1.06	86087	23.448	Si
SLU 35	1304	-2107	-16909	0.89	74124	4.384	Si
SLU 78	1104	-2979	-4129	1.26	99503	24.099	Si
SLU 78	1304	-2355	-18476	0.99	81657	4.42	Si
SLU 38	1104	-2578	-4035	1.09	88234	21.866	Si
SLU 38	1304	-2161	-17253	0.91	75814	4.394	Si
SLU 42	1104	-2274	-2148	0.96	79232	36.893	Si
SLU 42	1304	-1793	-14498	0.76	64251	4.432	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 2	1104	-4611	-56533	1.95	153125	2.709	Si
SLV 2	1304	-756	32996	0	0	0	No, $e > l/2$
SLV 3	1104	-3583	-54804	1.51	124013	2.263	Si
SLV 3	1304	368	49614	0	0	0	No, Trazione
SLV 16	1104	991	53327	0	0	0	No, Trazione
SLV 16	1304	-1627	-50365	0.69	60643	1.204	Si
SLV 14	1104	-37	51598	0	0	0	No, $e > l/2$
SLV 14	1304	-2751	-66984	1.16	98328	1.468	Si
SLV 8	1104	-783	-14942	0.33	30090	2.014	Si
SLV 8	1304	982	34009	0	0	0	No, Trazione
SLV 13	1104	-37	51598	0	0	0	No, $e > l/2$
SLV 13	1304	-2751	-66984	1.16	98328	1.468	Si
SLV 4	1104	-3583	-54804	1.51	124013	2.263	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 4	1304	368	49614	0	0	0	No, Trazione
SLV 7	1104	-783	-14942	0.33	30090	2.014	Si
SLV 7	1304	982	34009	0	0	0	No, Trazione
SLV 11	1104	589	17498	0	0	0	No, Trazione
SLV 11	1304	383	4015	0	0	0	No, Trazione
SLV 12	1104	589	17498	0	0	0	No, Trazione
SLV 12	1304	383	4015	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 36	1104	-2510	175	-3657		1.06	79	0.7	1651			9.46	Si
SLU 36	1304	-2095	214	-16838		0.88	79	0.67	1596			7.46	Si
SLU 84	1104	-2743	136	-2619		1.16	79	0.71	1682			12.33	Si
SLU 84	1304	-2053	206	-16136		0.87	79	0.67	1590			7.72	Si
SLU 77	1104	-2973	212	-4143		1.25	79	0.72	1713			8.06	Si
SLU 77	1304	-2366	219	-18547		1	79	0.69	1632			7.45	Si
SLU 78	1104	-2979	172	-4129		1.26	79	0.72	1714			9.94	Si
SLU 78	1304	-2355	227	-18476		0.99	79	0.69	1631			7.17	Si
SLU 76	1104	-2737	95	-3013		1.16	79	0.71	1682			17.72	Si
SLU 76	1304	-2021	199	-15633		0.85	79	0.67	1586			7.95	Si
SLU 80	1104	-3047	178	-4507		1.29	79	0.73	1723			9.66	Si
SLU 80	1304	-2421	228	-18891		1.02	79	0.69	1639			7.19	Si
SLU 37	1104	-2573	221	-4049		1.09	79	0.7	1660			7.52	Si
SLU 37	1304	-2173	207	-17324		0.92	79	0.68	1606			7.78	Si
SLU 79	1104	-3042	218	-4521		1.28	79	0.73	1722			7.89	Si
SLU 79	1304	-2432	220	-18962		1.03	79	0.69	1641			7.46	Si
SLU 35	1104	-2504	215	-3671		1.06	79	0.7	1651			7.69	Si
SLU 35	1304	-2107	206	-16909		0.89	79	0.67	1597			7.76	Si
SLU 38	1104	-2578	180	-4035		1.09	79	0.7	1660			9.2	Si
SLU 38	1304	-2161	215	-17253		0.91	79	0.68	1605			7.47	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 7	1104	-783	-1180	-14942		0.43	61.24	0.92	1688			1.43	Si
SLV 7	1304	982	-324	34009		0	0	0.83	0			0	No, Vu<V
SLV 14	1104	-37	2926	51598		0	0	0.83	0			0	No, Vu<V
SLV 14	1304	-2751	815	-66984		2.02	45.44	1.24	1686			2.07	Si
SLV 8	1104	-783	-1180	-14942		0.43	61.24	0.92	1688			1.43	Si
SLV 8	1304	982	-324	34009		0	0	0.83	0			0	No, Vu<V
SLV 12	1104	589	468	17498		0	0	0.83	0			0	No, Vu<V
SLV 12	1304	383	66	4015		0	0	0.83	0			0	No, Vu<V
SLV 3	1104	-3583	-2814	-54804		1.64	72.61	1.16	2532			0.9	No, Vu<V
SLV 3	1304	368	-622	49614		0	0	0.83	0			0	No, Vu<V
SLV 4	1104	-3583	-2814	-54804		1.64	72.61	1.16	2532			0.9	No, Vu<V
SLV 4	1304	368	-622	49614		0	0	0.83	0			0	No, Vu<V
SLV 2	1104	-4611	-2567	-56533		1.95	79	1.22	2897			1.13	Si
SLV 2	1304	-756	-487	32996		0	0	0.83	0			0	No, Vu<V
SLV 11	1104	589	468	17498		0	0	0.83	0			0	No, Vu<V
SLV 11	1304	383	66	4015		0	0	0.83	0			0	No, Vu<V
SLV 16	1104	991	2679	53327		0	0	0.83	0			0	No, Vu<V
SLV 16	1304	-1627	680	-50365		2.12	25.61	1.26	966			1.42	Si
SLV 13	1104	-37	2926	51598		0	0	0.83	0			0	No, Vu<V
SLV 13	1304	-2751	815	-66984		2.02	45.44	1.24	1686			2.07	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1222.6 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.5	0	433	16598	0	0	No, Trazione
SLV 11	14	0.5	0	433	16598	0	0	No, Trazione
SLV 7	14	0.5	0	307	16598	0	0	No, Trazione
SLV 15	14	0.5	0	-726	16598	0	0	No, $e>t/2$
SLV 8	14	0.5	0	307	16598	0	0	No, Trazione
SLV 16	14	0.5	0	-726	16598	0	0	No, $e>t/2$
SLV 3	14	0.5	0.48	-1147	16598	16519	1	No, $M>Mu$
SLV 4	14	0.5	0.48	-1147	16598	16519	1	No, $M>Mu$
SLV 14	14	0.5	0.78	-1846	16598	25920	1.56	Si
SLV 13	14	0.5	0.78	-1846	16598	25920	1.56	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1222.6 Wa = 0.05 Ta = 0.1016

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 1	107	-2353	-78	0	0	0	0	1866.608	No, Trazione
SLV 3	249	-1301	-76	0	0	0	0	1866.608	No, Trazione
SLV 12	66	-238	-51	0	0	0	0	1921.194	No, Trazione
SLV 7	227	-162	-61	0	0	0	0	1921.194	No, Trazione
SLV 8	227	-162	-61	0	0	0	0	1921.194	No, Trazione
SLV 4	249	-1301	-76	0	0	0	0	1866.608	No, Trazione
SLV 2	107	-2353	-78	0	0	0	0	1866.608	No, Trazione
SLV 11	66	-238	-51	0	0	0	0	1921.194	No, Trazione
SLV 6	-245	-3669	-69	0.003	1.945	0.923	5.224	1921.194	No
SLV 5	-245	-3669	-69	0.003	1.945	0.923	5.224	1921.194	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF SLU	4.381	SLU 36	Si
V SLU	7.174	SLU 78	Si
PF SLV	0	SLV 16	No



Stato limite	Coeff.s.	Comb.	Verifica
V_SLV	0	SLV 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 12	No

## Maschio 229

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1705.3	-500.9	-1705.3	-486.2	L3	F1	14.7	30	1322.2	1318.7	1325.6			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 47	1187	-182	1106	0.41	1266	1.144	Si
SLU 47	1399	-163	1245	0	0	0	No, e>l/2
SLU 55	1187	-184	1130	0.42	1282	1.134	Si
SLU 55	1399	-182	1467	0	0	0	No, e>l/2
SLU 56	1187	-160	1029	0.36	1122	1.091	Si
SLU 56	1399	24	177	0	0	0	No, Trazione
SLU 50	1187	-158	1005	0.36	1105	1.1	Si
SLU 50	1399	57	-117	0	0	0	No, Trazione
SLU 58	1187	-160	1029	0.36	1122	1.09	Si
SLU 58	1399	38	106	0	0	0	No, Trazione
SLU 42	1187	-136	866	0.31	963	1.112	Si
SLU 42	1399	-88	1116	0	0	0	No, e>l/2
SLU 49	1187	-168	1047	0.38	1174	1.121	Si
SLU 49	1399	-40	632	0	0	0	No, e>l/2
SLU 51	1187	-168	1048	0.38	1173	1.12	Si
SLU 51	1399	-26	561	0	0	0	No, e>l/2
SLU 54	1187	-177	1102	0.4	1238	1.124	Si
SLU 54	1399	-141	1087	0	0	0	No, e>l/2
SLU 57	1187	-170	1072	0.39	1190	1.11	Si
SLU 57	1399	-59	855	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLD 1	1187	-37	490	0	0	0	No, e>l/2
SLD 1	1399	31	-26	0	0	0	No, Trazione
SLV 7	1187	-536	2282	1.22	3540	1.551	Si
SLV 7	1399	-1161	11548	0	0	0	No, e>l/2
SLV 9	1187	272	-630	0	0	0	No, Trazione
SLV 9	1399	1007	-10810	0	0	0	No, Trazione
SLV 6	1187	332	-837	0	0	0	No, Trazione
SLV 6	1399	978	-9590	0	0	0	No, Trazione
SLV 5	1187	332	-837	0	0	0	No, Trazione
SLV 5	1399	978	-9590	0	0	0	No, Trazione
SLV 2	1187	99	12	0	0	0	No, Trazione
SLV 2	1399	196	-769	0	0	0	No, Trazione
SLV 10	1187	272	-630	0	0	0	No, Trazione
SLV 10	1399	1007	-10810	0	0	0	No, Trazione
SLV 8	1187	-536	2282	1.22	3540	1.551	Si
SLV 8	1399	-1161	11548	0	0	0	No, e>l/2
SLV 4	1187	-162	948	0.37	1150	1.213	Si
SLV 4	1399	-446	5573	0	0	0	No, e>l/2
SLV 3	1187	-162	948	0.37	1150	1.213	Si
SLV 3	1399	-446	5573	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	1187	-177	13	1102		1.74	3.39	0.79	80			6.33	Si
SLU 54	1399	-141	43	1087		0	0	0.56	0			0	No, Vu<V
SLU 49	1187	-168	13	1047		1.7	3.29	0.78	77			5.86	Si
SLU 49	1399	-40	13	632		0	0	0.56	0			0	No, Vu<V
SLU 56	1187	-160	14	1029		1.95	2.73	0.82	67			4.91	Si
SLU 56	1399	24	-12	177		0	0	0.56	0			0	No, Vu<V
SLU 57	1187	-170	12	1072		1.81	3.13	0.8	75			6.02	Si
SLU 57	1399	-59	26	855		0	0	0.56	0			0	No, Vu<V
SLU 42	1187	-136	8	866		1.53	2.97	0.76	68			8.13	Si
SLU 42	1399	-88	47	1116		0	0	0.56	0			0	No, Vu<V
SLU 51	1187	-168	13	1048		1.71	3.27	0.78	77			5.75	Si
SLU 51	1399	-26	9	561		0	0	0.56	0			0	No, Vu<V
SLU 50	1187	-158	15	1005		1.83	2.88	0.8	69			4.74	Si
SLU 50	1399	57	-29	-117		0	0	0.56	0			0	No, Vu<V
SLU 47	1187	-182	13	1106		1.61	3.75	0.77	87			6.76	Si
SLU 47	1399	-163	50	1245		0	0	0.56	0			0	No, Vu<V
SLU 58	1187	-160	14	1029		1.97	2.71	0.82	67			4.82	Si
SLU 58	1399	38	-16	106		0	0	0.56	0			0	No, Vu<V
SLU 55	1187	-184	12	1130		1.71	3.6	0.78	85			6.99	Si
SLU 55	1399	-182	63	1467		0	0	0.56	0			0	No, Vu<V



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	1187	-162	-10	948		1.22	4.42	1.08	143			14.02	Si
SLV 3	1399	-446	155	5573		0	0	0.83	0			0	No, Vu<V
SLV 2	1187	99	-52	12		0	0	0.83	0			0	No, Vu<V
SLV 2	1399	196	-54	-769		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	272	-46	-630		0	0	0.83	0			0	No, Vu<V
SLV 9	1399	1007	-352	-10810		0	0	0.83	0			0	No, Vu<V
SLV 4	1187	-162	-10	948		1.22	4.42	1.08	143			14.02	Si
SLV 4	1399	-446	155	5573		0	0	0.83	0			0	No, Vu<V
SLD 1	1187	-37	-16	490		0	0	0.83	0			0	No, Vu<V
SLD 1	1399	31	-14	-26		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	-536	68	2282		1.93	9.24	1.22	338			4.94	Si
SLV 8	1399	-1161	369	11548		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	332	-72	-837		0	0	0.83	0			0	No, Vu<V
SLV 6	1399	978	-327	-9590		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	272	-46	-630		0	0	0.83	0			0	No, Vu<V
SLV 10	1399	1007	-352	-10810		0	0	0.83	0			0	No, Vu<V
SLV 7	1187	-536	68	2282		1.93	9.24	1.22	338			4.94	Si
SLV 7	1399	-1161	369	11548		0	0	0.83	0			0	No, Vu<V
SLV 5	1187	332	-72	-837		0	0	0.83	0			0	No, Vu<V
SLV 5	1399	978	-327	-9590		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 770.4 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.41	0	-413	23423	0	0	No, e>t/2
SLV 6	14	0.41	0	-113	23423	0	0	No, e>t/2
SLV 8	14	0.41	0	-546	23423	0	0	No, e>t/2
SLV 5	14	0.41	0	-113	23423	0	0	No, e>t/2
SLV 10	14	0.41	0	-97	23423	0	0	No, e>t/2
SLV 9	14	0.41	0	-97	23423	0	0	No, e>t/2
SLV 4	14	0.41	0	-413	23423	0	0	No, e>t/2
SLV 7	14	0.41	0	-546	23423	0	0	No, e>t/2
SLV 1	14	0.41	0	-283	23423	0	0	No, e>t/2
SLV 2	14	0.41	0	-283	23423	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 770.4 Wa = 0.05 Ta = 0.9731

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 6	76	1554	-55	0	0	0	0	239.674	No, Trazione
SLV 1	307	1640	-44	0	0	0	0	239.674	No, Trazione
SLV 9	-99	1232	-33	0	0	0	0	239.674	No, Trazione
SLV 7	154	727	49	0	0	0	0	239.674	No, Trazione
SLV 10	-99	1232	-33	0	0	0	0	239.674	No, Trazione
SLV 4	331	1392	-12	0	0	0	0	239.674	No, Trazione
SLV 3	331	1392	-12	0	0	0	0	239.674	No, Trazione
SLV 5	76	1554	-55	0	0	0	0	239.674	No, Trazione
SLV 2	307	1640	-44	0	0	0	0	239.674	No, Trazione
SLV 8	154	727	49	0	0	0	0	239.674	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 79	No
V_SLU	0	SLU 3	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 230

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1705.3	-377.2	-1705.3	-349.9	L3	F1	27.3	30	1382.5	1376.2	1388.8			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 46	1187	-907	-3988	1.11	10676	2.677	Si
SLU 46	1399	-63	2128	0	0	0	No, e>l/2
SLU 39	1187	-521	-2569	0.64	6549	2.549	Si
SLU 39	1399	-12	1478	0	0	0	No, e>l/2
SLU 36	1187	-841	-5131	1.03	10007	1.95	Si
SLU 36	1399	61	2597	0	0	0	No, Trazione
SLU 38	1187	-811	-4888	0.99	9701	1.985	Si
SLU 38	1399	79	2440	0	0	0	No, Trazione
SLU 44	1187	-891	-7111	1.09	10516	1.479	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 44	1399	197	3140	0	0	0	No, Trazione
SLU 40	1187	-654	-6647	0.8	8037	1.209	Si
SLU 40	1399	251	2969	0	0	0	No, Trazione
SLU 49	1187	-982	-3340	1.2	11405	3.414	Si
SLU 49	1399	-130	1954	0	0	0	No, e>l/2
SLU 41	1187	-596	-1921	0.73	7395	3.849	Si
SLU 41	1399	-79	1304	0	0	0	No, e>l/2
SLU 42	1187	-729	-5999	0.89	8843	1.474	Si
SLU 42	1399	184	2795	0	0	0	No, Trazione
SLU 47	1187	-966	-6463	1.18	11250	1.741	Si
SLU 47	1399	130	2966	0	0	0	No, Trazione

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	1187	3456	38582	0	0	0	No, Trazione
SLV 9	1399	2481	33652	0	0	0	No, Trazione
SLV 10	1187	3456	38582	0	0	0	No, Trazione
SLV 10	1399	2481	33652	0	0	0	No, Trazione
SLV 5	1187	2857	36137	0	0	0	No, Trazione
SLV 5	1399	2737	33808	0	0	0	No, Trazione
SLV 4	1187	-2626	-16441	3.21	26371	1.604	Si
SLV 4	1399	-538	-8838	0	0	0	No, e>l/2
SLD 14	1187	335	5297	0	0	0	No, Trazione
SLD 14	1399	9	4607	0	0	0	No, Trazione
SLD 1	1187	-510	1885	0.62	6589	3.495	Si
SLD 1	1399	355	4680	0	0	0	No, Trazione
SLV 3	1187	-2626	-16441	3.21	26371	1.604	Si
SLV 3	1399	-538	-8838	0	0	0	No, e>l/2
SLV 1	1187	-418	6509	0	0	0	No, e>l/2
SLV 1	1399	1111	10928	0	0	0	No, Trazione
SLD 13	1187	335	5297	0	0	0	No, Trazione
SLD 13	1399	9	4607	0	0	0	No, Trazione
SLV 2	1187	-418	6509	0	0	0	No, e>l/2
SLV 2	1399	1111	10928	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 42	1187	-729	-208	-5999		1.5	16.18	0.76	367			1.77	Si
SLU 42	1399	184	127	2795		0	0	0.56	0			0	No, Vu<V
SLU 38	1187	-811	-171	-4888		1.19	22.79	0.71	488			2.86	Si
SLU 38	1399	79	38	2440		0	0	0.56	0			0	No, Vu<V
SLU 36	1187	-841	-178	-5131		1.24	22.56	0.72	488			2.74	Si
SLU 36	1399	61	53	2597		0	0	0.56	0			0	No, Vu<V
SLU 46	1187	-907	-121	-3988		1.11	27.25	0.7	575			4.73	Si
SLU 46	1399	-63	89	2128		0	0	0.56	0			0	No, Vu<V
SLU 44	1187	-891	-223	-7111		1.75	16.93	0.79	401			1.8	Si
SLU 44	1399	197	224	3140		0	0	0.56	0			0	No, Vu<V
SLU 41	1187	-596	-73	-1921		0.73	27.25	0.65	534			7.35	Si
SLU 41	1399	-79	8	1304		0	0	0.56	0			0	No, Vu<V
SLU 39	1187	-521	-92	-2569		0.67	26.09	0.64	504			5.51	Si
SLU 39	1399	-12	80	1478		0	0	0.56	0			0	No, Vu<V
SLU 40	1187	-654	-227	-6647		2.1	10.39	0.84	260			1.15	Si
SLU 40	1399	251	198	2969		0	0	0.56	0			0	No, Vu<V
SLU 47	1187	-966	-204	-6463		1.55	20.8	0.76	475			2.33	Si
SLU 47	1399	130	152	2966		0	0	0.56	0			0	No, Vu<V
SLU 49	1187	-982	-103	-3340		1.2	27.25	0.72	585			5.71	Si
SLU 49	1399	-130	18	1954		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	1187	3456	-837	38582		0	0	0.83	0			0	No, Vu<V
SLV 9	1399	2481	2205	33652		0	0	0.83	0			0	No, Vu<V
SLV 5	1187	2857	-1036	36137		0	0	0.83	0			0	No, Vu<V
SLV 5	1399	2737	2273	33808		0	0	0.83	0			0	No, Vu<V
SLD 9	1187	1057	-339	14563		0	0	0.83	0			0	No, Vu<V
SLD 9	1399	882	882	13634		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	2857	-1036	36137		0	0	0.83	0			0	No, Vu<V
SLV 6	1399	2737	2273	33808		0	0	0.83	0			0	No, Vu<V
SLD 1	1187	-510	-267	1885		0.62	27.25	0.96	783			2.93	Si
SLD 1	1399	355	336	4680		0	0	0.83	0			0	No, Vu<V
SLV 3	1187	-2626	-83	-16441		3.96	22.09	1.63	1077			12.9	Si
SLV 3	1399	-538	-515	-8838		0	0	0.83	0			0	No, Vu<V
SLD 14	1187	335	5	5297		0	0	0.83	0			0	No, Vu<V
SLD 14	1399	9	248	4607		0	0	0.83	0			0	No, Vu<V
SLD 10	1187	1057	-339	14563		0	0	0.83	0			0	No, Vu<V
SLD 10	1399	882	882	13634		0	0	0.83	0			0	No, Vu<V
SLD 13	1187	335	5	5297		0	0	0.83	0			0	No, Vu<V
SLD 13	1399	9	248	4607		0	0	0.83	0			0	No, Vu<V
SLV 4	1187	-2626	-83	-16441		3.96	22.09	1.63	1077			12.9	Si
SLV 4	1399	-538	-515	-8838		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 799.1 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.41	0	-117	48241	0	0	No, e>t/2
SLV 2	14	0.41	0	-991	48241	0	0	No, e>t/2
SLV 1	14	0.41	0	-991	48241	0	0	No, e>t/2



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.41	0	-2418	48241	0	0	No, $e>t/2$
SLV 9	14	0.41	0	-57	48241	0	0	No, $e>t/2$
SLV 5	14	0.41	0	-117	48241	0	0	No, $e>t/2$
SLV 4	14	0.41	0	-1682	48241	0	0	No, $e>t/2$
SLV 10	14	0.41	0	-57	48241	0	0	No, $e>t/2$
SLV 3	14	0.41	0	-1682	48241	0	0	No, $e>t/2$
SLV 7	14	0.41	0	-2418	48241	0	0	No, $e>t/2$

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzaria = 799.1  $W_a = 0.05$   $T_a = 1.0639$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 5	502	-21212	18	0	0	0	0	239.674	No, Trazione
SLV 6	502	-21212	18	0	0	0	0	239.674	No, Trazione
SLV 2	180	-9805	-16	0	0	0	0	239.674	No, Trazione
SLV 1	180	-9805	-16	0	0	0	0	239.674	No, Trazione
SLV 7	-80	9632	-27	0	0	0	0	239.674	No, Trazione
SLV 9	603	-21736	35	0	0	0	0	239.674	No, Trazione
SLV 4	5	-551	-30	0	0	0	0	239.674	No, Trazione
SLV 10	603	-21736	35	0	0	0	0	239.674	No, Trazione
SLV 3	5	-551	-30	0	0	0	0	239.674	No, Trazione
SLV 8	-80	9632	-27	0	0	0	0	239.674	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 231

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-335.9	-1389.3	-335.9	L4	L6	14	28	704	704	704			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 57	483	-1380	13026	0	0	0	No, $e>l/2$
SLU 57	1187	-508	9273	0	0	0	No, $e>l/2$
SLU 55	483	-1366	12558	0	0	0	No, $e>l/2$
SLU 55	1187	-509	8813	0	0	0	No, $e>l/2$
SLU 58	483	-1356	13025	0	0	0	No, $e>l/2$
SLU 58	1187	-474	8865	0	0	0	No, $e>l/2$
SLU 59	483	-1369	13006	0	0	0	No, $e>l/2$
SLU 59	1187	-481	8919	0	0	0	No, $e>l/2$
SLU 54	483	-1367	12591	0	0	0	No, $e>l/2$
SLU 54	1187	-531	9130	0	0	0	No, $e>l/2$
SLU 56	483	-1367	13045	0	0	0	No, $e>l/2$
SLU 56	1187	-501	9219	0	0	0	No, $e>l/2$
SLU 53	483	-1354	12610	0	0	0	No, $e>l/2$
SLU 53	1187	-524	9075	0	0	0	No, $e>l/2$
SLU 1	483	-951	8876	0	0	0	No, $e>l/2$
SLU 1	1187	-381	6161	0	0	0	No, $e>l/2$
SLU 60	483	-1384	12468	0	0	0	No, $e>l/2$
SLU 60	1187	-538	8989	0	0	0	No, $e>l/2$
SLU 61	483	-1397	12449	0	0	0	No, $e>l/2$
SLU 61	1187	-545	9044	0	0	0	No, $e>l/2$

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	483	-821	8009	0	0	0	No, $e>l/2$
SLV 7	1187	-1383	13745	0	0	0	No, $e>l/2$
SLV 6	483	-1167	14307	0	0	0	No, $e>l/2$
SLV 6	1187	705	-1557	0	0	0	No, Trazione
SLV 10	483	-1204	10351	0	0	0	No, $e>l/2$
SLV 10	1187	573	-226	0	0	0	No, Trazione
SLV 12	483	-857	4054	2.19	4926	1.215	Si
SLV 12	1187	-1514	15076	0	0	0	No, $e>l/2$
SLV 8	483	-821	8009	0	0	0	No, $e>l/2$
SLV 8	1187	-1383	13745	0	0	0	No, $e>l/2$
SLD 1	483	-1007	12388	0	0	0	No, $e>l/2$
SLD 1	1187	-177	4836	0	0	0	No, $e>l/2$
SLV 13	483	-1125	3533	2.87	6024	1.705	Si
SLV 13	1187	-310	6683	0	0	0	No, $e>l/2$
SLV 11	483	-857	4054	2.19	4926	1.215	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 11	1187	-1514	15076	0	0	0	No, e>l/2
SLV 9	483	-1204	10351	0	0	0	No, e>l/2
SLV 9	1187	573	-226	0	0	0	No, Trazione
SLV 14	483	-1125	3533	2.87	6024	1.705	Si
SLV 14	1187	-310	6683	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	483	-1366	-329	12558		0	0	0.56	0			0	No, Vu<V
SLU 55	1187	-509	-81	8813		0	0	0.56	0			0	No, Vu<V
SLU 56	483	-1367	-302	13045		0	0	0.56	0			0	No, Vu<V
SLU 56	1187	-501	-103	9219		0	0	0.56	0			0	No, Vu<V
SLU 59	483	-1369	-306	13006		0	0	0.56	0			0	No, Vu<V
SLU 59	1187	-481	-101	8919		0	0	0.56	0			0	No, Vu<V
SLU 57	483	-1380	-314	13026		0	0	0.56	0			0	No, Vu<V
SLU 57	1187	-508	-102	9273		0	0	0.56	0			0	No, Vu<V
SLU 54	483	-1367	-329	12591		0	0	0.56	0			0	No, Vu<V
SLU 54	1187	-531	-83	9130		0	0	0.56	0			0	No, Vu<V
SLU 53	483	-1354	-318	12610		0	0	0.56	0			0	No, Vu<V
SLU 53	1187	-524	-84	9075		0	0	0.56	0			0	No, Vu<V
SLU 1	483	-951	-227	8876		0	0	0.56	0			0	No, Vu<V
SLU 1	1187	-381	-44	6161		0	0	0.56	0			0	No, Vu<V
SLU 61	483	-1397	-357	12449		0	0	0.56	0			0	No, Vu<V
SLU 61	1187	-545	-70	9044		0	0	0.56	0			0	No, Vu<V
SLU 60	483	-1384	-345	12468		0	0	0.56	0			0	No, Vu<V
SLU 60	1187	-538	-71	8989		0	0	0.56	0			0	No, Vu<V
SLU 58	483	-1356	-295	13025		0	0	0.56	0			0	No, Vu<V
SLU 58	1187	-474	-103	8865		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	483	-857	-476	4054		4.49	6.81	1.63	310			0.65	No, Vu<V
SLV 11	1187	-1514	205	15076		0	0	0.83	0			0	No, Vu<V
SLV 13	483	-1125	-554	3533		3.47	11.58	1.53	495			0.89	No, Vu<V
SLV 13	1187	-310	-250	6683		0	0	0.83	0			0	No, Vu<V
SLV 7	483	-821	-274	8009		0	0	0.83	0			0	No, Vu<V
SLV 7	1187	-1383	270	13745		0	0	0.83	0			0	No, Vu<V
SLV 6	483	-1167	-30	14307		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	705	-314	-1557		0	0	0.83	0			0	No, Vu<V
SLV 12	483	-857	-476	4054		4.49	6.81	1.63	310			0.65	No, Vu<V
SLV 12	1187	-1514	205	15076		0	0	0.83	0			0	No, Vu<V
SLV 9	483	-1204	-232	10351		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	573	-379	-226		0	0	0.83	0			0	No, Vu<V
SLV 14	483	-1125	-554	3533		3.47	11.58	1.53	495			0.89	No, Vu<V
SLV 14	1187	-310	-250	6683		0	0	0.83	0			0	No, Vu<V
SLV 8	483	-821	-274	8009		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	-1383	270	13745		0	0	0.83	0			0	No, Vu<V
SLD 1	483	-1007	-92	12388		0	0	0.83	0			0	No, Vu<V
SLD 1	1187	-177	-45	4836		0	0	0.83	0			0	No, Vu<V
SLV 10	483	-1204	-232	10351		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	573	-379	-226		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 835 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 10	14	0.42	0	167	6253	0	0	No, Trazione
SLV 9	14	0.42	0	167	6253	0	0	No, Trazione
SLV 5	14	0.42	0	246	6253	0	0	No, Trazione
SLV 6	14	0.42	0	246	6253	0	0	No, Trazione
SLV 2	14	0.42	1.27	-496	6253	6227	1	No, M>Mu
SLV 1	14	0.42	1.27	-496	6253	6227	1	No, M>Mu
SLV 13	14	0.42	1.94	-762	6253	8970	1.43	Si
SLV 14	14	0.42	1.94	-762	6253	8970	1.43	Si
SLV 3	14	0.42	3.09	-1212	6253	12677	2.03	Si
SLV 4	14	0.42	3.09	-1212	6253	12677	2.03	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 835 Wa = 0.05 Ta = 0.2956

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	127	-1004	-6	0	0	0	0	1054.528	No, Trazione
SLV 9	573	-1204	14	0	0	0	0	960.353	No, Trazione
SLV 10	573	-1204	14	0	0	0	0	960.353	No, Trazione
SLV 2	127	-1004	-6	0	0	0	0	1054.528	No, Trazione
SLV 5	705	-1167	8	0	0	0	0	960.353	No, Trazione
SLV 6	705	-1167	8	0	0	0	0	960.353	No, Trazione
SLV 14	-310	-1125	13	0.005	0.732	0.89	8.022	1054.528	No
SLV 13	-310	-1125	13	0.005	0.732	0.89	8.022	1054.528	No
SLV 3	-499	-900	-12	0.01	0.914	0.9	15.999	1054.528	No
SLV 4	-499	-900	-12	0.01	0.914	0.9	15.999	1054.528	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 10	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 10	No



Stato limite	Coeff.s.	Comb.	Verifica
R_SLV	0	SLV 10	No

## Maschio 232

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1627.8	-485.9	-1705.3	-485.9	L3	F1	77.5	30	1325.7	1325.6	1325.7			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 10	1187	-2076	-2726	0.89	71571	26.259	Si
SLU 10	1399	-639	6278	0.27	23910	3.808	Si
SLU 27	1187	-1451	8051	0.62	51870	6.442	Si
SLU 27	1399	-386	-4210	0.17	14647	3.479	Si
SLU 2	1187	-1944	-3620	0.84	67546	18.66	Si
SLU 2	1399	-593	6929	0.26	22249	3.211	Si
SLU 14	1187	-1515	7839	0.65	53974	6.885	Si
SLU 14	1399	-399	-4049	0.17	15137	3.739	Si
SLU 29	1187	-1434	8576	0.62	51341	5.987	Si
SLU 29	1399	-382	-4569	0.16	14498	3.173	Si
SLU 35	1187	-1583	8945	0.68	56162	6.278	Si
SLU 35	1399	-432	-4861	0.19	16346	3.363	Si
SLU 8	1187	-1367	7470	0.59	49112	6.575	Si
SLU 8	1399	-349	-3757	0.15	13283	3.535	Si
SLU 37	1187	-1566	9470	0.67	55642	5.876	Si
SLU 37	1399	-428	-5220	0.18	16198	3.103	Si
SLU 44	1187	-2360	-3484	1.02	80005	22.962	Si
SLU 44	1399	-691	7410	0.3	25768	3.477	Si
SLU 16	1187	-1499	8364	0.65	53450	6.39	Si
SLU 16	1399	-395	-4408	0.17	14989	3.4	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	1187	-3001	100150	1.29	103945	1.038	Si
SLV 6	1399	1194	-44677	0	0	0	No, Trazione
SLV 10	1187	-2414	78880	1.04	85540	1.084	Si
SLV 10	1399	1325	-15743	0	0	0	No, Trazione
SLV 13	1187	-899	-6993	0.39	33720	4.822	Si
SLV 13	1399	327	39340	0	0	0	No, Trazione
SLV 7	1187	-631	-74305	0	0	0	No, e>l/2
SLV 7	1399	-2094	16259	0.9	75114	4.62	Si
SLV 9	1187	-2414	78880	1.04	85540	1.084	Si
SLV 9	1399	1325	-15743	0	0	0	No, Trazione
SLV 12	1187	-43	-95575	0	0	0	No, e>l/2
SLV 12	1399	-1963	45192	0.84	70756	1.566	Si
SLV 11	1187	-43	-95575	0	0	0	No, e>l/2
SLV 11	1399	-1963	45192	0.84	70756	1.566	Si
SLV 8	1187	-631	-74305	0	0	0	No, e>l/2
SLV 8	1399	-2094	16259	0.9	75114	4.62	Si
SLV 14	1187	-899	-6993	0.39	33720	4.822	Si
SLV 14	1399	327	39340	0	0	0	No, Trazione
SLD 1	1187	-2089	27790	0.9	74941	2.697	Si
SLD 1	1399	-285	-24168	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	l'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 76	1187	-2511	2	1393		1.08	77.45	0.7	1626			777.82	Si
SLU 76	1399	-763	-253	3731		0.33	77.45	0.6	1393			5.51	Si
SLU 38	1187	-1854	127	6269		0.8	77.45	0.66	1538			12.07	Si
SLU 38	1399	-567	-283	-1468		0.24	77.45	0.59	1366			4.84	Si
SLU 84	1187	-2376	54	3911		1.02	77.45	0.69	1608			29.7	Si
SLU 84	1399	-690	-255	951		0.3	77.45	0.6	1383			5.43	Si
SLU 36	1187	-1870	115	5744		0.8	77.45	0.66	1540			13.38	Si
SLU 36	1399	-571	-277	-1109		0.25	77.45	0.59	1367			4.93	Si
SLU 80	1187	-2270	120	6404		0.98	77.45	0.69	1594			13.33	Si
SLU 80	1399	-664	-278	-987		0.29	77.45	0.59	1379			4.97	Si
SLU 35	1187	-1583	183	8945		0.68	77.45	0.65	1502			8.2	Si
SLU 35	1399	-432	-242	-4861		0.19	77.45	0.58	1348			5.58	Si
SLU 78	1187	-2286	107	5880		0.98	77.45	0.69	1596			14.88	Si
SLU 78	1399	-668	-272	-628		0.29	77.45	0.59	1380			5.07	Si
SLU 37	1187	-1566	196	9470		0.67	77.45	0.65	1500			7.67	Si
SLU 37	1399	-428	-247	-5220		0.18	77.45	0.58	1348			5.45	Si
SLU 42	1187	-1959	62	3775		0.84	77.45	0.67	1552			25.04	Si
SLU 42	1399	-593	-260	470		0.26	77.45	0.59	1370			5.28	Si
SLU 34	1187	-2094	10	1257		0.9	77.45	0.68	1570			157.92	Si
SLU 34	1399	-665	-258	3250		0.29	77.45	0.59	1380			5.35	Si





Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1187	-899	-518	-6993		0.39	77.45	0.91	2116			4.09	Si
SLV 14	1399	327	-511	39340		0	0	0.83	0			0	No, Vu<V
SLV 13	1187	-899	-518	-6993		0.39	77.45	0.91	2116			4.09	Si
SLV 13	1399	327	-511	39340		0	0	0.83	0			0	No, Vu<V
SLV 11	1187	-43	-1110	-95575		0	0	0.83	0			0	No, Vu<V
SLV 11	1399	-1963	1178	45192		1.39	47.1	1.11	1570			1.33	Si
SLV 7	1187	-631	-627	-74305		0	0	0.83	0			0	No, Vu<V
SLV 7	1399	-2094	1214	16259		0.9	77.45	1.01	2355			1.94	Si
SLD 1	1187	-2089	472	27790		0.91	76.27	1.02	2324			4.93	Si
SLD 1	1399	-285	-200	-24168		0	0	0.83	0			0	No, Vu<V
SLV 12	1187	-43	-1110	-95575		0	0	0.83	0			0	No, Vu<V
SLV 12	1399	-1963	1178	45192		1.39	47.1	1.11	1570			1.33	Si
SLV 9	1187	-2414	667	78880		4.43	18.16	1.63	885			1.33	Si
SLV 9	1399	1325	-1358	-15743		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	-3001	1149	100150		6.22	16.07	1.63	784			0.68	No, Vu<V
SLV 6	1399	1194	-1322	-44677		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	-2414	667	78880		4.43	18.16	1.63	885			1.33	Si
SLV 10	1399	1325	-1358	-15743		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	-631	-627	-74305		0	0	0.83	0			0	No, Vu<V
SLV 8	1399	-2094	1214	16259		0.9	77.45	1.01	2355			1.94	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 773.8 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 12	14	0.41	0	785	124457	0	0	No, Trazione
SLV 11	14	0.41	0	785	124457	0	0	No, Trazione
SLV 8	14	0.41	0	-38	124457	0	0	No, e>t/2
SLV 10	14	0.41	0	-7626	124457	0	0	No, e>t/2
SLV 2	14	0.41	0	-6466	124457	0	0	No, e>t/2
SLV 1	14	0.41	0	-6466	124457	0	0	No, e>t/2
SLV 7	14	0.41	0	-38	124457	0	0	No, e>t/2
SLV 4	14	0.41	0	-3942	124457	0	0	No, e>t/2
SLV 3	14	0.41	0	-3942	124457	0	0	No, e>t/2
SLV 9	14	0.41	0	-7626	124457	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 773.8 Wa = 0.05 Ta = 0.9783

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 10	1563	-11527	-36	0	0	0	0	239.674	No, Trazione
SLV 14	670	-6397	-25	0	0	0	0	239.674	No, Trazione
SLV 6	1349	-13554	-29	0	0	0	0	239.674	No, Trazione
SLV 9	1563	-11527	-36	0	0	0	0	239.674	No, Trazione
SLV 5	1349	-13554	-29	0	0	0	0	239.674	No, Trazione
SLV 13	670	-6397	-25	0	0	0	0	239.674	No, Trazione
SLV 7	-1917	-5654	25	0.013	6.786	0.892	20.639	239.674	No
SLV 8	-1917	-5654	25	0.013	6.786	0.892	20.639	239.674	No
SLV 12	-1703	-3626	18	0.014	6.609	0.895	23.06	239.674	No
SLV 11	-1703	-3626	18	0.014	6.609	0.895	23.06	239.674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.103	SLU 37	Si
V_SLU	4.836	SLU 38	Si
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 12	No
R_SLV	0	SLV 14	No

## Maschio 233

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-485.9	-1443.8	-485.9	L3	F1	68.5	30	1325.5	1325.5	1325.5			

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>k</sub>	f <sub>vk0</sub>	f <sub>medio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>v,lim</sub>	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 1	1187	-1195	-3978	0.58	38034	9.561	Si
SLU 1	1399	-298	3767	0.14	10025	2.661	Si
SLU 52	1187	-1543	-4299	0.75	48006	11.166	Si
SLU 52	1399	-380	5270	0.18	12724	2.414	Si
SLU 43	1187	-1496	-5487	0.73	46689	8.508	Si
SLU 43	1399	-378	5304	0.18	12663	2.387	Si
SLU 2	1187	-1199	-4170	0.58	38165	9.151	Si
SLU 2	1399	-295	5255	0.14	9929	1.889	Si
SLU 46	1187	-1758	-4464	0.85	53922	12.079	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 46	1399	-417	4839	0.2	13924	2.878	Si
SLU 10	1187	-1242	-2790	0.6	39410	14.126	Si
SLU 10	1399	-300	3733	0.15	10086	2.702	Si
SLU 23	1187	-1368	-3248	0.67	43046	13.251	Si
SLU 23	1399	-321	4069	0.16	10807	2.656	Si
SLU 44	1187	-1500	-5680	0.73	46814	8.242	Si
SLU 44	1399	-375	6792	0.18	12568	1.85	Si
SLU 47	1187	-1810	-4287	0.88	55335	12.908	Si
SLU 47	1399	-423	5213	0.21	14126	2.71	Si
SLU 65	1187	-1668	-4758	0.81	51487	10.821	Si
SLU 65	1399	-402	5606	0.2	13438	2.397	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 6	1187	-4531	22910	2.2	127285	5.556	Si
SLV 6	1399	-503	-32856	0	0	0	No, $e > l/2$
SLV 13	1187	-3262	-4956	1.59	97281	19.629	Si
SLV 13	1399	-633	34255	0	0	0	No, $e > l/2$
SLV 5	1187	-4531	22910	2.2	127285	5.556	Si
SLV 5	1399	-503	-32856	0	0	0	No, $e > l/2$
SLV 8	1187	2584	-24318	0	0	0	No, Trazione
SLV 8	1399	37	15715	0	0	0	No, Trazione
SLV 14	1187	-3262	-4956	1.59	97281	19.629	Si
SLV 14	1399	-633	34255	0	0	0	No, $e > l/2$
SLV 7	1187	2584	-24318	0	0	0	No, Trazione
SLV 7	1399	37	15715	0	0	0	No, Trazione
SLV 12	1187	2020	-29551	0	0	0	No, Trazione
SLV 12	1399	-110	38843	0	0	0	No, $e > l/2$
SLV 4	1187	751	-1684	0	0	0	No, Trazione
SLV 4	1399	20	-28268	0	0	0	No, Trazione
SLV 11	1187	2020	-29551	0	0	0	No, Trazione
SLV 11	1399	-110	38843	0	0	0	No, $e > l/2$
SLD 1	1187	-1311	3389	0.64	42574	12.563	Si
SLD 1	1399	-236	-16556	0	0	0	No, $e > l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	$l'$	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 65	1187	-1668	-100	-4758		0.81	68.55	0.66	1365			13.71	Si
SLU 65	1399	-402	109	5606		0.22	60.96	0.58	1069			9.82	Si
SLU 38	1187	-2028	108	995		0.99	68.55	0.69	1413			13.08	Si
SLU 38	1399	-423	-39	-1207		0.21	68.55	0.58	1199			30.43	Si
SLU 23	1187	-1368	-62	-3248		0.67	68.55	0.64	1325			21.52	Si
SLU 23	1399	-321	84	4069		0.17	64.85	0.58	1124			13.43	Si
SLU 52	1187	-1543	-101	-4299		0.75	68.55	0.66	1348			13.29	Si
SLU 52	1399	-380	99	5270		0.21	61.2	0.58	1071			10.81	Si
SLU 37	1187	-2025	116	1111		0.98	68.55	0.69	1412			12.2	Si
SLU 37	1399	-425	-69	-2100		0.21	68.55	0.58	1199			17.41	Si
SLU 2	1187	-1199	-98	-4170		0.58	68.55	0.63	1302			13.29	Si
SLU 2	1399	-295	107	5255		0.2	49.36	0.58	862			8.07	Si
SLU 44	1187	-1500	-136	-5680		0.73	68.55	0.65	1342			9.87	Si
SLU 44	1399	-375	132	6792		0.26	48.5	0.59	858			6.5	Si
SLU 47	1187	-1810	-71	-4287		0.88	68.55	0.67	1384			19.46	Si
SLU 47	1399	-423	97	5213		0.21	65.83	0.58	1154			11.89	Si
SLU 43	1187	-1496	-123	-5487		0.73	68.55	0.65	1342			10.91	Si
SLU 43	1399	-378	83	5304		0.21	60.72	0.58	1062			12.81	Si
SLU 35	1187	-1975	104	857		0.96	68.55	0.68	1406			13.53	Si
SLU 35	1399	-417	-64	-1879		0.2	68.55	0.58	1198			18.67	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	$l'$	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1187	-3262	-975	-4956		1.59	68.55	1.15	2366			2.43	Si
SLV 14	1399	-633	-713	34255		0	0	0.83	0			0	No, $V_u < V$
SLV 5	1187	-4531	1042	22910		2.2	68.55	1.27	2620			2.51	Si
SLV 5	1399	-503	-112	-32856		0	0	0.83	0			0	No, $V_u < V$
SLD 1	1187	-1311	521	3389		0.64	68.55	0.96	1976			3.8	Si
SLD 1	1399	-236	278	-16556		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1187	2584	-488	-24318		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1399	37	585	15715		0	0	0.83	0			0	No, $V_u < V$
SLV 13	1187	-3262	-975	-4956		1.59	68.55	1.15	2366			2.43	Si
SLV 13	1399	-633	-713	34255		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1187	-4531	1042	22910		2.2	68.55	1.27	2620			2.51	Si
SLV 6	1399	-503	-112	-32856		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1187	2020	-1171	-29551		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1399	-110	195	38843		0	0	0.83	0			0	No, $V_u < V$
SLV 11	1187	2020	-1171	-29551		0	0	0.83	0			0	No, $V_u < V$
SLV 11	1399	-110	195	38843		0	0	0.83	0			0	No, $V_u < V$
SLV 8	1187	2584	-488	-24318		0	0	0.83	0			0	No, $V_u < V$
SLV 8	1399	37	585	15715		0	0	0.83	0			0	No, $V_u < V$
SLV 4	1187	751	846	-1684		0	0	0.83	0			0	No, $V_u < V$
SLV 4	1399	20	796	-28268		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 773.7 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.41	0	-4391	110108	0	0	No, $e > l/2$
SLV 7	14	0.41	0	1504	110108	0	0	No, Trazione
SLV 11	14	0.41	0	3013	110108	0	0	No, Trazione



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 13	14	0.41	0	-2904	110108	0	0	No, $e > t/2$
SLV 15	14	0.41	0	639	110108	0	0	No, Trazione
SLV 12	14	0.41	0	3013	110108	0	0	No, Trazione
SLV 4	14	0.41	0	-4391	110108	0	0	No, $e > t/2$
SLV 16	14	0.41	0	639	110108	0	0	No, Trazione
SLV 14	14	0.41	0	-2904	110108	0	0	No, $e > t/2$
SLV 8	14	0.41	0	1504	110108	0	0	No, Trazione

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 773.7 Wa = 0.05 Ta = 0.978

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	207	-12236	12	0	0	0	0	239.674	No, Trazione
SLV 8	218	-2767	-9	0	0	0	0	239.674	No, Trazione
SLV 11	67	1567	-17	0	0	0	0	239.674	No, Trazione
SLV 3	207	-12236	12	0	0	0	0	239.674	No, Trazione
SLV 12	67	1567	-17	0	0	0	0	239.674	No, Trazione
SLV 15	-298	2212	-12	0	0	0	0	239.674	No, Trazione
SLV 7	218	-2767	-9	0	0	0	0	239.674	No, Trazione
SLV 1	45	-16017	23	0	0	0	0	239.674	No, Trazione
SLV 2	45	-16017	23	0	0	0	0	239.674	No, Trazione
SLV 16	-298	2212	-12	0	0	0	0	239.674	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.85	SLU 44	Si
V_SLU	6.495	SLU 44	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 16	No
R_SLV	0	SLV 16	No

## Maschio 234

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-485.9	-1375.3	-349.9	Z medio 313 cm	F1	135.9	28	1155	1123.5	1186.6			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 60	313	-17596	2348	4.62	517177	220.26	Si
SLU 60	1436	-470	9684	0.12	31446	3.247	Si
SLU 1	313	-12065	787	3.17	500904	636.665	Si
SLU 1	1436	-333	6841	0.09	22409	3.276	Si
SLU 19	313	-14365	3055	3.77	523961	171.523	Si
SLU 19	1436	-393	7147	0.1	26401	3.694	Si
SLU 64	313	-16373	2101	4.3	525127	249.956	Si
SLU 64	1436	-480	8822	0.13	32136	3.643	Si
SLU 61	313	-17626	2728	4.63	516900	189.459	Si
SLU 61	1436	-469	9237	0.12	31388	3.398	Si
SLU 18	313	-14335	2674	3.77	523810	195.855	Si
SLU 18	1436	-394	7594	0.1	26459	3.484	Si
SLU 43	313	-15326	460	4.03	526724	1000	Si
SLU 43	1436	-409	8931	0.11	27416	3.07	Si
SLU 2	313	-12115	1421	3.18	501650	353.138	Si
SLU 2	1436	-332	6095	0.09	22312	3.661	Si
SLU 44	313	-15376	1094	4.04	526757	481.453	Si
SLU 44	1436	-407	8185	0.11	27319	3.338	Si
SLU 52	313	-16965	2416	4.46	522099	216.145	Si
SLU 52	1436	-450	8712	0.12	30143	3.46	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	313	-11697	-26547	3.07	595033	22.414	Si
SLD 15	1436	-133	-7889	0.03	8995	1.14	Si
SLV 15	313	-10157	-63413	2.67	539548	8.508	Si
SLV 15	1436	188	-28234	0	0	0	No, Trazione
SLD 16	313	-11697	-26547	3.07	595033	22.414	Si
SLD 16	1436	-133	-7889	0.03	8995	1.14	Si
SLD 11	313	-9317	18291	2.45	506361	27.684	Si
SLD 11	1436	-33	-9084	0	0	0	No, $e > l/2$
SLV 11	313	-4582	42120	1.2	280733	6.665	Si
SLV 11	1436	407	-30514	0	0	0	No, Trazione
SLV 16	313	-10157	-63413	2.67	539548	8.508	Si
SLV 16	1436	188	-28234	0	0	0	No, Trazione
SLD 12	313	-9317	18291	2.45	506361	27.684	Si
SLD 12	1436	-33	-9084	0	0	0	No, $e > l/2$



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	313	-4708	93016	1.24	287572	3.092	Si
SLV 7	1436	195	-14721	0	0	0	No, Trazione
SLV 12	313	-4582	42120	1.2	280733	6.665	Si
SLV 12	1436	407	-30514	0	0	0	No, Trazione
SLV 8	313	-4708	93016	1.24	287572	3.092	Si
SLV 8	1436	195	-14721	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 79	313	-18744	-951	688		4.92	135.93	1.08	4123			4.34	Si
SLU 79	1436	-664	-1047	3479		0.17	135.93	0.58	2203			2.1	Si
SLU 78	313	-18795	-938	1813		4.94	135.93	1.08	4123			4.4	Si
SLU 78	1436	-680	-1030	4494		0.18	135.93	0.58	2205			2.14	Si
SLU 77	313	-18765	-963	1433		4.93	135.93	1.08	4123			4.28	Si
SLU 77	1436	-681	-1023	4941		0.18	135.93	0.58	2205			2.16	Si
SLU 36	313	-15534	-839	2140		4.08	135.93	1.08	4123			4.92	Si
SLU 36	1436	-605	-1018	2404		0.16	135.93	0.58	2195			2.16	Si
SLU 72	313	-17185	-672	-254		4.52	135.93	1.08	4123			6.14	Si
SLU 72	1436	-621	-936	2504		0.16	135.93	0.58	2197			2.35	Si
SLU 71	313	-17155	-697	-634		4.51	135.93	1.08	4123			5.92	Si
SLU 71	1436	-621	-929	2952		0.16	135.93	0.58	2197			2.36	Si
SLU 80	313	-18774	-926	1068		4.93	135.93	1.08	4123			4.45	Si
SLU 80	1436	-663	-1053	3032		0.17	135.93	0.58	2203			2.09	Si
SLU 38	313	-15514	-827	1394		4.08	135.93	1.08	4123			4.99	Si
SLU 38	1436	-588	-1042	942		0.15	135.93	0.58	2193			2.11	Si
SLU 37	313	-15484	-852	1014		4.07	135.93	1.08	4123			4.84	Si
SLU 37	1436	-589	-1035	1389		0.15	135.93	0.58	2193			2.12	Si
SLU 35	313	-15504	-864	1760		4.07	135.93	1.08	4123			4.77	Si
SLU 35	1436	-606	-1011	2852		0.16	135.93	0.58	2195			2.17	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLD 11	313	-9317	392	18291		2.45	135.93	1.32	5035			12.85	Si
SLD 11	1436	-33	633	-9084		0	0	0.83	0			0	No, Vu<V
SLV 5	313	-21055	-2876	-38854		5.53	135.93	1.63	6185			2.15	Si
SLV 5	1436	-1139	-2521	44435		0.47	86.88	0.93	2255			0.89	No, Vu<V
SLV 8	313	-4708	3223	93016		1.24	135.93	1.08	4113			1.28	Si
SLV 8	1436	195	2148	-14721		0	0	0.83	0			0	No, Vu<V
SLV 11	313	-4582	1685	42120		1.2	135.93	1.07	4088			2.43	Si
SLV 11	1436	407	1890	-30514		0	0	0.83	0			0	No, Vu<V
SLV 16	313	-10157	-2245	-63413		2.67	135.93	1.37	5203			2.32	Si
SLV 16	1436	188	-46	-28234		0	0	0.83	0			0	No, Vu<V
SLV 6	313	-21055	-2876	-38854		5.53	135.93	1.63	6185			2.15	Si
SLV 6	1436	-1139	-2521	44435		0.47	86.88	0.93	2255			0.89	No, Vu<V
SLV 12	313	-4582	1685	42120		1.2	135.93	1.07	4088			2.43	Si
SLV 12	1436	407	1890	-30514		0	0	0.83	0			0	No, Vu<V
SLV 7	313	-4708	3223	93016		1.24	135.93	1.08	4113			1.28	Si
SLV 7	1436	195	2148	-14721		0	0	0.83	0			0	No, Vu<V
SLV 15	313	-10157	-2245	-63413		2.67	135.93	1.37	5203			2.32	Si
SLV 15	1436	188	-46	-28234		0	0	0.83	0			0	No, Vu<V
SLD 12	313	-9317	392	18291		2.45	135.93	1.32	5035			12.85	Si
SLD 12	1436	-33	633	-9084		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 874.7 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.43	0	-5836	170551	0	0	No, $e>t/2$
SLV 6	14	0.43	0	-8012	170551	0	0	No, $e>t/2$
SLV 8	14	0.43	0	-4536	170551	0	0	No, $e>t/2$
SLV 2	14	0.43	0	-6879	170551	0	0	No, $e>t/2$
SLV 10	14	0.43	0	-7940	170551	0	0	No, $e>t/2$
SLV 9	14	0.43	0	-7940	170551	0	0	No, $e>t/2$
SLV 1	14	0.43	0	-6879	170551	0	0	No, $e>t/2$
SLV 5	14	0.43	0	-8012	170551	0	0	No, $e>t/2$
SLV 3	14	0.43	0	-5836	170551	0	0	No, $e>t/2$
SLV 7	14	0.43	0	-4536	170551	0	0	No, $e>t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 874.7 Wa = 0.05 Ta = 0.7956

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 7	195	-4708	-34	0	0	0	0	239.674	No, Trazione
SLV 11	407	-4582	-64	0	0	0	0	239.674	No, Trazione
SLV 12	407	-4582	-64	0	0	0	0	239.674	No, Trazione
SLV 16	188	-10157	-57	0	0	0	0	239.674	No, Trazione
SLV 15	188	-10157	-57	0	0	0	0	239.674	No, Trazione
SLV 8	195	-4708	-34	0	0	0	0	239.674	No, Trazione
SLV 5	-1139	-21055	82	0.005	8.491	0.92	8.5	239.674	No
SLV 6	-1139	-21055	82	0.005	8.491	0.92	8.5	239.674	No
SLV 2	-919	-15480	76	0.006	8.364	0.929	9.99	239.674	No
SLV 1	-919	-15480	76	0.006	8.364	0.929	9.99	239.674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	3.07	SLU 43	Si
V_SLU	2.091	SLU 80	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 11	No



Stato limite	Coeff.s.	Comb.	Verifica
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 235

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)  
Maschio considerato membratura sismica secondaria

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-349.9	-1375.3	-331.4	L4	L7	18.6	28	1020	1020	1020			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 54	483	-1974	25361	0	0	0	No, $e > l/2$
SLU 54	1503	0	0	0	0	1000	Si
SLU 61	483	-2022	26242	0	0	0	No, $e > l/2$
SLU 61	1503	0	0	0	0	1000	Si
SLU 58	483	-1977	24940	0	0	0	No, $e > l/2$
SLU 58	1503	0	0	0	0	1000	Si
SLU 57	483	-2001	25481	0	0	0	No, $e > l/2$
SLU 57	1503	0	0	0	0	1000	Si
SLU 56	483	-1988	25152	0	0	0	No, $e > l/2$
SLU 56	1503	0	0	0	0	1000	Si
SLU 60	483	-2010	25914	0	0	0	No, $e > l/2$
SLU 60	1503	0	0	0	0	1000	Si
SLU 1	483	-1359	17359	0	0	0	No, $e > l/2$
SLU 1	1503	0	0	0	0	1000	Si
SLU 53	483	-1962	25033	0	0	0	No, $e > l/2$
SLU 53	1503	0	0	0	0	1000	Si
SLU 59	483	-1989	25269	0	0	0	No, $e > l/2$
SLU 59	1503	0	0	0	0	1000	Si
SLU 55	483	-1971	25368	0	0	0	No, $e > l/2$
SLU 55	1503	0	0	0	0	1000	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 54	483	-1974	150	25361		0	0	0.56	0			0	No, $V_u < V$
SLU 54	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 53	483	-1962	138	25033		0	0	0.56	0			0	No, $V_u < V$
SLU 53	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 59	483	-1989	135	25269		0	0	0.56	0			0	No, $V_u < V$
SLU 59	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 61	483	-2022	165	26242		0	0	0.56	0			0	No, $V_u < V$
SLU 61	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 58	483	-1977	122	24940		0	0	0.56	0			0	No, $V_u < V$
SLU 58	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 55	483	-1971	154	25368		0	0	0.56	0			0	No, $V_u < V$
SLU 55	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 57	483	-2001	139	25481		0	0	0.56	0			0	No, $V_u < V$
SLU 57	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 1	483	-1359	102	17359		0	0	0.56	0			0	No, $V_u < V$
SLU 1	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 56	483	-1988	127	25152		0	0	0.56	0			0	No, $V_u < V$
SLU 56	1503	0	0	0		0	0	0.56	0			1000	Si
SLU 60	483	-2010	152	25914		0	0	0.56	0			0	No, $V_u < V$
SLU 60	1503	0	0	0		0	0	0.56	0			1000	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 993 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.45	0	1099	19221	0	0	No, Trazione
SLV 1	14	0.45	0	-203	19221	0	0	No, $e > t/2$
SLV 9	14	0.45	0	1030	19221	0	0	No, Trazione
SLV 10	14	0.45	0	1030	19221	0	0	No, Trazione
SLV 13	14	0.45	0	-433	19221	0	0	No, $e > t/2$
SLV 2	14	0.45	0	-203	19221	0	0	No, $e > t/2$
SLV 14	14	0.45	0	-433	19221	0	0	No, $e > t/2$
SLV 6	14	0.45	0	1099	19221	0	0	No, Trazione
SLV 3	14	0.45	2.67	-1388	19221	15185	0.79	No, $M > Mu$
SLV 4	14	0.45	2.67	-1388	19221	15185	0.79	No, $M > Mu$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 993 Wa = 0.05 Ta = 0.6205

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	0	-1028	0	0.027	0.973	1	39.895	239.674	No
SLV 1	0	-1226	0	0.027	0.973	1	39.895	239.674	No
SLV 3	0	-1029	0	0.027	0.973	1	39.895	239.674	No
SLV 6	0	-1686	0	0.027	0.973	1	39.895	239.674	No



Comb.	N top	N base	V orto	$\alpha 0$	M*	e*	a0*	aLim	Verifica
SLV 5	0	-1686	0	0.027	0.973	1	39.895	239.674	No
SLV 2	0	-1226	0	0.027	0.973	1	39.895	239.674	No
SLV 10	0	-1882	0	0.027	0.973	1	39.895	239.674	No
SLV 9	0	-1882	0	0.027	0.973	1	39.895	239.674	No
SLV 4	0	-1029	0	0.027	0.973	1	39.895	239.674	No
SLV 7	0	-1028	0	0.027	0.973	1	39.895	239.674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0	SLU 1	No
V_SLV	0	SLU 1	No
PFFP_SLV	0	SLV 10	No
R_SLV	0.166	SLV 1	No

## Maschio 236

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-331.4	-1375.3	-35.4	Z medio 570 cm	Z medio 922 cm	296	28	352.5	353	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLU 83	656	-29259	489249	3.53	2453620	5.015	Si
SLU 83	835	-19823	-18414	2.39	2072376	112.547	Si
SLU 84	656	-29344	475039	3.54	2455281	5.169	Si
SLU 84	835	-19949	-32682	2.41	2080043	63.646	Si
SLU 35	656	-23888	434601	2.88	2284474	5.256	Si
SLU 35	835	-15656	6187	1.89	1779739	287.664	Si
SLU 39	656	-24132	429516	2.91	2294891	5.343	Si
SLU 39	835	-16475	-30460	1.99	1843245	60.514	Si
SLU 41	656	-24377	460171	2.94	2305099	5.009	Si
SLU 41	835	-16330	1318	1.97	1832249	1000	Si
SLU 37	656	-23614	431803	2.85	2272481	5.263	Si
SLU 37	835	-15462	18457	1.87	1764257	95.585	Si
SLU 77	656	-28770	463678	3.47	2443458	5.27	Si
SLU 77	835	-19149	-13545	2.31	2030192	149.886	Si
SLU 79	656	-28497	460881	3.44	2437317	5.288	Si
SLU 79	835	-18955	-1274	2.29	2017681	1000	Si
SLU 81	656	-29014	458593	3.5	2448657	5.339	Si
SLU 81	835	-19967	-50192	2.41	2081158	41.464	Si
SLU 42	656	-24462	445961	2.95	2308580	5.177	Si
SLU 42	835	-16456	-12950	1.99	1841847	142.23	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma M = 2$

Comb.	Quota	N	M	$\alpha 0$	Mu	c.s.	Verifica
SLV 8	656	-20433	-350207	2.47	2413873	6.893	Si
SLV 8	835	-20373	-836858	2.46	2408598	2.878	Si
SLV 10	656	-19459	803884	2.35	2326507	2.894	Si
SLV 10	835	-7104	706852	0.86	977579	1.383	Si
SLV 2	656	-14702	210264	1.77	1860042	8.846	Si
SLV 2	835	-9514	394364	1.15	1275726	3.235	Si
SLV 11	656	-23238	-245791	2.8	2650051	10.782	Si
SLV 11	835	-21603	-962258	2.61	2515174	2.614	Si
SLV 1	656	-14702	210264	1.77	1860042	8.846	Si
SLV 1	835	-9514	394364	1.15	1275726	3.235	Si
SLV 7	656	-20433	-350207	2.47	2413873	6.893	Si
SLV 7	835	-20373	-836858	2.46	2408598	2.878	Si
SLV 6	656	-16653	699469	2.01	2059332	2.944	Si
SLV 6	835	-5874	832253	0.71	818880	0.984	No, M>Mu
SLV 12	656	-23238	-245791	2.8	2650051	10.782	Si
SLV 12	835	-21603	-962258	2.61	2515174	2.614	Si
SLV 9	656	-19459	803884	2.35	2326507	2.894	Si
SLV 9	835	-7104	706852	0.86	977579	1.383	Si
SLV 5	656	-16653	699469	2.01	2059332	2.944	Si
SLV 5	835	-5874	832253	0.71	818880	0.984	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma M = 3$

Comb.	Quota	N	V par	M	$\alpha 0$	$\alpha N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 19	656	-22117	1210	351911		2.67	296	0.91	7553			6.24	Si
SLU 19	835	-15472	675	-38435		1.87	296	0.8	6667			9.87	Si
SLU 82	656	-29099	1351	444384		3.51	296	1.02	8484			6.28	Si
SLU 82	835	-20094	913	-64460		2.42	296	0.88	7284			7.97	Si
SLU 52	656	-26048	1421	312492		3.14	296	0.97	8078			5.69	Si
SLU 52	835	-18325	971	-82318		2.21	296	0.85	7048			7.26	Si
SLU 61	656	-26999	1393	380988		3.26	296	0.99	8204			5.89	Si
SLU 61	835	-18965	824	-58167		2.29	296	0.86	7133			8.66	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 23	656	-20916	904	209090		2.52	296	0.89	7393			8.18	Si
SLU 23	835	-14272	981	-103037		1.72	296	0.79	6507			6.63	Si
SLU 10	656	-21166	1238	283415		2.55	296	0.9	7427			6	Si
SLU 10	835	-14832	823	-62586		1.79	296	0.79	6582			8	Si
SLU 44	656	-23698	1128	174772		2.86	296	0.94	7764			6.88	Si
SLU 44	835	-16636	1040	-116476		2.01	296	0.82	6823			6.56	Si
SLU 65	656	-25798	1087	238167		3.11	296	0.97	8044			7.4	Si
SLU 65	835	-17765	1129	-122769		2.14	296	0.84	6973			6.17	Si
SLU 73	656	-28148	1379	375888		3.4	296	1.01	8358			6.06	Si
SLU 73	835	-19454	1061	-88611		2.35	296	0.87	7198			6.79	Si
SLU 31	656	-23266	1196	346810		2.81	296	0.93	7707			6.44	Si
SLU 31	835	-15961	912	-68879		1.93	296	0.81	6733			7.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 11	656	-23238	15760	-245791		2.8	296	1.39	11554			0.73	No, Vu<V
SLV 11	835	-21603	14121	-962258		2.61	296	1.35	11227			0.8	No, Vu<V
SLV 1	656	-14702	-7682	210264		1.77	296	1.19	9847			1.28	Si
SLV 1	835	-9514	-7468	394364		1.15	296	1.06	8809			1.18	Si
SLV 9	656	-19459	-12000	803884		2.35	296	1.3	10798			0.9	No, Vu<V
SLV 9	835	-7104	-10268	706852		1.74	145.48	1.18	4815			0.47	No, Vu<V
SLV 2	656	-14702	-7682	210264		1.77	296	1.19	9847			1.28	Si
SLV 2	835	-9514	-7468	394364		1.15	296	1.06	8809			1.18	Si
SLV 6	656	-16653	-14492	699469		2.01	296	1.24	10237			0.71	No, Vu<V
SLV 6	835	-5874	-12915	832253		11.09	18.92	1.63	861			0.07	No, Vu<V
SLV 10	656	-19459	-12000	803884		2.35	296	1.3	10798			0.9	No, Vu<V
SLV 10	835	-7104	-10268	706852		1.74	145.48	1.18	4815			0.47	No, Vu<V
SLV 7	656	-20433	13269	-350207		2.47	296	1.33	10993			0.83	No, Vu<V
SLV 7	835	-20373	11473	-836858		2.46	296	1.32	10981			0.96	No, Vu<V
SLV 5	656	-16653	-14492	699469		2.01	296	1.24	10237			0.71	No, Vu<V
SLV 5	835	-5874	-12915	832253		11.09	18.92	1.63	861			0.07	No, Vu<V
SLV 12	656	-23238	15760	-245791		2.8	296	1.39	11554			0.73	No, Vu<V
SLV 12	835	-21603	14121	-962258		2.61	296	1.35	11227			0.8	No, Vu<V
SLV 8	656	-20433	13269	-350207		2.47	296	1.33	10993			0.83	No, Vu<V
SLV 8	835	-20373	11473	-836858		2.46	296	1.32	10981			0.96	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 745.5 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 6	14	0.4	1.32	-10918	32401	136370	4.21	Si
SLV 5	14	0.4	1.32	-10918	32401	136370	4.21	Si
SLV 10	14	0.4	1.44	-11970	32401	147769	4.56	Si
SLV 9	14	0.4	1.44	-11970	32401	147769	4.56	Si
SLV 2	14	0.4	1.58	-13127	32401	159952	4.94	Si
SLV 1	14	0.4	1.58	-13127	32401	159952	4.94	Si
SLV 4	14	0.4	1.94	-16072	32401	189297	5.84	Si
SLV 3	14	0.4	1.94	-16072	32401	189297	5.84	Si
SLV 14	14	0.4	2.01	-16633	32401	194616	6.01	Si
SLV 13	14	0.4	2.01	-16633	32401	194616	6.01	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 745.5 Wa = 0.05 Ta = 0.0741

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	-7104	-19459	175	0.032	11.471	0.91	51.771	1125.854	No
SLV 10	-7104	-19459	175	0.032	11.471	0.91	51.771	1125.854	No
SLV 6	-5874	-16653	155	0.034	10.253	0.904	54.299	1125.854	No
SLV 5	-5874	-16653	155	0.034	10.253	0.904	54.299	1125.854	No
SLV 8	-20373	-20433	-119	0.039	24.869	0.952	59.66	1125.854	No
SLV 7	-20373	-20433	-119	0.039	24.869	0.952	59.66	1125.854	No
SLV 11	-21603	-23238	-99	0.04	26.118	0.954	60.857	1125.854	No
SLV 12	-21603	-23238	-99	0.04	26.118	0.954	60.857	1125.854	No
SLV 13	-13613	-24055	103	0.04	18.015	0.936	61.771	1082.091	No
SLV 14	-13613	-24055	103	0.04	18.015	0.936	61.771	1082.091	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	5.009	SLU 41	Si
V_SLU	5.686	SLU 52	Si
PF_SLV	0.984	SLV 5	No
V_SLV	0.067	SLV 5	No
PFFP_SLV	4.209	SLV 5	Si
R_SLV	0.046	SLV 9	No

## Maschio 237

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Maschio considerato membratura sismica secondaria

Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1375.3	-331.4	-1375.3	-35.4	Z medio 922 cm	L7	296	28	581	494	668			



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 58	1009	-11162	152513	1.35	1378833	9.041	Si
SLU 58	1503	51	-10729	0	0	0	No, Trazione
SLU 56	1009	-11141	151064	1.34	1376720	9.113	Si
SLU 56	1503	49	-10469	0	0	0	No, Trazione
SLU 57	1009	-11091	144965	1.34	1371772	9.463	Si
SLU 57	1503	47	-10085	0	0	0	No, Trazione
SLU 54	1009	-10869	117891	1.31	1349601	11.448	Si
SLU 54	1503	38	-8556	0	0	0	No, Trazione
SLU 61	1009	-10890	94420	1.31	1351756	14.316	Si
SLU 61	1503	34	-7708	0	0	0	No, Trazione
SLU 60	1009	-10940	100518	1.32	1356748	13.498	Si
SLU 60	1503	36	-8091	0	0	0	No, Trazione
SLU 55	1009	-10857	115274	1.31	1348405	11.697	Si
SLU 55	1503	38	-8561	0	0	0	No, Trazione
SLU 53	1009	-10918	123989	1.32	1354597	10.925	Si
SLU 53	1503	40	-8940	0	0	0	No, Trazione
SLU 59	1009	-11112	146415	1.34	1373890	9.384	Si
SLU 59	1503	49	-10345	0	0	0	No, Trazione
SLU 1	1009	-7967	78102	0.96	1039977	13.316	Si
SLU 1	1503	20	-5491	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 56	1009	-11141	-176	151064		1.34	296	0.73	6090			34.68	Si
SLU 56	1503	49	79	-10469		0	0	0.56	0			0	No, Vu<V
SLU 57	1009	-11091	-165	144965		1.34	296	0.73	6083			36.81	Si
SLU 57	1503	47	72	-10085		0	0	0.56	0			0	No, Vu<V
SLU 53	1009	-10918	-107	123989		1.32	296	0.73	6060			56.84	Si
SLU 53	1503	40	30	-8940		0	0	0.56	0			0	No, Vu<V
SLU 59	1009	-11112	-160	146415		1.34	296	0.73	6086			38.11	Si
SLU 59	1503	49	81	-10345		0	0	0.56	0			0	No, Vu<V
SLU 54	1009	-10869	-96	117891		1.31	296	0.73	6054			62.88	Si
SLU 54	1503	38	23	-8556		0	0	0.56	0			0	No, Vu<V
SLU 60	1009	-10940	-8	100518		1.32	296	0.73	6063			783.13	Si
SLU 60	1503	36	-20	-8091		0	0	0.56	0			0	No, Vu<V
SLU 58	1009	-11162	-170	152513		1.35	296	0.74	6093			35.83	Si
SLU 58	1503	51	88	-10729		0	0	0.56	0			0	No, Vu<V
SLU 55	1009	-10857	-84	115274		1.31	296	0.73	6052			72.22	Si
SLU 55	1503	38	28	-8561		0	0	0.56	0			0	No, Vu<V
SLU 61	1009	-10890	3	94420		1.31	296	0.73	6056			1000	Si
SLU 61	1503	34	-26	-7708		0	0	0.56	0			0	No, Vu<V
SLU 1	1009	-7967	-84	78102		0.96	296	0.68	5667			67.44	Si
SLU 1	1503	20	16	-5491		0	0	0.56	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 1256 Wa 0.05 denominatore 8 γM = 2

Comb.	fd	Sa	σ0	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.51	0	-4177	111524	0	0	No, e>t/2
SLV 2	14	0.51	0	-4453	111524	0	0	No, e>t/2
SLV 1	14	0.51	0	-4453	111524	0	0	No, e>t/2
SLV 3	14	0.51	0	-4177	111524	0	0	No, e>t/2
SLV 9	14	0.51	0	-4599	111524	0	0	No, e>t/2
SLV 10	14	0.51	0	-4599	111524	0	0	No, e>t/2
SLV 8	14	0.51	0	-3760	111524	0	0	No, e>t/2
SLV 5	14	0.51	0	-4680	111524	0	0	No, e>t/2
SLV 6	14	0.51	0	-4680	111524	0	0	No, e>t/2
SLV 7	14	0.51	0	-3760	111524	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 1256 Wa = 0.05 Ta = 0.2013

Comb.	N top	N base	V orto	α0	M*	e*	a0*	aLim	Verifica
SLV 14	42	-8320	-14	0	0	0	0	2058.467	No, Trazione
SLV 9	247	-12082	16	0	0	0	0	2058.467	No, Trazione
SLV 4	2	-8173	13	0	0	0	0	2058.467	No, Trazione
SLV 5	278	-12792	29	0	0	0	0	2058.467	No, Trazione
SLV 1	146	-10688	27	0	0	0	0	2058.467	No, Trazione
SLV 3	2	-8173	13	0	0	0	0	2058.467	No, Trazione
SLV 6	278	-12792	29	0	0	0	0	2058.467	No, Trazione
SLV 2	146	-10688	27	0	0	0	0	2058.467	No, Trazione
SLV 10	247	-12082	16	0	0	0	0	2058.467	No, Trazione
SLV 13	42	-8320	-14	0	0	0	0	2058.467	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 14	No





## Maschio 238

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-485.9	-1100.3	-470.9	L3	F1	15	28	1328.7	1325.3	1332.2			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	$\mu$	$\phi$	fv,lim	E	G	FC	
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 55	111	-2739	37726	0	0	0	No, e>l/2
SLU 55	1436	-51	356	0.12	378	1.063	Si
SLU 54	111	-2734	37553	0	0	0	No, e>l/2
SLU 54	1436	-48	358	0.11	355	0.99	No, M>Mu
SLU 56	111	-2845	38740	0	0	0	No, e>l/2
SLU 56	1436	-59	610	0	0	0	No, e>l/2
SLU 59	111	-2849	38934	0	0	0	No, e>l/2
SLU 59	1436	-63	595	0	0	0	No, e>l/2
SLU 1	111	-1885	25928	0	0	0	No, e>l/2
SLU 1	1436	-28	148	0.07	208	1.411	Si
SLU 53	111	-2740	37487	0	0	0	No, e>l/2
SLU 53	1436	-45	398	0	0	0	No, e>l/2
SLU 60	111	-2751	37783	0	0	0	No, e>l/2
SLU 60	1436	-33	240	0.08	249	1.037	Si
SLU 61	111	-2744	37849	0	0	0	No, e>l/2
SLU 61	1436	-36	200	0.09	267	1.339	Si
SLU 57	111	-2839	38806	0	0	0	No, e>l/2
SLU 57	1436	-61	571	0	0	0	No, e>l/2
SLU 58	111	-2855	38868	0	0	0	No, e>l/2
SLU 58	1436	-60	635	0	0	0	No, e>l/2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 1	111	-1764	23234	0	0	0	No, e>l/2
SLD 1	1436	-23	765	0	0	0	No, e>l/2
SLV 9	111	-4030	50126	0	0	0	No, e>l/2
SLV 9	1436	-10	2182	0	0	0	No, e>l/2
SLV 7	111	31	4713	0	0	0	No, Trazione
SLV 7	1436	-50	-1763	0	0	0	No, e>l/2
SLV 10	111	-4030	50126	0	0	0	No, e>l/2
SLV 10	1436	-10	2182	0	0	0	No, e>l/2
SLV 6	111	-3392	40966	0	0	0	No, e>l/2
SLV 6	1436	-4	2580	0	0	0	No, e>l/2
SLV 13	111	-3578	48124	0	0	0	No, e>l/2
SLV 13	1436	-32	199	0.08	242	1.213	Si
SLV 14	111	-3578	48124	0	0	0	No, e>l/2
SLV 14	1436	-32	199	0.08	242	1.213	Si
SLV 11	111	-608	13873	0	0	0	No, e>l/2
SLV 11	1436	-56	-2160	0	0	0	No, e>l/2
SLV 8	111	31	4713	0	0	0	No, Trazione
SLV 8	1436	-50	-1763	0	0	0	No, e>l/2
SLV 12	111	-608	13873	0	0	0	No, e>l/2
SLV 12	1436	-56	-2160	0	0	0	No, e>l/2

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 55	111	-2739	216	37726		0	0	0.56	0			0	No, Vu<V
SLU 55	1436	-51	-25	356		1.1	1.66	0.7	33			1.28	Si
SLU 1	111	-1885	146	25928		0	0	0.56	0			0	No, Vu<V
SLU 1	1436	-28	0	148		0.15	6.68	0.58	108			604.3	Si
SLU 56	111	-2845	201	38740		0	0	0.56	0			0	No, Vu<V
SLU 56	1436	-59	-50	610		0	0	0.56	0			0	No, Vu<V
SLU 60	111	-2751	207	37783		0	0	0.56	0			0	No, Vu<V
SLU 60	1436	-33	-8	240		1.17	1.02	0.71	20			2.52	Si
SLU 53	111	-2740	201	37487		0	0	0.56	0			0	No, Vu<V
SLU 53	1436	-45	-25	398		0	0	0.56	0			0	No, Vu<V
SLU 61	111	-2744	216	37849		0	0	0.56	0			0	No, Vu<V
SLU 61	1436	-36	-6	200		0.22	5.88	0.58	96			16.27	Si
SLU 59	111	-2849	211	38934		0	0	0.56	0			0	No, Vu<V
SLU 59	1436	-63	-52	595		0	0	0.56	0			0	No, Vu<V
SLU 57	111	-2839	210	38806		0	0	0.56	0			0	No, Vu<V
SLU 57	1436	-61	-48	571		0	0	0.56	0			0	No, Vu<V
SLU 54	111	-2734	210	37553		0	0	0.56	0			0	No, Vu<V
SLU 54	1436	-48	-23	358		0	0	0.56	0			0	No, Vu<V
SLU 58	111	-2855	202	38868		0	0	0.56	0			0	No, Vu<V
SLU 58	1436	-60	-54	635		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 12	111	-608	327	13873		0	0	0.83	0			0	No, Vu<V
SLV 12	1436	-56	292	-2160		0	0	0.83	0			0	No, Vu<V
SLV 14	111	-3578	409	48124		0	0	0.83	0			0	No, Vu<V



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 14	1436	-32	-3	199		0.28	4.07	0.89	101			39.6	Si
SLV 8	111	31	155	4713		0	0	0.83	0			0	No, Vu<V
SLV 8	1436	-50	239	-1763		0	0	0.83	0			0	No, Vu<V
SLV 7	111	31	155	4713		0	0	0.83	0			0	No, Vu<V
SLV 7	1436	-50	239	-1763		0	0	0.83	0			0	No, Vu<V
SLV 13	111	-3578	409	48124		0	0	0.83	0			0	No, Vu<V
SLV 13	1436	-32	-3	199		0.28	4.07	0.89	101			39.6	Si
SLV 11	111	-608	327	13873		0	0	0.83	0			0	No, Vu<V
SLV 11	1436	-56	292	-2160		0	0	0.83	0			0	No, Vu<V
SLV 9	111	-4030	144	50126		0	0	0.83	0			0	No, Vu<V
SLV 9	1436	-10	-255	2182		0	0	0.83	0			0	No, Vu<V
SLV 6	111	-3392	-28	40966		0	0	0.83	0			0	No, Vu<V
SLV 6	1436	-4	-308	2580		0	0	0.83	0			0	No, Vu<V
SLV 10	111	-4030	144	50126		0	0	0.83	0			0	No, Vu<V
SLV 10	1436	-10	-255	2182		0	0	0.83	0			0	No, Vu<V
SLD 1	111	-1764	14	23234		0	0	0.83	0			0	No, Vu<V
SLD 1	1436	-23	-80	765		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 773.6 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.41	0	-462	23674	0	0	No, e>t/2
SLV 9	14	0.41	0	-1215	23674	0	0	No, e>t/2
SLV 8	14	0.41	0	-168	23674	0	0	No, e>t/2
SLV 5	14	0.41	0	-1167	23674	0	0	No, e>t/2
SLV 6	14	0.41	0	-1167	23674	0	0	No, e>t/2
SLV 1	14	0.41	0	-762	23674	0	0	No, e>t/2
SLV 10	14	0.41	0	-1215	23674	0	0	No, e>t/2
SLV 7	14	0.41	0	-168	23674	0	0	No, e>t/2
SLV 4	14	0.41	0	-462	23674	0	0	No, e>t/2
SLV 2	14	0.41	0	-762	23674	0	0	No, e>t/2

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 773.6 Wa = 0.05 Ta = 1.053

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 1	-13	-1449	16	0	1.025	0.988	0	239.674	No
SLV 10	-10	-4030	-32	0	1.024	0.991	0	239.674	No
SLV 6	-4	-3392	-18	0	1.024	0.996	0	239.674	No
SLV 2	-13	-1449	16	0	1.025	0.988	0	239.674	No
SLV 5	-4	-3392	-18	0	1.024	0.996	0	239.674	No
SLV 8	-50	31	33	0	0	0	0	239.674	No, Trazione
SLV 7	-50	31	33	0	0	0	0	239.674	No, Trazione
SLV 9	-10	-4030	-32	0	1.024	0.991	0	239.674	No
SLV 4	-27	-422	32	0	1.027	0.976	0	239.674	No
SLV 3	-27	-422	32	0	1.027	0.976	0	239.674	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 1	No
V_SLU	0	SLU 1	No
PF_SLV	0	SLV 8	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 8	No

## Maschio 239

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-470.9	-1100.3	-350.9	Z medio 313 cm	F1	120	28	1158.1	1130.2	1185.9			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 52	313	-14154	-23242	4.21	410068	17.644	Si
SLU 52	1443	-393	9254	0.12	23239	2.511	Si
SLU 2	313	-10098	-14703	3.01	382337	26.005	Si
SLU 2	1443	-311	7541	0.09	18475	2.45	Si
SLU 44	313	-12819	-19254	3.82	408906	21.238	Si
SLU 44	1443	-354	9141	0.11	20979	2.295	Si
SLU 43	313	-12870	-19861	3.83	409095	20.598	Si
SLU 43	1443	-358	9610	0.11	21224	2.209	Si
SLU 1	313	-10149	-15310	3.02	383137	25.025	Si
SLU 1	1443	-316	8009	0.09	18721	2.338	Si
SLU 46	313	-13342	-21532	3.97	410292	19.055	Si
SLU 46	1443	-589	13819	0.18	34575	2.502	Si
SLU 45	313	-13372	-21896	3.98	410336	18.74	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 45	1443	-591	14100	0.18	34720	2.462	Si
SLU 61	313	-14746	-25194	4.39	408081	16.198	Si
SLU 61	1443	-411	9489	0.12	24303	2.561	Si
SLU 64	313	-13813	-19984	4.11	410514	20.542	Si
SLU 64	1443	-510	11949	0.15	30022	2.513	Si
SLU 60	313	-14777	-25558	4.4	407936	15.961	Si
SLU 60	1443	-414	9770	0.12	24450	2.502	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 15	313	-9963	18736	2.97	452718	24.164	Si
SLD 15	1443	-59	14227	0	0	0	No, $e \geq l/2$
SLV 3	313	-8245	-69960	2.45	395368	5.651	Si
SLV 3	1443	-130	-18771	0	0	0	No, $e \geq l/2$
SLV 12	313	-3408	51174	1.01	187490	3.664	Si
SLV 12	1443	1313	-8898	0	0	0	No, Trazione
SLD 16	313	-9963	18736	2.97	452718	24.164	Si
SLD 16	1443	-59	14227	0	0	0	No, $e \geq l/2$
SLD 12	313	-7653	12165	2.28	373568	30.707	Si
SLD 12	1443	348	1150	0	0	0	No, Trazione
SLV 15	313	-8863	65404	2.64	416971	6.375	Si
SLV 15	1443	356	21960	0	0	0	No, Trazione
SLV 8	313	-3222	10565	0.96	178174	16.865	Si
SLV 8	1443	1167	-21118	0	0	0	No, Trazione
SLV 4	313	-8245	-69960	2.45	395368	5.651	Si
SLV 4	1443	-130	-18771	0	0	0	No, $e \geq l/2$
SLV 11	313	-3408	51174	1.01	187490	3.664	Si
SLV 11	1443	1313	-8898	0	0	0	No, Trazione
SLV 7	313	-3222	10565	0.96	178174	16.865	Si
SLV 7	1443	1167	-21118	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	313	-13452	-1151	-24381		4	120	1.08	3640			3.16	Si
SLU 35	1443	-991	-707	19565		0.29	120	0.59	1999			2.83	Si
SLU 78	313	-16143	-1229	-28568		4.8	120	1.08	3640			2.96	Si
SLU 78	1443	-1031	-701	20885		0.31	119.23	0.6	1992			2.84	Si
SLU 36	313	-13422	-1118	-24017		3.99	120	1.08	3640			3.26	Si
SLU 36	1443	-988	-713	19284		0.29	120	0.59	1998			2.8	Si
SLU 79	313	-16196	-1264	-29823		4.82	120	1.08	3640			2.88	Si
SLU 79	1443	-1052	-721	21289		0.32	119.32	0.6	1996			2.77	Si
SLU 80	313	-16165	-1230	-29459		4.81	120	1.08	3640			2.96	Si
SLU 80	1443	-1050	-728	21008		0.31	119.97	0.6	2006			2.76	Si
SLU 77	313	-16174	-1262	-28932		4.81	120	1.08	3640			2.88	Si
SLU 77	1443	-1034	-695	21166		0.31	118.56	0.6	1982			2.85	Si
SLU 30	313	-12109	-888	-20920		3.6	120	1.04	3481			3.92	Si
SLU 30	1443	-968	-688	19295		0.29	120	0.59	1996			2.9	Si
SLU 38	313	-13444	-1119	-24908		4	120	1.08	3640			3.25	Si
SLU 38	1443	-1007	-740	19407		0.3	120	0.6	2001			2.71	Si
SLU 37	313	-13474	-1153	-25272		4.01	120	1.08	3640			3.16	Si
SLU 37	1443	-1010	-733	19688		0.3	120	0.6	2001			2.73	Si
SLU 83	313	-16244	-1259	-28607		4.83	120	1.08	3640			2.89	Si
SLU 83	1443	-817	-524	16723		0.25	118.6	0.59	1954			3.73	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	313	-8245	-1706	-69960		2.45	120	1.32	4449			2.61	Si
SLV 4	1443	-130	-1278	-18771		0	0	0.83	0			0	No, $V_u < V$
SLV 12	313	-3408	2671	51174		1.01	120	1.04	3482			1.3	Si
SLV 12	1443	1313	1157	-8898		0	0	0.83	0			0	No, $V_u < V$
SLV 11	313	-3408	2671	51174		1.01	120	1.04	3482			1.3	Si
SLV 11	1443	1313	1157	-8898		0	0	0.83	0			0	No, $V_u < V$
SLV 3	313	-8245	-1706	-69960		2.45	120	1.32	4449			2.61	Si
SLV 3	1443	-130	-1278	-18771		0	0	0.83	0			0	No, $V_u < V$
SLD 15	313	-9963	512	18736		2.97	120	1.43	4793			9.37	Si
SLD 15	1443	-59	541	14227		0	0	0.83	0			0	No, $V_u < V$
SLD 16	313	-9963	512	18736		2.97	120	1.43	4793			9.37	Si
SLD 16	1443	-59	541	14227		0	0	0.83	0			0	No, $V_u < V$
SLV 15	313	-8863	2041	65404		2.64	120	1.36	4573			2.24	Si
SLV 15	1443	356	1493	21960		0	0	0.83	0			0	No, $V_u < V$
SLV 7	313	-3222	1547	10565		0.96	120	1.03	3445			2.23	Si
SLV 7	1443	1167	325	-21118		0	0	0.83	0			0	No, $V_u < V$
SLV 8	313	-3222	1547	10565		0.96	120	1.03	3445			2.23	Si
SLV 8	1443	1167	325	-21118		0	0	0.83	0			0	No, $V_u < V$
SLD 12	313	-7653	784	12165		2.28	120	1.29	4331			5.52	Si
SLD 12	1443	348	399	1150		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 878.1 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.43	0	-4596	151613	0	0	No, $e > t/2$
SLV 5	14	0.43	0	-7442	151613	0	0	No, $e > t/2$
SLV 3	14	0.43	0	-4596	151613	0	0	No, $e > t/2$
SLV 9	14	0.43	0	-7251	151613	0	0	No, $e > t/2$
SLV 10	14	0.43	0	-7251	151613	0	0	No, $e > t/2$
SLV 6	14	0.43	0	-7442	151613	0	0	No, $e > t/2$
SLV 1	14	0.43	0	-6012	151613	0	0	No, $e > t/2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.43	0	-2723	151613	0	0	No, $e > t/2$
SLV 7	14	0.43	0	-2723	151613	0	0	No, $e > t/2$
SLV 2	14	0.43	0	-6012	151613	0	0	No, $e > t/2$

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeraia = 878.1  $W_a = 0.05$   $T_a = 0.7999$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 16	356	-8863	1	0	0	0	0	239.674	No, Trazione
SLV 7	1167	-3222	23	0	0	0	0	239.674	No, Trazione
SLV 15	356	-8863	1	0	0	0	0	239.674	No, Trazione
SLV 11	1313	-3408	21	0	0	0	0	239.674	No, Trazione
SLV 8	1167	-3222	23	0	0	0	0	239.674	No, Trazione
SLV 12	1313	-3408	21	0	0	0	0	239.674	No, Trazione
SLV 9	-1907	-18376	-31	0.014	8.153	0.898	22.923	239.674	No
SLV 10	-1907	-18376	-31	0.014	8.153	0.898	22.923	239.674	No
SLV 6	-2053	-18191	-30	0.014	8.269	0.896	23.25	239.674	No
SLV 5	-2053	-18191	-30	0.014	8.269	0.896	23.25	239.674	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.209	SLU 43	Si
V_SLU	2.705	SLU 38	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 7	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 16	No

## Maschio 240

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s,sx	a.s,dx
-1100.3	-350.9	-1100.3	-331.4	Z medio 313 cm	L5	19.5	28	522	522	522			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	313	-2859	-3278	5.24	9957	3.038	Si
SLU 83	835	-1548	-2419	2.84	9840	4.068	Si
SLU 39	313	-2243	-3474	4.11	10840	3.12	Si
SLU 39	835	-1235	-2074	2.26	8699	4.195	Si
SLU 40	313	-2236	-3299	4.09	10841	3.286	Si
SLU 40	835	-1241	-2170	2.27	8722	4.019	Si
SLU 21	313	-2138	-3409	3.92	10825	3.175	Si
SLU 21	835	-1194	-1936	2.19	8516	4.399	Si
SLU 62	313	-2667	-3077	4.89	10410	3.383	Si
SLU 62	835	-1438	-2365	2.63	9486	4.01	Si
SLU 42	313	-2330	-3610	4.27	10816	2.996	Si
SLU 42	835	-1304	-1990	2.39	8988	4.518	Si
SLU 84	313	-2851	-3102	5.22	9978	3.217	Si
SLU 84	835	-1554	-2516	2.85	9856	3.918	Si
SLU 20	313	-2146	-3585	3.93	10828	3.02	Si
SLU 20	835	-1188	-1839	2.18	8491	4.617	Si
SLU 41	313	-2337	-3786	4.28	10813	2.856	Si
SLU 41	835	-1299	-1893	2.38	8966	4.736	Si
SLU 18	313	-2052	-3273	3.76	10776	3.292	Si
SLU 18	835	-1125	-2020	2.06	8193	4.056	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 12	313	-1644	4771	3.01	12081	2.532	Si
SLD 12	835	-848	-4188	1.55	7220	1.724	Si
SLV 7	313	-809	9986	0	0	0	No, $e > l/2$
SLV 7	835	-601	-5915	0	0	0	No, $e > l/2$
SLV 6	313	-2946	-9539	5.39	16039	1.681	Si
SLV 6	835	-1435	3640	2.63	10982	3.017	Si
SLV 15	313	-2221	4174	4.07	14445	3.461	Si
SLV 15	835	-910	-5750	1.67	7663	1.333	Si
SLV 5	313	-2946	-9539	5.39	16039	1.681	Si
SLV 5	835	-1435	3640	2.63	10982	3.017	Si
SLV 12	313	-1116	10457	2.04	9060	0.866	No, $M > Mu$
SLV 12	835	-609	-7383	0	0	0	No, $e > l/2$
SLV 16	313	-2221	4174	4.07	14445	3.461	Si
SLV 16	835	-910	-5750	1.67	7663	1.333	Si
SLV 11	313	-1116	10457	2.04	9060	0.866	No, $M > Mu$
SLV 11	835	-609	-7383	0	0	0	No, $e > l/2$
SLV 8	313	-809	9986	0	0	0	No, $e > l/2$
SLV 8	835	-601	-5915	0	0	0	No, $e > l/2$



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLD 11	313	-1644	4771	3.01	12081	2.532	Si
SLD 11	835	-848	-4188	1.55	7220	1.724	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 41	313	-2337	-165	-3786		4.28	19.5	1.08	591			3.59	Si
SLU 41	835	-1299	-39	-1893		2.38	19.5	0.87	477			12.2	Si
SLU 78	313	-2921	-161	-1919		5.35	19.5	1.08	591			3.67	Si
SLU 78	835	-1572	-53	-2274		2.88	19.5	0.94	513			9.65	Si
SLU 83	313	-2859	-171	-3278		5.24	19.5	1.08	591			3.45	Si
SLU 83	835	-1548	-41	-2419		2.84	19.5	0.93	510			12.37	Si
SLU 77	313	-2929	-174	-2095		5.36	19.5	1.08	591			3.4	Si
SLU 77	835	-1566	-57	-2178		2.87	19.5	0.94	512			9	Si
SLU 58	313	-2733	-161	-1967		5.01	19.5	1.08	591			3.67	Si
SLU 58	835	-1451	-54	-2123		2.66	19.5	0.91	497			9.12	Si
SLU 84	313	-2851	-159	-3102		5.22	19.5	1.08	591			3.73	Si
SLU 84	835	-1554	-37	-2516		2.85	19.5	0.93	510			13.63	Si
SLU 37	313	-2403	-170	-2676		4.4	19.5	1.08	591			3.49	Si
SLU 37	835	-1312	-57	-1651		2.4	19.5	0.88	478			8.38	Si
SLU 35	313	-2408	-167	-2603		4.41	19.5	1.08	591			3.54	Si
SLU 35	835	-1317	-55	-1652		2.41	19.5	0.88	479			8.75	Si
SLU 80	313	-2917	-164	-1992		5.34	19.5	1.08	591			3.62	Si
SLU 80	835	-1567	-55	-2273		2.87	19.5	0.94	512			9.23	Si
SLU 79	313	-2924	-176	-2168		5.36	19.5	1.08	591			3.36	Si
SLU 79	835	-1561	-59	-2177		2.86	19.5	0.94	512			8.63	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 10	313	-3252	-913	-9068		5.96	19.5	1.63	887			0.97	No, Vu<V
SLV 10	835	-1443	-380	2173		2.64	19.5	1.36	744			1.96	Si
SLV 8	313	-809	793	9986		0	0	0.83	0			0	No, Vu<V
SLV 8	835	-601	350	-5915		0	0	0.83	0			0	No, Vu<V
SLV 9	313	-3252	-913	-9068		5.96	19.5	1.63	887			0.97	No, Vu<V
SLV 9	835	-1443	-380	2173		2.64	19.5	1.36	744			1.96	Si
SLV 5	313	-2946	-882	-9539		5.39	19.5	1.63	887			1.01	Si
SLV 5	835	-1435	-471	3640		2.63	19.5	1.36	742			1.57	Si
SLV 7	313	-809	793	9986		0	0	0.83	0			0	No, Vu<V
SLV 7	835	-601	350	-5915		0	0	0.83	0			0	No, Vu<V
SLV 15	313	-2221	140	4174		4.07	19.5	1.63	887			6.35	Si
SLV 15	835	-910	262	-5750		3.16	10.3	1.46	422			1.61	Si
SLV 11	313	-1116	762	10457		35.08	1.14	1.63	52			0.07	No, Vu<V
SLV 11	835	-609	442	-7383		0	0	0.83	0			0	No, Vu<V
SLV 6	313	-2946	-882	-9539		5.39	19.5	1.63	887			1.01	Si
SLV 6	835	-1435	-471	3640		2.63	19.5	1.36	742			1.57	Si
SLV 16	313	-2221	140	4174		4.07	19.5	1.63	887			6.35	Si
SLV 16	835	-910	262	-5750		3.16	10.3	1.46	422			1.61	Si
SLV 12	313	-1116	762	10457		35.08	1.14	1.63	52			0.07	No, Vu<V
SLV 12	835	-609	442	-7383		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 574 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 7	14	0.36	1.59	-866	4261	10546	2.47	Si
SLV 8	14	0.36	1.59	-866	4261	10546	2.47	Si
SLV 12	14	0.36	1.6	-876	4261	10649	2.5	Si
SLV 11	14	0.36	1.6	-876	4261	10649	2.5	Si
SLV 3	14	0.36	2.05	-1117	4261	13020	3.06	Si
SLV 4	14	0.36	2.05	-1117	4261	13020	3.06	Si
SLV 15	14	0.36	2.11	-1150	4261	13326	3.13	Si
SLV 16	14	0.36	2.11	-1150	4261	13326	3.13	Si
SLV 2	14	0.36	2.46	-1342	4261	15012	3.52	Si
SLV 1	14	0.36	2.46	-1342	4261	15012	3.52	Si

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 574 Wa = 0.05 Ta = 0.1625

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-601	-809	24	0.007	1.028	0.905	10.945	1591.439	No
SLV 7	-601	-809	24	0.007	1.028	0.905	10.945	1591.439	No
SLV 12	-609	-1116	24	0.008	1.036	0.906	12.111	1591.439	No
SLV 11	-609	-1116	24	0.008	1.036	0.906	12.111	1591.439	No
SLV 9	-1443	-3252	-23	0.017	1.874	0.94	26.819	1591.439	No
SLV 10	-1443	-3252	-23	0.017	1.874	0.94	26.819	1591.439	No
SLV 5	-1435	-2946	-23	0.018	1.866	0.94	27.187	1591.439	No
SLV 6	-1435	-2946	-23	0.018	1.866	0.94	27.187	1591.439	No
SLV 4	-883	-1200	8	0.026	1.309	0.92	40.424	1591.439	No
SLV 3	-883	-1200	8	0.026	1.309	0.92	40.424	1591.439	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.856	SLU 41	Si
V_SLU	3.357	SLU 79	Si
PF_SLV	0	SLV 7	No
V_SLV	0	SLV 7	No
PFFP_SLV	2.475	SLV 7	Si
R_SLV	0.007	SLV 7	No



## Maschio 241

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-331.4	-1100.3	-35.4	Z medio 398 cm	Z medio 746 cm	296	28	347.5	173	352			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	t0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 81	483	-36659	136509	4.42	2479489	18.164	Si
SLU 81	656	-32359	100391	3.9	2493681	24.84	Si
SLU 67	483	-32476	131451	3.92	2494366	18.976	Si
SLU 67	656	-28250	135623	3.41	2431507	17.928	Si
SLU 66	483	-32478	130287	3.92	2494379	19.145	Si
SLU 66	656	-28257	137931	3.41	2431660	17.629	Si
SLU 70	483	-33376	119658	4.03	2497643	20.873	Si
SLU 70	656	-29140	137125	3.52	2451250	17.876	Si
SLU 75	483	-36255	136319	4.37	2484276	18.224	Si
SLU 75	656	-31976	118838	3.86	2491016	20.962	Si
SLU 73	483	-35036	136364	4.23	2494372	18.292	Si
SLU 73	656	-30752	103737	3.71	2478171	23.889	Si
SLU 27	483	-27725	106585	3.35	2418225	22.688	Si
SLU 27	656	-24316	127565	2.93	2302594	18.05	Si
SLU 24	483	-26826	118378	3.24	2392659	20.212	Si
SLU 24	656	-23426	126063	2.83	2264033	17.96	Si
SLU 82	483	-36657	137674	4.42	2479518	18.01	Si
SLU 82	656	-32353	98083	3.9	2493642	25.424	Si
SLU 69	483	-33378	118493	4.03	2497647	21.078	Si
SLU 69	656	-29147	139434	3.52	2451377	17.581	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLD 11	483	-23064	290804	2.78	2636039	9.065	Si
SLD 11	656	-20440	125629	2.47	2414572	19.22	Si
SLV 8	483	-20506	510012	2.47	2420383	4.746	Si
SLV 8	656	-18026	160596	2.17	2192930	13.655	Si
SLV 12	483	-21218	557568	2.56	2482303	4.452	Si
SLV 12	656	-19341	187772	2.33	2315744	12.333	Si
SLV 6	483	-27647	-371460	3.34	2974655	8.008	Si
SLV 6	656	-23131	-20986	2.79	2641417	125.863	Si
SLV 7	483	-20506	510012	2.47	2420383	4.746	Si
SLV 7	656	-18026	160596	2.17	2192930	13.655	Si
SLD 12	483	-23064	290804	2.78	2636039	9.065	Si
SLD 12	656	-20440	125629	2.47	2414572	19.22	Si
SLV 16	483	-24547	304534	2.96	2752357	9.038	Si
SLV 16	656	-22662	155923	2.73	2603393	16.697	Si
SLV 11	483	-21218	557568	2.56	2482303	4.452	Si
SLV 11	656	-19341	187772	2.33	2315744	12.333	Si
SLV 5	483	-27647	-371460	3.34	2974655	8.008	Si
SLV 5	656	-23131	-20986	2.79	2641417	125.863	Si
SLV 15	483	-24547	304534	2.96	2752357	9.038	Si
SLV 15	656	-22662	155923	2.73	2603393	16.697	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 35	483	-31504	-898	111452		3.8	296	1.06	8805			9.8	Si
SLU 35	656	-28042	-334	110780		3.38	296	1.01	8343			25	Si
SLU 79	483	-36839	-928	110836		4.44	296	1.08	8979			9.67	Si
SLU 79	656	-32542	-326	110589		3.93	296	1.08	8943			27.42	Si
SLU 6	483	-24568	-796	70207		2.96	296	0.95	7880			9.9	Si
SLU 6	656	-21468	-578	93527		2.59	296	0.9	7467			12.91	Si
SLU 8	483	-24250	-854	57682		2.93	296	0.95	7838			9.18	Si
SLU 8	656	-21137	-647	81468		2.55	296	0.9	7423			11.48	Si
SLU 27	483	-27725	-873	106585		3.35	296	1	8301			9.51	Si
SLU 27	656	-24316	-586	127565		2.93	296	0.95	7847			13.4	Si
SLU 37	483	-31186	-956	98927		3.76	296	1.06	8763			9.17	Si
SLU 37	656	-27711	-402	98721		3.34	296	1	8299			20.65	Si
SLU 71	483	-33060	-903	105968		3.99	296	1.08	8979			9.95	Si
SLU 71	656	-28816	-578	127375		3.48	296	1.02	8447			14.61	Si
SLU 16	483	-28029	-879	62549		3.38	296	1.01	8342			9.49	Si
SLU 16	656	-24863	-395	64682		3	296	0.96	7919			20.06	Si
SLU 29	483	-27408	-930	94060		3.31	296	1	8259			8.88	Si
SLU 29	656	-23985	-654	115506		2.89	296	0.94	7802			11.94	Si
SLU 14	483	-28347	-822	75074		3.42	296	1.01	8384			10.21	Si
SLU 14	656	-25193	-327	76741		3.04	296	0.96	7964			24.38	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 3	483	-22175	5915	146015		2.68	296	1.37	11342			1.92	Si
SLV 3	656	-18278	6140	65337		2.21	296	1.27	10562			1.72	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	483	-27647	-8704	-371460		3.34	296	1.5	12436			1.43	Si
SLV 5	656	-23131	-7908	-20986		2.79	296	1.39	11533			1.46	Si
SLV 10	483	-28358	-10540	-323905		3.42	296	1.52	12578			1.19	Si
SLV 10	656	-24446	-9757	6189		2.95	296	1.42	11796			1.21	Si
SLV 11	483	-21218	8656	557568		2.56	296	1.35	11150			1.29	Si
SLV 11	656	-19341	8536	187772		2.33	296	1.3	10775			1.26	Si
SLV 7	483	-20506	10492	510012		2.47	296	1.33	11008			1.05	Si
SLV 7	656	-18026	10386	160596		2.17	296	1.27	10512			1.01	Si
SLV 9	483	-28358	-10540	-323905		3.42	296	1.52	12578			1.19	Si
SLV 9	656	-24446	-9757	6189		2.95	296	1.42	11796			1.21	Si
SLV 6	483	-27647	-8704	-371460		3.34	296	1.5	12436			1.43	Si
SLV 6	656	-23131	-7908	-20986		2.79	296	1.39	11533			1.46	Si
SLV 8	483	-20506	10492	510012		2.47	296	1.33	11008			1.05	Si
SLV 8	656	-18026	10386	160596		2.17	296	1.27	10512			1.01	Si
SLV 12	483	-21218	8656	557568		2.56	296	1.35	11150			1.29	Si
SLV 12	656	-19341	8536	187772		2.33	296	1.3	10775			1.26	Si
SLV 4	483	-22175	5915	146015		2.68	296	1.37	11342			1.92	Si
SLV 4	656	-18278	6140	65337		2.21	296	1.27	10562			1.72	Si

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 569.5 Wa 0.05 denominatore 8  $\gamma M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 8	14	0.36	2.4	-19909	28590	223929	7.83	Si
SLV 7	14	0.36	2.4	-19909	28590	223929	7.83	Si
SLV 4	14	0.36	2.44	-20229	28590	226634	7.93	Si
SLV 3	14	0.36	2.44	-20229	28590	226634	7.93	Si
SLV 12	14	0.36	2.55	-21131	28590	234102	8.19	Si
SLV 11	14	0.36	2.55	-21131	28590	234102	8.19	Si
SLV 2	14	0.36	2.62	-21725	28590	238902	8.36	Si
SLV 1	14	0.36	2.62	-21725	28590	238902	8.36	Si
SLV 16	14	0.36	2.93	-24302	28590	258580	9.04	Si
SLV 15	14	0.36	2.93	-24302	28590	258580	9.04	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 569.5 Wa = 0.05 Ta = 0.072

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 8	-18026	-20506	-278	0.032	22.427	0.948	48.826	1011.01	No
SLV 7	-18026	-20506	-278	0.032	22.427	0.948	48.826	1011.01	No
SLV 12	-19341	-21218	-235	0.034	23.762	0.95	52.467	1011.01	No
SLV 11	-19341	-21218	-235	0.034	23.762	0.95	52.467	1011.01	No
SLV 4	-18278	-22175	-237	0.034	22.683	0.948	51.993	972.319	No
SLV 3	-18278	-22175	-237	0.034	22.683	0.948	51.993	972.319	No
SLV 1	-19810	-24317	-159	0.038	24.238	0.951	57.848	972.319	No
SLV 2	-19810	-24317	-159	0.038	24.238	0.951	57.848	972.319	No
SLV 16	-22662	-24547	-94	0.041	27.135	0.956	61.891	972.319	No
SLV 15	-22662	-24547	-94	0.041	27.135	0.956	61.891	972.319	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	17.581	SLU 69	Si
V_SLU	8.876	SLU 29	Si
PF_SLV	4.452	SLV 11	Si
V_SLV	1.012	SLV 7	Si
PFFP_SLV	7.832	SLV 7	Si
R_SLV	0.048	SLV 7	No

## Maschio 242

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1100.3	-35.4	-1100.3	104.6	L3	L5	140	28	724	724	724			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 83	111	-23007	151394	5.87	450112	2.973	Si
SLU 83	835	-16911	-21165	4.31	556850	26.31	Si
SLU 81	111	-22854	155449	5.83	454797	2.926	Si
SLU 81	835	-16442	-23616	4.19	558311	23.641	Si
SLU 76	111	-21792	144101	5.56	484395	3.361	Si
SLU 76	835	-15934	-16190	4.06	558806	34.515	Si
SLU 74	111	-21998	144087	5.61	479041	3.325	Si
SLU 74	835	-16339	-13949	4.17	558502	40.038	Si
SLU 82	111	-22891	157575	5.84	453663	2.879	Si
SLU 82	835	-16403	-24678	4.18	558390	22.627	Si
SLU 77	111	-22151	140031	5.65	474932	3.392	Si
SLU 77	835	-16808	-11498	4.29	557253	48.464	Si
SLU 73	111	-21639	148157	5.52	488262	3.296	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 73	835	-15465	-18642	3.95	558258	29.947	Si
SLU 75	111	-22035	146213	5.62	478048	3.27	Si
SLU 75	835	-16300	-15011	4.16	558564	37.21	Si
SLU 84	111	-23045	153519	5.88	448953	2.924	Si
SLU 84	835	-16871	-22226	4.3	557011	25.061	Si
SLU 78	111	-22189	142157	5.66	473913	3.334	Si
SLU 78	835	-16768	-12560	4.28	557396	44.379	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	111	-21074	291777	5.38	826138	2.831	Si
SLV 8	835	-10495	-49533	2.68	573679	11.582	Si
SLV 4	111	-20745	176520	5.29	823213	4.664	Si
SLV 4	835	-9824	17181	2.51	546628	31.815	Si
SLV 7	111	-21074	291777	5.38	826138	2.831	Si
SLV 7	835	-10495	-49533	2.68	573679	11.582	Si
SLD 8	111	-17384	179663	4.43	775234	4.315	Si
SLD 8	835	-10500	-25168	2.68	573878	22.802	Si
SLV 12	111	-18322	277021	4.67	791935	2.859	Si
SLV 12	835	-10955	-73784	2.79	591453	8.016	Si
SLV 3	111	-20745	176520	5.29	823213	4.664	Si
SLV 3	835	-9824	17181	2.51	546628	31.815	Si
SLD 7	111	-17384	179663	4.43	775234	4.315	Si
SLD 7	835	-10500	-25168	2.68	573878	22.802	Si
SLD 12	111	-16219	173154	4.14	750879	4.336	Si
SLD 12	835	-10701	-35557	2.73	581709	16.36	Si
SLD 11	111	-16219	173154	4.14	750879	4.336	Si
SLD 11	835	-10701	-35557	2.73	581709	16.36	Si
SLV 11	111	-18322	277021	4.67	791935	2.859	Si
SLV 11	835	-10955	-73784	2.79	591453	8.016	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 72	111	-18939	-413	113346		4.83	140	1.08	4247			10.28	Si
SLU 72	835	-14303	-1080	2704		3.65	140	1.04	4085			3.78	Si
SLU 30	111	-15809	-427	94504		4.03	140	1.08	4247			9.95	Si
SLU 30	835	-12078	-1057	6118		3.08	140	0.97	3788			3.58	Si
SLU 35	111	-19021	-470	121190		4.85	140	1.08	4247			9.03	Si
SLU 35	835	-14584	-1058	-8084		3.72	140	1.05	4122			3.9	Si
SLU 71	111	-18902	-486	111221		4.82	140	1.08	4247			8.74	Si
SLU 71	835	-14342	-1124	3766		3.66	140	1.04	4090			3.64	Si
SLU 79	111	-21883	-487	136503		5.58	140	1.08	4247			8.71	Si
SLU 79	835	-16469	-1108	-11970		4.2	140	1.08	4247			3.83	Si
SLU 69	111	-19170	-455	114749		4.89	140	1.08	4247			9.34	Si
SLU 69	835	-14682	-1097	4237		3.75	140	1.05	4135			3.77	Si
SLU 27	111	-16040	-469	95907		4.09	140	1.08	4247			9.06	Si
SLU 27	835	-12457	-1074	7651		3.18	140	0.98	3839			3.57	Si
SLU 29	111	-15772	-500	92379		4.02	140	1.08	4247			8.5	Si
SLU 29	835	-12118	-1101	7180		3.09	140	0.97	3794			3.45	Si
SLU 37	111	-18753	-501	117661		4.78	140	1.08	4247			8.47	Si
SLU 37	835	-14244	-1085	-8556		3.63	140	1.04	4077			3.76	Si
SLU 28	111	-16077	-396	98033		4.1	140	1.08	4247			10.73	Si
SLU 28	835	-12418	-1030	6590		3.17	140	0.98	3833			3.72	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 5	111	-10958	-4723	-86717		2.8	140	1.39	5458			1.16	Si
SLV 5	835	-10110	-3693	60242		2.58	140	1.35	5289			1.43	Si
SLV 8	111	-21074	4007	291777		5.38	140	1.63	6370			1.59	Si
SLV 8	835	-10495	3415	-49533		2.68	140	1.37	5366			1.57	Si
SLV 7	111	-21074	4007	291777		5.38	140	1.63	6370			1.59	Si
SLV 7	835	-10495	3415	-49533		2.68	140	1.37	5366			1.57	Si
SLV 14	111	-8534	-663	13785		2.18	140	1.27	4973			7.5	Si
SLV 14	835	-11241	-2671	-30723		2.87	140	1.41	5515			2.06	Si
SLV 6	111	-10958	-4723	-86717		2.8	140	1.39	5458			1.16	Si
SLV 6	835	-10110	-3693	60242		2.58	140	1.35	5289			1.43	Si
SLV 10	111	-8205	-4260	-101473		2.09	140	1.25	4908			1.15	Si
SLV 10	835	-10570	-4370	35991		2.7	140	1.37	5381			1.23	Si
SLV 12	111	-18322	4471	277021		4.67	140	1.63	6370			1.42	Si
SLV 12	835	-10955	2738	-73784		2.79	140	1.39	5458			1.99	Si
SLV 11	111	-18322	4471	277021		4.67	140	1.63	6370			1.42	Si
SLV 11	835	-10955	2738	-73784		2.79	140	1.39	5458			1.99	Si
SLV 9	111	-8205	-4260	-101473		2.09	140	1.25	4908			1.15	Si
SLV 9	835	-10570	-4370	35991		2.7	140	1.37	5381			1.23	Si
SLV 13	111	-8534	-663	13785		2.18	140	1.27	4973			7.5	Si
SLV 13	835	-11241	-2671	-30723		2.87	140	1.41	5515			2.06	Si

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 473 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.34	2.89	-11340	55436	121175	2.19	Si
SLV 6	14	0.34	2.89	-11340	55436	121175	2.19	Si
SLV 9	14	0.34	3.03	-11883	55436	125086	2.26	Si
SLV 10	14	0.34	3.03	-11883	55436	125086	2.26	Si
SLV 2	14	0.34	3.15	-12337	55436	128229	2.31	Si
SLV 1	14	0.34	3.15	-12337	55436	128229	2.31	Si
SLV 3	14	0.34	3.5	-13733	55436	137138	2.47	Si





Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 4	14	0.34	3.5	-13733	55436	137138	2.47	Si
SLV 13	14	0.34	3.61	-14144	55436	139545	2.52	Si
SLV 14	14	0.34	3.61	-14144	55436	139545	2.52	Si

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 473  $W_a = 0.05$   $T_a = 0.3126$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 4	-9824	-20745	219	0.006	14.069	0.924	8.819	771.47	No
SLV 3	-9824	-20745	219	0.006	14.069	0.924	8.819	771.47	No
SLV 14	-11241	-8534	-234	0.006	15.497	0.93	9.319	771.47	No
SLV 13	-11241	-8534	-234	0.006	15.497	0.93	9.319	771.47	No
SLV 2	-9708	-17710	207	0.006	13.953	0.924	10.166	771.47	No
SLV 1	-9708	-17710	207	0.006	13.953	0.924	10.166	771.47	No
SLV 16	-11357	-11569	-222	0.007	15.614	0.93	10.841	771.47	No
SLV 15	-11357	-11569	-222	0.007	15.614	0.93	10.841	771.47	No
SLV 10	-10570	-8205	-94	0.016	14.821	0.927	25.034	698.169	No
SLV 9	-10570	-8205	-94	0.016	14.821	0.927	25.034	698.169	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.879	SLU 82	Si
V_SLU	3.445	SLU 29	Si
PF_SLV	2.831	SLV 7	Si
V_SLV	1.152	SLV 9	Si
PFFP_SLV	2.186	SLV 5	Si
R_SLV	0.011	SLV 3	No

## Maschio 243

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-1051.8	-485.9	-1100.3	-485.9	L3	F1	48.5	30	1325.2	1325.2	1325.3			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 23	1187	-895	1959	0.62	20047	10.234	Si
SLU 23	1399	-242	-3182	0.17	5750	1.807	Si
SLU 46	1187	-1093	3088	0.75	24028	7.781	Si
SLU 46	1399	-323	-4080	0.22	7608	1.865	Si
SLU 44	1187	-1014	3462	0.7	22463	6.489	Si
SLU 44	1399	-281	-4512	0.19	6648	1.473	Si
SLU 10	1187	-859	1486	0.59	19309	12.997	Si
SLU 10	1399	-215	-2748	0.15	5119	1.863	Si
SLU 65	1187	-1098	2917	0.76	24130	8.271	Si
SLU 65	1399	-303	-4223	0.21	7143	1.691	Si
SLU 1	1187	-771	2573	0.53	17467	6.788	Si
SLU 1	1399	-225	-3141	0.16	5355	1.705	Si
SLU 52	1187	-1062	2444	0.73	23422	9.583	Si
SLU 52	1399	-275	-3789	0.19	6518	1.72	Si
SLU 2	1187	-811	2503	0.56	18311	7.315	Si
SLU 2	1399	-221	-3471	0.15	5251	1.513	Si
SLU 64	1187	-1058	2987	0.73	23333	7.81	Si
SLU 64	1399	-307	-3893	0.21	7246	1.861	Si
SLU 43	1187	-974	3532	0.67	21653	6.131	Si
SLU 43	1399	-286	-4182	0.2	6752	1.614	Si

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 8	1187	-758	11946	0.52	17575	1.471	Si
SLV 8	1399	-170	-13208	0	0	0	No, e>l/2
SLV 3	1187	-1561	16475	1.07	34490	2.093	Si
SLV 3	1399	-363	-24936	0	0	0	No, e>l/2
SLD 1	1187	-1208	6719	0.83	27268	4.058	Si
SLD 1	1399	-314	-11271	0	0	0	No, e>l/2
SLV 7	1187	-758	11946	0.52	17575	1.471	Si
SLV 7	1399	-170	-13208	0	0	0	No, e>l/2
SLV 13	1187	-57	-12222	0	0	0	No, e>l/2
SLV 13	1399	-97	19234	0	0	0	No, e>l/2
SLV 4	1187	-1561	16475	1.07	34490	2.093	Si
SLV 4	1399	-363	-24936	0	0	0	No, e>l/2
SLV 14	1187	-57	-12222	0	0	0	No, e>l/2
SLV 14	1399	-97	19234	0	0	0	No, e>l/2
SLV 10	1187	-860	-7692	0.59	19823	2.577	Si
SLV 10	1399	-289	7505	0	0	0	No, e>l/2
SLV 9	1187	-860	-7692	0.59	19823	2.577	Si
SLV 9	1399	-289	7505	0	0	0	No, e>l/2
SLV 2	1187	-1743	12839	1.2	38087	2.966	Si



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 2	1399	-428	-22476	0	0	0	No, $e > l/2$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 73	1187	-1146	31	1900		0.79	48.45	0.66	960			31.08	Si
SLU 73	1399	-297	-134	-3500		0.27	37.32	0.59	662			4.93	Si
SLU 46	1187	-1093	65	3088		0.75	48.45	0.66	953			14.65	Si
SLU 46	1399	-323	-117	-4080		0.31	34.77	0.6	623			5.3	Si
SLU 47	1187	-1134	60	2938		0.78	48.45	0.66	959			15.95	Si
SLU 47	1399	-328	-135	-4092		0.31	35.26	0.6	631			4.67	Si
SLU 2	1187	-811	62	2503		0.56	48.45	0.63	916			14.67	Si
SLU 2	1399	-221	-153	-3471		0.29	25.53	0.59	455			2.98	Si
SLU 10	1187	-859	28	1486		0.59	48.45	0.63	922			32.46	Si
SLU 10	1399	-215	-123	-2748		0.21	34.38	0.58	602			4.91	Si
SLU 44	1187	-1014	89	3462		0.7	48.45	0.65	943			10.61	Si
SLU 44	1399	-281	-183	-4512		0.38	24.52	0.61	446			2.43	Si
SLU 52	1187	-1062	55	2444		0.73	48.45	0.65	949			17.3	Si
SLU 52	1399	-275	-153	-3789		0.29	31.41	0.59	560			3.65	Si
SLU 43	1187	-974	87	3532		0.67	48.45	0.64	937			10.74	Si
SLU 43	1399	-286	-112	-4182		0.33	28.75	0.6	517			4.64	Si
SLU 23	1187	-895	38	1959		0.62	48.45	0.64	927			24.11	Si
SLU 23	1399	-242	-133	-3182		0.24	33.29	0.59	587			4.4	Si
SLU 65	1187	-1098	65	2917		0.76	48.45	0.66	954			14.69	Si
SLU 65	1399	-303	-164	-4223		0.33	30.8	0.6	554			3.37	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 8	1187	-758	509	11946		1	25.39	1.03	786			1.55	Si
SLV 8	1399	-170	-218	-13208		0	0	0.83	0			0	No, $Vu < V$
SLD 1	1187	-1208	406	6719		0.83	48.45	1	1453			3.58	Si
SLD 1	1399	-314	285	-11271		0	0	0.83	0			0	No, $Vu < V$
SLV 7	1187	-758	509	11946		1	25.39	1.03	786			1.55	Si
SLV 7	1399	-170	-218	-13208		0	0	0.83	0			0	No, $Vu < V$
SLV 4	1187	-1561	1005	16475		1.27	41.01	1.09	1337			1.33	Si
SLV 4	1399	-363	540	-24936		0	0	0.83	0			0	No, $Vu < V$
SLV 14	1187	-57	-916	-12222		0	0	0.83	0			0	No, $Vu < V$
SLV 14	1399	-97	-673	19234		0	0	0.83	0			0	No, $Vu < V$
SLV 9	1187	-860	-420	-7692		0.63	45.84	0.96	1318			3.14	Si
SLV 9	1399	-289	84	7505		0	0	0.83	0			0	No, $Vu < V$
SLV 13	1187	-57	-916	-12222		0	0	0.83	0			0	No, $Vu < V$
SLV 13	1399	-97	-673	19234		0	0	0.83	0			0	No, $Vu < V$
SLV 2	1187	-1743	888	12839		1.2	48.45	1.07	1560			1.76	Si
SLV 2	1399	-428	759	-22476		0	0	0.83	0			0	No, $Vu < V$
SLV 10	1187	-860	-420	-7692		0.63	45.84	0.96	1318			3.14	Si
SLV 10	1399	-289	84	7505		0	0	0.83	0			0	No, $Vu < V$
SLV 3	1187	-1561	1005	16475		1.27	41.01	1.09	1337			1.33	Si
SLV 3	1399	-363	540	-24936		0	0	0.83	0			0	No, $Vu < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 773.6 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 5	14	0.41	0	-3946	77797	0	0	No, $e > t/2$
SLV 7	14	0.41	0	-739	77797	0	0	No, $e > t/2$
SLV 4	14	0.41	0	-1464	77797	0	0	No, $e > t/2$
SLV 8	14	0.41	0	-739	77797	0	0	No, $e > t/2$
SLV 3	14	0.41	0	-1464	77797	0	0	No, $e > t/2$
SLV 9	14	0.41	0	-4287	77797	0	0	No, $e > t/2$
SLV 10	14	0.41	0	-4287	77797	0	0	No, $e > t/2$
SLV 2	14	0.41	0	-2426	77797	0	0	No, $e > t/2$
SLV 1	14	0.41	0	-2426	77797	0	0	No, $e > t/2$
SLV 6	14	0.41	0	-3946	77797	0	0	No, $e > t/2$

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 773.6 Wa = 0.05 Ta = 0.9776

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 3	-77	2042	0	0	0	0	0	239.674	No, Trazione
SLV 8	-50	1584	-9	0	0	0	0	239.674	No, Trazione
SLV 4	-77	2042	0	0	0	0	0	239.674	No, Trazione
SLV 7	-50	1584	-9	0	0	0	0	239.674	No, Trazione
SLV 6	-72	-7827	15	0.014	3.54	0.981	20.796	239.674	No
SLV 5	-72	-7827	15	0.014	3.54	0.981	20.796	239.674	No
SLV 9	-54	-11043	14	0.014	3.538	0.985	21.052	239.674	No
SLV 10	-54	-11043	14	0.014	3.538	0.985	21.052	239.674	No
SLV 12	-33	-1633	-9	0.017	3.536	0.991	25.359	239.674	No
SLV 11	-33	-1633	-9	0.017	3.536	0.991	25.359	239.674	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	1.473	SLU 44	Si
V_SLU	2.432	SLU 44	Si
PF_SLV	0	SLV 16	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 8	No



## Maschio 244

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-772.3	-485.9	-867.8	-485.9	L3	F1	95.5	30	1325	1325	1325.1			

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	τ0	fv0	μ	φ	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, γM = 3

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLU 2	1187	-2225	5212	0.78	96151	18.449	Si
SLU 2	1399	-778	-16119	0.27	35914	2.228	Si
SLU 65	1187	-2808	5529	0.98	118025	21.345	Si
SLU 65	1399	-955	-16511	0.33	43773	2.651	Si
SLU 10	1187	-2357	4324	0.82	101218	23.407	Si
SLU 10	1399	-853	-16484	0.3	39284	2.383	Si
SLU 44	1187	-2730	5541	0.95	115172	20.785	Si
SLU 44	1399	-900	-17146	0.31	41343	2.411	Si
SLU 23	1187	-2303	5200	0.8	99166	19.071	Si
SLU 23	1399	-833	-15484	0.29	38371	2.478	Si
SLU 19	1187	-2233	2293	0.78	96471	42.068	Si
SLU 19	1399	-763	-11271	0.27	35279	3.13	Si
SLU 8	1187	-1767	-453	0.62	78032	172.262	Si
SLU 8	1399	-492	7217	0.17	23022	3.19	Si
SLU 73	1187	-2940	4642	1.03	122777	26.45	Si
SLU 73	1399	-1031	-16876	0.36	47087	2.79	Si
SLU 52	1187	-2862	4654	1	119965	25.778	Si
SLU 52	1399	-976	-17511	0.34	44675	2.551	Si
SLU 31	1187	-2435	4312	0.85	104191	24.161	Si
SLU 31	1399	-909	-15849	0.32	41724	2.633	Si

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, γM = 2

Comb.	Quota	N	M	σ0	Mu	c.s.	Verifica
SLV 4	1187	738	7485	0	0	0	No, Trazione
SLV 4	1399	-328	-56416	0	0	0	No, e>l/2
SLV 9	1187	-5819	17015	2.03	231811	13.624	Si
SLV 9	1399	1582	110615	0	0	0	No, Trazione
SLD 1	1187	-1615	8890	0.56	73597	8.278	Si
SLD 1	1399	137	101	0	0	0	No, Trazione
SLV 6	1187	-4912	24606	1.71	201742	8.199	Si
SLV 6	1399	2115	97544	0	0	0	No, Trazione
SLV 2	1187	-1381	19475	0.48	63380	3.254	Si
SLV 2	1399	1086	7604	0	0	0	No, Trazione
SLV 3	1187	738	7485	0	0	0	No, Trazione
SLV 3	1399	-328	-56416	0	0	0	No, e>l/2
SLV 5	1187	-4912	24606	1.71	201742	8.199	Si
SLV 5	1399	2115	97544	0	0	0	No, Trazione
SLV 10	1187	-5819	17015	2.03	231811	13.624	Si
SLV 10	1399	1582	110615	0	0	0	No, Trazione
SLV 7	1187	2151	-15359	0	0	0	No, Trazione
SLV 7	1399	-2599	-115856	0.91	114968	0.992	No, M>Mu
SLV 8	1187	2151	-15359	0	0	0	No, Trazione
SLV 8	1399	-2599	-115856	0.91	114968	0.992	No, M>Mu

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche, γM = 3

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 44	1187	-2730	194	5541		0.95	95.55	0.68	1956			10.11	Si
SLU 44	1399	-900	68	-17146		0.35	86.17	0.6	1556			23	Si
SLU 80	1187	-2753	4	1453		0.96	95.55	0.68	1960			533.6	Si
SLU 80	1399	-930	161	-1593		0.32	95.55	0.6	1716			10.67	Si
SLU 84	1187	-2813	55	1842		0.98	95.55	0.69	1968			35.61	Si
SLU 84	1399	-952	161	-6706		0.33	95.55	0.6	1719			10.66	Si
SLU 36	1187	-2252	-4	1476		0.79	95.55	0.66	1893			529.5	Si
SLU 36	1399	-810	170	-1748		0.28	95.55	0.59	1700			10.03	Si
SLU 52	1187	-2862	181	4654		1	95.55	0.69	1974			10.93	Si
SLU 52	1399	-976	120	-17511		0.36	89.49	0.6	1622			13.5	Si
SLU 42	1187	-2308	34	1512		0.81	95.55	0.66	1900			55.14	Si
SLU 42	1399	-829	174	-5679		0.29	95.55	0.59	1703			9.78	Si
SLU 31	1187	-2435	145	4312		0.85	95.55	0.67	1917			13.2	Si
SLU 31	1399	-909	164	-15849		0.33	91	0.6	1638			9.96	Si
SLU 34	1187	-2431	88	3543		0.85	95.55	0.67	1917			21.76	Si
SLU 34	1399	-919	186	-10891		0.32	95.55	0.6	1715			9.2	Si
SLU 76	1187	-2937	109	3873		1.02	95.55	0.69	1984			18.23	Si
SLU 76	1399	-1042	174	-11918		0.36	95.55	0.6	1731			9.97	Si
SLU 38	1187	-2248	-17	1124		0.78	95.55	0.66	1892			110.57	Si
SLU 38	1399	-807	174	-566		0.28	95.55	0.59	1700			9.79	Si

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche, γM = 2

Comb.	Quota	N	V par	M	σ0	σN	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 4	1187	738	965	7485		0	0	0.83	0			0	No, Vu<V
SLV 4	1399	-328	-487	-56416		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	-5819	-755	17015		2.03	95.55	1.24	3552			4.7	Si



Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 9	1399	1582	122	110615		0	0	0.83	0			0	No, Vu<V
SLV 3	1187	738	965	7485		0	0	0.83	0			0	No, Vu<V
SLV 3	1399	-328	-487	-56416		0	0	0.83	0			0	No, Vu<V
SLV 1	1187	-1381	620	19475		0.48	95.55	0.93	2665			4.3	Si
SLV 1	1399	1086	-518	7604		0	0	0.83	0			0	No, Vu<V
SLD 1	1187	-1615	298	8890		0.56	95.55	0.95	2712			9.1	Si
SLD 1	1399	137	-208	101		0	0	0.83	0			0	No, Vu<V
SLV 8	1187	2151	845	-15359		0	0	0.83	0			0	No, Vu<V
SLV 8	1399	-2599	-88	-115856		9.01	9.61	1.63	469			5.35	Si
SLV 11	1187	1243	396	-22950		0	0	0.83	0			0	No, Vu<V
SLV 11	1399	-3132	224	-102785		2.33	44.87	1.3	1748			7.8	Si
SLV 7	1187	2151	845	-15359		0	0	0.83	0			0	No, Vu<V
SLV 7	1399	-2599	-88	-115856		9.01	9.61	1.63	469			5.35	Si
SLV 2	1187	-1381	620	19475		0.48	95.55	0.93	2665			4.3	Si
SLV 2	1399	1086	-518	7604		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	-5819	-755	17015		2.03	95.55	1.24	3552			4.7	Si
SLV 10	1399	1582	122	110615		0	0	0.83	0			0	No, Vu<V

#### Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 773.5 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 1	14	0.41	0	-3589	153359	0	0	No, $e>t/2$
SLV 2	14	0.41	0	-3589	153359	0	0	No, $e>t/2$
SLV 3	14	0.41	0	-1257	153359	0	0	No, $e>t/2$
SLV 10	14	0.41	0	-9165	153359	0	0	No, $e>t/2$
SLV 9	14	0.41	0	-9165	153359	0	0	No, $e>t/2$
SLV 8	14	0.41	0	-73	153359	0	0	No, $e>t/2$
SLV 4	14	0.41	0	-1257	153359	0	0	No, $e>t/2$
SLV 6	14	0.41	0	-7847	153359	0	0	No, $e>t/2$
SLV 7	14	0.41	0	-73	153359	0	0	No, $e>t/2$
SLV 5	14	0.41	0	-7847	153359	0	0	No, $e>t/2$

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzeria = 773.5 Wa = 0.05 Ta = 0.9773

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	922	-13415	10	0	0	0	0	239.674	No, Trazione
SLV 5	1058	-11478	-19	0	0	0	0	239.674	No, Trazione
SLV 2	428	-6556	-54	0	0	0	0	239.674	No, Trazione
SLV 10	922	-13415	10	0	0	0	0	239.674	No, Trazione
SLV 6	1058	-11478	-19	0	0	0	0	239.674	No, Trazione
SLV 1	428	-6556	-54	0	0	0	0	239.674	No, Trazione
SLV 4	-248	-4274	-56	0.007	7.001	0.969	9.821	239.674	No
SLV 3	-248	-4274	-56	0.007	7.001	0.969	9.821	239.674	No
SLV 13	-25	-13012	41	0.011	6.969	0.996	15.325	239.674	No
SLV 14	-25	-13012	41	0.011	6.969	0.996	15.325	239.674	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	2.228	SLU 2	Si
V_SLU	9.198	SLU 34	Si
PF_SLV	0	SLV 12	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 10	No

## Maschio 245

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	I	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-772.3	-500.9	-772.3	-486.1	L3	F1	14.7	30	1321.5	1318	1324.9			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 28	1187	-126	738	0.28	894	1.211	Si
SLU 28	1399	-12	320	0	0	0	No, $e>l/2$
SLU 50	1187	-158	944	0.36	1117	1.184	Si
SLU 50	1399	-5	163	0	0	0	No, $e>l/2$
SLU 35	1187	-119	723	0.27	848	1.173	Si
SLU 35	1399	15	228	0	0	0	No, Trazione
SLU 32	1187	-124	748	0.28	884	1.181	Si
SLU 32	1399	-21	174	0	0	0	No, $e>l/2$
SLU 41	1187	-125	756	0.28	889	1.176	Si
SLU 41	1399	-18	192	0	0	0	No, $e>l/2$
SLU 27	1187	-118	709	0.27	839	1.184	Si
SLU 27	1399	20	201	0	0	0	No, Trazione
SLU 29	1187	-118	710	0.27	841	1.184	Si
SLU 29	1399	25	208	0	0	0	No, Trazione



Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 24	1187	-123	734	0.28	874	1.191	Si
SLU 24	1399	-16	147	0	0	0	No, $e \geq l/2$
SLU 30	1187	-126	739	0.28	896	1.211	Si
SLU 30	1399	-8	326	0	0	0	No, $e \geq l/2$
SLU 56	1187	-160	957	0.36	1125	1.175	Si
SLU 56	1399	-14	183	0	0	0	No, $e \geq l/2$

Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 7	1187	-591	2333	1.34	3881	1.664	Si
SLV 7	1399	-444	19728	0	0	0	No, $e \geq l/2$
SLV 11	1187	-536	2159	1.21	3562	1.65	Si
SLV 11	1399	-400	20333	0	0	0	No, $e \geq l/2$
SLV 8	1187	-591	2333	1.34	3881	1.664	Si
SLV 8	1399	-444	19728	0	0	0	No, $e \geq l/2$
SLV 9	1187	332	-798	0	0	0	No, Trazione
SLV 9	1399	332	-19578	0	0	0	No, Trazione
SLV 14	1187	92	35	0	0	0	No, Trazione
SLV 14	1399	127	-4902	0	0	0	No, Trazione
SLV 10	1187	332	-798	0	0	0	No, Trazione
SLV 10	1399	332	-19578	0	0	0	No, Trazione
SLD 1	1187	-115	710	0.26	830	1.17	Si
SLD 1	1399	-49	-2692	0	0	0	No, $e \geq l/2$
SLV 13	1187	92	35	0	0	0	No, Trazione
SLV 13	1399	127	-4902	0	0	0	No, Trazione
SLV 12	1187	-536	2159	1.21	3562	1.65	Si
SLV 12	1399	-400	20333	0	0	0	No, $e \geq l/2$
SLV 6	1187	277	-625	0	0	0	No, Trazione
SLV 6	1399	288	-20183	0	0	0	No, Trazione

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 30	1187	-126	9	739		0.93	4.5	0.68	92			10.18	Si
SLU 30	1399	-8	50	326		0	0	0.56	0			0	No, $V_u < V$
SLU 41	1187	-125	9	756		1.05	3.96	0.7	83			9.17	Si
SLU 41	1399	-18	40	192		0	0	0.56	0			0	No, $V_u < V$
SLU 56	1187	-160	13	957		1.29	4.13	0.73	90			7	Si
SLU 56	1399	-14	29	183		0	0	0.56	0			0	No, $V_u < V$
SLU 27	1187	-118	10	709		0.97	4.05	0.68	83			8.22	Si
SLU 27	1399	20	18	201		0	0	0.56	0			0	No, $V_u < V$
SLU 58	1187	-160	13	959		1.29	4.13	0.73	90			6.86	Si
SLU 58	1399	-10	26	190		0	0	0.56	0			0	No, $V_u < V$
SLU 29	1187	-118	10	710		0.97	4.05	0.68	83			8.02	Si
SLU 29	1399	25	15	208		0	0	0.56	0			0	No, $V_u < V$
SLU 28	1187	-126	9	738		0.93	4.49	0.68	92			10.48	Si
SLU 28	1399	-12	53	320		0	0	0.56	0			0	No, $V_u < V$
SLU 24	1187	-123	10	734		0.98	4.18	0.69	86			8.76	Si
SLU 24	1399	-16	26	147		0	0	0.56	0			0	No, $V_u < V$
SLU 59	1187	-168	12	988		1.25	4.46	0.72	97			8.21	Si
SLU 59	1399	-42	61	308		0	0	0.56	0			0	No, $V_u < V$
SLU 32	1187	-124	9	748		1.03	4.03	0.69	84			9.22	Si
SLU 32	1399	-21	38	174		0	0	0.56	0			0	No, $V_u < V$

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 13	1187	92	-28	35		0	0	0.83	0			0	No, $V_u < V$
SLV 13	1399	127	72	-4902		0	0	0.83	0			0	No, $V_u < V$
SLV 11	1187	-536	70	2159		1.78	10.04	1.19	358			5.09	Si
SLV 11	1399	-400	265	20333		0	0	0.83	0			0	No, $V_u < V$
SLV 8	1187	-591	81	2333		1.92	10.28	1.22	375			4.62	Si
SLV 8	1399	-444	202	19728		0	0	0.83	0			0	No, $V_u < V$
SLD 1	1187	-115	9	710		1.06	3.61	1.05	113			12.14	Si
SLD 1	1399	-49	-37	-2692		0	0	0.83	0			0	No, $V_u < V$
SLV 10	1187	332	-62	-798		0	0	0.83	0			0	No, $V_u < V$
SLV 10	1399	332	-143	-19578		0	0	0.83	0			0	No, $V_u < V$
SLV 14	1187	92	-28	35		0	0	0.83	0			0	No, $V_u < V$
SLV 14	1399	127	72	-4902		0	0	0.83	0			0	No, $V_u < V$
SLV 12	1187	-536	70	2159		1.78	10.04	1.19	358			5.09	Si
SLV 12	1399	-400	265	20333		0	0	0.83	0			0	No, $V_u < V$
SLV 9	1187	332	-62	-798		0	0	0.83	0			0	No, $V_u < V$
SLV 9	1399	332	-143	-19578		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1187	277	-51	-625		0	0	0.83	0			0	No, $V_u < V$
SLV 6	1399	288	-206	-20183		0	0	0.83	0			0	No, $V_u < V$
SLV 7	1187	-591	81	2333		1.92	10.28	1.22	375			4.62	Si
SLV 7	1399	-444	202	19728		0	0	0.83	0			0	No, $V_u < V$

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 770  $W_a$  0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 3	14	0.41	0	-359	23505	0	0	No, $e > t/2$
SLV 6	14	0.41	0	-181	23505	0	0	No, $e > t/2$
SLV 10	14	0.41	0	-184	23505	0	0	No, $e > t/2$
SLV 1	14	0.41	0	-275	23505	0	0	No, $e > t/2$
SLV 2	14	0.41	0	-275	23505	0	0	No, $e > t/2$
SLV 5	14	0.41	0	-181	23505	0	0	No, $e > t/2$
SLV 4	14	0.41	0	-359	23505	0	0	No, $e > t/2$
SLV 7	14	0.41	0	-460	23505	0	0	No, $e > t/2$



Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 9	14	0.41	0	-184	23505	0	0	No, $e > t/2$
SLV 8	14	0.41	0	-460	23505	0	0	No, $e > t/2$

#### Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 770  $W_a = 0.05$   $T_a = 0.972$

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	a0*	aLim	Verifica
SLV 9	274	-2868	-7	0	0	0	0	239.674	No, Trazione
SLV 10	274	-2868	-7	0	0	0	0	239.674	No, Trazione
SLV 7	-287	1702	7	0	0	0	0	239.674	No, Trazione
SLV 5	316	-2703	-12	0	0	0	0	239.674	No, Trazione
SLV 6	316	-2703	-12	0	0	0	0	239.674	No, Trazione
SLV 1	153	-968	-10	0	0	0	0	239.674	No, Trazione
SLV 4	-28	353	-5	0	0	0	0	239.674	No, Trazione
SLV 3	-28	353	-5	0	0	0	0	239.674	No, Trazione
SLV 8	-287	1702	7	0	0	0	0	239.674	No, Trazione
SLV 2	153	-968	-10	0	0	0	0	239.674	No, Trazione

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 71	No
V_SLU	0	SLU 6	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 1	No
R_SLV	0	SLV 14	No

## Maschio 246

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	X fin.	Y fin.	Quota i.	Quota.s	l	Sp.	h netta	h ini.	h fin.	a	a.s.,sx	a.s.,dx
-772.3	-377.1	-772.3	-349.9	L3	F1	27.3	30	1381.8	1375.5	1388.2			

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fk	fvk0	fmedio	$\tau_0$	fv0	$\mu$	$\phi$	fv,lim	E	G	FC
60			34.5	0.9	2	0.58	0.77	3.25	32000	12800	1.2

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni non sismiche, $\gamma_M = 3$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLU 57	1187	-922	-5954	1.13	10820	1.817	Si
SLU 57	1399	94	3005	0	0	0	No, Trazione
SLU 53	1187	-717	-2536	0.88	8717	3.437	Si
SLU 53	1399	-104	1623	0	0	0	No, $e > t/2$
SLU 55	1187	-905	-8584	1.11	10653	1.241	Si
SLU 55	1399	314	3930	0	0	0	No, Trazione
SLU 52	1187	-830	-8908	1.02	9901	1.111	Si
SLU 52	1399	353	4019	0	0	0	No, Trazione
SLU 42	1187	-702	-7116	0.86	8558	1.203	Si
SLU 42	1399	282	3303	0	0	0	No, Trazione
SLU 60	1187	-608	-3128	0.74	7523	2.405	Si
SLU 60	1399	-6	1754	0	0	0	No, $e > t/2$
SLU 51	1187	-906	-4698	1.11	10669	2.271	Si
SLU 51	1399	30	2421	0	0	0	No, Trazione
SLU 54	1187	-847	-6278	1.04	10073	1.604	Si
SLU 54	1399	133	3095	0	0	0	No, Trazione
SLU 49	1187	-935	-4887	1.14	10953	2.241	Si
SLU 49	1399	8	2566	0	0	0	No, Trazione
SLU 59	1187	-893	-5765	1.09	10534	1.827	Si
SLU 59	1399	117	2859	0	0	0	No, Trazione

#### Verifica a pressoflessione nel piano secondo D.M. 17-01-18 NTC §7.8.2.2.1 in combinazioni sismiche, $\gamma_M = 2$

Comb.	Quota	N	M	$\sigma_0$	Mu	c.s.	Verifica
SLV 9	1187	2920	31164	0	0	0	No, Trazione
SLV 9	1399	2751	33090	0	0	0	No, Trazione
SLV 14	1187	-402	-686	0.49	5258	7.659	Si
SLV 14	1399	1304	13578	0	0	0	No, Trazione
SLV 10	1187	2920	31164	0	0	0	No, Trazione
SLV 10	1399	2751	33090	0	0	0	No, Trazione
SLV 13	1187	-402	-686	0.49	5258	7.659	Si
SLV 13	1399	1304	13578	0	0	0	No, Trazione
SLV 2	1187	1648	18373	0	0	0	No, Trazione
SLV 2	1399	176	7367	0	0	0	No, Trazione
SLV 5	1187	3535	36882	0	0	0	No, Trazione
SLV 5	1399	2412	31227	0	0	0	No, Trazione
SLD 1	1187	376	6118	0	0	0	No, Trazione
SLD 1	1399	36	3604	0	0	0	No, Trazione
SLV 1	1187	1648	18373	0	0	0	No, Trazione
SLV 1	1399	176	7367	0	0	0	No, Trazione
SLV 15	1187	-2634	-22269	3.22	26427	1.187	Si
SLV 15	1399	-274	-5010	0	0	0	No, $e > t/2$
SLV 6	1187	3535	36882	0	0	0	No, Trazione
SLV 6	1399	2412	31227	0	0	0	No, Trazione



Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni non sismiche,  $\gamma_M = 3$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLU 49	1187	-935	-169	-4887		1.24	25.2	0.72	545			3.23	Si
SLU 49	1399	8	144	2566		0	0	0.56	0			0	No, Vu<V
SLU 60	1187	-608	-113	-3128		0.8	25.43	0.66	505			4.48	Si
SLU 60	1399	-6	157	1754		0	0	0.56	0			0	No, Vu<V
SLU 51	1187	-906	-163	-4698		1.19	25.32	0.71	543			3.32	Si
SLU 51	1399	30	134	2421		0	0	0.56	0			0	No, Vu<V
SLU 52	1187	-830	-303	-8908		3.19	8.68	0.98	255			0.84	No, Vu<V
SLU 52	1399	353	316	4019		0	0	0.56	0			0	No, Vu<V
SLU 42	1187	-702	-259	-7116		2.24	10.47	0.85	268			1.04	Si
SLU 42	1399	282	224	3303		0	0	0.56	0			0	No, Vu<V
SLU 55	1187	-905	-296	-8584		2.43	12.41	0.88	328			1.11	Si
SLU 55	1399	314	280	3930		0	0	0.56	0			0	No, Vu<V
SLU 53	1187	-717	-93	-2536		0.88	27.25	0.67	550			5.91	Si
SLU 53	1399	-104	114	1623		0	0	0.56	0			0	No, Vu<V
SLU 54	1187	-847	-218	-6278		1.51	18.64	0.76	424			1.94	Si
SLU 54	1399	133	219	3095		0	0	0.56	0			0	No, Vu<V
SLU 57	1187	-922	-211	-5954		1.43	21.5	0.75	481			2.28	Si
SLU 57	1399	94	183	3005		0	0	0.56	0			0	No, Vu<V
SLU 59	1187	-893	-206	-5765		1.38	21.5	0.74	477			2.32	Si
SLU 59	1399	117	174	2859		0	0	0.56	0			0	No, Vu<V

Verifica a taglio nel piano secondo D.M. 17-01-18 (N.T.C.) §7.8.2.2.2 con rottura per scorrimento in combinazioni sismiche,  $\gamma_M = 2$

Comb.	Quota	N	V par	M	$\sigma_0$	$\sigma_N$	I'	fvd	Vt scorr.	Vt fess.diag.	Vt,lim	c.s.	Verifica
SLV 1	1187	1648	-190	18373		0	0	0.83	0			0	No, Vu<V
SLV 1	1399	176	575	7367		0	0	0.83	0			0	No, Vu<V
SLV 5	1187	3535	-1000	36882		0	0	0.83	0			0	No, Vu<V
SLV 5	1399	2412	2239	31227		0	0	0.83	0			0	No, Vu<V
SLV 15	1187	-2634	51	-22269		5.66	15.52	1.63	756			14.91	Si
SLV 15	1399	-274	-378	-5010		0	0	0.83	0			0	No, Vu<V
SLV 14	1187	-402	-539	-686		0.49	27.25	0.93	762			1.41	Si
SLV 14	1399	1304	939	13578		0	0	0.83	0			0	No, Vu<V
SLV 2	1187	1648	-190	18373		0	0	0.83	0			0	No, Vu<V
SLV 2	1399	176	575	7367		0	0	0.83	0			0	No, Vu<V
SLV 9	1187	2920	-1104	31164		0	0	0.83	0			0	No, Vu<V
SLV 9	1399	2751	2348	33090		0	0	0.83	0			0	No, Vu<V
SLV 6	1187	3535	-1000	36882		0	0	0.83	0			0	No, Vu<V
SLV 6	1399	2412	2239	31227		0	0	0.83	0			0	No, Vu<V
SLV 10	1187	2920	-1104	31164		0	0	0.83	0			0	No, Vu<V
SLV 10	1399	2751	2348	33090		0	0	0.83	0			0	No, Vu<V
SLD 1	1187	376	-118	6118		0	0	0.83	0			0	No, Vu<V
SLD 1	1399	36	287	3604		0	0	0.83	0			0	No, Vu<V
SLV 13	1187	-402	-539	-686		0.49	27.25	0.93	762			1.41	Si
SLV 13	1399	1304	939	13578		0	0	0.83	0			0	No, Vu<V

Verifica a pressoflessione fuori piano D.M. 17-01-18 (N.T.C.)

quota 798.8 Wa 0.05 denominatore 8  $\gamma_M = 2$

Comb.	fd	Sa	$\sigma_0$	N	M	Mc	Coeff.s.	Verifica
SLV 2	14	0.41	0	79	48186	0	0	No, Trazione
SLV 7	14	0.41	0	-2141	48186	0	0	No, e>t/2
SLV 1	14	0.41	0	79	48186	0	0	No, Trazione
SLV 5	14	0.41	0	149	48186	0	0	No, Trazione
SLV 3	14	0.41	0	-608	48186	0	0	No, e>t/2
SLV 9	14	0.41	0	-479	48186	0	0	No, e>t/2
SLV 10	14	0.41	0	-479	48186	0	0	No, e>t/2
SLV 6	14	0.41	0	149	48186	0	0	No, Trazione
SLV 4	14	0.41	0	-608	48186	0	0	No, e>t/2
SLV 8	14	0.41	0	-2141	48186	0	0	No, e>t/2

Verifica dei meccanismi locali di collasso con analisi cinematica lineare

forza di aggancio al piano = 0 quota mezzera = 798.8 Wa = 0.05 Ta = 1.0629

Comb.	N top	N base	V orto	$\alpha_0$	M*	e*	$\alpha_0^*$	aLim	Verifica
SLV 4	283	263	-36	0	0	0	0	239.674	No, Trazione
SLV 2	332	-6630	-22	0	0	0	0	239.674	No, Trazione
SLV 3	283	263	-36	0	0	0	0	239.674	No, Trazione
SLV 1	332	-6630	-22	0	0	0	0	239.674	No, Trazione
SLV 9	207	-16558	19	0	0	0	0	239.674	No, Trazione
SLV 7	127	7290	-40	0	0	0	0	239.674	No, Trazione
SLV 5	291	-15688	8	0	0	0	0	239.674	No, Trazione
SLV 8	127	7290	-40	0	0	0	0	239.674	No, Trazione
SLV 6	291	-15688	8	0	0	0	0	239.674	No, Trazione
SLV 10	207	-16558	19	0	0	0	0	239.674	No, Trazione

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLU	0	SLU 84	No
V_SLU	0	SLU 2	No
PF_SLV	0	SLV 14	No
V_SLV	0	SLD 1	No
PFFP_SLV	0	SLV 6	No
R_SLV	0	SLV 16	No



## 1.6 Verifiche travi di accoppiamento in muratura

Le unità di misura elencate nel capitolo sono in [cm, daN] ove non espressamente specificato.

**X ini.:** coordinata punto iniziale. [cm]

**Y ini.:** coordinata punto iniziale. [cm]

**Z ini.inf.:** coordinata punto iniziale. [cm]

**Z ini.sup.:** coordinata punto iniziale. [cm]

**H ini.:** altezza della sezione iniziale. [cm]

**X fin.:** coordinata punto finale. [cm]

**Y fin.:** coordinata punto finale. [cm]

**Z fin.inf.:** coordinata punto finale. [cm]

**Z fin.sup.:** coordinata punto finale. [cm]

**H fin.:** altezza della sezione finale. [cm]

**Luce:** lunghezza della trave. [cm]

**Spessore:** spessore. [cm]

**R. Trazione:** resistenza a trazione dell'elemento teso disposto orizzontalmente. [daN]

**fb :** resistenza normalizzata a compressione in direzione orizzontale dei blocchi. [daN/cm<sup>2</sup>]

**fhk:** resistenza caratteristica a compressione della muratura utilizzata in direzione orizzontale. [daN/cm<sup>2</sup>]

**fvk0:** resistenza caratteristica a taglio in assenza di carichi verticali. [daN/cm<sup>2</sup>]

**fhmmedio:** resistenza media a compressione della muratura utilizzata in direzione orizzontale. [daN/cm<sup>2</sup>]

**τ0:** resistenza media a taglio in assenza di azioni normali [C8.7.1.16]. [daN/cm<sup>2</sup>]

**fv0:** resistenza media a taglio in assenza di azioni normali [C8.7.1.17]. [daN/cm<sup>2</sup>]

**μ:** coefficiente di attrito [C8.7.1.17].

**φ:** coefficiente di ammortamento o ingranamento secondo Circolare 7 21-01-19 §C8.7.1.3.1.1.

**fvk,lim:** valore caratteristico massimo della resistenza a taglio che può essere impiegata nel calcolo (§11.10.3.3). [daN/cm<sup>2</sup>]

**E:** modulo di elasticità longitudinale della muratura utilizzato. [daN/cm<sup>2</sup>]

**G:** modulo di elasticità tangenziale della muratura utilizzato. [daN/cm<sup>2</sup>]

**FC:** fattore di confidenza della muratura.

**Sezione:** sezione di verifica.

**γM:** fattore parziale di sicurezza del materiale.

**N:** sforzo normale. [daN]

**M:** momento flettente nel piano. [daN\*cm]

**Mu:** momento ultimo. [daN\*cm]

**Comb.:** combinazione.

**c.s.:** coefficiente di sicurezza.

**Verifica:** stato di verifica.

**M:** momento flettente. [daN\*cm]

**V:** taglio nel piano. [daN]

**Vt:** resistenza a taglio secondo [7.8.4]. [daN]

**Vp:** resistenza a taglio secondo [7.8.6]. [daN]

**Vt fess. diag.:** resistenza a taglio per fessurazione diagonale secondo §C8.7.1.3.1.1 formule [C8.7.1.16] ovvero [C8.7.1.17]. [daN]

**Vt,lim:** taglio limite [C8.1.7.18]. [daN]

**Stato limite:** pF\_SLV=Presso flessione per azioni sismiche; V\_SLV=Taglio per azioni sismiche.

**Coeff.s.:** coefficiente di sicurezza.

### Trave di accoppiamento 1

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2465.3	227.1	61	111	50	-2465.3	127.1	61	111	50	100	45	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-931	-39177	54081	SLU 81	1.38	Si
fin.	3	1035	-2927	54081	SLU 81	18.48	Si
ini.	3	-932	-37730	54081	SLU 78	1.43	Si
fin.	3	871	-4755	54081	SLU 78	11.37	Si
ini.	3	-894	-38348	54081	SLU 77	1.41	Si
fin.	3	1020	-4203	54081	SLU 77	12.87	Si
ini.	3	-934	-39559	54081	SLU 83	1.37	Si
fin.	3	1048	-3226	54081	SLU 83	16.76	Si
ini.	3	-971	-38941	54081	SLU 84	1.39	Si
fin.	3	899	-3779	54081	SLU 84	14.31	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-891	-37965	54081	SLU 74	1.42	Si
fin.	3	1007	-3904	54081	SLU 74	13.85	Si
ini.	3	-929	-37347	54081	SLU 75	1.45	Si
fin.	3	858	-4456	54081	SLU 75	12.14	Si
ini.	3	-968	-38558	54081	SLU 82	1.4	Si
fin.	3	887	-3479	54081	SLU 82	15.54	Si
ini.	3	-923	-37340	54081	SLU 80	1.45	Si
fin.	3	855	-4859	54081	SLU 80	11.13	Si
ini.	3	-885	-37958	54081	SLU 79	1.42	Si
fin.	3	1004	-4307	54081	SLU 79	12.56	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-38558	3980			578	217	SLU 82	0.05	No
fin.	3	0	-3479	-1424			578	217	SLU 82	0.15	No
ini.	3	0	-37347	3904			578	217	SLU 75	0.06	No
fin.	3	0	-4456	-1474			578	217	SLU 75	0.15	No
ini.	3	0	-38348	4030			578	217	SLU 77	0.05	No
fin.	3	0	-4203	-1458			578	217	SLU 77	0.15	No
ini.	3	0	-37965	3980			578	217	SLU 74	0.05	No
fin.	3	0	-3904	-1425			578	217	SLU 74	0.15	No
ini.	3	0	-39559	4107			578	217	SLU 83	0.05	No
fin.	3	0	-3226	-1408			578	217	SLU 83	0.15	No
ini.	3	0	-39177	4057			578	217	SLU 81	0.05	No
fin.	3	0	-2927	-1375			578	217	SLU 81	0.16	No
ini.	3	0	-37340	3918			578	217	SLU 80	0.06	No
fin.	3	0	-4859	-1506			578	217	SLU 80	0.14	No
ini.	3	0	-37730	3954			578	217	SLU 78	0.05	No
fin.	3	0	-4755	-1507			578	217	SLU 78	0.14	No
ini.	3	0	-37958	3994			578	217	SLU 79	0.05	No
fin.	3	0	-4307	-1457			578	217	SLU 79	0.15	No
ini.	3	0	-38941	4030			578	217	SLU 84	0.05	No
fin.	3	0	-3779	-1456			578	217	SLU 84	0.15	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3072	-77567	65221	SLV 11	0.84	No
fin.	2	1100	70919	65221	SLV 11	0.92	No
ini.	2	2751	32810	65221	SLV 10	1.99	Si
fin.	2	-2546	-60543	65221	SLV 10	1.08	Si
ini.	2	-3072	-77567	65221	SLV 12	0.84	No
fin.	2	1100	70919	65221	SLV 12	0.92	No
ini.	2	-1165	-19059	65221	SLV 1	3.42	Si
fin.	2	4732	-54314	65221	SLV 1	1.2	Si
ini.	2	-3939	-83677	65221	SLV 7	0.78	No
fin.	2	3871	52558	65221	SLV 7	1.24	Si
ini.	2	-1165	-19059	65221	SLV 2	3.42	Si
fin.	2	4732	-54314	65221	SLV 2	1.2	Si
ini.	2	-3939	-83677	65221	SLV 8	0.78	No
fin.	2	3871	52558	65221	SLV 8	1.24	Si
ini.	2	2751	32810	65221	SLV 9	1.99	Si
fin.	2	-2546	-60543	65221	SLV 9	1.08	Si
ini.	2	1884	26701	65221	SLV 6	2.44	Si
fin.	2	224	-78904	65221	SLV 6	0.83	No
ini.	2	1884	26701	65221	SLV 5	2.44	Si
fin.	2	224	-78904	65221	SLV 5	0.83	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	1306	-262			867	326	SLV 13	1.25	Si
fin.	2	0	6890	-4889			867	326	SLV 13	0.07	No
ini.	2	0	-83677	6968			867	326	SLV 8	0.05	No
fin.	2	0	52558	3208			867	326	SLV 8	0.1	No
ini.	2	0	32810	-1506			867	326	SLV 10	0.22	No
fin.	2	0	-60543	-5386			867	326	SLV 10	0.06	No
ini.	2	0	-77567	5833			867	326	SLV 12	0.06	No
fin.	2	0	70919	1552			867	326	SLV 12	0.21	No
ini.	2	0	-83677	6968			867	326	SLV 7	0.05	No
fin.	2	0	52558	3208			867	326	SLV 7	0.1	No
ini.	2	0	-52172	5723			867	326	SLV 3	0.06	No
fin.	2	0	-14876	2710			867	326	SLV 3	0.12	No
ini.	2	0	-77567	5833			867	326	SLV 11	0.06	No
fin.	2	0	70919	1552			867	326	SLV 11	0.21	No
ini.	2	0	32810	-1506			867	326	SLV 9	0.22	No
fin.	2	0	-60543	-5386			867	326	SLV 9	0.06	No
ini.	2	0	1306	-262			867	326	SLV 14	1.25	Si
fin.	2	0	6890	-4889			867	326	SLV 14	0.07	No
ini.	2	0	-52172	5723			867	326	SLV 4	0.06	No
fin.	2	0	-14876	2710			867	326	SLV 4	0.12	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.779	SLV 7	No
V_SLV	0.047	SLV 7	No
PF_SLU	1.367	SLU 83	Si
V_SLU	0.053	SLU 83	No



## Trave di accoppiamento 2

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2176.3	587.6	-159	41	200	-2276.3	587.6	-159	41	200	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1556	-206832	316581	SLU 74	1.53	Si
fin.	3	-718	-110165	316581	SLU 74	2.87	Si
ini.	3	-1608	-213835	316581	SLU 83	1.48	Si
fin.	3	-732	-113833	316581	SLU 83	2.78	Si
ini.	3	-1537	-204858	316581	SLU 76	1.55	Si
fin.	3	-707	-107741	316581	SLU 76	2.94	Si
ini.	3	-1550	-206775	316581	SLU 75	1.53	Si
fin.	3	-715	-109030	316581	SLU 75	2.9	Si
ini.	3	-1585	-214121	316581	SLU 81	1.48	Si
fin.	3	-757	-111110	316581	SLU 81	2.85	Si
ini.	3	-1579	-206545	316581	SLU 77	1.53	Si
fin.	3	-693	-112888	316581	SLU 77	2.8	Si
ini.	3	-1579	-214064	316581	SLU 82	1.48	Si
fin.	3	-754	-109975	316581	SLU 82	2.88	Si
ini.	3	-1514	-205144	316581	SLU 73	1.54	Si
fin.	3	-732	-105018	316581	SLU 73	3.01	Si
ini.	3	-1601	-213778	316581	SLU 84	1.48	Si
fin.	3	-729	-112697	316581	SLU 84	2.81	Si
ini.	3	-1573	-206488	316581	SLU 78	1.53	Si
fin.	3	-690	-111753	316581	SLU 78	2.83	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-206488	-3228			3466	1304	SLU 78	0.4	No
fin.	3	0	-111753	3981			3466	1304	SLU 78	0.33	No
ini.	3	0	-206545	-3250			3466	1304	SLU 77	0.4	No
fin.	3	0	-112888	3982			3466	1304	SLU 77	0.33	No
ini.	3	0	-214121	-3203			3466	1304	SLU 81	0.41	No
fin.	3	0	-111110	4258			3466	1304	SLU 81	0.31	No
ini.	3	0	-206775	-3128			3466	1304	SLU 75	0.42	No
fin.	3	0	-109030	4033			3466	1304	SLU 75	0.32	No
ini.	3	0	-206832	-3150			3466	1304	SLU 74	0.41	No
fin.	3	0	-110165	4034			3466	1304	SLU 74	0.32	No
ini.	3	0	-205144	-3006			3466	1304	SLU 73	0.43	No
fin.	3	0	-105018	4053			3466	1304	SLU 73	0.32	No
ini.	3	0	-213778	-3282			3466	1304	SLU 84	0.4	No
fin.	3	0	-112697	4204			3466	1304	SLU 84	0.31	No
ini.	3	0	-204858	-3106			3466	1304	SLU 76	0.42	No
fin.	3	0	-107741	4001			3466	1304	SLU 76	0.33	No
ini.	3	0	-213835	-3304			3466	1304	SLU 83	0.39	No
fin.	3	0	-113833	4206			3466	1304	SLU 83	0.31	No
ini.	3	0	-214064	-3182			3466	1304	SLU 82	0.41	No
fin.	3	0	-109975	4256			3466	1304	SLU 82	0.31	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-7849	371431	327721	SLV 8	0.88	No
fin.	2	5307	-539332	327721	SLV 8	0.61	No
ini.	2	1595	-456282	327721	SLV 15	0.72	No
fin.	2	-4228	177769	327721	SLV 15	1.84	Si
ini.	2	1595	-456282	327721	SLV 16	0.72	No
fin.	2	-4228	177769	327721	SLV 16	1.84	Si
ini.	2	5704	-658988	327721	SLV 10	0.5	No
fin.	2	-6379	388872	327721	SLV 10	0.84	No
ini.	2	-7030	400721	327721	SLV 3	0.82	No
fin.	2	5763	-541918	327721	SLV 3	0.6	No
ini.	2	4884	-688278	327721	SLV 13	0.48	No
fin.	2	-6835	391458	327721	SLV 13	0.84	No
ini.	2	-7030	400721	327721	SLV 4	0.82	No
fin.	2	5763	-541918	327721	SLV 4	0.6	No
ini.	2	5704	-658988	327721	SLV 9	0.5	No
fin.	2	-6379	388872	327721	SLV 9	0.84	No
ini.	2	4884	-688278	327721	SLV 14	0.48	No
fin.	2	-6835	391458	327721	SLV 14	0.84	No
ini.	2	-7849	371431	327721	SLV 7	0.88	No
fin.	2	5307	-539332	327721	SLV 7	0.61	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-658988	8577			5199	1957	SLV 10	0.23	No
fin.	2	0	388872	13871			5199	1957	SLV 10	0.14	No
ini.	2	0	168726	-18380			5199	1957	SLV 2	0.11	No



Sezione	$\gamma M$	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-328229	-12474			5199	1957	SLV 2	0.16	No
ini.	2	0	-688278	17397			5199	1957	SLV 14	0.11	No
fin.	2	0	391458	21660			5199	1957	SLV 14	0.09	No
ini.	2	0	-456282	14225			5199	1957	SLV 16	0.14	No
fin.	2	0	177769	18096			5199	1957	SLV 16	0.11	No
ini.	2	0	400721	-21553			5199	1957	SLV 3	0.09	No
fin.	2	0	-541918	-16038			5199	1957	SLV 3	0.12	No
ini.	2	0	-688278	17397			5199	1957	SLV 13	0.11	No
fin.	2	0	391458	21660			5199	1957	SLV 13	0.09	No
ini.	2	0	-658988	8577			5199	1957	SLV 9	0.23	No
fin.	2	0	388872	13871			5199	1957	SLV 9	0.14	No
ini.	2	0	400721	-21553			5199	1957	SLV 4	0.09	No
fin.	2	0	-541918	-16038			5199	1957	SLV 4	0.12	No
ini.	2	0	-456282	14225			5199	1957	SLV 15	0.14	No
fin.	2	0	177769	18096			5199	1957	SLV 15	0.11	No
ini.	2	0	168726	-18380			5199	1957	SLV 1	0.11	No
fin.	2	0	-328229	-12474			5199	1957	SLV 1	0.16	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.476	SLV 13	No
V_SLV	0.09	SLV 13	No
PF_SLU	1.479	SLU 81	Si
V_SLU	0.306	SLU 81	No

### Trave di accoppiamento 3

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2176.3	587.6	81	111	30	-2276.3	587.6	81	111	30	100	45	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	$\tau_0$	f <sub>v0</sub>	$\mu$	$\phi$	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	$\gamma M$	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1240	-24955	20548	SLU 78	0.82	No
fin.	3	1040	-13359	20548	SLU 78	1.54	Si
ini.	3	1194	-24969	20548	SLU 76	0.82	No
fin.	3	1021	-13002	20548	SLU 76	1.58	Si
ini.	3	1224	-24957	20548	SLU 74	0.82	No
fin.	3	1043	-13107	20548	SLU 74	1.57	Si
ini.	3	1242	-26429	20548	SLU 83	0.78	No
fin.	3	1051	-14239	20548	SLU 83	1.44	Si
ini.	3	1232	-26526	20548	SLU 84	0.77	No
fin.	3	1046	-14159	20548	SLU 84	1.45	Si
ini.	3	1168	-25068	20548	SLU 73	0.82	No
fin.	3	1020	-12669	20548	SLU 73	1.62	Si
ini.	3	1207	-26625	20548	SLU 82	0.77	No
fin.	3	1045	-13826	20548	SLU 82	1.49	Si
ini.	3	1217	-26528	20548	SLU 81	0.77	No
fin.	3	1049	-13907	20548	SLU 81	1.48	Si
ini.	3	1249	-24858	20548	SLU 77	0.83	No
fin.	3	1045	-13440	20548	SLU 77	1.53	Si
ini.	3	1214	-25054	20548	SLU 75	0.82	No
fin.	3	1039	-13026	20548	SLU 75	1.58	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	$\gamma M$	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-26528	1643			347	130	SLU 81	0.08	No
fin.	3	0	-13907	-1006			347	130	SLU 81	0.13	No
ini.	3	0	-26526	1650			347	130	SLU 84	0.08	No
fin.	3	0	-14159	-1015			347	130	SLU 84	0.13	No
ini.	3	0	-24957	1556			347	130	SLU 74	0.08	No
fin.	3	0	-13107	-948			347	130	SLU 74	0.14	No
ini.	3	0	-24969	1554			347	130	SLU 76	0.08	No
fin.	3	0	-13002	-942			347	130	SLU 76	0.14	No
ini.	3	0	-26429	1646			347	130	SLU 83	0.08	No
fin.	3	0	-14239	-1019			347	130	SLU 83	0.13	No
ini.	3	0	-24805	1555			347	130	SLU 80	0.08	No
fin.	3	0	-13388	-957			347	130	SLU 80	0.14	No
ini.	3	0	-24858	1559			347	130	SLU 77	0.08	No
fin.	3	0	-13440	-960			347	130	SLU 77	0.14	No
ini.	3	0	-24955	1563			347	130	SLU 78	0.08	No
fin.	3	0	-13359	-957			347	130	SLU 78	0.14	No
ini.	3	0	-25054	1560			347	130	SLU 75	0.08	No
fin.	3	0	-13026	-944			347	130	SLU 75	0.14	No
ini.	3	0	-26625	1647			347	130	SLU 82	0.08	No
fin.	3	0	-13826	-1003			347	130	SLU 82	0.13	No



Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2350	-109023	30221	SLV 6	0.28	No
fin.	2	7756	-35719	30221	SLV 6	0.85	No
ini.	2	3345	82044	30221	SLV 3	0.37	No
fin.	2	-4156	-75056	30221	SLV 3	0.4	No
ini.	2	-1637	-115382	30221	SLV 13	0.26	No
fin.	2	5658	58773	30221	SLV 13	0.51	No
ini.	2	976	114771	30221	SLV 7	0.26	No
fin.	2	-7799	-21952	30221	SLV 7	1.38	Si
ini.	2	732	-148110	30221	SLV 10	0.2	No
fin.	2	9301	5668	30221	SLV 10	5.33	Si
ini.	2	2350	-109023	30221	SLV 5	0.28	No
fin.	2	7756	-35719	30221	SLV 5	0.85	No
ini.	2	3345	82044	30221	SLV 4	0.37	No
fin.	2	-4156	-75056	30221	SLV 4	0.4	No
ini.	2	-1637	-115382	30221	SLV 14	0.26	No
fin.	2	5658	58773	30221	SLV 14	0.51	No
ini.	2	732	-148110	30221	SLV 9	0.2	No
fin.	2	9301	5668	30221	SLV 9	5.33	Si
ini.	2	976	114771	30221	SLV 8	0.26	No
fin.	2	-7799	-21952	30221	SLV 8	1.38	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-115382	3432			520	196	SLV 13	0.06	No
fin.	2	0	58773	1901			520	196	SLV 13	0.1	No
ini.	2	0	-148110	2628			520	196	SLV 10	0.07	No
fin.	2	0	5668	557			520	196	SLV 10	0.35	No
ini.	2	0	82044	-1355			520	196	SLV 4	0.14	No
fin.	2	0	-75056	-3123			520	196	SLV 4	0.06	No
ini.	2	0	-148110	2628			520	196	SLV 9	0.07	No
fin.	2	0	5668	557			520	196	SLV 9	0.35	No
ini.	2	0	14905	-780			520	196	SLV 1	0.25	No
fin.	2	0	-79187	-2849			520	196	SLV 1	0.07	No
ini.	2	0	-48244	2857			520	196	SLV 16	0.07	No
fin.	2	0	62903	1627			520	196	SLV 16	0.12	No
ini.	2	0	-48244	2857			520	196	SLV 15	0.07	No
fin.	2	0	62903	1627			520	196	SLV 15	0.12	No
ini.	2	0	82044	-1355			520	196	SLV 3	0.14	No
fin.	2	0	-75056	-3123			520	196	SLV 3	0.06	No
ini.	2	0	-115382	3432			520	196	SLV 14	0.06	No
fin.	2	0	58773	1901			520	196	SLV 14	0.1	No
ini.	2	0	14905	-780			520	196	SLV 2	0.25	No
fin.	2	0	-79187	-2849			520	196	SLV 2	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.204	SLV 9	No
V_SLV	0.057	SLV 13	No
PF_SLU	0.772	SLU 82	No
V_SLU	0.079	SLU 84	No

Trave di accoppiamento 4

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1961.8	127.1	41	111	70	-1961.8	207.1	41	111	70	80	30	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>tk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	539	5313	72372	SLU 74	13.62	Si
fin.	3	-173	-78702	72372	SLU 74	0.92	No
ini.	3	583	4264	72372	SLU 78	16.97	Si
fin.	3	-104	-78183	72372	SLU 78	0.93	No
ini.	3	586	4209	72372	SLU 79	17.19	Si
fin.	3	-97	-77933	72372	SLU 79	0.93	No
ini.	3	531	5980	72372	SLU 82	12.1	Si
fin.	3	-218	-81044	72372	SLU 82	0.89	No
ini.	3	572	5216	72372	SLU 84	13.87	Si
fin.	3	-163	-81365	72372	SLU 84	0.89	No
ini.	3	528	6265	72372	SLU 81	11.55	Si
fin.	3	-231	-81884	72372	SLU 81	0.88	No
ini.	3	580	4549	72372	SLU 77	15.91	Si
fin.	3	-117	-79023	72372	SLU 77	0.92	No
ini.	3	589	3925	72372	SLU 80	18.44	Si
fin.	3	-83	-77092	72372	SLU 80	0.94	No
ini.	3	569	5501	72372	SLU 83	13.16	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	-176	-82206	72372	SLU 83	0.88	No
ini.	3	542	5028	72372	SLU 75	14.39	Si
fin.	3	-159	-77862	72372	SLU 75	0.93	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	5980	513			708	266	SLU 82	0.52	No
fin.	3	0	-81044	-3464			708	266	SLU 82	0.08	No
ini.	3	0	5313	511			708	266	SLU 74	0.52	No
fin.	3	0	-78702	-3350			708	266	SLU 74	0.08	No
ini.	3	0	4549	550			708	266	SLU 77	0.48	No
fin.	3	0	-79023	-3367			708	266	SLU 77	0.08	No
ini.	3	0	5216	551			708	266	SLU 84	0.48	No
fin.	3	0	-81365	-3481			708	266	SLU 84	0.08	No
ini.	3	0	5028	519			708	266	SLU 75	0.51	No
fin.	3	0	-77862	-3321			708	266	SLU 75	0.08	No
ini.	3	0	4209	560			708	266	SLU 79	0.48	No
fin.	3	0	-77933	-3328			708	266	SLU 79	0.08	No
ini.	3	0	4264	557			708	266	SLU 78	0.48	No
fin.	3	0	-78183	-3337			708	266	SLU 78	0.08	No
ini.	3	0	5501	543			708	266	SLU 83	0.49	No
fin.	3	0	-82206	-3511			708	266	SLU 83	0.08	No
ini.	3	0	6265	505			708	266	SLU 81	0.53	No
fin.	3	0	-81884	-3494			708	266	SLU 81	0.08	No
ini.	3	0	3925	568			708	266	SLU 80	0.47	No
fin.	3	0	-77092	-3298			708	266	SLU 80	0.08	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2628	65480	89081	SLV 8	1.36	Si
fin.	2	-5242	-193482	89081	SLV 8	0.46	No
ini.	2	-824	23659	89081	SLD 11	3.77	Si
fin.	2	-2057	-103967	89081	SLD 11	0.86	No
ini.	2	-2628	65480	89081	SLV 7	1.36	Si
fin.	2	-5242	-193482	89081	SLV 7	0.46	No
ini.	2	-2368	49263	89081	SLV 11	1.81	Si
fin.	2	-4575	-171241	89081	SLV 11	0.52	No
ini.	2	-936	30627	89081	SLD 8	2.91	Si
fin.	2	-2345	-113552	89081	SLD 8	0.78	No
ini.	2	-940	46815	89081	SLV 3	1.9	Si
fin.	2	-2673	-128324	89081	SLV 3	0.69	No
ini.	2	-936	30627	89081	SLD 7	2.91	Si
fin.	2	-2345	-113552	89081	SLD 7	0.78	No
ini.	2	-824	23659	89081	SLD 12	3.77	Si
fin.	2	-2057	-103967	89081	SLD 12	0.86	No
ini.	2	-940	46815	89081	SLV 4	1.9	Si
fin.	2	-2673	-128324	89081	SLV 4	0.69	No
ini.	2	-2368	49263	89081	SLV 12	1.81	Si
fin.	2	-4575	-171241	89081	SLV 12	0.52	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	46815	-932			1061	399	SLV 4	0.43	No
fin.	2	0	-128324	-4676			1061	399	SLV 4	0.09	No
ini.	2	0	23659	-736			1061	399	SLD 12	0.54	No
fin.	2	0	-103967	-3721			1061	399	SLD 12	0.11	No
ini.	2	0	49263	-2149			1061	399	SLV 12	0.19	No
fin.	2	0	-171241	-5673			1061	399	SLV 12	0.07	No
ini.	2	0	65480	-2436			1061	399	SLV 8	0.16	No
fin.	2	0	-193482	-6454			1061	399	SLV 8	0.06	No
ini.	2	0	30627	-859			1061	399	SLD 7	0.46	No
fin.	2	0	-113552	-4059			1061	399	SLD 7	0.1	No
ini.	2	0	49263	-2149			1061	399	SLV 11	0.19	No
fin.	2	0	-171241	-5673			1061	399	SLV 11	0.07	No
ini.	2	0	23659	-736			1061	399	SLD 11	0.54	No
fin.	2	0	-103967	-3721			1061	399	SLD 11	0.11	No
ini.	2	0	30627	-859			1061	399	SLD 8	0.46	No
fin.	2	0	-113552	-4059			1061	399	SLD 8	0.1	No
ini.	2	0	46815	-932			1061	399	SLV 3	0.43	No
fin.	2	0	-128324	-4676			1061	399	SLV 3	0.09	No
ini.	2	0	65480	-2436			1061	399	SLV 7	0.16	No
fin.	2	0	-193482	-6454			1061	399	SLV 7	0.06	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.46	SLV 7	No
V_SLV	0.062	SLV 7	No
PF_SLU	0.88	SLU 83	No
V_SLU	0.076	SLU 83	No

## Trave di accoppiamento 5

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1961.8	485.1	41	111	70	-1961.8	565.1	41	111	70	80	30	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2424	-24307	72372	SLU 74	2.98	Si
fin.	3	-2260	2635	72372	SLU 74	27.46	Si
ini.	3	-2357	-24371	72372	SLU 80	2.97	Si
fin.	3	-2192	2737	72372	SLU 80	26.44	Si
ini.	3	-2418	-24248	72372	SLU 75	2.98	Si
fin.	3	-2257	2648	72372	SLU 75	27.33	Si
ini.	3	-2363	-24430	72372	SLU 79	2.96	Si
fin.	3	-2195	2725	72372	SLU 79	26.56	Si
ini.	3	-2551	-24887	72372	SLU 82	2.91	Si
fin.	3	-2371	2834	72372	SLU 82	25.54	Si
ini.	3	-2386	-24490	72372	SLU 78	2.96	Si
fin.	3	-2227	2585	72372	SLU 78	28	Si
ini.	3	-2519	-25129	72372	SLU 84	2.88	Si
fin.	3	-2340	2771	72372	SLU 84	26.12	Si
ini.	3	-2557	-24946	72372	SLU 81	2.9	Si
fin.	3	-2374	2821	72372	SLU 81	25.65	Si
ini.	3	-2525	-25187	72372	SLU 83	2.87	Si
fin.	3	-2344	2758	72372	SLU 83	26.24	Si
ini.	3	-2392	-24548	72372	SLU 77	2.95	Si
fin.	3	-2230	2572	72372	SLU 77	28.14	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-24307	7854			708	266	SLU 74	0.03	No
fin.	3	0	2635	-3158			708	266	SLU 74	0.08	No
ini.	3	0	-24371	7907			708	266	SLU 80	0.03	No
fin.	3	0	2737	-3171			708	266	SLU 80	0.08	No
ini.	3	0	-24887	8046			708	266	SLU 82	0.03	No
fin.	3	0	2834	-3226			708	266	SLU 82	0.08	No
ini.	3	0	-24430	7918			708	266	SLU 79	0.03	No
fin.	3	0	2725	-3173			708	266	SLU 79	0.08	No
ini.	3	0	-24946	8057			708	266	SLU 81	0.03	No
fin.	3	0	2821	-3227			708	266	SLU 81	0.08	No
ini.	3	0	-25187	8174			708	266	SLU 83	0.03	No
fin.	3	0	2758	-3274			708	266	SLU 83	0.08	No
ini.	3	0	-24548	7971			708	266	SLU 77	0.03	No
fin.	3	0	2572	-3204			708	266	SLU 77	0.08	No
ini.	3	0	-25129	8163			708	266	SLU 84	0.03	No
fin.	3	0	2771	-3272			708	266	SLU 84	0.08	No
ini.	3	0	-24490	7960			708	266	SLU 78	0.03	No
fin.	3	0	2585	-3202			708	266	SLU 78	0.08	No
ini.	3	0	-24248	7843			708	266	SLU 75	0.03	No
fin.	3	0	2648	-3156			708	266	SLU 75	0.08	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5814	-113764	89081	SLV 10	0.78	No
fin.	2	-149	147167	89081	SLV 10	0.61	No
ini.	2	-5814	-113764	89081	SLV 9	0.78	No
fin.	2	-149	147167	89081	SLV 9	0.61	No
ini.	2	2478	80120	89081	SLV 7	1.11	Si
fin.	2	-2950	-142614	89081	SLV 7	0.62	No
ini.	2	2061	67661	89081	SLV 11	1.32	Si
fin.	2	-2397	-116428	89081	SLV 11	0.77	No
ini.	2	-3544	-64800	89081	SLV 13	1.37	Si
fin.	2	-291	85459	89081	SLV 13	1.04	Si
ini.	2	2061	67661	89081	SLV 12	1.32	Si
fin.	2	-2397	-116428	89081	SLV 12	0.77	No
ini.	2	-3544	-64800	89081	SLV 14	1.37	Si
fin.	2	-291	85459	89081	SLV 14	1.04	Si
ini.	2	-5398	-101305	89081	SLV 6	0.88	No
fin.	2	-702	120981	89081	SLV 6	0.74	No
ini.	2	-5398	-101305	89081	SLV 5	0.88	No
fin.	2	-702	120981	89081	SLV 5	0.74	No
ini.	2	2478	80120	89081	SLV 8	1.11	Si
fin.	2	-2950	-142614	89081	SLV 8	0.62	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-58945	7951			1061	399	SLD 10	0.05	No
fin.	2	0	64669	199			1061	399	SLD 10	2.01	Si
ini.	2	0	-53597	7625			1061	399	SLD 5	0.05	No
fin.	2	0	53368	51			1061	399	SLD 5	7.9	Si
ini.	2	0	-64800	8294			1061	399	SLV 13	0.05	No
fin.	2	0	85459	27			1061	399	SLV 13	14.8	Si
ini.	2	0	-64800	8294			1061	399	SLV 14	0.05	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	85459	27			1061	399	SLV 14	14.8	Si
ini.	2	0	-101305	10668			1061	399	SLV 5	0.04	No
fin.	2	0	120981	2930			1061	399	SLV 5	0.14	No
ini.	2	0	-113764	11427			1061	399	SLV 10	0.03	No
fin.	2	0	147167	3281			1061	399	SLV 10	0.12	No
ini.	2	0	-101305	10668			1061	399	SLV 6	0.04	No
fin.	2	0	120981	2930			1061	399	SLV 6	0.14	No
ini.	2	0	-53597	7625			1061	399	SLD 6	0.05	No
fin.	2	0	53368	51			1061	399	SLD 6	7.9	Si
ini.	2	0	-113764	11427			1061	399	SLV 9	0.03	No
fin.	2	0	147167	3281			1061	399	SLV 9	0.12	No
ini.	2	0	-58945	7951			1061	399	SLD 9	0.05	No
fin.	2	0	64669	199			1061	399	SLD 9	2.01	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.605	SLV 9	No
V_SLV	0.035	SLV 9	No
PF_SLU	2.873	SLU 83	Si
V_SLU	0.033	SLU 83	No

## Trave di accoppiamento 6

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2154.3	-328.4	-159	41	200	-2254.3	-328.4	-159	41	200	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1921	-59506	316581	SLU 56	5.32	Si
fin.	3	-139	-148420	316581	SLU 56	2.13	Si
ini.	3	-2048	-71175	316581	SLU 81	4.45	Si
fin.	3	-184	-158403	316581	SLU 81	2	Si
ini.	3	-2019	-66434	316581	SLU 74	4.77	Si
fin.	3	-138	-158517	316581	SLU 74	2	Si
ini.	3	-1883	-57342	316581	SLU 69	5.52	Si
fin.	3	-90	-149979	316581	SLU 69	2.11	Si
ini.	3	-2105	-68298	316581	SLU 83	4.64	Si
fin.	3	-146	-163788	316581	SLU 83	1.93	Si
ini.	3	-2079	-62758	316581	SLU 79	5.04	Si
fin.	3	-104	-163206	316581	SLU 79	1.94	Si
ini.	3	-1925	-58708	316581	SLU 58	5.39	Si
fin.	3	-144	-147723	316581	SLU 58	2.14	Si
ini.	3	-1951	-64248	316581	SLU 62	4.93	Si
fin.	3	-186	-148305	316581	SLU 62	2.13	Si
ini.	3	-1886	-56544	316581	SLU 71	5.6	Si
fin.	3	-94	-149282	316581	SLU 71	2.12	Si
ini.	3	-2076	-63556	316581	SLU 77	4.98	Si
fin.	3	-100	-163902	316581	SLU 77	1.93	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-33873	-6418			3466	1304	SLU 82	0.2	No
fin.	3	0	-116354	-169			3466	1304	SLU 82	7.7	Si
ini.	3	0	-29131	-6327			3466	1304	SLU 75	0.21	No
fin.	3	0	-116469	-337			3466	1304	SLU 75	3.87	Si
ini.	3	0	-30995	-6609			3466	1304	SLU 84	0.2	No
fin.	3	0	-121740	-333			3466	1304	SLU 84	3.92	Si
ini.	3	0	-26253	-6517			3466	1304	SLU 78	0.2	No
fin.	3	0	-121854	-500			3466	1304	SLU 78	2.61	Si
ini.	3	0	-66434	-6482			3466	1304	SLU 74	0.2	No
fin.	3	0	-158517	-412			3466	1304	SLU 74	3.17	Si
ini.	3	0	-62758	-6659			3466	1304	SLU 79	0.2	No
fin.	3	0	-163206	-584			3466	1304	SLU 79	2.23	Si
ini.	3	0	-63556	-6672			3466	1304	SLU 77	0.2	No
fin.	3	0	-163902	-576			3466	1304	SLU 77	2.27	Si
ini.	3	0	-68298	-6763			3466	1304	SLU 83	0.19	No
fin.	3	0	-163788	-408			3466	1304	SLU 83	3.2	Si
ini.	3	0	-25455	-6504			3466	1304	SLU 80	0.2	No
fin.	3	0	-121157	-509			3466	1304	SLU 80	2.56	Si
ini.	3	0	-71175	-6573			3466	1304	SLU 81	0.2	No
fin.	3	0	-158403	-245			3466	1304	SLU 81	5.33	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-10003	381781	327721	SLV 2	0.86	No
fin.	2	897	-469978	327721	SLV 2	0.7	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	7233	-479395	327721	SLV 15	0.68	No
fin.	2	-1182	255732	327721	SLV 15	1.28	Si
ini.	2	7879	-490795	327721	SLV 11	0.67	No
fin.	2	7238	-305005	327721	SLV 11	1.07	Si
ini.	2	-10003	381781	327721	SLV 1	0.86	No
fin.	2	897	-469978	327721	SLV 1	0.7	No
ini.	2	4029	-294317	327721	SLV 8	1.11	Si
fin.	2	9383	-583391	327721	SLV 8	0.56	No
ini.	2	-5599	175531	327721	SLV 3	1.87	Si
fin.	2	5969	-672223	327721	SLV 3	0.49	No
ini.	2	7879	-490795	327721	SLV 12	0.67	No
fin.	2	7238	-305005	327721	SLV 12	1.07	Si
ini.	2	4029	-294317	327721	SLV 7	1.11	Si
fin.	2	9383	-583391	327721	SLV 7	0.56	No
ini.	2	-5599	175531	327721	SLV 4	1.87	Si
fin.	2	5969	-672223	327721	SLV 4	0.49	No
ini.	2	7233	-479395	327721	SLV 16	0.68	No
fin.	2	-1182	255732	327721	SLV 16	1.28	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-273145	12954			5199	1957	SLV 14	0.15	No
fin.	2	0	457976	16570			5199	1957	SLV 14	0.12	No
ini.	2	0	-479395	15034			5199	1957	SLV 15	0.13	No
fin.	2	0	255732	17998			5199	1957	SLV 15	0.11	No
ini.	2	0	-479395	15034			5199	1957	SLV 16	0.13	No
fin.	2	0	255732	17998			5199	1957	SLV 16	0.11	No
ini.	2	0	393181	-13324			5199	1957	SLV 6	0.15	No
fin.	2	0	90758	-7819			5199	1957	SLV 6	0.25	No
ini.	2	0	393181	-13324			5199	1957	SLV 5	0.15	No
fin.	2	0	90758	-7819			5199	1957	SLV 5	0.25	No
ini.	2	0	-273145	12954			5199	1957	SLV 13	0.15	No
fin.	2	0	457976	16570			5199	1957	SLV 13	0.12	No
ini.	2	0	175531	-21662			5199	1957	SLV 3	0.09	No
fin.	2	0	-672223	-16959			5199	1957	SLV 3	0.12	No
ini.	2	0	381781	-23741			5199	1957	SLV 2	0.08	No
fin.	2	0	-469978	-18387			5199	1957	SLV 2	0.11	No
ini.	2	0	175531	-21662			5199	1957	SLV 4	0.09	No
fin.	2	0	-672223	-16959			5199	1957	SLV 4	0.12	No
ini.	2	0	381781	-23741			5199	1957	SLV 1	0.08	No
fin.	2	0	-469978	-18387			5199	1957	SLV 1	0.11	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.488	SLV 3	No
V_SLV	0.082	SLV 1	No
PF_SLU	1.932	SLU 77	Si
V_SLU	0.193	SLU 83	No

## Trave di accoppiamento 7

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2154.3	-328.4	81	111	30	-2254.3	-328.4	81	111	30	100	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	549	-10768	20548	SLU 79	1.91	Si
fin.	3	99	-19882	20548	SLU 79	1.03	Si
ini.	3	510	-13146	20548	SLU 81	1.56	Si
fin.	3	99	-19567	20548	SLU 81	1.05	Si
ini.	3	428	-10867	20548	SLU 41	1.89	Si
fin.	3	48	-18029	20548	SLU 41	1.14	Si
ini.	3	530	-12462	20548	SLU 83	1.65	Si
fin.	3	91	-20326	20548	SLU 83	1.01	Si
ini.	3	556	-10864	20548	SLU 77	1.89	Si
fin.	3	106	-19873	20548	SLU 77	1.03	Si
ini.	3	447	-9173	20548	SLU 37	2.24	Si
fin.	3	55	-17584	20548	SLU 37	1.17	Si
ini.	3	498	-11123	20548	SLU 62	1.85	Si
fin.	3	109	-17714	20548	SLU 62	1.16	Si
ini.	3	536	-11548	20548	SLU 74	1.78	Si
fin.	3	113	-19114	20548	SLU 74	1.08	Si
ini.	3	517	-9429	20548	SLU 58	2.18	Si
fin.	3	117	-17270	20548	SLU 58	1.19	Si
ini.	3	454	-9269	20548	SLU 35	2.22	Si
fin.	3	62	-17575	20548	SLU 35	1.17	Si





Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-11551	829			347	130	SLU 39	0.16	No
fin.	3	0	-17269	-834			347	130	SLU 39	0.16	No
ini.	3	0	-11123	846			347	130	SLU 62	0.15	No
fin.	3	0	-17714	-861			347	130	SLU 62	0.15	No
ini.	3	0	-11807	863			347	130	SLU 60	0.15	No
fin.	3	0	-16955	-840			347	130	SLU 60	0.16	No
ini.	3	0	-10864	870			347	130	SLU 77	0.15	No
fin.	3	0	-19873	-940			347	130	SLU 77	0.14	No
ini.	3	0	-11548	886			347	130	SLU 74	0.15	No
fin.	3	0	-19114	-918			347	130	SLU 74	0.14	No
ini.	3	0	-10768	865			347	130	SLU 79	0.15	No
fin.	3	0	-19882	-939			347	130	SLU 79	0.14	No
ini.	3	0	-13146	957			347	130	SLU 81	0.14	No
fin.	3	0	-19567	-954			347	130	SLU 81	0.14	No
ini.	3	0	-9525	775			347	130	SLU 56	0.17	No
fin.	3	0	-17261	-826			347	130	SLU 56	0.16	No
ini.	3	0	-12462	941			347	130	SLU 83	0.14	No
fin.	3	0	-20326	-975			347	130	SLU 83	0.13	No
ini.	3	0	-10867	812			347	130	SLU 41	0.16	No
fin.	3	0	-18029	-855			347	130	SLU 41	0.15	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	675	-77472	30221	SLV 15	0.39	No
fin.	2	3179	51910	30221	SLV 15	0.58	No
ini.	2	6942	19111	30221	SLV 7	1.58	Si
fin.	2	5049	-63090	30221	SLV 7	0.48	No
ini.	2	6942	19111	30221	SLV 8	1.58	Si
fin.	2	5049	-63090	30221	SLV 8	0.48	No
ini.	2	92	61667	30221	SLV 1	0.49	No
fin.	2	-2960	-76297	30221	SLV 1	0.4	No
ini.	2	-2983	-80854	30221	SLV 13	0.37	No
fin.	2	-47	69341	30221	SLV 13	0.44	No
ini.	2	-2983	-80854	30221	SLV 14	0.37	No
fin.	2	-47	69341	30221	SLV 14	0.44	No
ini.	2	3750	65048	30221	SLV 3	0.46	No
fin.	2	266	-93728	30221	SLV 3	0.32	No
ini.	2	92	61667	30221	SLV 2	0.49	No
fin.	2	-2960	-76297	30221	SLV 2	0.4	No
ini.	2	675	-77472	30221	SLV 16	0.39	No
fin.	2	3179	51910	30221	SLV 16	0.58	No
ini.	2	3750	65048	30221	SLV 4	0.46	No
fin.	2	266	-93728	30221	SLV 4	0.32	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	65048	-1215			520	196	SLV 3	0.16	No
fin.	2	0	-93728	-2962			520	196	SLV 3	0.07	No
ini.	2	0	61667	-1359			520	196	SLV 2	0.14	No
fin.	2	0	-76297	-2167			520	196	SLV 2	0.09	No
ini.	2	0	-77472	2567			520	196	SLV 16	0.08	No
fin.	2	0	51910	965			520	196	SLV 16	0.2	No
ini.	2	0	-77472	2567			520	196	SLV 15	0.08	No
fin.	2	0	51910	965			520	196	SLV 15	0.2	No
ini.	2	0	19111	276			520	196	SLV 7	0.71	No
fin.	2	0	-63090	-2515			520	196	SLV 7	0.08	No
ini.	2	0	65048	-1215			520	196	SLV 4	0.16	No
fin.	2	0	-93728	-2962			520	196	SLV 4	0.07	No
ini.	2	0	19111	276			520	196	SLV 8	0.71	No
fin.	2	0	-63090	-2515			520	196	SLV 8	0.08	No
ini.	2	0	-80854	2423			520	196	SLV 14	0.08	No
fin.	2	0	69341	1760			520	196	SLV 14	0.11	No
ini.	2	0	-80854	2423			520	196	SLV 13	0.08	No
fin.	2	0	69341	1760			520	196	SLV 13	0.11	No
ini.	2	0	61667	-1359			520	196	SLV 1	0.14	No
fin.	2	0	-76297	-2167			520	196	SLV 1	0.09	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.322	SLV 3	No
V_SLV	0.066	SLV 3	No
PF_SLU	1.011	SLU 83	Si
V_SLU	0.134	SLU 83	No

Trave di accoppiamento 8

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1731.3	-328.4	-159	41	200	-1831.3	-328.4	-159	41	200	100	45	3500



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	113	-482309	316581	SLU 84	0.66	No
fin.	3	552	-343342	316581	SLU 84	0.92	No
ini.	3	204	-470271	316581	SLU 75	0.67	No
fin.	3	601	-332841	316581	SLU 75	0.95	No
ini.	3	569	-465271	316581	SLU 52	0.68	No
fin.	3	959	-326933	316581	SLU 52	0.97	No
ini.	3	547	-500748	316581	SLU 73	0.63	No
fin.	3	981	-352110	316581	SLU 73	0.9	No
ini.	3	665	-459493	316581	SLU 65	0.69	No
fin.	3	1053	-323684	316581	SLU 65	0.98	No
ini.	3	210	-490980	316581	SLU 82	0.64	No
fin.	3	538	-339597	316581	SLU 82	0.93	No
ini.	3	449	-492077	316581	SLU 76	0.64	No
fin.	3	996	-355855	316581	SLU 76	0.89	No
ini.	3	471	-456600	316581	SLU 55	0.69	No
fin.	3	974	-330678	316581	SLU 55	0.96	No
ini.	3	66	-455958	316581	SLU 80	0.69	No
fin.	3	598	-334904	316581	SLU 80	0.95	No
ini.	3	106	-461601	316581	SLU 78	0.69	No
fin.	3	615	-336586	316581	SLU 78	0.94	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-455958	-8353			3466	1304	SLU 80	0.16	No
fin.	3	0	-334904	7467			3466	1304	SLU 80	0.17	No
ini.	3	0	-414785	-7971			3466	1304	SLU 79	0.16	No
fin.	3	0	-297860	7427			3466	1304	SLU 79	0.18	No
ini.	3	0	-482309	-8509			3466	1304	SLU 84	0.15	No
fin.	3	0	-343342	8060			3466	1304	SLU 84	0.16	No
ini.	3	0	-461601	-8350			3466	1304	SLU 78	0.16	No
fin.	3	0	-336586	7575			3466	1304	SLU 78	0.17	No
ini.	3	0	-500748	-8163			3466	1304	SLU 73	0.16	No
fin.	3	0	-352110	7997			3466	1304	SLU 73	0.16	No
ini.	3	0	-441137	-8126			3466	1304	SLU 83	0.16	No
fin.	3	0	-306298	8020			3466	1304	SLU 83	0.16	No
ini.	3	0	-470271	-8128			3466	1304	SLU 75	0.16	No
fin.	3	0	-332841	7827			3466	1304	SLU 75	0.17	No
ini.	3	0	-449808	-7904			3466	1304	SLU 81	0.17	No
fin.	3	0	-302554	8272			3466	1304	SLU 81	0.16	No
ini.	3	0	-492077	-8386			3466	1304	SLU 76	0.16	No
fin.	3	0	-355855	7745			3466	1304	SLU 76	0.17	No
ini.	3	0	-490980	-8286			3466	1304	SLU 82	0.16	No
fin.	3	0	-339597	8312			3466	1304	SLU 82	0.16	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	7400	-1052455	327721	SLV 15	0.31	No
fin.	2	-1154	8312	327721	SLV 15	39.43	Si
ini.	2	-8491	643216	327721	SLV 3	0.51	No
fin.	2	-738	-245129	327721	SLV 3	1.34	Si
ini.	2	-8491	643216	327721	SLV 4	0.51	No
fin.	2	-738	-245129	327721	SLV 4	1.34	Si
ini.	2	3594	-716120	327721	SLD 13	0.46	No
fin.	2	278	-183717	327721	SLD 13	1.78	Si
ini.	2	8358	-1252538	327721	SLV 14	0.26	No
fin.	2	719	-163040	327721	SLV 14	2.01	Si
ini.	2	8358	-1252538	327721	SLV 13	0.26	No
fin.	2	719	-163040	327721	SLV 13	2.01	Si
ini.	2	3914	-892483	327721	SLV 10	0.37	No
fin.	2	3049	-451654	327721	SLV 10	0.73	No
ini.	2	3914	-892483	327721	SLV 9	0.37	No
fin.	2	3049	-451654	327721	SLV 9	0.73	No
ini.	2	3594	-716120	327721	SLD 14	0.46	No
fin.	2	278	-183717	327721	SLD 14	1.78	Si
ini.	2	7400	-1052455	327721	SLV 16	0.31	No
fin.	2	-1154	8312	327721	SLV 16	39.43	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	443133	-20719			5199	1957	SLV 1	0.09	No
fin.	2	0	-416480	-12983			5199	1957	SLV 1	0.15	No
ini.	2	0	-1252538	9581			5199	1957	SLV 14	0.2	No
fin.	2	0	-163040	26705			5199	1957	SLV 14	0.07	No
ini.	2	0	-892483	-1851			5199	1957	SLV 10	1.06	Si
fin.	2	0	-451654	15797			5199	1957	SLV 10	0.12	No
ini.	2	0	443133	-20719			5199	1957	SLV 2	0.09	No
fin.	2	0	-416480	-12983			5199	1957	SLV 2	0.15	No
ini.	2	0	-892483	-1851			5199	1957	SLV 9	1.06	Si
fin.	2	0	-451654	15797			5199	1957	SLV 9	0.12	No
ini.	2	0	-1052455	10290			5199	1957	SLV 15	0.19	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	8312	24149			5199	1957	SLV 15	0.08	No
ini.	2	0	643216	-20010			5199	1957	SLV 3	0.1	No
fin.	2	0	-245129	-15539			5199	1957	SLV 3	0.13	No
ini.	2	0	-1252538	9581			5199	1957	SLV 13	0.2	No
fin.	2	0	-163040	26705			5199	1957	SLV 13	0.07	No
ini.	2	0	643216	-20010			5199	1957	SLV 4	0.1	No
fin.	2	0	-245129	-15539			5199	1957	SLV 4	0.13	No
ini.	2	0	-1052455	10290			5199	1957	SLV 16	0.19	No
fin.	2	0	8312	24149			5199	1957	SLV 16	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.262	SLV 13	No
V_SLV	0.073	SLV 13	No
PF_SLU	0.632	SLU 73	No
V_SLU	0.153	SLU 84	No

## Trave di accoppiamento 9

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1731.3	-328.4	81	111	30	-1831.3	-328.4	81	111	30	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2047	-24591	20548	SLU 76	0.84	No
fin.	3	3463	-33711	20548	SLU 76	0.61	No
ini.	3	2046	-26284	20548	SLU 82	0.78	No
fin.	3	3126	-34154	20548	SLU 82	0.6	No
ini.	3	2047	-25494	20548	SLU 84	0.81	No
fin.	3	3065	-35173	20548	SLU 84	0.58	No
ini.	3	1964	-23331	20548	SLU 78	0.88	No
fin.	3	2939	-34347	20548	SLU 78	0.6	No
ini.	3	1815	-21916	20548	SLU 79	0.94	No
fin.	3	2162	-33880	20548	SLU 79	0.61	No
ini.	3	1962	-24121	20548	SLU 75	0.85	No
fin.	3	3000	-33327	20548	SLU 75	0.62	No
ini.	3	1908	-24363	20548	SLU 83	0.84	No
fin.	3	2321	-34664	20548	SLU 83	0.59	No
ini.	3	1955	-23047	20548	SLU 80	0.89	No
fin.	3	2906	-34390	20548	SLU 80	0.6	No
ini.	3	1906	-25153	20548	SLU 81	0.82	No
fin.	3	2382	-33644	20548	SLU 81	0.61	No
ini.	3	1824	-22201	20548	SLU 77	0.93	No
fin.	3	2195	-33837	20548	SLU 77	0.61	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-25494	2379			347	130	SLU 84	0.05	No
fin.	3	0	-35173	-4127			347	130	SLU 84	0.03	No
ini.	3	0	-24363	2211			347	130	SLU 83	0.06	No
fin.	3	0	-34664	-4095			347	130	SLU 83	0.03	No
ini.	3	0	-24121	2268			347	130	SLU 75	0.06	No
fin.	3	0	-33327	-3933			347	130	SLU 75	0.03	No
ini.	3	0	-21916	2063			347	130	SLU 79	0.06	No
fin.	3	0	-33880	-3929			347	130	SLU 79	0.03	No
ini.	3	0	-23331	2247			347	130	SLU 78	0.06	No
fin.	3	0	-34347	-3975			347	130	SLU 78	0.03	No
ini.	3	0	-23047	2231			347	130	SLU 80	0.06	No
fin.	3	0	-34390	-3961			347	130	SLU 80	0.03	No
ini.	3	0	-25153	2231			347	130	SLU 81	0.06	No
fin.	3	0	-33644	-4052			347	130	SLU 81	0.03	No
ini.	3	0	-22201	2078			347	130	SLU 77	0.06	No
fin.	3	0	-33837	-3944			347	130	SLU 77	0.03	No
ini.	3	0	-26284	2400			347	130	SLU 82	0.05	No
fin.	3	0	-34154	-4084			347	130	SLU 82	0.03	No
ini.	3	0	-24591	2365			347	130	SLU 76	0.06	No
fin.	3	0	-33711	-3939			347	130	SLU 76	0.03	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	573	67985	30221	SLV 7	0.44	No
fin.	2	-7551	-56882	30221	SLV 7	0.53	No
ini.	2	1797	-84024	30221	SLV 14	0.36	No
fin.	2	10461	18340	30221	SLV 14	1.65	Si
ini.	2	700	52887	30221	SLV 4	0.57	No
fin.	2	-7254	-61825	30221	SLV 4	0.49	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1924	-99122	30221	SLV 10	0.3	No
fin.	2	10758	13398	30221	SLV 10	2.26	Si
ini.	2	1696	-70514	30221	SLV 6	0.43	No
fin.	2	6728	-6079	30221	SLV 6	4.97	Si
ini.	2	700	52887	30221	SLV 3	0.57	No
fin.	2	-7254	-61825	30221	SLV 3	0.49	No
ini.	2	1696	-70514	30221	SLV 5	0.43	No
fin.	2	6728	-6079	30221	SLV 5	4.97	Si
ini.	2	1797	-84024	30221	SLV 13	0.36	No
fin.	2	10461	18340	30221	SLV 13	1.65	Si
ini.	2	1924	-99122	30221	SLV 9	0.3	No
fin.	2	10758	13398	30221	SLV 9	2.26	Si
ini.	2	573	67985	30221	SLV 8	0.44	No
fin.	2	-7551	-56882	30221	SLV 8	0.53	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-70514	902			520	196	SLV 6	0.22	No
fin.	2	0	-6079	-4217			520	196	SLV 6	0.05	No
ini.	2	0	11337	-391			520	196	SLV 1	0.5	No
fin.	2	0	-46584	-4766			520	196	SLV 1	0.04	No
ini.	2	0	-37999	1204			520	196	SLD 5	0.16	No
fin.	2	0	-16250	-3304			520	196	SLD 5	0.06	No
ini.	2	0	11337	-391			520	196	SLV 2	0.5	No
fin.	2	0	-46584	-4766			520	196	SLV 2	0.04	No
ini.	2	0	-3444	630			520	196	SLD 1	0.31	No
fin.	2	0	-33294	-3558			520	196	SLD 1	0.05	No
ini.	2	0	52887	-405			520	196	SLV 4	0.48	No
fin.	2	0	-61825	-4146			520	196	SLV 4	0.05	No
ini.	2	0	-3444	630			520	196	SLD 2	0.31	No
fin.	2	0	-33294	-3558			520	196	SLD 2	0.05	No
ini.	2	0	-70514	902			520	196	SLV 5	0.22	No
fin.	2	0	-6079	-4217			520	196	SLV 5	0.05	No
ini.	2	0	52887	-405			520	196	SLV 3	0.48	No
fin.	2	0	-61825	-4146			520	196	SLV 3	0.05	No
ini.	2	0	-37999	1204			520	196	SLD 6	0.16	No
fin.	2	0	-16250	-3304			520	196	SLD 6	0.06	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.305	SLV 9	No
V_SLV	0.041	SLV 1	No
PF_SLU	0.584	SLU 84	No
V_SLU	0.032	SLU 84	No

## Trave di accoppiamento 10

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1422.3	-328.4	51	111	60	-1652.3	-328.4	51	111	60	230	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1192	-140348	71581	SLU 81	0.51	No
fin.	3	3103	-72426	71581	SLU 81	0.99	No
ini.	3	1240	-139525	71581	SLU 73	0.51	No
fin.	3	3077	-59194	71581	SLU 73	1.21	Si
ini.	3	1139	-133577	71581	SLU 74	0.54	No
fin.	3	2962	-70153	71581	SLU 74	1.02	Si
ini.	3	1162	-139676	71581	SLU 83	0.51	No
fin.	3	3054	-75811	71581	SLU 83	0.94	No
ini.	3	1210	-138853	71581	SLU 76	0.52	No
fin.	3	3028	-62579	71581	SLU 76	1.14	Si
ini.	3	1246	-144093	71581	SLU 82	0.5	No
fin.	3	3164	-67433	71581	SLU 82	1.06	Si
ini.	3	1163	-136651	71581	SLU 78	0.52	No
fin.	3	2973	-68545	71581	SLU 78	1.04	Si
ini.	3	1216	-143422	71581	SLU 84	0.5	No
fin.	3	3114	-70818	71581	SLU 84	1.01	Si
ini.	3	1144	-135685	71581	SLU 80	0.53	No
fin.	3	2938	-69293	71581	SLU 80	1.03	Si
ini.	3	1193	-137322	71581	SLU 75	0.52	No
fin.	3	3023	-65160	71581	SLU 75	1.1	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-136651	3664			693	261	SLU 78	0.07	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-68545	-2981			693	261	SLU 78	0.09	No
ini.	3	0	-144093	3846			693	261	SLU 82	0.07	No
fin.	3	0	-67433	-3088			693	261	SLU 82	0.08	No
ini.	3	0	-135685	3646			693	261	SLU 80	0.07	No
fin.	3	0	-69293	-2984			693	261	SLU 80	0.09	No
ini.	3	0	-138853	3688			693	261	SLU 76	0.07	No
fin.	3	0	-62579	-2937			693	261	SLU 76	0.09	No
ini.	3	0	-139525	3692			693	261	SLU 73	0.07	No
fin.	3	0	-59194	-2890			693	261	SLU 73	0.09	No
ini.	3	0	-137322	3668			693	261	SLU 75	0.07	No
fin.	3	0	-65160	-2933			693	261	SLU 75	0.09	No
ini.	3	0	-139676	3786			693	261	SLU 83	0.07	No
fin.	3	0	-75811	-3135			693	261	SLU 83	0.08	No
ini.	3	0	-133577	3611			693	261	SLU 74	0.07	No
fin.	3	0	-70153	-2933			693	261	SLU 74	0.09	No
ini.	3	0	-143422	3842			693	261	SLU 84	0.07	No
fin.	3	0	-70818	-3135			693	261	SLU 84	0.08	No
ini.	3	0	-140348	3790			693	261	SLU 81	0.07	No
fin.	3	0	-72426	-3088			693	261	SLU 81	0.08	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1671	-166431	82721	SLV 10	0.5	No
fin.	2	4787	31845	82721	SLV 10	2.6	Si
ini.	2	4140	-185964	82721	SLV 15	0.44	No
fin.	2	5809	149063	82721	SLV 15	0.55	No
ini.	2	4061	-211428	82721	SLV 13	0.39	No
fin.	2	6679	159263	82721	SLV 13	0.52	No
ini.	2	-2423	27479	82721	SLV 4	3.01	Si
fin.	2	-2500	-248988	82721	SLV 4	0.33	No
ini.	2	-2502	2015	82721	SLV 1	41.04	Si
fin.	2	-1630	-238788	82721	SLV 1	0.35	No
ini.	2	4140	-185964	82721	SLV 16	0.44	No
fin.	2	5809	149063	82721	SLV 16	0.55	No
ini.	2	4061	-211428	82721	SLV 14	0.39	No
fin.	2	6679	159263	82721	SLV 14	0.52	No
ini.	2	-2502	2015	82721	SLV 2	41.04	Si
fin.	2	-1630	-238788	82721	SLV 2	0.35	No
ini.	2	-2423	27479	82721	SLV 3	3.01	Si
fin.	2	-2500	-248988	82721	SLV 3	0.33	No
ini.	2	1671	-166431	82721	SLV 9	0.5	No
fin.	2	4787	31845	82721	SLV 9	2.6	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	27479	263			1040	391	SLV 4	1.49	Si
fin.	2	0	-248988	-4240			1040	391	SLV 4	0.09	No
ini.	2	0	-211428	4690			1040	391	SLV 13	0.08	No
fin.	2	0	159263	387			1040	391	SLV 13	1.01	Si
ini.	2	0	-17518	1745			1040	391	SLV 8	0.22	No
fin.	2	0	-121570	-3751			1040	391	SLV 8	0.1	No
ini.	2	0	-185964	4646			1040	391	SLV 16	0.08	No
fin.	2	0	149063	-358			1040	391	SLV 16	1.09	Si
ini.	2	0	27479	263			1040	391	SLV 3	1.49	Si
fin.	2	0	-248988	-4240			1040	391	SLV 3	0.09	No
ini.	2	0	2015	307			1040	391	SLV 1	1.27	Si
fin.	2	0	-238788	-3495			1040	391	SLV 1	0.11	No
ini.	2	0	2015	307			1040	391	SLV 2	1.27	Si
fin.	2	0	-238788	-3495			1040	391	SLV 2	0.11	No
ini.	2	0	-17518	1745			1040	391	SLV 7	0.22	No
fin.	2	0	-121570	-3751			1040	391	SLV 7	0.1	No
ini.	2	0	-211428	4690			1040	391	SLV 14	0.08	No
fin.	2	0	159263	387			1040	391	SLV 14	1.01	Si
ini.	2	0	-185964	4646			1040	391	SLV 15	0.08	No
fin.	2	0	149063	-358			1040	391	SLV 15	1.09	Si

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.332	SLV 3	No
V_SLV	0.083	SLV 13	No
PF_SLU	0.497	SLU 82	No
V_SLU	0.068	SLU 82	No

Trave di accoppiamento 11

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1883.8	104.6	51	111	60	-1963.8	104.6	51	111	60	80	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2



#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3071	-35601	71581	SLU 80	2.01	Si
fin.	3	-5044	1936	71581	SLU 80	36.98	Si
ini.	3	-3043	-35632	71581	SLU 73	2.01	Si
fin.	3	-4905	648	71581	SLU 73	110.49	Si
ini.	3	-3228	-34375	71581	SLU 81	2.08	Si
fin.	3	-5333	-352	71581	SLU 81	203.28	Si
ini.	3	-3243	-36769	71581	SLU 84	1.95	Si
fin.	3	-5300	1045	71581	SLU 84	68.49	Si
ini.	3	-3242	-34962	71581	SLU 83	2.05	Si
fin.	3	-5377	480	71581	SLU 83	149.08	Si
ini.	3	-3069	-33793	71581	SLU 79	2.12	Si
fin.	3	-5120	1371	71581	SLU 79	52.22	Si
ini.	3	-3095	-35287	71581	SLU 78	2.03	Si
fin.	3	-5110	1673	71581	SLU 78	42.79	Si
ini.	3	-3080	-34700	71581	SLU 75	2.06	Si
fin.	3	-5066	841	71581	SLU 75	85.16	Si
ini.	3	-3057	-36219	71581	SLU 76	1.98	Si
fin.	3	-4949	1480	71581	SLU 76	48.36	Si
ini.	3	-3229	-36182	71581	SLU 82	1.98	Si
fin.	3	-5256	213	71581	SLU 82	336.28	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-36182	3734			780	293	SLU 82	0.08	No
fin.	3	0	213	-12504			780	293	SLU 82	0.02	No
ini.	3	0	-32892	3622			780	293	SLU 74	0.08	No
fin.	3	0	276	-12418			780	293	SLU 74	0.02	No
ini.	3	0	-34375	3701			780	293	SLU 81	0.08	No
fin.	3	0	-352	-12664			780	293	SLU 81	0.02	No
ini.	3	0	-35287	3752			780	293	SLU 78	0.08	No
fin.	3	0	1673	-12561			780	293	SLU 78	0.02	No
ini.	3	0	-34700	3655			780	293	SLU 75	0.08	No
fin.	3	0	841	-12258			780	293	SLU 75	0.02	No
ini.	3	0	-35601	3745			780	293	SLU 80	0.08	No
fin.	3	0	1936	-12442			780	293	SLU 80	0.02	No
ini.	3	0	-34962	3797			780	293	SLU 83	0.08	No
fin.	3	0	480	-12967			780	293	SLU 83	0.02	No
ini.	3	0	-36769	3831			780	293	SLU 84	0.08	No
fin.	3	0	1045	-12807			780	293	SLU 84	0.02	No
ini.	3	0	-33793	3711			780	293	SLU 79	0.08	No
fin.	3	0	1371	-12602			780	293	SLU 79	0.02	No
ini.	3	0	-33479	3719			780	293	SLU 77	0.08	No
fin.	3	0	1108	-12721			780	293	SLU 77	0.02	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3869	126265	82721	SLV 2	0.66	No
fin.	2	-12255	-55863	82721	SLV 2	1.48	Si
ini.	2	-1477	-118471	82721	SLV 9	0.7	No
fin.	2	1735	42688	82721	SLV 9	1.94	Si
ini.	2	-3869	126265	82721	SLV 1	0.66	No
fin.	2	-12255	-55863	82721	SLV 1	1.48	Si
ini.	2	-1477	-118471	82721	SLV 10	0.7	No
fin.	2	1735	42688	82721	SLV 10	1.94	Si
ini.	2	-221	-199252	82721	SLV 14	0.42	No
fin.	2	6811	69772	82721	SLV 14	1.19	Si
ini.	2	-3886	154679	82721	SLV 3	0.53	No
fin.	2	-13624	-70339	82721	SLV 3	1.18	Si
ini.	2	-238	-170838	82721	SLV 16	0.48	No
fin.	2	5442	55297	82721	SLV 16	1.5	Si
ini.	2	-3886	154679	82721	SLV 4	0.53	No
fin.	2	-13624	-70339	82721	SLV 4	1.18	Si
ini.	2	-238	-170838	82721	SLV 15	0.48	No
fin.	2	5442	55297	82721	SLV 15	1.5	Si
ini.	2	-221	-199252	82721	SLV 13	0.42	No
fin.	2	6811	69772	82721	SLV 13	1.19	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	42661	506			1170	440	SLD 1	0.87	No
fin.	2	0	-24526	-12449			1170	440	SLD 1	0.04	No
ini.	2	0	154679	-3296			1170	440	SLV 4	0.13	No
fin.	2	0	-70339	-17818			1170	440	SLV 4	0.02	No
ini.	2	0	54950	-75			1170	440	SLD 4	5.9	Si
fin.	2	0	-30951	-12386			1170	440	SLD 4	0.04	No
ini.	2	0	-20816	3172			1170	440	SLV 6	0.14	No
fin.	2	0	4997	-11354			1170	440	SLV 6	0.04	No
ini.	2	0	-20816	3172			1170	440	SLV 5	0.14	No
fin.	2	0	4997	-11354			1170	440	SLV 5	0.04	No
ini.	2	0	42661	506			1170	440	SLD 2	0.87	No
fin.	2	0	-24526	-12449			1170	440	SLD 2	0.04	No
ini.	2	0	126265	-1933			1170	440	SLV 1	0.23	No
fin.	2	0	-55863	-17985			1170	440	SLV 1	0.02	No
ini.	2	0	154679	-3296			1170	440	SLV 3	0.13	No
fin.	2	0	-70339	-17818			1170	440	SLV 3	0.02	No
ini.	2	0	126265	-1933			1170	440	SLV 2	0.23	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-55863	-17985			1170	440	SLV 2	0.02	No
ini.	2	0	54950	-75			1170	440	SLD 3	5.9	Si
fin.	2	0	-30951	-12386			1170	440	SLD 3	0.04	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.415	SLV 13	No
V_SLV	0.024	SLV 1	No
PF_SLU	1.947	SLU 84	Si
V_SLU	0.023	SLU 83	No

## Trave di accoppiamento 12

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1406.3	104.6	51	111	60	-1506.3	104.6	51	111	60	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1393	-42132	71581	SLU 78	1.7	Si
fin.	3	-1446	-61956	71581	SLU 78	1.16	Si
ini.	3	-1356	-42099	71581	SLU 82	1.7	Si
fin.	3	-1562	-66253	71581	SLU 82	1.08	Si
ini.	3	-1264	-39732	71581	SLU 73	1.8	Si
fin.	3	-1453	-62206	71581	SLU 73	1.15	Si
ini.	3	-1335	-41210	71581	SLU 75	1.74	Si
fin.	3	-1456	-62455	71581	SLU 75	1.15	Si
ini.	3	-1377	-41467	71581	SLU 74	1.73	Si
fin.	3	-1458	-61976	71581	SLU 74	1.15	Si
ini.	3	-1322	-40654	71581	SLU 76	1.76	Si
fin.	3	-1444	-61707	71581	SLU 76	1.16	Si
ini.	3	-1414	-43021	71581	SLU 84	1.66	Si
fin.	3	-1553	-65753	71581	SLU 84	1.09	Si
ini.	3	-1398	-42356	71581	SLU 81	1.69	Si
fin.	3	-1565	-65774	71581	SLU 81	1.09	Si
ini.	3	-1456	-43278	71581	SLU 83	1.65	Si
fin.	3	-1556	-65274	71581	SLU 83	1.1	Si
ini.	3	-1435	-42389	71581	SLU 77	1.69	Si
fin.	3	-1449	-61476	71581	SLU 77	1.16	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-42132	10148			693	261	SLU 78	0.03	No
fin.	3	0	-61956	-5419			693	261	SLU 78	0.05	No
ini.	3	0	-42005	10067			693	261	SLU 79	0.03	No
fin.	3	0	-60408	-5333			693	261	SLU 79	0.05	No
ini.	3	0	-42389	10168			693	261	SLU 77	0.03	No
fin.	3	0	-61476	-5402			693	261	SLU 77	0.05	No
ini.	3	0	-41748	10048			693	261	SLU 80	0.03	No
fin.	3	0	-60888	-5350			693	261	SLU 80	0.05	No
ini.	3	0	-43278	10486			693	261	SLU 83	0.02	No
fin.	3	0	-65274	-5633			693	261	SLU 83	0.05	No
ini.	3	0	-42099	10320			693	261	SLU 82	0.03	No
fin.	3	0	-66253	-5632			693	261	SLU 82	0.05	No
ini.	3	0	-41210	10002			693	261	SLU 75	0.03	No
fin.	3	0	-62455	-5401			693	261	SLU 75	0.05	No
ini.	3	0	-41467	10022			693	261	SLU 74	0.03	No
fin.	3	0	-61976	-5383			693	261	SLU 74	0.05	No
ini.	3	0	-43021	10466			693	261	SLU 84	0.02	No
fin.	3	0	-65753	-5650			693	261	SLU 84	0.05	No
ini.	3	0	-42356	10340			693	261	SLU 81	0.03	No
fin.	3	0	-65774	-5615			693	261	SLU 81	0.05	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1657	-68687	82721	SLV 14	1.2	Si
fin.	2	9129	158092	82721	SLV 14	0.52	No
ini.	2	-4398	10707	82721	SLV 2	7.73	Si
fin.	2	-10831	-222808	82721	SLV 2	0.37	No
ini.	2	-3481	13825	82721	SLV 4	5.98	Si
fin.	2	-11061	-239845	82721	SLV 4	0.34	No
ini.	2	2574	-65569	82721	SLV 16	1.26	Si
fin.	2	8899	141055	82721	SLV 16	0.59	No
ini.	2	-2033	-9354	82721	SLD 3	8.84	Si
fin.	2	-5382	-127978	82721	SLD 3	0.65	No
ini.	2	-3481	13825	82721	SLV 3	5.98	Si
fin.	2	-11061	-239845	82721	SLV 3	0.34	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2574	-65569	82721	SLV 15	1.26	Si
fin.	2	8899	141055	82721	SLV 15	0.59	No
ini.	2	-2033	-9354	82721	SLD 4	8.84	Si
fin.	2	-5382	-127978	82721	SLD 4	0.65	No
ini.	2	1657	-68687	82721	SLV 13	1.2	Si
fin.	2	9129	158092	82721	SLV 13	0.52	No
ini.	2	-4398	10707	82721	SLV 1	7.73	Si
fin.	2	-10831	-222808	82721	SLV 1	0.37	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	13825	1578			1040	391	SLV 4	0.25	No
fin.	2	0	-239845	-9243			1040	391	SLV 4	0.04	No
ini.	2	0	-44137	8937			1040	391	SLD 16	0.04	No
fin.	2	0	38734	-1592			1040	391	SLD 16	0.25	No
ini.	2	0	-68687	11683			1040	391	SLV 13	0.03	No
fin.	2	0	158092	2061			1040	391	SLV 13	0.19	No
ini.	2	0	-45508	8841			1040	391	SLD 13	0.04	No
fin.	2	0	46225	-1126			1040	391	SLD 13	0.35	No
ini.	2	0	-65569	11916			1040	391	SLV 15	0.03	No
fin.	2	0	141055	970			1040	391	SLV 15	0.4	No
ini.	2	0	-45508	8841			1040	391	SLD 14	0.04	No
fin.	2	0	46225	-1126			1040	391	SLD 14	0.35	No
ini.	2	0	13825	1578			1040	391	SLV 3	0.25	No
fin.	2	0	-239845	-9243			1040	391	SLV 3	0.04	No
ini.	2	0	-44137	8937			1040	391	SLD 15	0.04	No
fin.	2	0	38734	-1592			1040	391	SLD 15	0.25	No
ini.	2	0	-68687	11683			1040	391	SLV 14	0.03	No
fin.	2	0	158092	2061			1040	391	SLV 14	0.19	No
ini.	2	0	-65569	11916			1040	391	SLV 16	0.03	No
fin.	2	0	141055	970			1040	391	SLV 16	0.4	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.345	SLV 3	No
V_SLV	0.033	SLV 15	No
PF_SLU	1.08	SLU 82	Si
V_SLU	0.025	SLU 83	No

## Trave di accoppiamento 13

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1261.3	104.6	57	111	54	-1358.3	104.6	57	111	54	97	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2522	-78693	61081	SLU 84	0.78	No
fin.	3	-846	-69980	61081	SLU 84	0.87	No
ini.	3	-2481	-74534	61081	SLU 80	0.82	No
fin.	3	-860	-67114	61081	SLU 80	0.91	No
ini.	3	-2457	-78405	61081	SLU 82	0.78	No
fin.	3	-798	-68949	61081	SLU 82	0.89	No
ini.	3	-2493	-78237	61081	SLU 81	0.78	No
fin.	3	-837	-69238	61081	SLU 81	0.88	No
ini.	3	-2558	-78525	61081	SLU 83	0.78	No
fin.	3	-885	-70268	61081	SLU 83	0.87	No
ini.	3	-2405	-75079	61081	SLU 75	0.81	No
fin.	3	-793	-66731	61081	SLU 75	0.92	No
ini.	3	-2441	-74911	61081	SLU 74	0.82	No
fin.	3	-832	-67019	61081	SLU 74	0.91	No
ini.	3	-2471	-75367	61081	SLU 78	0.81	No
fin.	3	-840	-67761	61081	SLU 78	0.9	No
ini.	3	-2517	-74366	61081	SLU 79	0.82	No
fin.	3	-899	-67403	61081	SLU 79	0.91	No
ini.	3	-2506	-75199	61081	SLU 77	0.81	No
fin.	3	-879	-68050	61081	SLU 77	0.9	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-75079	7786			624	235	SLU 75	0.03	No
fin.	3	0	-66731	-6261			624	235	SLU 75	0.04	No
ini.	3	0	-74911	7772			624	235	SLU 74	0.03	No
fin.	3	0	-67019	-6261			624	235	SLU 74	0.04	No
ini.	3	0	-74534	7767			624	235	SLU 80	0.03	No
fin.	3	0	-67114	-6257			624	235	SLU 80	0.04	No
ini.	3	0	-78525	8122			624	235	SLU 83	0.03	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-70268	-6552			624	235	SLU 83	0.04	No
ini.	3	0	-75199	7842			624	235	SLU 77	0.03	No
fin.	3	0	-68050	-6332			624	235	SLU 77	0.04	No
ini.	3	0	-78405	8067			624	235	SLU 82	0.03	No
fin.	3	0	-68949	-6481			624	235	SLU 82	0.04	No
ini.	3	0	-75367	7856			624	235	SLU 78	0.03	No
fin.	3	0	-67761	-6332			624	235	SLU 78	0.04	No
ini.	3	0	-78237	8052			624	235	SLU 81	0.03	No
fin.	3	0	-69238	-6481			624	235	SLU 81	0.04	No
ini.	3	0	-74366	7753			624	235	SLU 79	0.03	No
fin.	3	0	-67403	-6257			624	235	SLU 79	0.04	No
ini.	3	0	-78693	8136			624	235	SLU 84	0.03	No
fin.	3	0	-69980	-6552			624	235	SLU 84	0.04	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-478	-75321	72221	SLV 11	0.96	No
fin.	2	1570	-41424	72221	SLV 11	1.74	Si
ini.	2	-1141	-60800	72221	SLD 11	1.19	Si
fin.	2	368	-42853	72221	SLD 11	1.69	Si
ini.	2	-1358	-61245	72221	SLD 7	1.18	Si
fin.	2	-330	-43900	72221	SLD 7	1.65	Si
ini.	2	-2202	-59527	72221	SLV 3	1.21	Si
fin.	2	-2822	-47546	72221	SLV 3	1.52	Si
ini.	2	-1358	-61245	72221	SLD 8	1.18	Si
fin.	2	-330	-43900	72221	SLD 8	1.65	Si
ini.	2	-976	-76418	72221	SLV 7	0.95	No
fin.	2	-29	-43736	72221	SLV 7	1.65	Si
ini.	2	-1141	-60800	72221	SLD 12	1.19	Si
fin.	2	368	-42853	72221	SLD 12	1.69	Si
ini.	2	-976	-76418	72221	SLV 8	0.95	No
fin.	2	-29	-43736	72221	SLV 8	1.65	Si
ini.	2	-2202	-59527	72221	SLV 4	1.21	Si
fin.	2	-2822	-47546	72221	SLV 4	1.52	Si
ini.	2	-478	-75321	72221	SLV 12	0.96	No
fin.	2	1570	-41424	72221	SLV 12	1.74	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-40295	6985			936	352	SLV 13	0.05	No
fin.	2	0	-40796	-5178			936	352	SLV 13	0.07	No
ini.	2	0	-52502	6402			936	352	SLD 16	0.06	No
fin.	2	0	-42186	-4804			936	352	SLD 16	0.07	No
ini.	2	0	-60800	6202			936	352	SLD 12	0.06	No
fin.	2	0	-42853	-4665			936	352	SLD 12	0.08	No
ini.	2	0	-40295	6985			936	352	SLV 14	0.05	No
fin.	2	0	-40796	-5178			936	352	SLV 14	0.07	No
ini.	2	0	-55870	8001			936	352	SLV 15	0.04	No
fin.	2	0	-39841	-5687			936	352	SLV 15	0.06	No
ini.	2	0	-55870	8001			936	352	SLV 16	0.04	No
fin.	2	0	-39841	-5687			936	352	SLV 16	0.06	No
ini.	2	0	-75321	7566			936	352	SLV 11	0.05	No
fin.	2	0	-41424	-5377			936	352	SLV 11	0.07	No
ini.	2	0	-60800	6202			936	352	SLD 11	0.06	No
fin.	2	0	-42853	-4665			936	352	SLD 11	0.08	No
ini.	2	0	-75321	7566			936	352	SLV 12	0.05	No
fin.	2	0	-41424	-5377			936	352	SLV 12	0.07	No
ini.	2	0	-52502	6402			936	352	SLD 15	0.06	No
fin.	2	0	-42186	-4804			936	352	SLD 15	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.945	SLV 7	No
V_SLV	0.044	SLV 15	No
PF_SLU	0.776	SLU 84	No
V_SLU	0.029	SLU 84	No

## Trave di accoppiamento 14

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1123.8	104.6	57	111	54	-1223.8	104.6	57	111	54	100	45	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3674	1074	61081	SLU 75	56.9	Si
fin.	3	-4289	-62741	61081	SLU 75	0.97	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3798	1386	61081	SLU 81	44.08	Si
fin.	3	-4415	-66359	61081	SLU 81	0.92	No
ini.	3	-3874	762	61081	SLU 83	80.2	Si
fin.	3	-4528	-65590	61081	SLU 83	0.93	No
ini.	3	-3707	952	61081	SLU 74	64.19	Si
fin.	3	-4335	-62319	61081	SLU 74	0.98	No
ini.	3	-3766	1507	61081	SLU 82	40.52	Si
fin.	3	-4369	-66781	61081	SLU 82	0.91	No
ini.	3	-3649	1153	61081	SLU 76	52.96	Si
fin.	3	-4259	-62021	61081	SLU 76	0.98	No
ini.	3	-3574	1777	61081	SLU 73	34.37	Si
fin.	3	-4146	-62790	61081	SLU 73	0.97	No
ini.	3	-3749	450	61081	SLU 78	135.87	Si
fin.	3	-4402	-61972	61081	SLU 78	0.99	No
ini.	3	-3782	328	61081	SLU 77	186.4	Si
fin.	3	-4448	-61550	61081	SLU 77	0.99	No
ini.	3	-3841	884	61081	SLU 84	69.13	Si
fin.	3	-4482	-66012	61081	SLU 84	0.93	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	762	-376			624	235	SLU 83	0.62	No
fin.	3	0	-65590	-592			624	235	SLU 83	0.4	No
ini.	3	0	1507	-400			624	235	SLU 82	0.59	No
fin.	3	0	-66781	-628			624	235	SLU 82	0.37	No
ini.	3	0	1777	-381			624	235	SLU 73	0.62	No
fin.	3	0	-62790	-587			624	235	SLU 73	0.4	No
ini.	3	0	462	-303			624	235	SLU 63	0.77	No
fin.	3	0	-58985	-572			624	235	SLU 63	0.41	No
ini.	3	0	964	-313			624	235	SLU 60	0.75	No
fin.	3	0	-59332	-589			624	235	SLU 60	0.4	No
ini.	3	0	340	-296			624	235	SLU 62	0.79	No
fin.	3	0	-58563	-563			624	235	SLU 62	0.42	No
ini.	3	0	1386	-393			624	235	SLU 81	0.6	No
fin.	3	0	-66359	-619			624	235	SLU 81	0.38	No
ini.	3	0	884	-383			624	235	SLU 84	0.61	No
fin.	3	0	-66012	-601			624	235	SLU 84	0.39	No
ini.	3	0	1074	-372			624	235	SLU 75	0.63	No
fin.	3	0	-62741	-563			624	235	SLU 75	0.42	No
ini.	3	0	1086	-320			624	235	SLU 61	0.73	No
fin.	3	0	-59754	-599			624	235	SLU 61	0.39	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2797	32779	72221	SLD 3	2.2	Si
fin.	2	-2355	-83271	72221	SLD 3	0.87	No
ini.	2	-3543	61889	72221	SLV 1	1.17	Si
fin.	2	-2393	-109536	72221	SLV 1	0.66	No
ini.	2	-2797	32779	72221	SLD 4	2.2	Si
fin.	2	-2355	-83271	72221	SLD 4	0.87	No
ini.	2	-3543	61889	72221	SLV 2	1.17	Si
fin.	2	-2393	-109536	72221	SLV 2	0.66	No
ini.	2	-2168	40995	72221	SLV 8	1.76	Si
fin.	2	-1358	-113130	72221	SLV 8	0.64	No
ini.	2	-2353	18514	72221	SLD 7	3.9	Si
fin.	2	-2239	-72347	72221	SLD 7	1	No
ini.	2	-2353	18514	72221	SLD 8	3.9	Si
fin.	2	-2239	-72347	72221	SLD 8	1	No
ini.	2	-2168	40995	72221	SLV 7	1.76	Si
fin.	2	-1358	-113130	72221	SLV 7	0.64	No
ini.	2	-3188	73722	72221	SLV 4	0.98	No
fin.	2	-1622	-137770	72221	SLV 4	0.52	No
ini.	2	-3188	73722	72221	SLV 3	0.98	No
fin.	2	-1622	-137770	72221	SLV 3	0.52	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	32779	-1037			936	352	SLD 4	0.34	No
fin.	2	0	-83271	-1398			936	352	SLD 4	0.25	No
ini.	2	0	73722	-2070			936	352	SLV 3	0.17	No
fin.	2	0	-137770	-2728			936	352	SLV 3	0.13	No
ini.	2	0	61889	-1647			936	352	SLV 1	0.21	No
fin.	2	0	-109536	-2084			936	352	SLV 1	0.17	No
ini.	2	0	40995	-1431			936	352	SLV 8	0.25	No
fin.	2	0	-113130	-2062			936	352	SLV 8	0.17	No
ini.	2	0	73722	-2070			936	352	SLV 4	0.17	No
fin.	2	0	-137770	-2728			936	352	SLV 4	0.13	No
ini.	2	0	32779	-1037			936	352	SLD 3	0.34	No
fin.	2	0	-83271	-1398			936	352	SLD 3	0.25	No
ini.	2	0	40995	-1431			936	352	SLV 7	0.25	No
fin.	2	0	-113130	-2062			936	352	SLV 7	0.17	No
ini.	2	0	61889	-1647			936	352	SLV 2	0.21	No
fin.	2	0	-109536	-2084			936	352	SLV 2	0.17	No
ini.	2	0	-71060	1590			936	352	SLV 13	0.22	No
fin.	2	0	54980	1968			936	352	SLV 13	0.18	No
ini.	2	0	-71060	1590			936	352	SLV 14	0.22	No
fin.	2	0	54980	1968			936	352	SLV 14	0.18	No



#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.524	SLV 3	No
V_SLV	0.129	SLV 3	No
PF_SLU	0.915	SLU 82	No
V_SLU	0.374	SLU 82	No

#### Trave di accoppiamento 15

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

##### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-971.3	104.6	51	111	60	-1071.3	104.6	51	111	60	100	45	3500

##### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

##### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-4196	-39811	71581	SLU 84	1.8	Si
fin.	3	-1973	-36797	71581	SLU 84	1.95	Si
ini.	3	-4179	-39433	71581	SLU 83	1.82	Si
fin.	3	-2011	-37672	71581	SLU 83	1.9	Si
ini.	3	-4053	-39238	71581	SLU 78	1.82	Si
fin.	3	-1972	-36203	71581	SLU 78	1.98	Si
ini.	3	-3992	-38498	71581	SLU 73	1.86	Si
fin.	3	-1810	-32635	71581	SLU 73	2.19	Si
ini.	3	-4022	-38749	71581	SLU 74	1.85	Si
fin.	3	-1932	-35505	71581	SLU 74	2.02	Si
ini.	3	-4182	-39700	71581	SLU 82	1.8	Si
fin.	3	-1896	-35225	71581	SLU 82	2.03	Si
ini.	3	-4036	-38860	71581	SLU 77	1.84	Si
fin.	3	-2010	-37078	71581	SLU 77	1.93	Si
ini.	3	-4164	-39322	71581	SLU 81	1.82	Si
fin.	3	-1934	-36099	71581	SLU 81	1.98	Si
ini.	3	-4007	-38609	71581	SLU 76	1.85	Si
fin.	3	-1887	-34207	71581	SLU 76	2.09	Si
ini.	3	-4039	-39127	71581	SLU 75	1.83	Si
fin.	3	-1895	-34630	71581	SLU 75	2.07	Si

##### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-38860	11736			693	261	SLU 77	0.02	No
fin.	3	0	-37078	-4902			693	261	SLU 77	0.05	No
ini.	3	0	-39238	11765			693	261	SLU 78	0.02	No
fin.	3	0	-36203	-4870			693	261	SLU 78	0.05	No
ini.	3	0	-38467	11614			693	261	SLU 80	0.02	No
fin.	3	0	-36363	-4838			693	261	SLU 80	0.05	No
ini.	3	0	-38089	11585			693	261	SLU 79	0.02	No
fin.	3	0	-37238	-4870			693	261	SLU 79	0.05	No
ini.	3	0	-39700	12225			693	261	SLU 82	0.02	No
fin.	3	0	-35225	-4965			693	261	SLU 82	0.05	No
ini.	3	0	-38749	11681			693	261	SLU 74	0.02	No
fin.	3	0	-35505	-4822			693	261	SLU 74	0.05	No
ini.	3	0	-39127	11710			693	261	SLU 75	0.02	No
fin.	3	0	-34630	-4790			693	261	SLU 75	0.05	No
ini.	3	0	-39811	12280			693	261	SLU 84	0.02	No
fin.	3	0	-36797	-5045			693	261	SLU 84	0.05	No
ini.	3	0	-39433	12251			693	261	SLU 83	0.02	No
fin.	3	0	-37672	-5077			693	261	SLU 83	0.05	No
ini.	3	0	-39322	12196			693	261	SLU 81	0.02	No
fin.	3	0	-36099	-4997			693	261	SLU 81	0.05	No

##### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-6997	-84005	82721	SLD 16	0.98	No
fin.	2	-2338	-5808	82721	SLD 16	14.24	Si
ini.	2	-11416	-136824	82721	SLV 13	0.6	No
fin.	2	-4462	-6337	82721	SLV 13	13.05	Si
ini.	2	-6997	-84005	82721	SLD 15	0.98	No
fin.	2	-2338	-5808	82721	SLD 15	14.24	Si
ini.	2	6995	103735	82721	SLV 2	0.8	No
fin.	2	997	-61703	82721	SLV 2	1.34	Si
ini.	2	-12476	-157552	82721	SLV 15	0.53	No
fin.	2	-3645	15897	82721	SLV 15	5.2	Si
ini.	2	-11416	-136824	82721	SLV 14	0.6	No
fin.	2	-4462	-6337	82721	SLV 14	13.05	Si
ini.	2	-7269	-97540	82721	SLV 11	0.85	No
fin.	2	-780	22459	82721	SLV 11	3.68	Si
ini.	2	-12476	-157552	82721	SLV 16	0.53	No
fin.	2	-3645	15897	82721	SLV 16	5.2	Si
ini.	2	6995	103735	82721	SLV 1	0.8	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	2	997	-61703	82721	SLV 1	1.34	Si
ini.	2	-7269	-97540	82721	SLV 12	0.85	No
fin.	2	-780	22459	82721	SLV 12	3.68	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-97540	13597			1040	391	SLV 11	0.03	No
fin.	2	0	22459	-2107			1040	391	SLV 11	0.19	No
ini.	2	0	-157552	15624			1040	391	SLV 16	0.03	No
fin.	2	0	15897	15			1040	391	SLV 16	25.84	Si
ini.	2	0	-136824	13313			1040	391	SLV 13	0.03	No
fin.	2	0	-6337	-54			1040	391	SLV 13	7.23	Si
ini.	2	0	-84005	11173			1040	391	SLD 15	0.04	No
fin.	2	0	-5808	-1771			1040	391	SLD 15	0.22	No
ini.	2	0	-84005	11173			1040	391	SLD 16	0.04	No
fin.	2	0	-5808	-1771			1040	391	SLD 16	0.22	No
ini.	2	0	-57719	10267			1040	391	SLD 11	0.04	No
fin.	2	0	-3083	-2698			1040	391	SLD 11	0.15	No
ini.	2	0	-157552	15624			1040	391	SLV 15	0.03	No
fin.	2	0	15897	15			1040	391	SLV 15	25.84	Si
ini.	2	0	-136824	13313			1040	391	SLV 14	0.03	No
fin.	2	0	-6337	-54			1040	391	SLV 14	7.23	Si
ini.	2	0	-97540	13597			1040	391	SLV 12	0.03	No
fin.	2	0	22459	-2107			1040	391	SLV 12	0.19	No
ini.	2	0	-57719	10267			1040	391	SLD 12	0.04	No
fin.	2	0	-3083	-2698			1040	391	SLD 12	0.15	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.525	SLV 15	No
V_SLV	0.025	SLV 15	No
PF_SLU	1.798	SLU 84	Si
V_SLU	0.021	SLU 84	No

## Trave di accoppiamento 16

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-652.8	104.6	51	111	60	-742.8	104.6	51	111	60	90	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3415	-75174	71581	SLU 83	0.95	No
fin.	3	-1933	-37226	71581	SLU 83	1.92	Si
ini.	3	-3365	-72698	71581	SLU 75	0.98	No
fin.	3	-1855	-33083	71581	SLU 75	2.16	Si
ini.	3	-3347	-73115	71581	SLU 78	0.98	No
fin.	3	-1844	-33966	71581	SLU 78	2.11	Si
ini.	3	-3237	-71954	71581	SLU 77	0.99	No
fin.	3	-1844	-36681	71581	SLU 77	1.95	Si
ini.	3	-3423	-72279	71581	SLU 73	0.99	No
fin.	3	-1864	-30602	71581	SLU 73	2.34	Si
ini.	3	-3544	-75918	71581	SLU 82	0.94	No
fin.	3	-1944	-33629	71581	SLU 82	2.13	Si
ini.	3	-3526	-76335	71581	SLU 84	0.94	No
fin.	3	-1932	-34511	71581	SLU 84	2.07	Si
ini.	3	-3314	-72338	71581	SLU 80	0.99	No
fin.	3	-1842	-34178	71581	SLU 80	2.09	Si
ini.	3	-3405	-72696	71581	SLU 76	0.98	No
fin.	3	-1853	-31485	71581	SLU 76	2.27	Si
ini.	3	-3433	-74758	71581	SLU 81	0.96	No
fin.	3	-1944	-36344	71581	SLU 81	1.97	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-73115	8375			693	261	SLU 78	0.03	No
fin.	3	0	-33966	-3103			693	261	SLU 78	0.08	No
ini.	3	0	-75174	8657			693	261	SLU 83	0.03	No
fin.	3	0	-37226	-3287			693	261	SLU 83	0.08	No
ini.	3	0	-72338	8290			693	261	SLU 80	0.03	No
fin.	3	0	-34178	-3092			693	261	SLU 80	0.08	No
ini.	3	0	-71954	8340			693	261	SLU 77	0.03	No
fin.	3	0	-36681	-3211			693	261	SLU 77	0.08	No
ini.	3	0	-76335	8693			693	261	SLU 84	0.03	No
fin.	3	0	-34511	-3178			693	261	SLU 84	0.08	No
ini.	3	0	-71538	8246			693	261	SLU 74	0.03	No
fin.	3	0	-35798	-3150			693	261	SLU 74	0.08	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-74758	8564			693	261	SLU 81	0.03	No
fin.	3	0	-36344	-3226			693	261	SLU 81	0.08	No
ini.	3	0	-71178	8255			693	261	SLU 79	0.03	No
fin.	3	0	-36893	-3200			693	261	SLU 79	0.08	No
ini.	3	0	-72698	8281			693	261	SLU 75	0.03	No
fin.	3	0	-33083	-3042			693	261	SLU 75	0.09	No
ini.	3	0	-75918	8599			693	261	SLU 82	0.03	No
fin.	3	0	-33629	-3118			693	261	SLU 82	0.08	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1680	1707	82721	SLV 4	48.46	Si
fin.	2	-3825	-211745	82721	SLV 4	0.39	No
ini.	2	-5350	-94709	82721	SLV 15	0.87	No
fin.	2	1868	163305	82721	SLV 15	0.51	No
ini.	2	-6077	-96174	82721	SLV 13	0.86	No
fin.	2	1202	162112	82721	SLV 13	0.51	No
ini.	2	953	242	82721	SLV 2	341.83	Si
fin.	2	-4492	-212937	82721	SLV 2	0.39	No
ini.	2	-5350	-94709	82721	SLV 16	0.87	No
fin.	2	1868	163305	82721	SLV 16	0.51	No
ini.	2	1680	1707	82721	SLV 3	48.46	Si
fin.	2	-3825	-211745	82721	SLV 3	0.39	No
ini.	2	-819	-26548	82721	SLD 1	3.12	Si
fin.	2	-2698	-106996	82721	SLD 1	0.77	No
ini.	2	-6077	-96174	82721	SLV 14	0.86	No
fin.	2	1202	162112	82721	SLV 14	0.51	No
ini.	2	-819	-26548	82721	SLD 2	3.12	Si
fin.	2	-2698	-106996	82721	SLD 2	0.77	No
ini.	2	953	242	82721	SLV 1	341.83	Si
fin.	2	-4492	-212937	82721	SLV 1	0.39	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-59254	7501			1040	391	SLV 11	0.05	No
fin.	2	0	33429	-1062			1040	391	SLV 11	0.37	No
ini.	2	0	-59254	7501			1040	391	SLV 12	0.05	No
fin.	2	0	33429	-1062			1040	391	SLV 12	0.37	No
ini.	2	0	242	1186			1040	391	SLV 2	0.33	No
fin.	2	0	-212937	-7572			1040	391	SLV 2	0.05	No
ini.	2	0	-94709	9656			1040	391	SLV 16	0.04	No
fin.	2	0	163305	3325			1040	391	SLV 16	0.12	No
ini.	2	0	-94709	9656			1040	391	SLV 15	0.04	No
fin.	2	0	163305	3325			1040	391	SLV 15	0.12	No
ini.	2	0	-96174	9123			1040	391	SLV 13	0.04	No
fin.	2	0	162112	3703			1040	391	SLV 13	0.11	No
ini.	2	0	242	1186			1040	391	SLV 1	0.33	No
fin.	2	0	-212937	-7572			1040	391	SLV 1	0.05	No
ini.	2	0	1707	1720			1040	391	SLV 4	0.23	No
fin.	2	0	-211745	-7950			1040	391	SLV 4	0.05	No
ini.	2	0	1707	1720			1040	391	SLV 3	0.23	No
fin.	2	0	-211745	-7950			1040	391	SLV 3	0.05	No
ini.	2	0	-96174	9123			1040	391	SLV 14	0.04	No
fin.	2	0	162112	3703			1040	391	SLV 14	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.388	SLV 1	No
V_SLV	0.041	SLV 15	No
PF_SLU	0.938	SLU 84	No
V_SLU	0.03	SLU 84	No

## Trave di accoppiamento 17

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-508.8	104.6	51	111	60	-598.8	104.6	51	111	60	90	45	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6055	-55060	71581	SLU 79	1.3	Si
fin.	3	-3525	-47998	71581	SLU 79	1.49	Si
ini.	3	-6234	-55884	71581	SLU 81	1.28	Si
fin.	3	-3766	-50966	71581	SLU 81	1.4	Si
ini.	3	-6020	-53808	71581	SLU 75	1.33	Si
fin.	3	-3689	-49490	71581	SLU 75	1.45	Si
ini.	3	-6293	-56050	71581	SLU 84	1.28	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	-3868	-52157	71581	SLU 84	1.37	Si
ini.	3	-6105	-54879	71581	SLU 78	1.3	Si
fin.	3	-3678	-49535	71581	SLU 78	1.45	Si
ini.	3	-6046	-54714	71581	SLU 74	1.31	Si
fin.	3	-3575	-48344	71581	SLU 74	1.48	Si
ini.	3	-6319	-56956	71581	SLU 83	1.26	Si
fin.	3	-3754	-51011	71581	SLU 83	1.4	Si
ini.	3	-6029	-54153	71581	SLU 80	1.32	Si
fin.	3	-3639	-49143	71581	SLU 80	1.46	Si
ini.	3	-6208	-54978	71581	SLU 82	1.3	Si
fin.	3	-3879	-52112	71581	SLU 82	1.37	Si
ini.	3	-6132	-55786	71581	SLU 77	1.28	Si
fin.	3	-3564	-48389	71581	SLU 77	1.48	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-54714	11394			693	261	SLU 74	0.02	No
fin.	3	0	-48344	-7513			693	261	SLU 74	0.03	No
ini.	3	0	-54153	11319			693	261	SLU 80	0.02	No
fin.	3	0	-49143	-7547			693	261	SLU 80	0.03	No
ini.	3	0	-55060	11489			693	261	SLU 79	0.02	No
fin.	3	0	-47998	-7531			693	261	SLU 79	0.03	No
ini.	3	0	-56050	11725			693	261	SLU 84	0.02	No
fin.	3	0	-52157	-7892			693	261	SLU 84	0.03	No
ini.	3	0	-54978	11514			693	261	SLU 82	0.02	No
fin.	3	0	-52112	-7813			693	261	SLU 82	0.03	No
ini.	3	0	-53808	11224			693	261	SLU 75	0.02	No
fin.	3	0	-49490	-7528			693	261	SLU 75	0.03	No
ini.	3	0	-55786	11606			693	261	SLU 77	0.02	No
fin.	3	0	-48389	-7592			693	261	SLU 77	0.03	No
ini.	3	0	-55884	11684			693	261	SLU 81	0.02	No
fin.	3	0	-50966	-7797			693	261	SLU 81	0.03	No
ini.	3	0	-56956	11895			693	261	SLU 83	0.02	No
fin.	3	0	-51011	-7877			693	261	SLU 83	0.03	No
ini.	3	0	-54879	11435			693	261	SLU 78	0.02	No
fin.	3	0	-49535	-7607			693	261	SLU 78	0.03	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-18007	-164111	82721	SLV 16	0.5	No
fin.	2	-7069	-13652	82721	SLV 16	6.06	Si
ini.	2	-18007	-164111	82721	SLV 15	0.5	No
fin.	2	-7069	-13652	82721	SLV 15	6.06	Si
ini.	2	-16315	-143576	82721	SLV 14	0.58	No
fin.	2	-7483	-22745	82721	SLV 14	3.64	Si
ini.	2	-10757	-105586	82721	SLV 11	0.78	No
fin.	2	-3172	-12782	82721	SLV 11	6.47	Si
ini.	2	-10115	-92037	82721	SLD 15	0.9	No
fin.	2	-4439	-24051	82721	SLD 15	3.44	Si
ini.	2	10041	92087	82721	SLV 1	0.9	No
fin.	2	2270	-50574	82721	SLV 1	1.64	Si
ini.	2	10041	92087	82721	SLV 2	0.9	No
fin.	2	2270	-50574	82721	SLV 2	1.64	Si
ini.	2	-16315	-143576	82721	SLV 13	0.58	No
fin.	2	-7483	-22745	82721	SLV 13	3.64	Si
ini.	2	-10757	-105586	82721	SLV 12	0.78	No
fin.	2	-3172	-12782	82721	SLV 12	6.47	Si
ini.	2	-10115	-92037	82721	SLD 16	0.9	No
fin.	2	-4439	-24051	82721	SLD 16	3.44	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-83094	11188			1040	391	SLD 13	0.03	No
fin.	2	0	-27990	-3967			1040	391	SLD 13	0.1	No
ini.	2	0	-105586	11209			1040	391	SLV 12	0.03	No
fin.	2	0	-12782	-2045			1040	391	SLV 12	0.19	No
ini.	2	0	-92037	11462			1040	391	SLD 16	0.03	No
fin.	2	0	-24051	-3431			1040	391	SLD 16	0.11	No
ini.	2	0	-143576	15889			1040	391	SLV 13	0.02	No
fin.	2	0	-22745	-2643			1040	391	SLV 13	0.15	No
ini.	2	0	-83094	11188			1040	391	SLD 14	0.03	No
fin.	2	0	-27990	-3967			1040	391	SLD 14	0.1	No
ini.	2	0	-92037	11462			1040	391	SLD 15	0.03	No
fin.	2	0	-24051	-3431			1040	391	SLD 15	0.11	No
ini.	2	0	-164111	16538			1040	391	SLV 15	0.02	No
fin.	2	0	-13652	-1408			1040	391	SLV 15	0.28	No
ini.	2	0	-105586	11209			1040	391	SLV 11	0.03	No
fin.	2	0	-12782	-2045			1040	391	SLV 11	0.19	No
ini.	2	0	-143576	15889			1040	391	SLV 14	0.02	No
fin.	2	0	-22745	-2643			1040	391	SLV 14	0.15	No
ini.	2	0	-164111	16538			1040	391	SLV 16	0.02	No
fin.	2	0	-13652	-1408			1040	391	SLV 16	0.28	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.504	SLV 15	No
V_SLV	0.024	SLV 15	No
PF_SLU	1.257	SLU 83	Si



Stato limite	Coeff.s.	Comb.	Verifica
V_SLU	0.022	SLU 83	No

## Trave di accoppiamento 18

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1776.8	657.6	-159	41	200	-1676.8	657.6	-159	41	200	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3725	-345825	316581	SLU 81	0.92	No
fin.	3	-6171	47567	316581	SLU 81	6.66	Si
ini.	3	-3798	-342354	316581	SLU 84	0.92	No
fin.	3	-6222	45250	316581	SLU 84	7	Si
ini.	3	-3763	-326876	316581	SLU 78	0.97	No
fin.	3	-6075	40728	316581	SLU 78	7.77	Si
ini.	3	-3690	-330346	316581	SLU 74	0.96	No
fin.	3	-6024	43045	316581	SLU 74	7.35	Si
ini.	3	-3801	-342176	316581	SLU 83	0.93	No
fin.	3	-6225	45223	316581	SLU 83	7	Si
ini.	3	-3722	-346004	316581	SLU 82	0.91	No
fin.	3	-6168	47594	316581	SLU 82	6.65	Si
ini.	3	-3666	-325821	316581	SLU 76	0.97	No
fin.	3	-5966	41806	316581	SLU 76	7.57	Si
ini.	3	-3766	-326697	316581	SLU 77	0.97	No
fin.	3	-6078	40701	316581	SLU 77	7.78	Si
ini.	3	-3688	-330525	316581	SLU 75	0.96	No
fin.	3	-6021	43072	316581	SLU 75	7.35	Si
ini.	3	-3590	-329471	316581	SLU 73	0.96	No
fin.	3	-5912	44150	316581	SLU 73	7.17	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-325821	3440			3466	1304	SLU 76	0.38	No
fin.	3	0	41806	9645			3466	1304	SLU 76	0.14	No
ini.	3	0	-329471	3549			3466	1304	SLU 73	0.37	No
fin.	3	0	44150	9685			3466	1304	SLU 73	0.13	No
ini.	3	0	-326876	3397			3466	1304	SLU 78	0.38	No
fin.	3	0	40728	9738			3466	1304	SLU 78	0.13	No
ini.	3	0	-330525	3505			3466	1304	SLU 75	0.37	No
fin.	3	0	43072	9778			3466	1304	SLU 75	0.13	No
ini.	3	0	-346004	3742			3466	1304	SLU 82	0.35	No
fin.	3	0	47594	10190			3466	1304	SLU 82	0.13	No
ini.	3	0	-326697	3393			3466	1304	SLU 77	0.38	No
fin.	3	0	40701	9736			3466	1304	SLU 77	0.13	No
ini.	3	0	-330346	3502			3466	1304	SLU 74	0.37	No
fin.	3	0	43045	9777			3466	1304	SLU 74	0.13	No
ini.	3	0	-342176	3631			3466	1304	SLU 83	0.36	No
fin.	3	0	45223	10148			3466	1304	SLU 83	0.13	No
ini.	3	0	-342354	3634			3466	1304	SLU 84	0.36	No
fin.	3	0	45250	10150			3466	1304	SLU 84	0.13	No
ini.	3	0	-345825	3739			3466	1304	SLU 81	0.35	No
fin.	3	0	47567	10188			3466	1304	SLU 81	0.13	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3511	-506013	327721	SLV 8	0.65	No
fin.	2	-7466	172624	327721	SLV 8	1.9	Si
ini.	2	-1477	-449639	327721	SLD 1	0.73	No
fin.	2	-5335	188941	327721	SLD 1	1.73	Si
ini.	2	-1033	-804699	327721	SLV 3	0.41	No
fin.	2	-8256	414661	327721	SLV 3	0.79	No
ini.	2	-1477	-449639	327721	SLD 2	0.73	No
fin.	2	-5335	188941	327721	SLD 2	1.73	Si
ini.	2	-1877	-479448	327721	SLD 4	0.68	No
fin.	2	-5922	196660	327721	SLD 4	1.67	Si
ini.	2	-3511	-506013	327721	SLV 7	0.65	No
fin.	2	-7466	172624	327721	SLV 7	1.9	Si
ini.	2	-100	-735084	327721	SLV 2	0.45	No
fin.	2	-6877	396110	327721	SLV 2	0.83	No
ini.	2	-100	-735084	327721	SLV 1	0.45	No
fin.	2	-6877	396110	327721	SLV 1	0.83	No
ini.	2	-1877	-479448	327721	SLD 3	0.68	No
fin.	2	-5922	196660	327721	SLD 3	1.67	Si
ini.	2	-1033	-804699	327721	SLV 4	0.41	No
fin.	2	-8256	414661	327721	SLV 4	0.79	No



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-506013	6837			5199	1957	SLV 7	0.29	No
fin.	2	0	172624	14005			5199	1957	SLV 7	0.14	No
ini.	2	0	-479448	8661			5199	1957	SLD 3	0.23	No
fin.	2	0	196660	13514			5199	1957	SLD 3	0.14	No
ini.	2	0	-449639	8633			5199	1957	SLD 1	0.23	No
fin.	2	0	188941	12773			5199	1957	SLD 1	0.15	No
ini.	2	0	-449639	8633			5199	1957	SLD 2	0.23	No
fin.	2	0	188941	12773			5199	1957	SLD 2	0.15	No
ini.	2	0	-506013	6837			5199	1957	SLV 8	0.29	No
fin.	2	0	172624	14005			5199	1957	SLV 8	0.14	No
ini.	2	0	-479448	8661			5199	1957	SLD 4	0.23	No
fin.	2	0	196660	13514			5199	1957	SLD 4	0.14	No
ini.	2	0	-735084	16630			5199	1957	SLV 2	0.12	No
fin.	2	0	396110	20660			5199	1957	SLV 2	0.09	No
ini.	2	0	-804699	16712			5199	1957	SLV 3	0.12	No
fin.	2	0	414661	22395			5199	1957	SLV 3	0.09	No
ini.	2	0	-804699	16712			5199	1957	SLV 4	0.12	No
fin.	2	0	414661	22395			5199	1957	SLV 4	0.09	No
ini.	2	0	-735084	16630			5199	1957	SLV 1	0.12	No
fin.	2	0	396110	20660			5199	1957	SLV 1	0.09	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.407	SLV 3	No
V_SLV	0.087	SLV 3	No
PF_SLU	0.915	SLU 82	No
V_SLU	0.128	SLU 82	No

#### Trave di accoppiamento 19

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1776.8	657.6	81	111	30	-1676.8	657.6	81	111	30	100	45	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1197	-31708	20548	SLU 75	0.65	No
fin.	3	2307	1520	20548	SLU 75	13.52	Si
ini.	3	1243	-32831	20548	SLU 84	0.63	No
fin.	3	2398	1676	20548	SLU 84	12.26	Si
ini.	3	1214	-31433	20548	SLU 78	0.65	No
fin.	3	2291	930	20548	SLU 78	22.08	Si
ini.	3	1243	-32816	20548	SLU 83	0.63	No
fin.	3	2397	1656	20548	SLU 83	12.41	Si
ini.	3	1226	-33107	20548	SLU 82	0.62	No
fin.	3	2414	2265	20548	SLU 82	9.07	Si
ini.	3	1214	-31418	20548	SLU 77	0.65	No
fin.	3	2290	911	20548	SLU 77	22.56	Si
ini.	3	1197	-31693	20548	SLU 74	0.65	No
fin.	3	2306	1500	20548	SLU 74	13.7	Si
ini.	3	1226	-33092	20548	SLU 81	0.62	No
fin.	3	2412	2245	20548	SLU 81	9.15	Si
ini.	3	1186	-31265	20548	SLU 76	0.66	No
fin.	3	2275	1353	20548	SLU 76	15.18	Si
ini.	3	1169	-31541	20548	SLU 73	0.65	No
fin.	3	2290	1942	20548	SLU 73	10.58	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-33092	1574			347	130	SLU 81	0.08	No
fin.	3	0	2245	-361			347	130	SLU 81	0.36	No
ini.	3	0	-31418	1513			347	130	SLU 77	0.09	No
fin.	3	0	911	-398			347	130	SLU 77	0.33	No
ini.	3	0	-31433	1514			347	130	SLU 78	0.09	No
fin.	3	0	930	-398			347	130	SLU 78	0.33	No
ini.	3	0	-32831	1569			347	130	SLU 84	0.08	No
fin.	3	0	1676	-383			347	130	SLU 84	0.34	No
ini.	3	0	-31265	1500			347	130	SLU 76	0.09	No
fin.	3	0	1353	-377			347	130	SLU 76	0.35	No
ini.	3	0	-31708	1519			347	130	SLU 75	0.09	No
fin.	3	0	1520	-376			347	130	SLU 75	0.35	No
ini.	3	0	-31693	1518			347	130	SLU 74	0.09	No
fin.	3	0	1500	-376			347	130	SLU 74	0.35	No
ini.	3	0	-31541	1506			347	130	SLU 73	0.09	No
fin.	3	0	1942	-355			347	130	SLU 73	0.37	No
ini.	3	0	-33107	1574			347	130	SLU 82	0.08	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	2265	-360			347	130	SLU 82	0.36	No
ini.	3	0	-32816	1568			347	130	SLU 83	0.08	No
fin.	3	0	1656	-383			347	130	SLU 83	0.34	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	366	-44343	30221	SLD 3	0.68	No
fin.	2	2822	22139	30221	SLD 3	1.37	Si
ini.	2	1806	30014	30221	SLV 13	1.01	Si
fin.	2	-1309	-47841	30221	SLV 13	0.63	No
ini.	2	-191	-73546	30221	SLV 3	0.41	No
fin.	2	4438	49851	30221	SLV 3	0.61	No
ini.	2	-1193	-72306	30221	SLV 2	0.42	No
fin.	2	3707	52122	30221	SLV 2	0.58	No
ini.	2	366	-44343	30221	SLD 4	0.68	No
fin.	2	2822	22139	30221	SLD 4	1.37	Si
ini.	2	-1193	-72306	30221	SLV 1	0.42	No
fin.	2	3707	52122	30221	SLV 1	0.58	No
ini.	2	-191	-73546	30221	SLV 4	0.41	No
fin.	2	4438	49851	30221	SLV 4	0.61	No
ini.	2	2807	28774	30221	SLV 15	1.05	Si
fin.	2	-578	-50112	30221	SLV 15	0.6	No
ini.	2	1806	30014	30221	SLV 14	1.01	Si
fin.	2	-1309	-47841	30221	SLV 14	0.63	No
ini.	2	2807	28774	30221	SLV 16	1.05	Si
fin.	2	-578	-50112	30221	SLV 16	0.6	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-72306	2755			520	196	SLV 1	0.07	No
fin.	2	0	52122	1391			520	196	SLV 1	0.14	No
ini.	2	0	-73546	3035			520	196	SLV 4	0.06	No
fin.	2	0	49851	1138			520	196	SLV 4	0.17	No
ini.	2	0	-73546	3035			520	196	SLV 3	0.06	No
fin.	2	0	49851	1138			520	196	SLV 3	0.17	No
ini.	2	0	28774	-657			520	196	SLV 16	0.3	No
fin.	2	0	-50112	-1919			520	196	SLV 16	0.1	No
ini.	2	0	-44343	1913			520	196	SLD 4	0.1	No
fin.	2	0	22139	348			520	196	SLD 4	0.56	No
ini.	2	0	-39180	2070			520	196	SLV 7	0.09	No
fin.	2	0	12213	-227			520	196	SLV 7	0.86	No
ini.	2	0	28774	-657			520	196	SLV 15	0.3	No
fin.	2	0	-50112	-1919			520	196	SLV 15	0.1	No
ini.	2	0	-72306	2755			520	196	SLV 2	0.07	No
fin.	2	0	52122	1391			520	196	SLV 2	0.14	No
ini.	2	0	-44343	1913			520	196	SLD 3	0.1	No
fin.	2	0	22139	348			520	196	SLD 3	0.56	No
ini.	2	0	-39180	2070			520	196	SLV 8	0.09	No
fin.	2	0	12213	-227			520	196	SLV 8	0.86	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.411	SLV 3	No
V_SLV	0.064	SLV 3	No
PF_SLU	0.621	SLU 82	No
V_SLU	0.083	SLU 82	No

## Trave di accoppiamento 20

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1288.8	657.6	-159	41	200	-1188.8	657.6	-159	41	200	100	45	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6292	-50150	316581	SLU 83	6.31	Si
fin.	3	-6227	796	316581	SLU 83	397.56	Si
ini.	3	-6286	-50244	316581	SLU 84	6.3	Si
fin.	3	-6219	657	316581	SLU 84	481.93	Si
ini.	3	-6161	-52985	316581	SLU 81	5.97	Si
fin.	3	-6137	930	316581	SLU 81	340.42	Si
ini.	3	-6155	-53078	316581	SLU 82	5.96	Si
fin.	3	-6130	791	316581	SLU 82	400.45	Si
ini.	3	-6041	-47620	316581	SLU 76	6.65	Si
fin.	3	-5968	423	316581	SLU 76	748.15	Si
ini.	3	-5596	-48989	316581	SLU 60	6.46	Si
fin.	3	-5583	455	316581	SLU 60	696.23	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6082	-48695	316581	SLU 75	6.5	Si
fin.	3	-6018	663	316581	SLU 75	477.77	Si
ini.	3	-5910	-50454	316581	SLU 73	6.27	Si
fin.	3	-5879	557	316581	SLU 73	568.57	Si
ini.	3	-5590	-49083	316581	SLU 61	6.45	Si
fin.	3	-5576	315	316581	SLU 61	1004.06	Si
ini.	3	-6088	-48602	316581	SLU 74	6.51	Si
fin.	3	-6026	802	316581	SLU 74	394.73	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-50150	-5094			3466	1304	SLU 83	0.26	No
fin.	3	0	796	5616			3466	1304	SLU 83	0.23	No
ini.	3	0	-48695	-4923			3466	1304	SLU 75	0.26	No
fin.	3	0	663	5421			3466	1304	SLU 75	0.24	No
ini.	3	0	-50244	-5092			3466	1304	SLU 84	0.26	No
fin.	3	0	657	5610			3466	1304	SLU 84	0.23	No
ini.	3	0	-52985	-4963			3466	1304	SLU 81	0.26	No
fin.	3	0	930	5629			3466	1304	SLU 81	0.23	No
ini.	3	0	-53078	-4962			3466	1304	SLU 82	0.26	No
fin.	3	0	791	5623			3466	1304	SLU 82	0.23	No
ini.	3	0	-50454	-4765			3466	1304	SLU 73	0.27	No
fin.	3	0	557	5363			3466	1304	SLU 73	0.24	No
ini.	3	0	-47620	-4896			3466	1304	SLU 76	0.27	No
fin.	3	0	423	5350			3466	1304	SLU 76	0.24	No
ini.	3	0	-48602	-4925			3466	1304	SLU 74	0.26	No
fin.	3	0	802	5427			3466	1304	SLU 74	0.24	No
ini.	3	0	-45767	-5055			3466	1304	SLU 77	0.26	No
fin.	3	0	668	5414			3466	1304	SLU 77	0.24	No
ini.	3	0	-45860	-5054			3466	1304	SLU 78	0.26	No
fin.	3	0	529	5409			3466	1304	SLU 78	0.24	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-551	-224923	327721	SLV 5	1.46	Si
fin.	2	-2902	-4157	327721	SLV 5	78.84	Si
ini.	2	451	-381398	327721	SLV 2	0.86	No
fin.	2	-7346	297957	327721	SLV 2	1.1	Si
ini.	2	451	-381398	327721	SLV 1	0.86	No
fin.	2	-7346	297957	327721	SLV 1	1.1	Si
ini.	2	-7302	255026	327721	SLV 14	1.29	Si
fin.	2	528	-359105	327721	SLV 14	0.91	No
ini.	2	-8769	311832	327721	SLV 15	1.05	Si
fin.	2	-919	-297269	327721	SLV 15	1.1	Si
ini.	2	-1016	-324592	327721	SLV 4	1.01	Si
fin.	2	-8794	359792	327721	SLV 4	0.91	No
ini.	2	-8769	311832	327721	SLV 16	1.05	Si
fin.	2	-919	-297269	327721	SLV 16	1.1	Si
ini.	2	-1016	-324592	327721	SLV 3	1.01	Si
fin.	2	-8794	359792	327721	SLV 3	0.91	No
ini.	2	-7302	255026	327721	SLV 13	1.29	Si
fin.	2	528	-359105	327721	SLV 13	0.91	No
ini.	2	-551	-224923	327721	SLV 6	1.46	Si
fin.	2	-2902	-4157	327721	SLV 6	78.84	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	311832	-18627			5199	1957	SLV 15	0.11	No
fin.	2	0	-297269	-11506			5199	1957	SLV 15	0.17	No
ini.	2	0	-381398	11940			5199	1957	SLV 1	0.16	No
fin.	2	0	297957	18963			5199	1957	SLV 1	0.1	No
ini.	2	0	-324592	10874			5199	1957	SLV 3	0.18	No
fin.	2	0	359792	17497			5199	1957	SLV 3	0.11	No
ini.	2	0	311832	-18627			5199	1957	SLV 16	0.11	No
fin.	2	0	-297269	-11506			5199	1957	SLV 16	0.17	No
ini.	2	0	-324592	10874			5199	1957	SLV 4	0.18	No
fin.	2	0	359792	17497			5199	1957	SLV 4	0.11	No
ini.	2	0	255026	-17561			5199	1957	SLV 13	0.11	No
fin.	2	0	-359105	-10040			5199	1957	SLV 13	0.19	No
ini.	2	0	-224923	2858			5199	1957	SLV 6	0.68	No
fin.	2	0	-4157	10522			5199	1957	SLV 6	0.19	No
ini.	2	0	-381398	11940			5199	1957	SLV 2	0.16	No
fin.	2	0	297957	18963			5199	1957	SLV 2	0.1	No
ini.	2	0	255026	-17561			5199	1957	SLV 14	0.11	No
fin.	2	0	-359105	-10040			5199	1957	SLV 14	0.19	No
ini.	2	0	-224923	2858			5199	1957	SLV 5	0.68	No
fin.	2	0	-4157	10522			5199	1957	SLV 5	0.19	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.859	SLV 1	No
V_SLV	0.103	SLV 1	No
PF_SLU	5.964	SLU 82	Si
V_SLU	0.232	SLU 81	No



## Trave di accoppiamento 21

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1288.8	657.6	81	111	30	-1188.8	657.6	81	111	30	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	85	-14295	20548	SLU 80	1.44	Si
fin.	3	224	-16492	20548	SLU 80	1.25	Si
ini.	3	85	-14800	20548	SLU 74	1.39	Si
fin.	3	252	-16194	20548	SLU 74	1.27	Si
ini.	3	84	-14301	20548	SLU 79	1.44	Si
fin.	3	223	-16507	20548	SLU 79	1.24	Si
ini.	3	97	-15528	20548	SLU 82	1.32	Si
fin.	3	290	-16331	20548	SLU 82	1.26	Si
ini.	3	97	-15254	20548	SLU 84	1.35	Si
fin.	3	269	-16745	20548	SLU 84	1.23	Si
ini.	3	86	-14794	20548	SLU 75	1.39	Si
fin.	3	253	-16179	20548	SLU 75	1.27	Si
ini.	3	87	-14520	20548	SLU 78	1.42	Si
fin.	3	233	-16593	20548	SLU 78	1.24	Si
ini.	3	85	-14526	20548	SLU 77	1.41	Si
fin.	3	232	-16608	20548	SLU 77	1.24	Si
ini.	3	96	-15260	20548	SLU 83	1.35	Si
fin.	3	268	-16759	20548	SLU 83	1.23	Si
ini.	3	95	-15534	20548	SLU 81	1.32	Si
fin.	3	289	-16346	20548	SLU 81	1.26	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-15260	862			347	130	SLU 83	0.15	No
fin.	3	0	-16759	-1079			347	130	SLU 83	0.12	No
ini.	3	0	-14800	838			347	130	SLU 74	0.16	No
fin.	3	0	-16194	-1045			347	130	SLU 74	0.12	No
ini.	3	0	-15528	872			347	130	SLU 82	0.15	No
fin.	3	0	-16331	-1062			347	130	SLU 82	0.12	No
ini.	3	0	-14526	828			347	130	SLU 77	0.16	No
fin.	3	0	-16608	-1061			347	130	SLU 77	0.12	No
ini.	3	0	-14295	817			347	130	SLU 80	0.16	No
fin.	3	0	-16492	-1052			347	130	SLU 80	0.12	No
ini.	3	0	-14520	827			347	130	SLU 78	0.16	No
fin.	3	0	-16593	-1060			347	130	SLU 78	0.12	No
ini.	3	0	-15254	862			347	130	SLU 84	0.15	No
fin.	3	0	-16745	-1078			347	130	SLU 84	0.12	No
ini.	3	0	-14301	817			347	130	SLU 79	0.16	No
fin.	3	0	-16507	-1053			347	130	SLU 79	0.12	No
ini.	3	0	-14794	837			347	130	SLU 75	0.16	No
fin.	3	0	-16179	-1044			347	130	SLU 75	0.12	No
ini.	3	0	-15534	872			347	130	SLU 81	0.15	No
fin.	3	0	-16346	-1063			347	130	SLU 81	0.12	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-395	-60072	30221	SLV 6	0.5	No
fin.	2	2734	-936	30221	SLV 6	32.3	Si
ini.	2	-1949	-76342	30221	SLV 1	0.4	No
fin.	2	3239	41405	30221	SLV 1	0.73	No
ini.	2	-2053	-56616	30221	SLV 4	0.53	No
fin.	2	2153	45153	30221	SLV 4	0.67	No
ini.	2	2144	35898	30221	SLV 13	0.84	No
fin.	2	-1819	-67075	30221	SLV 13	0.45	No
ini.	2	2040	55625	30221	SLV 15	0.54	No
fin.	2	-2905	-63326	30221	SLV 15	0.48	No
ini.	2	2144	35898	30221	SLV 14	0.84	No
fin.	2	-1819	-67075	30221	SLV 14	0.45	No
ini.	2	2040	55625	30221	SLV 16	0.54	No
fin.	2	-2905	-63326	30221	SLV 16	0.48	No
ini.	2	-1949	-76342	30221	SLV 2	0.4	No
fin.	2	3239	41405	30221	SLV 2	0.73	No
ini.	2	-2053	-56616	30221	SLV 3	0.53	No
fin.	2	2153	45153	30221	SLV 3	0.67	No
ini.	2	-395	-60072	30221	SLV 5	0.5	No
fin.	2	2734	-936	30221	SLV 5	32.3	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	55625	-1488			520	196	SLV 15	0.13	No
fin.	2	0	-63326	-2510			520	196	SLV 15	0.08	No
ini.	2	0	-60072	1863			520	196	SLV 5	0.11	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-936	-497			520	196	SLV 5	0.39	No
ini.	2	0	35898	-1059			520	196	SLV 13	0.18	No
fin.	2	0	-67075	-2721			520	196	SLV 13	0.07	No
ini.	2	0	-76342	2666			520	196	SLV 1	0.07	No
fin.	2	0	41405	1079			520	196	SLV 1	0.18	No
ini.	2	0	-60072	1863			520	196	SLV 6	0.11	No
fin.	2	0	-936	-497			520	196	SLV 6	0.39	No
ini.	2	0	-76342	2666			520	196	SLV 2	0.07	No
fin.	2	0	41405	1079			520	196	SLV 2	0.18	No
ini.	2	0	55625	-1488			520	196	SLV 16	0.13	No
fin.	2	0	-63326	-2510			520	196	SLV 16	0.08	No
ini.	2	0	-56616	2237			520	196	SLV 4	0.09	No
fin.	2	0	45153	1290			520	196	SLV 4	0.15	No
ini.	2	0	-56616	2237			520	196	SLV 3	0.09	No
fin.	2	0	45153	1290			520	196	SLV 3	0.15	No
ini.	2	0	35898	-1059			520	196	SLV 14	0.18	No
fin.	2	0	-67075	-2721			520	196	SLV 14	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.396	SLV 1	No
V_SLV	0.072	SLV 13	No
PF_SLU	1.226	SLU 83	Si
V_SLU	0.121	SLU 83	No

## Trave di accoppiamento 22

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-800.8	657.6	-159	41	200	-700.8	657.6	-159	41	200	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	τ0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-5034	98407	316581	SLU 77	3.22	Si
fin.	3	-2688	-215732	316581	SLU 77	1.47	Si
ini.	3	-4927	96213	316581	SLU 74	3.29	Si
fin.	3	-2604	-215213	316581	SLU 74	1.47	Si
ini.	3	-5094	100930	316581	SLU 84	3.14	Si
fin.	3	-2674	-223995	316581	SLU 84	1.41	Si
ini.	3	-4986	98736	316581	SLU 82	3.21	Si
fin.	3	-2590	-223477	316581	SLU 82	1.42	Si
ini.	3	-4996	97292	316581	SLU 80	3.25	Si
fin.	3	-2675	-213125	316581	SLU 80	1.49	Si
ini.	3	-5101	100931	316581	SLU 83	3.14	Si
fin.	3	-2682	-223678	316581	SLU 83	1.42	Si
ini.	3	-4919	96212	316581	SLU 75	3.29	Si
fin.	3	-2595	-215530	316581	SLU 75	1.47	Si
ini.	3	-5027	98406	316581	SLU 78	3.22	Si
fin.	3	-2679	-216048	316581	SLU 78	1.47	Si
ini.	3	-4883	95097	316581	SLU 76	3.33	Si
fin.	3	-2585	-212818	316581	SLU 76	1.49	Si
ini.	3	-4994	98737	316581	SLU 81	3.21	Si
fin.	3	-2598	-223160	316581	SLU 81	1.42	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	98406	-8493			3466	1304	SLU 78	0.15	No
fin.	3	0	-216048	-2536			3466	1304	SLU 78	0.51	No
ini.	3	0	98407	-8494			3466	1304	SLU 77	0.15	No
fin.	3	0	-215732	-2527			3466	1304	SLU 77	0.52	No
ini.	3	0	100931	-8726			3466	1304	SLU 83	0.15	No
fin.	3	0	-223678	-2650			3466	1304	SLU 83	0.49	No
ini.	3	0	97293	-8401			3466	1304	SLU 79	0.16	No
fin.	3	0	-212809	-2487			3466	1304	SLU 79	0.52	No
ini.	3	0	98736	-8608			3466	1304	SLU 82	0.15	No
fin.	3	0	-223477	-2675			3466	1304	SLU 82	0.49	No
ini.	3	0	96212	-8376			3466	1304	SLU 75	0.16	No
fin.	3	0	-215530	-2552			3466	1304	SLU 75	0.51	No
ini.	3	0	98737	-8609			3466	1304	SLU 81	0.15	No
fin.	3	0	-223160	-2667			3466	1304	SLU 81	0.49	No
ini.	3	0	96213	-8377			3466	1304	SLU 74	0.16	No
fin.	3	0	-215213	-2543			3466	1304	SLU 74	0.51	No
ini.	3	0	100930	-8726			3466	1304	SLU 84	0.15	No
fin.	3	0	-223995	-2659			3466	1304	SLU 84	0.49	No
ini.	3	0	97292	-8400			3466	1304	SLU 80	0.16	No
fin.	3	0	-213125	-2496			3466	1304	SLU 80	0.52	No



Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5109	406828	327721	SLV 13	0.81	No
fin.	2	1601	-783660	327721	SLV 13	0.42	No
ini.	2	-1354	106510	327721	SLV 9	3.08	Si
fin.	2	1870	-435584	327721	SLV 9	0.75	No
ini.	2	76	-321596	327721	SLV 2	1.02	Si
fin.	2	-3444	428382	327721	SLV 2	0.77	No
ini.	2	-5109	406828	327721	SLV 14	0.81	No
fin.	2	1601	-783660	327721	SLV 14	0.42	No
ini.	2	-1587	-282708	327721	SLV 4	1.16	Si
fin.	2	-5188	493644	327721	SLV 4	0.66	No
ini.	2	-6772	445717	327721	SLV 16	0.74	No
fin.	2	-143	-718398	327721	SLV 16	0.46	No
ini.	2	-6772	445717	327721	SLV 15	0.74	No
fin.	2	-143	-718398	327721	SLV 15	0.46	No
ini.	2	76	-321596	327721	SLV 1	1.02	Si
fin.	2	-3444	428382	327721	SLV 1	0.77	No
ini.	2	-1587	-282708	327721	SLV 3	1.16	Si
fin.	2	-5188	493644	327721	SLV 3	0.66	No
ini.	2	-1354	106510	327721	SLV 10	3.08	Si
fin.	2	1870	-435584	327721	SLV 10	0.75	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	406828	-21115			5199	1957	SLV 14	0.09	No
fin.	2	0	-783660	-16530			5199	1957	SLV 14	0.12	No
ini.	2	0	406828	-21115			5199	1957	SLV 13	0.09	No
fin.	2	0	-783660	-16530			5199	1957	SLV 13	0.12	No
ini.	2	0	212891	-12356			5199	1957	SLD 14	0.16	No
fin.	2	0	-423224	-8177			5199	1957	SLD 14	0.24	No
ini.	2	0	445717	-22015			5199	1957	SLV 16	0.09	No
fin.	2	0	-718398	-15589			5199	1957	SLV 16	0.13	No
ini.	2	0	229186	-12752			5199	1957	SLD 15	0.15	No
fin.	2	0	-395755	-7771			5199	1957	SLD 15	0.25	No
ini.	2	0	445717	-22015			5199	1957	SLV 15	0.09	No
fin.	2	0	-718398	-15589			5199	1957	SLV 15	0.13	No
ini.	2	0	212891	-12356			5199	1957	SLD 13	0.16	No
fin.	2	0	-423224	-8177			5199	1957	SLD 13	0.24	No
ini.	2	0	229186	-12752			5199	1957	SLD 16	0.15	No
fin.	2	0	-395755	-7771			5199	1957	SLD 16	0.25	No
ini.	2	0	-282708	9970			5199	1957	SLV 4	0.2	No
fin.	2	0	493644	13109			5199	1957	SLV 4	0.15	No
ini.	2	0	-282708	9970			5199	1957	SLV 3	0.2	No
fin.	2	0	493644	13109			5199	1957	SLV 3	0.15	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.418	SLV 13	No
V_SLV	0.089	SLV 15	No
PF_SLU	1.413	SLU 84	Si
V_SLU	0.149	SLU 83	No

Trave di accoppiamento 23

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-800.8	657.6	81	111	30	-700.8	657.6	81	111	30	100	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>tk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1051	414	20548	SLU 83	49.6	Si
fin.	3	-413	-33933	20548	SLU 83	0.61	No
ini.	3	1003	240	20548	SLU 74	85.56	Si
fin.	3	-399	-32651	20548	SLU 74	0.63	No
ini.	3	975	194	20548	SLU 79	105.94	Si
fin.	3	-421	-32875	20548	SLU 79	0.63	No
ini.	3	1055	445	20548	SLU 84	46.18	Si
fin.	3	-411	-33915	20548	SLU 84	0.61	No
ini.	3	1065	432	20548	SLU 82	47.61	Si
fin.	3	-389	-33356	20548	SLU 82	0.62	No
ini.	3	993	254	20548	SLU 77	81.05	Si
fin.	3	-422	-33210	20548	SLU 77	0.62	No
ini.	3	1061	401	20548	SLU 81	51.25	Si
fin.	3	-391	-33374	20548	SLU 81	0.62	No
ini.	3	978	225	20548	SLU 80	91.48	Si
fin.	3	-419	-32857	20548	SLU 80	0.63	No
ini.	3	1006	271	20548	SLU 75	75.88	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	-397	-32633	20548	SLU 75	0.63	No
ini.	3	996	284	20548	SLU 78	72.31	Si
fin.	3	-420	-33192	20548	SLU 78	0.62	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	432	449			347	130	SLU 82	0.29	No
fin.	3	0	-33356	-1644			347	130	SLU 82	0.08	No
ini.	3	0	225	441			347	130	SLU 80	0.3	No
fin.	3	0	-32857	-1634			347	130	SLU 80	0.08	No
ini.	3	0	240	444			347	130	SLU 74	0.29	No
fin.	3	0	-32651	-1618			347	130	SLU 74	0.08	No
ini.	3	0	271	443			347	130	SLU 75	0.29	No
fin.	3	0	-32633	-1617			347	130	SLU 75	0.08	No
ini.	3	0	445	450			347	130	SLU 84	0.29	No
fin.	3	0	-33915	-1676			347	130	SLU 84	0.08	No
ini.	3	0	401	450			347	130	SLU 81	0.29	No
fin.	3	0	-33374	-1646			347	130	SLU 81	0.08	No
ini.	3	0	414	451			347	130	SLU 83	0.29	No
fin.	3	0	-33933	-1677			347	130	SLU 83	0.08	No
ini.	3	0	284	443			347	130	SLU 78	0.29	No
fin.	3	0	-33192	-1648			347	130	SLU 78	0.08	No
ini.	3	0	194	442			347	130	SLU 79	0.3	No
fin.	3	0	-32875	-1635			347	130	SLU 79	0.08	No
ini.	3	0	254	445			347	130	SLU 77	0.29	No
fin.	3	0	-33210	-1650			347	130	SLU 77	0.08	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	4659	39168	30221	SLV 14	0.77	No
fin.	2	-199	-77364	30221	SLV 14	0.39	No
ini.	2	4659	39168	30221	SLV 13	0.77	No
fin.	2	-199	-77364	30221	SLV 13	0.39	No
ini.	2	4443	58059	30221	SLV 16	0.52	No
fin.	2	-1806	-77163	30221	SLV 16	0.39	No
ini.	2	-3118	-58510	30221	SLV 1	0.52	No
fin.	2	1278	33513	30221	SLV 1	0.9	No
ini.	2	-145	-46362	30221	SLV 5	0.65	No
fin.	2	2636	-5528	30221	SLV 5	5.47	Si
ini.	2	2396	17148	30221	SLD 13	1.76	Si
fin.	2	-242	-46032	30221	SLD 13	0.66	No
ini.	2	-145	-46362	30221	SLV 6	0.65	No
fin.	2	2636	-5528	30221	SLV 6	5.47	Si
ini.	2	4443	58059	30221	SLV 15	0.52	No
fin.	2	-1806	-77163	30221	SLV 15	0.39	No
ini.	2	2396	17148	30221	SLD 14	1.76	Si
fin.	2	-242	-46032	30221	SLD 14	0.66	No
ini.	2	-3118	-58510	30221	SLV 2	0.52	No
fin.	2	1278	33513	30221	SLV 2	0.9	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-17059	794			520	196	SLV 9	0.25	No
fin.	2	0	-38791	-2417			520	196	SLV 9	0.08	No
ini.	2	0	-58510	2277			520	196	SLV 1	0.09	No
fin.	2	0	33513	822			520	196	SLV 1	0.24	No
ini.	2	0	-17059	794			520	196	SLV 10	0.25	No
fin.	2	0	-38791	-2417			520	196	SLV 10	0.08	No
ini.	2	0	39168	-1051			520	196	SLV 14	0.19	No
fin.	2	0	-77364	-3417			520	196	SLV 14	0.06	No
ini.	2	0	17148	-280			520	196	SLD 13	0.7	No
fin.	2	0	-46032	-2103			520	196	SLD 13	0.09	No
ini.	2	0	-58510	2277			520	196	SLV 2	0.09	No
fin.	2	0	33513	822			520	196	SLV 2	0.24	No
ini.	2	0	17148	-280			520	196	SLD 14	0.7	No
fin.	2	0	-46032	-2103			520	196	SLD 14	0.09	No
ini.	2	0	58059	-1633			520	196	SLV 15	0.12	No
fin.	2	0	-77163	-3002			520	196	SLV 15	0.07	No
ini.	2	0	39168	-1051			520	196	SLV 13	0.19	No
fin.	2	0	-77364	-3417			520	196	SLV 13	0.06	No
ini.	2	0	58059	-1633			520	196	SLV 16	0.12	No
fin.	2	0	-77163	-3002			520	196	SLV 16	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.391	SLV 13	No
V_SLV	0.057	SLV 13	No
PF_SLU	0.606	SLU 83	No
V_SLU	0.078	SLU 83	No

## Trave di accoppiamento 24

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-972.8	127.1	61	111	50	-972.8	220.1	61	111	50	93	30	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-333	23481	38051	SLU 79	1.62	Si
fin.	3	373	-57873	38051	SLU 79	0.66	No
ini.	3	-372	26176	38051	SLU 84	1.45	Si
fin.	3	382	-60886	38051	SLU 84	0.62	No
ini.	3	-374	26255	38051	SLU 82	1.45	Si
fin.	3	377	-60438	38051	SLU 82	0.63	No
ini.	3	-332	23459	38051	SLU 80	1.62	Si
fin.	3	373	-57770	38051	SLU 80	0.66	No
ini.	3	-331	23362	38051	SLU 78	1.63	Si
fin.	3	378	-58378	38051	SLU 78	0.65	No
ini.	3	-332	23384	38051	SLU 77	1.63	Si
fin.	3	378	-58480	38051	SLU 77	0.65	No
ini.	3	-375	26277	38051	SLU 81	1.45	Si
fin.	3	377	-60540	38051	SLU 81	0.63	No
ini.	3	-373	26198	38051	SLU 83	1.45	Si
fin.	3	382	-60988	38051	SLU 83	0.62	No
ini.	3	-333	23441	38051	SLU 75	1.62	Si
fin.	3	373	-57930	38051	SLU 75	0.66	No
ini.	3	-334	23463	38051	SLU 74	1.62	Si
fin.	3	373	-58033	38051	SLU 74	0.66	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	26255	1284			385	145	SLU 82	0.11	No
fin.	3	0	-60438	-4335			385	145	SLU 82	0.03	No
ini.	3	0	24261	1192			385	145	SLU 42	0.12	No
fin.	3	0	-53098	-3961			385	145	SLU 42	0.04	No
ini.	3	0	24283	1190			385	145	SLU 41	0.12	No
fin.	3	0	-53200	-3962			385	145	SLU 41	0.04	No
ini.	3	0	24362	1195			385	145	SLU 39	0.12	No
fin.	3	0	-52753	-3960			385	145	SLU 39	0.04	No
ini.	3	0	26277	1282			385	145	SLU 81	0.11	No
fin.	3	0	-60540	-4336			385	145	SLU 81	0.03	No
ini.	3	0	26198	1277			385	145	SLU 83	0.11	No
fin.	3	0	-60988	-4338			385	145	SLU 83	0.03	No
ini.	3	0	26176	1279			385	145	SLU 84	0.11	No
fin.	3	0	-60886	-4337			385	145	SLU 84	0.03	No
ini.	3	0	23362	1136			385	145	SLU 78	0.13	No
fin.	3	0	-58378	-3958			385	145	SLU 78	0.04	No
ini.	3	0	24340	1197			385	145	SLU 40	0.12	No
fin.	3	0	-52650	-3959			385	145	SLU 40	0.04	No
ini.	3	0	23384	1135			385	145	SLU 77	0.13	No
fin.	3	0	-58480	-3959			385	145	SLU 77	0.04	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-941	22578	54081	SLD 7	2.4	Si
fin.	2	-461	-85444	54081	SLD 7	0.63	No
ini.	2	-1959	34412	54081	SLV 8	1.57	Si
fin.	2	-1408	-148444	54081	SLV 8	0.36	No
ini.	2	-1019	27008	54081	SLD 11	2	Si
fin.	2	-480	-79126	54081	SLD 11	0.68	No
ini.	2	-2146	44899	54081	SLV 11	1.2	Si
fin.	2	-1451	-133916	54081	SLV 11	0.4	No
ini.	2	-446	4403	54081	SLV 4	12.28	Si
fin.	2	-178	-93363	54081	SLV 4	0.58	No
ini.	2	-2146	44899	54081	SLV 12	1.2	Si
fin.	2	-1451	-133916	54081	SLV 12	0.4	No
ini.	2	-1019	27008	54081	SLD 12	2	Si
fin.	2	-480	-79126	54081	SLD 12	0.68	No
ini.	2	-941	22578	54081	SLD 8	2.4	Si
fin.	2	-461	-85444	54081	SLD 8	0.63	No
ini.	2	-446	4403	54081	SLV 3	12.28	Si
fin.	2	-178	-93363	54081	SLV 3	0.58	No
ini.	2	-1959	34412	54081	SLV 7	1.57	Si
fin.	2	-1408	-148444	54081	SLV 7	0.36	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	27008	36			578	217	SLD 11	5.97	Si
fin.	2	0	-79126	-2851			578	217	SLD 11	0.08	No
ini.	2	0	44899	-839			578	217	SLV 11	0.26	No
fin.	2	0	-133916	-3377			578	217	SLV 11	0.06	No
ini.	2	0	34412	-1062			578	217	SLV 7	0.2	No
fin.	2	0	-148444	-3488			578	217	SLV 7	0.06	No
ini.	2	0	22578	-60			578	217	SLD 7	3.64	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-85444	-2899			578	217	SLD 7	0.07	No
ini.	2	0	4403	-174			578	217	SLV 3	1.25	Si
fin.	2	0	-93363	-2935			578	217	SLV 3	0.07	No
ini.	2	0	34412	-1062			578	217	SLV 8	0.2	No
fin.	2	0	-148444	-3488			578	217	SLV 8	0.06	No
ini.	2	0	22578	-60			578	217	SLD 8	3.64	Si
fin.	2	0	-85444	-2899			578	217	SLD 8	0.07	No
ini.	2	0	44899	-839			578	217	SLV 12	0.26	No
fin.	2	0	-133916	-3377			578	217	SLV 12	0.06	No
ini.	2	0	27008	36			578	217	SLD 12	5.97	Si
fin.	2	0	-79126	-2851			578	217	SLD 12	0.08	No
ini.	2	0	4403	-174			578	217	SLV 4	1.25	Si
fin.	2	0	-93363	-2935			578	217	SLV 4	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.364	SLV 7	No
V_SLV	0.062	SLV 7	No
PF_SLU	0.624	SLU 83	No
V_SLU	0.033	SLU 83	No

## Trave di accoppiamento 25

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1055.3	-328.4	46	111	65	-825.3	-328.4	46	111	65	230	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	575	-97097	80331	SLU 75	0.83	No
fin.	3	1991	-84797	80331	SLU 75	0.95	No
ini.	3	553	-98086	80331	SLU 83	0.82	No
fin.	3	2054	-94505	80331	SLU 83	0.85	No
ini.	3	589	-97844	80331	SLU 73	0.82	No
fin.	3	1977	-79658	80331	SLU 73	1.01	Si
ini.	3	564	-97430	80331	SLU 80	0.82	No
fin.	3	1990	-87855	80331	SLU 80	0.91	No
ini.	3	544	-94925	80331	SLU 77	0.85	No
fin.	3	1991	-91633	80331	SLU 77	0.88	No
ini.	3	585	-98619	80331	SLU 76	0.81	No
fin.	3	1987	-82388	80331	SLU 76	0.98	No
ini.	3	580	-101033	80331	SLU 84	0.8	No
fin.	3	2065	-90399	80331	SLU 84	0.89	No
ini.	3	557	-97310	80331	SLU 81	0.83	No
fin.	3	2044	-91775	80331	SLU 81	0.88	No
ini.	3	571	-97873	80331	SLU 78	0.82	No
fin.	3	2001	-87527	80331	SLU 78	0.92	No
ini.	3	584	-100258	80331	SLU 82	0.8	No
fin.	3	2055	-87669	80331	SLU 82	0.92	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-97097	3429			751	283	SLU 75	0.08	No
fin.	3	0	-84797	-2610			751	283	SLU 75	0.11	No
ini.	3	0	-97430	3456			751	283	SLU 80	0.08	No
fin.	3	0	-87855	-2650			751	283	SLU 80	0.11	No
ini.	3	0	-101033	3596			751	283	SLU 84	0.08	No
fin.	3	0	-90399	-2736			751	283	SLU 84	0.1	No
ini.	3	0	-97844	3415			751	283	SLU 73	0.08	No
fin.	3	0	-79658	-2572			751	283	SLU 73	0.11	No
ini.	3	0	-100258	3561			751	283	SLU 82	0.08	No
fin.	3	0	-87669	-2695			751	283	SLU 82	0.1	No
ini.	3	0	-94925	3422			751	283	SLU 77	0.08	No
fin.	3	0	-91633	-2647			751	283	SLU 77	0.11	No
ini.	3	0	-98619	3449			751	283	SLU 76	0.08	No
fin.	3	0	-82388	-2613			751	283	SLU 76	0.11	No
ini.	3	0	-98086	3554			751	283	SLU 83	0.08	No
fin.	3	0	-94505	-2732			751	283	SLU 83	0.1	No
ini.	3	0	-97873	3464			751	283	SLU 78	0.08	No
fin.	3	0	-87527	-2651			751	283	SLU 78	0.11	No
ini.	3	0	-97310	3519			751	283	SLU 81	0.08	No
fin.	3	0	-91775	-2691			751	283	SLU 81	0.11	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1821	44294	91471	SLV 13	2.07	Si
fin.	2	-3299	-296928	91471	SLV 13	0.31	No





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2609	-173737	91471	SLV 4	0.53	No
fin.	2	6036	178952	91471	SLV 4	0.51	No
ini.	2	-1839	67871	91471	SLV 15	1.35	Si
fin.	2	-4316	-261296	91471	SLV 15	0.35	No
ini.	2	-1821	44294	91471	SLV 14	2.07	Si
fin.	2	-3299	-296928	91471	SLV 14	0.31	No
ini.	2	2609	-173737	91471	SLV 3	0.53	No
fin.	2	6036	178952	91471	SLV 3	0.51	No
ini.	2	-243	-67775	91471	SLV 9	1.35	Si
fin.	2	1510	-184412	91471	SLV 9	0.5	No
ini.	2	-243	-67775	91471	SLV 10	1.35	Si
fin.	2	1510	-184412	91471	SLV 10	0.5	No
ini.	2	2627	-197314	91471	SLV 2	0.46	No
fin.	2	7053	143320	91471	SLV 2	0.64	No
ini.	2	2627	-197314	91471	SLV 1	0.46	No
fin.	2	7053	143320	91471	SLV 1	0.64	No
ini.	2	-1839	67871	91471	SLV 16	1.35	Si
fin.	2	-4316	-261296	91471	SLV 16	0.35	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-197314	4735			1126	424	SLV 1	0.09	No
fin.	2	0	143320	870			1126	424	SLV 1	0.49	No
ini.	2	0	-122231	3365			1126	424	SLD 2	0.13	No
fin.	2	0	29939	-630			1126	424	SLD 2	0.67	No
ini.	2	0	-173737	4660			1126	424	SLV 3	0.09	No
fin.	2	0	178952	892			1126	424	SLV 3	0.48	No
ini.	2	0	44294	-41			1126	424	SLV 13	10.24	Si
fin.	2	0	-296928	-4461			1126	424	SLV 13	0.1	No
ini.	2	0	44294	-41			1126	424	SLV 14	10.24	Si
fin.	2	0	-296928	-4461			1126	424	SLV 14	0.1	No
ini.	2	0	-122231	3365			1126	424	SLD 1	0.13	No
fin.	2	0	29939	-630			1126	424	SLD 1	0.67	No
ini.	2	0	67871	-116			1126	424	SLV 16	3.64	Si
fin.	2	0	-261296	-4439			1126	424	SLV 16	0.1	No
ini.	2	0	-197314	4735			1126	424	SLV 2	0.09	No
fin.	2	0	143320	870			1126	424	SLV 2	0.49	No
ini.	2	0	-173737	4660			1126	424	SLV 4	0.09	No
fin.	2	0	178952	892			1126	424	SLV 4	0.48	No
ini.	2	0	67871	-116			1126	424	SLV 15	3.64	Si
fin.	2	0	-261296	-4439			1126	424	SLV 15	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.308	SLV 13	No
V_SLV	0.09	SLV 1	No
PF_SLU	0.795	SLU 84	No
V_SLU	0.079	SLU 84	No

## Trave di accoppiamento 26

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-746.3	-328.4	-159	41	200	-646.3	-328.4	-159	41	200	100	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-663	-421294	316581	SLU 82	0.75	No
fin.	3	-612	-242849	316581	SLU 82	1.3	Si
ini.	3	-697	-405402	316581	SLU 80	0.78	No
fin.	3	-540	-241822	316581	SLU 80	1.31	Si
ini.	3	-363	-430822	316581	SLU 73	0.73	No
fin.	3	-204	-254800	316581	SLU 73	1.24	Si
ini.	3	-630	-409105	316581	SLU 75	0.77	No
fin.	3	-543	-238571	316581	SLU 75	1.33	Si
ini.	3	-680	-408584	316581	SLU 78	0.77	No
fin.	3	-536	-242602	316581	SLU 78	1.3	Si
ini.	3	-413	-430300	316581	SLU 76	0.74	No
fin.	3	-197	-258831	316581	SLU 76	1.22	Si
ini.	3	-207	-396173	316581	SLU 65	0.8	No
fin.	3	-69	-233594	316581	SLU 65	1.36	Si
ini.	3	-366	-397603	316581	SLU 55	0.8	No
fin.	3	-147	-239814	316581	SLU 55	1.32	Si
ini.	3	-714	-420772	316581	SLU 84	0.75	No
fin.	3	-605	-246880	316581	SLU 84	1.28	Si
ini.	3	-316	-398124	316581	SLU 52	0.8	No
fin.	3	-154	-235783	316581	SLU 52	1.34	Si



Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	3	0	-430822	-6999			3466	1304	SLU 73	0.19	No
fin.	3	0	-254800	8764			3466	1304	SLU 73	0.15	No
ini.	3	0	-384728	-6694			3466	1304	SLU 81	0.19	No
fin.	3	0	-211291	8940			3466	1304	SLU 81	0.15	No
ini.	3	0	-420772	-7243			3466	1304	SLU 84	0.18	No
fin.	3	0	-246880	8988			3466	1304	SLU 84	0.15	No
ini.	3	0	-372539	-6546			3466	1304	SLU 74	0.2	No
fin.	3	0	-207013	8606			3466	1304	SLU 74	0.15	No
ini.	3	0	-384206	-6865			3466	1304	SLU 83	0.19	No
fin.	3	0	-215321	8882			3466	1304	SLU 83	0.15	No
ini.	3	0	-430300	-7170			3466	1304	SLU 76	0.18	No
fin.	3	0	-258831	8706			3466	1304	SLU 76	0.15	No
ini.	3	0	-405402	-7088			3466	1304	SLU 80	0.18	No
fin.	3	0	-241822	8577			3466	1304	SLU 80	0.15	No
ini.	3	0	-408584	-7095			3466	1304	SLU 78	0.18	No
fin.	3	0	-242602	8654			3466	1304	SLU 78	0.15	No
ini.	3	0	-421294	-7073			3466	1304	SLU 82	0.18	No
fin.	3	0	-242849	9046			3466	1304	SLU 82	0.14	No
ini.	3	0	-409105	-6925			3466	1304	SLU 75	0.19	No
fin.	3	0	-238571	8712			3466	1304	SLU 75	0.15	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	6757	-956234	327721	SLV 4	0.34	No
fin.	2	-41	-55346	327721	SLV 4	5.92	Si
ini.	2	2682	-645603	327721	SLD 2	0.51	No
fin.	2	-1193	-71178	327721	SLD 2	4.6	Si
ini.	2	6976	-1144846	327721	SLV 1	0.29	No
fin.	2	-1813	21920	327721	SLV 1	14.95	Si
ini.	2	6757	-956234	327721	SLV 3	0.34	No
fin.	2	-41	-55346	327721	SLV 3	5.92	Si
ini.	2	6976	-1144846	327721	SLV 2	0.29	No
fin.	2	-1813	21920	327721	SLV 2	14.95	Si
ini.	2	-8261	623681	327721	SLV 16	0.53	No
fin.	2	306	-304134	327721	SLV 16	1.08	Si
ini.	2	-8261	623681	327721	SLV 15	0.53	No
fin.	2	306	-304134	327721	SLV 15	1.08	Si
ini.	2	1975	-811923	327721	SLV 6	0.4	No
fin.	2	-3758	24987	327721	SLV 6	13.12	Si
ini.	2	1975	-811923	327721	SLV 5	0.4	No
fin.	2	-3758	24987	327721	SLV 5	13.12	Si
ini.	2	2682	-645603	327721	SLD 1	0.51	No
fin.	2	-1193	-71178	327721	SLD 1	4.6	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt <sub>lim</sub>	Comb.	c.s.	Verifica
ini.	2	0	-1144846	10420			5199	1957	SLV 2	0.19	No
fin.	2	0	21920	26459			5199	1957	SLV 2	0.07	No
ini.	2	0	-1144846	10420			5199	1957	SLV 1	0.19	No
fin.	2	0	21920	26459			5199	1957	SLV 1	0.07	No
ini.	2	0	435069	-20119			5199	1957	SLV 14	0.1	No
fin.	2	0	-226869	-11186			5199	1957	SLV 14	0.17	No
ini.	2	0	-811923	-1302			5199	1957	SLV 6	1.5	Si
fin.	2	0	24987	16983			5199	1957	SLV 6	0.12	No
ini.	2	0	-811923	-1302			5199	1957	SLV 5	1.5	Si
fin.	2	0	24987	16983			5199	1957	SLV 5	0.12	No
ini.	2	0	623681	-19234			5199	1957	SLV 16	0.1	No
fin.	2	0	-304134	-14358			5199	1957	SLV 16	0.14	No
ini.	2	0	623681	-19234			5199	1957	SLV 15	0.1	No
fin.	2	0	-304134	-14358			5199	1957	SLV 15	0.14	No
ini.	2	0	-956234	11305			5199	1957	SLV 4	0.17	No
fin.	2	0	-55346	23288			5199	1957	SLV 4	0.08	No
ini.	2	0	435069	-20119			5199	1957	SLV 13	0.1	No
fin.	2	0	-226869	-11186			5199	1957	SLV 13	0.17	No
ini.	2	0	-956234	11305			5199	1957	SLV 3	0.17	No
fin.	2	0	-55346	23288			5199	1957	SLV 3	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.286	SLV 1	No
V_SLV	0.074	SLV 1	No
PF_SLU	0.735	SLU 73	No
V_SLU	0.144	SLU 82	No

Trave di accoppiamento 27

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-746.3	-328.4	81	111	30	-646.3	-328.4	81	111	30	100	45	3500



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1257	-25431	20548	SLU 61	0.81	No
fin.	3	2026	-16731	20548	SLU 61	1.23	Si
ini.	3	1381	-28362	20548	SLU 82	0.72	No
fin.	3	2170	-19013	20548	SLU 82	1.08	Si
ini.	3	1396	-27660	20548	SLU 73	0.74	No
fin.	3	2506	-16802	20548	SLU 73	1.22	Si
ini.	3	1360	-25942	20548	SLU 80	0.79	No
fin.	3	2095	-19211	20548	SLU 80	1.07	Si
ini.	3	1284	-26638	20548	SLU 83	0.77	No
fin.	3	1569	-21040	20548	SLU 83	0.98	No
ini.	3	1361	-26169	20548	SLU 78	0.79	No
fin.	3	2111	-19091	20548	SLU 78	1.08	Si
ini.	3	1402	-27935	20548	SLU 84	0.74	No
fin.	3	2161	-19806	20548	SLU 84	1.04	Si
ini.	3	1417	-27234	20548	SLU 76	0.75	No
fin.	3	2498	-17595	20548	SLU 76	1.17	Si
ini.	3	1263	-27064	20548	SLU 81	0.76	No
fin.	3	1577	-20247	20548	SLU 81	1.01	Si
ini.	3	1340	-26595	20548	SLU 75	0.77	No
fin.	3	2119	-18298	20548	SLU 75	1.12	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-28362	2431			347	130	SLU 82	0.05	No
fin.	3	0	-19013	-1913			347	130	SLU 82	0.07	No
ini.	3	0	-25942	2309			347	130	SLU 80	0.06	No
fin.	3	0	-19211	-1874			347	130	SLU 80	0.07	No
ini.	3	0	-27064	2275			347	130	SLU 81	0.06	No
fin.	3	0	-20247	-1938			347	130	SLU 81	0.07	No
ini.	3	0	-25431	2206			347	130	SLU 61	0.06	No
fin.	3	0	-16731	-1720			347	130	SLU 61	0.08	No
ini.	3	0	-26169	2321			347	130	SLU 78	0.06	No
fin.	3	0	-19091	-1876			347	130	SLU 78	0.07	No
ini.	3	0	-27660	2415			347	130	SLU 73	0.05	No
fin.	3	0	-16802	-1788			347	130	SLU 73	0.07	No
ini.	3	0	-27234	2414			347	130	SLU 76	0.05	No
fin.	3	0	-17595	-1823			347	130	SLU 76	0.07	No
ini.	3	0	-27935	2430			347	130	SLU 84	0.05	No
fin.	3	0	-19806	-1947			347	130	SLU 84	0.07	No
ini.	3	0	-26638	2274			347	130	SLU 83	0.06	No
fin.	3	0	-21040	-1972			347	130	SLU 83	0.07	No
ini.	3	0	-26595	2322			347	130	SLU 75	0.06	No
fin.	3	0	-18298	-1841			347	130	SLU 75	0.07	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1075	-81974	30221	SLV 10	0.37	No
fin.	2	6082	-10846	30221	SLV 10	2.79	Si
ini.	2	1080	-79270	30221	SLV 1	0.38	No
fin.	2	7818	54274	30221	SLV 1	0.56	No
ini.	2	1174	-105443	30221	SLV 5	0.29	No
fin.	2	8968	25614	30221	SLV 5	1.18	Si
ini.	2	1080	-79270	30221	SLV 2	0.38	No
fin.	2	7818	54274	30221	SLV 2	0.56	No
ini.	2	1075	-81974	30221	SLV 9	0.37	No
fin.	2	6082	-10846	30221	SLV 9	2.79	Si
ini.	2	570	44867	30221	SLV 16	0.67	No
fin.	2	-5674	-79154	30221	SLV 16	0.38	No
ini.	2	476	71041	30221	SLV 11	0.43	No
fin.	2	-6824	-50494	30221	SLV 11	0.6	No
ini.	2	476	71041	30221	SLV 12	0.43	No
fin.	2	-6824	-50494	30221	SLV 12	0.6	No
ini.	2	570	44867	30221	SLV 15	0.67	No
fin.	2	-5674	-79154	30221	SLV 15	0.38	No
ini.	2	1174	-105443	30221	SLV 6	0.29	No
fin.	2	8968	25614	30221	SLV 6	1.18	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1037	-1851			520	196	SLV 13	0.11	No
fin.	2	0	-67260	-3267			520	196	SLV 13	0.06	No
ini.	2	0	-79270	4918			520	196	SLV 1	0.04	No
fin.	2	0	54274	584			520	196	SLV 1	0.34	No
ini.	2	0	-33365	4795			520	196	SLV 3	0.04	No
fin.	2	0	42379	780			520	196	SLV 3	0.25	No
ini.	2	0	-1037	-1851			520	196	SLV 14	0.11	No
fin.	2	0	-67260	-3267			520	196	SLV 14	0.06	No
ini.	2	0	-43795	2962			520	196	SLD 2	0.07	No
fin.	2	0	16426	-441			520	196	SLD 2	0.44	No
ini.	2	0	-43795	2962			520	196	SLD 1	0.07	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	16426	-441			520	196	SLD 1	0.44	No
ini.	2	0	44867	-1974			520	196	SLV 15	0.1	No
fin.	2	0	-79154	-3071			520	196	SLV 15	0.06	No
ini.	2	0	44867	-1974			520	196	SLV 16	0.1	No
fin.	2	0	-79154	-3071			520	196	SLV 16	0.06	No
ini.	2	0	-33365	4795			520	196	SLV 4	0.04	No
fin.	2	0	42379	780			520	196	SLV 4	0.25	No
ini.	2	0	-79270	4918			520	196	SLV 2	0.04	No
fin.	2	0	54274	584			520	196	SLV 2	0.34	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.287	SLV 5	No
V_SLV	0.04	SLV 1	No
PF_SLU	0.724	SLU 82	No
V_SLU	0.054	SLU 82	No

## Trave di accoppiamento 28

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-323.3	-328.4	-159	41	200	-223.3	-328.4	-159	41	200	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3092	-31999	316581	SLU 81	9.89	Si
fin.	3	-2182	-235677	316581	SLU 81	1.34	Si
ini.	3	-2816	-27436	316581	SLU 58	11.54	Si
fin.	3	-2000	-212052	316581	SLU 58	1.49	Si
ini.	3	-2861	-30198	316581	SLU 60	10.48	Si
fin.	3	-2036	-214738	316581	SLU 60	1.47	Si
ini.	3	-2827	-27668	316581	SLU 56	11.44	Si
fin.	3	-2007	-213796	316581	SLU 56	1.48	Si
ini.	3	-3130	-31012	316581	SLU 83	10.21	Si
fin.	3	-2203	-238945	316581	SLU 83	1.32	Si
ini.	3	-3020	-30455	316581	SLU 74	10.39	Si
fin.	3	-2133	-231468	316581	SLU 74	1.37	Si
ini.	3	-3058	-29469	316581	SLU 77	10.74	Si
fin.	3	-2154	-234735	316581	SLU 77	1.35	Si
ini.	3	-2899	-29211	316581	SLU 62	10.84	Si
fin.	3	-2056	-218006	316581	SLU 62	1.45	Si
ini.	3	-2775	-27631	316581	SLU 69	11.46	Si
fin.	3	-1975	-213218	316581	SLU 69	1.48	Si
ini.	3	-3047	-29238	316581	SLU 79	10.83	Si
fin.	3	-2147	-232991	316581	SLU 79	1.36	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	5570	-5523			3466	1304	SLU 80	0.24	No
fin.	3	0	-192681	-919			3466	1304	SLU 80	1.42	Si
ini.	3	0	-30455	-5568			3466	1304	SLU 74	0.23	No
fin.	3	0	-231468	-1009			3466	1304	SLU 74	1.29	Si
ini.	3	0	-31999	-5726			3466	1304	SLU 81	0.23	No
fin.	3	0	-235677	-970			3466	1304	SLU 81	1.35	Si
ini.	3	0	-29238	-5620			3466	1304	SLU 79	0.23	No
fin.	3	0	-232991	-1038			3466	1304	SLU 79	1.26	Si
ini.	3	0	-29469	-5655			3466	1304	SLU 77	0.23	No
fin.	3	0	-234735	-1045			3466	1304	SLU 77	1.25	Si
ini.	3	0	5339	-5558			3466	1304	SLU 78	0.23	No
fin.	3	0	-194425	-925			3466	1304	SLU 78	1.41	Si
ini.	3	0	3796	-5715			3466	1304	SLU 84	0.23	No
fin.	3	0	-198635	-886			3466	1304	SLU 84	1.47	Si
ini.	3	0	-31012	-5812			3466	1304	SLU 83	0.22	No
fin.	3	0	-238945	-1006			3466	1304	SLU 83	1.3	Si
ini.	3	0	2809	-5629			3466	1304	SLU 82	0.23	No
fin.	3	0	-195367	-850			3466	1304	SLU 82	1.53	Si
ini.	3	0	4352	-5471			3466	1304	SLU 75	0.24	No
fin.	3	0	-191158	-889			3466	1304	SLU 75	1.47	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-12003	407343	327721	SLV 9	0.8	No
fin.	2	-4673	-488197	327721	SLV 9	0.67	No
ini.	2	-4675	344259	327721	SLV 16	0.95	No
fin.	2	732	-654804	327721	SLV 16	0.5	No
ini.	2	-12003	407343	327721	SLV 10	0.8	No
fin.	2	-4673	-488197	327721	SLV 10	0.67	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-9702	520390	327721	SLV 13	0.63	No
fin.	2	-1383	-754064	327721	SLV 13	0.43	No
ini.	2	-4675	344259	327721	SLV 15	0.95	No
fin.	2	732	-654804	327721	SLV 15	0.5	No
ini.	2	5507	-565838	327721	SLV 4	0.58	No
fin.	2	-1618	435683	327721	SLV 4	0.75	No
ini.	2	7808	-452790	327721	SLV 8	0.72	No
fin.	2	1671	169816	327721	SLV 8	1.93	Si
ini.	2	7808	-452790	327721	SLV 7	0.72	No
fin.	2	1671	169816	327721	SLV 7	1.93	Si
ini.	2	-9702	520390	327721	SLV 14	0.63	No
fin.	2	-1383	-754064	327721	SLV 14	0.43	No
ini.	2	5507	-565838	327721	SLV 3	0.58	No
fin.	2	-1618	435683	327721	SLV 3	0.75	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-565838	13917			5199	1957	SLV 3	0.14	No
fin.	2	0	435683	14336			5199	1957	SLV 3	0.14	No
ini.	2	0	520390	-21415			5199	1957	SLV 13	0.09	No
fin.	2	0	-754064	-15803			5199	1957	SLV 13	0.12	No
ini.	2	0	344259	-20738			5199	1957	SLV 15	0.09	No
fin.	2	0	-654804	-17225			5199	1957	SLV 15	0.11	No
ini.	2	0	344259	-20738			5199	1957	SLV 16	0.09	No
fin.	2	0	-654804	-17225			5199	1957	SLV 16	0.11	No
ini.	2	0	-389707	13241			5199	1957	SLV 2	0.15	No
fin.	2	0	336423	15758			5199	1957	SLV 2	0.12	No
ini.	2	0	211002	-11477			5199	1957	SLD 13	0.17	No
fin.	2	0	-418069	-7346			5199	1957	SLD 13	0.27	No
ini.	2	0	-389707	13241			5199	1957	SLV 1	0.15	No
fin.	2	0	336423	15758			5199	1957	SLV 1	0.12	No
ini.	2	0	520390	-21415			5199	1957	SLV 14	0.09	No
fin.	2	0	-754064	-15803			5199	1957	SLV 14	0.12	No
ini.	2	0	211002	-11477			5199	1957	SLD 14	0.17	No
fin.	2	0	-418069	-7346			5199	1957	SLD 14	0.27	No
ini.	2	0	-565838	13917			5199	1957	SLV 4	0.14	No
fin.	2	0	435683	14336			5199	1957	SLV 4	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.435	SLV 13	No
V_SLV	0.091	SLV 13	No
PF_SLU	1.325	SLU 83	Si
V_SLU	0.224	SLU 83	No

## Trave di accoppiamento 29

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-323.3	-328.4	81	111	30	-223.3	-328.4	81	111	30	100	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1007	-9929	20548	SLU 62	2.07	Si
fin.	3	556	-19766	20548	SLU 62	1.04	Si
ini.	3	1079	-10360	20548	SLU 79	1.98	Si
fin.	3	588	-21388	20548	SLU 79	0.96	No
ini.	3	1092	-10354	20548	SLU 77	1.98	Si
fin.	3	597	-21489	20548	SLU 77	0.96	No
ini.	3	890	-10113	20548	SLU 41	2.03	Si
fin.	3	458	-19656	20548	SLU 41	1.05	Si
ini.	3	873	-10221	20548	SLU 39	2.01	Si
fin.	3	451	-19357	20548	SLU 39	1.06	Si
ini.	3	1017	-8920	20548	SLU 56	2.3	Si
fin.	3	573	-18832	20548	SLU 56	1.09	Si
ini.	3	1074	-10462	20548	SLU 74	1.96	Si
fin.	3	590	-21190	20548	SLU 74	0.97	No
ini.	3	1065	-11472	20548	SLU 81	1.79	Si
fin.	3	572	-22124	20548	SLU 81	0.93	No
ini.	3	1082	-11363	20548	SLU 83	1.81	Si
fin.	3	579	-22423	20548	SLU 83	0.92	No
ini.	3	990	-10038	20548	SLU 60	2.05	Si
fin.	3	549	-19467	20548	SLU 60	1.06	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-10113	1194			347	130	SLU 41	0.11	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-19656	-1253			347	130	SLU 41	0.1	No
ini.	3	0	-11472	1371			347	130	SLU 81	0.1	No
fin.	3	0	-22124	-1427			347	130	SLU 81	0.09	No
ini.	3	0	-10354	1295			347	130	SLU 77	0.1	No
fin.	3	0	-21489	-1377			347	130	SLU 77	0.09	No
ini.	3	0	-10038	1223			347	130	SLU 60	0.11	No
fin.	3	0	-19467	-1268			347	130	SLU 60	0.1	No
ini.	3	0	-10360	1291			347	130	SLU 79	0.1	No
fin.	3	0	-21388	-1372			347	130	SLU 79	0.1	No
ini.	3	0	-11363	1373			347	130	SLU 83	0.1	No
fin.	3	0	-22423	-1441			347	130	SLU 83	0.09	No
ini.	3	0	-8920	1146			347	130	SLU 56	0.11	No
fin.	3	0	-18832	-1219			347	130	SLU 56	0.11	No
ini.	3	0	-10221	1193			347	130	SLU 39	0.11	No
fin.	3	0	-19357	-1239			347	130	SLU 39	0.11	No
ini.	3	0	-9929	1224			347	130	SLU 62	0.11	No
fin.	3	0	-19766	-1282			347	130	SLU 62	0.1	No
ini.	3	0	-10462	1293			347	130	SLU 74	0.1	No
fin.	3	0	-21190	-1364			347	130	SLU 74	0.1	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-476	-128042	30221	SLV 8	0.24	No
fin.	2	3919	-70769	30221	SLV 8	0.43	No
ini.	2	-2070	-104342	30221	SLV 3	0.29	No
fin.	2	4101	43266	30221	SLV 3	0.7	No
ini.	2	3338	30078	30221	SLV 15	1	Si
fin.	2	-1655	-119877	30221	SLV 15	0.25	No
ini.	2	3338	30078	30221	SLV 16	1	Si
fin.	2	-1655	-119877	30221	SLV 16	0.25	No
ini.	2	2000	114418	30221	SLV 9	0.26	No
fin.	2	-3044	42959	30221	SLV 9	0.7	No
ini.	2	-476	-128042	30221	SLV 7	0.24	No
fin.	2	3919	-70769	30221	SLV 7	0.43	No
ini.	2	1146	-87716	30221	SLV 11	0.34	No
fin.	2	2192	-119712	30221	SLV 11	0.25	No
ini.	2	1146	-87716	30221	SLV 12	0.34	No
fin.	2	2192	-119712	30221	SLV 12	0.25	No
ini.	2	2000	114418	30221	SLV 10	0.26	No
fin.	2	-3044	42959	30221	SLV 10	0.7	No
ini.	2	-2070	-104342	30221	SLV 4	0.29	No
fin.	2	4101	43266	30221	SLV 4	0.7	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-128042	2803			520	196	SLV 8	0.07	No
fin.	2	0	-70769	-1187			520	196	SLV 8	0.16	No
ini.	2	0	-43702	2567			520	196	SLV 1	0.08	No
fin.	2	0	92067	1557			520	196	SLV 1	0.13	No
ini.	2	0	90718	-1625			520	196	SLV 13	0.12	No
fin.	2	0	-71076	-2811			520	196	SLV 13	0.07	No
ini.	2	0	-104342	3353			520	196	SLV 3	0.06	No
fin.	2	0	43266	996			520	196	SLV 3	0.2	No
ini.	2	0	-128042	2803			520	196	SLV 7	0.07	No
fin.	2	0	-70769	-1187			520	196	SLV 7	0.16	No
ini.	2	0	-43702	2567			520	196	SLV 2	0.08	No
fin.	2	0	92067	1557			520	196	SLV 2	0.13	No
ini.	2	0	90718	-1625			520	196	SLV 14	0.12	No
fin.	2	0	-71076	-2811			520	196	SLV 14	0.07	No
ini.	2	0	-104342	3353			520	196	SLV 4	0.06	No
fin.	2	0	43266	996			520	196	SLV 4	0.2	No
ini.	2	0	30078	-839			520	196	SLV 15	0.23	No
fin.	2	0	-119877	-3372			520	196	SLV 15	0.06	No
ini.	2	0	30078	-839			520	196	SLV 16	0.23	No
fin.	2	0	-119877	-3372			520	196	SLV 16	0.06	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.236	SLV 7	No
V_SLV	0.058	SLV 15	No
PF_SLU	0.916	SLU 83	No
V_SLU	0.091	SLU 83	No

#### Trave di accoppiamento 30

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-515.8	127.1	51	111	60	-515.8	207.1	51	111	60	80	30	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2



#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	277	17546	54794	SLU 75	3.12	Si
fin.	3	-828	-77644	54794	SLU 75	0.71	No
ini.	3	266	18238	54794	SLU 78	3	Si
fin.	3	-878	-80136	54794	SLU 78	0.68	No
ini.	3	258	18704	54794	SLU 77	2.93	Si
fin.	3	-908	-81303	54794	SLU 77	0.67	No
ini.	3	254	18564	54794	SLU 79	2.95	Si
fin.	3	-903	-80748	54794	SLU 79	0.68	No
ini.	3	280	18566	54794	SLU 84	2.95	Si
fin.	3	-884	-81476	54794	SLU 84	0.67	No
ini.	3	290	17874	54794	SLU 82	3.07	Si
fin.	3	-834	-78984	54794	SLU 82	0.69	No
ini.	3	282	18339	54794	SLU 81	2.99	Si
fin.	3	-863	-80151	54794	SLU 81	0.68	No
ini.	3	268	18012	54794	SLU 74	3.04	Si
fin.	3	-858	-78811	54794	SLU 74	0.7	No
ini.	3	263	18098	54794	SLU 80	3.03	Si
fin.	3	-873	-79582	54794	SLU 80	0.69	No
ini.	3	271	19032	54794	SLU 83	2.88	Si
fin.	3	-913	-82643	54794	SLU 83	0.66	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	18704	126			520	196	SLU 77	1.55	Si
fin.	3	0	-81303	-3531			520	196	SLU 77	0.06	No
ini.	3	0	19032	139			520	196	SLU 83	1.41	Si
fin.	3	0	-82643	-3600			520	196	SLU 83	0.05	No
ini.	3	0	17546	156			520	196	SLU 75	1.26	Si
fin.	3	0	-77644	-3393			520	196	SLU 75	0.06	No
ini.	3	0	18339	155			520	196	SLU 81	1.26	Si
fin.	3	0	-80151	-3505			520	196	SLU 81	0.06	No
ini.	3	0	17874	169			520	196	SLU 82	1.16	Si
fin.	3	0	-78984	-3462			520	196	SLU 82	0.06	No
ini.	3	0	18564	126			520	196	SLU 79	1.55	Si
fin.	3	0	-80748	-3507			520	196	SLU 79	0.06	No
ini.	3	0	18012	142			520	196	SLU 74	1.38	Si
fin.	3	0	-78811	-3436			520	196	SLU 74	0.06	No
ini.	3	0	18566	153			520	196	SLU 84	1.28	Si
fin.	3	0	-81476	-3557			520	196	SLU 84	0.06	No
ini.	3	0	18098	140			520	196	SLU 80	1.4	Si
fin.	3	0	-79582	-3464			520	196	SLU 80	0.06	No
ini.	3	0	18238	140			520	196	SLU 78	1.4	Si
fin.	3	0	-80136	-3488			520	196	SLU 78	0.06	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2404	42375	71581	SLV 7	1.69	Si
fin.	2	-4683	-134435	71581	SLV 7	0.53	No
ini.	2	-2404	42375	71581	SLV 8	1.69	Si
fin.	2	-4683	-134435	71581	SLV 8	0.53	No
ini.	2	-922	25106	71581	SLD 7	2.85	Si
fin.	2	-2328	-87530	71581	SLD 7	0.82	No
ini.	2	-2843	55140	71581	SLV 11	1.3	Si
fin.	2	-5331	-145159	71581	SLV 11	0.49	No
ini.	2	-2843	55140	71581	SLV 12	1.3	Si
fin.	2	-5331	-145159	71581	SLV 12	0.49	No
ini.	2	-1378	43849	71581	SLV 15	1.63	Si
fin.	2	-2945	-95616	71581	SLV 15	0.75	No
ini.	2	-1378	43849	71581	SLV 16	1.63	Si
fin.	2	-2945	-95616	71581	SLV 16	0.75	No
ini.	2	-922	25106	71581	SLD 8	2.85	Si
fin.	2	-2328	-87530	71581	SLD 8	0.82	No
ini.	2	-1107	30668	71581	SLD 12	2.33	Si
fin.	2	-2605	-92121	71581	SLD 12	0.78	No
ini.	2	-1107	30668	71581	SLD 11	2.33	Si
fin.	2	-2605	-92121	71581	SLD 11	0.78	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	42375	-1697			780	293	SLV 7	0.17	No
fin.	2	0	-134435	-4898			780	293	SLV 7	0.06	No
ini.	2	0	25106	-663			780	293	SLD 7	0.44	No
fin.	2	0	-87530	-3403			780	293	SLD 7	0.09	No
ini.	2	0	25106	-663			780	293	SLD 8	0.44	No
fin.	2	0	-87530	-3403			780	293	SLD 8	0.09	No
ini.	2	0	42375	-1697			780	293	SLV 8	0.17	No
fin.	2	0	-134435	-4898			780	293	SLV 8	0.06	No
ini.	2	0	30668	-655			780	293	SLD 11	0.45	No
fin.	2	0	-92121	-3595			780	293	SLD 11	0.08	No
ini.	2	0	55140	-1680			780	293	SLV 12	0.17	No
fin.	2	0	-145159	-5344			780	293	SLV 12	0.05	No
ini.	2	0	30668	-655			780	293	SLD 12	0.45	No
fin.	2	0	-92121	-3595			780	293	SLD 12	0.08	No
ini.	2	0	55140	-1680			780	293	SLV 11	0.17	No
fin.	2	0	-145159	-5344			780	293	SLV 11	0.05	No
ini.	2	0	43849	-389			780	293	SLV 16	0.75	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-95616	-3853			780	293	SLV 16	0.08	No
ini.	2	0	43849	-389			780	293	SLV 15	0.75	No
fin.	2	0	-95616	-3853			780	293	SLV 15	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.493	SLV 11	No
V_SLV	0.055	SLV 11	No
PF_SLU	0.663	SLU 83	No
V_SLU	0.054	SLU 83	No

## Trave di accoppiamento 31

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-301.3	587.6	-159	41	200	-201.3	587.6	-159	41	200	100	45	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2941	-3515	316581	SLU 81	90.06	Si
fin.	3	-2399	-202823	316581	SLU 81	1.56	Si
ini.	3	-2943	-4326	316581	SLU 84	73.18	Si
fin.	3	-2385	-200697	316581	SLU 84	1.58	Si
ini.	3	-2850	-3496	316581	SLU 75	90.54	Si
fin.	3	-2313	-194393	316581	SLU 75	1.63	Si
ini.	3	-2892	-3259	316581	SLU 74	97.14	Si
fin.	3	-2366	-197012	316581	SLU 74	1.61	Si
ini.	3	-2874	-5020	316581	SLU 80	63.07	Si
fin.	3	-2341	-192965	316581	SLU 80	1.64	Si
ini.	3	-2915	-4782	316581	SLU 79	66.2	Si
fin.	3	-2394	-195584	316581	SLU 79	1.62	Si
ini.	3	-2899	-3753	316581	SLU 82	84.36	Si
fin.	3	-2346	-200204	316581	SLU 82	1.58	Si
ini.	3	-2936	-3832	316581	SLU 77	82.61	Si
fin.	3	-2405	-197505	316581	SLU 77	1.6	Si
ini.	3	-2894	-4070	316581	SLU 78	77.79	Si
fin.	3	-2353	-194886	316581	SLU 78	1.62	Si
ini.	3	-2985	-4089	316581	SLU 83	77.43	Si
fin.	3	-2438	-203316	316581	SLU 83	1.56	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-3753	-5264			3466	1304	SLU 82	0.25	No
fin.	3	0	-200204	-329			3466	1304	SLU 82	3.96	Si
ini.	3	0	-3515	-5317			3466	1304	SLU 81	0.25	No
fin.	3	0	-202823	-315			3466	1304	SLU 81	4.14	Si
ini.	3	0	-4326	-5318			3466	1304	SLU 84	0.25	No
fin.	3	0	-200697	-295			3466	1304	SLU 84	4.42	Si
ini.	3	0	-5020	-5100			3466	1304	SLU 80	0.26	No
fin.	3	0	-192965	-279			3466	1304	SLU 80	4.68	Si
ini.	3	0	-4782	-5153			3466	1304	SLU 79	0.25	No
fin.	3	0	-195584	-264			3466	1304	SLU 79	4.93	Si
ini.	3	0	-3496	-5099			3466	1304	SLU 75	0.26	No
fin.	3	0	-194393	-337			3466	1304	SLU 75	3.88	Si
ini.	3	0	-3832	-5206			3466	1304	SLU 77	0.25	No
fin.	3	0	-197505	-288			3466	1304	SLU 77	4.52	Si
ini.	3	0	-4070	-5153			3466	1304	SLU 78	0.25	No
fin.	3	0	-194886	-303			3466	1304	SLU 78	4.31	Si
ini.	3	0	-3259	-5151			3466	1304	SLU 74	0.25	No
fin.	3	0	-197012	-322			3466	1304	SLU 74	4.05	Si
ini.	3	0	-4089	-5371			3466	1304	SLU 83	0.24	No
fin.	3	0	-203316	-281			3466	1304	SLU 83	4.64	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-11378	677384	327721	SLV 11	0.48	No
fin.	2	-5182	-584746	327721	SLV 11	0.56	No
ini.	2	3961	-723108	327721	SLV 1	0.45	No
fin.	2	-2094	525813	327721	SLV 1	0.62	No
ini.	2	-7942	716877	327721	SLV 15	0.46	No
fin.	2	-1194	-799058	327721	SLV 15	0.41	No
ini.	2	-7942	716877	327721	SLV 16	0.46	No
fin.	2	-1194	-799058	327721	SLV 16	0.41	No
ini.	2	7397	-683615	327721	SLV 6	0.48	No
fin.	2	1894	311501	327721	SLV 6	1.05	Si
ini.	2	-2929	410612	327721	SLV 13	0.8	No
fin.	2	1227	-634624	327721	SLV 13	0.52	No





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2929	410612	327721	SLV 14	0.8	No
fin.	2	1227	-634624	327721	SLV 14	0.52	No
ini.	2	3961	-723108	327721	SLV 2	0.45	No
fin.	2	-2094	525813	327721	SLV 2	0.62	No
ini.	2	-11378	677384	327721	SLV 12	0.48	No
fin.	2	-5182	-584746	327721	SLV 12	0.56	No
ini.	2	7397	-683615	327721	SLV 5	0.48	No
fin.	2	1894	311501	327721	SLV 5	1.05	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	677384	-11760			5199	1957	SLV 12	0.17	No
fin.	2	0	-584746	-3784			5199	1957	SLV 12	0.52	No
ini.	2	0	-416843	13258			5199	1957	SLV 3	0.15	No
fin.	2	0	361379	17171			5199	1957	SLV 3	0.11	No
ini.	2	0	410612	-20152			5199	1957	SLV 14	0.1	No
fin.	2	0	-634624	-17732			5199	1957	SLV 14	0.11	No
ini.	2	0	677384	-11760			5199	1957	SLV 11	0.17	No
fin.	2	0	-584746	-3784			5199	1957	SLV 11	0.52	No
ini.	2	0	716877	-21970			5199	1957	SLV 15	0.09	No
fin.	2	0	-799058	-16779			5199	1957	SLV 15	0.12	No
ini.	2	0	410612	-20152			5199	1957	SLV 13	0.1	No
fin.	2	0	-634624	-17732			5199	1957	SLV 13	0.11	No
ini.	2	0	-416843	13258			5199	1957	SLV 4	0.15	No
fin.	2	0	361379	17171			5199	1957	SLV 4	0.11	No
ini.	2	0	-723108	15075			5199	1957	SLV 1	0.13	No
fin.	2	0	525813	16217			5199	1957	SLV 1	0.12	No
ini.	2	0	-723108	15075			5199	1957	SLV 2	0.13	No
fin.	2	0	525813	16217			5199	1957	SLV 2	0.12	No
ini.	2	0	716877	-21970			5199	1957	SLV 16	0.09	No
fin.	2	0	-799058	-16779			5199	1957	SLV 16	0.12	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.41	SLV 15	No
V_SLV	0.089	SLV 15	No
PF_SLU	1.557	SLU 83	Si
V_SLU	0.243	SLU 83	No

## Trave di accoppiamento 32

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-301.3	587.6	81	111	30	-201.3	587.6	81	111	30	100	45	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	270	-21180	20548	SLU 77	0.97	No
fin.	3	69	-25142	20548	SLU 77	0.82	No
ini.	3	243	-22141	20548	SLU 84	0.93	No
fin.	3	29	-26300	20548	SLU 84	0.78	No
ini.	3	261	-20671	20548	SLU 75	0.99	No
fin.	3	53	-24879	20548	SLU 75	0.83	No
ini.	3	243	-21309	20548	SLU 80	0.96	No
fin.	3	50	-24626	20548	SLU 80	0.83	No
ini.	3	262	-22050	20548	SLU 83	0.93	No
fin.	3	47	-26623	20548	SLU 83	0.77	No
ini.	3	280	-20580	20548	SLU 74	1	No
fin.	3	71	-25202	20548	SLU 74	0.82	No
ini.	3	273	-21450	20548	SLU 81	0.96	No
fin.	3	50	-26683	20548	SLU 81	0.77	No
ini.	3	250	-21271	20548	SLU 78	0.97	No
fin.	3	51	-24819	20548	SLU 78	0.83	No
ini.	3	253	-21541	20548	SLU 82	0.95	No
fin.	3	32	-26360	20548	SLU 82	0.78	No
ini.	3	262	-21218	20548	SLU 79	0.97	No
fin.	3	68	-24949	20548	SLU 79	0.82	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-22141	1643			347	130	SLU 84	0.08	No
fin.	3	0	-26300	-1428			347	130	SLU 84	0.09	No
ini.	3	0	-21450	1605			347	130	SLU 81	0.08	No
fin.	3	0	-26683	-1447			347	130	SLU 81	0.09	No
ini.	3	0	-22050	1642			347	130	SLU 83	0.08	No
fin.	3	0	-26623	-1445			347	130	SLU 83	0.09	No
ini.	3	0	-21218	1581			347	130	SLU 79	0.08	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-24949	-1354			347	130	SLU 79	0.1	No
ini.	3	0	-21271	1584			347	130	SLU 78	0.08	No
fin.	3	0	-24819	-1346			347	130	SLU 78	0.1	No
ini.	3	0	-21180	1583			347	130	SLU 77	0.08	No
fin.	3	0	-25142	-1362			347	130	SLU 77	0.1	No
ini.	3	0	-20671	1548			347	130	SLU 75	0.08	No
fin.	3	0	-24879	-1348			347	130	SLU 75	0.1	No
ini.	3	0	-21541	1607			347	130	SLU 82	0.08	No
fin.	3	0	-26360	-1431			347	130	SLU 82	0.09	No
ini.	3	0	-20769	1547			347	130	SLU 76	0.08	No
fin.	3	0	-24470	-1330			347	130	SLU 76	0.1	No
ini.	3	0	-21309	1583			347	130	SLU 80	0.08	No
fin.	3	0	-24626	-1338			347	130	SLU 80	0.1	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	10035	2530	30221	SLV 9	11.95	Si
fin.	2	7529	-51993	30221	SLV 9	0.58	No
ini.	2	4691	49412	30221	SLV 13	0.61	No
fin.	2	-232	-94409	30221	SLV 13	0.32	No
ini.	2	10035	2530	30221	SLV 10	11.95	Si
fin.	2	7529	-51993	30221	SLV 10	0.58	No
ini.	2	-890	51445	30221	SLV 16	0.59	No
fin.	2	-5201	-86558	30221	SLV 16	0.35	No
ini.	2	1355	-77758	30221	SLV 2	0.39	No
fin.	2	5380	52948	30221	SLV 2	0.57	No
ini.	2	-890	51445	30221	SLV 15	0.59	No
fin.	2	-5201	-86558	30221	SLV 15	0.35	No
ini.	2	-4226	-75724	30221	SLV 3	0.4	No
fin.	2	411	60800	30221	SLV 3	0.5	No
ini.	2	4691	49412	30221	SLV 14	0.61	No
fin.	2	-232	-94409	30221	SLV 14	0.32	No
ini.	2	1355	-77758	30221	SLV 1	0.39	No
fin.	2	5380	52948	30221	SLV 1	0.57	No
ini.	2	-4226	-75724	30221	SLV 4	0.4	No
fin.	2	411	60800	30221	SLV 4	0.5	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-77758	2763			520	196	SLV 1	0.07	No
fin.	2	0	52948	1627			520	196	SLV 1	0.12	No
ini.	2	0	49412	-1142			520	196	SLV 14	0.17	No
fin.	2	0	-94409	-3119			520	196	SLV 14	0.06	No
ini.	2	0	-28842	2251			520	196	SLV 7	0.09	No
fin.	2	0	18384	-749			520	196	SLV 7	0.26	No
ini.	2	0	51445	-747			520	196	SLV 16	0.26	No
fin.	2	0	-86558	-3449			520	196	SLV 16	0.06	No
ini.	2	0	-77758	2763			520	196	SLV 2	0.07	No
fin.	2	0	52948	1627			520	196	SLV 2	0.12	No
ini.	2	0	-75724	3157			520	196	SLV 4	0.06	No
fin.	2	0	60800	1297			520	196	SLV 4	0.15	No
ini.	2	0	-75724	3157			520	196	SLV 3	0.06	No
fin.	2	0	60800	1297			520	196	SLV 3	0.15	No
ini.	2	0	51445	-747			520	196	SLV 15	0.26	No
fin.	2	0	-86558	-3449			520	196	SLV 15	0.06	No
ini.	2	0	-28842	2251			520	196	SLV 8	0.09	No
fin.	2	0	18384	-749			520	196	SLV 8	0.26	No
ini.	2	0	49412	-1142			520	196	SLV 13	0.17	No
fin.	2	0	-94409	-3119			520	196	SLV 13	0.06	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.32	SLV 13	No
V_SLV	0.057	SLV 15	No
PF_SLU	0.77	SLU 81	No
V_SLU	0.079	SLU 84	No

## Trave di accoppiamento 33

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2176.3	595.1	111	201	90	-2276.3	595.1	111	201	90	100	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	5187	94041	103792	SLU 83	1.1	Si
fin.	3	5378	-42888	103792	SLU 83	2.42	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	5039	95159	103792	SLU 78	1.09	Si
fin.	3	5238	-43918	103792	SLU 78	2.36	Si
ini.	3	5070	89856	103792	SLU 82	1.16	Si
fin.	3	5232	-40335	103792	SLU 82	2.57	Si
ini.	3	5085	95050	103792	SLU 77	1.09	Si
fin.	3	5289	-43677	103792	SLU 77	2.38	Si
ini.	3	5014	90755	103792	SLU 74	1.14	Si
fin.	3	5194	-40881	103792	SLU 74	2.54	Si
ini.	3	4968	90864	103792	SLU 75	1.14	Si
fin.	3	5143	-41123	103792	SLU 75	2.52	Si
ini.	3	5141	94150	103792	SLU 84	1.1	Si
fin.	3	5327	-43130	103792	SLU 84	2.41	Si
ini.	3	5050	94636	103792	SLU 79	1.1	Si
fin.	3	5256	-43544	103792	SLU 79	2.38	Si
ini.	3	4903	90524	103792	SLU 76	1.15	Si
fin.	3	5075	-41151	103792	SLU 76	2.52	Si
ini.	3	5004	94746	103792	SLU 80	1.1	Si
fin.	3	5204	-43785	103792	SLU 80	2.37	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	94746	-1732			873	329	SLU 80	0.19	No
fin.	3	0	-43785	-1730			873	329	SLU 80	0.19	No
ini.	3	0	94150	-1717			873	329	SLU 84	0.19	No
fin.	3	0	-43130	-1720			873	329	SLU 84	0.19	No
ini.	3	0	90755	-1648			873	329	SLU 74	0.2	No
fin.	3	0	-40881	-1653			873	329	SLU 74	0.2	No
ini.	3	0	90524	-1641			873	329	SLU 76	0.2	No
fin.	3	0	-41151	-1654			873	329	SLU 76	0.2	No
ini.	3	0	90864	-1651			873	329	SLU 75	0.2	No
fin.	3	0	-41123	-1656			873	329	SLU 75	0.2	No
ini.	3	0	95050	-1741			873	329	SLU 77	0.19	No
fin.	3	0	-43677	-1731			873	329	SLU 77	0.19	No
ini.	3	0	89856	-1624			873	329	SLU 82	0.2	No
fin.	3	0	-40335	-1643			873	329	SLU 82	0.2	No
ini.	3	0	94041	-1715			873	329	SLU 83	0.19	No
fin.	3	0	-42888	-1718			873	329	SLU 83	0.19	No
ini.	3	0	95159	-1743			873	329	SLU 78	0.19	No
fin.	3	0	-43918	-1733			873	329	SLU 78	0.19	No
ini.	3	0	94636	-1730			873	329	SLU 79	0.19	No
fin.	3	0	-43544	-1728			873	329	SLU 79	0.19	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-8169	-359956	121694	SLV 5	0.34	No
fin.	2	-15358	-203880	121694	SLV 5	0.6	No
ini.	2	-6746	-515302	121694	SLV 9	0.24	No
fin.	2	-15900	-41842	121694	SLV 9	2.91	Si
ini.	2	13618	634856	121694	SLV 7	0.19	No
fin.	2	22979	-9133	121694	SLV 7	13.32	Si
ini.	2	15042	479510	121694	SLV 11	0.25	No
fin.	2	22437	152905	121694	SLV 11	0.8	No
ini.	2	-6746	-515302	121694	SLV 10	0.24	No
fin.	2	-15900	-41842	121694	SLV 10	2.91	Si
ini.	2	4331	467909	121694	SLV 3	0.26	No
fin.	2	10193	-266339	121694	SLV 3	0.46	No
ini.	2	-8169	-359956	121694	SLV 6	0.34	No
fin.	2	-15358	-203880	121694	SLV 6	0.6	No
ini.	2	4331	467909	121694	SLV 4	0.26	No
fin.	2	10193	-266339	121694	SLV 4	0.46	No
ini.	2	15042	479510	121694	SLV 12	0.25	No
fin.	2	22437	152905	121694	SLV 12	0.8	No
ini.	2	13618	634856	121694	SLV 8	0.19	No
fin.	2	22979	-9133	121694	SLV 8	13.32	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-515302	6571			1310	493	SLV 10	0.08	No
fin.	2	0	-41842	4221			1310	493	SLV 10	0.12	No
ini.	2	0	169465	-6387			1310	493	SLV 2	0.08	No
fin.	2	0	-324763	-6745			1310	493	SLV 2	0.07	No
ini.	2	0	-348356	7595			1310	493	SLV 14	0.06	No
fin.	2	0	215364	6549			1310	493	SLV 14	0.08	No
ini.	2	0	634856	-8679			1310	493	SLV 8	0.06	No
fin.	2	0	-9133	-6410			1310	493	SLV 8	0.08	No
ini.	2	0	634856	-8679			1310	493	SLV 7	0.06	No
fin.	2	0	-9133	-6410			1310	493	SLV 7	0.08	No
ini.	2	0	169465	-6387			1310	493	SLV 1	0.08	No
fin.	2	0	-324763	-6745			1310	493	SLV 1	0.07	No
ini.	2	0	467909	-9704			1310	493	SLV 3	0.05	No
fin.	2	0	-266339	-8738			1310	493	SLV 3	0.06	No
ini.	2	0	-348356	7595			1310	493	SLV 13	0.06	No
fin.	2	0	215364	6549			1310	493	SLV 13	0.08	No
ini.	2	0	467909	-9704			1310	493	SLV 4	0.05	No
fin.	2	0	-266339	-8738			1310	493	SLV 4	0.06	No
ini.	2	0	-515302	6571			1310	493	SLV 9	0.08	No
fin.	2	0	-41842	4221			1310	493	SLV 9	0.12	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.192	SLV 7	No
V_SLV	0.051	SLV 3	No
PF_SLU	1.091	SLU 78	Si
V_SLU	0.189	SLU 78	No

## Trave di accoppiamento 34

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2176.3	595.1	391	483	92	-2276.3	595.1	391	483	92	100	28	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-976	25103	107292	SLU 79	4.27	Si
fin.	3	-411	-13131	107292	SLU 79	8.17	Si
ini.	3	-964	24981	107292	SLU 80	4.29	Si
fin.	3	-429	-13875	107292	SLU 80	7.73	Si
ini.	3	-849	23719	107292	SLU 74	4.52	Si
fin.	3	-262	-11139	107292	SLU 74	9.63	Si
ini.	3	-764	23624	107292	SLU 81	4.54	Si
fin.	3	-151	-10085	107292	SLU 81	10.64	Si
ini.	3	-838	23597	107292	SLU 75	4.55	Si
fin.	3	-280	-11883	107292	SLU 75	9.03	Si
ini.	3	-947	24958	107292	SLU 78	4.3	Si
fin.	3	-409	-13818	107292	SLU 78	7.76	Si
ini.	3	-958	25080	107292	SLU 77	4.28	Si
fin.	3	-391	-13075	107292	SLU 77	8.21	Si
ini.	3	-848	23539	107292	SLU 76	4.56	Si
fin.	3	-311	-12436	107292	SLU 76	8.63	Si
ini.	3	-873	24985	107292	SLU 83	4.29	Si
fin.	3	-281	-12020	107292	SLU 83	8.93	Si
ini.	3	-862	24863	107292	SLU 84	4.32	Si
fin.	3	-298	-12764	107292	SLU 84	8.41	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	24985	3939			913	343	SLU 83	0.09	No
fin.	3	0	-12020	-2563			913	343	SLU 83	0.13	No
ini.	3	0	25080	3799			913	343	SLU 77	0.09	No
fin.	3	0	-13075	-2532			913	343	SLU 77	0.14	No
ini.	3	0	24958	3759			913	343	SLU 78	0.09	No
fin.	3	0	-13818	-2536			913	343	SLU 78	0.14	No
ini.	3	0	24863	3898			913	343	SLU 84	0.09	No
fin.	3	0	-12764	-2567			913	343	SLU 84	0.13	No
ini.	3	0	23624	3928			913	343	SLU 81	0.09	No
fin.	3	0	-10085	-2475			913	343	SLU 81	0.14	No
ini.	3	0	25103	3763			913	343	SLU 79	0.09	No
fin.	3	0	-13131	-2519			913	343	SLU 79	0.14	No
ini.	3	0	23719	3788			913	343	SLU 74	0.09	No
fin.	3	0	-11139	-2443			913	343	SLU 74	0.14	No
ini.	3	0	24981	3722			913	343	SLU 80	0.09	No
fin.	3	0	-13875	-2523			913	343	SLU 80	0.14	No
ini.	3	0	23597	3748			913	343	SLU 75	0.09	No
fin.	3	0	-11883	-2447			913	343	SLU 75	0.14	No
ini.	3	0	23502	3887			913	343	SLU 82	0.09	No
fin.	3	0	-10829	-2479			913	343	SLU 82	0.14	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	4046	118840	125194	SLV 2	1.05	Si
fin.	2	-2215	-150163	125194	SLV 2	0.83	No
ini.	2	3902	142250	125194	SLV 4	0.88	No
fin.	2	-2799	-175268	125194	SLV 4	0.71	No
ini.	2	4046	118840	125194	SLV 1	1.05	Si
fin.	2	-2215	-150163	125194	SLV 1	0.83	No
ini.	2	-5166	-88600	125194	SLV 15	1.41	Si
fin.	2	2006	138965	125194	SLV 15	0.9	No
ini.	2	561	88765	125194	SLV 7	1.41	Si
fin.	2	-1799	-94576	125194	SLV 7	1.32	Si
ini.	2	561	88765	125194	SLV 8	1.41	Si
fin.	2	-1799	-94576	125194	SLV 8	1.32	Si
ini.	2	-5166	-88600	125194	SLV 16	1.41	Si
fin.	2	2006	138965	125194	SLV 16	0.9	No
ini.	2	-5022	-112011	125194	SLV 14	1.12	Si
fin.	2	2590	164071	125194	SLV 14	0.76	No
ini.	2	3902	142250	125194	SLV 3	0.88	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	2	-2799	-175268	125194	SLV 3	0.71	No
ini.	2	-5022	-112011	125194	SLV 13	1.12	Si
fin.	2	2590	164071	125194	SLV 13	0.76	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-58526	5763			1369	515	SLV 10	0.09	No
fin.	2	0	83379	1439			1369	515	SLV 10	0.36	No
ini.	2	0	-58526	5763			1369	515	SLV 9	0.09	No
fin.	2	0	83379	1439			1369	515	SLV 9	0.36	No
ini.	2	0	-112011	9118			1369	515	SLV 13	0.06	No
fin.	2	0	164071	4802			1369	515	SLV 13	0.11	No
ini.	2	0	142250	-3957			1369	515	SLV 3	0.13	No
fin.	2	0	-175268	-7963			1369	515	SLV 3	0.06	No
ini.	2	0	142250	-3957			1369	515	SLV 4	0.13	No
fin.	2	0	-175268	-7963			1369	515	SLV 4	0.06	No
ini.	2	0	-88600	8312			1369	515	SLV 16	0.06	No
fin.	2	0	138965	4074			1369	515	SLV 16	0.13	No
ini.	2	0	-112011	9118			1369	515	SLV 14	0.06	No
fin.	2	0	164071	4802			1369	515	SLV 14	0.11	No
ini.	2	0	118840	-3152			1369	515	SLV 2	0.16	No
fin.	2	0	-150163	-7235			1369	515	SLV 2	0.07	No
ini.	2	0	118840	-3152			1369	515	SLV 1	0.16	No
fin.	2	0	-150163	-7235			1369	515	SLV 1	0.07	No
ini.	2	0	-88600	8312			1369	515	SLV 15	0.06	No
fin.	2	0	138965	4074			1369	515	SLV 15	0.13	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.714	SLV 3	No
V_SLV	0.057	SLV 13	No
PF_SLU	4.274	SLU 79	Si
V_SLU	0.087	SLU 83	No

## Trave di accoppiamento 35

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2154.3	-335.9	111	201	90	-2254.3	-335.9	111	201	90	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	9140	159962	103792	SLU 78	0.65	No
fin.	3	9564	-131417	103792	SLU 78	0.79	No
ini.	3	9086	159131	103792	SLU 80	0.65	No
fin.	3	9510	-130564	103792	SLU 80	0.79	No
ini.	3	10757	161627	103792	SLU 73	0.64	No
fin.	3	11108	-121506	103792	SLU 73	0.85	No
ini.	3	9098	156037	103792	SLU 75	0.67	No
fin.	3	9495	-127572	103792	SLU 75	0.81	No
ini.	3	9270	157129	103792	SLU 82	0.66	No
fin.	3	9654	-128569	103792	SLU 82	0.81	No
ini.	3	10799	165552	103792	SLU 76	0.63	No
fin.	3	11177	-125352	103792	SLU 76	0.83	No
ini.	3	10212	151590	103792	SLU 55	0.68	No
fin.	3	10542	-111389	103792	SLU 55	0.93	No
ini.	3	10133	147985	103792	SLU 65	0.7	No
fin.	3	10446	-108217	103792	SLU 65	0.96	No
ini.	3	10175	151910	103792	SLU 68	0.68	No
fin.	3	10515	-112062	103792	SLU 68	0.93	No
ini.	3	9311	161053	103792	SLU 84	0.64	No
fin.	3	9724	-132414	103792	SLU 84	0.78	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	159962	-2974			873	329	SLU 78	0.11	No
fin.	3	0	-131417	-3504			873	329	SLU 78	0.09	No
ini.	3	0	147985	-2414			873	329	SLU 65	0.14	No
fin.	3	0	-108217	-3251			873	329	SLU 65	0.1	No
ini.	3	0	151910	-2506			873	329	SLU 68	0.13	No
fin.	3	0	-112062	-3339			873	329	SLU 68	0.1	No
ini.	3	0	156037	-2882			873	329	SLU 75	0.11	No
fin.	3	0	-127572	-3416			873	329	SLU 75	0.1	No
ini.	3	0	157129	-2902			873	329	SLU 82	0.11	No
fin.	3	0	-128569	-3437			873	329	SLU 82	0.1	No
ini.	3	0	159131	-2953			873	329	SLU 80	0.11	No
fin.	3	0	-130564	-3488			873	329	SLU 80	0.09	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	161627	-2723			873	329	SLU 73	0.12	No
fin.	3	0	-121506	-3540			873	329	SLU 73	0.09	No
ini.	3	0	165552	-2815			873	329	SLU 76	0.12	No
fin.	3	0	-125352	-3628			873	329	SLU 76	0.09	No
ini.	3	0	161053	-2994			873	329	SLU 84	0.11	No
fin.	3	0	-132414	-3524			873	329	SLU 84	0.09	No
ini.	3	0	151590	-2494			873	329	SLU 55	0.13	No
fin.	3	0	-111389	-3325			873	329	SLU 55	0.1	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	22876	265739	121694	SLV 6	0.46	No
fin.	2	23094	-135893	121694	SLV 6	0.9	No
ini.	2	6073	236279	121694	SLD 1	0.52	No
fin.	2	7145	-213939	121694	SLD 1	0.57	No
ini.	2	-2665	373266	121694	SLV 4	0.33	No
fin.	2	-214	-402609	121694	SLV 4	0.3	No
ini.	2	8645	421387	121694	SLV 2	0.29	No
fin.	2	10706	-377557	121694	SLV 2	0.32	No
ini.	2	22876	265739	121694	SLV 5	0.46	No
fin.	2	23094	-135893	121694	SLV 5	0.9	No
ini.	2	-2665	373266	121694	SLV 3	0.33	No
fin.	2	-214	-402609	121694	SLV 3	0.3	No
ini.	2	6073	236279	121694	SLD 2	0.52	No
fin.	2	7145	-213939	121694	SLD 2	0.57	No
ini.	2	294	-231848	121694	SLV 15	0.52	No
fin.	2	-1219	204354	121694	SLV 15	0.6	No
ini.	2	8645	421387	121694	SLV 1	0.29	No
fin.	2	10706	-377557	121694	SLV 1	0.32	No
ini.	2	294	-231848	121694	SLV 16	0.52	No
fin.	2	-1219	204354	121694	SLV 16	0.6	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-183727	5280			1310	493	SLV 13	0.09	No
fin.	2	0	229406	4716			1310	493	SLV 13	0.1	No
ini.	2	0	421387	-8844			1310	493	SLV 1	0.06	No
fin.	2	0	-377557	-9295			1310	493	SLV 1	0.05	No
ini.	2	0	-231848	4916			1310	493	SLV 16	0.1	No
fin.	2	0	204354	5137			1310	493	SLV 16	0.1	No
ini.	2	0	236279	-4971			1310	493	SLD 1	0.1	No
fin.	2	0	-213939	-5220			1310	493	SLD 1	0.09	No
ini.	2	0	236279	-4971			1310	493	SLD 2	0.1	No
fin.	2	0	-213939	-5220			1310	493	SLD 2	0.09	No
ini.	2	0	421387	-8844			1310	493	SLV 2	0.06	No
fin.	2	0	-377557	-9295			1310	493	SLV 2	0.05	No
ini.	2	0	373266	-9207			1310	493	SLV 4	0.05	No
fin.	2	0	-402609	-8874			1310	493	SLV 4	0.06	No
ini.	2	0	373266	-9207			1310	493	SLV 3	0.05	No
fin.	2	0	-402609	-8874			1310	493	SLV 3	0.06	No
ini.	2	0	-231848	4916			1310	493	SLV 15	0.1	No
fin.	2	0	204354	5137			1310	493	SLV 15	0.1	No
ini.	2	0	-183727	5280			1310	493	SLV 14	0.09	No
fin.	2	0	229406	4716			1310	493	SLV 14	0.1	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.289	SLV 1	No
V_SLV	0.053	SLV 1	No
PF_SLU	0.627	SLU 76	No
V_SLU	0.091	SLU 76	No

## Trave di accoppiamento 36

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2154.3	-335.9	391	483	92	-2254.3	-335.9	391	483	92	100	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2059	85504	107292	SLU 80	1.25	Si
fin.	3	-951	-55889	107292	SLU 80	1.92	Si
ini.	3	2116	86952	107292	SLU 84	1.23	Si
fin.	3	-942	-56726	107292	SLU 84	1.89	Si
ini.	3	2127	87356	107292	SLU 73	1.23	Si
fin.	3	-908	-52395	107292	SLU 73	2.05	Si
ini.	3	2158	89222	107292	SLU 76	1.2	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	-952	-54175	107292	SLU 76	1.98	Si
ini.	3	2089	86018	107292	SLU 78	1.25	Si
fin.	3	-947	-56277	107292	SLU 78	1.91	Si
ini.	3	2084	85086	107292	SLU 82	1.26	Si
fin.	3	-898	-54946	107292	SLU 82	1.95	Si
ini.	3	1952	81487	107292	SLU 68	1.32	Si
fin.	3	-871	-48068	107292	SLU 68	2.23	Si
ini.	3	1920	79620	107292	SLU 65	1.35	Si
fin.	3	-827	-46287	107292	SLU 65	2.32	Si
ini.	3	2057	84151	107292	SLU 75	1.27	Si
fin.	3	-904	-54496	107292	SLU 75	1.97	Si
ini.	3	1915	81067	107292	SLU 55	1.32	Si
fin.	3	-874	-47829	107292	SLU 55	2.24	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	78575	864			913	343	SLU 83	0.4	No
fin.	3	0	-56627	-5105			913	343	SLU 83	0.07	No
ini.	3	0	85504	298			913	343	SLU 80	1.15	Si
fin.	3	0	-55889	-5035			913	343	SLU 80	0.07	No
ini.	3	0	84151	342			913	343	SLU 75	1	Si
fin.	3	0	-54496	-4965			913	343	SLU 75	0.07	No
ini.	3	0	77640	777			913	343	SLU 77	0.44	No
fin.	3	0	-56177	-5016			913	343	SLU 77	0.07	No
ini.	3	0	85086	428			913	343	SLU 82	0.8	No
fin.	3	0	-54946	-5054			913	343	SLU 82	0.07	No
ini.	3	0	76708	897			913	343	SLU 81	0.38	No
fin.	3	0	-54847	-4996			913	343	SLU 81	0.07	No
ini.	3	0	86018	309			913	343	SLU 78	1.11	Si
fin.	3	0	-56277	-5074			913	343	SLU 78	0.07	No
ini.	3	0	86952	395			913	343	SLU 84	0.87	No
fin.	3	0	-56726	-5163			913	343	SLU 84	0.07	No
ini.	3	0	89222	19			913	343	SLU 76	18.23	Si
fin.	3	0	-54175	-4964			913	343	SLU 76	0.07	No
ini.	3	0	77126	767			913	343	SLU 79	0.45	No
fin.	3	0	-55789	-4977			913	343	SLU 79	0.07	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	4047	157217	125194	SLV 6	0.8	No
fin.	2	-2213	-101414	125194	SLV 6	1.23	Si
ini.	2	-2360	-57008	125194	SLV 13	2.2	Si
fin.	2	3234	126244	125194	SLV 13	0.99	No
ini.	2	-2360	-57008	125194	SLV 14	2.2	Si
fin.	2	3234	126244	125194	SLV 14	0.99	No
ini.	2	-3317	-97695	125194	SLV 16	1.28	Si
fin.	2	3520	135582	125194	SLV 16	0.92	No
ini.	2	5778	199542	125194	SLV 2	0.63	No
fin.	2	-4632	-207239	125194	SLV 2	0.6	No
ini.	2	4821	158855	125194	SLV 3	0.79	No
fin.	2	-4346	-197901	125194	SLV 3	0.63	No
ini.	2	4047	157217	125194	SLV 5	0.8	No
fin.	2	-2213	-101414	125194	SLV 5	1.23	Si
ini.	2	5778	199542	125194	SLV 1	0.63	No
fin.	2	-4632	-207239	125194	SLV 1	0.6	No
ini.	2	4821	158855	125194	SLV 4	0.79	No
fin.	2	-4346	-197901	125194	SLV 4	0.63	No
ini.	2	-3317	-97695	125194	SLV 15	1.28	Si
fin.	2	3520	135582	125194	SLV 15	0.92	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-97695	8122			1369	515	SLV 16	0.06	No
fin.	2	0	135582	3843			1369	515	SLV 16	0.13	No
ini.	2	0	-57008	6867			1369	515	SLV 14	0.08	No
fin.	2	0	126244	3504			1369	515	SLV 14	0.15	No
ini.	2	0	158855	-5768			1369	515	SLV 3	0.09	No
fin.	2	0	-197901	-10048			1369	515	SLV 3	0.05	No
ini.	2	0	199542	-7023			1369	515	SLV 1	0.07	No
fin.	2	0	-207239	-10387			1369	515	SLV 1	0.05	No
ini.	2	0	115081	-2732			1369	515	SLD 1	0.19	No
fin.	2	0	-110701	-6381			1369	515	SLD 1	0.08	No
ini.	2	0	-57008	6867			1369	515	SLV 13	0.08	No
fin.	2	0	126244	3504			1369	515	SLV 13	0.15	No
ini.	2	0	-97695	8122			1369	515	SLV 15	0.06	No
fin.	2	0	135582	3843			1369	515	SLV 15	0.13	No
ini.	2	0	115081	-2732			1369	515	SLD 2	0.19	No
fin.	2	0	-110701	-6381			1369	515	SLD 2	0.08	No
ini.	2	0	199542	-7023			1369	515	SLV 2	0.07	No
fin.	2	0	-207239	-10387			1369	515	SLV 2	0.05	No
ini.	2	0	158855	-5768			1369	515	SLV 4	0.09	No
fin.	2	0	-197901	-10048			1369	515	SLV 4	0.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.604	SLV 1	No
V_SLV	0.05	SLV 1	No
PF_SLU	1.203	SLU 76	Si



Stato limite	Coeff.s.	Comb.	Verifica
V_SLU	0.067	SLU 84	No

## Trave di accoppiamento 37

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1886.8	-335.9	111	311	200	-1936.8	-335.9	111	311	200	50	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2505	-143745	296292	SLU 82	2.06	Si
fin.	3	1221	428302	296292	SLU 82	0.69	No
ini.	3	-2511	-145058	296292	SLU 75	2.04	Si
fin.	3	1180	413467	296292	SLU 75	0.72	No
ini.	3	-2539	-145438	296292	SLU 84	2.04	Si
fin.	3	1230	426858	296292	SLU 84	0.69	No
ini.	3	-2998	-198704	296292	SLU 73	1.49	Si
fin.	3	1356	422550	296292	SLU 73	0.7	No
ini.	3	-1710	-61206	296292	SLU 74	4.84	Si
fin.	3	892	396324	296292	SLU 74	0.75	No
ini.	3	-2545	-146751	296292	SLU 78	2.02	Si
fin.	3	1188	412024	296292	SLU 78	0.72	No
ini.	3	-3033	-200398	296292	SLU 76	1.48	Si
fin.	3	1365	421107	296292	SLU 76	0.7	No
ini.	3	-1738	-61585	296292	SLU 83	4.81	Si
fin.	3	942	409716	296292	SLU 83	0.72	No
ini.	3	-1703	-59892	296292	SLU 81	4.95	Si
fin.	3	934	411159	296292	SLU 81	0.72	No
ini.	3	-2533	-146189	296292	SLU 80	2.03	Si
fin.	3	1181	408235	296292	SLU 80	0.73	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-62899	1370			2157	812	SLU 77	0.59	No
fin.	3	0	394881	7056			2157	812	SLU 77	0.12	No
ini.	3	0	-145058	1392			2157	812	SLU 75	0.58	No
fin.	3	0	413467	7094			2157	812	SLU 75	0.11	No
ini.	3	0	-61585	1480			2157	812	SLU 83	0.55	No
fin.	3	0	409716	7353			2157	812	SLU 83	0.11	No
ini.	3	0	-59892	1561			2157	812	SLU 81	0.52	No
fin.	3	0	411159	7426			2157	812	SLU 81	0.11	No
ini.	3	0	-146751	1312			2157	812	SLU 78	0.62	No
fin.	3	0	412024	7022			2157	812	SLU 78	0.12	No
ini.	3	0	-198704	1412			2157	812	SLU 73	0.57	No
fin.	3	0	422550	7064			2157	812	SLU 73	0.11	No
ini.	3	0	-200398	1331			2157	812	SLU 76	0.61	No
fin.	3	0	421107	6992			2157	812	SLU 76	0.12	No
ini.	3	0	-143745	1503			2157	812	SLU 82	0.54	No
fin.	3	0	428302	7391			2157	812	SLU 82	0.11	No
ini.	3	0	-61206	1451			2157	812	SLU 74	0.56	No
fin.	3	0	396324	7129			2157	812	SLU 74	0.11	No
ini.	3	0	-145438	1422			2157	812	SLU 84	0.57	No
fin.	3	0	426858	7319			2157	812	SLU 84	0.11	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-10758	-713369	314194	SLV 9	0.44	No
fin.	2	-861	507464	314194	SLV 9	0.62	No
ini.	2	8327	626342	314194	SLV 8	0.5	No
fin.	2	2018	45183	314194	SLV 8	6.95	Si
ini.	2	9611	662688	314194	SLV 12	0.47	No
fin.	2	1167	191359	314194	SLV 12	1.64	Si
ini.	2	-12042	-749715	314194	SLV 6	0.42	No
fin.	2	-10	361288	314194	SLV 6	0.87	No
ini.	2	8327	626342	314194	SLV 7	0.5	No
fin.	2	2018	45183	314194	SLV 7	6.95	Si
ini.	2	-2130	-189345	314194	SLV 14	1.66	Si
fin.	2	-1144	567366	314194	SLV 14	0.55	No
ini.	2	9611	662688	314194	SLV 11	0.47	No
fin.	2	1167	191359	314194	SLV 11	1.64	Si
ini.	2	-12042	-749715	314194	SLV 5	0.42	No
fin.	2	-10	361288	314194	SLV 5	0.87	No
ini.	2	-10758	-713369	314194	SLV 10	0.44	No
fin.	2	-861	507464	314194	SLV 10	0.62	No
ini.	2	-2130	-189345	314194	SLV 13	1.66	Si
fin.	2	-1144	567366	314194	SLV 13	0.55	No





#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-189345	11535			3235	1217	SLV 13	0.11	No
fin.	2	0	567366	17174			3235	1217	SLV 13	0.07	No
ini.	2	0	-189345	11535			3235	1217	SLV 14	0.11	No
fin.	2	0	567366	17174			3235	1217	SLV 14	0.07	No
ini.	2	0	65137	6200			3235	1217	SLD 16	0.2	No
fin.	2	0	365042	10062			3235	1217	SLD 16	0.12	No
ini.	2	0	-99064	5659			3235	1217	SLD 13	0.22	No
fin.	2	0	403985	10310			3235	1217	SLD 13	0.12	No
ini.	2	0	-99064	5659			3235	1217	SLD 14	0.22	No
fin.	2	0	403985	10310			3235	1217	SLD 14	0.12	No
ini.	2	0	223472	12840			3235	1217	SLV 15	0.09	No
fin.	2	0	472535	16537			3235	1217	SLV 15	0.07	No
ini.	2	0	65137	6200			3235	1217	SLD 15	0.2	No
fin.	2	0	365042	10062			3235	1217	SLD 15	0.12	No
ini.	2	0	223472	12840			3235	1217	SLV 16	0.09	No
fin.	2	0	472535	16537			3235	1217	SLV 16	0.07	No
ini.	2	0	-310499	-10671			3235	1217	SLV 1	0.11	No
fin.	2	0	80112	-6520			3235	1217	SLV 1	0.19	No
ini.	2	0	-310499	-10671			3235	1217	SLV 2	0.11	No
fin.	2	0	80112	-6520			3235	1217	SLV 2	0.19	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.419	SLV 5	No
V_SLV	0.071	SLV 13	No
PF_SLU	0.692	SLU 82	No
V_SLU	0.109	SLU 81	No

#### Trave di accoppiamento 38

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1886.8	-335.9	391	483	92	-1936.8	-335.9	391	483	92	50	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2254	-16751	107292	SLU 52	6.4	Si
fin.	3	2617	56295	107292	SLU 52	1.91	Si
ini.	3	2303	-19676	107292	SLU 76	5.45	Si
fin.	3	2706	58017	107292	SLU 76	1.85	Si
ini.	3	2257	-15937	107292	SLU 65	6.73	Si
fin.	3	2608	55775	107292	SLU 65	1.92	Si
ini.	3	2200	-18241	107292	SLU 75	5.88	Si
fin.	3	2563	53987	107292	SLU 75	1.99	Si
ini.	3	2209	-19554	107292	SLU 84	5.49	Si
fin.	3	2591	54863	107292	SLU 84	1.96	Si
ini.	3	2160	-16630	107292	SLU 61	6.45	Si
fin.	3	2502	53141	107292	SLU 61	2.02	Si
ini.	3	2339	-18001	107292	SLU 82	5.96	Si
fin.	3	2707	56910	107292	SLU 82	1.89	Si
ini.	3	2433	-18123	107292	SLU 73	5.92	Si
fin.	3	2822	60065	107292	SLU 73	1.79	Si
ini.	3	2124	-18304	107292	SLU 55	5.86	Si
fin.	3	2501	54247	107292	SLU 55	1.98	Si
ini.	3	2126	-17490	107292	SLU 68	6.13	Si
fin.	3	2492	53727	107292	SLU 68	2	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-19676	2845			992	373	SLU 76	0.13	No
fin.	3	0	58017	-124			992	373	SLU 76	3.02	Si
ini.	3	0	-16751	2623			992	373	SLU 52	0.14	No
fin.	3	0	56295	-20			992	373	SLU 52	18.52	Si
ini.	3	0	-20170	2719			992	373	SLU 80	0.14	No
fin.	3	0	50976	-342			992	373	SLU 80	1.09	Si
ini.	3	0	-18123	2836			992	373	SLU 73	0.13	No
fin.	3	0	60065	-114			992	373	SLU 73	3.28	Si
ini.	3	0	-17967	2623			992	373	SLU 83	0.14	No
fin.	3	0	47373	-686			992	373	SLU 83	0.54	No
ini.	3	0	-19554	2825			992	373	SLU 84	0.13	No
fin.	3	0	54863	-374			992	373	SLU 84	1	No
ini.	3	0	-18241	2729			992	373	SLU 75	0.14	No
fin.	3	0	53987	-346			992	373	SLU 75	1.08	Si
ini.	3	0	-19794	2737			992	373	SLU 78	0.14	No
fin.	3	0	51939	-356			992	373	SLU 78	1.05	Si
ini.	3	0	-18304	2631			992	373	SLU 55	0.14	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	54247	-30			992	373	SLU 55	12.44	Si
ini.	3	0	-18001	2816			992	373	SLU 82	0.13	No
fin.	3	0	56910	-364			992	373	SLU 82	1.03	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4514	-19812	125194	SLV 4	6.32	Si
fin.	2	-3817	-101980	125194	SLV 4	1.23	Si
ini.	2	5446	-37565	125194	SLV 16	3.33	Si
fin.	2	5163	123266	125194	SLV 16	1.02	Si
ini.	2	6099	47265	125194	SLV 9	2.65	Si
fin.	2	6144	144339	125194	SLV 9	0.87	No
ini.	2	6099	47265	125194	SLV 10	2.65	Si
fin.	2	6144	144339	125194	SLV 10	0.87	No
ini.	2	-4514	-19812	125194	SLV 3	6.32	Si
fin.	2	-3817	-101980	125194	SLV 3	1.23	Si
ini.	2	3971	-7313	125194	SLD 14	17.12	Si
fin.	2	3976	92039	125194	SLD 14	1.36	Si
ini.	2	7356	-1281	125194	SLV 13	97.75	Si
fin.	2	7067	169378	125194	SLV 13	0.74	No
ini.	2	3971	-7313	125194	SLD 13	17.12	Si
fin.	2	3976	92039	125194	SLD 13	1.36	Si
ini.	2	5446	-37565	125194	SLV 15	3.33	Si
fin.	2	5163	123266	125194	SLV 15	1.02	Si
ini.	2	7356	-1281	125194	SLV 14	97.75	Si
fin.	2	7067	169378	125194	SLV 14	0.74	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-19812	-1955			1488	560	SLV 3	0.29	No
fin.	2	0	-101980	-3722			1488	560	SLV 3	0.15	No
ini.	2	0	47265	3525			1488	560	SLV 9	0.16	No
fin.	2	0	144339	-1117			1488	560	SLV 9	0.5	No
ini.	2	0	-1281	5448			1488	560	SLV 14	0.1	No
fin.	2	0	169378	2881			1488	560	SLV 14	0.19	No
ini.	2	0	-1281	5448			1488	560	SLV 13	0.1	No
fin.	2	0	169378	2881			1488	560	SLV 13	0.19	No
ini.	2	0	47265	3525			1488	560	SLV 10	0.16	No
fin.	2	0	144339	-1117			1488	560	SLV 10	0.5	No
ini.	2	0	16472	-1515			1488	560	SLV 2	0.37	No
fin.	2	0	-55869	-4834			1488	560	SLV 2	0.12	No
ini.	2	0	-19812	-1955			1488	560	SLV 4	0.29	No
fin.	2	0	-101980	-3722			1488	560	SLV 4	0.15	No
ini.	2	0	-37565	5008			1488	560	SLV 15	0.11	No
fin.	2	0	123266	3993			1488	560	SLV 15	0.14	No
ini.	2	0	16472	-1515			1488	560	SLV 1	0.37	No
fin.	2	0	-55869	-4834			1488	560	SLV 1	0.12	No
ini.	2	0	-37565	5008			1488	560	SLV 16	0.11	No
fin.	2	0	123266	3993			1488	560	SLV 16	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.739	SLV 13	No
V_SLV	0.103	SLV 13	No
PF_SLU	1.786	SLU 73	Si
V_SLU	0.131	SLU 76	No

## Trave di accoppiamento 39

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1731.3	-335.9	111	201	90	-1831.3	-335.9	111	201	90	100	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2232	-156143	103792	SLU 61	0.66	No
fin.	3	-3290	-34111	103792	SLU 61	3.04	Si
ini.	3	-2433	-162541	103792	SLU 84	0.64	No
fin.	3	-3450	-40746	103792	SLU 84	2.55	Si
ini.	3	-2357	-159603	103792	SLU 75	0.65	No
fin.	3	-3395	-39146	103792	SLU 75	2.65	Si
ini.	3	-1951	-158428	103792	SLU 81	0.66	No
fin.	3	-2427	-14789	103792	SLU 81	7.02	Si
ini.	3	-2538	-169412	103792	SLU 73	0.61	No
fin.	3	-4018	-49901	103792	SLU 73	2.08	Si
ini.	3	-2445	-153463	103792	SLU 78	0.68	No
fin.	3	-3420	-43671	103792	SLU 78	2.38	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2344	-168681	103792	SLU 82	0.62	No
fin.	3	-3425	-36221	103792	SLU 82	2.87	Si
ini.	3	-2379	-155167	103792	SLU 65	0.67	No
fin.	3	-3851	-48482	103792	SLU 65	2.14	Si
ini.	3	-2627	-163272	103792	SLU 76	0.64	No
fin.	3	-4044	-54426	103792	SLU 76	1.91	Si
ini.	3	-2426	-156874	103792	SLU 52	0.66	No
fin.	3	-3884	-47790	103792	SLU 52	2.17	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-156874	1052			873	329	SLU 52	0.31	No
fin.	3	0	-47790	4062			873	329	SLU 52	0.08	No
ini.	3	0	-155167	1048			873	329	SLU 65	0.31	No
fin.	3	0	-48482	4010			873	329	SLU 65	0.08	No
ini.	3	0	-163272	966			873	329	SLU 76	0.34	No
fin.	3	0	-54426	4244			873	329	SLU 76	0.08	No
ini.	3	0	-153463	809			873	329	SLU 78	0.41	No
fin.	3	0	-43671	4005			873	329	SLU 78	0.08	No
ini.	3	0	-158428	985			873	329	SLU 81	0.33	No
fin.	3	0	-14789	4034			873	329	SLU 81	0.08	No
ini.	3	0	-169412	1107			873	329	SLU 73	0.3	No
fin.	3	0	-49901	4363			873	329	SLU 73	0.08	No
ini.	3	0	-168681	1074			873	329	SLU 82	0.31	No
fin.	3	0	-36221	4323			873	329	SLU 82	0.08	No
ini.	3	0	-162541	932			873	329	SLU 84	0.35	No
fin.	3	0	-40746	4203			873	329	SLU 84	0.08	No
ini.	3	0	-159603	951			873	329	SLU 75	0.35	No
fin.	3	0	-39146	4125			873	329	SLU 75	0.08	No
ini.	3	0	-156143	1018			873	329	SLU 61	0.32	No
fin.	3	0	-34111	4021			873	329	SLU 61	0.08	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3467	-322150	121694	SLV 15	0.38	No
fin.	2	2081	169317	121694	SLV 15	0.72	No
ini.	2	717	-200658	121694	SLD 15	0.61	No
fin.	2	-172	66852	121694	SLD 15	1.82	Si
ini.	2	717	-200658	121694	SLD 16	0.61	No
fin.	2	-172	66852	121694	SLD 16	1.82	Si
ini.	2	-994	-394430	121694	SLV 14	0.31	No
fin.	2	-4670	145392	121694	SLV 14	0.84	No
ini.	2	-994	-394430	121694	SLV 13	0.31	No
fin.	2	-4670	145392	121694	SLV 13	0.84	No
ini.	2	3467	-322150	121694	SLV 16	0.38	No
fin.	2	2081	169317	121694	SLV 16	0.72	No
ini.	2	-1114	-232591	121694	SLD 14	0.52	No
fin.	2	-2885	57945	121694	SLD 14	2.1	Si
ini.	2	-1114	-232591	121694	SLD 13	0.52	No
fin.	2	-2885	57945	121694	SLD 13	2.1	Si
ini.	2	-8006	-303222	121694	SLV 9	0.4	No
fin.	2	-12831	500	121694	SLV 9	243.28	Si
ini.	2	-8006	-303222	121694	SLV 10	0.4	No
fin.	2	-12831	500	121694	SLV 10	243.28	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	88167	-7692			1310	493	SLV 7	0.06	No
fin.	2	0	-20018	-2692			1310	493	SLV 7	0.18	No
ini.	2	0	179374	-7194			1310	493	SLV 3	0.07	No
fin.	2	0	-164909	-4049			1310	493	SLV 3	0.12	No
ini.	2	0	-394430	8589			1310	493	SLV 13	0.06	No
fin.	2	0	145392	9547			1310	493	SLV 13	0.05	No
ini.	2	0	-394430	8589			1310	493	SLV 14	0.06	No
fin.	2	0	145392	9547			1310	493	SLV 14	0.05	No
ini.	2	0	-303222	9087			1310	493	SLV 9	0.05	No
fin.	2	0	500	8189			1310	493	SLV 9	0.06	No
ini.	2	0	-322150	4619			1310	493	SLV 16	0.11	No
fin.	2	0	169317	7305			1310	493	SLV 16	0.07	No
ini.	2	0	-303222	9087			1310	493	SLV 10	0.05	No
fin.	2	0	500	8189			1310	493	SLV 10	0.06	No
ini.	2	0	-322150	4619			1310	493	SLV 15	0.11	No
fin.	2	0	169317	7305			1310	493	SLV 15	0.07	No
ini.	2	0	179374	-7194			1310	493	SLV 4	0.07	No
fin.	2	0	-164909	-4049			1310	493	SLV 4	0.12	No
ini.	2	0	88167	-7692			1310	493	SLV 8	0.06	No
fin.	2	0	-20018	-2692			1310	493	SLV 8	0.18	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.309	SLV 13	No
V_SLV	0.052	SLV 13	No
PF_SLU	0.613	SLU 73	No
V_SLU	0.075	SLU 73	No



## Trave di accoppiamento 40

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1731.3	-335.9	391	483	92	-1831.3	-335.9	391	483	92	100	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	237	-22285	107292	SLU 52	4.81	Si
fin.	3	2257	33959	107292	SLU 52	3.16	Si
ini.	3	274	-20594	107292	SLU 65	5.21	Si
fin.	3	2270	34167	107292	SLU 65	3.14	Si
ini.	3	278	-19847	107292	SLU 68	5.41	Si
fin.	3	2113	30295	107292	SLU 68	3.54	Si
ini.	3	309	-22410	107292	SLU 76	4.79	Si
fin.	3	2280	31759	107292	SLU 76	3.38	Si
ini.	3	175	-25702	107292	SLU 61	4.17	Si
fin.	3	2148	31614	107292	SLU 61	3.39	Si
ini.	3	246	-25064	107292	SLU 75	4.28	Si
fin.	3	2171	30098	107292	SLU 75	3.56	Si
ini.	3	243	-26575	107292	SLU 82	4.04	Si
fin.	3	2328	33287	107292	SLU 82	3.22	Si
ini.	3	206	-19722	107292	SLU 44	5.44	Si
fin.	3	2090	32495	107292	SLU 44	3.3	Si
ini.	3	320	-17498	107292	SLU 31	6.13	Si
fin.	3	2106	30289	107292	SLU 31	3.54	Si
ini.	3	305	-23157	107292	SLU 73	4.63	Si
fin.	3	2437	35632	107292	SLU 73	3.01	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-22410	4323			913	343	SLU 76	0.08	No
fin.	3	0	31759	-1456			913	343	SLU 76	0.24	No
ini.	3	0	-23157	4402			913	343	SLU 73	0.08	No
fin.	3	0	35632	-1308			913	343	SLU 73	0.26	No
ini.	3	0	-28542	4308			913	343	SLU 74	0.08	No
fin.	3	0	25640	-1643			913	343	SLU 74	0.21	No
ini.	3	0	-25828	4476			913	343	SLU 84	0.08	No
fin.	3	0	29415	-1641			913	343	SLU 84	0.21	No
ini.	3	0	-25064	4352			913	343	SLU 75	0.08	No
fin.	3	0	30098	-1516			913	343	SLU 75	0.23	No
ini.	3	0	-29306	4433			913	343	SLU 83	0.08	No
fin.	3	0	24956	-1768			913	343	SLU 83	0.19	No
ini.	3	0	-26575	4556			913	343	SLU 82	0.08	No
fin.	3	0	33287	-1492			913	343	SLU 82	0.23	No
ini.	3	0	-24317	4273			913	343	SLU 78	0.08	No
fin.	3	0	26225	-1665			913	343	SLU 78	0.21	No
ini.	3	0	-27796	4229			913	343	SLU 77	0.08	No
fin.	3	0	21767	-1792			913	343	SLU 77	0.19	No
ini.	3	0	-30053	4512			913	343	SLU 81	0.08	No
fin.	3	0	28829	-1619			913	343	SLU 81	0.21	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1611	-124520	125194	SLV 5	1.01	Si
fin.	2	3313	67415	125194	SLV 5	1.86	Si
ini.	2	-1579	-147952	125194	SLV 9	0.85	No
fin.	2	6270	140471	125194	SLV 9	0.89	No
ini.	2	503	52829	125194	SLV 4	2.37	Si
fin.	2	-4536	-126141	125194	SLV 4	0.99	No
ini.	2	503	52829	125194	SLV 3	2.37	Si
fin.	2	-4536	-126141	125194	SLV 3	0.99	No
ini.	2	609	-25276	125194	SLV 15	4.95	Si
fin.	2	5319	117381	125194	SLV 15	1.07	Si
ini.	2	-384	-94513	125194	SLV 13	1.32	Si
fin.	2	7350	167376	125194	SLV 13	0.75	No
ini.	2	-384	-94513	125194	SLV 14	1.32	Si
fin.	2	7350	167376	125194	SLV 14	0.75	No
ini.	2	-1611	-124520	125194	SLV 6	1.01	Si
fin.	2	3313	67415	125194	SLV 6	1.86	Si
ini.	2	-1579	-147952	125194	SLV 10	0.85	No
fin.	2	6270	140471	125194	SLV 10	0.89	No
ini.	2	609	-25276	125194	SLV 16	4.95	Si
fin.	2	5319	117381	125194	SLV 16	1.07	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-94513	7411			1369	515	SLV 14	0.07	No
fin.	2	0	167376	4595			1369	515	SLV 14	0.11	No
ini.	2	0	52829	-1310			1369	515	SLV 3	0.39	No



Sezione	$\gamma M$	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-126141	-6623			1369	515	SLV 3	0.08	No
ini.	2	0	-124520	6624			1369	515	SLV 5	0.08	No
fin.	2	0	67415	855			1369	515	SLV 5	0.6	No
ini.	2	0	106268	-2333			1369	515	SLV 7	0.22	No
fin.	2	0	-99236	-5661			1369	515	SLV 7	0.09	No
ini.	2	0	-124520	6624			1369	515	SLV 6	0.08	No
fin.	2	0	67415	855			1369	515	SLV 6	0.6	No
ini.	2	0	-94513	7411			1369	515	SLV 13	0.07	No
fin.	2	0	167376	4595			1369	515	SLV 13	0.11	No
ini.	2	0	-147952	8434			1369	515	SLV 9	0.06	No
fin.	2	0	140471	3634			1369	515	SLV 9	0.14	No
ini.	2	0	52829	-1310			1369	515	SLV 4	0.39	No
fin.	2	0	-126141	-6623			1369	515	SLV 4	0.08	No
ini.	2	0	106268	-2333			1369	515	SLV 8	0.22	No
fin.	2	0	-99236	-5661			1369	515	SLV 8	0.09	No
ini.	2	0	-147952	8434			1369	515	SLV 10	0.06	No
fin.	2	0	140471	3634			1369	515	SLV 10	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.748	SLV 13	No
V_SLV	0.061	SLV 9	No
PF_SLU	3.011	SLU 73	Si
V_SLU	0.075	SLU 82	No

## Trave di accoppiamento 41

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1705.3	-486.2	437	483	46	-1705.3	-377.2	437	483	46	109	30	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

$f_b$	$f_{hk}$	$f_{vk0}$	$f_{hmedio}$	$\tau_0$	$f_{v0}$	$\mu$	$\phi$	$f_{vk,lim}$	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	$\gamma M$	N	M	$\mu$	Comb.	c.s.	Verifica
ini.	3	-642	5999	32207	SLU 55	5.37	Si
fin.	3	977	-21061	32207	SLU 55	1.53	Si
ini.	3	-632	5885	32207	SLU 68	5.47	Si
fin.	3	1020	-22727	32207	SLU 68	1.42	Si
ini.	3	-638	5996	32207	SLU 65	5.37	Si
fin.	3	951	-20397	32207	SLU 65	1.58	Si
ini.	3	-505	4642	32207	SLU 13	6.94	Si
fin.	3	903	-20288	32207	SLU 13	1.59	Si
ini.	3	-622	5759	32207	SLU 47	5.59	Si
fin.	3	1051	-24251	32207	SLU 47	1.33	Si
ini.	3	-484	4402	32207	SLU 5	7.32	Si
fin.	3	978	-23479	32207	SLU 5	1.37	Si
ini.	3	-500	4639	32207	SLU 23	6.94	Si
fin.	3	878	-19624	32207	SLU 23	1.64	Si
ini.	3	-627	5870	32207	SLU 44	5.49	Si
fin.	3	982	-21921	32207	SLU 44	1.47	Si
ini.	3	-495	4528	32207	SLU 26	7.11	Si
fin.	3	947	-21954	32207	SLU 26	1.47	Si
ini.	3	-490	4513	32207	SLU 2	7.14	Si
fin.	3	909	-21148	32207	SLU 2	1.52	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	$\gamma M$	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	6125	-109			354	133	SLU 76	1.22	Si
fin.	3	0	-19537	1145			354	133	SLU 76	0.12	No
ini.	3	0	6400	6			354	133	SLU 82	22.29	Si
fin.	3	0	-7713	1182			354	133	SLU 82	0.11	No
ini.	3	0	6289	-14			354	133	SLU 84	9.37	Si
fin.	3	0	-10043	1164			354	133	SLU 84	0.11	No
ini.	3	0	6075	-46			354	133	SLU 80	2.91	Si
fin.	3	0	-13741	1080			354	133	SLU 80	0.12	No
ini.	3	0	6492	131			354	133	SLU 81	1.02	Si
fin.	3	0	4475	1111			354	133	SLU 81	0.12	No
ini.	3	0	6275	-6			354	133	SLU 61	23.17	Si
fin.	3	0	-9238	1068			354	133	SLU 61	0.12	No
ini.	3	0	6116	-39			354	133	SLU 78	3.38	Si
fin.	3	0	-12974	1101			354	133	SLU 78	0.12	No
ini.	3	0	6381	111			354	133	SLU 83	1.2	Si
fin.	3	0	2145	1093			354	133	SLU 83	0.12	No
ini.	3	0	6228	-19			354	133	SLU 75	6.93	Si
fin.	3	0	-10644	1118			354	133	SLU 75	0.12	No
ini.	3	0	6236	-89			354	133	SLU 73	1.5	Si
fin.	3	0	-17207	1163			354	133	SLU 73	0.11	No



Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-231	-12610	47081	SLV 6	3.73	Si
fin.	2	-5837	191268	47081	SLV 6	0.25	No
ini.	2	-928	22571	47081	SLV 8	2.09	Si
fin.	2	6847	-210441	47081	SLV 8	0.22	No
ini.	2	-41	-1204	47081	SLV 13	39.09	Si
fin.	2	-2807	94435	47081	SLV 13	0.5	No
ini.	2	-41	-1204	47081	SLV 14	39.09	Si
fin.	2	-2807	94435	47081	SLV 14	0.5	No
ini.	2	-928	22571	47081	SLV 7	2.09	Si
fin.	2	6847	-210441	47081	SLV 7	0.22	No
ini.	2	-231	-12610	47081	SLV 5	3.73	Si
fin.	2	-5837	191268	47081	SLV 5	0.25	No
ini.	2	-728	22152	47081	SLV 12	2.13	Si
fin.	2	6197	-190241	47081	SLV 12	0.25	No
ini.	2	-728	22152	47081	SLV 11	2.13	Si
fin.	2	6197	-190241	47081	SLV 11	0.25	No
ini.	2	-31	-13029	47081	SLV 10	3.61	Si
fin.	2	-6488	211467	47081	SLV 10	0.22	No
ini.	2	-31	-13029	47081	SLV 9	3.61	Si
fin.	2	-6488	211467	47081	SLV 9	0.22	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	9350	-284			531	200	SLV 16	0.7	No
fin.	2	0	-26077	992			531	200	SLV 16	0.2	No
ini.	2	0	22571	-2009			531	200	SLV 7	0.1	No
fin.	2	0	-210441	722			531	200	SLV 7	0.28	No
ini.	2	0	22152	-1863			531	200	SLV 12	0.11	No
fin.	2	0	-190241	878			531	200	SLV 12	0.23	No
ini.	2	0	22571	-2009			531	200	SLV 8	0.1	No
fin.	2	0	-210441	722			531	200	SLV 8	0.28	No
ini.	2	0	9350	-284			531	200	SLV 15	0.7	No
fin.	2	0	-26077	992			531	200	SLV 15	0.2	No
ini.	2	0	-13029	2163			531	200	SLV 9	0.09	No
fin.	2	0	211467	686			531	200	SLV 9	0.29	No
ini.	2	0	22152	-1863			531	200	SLV 11	0.11	No
fin.	2	0	-190241	878			531	200	SLV 11	0.23	No
ini.	2	0	-12610	2017			531	200	SLV 6	0.1	No
fin.	2	0	191268	530			531	200	SLV 6	0.38	No
ini.	2	0	-12610	2017			531	200	SLV 5	0.1	No
fin.	2	0	191268	530			531	200	SLV 5	0.38	No
ini.	2	0	-13029	2163			531	200	SLV 10	0.09	No
fin.	2	0	211467	686			531	200	SLV 10	0.29	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.223	SLV 9	No
V_SLV	0.092	SLV 9	No
PF_SLU	1.328	SLU 47	Si
V_SLU	0.113	SLU 82	No

Trave di accoppiamento 42

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1548.3	-335.9	321	483	162	-1638.3	-335.9	321	483	162	90	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>tk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2268	-103715	229792	SLU 83	2.22	Si
fin.	3	-1954	-147370	229792	SLU 83	1.56	Si
ini.	3	-2213	-94247	229792	SLU 59	2.44	Si
fin.	3	-1891	-144656	229792	SLU 59	1.59	Si
ini.	3	-2275	-114996	229792	SLU 78	2	Si
fin.	3	-1925	-151021	229792	SLU 78	1.52	Si
ini.	3	-2250	-89732	229792	SLU 77	2.56	Si
fin.	3	-1949	-150030	229792	SLU 77	1.53	Si
ini.	3	-2175	-156710	229792	SLU 73	1.47	Si
fin.	3	-1760	-134171	229792	SLU 73	1.71	Si
ini.	3	-2293	-128979	229792	SLU 84	1.78	Si
fin.	3	-1930	-148361	229792	SLU 84	1.55	Si
ini.	3	-2266	-83504	229792	SLU 79	2.75	Si
fin.	3	-1974	-150924	229792	SLU 79	1.52	Si
ini.	3	-2016	-145834	229792	SLU 65	1.58	Si
fin.	3	-1605	-120989	229792	SLU 65	1.9	Si
ini.	3	-2291	-108768	229792	SLU 80	2.11	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	-1950	-151915	229792	SLU 80	1.51	Si
ini.	3	-2227	-144528	229792	SLU 82	1.59	Si
fin.	3	-1843	-139159	229792	SLU 82	1.65	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-89194	768			1747	657	SLU 62	0.86	No
fin.	3	0	-140112	-4804			1747	657	SLU 62	0.14	No
ini.	3	0	-128979	1313			1747	657	SLU 84	0.5	No
fin.	3	0	-148361	-4998			1747	657	SLU 84	0.13	No
ini.	3	0	-103715	992			1747	657	SLU 83	0.66	No
fin.	3	0	-147370	-5205			1747	657	SLU 83	0.13	No
ini.	3	0	-68983	416			1747	657	SLU 58	1.58	Si
fin.	3	0	-143665	-4797			1747	657	SLU 58	0.14	No
ini.	3	0	-114996	1052			1747	657	SLU 78	0.62	No
fin.	3	0	-151021	-4962			1747	657	SLU 78	0.13	No
ini.	3	0	-89732	731			1747	657	SLU 77	0.9	No
fin.	3	0	-150030	-5169			1747	657	SLU 77	0.13	No
ini.	3	0	-119265	1289			1747	657	SLU 81	0.51	No
fin.	3	0	-138168	-4954			1747	657	SLU 81	0.13	No
ini.	3	0	-83504	640			1747	657	SLU 79	1.03	Si
fin.	3	0	-150924	-5198			1747	657	SLU 79	0.13	No
ini.	3	0	-105282	1028			1747	657	SLU 74	0.64	No
fin.	3	0	-140828	-4918			1747	657	SLU 74	0.13	No
ini.	3	0	-108768	961			1747	657	SLU 80	0.68	No
fin.	3	0	-151915	-4991			1747	657	SLU 80	0.13	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3842	369188	247694	SLV 2	0.67	No
fin.	2	-4890	-438358	247694	SLV 2	0.57	No
ini.	2	-2462	490876	247694	SLV 3	0.5	No
fin.	2	-3290	-341677	247694	SLV 3	0.72	No
ini.	2	-3365	-435442	247694	SLV 10	0.57	No
fin.	2	-3125	-166291	247694	SLV 10	1.49	Si
ini.	2	-2462	490876	247694	SLV 4	0.5	No
fin.	2	-3290	-341677	247694	SLV 4	0.72	No
ini.	2	-3365	-435442	247694	SLV 9	0.57	No
fin.	2	-3125	-166291	247694	SLV 9	1.49	Si
ini.	2	748	-528601	247694	SLV 16	0.47	No
fin.	2	2296	250420	247694	SLV 16	0.99	No
ini.	2	748	-528601	247694	SLV 15	0.47	No
fin.	2	2296	250420	247694	SLV 15	0.99	No
ini.	2	-632	-650289	247694	SLV 13	0.38	No
fin.	2	697	153738	247694	SLV 13	1.61	Si
ini.	2	-3842	369188	247694	SLV 1	0.67	No
fin.	2	-4890	-438358	247694	SLV 1	0.57	No
ini.	2	-632	-650289	247694	SLV 14	0.38	No
fin.	2	697	153738	247694	SLV 14	1.61	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	490876	-9074			2620	986	SLV 4	0.11	No
fin.	2	0	-341677	-10300			2620	986	SLV 4	0.1	No
ini.	2	0	-650289	10748			2620	986	SLV 13	0.09	No
fin.	2	0	153738	3829			2620	986	SLV 13	0.26	No
ini.	2	0	-528601	10971			2620	986	SLV 16	0.09	No
fin.	2	0	250420	5492			2620	986	SLV 16	0.18	No
ini.	2	0	-129598	-2541			2620	986	SLV 6	0.39	No
fin.	2	0	-343920	-8376			2620	986	SLV 6	0.12	No
ini.	2	0	-129598	-2541			2620	986	SLV 5	0.39	No
fin.	2	0	-343920	-8376			2620	986	SLV 5	0.12	No
ini.	2	0	490876	-9074			2620	986	SLV 3	0.11	No
fin.	2	0	-341677	-10300			2620	986	SLV 3	0.1	No
ini.	2	0	369188	-9297			2620	986	SLV 1	0.11	No
fin.	2	0	-438358	-11963			2620	986	SLV 1	0.08	No
ini.	2	0	369188	-9297			2620	986	SLV 2	0.11	No
fin.	2	0	-438358	-11963			2620	986	SLV 2	0.08	No
ini.	2	0	-528601	10971			2620	986	SLV 15	0.09	No
fin.	2	0	250420	5492			2620	986	SLV 15	0.18	No
ini.	2	0	-650289	10748			2620	986	SLV 14	0.09	No
fin.	2	0	153738	3829			2620	986	SLV 14	0.26	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.381	SLV 13	No
V_SLV	0.082	SLV 1	No
PF_SLU	1.466	SLU 73	Si
V_SLU	0.126	SLU 83	No

## Trave di accoppiamento 43

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1443.8	-485.9	437	483	46	-1627.8	-485.9	437	483	46	184	30	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	123	-10535	32207	SLU 47	3.06	Si
fin.	3	-118	3365	32207	SLU 47	9.57	Si
ini.	3	-124	3030	32207	SLU 37	10.63	Si
fin.	3	57	-8541	32207	SLU 37	3.77	Si
ini.	3	114	-10164	32207	SLU 65	3.17	Si
fin.	3	-115	3045	32207	SLU 65	10.58	Si
ini.	3	100	-10038	32207	SLU 64	3.21	Si
fin.	3	-111	1915	32207	SLU 64	16.82	Si
ini.	3	104	-9138	32207	SLU 1	3.52	Si
fin.	3	-104	2786	32207	SLU 1	11.56	Si
ini.	3	153	-12839	32207	SLU 43	2.51	Si
fin.	3	-147	4512	32207	SLU 43	7.14	Si
ini.	3	123	-10812	32207	SLU 46	2.98	Si
fin.	3	-121	3221	32207	SLU 46	10	Si
ini.	3	118	-9264	32207	SLU 2	3.48	Si
fin.	3	-108	3916	32207	SLU 2	8.22	Si
ini.	3	167	-12965	32207	SLU 44	2.48	Si
fin.	3	-151	5642	32207	SLU 44	5.71	Si
ini.	3	115	-10736	32207	SLU 45	3	Si
fin.	3	-118	2543	32207	SLU 45	12.67	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-8382	167			354	133	SLU 49	0.8	No
fin.	3	0	944	-85			354	133	SLU 49	1.57	Si
ini.	3	0	-10812	195			354	133	SLU 46	0.69	No
fin.	3	0	3221	-59			354	133	SLU 46	2.25	Si
ini.	3	0	-12839	214			354	133	SLU 43	0.62	No
fin.	3	0	4512	-42			354	133	SLU 43	3.21	Si
ini.	3	0	-9264	164			354	133	SLU 2	0.81	No
fin.	3	0	3916	-32			354	133	SLU 2	4.23	Si
ini.	3	0	-8458	167			354	133	SLU 52	0.8	No
fin.	3	0	1466	-74			354	133	SLU 52	1.8	Si
ini.	3	0	-10164	188			354	133	SLU 65	0.71	No
fin.	3	0	3045	-60			354	133	SLU 65	2.24	Si
ini.	3	0	-10736	189			354	133	SLU 45	0.7	No
fin.	3	0	2543	-64			354	133	SLU 45	2.1	Si
ini.	3	0	-10038	179			354	133	SLU 64	0.75	No
fin.	3	0	1915	-67			354	133	SLU 64	2	Si
ini.	3	0	-12965	223			354	133	SLU 44	0.6	No
fin.	3	0	5642	-34			354	133	SLU 44	3.87	Si
ini.	3	0	-10535	195			354	133	SLU 47	0.68	No
fin.	3	0	3365	-60			354	133	SLU 47	2.21	Si

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2924	129282	47081	SLV 3	0.36	No
fin.	2	1555	-134227	47081	SLV 3	0.35	No
ini.	2	3080	-160371	47081	SLV 15	0.29	No
fin.	2	-1963	149118	47081	SLV 15	0.32	No
ini.	2	3052	-143381	47081	SLV 13	0.33	No
fin.	2	-1709	135927	47081	SLV 13	0.35	No
ini.	2	1011	-78814	47081	SLV 12	0.6	No
fin.	2	-1028	65336	47081	SLV 12	0.72	No
ini.	2	-2952	146272	47081	SLV 2	0.32	No
fin.	2	1809	-147417	47081	SLV 2	0.32	No
ini.	2	-2924	129282	47081	SLV 4	0.36	No
fin.	2	1555	-134227	47081	SLV 4	0.35	No
ini.	2	1011	-78814	47081	SLV 11	0.6	No
fin.	2	-1028	65336	47081	SLV 11	0.72	No
ini.	2	-2952	146272	47081	SLV 1	0.32	No
fin.	2	1809	-147417	47081	SLV 1	0.32	No
ini.	2	3052	-143381	47081	SLV 14	0.33	No
fin.	2	-1709	135927	47081	SLV 14	0.35	No
ini.	2	3080	-160371	47081	SLV 16	0.29	No
fin.	2	-1963	149118	47081	SLV 16	0.32	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	146272	-1591			531	200	SLV 2	0.13	No
fin.	2	0	-147417	-1686			531	200	SLV 2	0.12	No
ini.	2	0	129282	-1485			531	200	SLV 3	0.13	No
fin.	2	0	-134227	-1638			531	200	SLV 3	0.12	No
ini.	2	0	129282	-1485			531	200	SLV 4	0.13	No
fin.	2	0	-134227	-1638			531	200	SLV 4	0.12	No
ini.	2	0	-72396	864			531	200	SLD 16	0.23	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	64067	638			531	200	SLD 16	0.31	No
ini.	2	0	146272	-1591			531	200	SLV 1	0.13	No
fin.	2	0	-147417	-1686			531	200	SLV 1	0.12	No
ini.	2	0	-143381	1743			531	200	SLV 14	0.11	No
fin.	2	0	135927	1524			531	200	SLV 14	0.13	No
ini.	2	0	-160371	1849			531	200	SLV 15	0.11	No
fin.	2	0	149118	1572			531	200	SLV 15	0.13	No
ini.	2	0	-143381	1743			531	200	SLV 13	0.11	No
fin.	2	0	135927	1524			531	200	SLV 13	0.13	No
ini.	2	0	-72396	864			531	200	SLD 15	0.23	No
fin.	2	0	64067	638			531	200	SLD 15	0.31	No
ini.	2	0	-160371	1849			531	200	SLV 16	0.11	No
fin.	2	0	149118	1572			531	200	SLV 16	0.13	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.294	SLV 15	No
V_SLV	0.108	SLV 15	No
PF_SLU	2.484	SLU 44	Si
V_SLU	0.599	SLU 44	No

## Trave di accoppiamento 44

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1505.8	140.6	321	483	162	-1505.8	220.6	321	483	162	80	14	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-621	-15809	176083	SLU 84	11.14	Si
fin.	3	-621	-365741	176083	SLU 84	0.48	No
ini.	3	-618	-15594	176083	SLU 77	11.29	Si
fin.	3	-618	-367993	176083	SLU 77	0.48	No
ini.	3	-616	-15594	176083	SLU 79	11.29	Si
fin.	3	-616	-366958	176083	SLU 79	0.48	No
ini.	3	-574	-14627	176083	SLU 76	12.04	Si
fin.	3	-574	-344272	176083	SLU 76	0.51	No
ini.	3	-583	-14721	176083	SLU 74	11.96	Si
fin.	3	-583	-346034	176083	SLU 74	0.51	No
ini.	3	-614	-15538	176083	SLU 78	11.33	Si
fin.	3	-614	-367557	176083	SLU 78	0.48	No
ini.	3	-625	-15865	176083	SLU 83	11.1	Si
fin.	3	-625	-366178	176083	SLU 83	0.48	No
ini.	3	-590	-14991	176083	SLU 81	11.75	Si
fin.	3	-590	-344219	176083	SLU 81	0.51	No
ini.	3	-611	-15538	176083	SLU 80	11.33	Si
fin.	3	-611	-366522	176083	SLU 80	0.48	No
ini.	3	-579	-14665	176083	SLU 75	12.01	Si
fin.	3	-579	-345598	176083	SLU 75	0.51	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-14991	-3800			873	329	SLU 81	0.09	No
fin.	3	0	-344219	-4347			873	329	SLU 81	0.08	No
ini.	3	0	-15594	-4076			873	329	SLU 79	0.08	No
fin.	3	0	-366958	-4624			873	329	SLU 79	0.07	No
ini.	3	0	-14665	-3821			873	329	SLU 75	0.09	No
fin.	3	0	-345598	-4368			873	329	SLU 75	0.08	No
ini.	3	0	-15538	-4085			873	329	SLU 78	0.08	No
fin.	3	0	-367557	-4632			873	329	SLU 78	0.07	No
ini.	3	0	-15865	-4063			873	329	SLU 83	0.08	No
fin.	3	0	-366178	-4611			873	329	SLU 83	0.07	No
ini.	3	0	-14721	-3826			873	329	SLU 74	0.09	No
fin.	3	0	-346034	-4373			873	329	SLU 74	0.08	No
ini.	3	0	-14627	-3805			873	329	SLU 76	0.09	No
fin.	3	0	-344272	-4352			873	329	SLU 76	0.08	No
ini.	3	0	-15809	-4058			873	329	SLU 84	0.08	No
fin.	3	0	-365741	-4606			873	329	SLU 84	0.07	No
ini.	3	0	-15594	-4089			873	329	SLU 77	0.08	No
fin.	3	0	-367993	-4637			873	329	SLU 77	0.07	No
ini.	3	0	-15538	-4072			873	329	SLU 80	0.08	No
fin.	3	0	-366522	-4619			873	329	SLU 80	0.07	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4851	-188165	211889	SLV 7	1.13	Si
fin.	2	-2600	-865832	211889	SLV 7	0.24	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2307	-86879	211889	SLD 12	2.44	Si
fin.	2	-1354	-516476	211889	SLD 12	0.41	No
ini.	2	4381	180055	211889	SLV 6	1.18	Si
fin.	2	2042	501377	211889	SLV 6	0.42	No
ini.	2	-5083	-197847	211889	SLV 11	1.07	Si
fin.	2	-2744	-929861	211889	SLV 11	0.23	No
ini.	2	4381	180055	211889	SLV 5	1.18	Si
fin.	2	2042	501377	211889	SLV 5	0.42	No
ini.	2	-4851	-188165	211889	SLV 8	1.13	Si
fin.	2	-2600	-865832	211889	SLV 8	0.24	No
ini.	2	-2307	-86879	211889	SLD 11	2.44	Si
fin.	2	-1354	-516476	211889	SLD 11	0.41	No
ini.	2	-2123	-80264	211889	SLV 15	2.64	Si
fin.	2	-1287	-526039	211889	SLV 15	0.4	No
ini.	2	-5083	-197847	211889	SLV 12	1.07	Si
fin.	2	-2744	-929861	211889	SLV 12	0.23	No
ini.	2	-2123	-80264	211889	SLV 16	2.64	Si
fin.	2	-1287	-526039	211889	SLV 16	0.4	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	180055	9090			1310	493	SLV 6	0.05	No
fin.	2	0	501377	5969			1310	493	SLV 6	0.08	No
ini.	2	0	-197847	-13742			1310	493	SLV 12	0.04	No
fin.	2	0	-929861	-11457			1310	493	SLV 12	0.04	No
ini.	2	0	-188165	-12886			1310	493	SLV 8	0.04	No
fin.	2	0	-865832	-10633			1310	493	SLV 8	0.05	No
ini.	2	0	-86879	-7101			1310	493	SLD 11	0.07	No
fin.	2	0	-516476	-6414			1310	493	SLD 11	0.08	No
ini.	2	0	170374	8234			1310	493	SLV 9	0.06	No
fin.	2	0	437348	5146			1310	493	SLV 9	0.1	No
ini.	2	0	-86879	-7101			1310	493	SLD 12	0.07	No
fin.	2	0	-516476	-6414			1310	493	SLD 12	0.08	No
ini.	2	0	-197847	-13742			1310	493	SLV 11	0.04	No
fin.	2	0	-929861	-11457			1310	493	SLV 11	0.04	No
ini.	2	0	170374	8234			1310	493	SLV 10	0.06	No
fin.	2	0	437348	5146			1310	493	SLV 10	0.1	No
ini.	2	0	-188165	-12886			1310	493	SLV 7	0.04	No
fin.	2	0	-865832	-10633			1310	493	SLV 7	0.05	No
ini.	2	0	180055	9090			1310	493	SLV 5	0.05	No
fin.	2	0	501377	5969			1310	493	SLV 5	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.228	SLV 11	No
V_SLV	0.036	SLV 11	No
PF_SLU	0.478	SLU 77	No
V_SLU	0.071	SLU 77	No

## Trave di accoppiamento 45

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1375.3	-22.8	321	483	162	-1375.3	67.2	321	483	162	90	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	4	-158212	229792	SLU 29	1.45	Si
fin.	3	4	41049	229792	SLU 29	5.6	Si
ini.	3	34	-150774	229792	SLU 77	1.52	Si
fin.	3	34	51814	229792	SLU 77	4.43	Si
ini.	3	36	-152640	229792	SLU 79	1.51	Si
fin.	3	36	51328	229792	SLU 79	4.48	Si
ini.	3	2	-156347	229792	SLU 27	1.47	Si
fin.	3	2	41535	229792	SLU 27	5.53	Si
ini.	3	30	-163146	229792	SLU 71	1.41	Si
fin.	3	30	47774	229792	SLU 71	4.81	Si
ini.	3	9	-147706	229792	SLU 37	1.56	Si
fin.	3	9	44603	229792	SLU 37	5.15	Si
ini.	3	28	-161280	229792	SLU 69	1.42	Si
fin.	3	28	48260	229792	SLU 69	4.76	Si
ini.	3	8	-145840	229792	SLU 35	1.58	Si
fin.	3	8	45088	229792	SLU 35	5.1	Si
ini.	3	33	-146019	229792	SLU 70	1.57	Si
fin.	3	33	47264	229792	SLU 70	4.86	Si
ini.	3	34	-147885	229792	SLU 72	1.55	Si
fin.	3	34	46779	229792	SLU 72	4.91	Si



Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-137378	2592			1747	657	SLU 80	0.25	No
fin.	3	0	50332	1632			1747	657	SLU 80	0.4	No
ini.	3	0	-135512	2577			1747	657	SLU 78	0.26	No
fin.	3	0	50818	1616			1747	657	SLU 78	0.41	No
ini.	3	0	-152640	2773			1747	657	SLU 79	0.24	No
fin.	3	0	51328	1812			1747	657	SLU 79	0.36	No
ini.	3	0	-163146	2850			1747	657	SLU 71	0.23	No
fin.	3	0	47774	1889			1747	657	SLU 71	0.35	No
ini.	3	0	-150774	2758			1747	657	SLU 77	0.24	No
fin.	3	0	51814	1797			1747	657	SLU 77	0.37	No
ini.	3	0	-161280	2835			1747	657	SLU 69	0.23	No
fin.	3	0	48260	1874			1747	657	SLU 69	0.35	No
ini.	3	0	-156347	2594			1747	657	SLU 27	0.25	No
fin.	3	0	41535	1844			1747	657	SLU 27	0.36	No
ini.	3	0	-147885	2670			1747	657	SLU 72	0.25	No
fin.	3	0	46779	1709			1747	657	SLU 72	0.38	No
ini.	3	0	-146019	2654			1747	657	SLU 70	0.25	No
fin.	3	0	47264	1694			1747	657	SLU 70	0.39	No
ini.	3	0	-158212	2609			1747	657	SLU 29	0.25	No
fin.	3	0	41049	1859			1747	657	SLU 29	0.35	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-251	-689513	247694	SLV 14	0.36	No
fin.	2	-353	9589	247694	SLV 14	25.83	Si
ini.	2	-1316	-1019186	247694	SLV 10	0.24	No
fin.	2	-1571	115295	247694	SLV 10	2.15	Si
ini.	2	-1316	-1019186	247694	SLV 9	0.24	No
fin.	2	-1571	115295	247694	SLV 9	2.15	Si
ini.	2	-1385	-795554	247694	SLV 5	0.31	No
fin.	2	-1624	146622	247694	SLV 5	1.69	Si
ini.	2	1424	891806	247694	SLV 7	0.28	No
fin.	2	1679	-50970	247694	SLV 7	4.86	Si
ini.	2	1424	891806	247694	SLV 8	0.28	No
fin.	2	1679	-50970	247694	SLV 8	4.86	Si
ini.	2	1494	668174	247694	SLV 11	0.37	No
fin.	2	1732	-82298	247694	SLV 11	3.01	Si
ini.	2	-1385	-795554	247694	SLV 6	0.31	No
fin.	2	-1624	146622	247694	SLV 6	1.69	Si
ini.	2	-251	-689513	247694	SLV 13	0.36	No
fin.	2	-353	9589	247694	SLV 13	25.83	Si
ini.	2	1494	668174	247694	SLV 12	0.37	No
fin.	2	1732	-82298	247694	SLV 12	3.01	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-1019186	12217			2620	986	SLV 9	0.08	No
fin.	2	0	115295	11810			2620	986	SLV 9	0.08	No
ini.	2	0	668174	-9205			2620	986	SLV 12	0.11	No
fin.	2	0	-82298	-8601			2620	986	SLV 12	0.11	No
ini.	2	0	891806	-9312			2620	986	SLV 8	0.11	No
fin.	2	0	-50970	-10373			2620	986	SLV 8	0.1	No
ini.	2	0	-795554	12110			2620	986	SLV 5	0.08	No
fin.	2	0	146622	10038			2620	986	SLV 5	0.1	No
ini.	2	0	-689513	4844			2620	986	SLV 14	0.2	No
fin.	2	0	9589	6733			2620	986	SLV 14	0.15	No
ini.	2	0	-795554	12110			2620	986	SLV 6	0.08	No
fin.	2	0	146622	10038			2620	986	SLV 6	0.1	No
ini.	2	0	891806	-9312			2620	986	SLV 7	0.11	No
fin.	2	0	-50970	-10373			2620	986	SLV 7	0.1	No
ini.	2	0	668174	-9205			2620	986	SLV 11	0.11	No
fin.	2	0	-82298	-8601			2620	986	SLV 11	0.11	No
ini.	2	0	-689513	4844			2620	986	SLV 13	0.2	No
fin.	2	0	9589	6733			2620	986	SLV 13	0.15	No
ini.	2	0	-1019186	12217			2620	986	SLV 10	0.08	No
fin.	2	0	115295	11810			2620	986	SLV 10	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.243	SLV 9	No
V_SLV	0.081	SLV 9	No
PF_SLU	1.409	SLU 71	Si
V_SLU	0.231	SLU 71	No

Trave di accoppiamento 46

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1986.8	104.6	321	483	162	-2066.8	104.6	321	483	162	80	28	3500



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1583	104090	229792	SLU 83	2.21	Si
fin.	3	-1583	-221973	229792	SLU 83	1.04	Si
ini.	3	-1480	107690	229792	SLU 78	2.13	Si
fin.	3	-1480	-221344	229792	SLU 78	1.04	Si
ini.	3	-1561	94298	229792	SLU 75	2.44	Si
fin.	3	-1561	-206081	229792	SLU 75	1.12	Si
ini.	3	-1439	114935	229792	SLU 77	2	Si
fin.	3	-1439	-229983	229792	SLU 77	1	No
ini.	3	-1286	106222	229792	SLU 69	2.16	Si
fin.	3	-1286	-205887	229792	SLU 69	1.12	Si
ini.	3	-1664	90698	229792	SLU 81	2.53	Si
fin.	3	-1664	-206710	229792	SLU 81	1.11	Si
ini.	3	-1436	113748	229792	SLU 79	2.02	Si
fin.	3	-1436	-226909	229792	SLU 79	1.01	Si
ini.	3	-1623	96845	229792	SLU 84	2.37	Si
fin.	3	-1623	-213334	229792	SLU 84	1.08	Si
ini.	3	-1476	106503	229792	SLU 80	2.16	Si
fin.	3	-1476	-218270	229792	SLU 80	1.05	Si
ini.	3	-1520	101543	229792	SLU 74	2.26	Si
fin.	3	-1520	-214720	229792	SLU 74	1.07	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	94298	-2754			1747	657	SLU 75	0.24	No
fin.	3	0	-206081	-4807			1747	657	SLU 75	0.14	No
ini.	3	0	104284	-2964			1747	657	SLU 35	0.22	No
fin.	3	0	-204583	-4795			1747	657	SLU 35	0.14	No
ini.	3	0	106503	-3059			1747	657	SLU 80	0.21	No
fin.	3	0	-218270	-5112			1747	657	SLU 80	0.13	No
ini.	3	0	101543	-2953			1747	657	SLU 74	0.22	No
fin.	3	0	-214720	-5006			1747	657	SLU 74	0.13	No
ini.	3	0	113748	-3258			1747	657	SLU 79	0.2	No
fin.	3	0	-226909	-5311			1747	657	SLU 79	0.12	No
ini.	3	0	96845	-2793			1747	657	SLU 84	0.24	No
fin.	3	0	-213334	-5014			1747	657	SLU 84	0.13	No
ini.	3	0	114935	-3311			1747	657	SLU 77	0.2	No
fin.	3	0	-229983	-5364			1747	657	SLU 77	0.12	No
ini.	3	0	104090	-2991			1747	657	SLU 83	0.22	No
fin.	3	0	-221973	-5212			1747	657	SLU 83	0.13	No
ini.	3	0	107690	-3112			1747	657	SLU 78	0.21	No
fin.	3	0	-221344	-5166			1747	657	SLU 78	0.13	No
ini.	3	0	90698	-2633			1747	657	SLU 81	0.25	No
fin.	3	0	-206710	-4854			1747	657	SLU 81	0.14	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-333	323356	247694	SLV 6	0.77	No
fin.	2	-1010	-420132	247694	SLV 6	0.59	No
ini.	2	-245	-417046	247694	SLV 14	0.59	No
fin.	2	49	437870	247694	SLV 14	0.57	No
ini.	2	-1452	602451	247694	SLV 2	0.41	No
fin.	2	-2070	-767693	247694	SLV 2	0.32	No
ini.	2	-2049	535826	247694	SLV 3	0.46	No
fin.	2	-2343	-703933	247694	SLV 3	0.35	No
ini.	2	-245	-417046	247694	SLV 13	0.59	No
fin.	2	49	437870	247694	SLV 13	0.57	No
ini.	2	-1452	602451	247694	SLV 1	0.41	No
fin.	2	-2070	-767693	247694	SLV 1	0.32	No
ini.	2	-842	-483670	247694	SLV 15	0.51	No
fin.	2	-224	501629	247694	SLV 15	0.49	No
ini.	2	-2049	535826	247694	SLV 4	0.46	No
fin.	2	-2343	-703933	247694	SLV 4	0.35	No
ini.	2	-333	323356	247694	SLV 5	0.77	No
fin.	2	-1010	-420132	247694	SLV 5	0.59	No
ini.	2	-842	-483670	247694	SLV 16	0.51	No
fin.	2	-224	501629	247694	SLV 16	0.49	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-417046	11689			2620	986	SLV 14	0.08	No
fin.	2	0	437870	10396			2620	986	SLV 14	0.09	No
ini.	2	0	-417046	11689			2620	986	SLV 13	0.08	No
fin.	2	0	437870	10396			2620	986	SLV 13	0.09	No
ini.	2	0	323356	-8650			2620	986	SLV 6	0.11	No
fin.	2	0	-420132	-9807			2620	986	SLV 6	0.1	No
ini.	2	0	535826	-15222			2620	986	SLV 3	0.06	No
fin.	2	0	-703933	-16567			2620	986	SLV 3	0.06	No
ini.	2	0	602451	-16789			2620	986	SLV 2	0.06	No
fin.	2	0	-767693	-18040			2620	986	SLV 2	0.05	No
ini.	2	0	323356	-8650			2620	986	SLV 5	0.11	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-420132	-9807			2620	986	SLV 5	0.1	No
ini.	2	0	602451	-16789			2620	986	SLV 1	0.06	No
fin.	2	0	-767693	-18040			2620	986	SLV 1	0.05	No
ini.	2	0	535826	-15222			2620	986	SLV 4	0.06	No
fin.	2	0	-703933	-16567			2620	986	SLV 4	0.06	No
ini.	2	0	-483670	13255			2620	986	SLV 16	0.07	No
fin.	2	0	501629	11870			2620	986	SLV 16	0.08	No
ini.	2	0	-483670	13255			2620	986	SLV 15	0.07	No
fin.	2	0	501629	11870			2620	986	SLV 15	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.323	SLV 1	No
V_SLV	0.055	SLV 1	No
PF_SLU	0.999	SLU 77	No
V_SLU	0.123	SLU 77	No

## Trave di accoppiamento 47

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1116.3	104.6	361	483	122	-1228.3	104.6	361	483	122	112	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-5560	-68587	159792	SLU 80	2.33	Si
fin.	3	-5560	67250	159792	SLU 80	2.38	Si
ini.	3	-5594	-67064	159792	SLU 78	2.38	Si
fin.	3	-5594	67475	159792	SLU 78	2.37	Si
ini.	3	-5489	-68390	159792	SLU 77	2.34	Si
fin.	3	-5489	66073	159792	SLU 77	2.42	Si
ini.	3	-4870	-66930	159792	SLU 72	2.39	Si
fin.	3	-4870	67299	159792	SLU 72	2.37	Si
ini.	3	-5455	-69912	159792	SLU 79	2.29	Si
fin.	3	-5455	65848	159792	SLU 79	2.43	Si
ini.	3	-4904	-65407	159792	SLU 70	2.44	Si
fin.	3	-4904	67524	159792	SLU 70	2.37	Si
ini.	3	-4764	-68255	159792	SLU 71	2.34	Si
fin.	3	-4764	65897	159792	SLU 71	2.42	Si
ini.	3	-4330	-57245	159792	SLU 49	2.79	Si
fin.	3	-4330	65661	159792	SLU 49	2.43	Si
ini.	3	-4798	-66732	159792	SLU 69	2.39	Si
fin.	3	-4798	66122	159792	SLU 69	2.42	Si
ini.	3	-5020	-58902	159792	SLU 57	2.71	Si
fin.	3	-5020	65612	159792	SLU 57	2.44	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-63007	2835			1316	495	SLU 83	0.17	No
fin.	3	0	60313	-573			1316	495	SLU 83	0.86	No
ini.	3	0	-68390	2759			1316	495	SLU 77	0.18	No
fin.	3	0	66073	-312			1316	495	SLU 77	1.59	Si
ini.	3	0	-59448	2643			1316	495	SLU 75	0.19	No
fin.	3	0	61961	-429			1316	495	SLU 75	1.16	Si
ini.	3	0	-69912	2771			1316	495	SLU 79	0.18	No
fin.	3	0	65848	-300			1316	495	SLU 79	1.65	Si
ini.	3	0	-54065	2719			1316	495	SLU 82	0.18	No
fin.	3	0	56200	-689			1316	495	SLU 82	0.72	No
ini.	3	0	-68587	2771			1316	495	SLU 80	0.18	No
fin.	3	0	67250	-300			1316	495	SLU 80	1.65	Si
ini.	3	0	-67064	2760			1316	495	SLU 78	0.18	No
fin.	3	0	67475	-311			1316	495	SLU 78	1.59	Si
ini.	3	0	-61681	2836			1316	495	SLU 84	0.17	No
fin.	3	0	61715	-572			1316	495	SLU 84	0.87	No
ini.	3	0	-55391	2718			1316	495	SLU 81	0.18	No
fin.	3	0	54799	-690			1316	495	SLU 81	0.72	No
ini.	3	0	-60088	2655			1316	495	SLU 76	0.19	No
fin.	3	0	62670	-417			1316	495	SLU 76	1.19	Si

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	568	454635	177694	SLV 4	0.39	No
fin.	2	-3	-595256	177694	SLV 4	0.3	No
ini.	2	-7996	-533567	177694	SLV 14	0.33	No
fin.	2	-7424	678822	177694	SLV 14	0.26	No
ini.	2	568	454635	177694	SLV 3	0.39	No
fin.	2	-3	-595256	177694	SLV 3	0.3	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4562	-337631	177694	SLV 9	0.53	No
fin.	2	-4502	333893	177694	SLV 9	0.53	No
ini.	2	856	355777	177694	SLV 1	0.5	No
fin.	2	211	-528664	177694	SLV 1	0.34	No
ini.	2	-4562	-337631	177694	SLV 10	0.53	No
fin.	2	-4502	333893	177694	SLV 10	0.53	No
ini.	2	856	355777	177694	SLV 2	0.5	No
fin.	2	211	-528664	177694	SLV 2	0.34	No
ini.	2	-8283	-434709	177694	SLV 15	0.41	No
fin.	2	-7639	612230	177694	SLV 15	0.29	No
ini.	2	-7996	-533567	177694	SLV 13	0.33	No
fin.	2	-7424	678822	177694	SLV 13	0.26	No
ini.	2	-8283	-434709	177694	SLV 16	0.41	No
fin.	2	-7639	612230	177694	SLV 16	0.29	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-533567	12054			1973	743	SLV 14	0.06	No
fin.	2	0	678822	10269			1973	743	SLV 14	0.07	No
ini.	2	0	454635	-8715			1973	743	SLV 3	0.09	No
fin.	2	0	-595256	-10677			1973	743	SLV 3	0.07	No
ini.	2	0	-337631	7305			1973	743	SLV 9	0.1	No
fin.	2	0	333893	5336			1973	743	SLV 9	0.14	No
ini.	2	0	355777	-7054			1973	743	SLV 2	0.11	No
fin.	2	0	-528664	-9096			1973	743	SLV 2	0.08	No
ini.	2	0	-434709	10392			1973	743	SLV 16	0.07	No
fin.	2	0	612230	8689			1973	743	SLV 16	0.09	No
ini.	2	0	454635	-8715			1973	743	SLV 4	0.09	No
fin.	2	0	-595256	-10677			1973	743	SLV 4	0.07	No
ini.	2	0	355777	-7054			1973	743	SLV 1	0.11	No
fin.	2	0	-528664	-9096			1973	743	SLV 1	0.08	No
ini.	2	0	-434709	10392			1973	743	SLV 15	0.07	No
fin.	2	0	612230	8689			1973	743	SLV 15	0.09	No
ini.	2	0	-337631	7305			1973	743	SLV 10	0.1	No
fin.	2	0	333893	5336			1973	743	SLV 10	0.14	No
ini.	2	0	-533567	12054			1973	743	SLV 13	0.06	No
fin.	2	0	678822	10269			1973	743	SLV 13	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV		SLV 13	No
V_SLV	0.062	SLV 13	No
PF_SLU	2.286	SLU 79	Si
V_SLU	0.175	SLU 84	No

## Trave di accoppiamento 48

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-416.8	104.6	321	483	162	-496.8	104.6	321	483	162	80	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2665	-180820	229792	SLU 83	1.27	Si
fin.	3	-2665	110171	229792	SLU 83	2.09	Si
ini.	3	-2641	-171752	229792	SLU 81	1.34	Si
fin.	3	-2641	100713	229792	SLU 81	2.28	Si
ini.	3	-2562	-167256	229792	SLU 75	1.37	Si
fin.	3	-2562	97269	229792	SLU 75	2.36	Si
ini.	3	-2592	-180405	229792	SLU 79	1.27	Si
fin.	3	-2592	114309	229792	SLU 79	2.01	Si
ini.	3	-2607	-172161	229792	SLU 80	1.33	Si
fin.	3	-2607	104358	229792	SLU 80	2.2	Si
ini.	3	-2586	-176324	229792	SLU 78	1.3	Si
fin.	3	-2586	106728	229792	SLU 78	2.15	Si
ini.	3	-2547	-175500	229792	SLU 74	1.31	Si
fin.	3	-2547	107220	229792	SLU 74	2.14	Si
ini.	3	-2680	-172576	229792	SLU 84	1.33	Si
fin.	3	-2680	100220	229792	SLU 84	2.29	Si
ini.	3	-2656	-163508	229792	SLU 82	1.41	Si
fin.	3	-2656	90762	229792	SLU 82	2.53	Si
ini.	3	-2571	-184568	229792	SLU 77	1.25	Si
fin.	3	-2571	116679	229792	SLU 77	1.97	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-180820	4780			1747	657	SLU 83	0.14	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	110171	2576			1747	657	SLU 83	0.26	No
ini.	3	0	-172576	4553			1747	657	SLU 84	0.14	No
fin.	3	0	100220	2348			1747	657	SLU 84	0.28	No
ini.	3	0	-167256	4365			1747	657	SLU 75	0.15	No
fin.	3	0	97269	2329			1747	657	SLU 75	0.28	No
ini.	3	0	-180405	4743			1747	657	SLU 79	0.14	No
fin.	3	0	114309	2706			1747	657	SLU 79	0.24	No
ini.	3	0	-175500	4593			1747	657	SLU 74	0.14	No
fin.	3	0	107220	2556			1747	657	SLU 74	0.26	No
ini.	3	0	-163508	4321			1747	657	SLU 82	0.15	No
fin.	3	0	90762	2117			1747	657	SLU 82	0.31	No
ini.	3	0	-176324	4597			1747	657	SLU 78	0.14	No
fin.	3	0	106728	2560			1747	657	SLU 78	0.26	No
ini.	3	0	-172161	4515			1747	657	SLU 80	0.15	No
fin.	3	0	104358	2479			1747	657	SLU 80	0.27	No
ini.	3	0	-184568	4824			1747	657	SLU 77	0.14	No
fin.	3	0	116679	2788			1747	657	SLU 77	0.24	No
ini.	3	0	-171752	4548			1747	657	SLU 81	0.14	No
fin.	3	0	100713	2344			1747	657	SLU 81	0.28	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2053	440618	247694	SLV 1	0.56	No
fin.	2	-2653	-280986	247694	SLV 1	0.88	No
ini.	2	-1745	-367224	247694	SLD 13	0.67	No
fin.	2	-1553	234587	247694	SLD 13	1.06	Si
ini.	2	-1640	-702467	247694	SLV 14	0.35	No
fin.	2	-1216	456684	247694	SLV 14	0.54	No
ini.	2	-1541	-659014	247694	SLV 15	0.38	No
fin.	2	-940	408663	247694	SLV 15	0.61	No
ini.	2	-1953	484071	247694	SLV 3	0.51	No
fin.	2	-2377	-329007	247694	SLV 3	0.75	No
ini.	2	-1953	484071	247694	SLV 4	0.51	No
fin.	2	-2377	-329007	247694	SLV 4	0.75	No
ini.	2	-1745	-367224	247694	SLD 14	0.67	No
fin.	2	-1553	234587	247694	SLD 14	1.06	Si
ini.	2	-2053	440618	247694	SLV 2	0.56	No
fin.	2	-2653	-280986	247694	SLV 2	0.88	No
ini.	2	-1541	-659014	247694	SLV 16	0.38	No
fin.	2	-940	408663	247694	SLV 16	0.61	No
ini.	2	-1640	-702467	247694	SLV 13	0.35	No
fin.	2	-1216	456684	247694	SLV 13	0.54	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-702467	15665			2620	986	SLV 13	0.06	No
fin.	2	0	456684	14074			2620	986	SLV 13	0.07	No
ini.	2	0	-659014	14604			2620	986	SLV 16	0.07	No
fin.	2	0	408663	13063			2620	986	SLV 16	0.08	No
ini.	2	0	-367224	8420			2620	986	SLD 13	0.12	No
fin.	2	0	234587	6996			2620	986	SLD 13	0.14	No
ini.	2	0	-659014	14604			2620	986	SLV 15	0.07	No
fin.	2	0	408663	13063			2620	986	SLV 15	0.08	No
ini.	2	0	440618	-8909			2620	986	SLV 2	0.11	No
fin.	2	0	-280986	-9980			2620	986	SLV 2	0.1	No
ini.	2	0	440618	-8909			2620	986	SLV 1	0.11	No
fin.	2	0	-280986	-9980			2620	986	SLV 1	0.1	No
ini.	2	0	484071	-9970			2620	986	SLV 3	0.1	No
fin.	2	0	-329007	-10991			2620	986	SLV 3	0.09	No
ini.	2	0	-702467	15665			2620	986	SLV 14	0.06	No
fin.	2	0	456684	14074			2620	986	SLV 14	0.07	No
ini.	2	0	-367224	8420			2620	986	SLD 14	0.12	No
fin.	2	0	234587	6996			2620	986	SLD 14	0.14	No
ini.	2	0	484071	-9970			2620	986	SLV 4	0.1	No
fin.	2	0	-329007	-10991			2620	986	SLV 4	0.09	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.353	SLV 13	No
V_SLV	0.063	SLV 13	No
PF_SLU	1.245	SLU 77	Si
V_SLU	0.136	SLU 77	No

Trave di accoppiamento 49

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1776.8	666.1	111	201	90	-1676.8	666.1	111	201	90	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2



#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	3142	78410	103792	SLU 79	1.32	Si
fin.	3	2088	45892	103792	SLU 79	2.26	Si
ini.	3	3321	74403	103792	SLU 74	1.4	Si
fin.	3	2212	49922	103792	SLU 74	2.08	Si
ini.	3	3444	76171	103792	SLU 84	1.36	Si
fin.	3	2289	52152	103792	SLU 84	1.99	Si
ini.	3	3206	78366	103792	SLU 77	1.32	Si
fin.	3	2131	47222	103792	SLU 77	2.2	Si
ini.	3	3325	74215	103792	SLU 75	1.4	Si
fin.	3	2215	50054	103792	SLU 75	2.07	Si
ini.	3	3440	76359	103792	SLU 83	1.36	Si
fin.	3	2287	52020	103792	SLU 83	2	Si
ini.	3	3146	78223	103792	SLU 80	1.33	Si
fin.	3	2091	46024	103792	SLU 80	2.26	Si
ini.	3	3263	74134	103792	SLU 76	1.4	Si
fin.	3	2175	48813	103792	SLU 76	2.13	Si
ini.	3	3210	78179	103792	SLU 78	1.33	Si
fin.	3	2133	47354	103792	SLU 78	2.19	Si
ini.	3	2712	73949	103792	SLU 71	1.4	Si
fin.	3	1817	37895	103792	SLU 71	2.74	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	72395	-146			873	329	SLU 81	2.25	Si
fin.	3	0	54720	793			873	329	SLU 81	0.41	No
ini.	3	0	60307	-125			873	329	SLU 39	2.62	Si
fin.	3	0	47586	732			873	329	SLU 39	0.45	No
ini.	3	0	65843	-107			873	329	SLU 61	3.08	Si
fin.	3	0	49075	673			873	329	SLU 61	0.49	No
ini.	3	0	60119	-122			873	329	SLU 40	2.7	Si
fin.	3	0	47718	736			873	329	SLU 40	0.45	No
ini.	3	0	74215	-224			873	329	SLU 75	1.47	Si
fin.	3	0	50054	675			873	329	SLU 75	0.49	No
ini.	3	0	70170	-146			873	329	SLU 73	2.25	Si
fin.	3	0	51513	719			873	329	SLU 73	0.46	No
ini.	3	0	76171	-232			873	329	SLU 84	1.42	Si
fin.	3	0	52152	724			873	329	SLU 84	0.45	No
ini.	3	0	74403	-227			873	329	SLU 74	1.45	Si
fin.	3	0	49922	672			873	329	SLU 74	0.49	No
ini.	3	0	76359	-236			873	329	SLU 83	1.39	Si
fin.	3	0	52020	720			873	329	SLU 83	0.46	No
ini.	3	0	72207	-142			873	329	SLU 82	2.31	Si
fin.	3	0	54852	796			873	329	SLU 82	0.41	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	4112	282880	121694	SLV 12	0.43	No
fin.	2	-1334	-158127	121694	SLV 12	0.77	No
ini.	2	3355	-274081	121694	SLV 1	0.44	No
fin.	2	606	339668	121694	SLV 1	0.36	No
ini.	2	4112	282880	121694	SLV 11	0.43	No
fin.	2	-1334	-158127	121694	SLV 11	0.77	No
ini.	2	-125	286528	121694	SLV 13	0.42	No
fin.	2	4596	-204542	121694	SLV 13	0.59	No
ini.	2	1269	375404	121694	SLV 16	0.32	No
fin.	2	2504	-271030	121694	SLV 16	0.45	No
ini.	2	3355	-274081	121694	SLV 2	0.44	No
fin.	2	606	339668	121694	SLV 2	0.36	No
ini.	2	-125	286528	121694	SLV 14	0.42	No
fin.	2	4596	-204542	121694	SLV 14	0.59	No
ini.	2	1269	375404	121694	SLV 15	0.32	No
fin.	2	2504	-271030	121694	SLV 15	0.45	No
ini.	2	4748	-185205	121694	SLV 4	0.66	No
fin.	2	-1487	273180	121694	SLV 4	0.45	No
ini.	2	4748	-185205	121694	SLV 3	0.66	No
fin.	2	-1487	273180	121694	SLV 3	0.45	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-53064	2718			1310	493	SLD 4	0.18	No
fin.	2	0	139314	3722			1310	493	SLD 4	0.13	No
ini.	2	0	375404	-7141			1310	493	SLV 16	0.07	No
fin.	2	0	-271030	-6796			1310	493	SLV 16	0.07	No
ini.	2	0	-274081	6908			1310	493	SLV 2	0.07	No
fin.	2	0	339668	7659			1310	493	SLV 2	0.06	No
ini.	2	0	-185205	6353			1310	493	SLV 4	0.08	No
fin.	2	0	273180	7965			1310	493	SLV 4	0.06	No
ini.	2	0	286528	-6586			1310	493	SLV 13	0.07	No
fin.	2	0	-204542	-7101			1310	493	SLV 13	0.07	No
ini.	2	0	375404	-7141			1310	493	SLV 15	0.07	No
fin.	2	0	-271030	-6796			1310	493	SLV 15	0.07	No
ini.	2	0	-185205	6353			1310	493	SLV 3	0.08	No
fin.	2	0	273180	7965			1310	493	SLV 3	0.06	No
ini.	2	0	-53064	2718			1310	493	SLD 3	0.18	No
fin.	2	0	139314	3722			1310	493	SLD 3	0.13	No
ini.	2	0	-274081	6908			1310	493	SLV 1	0.07	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	339668	7659			1310	493	SLV 1	0.06	No
ini.	2	0	286528	-6586			1310	493	SLV 14	0.07	No
fin.	2	0	-204542	-7101			1310	493	SLV 14	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.324	SLV 15	No
V_SLV	0.062	SLV 3	No
PF_SLU	1.324	SLU 79	Si
V_SLU	0.413	SLU 82	No

## Trave di accoppiamento 50

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1776.8	666.1	391	483	92	-1676.8	666.1	391	483	92	100	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2296	-31944	107292	SLU 81	3.36	Si
fin.	3	-2512	-51192	107292	SLU 81	2.1	Si
ini.	3	-2285	-30972	107292	SLU 84	3.46	Si
fin.	3	-2538	-53168	107292	SLU 84	2.02	Si
ini.	3	-2166	-27735	107292	SLU 79	3.87	Si
fin.	3	-2465	-53537	107292	SLU 79	2	Si
ini.	3	-2208	-29597	107292	SLU 74	3.63	Si
fin.	3	-2455	-51546	107292	SLU 74	2.08	Si
ini.	3	-2198	-28625	107292	SLU 78	3.75	Si
fin.	3	-2481	-53522	107292	SLU 78	2	Si
ini.	3	-2198	-28471	107292	SLU 77	3.77	Si
fin.	3	-2487	-53692	107292	SLU 77	2	Si
ini.	3	-2285	-30818	107292	SLU 83	3.48	Si
fin.	3	-2544	-53338	107292	SLU 83	2.01	Si
ini.	3	-2176	-29119	107292	SLU 76	3.68	Si
fin.	3	-2423	-51107	107292	SLU 76	2.1	Si
ini.	3	-2208	-29751	107292	SLU 75	3.61	Si
fin.	3	-2449	-51376	107292	SLU 75	2.09	Si
ini.	3	-2166	-27890	107292	SLU 80	3.85	Si
fin.	3	-2459	-53367	107292	SLU 80	2.01	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-30818	2285			913	343	SLU 83	0.15	No
fin.	3	0	-53338	-4118			913	343	SLU 83	0.08	No
ini.	3	0	-27735	2082			913	343	SLU 79	0.16	No
fin.	3	0	-53537	-3948			913	343	SLU 79	0.09	No
ini.	3	0	-31944	2351			913	343	SLU 81	0.15	No
fin.	3	0	-51192	-4081			913	343	SLU 81	0.08	No
ini.	3	0	-29597	2192			913	343	SLU 74	0.16	No
fin.	3	0	-51546	-3951			913	343	SLU 74	0.09	No
ini.	3	0	-30972	2290			913	343	SLU 84	0.15	No
fin.	3	0	-53168	-4112			913	343	SLU 84	0.08	No
ini.	3	0	-29751	2197			913	343	SLU 75	0.16	No
fin.	3	0	-51376	-3944			913	343	SLU 75	0.09	No
ini.	3	0	-27890	2087			913	343	SLU 80	0.16	No
fin.	3	0	-53367	-3942			913	343	SLU 80	0.09	No
ini.	3	0	-28471	2126			913	343	SLU 77	0.16	No
fin.	3	0	-53692	-3988			913	343	SLU 77	0.09	No
ini.	3	0	-28625	2131			913	343	SLU 78	0.16	No
fin.	3	0	-53522	-3982			913	343	SLU 78	0.09	No
ini.	3	0	-32098	2356			913	343	SLU 82	0.15	No
fin.	3	0	-51021	-4075			913	343	SLU 82	0.08	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1317	200664	125194	SLV 15	0.62	No
fin.	2	-5173	-228756	125194	SLV 15	0.55	No
ini.	2	-3988	-215132	125194	SLV 3	0.58	No
fin.	2	1614	134936	125194	SLV 3	0.93	No
ini.	2	-4334	-240815	125194	SLV 2	0.52	No
fin.	2	1840	159691	125194	SLV 2	0.78	No
ini.	2	-136	85099	125194	SLV 11	1.47	Si
fin.	2	-3062	-130344	125194	SLV 11	0.96	No
ini.	2	-136	85099	125194	SLV 12	1.47	Si
fin.	2	-3062	-130344	125194	SLV 12	0.96	No
ini.	2	-4334	-240815	125194	SLV 1	0.52	No
fin.	2	1840	159691	125194	SLV 1	0.78	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	971	174982	125194	SLV 14	0.72	No
fin.	2	-4946	-204001	125194	SLV 14	0.61	No
ini.	2	-3988	-215132	125194	SLV 4	0.58	No
fin.	2	1614	134936	125194	SLV 4	0.93	No
ini.	2	971	174982	125194	SLV 13	0.72	No
fin.	2	-4946	-204001	125194	SLV 13	0.61	No
ini.	2	1317	200664	125194	SLV 16	0.62	No
fin.	2	-5173	-228756	125194	SLV 16	0.55	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	200664	-5401			1369	515	SLV 16	0.1	No
fin.	2	0	-228756	-9648			1369	515	SLV 16	0.05	No
ini.	2	0	-215132	8119			1369	515	SLV 4	0.06	No
fin.	2	0	134936	3966			1369	515	SLV 4	0.13	No
ini.	2	0	76467	-1525			1369	515	SLD 16	0.34	No
fin.	2	0	-119356	-5709			1369	515	SLD 16	0.09	No
ini.	2	0	174982	-5134			1369	515	SLV 13	0.1	No
fin.	2	0	-204001	-9261			1369	515	SLV 13	0.06	No
ini.	2	0	200664	-5401			1369	515	SLV 15	0.1	No
fin.	2	0	-228756	-9648			1369	515	SLV 15	0.05	No
ini.	2	0	76467	-1525			1369	515	SLD 15	0.34	No
fin.	2	0	-119356	-5709			1369	515	SLD 15	0.09	No
ini.	2	0	-240815	8386			1369	515	SLV 1	0.06	No
fin.	2	0	159691	4354			1369	515	SLV 1	0.12	No
ini.	2	0	-215132	8119			1369	515	SLV 3	0.06	No
fin.	2	0	134936	3966			1369	515	SLV 3	0.13	No
ini.	2	0	174982	-5134			1369	515	SLV 14	0.1	No
fin.	2	0	-204001	-9261			1369	515	SLV 14	0.06	No
ini.	2	0	-240815	8386			1369	515	SLV 2	0.06	No
fin.	2	0	159691	4354			1369	515	SLV 2	0.12	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.52	SLV 1	No
V_SLV	0.053	SLV 15	No
PF_SLU	1.998	SLU 77	Si
V_SLU	0.083	SLU 83	No

## Trave di accoppiamento 51

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1288.8	666.1	111	201	90	-1188.8	666.1	111	201	90	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	3932	11839	103792	SLU 74	8.77	Si
fin.	3	3765	98767	103792	SLU 74	1.05	Si
ini.	3	3882	12284	103792	SLU 76	8.45	Si
fin.	3	3723	96946	103792	SLU 76	1.07	Si
ini.	3	4094	9615	103792	SLU 81	10.79	Si
fin.	3	3901	103884	103792	SLU 81	1	No
ini.	3	4098	9565	103792	SLU 82	10.85	Si
fin.	3	3905	103801	103792	SLU 82	1	No
ini.	3	3936	11789	103792	SLU 75	8.8	Si
fin.	3	3769	98684	103792	SLU 75	1.05	Si
ini.	3	3888	9634	103792	SLU 73	10.77	Si
fin.	3	3708	98396	103792	SLU 73	1.05	Si
ini.	3	3930	14439	103792	SLU 78	7.19	Si
fin.	3	3784	97234	103792	SLU 78	1.07	Si
ini.	3	4088	12265	103792	SLU 83	8.46	Si
fin.	3	3916	102434	103792	SLU 83	1.01	Si
ini.	3	4092	12215	103792	SLU 84	8.5	Si
fin.	3	3920	102350	103792	SLU 84	1.01	Si
ini.	3	3926	14489	103792	SLU 77	7.16	Si
fin.	3	3780	97317	103792	SLU 77	1.07	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	9565	627			873	329	SLU 82	0.52	No
fin.	3	0	103801	1563			873	329	SLU 82	0.21	No
ini.	3	0	12284	550			873	329	SLU 76	0.6	No
fin.	3	0	96946	1413			873	329	SLU 76	0.23	No
ini.	3	0	9634	600			873	329	SLU 73	0.55	No
fin.	3	0	98396	1458			873	329	SLU 73	0.23	No
ini.	3	0	14489	517			873	329	SLU 77	0.64	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	97317	1407			873	329	SLU 77	0.23	No
ini.	3	0	9615	628			873	329	SLU 81	0.52	No
fin.	3	0	103884	1565			873	329	SLU 81	0.21	No
ini.	3	0	11789	567			873	329	SLU 75	0.58	No
fin.	3	0	98684	1450			873	329	SLU 75	0.23	No
ini.	3	0	11839	567			873	329	SLU 74	0.58	No
fin.	3	0	98767	1451			873	329	SLU 74	0.23	No
ini.	3	0	14439	516			873	329	SLU 78	0.64	No
fin.	3	0	97234	1406			873	329	SLU 78	0.23	No
ini.	3	0	12265	577			873	329	SLU 83	0.57	No
fin.	3	0	102434	1520			873	329	SLU 83	0.22	No
ini.	3	0	12215	577			873	329	SLU 84	0.57	No
fin.	3	0	102350	1519			873	329	SLU 84	0.22	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3754	-115504	121694	SLD 3	1.05	Si
fin.	2	1817	196455	121694	SLD 3	0.62	No
ini.	2	3754	-115504	121694	SLD 4	1.05	Si
fin.	2	1817	196455	121694	SLD 4	0.62	No
ini.	2	5227	-273421	121694	SLV 3	0.45	No
fin.	2	955	362452	121694	SLV 3	0.34	No
ini.	2	3131	321804	121694	SLV 16	0.38	No
fin.	2	7051	-208709	121694	SLV 16	0.58	No
ini.	2	2173	-307219	121694	SLV 2	0.4	No
fin.	2	-1990	343736	121694	SLV 2	0.35	No
ini.	2	5227	-273421	121694	SLV 4	0.45	No
fin.	2	955	362452	121694	SLV 4	0.34	No
ini.	2	76	288006	121694	SLV 14	0.42	No
fin.	2	4106	-227425	121694	SLV 14	0.54	No
ini.	2	2173	-307219	121694	SLV 1	0.4	No
fin.	2	-1990	343736	121694	SLV 1	0.35	No
ini.	2	76	288006	121694	SLV 13	0.42	No
fin.	2	4106	-227425	121694	SLV 13	0.54	No
ini.	2	3131	321804	121694	SLV 15	0.38	No
fin.	2	7051	-208709	121694	SLV 15	0.58	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-273421	8320			1310	493	SLV 4	0.06	No
fin.	2	0	362452	8409			1310	493	SLV 4	0.06	No
ini.	2	0	321804	-7141			1310	493	SLV 15	0.07	No
fin.	2	0	-208709	-6929			1310	493	SLV 15	0.07	No
ini.	2	0	321804	-7141			1310	493	SLV 16	0.07	No
fin.	2	0	-208709	-6929			1310	493	SLV 16	0.07	No
ini.	2	0	-129793	3732			1310	493	SLD 1	0.13	No
fin.	2	0	188528	4408			1310	493	SLD 1	0.11	No
ini.	2	0	288006	-7471			1310	493	SLV 13	0.07	No
fin.	2	0	-227425	-6483			1310	493	SLV 13	0.08	No
ini.	2	0	288006	-7471			1310	493	SLV 14	0.07	No
fin.	2	0	-227425	-6483			1310	493	SLV 14	0.08	No
ini.	2	0	-273421	8320			1310	493	SLV 3	0.06	No
fin.	2	0	362452	8409			1310	493	SLV 3	0.06	No
ini.	2	0	-307219	7990			1310	493	SLV 1	0.06	No
fin.	2	0	343736	8855			1310	493	SLV 1	0.06	No
ini.	2	0	-307219	7990			1310	493	SLV 2	0.06	No
fin.	2	0	343736	8855			1310	493	SLV 2	0.06	No
ini.	2	0	-129793	3732			1310	493	SLD 2	0.13	No
fin.	2	0	188528	4408			1310	493	SLD 2	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.336	SLV 3	No
V_SLV	0.056	SLV 1	No
PF_SLU	0.999	SLU 81	No
V_SLU	0.21	SLU 81	No

## Trave di accoppiamento 52

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1288.8	666.1	391	483	92	-1188.8	666.1	391	483	92	100	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3197	-62161	107292	SLU 75	1.73	Si
fin.	3	-1490	-7390	107292	SLU 75	14.52	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3415	-65641	107292	SLU 81	1.63	Si
fin.	3	-1538	-5889	107292	SLU 81	18.22	Si
ini.	3	-3410	-65597	107292	SLU 82	1.64	Si
fin.	3	-1532	-5819	107292	SLU 82	18.44	Si
ini.	3	-3121	-61176	107292	SLU 77	1.75	Si
fin.	3	-1523	-9494	107292	SLU 77	11.3	Si
ini.	3	-3202	-62205	107292	SLU 74	1.72	Si
fin.	3	-1496	-7459	107292	SLU 74	14.38	Si
ini.	3	-3217	-61998	107292	SLU 73	1.73	Si
fin.	3	-1451	-5654	107292	SLU 73	18.98	Si
ini.	3	-3329	-64568	107292	SLU 84	1.66	Si
fin.	3	-1559	-7854	107292	SLU 84	13.66	Si
ini.	3	-3136	-60969	107292	SLU 76	1.76	Si
fin.	3	-1478	-7689	107292	SLU 76	13.95	Si
ini.	3	-3116	-61132	107292	SLU 78	1.76	Si
fin.	3	-1517	-9424	107292	SLU 78	11.38	Si
ini.	3	-3333	-64612	107292	SLU 83	1.66	Si
fin.	3	-1565	-7923	107292	SLU 83	13.54	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-60969	5473			913	343	SLU 76	0.06	No
fin.	3	0	-7689	-2669			913	343	SLU 76	0.13	No
ini.	3	0	-64612	5819			913	343	SLU 83	0.06	No
fin.	3	0	-7923	-2836			913	343	SLU 83	0.12	No
ini.	3	0	-64568	5818			913	343	SLU 84	0.06	No
fin.	3	0	-7854	-2833			913	343	SLU 84	0.12	No
ini.	3	0	-65641	5883			913	343	SLU 81	0.06	No
fin.	3	0	-5889	-2737			913	343	SLU 81	0.13	No
ini.	3	0	-61132	5505			913	343	SLU 78	0.06	No
fin.	3	0	-9424	-2786			913	343	SLU 78	0.12	No
ini.	3	0	-61176	5506			913	343	SLU 77	0.06	No
fin.	3	0	-9494	-2789			913	343	SLU 77	0.12	No
ini.	3	0	-62161	5569			913	343	SLU 75	0.06	No
fin.	3	0	-7390	-2687			913	343	SLU 75	0.13	No
ini.	3	0	-61998	5537			913	343	SLU 73	0.06	No
fin.	3	0	-5654	-2571			913	343	SLU 73	0.13	No
ini.	3	0	-65597	5882			913	343	SLU 82	0.06	No
fin.	3	0	-5819	-2734			913	343	SLU 82	0.13	No
ini.	3	0	-62205	5570			913	343	SLU 74	0.06	No
fin.	3	0	-7459	-2690			913	343	SLU 74	0.13	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2325	113494	125194	SLV 15	1.1	Si
fin.	2	-5937	-167619	125194	SLV 15	0.75	No
ini.	2	2325	113494	125194	SLV 16	1.1	Si
fin.	2	-5937	-167619	125194	SLV 16	0.75	No
ini.	2	3136	114778	125194	SLV 14	1.09	Si
fin.	2	-5007	-150687	125194	SLV 14	0.83	No
ini.	2	-6705	-197941	125194	SLV 2	0.63	No
fin.	2	3944	159610	125194	SLV 2	0.78	No
ini.	2	-6705	-197941	125194	SLV 1	0.63	No
fin.	2	3944	159610	125194	SLV 1	0.78	No
ini.	2	-4517	-110935	125194	SLD 4	1.13	Si
fin.	2	766	60302	125194	SLD 4	2.08	Si
ini.	2	-7516	-199225	125194	SLV 4	0.63	No
fin.	2	3014	142678	125194	SLV 4	0.88	No
ini.	2	3136	114778	125194	SLV 13	1.09	Si
fin.	2	-5007	-150687	125194	SLV 13	0.83	No
ini.	2	-7516	-199225	125194	SLV 3	0.63	No
fin.	2	3014	142678	125194	SLV 3	0.88	No
ini.	2	-4517	-110935	125194	SLD 3	1.13	Si
fin.	2	766	60302	125194	SLD 3	2.08	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	113494	-4203			1369	515	SLV 15	0.12	No
fin.	2	0	-167619	-9882			1369	515	SLV 15	0.05	No
ini.	2	0	-110378	7193			1369	515	SLD 1	0.07	No
fin.	2	0	67517	1851			1369	515	SLD 1	0.28	No
ini.	2	0	114778	-3579			1369	515	SLV 14	0.14	No
fin.	2	0	-150687	-8786			1369	515	SLV 14	0.06	No
ini.	2	0	113494	-4203			1369	515	SLV 16	0.12	No
fin.	2	0	-167619	-9882			1369	515	SLV 16	0.05	No
ini.	2	0	-199225	11035			1369	515	SLV 3	0.05	No
fin.	2	0	142678	5351			1369	515	SLV 3	0.1	No
ini.	2	0	-197941	11658			1369	515	SLV 1	0.04	No
fin.	2	0	159610	6447			1369	515	SLV 1	0.08	No
ini.	2	0	-110378	7193			1369	515	SLD 2	0.07	No
fin.	2	0	67517	1851			1369	515	SLD 2	0.28	No
ini.	2	0	-197941	11658			1369	515	SLV 2	0.04	No
fin.	2	0	159610	6447			1369	515	SLV 2	0.08	No
ini.	2	0	-199225	11035			1369	515	SLV 4	0.05	No
fin.	2	0	142678	5351			1369	515	SLV 4	0.1	No
ini.	2	0	114778	-3579			1369	515	SLV 13	0.14	No
fin.	2	0	-150687	-8786			1369	515	SLV 13	0.06	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.628	SLV 3	No
V_SLV	0.044	SLV 1	No
PF_SLU	1.635	SLU 81	Si
V_SLU	0.058	SLU 81	No

Trave di accoppiamento 53

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-800.8	666.1	111	201	90	-700.8	666.1	111	201	90	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	4502	93641	103792	SLU 74	1.11	Si
fin.	3	5905	47911	103792	SLU 74	2.17	Si
ini.	3	4678	97884	103792	SLU 83	1.06	Si
fin.	3	6143	48647	103792	SLU 83	2.13	Si
ini.	3	4472	92602	103792	SLU 79	1.12	Si
fin.	3	5868	52448	103792	SLU 79	1.98	Si
ini.	3	4647	97538	103792	SLU 81	1.06	Si
fin.	3	6100	44519	103792	SLU 81	2.33	Si
ini.	3	4471	92779	103792	SLU 80	1.12	Si
fin.	3	5868	51938	103792	SLU 80	2	Si
ini.	3	4534	93988	103792	SLU 77	1.1	Si
fin.	3	5948	52039	103792	SLU 77	1.99	Si
ini.	3	4646	97716	103792	SLU 82	1.06	Si
fin.	3	6100	44009	103792	SLU 82	2.36	Si
ini.	3	4677	98062	103792	SLU 84	1.06	Si
fin.	3	6143	48137	103792	SLU 84	2.16	Si
ini.	3	4502	93819	103792	SLU 75	1.11	Si
fin.	3	5905	47401	103792	SLU 75	2.19	Si
ini.	3	4533	94165	103792	SLU 78	1.1	Si
fin.	3	5949	51528	103792	SLU 78	2.01	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	93641	-1618			873	329	SLU 74	0.2	No
fin.	3	0	47911	-547			873	329	SLU 74	0.6	No
ini.	3	0	94165	-1601			873	329	SLU 78	0.21	No
fin.	3	0	51528	-500			873	329	SLU 78	0.66	No
ini.	3	0	92205	-1617			873	329	SLU 73	0.2	No
fin.	3	0	43343	-600			873	329	SLU 73	0.55	No
ini.	3	0	98062	-1719			873	329	SLU 84	0.19	No
fin.	3	0	48137	-584			873	329	SLU 84	0.56	No
ini.	3	0	97884	-1712			873	329	SLU 83	0.19	No
fin.	3	0	48647	-574			873	329	SLU 83	0.57	No
ini.	3	0	93988	-1594			873	329	SLU 77	0.21	No
fin.	3	0	52039	-490			873	329	SLU 77	0.67	No
ini.	3	0	97538	-1736			873	329	SLU 81	0.19	No
fin.	3	0	44519	-631			873	329	SLU 81	0.52	No
ini.	3	0	92552	-1593			873	329	SLU 76	0.21	No
fin.	3	0	47470	-544			873	329	SLU 76	0.6	No
ini.	3	0	97716	-1743			873	329	SLU 82	0.19	No
fin.	3	0	44009	-640			873	329	SLU 82	0.51	No
ini.	3	0	93819	-1625			873	329	SLU 75	0.2	No
fin.	3	0	47401	-556			873	329	SLU 75	0.59	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	750	-211023	121694	SLV 2	0.58	No
fin.	2	-1309	271984	121694	SLV 2	0.45	No
ini.	2	3971	180893	121694	SLD 16	0.67	No
fin.	2	6220	-71824	121694	SLD 16	1.69	Si
ini.	2	5282	334746	121694	SLV 16	0.36	No
fin.	2	9193	-206235	121694	SLV 16	0.59	No
ini.	2	3971	180893	121694	SLD 15	0.67	No
fin.	2	6220	-71824	121694	SLD 15	1.69	Si
ini.	2	3211	-192929	121694	SLV 3	0.63	No
fin.	2	1830	312229	121694	SLV 3	0.39	No
ini.	2	5282	334746	121694	SLV 15	0.36	No
fin.	2	9193	-206235	121694	SLV 15	0.59	No
ini.	2	2820	316652	121694	SLV 13	0.38	No
fin.	2	6054	-246480	121694	SLV 13	0.49	No
ini.	2	750	-211023	121694	SLV 1	0.58	No
fin.	2	-1309	271984	121694	SLV 1	0.45	No
ini.	2	3211	-192929	121694	SLV 4	0.63	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	2	1830	312229	121694	SLV 4	0.39	No
ini.	2	2820	316652	121694	SLV 14	0.38	No
fin.	2	6054	-246480	121694	SLV 14	0.49	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	316652	-8370			1310	493	SLV 13	0.06	No
fin.	2	0	-246480	-6585			1310	493	SLV 13	0.07	No
ini.	2	0	-192929	6300			1310	493	SLV 3	0.08	No
fin.	2	0	312229	5818			1310	493	SLV 3	0.08	No
ini.	2	0	-192929	6300			1310	493	SLV 4	0.08	No
fin.	2	0	312229	5818			1310	493	SLV 4	0.08	No
ini.	2	0	173443	-4242			1310	493	SLD 14	0.12	No
fin.	2	0	-89098	-3102			1310	493	SLD 14	0.16	No
ini.	2	0	334746	-8088			1310	493	SLV 16	0.06	No
fin.	2	0	-206235	-7489			1310	493	SLV 16	0.07	No
ini.	2	0	334746	-8088			1310	493	SLV 15	0.06	No
fin.	2	0	-206235	-7489			1310	493	SLV 15	0.07	No
ini.	2	0	-211023	6018			1310	493	SLV 2	0.08	No
fin.	2	0	271984	6722			1310	493	SLV 2	0.07	No
ini.	2	0	173443	-4242			1310	493	SLD 13	0.12	No
fin.	2	0	-89098	-3102			1310	493	SLD 13	0.16	No
ini.	2	0	316652	-8370			1310	493	SLV 14	0.06	No
fin.	2	0	-246480	-6585			1310	493	SLV 14	0.07	No
ini.	2	0	-211023	6018			1310	493	SLV 1	0.08	No
fin.	2	0	271984	6722			1310	493	SLV 1	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.364	SLV 15	No
V_SLV	0.059	SLV 13	No
PF_SLU	1.058	SLU 84	Si
V_SLU	0.189	SLU 82	No

## Trave di accoppiamento 54

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-800.8	666.1	391	483	92	-700.8	666.1	391	483	92	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2158	-17405	107292	SLU 78	6.16	Si
fin.	3	-4611	-54342	107292	SLU 78	1.97	Si
ini.	3	-2098	-16137	107292	SLU 74	6.65	Si
fin.	3	-4516	-52440	107292	SLU 74	2.05	Si
ini.	3	-2100	-14916	107292	SLU 81	7.19	Si
fin.	3	-4597	-52577	107292	SLU 81	2.04	Si
ini.	3	-2170	-17690	107292	SLU 77	6.07	Si
fin.	3	-4614	-54375	107292	SLU 77	1.97	Si
ini.	3	-2172	-16469	107292	SLU 83	6.51	Si
fin.	3	-4696	-54512	107292	SLU 83	1.97	Si
ini.	3	-2161	-17896	107292	SLU 79	6	Si
fin.	3	-4566	-53904	107292	SLU 79	1.99	Si
ini.	3	-2159	-16185	107292	SLU 84	6.63	Si
fin.	3	-4692	-54479	107292	SLU 84	1.97	Si
ini.	3	-2087	-14631	107292	SLU 82	7.33	Si
fin.	3	-4593	-52544	107292	SLU 82	2.04	Si
ini.	3	-2086	-15852	107292	SLU 75	6.77	Si
fin.	3	-4512	-52407	107292	SLU 75	2.05	Si
ini.	3	-2149	-17611	107292	SLU 80	6.09	Si
fin.	3	-4562	-53871	107292	SLU 80	1.99	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-14916	2715			913	343	SLU 81	0.13	No
fin.	3	0	-52577	-6882			913	343	SLU 81	0.05	No
ini.	3	0	-17690	2675			913	343	SLU 77	0.13	No
fin.	3	0	-54375	-6747			913	343	SLU 77	0.05	No
ini.	3	0	-15852	2624			913	343	SLU 75	0.13	No
fin.	3	0	-52407	-6662			913	343	SLU 75	0.05	No
ini.	3	0	-16469	2755			913	343	SLU 83	0.12	No
fin.	3	0	-54512	-6968			913	343	SLU 83	0.05	No
ini.	3	0	-14631	2704			913	343	SLU 82	0.13	No
fin.	3	0	-52544	-6883			913	343	SLU 82	0.05	No
ini.	3	0	-17405	2664			913	343	SLU 78	0.13	No
fin.	3	0	-54342	-6748			913	343	SLU 78	0.05	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-16137	2635			913	343	SLU 74	0.13	No
fin.	3	0	-52440	-6661			913	343	SLU 74	0.05	No
ini.	3	0	-17611	2641			913	343	SLU 80	0.13	No
fin.	3	0	-53871	-6659			913	343	SLU 80	0.05	No
ini.	3	0	-16185	2744			913	343	SLU 84	0.13	No
fin.	3	0	-54479	-6969			913	343	SLU 84	0.05	No
ini.	3	0	-17896	2651			913	343	SLU 79	0.13	No
fin.	3	0	-53904	-6659			913	343	SLU 79	0.05	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2753	150473	125194	SLV 13	0.83	No
fin.	2	-7368	-137553	125194	SLV 13	0.91	No
ini.	2	-25	55221	125194	SLD 15	2.27	Si
fin.	2	-5155	-83859	125194	SLD 15	1.49	Si
ini.	2	-25	55221	125194	SLD 16	2.27	Si
fin.	2	-5155	-83859	125194	SLD 16	1.49	Si
ini.	2	1737	139884	125194	SLV 16	0.89	No
fin.	2	-7944	-147714	125194	SLV 16	0.85	No
ini.	2	-5574	-172329	125194	SLV 4	0.73	No
fin.	2	1390	69017	125194	SLV 4	1.81	Si
ini.	2	-5574	-172329	125194	SLV 3	0.73	No
fin.	2	1390	69017	125194	SLV 3	1.81	Si
ini.	2	-4558	-161740	125194	SLV 2	0.77	No
fin.	2	1967	79178	125194	SLV 2	1.58	Si
ini.	2	1737	139884	125194	SLV 15	0.89	No
fin.	2	-7944	-147714	125194	SLV 15	0.85	No
ini.	2	-4558	-161740	125194	SLV 1	0.77	No
fin.	2	1967	79178	125194	SLV 1	1.58	Si
ini.	2	2753	150473	125194	SLV 14	0.83	No
fin.	2	-7368	-137553	125194	SLV 14	0.91	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	139884	-4214			1369	515	SLV 16	0.12	No
fin.	2	0	-147714	-11922			1369	515	SLV 16	0.04	No
ini.	2	0	-161740	7706			1369	515	SLV 1	0.07	No
fin.	2	0	79178	3198			1369	515	SLV 1	0.16	No
ini.	2	0	150473	-4901			1369	515	SLV 14	0.11	No
fin.	2	0	-137553	-11347			1369	515	SLV 14	0.05	No
ini.	2	0	55221	-864			1369	515	SLD 16	0.6	No
fin.	2	0	-83859	-7669			1369	515	SLD 16	0.07	No
ini.	2	0	-161740	7706			1369	515	SLV 2	0.07	No
fin.	2	0	79178	3198			1369	515	SLV 2	0.16	No
ini.	2	0	139884	-4214			1369	515	SLV 15	0.12	No
fin.	2	0	-147714	-11922			1369	515	SLV 15	0.04	No
ini.	2	0	-172329	8393			1369	515	SLV 4	0.06	No
fin.	2	0	69017	2623			1369	515	SLV 4	0.2	No
ini.	2	0	55221	-864			1369	515	SLD 15	0.6	No
fin.	2	0	-83859	-7669			1369	515	SLD 15	0.07	No
ini.	2	0	-172329	8393			1369	515	SLV 3	0.06	No
fin.	2	0	69017	2623			1369	515	SLV 3	0.2	No
ini.	2	0	150473	-4901			1369	515	SLV 13	0.11	No
fin.	2	0	-137553	-11347			1369	515	SLV 13	0.05	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.726	SLV 3	No
V_SLV	0.043	SLV 15	No
PF_SLU	1.968	SLU 83	Si
V_SLU	0.049	SLU 84	No

## Trave di accoppiamento 55

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-867.8	-485.9	437	483	46	-1051.8	-485.9	437	483	46	184	30	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-322	6768	32207	SLU 2	4.76	Si
fin.	3	170	-3662	32207	SLU 2	8.79	Si
ini.	3	-409	6927	32207	SLU 43	4.65	Si
fin.	3	181	-4076	32207	SLU 43	7.9	Si
ini.	3	-425	9073	32207	SLU 44	3.55	Si
fin.	3	232	-5117	32207	SLU 44	6.29	Si
ini.	3	-211	-7379	32207	SLU 79	4.36	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	-199	5821	32207	SLU 79	5.53	Si
ini.	3	-120	-9023	32207	SLU 35	3.57	Si
fin.	3	-246	6860	32207	SLU 35	4.7	Si
ini.	3	-118	-8397	32207	SLU 38	3.84	Si
fin.	3	-230	6651	32207	SLU 38	4.84	Si
ini.	3	-109	-9684	32207	SLU 37	3.33	Si
fin.	3	-261	7275	32207	SLU 37	4.43	Si
ini.	3	-139	-7005	32207	SLU 16	4.6	Si
fin.	3	-183	5326	32207	SLU 16	6.05	Si
ini.	3	-130	-7735	32207	SLU 36	4.16	Si
fin.	3	-215	6235	32207	SLU 36	5.17	Si
ini.	3	-147	-7669	32207	SLU 41	4.2	Si
fin.	3	-218	6089	32207	SLU 41	5.29	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4038	99			354	133	SLU 56	1.35	Si
fin.	3	0	3455	1057			354	133	SLU 56	0.13	No
ini.	3	0	-7379	131			354	133	SLU 79	1.02	Si
fin.	3	0	5821	1149			354	133	SLU 79	0.12	No
ini.	3	0	-1596	64			354	133	SLU 81	2.08	Si
fin.	3	0	2161	1055			354	133	SLU 81	0.13	No
ini.	3	0	-6092	117			354	133	SLU 80	1.14	Si
fin.	3	0	5196	1135			354	133	SLU 80	0.12	No
ini.	3	0	-4077	92			354	133	SLU 84	1.46	Si
fin.	3	0	4009	1115			354	133	SLU 84	0.12	No
ini.	3	0	-5430	109			354	133	SLU 78	1.22	Si
fin.	3	0	4780	1124			354	133	SLU 78	0.12	No
ini.	3	0	-6718	123			354	133	SLU 77	1.09	Si
fin.	3	0	5405	1138			354	133	SLU 77	0.12	No
ini.	3	0	-5364	105			354	133	SLU 83	1.27	Si
fin.	3	0	4634	1129			354	133	SLU 83	0.12	No
ini.	3	0	-4700	106			354	133	SLU 58	1.25	Si
fin.	3	0	3871	1068			354	133	SLU 58	0.12	No
ini.	3	0	-2949	81			354	133	SLU 74	1.64	Si
fin.	3	0	2932	1063			354	133	SLU 74	0.13	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1472	-163191	47081	SLV 13	0.29	No
fin.	2	-4742	109942	47081	SLV 13	0.43	No
ini.	2	-1760	148317	47081	SLV 2	0.32	No
fin.	2	4358	-99468	47081	SLV 2	0.47	No
ini.	2	1192	-142943	47081	SLV 16	0.33	No
fin.	2	-4231	97055	47081	SLV 16	0.49	No
ini.	2	1472	-163191	47081	SLV 14	0.29	No
fin.	2	-4742	109942	47081	SLV 14	0.43	No
ini.	2	-2039	168565	47081	SLV 4	0.28	No
fin.	2	4868	-112355	47081	SLV 4	0.42	No
ini.	2	-1234	83160	47081	SLV 7	0.57	No
fin.	2	2279	-54096	47081	SLV 7	0.87	No
ini.	2	1192	-142943	47081	SLV 15	0.33	No
fin.	2	-4231	97055	47081	SLV 15	0.49	No
ini.	2	-1234	83160	47081	SLV 8	0.57	No
fin.	2	2279	-54096	47081	SLV 8	0.87	No
ini.	2	-1760	148317	47081	SLV 1	0.32	No
fin.	2	4358	-99468	47081	SLV 1	0.47	No
ini.	2	-2039	168565	47081	SLV 3	0.28	No
fin.	2	4868	-112355	47081	SLV 3	0.42	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-77786	604			531	200	SLV 10	0.33	No
fin.	2	0	51683	2221			531	200	SLV 10	0.09	No
ini.	2	0	-163191	1875			531	200	SLV 13	0.11	No
fin.	2	0	109942	3124			531	200	SLV 13	0.06	No
ini.	2	0	-163191	1875			531	200	SLV 14	0.11	No
fin.	2	0	109942	3124			531	200	SLV 14	0.06	No
ini.	2	0	148317	-1827			531	200	SLV 2	0.11	No
fin.	2	0	-99468	-1217			531	200	SLV 2	0.16	No
ini.	2	0	-142943	1853			531	200	SLV 16	0.11	No
fin.	2	0	97055	2596			531	200	SLV 16	0.08	No
ini.	2	0	-77786	604			531	200	SLV 9	0.33	No
fin.	2	0	51683	2221			531	200	SLV 9	0.09	No
ini.	2	0	-142943	1853			531	200	SLV 15	0.11	No
fin.	2	0	97055	2596			531	200	SLV 15	0.08	No
ini.	2	0	168565	-1848			531	200	SLV 3	0.11	No
fin.	2	0	-112355	-1745			531	200	SLV 3	0.11	No
ini.	2	0	148317	-1827			531	200	SLV 1	0.11	No
fin.	2	0	-99468	-1217			531	200	SLV 1	0.16	No
ini.	2	0	168565	-1848			531	200	SLV 4	0.11	No
fin.	2	0	-112355	-1745			531	200	SLV 4	0.11	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.279	SLV 3	No
V_SLV	0.064	SLV 13	No
PF_SLU	3.326	SLU 37	Si





Stato limite	Coeff.s.	Comb.	Verifica
V_SLU	0.116	SLU 79	No

## Trave di accoppiamento 56

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-854.8	-335.9	321	483	162	-944.8	-335.9	321	483	162	90	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2778	-223986	229792	SLU 80	1.03	Si
fin.	3	-2778	-21591	229792	SLU 80	10.64	Si
ini.	3	-2731	-217556	229792	SLU 77	1.06	Si
fin.	3	-2731	-6851	229792	SLU 77	33.54	Si
ini.	3	-2787	-217021	229792	SLU 83	1.06	Si
fin.	3	-2787	-13100	229792	SLU 83	17.54	Si
ini.	3	-2709	-213680	229792	SLU 75	1.08	Si
fin.	3	-2709	-34050	229792	SLU 75	6.75	Si
ini.	3	-2635	-210635	229792	SLU 59	1.09	Si
fin.	3	-2635	-14042	229792	SLU 59	16.36	Si
ini.	3	-2831	-223188	229792	SLU 84	1.03	Si
fin.	3	-2831	-31141	229792	SLU 84	7.38	Si
ini.	3	-2776	-223724	229792	SLU 78	1.03	Si
fin.	3	-2776	-24892	229792	SLU 78	9.23	Si
ini.	3	-2741	-218053	229792	SLU 76	1.05	Si
fin.	3	-2741	-42777	229792	SLU 76	5.37	Si
ini.	3	-2764	-213144	229792	SLU 82	1.08	Si
fin.	3	-2764	-40299	229792	SLU 82	5.7	Si
ini.	3	-2734	-217819	229792	SLU 79	1.05	Si
fin.	3	-2734	-3550	229792	SLU 79	64.73	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-217556	3200			1747	657	SLU 77	0.21	No
fin.	3	0	-6851	1549			1747	657	SLU 77	0.42	No
ini.	3	0	-204206	3044			1747	657	SLU 56	0.22	No
fin.	3	0	698	1580			1747	657	SLU 56	0.42	No
ini.	3	0	-217819	3240			1747	657	SLU 79	0.2	No
fin.	3	0	-3550	1589			1747	657	SLU 79	0.41	No
ini.	3	0	-223724	3068			1747	657	SLU 78	0.21	No
fin.	3	0	-24892	1417			1747	657	SLU 78	0.46	No
ini.	3	0	-207512	2987			1747	657	SLU 74	0.22	No
fin.	3	0	-16009	1336			1747	657	SLU 74	0.49	No
ini.	3	0	-217021	3172			1747	657	SLU 83	0.21	No
fin.	3	0	-13100	1427			1747	657	SLU 83	0.46	No
ini.	3	0	-204468	3084			1747	657	SLU 58	0.21	No
fin.	3	0	3999	1620			1747	657	SLU 58	0.41	No
ini.	3	0	-223986	3108			1747	657	SLU 80	0.21	No
fin.	3	0	-21591	1457			1747	657	SLU 80	0.45	No
ini.	3	0	-223188	3040			1747	657	SLU 84	0.22	No
fin.	3	0	-31141	1295			1747	657	SLU 84	0.51	No
ini.	3	0	-203670	3016			1747	657	SLU 62	0.22	No
fin.	3	0	-5550	1457			1747	657	SLU 62	0.45	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4400	-669280	247694	SLV 13	0.37	No
fin.	2	-4906	481276	247694	SLV 13	0.51	No
ini.	2	-3661	-463403	247694	SLV 16	0.53	No
fin.	2	-2383	555865	247694	SLV 16	0.45	No
ini.	2	-3661	-463403	247694	SLV 15	0.53	No
fin.	2	-2383	555865	247694	SLV 15	0.45	No
ini.	2	734	391810	247694	SLV 3	0.63	No
fin.	2	1239	-510714	247694	SLV 3	0.48	No
ini.	2	-4400	-669280	247694	SLV 14	0.37	No
fin.	2	-4906	481276	247694	SLV 14	0.51	No
ini.	2	-3725	-610145	247694	SLV 10	0.41	No
fin.	2	-6581	20954	247694	SLV 10	11.82	Si
ini.	2	734	391810	247694	SLV 4	0.63	No
fin.	2	1239	-510714	247694	SLV 4	0.48	No
ini.	2	-5	185933	247694	SLV 1	1.33	Si
fin.	2	-1284	-585302	247694	SLV 1	0.42	No
ini.	2	-3725	-610145	247694	SLV 9	0.41	No
fin.	2	-6581	20954	247694	SLV 9	11.82	Si
ini.	2	-5	185933	247694	SLV 2	1.33	Si
fin.	2	-1284	-585302	247694	SLV 2	0.42	No



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	185933	-8262			2620	986	SLV 2	0.12	No
fin.	2	0	-585302	-9439			2620	986	SLV 2	0.1	No
ini.	2	0	391810	-9187			2620	986	SLV 4	0.11	No
fin.	2	0	-510714	-10621			2620	986	SLV 4	0.09	No
ini.	2	0	-366339	6797			2620	986	SLD 13	0.15	No
fin.	2	0	201175	5803			2620	986	SLD 13	0.17	No
ini.	2	0	-669280	13117			2620	986	SLV 13	0.08	No
fin.	2	0	481276	12307			2620	986	SLV 13	0.08	No
ini.	2	0	185933	-8262			2620	986	SLV 1	0.12	No
fin.	2	0	-585302	-9439			2620	986	SLV 1	0.1	No
ini.	2	0	391810	-9187			2620	986	SLV 3	0.11	No
fin.	2	0	-510714	-10621			2620	986	SLV 3	0.09	No
ini.	2	0	-463403	12192			2620	986	SLV 16	0.08	No
fin.	2	0	555865	11125			2620	986	SLV 16	0.09	No
ini.	2	0	-669280	13117			2620	986	SLV 14	0.08	No
fin.	2	0	481276	12307			2620	986	SLV 14	0.08	No
ini.	2	0	-463403	12192			2620	986	SLV 15	0.08	No
fin.	2	0	555865	11125			2620	986	SLV 15	0.09	No
ini.	2	0	-366339	6797			2620	986	SLD 14	0.15	No
fin.	2	0	201175	5803			2620	986	SLD 14	0.17	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.37	SLV 13	No
V_SLV	0.075	SLV 13	No
PF_SLU	1.026	SLU 80	Si
V_SLU	0.203	SLU 79	No

#### Trave di accoppiamento 57

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-772.3	-486.1	437	483	46	-772.3	-377.1	437	483	46	109	30	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-349	3879	32207	SLU 26	8.3	Si
fin.	3	608	-12186	32207	SLU 26	2.64	Si
ini.	3	-342	3767	32207	SLU 2	8.55	Si
fin.	3	643	-13610	32207	SLU 2	2.37	Si
ini.	3	-325	4230	32207	SLU 39	7.61	Si
fin.	3	-240	13213	32207	SLU 39	2.44	Si
ini.	3	-327	4218	32207	SLU 41	7.63	Si
fin.	3	-203	12064	32207	SLU 41	2.67	Si
ini.	3	-414	5334	32207	SLU 81	6.04	Si
fin.	3	-216	13842	32207	SLU 81	2.33	Si
ini.	3	-432	4870	32207	SLU 44	6.61	Si
fin.	3	666	-12980	32207	SLU 44	2.48	Si
ini.	3	-416	5322	32207	SLU 83	6.05	Si
fin.	3	-179	12693	32207	SLU 83	2.54	Si
ini.	3	-434	4858	32207	SLU 47	6.63	Si
fin.	3	703	-14130	32207	SLU 47	2.28	Si
ini.	3	-344	3755	32207	SLU 5	8.58	Si
fin.	3	680	-14759	32207	SLU 5	2.18	Si
ini.	3	-412	5249	32207	SLU 74	6.14	Si
fin.	3	-147	11630	32207	SLU 74	2.77	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	5322	126			354	133	SLU 83	1.06	Si
fin.	3	0	12693	1399			354	133	SLU 83	0.1	No
ini.	3	0	5334	137			354	133	SLU 81	0.98	No
fin.	3	0	13842	1391			354	133	SLU 81	0.1	No
ini.	3	0	5218	7			354	133	SLU 75	20.47	Si
fin.	3	0	442	1398			354	133	SLU 75	0.1	No
ini.	3	0	5192	-9			354	133	SLU 80	14.75	Si
fin.	3	0	-1325	1391			354	133	SLU 80	0.1	No
ini.	3	0	5238	107			354	133	SLU 77	1.24	Si
fin.	3	0	10481	1345			354	133	SLU 77	0.1	No
ini.	3	0	5195	-62			354	133	SLU 73	2.14	Si
fin.	3	0	-6486	1415			354	133	SLU 73	0.09	No
ini.	3	0	5302	26			354	133	SLU 82	5.19	Si
fin.	3	0	2654	1453			354	133	SLU 82	0.09	No
ini.	3	0	5183	-73			354	133	SLU 76	1.83	Si
fin.	3	0	-7635	1424			354	133	SLU 76	0.09	No
ini.	3	0	5206	-4			354	133	SLU 78	34.29	Si



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-707	1407			354	133	SLU 78	0.09	No
ini.	3	0	5290	15			354	133	SLU 84	8.72	Si
fin.	3	0	1505	1461			354	133	SLU 84	0.09	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-221	16534	47081	SLV 6	2.85	Si
fin.	2	-7041	227994	47081	SLV 6	0.21	No
ini.	2	-66	7225	47081	SLV 2	6.52	Si
fin.	2	-3348	110312	47081	SLV 2	0.43	No
ini.	2	-256	-9022	47081	SLV 8	5.22	Si
fin.	2	6138	-189754	47081	SLV 8	0.25	No
ini.	2	-364	16846	47081	SLV 10	2.79	Si
fin.	2	-6253	203540	47081	SLV 10	0.23	No
ini.	2	-399	-8710	47081	SLV 12	5.41	Si
fin.	2	6926	-214208	47081	SLV 12	0.22	No
ini.	2	-399	-8710	47081	SLV 11	5.41	Si
fin.	2	6926	-214208	47081	SLV 11	0.22	No
ini.	2	-66	7225	47081	SLV 1	6.52	Si
fin.	2	-3348	110312	47081	SLV 1	0.43	No
ini.	2	-221	16534	47081	SLV 5	2.85	Si
fin.	2	-7041	227994	47081	SLV 5	0.21	No
ini.	2	-256	-9022	47081	SLV 7	5.22	Si
fin.	2	6138	-189754	47081	SLV 7	0.25	No
ini.	2	-364	16846	47081	SLV 9	2.79	Si
fin.	2	-6253	203540	47081	SLV 9	0.23	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-8710	-2012			531	200	SLV 12	0.1	No
fin.	2	0	-214208	677			531	200	SLV 12	0.3	No
ini.	2	0	16534	2160			531	200	SLV 5	0.09	No
fin.	2	0	227994	1101			531	200	SLV 5	0.18	No
ini.	2	0	-8710	-2012			531	200	SLV 11	0.1	No
fin.	2	0	-214208	677			531	200	SLV 11	0.3	No
ini.	2	0	7225	1024			531	200	SLV 1	0.2	No
fin.	2	0	110312	1159			531	200	SLV 1	0.17	No
ini.	2	0	-9022	-1798			531	200	SLV 8	0.11	No
fin.	2	0	-189754	813			531	200	SLV 8	0.25	No
ini.	2	0	16534	2160			531	200	SLV 6	0.09	No
fin.	2	0	227994	1101			531	200	SLV 6	0.18	No
ini.	2	0	16846	1946			531	200	SLV 10	0.1	No
fin.	2	0	203540	965			531	200	SLV 10	0.21	No
ini.	2	0	16846	1946			531	200	SLV 9	0.1	No
fin.	2	0	203540	965			531	200	SLV 9	0.21	No
ini.	2	0	-9022	-1798			531	200	SLV 7	0.11	No
fin.	2	0	-189754	813			531	200	SLV 7	0.25	No
ini.	2	0	7225	1024			531	200	SLV 2	0.2	No
fin.	2	0	110312	1159			531	200	SLV 2	0.17	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.207	SLV 5	No
V_SLV	0.093	SLV 5	No
PF_SLU	2.182	SLU 5	Si
V_SLU	0.091	SLU 84	No

## Trave di accoppiamento 58

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-515.8	600.6	111	311	200	-515.8	650.6	111	311	200	50	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1128	-396049	296292	SLU 81	0.75	No
fin.	3	-601	-216592	296292	SLU 81	1.37	Si
ini.	3	1051	-376107	296292	SLU 76	0.79	No
fin.	3	-569	-213184	296292	SLU 76	1.39	Si
ini.	3	1036	-376095	296292	SLU 80	0.79	No
fin.	3	-565	-220385	296292	SLU 80	1.34	Si
ini.	3	1050	-382083	296292	SLU 78	0.78	No
fin.	3	-577	-222036	296292	SLU 78	1.33	Si
ini.	3	1115	-396389	296292	SLU 83	0.75	No
fin.	3	-598	-223508	296292	SLU 83	1.33	Si
ini.	3	1063	-381743	296292	SLU 75	0.78	No
fin.	3	-580	-215120	296292	SLU 75	1.38	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1117	-396919	296292	SLU 84	0.75	No
fin.	3	-599	-223080	296292	SLU 84	1.33	Si
ini.	3	1061	-381213	296292	SLU 74	0.78	No
fin.	3	-579	-215548	296292	SLU 74	1.37	Si
ini.	3	1130	-396578	296292	SLU 82	0.75	No
fin.	3	-602	-216164	296292	SLU 82	1.37	Si
ini.	3	1048	-381553	296292	SLU 77	0.78	No
fin.	3	-576	-222464	296292	SLU 77	1.33	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-381553	-2399			2157	812	SLU 77	0.34	No
fin.	3	0	-222464	22662			2157	812	SLU 77	0.04	No
ini.	3	0	-376095	-2427			2157	812	SLU 80	0.33	No
fin.	3	0	-220385	22398			2157	812	SLU 80	0.04	No
ini.	3	0	-381743	-1881			2157	812	SLU 75	0.43	No
fin.	3	0	-215120	22299			2157	812	SLU 75	0.04	No
ini.	3	0	-375565	-2479			2157	812	SLU 79	0.33	No
fin.	3	0	-220813	22411			2157	812	SLU 79	0.04	No
ini.	3	0	-396389	-1970			2157	812	SLU 83	0.41	No
fin.	3	0	-223508	23207			2157	812	SLU 83	0.03	No
ini.	3	0	-381213	-1932			2157	812	SLU 74	0.42	No
fin.	3	0	-215548	22312			2157	812	SLU 74	0.04	No
ini.	3	0	-382083	-2347			2157	812	SLU 78	0.35	No
fin.	3	0	-222036	22649			2157	812	SLU 78	0.04	No
ini.	3	0	-396049	-1503			2157	812	SLU 81	0.54	No
fin.	3	0	-216592	22858			2157	812	SLU 81	0.04	No
ini.	3	0	-396578	-1452			2157	812	SLU 82	0.56	No
fin.	3	0	-216164	22845			2157	812	SLU 82	0.04	No
ini.	3	0	-396919	-1918			2157	812	SLU 84	0.42	No
fin.	3	0	-223080	23194			2157	812	SLU 84	0.03	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1255	-463790	314194	SLD 13	0.68	No
fin.	2	-760	-175614	314194	SLD 13	1.79	Si
ini.	2	1684	-643139	314194	SLV 15	0.49	No
fin.	2	-1445	-254249	314194	SLV 15	1.24	Si
ini.	2	1140	-425120	314194	SLD 15	0.74	No
fin.	2	-849	-191646	314194	SLD 15	1.64	Si
ini.	2	1516	-534134	314194	SLV 10	0.59	No
fin.	2	-320	-108540	314194	SLV 10	2.89	Si
ini.	2	1966	-732666	314194	SLV 14	0.43	No
fin.	2	-1232	-216823	314194	SLV 14	1.45	Si
ini.	2	1140	-425120	314194	SLD 16	0.74	No
fin.	2	-849	-191646	314194	SLD 16	1.64	Si
ini.	2	1516	-534134	314194	SLV 9	0.59	No
fin.	2	-320	-108540	314194	SLV 9	2.89	Si
ini.	2	1966	-732666	314194	SLV 13	0.43	No
fin.	2	-1232	-216823	314194	SLV 13	1.45	Si
ini.	2	1684	-643139	314194	SLV 16	0.49	No
fin.	2	-1445	-254249	314194	SLV 16	1.24	Si
ini.	2	1255	-463790	314194	SLD 14	0.68	No
fin.	2	-760	-175614	314194	SLD 14	1.79	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-463790	3760			3235	1217	SLD 14	0.32	No
fin.	2	0	-175614	20558			3235	1217	SLD 14	0.06	No
ini.	2	0	-425120	2954			3235	1217	SLD 16	0.41	No
fin.	2	0	-191646	21020			3235	1217	SLD 16	0.06	No
ini.	2	0	-235709	-1106			3235	1217	SLV 12	1.1	Si
fin.	2	0	-233294	20857			3235	1217	SLV 12	0.06	No
ini.	2	0	-463790	3760			3235	1217	SLD 13	0.32	No
fin.	2	0	-175614	20558			3235	1217	SLD 13	0.06	No
ini.	2	0	-643139	8333			3235	1217	SLV 16	0.15	No
fin.	2	0	-254249	28997			3235	1217	SLV 16	0.04	No
ini.	2	0	-643139	8333			3235	1217	SLV 15	0.15	No
fin.	2	0	-254249	28997			3235	1217	SLV 15	0.04	No
ini.	2	0	-425120	2954			3235	1217	SLD 15	0.41	No
fin.	2	0	-191646	21020			3235	1217	SLD 15	0.06	No
ini.	2	0	-732666	10159			3235	1217	SLV 13	0.12	No
fin.	2	0	-216823	27841			3235	1217	SLV 13	0.04	No
ini.	2	0	-235709	-1106			3235	1217	SLV 11	1.1	Si
fin.	2	0	-233294	20857			3235	1217	SLV 11	0.06	No
ini.	2	0	-732666	10159			3235	1217	SLV 14	0.12	No
fin.	2	0	-216823	27841			3235	1217	SLV 14	0.04	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.429	SLV 13	No
V_SLV	0.042	SLV 15	No
PF_SLU	0.746	SLU 84	No
V_SLU	0.035	SLU 83	No



## Trave di accoppiamento 59

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-515.8	600.6	391	483	92	-515.8	650.6	391	483	92	50	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1135	-70725	107292	SLU 83	1.52	Si
fin.	3	68	31268	107292	SLU 83	3.43	Si
ini.	3	-1121	-67159	107292	SLU 60	1.6	Si
fin.	3	14	26941	107292	SLU 60	3.98	Si
ini.	3	-1145	-71195	107292	SLU 84	1.51	Si
fin.	3	65	31217	107292	SLU 84	3.44	Si
ini.	3	-1170	-70715	107292	SLU 73	1.52	Si
fin.	3	25	28818	107292	SLU 73	3.72	Si
ini.	3	-1131	-67630	107292	SLU 61	1.59	Si
fin.	3	11	26889	107292	SLU 61	3.99	Si
ini.	3	-1117	-66310	107292	SLU 40	1.62	Si
fin.	3	1	25903	107292	SLU 40	4.14	Si
ini.	3	-1264	-75653	107292	SLU 82	1.42	Si
fin.	3	14	30205	107292	SLU 82	3.55	Si
ini.	3	-1094	-68272	107292	SLU 75	1.57	Si
fin.	3	66	30072	107292	SLU 75	3.57	Si
ini.	3	-1254	-75182	107292	SLU 81	1.43	Si
fin.	3	16	30257	107292	SLU 81	3.55	Si
ini.	3	-1084	-67801	107292	SLU 74	1.58	Si
fin.	3	69	30123	107292	SLU 74	3.56	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-61486	4708			992	373	SLU 80	0.08	No
fin.	3	0	30876	599			992	373	SLU 80	0.62	No
ini.	3	0	-63815	4778			992	373	SLU 78	0.08	No
fin.	3	0	31083	722			992	373	SLU 78	0.52	No
ini.	3	0	-63344	4773			992	373	SLU 77	0.08	No
fin.	3	0	31135	689			992	373	SLU 77	0.54	No
ini.	3	0	-75653	4877			992	373	SLU 82	0.08	No
fin.	3	0	30205	1633			992	373	SLU 82	0.23	No
ini.	3	0	-67801	4733			992	373	SLU 74	0.08	No
fin.	3	0	30123	1109			992	373	SLU 74	0.34	No
ini.	3	0	-68272	4738			992	373	SLU 75	0.08	No
fin.	3	0	30072	1141			992	373	SLU 75	0.33	No
ini.	3	0	-71195	4917			992	373	SLU 84	0.08	No
fin.	3	0	31217	1214			992	373	SLU 84	0.31	No
ini.	3	0	-70725	4912			992	373	SLU 83	0.08	No
fin.	3	0	31268	1181			992	373	SLU 83	0.32	No
ini.	3	0	-61016	4703			992	373	SLU 79	0.08	No
fin.	3	0	30927	567			992	373	SLU 79	0.66	No
ini.	3	0	-75182	4872			992	373	SLU 81	0.08	No
fin.	3	0	30257	1601			992	373	SLU 81	0.23	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2570	-131190	125194	SLV 10	0.95	No
fin.	2	-748	20623	125194	SLV 10	6.07	Si
ini.	2	-2564	-162510	125194	SLV 16	0.77	No
fin.	2	118	34916	125194	SLV 16	3.59	Si
ini.	2	-2564	-162510	125194	SLV 15	0.77	No
fin.	2	118	34916	125194	SLV 15	3.59	Si
ini.	2	-1848	-109069	125194	SLD 13	1.15	Si
fin.	2	-122	25637	125194	SLD 13	4.88	Si
ini.	2	1777	97916	125194	SLV 3	1.28	Si
fin.	2	400	7154	125194	SLV 3	17.5	Si
ini.	2	-2570	-131190	125194	SLV 9	0.95	No
fin.	2	-748	20623	125194	SLV 9	6.07	Si
ini.	2	-3268	-190123	125194	SLV 14	0.66	No
fin.	2	-328	32804	125194	SLV 14	3.82	Si
ini.	2	1777	97916	125194	SLV 4	1.28	Si
fin.	2	400	7154	125194	SLV 4	17.5	Si
ini.	2	-3268	-190123	125194	SLV 13	0.66	No
fin.	2	-328	32804	125194	SLV 13	3.82	Si
ini.	2	-1848	-109069	125194	SLD 14	1.15	Si
fin.	2	-122	25637	125194	SLD 14	4.88	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	97916	-975			1488	560	SLV 4	0.57	No
fin.	2	0	7154	-6400			1488	560	SLV 4	0.09	No
ini.	2	0	-131190	4382			1488	560	SLV 9	0.13	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	20623	5002			1488	560	SLV 9	0.11	No
ini.	2	0	-190123	7291			1488	560	SLV 14	0.08	No
fin.	2	0	32804	8058			1488	560	SLV 14	0.07	No
ini.	2	0	-162510	7301			1488	560	SLV 15	0.08	No
fin.	2	0	34916	6736			1488	560	SLV 15	0.08	No
ini.	2	0	-190123	7291			1488	560	SLV 13	0.08	No
fin.	2	0	32804	8058			1488	560	SLV 13	0.07	No
ini.	2	0	70302	-985			1488	560	SLV 1	0.57	No
fin.	2	0	5042	-5079			1488	560	SLV 1	0.11	No
ini.	2	0	-162510	7301			1488	560	SLV 16	0.08	No
fin.	2	0	34916	6736			1488	560	SLV 16	0.08	No
ini.	2	0	70302	-985			1488	560	SLV 2	0.57	No
fin.	2	0	5042	-5079			1488	560	SLV 2	0.11	No
ini.	2	0	-131190	4382			1488	560	SLV 10	0.13	No
fin.	2	0	20623	5002			1488	560	SLV 10	0.11	No
ini.	2	0	97916	-975			1488	560	SLV 3	0.57	No
fin.	2	0	7154	-6400			1488	560	SLV 3	0.09	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.658	SLV 13	No
V_SLV	0.069	SLV 13	No
PF_SLU	1.418	SLU 82	Si
V_SLU	0.076	SLU 84	No

## Trave di accoppiamento 60

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-646.3	-335.9	111	201	90	-746.3	-335.9	111	201	90	100	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-5345	-181497	103792	SLU 73	0.57	No
fin.	3	-4235	-70110	103792	SLU 73	1.48	Si
ini.	3	-4810	-170683	103792	SLU 75	0.61	No
fin.	3	-4031	-65383	103792	SLU 75	1.59	Si
ini.	3	-4857	-172395	103792	SLU 82	0.6	No
fin.	3	-4069	-69488	103792	SLU 82	1.49	Si
ini.	3	-5123	-172629	103792	SLU 55	0.6	No
fin.	3	-4063	-60590	103792	SLU 55	1.71	Si
ini.	3	-5078	-171006	103792	SLU 68	0.61	No
fin.	3	-3985	-61121	103792	SLU 68	1.7	Si
ini.	3	-5424	-185826	103792	SLU 76	0.56	No
fin.	3	-4344	-67105	103792	SLU 76	1.55	Si
ini.	3	-4937	-176724	103792	SLU 84	0.59	No
fin.	3	-4178	-66483	103792	SLU 84	1.56	Si
ini.	3	-4868	-174702	103792	SLU 80	0.59	No
fin.	3	-4133	-60913	103792	SLU 80	1.7	Si
ini.	3	-5043	-168300	103792	SLU 52	0.62	No
fin.	3	-3954	-63596	103792	SLU 52	1.63	Si
ini.	3	-4890	-175012	103792	SLU 78	0.59	No
fin.	3	-4140	-62377	103792	SLU 78	1.66	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-174702	-130			873	329	SLU 80	2.53	Si
fin.	3	0	-60913	1527			873	329	SLU 80	0.22	No
ini.	3	0	-170683	-225			873	329	SLU 75	1.46	Si
fin.	3	0	-65383	1413			873	329	SLU 75	0.23	No
ini.	3	0	-161505	-110			873	329	SLU 59	2.99	Si
fin.	3	0	-54398	1408			873	329	SLU 59	0.23	No
ini.	3	0	-151523	-29			873	329	SLU 79	11.22	Si
fin.	3	0	-56133	1497			873	329	SLU 79	0.22	No
ini.	3	0	-185826	-266			873	329	SLU 76	1.23	Si
fin.	3	0	-67105	1445			873	329	SLU 76	0.23	No
ini.	3	0	-161815	-136			873	329	SLU 57	2.42	Si
fin.	3	0	-55863	1396			873	329	SLU 57	0.24	No
ini.	3	0	-151833	-55			873	329	SLU 77	5.95	Si
fin.	3	0	-57598	1485			873	329	SLU 77	0.22	No
ini.	3	0	-175012	-156			873	329	SLU 78	2.1	Si
fin.	3	0	-62377	1515			873	329	SLU 78	0.22	No
ini.	3	0	-176724	-197			873	329	SLU 84	1.67	Si
fin.	3	0	-66483	1496			873	329	SLU 84	0.22	No
ini.	3	0	-153545	-96			873	329	SLU 83	3.42	Si
fin.	3	0	-61703	1466			873	329	SLU 83	0.22	No



Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-7157	-316757	121694	SLV 13	0.38	No
fin.	2	-7369	141650	121694	SLV 13	0.86	No
ini.	2	-505	-268137	121694	SLV 15	0.45	No
fin.	2	-2953	275860	121694	SLV 15	0.44	No
ini.	2	-505	-268137	121694	SLV 16	0.45	No
fin.	2	-2953	275860	121694	SLV 16	0.44	No
ini.	2	-4805	68478	121694	SLV 1	1.78	Si
fin.	2	-1862	-362815	121694	SLV 1	0.34	No
ini.	2	-4805	68478	121694	SLV 2	1.78	Si
fin.	2	-1862	-362815	121694	SLV 2	0.34	No
ini.	2	8081	-76583	121694	SLV 12	1.59	Si
fin.	2	4127	255876	121694	SLV 12	0.48	No
ini.	2	8081	-76583	121694	SLV 11	1.59	Si
fin.	2	4127	255876	121694	SLV 11	0.48	No
ini.	2	-13390	-123077	121694	SLV 6	0.99	No
fin.	2	-8942	-342831	121694	SLV 6	0.35	No
ini.	2	-7157	-316757	121694	SLV 14	0.38	No
fin.	2	-7369	141650	121694	SLV 14	0.86	No
ini.	2	-13390	-123077	121694	SLV 5	0.99	No
fin.	2	-8942	-342831	121694	SLV 5	0.35	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	68478	-6218			1310	493	SLV 2	0.08	No
fin.	2	0	-362815	-4899			1310	493	SLV 2	0.1	No
ini.	2	0	117097	-5384			1310	493	SLV 4	0.09	No
fin.	2	0	-228605	-5745			1310	493	SLV 4	0.09	No
ini.	2	0	-238648	186			1310	493	SLV 9	2.65	Si
fin.	2	0	-191492	4160			1310	493	SLV 9	0.12	No
ini.	2	0	-238648	186			1310	493	SLV 10	2.65	Si
fin.	2	0	-191492	4160			1310	493	SLV 10	0.12	No
ini.	2	0	-268137	5966			1310	493	SLV 16	0.08	No
fin.	2	0	275860	6673			1310	493	SLV 16	0.07	No
ini.	2	0	68478	-6218			1310	493	SLV 1	0.08	No
fin.	2	0	-362815	-4899			1310	493	SLV 1	0.1	No
ini.	2	0	117097	-5384			1310	493	SLV 3	0.09	No
fin.	2	0	-228605	-5745			1310	493	SLV 3	0.09	No
ini.	2	0	-316757	5132			1310	493	SLV 14	0.1	No
fin.	2	0	141650	7519			1310	493	SLV 14	0.07	No
ini.	2	0	-268137	5966			1310	493	SLV 15	0.08	No
fin.	2	0	275860	6673			1310	493	SLV 15	0.07	No
ini.	2	0	-316757	5132			1310	493	SLV 13	0.1	No
fin.	2	0	141650	7519			1310	493	SLV 13	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.335	SLV 1	No
V_SLV	0.066	SLV 13	No
PF_SLU	0.559	SLU 76	No
V_SLU	0.215	SLU 80	No

Trave di accoppiamento 61

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-646.3	-335.9	391	483	92	-746.3	-335.9	391	483	92	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>tk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	386	-43394	107292	SLU 79	2.47	Si
fin.	3	957	10055	107292	SLU 79	10.67	Si
ini.	3	365	-39241	107292	SLU 56	2.73	Si
fin.	3	834	8037	107292	SLU 56	13.35	Si
ini.	3	483	-42913	107292	SLU 83	2.5	Si
fin.	3	974	9629	107292	SLU 83	11.14	Si
ini.	3	581	-40213	107292	SLU 81	2.67	Si
fin.	3	953	8733	107292	SLU 81	12.29	Si
ini.	3	527	-40369	107292	SLU 74	2.66	Si
fin.	3	944	8952	107292	SLU 74	11.99	Si
ini.	3	639	-41770	107292	SLU 80	2.57	Si
fin.	3	1095	13376	107292	SLU 80	8.02	Si
ini.	3	681	-41446	107292	SLU 78	2.59	Si
fin.	3	1103	13170	107292	SLU 78	8.15	Si
ini.	3	735	-41289	107292	SLU 84	2.6	Si
fin.	3	1112	12951	107292	SLU 84	8.28	Si
ini.	3	323	-39565	107292	SLU 58	2.71	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	826	8243	107292	SLU 58	13.02	Si
ini.	3	428	-43069	107292	SLU 77	2.49	Si
fin.	3	966	9849	107292	SLU 77	10.89	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-42913	4614			913	343	SLU 83	0.07	No
fin.	3	0	9629	-2436			913	343	SLU 83	0.14	No
ini.	3	0	-40213	4458			913	343	SLU 81	0.08	No
fin.	3	0	8733	-2465			913	343	SLU 81	0.14	No
ini.	3	0	-43069	4543			913	343	SLU 77	0.08	No
fin.	3	0	9849	-2346			913	343	SLU 77	0.15	No
ini.	3	0	-38589	4426			913	343	SLU 82	0.08	No
fin.	3	0	12054	-2496			913	343	SLU 82	0.14	No
ini.	3	0	-41770	4510			913	343	SLU 80	0.08	No
fin.	3	0	13376	-2342			913	343	SLU 80	0.15	No
ini.	3	0	-43394	4542			913	343	SLU 79	0.08	No
fin.	3	0	10055	-2312			913	343	SLU 79	0.15	No
ini.	3	0	-40369	4387			913	343	SLU 74	0.08	No
fin.	3	0	8952	-2375			913	343	SLU 74	0.14	No
ini.	3	0	-41446	4511			913	343	SLU 78	0.08	No
fin.	3	0	13170	-2376			913	343	SLU 78	0.14	No
ini.	3	0	-41289	4582			913	343	SLU 84	0.07	No
fin.	3	0	12951	-2467			913	343	SLU 84	0.14	No
ini.	3	0	-38746	4355			913	343	SLU 75	0.08	No
fin.	3	0	12273	-2405			913	343	SLU 75	0.14	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3727	-88498	125194	SLV 12	1.41	Si
fin.	2	1067	153971	125194	SLV 12	0.81	No
ini.	2	-5215	-138095	125194	SLV 15	0.91	No
fin.	2	992	92918	125194	SLV 15	1.35	Si
ini.	2	-3587	-119005	125194	SLV 14	1.05	Si
fin.	2	776	12281	125194	SLV 14	10.19	Si
ini.	2	-3587	-119005	125194	SLV 13	1.05	Si
fin.	2	776	12281	125194	SLV 13	10.19	Si
ini.	2	4603	36736	125194	SLV 5	3.41	Si
fin.	2	195	-143122	125194	SLV 5	0.87	No
ini.	2	-3727	-88498	125194	SLV 11	1.41	Si
fin.	2	1067	153971	125194	SLV 11	0.81	No
ini.	2	4603	36736	125194	SLV 6	3.41	Si
fin.	2	195	-143122	125194	SLV 6	0.87	No
ini.	2	-5215	-138095	125194	SLV 16	0.91	No
fin.	2	992	92918	125194	SLV 16	1.35	Si
ini.	2	-824	-26896	125194	SLV 7	4.65	Si
fin.	2	915	125666	125194	SLV 7	1	No
ini.	2	-824	-26896	125194	SLV 8	4.65	Si
fin.	2	915	125666	125194	SLV 8	1	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	36736	530			1369	515	SLV 6	0.97	No
fin.	2	0	-143122	-5753			1369	515	SLV 6	0.09	No
ini.	2	0	86333	-1736			1369	515	SLV 1	0.3	No
fin.	2	0	-82069	-5758			1369	515	SLV 1	0.09	No
ini.	2	0	-119005	6888			1369	515	SLV 13	0.07	No
fin.	2	0	12281	527			1369	515	SLV 13	0.98	No
ini.	2	0	86333	-1736			1369	515	SLV 2	0.3	No
fin.	2	0	-82069	-5758			1369	515	SLV 2	0.09	No
ini.	2	0	36736	530			1369	515	SLV 5	0.97	No
fin.	2	0	-143122	-5753			1369	515	SLV 5	0.09	No
ini.	2	0	-88498	5267			1369	515	SLV 12	0.1	No
fin.	2	0	153971	2403			1369	515	SLV 12	0.21	No
ini.	2	0	-88498	5267			1369	515	SLV 11	0.1	No
fin.	2	0	153971	2403			1369	515	SLV 11	0.21	No
ini.	2	0	-138095	7533			1369	515	SLV 15	0.07	No
fin.	2	0	92918	2408			1369	515	SLV 15	0.21	No
ini.	2	0	-119005	6888			1369	515	SLV 14	0.07	No
fin.	2	0	12281	527			1369	515	SLV 14	0.98	No
ini.	2	0	-138095	7533			1369	515	SLV 16	0.07	No
fin.	2	0	92918	2408			1369	515	SLV 16	0.21	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.813	SLV 11	No
V_SLV	0.068	SLV 15	No
PF_SLU	2.473	SLU 79	Si
V_SLU	0.074	SLU 83	No

## Trave di accoppiamento 62

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)





## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-550.8	-335.9	111	311	200	-600.8	-335.9	111	311	200	50	28	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1195	375175	296292	SLU 83	0.79	No
fin.	3	-2770	-158177	296292	SLU 83	1.87	Si
ini.	3	-1404	353252	296292	SLU 78	0.84	No
fin.	3	-3516	-229547	296292	SLU 78	1.29	Si
ini.	3	-1400	350499	296292	SLU 80	0.85	No
fin.	3	-3500	-228526	296292	SLU 80	1.3	Si
ini.	3	-1205	362456	296292	SLU 79	0.82	No
fin.	3	-2742	-156669	296292	SLU 79	1.89	Si
ini.	3	-1165	362276	296292	SLU 74	0.82	No
fin.	3	-2695	-154071	296292	SLU 74	1.92	Si
ini.	3	-1209	365208	296292	SLU 77	0.81	No
fin.	3	-2758	-157691	296292	SLU 77	1.88	Si
ini.	3	-1347	360287	296292	SLU 82	0.82	No
fin.	3	-3465	-226414	296292	SLU 82	1.31	Si
ini.	3	-1391	363218	296292	SLU 84	0.82	No
fin.	3	-3528	-230033	296292	SLU 84	1.29	Si
ini.	3	-1361	350320	296292	SLU 75	0.85	No
fin.	3	-3453	-225928	296292	SLU 75	1.31	Si
ini.	3	-1152	372243	296292	SLU 81	0.8	No
fin.	3	-2707	-154557	296292	SLU 81	1.92	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	363218	-9409			2157	812	SLU 84	0.09	No
fin.	3	0	-230033	-6431			2157	812	SLU 84	0.13	No
ini.	3	0	350499	-9142			2157	812	SLU 80	0.09	No
fin.	3	0	-228526	-6261			2157	812	SLU 80	0.13	No
ini.	3	0	339596	-9159			2157	812	SLU 76	0.09	No
fin.	3	0	-272811	-6263			2157	812	SLU 76	0.13	No
ini.	3	0	353252	-9209			2157	812	SLU 78	0.09	No
fin.	3	0	-229547	-6302			2157	812	SLU 78	0.13	No
ini.	3	0	365208	-9014			2157	812	SLU 77	0.09	No
fin.	3	0	-157691	-6179			2157	812	SLU 77	0.13	No
ini.	3	0	360287	-9297			2157	812	SLU 82	0.09	No
fin.	3	0	-226414	-6352			2157	812	SLU 82	0.13	No
ini.	3	0	375175	-9214			2157	812	SLU 83	0.09	No
fin.	3	0	-158177	-6308			2157	812	SLU 83	0.13	No
ini.	3	0	350320	-9096			2157	812	SLU 75	0.09	No
fin.	3	0	-225928	-6223			2157	812	SLU 75	0.13	No
ini.	3	0	336665	-9046			2157	812	SLU 73	0.09	No
fin.	3	0	-269191	-6184			2157	812	SLU 73	0.13	No
ini.	3	0	372243	-9102			2157	812	SLU 81	0.09	No
fin.	3	0	-154557	-6229			2157	812	SLU 81	0.13	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5688	195133	314194	SLV 5	1.61	Si
fin.	2	-11342	-701915	314194	SLV 5	0.45	No
ini.	2	-5174	-23741	314194	SLV 9	13.23	Si
fin.	2	-11848	-709363	314194	SLV 9	0.44	No
ini.	2	-5688	195133	314194	SLV 6	1.61	Si
fin.	2	-11342	-701915	314194	SLV 6	0.45	No
ini.	2	3561	522469	314194	SLV 8	0.6	No
fin.	2	8113	496421	314194	SLV 8	0.63	No
ini.	2	-275	663255	314194	SLV 4	0.47	No
fin.	2	1893	85692	314194	SLV 4	3.67	Si
ini.	2	-3050	565054	314194	SLV 2	0.56	No
fin.	2	-3943	-273809	314194	SLV 2	1.15	Si
ini.	2	-3050	565054	314194	SLV 1	0.56	No
fin.	2	-3943	-273809	314194	SLV 1	1.15	Si
ini.	2	-275	663255	314194	SLV 3	0.47	No
fin.	2	1893	85692	314194	SLV 3	3.67	Si
ini.	2	3561	522469	314194	SLV 7	0.6	No
fin.	2	8113	496421	314194	SLV 7	0.63	No
ini.	2	-5174	-23741	314194	SLV 10	13.23	Si
fin.	2	-11848	-709363	314194	SLV 10	0.44	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	663255	-16463			3235	1217	SLV 3	0.07	No
fin.	2	0	85692	-15199			3235	1217	SLV 3	0.08	No
ini.	2	0	428757	-10655			3235	1217	SLD 3	0.11	No
fin.	2	0	-29369	-8991			3235	1217	SLD 3	0.14	No
ini.	2	0	195133	-11892			3235	1217	SLV 6	0.1	No
fin.	2	0	-701915	-7373			3235	1217	SLV 6	0.17	No
ini.	2	0	428757	-10655			3235	1217	SLD 4	0.11	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-29369	-8991			3235	1217	SLD 4	0.14	No
ini.	2	0	195133	-11892			3235	1217	SLV 5	0.1	No
fin.	2	0	-701915	-7373			3235	1217	SLV 5	0.17	No
ini.	2	0	565054	-17941			3235	1217	SLV 1	0.07	No
fin.	2	0	-273809	-15131			3235	1217	SLV 1	0.08	No
ini.	2	0	565054	-17941			3235	1217	SLV 2	0.07	No
fin.	2	0	-273809	-15131			3235	1217	SLV 2	0.08	No
ini.	2	0	663255	-16463			3235	1217	SLV 4	0.07	No
fin.	2	0	85692	-15199			3235	1217	SLV 4	0.08	No
ini.	2	0	390720	-11242			3235	1217	SLD 2	0.11	No
fin.	2	0	-171490	-8961			3235	1217	SLD 2	0.14	No
ini.	2	0	390720	-11242			3235	1217	SLD 1	0.11	No
fin.	2	0	-171490	-8961			3235	1217	SLD 1	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.443	SLV 9	No
V_SLV	0.068	SLV 1	No
PF_SLU	0.79	SLU 83	No
V_SLU	0.086	SLU 84	No

## Trave di accoppiamento 63

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-550.8	-335.9	391	483	92	-600.8	-335.9	391	483	92	50	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	1573	68261	107292	SLU 82	1.57	Si
fin.	3	631	-66268	107292	SLU 82	1.62	Si
ini.	3	1715	71210	107292	SLU 73	1.51	Si
fin.	3	781	-64355	107292	SLU 73	1.67	Si
ini.	3	1443	66297	107292	SLU 78	1.62	Si
fin.	3	490	-67748	107292	SLU 78	1.58	Si
ini.	3	1180	58331	107292	SLU 77	1.84	Si
fin.	3	279	-66031	107292	SLU 77	1.62	Si
ini.	3	1400	65597	107292	SLU 80	1.64	Si
fin.	3	450	-67694	107292	SLU 80	1.58	Si
ini.	3	1504	68110	107292	SLU 84	1.58	Si
fin.	3	536	-68510	107292	SLU 84	1.57	Si
ini.	3	1241	60144	107292	SLU 83	1.78	Si
fin.	3	325	-66793	107292	SLU 83	1.61	Si
ini.	3	1137	57631	107292	SLU 79	1.86	Si
fin.	3	238	-65977	107292	SLU 79	1.63	Si
ini.	3	1513	66448	107292	SLU 75	1.61	Si
fin.	3	585	-65506	107292	SLU 75	1.64	Si
ini.	3	1645	71059	107292	SLU 76	1.51	Si
fin.	3	686	-66597	107292	SLU 76	1.61	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	60295	-1945			992	373	SLU 81	0.19	No
fin.	3	0	-64551	-6227			992	373	SLU 81	0.06	No
ini.	3	0	71059	-2316			992	373	SLU 76	0.16	No
fin.	3	0	-66597	-6425			992	373	SLU 76	0.06	No
ini.	3	0	58331	-1957			992	373	SLU 77	0.19	No
fin.	3	0	-66031	-6200			992	373	SLU 77	0.06	No
ini.	3	0	60144	-1991			992	373	SLU 83	0.19	No
fin.	3	0	-66793	-6335			992	373	SLU 83	0.06	No
ini.	3	0	66448	-2158			992	373	SLU 75	0.17	No
fin.	3	0	-65506	-6317			992	373	SLU 75	0.06	No
ini.	3	0	66297	-2205			992	373	SLU 78	0.17	No
fin.	3	0	-67748	-6425			992	373	SLU 78	0.06	No
ini.	3	0	68261	-2193			992	373	SLU 82	0.17	No
fin.	3	0	-66268	-6452			992	373	SLU 82	0.06	No
ini.	3	0	68110	-2239			992	373	SLU 84	0.17	No
fin.	3	0	-68510	-6560			992	373	SLU 84	0.06	No
ini.	3	0	65597	-2197			992	373	SLU 80	0.17	No
fin.	3	0	-67694	-6383			992	373	SLU 80	0.06	No
ini.	3	0	71210	-2270			992	373	SLU 73	0.16	No
fin.	3	0	-64355	-6317			992	373	SLU 73	0.06	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	6331	141624	125194	SLV 5	0.88	No
fin.	2	4823	-37362	125194	SLV 5	3.35	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3663	108709	125194	SLD 2	1.15	Si
fin.	2	2524	-34682	125194	SLD 2	3.61	Si
ini.	2	6331	141624	125194	SLV 6	0.88	No
fin.	2	4823	-37362	125194	SLV 6	3.35	Si
ini.	2	-5476	-117386	125194	SLV 15	1.07	Si
fin.	2	-4774	-60467	125194	SLV 15	2.07	Si
ini.	2	5001	163413	125194	SLV 4	0.77	No
fin.	2	3479	-24390	125194	SLV 4	5.13	Si
ini.	2	5001	163413	125194	SLV 3	0.77	No
fin.	2	3479	-24390	125194	SLV 3	5.13	Si
ini.	2	3663	108709	125194	SLD 1	1.15	Si
fin.	2	2524	-34682	125194	SLD 1	3.61	Si
ini.	2	7308	198717	125194	SLV 1	0.63	No
fin.	2	5432	-24549	125194	SLV 1	5.1	Si
ini.	2	-5476	-117386	125194	SLV 16	1.07	Si
fin.	2	-4774	-60467	125194	SLV 16	2.07	Si
ini.	2	7308	198717	125194	SLV 2	0.63	No
fin.	2	5432	-24549	125194	SLV 2	5.1	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	141624	-1425			1488	560	SLV 5	0.39	No
fin.	2	0	-37362	-6706			1488	560	SLV 5	0.08	No
ini.	2	0	94972	-2900			1488	560	SLD 3	0.19	No
fin.	2	0	-34882	-5259			1488	560	SLD 3	0.11	No
ini.	2	0	94972	-2900			1488	560	SLD 4	0.19	No
fin.	2	0	-34882	-5259			1488	560	SLD 4	0.11	No
ini.	2	0	141624	-1425			1488	560	SLV 6	0.39	No
fin.	2	0	-37362	-6706			1488	560	SLV 6	0.08	No
ini.	2	0	163413	-4979			1488	560	SLV 3	0.11	No
fin.	2	0	-24390	-6677			1488	560	SLV 3	0.08	No
ini.	2	0	108709	-2669			1488	560	SLD 2	0.21	No
fin.	2	0	-34682	-5640			1488	560	SLD 2	0.1	No
ini.	2	0	198717	-4445			1488	560	SLV 1	0.13	No
fin.	2	0	-24549	-7678			1488	560	SLV 1	0.07	No
ini.	2	0	163413	-4979			1488	560	SLV 4	0.11	No
fin.	2	0	-24390	-6677			1488	560	SLV 4	0.08	No
ini.	2	0	108709	-2669			1488	560	SLD 1	0.21	No
fin.	2	0	-34682	-5640			1488	560	SLD 1	0.1	No
ini.	2	0	198717	-4445			1488	560	SLV 2	0.13	No
fin.	2	0	-24549	-7678			1488	560	SLV 2	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.63	SLV 1	No
V_SLV	0.073	SLV 1	No
PF_SLU	1.507	SLU 73	Si
V_SLU	0.057	SLU 84	No

## Trave di accoppiamento 64

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-223.3	-335.9	111	201	90	-323.3	-335.9	111	201	90	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	11399	-11458	103792	SLU 55	9.06	Si
fin.	3	11059	105182	103792	SLU 55	0.99	No
ini.	3	10584	-19120	103792	SLU 78	5.43	Si
fin.	3	10142	106633	103792	SLU 78	0.97	No
ini.	3	12043	-14980	103792	SLU 73	6.93	Si
fin.	3	11663	112686	103792	SLU 73	0.92	No
ini.	3	10751	-20672	103792	SLU 84	5.02	Si
fin.	3	10301	108795	103792	SLU 84	0.95	No
ini.	3	12132	-14938	103792	SLU 76	6.95	Si
fin.	3	11741	113881	103792	SLU 76	0.91	No
ini.	3	10495	-19162	103792	SLU 75	5.42	Si
fin.	3	10064	105438	103792	SLU 75	0.98	No
ini.	3	10662	-20715	103792	SLU 82	5.01	Si
fin.	3	10223	107600	103792	SLU 82	0.96	No
ini.	3	11385	-10694	103792	SLU 68	9.71	Si
fin.	3	11047	104313	103792	SLU 68	1	No
ini.	3	11310	-11500	103792	SLU 52	9.03	Si
fin.	3	10981	103987	103792	SLU 52	1	No
ini.	3	10519	-18811	103792	SLU 80	5.52	Si
fin.	3	10082	105889	103792	SLU 80	0.98	No



Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-11500	1838			873	329	SLU 52	0.18	No
fin.	3	0	103987	1188			873	329	SLU 52	0.28	No
ini.	3	0	-20715	1827			873	329	SLU 82	0.18	No
fin.	3	0	107600	1587			873	329	SLU 82	0.21	No
ini.	3	0	-14938	1979			873	329	SLU 76	0.17	No
fin.	3	0	113881	1400			873	329	SLU 76	0.23	No
ini.	3	0	-14980	1970			873	329	SLU 73	0.17	No
fin.	3	0	112686	1377			873	329	SLU 73	0.24	No
ini.	3	0	-10736	1814			873	329	SLU 65	0.18	No
fin.	3	0	103118	1170			873	329	SLU 65	0.28	No
ini.	3	0	-19120	1786			873	329	SLU 78	0.18	No
fin.	3	0	106633	1563			873	329	SLU 78	0.21	No
ini.	3	0	-20672	1836			873	329	SLU 84	0.18	No
fin.	3	0	108795	1610			873	329	SLU 84	0.2	No
ini.	3	0	-11458	1847			873	329	SLU 55	0.18	No
fin.	3	0	105182	1211			873	329	SLU 55	0.27	No
ini.	3	0	-10694	1822			873	329	SLU 68	0.18	No
fin.	3	0	104313	1193			873	329	SLU 68	0.28	No
ini.	3	0	-26546	1521			873	329	SLU 83	0.22	No
fin.	3	0	95015	1792			873	329	SLU 83	0.18	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	9291	242314	121694	SLV 2	0.5	No
fin.	2	13326	-164467	121694	SLV 2	0.74	No
ini.	2	9291	242314	121694	SLV 1	0.5	No
fin.	2	13326	-164467	121694	SLV 1	0.74	No
ini.	2	-1741	195549	121694	SLV 3	0.62	No
fin.	2	1676	-204161	121694	SLV 3	0.6	No
ini.	2	-1741	195549	121694	SLV 4	0.62	No
fin.	2	1676	-204161	121694	SLV 4	0.6	No
ini.	2	12679	-228022	121694	SLV 14	0.53	No
fin.	2	8613	329114	121694	SLV 14	0.37	No
ini.	2	1647	-274787	121694	SLV 16	0.44	No
fin.	2	-3037	289420	121694	SLV 16	0.42	No
ini.	2	24365	-8846	121694	SLV 10	13.76	Si
fin.	2	23854	202671	121694	SLV 10	0.6	No
ini.	2	24365	-8846	121694	SLV 9	13.76	Si
fin.	2	23854	202671	121694	SLV 9	0.6	No
ini.	2	12679	-228022	121694	SLV 13	0.53	No
fin.	2	8613	329114	121694	SLV 13	0.37	No
ini.	2	1647	-274787	121694	SLV 15	0.44	No
fin.	2	-3037	289420	121694	SLV 15	0.42	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	242314	-3855			1310	493	SLV 2	0.13	No
fin.	2	0	-164467	-5834			1310	493	SLV 2	0.08	No
ini.	2	0	195549	-5907			1310	493	SLV 3	0.08	No
fin.	2	0	-204161	-5168			1310	493	SLV 3	0.1	No
ini.	2	0	-228022	7922			1310	493	SLV 14	0.06	No
fin.	2	0	329114	7468			1310	493	SLV 14	0.07	No
ini.	2	0	-228022	7922			1310	493	SLV 13	0.06	No
fin.	2	0	329114	7468			1310	493	SLV 13	0.07	No
ini.	2	0	195549	-5907			1310	493	SLV 4	0.08	No
fin.	2	0	-204161	-5168			1310	493	SLV 4	0.1	No
ini.	2	0	-8846	6194			1310	493	SLV 9	0.08	No
fin.	2	0	202671	2035			1310	493	SLV 9	0.24	No
ini.	2	0	-8846	6194			1310	493	SLV 10	0.08	No
fin.	2	0	202671	2035			1310	493	SLV 10	0.24	No
ini.	2	0	-274787	5870			1310	493	SLV 15	0.08	No
fin.	2	0	289420	8135			1310	493	SLV 15	0.06	No
ini.	2	0	-274787	5870			1310	493	SLV 16	0.08	No
fin.	2	0	289420	8135			1310	493	SLV 16	0.06	No
ini.	2	0	242314	-3855			1310	493	SLV 1	0.13	No
fin.	2	0	-164467	-5834			1310	493	SLV 1	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.37	SLV 13	No
V_SLV	0.061	SLV 15	No
PF_SLU	0.911	SLU 76	No
V_SLU	0.166	SLU 76	No

Trave di accoppiamento 65

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-223.3	-335.9	391	483	92	-323.3	-335.9	391	483	92	100	28	3500



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2472	-82517	107292	SLU 83	1.3	Si
fin.	3	-681	26447	107292	SLU 83	4.06	Si
ini.	3	-2426	-81703	107292	SLU 81	1.31	Si
fin.	3	-638	26689	107292	SLU 81	4.02	Si
ini.	3	-2608	-83769	107292	SLU 80	1.28	Si
fin.	3	-682	32417	107292	SLU 80	3.31	Si
ini.	3	-2654	-86668	107292	SLU 84	1.24	Si
fin.	3	-652	33915	107292	SLU 84	3.16	Si
ini.	3	-2623	-84616	107292	SLU 78	1.27	Si
fin.	3	-673	32802	107292	SLU 78	3.27	Si
ini.	3	-2442	-80466	107292	SLU 77	1.33	Si
fin.	3	-701	25334	107292	SLU 77	4.24	Si
ini.	3	-2607	-85854	107292	SLU 82	1.25	Si
fin.	3	-609	34156	107292	SLU 82	3.14	Si
ini.	3	-2682	-85722	107292	SLU 76	1.25	Si
fin.	3	-620	37637	107292	SLU 76	2.85	Si
ini.	3	-2636	-84908	107292	SLU 73	1.26	Si
fin.	3	-577	37878	107292	SLU 73	2.83	Si
ini.	3	-2577	-83802	107292	SLU 75	1.28	Si
fin.	3	-630	33043	107292	SLU 75	3.25	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-86668	4108			913	343	SLU 84	0.08	No
fin.	3	0	33915	-161			913	343	SLU 84	2.14	Si
ini.	3	0	-83802	3967			913	343	SLU 75	0.09	No
fin.	3	0	33043	-127			913	343	SLU 75	2.71	Si
ini.	3	0	-84908	3973			913	343	SLU 73	0.09	No
fin.	3	0	37878	121			913	343	SLU 73	2.84	Si
ini.	3	0	-85722	4007			913	343	SLU 76	0.09	No
fin.	3	0	37637	97			913	343	SLU 76	3.54	Si
ini.	3	0	-83769	3964			913	343	SLU 80	0.09	No
fin.	3	0	32417	-156			913	343	SLU 80	2.2	Si
ini.	3	0	-82517	3991			913	343	SLU 83	0.09	No
fin.	3	0	26447	-503			913	343	SLU 83	0.68	No
ini.	3	0	-84616	4001			913	343	SLU 78	0.09	No
fin.	3	0	32802	-151			913	343	SLU 78	2.28	Si
ini.	3	0	-80466	3885			913	343	SLU 77	0.09	No
fin.	3	0	25334	-494			913	343	SLU 77	0.7	No
ini.	3	0	-81703	3957			913	343	SLU 81	0.09	No
fin.	3	0	26689	-479			913	343	SLU 81	0.72	No
ini.	3	0	-85854	4074			913	343	SLU 82	0.08	No
fin.	3	0	34156	-136			913	343	SLU 82	2.52	Si

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1860	154510	125194	SLV 4	0.81	No
fin.	2	-2112	-126392	125194	SLV 4	0.99	No
ini.	2	-4391	-224025	125194	SLV 16	0.56	No
fin.	2	2540	174030	125194	SLV 16	0.72	No
ini.	2	-3854	-174776	125194	SLV 9	0.72	No
fin.	2	-2024	41514	125194	SLV 9	3.02	Si
ini.	2	-4391	-224025	125194	SLV 15	0.56	No
fin.	2	2540	174030	125194	SLV 15	0.72	No
ini.	2	-3168	-144475	125194	SLD 13	0.87	No
fin.	2	272	80590	125194	SLD 13	1.55	Si
ini.	2	-5153	-262443	125194	SLV 14	0.48	No
fin.	2	1185	161399	125194	SLV 14	0.78	No
ini.	2	-3854	-174776	125194	SLV 10	0.72	No
fin.	2	-2024	41514	125194	SLV 10	3.02	Si
ini.	2	-5153	-262443	125194	SLV 13	0.48	No
fin.	2	1185	161399	125194	SLV 13	0.78	No
ini.	2	1860	154510	125194	SLV 3	0.81	No
fin.	2	-2112	-126392	125194	SLV 3	0.99	No
ini.	2	-3168	-144475	125194	SLD 14	0.87	No
fin.	2	272	80590	125194	SLD 14	1.55	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-224025	8364			1369	515	SLV 15	0.06	No
fin.	2	0	174030	6279			1369	515	SLV 15	0.08	No
ini.	2	0	-262443	8770			1369	515	SLV 13	0.06	No
fin.	2	0	161399	5234			1369	515	SLV 13	0.1	No
ini.	2	0	116092	-3128			1369	515	SLV 1	0.16	No
fin.	2	0	-139024	-6885			1369	515	SLV 1	0.07	No
ini.	2	0	-144475	5302			1369	515	SLD 14	0.1	No
fin.	2	0	80590	2128			1369	515	SLD 14	0.24	No
ini.	2	0	-224025	8364			1369	515	SLV 16	0.06	No
fin.	2	0	174030	6279			1369	515	SLV 16	0.08	No
ini.	2	0	-144475	5302			1369	515	SLD 13	0.1	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	80590	2128			1369	515	SLD 13	0.24	No
ini.	2	0	116092	-3128			1369	515	SLV 2	0.16	No
fin.	2	0	-139024	-6885			1369	515	SLV 2	0.07	No
ini.	2	0	154510	-3535			1369	515	SLV 4	0.15	No
fin.	2	0	-126392	-5841			1369	515	SLV 4	0.09	No
ini.	2	0	154510	-3535			1369	515	SLV 3	0.15	No
fin.	2	0	-126392	-5841			1369	515	SLV 3	0.09	No
ini.	2	0	-262443	8770			1369	515	SLV 14	0.06	No
fin.	2	0	161399	5234			1369	515	SLV 14	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.477	SLV 13	No
V_SLV	0.059	SLV 13	No
PF_SLU	1.238	SLU 84	Si
V_SLU	0.084	SLU 84	No

## Trave di accoppiamento 66

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-201.3	595.1	111	201	90	-301.3	595.1	111	201	90	100	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	6677	2392	103792	SLU 74	43.39	Si
fin.	3	6468	103391	103792	SLU 74	1	Si
ini.	3	6464	-2016	103792	SLU 76	51.48	Si
fin.	3	6264	103633	103792	SLU 76	1	Si
ini.	3	6670	222	103792	SLU 82	468.21	Si
fin.	3	6448	103418	103792	SLU 82	1	Si
ini.	3	6805	-993	103792	SLU 84	104.54	Si
fin.	3	6592	107686	103792	SLU 84	0.96	No
ini.	3	6812	1177	103792	SLU 77	88.16	Si
fin.	3	6612	107660	103792	SLU 77	0.96	No
ini.	3	6575	-284	103792	SLU 75	366.08	Si
fin.	3	6368	103960	103792	SLU 75	1	No
ini.	3	6908	1683	103792	SLU 83	61.69	Si
fin.	3	6692	107118	103792	SLU 83	0.97	No
ini.	3	6667	-1447	103792	SLU 80	71.73	Si
fin.	3	6474	107523	103792	SLU 80	0.97	No
ini.	3	6769	1229	103792	SLU 79	84.49	Si
fin.	3	6575	106954	103792	SLU 79	0.97	No
ini.	3	6710	-1498	103792	SLU 78	69.28	Si
fin.	3	6511	108229	103792	SLU 78	0.96	No

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	222	1151			873	329	SLU 82	0.29	No
fin.	3	0	103418	1532			873	329	SLU 82	0.21	No
ini.	3	0	1177	1153			873	329	SLU 77	0.29	No
fin.	3	0	107660	1599			873	329	SLU 77	0.21	No
ini.	3	0	-1447	1190			873	329	SLU 80	0.28	No
fin.	3	0	107523	1612			873	329	SLU 80	0.2	No
ini.	3	0	-284	1150			873	329	SLU 75	0.29	No
fin.	3	0	103960	1548			873	329	SLU 75	0.21	No
ini.	3	0	2392	1107			873	329	SLU 74	0.3	No
fin.	3	0	103391	1519			873	329	SLU 74	0.22	No
ini.	3	0	1229	1147			873	329	SLU 79	0.29	No
fin.	3	0	106954	1584			873	329	SLU 79	0.21	No
ini.	3	0	-2016	1173			873	329	SLU 76	0.28	No
fin.	3	0	103633	1552			873	329	SLU 76	0.21	No
ini.	3	0	1683	1154			873	329	SLU 83	0.28	No
fin.	3	0	107118	1583			873	329	SLU 83	0.21	No
ini.	3	0	-993	1197			873	329	SLU 84	0.27	No
fin.	3	0	107686	1612			873	329	SLU 84	0.2	No
ini.	3	0	-1498	1196			873	329	SLU 78	0.27	No
fin.	3	0	108229	1628			873	329	SLU 78	0.2	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	10549	-196811	121694	SLV 15	0.62	No
fin.	2	8057	325808	121694	SLV 15	0.37	No
ini.	2	-1450	205056	121694	SLV 2	0.59	No
fin.	2	756	-189471	121694	SLV 2	0.64	No
ini.	2	24533	29099	121694	SLV 12	4.18	Si
fin.	2	24623	234702	121694	SLV 12	0.52	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1440	-253025	121694	SLV 14	0.48	No
fin.	2	-4551	266968	121694	SLV 14	0.46	No
ini.	2	-1450	205056	121694	SLV 1	0.59	No
fin.	2	756	-189471	121694	SLV 1	0.64	No
ini.	2	-1440	-253025	121694	SLV 13	0.48	No
fin.	2	-4551	266968	121694	SLV 13	0.46	No
ini.	2	24533	29099	121694	SLV 11	4.18	Si
fin.	2	24623	234702	121694	SLV 11	0.52	No
ini.	2	10549	-196811	121694	SLV 16	0.62	No
fin.	2	8057	325808	121694	SLV 16	0.37	No
ini.	2	10539	261269	121694	SLV 4	0.47	No
fin.	2	13364	-130630	121694	SLV 4	0.93	No
ini.	2	10539	261269	121694	SLV 3	0.47	No
fin.	2	13364	-130630	121694	SLV 3	0.93	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-253025	6204			1310	493	SLV 13	0.08	No
fin.	2	0	266968	6053			1310	493	SLV 13	0.08	No
ini.	2	0	205056	-5458			1310	493	SLV 1	0.09	No
fin.	2	0	-189471	-5978			1310	493	SLV 1	0.08	No
ini.	2	0	-196811	6906			1310	493	SLV 16	0.07	No
fin.	2	0	325808	7899			1310	493	SLV 16	0.06	No
ini.	2	0	-253025	6204			1310	493	SLV 14	0.08	No
fin.	2	0	266968	6053			1310	493	SLV 14	0.08	No
ini.	2	0	205056	-5458			1310	493	SLV 2	0.09	No
fin.	2	0	-189471	-5978			1310	493	SLV 2	0.08	No
ini.	2	0	261269	-4756			1310	493	SLV 4	0.1	No
fin.	2	0	-130630	-4133			1310	493	SLV 4	0.12	No
ini.	2	0	29099	3643			1310	493	SLV 12	0.14	No
fin.	2	0	234702	5841			1310	493	SLV 12	0.08	No
ini.	2	0	-196811	6906			1310	493	SLV 15	0.07	No
fin.	2	0	325808	7899			1310	493	SLV 15	0.06	No
ini.	2	0	29099	3643			1310	493	SLV 11	0.14	No
fin.	2	0	234702	5841			1310	493	SLV 11	0.08	No
ini.	2	0	261269	-4756			1310	493	SLV 3	0.1	No
fin.	2	0	-130630	-4133			1310	493	SLV 3	0.12	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.374	SLV 15	No
V_SLV	0.062	SLV 15	No
PF_SLU	0.959	SLU 78	No
V_SLU	0.202	SLU 78	No

## Trave di accoppiamento 67

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-201.3	595.1	391	483	92	-301.3	595.1	391	483	92	100	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2866	-62412	107292	SLU 84	1.72	Si
fin.	3	-2266	-2708	107292	SLU 84	39.62	Si
ini.	3	-2782	-61343	107292	SLU 81	1.75	Si
fin.	3	-2162	-3280	107292	SLU 81	32.71	Si
ini.	3	-2779	-60260	107292	SLU 75	1.78	Si
fin.	3	-2195	-3061	107292	SLU 75	35.05	Si
ini.	3	-2908	-61400	107292	SLU 78	1.75	Si
fin.	3	-2363	-3393	107292	SLU 78	31.63	Si
ini.	3	-2953	-61472	107292	SLU 77	1.75	Si
fin.	3	-2427	-4296	107292	SLU 77	24.97	Si
ini.	3	-2737	-61271	107292	SLU 82	1.75	Si
fin.	3	-2098	-2377	107292	SLU 82	45.15	Si
ini.	3	-2824	-60332	107292	SLU 74	1.78	Si
fin.	3	-2259	-3965	107292	SLU 74	27.06	Si
ini.	3	-2942	-60766	107292	SLU 79	1.77	Si
fin.	3	-2439	-4318	107292	SLU 79	24.85	Si
ini.	3	-2912	-62484	107292	SLU 83	1.72	Si
fin.	3	-2330	-3612	107292	SLU 83	29.7	Si
ini.	3	-2897	-60694	107292	SLU 80	1.77	Si
fin.	3	-2375	-3414	107292	SLU 80	31.43	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-62484	3444			913	343	SLU 83	0.1	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-3612	-3546			913	343	SLU 83	0.1	No
ini.	3	0	-61343	3396			913	343	SLU 81	0.1	No
fin.	3	0	-3280	-3433			913	343	SLU 81	0.1	No
ini.	3	0	-60766	3324			913	343	SLU 79	0.1	No
fin.	3	0	-4318	-3492			913	343	SLU 79	0.1	No
ini.	3	0	-61472	3356			913	343	SLU 77	0.1	No
fin.	3	0	-4296	-3505			913	343	SLU 77	0.1	No
ini.	3	0	-60694	3312			913	343	SLU 80	0.1	No
fin.	3	0	-3414	-3430			913	343	SLU 80	0.1	No
ini.	3	0	-60260	3296			913	343	SLU 75	0.1	No
fin.	3	0	-3061	-3329			913	343	SLU 75	0.1	No
ini.	3	0	-61400	3344			913	343	SLU 78	0.1	No
fin.	3	0	-3393	-3442			913	343	SLU 78	0.1	No
ini.	3	0	-61271	3384			913	343	SLU 82	0.1	No
fin.	3	0	-2377	-3370			913	343	SLU 82	0.1	No
ini.	3	0	-62412	3432			913	343	SLU 84	0.1	No
fin.	3	0	-2708	-3483			913	343	SLU 84	0.1	No
ini.	3	0	-60332	3308			913	343	SLU 74	0.1	No
fin.	3	0	-3965	-3391			913	343	SLU 74	0.1	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5525	-203182	125194	SLV 16	0.62	No
fin.	2	1336	79270	125194	SLV 16	1.58	Si
ini.	2	1741	122564	125194	SLV 2	1.02	Si
fin.	2	-4343	-85943	125194	SLV 2	1.46	Si
ini.	2	-5525	-203182	125194	SLV 15	0.62	No
fin.	2	1336	79270	125194	SLV 15	1.58	Si
ini.	2	1741	122564	125194	SLV 1	1.02	Si
fin.	2	-4343	-85943	125194	SLV 1	1.46	Si
ini.	2	-6075	-130378	125194	SLV 11	0.96	No
fin.	2	-2689	3373	125194	SLV 11	37.12	Si
ini.	2	-3458	-111054	125194	SLD 16	1.13	Si
fin.	2	-255	32744	125194	SLD 16	3.82	Si
ini.	2	-3485	-176012	125194	SLV 14	0.71	No
fin.	2	2679	91186	125194	SLV 14	1.37	Si
ini.	2	-3458	-111054	125194	SLD 15	1.13	Si
fin.	2	-255	32744	125194	SLD 15	3.82	Si
ini.	2	-6075	-130378	125194	SLV 12	0.96	No
fin.	2	-2689	3373	125194	SLV 12	37.12	Si
ini.	2	-3485	-176012	125194	SLV 13	0.71	No
fin.	2	2679	91186	125194	SLV 13	1.37	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-203182	8200			1369	515	SLV 16	0.06	No
fin.	2	0	79270	2514			1369	515	SLV 16	0.2	No
ini.	2	0	-130378	6024			1369	515	SLV 11	0.09	No
fin.	2	0	3373	-2597			1369	515	SLV 11	0.2	No
ini.	2	0	-203182	8200			1369	515	SLV 15	0.06	No
fin.	2	0	79270	2514			1369	515	SLV 15	0.2	No
ini.	2	0	122564	-3776			1369	515	SLV 2	0.14	No
fin.	2	0	-85943	-6988			1369	515	SLV 2	0.07	No
ini.	2	0	-176012	6871			1369	515	SLV 14	0.07	No
fin.	2	0	91186	3692			1369	515	SLV 14	0.14	No
ini.	2	0	-176012	6871			1369	515	SLV 13	0.07	No
fin.	2	0	91186	3692			1369	515	SLV 13	0.14	No
ini.	2	0	-130378	6024			1369	515	SLV 12	0.09	No
fin.	2	0	3373	-2597			1369	515	SLV 12	0.2	No
ini.	2	0	95395	-2447			1369	515	SLV 3	0.21	No
fin.	2	0	-97859	-8165			1369	515	SLV 3	0.06	No
ini.	2	0	95395	-2447			1369	515	SLV 4	0.21	No
fin.	2	0	-97859	-8165			1369	515	SLV 4	0.06	No
ini.	2	0	122564	-3776			1369	515	SLV 1	0.14	No
fin.	2	0	-85943	-6988			1369	515	SLV 1	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.616	SLV 15	No
V_SLV	0.063	SLV 15	No
PF_SLU	1.717	SLU 83	Si
V_SLU	0.097	SLU 83	No

### Trave di accoppiamento 68

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2467.8	126.6	693	835	142	-2467.8	206.6	693	835	142	80	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2





#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-6138	138182	194792	SLU 79	1.41	Si
fin.	3	-6138	-148953	194792	SLU 79	1.31	Si
ini.	3	-5755	140628	194792	SLU 82	1.39	Si
fin.	3	-5755	-158637	194792	SLU 82	1.23	Si
ini.	3	-6091	154484	194792	SLU 83	1.26	Si
fin.	3	-6091	-168282	194792	SLU 83	1.16	Si
ini.	3	-4816	130562	194792	SLU 40	1.49	Si
fin.	3	-4816	-144894	194792	SLU 40	1.34	Si
ini.	3	-5932	143854	194792	SLU 74	1.35	Si
fin.	3	-5932	-157463	194792	SLU 74	1.24	Si
ini.	3	-5994	139129	194792	SLU 84	1.4	Si
fin.	3	-5994	-154484	194792	SLU 84	1.26	Si
ini.	3	-5852	155983	194792	SLU 81	1.25	Si
fin.	3	-5852	-172435	194792	SLU 81	1.13	Si
ini.	3	-4913	145917	194792	SLU 39	1.33	Si
fin.	3	-4913	-158692	194792	SLU 39	1.23	Si
ini.	3	-6171	142354	194792	SLU 77	1.37	Si
fin.	3	-6171	-153309	194792	SLU 77	1.27	Si
ini.	3	-5153	144418	194792	SLU 41	1.35	Si
fin.	3	-5153	-154538	194792	SLU 41	1.26	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	155983	-3778			1531	576	SLU 81	0.15	No
fin.	3	0	-172435	-4489			1531	576	SLU 81	0.13	No
ini.	3	0	140628	-3414			1531	576	SLU 82	0.17	No
fin.	3	0	-158637	-4124			1531	576	SLU 82	0.14	No
ini.	3	0	128499	-3075			1531	576	SLU 75	0.19	No
fin.	3	0	-143665	-3786			1531	576	SLU 75	0.15	No
ini.	3	0	145917	-3554			1531	576	SLU 39	0.16	No
fin.	3	0	-158692	-4104			1531	576	SLU 39	0.14	No
ini.	3	0	154484	-3707			1531	576	SLU 83	0.16	No
fin.	3	0	-168282	-4418			1531	576	SLU 83	0.13	No
ini.	3	0	142354	-3369			1531	576	SLU 77	0.17	No
fin.	3	0	-153309	-4079			1531	576	SLU 77	0.14	No
ini.	3	0	139129	-3343			1531	576	SLU 84	0.17	No
fin.	3	0	-154484	-4054			1531	576	SLU 84	0.14	No
ini.	3	0	143854	-3439			1531	576	SLU 74	0.17	No
fin.	3	0	-157463	-4150			1531	576	SLU 74	0.14	No
ini.	3	0	144418	-3483			1531	576	SLU 41	0.17	No
fin.	3	0	-154538	-4033			1531	576	SLU 41	0.14	No
ini.	3	0	138182	-3262			1531	576	SLU 79	0.18	No
fin.	3	0	-148953	-3973			1531	576	SLU 79	0.15	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-4290	207917	212694	SLD 8	1.02	Si
fin.	2	-4356	-221105	212694	SLD 8	0.96	No
ini.	2	-4656	366183	212694	SLV 8	0.58	No
fin.	2	-4806	-380608	212694	SLV 8	0.56	No
ini.	2	-3540	279313	212694	SLV 11	0.76	No
fin.	2	-3866	-296566	212694	SLV 11	0.72	No
ini.	2	-5901	301413	212694	SLV 4	0.71	No
fin.	2	-5680	-309868	212694	SLV 4	0.69	No
ini.	2	-3540	279313	212694	SLV 12	0.76	No
fin.	2	-3866	-296566	212694	SLV 12	0.72	No
ini.	2	-5901	301413	212694	SLV 3	0.71	No
fin.	2	-5680	-309868	212694	SLV 3	0.69	No
ini.	2	-4656	366183	212694	SLV 7	0.58	No
fin.	2	-4806	-380608	212694	SLV 7	0.56	No
ini.	2	-3379	-195310	212694	SLV 9	1.09	Si
fin.	2	-3229	185690	212694	SLV 9	1.15	Si
ini.	2	-3379	-195310	212694	SLV 10	1.09	Si
fin.	2	-3229	185690	212694	SLV 10	1.15	Si
ini.	2	-4290	207917	212694	SLD 7	1.02	Si
fin.	2	-4356	-221105	212694	SLD 7	0.96	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	279313	-7005			2297	864	SLV 12	0.12	No
fin.	2	0	-296566	-7629			2297	864	SLV 12	0.11	No
ini.	2	0	-195310	4946			2297	864	SLV 9	0.17	No
fin.	2	0	185690	4377			2297	864	SLV 9	0.2	No
ini.	2	0	366183	-9017			2297	864	SLV 8	0.1	No
fin.	2	0	-380608	-9539			2297	864	SLV 8	0.09	No
ini.	2	0	366183	-9017			2297	864	SLV 7	0.1	No
fin.	2	0	-380608	-9539			2297	864	SLV 7	0.09	No
ini.	2	0	-195310	4946			2297	864	SLV 10	0.17	No
fin.	2	0	185690	4377			2297	864	SLV 10	0.2	No
ini.	2	0	207917	-5088			2297	864	SLD 8	0.17	No
fin.	2	0	-221105	-5622			2297	864	SLD 8	0.15	No
ini.	2	0	207917	-5088			2297	864	SLD 7	0.17	No
fin.	2	0	-221105	-5622			2297	864	SLD 7	0.15	No
ini.	2	0	301413	-7182			2297	864	SLV 3	0.12	No
fin.	2	0	-309868	-7565			2297	864	SLV 3	0.11	No
ini.	2	0	301413	-7182			2297	864	SLV 4	0.12	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-309868	-7565			2297	864	SLV 4	0.11	No
ini.	2	0	279313	-7005			2297	864	SLV 11	0.12	No
fin.	2	0	-296566	-7629			2297	864	SLV 11	0.11	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.559	SLV 7	No
V_SLV	0.091	SLV 7	No
PF_SLU	1.13	SLU 81	Si
V_SLU	0.128	SLU 81	No

## Trave di accoppiamento 69

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2181.3	595.1	483	573	90	-2271.3	595.1	483	573	90	90	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2916	27429	103792	SLU 83	3.78	Si
fin.	3	-3067	49088	103792	SLU 83	2.11	Si
ini.	3	-3051	27691	103792	SLU 80	3.75	Si
fin.	3	-3179	50343	103792	SLU 80	2.06	Si
ini.	3	-2919	25245	103792	SLU 69	4.11	Si
fin.	3	-3089	49071	103792	SLU 69	2.12	Si
ini.	3	-3030	27794	103792	SLU 78	3.73	Si
fin.	3	-3158	50085	103792	SLU 78	2.07	Si
ini.	3	-3094	27872	103792	SLU 79	3.72	Si
fin.	3	-3241	51427	103792	SLU 79	2.02	Si
ini.	3	-2877	25064	103792	SLU 70	4.14	Si
fin.	3	-3027	47987	103792	SLU 70	2.16	Si
ini.	3	-2873	27249	103792	SLU 84	3.81	Si
fin.	3	-3005	48004	103792	SLU 84	2.16	Si
ini.	3	-2940	25142	103792	SLU 71	4.13	Si
fin.	3	-3110	49330	103792	SLU 71	2.1	Si
ini.	3	-2897	24961	103792	SLU 72	4.16	Si
fin.	3	-3048	48246	103792	SLU 72	2.15	Si
ini.	3	-3073	27975	103792	SLU 77	3.71	Si
fin.	3	-3220	51168	103792	SLU 77	2.03	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	27872	-404			970	365	SLU 79	0.9	No
fin.	3	0	51427	1457			970	365	SLU 79	0.25	No
ini.	3	0	25245	-370			970	365	SLU 69	0.99	No
fin.	3	0	49071	1443			970	365	SLU 69	0.25	No
ini.	3	0	27794	-429			970	365	SLU 78	0.85	No
fin.	3	0	50085	1432			970	365	SLU 78	0.26	No
ini.	3	0	27975	-419			970	365	SLU 77	0.87	No
fin.	3	0	51168	1467			970	365	SLU 77	0.25	No
ini.	3	0	24707	-359			970	365	SLU 56	1.02	Si
fin.	3	0	47573	1402			970	365	SLU 56	0.26	No
ini.	3	0	27429	-406			970	365	SLU 83	0.9	No
fin.	3	0	49088	1409			970	365	SLU 83	0.26	No
ini.	3	0	26362	-401			970	365	SLU 74	0.91	No
fin.	3	0	47930	1410			970	365	SLU 74	0.26	No
ini.	3	0	27691	-413			970	365	SLU 80	0.88	No
fin.	3	0	50343	1421			970	365	SLU 80	0.26	No
ini.	3	0	25064	-380			970	365	SLU 70	0.96	No
fin.	3	0	47987	1408			970	365	SLU 70	0.26	No
ini.	3	0	25142	-355			970	365	SLU 71	1.03	Si
fin.	3	0	49330	1432			970	365	SLU 71	0.26	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3364	146098	121694	SLV 1	0.83	No
fin.	2	601	-58586	121694	SLV 1	2.08	Si
ini.	2	-4694	159313	121694	SLV 3	0.76	No
fin.	2	-641	-47131	121694	SLV 3	2.58	Si
ini.	2	-4736	79680	121694	SLV 7	1.53	Si
fin.	2	-3494	26176	121694	SLV 7	4.65	Si
ini.	2	-4736	79680	121694	SLV 8	1.53	Si
fin.	2	-3494	26176	121694	SLV 8	4.65	Si
ini.	2	-4694	159313	121694	SLV 4	0.76	No
fin.	2	-641	-47131	121694	SLV 4	2.58	Si
ini.	2	950	-125472	121694	SLV 14	0.97	No
fin.	2	-3405	112679	121694	SLV 14	1.08	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3364	146098	121694	SLV 2	0.83	No
fin.	2	601	-58586	121694	SLV 2	2.08	Si
ini.	2	-380	-112257	121694	SLV 15	1.08	Si
fin.	2	-4648	124134	121694	SLV 15	0.98	No
ini.	2	-380	-112257	121694	SLV 16	1.08	Si
fin.	2	-4648	124134	121694	SLV 16	0.98	No
ini.	2	950	-125472	121694	SLV 13	0.97	No
fin.	2	-3405	112679	121694	SLV 13	1.08	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-39699	1730			1456	548	SLD 15	0.32	No
fin.	2	0	72679	3038			1456	548	SLD 15	0.18	No
ini.	2	0	146098	-4749			1456	548	SLV 2	0.12	No
fin.	2	0	-58586	-3648			1456	548	SLV 2	0.15	No
ini.	2	0	-125472	4700			1456	548	SLV 14	0.12	No
fin.	2	0	112679	5258			1456	548	SLV 14	0.1	No
ini.	2	0	159313	-5190			1456	548	SLV 3	0.11	No
fin.	2	0	-47131	-3248			1456	548	SLV 3	0.17	No
ini.	2	0	-112257	4259			1456	548	SLV 15	0.13	No
fin.	2	0	124134	5659			1456	548	SLV 15	0.1	No
ini.	2	0	146098	-4749			1456	548	SLV 1	0.12	No
fin.	2	0	-58586	-3648			1456	548	SLV 1	0.15	No
ini.	2	0	159313	-5190			1456	548	SLV 4	0.11	No
fin.	2	0	-47131	-3248			1456	548	SLV 4	0.17	No
ini.	2	0	-125472	4700			1456	548	SLV 13	0.12	No
fin.	2	0	112679	5258			1456	548	SLV 13	0.1	No
ini.	2	0	-39699	1730			1456	548	SLD 16	0.32	No
fin.	2	0	72679	3038			1456	548	SLD 16	0.18	No
ini.	2	0	-112257	4259			1456	548	SLV 16	0.13	No
fin.	2	0	124134	5659			1456	548	SLV 16	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.764	SLV 3	No
V_SLV	0.097	SLV 15	No
PF_SLU	2.018	SLU 79	Si
V_SLU	0.249	SLU 77	No

## Trave di accoppiamento 70

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2181.3	595.1	753	835	82	-2271.3	595.1	753	835	82	90	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1255	-19631	89792	SLU 74	4.57	Si
fin.	3	-2224	-40416	89792	SLU 74	2.22	Si
ini.	3	-1086	-14705	89792	SLU 73	6.11	Si
fin.	3	-2166	-39211	89792	SLU 73	2.29	Si
ini.	3	-1138	-14865	89792	SLU 82	6.04	Si
fin.	3	-2303	-41448	89792	SLU 82	2.17	Si
ini.	3	-1385	-24457	89792	SLU 78	3.67	Si
fin.	3	-2162	-39358	89792	SLU 78	2.28	Si
ini.	3	-1229	-19248	89792	SLU 75	4.67	Si
fin.	3	-2188	-39819	89792	SLU 75	2.25	Si
ini.	3	-1294	-20074	89792	SLU 84	4.47	Si
fin.	3	-2276	-40987	89792	SLU 84	2.19	Si
ini.	3	-1441	-25761	89792	SLU 79	3.49	Si
fin.	3	-2173	-39282	89792	SLU 79	2.29	Si
ini.	3	-1319	-20457	89792	SLU 83	4.39	Si
fin.	3	-2312	-41583	89792	SLU 83	2.16	Si
ini.	3	-1411	-24839	89792	SLU 77	3.61	Si
fin.	3	-2198	-39954	89792	SLU 77	2.25	Si
ini.	3	-1163	-15248	89792	SLU 81	5.89	Si
fin.	3	-2339	-42044	89792	SLU 81	2.14	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-20074	1589			806	303	SLU 84	0.19	No
fin.	3	0	-40987	-3808			806	303	SLU 84	0.08	No
ini.	3	0	-15248	1478			806	303	SLU 81	0.21	No
fin.	3	0	-42044	-4004			806	303	SLU 81	0.08	No
ini.	3	0	-19914	1522			806	303	SLU 76	0.2	No
fin.	3	0	-38749	-3569			806	303	SLU 76	0.08	No
ini.	3	0	-14705	1402			806	303	SLU 73	0.22	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-39211	-3730			806	303	SLU 73	0.08	No
ini.	3	0	-12947	1296			806	303	SLU 60	0.23	No
fin.	3	0	-38307	-3627			806	303	SLU 60	0.08	No
ini.	3	0	-14865	1469			806	303	SLU 82	0.21	No
fin.	3	0	-41448	-3969			806	303	SLU 82	0.08	No
ini.	3	0	-19631	1533			806	303	SLU 74	0.2	No
fin.	3	0	-40416	-3718			806	303	SLU 74	0.08	No
ini.	3	0	-19248	1524			806	303	SLU 75	0.2	No
fin.	3	0	-39819	-3683			806	303	SLU 75	0.08	No
ini.	3	0	-20457	1598			806	303	SLU 83	0.19	No
fin.	3	0	-41583	-3843			806	303	SLU 83	0.08	No
ini.	3	0	-12564	1288			806	303	SLU 61	0.24	No
fin.	3	0	-37711	-3592			806	303	SLU 61	0.08	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1331	60202	107694	SLV 1	1.79	Si
fin.	2	-3538	-86088	107694	SLV 1	1.25	Si
ini.	2	-900	-8548	107694	SLV 7	12.6	Si
fin.	2	-3563	-68524	107694	SLV 7	1.57	Si
ini.	2	1331	60202	107694	SLV 2	1.79	Si
fin.	2	-3538	-86088	107694	SLV 2	1.25	Si
ini.	2	923	49950	107694	SLV 3	2.16	Si
fin.	2	-4323	-98791	107694	SLV 3	1.09	Si
ini.	2	-2929	-83012	107694	SLV 15	1.3	Si
fin.	2	466	30029	107694	SLV 15	3.59	Si
ini.	2	-2522	-72760	107694	SLV 13	1.48	Si
fin.	2	1251	42732	107694	SLV 13	2.52	Si
ini.	2	-2929	-83012	107694	SLV 16	1.3	Si
fin.	2	466	30029	107694	SLV 16	3.59	Si
ini.	2	923	49950	107694	SLV 4	2.16	Si
fin.	2	-4323	-98791	107694	SLV 4	1.09	Si
ini.	2	-2522	-72760	107694	SLV 14	1.48	Si
fin.	2	1251	42732	107694	SLV 14	2.52	Si
ini.	2	-900	-8548	107694	SLV 8	12.6	Si
fin.	2	-3563	-68524	107694	SLV 8	1.57	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	60202	-2259			1208	455	SLV 1	0.2	No
fin.	2	0	-86088	-6015			1208	455	SLV 1	0.08	No
ini.	2	0	-72760	4634			1208	455	SLV 14	0.1	No
fin.	2	0	42732	1477			1208	455	SLV 14	0.31	No
ini.	2	0	15499	-608			1208	455	SLD 3	0.75	No
fin.	2	0	-58724	-4351			1208	455	SLD 3	0.1	No
ini.	2	0	-8548	-741			1208	455	SLV 8	0.61	No
fin.	2	0	-68524	-4769			1208	455	SLV 8	0.1	No
ini.	2	0	15499	-608			1208	455	SLD 4	0.75	No
fin.	2	0	-58724	-4351			1208	455	SLD 4	0.1	No
ini.	2	0	-72760	4634			1208	455	SLV 13	0.1	No
fin.	2	0	42732	1477			1208	455	SLV 13	0.31	No
ini.	2	0	-8548	-741			1208	455	SLV 7	0.61	No
fin.	2	0	-68524	-4769			1208	455	SLV 7	0.1	No
ini.	2	0	49950	-2672			1208	455	SLV 3	0.17	No
fin.	2	0	-98791	-6650			1208	455	SLV 3	0.07	No
ini.	2	0	60202	-2259			1208	455	SLV 2	0.2	No
fin.	2	0	-86088	-6015			1208	455	SLV 2	0.08	No
ini.	2	0	49950	-2672			1208	455	SLV 4	0.17	No
fin.	2	0	-98791	-6650			1208	455	SLV 4	0.07	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.09	SLV 3	Si
V_SLV	0.068	SLV 3	No
PF_SLU	2.136	SLU 81	Si
V_SLU	0.076	SLU 81	No

## Trave di accoppiamento 71

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2159.3	-335.9	483	573	90	-2249.3	-335.9	483	573	90	90	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-4169	119154	103792	SLU 80	0.87	No
fin.	3	-1667	473	103792	SLU 80	219.49	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-4090	118459	103792	SLU 82	0.88	No
fin.	3	-1598	-62	103792	SLU 82	1664.36	Si
ini.	3	-4278	122242	103792	SLU 76	0.85	No
fin.	3	-1693	-1286	103792	SLU 76	80.72	Si
ini.	3	-3872	111644	103792	SLU 77	0.93	No
fin.	3	-1560	2872	103792	SLU 77	36.14	Si
ini.	3	-4185	120138	103792	SLU 78	0.86	No
fin.	3	-1662	266	103792	SLU 78	389.98	Si
ini.	3	-4086	117563	103792	SLU 75	0.88	No
fin.	3	-1620	245	103792	SLU 75	424.07	Si
ini.	3	-4000	111845	103792	SLU 68	0.93	No
fin.	3	-1660	-137	103792	SLU 68	758.48	Si
ini.	3	-4189	121035	103792	SLU 84	0.86	No
fin.	3	-1639	-41	103792	SLU 84	2533.71	Si
ini.	3	-4179	119666	103792	SLU 73	0.87	No
fin.	3	-1652	-1307	103792	SLU 73	79.39	Si
ini.	3	-3876	112541	103792	SLU 83	0.92	No
fin.	3	-1537	2565	103792	SLU 83	40.46	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	117563	-2959			970	365	SLU 75	0.12	No
fin.	3	0	245	-1496			970	365	SLU 75	0.24	No
ini.	3	0	121035	-3042			970	365	SLU 84	0.12	No
fin.	3	0	-41	-1577			970	365	SLU 84	0.23	No
ini.	3	0	122242	-3015			970	365	SLU 76	0.12	No
fin.	3	0	-1286	-1741			970	365	SLU 76	0.21	No
ini.	3	0	118459	-2965			970	365	SLU 82	0.12	No
fin.	3	0	-62	-1559			970	365	SLU 82	0.23	No
ini.	3	0	120138	-3036			970	365	SLU 78	0.12	No
fin.	3	0	266	-1515			970	365	SLU 78	0.24	No
ini.	3	0	119666	-2938			970	365	SLU 73	0.12	No
fin.	3	0	-1307	-1722			970	365	SLU 73	0.21	No
ini.	3	0	111644	-2901			970	365	SLU 77	0.13	No
fin.	3	0	2872	-1138			970	365	SLU 77	0.32	No
ini.	3	0	112541	-2907			970	365	SLU 83	0.13	No
fin.	3	0	2565	-1201			970	365	SLU 83	0.3	No
ini.	3	0	110660	-2866			970	365	SLU 79	0.13	No
fin.	3	0	3079	-1132			970	365	SLU 79	0.32	No
ini.	3	0	119154	-3001			970	365	SLU 80	0.12	No
fin.	3	0	473	-1508			970	365	SLU 80	0.24	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-5213	210299	121694	SLV 3	0.58	No
fin.	2	1472	-82152	121694	SLV 3	1.48	Si
ini.	2	-4150	147599	121694	SLD 2	0.82	No
fin.	2	-459	-27573	121694	SLD 2	4.41	Si
ini.	2	-5132	176977	121694	SLV 6	0.69	No
fin.	2	-2387	5509	121694	SLV 6	22.09	Si
ini.	2	-5132	176977	121694	SLV 5	0.69	No
fin.	2	-2387	5509	121694	SLV 5	22.09	Si
ini.	2	-6170	244623	121694	SLV 1	0.5	No
fin.	2	345	-66798	121694	SLV 1	1.82	Si
ini.	2	-6170	244623	121694	SLV 2	0.5	No
fin.	2	345	-66798	121694	SLV 2	1.82	Si
ini.	2	-4150	147599	121694	SLD 1	0.82	No
fin.	2	-459	-27573	121694	SLD 1	4.41	Si
ini.	2	-3764	133767	121694	SLD 3	0.91	No
fin.	2	-9	-33705	121694	SLD 3	3.61	Si
ini.	2	-5213	210299	121694	SLV 4	0.58	No
fin.	2	1472	-82152	121694	SLV 4	1.48	Si
ini.	2	-3764	133767	121694	SLD 4	0.91	No
fin.	2	-9	-33705	121694	SLD 4	3.61	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	147599	-4238			1456	548	SLD 2	0.13	No
fin.	2	0	-27573	-2867			1456	548	SLD 2	0.19	No
ini.	2	0	147599	-4238			1456	548	SLD 1	0.13	No
fin.	2	0	-27573	-2867			1456	548	SLD 1	0.19	No
ini.	2	0	210299	-7118			1456	548	SLV 4	0.08	No
fin.	2	0	-82152	-5271			1456	548	SLV 4	0.1	No
ini.	2	0	244623	-7273			1456	548	SLV 2	0.08	No
fin.	2	0	-66798	-5688			1456	548	SLV 2	0.1	No
ini.	2	0	244623	-7273			1456	548	SLV 1	0.08	No
fin.	2	0	-66798	-5688			1456	548	SLV 1	0.1	No
ini.	2	0	133767	-4161			1456	548	SLD 3	0.13	No
fin.	2	0	-33705	-2698			1456	548	SLD 3	0.2	No
ini.	2	0	210299	-7118			1456	548	SLV 3	0.08	No
fin.	2	0	-82152	-5271			1456	548	SLV 3	0.1	No
ini.	2	0	-97389	3502			1456	548	SLV 16	0.16	No
fin.	2	0	73263	4294			1456	548	SLV 16	0.13	No
ini.	2	0	133767	-4161			1456	548	SLD 4	0.13	No
fin.	2	0	-33705	-2698			1456	548	SLD 4	0.2	No
ini.	2	0	-97389	3502			1456	548	SLV 15	0.16	No
fin.	2	0	73263	4294			1456	548	SLV 15	0.13	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.497	SLV 1	No
V_SLV	0.075	SLV 1	No
PF_SLU	0.849	SLU 76	No
V_SLU	0.12	SLU 84	No

## Trave di accoppiamento 72

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-2159.3	-335.9	753	835	82	-2249.3	-335.9	753	835	82	90	28	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1910	61386	89792	SLU 76	1.46	Si
fin.	3	-5263	-111426	89792	SLU 76	0.81	No
ini.	3	-1871	59457	89792	SLU 80	1.51	Si
fin.	3	-5145	-109537	89792	SLU 80	0.82	No
ini.	3	-1747	54592	89792	SLU 79	1.64	Si
fin.	3	-4800	-103264	89792	SLU 79	0.87	No
ini.	3	-1861	60280	89792	SLU 78	1.49	Si
fin.	3	-5172	-110538	89792	SLU 78	0.81	No
ini.	3	-1737	55415	89792	SLU 77	1.62	Si
fin.	3	-4826	-104265	89792	SLU 77	0.86	No
ini.	3	-1886	60643	89792	SLU 84	1.48	Si
fin.	3	-5225	-111453	89792	SLU 84	0.81	No
ini.	3	-1843	59328	89792	SLU 82	1.51	Si
fin.	3	-5113	-109161	89792	SLU 82	0.82	No
ini.	3	-1763	55777	89792	SLU 83	1.61	Si
fin.	3	-4880	-105180	89792	SLU 83	0.85	No
ini.	3	-1818	58966	89792	SLU 75	1.52	Si
fin.	3	-5059	-108246	89792	SLU 75	0.83	No
ini.	3	-1867	60071	89792	SLU 73	1.49	Si
fin.	3	-5151	-109134	89792	SLU 73	0.82	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	61386	-1819			806	303	SLU 76	0.17	No
fin.	3	0	-111426	-6076			806	303	SLU 76	0.05	No
ini.	3	0	55777	-1497			806	303	SLU 83	0.2	No
fin.	3	0	-105180	-5956			806	303	SLU 83	0.05	No
ini.	3	0	59457	-1709			806	303	SLU 80	0.18	No
fin.	3	0	-109537	-6047			806	303	SLU 80	0.05	No
ini.	3	0	60280	-1729			806	303	SLU 78	0.18	No
fin.	3	0	-110538	-6112			806	303	SLU 78	0.05	No
ini.	3	0	54463	-1452			806	303	SLU 81	0.21	No
fin.	3	0	-102887	-5833			806	303	SLU 81	0.05	No
ini.	3	0	58966	-1685			806	303	SLU 75	0.18	No
fin.	3	0	-108246	-5989			806	303	SLU 75	0.05	No
ini.	3	0	55415	-1499			806	303	SLU 77	0.2	No
fin.	3	0	-104265	-5884			806	303	SLU 77	0.05	No
ini.	3	0	60071	-1775			806	303	SLU 73	0.17	No
fin.	3	0	-109134	-5953			806	303	SLU 73	0.05	No
ini.	3	0	59328	-1683			806	303	SLU 82	0.18	No
fin.	3	0	-109161	-6061			806	303	SLU 82	0.05	No
ini.	3	0	60643	-1727			806	303	SLU 84	0.18	No
fin.	3	0	-111453	-6184			806	303	SLU 84	0.05	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1000	74890	107694	SLD 4	1.44	Si
fin.	2	-4306	-100933	107694	SLD 4	1.07	Si
ini.	2	-901	147620	107694	SLV 2	0.73	No
fin.	2	-6811	-165186	107694	SLV 2	0.65	No
ini.	2	-1056	83970	107694	SLD 1	1.28	Si
fin.	2	-4748	-110377	107694	SLD 1	0.98	No
ini.	2	-1056	83970	107694	SLD 2	1.28	Si
fin.	2	-4748	-110377	107694	SLD 2	0.98	No
ini.	2	-901	147620	107694	SLV 1	0.73	No
fin.	2	-6811	-165186	107694	SLV 1	0.65	No
ini.	2	-743	125432	107694	SLV 4	0.86	No
fin.	2	-5705	-141942	107694	SLV 4	0.76	No
ini.	2	-1000	74890	107694	SLD 3	1.44	Si
fin.	2	-4306	-100933	107694	SLD 3	1.07	Si
ini.	2	-743	125432	107694	SLV 3	0.86	No
fin.	2	-5705	-141942	107694	SLV 3	0.76	No
ini.	2	-1340	102840	107694	SLV 5	1.05	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	2	-5958	-132974	107694	SLV 5	0.81	No
ini.	2	-1340	102840	107694	SLV 6	1.05	Si
fin.	2	-5958	-132974	107694	SLV 6	0.81	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	125432	-4006			1208	455	SLV 3	0.11	No
fin.	2	0	-141942	-7326			1208	455	SLV 3	0.06	No
ini.	2	0	147620	-4861			1208	455	SLV 1	0.09	No
fin.	2	0	-165186	-8341			1208	455	SLV 1	0.05	No
ini.	2	0	83970	-2639			1208	455	SLD 1	0.17	No
fin.	2	0	-110377	-5790			1208	455	SLD 1	0.08	No
ini.	2	0	83970	-2639			1208	455	SLD 2	0.17	No
fin.	2	0	-110377	-5790			1208	455	SLD 2	0.08	No
ini.	2	0	74890	-2294			1208	455	SLD 3	0.2	No
fin.	2	0	-100933	-5373			1208	455	SLD 3	0.08	No
ini.	2	0	102840	-3425			1208	455	SLV 6	0.13	No
fin.	2	0	-132974	-6737			1208	455	SLV 6	0.07	No
ini.	2	0	102840	-3425			1208	455	SLV 5	0.13	No
fin.	2	0	-132974	-6737			1208	455	SLV 5	0.07	No
ini.	2	0	74890	-2294			1208	455	SLD 4	0.2	No
fin.	2	0	-100933	-5373			1208	455	SLD 4	0.08	No
ini.	2	0	125432	-4006			1208	455	SLV 4	0.11	No
fin.	2	0	-141942	-7326			1208	455	SLV 4	0.06	No
ini.	2	0	147620	-4861			1208	455	SLV 2	0.09	No
fin.	2	0	-165186	-8341			1208	455	SLV 2	0.05	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.652	SLV 1	No
V_SLV	0.055	SLV 1	No
PF_SLU	0.806	SLU 84	No
V_SLU	0.049	SLU 84	No

## Trave di accoppiamento 73

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1886.8	-335.9	483	683	200	-1936.8	-335.9	483	683	200	50	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-2203	5158	296292	SLU 76	57.44	Si
fin.	3	-2606	88027	296292	SLU 76	3.37	Si
ini.	3	-2173	7218	296292	SLU 75	41.05	Si
fin.	3	-2536	87315	296292	SLU 75	3.39	Si
ini.	3	-2229	4538	296292	SLU 82	65.3	Si
fin.	3	-2596	91967	296292	SLU 82	3.22	Si
ini.	3	-2202	8892	296292	SLU 84	33.32	Si
fin.	3	-2584	91530	296292	SLU 84	3.24	Si
ini.	3	-2146	11572	296292	SLU 78	25.6	Si
fin.	3	-2524	86879	296292	SLU 78	3.41	Si
ini.	3	-2094	11200	296292	SLU 74	26.46	Si
fin.	3	-2402	84961	296292	SLU 74	3.49	Si
ini.	3	-2230	804	296292	SLU 73	368.36	Si
fin.	3	-2619	88464	296292	SLU 73	3.35	Si
ini.	3	-2123	12167	296292	SLU 80	24.35	Si
fin.	3	-2504	86021	296292	SLU 80	3.44	Si
ini.	3	-2123	12874	296292	SLU 83	23.02	Si
fin.	3	-2449	89176	296292	SLU 83	3.32	Si
ini.	3	-2150	8520	296292	SLU 81	34.78	Si
fin.	3	-2462	89613	296292	SLU 81	3.31	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	4538	2204			2157	812	SLU 82	0.37	No
fin.	3	0	91967	3817			2157	812	SLU 82	0.21	No
ini.	3	0	699	2086			2157	812	SLU 61	0.39	No
fin.	3	0	82776	3552			2157	812	SLU 61	0.23	No
ini.	3	0	7218	2055			2157	812	SLU 75	0.39	No
fin.	3	0	87315	3645			2157	812	SLU 75	0.22	No
ini.	3	0	12167	1969			2157	812	SLU 80	0.41	No
fin.	3	0	86021	3544			2157	812	SLU 80	0.23	No
ini.	3	0	8520	1935			2157	812	SLU 81	0.42	No
fin.	3	0	89613	3659			2157	812	SLU 81	0.22	No
ini.	3	0	5158	2220			2157	812	SLU 76	0.37	No
fin.	3	0	88027	3704			2157	812	SLU 76	0.22	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	11572	1983			2157	812	SLU 78	0.41	No
fin.	3	0	86879	3591			2157	812	SLU 78	0.23	No
ini.	3	0	12874	1863			2157	812	SLU 83	0.44	No
fin.	3	0	89176	3605			2157	812	SLU 83	0.23	No
ini.	3	0	8892	2132			2157	812	SLU 84	0.38	No
fin.	3	0	91530	3763			2157	812	SLU 84	0.22	No
ini.	3	0	804	2293			2157	812	SLU 73	0.35	No
fin.	3	0	88464	3758			2157	812	SLU 73	0.22	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1622	124513	314194	SLV 2	2.52	Si
fin.	2	-1164	-69664	314194	SLV 2	4.51	Si
ini.	2	-2407	-153877	314194	SLV 14	2.04	Si
fin.	2	-3061	152864	314194	SLV 14	2.06	Si
ini.	2	-2407	-153877	314194	SLV 13	2.04	Si
fin.	2	-3061	152864	314194	SLV 13	2.06	Si
ini.	2	-1447	-117186	314194	SLV 16	2.68	Si
fin.	2	-2312	184242	314194	SLV 16	1.71	Si
ini.	2	-51	23056	314194	SLV 11	13.63	Si
fin.	2	-774	142965	314194	SLV 11	2.2	Si
ini.	2	-1622	124513	314194	SLV 1	2.52	Si
fin.	2	-1164	-69664	314194	SLV 1	4.51	Si
ini.	2	-661	161204	314194	SLV 3	1.95	Si
fin.	2	-415	-38286	314194	SLV 3	8.21	Si
ini.	2	-51	23056	314194	SLV 12	13.63	Si
fin.	2	-774	142965	314194	SLV 12	2.2	Si
ini.	2	-661	161204	314194	SLV 4	1.95	Si
fin.	2	-415	-38286	314194	SLV 4	8.21	Si
ini.	2	-1447	-117186	314194	SLV 15	2.68	Si
fin.	2	-2312	184242	314194	SLV 15	1.71	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-63859	3924			3235	1217	SLD 14	0.31	No
fin.	2	0	99334	5041			3235	1217	SLD 14	0.24	No
ini.	2	0	-49321	4194			3235	1217	SLD 15	0.29	No
fin.	2	0	112308	5039			3235	1217	SLD 15	0.24	No
ini.	2	0	124513	-5398			3235	1217	SLV 2	0.23	No
fin.	2	0	-69664	-3529			3235	1217	SLV 2	0.34	No
ini.	2	0	-63859	3924			3235	1217	SLD 13	0.31	No
fin.	2	0	99334	5041			3235	1217	SLD 13	0.24	No
ini.	2	0	-117186	7977			3235	1217	SLV 16	0.15	No
fin.	2	0	184242	8414			3235	1217	SLV 16	0.14	No
ini.	2	0	124513	-5398			3235	1217	SLV 1	0.23	No
fin.	2	0	-69664	-3529			3235	1217	SLV 1	0.34	No
ini.	2	0	-153877	7352			3235	1217	SLV 14	0.17	No
fin.	2	0	152864	8447			3235	1217	SLV 14	0.14	No
ini.	2	0	-117186	7977			3235	1217	SLV 15	0.15	No
fin.	2	0	184242	8414			3235	1217	SLV 15	0.14	No
ini.	2	0	-49321	4194			3235	1217	SLD 16	0.29	No
fin.	2	0	112308	5039			3235	1217	SLD 16	0.24	No
ini.	2	0	-153877	7352			3235	1217	SLV 13	0.17	No
fin.	2	0	152864	8447			3235	1217	SLV 13	0.14	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.705	SLV 15	Si
V_SLV	0.144	SLV 13	No
PF_SLU	3.222	SLU 82	Si
V_SLU	0.213	SLU 82	No

Trave di accoppiamento 74

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1886.8	-335.9	763	835	72	-1936.8	-335.9	763	835	72	50	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-312	-6670	72292	SLU 79	10.84	Si
fin.	3	-350	705	72292	SLU 79	102.61	Si
ini.	3	-313	-6421	72292	SLU 37	11.26	Si
fin.	3	-336	-71	72292	SLU 37	1015.24	Si
ini.	3	2	476	72292	SLU 44	151.79	Si
fin.	3	-77	6447	72292	SLU 44	11.21	Si
ini.	3	-40	-1074	72292	SLU 52	67.28	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	-103	7028	72292	SLU 52	10.29	Si
ini.	3	-40	-826	72292	SLU 10	87.56	Si
fin.	3	-89	6252	72292	SLU 10	11.56	Si
ini.	3	-273	-6150	72292	SLU 35	11.75	Si
fin.	3	-300	302	72292	SLU 35	239.36	Si
ini.	3	-74	-1837	72292	SLU 73	39.36	Si
fin.	3	-138	7070	72292	SLU 73	10.23	Si
ini.	3	-31	-286	72292	SLU 65	252.84	Si
fin.	3	-112	6489	72292	SLU 65	11.14	Si
ini.	3	-74	-1588	72292	SLU 31	45.53	Si
fin.	3	-124	6294	72292	SLU 31	11.49	Si
ini.	3	-273	-6399	72292	SLU 77	11.3	Si
fin.	3	-315	1078	72292	SLU 77	67.07	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-4848	648			776	292	SLU 69	0.45	No
fin.	3	0	497	-1203			776	292	SLU 69	0.24	No
ini.	3	0	-4927	807			776	292	SLU 81	0.36	No
fin.	3	0	4281	-1296			776	292	SLU 81	0.23	No
ini.	3	0	-6670	757			776	292	SLU 79	0.39	No
fin.	3	0	705	-1283			776	292	SLU 79	0.23	No
ini.	3	0	-6399	767			776	292	SLU 77	0.38	No
fin.	3	0	1078	-1311			776	292	SLU 77	0.22	No
ini.	3	0	-3740	736			776	292	SLU 75	0.4	No
fin.	3	0	4564	-1211			776	292	SLU 75	0.24	No
ini.	3	0	-4675	777			776	292	SLU 84	0.38	No
fin.	3	0	4440	-1229			776	292	SLU 84	0.24	No
ini.	3	0	-3471	777			776	292	SLU 82	0.38	No
fin.	3	0	6104	-1212			776	292	SLU 82	0.24	No
ini.	3	0	-6130	808			776	292	SLU 83	0.36	No
fin.	3	0	2617	-1313			776	292	SLU 83	0.22	No
ini.	3	0	-5195	767			776	292	SLU 74	0.38	No
fin.	3	0	2742	-1295			776	292	SLU 74	0.23	No
ini.	3	0	-4944	736			776	292	SLU 78	0.4	No
fin.	3	0	2900	-1228			776	292	SLU 78	0.24	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2140	-21495	90194	SLV 15	4.2	Si
fin.	2	2563	48787	90194	SLV 15	1.85	Si
ini.	2	-2258	16773	90194	SLV 2	5.38	Si
fin.	2	-2774	-43164	90194	SLV 2	2.09	Si
ini.	2	-3222	-6345	90194	SLV 4	14.22	Si
fin.	2	-3642	-59050	90194	SLV 4	1.53	Si
ini.	2	2354	33896	90194	SLV 10	2.66	Si
fin.	2	2271	45463	90194	SLV 10	1.98	Si
ini.	2	2354	33896	90194	SLV 9	2.66	Si
fin.	2	2271	45463	90194	SLV 9	1.98	Si
ini.	2	-3222	-6345	90194	SLV 3	14.22	Si
fin.	2	-3642	-59050	90194	SLV 3	1.53	Si
ini.	2	3105	1623	90194	SLV 14	55.59	Si
fin.	2	3431	64673	90194	SLV 14	1.39	Si
ini.	2	2140	-21495	90194	SLV 16	4.2	Si
fin.	2	2563	48787	90194	SLV 16	1.85	Si
ini.	2	3105	1623	90194	SLV 13	55.59	Si
fin.	2	3431	64673	90194	SLV 13	1.39	Si
ini.	2	-2258	16773	90194	SLV 1	5.38	Si
fin.	2	-2774	-43164	90194	SLV 1	2.09	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	16773	-1335			1165	438	SLV 2	0.33	No
fin.	2	0	-43164	-3192			1165	438	SLV 2	0.14	No
ini.	2	0	-21495	2353			1165	438	SLV 16	0.19	No
fin.	2	0	48787	1430			1165	438	SLV 16	0.31	No
ini.	2	0	38441	-1036			1165	438	SLV 6	0.42	No
fin.	2	0	13112	-2610			1165	438	SLV 6	0.17	No
ini.	2	0	-43163	2054			1165	438	SLV 11	0.21	No
fin.	2	0	-7489	848			1165	438	SLV 11	0.52	No
ini.	2	0	16773	-1335			1165	438	SLV 1	0.33	No
fin.	2	0	-43164	-3192			1165	438	SLV 1	0.14	No
ini.	2	0	-6345	-682			1165	438	SLV 4	0.64	No
fin.	2	0	-59050	-2508			1165	438	SLV 4	0.17	No
ini.	2	0	-6345	-682			1165	438	SLV 3	0.64	No
fin.	2	0	-59050	-2508			1165	438	SLV 3	0.17	No
ini.	2	0	38441	-1036			1165	438	SLV 5	0.42	No
fin.	2	0	13112	-2610			1165	438	SLV 5	0.17	No
ini.	2	0	-21495	2353			1165	438	SLV 15	0.19	No
fin.	2	0	48787	1430			1165	438	SLV 15	0.31	No
ini.	2	0	-43163	2054			1165	438	SLV 12	0.21	No
fin.	2	0	-7489	848			1165	438	SLV 12	0.52	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.395	SLV 13	Si
V_SLV	0.137	SLV 1	No
PF_SLV	10.225	SLV 73	Si



Stato limite	Coeff.s.	Comb.	Verifica
V_SLU	0.223	SLU 83	No

## Trave di accoppiamento 75

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1736.3	-335.9	483	573	90	-1826.3	-335.9	483	573	90	90	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	484	-37093	103792	SLU 73	2.8	Si
fin.	3	-1648	68986	103792	SLU 73	1.5	Si
ini.	3	341	-30168	103792	SLU 55	3.44	Si
fin.	3	-1518	60940	103792	SLU 55	1.7	Si
ini.	3	400	-32428	103792	SLU 76	3.2	Si
fin.	3	-1570	65236	103792	SLU 76	1.59	Si
ini.	3	454	-34135	103792	SLU 82	3.04	Si
fin.	3	-1631	68113	103792	SLU 82	1.52	Si
ini.	3	370	-29470	103792	SLU 84	3.52	Si
fin.	3	-1554	64363	103792	SLU 84	1.61	Si
ini.	3	425	-34833	103792	SLU 52	2.98	Si
fin.	3	-1595	64689	103792	SLU 52	1.6	Si
ini.	3	425	-35109	103792	SLU 65	2.96	Si
fin.	3	-1570	63824	103792	SLU 65	1.63	Si
ini.	3	395	-31876	103792	SLU 61	3.26	Si
fin.	3	-1578	63816	103792	SLU 61	1.63	Si
ini.	3	370	-28424	103792	SLU 81	3.65	Si
fin.	3	-1556	63486	103792	SLU 81	1.63	Si
ini.	3	377	-30203	103792	SLU 75	3.44	Si
fin.	3	-1548	63724	103792	SLU 75	1.63	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-28424	363			970	365	SLU 81	1.01	Si
fin.	3	0	63486	3638			970	365	SLU 81	0.1	No
ini.	3	0	-30203	410			970	365	SLU 75	0.89	No
fin.	3	0	63724	3619			970	365	SLU 75	0.1	No
ini.	3	0	-34833	673			970	365	SLU 52	0.54	No
fin.	3	0	64689	3577			970	365	SLU 52	0.1	No
ini.	3	0	-29470	380			970	365	SLU 84	0.96	No
fin.	3	0	64363	3641			970	365	SLU 84	0.1	No
ini.	3	0	-31876	538			970	365	SLU 61	0.68	No
fin.	3	0	63816	3584			970	365	SLU 61	0.1	No
ini.	3	0	-23759	148			970	365	SLU 83	2.47	Si
fin.	3	0	59736	3492			970	365	SLU 83	0.1	No
ini.	3	0	-35109	683			970	365	SLU 65	0.53	No
fin.	3	0	63824	3532			970	365	SLU 65	0.1	No
ini.	3	0	-37093	730			970	365	SLU 73	0.5	No
fin.	3	0	68986	3780			970	365	SLU 73	0.1	No
ini.	3	0	-32428	514			970	365	SLU 76	0.71	No
fin.	3	0	65236	3634			970	365	SLU 76	0.1	No
ini.	3	0	-34135	595			970	365	SLU 82	0.61	No
fin.	3	0	68113	3787			970	365	SLU 82	0.1	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-3005	123860	121694	SLV 3	0.98	No
fin.	2	826	-68242	121694	SLV 3	1.78	Si
ini.	2	3454	-163370	121694	SLV 14	0.74	No
fin.	2	-3071	155630	121694	SLV 14	0.78	No
ini.	2	3341	-118200	121694	SLV 9	1.03	Si
fin.	2	-2877	149828	121694	SLV 9	0.81	No
ini.	2	-3005	123860	121694	SLV 4	0.98	No
fin.	2	826	-68242	121694	SLV 4	1.78	Si
ini.	2	3341	-118200	121694	SLV 10	1.03	Si
fin.	2	-2877	149828	121694	SLV 10	0.81	No
ini.	2	1828	-42981	121694	SLV 6	2.83	Si
fin.	2	-1939	97018	121694	SLV 6	1.25	Si
ini.	2	3454	-163370	121694	SLV 13	0.74	No
fin.	2	-3071	155630	121694	SLV 13	0.78	No
ini.	2	2038	-126869	121694	SLV 15	0.96	No
fin.	2	-2300	107792	121694	SLV 15	1.13	Si
ini.	2	2038	-126869	121694	SLV 16	0.96	No
fin.	2	-2300	107792	121694	SLV 16	1.13	Si
ini.	2	1828	-42981	121694	SLV 5	2.83	Si
fin.	2	-1939	97018	121694	SLV 5	1.25	Si



#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-163370	6546			1456	548	SLV 13	0.08	No
fin.	2	0	155630	7686			1456	548	SLV 13	0.07	No
ini.	2	0	-42981	2004			1456	548	SLV 5	0.27	No
fin.	2	0	97018	5613			1456	548	SLV 5	0.1	No
ini.	2	0	-126869	4526			1456	548	SLV 16	0.12	No
fin.	2	0	107792	5153			1456	548	SLV 16	0.11	No
ini.	2	0	123860	-6089			1456	548	SLV 4	0.09	No
fin.	2	0	-68242	-2581			1456	548	SLV 4	0.21	No
ini.	2	0	-42981	2004			1456	548	SLV 6	0.27	No
fin.	2	0	97018	5613			1456	548	SLV 6	0.1	No
ini.	2	0	-118200	5189			1456	548	SLV 9	0.11	No
fin.	2	0	149828	7934			1456	548	SLV 9	0.07	No
ini.	2	0	-118200	5189			1456	548	SLV 10	0.11	No
fin.	2	0	149828	7934			1456	548	SLV 10	0.07	No
ini.	2	0	-163370	6546			1456	548	SLV 14	0.08	No
fin.	2	0	155630	7686			1456	548	SLV 14	0.07	No
ini.	2	0	-126869	4526			1456	548	SLV 15	0.12	No
fin.	2	0	107792	5153			1456	548	SLV 15	0.11	No
ini.	2	0	123860	-6089			1456	548	SLV 3	0.09	No
fin.	2	0	-68242	-2581			1456	548	SLV 3	0.21	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.745	SLV 13	No
V_SLV	0.069	SLV 9	No
PF_SLU	1.505	SLU 73	Si
V_SLU	0.096	SLU 82	No

#### Trave di accoppiamento 76

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1736.3	-335.9	753	835	82	-1826.3	-335.9	753	835	82	90	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1038	-26578	89792	SLU 60	3.38	Si
fin.	3	-254	7424	89792	SLU 60	12.1	Si
ini.	3	-1083	-27767	89792	SLU 81	3.23	Si
fin.	3	-293	7011	89792	SLU 81	12.81	Si
ini.	3	-1090	-25579	89792	SLU 76	3.51	Si
fin.	3	-245	11261	89792	SLU 76	7.97	Si
ini.	3	-1165	-27037	89792	SLU 52	3.32	Si
fin.	3	-95	15851	89792	SLU 52	5.66	Si
ini.	3	-1077	-25169	89792	SLU 65	3.57	Si
fin.	3	-67	15630	89792	SLU 65	5.74	Si
ini.	3	-1035	-25632	89792	SLU 75	3.5	Si
fin.	3	-260	8864	89792	SLU 75	10.13	Si
ini.	3	-1193	-28828	89792	SLU 82	3.11	Si
fin.	3	-215	12017	89792	SLU 82	7.47	Si
ini.	3	-1073	-26181	89792	SLU 84	3.43	Si
fin.	3	-326	7840	89792	SLU 84	11.45	Si
ini.	3	-1210	-28226	89792	SLU 73	3.18	Si
fin.	3	-134	15438	89792	SLU 73	5.82	Si
ini.	3	-1149	-27639	89792	SLU 61	3.25	Si
fin.	3	-176	12430	89792	SLU 61	7.22	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-27767	2638			806	303	SLU 81	0.11	No
fin.	3	0	7011	-1108			806	303	SLU 81	0.27	No
ini.	3	0	-26578	2459			806	303	SLU 60	0.12	No
fin.	3	0	7424	-945			806	303	SLU 60	0.32	No
ini.	3	0	-27037	2455			806	303	SLU 52	0.12	No
fin.	3	0	15851	-477			806	303	SLU 52	0.64	No
ini.	3	0	-25579	2479			806	303	SLU 76	0.12	No
fin.	3	0	11261	-842			806	303	SLU 76	0.36	No
ini.	3	0	-28828	2703			806	303	SLU 82	0.11	No
fin.	3	0	12017	-866			806	303	SLU 82	0.35	No
ini.	3	0	-25632	2500			806	303	SLU 75	0.12	No
fin.	3	0	8864	-981			806	303	SLU 75	0.31	No
ini.	3	0	-25120	2483			806	303	SLU 83	0.12	No
fin.	3	0	2834	-1310			806	303	SLU 83	0.23	No
ini.	3	0	-27639	2524			806	303	SLU 61	0.12	No
fin.	3	0	12430	-703			806	303	SLU 61	0.43	No
ini.	3	0	-28226	2634			806	303	SLU 73	0.12	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	15438	-640			806	303	SLU 73	0.47	No
ini.	3	0	-26181	2548			806	303	SLU 84	0.12	No
fin.	3	0	7840	-1068			806	303	SLU 84	0.28	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-994	-39812	107694	SLV 15	2.71	Si
fin.	2	2249	76529	107694	SLV 15	1.41	Si
ini.	2	-927	-98007	107694	SLV 9	1.1	Si
fin.	2	3276	98528	107694	SLV 9	1.09	Si
ini.	2	-994	-39812	107694	SLV 16	2.71	Si
fin.	2	2249	76529	107694	SLV 16	1.41	Si
ini.	2	-365	42790	107694	SLV 3	2.52	Si
fin.	2	-4068	-104673	107694	SLV 3	1.03	Si
ini.	2	-1065	-80015	107694	SLV 14	1.35	Si
fin.	2	3744	115953	107694	SLV 14	0.93	No
ini.	2	-927	-98007	107694	SLV 10	1.1	Si
fin.	2	3276	98528	107694	SLV 10	1.09	Si
ini.	2	-1065	-80015	107694	SLV 13	1.35	Si
fin.	2	3744	115953	107694	SLV 13	0.93	No
ini.	2	-503	60783	107694	SLV 8	1.77	Si
fin.	2	-3601	-87248	107694	SLV 8	1.23	Si
ini.	2	-503	60783	107694	SLV 7	1.77	Si
fin.	2	-3601	-87248	107694	SLV 7	1.23	Si
ini.	2	-365	42790	107694	SLV 4	2.52	Si
fin.	2	-4068	-104673	107694	SLV 4	1.03	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	60783	-1914			1208	455	SLV 7	0.24	No
fin.	2	0	-87248	-3815			1208	455	SLV 7	0.12	No
ini.	2	0	-73227	4013			1208	455	SLV 5	0.11	No
fin.	2	0	44167	397			1208	455	SLV 5	1.15	Si
ini.	2	0	-98007	5467			1208	455	SLV 10	0.08	No
fin.	2	0	98528	2425			1208	455	SLV 10	0.19	No
ini.	2	0	-73227	4013			1208	455	SLV 6	0.11	No
fin.	2	0	44167	397			1208	455	SLV 6	1.15	Si
ini.	2	0	42790	-1536			1208	455	SLV 4	0.3	No
fin.	2	0	-104673	-4706			1208	455	SLV 4	0.1	No
ini.	2	0	42790	-1536			1208	455	SLV 3	0.3	No
fin.	2	0	-104673	-4706			1208	455	SLV 3	0.1	No
ini.	2	0	60783	-1914			1208	455	SLV 8	0.24	No
fin.	2	0	-87248	-3815			1208	455	SLV 8	0.12	No
ini.	2	0	-98007	5467			1208	455	SLV 9	0.08	No
fin.	2	0	98528	2425			1208	455	SLV 9	0.19	No
ini.	2	0	-80015	5089			1208	455	SLV 14	0.09	No
fin.	2	0	115953	3316			1208	455	SLV 14	0.14	No
ini.	2	0	-80015	5089			1208	455	SLV 13	0.09	No
fin.	2	0	115953	3316			1208	455	SLV 13	0.14	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.929	SLV 13	No
V_SLV	0.083	SLV 9	No
PF_SLU	3.115	SLU 82	Si
V_SLU	0.112	SLU 82	No

### Trave di accoppiamento 77

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1705.3	-486.2	809	835	26	-1705.3	-377.2	809	835	26	109	30	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	2	1314	10289	SLU 41	7.83	Si
fin.	3	2	4290	10289	SLU 41	2.4	Si
ini.	3	1	1241	10289	SLU 18	8.29	Si
fin.	3	1	4591	10289	SLU 18	2.24	Si
ini.	3	2	1632	10289	SLU 81	6.3	Si
fin.	3	2	5734	10289	SLU 81	1.79	Si
ini.	3	1	1110	10289	SLU 39	9.27	Si
fin.	3	1	6305	10289	SLU 39	1.63	Si
ini.	3	3	2523	10289	SLU 50	4.08	Si
fin.	3	3	-4547	10289	SLU 50	2.26	Si
ini.	3	7	1651	10289	SLU 40	6.23	Si
fin.	3	7	6036	10289	SLU 40	1.7	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	10	2117	10289	SLU 31	4.86	Si
fin.	3	10	4495	10289	SLU 31	2.29	Si
ini.	3	7	2173	10289	SLU 82	4.73	Si
fin.	3	7	5465	10289	SLU 82	1.88	Si
ini.	3	6	1782	10289	SLU 19	5.78	Si
fin.	3	6	4322	10289	SLU 19	2.38	Si
ini.	3	8	3063	10289	SLU 51	3.36	Si
fin.	3	8	-4816	10289	SLU 51	2.14	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	2862	26			200	75	SLU 70	2.94	Si
fin.	3	0	-2373	-122			200	75	SLU 70	0.62	No
ini.	3	0	2452	16			200	75	SLU 48	4.68	Si
fin.	3	0	-3817	-131			200	75	SLU 48	0.57	No
ini.	3	0	2932	18			200	75	SLU 72	4.13	Si
fin.	3	0	-3102	-129			200	75	SLU 72	0.58	No
ini.	3	0	2789	29			200	75	SLU 46	2.59	Si
fin.	3	0	-2071	-118			200	75	SLU 46	0.64	No
ini.	3	0	2541	-6			200	75	SLU 9	13.42	Si
fin.	3	0	-4245	-119			200	75	SLU 9	0.63	No
ini.	3	0	2392	26			200	75	SLU 71	2.93	Si
fin.	3	0	-2833	-122			200	75	SLU 71	0.62	No
ini.	3	0	3063	1			200	75	SLU 51	56.14	Si
fin.	3	0	-4816	-146			200	75	SLU 51	0.52	No
ini.	3	0	2523	9			200	75	SLU 50	8.59	Si
fin.	3	0	-4547	-138			200	75	SLU 50	0.54	No
ini.	3	0	3220	17			200	75	SLU 47	4.5	Si
fin.	3	0	-2980	-131			200	75	SLU 47	0.58	No
ini.	3	0	2993	9			200	75	SLU 49	8.68	Si
fin.	3	0	-4086	-139			200	75	SLU 49	0.54	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	117	-3294	15434	SLV 10	4.68	Si
fin.	2	274	56342	15434	SLV 10	0.27	No
ini.	2	92	-2305	15434	SLV 5	6.69	Si
fin.	2	243	42058	15434	SLV 5	0.37	No
ini.	2	-114	6263	15434	SLV 7	2.46	Si
fin.	2	-271	-53440	15434	SLV 7	0.29	No
ini.	2	-89	5274	15434	SLV 12	2.93	Si
fin.	2	-241	-39155	15434	SLV 12	0.39	No
ini.	2	117	-3294	15434	SLV 9	4.68	Si
fin.	2	274	56342	15434	SLV 9	0.27	No
ini.	2	-89	5274	15434	SLV 11	2.93	Si
fin.	2	-241	-39155	15434	SLV 11	0.39	No
ini.	2	73	-1449	15434	SLV 14	10.65	Si
fin.	2	129	39584	15434	SLV 14	0.39	No
ini.	2	73	-1449	15434	SLV 13	10.65	Si
fin.	2	129	39584	15434	SLV 13	0.39	No
ini.	2	-114	6263	15434	SLV 8	2.46	Si
fin.	2	-271	-53440	15434	SLV 8	0.29	No
ini.	2	92	-2305	15434	SLV 6	6.69	Si
fin.	2	243	42058	15434	SLV 6	0.37	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	5274	-272			300	113	SLV 11	0.42	No
fin.	2	0	-39155	-409			300	113	SLV 11	0.28	No
ini.	2	0	-1449	395			300	113	SLV 14	0.29	No
fin.	2	0	39584	229			300	113	SLV 14	0.49	No
ini.	2	0	6263	-404			300	113	SLV 8	0.28	No
fin.	2	0	-53440	-508			300	113	SLV 8	0.22	No
ini.	2	0	-2305	385			300	113	SLV 5	0.29	No
fin.	2	0	42058	295			300	113	SLV 5	0.38	No
ini.	2	0	-2305	385			300	113	SLV 6	0.29	No
fin.	2	0	42058	295			300	113	SLV 6	0.38	No
ini.	2	0	-3294	517			300	113	SLV 9	0.22	No
fin.	2	0	56342	395			300	113	SLV 9	0.29	No
ini.	2	0	6263	-404			300	113	SLV 7	0.28	No
fin.	2	0	-53440	-508			300	113	SLV 7	0.22	No
ini.	2	0	-3294	517			300	113	SLV 10	0.22	No
fin.	2	0	56342	395			300	113	SLV 10	0.29	No
ini.	2	0	-1449	395			300	113	SLV 13	0.29	No
fin.	2	0	39584	229			300	113	SLV 13	0.49	No
ini.	2	0	5274	-272			300	113	SLV 12	0.42	No
fin.	2	0	-39155	-409			300	113	SLV 12	0.28	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.274	SLV 9	No
V_SLV	0.219	SLV 9	No
PF_SLU	1.632	SLU 39	Si
V_SLU	0.516	SLU 51	No



Trave di accoppiamento 78

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1543.3	-335.9	693	835	142	-1633.3	-335.9	693	835	142	90	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1235	-151364	194792	SLU 65	1.29	Si
fin.	3	-1235	150399	194792	SLU 65	1.3	Si
ini.	3	-1413	-147822	194792	SLU 81	1.32	Si
fin.	3	-1413	146811	194792	SLU 81	1.33	Si
ini.	3	-1396	-163037	194792	SLU 73	1.19	Si
fin.	3	-1396	165136	194792	SLU 73	1.18	Si
ini.	3	-1357	-147924	194792	SLU 52	1.32	Si
fin.	3	-1357	149408	194792	SLU 52	1.3	Si
ini.	3	-1444	-159952	194792	SLU 82	1.22	Si
fin.	3	-1444	161596	194792	SLU 82	1.21	Si
ini.	3	-1305	-151701	194792	SLU 76	1.28	Si
fin.	3	-1305	153062	194792	SLU 76	1.27	Si
ini.	3	-1405	-144840	194792	SLU 61	1.34	Si
fin.	3	-1405	145868	194792	SLU 61	1.34	Si
ini.	3	-1142	-140246	194792	SLU 31	1.39	Si
fin.	3	-1142	143893	194792	SLU 31	1.35	Si
ini.	3	-1353	-148617	194792	SLU 84	1.31	Si
fin.	3	-1353	149521	194792	SLU 84	1.3	Si
ini.	3	-1288	-148803	194792	SLU 75	1.31	Si
fin.	3	-1288	147839	194792	SLU 75	1.32	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-148617	4111			1531	576	SLU 84	0.14	No
fin.	3	0	149521	2473			1531	576	SLU 84	0.23	No
ini.	3	0	-147924	3961			1531	576	SLU 52	0.15	No
fin.	3	0	149408	2603			1531	576	SLU 52	0.22	No
ini.	3	0	-148803	4047			1531	576	SLU 75	0.14	No
fin.	3	0	147839	2504			1531	576	SLU 75	0.23	No
ini.	3	0	-151364	3993			1531	576	SLU 65	0.14	No
fin.	3	0	150399	2671			1531	576	SLU 65	0.22	No
ini.	3	0	-136486	3812			1531	576	SLU 83	0.15	No
fin.	3	0	134737	2174			1531	576	SLU 83	0.27	No
ini.	3	0	-163037	4397			1531	576	SLU 73	0.13	No
fin.	3	0	165136	2854			1531	576	SLU 73	0.2	No
ini.	3	0	-144840	3935			1531	576	SLU 61	0.15	No
fin.	3	0	145868	2482			1531	576	SLU 61	0.23	No
ini.	3	0	-151701	4137			1531	576	SLU 76	0.14	No
fin.	3	0	153062	2594			1531	576	SLU 76	0.22	No
ini.	3	0	-147822	4072			1531	576	SLU 81	0.14	No
fin.	3	0	146811	2434			1531	576	SLU 81	0.24	No
ini.	3	0	-159952	4371			1531	576	SLU 82	0.13	No
fin.	3	0	161596	2733			1531	576	SLU 82	0.21	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2999	269485	212694	SLV 3	0.79	No
fin.	2	-3261	-170079	212694	SLV 3	1.25	Si
ini.	2	1103	-471275	212694	SLV 14	0.45	No
fin.	2	1365	365061	212694	SLV 14	0.58	No
ini.	2	-2999	269485	212694	SLV 4	0.79	No
fin.	2	-3261	-170079	212694	SLV 4	1.25	Si
ini.	2	157	-392481	212694	SLV 15	0.54	No
fin.	2	480	353178	212694	SLV 15	0.6	No
ini.	2	157	-392481	212694	SLV 16	0.54	No
fin.	2	480	353178	212694	SLV 16	0.6	No
ini.	2	1103	-471275	212694	SLV 13	0.45	No
fin.	2	1365	365061	212694	SLV 13	0.58	No
ini.	2	1103	-331513	212694	SLV 9	0.64	No
fin.	2	1089	195783	212694	SLV 9	1.09	Si
ini.	2	-72	-259680	212694	SLD 13	0.82	No
fin.	2	42	212440	212694	SLD 13	1	Si
ini.	2	1103	-331513	212694	SLV 10	0.64	No
fin.	2	1089	195783	212694	SLV 10	1.09	Si
ini.	2	-72	-259680	212694	SLD 14	0.82	No
fin.	2	42	212440	212694	SLD 14	1	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-331513	7298			2297	864	SLV 9	0.12	No
fin.	2	0	195783	5577			2297	864	SLV 9	0.15	No
ini.	2	0	269485	-4813			2297	864	SLV 4	0.18	No



Sezione	$\gamma M$	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-170079	-5554			2297	864	SLV 4	0.16	No
ini.	2	0	-331513	7298			2297	864	SLV 10	0.12	No
fin.	2	0	195783	5577			2297	864	SLV 10	0.15	No
ini.	2	0	-259680	5939			2297	864	SLD 14	0.15	No
fin.	2	0	212440	4768			2297	864	SLD 14	0.18	No
ini.	2	0	-471275	10229			2297	864	SLV 13	0.08	No
fin.	2	0	365061	8891			2297	864	SLV 13	0.1	No
ini.	2	0	-471275	10229			2297	864	SLV 14	0.08	No
fin.	2	0	365061	8891			2297	864	SLV 14	0.1	No
ini.	2	0	-392481	8690			2297	864	SLV 15	0.1	No
fin.	2	0	353178	7742			2297	864	SLV 15	0.11	No
ini.	2	0	-392481	8690			2297	864	SLV 16	0.1	No
fin.	2	0	353178	7742			2297	864	SLV 16	0.11	No
ini.	2	0	-259680	5939			2297	864	SLD 13	0.15	No
fin.	2	0	212440	4768			2297	864	SLD 13	0.18	No
ini.	2	0	269485	-4813			2297	864	SLV 3	0.18	No
fin.	2	0	-170079	-5554			2297	864	SLV 3	0.16	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.451	SLV 13	No
V_SLV	0.085	SLV 13	No
PF_SLU	1.18	SLU 73	Si
V_SLU	0.131	SLU 73	No

## Trave di accoppiamento 79

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1443.8	-485.9	809	835	26	-1627.8	-485.9	809	835	26	184	30	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

$f_b$	$f_{hk}$	$f_{vk0}$	$f_{hmedio}$	$\tau_0$	$f_{v0}$	$\mu$	$\phi$	$f_{vk,lim}$	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	$\gamma M$	N	M	$\mu$	Comb.	c.s.	Verifica
ini.	3	-4	-318	10289	SLU 79	32.31	Si
fin.	3	-4	-7386	10289	SLU 79	1.39	Si
ini.	3	-11	-816	10289	SLU 78	12.61	Si
fin.	3	-11	-6914	10289	SLU 78	1.49	Si
ini.	3	-5	-500	10289	SLU 77	20.57	Si
fin.	3	-5	-7208	10289	SLU 77	1.43	Si
ini.	3	-3	1510	10289	SLU 37	6.81	Si
fin.	3	-3	-7448	10289	SLU 37	1.38	Si
ini.	3	-10	1013	10289	SLU 36	10.16	Si
fin.	3	-10	-6975	10289	SLU 36	1.48	Si
ini.	3	-9	1195	10289	SLU 38	8.61	Si
fin.	3	-9	-7153	10289	SLU 38	1.44	Si
ini.	3	-10	-634	10289	SLU 80	16.23	Si
fin.	3	-10	-7091	10289	SLU 80	1.45	Si
ini.	3	-17	-6894	10289	SLU 44	1.49	Si
fin.	3	-17	-818	10289	SLU 44	12.58	Si
ini.	3	-8	846	10289	SLU 41	12.16	Si
fin.	3	-8	-6808	10289	SLU 41	1.51	Si
ini.	3	-3	1328	10289	SLU 35	7.75	Si
fin.	3	-3	-7270	10289	SLU 35	1.42	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	$\gamma M$	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-816	90			200	75	SLU 78	0.84	No
fin.	3	0	-6914	-156			200	75	SLU 78	0.48	No
ini.	3	0	-1861	102			200	75	SLU 56	0.74	No
fin.	3	0	-5829	-145			200	75	SLU 56	0.52	No
ini.	3	0	-634	88			200	75	SLU 80	0.86	No
fin.	3	0	-7091	-158			200	75	SLU 80	0.48	No
ini.	3	0	-318	85			200	75	SLU 79	0.89	No
fin.	3	0	-7386	-162			200	75	SLU 79	0.47	No
ini.	3	0	-982	92			200	75	SLU 83	0.82	No
fin.	3	0	-6746	-154			200	75	SLU 83	0.49	No
ini.	3	0	-6368	151			200	75	SLU 43	0.5	No
fin.	3	0	-1309	-96			200	75	SLU 43	0.79	No
ini.	3	0	-6894	156			200	75	SLU 44	0.48	No
fin.	3	0	-818	-90			200	75	SLU 44	0.84	No
ini.	3	0	-1679	100			200	75	SLU 58	0.76	No
fin.	3	0	-6007	-147			200	75	SLU 58	0.51	No
ini.	3	0	-500	87			200	75	SLU 77	0.87	No
fin.	3	0	-7208	-160			200	75	SLU 77	0.47	No
ini.	3	0	-1297	95			200	75	SLU 84	0.79	No
fin.	3	0	-6452	-151			200	75	SLU 84	0.5	No



#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	236	43111	15434	SLV 4	0.36	No
fin.	2	186	-47081	15434	SLV 4	0.33	No
ini.	2	228	52592	15434	SLV 1	0.29	No
fin.	2	221	-56632	15434	SLV 1	0.27	No
ini.	2	236	43111	15434	SLV 3	0.36	No
fin.	2	186	-47081	15434	SLV 3	0.33	No
ini.	2	-249	-50378	15434	SLV 14	0.31	No
fin.	2	-199	42499	15434	SLV 14	0.36	No
ini.	2	-241	-59860	15434	SLV 15	0.26	No
fin.	2	-234	52050	15434	SLV 15	0.3	No
ini.	2	-241	-59860	15434	SLV 16	0.26	No
fin.	2	-234	52050	15434	SLV 16	0.3	No
ini.	2	228	52592	15434	SLV 2	0.29	No
fin.	2	221	-56632	15434	SLV 2	0.27	No
ini.	2	-249	-50378	15434	SLV 13	0.31	No
fin.	2	-199	42499	15434	SLV 13	0.36	No
ini.	2	-64	-34882	15434	SLV 12	0.44	No
fin.	2	-126	28496	15434	SLV 12	0.54	No
ini.	2	-64	-34882	15434	SLV 11	0.44	No
fin.	2	-126	28496	15434	SLV 11	0.54	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	43111	-421			300	113	SLV 4	0.27	No
fin.	2	0	-47081	-623			300	113	SLV 4	0.18	No
ini.	2	0	43111	-421			300	113	SLV 3	0.27	No
fin.	2	0	-47081	-623			300	113	SLV 3	0.18	No
ini.	2	0	-59860	704			300	113	SLV 16	0.16	No
fin.	2	0	52050	479			300	113	SLV 16	0.24	No
ini.	2	0	-34882	402			300	113	SLV 12	0.28	No
fin.	2	0	28496	129			300	113	SLV 12	0.88	No
ini.	2	0	-34882	402			300	113	SLV 11	0.28	No
fin.	2	0	28496	129			300	113	SLV 11	0.88	No
ini.	2	0	52592	-500			300	113	SLV 1	0.23	No
fin.	2	0	-56632	-654			300	113	SLV 1	0.17	No
ini.	2	0	-50378	625			300	113	SLV 14	0.18	No
fin.	2	0	42499	448			300	113	SLV 14	0.25	No
ini.	2	0	-59860	704			300	113	SLV 15	0.16	No
fin.	2	0	52050	479			300	113	SLV 15	0.24	No
ini.	2	0	52592	-500			300	113	SLV 2	0.23	No
fin.	2	0	-56632	-654			300	113	SLV 2	0.17	No
ini.	2	0	-50378	625			300	113	SLV 13	0.18	No
fin.	2	0	42499	448			300	113	SLV 13	0.25	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.258	SLV 15	No
V_SLV	0.161	SLV 15	No
PF_SLU	1.382	SLU 37	Si
V_SLU	0.467	SLU 79	No

#### Trave di accoppiamento 80

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1505.8	140.6	693	835	142	-1505.8	220.6	693	835	142	80	14	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>tk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>vk0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	120	40099	141083	SLU 35	3.52	Si
fin.	3	120	-194395	141083	SLU 35	0.73	No
ini.	3	126	39698	141083	SLU 38	3.55	Si
fin.	3	126	-194298	141083	SLU 38	0.73	No
ini.	3	123	39773	141083	SLU 37	3.55	Si
fin.	3	123	-194458	141083	SLU 37	0.73	No
ini.	3	155	43974	141083	SLU 84	3.21	Si
fin.	3	155	-202896	141083	SLU 84	0.7	No
ini.	3	150	44361	141083	SLU 79	3.18	Si
fin.	3	150	-208801	141083	SLU 79	0.68	No
ini.	3	153	44286	141083	SLU 80	3.19	Si
fin.	3	153	-208641	141083	SLU 80	0.68	No
ini.	3	124	40024	141083	SLU 36	3.52	Si
fin.	3	124	-194235	141083	SLU 36	0.73	No
ini.	3	151	44049	141083	SLU 83	3.2	Si
fin.	3	151	-203055	141083	SLU 83	0.69	No
ini.	3	151	44612	141083	SLU 78	3.16	Si





Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
fin.	3	151	-208578	141083	SLU 78	0.68	No
ini.	3	147	44687	141083	SLU 77	3.16	Si
fin.	3	147	-208738	141083	SLU 77	0.68	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	44612	-2937			766	288	SLU 78	0.1	No
fin.	3	0	-208578	-3384			766	288	SLU 78	0.09	No
ini.	3	0	39773	-2749			766	288	SLU 37	0.1	No
fin.	3	0	-194458	-3101			766	288	SLU 37	0.09	No
ini.	3	0	44286	-2934			766	288	SLU 80	0.1	No
fin.	3	0	-208641	-3381			766	288	SLU 80	0.09	No
ini.	3	0	44049	-2861			766	288	SLU 83	0.1	No
fin.	3	0	-203055	-3308			766	288	SLU 83	0.09	No
ini.	3	0	40099	-2753			766	288	SLU 35	0.1	No
fin.	3	0	-194395	-3104			766	288	SLU 35	0.09	No
ini.	3	0	44687	-2940			766	288	SLU 77	0.1	No
fin.	3	0	-208738	-3387			766	288	SLU 77	0.09	No
ini.	3	0	44361	-2937			766	288	SLU 79	0.1	No
fin.	3	0	-208801	-3384			766	288	SLU 79	0.09	No
ini.	3	0	43974	-2858			766	288	SLU 84	0.1	No
fin.	3	0	-202896	-3305			766	288	SLU 84	0.09	No
ini.	3	0	40024	-2750			766	288	SLU 36	0.1	No
fin.	3	0	-194235	-3101			766	288	SLU 36	0.09	No
ini.	3	0	39698	-2746			766	288	SLU 38	0.1	No
fin.	3	0	-194298	-3098			766	288	SLU 38	0.09	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1612	-102942	176889	SLV 5	1.72	Si
fin.	2	1793	387687	176889	SLV 5	0.46	No
ini.	2	-1346	144096	176889	SLV 8	1.23	Si
fin.	2	-1523	-554002	176889	SLV 8	0.32	No
ini.	2	-422	78606	176889	SLV 15	2.25	Si
fin.	2	-482	-318757	176889	SLV 15	0.55	No
ini.	2	1560	-93262	176889	SLV 10	1.9	Si
fin.	2	1738	344143	176889	SLV 10	0.51	No
ini.	2	-1346	144096	176889	SLV 7	1.23	Si
fin.	2	-1523	-554002	176889	SLV 7	0.32	No
ini.	2	-1397	153776	176889	SLV 11	1.15	Si
fin.	2	-1578	-597547	176889	SLV 11	0.3	No
ini.	2	-422	78606	176889	SLV 16	2.25	Si
fin.	2	-482	-318757	176889	SLV 16	0.55	No
ini.	2	-1397	153776	176889	SLV 12	1.15	Si
fin.	2	-1578	-597547	176889	SLV 12	0.3	No
ini.	2	1612	-102942	176889	SLV 6	1.72	Si
fin.	2	1793	387687	176889	SLV 6	0.46	No
ini.	2	1560	-93262	176889	SLV 9	1.9	Si
fin.	2	1738	344143	176889	SLV 9	0.51	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	144096	-8317			1148	432	SLV 7	0.05	No
fin.	2	0	-554002	-8680			1148	432	SLV 7	0.05	No
ini.	2	0	-102942	6042			1148	432	SLV 5	0.07	No
fin.	2	0	387687	5761			1148	432	SLV 5	0.08	No
ini.	2	0	-93262	5406			1148	432	SLV 9	0.08	No
fin.	2	0	344143	5088			1148	432	SLV 9	0.08	No
ini.	2	0	78606	-4670			1148	432	SLV 16	0.09	No
fin.	2	0	-318757	-5084			1148	432	SLV 16	0.09	No
ini.	2	0	-93262	5406			1148	432	SLV 10	0.08	No
fin.	2	0	344143	5088			1148	432	SLV 10	0.08	No
ini.	2	0	-102942	6042			1148	432	SLV 6	0.07	No
fin.	2	0	387687	5761			1148	432	SLV 6	0.08	No
ini.	2	0	153776	-8953			1148	432	SLV 11	0.05	No
fin.	2	0	-597547	-9353			1148	432	SLV 11	0.05	No
ini.	2	0	153776	-8953			1148	432	SLV 12	0.05	No
fin.	2	0	-597547	-9353			1148	432	SLV 12	0.05	No
ini.	2	0	144096	-8317			1148	432	SLV 8	0.05	No
fin.	2	0	-554002	-8680			1148	432	SLV 8	0.05	No
ini.	2	0	78606	-4670			1148	432	SLV 15	0.09	No
fin.	2	0	-318757	-5084			1148	432	SLV 15	0.09	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.296	SLV 11	No
V_SLV	0.046	SLV 11	No
PF_SLU	0.676	SLU 79	No
V_SLU	0.085	SLU 77	No

## Trave di accoppiamento 81

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)



## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1375.3	-22.8	693	835	142	-1375.3	67.2	693	835	142	90	28	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-157	-165510	194792	SLU 71	1.18	Si
fin.	3	-157	59547	194792	SLU 71	3.27	Si
ini.	3	-153	-152386	194792	SLU 77	1.28	Si
fin.	3	-153	60278	194792	SLU 77	3.23	Si
ini.	3	-162	-168430	194792	SLU 69	1.16	Si
fin.	3	-162	59292	194792	SLU 69	3.29	Si
ini.	3	-148	-149466	194792	SLU 79	1.3	Si
fin.	3	-148	60533	194792	SLU 79	3.22	Si
ini.	3	-159	-159431	194792	SLU 29	1.22	Si
fin.	3	-159	56376	194792	SLU 29	3.46	Si
ini.	3	-153	-150752	194792	SLU 30	1.29	Si
fin.	3	-153	53107	194792	SLU 30	3.67	Si
ini.	3	-156	-159752	194792	SLU 70	1.22	Si
fin.	3	-156	56022	194792	SLU 70	3.48	Si
ini.	3	-152	-156832	194792	SLU 72	1.24	Si
fin.	3	-152	56277	194792	SLU 72	3.46	Si
ini.	3	-157	-153672	194792	SLU 28	1.27	Si
fin.	3	-157	52852	194792	SLU 28	3.69	Si
ini.	3	-163	-162351	194792	SLU 27	1.2	Si
fin.	3	-163	56122	194792	SLU 27	3.47	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-152386	2800			1531	576	SLU 77	0.21	No
fin.	3	0	60278	1969			1531	576	SLU 77	0.29	No
ini.	3	0	-162351	2769			1531	576	SLU 27	0.21	No
fin.	3	0	56122	2118			1531	576	SLU 27	0.27	No
ini.	3	0	-168430	2968			1531	576	SLU 69	0.19	No
fin.	3	0	59292	2136			1531	576	SLU 69	0.27	No
ini.	3	0	-143708	2667			1531	576	SLU 78	0.22	No
fin.	3	0	57008	1836			1531	576	SLU 78	0.31	No
ini.	3	0	-159752	2835			1531	576	SLU 70	0.2	No
fin.	3	0	56022	2004			1531	576	SLU 70	0.29	No
ini.	3	0	-159431	2740			1531	576	SLU 29	0.21	No
fin.	3	0	56376	2089			1531	576	SLU 29	0.28	No
ini.	3	0	-149466	2771			1531	576	SLU 79	0.21	No
fin.	3	0	60533	1939			1531	576	SLU 79	0.3	No
ini.	3	0	-140788	2638			1531	576	SLU 80	0.22	No
fin.	3	0	57263	1807			1531	576	SLU 80	0.32	No
ini.	3	0	-165510	2938			1531	576	SLU 71	0.2	No
fin.	3	0	59547	2107			1531	576	SLU 71	0.27	No
ini.	3	0	-156832	2805			1531	576	SLU 72	0.21	No
fin.	3	0	56277	1974			1531	576	SLU 72	0.29	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	γM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-906	-516407	212694	SLV 6	0.41	No
fin.	2	-1588	293918	212694	SLV 6	0.72	No
ini.	2	-2813	-437213	212694	SLV 13	0.49	No
fin.	2	-650	-5688	212694	SLV 13	37.4	Si
ini.	2	2212	502040	212694	SLV 7	0.42	No
fin.	2	1591	-181075	212694	SLV 7	1.17	Si
ini.	2	828	374073	212694	SLV 11	0.57	No
fin.	2	1511	-242625	212694	SLV 11	0.88	No
ini.	2	-906	-516407	212694	SLV 5	0.41	No
fin.	2	-1588	293918	212694	SLV 5	0.72	No
ini.	2	828	374073	212694	SLV 12	0.57	No
fin.	2	1511	-242625	212694	SLV 12	0.88	No
ini.	2	-2290	-644374	212694	SLV 9	0.33	No
fin.	2	-1669	232368	212694	SLV 9	0.92	No
ini.	2	-2813	-437213	212694	SLV 14	0.49	No
fin.	2	-650	-5688	212694	SLV 14	37.4	Si
ini.	2	2212	502040	212694	SLV 8	0.42	No
fin.	2	1591	-181075	212694	SLV 8	1.17	Si
ini.	2	-2290	-644374	212694	SLV 10	0.33	No
fin.	2	-1669	232368	212694	SLV 10	0.92	No

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	γM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-644374	9874			2297	864	SLV 9	0.09	No
fin.	2	0	232368	8501			2297	864	SLV 9	0.1	No
ini.	2	0	-315858	5015			2297	864	SLD 9	0.17	No
fin.	2	0	113097	4061			2297	864	SLD 9	0.21	No
ini.	2	0	-644374	9874			2297	864	SLV 10	0.09	No
fin.	2	0	232368	8501			2297	864	SLV 10	0.1	No
ini.	2	0	374073	-6353			2297	864	SLV 12	0.14	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-242625	-7733			2297	864	SLV 12	0.11	No
ini.	2	0	-516407	9172			2297	864	SLV 6	0.09	No
fin.	2	0	293918	9283			2297	864	SLV 6	0.09	No
ini.	2	0	502040	-7055			2297	864	SLV 7	0.12	No
fin.	2	0	-181075	-6950			2297	864	SLV 7	0.12	No
ini.	2	0	-516407	9172			2297	864	SLV 5	0.09	No
fin.	2	0	293918	9283			2297	864	SLV 5	0.09	No
ini.	2	0	502040	-7055			2297	864	SLV 8	0.12	No
fin.	2	0	-181075	-6950			2297	864	SLV 8	0.12	No
ini.	2	0	374073	-6353			2297	864	SLV 11	0.14	No
fin.	2	0	-242625	-7733			2297	864	SLV 11	0.11	No
ini.	2	0	-315858	5015			2297	864	SLD 10	0.17	No
fin.	2	0	113097	4061			2297	864	SLD 10	0.21	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.33	SLV 9	No
V_SLV	0.088	SLV 9	No
PF_SLU	1.157	SLU 69	Si
V_SLU	0.194	SLU 69	No

## Trave di accoppiamento 82

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1771.8	666.1	483	573	90	-1681.8	666.1	483	573	90	90	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1546	-2869	103792	SLU 84	36.18	Si
fin.	3	-1293	28675	103792	SLU 84	3.62	Si
ini.	3	-1601	-3574	103792	SLU 82	29.04	Si
fin.	3	-1390	30429	103792	SLU 82	3.41	Si
ini.	3	-1509	-2384	103792	SLU 74	43.54	Si
fin.	3	-1262	27697	103792	SLU 74	3.75	Si
ini.	3	-1505	-2573	103792	SLU 75	40.34	Si
fin.	3	-1264	27829	103792	SLU 75	3.73	Si
ini.	3	-1471	-2861	103792	SLU 61	36.28	Si
fin.	3	-1284	27536	103792	SLU 61	3.77	Si
ini.	3	-1475	-2671	103792	SLU 60	38.86	Si
fin.	3	-1281	27404	103792	SLU 60	3.79	Si
ini.	3	-1604	-3385	103792	SLU 81	30.67	Si
fin.	3	-1387	30297	103792	SLU 81	3.43	Si
ini.	3	-1550	-2680	103792	SLU 83	38.73	Si
fin.	3	-1291	28543	103792	SLU 83	3.64	Si
ini.	3	-1525	-3176	103792	SLU 73	32.68	Si
fin.	3	-1320	28736	103792	SLU 73	3.61	Si
ini.	3	-1471	-2470	103792	SLU 76	42.01	Si
fin.	3	-1224	26983	103792	SLU 76	3.85	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-2573	-993			970	365	SLU 75	0.37	No
fin.	3	0	27829	2448			970	365	SLU 75	0.15	No
ini.	3	0	-1679	-1034			970	365	SLU 77	0.35	No
fin.	3	0	25944	2379			970	365	SLU 77	0.15	No
ini.	3	0	-2680	-1011			970	365	SLU 83	0.36	No
fin.	3	0	28543	2487			970	365	SLU 83	0.15	No
ini.	3	0	-3176	-939			970	365	SLU 73	0.39	No
fin.	3	0	28736	2446			970	365	SLU 73	0.15	No
ini.	3	0	-3574	-970			970	365	SLU 82	0.38	No
fin.	3	0	30429	2556			970	365	SLU 82	0.14	No
ini.	3	0	-3385	-977			970	365	SLU 81	0.37	No
fin.	3	0	30297	2550			970	365	SLU 81	0.14	No
ini.	3	0	-2470	-973			970	365	SLU 76	0.38	No
fin.	3	0	26983	2383			970	365	SLU 76	0.15	No
ini.	3	0	-2384	-1000			970	365	SLU 74	0.37	No
fin.	3	0	27697	2442			970	365	SLU 74	0.15	No
ini.	3	0	-1868	-1028			970	365	SLU 78	0.36	No
fin.	3	0	26076	2385			970	365	SLU 78	0.15	No
ini.	3	0	-2869	-1005			970	365	SLU 84	0.36	No
fin.	3	0	28675	2492			970	365	SLU 84	0.15	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	279	-158691	121694	SLV 2	0.77	No
fin.	2	-5119	137429	121694	SLV 2	0.89	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	277	-143501	121694	SLV 4	0.85	No
fin.	2	-4531	133289	121694	SLV 4	0.91	No
ini.	2	279	-158691	121694	SLV 1	0.77	No
fin.	2	-5119	137429	121694	SLV 1	0.89	No
ini.	2	-2411	140600	121694	SLV 14	0.87	No
fin.	2	2714	-94706	121694	SLV 14	1.28	Si
ini.	2	-2412	155789	121694	SLV 15	0.78	No
fin.	2	3302	-98846	121694	SLV 15	1.23	Si
ini.	2	-2411	140600	121694	SLV 13	0.87	No
fin.	2	2714	-94706	121694	SLV 13	1.28	Si
ini.	2	277	-143501	121694	SLV 3	0.85	No
fin.	2	-4531	133289	121694	SLV 3	0.91	No
ini.	2	-661	-71660	121694	SLV 6	1.7	Si
fin.	2	-3064	61011	121694	SLV 6	1.99	Si
ini.	2	-2412	155789	121694	SLV 16	0.78	No
fin.	2	3302	-98846	121694	SLV 16	1.23	Si
ini.	2	-661	-71660	121694	SLV 5	1.7	Si
fin.	2	-3064	61011	121694	SLV 5	1.99	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	140600	-6238			1456	548	SLV 13	0.09	No
fin.	2	0	-94706	-4192			1456	548	SLV 13	0.13	No
ini.	2	0	-158691	5048			1456	548	SLV 2	0.11	No
fin.	2	0	137429	7119			1456	548	SLV 2	0.08	No
ini.	2	0	-158691	5048			1456	548	SLV 1	0.11	No
fin.	2	0	137429	7119			1456	548	SLV 1	0.08	No
ini.	2	0	155789	-6412			1456	548	SLV 16	0.09	No
fin.	2	0	-98846	-3725			1456	548	SLV 16	0.15	No
ini.	2	0	-143501	4873			1456	548	SLV 4	0.11	No
fin.	2	0	133289	7586			1456	548	SLV 4	0.07	No
ini.	2	0	140600	-6238			1456	548	SLV 14	0.09	No
fin.	2	0	-94706	-4192			1456	548	SLV 14	0.13	No
ini.	2	0	-143501	4873			1456	548	SLV 3	0.11	No
fin.	2	0	133289	7586			1456	548	SLV 3	0.07	No
ini.	2	0	155789	-6412			1456	548	SLV 15	0.09	No
fin.	2	0	-98846	-3725			1456	548	SLV 15	0.15	No
ini.	2	0	-63855	1754			1456	548	SLD 4	0.31	No
fin.	2	0	69300	4274			1456	548	SLD 4	0.13	No
ini.	2	0	-63855	1754			1456	548	SLD 3	0.31	No
fin.	2	0	69300	4274			1456	548	SLD 3	0.13	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.767	SLV 1	No
V_SLV	0.072	SLV 3	No
PF_SLU	3.411	SLU 82	Si
V_SLU	0.143	SLU 82	No

## Trave di accoppiamento 83

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1771.8	666.1	753	835	82	-1681.8	666.1	753	835	82	90	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fkhmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-296	-23104	89792	SLU 77	3.89	Si
fin.	3	158	-10929	89792	SLU 77	8.22	Si
ini.	3	-365	-23753	89792	SLU 83	3.78	Si
fin.	3	26	-12497	89792	SLU 83	7.18	Si
ini.	3	-338	-22614	89792	SLU 74	3.97	Si
fin.	3	29	-12261	89792	SLU 74	7.32	Si
ini.	3	-366	-23911	89792	SLU 84	3.76	Si
fin.	3	31	-12356	89792	SLU 84	7.27	Si
ini.	3	-408	-23422	89792	SLU 82	3.83	Si
fin.	3	-99	-13687	89792	SLU 82	6.56	Si
ini.	3	-282	-22755	89792	SLU 79	3.95	Si
fin.	3	182	-10380	89792	SLU 79	8.65	Si
ini.	3	-283	-22914	89792	SLU 80	3.92	Si
fin.	3	187	-10238	89792	SLU 80	8.77	Si
ini.	3	-297	-23262	89792	SLU 78	3.86	Si
fin.	3	163	-10788	89792	SLU 78	8.32	Si
ini.	3	-407	-23263	89792	SLU 81	3.86	Si
fin.	3	-104	-13829	89792	SLU 81	6.49	Si
ini.	3	-339	-22773	89792	SLU 75	3.94	Si
fin.	3	34	-12119	89792	SLU 75	7.41	Si



Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-23263	2156			806	303	SLU 81	0.14	No
fin.	3	0	-13829	-2110			806	303	SLU 81	0.14	No
ini.	3	0	-23262	2068			806	303	SLU 78	0.15	No
fin.	3	0	-10788	-1788			806	303	SLU 78	0.17	No
ini.	3	0	-23422	2162			806	303	SLU 82	0.14	No
fin.	3	0	-13687	-2104			806	303	SLU 82	0.14	No
ini.	3	0	-22040	2042			806	303	SLU 73	0.15	No
fin.	3	0	-12807	-1973			806	303	SLU 73	0.15	No
ini.	3	0	-23911	2157			806	303	SLU 84	0.14	No
fin.	3	0	-12356	-1977			806	303	SLU 84	0.15	No
ini.	3	0	-23753	2151			806	303	SLU 83	0.14	No
fin.	3	0	-12497	-1983			806	303	SLU 83	0.15	No
ini.	3	0	-22773	2073			806	303	SLU 75	0.15	No
fin.	3	0	-12119	-1914			806	303	SLU 75	0.16	No
ini.	3	0	-23104	2062			806	303	SLU 77	0.15	No
fin.	3	0	-10929	-1794			806	303	SLU 77	0.17	No
ini.	3	0	-22614	2067			806	303	SLU 74	0.15	No
fin.	3	0	-12261	-1920			806	303	SLU 74	0.16	No
ini.	3	0	-22530	2037			806	303	SLU 76	0.15	No
fin.	3	0	-11475	-1846			806	303	SLU 76	0.16	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1159	85361	107694	SLV 14	1.26	Si
fin.	2	-2076	-85761	107694	SLV 14	1.26	Si
ini.	2	-1070	-64937	107694	SLV 6	1.66	Si
fin.	2	847	24932	107694	SLV 6	4.32	Si
ini.	2	1397	96734	107694	SLV 16	1.11	Si
fin.	2	-2222	-91699	107694	SLV 16	1.17	Si
ini.	2	1397	96734	107694	SLV 15	1.11	Si
fin.	2	-2222	-91699	107694	SLV 15	1.17	Si
ini.	2	-1844	-125456	107694	SLV 2	0.86	No
fin.	2	2158	73880	107694	SLV 2	1.46	Si
ini.	2	-1844	-125456	107694	SLV 1	0.86	No
fin.	2	2158	73880	107694	SLV 1	1.46	Si
ini.	2	-1070	-64937	107694	SLV 5	1.66	Si
fin.	2	847	24932	107694	SLV 5	4.32	Si
ini.	2	-1606	-114083	107694	SLV 4	0.94	No
fin.	2	2012	67943	107694	SLV 4	1.59	Si
ini.	2	-1606	-114083	107694	SLV 3	0.94	No
fin.	2	2012	67943	107694	SLV 3	1.59	Si
ini.	2	1159	85361	107694	SLV 13	1.26	Si
fin.	2	-2076	-85761	107694	SLV 13	1.26	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-125456	5510			1208	455	SLV 2	0.08	No
fin.	2	0	73880	2321			1208	455	SLV 2	0.2	No
ini.	2	0	-64937	3477			1208	455	SLV 5	0.13	No
fin.	2	0	24932	144			1208	455	SLV 5	3.15	Si
ini.	2	0	85361	-2201			1208	455	SLV 13	0.21	No
fin.	2	0	-85761	-4742			1208	455	SLV 13	0.1	No
ini.	2	0	96734	-2772			1208	455	SLV 15	0.16	No
fin.	2	0	-91699	-4995			1208	455	SLV 15	0.09	No
ini.	2	0	-114083	4939			1208	455	SLV 4	0.09	No
fin.	2	0	67943	2067			1208	455	SLV 4	0.22	No
ini.	2	0	-125456	5510			1208	455	SLV 1	0.08	No
fin.	2	0	73880	2321			1208	455	SLV 1	0.2	No
ini.	2	0	96734	-2772			1208	455	SLV 16	0.16	No
fin.	2	0	-91699	-4995			1208	455	SLV 16	0.09	No
ini.	2	0	-64937	3477			1208	455	SLV 6	0.13	No
fin.	2	0	24932	144			1208	455	SLV 6	3.15	Si
ini.	2	0	-114083	4939			1208	455	SLV 3	0.09	No
fin.	2	0	67943	2067			1208	455	SLV 3	0.22	No
ini.	2	0	85361	-2201			1208	455	SLV 14	0.21	No
fin.	2	0	-85761	-4742			1208	455	SLV 14	0.1	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.858	SLV 1	No
V_SLV	0.083	SLV 1	No
PF_SLU	3.755	SLU 84	Si
V_SLU	0.14	SLU 82	No

Trave di accoppiamento 84

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1283.8	666.1	483	573	90	-1193.8	666.1	483	573	90	90	28	3500



## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-796	4056	103792	SLU 60	25.59	Si
fin.	3	-2502	43231	103792	SLU 60	2.4	Si
ini.	3	-809	4451	103792	SLU 73	23.32	Si
fin.	3	-2575	44797	103792	SLU 73	2.32	Si
ini.	3	-839	4543	103792	SLU 81	22.85	Si
fin.	3	-2716	47544	103792	SLU 81	2.18	Si
ini.	3	-791	4024	103792	SLU 61	25.79	Si
fin.	3	-2499	43223	103792	SLU 61	2.4	Si
ini.	3	-835	4511	103792	SLU 82	23.01	Si
fin.	3	-2713	47535	103792	SLU 82	2.18	Si
ini.	3	-798	5050	103792	SLU 83	20.55	Si
fin.	3	-2566	44953	103792	SLU 83	2.31	Si
ini.	3	-789	4929	103792	SLU 75	21.06	Si
fin.	3	-2496	43461	103792	SLU 75	2.39	Si
ini.	3	-793	4961	103792	SLU 74	20.92	Si
fin.	3	-2500	43469	103792	SLU 74	2.39	Si
ini.	3	-794	5018	103792	SLU 84	20.68	Si
fin.	3	-2563	44944	103792	SLU 84	2.31	Si
ini.	3	-768	4958	103792	SLU 76	20.93	Si
fin.	3	-2425	42205	103792	SLU 76	2.46	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	4543	-1249			970	365	SLU 81	0.29	No
fin.	3	0	47544	3864			970	365	SLU 81	0.09	No
ini.	3	0	4511	-1246			970	365	SLU 82	0.29	No
fin.	3	0	47535	3862			970	365	SLU 82	0.09	No
ini.	3	0	4929	-1350			970	365	SLU 75	0.27	No
fin.	3	0	43461	3702			970	365	SLU 75	0.1	No
ini.	3	0	4451	-1225			970	365	SLU 73	0.3	No
fin.	3	0	44797	3678			970	365	SLU 73	0.1	No
ini.	3	0	5437	-1455			970	365	SLU 78	0.25	No
fin.	3	0	40869	3631			970	365	SLU 78	0.1	No
ini.	3	0	4961	-1352			970	365	SLU 74	0.27	No
fin.	3	0	43469	3704			970	365	SLU 74	0.1	No
ini.	3	0	5469	-1458			970	365	SLU 77	0.25	No
fin.	3	0	40878	3632			970	365	SLU 77	0.1	No
ini.	3	0	5018	-1351			970	365	SLU 84	0.27	No
fin.	3	0	44944	3791			970	365	SLU 84	0.1	No
ini.	3	0	5050	-1354			970	365	SLU 83	0.27	No
fin.	3	0	44953	3793			970	365	SLU 83	0.1	No
ini.	3	0	4958	-1330			970	365	SLU 76	0.27	No
fin.	3	0	42205	3607			970	365	SLU 76	0.1	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	3710	-90999	121694	SLV 2	1.34	Si
fin.	2	-5820	132382	121694	SLV 2	0.92	No
ini.	2	-4036	87852	121694	SLV 13	1.39	Si
fin.	2	2326	-51227	121694	SLV 13	2.38	Si
ini.	2	3710	-90999	121694	SLV 1	1.34	Si
fin.	2	-5820	132382	121694	SLV 1	0.92	No
ini.	2	-4036	87852	121694	SLV 14	1.39	Si
fin.	2	2326	-51227	121694	SLV 14	2.38	Si
ini.	2	-4893	97627	121694	SLV 16	1.25	Si
fin.	2	2250	-71505	121694	SLV 16	1.7	Si
ini.	2	2853	-81225	121694	SLV 4	1.5	Si
fin.	2	-5896	112104	121694	SLV 4	1.09	Si
ini.	2	1999	-39805	121694	SLV 5	3.06	Si
fin.	2	-2881	91776	121694	SLV 5	1.33	Si
ini.	2	1999	-39805	121694	SLV 6	3.06	Si
fin.	2	-2881	91776	121694	SLV 6	1.33	Si
ini.	2	-4893	97627	121694	SLV 15	1.25	Si
fin.	2	2250	-71505	121694	SLV 15	1.7	Si
ini.	2	2853	-81225	121694	SLV 3	1.5	Si
fin.	2	-5896	112104	121694	SLV 3	1.09	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-37949	1750			1456	548	SLD 1	0.31	No
fin.	2	0	75010	5104			1456	548	SLD 1	0.11	No
ini.	2	0	97627	-6950			1456	548	SLV 16	0.08	No
fin.	2	0	-71505	-3289			1456	548	SLV 16	0.17	No
ini.	2	0	-81225	4516			1456	548	SLV 4	0.12	No
fin.	2	0	112104	8155			1456	548	SLV 4	0.07	No
ini.	2	0	87852	-6316			1456	548	SLV 14	0.09	No
fin.	2	0	-51227	-3058			1456	548	SLV 14	0.18	No
ini.	2	0	87852	-6316			1456	548	SLV 13	0.09	No
fin.	2	0	-51227	-3058			1456	548	SLV 13	0.18	No
ini.	2	0	97627	-6950			1456	548	SLV 15	0.08	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-71505	-3289			1456	548	SLV 15	0.17	No
ini.	2	0	-37949	1750			1456	548	SLD 2	0.31	No
fin.	2	0	75010	5104			1456	548	SLD 2	0.11	No
ini.	2	0	-90999	5150			1456	548	SLV 2	0.11	No
fin.	2	0	132382	8386			1456	548	SLV 2	0.07	No
ini.	2	0	-81225	4516			1456	548	SLV 3	0.12	No
fin.	2	0	112104	8155			1456	548	SLV 3	0.07	No
ini.	2	0	-90999	5150			1456	548	SLV 1	0.11	No
fin.	2	0	132382	8386			1456	548	SLV 1	0.07	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.919	SLV 1	No
V_SLV	0.065	SLV 1	No
PF_SLU	2.183	SLU 81	Si
V_SLU	0.095	SLU 81	No

## Trave di accoppiamento 85

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1283.8	666.1	753	835	82	-1193.8	666.1	753	835	82	90	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	t <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1489	-36078	89792	SLU 75	2.49	Si
fin.	3	-487	-1190	89792	SLU 75	75.43	Si
ini.	3	-1549	-37270	89792	SLU 83	2.41	Si
fin.	3	-515	-1055	89792	SLU 83	85.11	Si
ini.	3	-1810	-39603	89792	SLU 82	2.27	Si
fin.	3	-619	-304	89792	SLU 82	295.68	Si
ini.	3	-1668	-35859	89792	SLU 60	2.5	Si
fin.	3	-570	-268	89792	SLU 60	335.13	Si
ini.	3	-1548	-37259	89792	SLU 84	2.41	Si
fin.	3	-513	-1025	89792	SLU 84	87.59	Si
ini.	3	-1677	-37196	89792	SLU 73	2.41	Si
fin.	3	-571	-512	89792	SLU 73	175.42	Si
ini.	3	-1667	-35848	89792	SLU 61	2.5	Si
fin.	3	-568	-238	89792	SLU 61	377.11	Si
ini.	3	-1490	-36089	89792	SLU 74	2.49	Si
fin.	3	-488	-1220	89792	SLU 74	73.58	Si
ini.	3	-1415	-34852	89792	SLU 76	2.58	Si
fin.	3	-465	-1233	89792	SLU 76	72.8	Si
ini.	3	-1811	-39614	89792	SLU 81	2.27	Si
fin.	3	-621	-333	89792	SLU 81	269.24	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-36089	3846			806	303	SLU 74	0.08	No
fin.	3	0	-1220	-2621			806	303	SLU 74	0.12	No
ini.	3	0	-36078	3845			806	303	SLU 75	0.08	No
fin.	3	0	-1190	-2619			806	303	SLU 75	0.12	No
ini.	3	0	-39603	4088			806	303	SLU 82	0.07	No
fin.	3	0	-304	-2607			806	303	SLU 82	0.12	No
ini.	3	0	-33745	3753			806	303	SLU 77	0.08	No
fin.	3	0	-1942	-2742			806	303	SLU 77	0.11	No
ini.	3	0	-34852	3748			806	303	SLU 76	0.08	No
fin.	3	0	-1233	-2585			806	303	SLU 76	0.12	No
ini.	3	0	-37196	3840			806	303	SLU 73	0.08	No
fin.	3	0	-512	-2465			806	303	SLU 73	0.12	No
ini.	3	0	-33734	3753			806	303	SLU 78	0.08	No
fin.	3	0	-1912	-2740			806	303	SLU 78	0.11	No
ini.	3	0	-37259	3996			806	303	SLU 84	0.08	No
fin.	3	0	-1025	-2728			806	303	SLU 84	0.11	No
ini.	3	0	-39614	4088			806	303	SLU 81	0.07	No
fin.	3	0	-333	-2609			806	303	SLU 81	0.12	No
ini.	3	0	-37270	3996			806	303	SLU 83	0.08	No
fin.	3	0	-1055	-2730			806	303	SLU 83	0.11	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1606	49047	107694	SLV 13	2.2	Si
fin.	2	-3117	-63920	107694	SLV 13	1.68	Si
ini.	2	-3828	-99236	107694	SLV 3	1.09	Si
fin.	2	2361	62571	107694	SLV 3	1.72	Si
ini.	2	-3828	-99236	107694	SLV 4	1.09	Si
fin.	2	2361	62571	107694	SLV 4	1.72	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-2541	-62376	107694	SLV 6	1.73	Si
fin.	2	1513	33141	107694	SLV 6	3.25	Si
ini.	2	-2541	-62376	107694	SLV 5	1.73	Si
fin.	2	1513	33141	107694	SLV 5	3.25	Si
ini.	2	1945	57326	107694	SLV 16	1.88	Si
fin.	2	-3706	-72090	107694	SLV 16	1.49	Si
ini.	2	-4166	-107514	107694	SLV 1	1	Si
fin.	2	2950	70741	107694	SLV 1	1.52	Si
ini.	2	1606	49047	107694	SLV 14	2.2	Si
fin.	2	-3117	-63920	107694	SLV 14	1.68	Si
ini.	2	1945	57326	107694	SLV 15	1.88	Si
fin.	2	-3706	-72090	107694	SLV 15	1.49	Si
ini.	2	-4166	-107514	107694	SLV 2	1	Si
fin.	2	2950	70741	107694	SLV 2	1.52	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-62376	4668			1208	455	SLV 5	0.1	No
fin.	2	0	33141	699			1208	455	SLV 5	0.65	No
ini.	2	0	57326	-2117			1208	455	SLV 16	0.21	No
fin.	2	0	-72090	-6553			1208	455	SLV 16	0.07	No
ini.	2	0	57326	-2117			1208	455	SLV 15	0.21	No
fin.	2	0	-72090	-6553			1208	455	SLV 15	0.07	No
ini.	2	0	49047	-1666			1208	455	SLV 13	0.27	No
fin.	2	0	-63920	-5964			1208	455	SLV 13	0.08	No
ini.	2	0	-99236	6816			1208	455	SLV 4	0.07	No
fin.	2	0	62571	2641			1208	455	SLV 4	0.17	No
ini.	2	0	-107514	7267			1208	455	SLV 1	0.06	No
fin.	2	0	70741	3229			1208	455	SLV 1	0.14	No
ini.	2	0	-107514	7267			1208	455	SLV 2	0.06	No
fin.	2	0	70741	3229			1208	455	SLV 2	0.14	No
ini.	2	0	-62376	4668			1208	455	SLV 6	0.1	No
fin.	2	0	33141	699			1208	455	SLV 6	0.65	No
ini.	2	0	-99236	6816			1208	455	SLV 3	0.07	No
fin.	2	0	62571	2641			1208	455	SLV 3	0.17	No
ini.	2	0	49047	-1666			1208	455	SLV 14	0.27	No
fin.	2	0	-63920	-5964			1208	455	SLV 14	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	1.002	SLV 1	Si
V_SLV	0.063	SLV 1	No
PF_SLU	2.267	SLU 81	Si
V_SLU	0.074	SLU 81	No

## Trave di accoppiamento 86

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-795.8	666.1	483	573	90	-705.8	666.1	483	573	90	90	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

f <sub>b</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-3065	63423	103792	SLU 80	1.64	Si
fin.	3	-1549	-60068	103792	SLU 80	1.73	Si
ini.	3	-3220	66887	103792	SLU 82	1.55	Si
fin.	3	-1663	-61724	103792	SLU 82	1.68	Si
ini.	3	-3118	64587	103792	SLU 78	1.61	Si
fin.	3	-1576	-60952	103792	SLU 78	1.7	Si
ini.	3	-3223	67047	103792	SLU 84	1.55	Si
fin.	3	-1642	-62743	103792	SLU 84	1.65	Si
ini.	3	-3064	63364	103792	SLU 76	1.64	Si
fin.	3	-1567	-59202	103792	SLU 76	1.75	Si
ini.	3	-3113	64277	103792	SLU 74	1.61	Si
fin.	3	-1601	-59704	103792	SLU 74	1.74	Si
ini.	3	-3116	64427	103792	SLU 75	1.61	Si
fin.	3	-1597	-59933	103792	SLU 75	1.73	Si
ini.	3	-3116	64436	103792	SLU 77	1.61	Si
fin.	3	-1580	-60723	103792	SLU 77	1.71	Si
ini.	3	-3220	66896	103792	SLU 83	1.55	Si
fin.	3	-1645	-62514	103792	SLU 83	1.66	Si
ini.	3	-3218	66737	103792	SLU 81	1.56	Si
fin.	3	-1666	-61496	103792	SLU 81	1.69	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	64436	-4682			970	365	SLU 77	0.08	No





Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	-60723	-1070			970	365	SLU 77	0.34	No
ini.	3	0	64277	-4603			970	365	SLU 74	0.08	No
fin.	3	0	-59704	-1074			970	365	SLU 74	0.34	No
ini.	3	0	66896	-4748			970	365	SLU 83	0.08	No
fin.	3	0	-62514	-1141			970	365	SLU 83	0.32	No
ini.	3	0	64427	-4606			970	365	SLU 75	0.08	No
fin.	3	0	-59933	-1083			970	365	SLU 75	0.34	No
ini.	3	0	63273	-4599			970	365	SLU 79	0.08	No
fin.	3	0	-59839	-1059			970	365	SLU 79	0.34	No
ini.	3	0	67047	-4751			970	365	SLU 84	0.08	No
fin.	3	0	-62743	-1150			970	365	SLU 84	0.32	No
ini.	3	0	63423	-4602			970	365	SLU 80	0.08	No
fin.	3	0	-60068	-1069			970	365	SLU 80	0.34	No
ini.	3	0	66737	-4669			970	365	SLU 81	0.08	No
fin.	3	0	-61496	-1145			970	365	SLU 81	0.32	No
ini.	3	0	64587	-4686			970	365	SLU 78	0.08	No
fin.	3	0	-60952	-1079			970	365	SLU 78	0.34	No
ini.	3	0	66887	-4672			970	365	SLU 82	0.08	No
fin.	3	0	-61724	-1154			970	365	SLU 82	0.32	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	1686	-61895	121694	SLV 3	1.97	Si
fin.	2	-1724	130958	121694	SLV 3	0.93	No
ini.	2	-6435	153302	121694	SLV 15	0.79	No
fin.	2	-593	-186404	121694	SLV 15	0.65	No
ini.	2	-5884	146911	121694	SLV 14	0.83	No
fin.	2	-501	-208203	121694	SLV 14	0.58	No
ini.	2	-3758	88227	121694	SLD 14	1.38	Si
fin.	2	-846	-112791	121694	SLD 14	1.08	Si
ini.	2	-3758	88227	121694	SLD 13	1.38	Si
fin.	2	-846	-112791	121694	SLD 13	1.08	Si
ini.	2	-5884	146911	121694	SLV 13	0.83	No
fin.	2	-501	-208203	121694	SLV 13	0.58	No
ini.	2	-2399	64135	121694	SLV 10	1.9	Si
fin.	2	-788	-122558	121694	SLV 10	0.99	No
ini.	2	-2399	64135	121694	SLV 9	1.9	Si
fin.	2	-788	-122558	121694	SLV 9	0.99	No
ini.	2	1686	-61895	121694	SLV 4	1.97	Si
fin.	2	-1724	130958	121694	SLV 4	0.93	No
ini.	2	-6435	153302	121694	SLV 16	0.79	No
fin.	2	-593	-186404	121694	SLV 16	0.65	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	88227	-5484			1456	548	SLD 13	0.1	No
fin.	2	0	-112791	-3143			1456	548	SLD 13	0.17	No
ini.	2	0	85440	-5016			1456	548	SLV 11	0.11	No
fin.	2	0	-49895	-1651			1456	548	SLV 11	0.33	No
ini.	2	0	146911	-8608			1456	548	SLV 13	0.06	No
fin.	2	0	-208203	-6274			1456	548	SLV 13	0.09	No
ini.	2	0	153302	-8774			1456	548	SLV 16	0.06	No
fin.	2	0	-186404	-5875			1456	548	SLV 16	0.09	No
ini.	2	0	90988	-5553			1456	548	SLD 16	0.1	No
fin.	2	0	-103527	-2969			1456	548	SLD 16	0.18	No
ini.	2	0	153302	-8774			1456	548	SLV 15	0.06	No
fin.	2	0	-186404	-5875			1456	548	SLV 15	0.09	No
ini.	2	0	85440	-5016			1456	548	SLV 12	0.11	No
fin.	2	0	-49895	-1651			1456	548	SLV 12	0.33	No
ini.	2	0	146911	-8608			1456	548	SLV 14	0.06	No
fin.	2	0	-208203	-6274			1456	548	SLV 14	0.09	No
ini.	2	0	90988	-5553			1456	548	SLD 15	0.1	No
fin.	2	0	-103527	-2969			1456	548	SLD 15	0.18	No
ini.	2	0	88227	-5484			1456	548	SLD 14	0.1	No
fin.	2	0	-112791	-3143			1456	548	SLD 14	0.17	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.584	SLV 13	No
V_SLV	0.062	SLV 15	No
PF_SLU	1.548	SLU 84	Si
V_SLU	0.077	SLU 84	No

#### Trave di accoppiamento 87

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-795.8	666.1	753	835	82	-705.8	666.1	753	835	82	90	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb <sub>m</sub>	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2



#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	213	17845	89792	SLU 82	5.03	Si
fin.	3	-1059	-59467	89792	SLU 82	1.51	Si
ini.	3	427	20112	89792	SLU 77	4.46	Si
fin.	3	-952	-60072	89792	SLU 77	1.49	Si
ini.	3	312	18343	89792	SLU 74	4.9	Si
fin.	3	-975	-58300	89792	SLU 74	1.54	Si
ini.	3	438	20135	89792	SLU 79	4.46	Si
fin.	3	-932	-59229	89792	SLU 79	1.52	Si
ini.	3	209	17653	89792	SLU 81	5.09	Si
fin.	3	-1056	-59312	89792	SLU 81	1.51	Si
ini.	3	317	18535	89792	SLU 75	4.84	Si
fin.	3	-978	-58455	89792	SLU 75	1.54	Si
ini.	3	323	19422	89792	SLU 83	4.62	Si
fin.	3	-1033	-61084	89792	SLU 83	1.47	Si
ini.	3	431	20304	89792	SLU 78	4.42	Si
fin.	3	-955	-60227	89792	SLU 78	1.49	Si
ini.	3	327	19614	89792	SLU 84	4.58	Si
fin.	3	-1036	-61239	89792	SLU 84	1.47	Si
ini.	3	442	20327	89792	SLU 80	4.42	Si
fin.	3	-935	-59384	89792	SLU 80	1.51	Si

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	17653	924			806	303	SLU 81	0.33	No
fin.	3	0	-59312	-3666			806	303	SLU 81	0.08	No
ini.	3	0	20112	743			806	303	SLU 77	0.41	No
fin.	3	0	-60072	-3665			806	303	SLU 77	0.08	No
ini.	3	0	18535	818			806	303	SLU 75	0.37	No
fin.	3	0	-58455	-3594			806	303	SLU 75	0.08	No
ini.	3	0	20304	734			806	303	SLU 78	0.41	No
fin.	3	0	-60227	-3670			806	303	SLU 78	0.08	No
ini.	3	0	18343	826			806	303	SLU 74	0.37	No
fin.	3	0	-58300	-3588			806	303	SLU 74	0.08	No
ini.	3	0	20327	699			806	303	SLU 80	0.43	No
fin.	3	0	-59384	-3615			806	303	SLU 80	0.08	No
ini.	3	0	19614	832			806	303	SLU 84	0.36	No
fin.	3	0	-61239	-3748			806	303	SLU 84	0.08	No
ini.	3	0	19422	841			806	303	SLU 83	0.36	No
fin.	3	0	-61084	-3742			806	303	SLU 83	0.08	No
ini.	3	0	17845	915			806	303	SLU 82	0.33	No
fin.	3	0	-59467	-3672			806	303	SLU 82	0.08	No
ini.	3	0	20135	708			806	303	SLU 79	0.43	No
fin.	3	0	-59229	-3609			806	303	SLU 79	0.08	No

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	2170	102944	107694	SLV 14	1.05	Si
fin.	2	-2433	-132370	107694	SLV 14	0.81	No
ini.	2	978	46603	107694	SLD 15	2.31	Si
fin.	2	-1240	-78433	107694	SLD 15	1.37	Si
ini.	2	2034	92100	107694	SLV 15	1.17	Si
fin.	2	-2014	-131692	107694	SLV 15	0.82	No
ini.	2	1036	51197	107694	SLD 13	2.1	Si
fin.	2	-1420	-78818	107694	SLD 13	1.37	Si
ini.	2	-1868	-80953	107694	SLV 3	1.33	Si
fin.	2	1163	58328	107694	SLV 3	1.85	Si
ini.	2	1036	51197	107694	SLD 14	2.1	Si
fin.	2	-1420	-78818	107694	SLD 14	1.37	Si
ini.	2	978	46603	107694	SLD 16	2.31	Si
fin.	2	-1240	-78433	107694	SLD 16	1.37	Si
ini.	2	-1868	-80953	107694	SLV 4	1.33	Si
fin.	2	1163	58328	107694	SLV 4	1.85	Si
ini.	2	2170	102944	107694	SLV 13	1.05	Si
fin.	2	-2433	-132370	107694	SLV 13	0.81	No
ini.	2	2034	92100	107694	SLV 16	1.17	Si
fin.	2	-2014	-131692	107694	SLV 16	0.82	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-80953	4404			1208	455	SLV 3	0.1	No
fin.	2	0	58328	1711			1208	455	SLV 3	0.27	No
ini.	2	0	-80953	4404			1208	455	SLV 4	0.1	No
fin.	2	0	58328	1711			1208	455	SLV 4	0.27	No
ini.	2	0	55027	-1266			1208	455	SLV 9	0.36	No
fin.	2	0	-66654	-4445			1208	455	SLV 9	0.1	No
ini.	2	0	102944	-3198			1208	455	SLV 13	0.14	No
fin.	2	0	-132370	-6360			1208	455	SLV 13	0.07	No
ini.	2	0	92100	-2718			1208	455	SLV 16	0.17	No
fin.	2	0	-131692	-5760			1208	455	SLV 16	0.08	No
ini.	2	0	55027	-1266			1208	455	SLV 10	0.36	No
fin.	2	0	-66654	-4445			1208	455	SLV 10	0.1	No
ini.	2	0	102944	-3198			1208	455	SLV 14	0.14	No
fin.	2	0	-132370	-6360			1208	455	SLV 14	0.07	No
ini.	2	0	92100	-2718			1208	455	SLV 15	0.17	No
fin.	2	0	-131692	-5760			1208	455	SLV 15	0.08	No
ini.	2	0	51197	-1059			1208	455	SLD 13	0.43	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	2	0	-78818	-4089			1208	455	SLD 13	0.11	No
ini.	2	0	51197	-1059			1208	455	SLD 14	0.43	No
fin.	2	0	-78818	-4089			1208	455	SLD 14	0.11	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.814	SLV 13	No
V_SLV	0.072	SLV 13	No
PF_SLU	1.466	SLU 84	Si
V_SLU	0.081	SLU 84	No

## Trave di accoppiamento 88

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1986.8	104.6	693	835	142	-2066.8	104.6	693	835	142	80	28	3500

### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	300	93819	194792	SLU 70	2.08	Si
fin.	3	300	-70547	194792	SLU 70	2.76	Si
ini.	3	375	94064	194792	SLU 35	2.07	Si
fin.	3	375	-63963	194792	SLU 35	3.05	Si
ini.	3	331	99620	194792	SLU 71	1.96	Si
fin.	3	331	-76213	194792	SLU 71	2.56	Si
ini.	3	307	97047	194792	SLU 80	2.01	Si
fin.	3	307	-66923	194792	SLU 80	2.91	Si
ini.	3	276	93495	194792	SLU 72	2.08	Si
fin.	3	276	-70671	194792	SLU 72	2.76	Si
ini.	3	331	97371	194792	SLU 78	2	Si
fin.	3	331	-66799	194792	SLU 78	2.92	Si
ini.	3	386	103496	194792	SLU 77	1.88	Si
fin.	3	386	-72340	194792	SLU 77	2.69	Si
ini.	3	362	103172	194792	SLU 79	1.89	Si
fin.	3	362	-72465	194792	SLU 79	2.69	Si
ini.	3	351	93740	194792	SLU 37	2.08	Si
fin.	3	351	-64088	194792	SLU 37	3.04	Si
ini.	3	355	99944	194792	SLU 69	1.95	Si
fin.	3	355	-76088	194792	SLU 69	2.56	Si

### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	97371	-1101			1531	576	SLU 78	0.52	No
fin.	3	0	-66799	-3050			1531	576	SLU 78	0.19	No
ini.	3	0	93740	-1114			1531	576	SLU 37	0.52	No
fin.	3	0	-64088	-2865			1531	576	SLU 37	0.2	No
ini.	3	0	99620	-1442			1531	576	SLU 71	0.4	No
fin.	3	0	-76213	-3001			1531	576	SLU 71	0.19	No
ini.	3	0	103172	-1244			1531	576	SLU 79	0.46	No
fin.	3	0	-72465	-3194			1531	576	SLU 79	0.18	No
ini.	3	0	94064	-1117			1531	576	SLU 35	0.52	No
fin.	3	0	-63963	-2868			1531	576	SLU 35	0.2	No
ini.	3	0	93819	-1298			1531	576	SLU 70	0.44	No
fin.	3	0	-70547	-2857			1531	576	SLU 70	0.2	No
ini.	3	0	88986	-783			1531	576	SLU 83	0.74	No
fin.	3	0	-56499	-2901			1531	576	SLU 83	0.2	No
ini.	3	0	103496	-1246			1531	576	SLU 77	0.46	No
fin.	3	0	-72340	-3196			1531	576	SLU 77	0.18	No
ini.	3	0	99944	-1444			1531	576	SLU 69	0.4	No
fin.	3	0	-76088	-3003			1531	576	SLU 69	0.19	No
ini.	3	0	97047	-1098			1531	576	SLU 80	0.52	No
fin.	3	0	-66923	-3048			1531	576	SLU 80	0.19	No

### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	337	231952	212694	SLV 5	0.92	No
fin.	2	239	-206162	212694	SLV 5	1.03	Si
ini.	2	337	231952	212694	SLV 6	0.92	No
fin.	2	239	-206162	212694	SLV 6	1.03	Si
ini.	2	-293	-344102	212694	SLV 15	0.62	No
fin.	2	-12	347751	212694	SLV 15	0.61	No
ini.	2	607	445453	212694	SLV 1	0.48	No
fin.	2	326	-416382	212694	SLV 1	0.51	No
ini.	2	-263	-302667	212694	SLV 14	0.7	No
fin.	2	8	310020	212694	SLV 14	0.69	No
ini.	2	-293	-344102	212694	SLV 16	0.62	No
fin.	2	-12	347751	212694	SLV 16	0.61	No



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	607	445453	212694	SLV 2	0.48	No
fin.	2	326	-416382	212694	SLV 2	0.51	No
ini.	2	-263	-302667	212694	SLV 13	0.7	No
fin.	2	8	310020	212694	SLV 13	0.69	No
ini.	2	577	404018	212694	SLV 3	0.53	No
fin.	2	305	-378650	212694	SLV 3	0.56	No
ini.	2	577	404018	212694	SLV 4	0.53	No
fin.	2	305	-378650	212694	SLV 4	0.56	No

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	231952	-5039			2297	864	SLV 6	0.17	No
fin.	2	0	-206162	-6187			2297	864	SLV 6	0.14	No
ini.	2	0	404018	-9335			2297	864	SLV 4	0.09	No
fin.	2	0	-378650	-10515			2297	864	SLV 4	0.08	No
ini.	2	0	-302667	8413			2297	864	SLV 13	0.1	No
fin.	2	0	310020	7114			2297	864	SLV 13	0.12	No
ini.	2	0	-344102	9467			2297	864	SLV 15	0.09	No
fin.	2	0	347751	8128			2297	864	SLV 15	0.11	No
ini.	2	0	-302667	8413			2297	864	SLV 14	0.1	No
fin.	2	0	310020	7114			2297	864	SLV 14	0.12	No
ini.	2	0	231952	-5039			2297	864	SLV 5	0.17	No
fin.	2	0	-206162	-6187			2297	864	SLV 5	0.14	No
ini.	2	0	445453	-10390			2297	864	SLV 2	0.08	No
fin.	2	0	-416382	-11529			2297	864	SLV 2	0.07	No
ini.	2	0	-344102	9467			2297	864	SLV 16	0.09	No
fin.	2	0	347751	8128			2297	864	SLV 16	0.11	No
ini.	2	0	445453	-10390			2297	864	SLV 1	0.08	No
fin.	2	0	-416382	-11529			2297	864	SLV 1	0.07	No
ini.	2	0	404018	-9335			2297	864	SLV 3	0.09	No
fin.	2	0	-378650	-10515			2297	864	SLV 3	0.08	No

Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.477	SLV 1	No
V_SLV	0.075	SLV 1	No
PF_SLU	1.882	SLU 77	Si
V_SLU	0.18	SLU 77	No

## Trave di accoppiamento 89

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-1116.3	104.6	733	835	102	-1228.3	104.6	733	835	102	112	28	3500

Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	fhk	fvk0	fhmmedio	t0	fv0	μ	φ	fvk,lim	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1495	-78169	124792	SLU 38	1.6	Si
fin.	3	-1495	28436	124792	SLU 38	4.39	Si
ini.	3	-1798	-78171	124792	SLU 84	1.6	Si
fin.	3	-1798	27054	124792	SLU 84	4.61	Si
ini.	3	-1418	-78452	124792	SLU 35	1.59	Si
fin.	3	-1418	27083	124792	SLU 35	4.61	Si
ini.	3	-1431	-79780	124792	SLU 37	1.56	Si
fin.	3	-1431	27369	124792	SLU 37	4.56	Si
ini.	3	-1362	-78539	124792	SLU 71	1.59	Si
fin.	3	-1362	39477	124792	SLU 71	3.16	Si
ini.	3	-1677	-83003	124792	SLU 78	1.5	Si
fin.	3	-1677	34967	124792	SLU 78	3.57	Si
ini.	3	-1626	-85942	124792	SLU 79	1.45	Si
fin.	3	-1626	34187	124792	SLU 79	3.65	Si
ini.	3	-1689	-84331	124792	SLU 80	1.48	Si
fin.	3	-1689	35253	124792	SLU 80	3.54	Si
ini.	3	-1734	-79782	124792	SLU 83	1.56	Si
fin.	3	-1734	25988	124792	SLU 83	4.8	Si
ini.	3	-1613	-84614	124792	SLU 77	1.47	Si
fin.	3	-1613	33901	124792	SLU 77	3.68	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-68838	2322			1002	377	SLU 82	0.16	No
fin.	3	0	21122	-647			1002	377	SLU 82	0.58	No
ini.	3	0	-85942	2435			1002	377	SLU 79	0.15	No
fin.	3	0	34187	-231			1002	377	SLU 79	1.63	Si
ini.	3	0	-84331	2430			1002	377	SLU 80	0.16	No
fin.	3	0	35253	-236			1002	377	SLU 80	1.6	Si
ini.	3	0	-75281	2284			1002	377	SLU 74	0.17	No



Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
fin.	3	0	27968	-382			1002	377	SLU 74	0.99	No
ini.	3	0	-83003	2416			1002	377	SLU 78	0.16	No
fin.	3	0	34967	-250			1002	377	SLU 78	1.51	Si
ini.	3	0	-70450	2327			1002	377	SLU 81	0.16	No
fin.	3	0	20056	-642			1002	377	SLU 81	0.59	No
ini.	3	0	-78171	2458			1002	377	SLU 84	0.15	No
fin.	3	0	27054	-510			1002	377	SLU 84	0.74	No
ini.	3	0	-84614	2421			1002	377	SLU 77	0.16	No
fin.	3	0	33901	-245			1002	377	SLU 77	1.54	Si
ini.	3	0	-79782	2463			1002	377	SLU 83	0.15	No
fin.	3	0	25988	-505			1002	377	SLU 83	0.75	No
ini.	3	0	-73924	2291			1002	377	SLU 76	0.16	No
fin.	3	0	30032	-375			1002	377	SLU 76	1	Si

#### Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-64	-235165	142694	SLV 15	0.61	No
fin.	2	333	445781	142694	SLV 15	0.32	No
ini.	2	-2233	227637	142694	SLV 3	0.63	No
fin.	2	-2573	-467259	142694	SLV 3	0.31	No
ini.	2	105	-317176	142694	SLV 14	0.45	No
fin.	2	445	507113	142694	SLV 14	0.28	No
ini.	2	-457	-250874	142694	SLV 9	0.57	No
fin.	2	-440	259104	142694	SLV 9	0.55	No
ini.	2	-2233	227637	142694	SLV 4	0.63	No
fin.	2	-2573	-467259	142694	SLV 4	0.31	No
ini.	2	-2064	145626	142694	SLV 2	0.98	No
fin.	2	-2460	-405927	142694	SLV 2	0.35	No
ini.	2	-2064	145626	142694	SLV 1	0.98	No
fin.	2	-2460	-405927	142694	SLV 1	0.35	No
ini.	2	-64	-235165	142694	SLV 16	0.61	No
fin.	2	333	445781	142694	SLV 16	0.32	No
ini.	2	-457	-250874	142694	SLV 10	0.57	No
fin.	2	-440	259104	142694	SLV 10	0.55	No
ini.	2	105	-317176	142694	SLV 13	0.45	No
fin.	2	445	507113	142694	SLV 13	0.28	No

#### Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	227637	-5281			1503	565	SLV 3	0.11	No
fin.	2	0	-467259	-7278			1503	565	SLV 3	0.08	No
ini.	2	0	-235165	6690			1503	565	SLV 16	0.08	No
fin.	2	0	445781	5558			1503	565	SLV 16	0.1	No
ini.	2	0	-317176	8079			1503	565	SLV 14	0.07	No
fin.	2	0	507113	6854			1503	565	SLV 14	0.08	No
ini.	2	0	227637	-5281			1503	565	SLV 4	0.11	No
fin.	2	0	-467259	-7278			1503	565	SLV 4	0.08	No
ini.	2	0	-250874	5510			1503	565	SLV 10	0.1	No
fin.	2	0	259104	3873			1503	565	SLV 10	0.15	No
ini.	2	0	145626	-3892			1503	565	SLV 2	0.15	No
fin.	2	0	-405927	-5982			1503	565	SLV 2	0.09	No
ini.	2	0	145626	-3892			1503	565	SLV 1	0.15	No
fin.	2	0	-405927	-5982			1503	565	SLV 1	0.09	No
ini.	2	0	-235165	6690			1503	565	SLV 15	0.08	No
fin.	2	0	445781	5558			1503	565	SLV 15	0.1	No
ini.	2	0	-317176	8079			1503	565	SLV 13	0.07	No
fin.	2	0	507113	6854			1503	565	SLV 13	0.08	No
ini.	2	0	-250874	5510			1503	565	SLV 9	0.1	No
fin.	2	0	259104	3873			1503	565	SLV 9	0.15	No

#### Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.281	SLV 13	No
V_SLV	0.07	SLV 13	No
PF_SLU	1.452	SLU 79	Si
V_SLU	0.153	SLU 83	No

## Trave di accoppiamento 90

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

#### Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-938.6	104.6	733	835	102	-1046.6	104.6	733	835	102	108	28	3500

#### Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

#### Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1021	-36397	124792	SLU 10	3.43	Si
fin.	3	-1021	3952	124792	SLU 10	31.58	Si



Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1099	-36415	124792	SLU 54	3.43	Si
fin.	3	-1099	-3220	124792	SLU 54	38.75	Si
ini.	3	-1158	-37423	124792	SLU 55	3.33	Si
fin.	3	-1158	-3117	124792	SLU 55	40.04	Si
ini.	3	-1162	-40719	124792	SLU 60	3.06	Si
fin.	3	-1162	1298	124792	SLU 60	96.12	Si
ini.	3	-857	7348	124792	SLU 29	16.98	Si
fin.	3	-857	-35871	124792	SLU 29	3.48	Si
ini.	3	-1223	-45796	124792	SLU 61	2.72	Si
fin.	3	-1223	5036	124792	SLU 61	24.78	Si
ini.	3	-1209	-36016	124792	SLU 63	3.46	Si
fin.	3	-1209	-5378	124792	SLU 63	23.21	Si
ini.	3	-958	-42587	124792	SLU 44	2.93	Si
fin.	3	-958	6757	124792	SLU 44	18.47	Si
ini.	3	-1350	-36093	124792	SLU 73	3.46	Si
fin.	3	-1350	-4927	124792	SLU 73	25.33	Si
ini.	3	-1172	-47203	124792	SLU 52	2.64	Si
fin.	3	-1172	7297	124792	SLU 52	17.1	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	357	1131			1039	391	SLU 35	0.35	No
fin.	3	0	-32941	-1735			1039	391	SLU 35	0.23	No
ini.	3	0	-29609	1895			1039	391	SLU 81	0.21	No
fin.	3	0	-10925	-1533			1039	391	SLU 81	0.25	No
ini.	3	0	-47203	1757			1039	391	SLU 52	0.22	No
fin.	3	0	7297	-732			1039	391	SLU 52	0.53	No
ini.	3	0	-40719	1804			1039	391	SLU 60	0.22	No
fin.	3	0	1298	-1010			1039	391	SLU 60	0.39	No
ini.	3	0	2733	1086			1039	391	SLU 37	0.36	No
fin.	3	0	-35331	-1779			1039	391	SLU 37	0.22	No
ini.	3	0	-24907	1790			1039	391	SLU 84	0.22	No
fin.	3	0	-17601	-1638			1039	391	SLU 84	0.24	No
ini.	3	0	-8072	1338			1039	391	SLU 79	0.29	No
fin.	3	0	-31985	-1765			1039	391	SLU 79	0.22	No
ini.	3	0	-45796	1886			1039	391	SLU 61	0.21	No
fin.	3	0	5036	-929			1039	391	SLU 61	0.42	No
ini.	3	0	-36093	1848			1039	391	SLU 73	0.21	No
fin.	3	0	-4927	-1255			1039	391	SLU 73	0.31	No
ini.	3	0	-34686	1977			1039	391	SLU 82	0.2	No
fin.	3	0	-7187	-1451			1039	391	SLU 82	0.27	No

Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-948	-262836	142694	SLV 12	0.54	No
fin.	2	-844	175512	142694	SLV 12	0.81	No
ini.	2	-974	-398499	142694	SLV 16	0.36	No
fin.	2	-578	111164	142694	SLV 16	1.28	Si
ini.	2	-663	355570	142694	SLV 1	0.4	No
fin.	2	-1058	-123478	142694	SLV 1	1.16	Si
ini.	2	-919	-313932	142694	SLV 13	0.45	No
fin.	2	-514	14588	142694	SLV 13	9.78	Si
ini.	2	-919	-313932	142694	SLV 14	0.45	No
fin.	2	-514	14588	142694	SLV 14	9.78	Si
ini.	2	-663	355570	142694	SLV 2	0.4	No
fin.	2	-1058	-123478	142694	SLV 2	1.16	Si
ini.	2	-974	-398499	142694	SLV 15	0.36	No
fin.	2	-578	111164	142694	SLV 15	1.28	Si
ini.	2	-717	271002	142694	SLV 3	0.53	No
fin.	2	-1123	-26902	142694	SLV 3	5.3	Si
ini.	2	-948	-262836	142694	SLV 11	0.54	No
fin.	2	-844	175512	142694	SLV 11	0.81	No
ini.	2	-717	271002	142694	SLV 4	0.53	No
fin.	2	-1123	-26902	142694	SLV 4	5.3	Si

Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	2	0	-313932	4317			1558	586	SLV 13	0.14	No
fin.	2	0	14588	2118			1558	586	SLV 13	0.28	No
ini.	2	0	-398499	6032			1558	586	SLV 16	0.1	No
fin.	2	0	111164	3881			1558	586	SLV 16	0.15	No
ini.	2	0	219906	-2992			1558	586	SLV 6	0.2	No
fin.	2	0	-187826	-4872			1558	586	SLV 6	0.12	No
ini.	2	0	219906	-2992			1558	586	SLV 5	0.2	No
fin.	2	0	-187826	-4872			1558	586	SLV 5	0.12	No
ini.	2	0	355570	-3850			1558	586	SLV 1	0.15	No
fin.	2	0	-123478	-5472			1558	586	SLV 1	0.11	No
ini.	2	0	-262836	5174			1558	586	SLV 12	0.11	No
fin.	2	0	175512	3281			1558	586	SLV 12	0.18	No
ini.	2	0	-398499	6032			1558	586	SLV 15	0.1	No
fin.	2	0	111164	3881			1558	586	SLV 15	0.15	No
ini.	2	0	355570	-3850			1558	586	SLV 2	0.15	No
fin.	2	0	-123478	-5472			1558	586	SLV 2	0.11	No
ini.	2	0	-262836	5174			1558	586	SLV 11	0.11	No
fin.	2	0	175512	3281			1558	586	SLV 11	0.18	No
ini.	2	0	-313932	4317			1558	586	SLV 14	0.14	No
fin.	2	0	14588	2118			1558	586	SLV 14	0.28	No



Tabella dei coefficienti di sicurezza minimi

Stato limite	Coeff.s.	Comb.	Verifica
PF_SLV	0.358	SLV 15	No
V_SLV	0.097	SLV 15	No
PF_SLU	2.644	SLU 52	Si
V_SLU	0.198	SLU 82	No

## Trave di accoppiamento 91

Verifiche condotte secondo D.M. 17-01-18 (N.T.C.)

## Dati geometrici

X ini.	Y ini.	Z ini.inf.	Z ini.sup.	H ini.	X fin.	Y fin.	Z fin.inf.	Z fin.sup.	H fin.	Luce	Spessore	R. Trazione
-647.8	104.6	693	835	142	-727.8	104.6	693	835	142	80	28	3500

## Caratteristiche del materiale

(Circolare 7 21-01-19 C8.5.I) Muratura in mattoni pieni e malta di calce LC2\_Corti

fb_	f <sub>hk</sub>	f <sub>vk0</sub>	f <sub>hmedio</sub>	τ <sub>0</sub>	f <sub>v0</sub>	μ	φ	f <sub>vk,lim</sub>	E	G	FC
12			17.25	0.9	2	0.577	0.767	0.65	32000	12800	1.2

## Verifiche a pressoflessione delle travi in muratura in combinazioni non sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	3	-1076	-116180	194792	SLU 80	1.68	Si
fin.	3	-1076	130236	194792	SLU 80	1.5	Si
ini.	3	-1072	-118853	194792	SLU 40	1.64	Si
fin.	3	-1072	130343	194792	SLU 40	1.49	Si
ini.	3	-1189	-129545	194792	SLU 84	1.5	Si
fin.	3	-1189	143192	194792	SLU 84	1.36	Si
ini.	3	-1197	-121320	194792	SLU 83	1.61	Si
fin.	3	-1197	136462	194792	SLU 83	1.43	Si
ini.	3	-1085	-121895	194792	SLU 75	1.6	Si
fin.	3	-1085	135354	194792	SLU 75	1.44	Si
ini.	3	-1055	-119587	194792	SLU 78	1.63	Si
fin.	3	-1055	134750	194792	SLU 78	1.45	Si
ini.	3	-1101	-123970	194792	SLU 76	1.57	Si
fin.	3	-1101	135327	194792	SLU 76	1.44	Si
ini.	3	-1226	-123628	194792	SLU 81	1.58	Si
fin.	3	-1226	137067	194792	SLU 81	1.42	Si
ini.	3	-1130	-126277	194792	SLU 73	1.54	Si
fin.	3	-1130	135931	194792	SLU 73	1.43	Si
ini.	3	-1218	-131852	194792	SLU 82	1.48	Si
fin.	3	-1218	143796	194792	SLU 82	1.35	Si

## Verifiche a taglio delle travi in muratura secondo §C8.7.1.3.1 in combinazioni non sismiche

Sezione	yM	N	M	V	Vt	Vp	Vt fess. diag.	Vt,lim	Comb.	c.s.	Verifica
ini.	3	0	-123970	4224			1531	576	SLU 76	0.14	No
fin.	3	0	135327	2186			1531	576	SLU 76	0.26	No
ini.	3	0	-129545	4483			1531	576	SLU 84	0.13	No
fin.	3	0	143192	2264			1531	576	SLU 84	0.25	No
ini.	3	0	-121320	4296			1531	576	SLU 83	0.13	No
fin.	3	0	136462	2077			1531	576	SLU 83	0.28	No
ini.	3	0	-119587	4162			1531	576	SLU 78	0.14	No
fin.	3	0	134750	2124			1531	576	SLU 78	0.27	No
ini.	3	0	-121895	4199			1531	576	SLU 75	0.14	No
fin.	3	0	135354	2160			1531	576	SLU 75	0.27	No
ini.	3	0	-126277	4261			1531	576	SLU 73	0.14	No
fin.	3	0	135931	2222			1531	576	SLU 73	0.26	No
ini.	3	0	-123628	4332			1531	576	SLU 81	0.13	No
fin.	3	0	137067	2113			1531	576	SLU 81	0.27	No
ini.	3	0	-116180	4063			1531	576	SLU 80	0.14	No
fin.	3	0	130236	2025			1531	576	SLU 80	0.28	No
ini.	3	0	-118853	4097			1531	576	SLU 40	0.14	No
fin.	3	0	130343	2079			1531	576	SLU 40	0.28	No
ini.	3	0	-131852	4519			1531	576	SLU 82	0.13	No
fin.	3	0	143796	2300			1531	576	SLU 82	0.25	No

## Verifiche a pressoflessione delle travi in muratura in combinazioni sismiche

Sezione	yM	N	M	Mu	Comb.	c.s.	Verifica
ini.	2	-1057	-309005	212694	SLV 14	0.69	No
fin.	2	-782	425524	212694	SLV 14	0.5	No
ini.	2	-982	-218358	212694	SLV 12	0.97	No
fin.	2	-897	260376	212694	SLV 12	0.82	No
ini.	2	-1057	-309005	212694	SLV 13	0.69	No
fin.	2	-782	425524	212694	SLV 13	0.5	No
ini.	2	-450	167016	212694	SLV 4	1.27	Si
fin.	2	-725	-269238	212694	SLV 4	0.79	No
ini.	2	-982	-218358	212694	SLV 11	0.97	No
fin.	2	-897	260376	212694	SLV 11	0.82	No
ini.	2	-375	208829	212694	SLV 1	1.02	Si
fin.	2	-651	-312184	212694	SLV 1	0.68	No
ini.	2	-1132	-350818	212694	SLV 15	0.61	No
fin.	2	-856	468470	212694	SLV 15	0.45	No
ini.	2	-450	167016	212694	SLV 3	1.27	Si
fin.	2	-725	-269238	212694	SLV 3	0.79	No
ini.	2	-375	208829	212694	SLV 2	1.02	Si